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INTRODUCTION

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BODY CODE PLATE

DESCRIPTION

A metal Body Code plate is located in the engine compartment and attached to the top of the right frame rail. The information listed on the plate (Fig. 1) is used for manufacturing and service purposes.

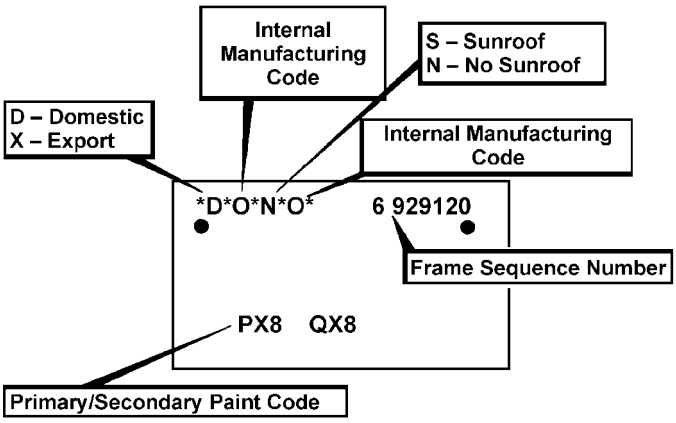


Fig. 1 Body Code Plate

FASTENER IDENTIFICATION

DESCRIPTION

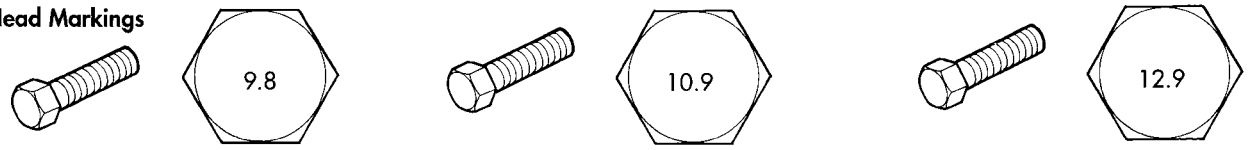
The SAE bolt strength grades range from grade 2 to grade 8. The higher the grade number, the greater the bolt strength. Identification is determined by the line marks on the top of each bolt head. The actual bolt strength grade corresponds to the number of line marks plus 2. The most commonly used metric bolt strength classes are 9.8 and 10.9. The metric strength class identification number is imprinted on the head of the bolt. The higher the class number, the greater the bolt strength. Some metric nuts are imprinted with a single-digit strength class on the nut face. Refer to the Fastener Identification and Fastener Strength Charts (Fig. 2) and (Fig. 3).

FASTENER IDENTIFICATION (Continued)

Bolt Markings and Torque - Metric

Commercial Steel Class

Bolt Head Markings

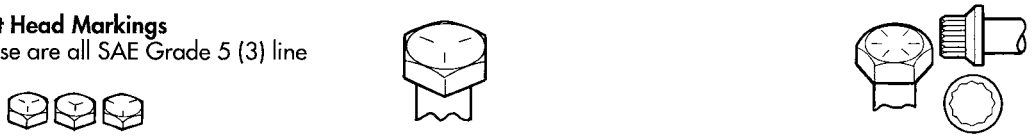


Body Size	9.8 Torque				10.9 Torque				12.9 Torque			
Diam.	Cast Iron		Aluminum		Cast Iron		Aluminum		Cast Iron		Aluminum	
mm	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb
6	9	5	7	4	14	9	11	7	14	9	11	7
7	14	9	11	7	18	14	14	11	23	18	18	14
8	25	18	18	14	32	23	25	18	36	27	28	21
10	40	30	30	25	60	45	45	35	70	50	55	40
12	70	55	55	40	105	75	80	60	125	95	100	75
14	115	85	90	65	160	120	125	95	195	145	150	110
16	180	130	140	100	240	175	190	135	290	210	220	165
18	230	170	180	135	320	240	250	185	400	290	310	230

Bolt Markings and Torque Values - U.S. Customary

SAE Grade Number 5 8

Bolt Head Markings
These are all SAE Grade 5 (3) line



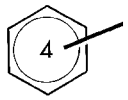
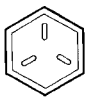
Body Size	Bolt Torque - Grade 5 Bolt: Cast Iron		Aluminum		Bolt Torque - Grade 8 Bolt: Cast Iron		Aluminum	
	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb
1/4 - 20	9	7	8	6	15	11	12	9
- 28	12	9	9	7	18	13	14	10
5/16 - 18	20	15	16	12	30	22	24	18
- 24	23	17	19	14	33	24	25	19
3/8 - 16	40	30	25	20	55	40	40	30
- 24	40	30	35	25	60	45	45	35
7/16 - 14	60	45	45	35	90	65	65	50
- 20	65	50	55	40	95	70	75	55
1/2 - 13	95	70	75	55	130	95	100	75
- 20	100	75	80	60	150	110	120	90
9/16 - 12	135	100	110	80	190	140	150	110
- 18	150	110	115	85	210	155	170	125
5/8 - 11	180	135	150	110	255	190	205	150
- 18	210	155	160	120	290	215	230	170
3/4 - 10	325	240	255	190	460	340	365	270
- 16	365	270	285	210	515	380	410	300
7/8 - 9	490	360	380	280	745	550	600	440
- 14	530	390	420	310	825	610	660	490
1 - 8	720	530	570	420	1100	820	890	660
- 14	800	590	650	480	1200	890	960	710

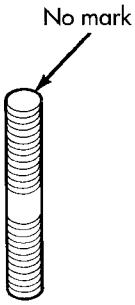
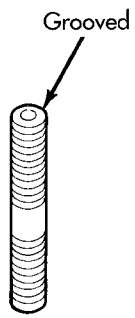
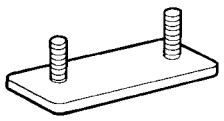
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Fig. 2 FASTENER IDENTIFICATION

FASTENER IDENTIFICATION (Continued)

HOW TO DETERMINE BOLT STRENGTH

	Mark	Class
Hexagon head bolt	 Bolt head No. 4 — 4T; 5 — 5T; 6 — 6T; 7 — 7T; 8 — 8T; 9 — 9T; 10 — 10T; 11 — 11T	
	 No mark	4T
Hexagon flange bolt w/washer hexagon bolt	 No mark	4T
Hexagon head bolt	 Two protruding lines	5T
Hexagon flange bolt w/washer hexagon bolt	 Two protruding lines	6T
Hexagon head bolt	 Three protruding lines	7T
Hexagon head bolt	 Four protruding lines	8T

	Mark	Class
Stud bolt	 No mark	4T
	 Grooved	6T
Welded bolt		4T

95IN-4

Fig. 3 FASTENER STRENGTH

FASTENER USAGE

DESCRIPTION - FASTENER USAGE

WARNING: USE OF AN INCORRECT FASTENER MAY RESULT IN COMPONENT DAMAGE OR PERSONAL INJURY.

Fasteners and torque specifications references in this Service Manual are identified in metric and SAE format.

During any maintenance or repair procedures, it is important to salvage all fasteners (nuts, bolts, etc.) for reassembly. If the fastener is not salvageable, a fastener of equivalent specification must be used.

THREADED HOLE REPAIR

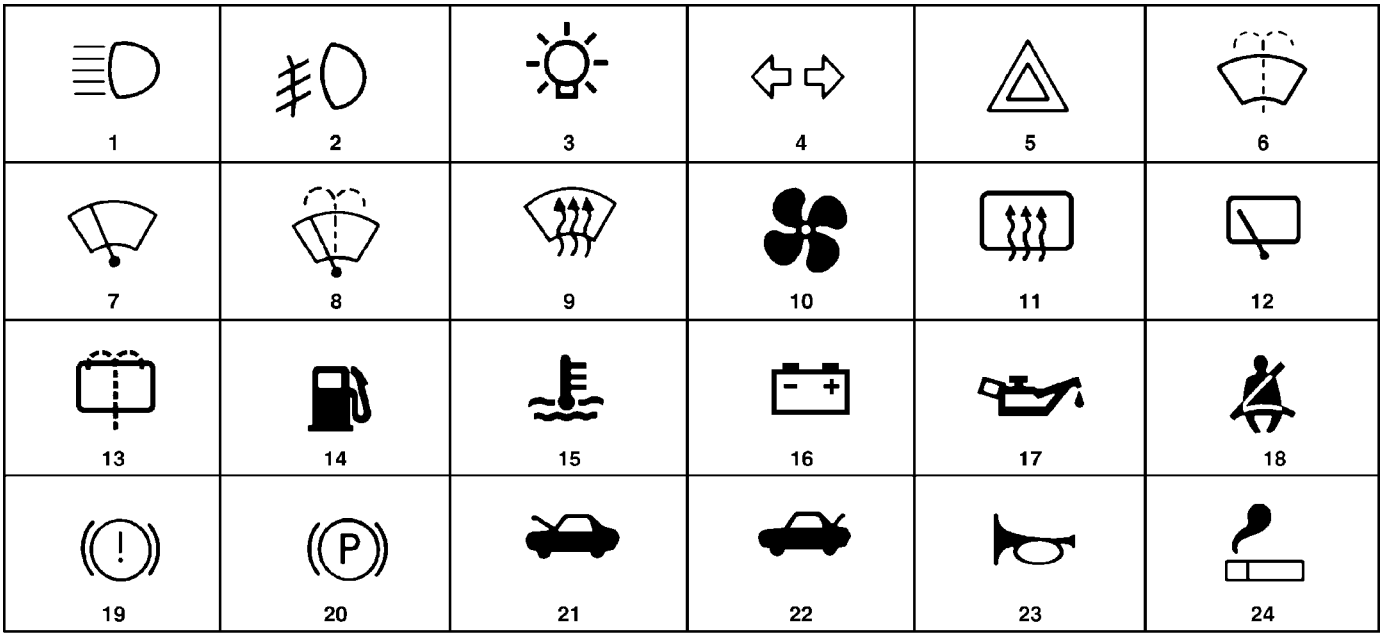
DESCRIPTION - THREADED HOLE REPAIR

Most stripped threaded holes can be repaired using a Helicoil®. Follow the vehicle or Helicoil® recommendations for application and repair procedures.

INTERNATIONAL SYMBOLS

DESCRIPTION - INTERNATIONAL SYMBOLS

The graphic symbols illustrated in the following International Control and Display Symbols Chart are used to identify various instrument controls. The symbols correspond to the controls and displays that are located on the instrument panel.



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INTERNATIONAL SYMBOLS

1	High Beam	13	Rear Window Washer
2	Fog Lamps	14	Fuel
3	Headlamp, Parking Lamps, Panel Lamps	15	Engine Coolant Temperature
4	Turn Warning	16	Battery Charging Condition
5	Hazard Warning	17	Engine Oil
6	Windshield Washer	18	Seat Belt
7	Windshield Wiper	19	Brake Failure
8	Windshield Wiper and Washer	20	Parking Brake
9	Windscreen Demisting and Defrosting	21	Front Hood
10	Ventilating Fan	22	Rear hood (Decklid)
11	Rear Window Defogger	23	Horn
12	Rear Window Wiper	24	Lighter

METRIC SYSTEM

DESCRIPTION

The metric system is based on quantities of one, ten, one hundred, one thousand and one million.

The following chart will assist in converting metric units to equivalent English and SAE units, or vise versa.

CONVERSION FORMULAS AND EQUIVALENT VALUES

MULTIPLY	BY	TO GET	MULTIPLY	BY	TO GET
in-lbs	x 0.11298	= Newton Meters (N·m)	N·m	x 8.851	= in-lbs
ft-lbs	x 1.3558	= Newton Meters (N·m)	N·m	x 0.7376	= ft-lbs
Inches Hg (60° F)	x 3.377	= Kilopascals (kPa)	kPa	x 0.2961	= Inches Hg
psi	x 6.895	= Kilopascals (kPa)	kPa	x 0.145	= psi
Inches	x 25.4	= Millimeters (mm)	mm	x 0.03937	= Inches
Feet	x 0.3048	= Meters (M)	M	x 3.281	= Feet
Yards	x 0.9144	= Meters	M	x 1.0936	= Yards
mph	x 1.6093	= Kilometers/Hr. (Km/h)	Km/h	x 0.6214	= mph
Feet/Sec	x 0.3048	= Meters/Sec (M/S)	M/S	x 3.281	= Feet/Sec
mph	x 0.4470	= Meters/Sec (M/S)	M/S	x 2.237	= mph
Kilometers/Hr. (Km/h)	x 0.27778	= Meters/Sec (M/S)	M/S	x 3.600	Kilometers/Hr. (Km/h)

COMMON METRIC EQUIVALENTS

1 inch = 25 Millimeters	1 Cubic Inch = 16 Cubic Centimeters
1 Foot = 0.3 Meter	1 Cubic Foot = 0.03 Cubic Meter
1 Yard = 0.9 Meter	1 Cubic Yard = 0.8 Cubic Meter
1 Mile = 1.6 Kilometers	

Refer to the Metric Conversion Chart to convert torque values listed in metric Newton- meters (N·m). Also, use the chart to convert between millimeters (mm) and inches (in.) (Fig. 4).

METRIC SYSTEM (Continued)

in-lbs to N•m

in- lb	N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m
2	.2260	42	4.7453	82	9.2646	122	13.7839	162	18.3032
4	.4519	44	4.9713	84	9.4906	124	14.0099	164	18.5292
6	.6779	46	5.1972	86	9.7165	126	14.2359	166	18.7552
8	.9039	48	5.4232	88	9.9425	128	14.4618	168	18.9811
10	1.1298	50	5.6492	90	10.1685	130	14.6878	170	19.2071
12	1.3558	52	5.8751	92	10.3944	132	14.9138	172	19.4331
14	1.5818	54	6.1011	94	10.6204	134	15.1397	174	19.6590
16	1.8077	56	6.3270	96	10.8464	136	15.3657	176	19.8850
18	2.0337	58	6.5530	98	11.0723	138	15.5917	178	20.1110
20	2.2597	60	6.7790	100	11.2983	140	15.8176	180	20.3369
22	2.4856	62	7.0049	102	11.5243	142	16.0436	182	20.5629
24	2.7116	64	7.2309	104	11.7502	144	16.2696	184	20.7889
26	2.9376	66	7.4569	106	11.9762	146	16.4955	186	21.0148
28	3.1635	68	7.6828	108	12.2022	148	16.7215	188	21.2408
30	3.3895	70	7.9088	110	12.4281	150	16.9475	190	21.4668
32	3.6155	72	8.1348	112	12.6541	152	17.1734	192	21.6927
34	3.8414	74	8.3607	114	12.8801	154	17.3994	194	21.9187
36	4.0674	76	8.5867	116	13.1060	156	17.6253	196	22.1447
38	4.2934	78	8.8127	118	13.3320	158	17.8513	198	22.3706
40	4.5193	80	9.0386	120	13.5580	160	18.0773	200	22.5966

N•m to in-lbs

N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m	in-lb	N•m	in-lb
.2	1.7702	4.2	37.1747	8.2	72.5792	12.2	107.9837	16.2	143.3882
.4	3.5404	4.4	38.9449	8.4	74.3494	12.4	109.7539	16.4	145.1584
.6	5.3107	4.6	40.7152	8.6	76.1197	12.6	111.5242	16.6	146.9287
.8	7.0809	4.8	42.4854	8.8	77.8899	12.8	113.2944	16.8	148.6989
1	8.8511	5	44.2556	9	79.6601	13	115.0646	17	150.4691
1.2	10.6213	5.2	46.0258	9.2	81.4303	13.2	116.8348	17.2	152.2393
1.4	12.3916	5.4	47.7961	9.4	83.2006	13.4	118.6051	17.4	154.0096
1.6	14.1618	5.6	49.5663	9.6	84.9708	13.6	120.3753	17.6	155.7798
1.8	15.9320	5.8	51.3365	9.8	86.7410	13.8	122.1455	17.8	157.5500
2	17.7022	6	53.1067	10	88.5112	14	123.9157	18	159.3202
2.2	19.4725	6.2	54.8770	10.2	90.2815	14.2	125.6860	18.5	163.7458
2.4	21.2427	6.4	56.6472	10.4	92.0517	14.4	127.4562	19	168.1714
2.6	23.0129	6.6	58.4174	10.6	93.8219	14.6	129.2264	19.5	172.5970
2.8	24.7831	6.8	60.1876	10.8	95.5921	14.8	130.9966	20	177.0225
3	26.5534	7	61.9579	11	97.3624	15	132.7669	20.5	181.4480
3.2	28.3236	7.2	63.7281	11.2	99.1326	15.2	134.5371	21	185.8736
3.4	30.0938	7.4	65.4983	11.4	100.9028	15.4	136.3073	22	194.7247
3.6	31.8640	7.6	67.2685	11.6	102.6730	15.6	138.0775	23	203.5759
3.8	33.6342	7.8	69.0388	11.8	104.4433	15.8	139.8478	24	212.4270
4	35.4045	8	70.8090	12	106.2135	16	141.6180	25	221.2781

ft-lbs to N•m

ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m
1	1.3558	21	28.4722	41	55.5885	61	82.7049	81	109.8212
2	2.7116	22	29.8280	42	56.9444	62	84.0607	82	111.1770
3	4.0675	23	31.1838	43	58.3002	63	85.4165	83	112.5328
4	5.4233	24	32.5396	44	59.6560	64	86.7723	84	113.8888
5	6.7791	25	33.8954	45	61.0118	65	88.1281	85	115.2446
6	8.1349	26	35.2513	46	62.3676	66	89.4840	86	116.6004
7	9.4907	27	36.6071	47	63.7234	67	90.8398	87	117.9562
8	10.8465	28	37.9629	48	65.0793	68	92.1956	88	119.3120
9	12.2024	29	39.3187	49	66.4351	69	93.5514	89	120.6678
10	13.5582	30	40.6745	50	67.7909	70	94.9073	90	122.0236
11	14.9140	31	42.0304	51	69.1467	71	96.2631	91	123.3794
12	16.2698	32	43.3862	52	70.5025	72	97.6189	92	124.7352
13	17.6256	33	44.7420	53	71.8583	73	98.9747	93	126.0910
14	18.9815	34	46.0978	54	73.2142	74	100.3316	94	127.4468
15	20.3373	35	47.4536	55	74.5700	75	101.6862	95	128.8026
16	21.6931	36	48.8094	56	75.9258	76	103.0422	96	130.1586
17	23.0489	37	50.1653	57	77.2816	77	104.3980	97	131.5144
18	24.4047	38	51.5211	58	78.6374	78	105.7538	98	132.8702
19	25.7605	39	52.8769	59	79.9933	79	107.1196	99	134.2260
20	27.1164	40	54.2327	60	81.3491	80	108.4654	100	135.5820

N•m to ft-lbs

N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb	N•m	ft-lb
1	.7376	21	15.9888	41	30.2400	61	44.9913	81	59.7425
2	1.4751	22	16.2264	42	30.9776	62	45.7289	82	60.4801
3	2.2127	23	16.9639	43	31.7152	63	46.4664	83	61.2177
4	2.9502	24	17.7015	44	32.4527	64	47.2040	84	61.9552
5	3.6878	25	18.4391	45	33.1903	65	47.9415	85	62.6928
6	4.4254	26	19.1766	46	33.9279	66	48.6791	86	63.4303
7	5.1629	27	19.9142	47	34.6654	67	49.4167	87	64.1679
8	5.9005	28	20.6517	48	35.4030	68	50.1542	88	64.9545
9	6.6381	29	21.3893	49	36.1405	69	50.8918	89	65.6430
10	7.3756	30	22.1269	50	36.8781	70	51.6293	90	66.3806
11	8.1132	31	22.8644	51	37.6157	71	52.3669	91	67.1181
12	8.8507	32	23.6020	52	38.3532	72	53.1045	92	67.8557
13	9.5883	33	24.3395	53	39.0908	73	53.8420	93	68.5933
14	10.3259	34	25.0771	54	39.8284	74	54.5720	94	69.3308
15	11.0634	35	25.8147	55	40.5659	75	55.3172	95	70.0684
16	11.8010	36	26.5522	56	41.3035	76	56.0547	96	70.8060
17	12.5386	37	27.2898	57	42.0410	77	56.7923	97	71.5435
18	13.2761	38	28.0274	58	42.7786	78	57.5298	98	72.2811
19	14.0137	39	28.7649	59	43.5162	79	58.2674	99	73.0187
20	14.7512	40	29.5025	60	44.2537	80	59.0050	100	73.7562

in. to mm

in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
.01	.254	.21	5.334	.41	10.414	.61	15.494	.81	20.574
.02	.508	.22	5.588	.42	10.668	.62	15.748	.82	20.828
.03	.762	.23	5.842	.43	10.922	.63	16.002	.83	21.082
.04	1.016	.24	6.096	.44	11.176	.64	16.256	.84	21.336
.05	1.270	.25	6.350	.45	11.430	.65	16.510	.85	21.590
.06	1.524	.26	6.604	.46	11.684	.66	16.764	.86	21.844
.07	1.778	.27	6.858	.47	11.938	.67	17.018	.87	22.098
.08	2.032	.28	7.112	.48	12.192	.68	17.272	.88	22.352
.09	2.286	.29	7.366	.49	12.446	.69	17.526	.89	22.606
.10	2.540	.30	7.620	.50	12.700	.70	17.780	.90	22.860
.11	2.794	.31	7.874	.51	12.954	.71	18.034	.91	23.114
.12	3.048	.32	8.128	.52	13.208	.72	18.288	.92	23.368
.13	3.302	.33	8.382	.53	13.462	.73	18.542	.93	23.622
.14	3.556	.34	8.636	.54	13.716	.74	18.796	.94	23.876
.15	3.810	.35	8.890	.55	13.970	.75	19.050	.95	24.130
.16	4.064	.36	9.144	.56	14.224	.76	19.304	.96	24.384
.17	3.318	.37	9.398	.57	14.478	.77	19.558	.97	24.638
.18	4.572	.38	9.652	.58	14.732	.78	19.812	.98	24.892
.19	4.826	.39	9.906	.59	14.986	.79	20.066	.99	25.146
.20	5.080	.40	10.160	.60	15.240	.80	20.320	1.00	25.400

mm to in.

mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
.01	.00039	.21	.00827	.41	.01614	.61	.02402	.81	.03189
.02	.00079	.22	.00866	.42	.01654	.62	.02441	.82	.03228
.03	.00118	.23	.00906	.43	.01693	.63	.02480	.83	.03268
.04	.00157	.24	.00945	.44	.01732	.64	.02520	.84	.03307
.05	.00197	.25	.00984	.45	.01772	.65	.02559	.85	.03346
.06	.00236	.26	.01024	.46	.01811	.66	.02598	.86	.03386
.07	.00276	.27	.01063	.47	.01850	.67	.02638	.87	.03425
.08	.00315	.28	.01102	.48	.01890	.68	.02677	.88	.03465
.09	.00354	.29	.01142	.49	.01929	.69	.02717	.89	.03504
.10	.00394	.30	.01181	.50	.01969	.70	.02756	.90	.03543
.11	.00433	.31	.01220	.51	.02008	.71	.02795	.91	.03583
.12	.00472	.32	.01260	.52	.02047	.72	.02835	.92	.03622
.13	.00512	.33	.01299	.53	.02087	.73	.02874	.93	.03661
.14	.00551	.34	.01339	.54	.02126	.74	.02913	.94	.03701
.15	.00591	.35	.01378	.55	.02165	.75	.02953	.95	.03740
.16	.00630	.36	.01417	.56	.02205	.76	.02992	.96	.03780
.17	.00669	.37	.01457	.57	.02244	.77	.03032	.97	.03819
.18	.00709	.38	.01496	.58	.02283	.78	.03071	.98	.03858
.19	.00748	.39	.01535	.59	.02323	.79	.03110	.99	.03898
.20	.00787	.40	.01575	.60	.02362	.80	.03150	1.00	.03937

J901N-10

Fig. 4 METRIC CONVERSION CHART

TORQUE REFERENCES

DESCRIPTION

Individual Torque Charts appear within many or the Groups. Refer to the Standard Torque Specifications Chart for torque references not listed in the individual torque charts (Fig. 5).

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N•m	kgf-cm	ft-lbf	N•m	kgf-cm	ft-lbf
4T	6	1	5	55	48 in.-lbf	6	60	52 in.-lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	—	—	—
5T	6	1	6.5	65	56 in.-lbf	7.5	75	65 in.-lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	—	—	—
6T	6	1	8	80	69 in.-lbf	9	90	78 in.-lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	—	—	—
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	—	—	—
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

Fig. 5 TORQUE SPECIFICATIONS

VEHICLE EMISSION CONTROL INFORMATION (VECI)

DESCRIPTION

All vehicles are equipped with a combined vehicle emission control information (VECI) label(s). The label is located in the engine compartment on the vehicle hood (Fig. 6). Two labels are used for vehicles built for sale in the country of Canada.

The VECI label(s) contain the following:

- Engine family and displacement
- Evaporative family
- Emission control system schematic
- Certification application
- Spark plug and gap

The label also contains an engine vacuum schematic. There are unique labels for vehicles built for sale in the state of California and the country of Canada. Canadian labels are written in both the English and French languages. These labels are permanently attached and cannot be removed without defacing information and destroying label.

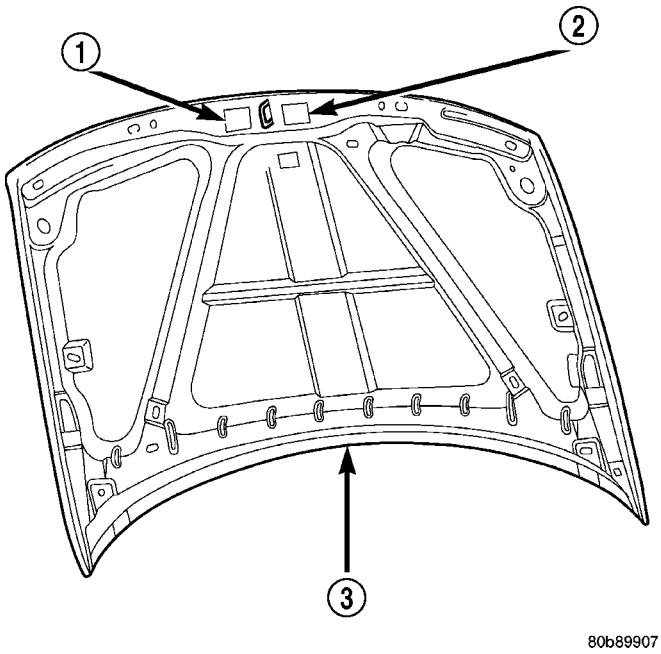


Fig. 6 VECI Label Location

1 - VECI LABEL (CANADIAN)
2 - VECI LABEL
3 - HOOD

VEHICLE IDENTIFICATION NUMBER

DESCRIPTION

The Vehicle Identification Number (VIN) plate is attached to the top left side of the instrument panel. The VIN contains 17 characters that provide data concerning the vehicle. Refer to the decoding chart to determine the identification of a vehicle.

VEHICLE IDENTIFICATION NUMBER DECODING CHART

POSITION	INTERPRETATION	CODE = DESCRIPTION
1	Country of Origin	1 = Manufactured By DaimlerChrysler Corporation
2	Make	J = Jeep
3	Vehicle Type	4 = MPV
4	Gross Vehicle Weight Rating	G = 5001-6000 lbs.
5	Vehicle Line (WJ)	X = Grand Cherokee 4X2 (LHD) W = Grand Cherokee 4X4 (LHD)
5	Vehicle Line (WG)	2 = Grand Cherokee (LHD) 8 = Grand Cherokee (RHD)
6	Series	3 = Sport 4 = Laredo 5 = Limited 6 = Overland
7	Body Style	8 = 4dr Sport Utility
8	Engine	S = 4.0 Liter Gasoline N = 4.7 Liter Gasoline
9	Check Digit	0 through 9 or X

VEHICLE IDENTIFICATION NUMBER (Continued)

POSITION	INTERPRETATION	CODE = DESCRIPTION
10	Model Year	3=2003
11	Assembly Plant	C = Jefferson Assembly Y = Steyer
12 thru 17	Vehicle Build Sequence	

VEHICLE SAFETY CERTIFICATION LABEL

DESCRIPTION

A vehicle safety certification label (Fig. 7) is attached to every DaimlerChrysler Corporation vehicle. The label certifies that the vehicle conforms to all applicable Federal Motor Vehicle Safety Standards. The label also lists:

- Month and year of vehicle manufacture.
- Gross Vehicle Weight Rating (GVWR). The gross front and rear axle weight ratings (GAWR's) are based on a minimum rim size and maximum cold tire inflation pressure.
- Vehicle Identification Number (VIN).
- Type of vehicle.
- Type of rear wheels.
- Bar code.
- Month, Day and Hour (MDH) of final assembly.
- Paint and Trim codes.
- Country of origin.

The label is located on the driver-side door shut-face.

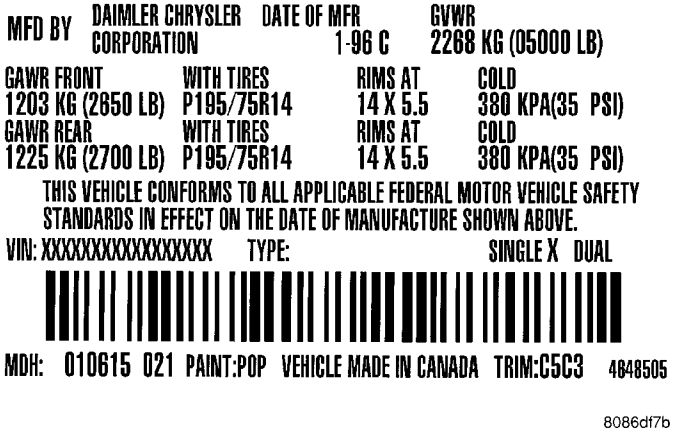


Fig. 7 VEHICLE SAFETY CERTIFICATION LABEL - TYPICAL

LUBRICATION & MAINTENANCE

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INTERNATIONAL SYMBOLS

DESCRIPTION

DaimlerChrysler Corporation uses international symbols to identify engine compartment lubricant and fluid inspection and fill locations (Fig. 1).

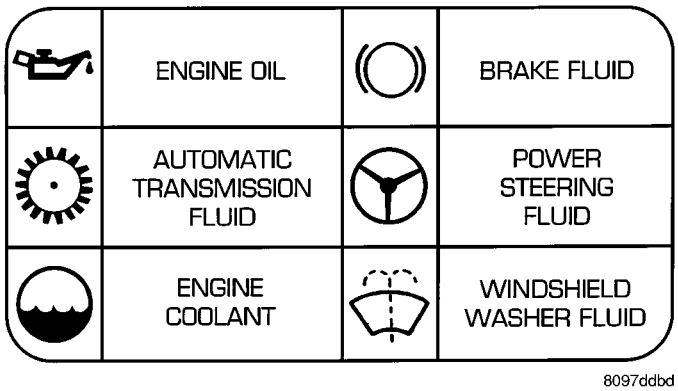


Fig. 1 INTERNATIONAL SYMBOLS

PARTS & LUBRICANT RECOMMENDATION

STANDARD PROCEDURE - PARTS & LUBRICANT RECOMMENDATIONS

Lubricating grease is rated for quality and usage by the NLGI. All approved products have the NLGI symbol (Fig. 2) on the label. At the bottom NLGI symbol is the usage and quality identification letters. Wheel bearing lubricant is identified by the letter “G”. Chassis lubricant is identified by the latter “L”. The letter following the usage letter indicates the quality of the lubricant. The following symbols indicate the highest quality.

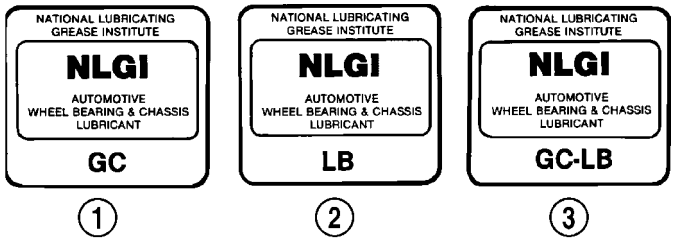


Fig. 2 NLGI Symbol

1 - WHEEL BEARINGS
2 - CHASSIS LUBRICATION
3 - CHASSIS AND WHEEL BEARINGS

PARTS & LUBRICANT RECOMMENDATION (Continued)

When service is required, DaimlerChrysler Corporation recommends that only Mopar® brand parts, lubricants and chemicals be used. Mopar provides the best engineered products for servicing DaimlerChrysler Corporation vehicles.

FLUID TYPES

DESCRIPTION

DESCRIPTION - ENGINE COOLANT

ETHYLENE-GLYCOL MIXTURES

CAUTION: Richer antifreeze mixtures cannot be measured with normal field equipment and can cause problems associated with 100 percent ethylene-glycol.

The required ethylene-glycol (antifreeze) and water mixture depends upon the climate and vehicle operating conditions. The recommended mixture of 50/50 ethylene-glycol and water will provide protection against freezing to -37 deg. C (-35 deg. F). The antifreeze concentration **must always** be a minimum of 44 percent, year-round in all climates. **If percentage is lower than 44 percent, engine parts may be eroded by cavitation, and cooling system components may be severely damaged by corrosion.** Maximum protection against freezing is provided with a 68 percent antifreeze concentration, which prevents freezing down to -67.7 deg. C (-90 deg. F). A higher percentage will freeze at a warmer temperature. Also, a higher percentage of antifreeze can cause the engine to overheat because the specific heat of antifreeze is lower than that of water.

Use of 100 percent ethylene-glycol will cause formation of additive deposits in the system, as the corrosion inhibitive additives in ethylene-glycol require the presence of water to dissolve. The deposits act as insulation, causing temperatures to rise to as high as 149 deg. C (300) deg. F). This temperature is hot enough to melt plastic and soften solder. The increased temperature can result in engine detonation. In addition, 100 percent ethylene-glycol freezes at 22 deg. C (-8 deg. F).

PROPYLENE-GLYCOL MIXTURES

It's overall effective temperature range is smaller than that of ethylene-glycol. The freeze point of 50/50 propylene-glycol and water is -32 deg. C (-26 deg. F). 5 deg. C higher than ethylene-glycol's freeze point. The boiling point (protection against summer boil-over) of propylene-glycol is 125 deg. C (257 deg. F) at 96.5 kPa (14 psi), compared to 128 deg. C (263 deg. F) for ethylene-glycol. Use of propylene-glycol can result in boil-over or freeze-up on a cooling system designed for ethylene-glycol. Propylene glycol also has poorer heat transfer characteristics than ethylene glycol. This can increase cylinder head temperatures under certain conditions.

Propylene-glycol/ethylene-glycol Mixtures can cause the destabilization of various corrosion inhibitors, causing damage to the various cooling system components. Also, once ethylene-glycol and propylene-glycol based coolants are mixed in the vehicle, conventional methods of determining freeze point will not be accurate. Both the refractive index and specific gravity differ between ethylene glycol and propylene glycol.

DESCRIPTION - HOAT COOLANT

WARNING: ANTIFREEZE IS AN ETHYLENE-GLYCOL BASE COOLANT AND IS HARMFUL IF SWALLOWED OR INHALED. IF SWALLOWED, DRINK TWO GLASSES OF WATER AND INDUCE VOMITING. IF INHALED, MOVE TO FRESH AIR AREA. SEEK MEDICAL ATTENTION IMMEDIATELY. DO NOT STORE IN OPEN OR UNMARKED CONTAINERS. WASH SKIN AND CLOTHING THOROUGHLY AFTER COMING IN CONTACT WITH ETHYLENE-GLYCOL. KEEP OUT OF REACH OF CHILDREN. DISPOSE OF GLYCOL BASE COOLANT PROPERLY, CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA. DO NOT OPEN A COOLING SYSTEM WHEN THE ENGINE IS AT OPERATING TEMPERATURE OR HOT UNDER PRESSURE, PERSONAL INJURY CAN RESULT. AVOID RADIATOR COOLING FAN WHEN ENGINE COMPARTMENT RELATED SERVICE IS PERFORMED, PERSONAL INJURY CAN RESULT.

CAUTION: Use of Propylene-Glycol based coolants is not recommended, as they provide less freeze protection and less corrosion protection.

The cooling system is designed around the coolant. The coolant must accept heat from engine metal, in the cylinder head area near the exhaust valves and engine block. Then coolant carries the heat to the radiator where the tube/fin radiator can transfer the heat to the air.

The use of aluminum cylinder blocks, cylinder heads, and water pumps requires special corrosion protection. Mopar® Antifreeze/Coolant, 5 Year/100,000 Mile Formula (MS-9769), or the equivalent ethylene-glycol base coolant with organic corrosion inhibitors (called HOAT, for Hybrid Organic Additive Technology) is recommended. This coolant offers the best engine cooling without corrosion when

FLUID TYPES (Continued)

mixed with 50% ethylene-glycol and 50% distilled water to obtain a freeze point of -37°C (-35°F). If it loses color or becomes contaminated, drain, flush, and replace with fresh properly mixed coolant solution.

CAUTION: Mopar® Antifreeze/Coolant, 5 Year/100,000 Mile Formula (MS-9769) may not be mixed with any other type of antifreeze. Mixing of coolants other than specified (non-HOAT or other HOAT), may result in engine damage that may not be covered under the new vehicle warranty, and decreased corrosion protection.

COOLANT PERFORMANCE

The required ethylene-glycol (antifreeze) and water mixture depends upon climate and vehicle operating conditions. The coolant performance of various mixtures follows:

Pure Water-Water can absorb more heat than a mixture of water and ethylene-glycol. This is for purpose of heat transfer only. Water also freezes at a higher temperature and allows corrosion.

100 percent Ethylene-Glycol-The corrosion inhibiting additives in ethylene-glycol need the presence of water to dissolve. Without water, additives form deposits in system. These act as insulation causing temperature to rise to as high as 149°C (300°F). This temperature is hot enough to melt plastic and soften solder. The increased temperature can result in engine detonation. In addition, 100 percent ethylene-glycol freezes at -22°C (-8°F).

50/50 Ethylene-Glycol and Water-Is the recommended mixture, it provides protection against freezing to -37°C (-34°F). The antifreeze concentration **must always** be a minimum of 44 percent, year-round in all climates. If percentage is lower, engine parts may be eroded by cavitation. Maximum protection against freezing is provided with a 68 percent antifreeze concentration, which prevents freezing down to -67.7°C (-90°F). A higher percentage will freeze at a warmer temperature. Also, a higher percentage of antifreeze can cause the engine to overheat because specific heat of antifreeze is lower than that of water.

CAUTION: Richer antifreeze mixtures cannot be measured with normal field equipment and can cause problems associated with 100 percent ethylene-glycol.

COOLANT SELECTION AND ADDITIVES

The use of aluminum cylinder blocks, cylinder heads and water pumps requires special corrosion protection. Only Mopar® Antifreeze/Coolant, 5 Year/100,000 Mile Formula (glycol base coolant with corrosion inhibitors called HOAT, for Hybrid Organic Additive Technology) is recommended. This coolant offers the best engine cooling without corrosion when mixed with 50% distilled water to obtain to obtain a freeze point of -37°C (-35°F). If it loses color or becomes contaminated, drain, flush, and replace with fresh properly mixed coolant solution.

CAUTION: Do not use coolant additives that are claimed to improve engine cooling.

ENGINE OIL

WARNING: NEW OR USED ENGINE OIL CAN BE IRRITATING TO THE SKIN. AVOID PROLONGED OR REPEATED SKIN CONTACT WITH ENGINE OIL. CONTAMINANTS IN USED ENGINE OIL, CAUSED BY INTERNAL COMBUSTION, CAN BE HAZARDOUS TO YOUR HEALTH. THOROUGHLY WASH EXPOSED SKIN WITH SOAP AND WATER. DO NOT WASH SKIN WITH GASOLINE, DIESEL FUEL, THINNER, OR SOLVENTS, HEALTH PROBLEMS CAN RESULT. DO NOT POLLUTE, DISPOSE OF USED ENGINE OIL PROPERLY. CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA.

API SERVICE GRADE CERTIFIED

Use an engine oil that is API Service Grade Certified. MOPAR® provides engine oils that conform to this service grade.

SAE VISCOSITY

An SAE viscosity grade is used to specify the viscosity of engine oil. Use only engine oils with multiple viscosities such as 5W-30 or 10W-30. These are specified with a dual SAE viscosity grade which indicates the cold-to-hot temperature viscosity range. Select an engine oil that is best suited to your particular temperature range and variation (Fig. 3).

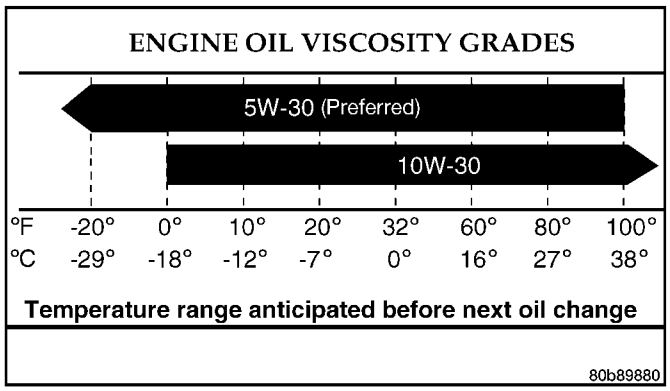


Fig. 3 Temperature/Engine Oil Viscosity - 4.7L

FLUID TYPES (Continued)

ENERGY CONSERVING OIL

An Energy Conserving type oil is recommended for gasoline engines. The designation of ENERGY CONSERVING is located on the label of an engine oil container.

CONTAINER IDENTIFICATION

Standard engine oil identification notations have been adopted to aid in the proper selection of engine oil. The identifying notations are located on the label of engine oil plastic bottles and the top of engine oil cans (Fig. 4).



9400-9

Fig. 4 API SYMBOL

DESCRIPTION - ENGINE OIL

WARNING: NEW OR USED ENGINE OIL CAN BE IRRITATING TO THE SKIN. AVOID PROLONGED OR REPEATED SKIN CONTACT WITH ENGINE OIL. CONTAMINANTS IN USED ENGINE OIL, CAUSED BY INTERNAL COMBUSTION, CAN BE HAZARDOUS TO YOUR HEALTH. THOROUGHLY WASH EXPOSED SKIN WITH SOAP AND WATER. DO NOT WASH SKIN WITH GASOLINE, DIESEL FUEL, THINNER, OR SOLVENTS, HEALTH PROBLEMS CAN RESULT. DO NOT POLLUTE, DISPOSE OF USED ENGINE OIL PROPERLY. CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA.

API SERVICE GRADE CERTIFIED

Use an engine oil that is API Service Grade Certified. MOPAR® provides engine oils that conform to this service grade.

SAE VISCOSITY

An SAE viscosity grade is used to specify the viscosity of engine oil. Use only engine oils with multiple viscosities such as 5W-30 or 10W-30. These oils are specified with a dual SAE viscosity grade which indicates the cold-to-hot temperature viscosity range. Select an engine oil that is best suited to your particular temperature range and variation (Fig. 5).

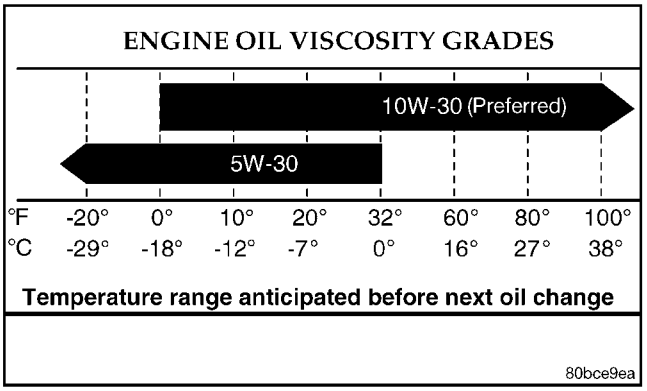


Fig. 5 Temperature/Engine Oil Viscosity - 4.0L

ENERGY CONSERVING OIL

An Energy Conserving type oil is recommended for gasoline engines. The designation of ENERGY CONSERVING is located on the label of an engine oil container.

CONTAINER IDENTIFICATION

Standard engine oil identification notations have been adopted to aid in the proper selection of engine oil. The identifying notations are located on the label of engine oil plastic bottles and the top of engine oil cans (Fig. 6).



9400-9

Fig. 6 API Symbol

DESCRIPTION - AXLE

NOTE: DaimlerChrysler recommends using Mopar® lubricants or lubricants of equal quality

FRONT AXLE

- 186 FBI (Model 30) - Mopar® Synthetic Gear Lubricant 75W-140

REAR AXLE

- 194 RBI (Model 35) - Mopar® Gear Lubricant 80W-90 (Trailer Towing - Mopar® Synthetic Gear Lubricant 75W-140
- 226 RBA (Model 44) - Mopar® Gear Lubricant 80W-90 (Trailer Towing - Mopar® Synthetic Gear Lubricant 75W-140

FLUID TYPES (Continued)

NOTE: Trac-lok® and Vari-lok® equipped axles require 118 ml (4 ounces) of Limited Slip Additive be added to the lubricant.

DESCRIPTION - TRANSFER CASE - NV242

Recommended lubricant for the NV242 transfer case is Mopar® ATF+4, Automatic Transmission Fluid.

DESCRIPTION - TRANSFER CASE - NV247

Mopar® Transfer Case Lubricant (P/N 05016796) is the only lubricant recommended for the NV247 transfer case.

DESCRIPTION - AUTOMATIC TRANSMISSION FLUID

NOTE: Refer to Service Procedures in this group for fluid level checking procedures.

Mopar® ATF +4, Automatic Transmission Fluid is the recommended fluid for DaimlerChrysler automatic transmissions.

Dexron II fluid IS NOT recommended. Clutch chatter can result from the use of improper fluid.

Mopar® ATF +4, Automatic Transmission Fluid when new is red in color. The ATF is dyed red so it can be identified from other fluids used in the vehicle such as engine oil or antifreeze. The red color is not permanent and is not an indicator of fluid condition. As the vehicle is driven, the ATF will begin to look darker in color and may eventually become brown. **This is normal.** ATF+4 also has a unique odor that may change with age. Consequently, odor and color cannot be used to indicate the fluid condition or the need for a fluid change.

FLUID ADDITIVES

DaimlerChrysler strongly recommends against the addition of any fluids to the transmission, other than those automatic transmission fluids listed above. Exceptions to this policy are the use of special dyes to aid in detecting fluid leaks.

Various “special” additives and supplements exist that claim to improve shift feel and/or quality. These additives and others also claim to improve converter clutch operation and inhibit overheating, oxidation, varnish, and sludge. These claims have not been supported to the satisfaction of DaimlerChrysler and these additives **must not be used.** The use of transmission “sealers” should also be avoided, since they may adversely affect the integrity of transmission seals.

DESCRIPTION - AUTOMATIC TRANSMISSION FLUID - W5J400

NOTE: Refer to Service Procedures in this group for fluid level checking procedures.

Shell® 3403 Automatic Transmission Fluid is the recommended fluid for the W5J400 DaimlerChrysler automatic transmission.

Dexron II fluid IS NOT recommended. Clutch chatter can result from the use of improper fluid.

Shell® 3403 Automatic Transmission Fluid when new is red in color. The ATF is dyed red so it can be identified from other fluids used in the vehicle such as engine oil or antifreeze. The red color is not permanent and is not an indicator of fluid condition. As the vehicle is driven, the ATF will begin to look darker in color and may eventually become brown. **This is normal.**

FLUID ADDITIVES

DaimlerChrysler strongly recommends against the addition of any fluids to the transmission, other than those automatic transmission fluids listed above. Exceptions to this policy are the use of special dyes to aid in detecting fluid leaks.

Various “special” additives and supplements exist that claim to improve shift feel and/or quality. These additives and others also claim to improve converter clutch operation and inhibit overheating, oxidation, varnish, and sludge. These claims have not been supported to the satisfaction of DaimlerChrysler and these additives **must not be used.** The use of transmission “sealers” should also be avoided, since they may adversely affect the integrity of transmission seals.

DESCRIPTION - ENGINE OIL - DIESEL ENGINES

Use only Diesel Engine Oil meeting standard **MIL-2104C** or API Classification **CD or higher** or **CCML D4, D5**.

SAE VISCOSITY GRADE

CAUTION: Low viscosity oils must have the proper API quality or the CCMC G5 designation.

To assure of properly formulated engine oils, it is recommended that SAE Grade 10W-40 engine oils that meet Chrysler material standard MS-6395, be used in accordance to ACEA B3, B4 specification. European Grade 10W-40 oils are also acceptable.

FLUID TYPES (Continued)

Oils of the SAE 5W-40 grade number are preferred when minimum temperatures consistently fall below -15°C.

DESCRIPTION - POWER STEERING FLUID

The recommended fluid for the power steering system is MOPAR Power Steering Fluid or equivalent. Do not use automatic transmission fluid and do not overfill.

OPERATION - AUTOMATIC TRANSMISSION FLUID

The automatic transmission fluid is selected based upon several qualities. The fluid must provide a high level of protection for the internal components by providing a lubricating film between adjacent metal components. The fluid must also be thermally stable so that it can maintain a consistent viscosity through a large temperature range. If the viscosity stays constant through the temperature range of operation, transmission operation and shift feel will remain consistent. Transmission fluid must also be a good conductor of heat. The fluid must absorb heat from the internal transmission components and transfer that heat to the transmission case.

FLUID CAPACITIES

SPECIFICATIONS - FLUID CAPACITIES

DESCRIPTION	SPECIFICATION
FUEL TANK	20 U.S. Gallons (76 Liters)****
Engine Oil - with Filter - 2.7L Diesel	6.5L (6.9 qts.)
Engine Oil - with Filter - 4.0L	5.7 L (6.0 qts.)
Engine Oil - with Filter - 4.7L	5.7 L (6.0 qts.)
Cooling System - 2.7L Diesel	14.2L (15 qts.)***
Cooling System - 4.0L	14.1 L (15 qts.)***
Cooling System - 4.7L	13.7 L (14.5 qts.)***
POWER STEERING SYSTEM	
Power steering fluid capacities are dependent on engine/chassis options as well as steering gear/cooler options. Depending on type and size of internal cooler, length and inside diameter of cooler lines, or use of an auxiliary cooler, these capacities may vary. Refer to 19, Steering for proper fill and bleed procedures.	
AUTOMATIC TRANSMISSION	
Service Fill - 42RE	3.8 L (4.0 qts.)
Service Fill - 545RFE	2WD - 5.2 L (11 pts.) 4WD - 6.2 L (13 pts.)
Service Fill - W5J400	5.0 L (10.6 pts.)
O-haul Fill - 42RE	9.1-9.5 L (19-20 pts.)
O-haul Fill - 545RFE	13.33 L (28.0 pts.)
O-haul Fill - W5J400	7.7 L (16.3 pts)
Dry fill capacity Depending on type and size of internal cooler, length and inside diameter of cooler lines, or use of an auxiliary cooler, these figures may vary. (Refer to appropriate 21 - TRANSMISSION/ TRANSAXLE/AUTOMATIC/FLUID - STANDARD PROCEDURE).	
TRANSFER CASE	
NV242	1.35L (2.85 pts.)
NV247	1.6L (3.4 pts.)
FRONT AXLE ± 0.3 L (1 oz.)	
186 FBI (Model 30)	1.18 L (2.5 pts.)*
* With Vari-Lok add 0.07 L (2.5 oz.) of Friction Modifier.	
REAR AXLE ± 0.3 L (1 oz.)	
198 RBI (Model 35)	1.66 L (3.5 pts.)*
226 RBA (Model 44)	2.24 L (4.75 pts.)**
* With Trac-lok add 0.07 L (2.5 oz.) of Friction Modifier.	
** With Trac-lok or Vari-Lok, add 0.07 L (2.5 oz.) of Friction Modifier.	
*** Includes 0.9L (1.0 qts.) for coolant reservoir.	
****Nominal refill capacities are shown. A variation may be observed from vehicle to vehicle due to manufacturing tolerance and refill procedure.	

FLUID FILL/CHECK LOCATIONS

INSPECTION - FLUID FILL/CHECK LOCATIONS

The fluid fill/check locations and lubrication points are located in each applicable group.

MAINTENANCE SCHEDULES

DESCRIPTION

Maintenance Schedule Information not included in this section, is located in the appropriate Owner's Manual.

There are two maintenance schedules that show the **required** service for your vehicle.

First is Schedule **"B"**. It is for vehicles that are operated under the conditions that are listed below and at the beginning of the schedule.

- Day or night temperatures are below 0°C (32°F)
- Stop and go driving
- Excessive engine idling
- Driving in dusty conditions
- Short trips of less than 16.2 km (10 miles)
- More than 50% of your driving is at sustained high speeds during hot weather, above 32°C (90°F)
- Trailer towing
- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

NOTE: Most vehicles are operated under the conditions listed for Schedule "B."

Second is Schedule **"A"**. It is for vehicles that are not operated under any of the conditions listed under Schedule "B."

Use the schedule that best describes your driving conditions. Where time and mileage are listed, follow the interval that occurs first.

CAUTION: Failure to perform the required maintenance items may result in damage to the vehicle.

At Each Stop for Fuel

- Check the engine oil level about 5 minutes after a fully warmed engine is shut off. Checking the oil level while the vehicle is on level ground will improve the accuracy of the oil level reading. Add oil only when the level is at or below the ADD or MIN mark.
- Check the windshield washer solvent, add as required.

Once a Month

- Check the tire pressure and look for unusual wear or damage.
- Inspect the battery and clean and tighten the terminals as required.
- Check the fluid levels of the coolant reservoir, brake master cylinder, power steering, and transmission, and add as needed.
- Check all lights and all other electrical items for correct operation.

At Each Oil Change

- Change the engine oil filter.
- Inspect the exhaust system.
- Inspect brake hoses.
- Check the coolant level, hoses, and clamps.
- Rotate the tires.
- After completion of off-road operation, the underside of the vehicle should be thoroughly inspected. Examine threaded fasteners for looseness.

Schedule "B"

Follow this schedule if you usually operate your vehicle under one or more of the following conditions.

- Day or night temperatures are below 0°C (32°F)
- Stop and go driving
- Excessive engine idling
- Driving in dusty conditions
- Short trips of less than 16.2 km (10 miles)
- More than 50% of your driving is at sustained high speeds during hot weather, above 32°C (90°F)
- Trailer towing
- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

MAINTENANCE SCHEDULES (Continued)

Miles (Kilometers)	**3,000 (5 000)**	**6,000 (10 000)**	**9,000 (14 000)**	**12,000 (19 000)**	**15,000 (24 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Drain and refill the front and rear axles.				X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	

Miles (Kilometers)	**18,000 (29 000)**	**21,000 (34 000)**	**24,000 (38 000)**	**27,000 (43 000)**	**30,000 (48 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Drain and refill the front and rear axles.			X		
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◇					X
Replace the spark plugs.					X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L Only).					X
Drain the transfer case and refill (Quadra-Trac Models Only).					X

Miles (Kilometers)	**33,000 (53 000)**	**36,000 (58 000)**	**39,000 (62 000)**	**42,000 (67 000)**	**45,000 (72 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Drain and refill the front and rear axles.		X			
Inspect the brake linings.		X			
Inspect the engine air cleaner filter, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Clean and lubricate the brake caliper pins.		X			
Inspect and replace drive belt, if necessary (4.0L Only).					X

MAINTENANCE SCHEDULES (Continued)

Miles (Kilometers)	**48,000 (77 000)**	**51,000 (82 000)**	**54,000 (86 000)**	**57,000 (91 000)**	**60,000 (96 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Clean and lubricate brake caliper pins.	X				X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◇					X
Replace the spark plugs.					X
Inspect the brake linings.	X				X
Drain and refill the front and rear axles.	X				X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L Only).					X
Drain and replace brake fluid.					X
Inspect the drive belt and replace as needed. Not required if belt was previously replaced (4.0L Only).					X
Drain and refill the transfer case fluid (Selec-Trac and Quadra-Trac Models).					X

Miles (Kilometers)	**63,000 (101 000)**	**66,000 (106 000)**	**69,000 (110 000)**	**72,000 (115 000)**	**75,000 (120 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	
Drain and refill the front and rear axle fluid.				X	
Inspect the drive belt and replace as needed. Not required if belt was previously replaced (4.0L Only).					X
Inspect the drive belt and replace as needed (4.7L Only).					X

MAINTENANCE SCHEDULES (Continued)

Miles (Kilometers)	**78,000 (125 000)**	**81,000 (130 000)**	**84,000 (134 000)**	**87,000 (139 000)**	**90,000 (144 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◇					X
Replace the spark plugs.					X
Drain and refill the transfer case fluid (Quadra-Trac Only).					X
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain and refill the front and rear axle fluid.			X		
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, replace main sump filter, and spin-on cooler return filter (if equipped) (4.7L Only).					X
Inspect the drive belt and replace as needed. Not required if belt was previously replaced.					X

Miles (Kilometers)	**93,000 (149 000)**	**96,000 (154 000)**	**99,000 (158 000)**	**102,000 (163 000)**	**105,000 (168 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the brake linings.		X			
Clean and lubricate the brake caliper pins.		X			
Drain and refill the front and rear axle fluid.		X			
Inspect the drive belt and replace as needed. Not required if belt was previously replaced.					X
Flush and replace the engine coolant.			X		

MAINTENANCE SCHEDULES (Continued)

Miles (Kilometers)	**108,000 (173 000)**	**111,000 (178 000)**	**114,000 (182 000)**	**117,000 (187 000)**	**120,000 (192 000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◇					X
Replace the spark plugs.					X
Inspect the brake linings.	X				X
Clean and lubricate the brake caliper pins.	X				X
Drain and replace the brake fluid.					X
Drain and refill the front and rear axle fluid.	X				X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L Only).					X
Inspect the drive belt and replace as needed. Not required if belt was previously replaced.					X
Drain and refill the transfer case fluid (Selec-Trac and Quadra-Trac).					X

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

◇ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

‡Off-highway operation, trailer towing, taxi, limousine, bus, snow plowing, or other types of commercial service or prolonged operation with heavy loading, especially in hot weather, require front and rear axle service indicated with a ‡ in Schedule “B”. Perform these services if the vehicle is usually operated under these conditions.

MAINTENANCE SCHEDULES (Continued)

Schedule "A"

Miles	**6,000**	**12,000**	**18,000**	**24,000**	**30,000**
(Kilometers)	**(10 000)**	**(19 000)**	**(29 000)**	**(38 000)**	**(48 000)**
[Months]	**[6]**	**[12]**	**[18]**	**[24]**	**[30]**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Replace the engine air cleaner filter.					X
Replace the spark plugs.					X
Inspect transfer case fluid (Selec-Trac Models Only).					X
Drain the transfer case and refill (Quadra-Trac Models Only).					X

Miles	**36,000**	**42,000**	**48,000**	**54,000**
(Kilometers)	**(58 000)**	**(67 000)**	**(77 000)**	**(86 000)**
[Months]	**[36]**	**[42]**	**[48]**	**[54]**
Change the engine oil and engine oil filter.	X	X	X	X
Inspect the brake linings.	X			X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Clean and lubricate the brake caliper pins.	X			X

Miles	**60,000**	**66,000**	**72,000**	**78,000**
(Kilometers)	**(96 000)**	**(106 000)**	**(115 000)**	**(125 000)**
[Months]	**[60]**	**[66]**	**[72]**	**[78]**
Change the engine oil and engine oil filter.	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Inspect and replace the drive belt if necessary (4.0L Only). Not required if belt was previously replaced.	X			X
Flush and replace the engine coolant.	X			
Replace the engine air cleaner filter.	X			
Inspect the PCV valve, replace if necessary (4.7L Only). ◇	X			
Replace the spark plugs.	X			
Drain and replace the brake fluid.	X			
Inspect the brake linings.			X	
Clean and lubricate the brake caliper pins.			X	
Inspect transfer case fluid (Selec-Trac Models Only).	X			
Drain the transfer case and refill (Quadra-Trac Models Only).	X			

MAINTENANCE SCHEDULES (Continued)

Miles **(Kilometers)** **[Months]**	**84,000** **(134 000)** **[84]**	**90,000** **(144 000)** **[90]**	**96,000** **(154 000)** **[96]**	**102,000** **(163 000)** **[102]**
Change the engine oil and engine oil filter.	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Clean and lubricate the brake caliper pins.		X		
Inspect the brake linings.		X		
Replace the engine air cleaner filter.		X		
Inspect the PCV valve, replace if necessary (4.7L Only). ◊		X		
Replace the spark plugs.		X		
Inspect the drive belt, and replace as needed. Not required if previously replaced.		X		
Flush and replace the engine coolant if not replaced at 60 months.				X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).				X
Drain and refill the automatic transmission fluid, replace main sump filter, and spin-on cooler return filter (if equipped) (4.7L Only).				X
Inspect the transfer case fluid (Selec-Trac Models Only).		X		
Drain the transfer case and refill (Quadra-Trac Models Only).		X		

Miles **(Kilometers)** **[Months]**	**108,000** **(173 000)** **[108]**	**114,000** **(182 000)** **[114]**	**120,000** **(192 000)** **[120]**
Change the engine oil and engine oil filter.	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X
Inspect the brake linings.	X		
Clean and lubricate the brake caliper pins.	X		
Replace the engine air cleaner filter.			X
Inspect the PCV valve, replace if necessary (4.7L Only). ◊			X
Replace the spark plugs.			X
Inspect and replace the drive belt if not previously replaced.	X		X
Drain and replace the brake fluid.			X
Drain the transfer case and refill (Selec-Trac and Quadra-Trac Models).			X

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

◊ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

WARNING: You can be badly injured working on or around a motor vehicle. Do only that service work for which you have the proper equipment. If you have any doubt about your ability to perform a service job, take your vehicle to a competent mechanic.

LIFT POINTS

STANDARD PROCEDURE - HOISTING AND JACKING RECOMMENDATIONS

FLOOR JACK

When properly positioned, a floor jack can be used to lift a WJ vehicle (Fig. 7). Support the vehicle in the raised position with jack stands at the front and rear ends of the frame rails.

CAUTION: Do not attempt to lift a vehicle with a floor jack positioned under:

- **An axle tube.**
- **Aluminum differential.**
- **A body side sill.**
- **A steering linkage component.**
- **A drive shaft.**
- **The engine or transmission oil pan.**
- **The fuel tank.**
- **A front suspension arm.**

HOIST

A vehicle can be lifted with:

- A single-post, frame-contact hoist.
- A twin-post, chassis hoist.
- A ramp-type, drive-on hoist.

NOTE: When a frame-contact type hoist is used, verify that the lifting pads are positioned properly (Fig. 7).

WARNING: THE HOISTING AND JACK LIFTING POINTS PROVIDED ARE FOR A COMPLETE VEHICLE. WHEN A CHASSIS OR DRIVETRAIN COMPONENT IS REMOVED FROM A VEHICLE, THE CENTER OF GRAVITY IS ALTERED MAKING SOME HOISTING CONDITIONS UNSTABLE. PROPERLY SUPPORT OR SECURE VEHICLE TO HOISTING DEVICE WHEN THESE CONDITIONS EXIST.

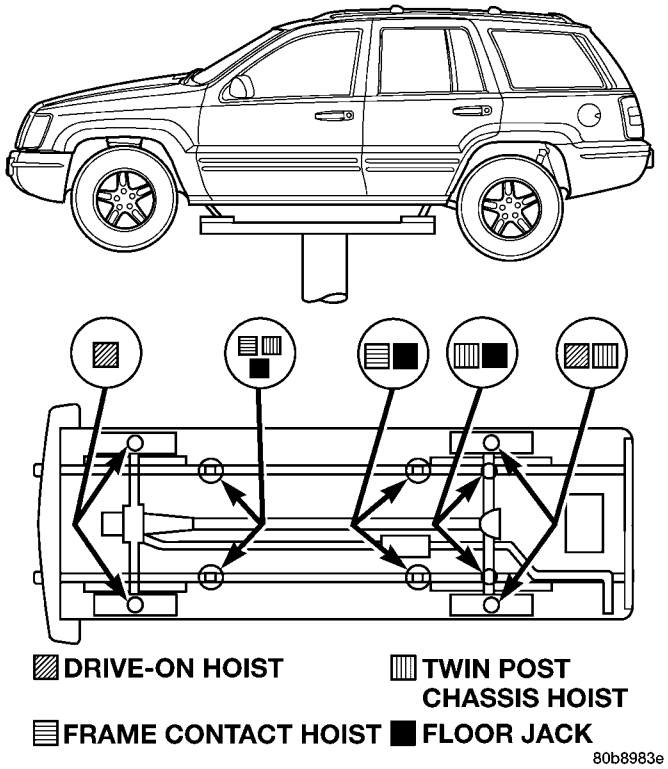


Fig. 7 Correct Vehicle Lifting Locations

JUMP STARTING

STANDARD PROCEDURE - JUMP STARTING

WARNING: REVIEW ALL SAFETY PRECAUTIONS AND WARNINGS IN THE BATTERY SYSTEM SECTION OF THE SERVICE MANUAL. (Refer to 8 - ELECTRICAL/BATTERY SYSTEM/BATTERY - STANDARD PROCEDURE)

• DO NOT JUMP START A FROZEN BATTERY, PERSONAL INJURY CAN RESULT.

• IF EQUIPPED, DO NOT JUMP START WHEN MAINTENANCE FREE BATTERY INDICATOR DOT IS YELLOW OR BRIGHT COLOR.

• DO NOT JUMP START A VEHICLE WHEN THE BATTERY FLUID IS BELOW THE TOP OF LEAD PLATES.

• DO NOT ALLOW JUMPER CABLE CLAMPS TO TOUCH EACH OTHER WHEN CONNECTED TO A BOOSTER SOURCE.

• DO NOT USE OPEN FLAME NEAR BATTERY.

• REMOVE METALLIC JEWELRY WORN ON HANDS OR WRISTS TO AVOID INJURY BY ACCIDENTAL ARCING OF BATTERY CURRENT.

• WHEN USING A HIGH OUTPUT BOOSTING DEVICE, DO NOT ALLOW BATTERY VOLTAGE TO EXCEED 16 VOLTS. REFER TO INSTRUCTIONS PROVIDED WITH DEVICE BEING USED.

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.

CAUTION: When using another vehicle as a booster, do not allow vehicles to touch. Electrical systems can be damaged on either vehicle.

TO JUMP START A DISABLED VEHICLE:

(1) Raise hood on disabled vehicle and visually inspect engine compartment for:

- Battery cable clamp condition, clean if necessary.
- Frozen battery.

JUMP STARTING (Continued)

- Yellow or bright color test indicator, if equipped.
- Low battery fluid level.
- Generator drive belt condition and tension.
- Fuel fumes or leakage, correct if necessary.

CAUTION: If the cause of starting problem on disabled vehicle is severe, damage to booster vehicle charging system can result.

(2) When using another vehicle as a booster source, park the booster vehicle within cable reach. Turn off all accessories, set the parking brake, place the automatic transmission in PARK or the manual transmission in NEUTRAL and turn the ignition OFF.

(3) On disabled vehicle, place gear selector in park or neutral and set park brake. Turn off all accessories.

(4) Connect jumper cables to booster battery. RED clamp to positive terminal (+). BLACK clamp to negative terminal (-). DO NOT allow clamps at opposite end of cables to touch, electrical arc will result. Review all warnings in this procedure.

(5) On disabled vehicle, connect RED jumper cable clamp to positive (+) terminal. Connect BLACK jumper cable clamp to engine ground as close to the ground cable attaching point as possible (Fig. 8).

(6) Start the engine in the vehicle which has the booster battery, let the engine idle a few minutes, then start the engine in the vehicle with the discharged battery.

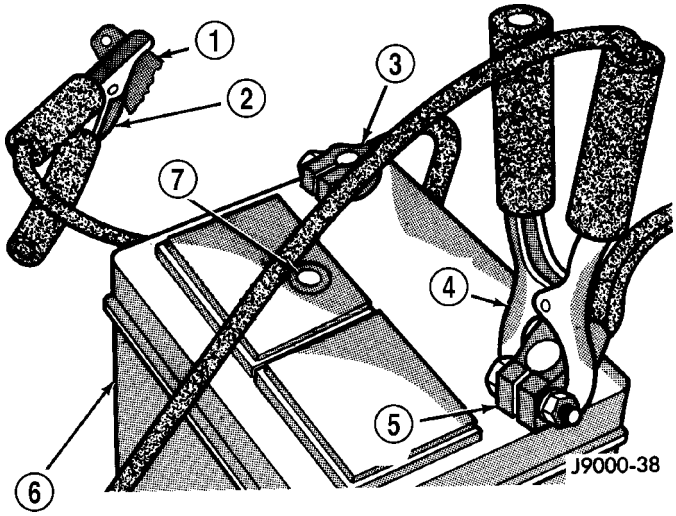


Fig. 8 Jumper Cable Clamp Connections

1 - ENGINE GROUND
2 - NEGATIVE JUMPER CABLE
3 - BATTERY NEGATIVE CABLE
4 - POSITIVE JUMPER CABLE
5 - BATTERY POSITIVE CABLE
6 - BATTERY
7 - TEST INDICATOR (IF EQUIPPED)

CAUTION: Do not crank starter motor on disabled vehicle for more than 15 seconds, starter will overheat and could fail.

(7) Allow battery in disabled vehicle to charge to at least 12.4 volts (75% charge) before attempting to start engine. If engine does not start within 15 seconds, stop cranking engine and allow starter to cool (15 min.), before cranking again.

DISCONNECT CABLE CLAMPS AS FOLLOWS:

- Disconnect BLACK cable clamp from engine ground on disabled vehicle.
- When using a Booster vehicle, disconnect BLACK cable clamp from battery negative terminal. Disconnect RED cable clamp from battery positive terminal.
- Disconnect RED cable clamp from battery positive terminal on disabled vehicle.

EMERGENCY TOW HOOKS

DESCRIPTION

WARNING: REMAIN AT A SAFE DISTANCE FROM A VEHICLE THAT IS BEING TOWED VIA ITS TOW HOOKS. THE TOW STRAPS/CHAINS COULD BREAK AND CAUSE SERIOUS INJURY.

Some Jeep vehicles are equipped with front emergency tow hooks (Fig. 9). The tow hooks should be used for **EMERGENCY**purposes only.

CAUTION: DO NOT use emergency tow hooks for tow truck hook-up or highway towing.

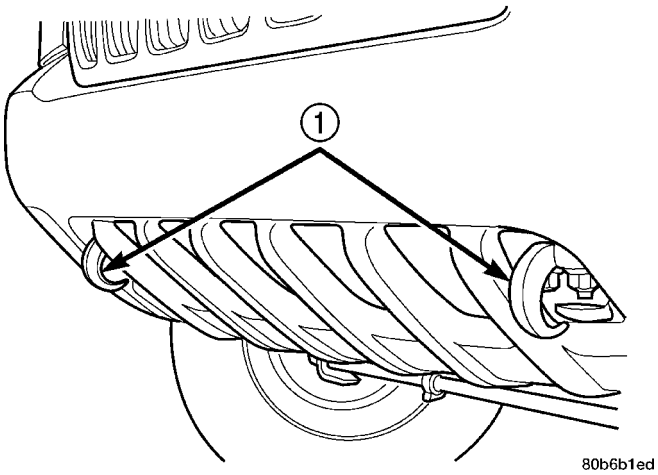


Fig. 9 Emergency Tow Hooks

1 - TOW HOOK

TOWING

STANDARD PROCEDURE - TOWING RECOMMENDATIONS

A vehicle equipped with SAE approved wheel lift-type towing equipment can be used to tow WJ vehicles. When towing a 4WD vehicle using a wheel-lift towing device, use tow dollies under the opposite end of the vehicle. A vehicle with flatbed device can also be used to transport a disabled vehicle (Fig. 10).

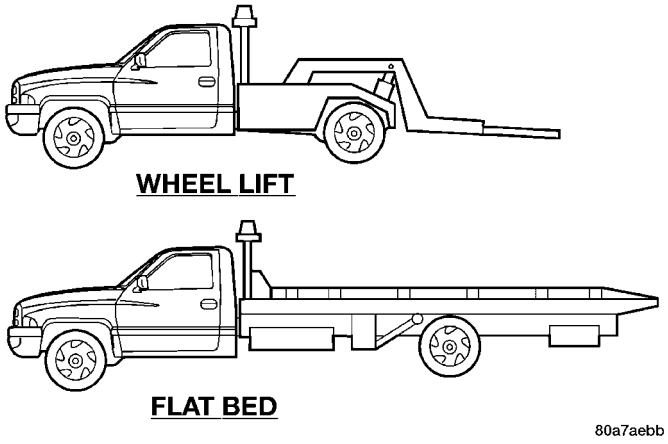


Fig. 10 Tow Vehicles With Approved Equipment

SAFETY PRECAUTIONS

CAUTION: The following safety precautions must be observed when towing a vehicle:

- Secure loose and protruding parts.
- Always use a safety chain system that is independent of the lifting and towing equipment.
- Do not allow towing equipment to contact the disabled vehicle's fuel tank.
- Do not allow anyone under the disabled vehicle while it is lifted by the towing device.
- Do not allow passengers to ride in a vehicle being towed.
- Always observe state and local laws regarding towing regulations.
- Do not tow a vehicle in a manner that could jeopardize the safety of the operator, pedestrians or other motorists.
- Do not attach tow chains, T-hooks, or J-hooks to a bumper, steering linkage, drive shafts or a non-reinforced frame hole.
- Do not tow a heavily loaded vehicle. Use a flatbed device to transport a loaded vehicle.

TWO-WHEEL-DRIVE VEHICLE TOWING

DaimlerChrysler Corporation recommends that a vehicle be towed with the rear end lifted, whenever possible.

WARNING: WHEN TOWING A DISABLED VEHICLE AND THE DRIVE WHEELS ARE SECURED IN A WHEEL LIFT OR TOW DOLLIES, ENSURE THE TRANSMISSION IS IN THE PARK POSITION (AUTOMATIC TRANSMISSION) OR A FORWARD DRIVE GEAR (MANUAL TRANSMISSION).

WARNING: ENSURE VEHICLE IS ON A LEVEL SURFACE OR THE WHEELS ARE BLOCKED TO PREVENT VEHICLE FROM ROLLING.

TWO WHEEL DRIVE TOWING-REAR END LIFTED

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

2WD vehicles can be towed with the front wheels on the surface for extended distances at speeds not exceeding 48 km/h (30 mph).

(1) Attach wheel lift device to rear wheels.
(2) Place the transmission in neutral.
(3) Raise vehicle to towing position.
(4) Attach safety chains. Route chains so not to interfere with tail pipe when vehicle is lifted.
(5) Turn the ignition switch to the OFF position to unlock the steering wheel.

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

(6) Secure steering wheel in straight ahead position with a clamp device designed for towing.
(7) Place transmission in park.

TWO WHEEL DRIVE TOWING-FRONT END LIFTED

CAUTION: Many vehicles are equipped with air dams, spoilers, and/or ground effect panels. To avoid component damage, a wheel-lift towing vehicle or a flat-bed hauling vehicle is recommended.

(1) Attach wheel lift device to rear wheels.
(2) Place the transmission in neutral.
(3) Raise the rear of the vehicle off the ground and install tow dollies under rear wheels.
(4) Attach wheel lift device to front wheels and raise vehicle to towing position.
(5) Attach the safety chains.

TOWING (Continued)

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

(6) Turn the ignition switch to the OFF position to unlock the steering wheel.
(7) Secure steering wheel in straight ahead position with a clamp device designed for towing.
(8) Place transmission in park.

FOUR-WHEEL-DRIVE VEHICLE TOWING

DaimlerChrysler Corporation recommends that a 4WD vehicle be transported on a flat-bed device. A Wheel-lift device can be used provided **the trailing wheels are off the ground and positioned in tow dollies.**

WARNING: WHEN TOWING A DISABLED VEHICLE AND THE DRIVE WHEELS ARE SECURED IN A WHEEL LIFT OR TOW DOLLIES, ENSURE THE TRANSMISSION IS IN THE PARK POSITION.

CAUTION: Many vehicles are equipped with air dams, spoilers, and/or ground effect panels. To avoid component damage, a wheel-lift towing vehicle or a flat-bed hauling vehicle is recommended.

FOUR WHEEL DRIVE TOWING—REAR END LIFTED

WARNING: ENSURE VEHICLE IS ON A LEVEL SURFACE OR THE WHEELS ARE BLOCKED TO PREVENT VEHICLE FROM ROLLING.

(1) Attach wheel lift device to front wheels.
(2) Place the transmission in neutral.
(3) Raise the front of the vehicle off the ground and install tow dollies under front wheels.
(4) Attach wheel lift device to rear wheels and raise vehicle to towing position.
(5) Attach safety chains. Route chains so not to interfere with tail pipe when vehicle is lifted.
(6) Turn the ignition switch to the OFF position to unlock the steering wheel.

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

(7) Secure steering wheel in straight ahead position with a clamp device designed for towing.
(8) Place transmission in park.

FOUR WHEEL DRIVE TOWING—FRONT END LIFTED

WARNING: ENSURE VEHICLE IS ON A LEVEL SURFACE OR THE WHEELS ARE BLOCKED TO PREVENT VEHICLE FROM ROLLING.

(1) Attach wheel lift device to rear wheels.
(2) Place the transmission in neutral.
(3) Raise the rear of the vehicle off the ground and install tow dollies under rear wheels.
(4) Attach wheel lift device to front wheels and raise vehicle to towing position.
(5) Attach the safety chains.

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

(6) Turn the ignition switch to the OFF position to unlock the steering wheel.
(7) Secure steering wheel in straight ahead position with a clamp device designed for towing.
(8) Place transmission in park.

MAINTENANCE SCHEDULES

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MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO

DESCRIPTION

DESCRIPTION

Maintenance Schedule Information not included in this section, is located in the appropriate Owner's Manual.

There are two maintenance schedules that show the **required** service for your vehicle.

First is Schedule **"B"**. It is for vehicles that are operated under the conditions that are listed below and at the beginning of the schedule.

- Day or night temperatures are below 0°C (32°F)
- Stop and go driving
- Extensive engine idling
- Driving in dusty conditions
- Short trips of less than 16.2 km (10 miles)
- More than 50% of your driving is at sustained high speeds during hot weather, above 32°C (90°F)
- Trailer towing
- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

NOTE: Most vehicles are operated under the conditions listed for Schedule "B."

Second is Schedule **"A"**. It is for vehicles that are not operated under any of the conditions listed under Schedule "B."

Use the schedule that best describes your driving conditions. Where time and mileage are listed, follow the interval that occurs first.

CAUTION: Failure to perform the required maintenance items may result in damage to the vehicle.

At Each Stop for Fuel

- Check the engine oil level about 5 minutes after a fully warmed engine is shut off. Checking the oil level while the vehicle is on level ground will improve the accuracy of the oil level reading. Add oil only when the level is at or below the ADD or MIN mark.
- Check the windshield washer solvent and add if required.

Once a Month

- Check the tire pressure and look for unusual wear or damage.
- Inspect the battery and clean and tighten the terminals as required.
- Check the fluid levels of coolant reservoir, brake master cylinder, power steering, and transmission and add as needed.
- Check all lights and all other electrical items for correct operation.

At Each Oil Change

- Change the engine oil filter.
- Inspect the exhaust system.
- Inspect brake hoses.
- Check the coolant level, hoses, and clamps.
- Rotate the tires.
- After completion of off-road operation, the underside of the vehicle should be thoroughly inspected. Examine threaded fasteners for looseness.

Schedule "B"

Follow schedule "B" if you usually operate your vehicle under one or more of the following conditions.

- Day or night temperatures are below 0°C (32°F)
- Stop and go driving
- Extensive engine idling
- Driving in dusty conditions
- Short trips of less than 16.2 km (10 miles)
- More than 50% of your driving is at sustained high speeds during hot weather, above 32°C (90°F)
- Trailer towing

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

- Taxi, police, or delivery service (commercial service)
- Off-road or desert driving
- **If equipped for and operated with E-85 (ethanol) fuel.**

Kilometers	**5 000**	**10 000**	**14 000**	**19 000**	**24 000**
(Miles)	**(3,000)**	**(6,000)**	**(9,000)**	**(12,000)**	**(15,000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Drain and refill the front and rear axles.				X	
Inspect the engine air cleaner filter, replace if necessary.					X
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	

Kilometers	**29 000**	**34 000**	**38 000**	**43 000**	**48 000**
(Miles)	**(18,000)**	**(21,000)**	**(24,000)**	**(27,000)**	**(30,000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Drain and refill the front and rear axles.			X		
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Replace the engine air cleaner filter, replace if necessary.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◊					X
Replace the spark plugs.					X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L Only).					X
Drain the transfer case and refill (Quadra-Trac Models Only).					X

Kilometers	**53 000**	**58 000**	**62 000**	**67 000**	**72 000**
(Miles)	**(33,000)**	**(36,000)**	**(39,000)**	**(42,000)**	**(45,000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Drain and refill the front and rear axles.		X			
Inspect the brake linings.		X			
Inspect the engine air cleaner filter, replace if necessary.					X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Clean and lubricate the brake caliper pins.		X			
Inspect and replace drive belt if necessary (4.0L Only).					X

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Kilometers	**77 000**	**82 000**	**86 000**	**91 000**	**96 000**
(Miles)	**(48,000)**	**(51,000)**	**(54,000)**	**(57,000)**	**(60,000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Clean and lubricate brake caliper pins.	X				X
Inspect the engine air filter element, replace if necessary.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◇					X
Replace the spark plugs.					X
Inspect the brake linings.	X				X
Drain and refill the front and rear axles.	X				X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L Only).					X
Drain and replace brake fluid.					X
Inspect the drive belt and replace as needed. Not required if belt was previously replaced (4.0L Only).					X
Drain and refill the transfer case fluid (Quadra-Trac Models).					X

Kilometers	**101 000**	**106 000**	**110 000**	**115 000**	**120 000**
(Miles)	**(63,000)**	**(66,000)**	**(69,000)**	**(72,000)**	**(75,000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the engine air filter element, replace if necessary.					X
Inspect the brake linings.				X	
Clean and lubricate the brake caliper pins.				X	
Drain and refill the front and rear axle fluid‡				X	
Inspect the drive belt and replace as needed. Not required if belt was previously replaced (4.0L Only).					X
Inspect the drive belt and replace as needed (4.7L Only).					X

Kilometers	**125 000**	**130 000**	**134 000**	**139 000**	**144 000**
(Miles)	**(78,000)**	**(81,000)**	**(84,000)**	**(87,000)**	**(90,000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering and suspension ball joints.	X		X		X

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Kilometers	**125 000**	**130 000**	**134 000**	**139 000**	**144 000**
(Miles)	**(78,000)**	**(81,000)**	**(84,000)**	**(87,000)**	**(90,000)**
Inspect the engine air filter element, replace if necessary.					X
Replace the spark plugs.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◇					X
Drain and refill the transfer case fluid (Quadra-Trac Only).					X
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Drain and refill the front and rear axle fluid‡			X		
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, replace main sump filter, and spin-on cooler return filter (if equipped) (4.7L Only).					X
Inspect the drive belt and replace as needed. Not required if belt was previously replaced (4.0L and 4.7L).					X

Kilometers	**149 000**	**154 000**	**160 000**	**163 000**	**168 000**
(Miles)	**(93,000)**	**(96,000)**	**(100,000)**	**(102,000)**	**(105,000)**
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X	
Inspect the engine air filter element, replace if necessary.					X
Inspect the brake linings.		X			
Clean and lubricate the brake caliper pins.		X			
Drain and refill the front and rear axle fluid‡		X			
Inspect the drive belt and replace as needed. Not required if belt was previously replaced (4.0L and 4.7L).					X
Flush and replace the engine coolant.			X		

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Kilometers (Miles)	**173 000** (108,000)	**178 000** (111,000)	**182 000** (114,000)	**187 000** (117,000)	**192 000** (120,000)
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X		X
Inspect the engine air filter element, replace if necessary.					X
Replace the spark plugs.					X
Inspect the PCV valve, replace if necessary (4.7L Only). ◇					X
Inspect the brake linings.	X				X
Clean and lubricate the brake caliper pins.	X				X
Drain and replace the brake fluid.					X
Drain and refill the front and rear axle fluid‡	X				X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).					X
Drain and refill the automatic transmission fluid, and replace main sump filter (4.7L Only).					X
Inspect the drive belt and replace as needed. Not required if belt was previously replaced (4.0L and 4.7L).					X
Drain and refill the transfer case fluid (Quadra-Trac Only).					X

◇ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

‡Off-highway operation, trailer towing, taxi, limousine, bus, snow plowing, or other types of commercial service or prolonged operation with heavy loading, especially in hot weather, require front and rear axle service indicated with a ‡ in Schedule “B”. Perform these services if the vehicle is usually operated under these conditions.

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Schedule "A

Kilometers **(Miles)** **[Months]**	**12 000** **(7,500)** **[6]**	**24 000** **(15,000)** **[12]**	**36 000** **(22,500)** **[18]**	**48 000** **(30,000)** **[24]**	**60 000** **(37,500)** **[30]**
Change the engine oil and filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension balljoints.		X		X	
Inspect the brake linings.			X		
Clean and lubricate the brake caliper pins.			X		
Replace the engine air cleaner filter.				X	
Replace the spark plugs.				X	
Drain the transfer case and refill (Quadra-Trac Only).				X	

Kilometers **(Miles)** **[Months]**	**72 000** **(45,000)** **[36]**	**84 000** **(52,500)** **[42]**	**96 000** **(60,000)** **[48]**	**108 000** **(67,500)** **[54]**
Change the engine oil and engine oil filter.	X	X	X	X
Inspect the brake linings.	X			X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Clean and lubricate the brake caliper pins.	X			X
Replace the engine air cleaner filter.			X	
Inspect the PCV valve, replace if necessary (4.7L Only) ◇.			X	
Replace the spark plugs.			X	
Inspect the Auto Tension Drive Belt, and replace if needed (4.0L Only).			X	
Drain and replace the brake fluid.			X	
Drain the transfer case, and refill (Quadra-Trac Only).			X	

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Kilometers **(Miles)** **[Months]**	**120 000** **(75,000)** **[60]**	**132 000** **(82,500)** **[66]**	**144 000** **(90,000)** **[72]**	**156 000** **(97,500)** **[78]**
Change the engine oil and engine oil filter.	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X		X	
Inspect and replace the drive belt if necessary (4.0L Only). Not required if belt was previously replaced.	X		X	
Inspect and replace the drive belt if necessary (4.7L Only).			X	
Flush and replace the engine coolant.	X			
Replace the engine air cleaner filter.			X	
Replace the spark plugs.	X		X	
Inspect the PCV valve, replace if necessary (4.7L Only). ◊	X		X	
Drain and replace the brake fluid.	X			
Inspect the brake linings.			X	
Clean and lubricate the brake caliper pins.			X	
Drain the transfer case and refill (Quadra-Trac Only).			X	

Kilometers **(Miles)** **[Months]**	**160 000** **(100,000)**	**168 000** **(105,000)** **[84]**	**180 000** **(112,500)** **[90]**	**192 000** **(120, 000)** **[96]**
Change the engine oil and engine oil filter.		X	X	X
Drain and refill the automatic transmission fluid, change filter, and adjust bands (4.0L Only).	X			
Drain and refill the automatic transmission fluid, replace main sump filter, and spin-on cooler return filter (if so equipped) (4.7L Only).	X			
Flush and replace the engine coolant if not replaced at 60 months.	X			X
Inspect and replace the drive belt if not previously replaced (4.0L and 4.7L).		X		X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.		X		X
Inspect brake linings.			X	
Clean and lubricate the brake caliper pins.			X	
Drain and replace brake fluid.				X
Replace the engine air cleaner filter.				X
Replace the spark plugs.				X
Inspect the PCV valve, replace if necessary (4.7L Only). ◊				X
Drain the transfer case and refill (Quadra-Trac Only).				X

Inspection and service should be performed anytime a malfunction is observed or suspected. Retain all receipts.

◊ This maintenance is recommended by the manufacturer to the owner, but is not required to maintain emissions warranty.

WARNING: You can be badly injured working on or around a motor vehicle. Do only that service work for which you have the knowledge and the right equipment. If you have any doubt about your ability to perform a service job, take your vehicle to a competent mechanic.

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

DESCRIPTION — DIESEL ENGINES

Maintenance Schedule Information not included in this section, is located in the appropriate Owner's Manual.

There are two maintenance schedules that show the **required** service for your vehicle.

First is Schedule "**B**". It is for vehicles that are operated under the conditions listed at the beginning of the schedule.

- Extensive engine idling.
- Driving in dusty conditions.
- More than 50% of your driving is at sustained high speeds during hot weather, above 32° C (90° F).
- Trailer towing.
- Taxi, police, or delivery service (commercial service).
- Off-road or desert driving.

NOTE: Most vehicles are operated under the conditions listed for Schedule "B."

Second is Schedule **"A"**. It is for vehicles that are not operated under any of the conditions listed under Schedule "B."

Use the schedule that best describes your driving conditions. Where time and mileage are listed, follow the interval that occurs first.

CAUTION: Failure to perform the required maintenance items may result in damage to the vehicle.

At Each Stop for Fuel

- Check the engine oil level about 5 minutes after a fully warmed engine is shut off. Checking the oil level while the vehicle is on level ground will improve the accuracy of the oil level reading. Add oil only when the level is at or below the ADD or MIN mark.
- Check the windshield washer solvent, and add as required.

Once a Month

- Check the tire pressure and look for unusual wear or damage.
- Inspect the battery, clean and tighten the terminals as required.
- Check the fluid levels of the coolant reservoir, brake master cylinder, power steering, and transmission, and add as needed.
- Check all lights and all other electrical items for correct operation.

At Each Oil Change

- Change the engine oil filter.
- Inspect the exhaust system.
- Inspect the brake hoses.
- Inspect front suspension ball joints.
- Check the coolant level, hoses, and clamps.
- Inspect engine accessory drive belts, replace as necessary.
- Inspect for the presence of water in the fuel filter/water separator unit.
- Rotate the tires.
- After completion of off-road operation, the underside of the vehicle should be thoroughly inspected. Examine threaded fasteners for looseness.

Schedule "B"

Follow schedule "B" if you usually operate your vehicle under one or more of the following conditions.

- Extensive engine idling.
- Driving in dusty conditions.
- More than 50% of your driving is at sustained high speeds during hot weather, above 32° C (90° F).
- Trailer towing.
- Taxi, police, or delivery service (commercial service).

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Kilometers	10 000 km	20 000 km	30 000 km	40 000 km	50 000 km
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X	X	X	X	X
Drain and refill the front and rear axles.		X		X	
Inspect the engine air filter element. Replace as necessary.	X		X		X
Replace the engine air filter element.		X		X	
Replace the fuel filter/water separator unit.		X		X	
Inspect the brake linings.		X		X	
Clean and lubricate the brake caliper pins.		X		X	
Drain the transfer case and refill (Quadra-Trac Only).					X

Kilometers	60 000 km	70 000 km	80 000 km	90 000 km	100 000 km
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X	X	X	X	X
Drain and refill the front and rear axles.	X		X		X
Inspect the brake linings.	X		X		X
Clean and lubricate the brake caliper pins.	X		X		X
Drain and replace brake fluid.					X
Inspect the engine air filter element. Replace as necessary.		X		X	
Replace the engine air filter element.	X		X		X
Replace the fuel filter/water separator unit.	X		X		X
Inspect the accessory drive belt and replace if needed.					X
Drain and refill the automatic transmission fluid, and change filter.					X
Drain and refill the transfer case fluid (Quadra-Trac Only).					X

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Kilometers	110000 km	120 000 km	130000 km	140000 km	150000 km	160000 km
Change the engine oil and engine oil filter.	X	X	X	X	X	X
Lubricate the upper knuckle ball stud at steering & suspension ball joints.	X	X	X	X	X	X
Inspect the brake linings.		X		X		X
Clean and lubricate the brake caliper pins.		X		X		X
Drain and refill the front and rear axle fluid.		X		X		X
Inspect the engine air filter element. Replace as necessary.	X		X		X	
Replace the engine air filter element.		X		X		X
Replace the fuel filter/water separator unit.		X		X		X
Flush and replace the engine coolant.						X
Drain and refill the transfer case (Quadra-Trac Only).				X		

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

MAINTENANCE SCHEDULES FOR ALL MARKETS EXCEPT U.S., CANADA and MEXICO (Continued)

Schedule "A"

Kilometers	20 000 km	40 000 km	60 000 km	80 000 km	100 000 km
Change the engine oil and engine oil filter.	X	X	X	X	X
Lubricate the upper knuckle ball stud at the steering & suspension ball joints.	X	X	X	X	X
Inspect the brake linings.		X		X	
Clean and lubricate the brake caliper pins.		X		X	
Drain and replace the brake fluid.				X	
Inspect the engine air filter element. Replace as necessary.	X		X		X
Replace the engine air filter element.		X		X	
Replace the fuel filter/water separator unit.		X		X	
Inspect the accessory drive belt, and replace if necessary.					X
Drain the transfer case and refill (Quadra-Trac Only).		X		X	

Kilometers	120 000 km	140 000 km	160 000 km	180 000 km
Change the engine oil and engine oil filter.	X	X	X	X
Lubricate the upper knuckle ball stud at the steering & suspension ball joints.	X	X	X	X
Inspect the brake linings.	X		X	
Clean and lubricate the brake caliper pins.	X		X	
Drain and replace the brake fluid.			X	
Inspect the engine air filter element. Replace as necessary.		X		X
Replace the engine air filter element	X		X	
Replace the fuel filter/water separator unit.	X		X	
Flush and replace the engine coolant.			X	
Inspect the accessory drive belt, and replace if necessary.				X
Drain the transfer case and refill (Quadra-Trac Only).		X		
Drain the transfer case and refill (Quadra-Trac Only).				X

Inspection and service should also be performed anytime a malfunction is observed or suspected. Retain all receipts.

WARNING: You can be badly injured working on or around a motor vehicle. Do only that service work for which you have the knowledge and the right equipment. If you have any doubt about your ability to perform a service job, take your vehicle to a competent mechanic.

DIFFERENTIAL & DRIVELINE

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PROPELLER SHAFT

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PROPELLER SHAFT

DIAGNOSIS AND TESTING

VIBRATION

Tires that are out-of-round, or wheels that are unbalanced, will cause a low frequency vibration. (Refer to 22 - TIRES/WHEELS - DIAGNOSIS AND TESTING)

Brake rotors that are unbalanced will cause a harsh, low frequency vibration. (Refer to 5 - BRAKES - DIAGNOSIS AND TESTING)

Driveline vibration can also result from loose or damaged engine mounts.

Propeller shaft vibration increases as the vehicle speed is increased. A vibration that occurs within a specific speed range is not usually caused by a propeller shaft being unbalanced. Defective universal joints, or an incorrect propeller shaft angle, are usually the cause of such a vibration.

PROPELLER SHAFT (Continued)

DRIVELINE VIBRATION

Drive Condition	Possible Cause	Correction
Propeller Shaft Noise	1) Undercoating or other foreign material on shaft.	1) Clean exterior of shaft and wash with solvent.
	2) Loose U-joint clamp screws.	2) Install new clamps and screws and tighten to proper torque.
	3) Loose or bent U-joint yoke or excessive runout.	3) Install new yoke.
	4) Incorrect driveline angularity.	4) Measure and correct driveline angles.
	5) Rear spring center bolt not in seat.	5) Loosen spring u-bolts and seat center bolt.
	6) Worn U-joint bearings.	6) Install new U-joint.
	7) Propeller shaft damaged or out of balance.	7) Installl new propeller shaft.
	8) Broken rear spring.	8) Install new rear spring.
	9) Excessive runout or unbalanced condition.	9) Re-index propeller shaft, test, and evaluate.
	10) Excessive drive pinion gear shaft runout.	10) Re-index propeller shaft and evaluate.
	11) Excessive axle yoke deflection.	11) Inspect and replace yoke if necessary.
	12) Excessive transfer case runout.	12) Inspect and repair as necessary.
Universal Joint Noise	1) Loose U-joint clamp screws.	1) Install new clamps and screws and tighten to proper torque.
	2) Lack of lubrication.	2) Replace U-joints as necessary.

BALANCE

NOTE: Removing and re-indexing the propeller shaft 180° relative to the yoke may eliminate some vibrations.

If propeller shaft is suspected of being unbalanced, it can be verified with the following procedure:

(1) Raise the vehicle.

(2) Clean all the foreign material from the propeller shaft and the universal joints.

(3) Inspect the propeller shaft for missing balance weights, broken welds, and bent areas. **If the propeller shaft is bent, it must be replaced.**

(4) Inspect the universal joints to ensure that they are not worn, are properly installed, and are correctly aligned with the shaft.

(5) Check the universal joint clamp screws torque.

(6) Remove the wheels and tires. Install the wheel lug nuts to retain the brake drums or rotors.

(7) Mark and number the shaft six inches from the yoke end at four positions 90° apart.

(8) Run and accelerate the vehicle until vibration occurs. Note the intensity and speed the vibration occurred. Stop the engine.

(9) Install a screw clamp at position 1 (Fig. 1).

(10) Start the engine and re-check for vibration. If there is little or no change in vibration, move the clamp to one of the other three positions. Repeat the vibration test.

(11) If there is no difference in vibration at the other positions, the source of the vibration may not be propeller shaft.

(12) If the vibration decreased, install a second clamp (Fig. 2) and repeat the test.

(13) If the additional clamp causes an additional vibration, separate the clamps (1/4 inch above and below the mark). Repeat the vibration test (Fig. 3).

(14) Increase distance between the clamp screws and repeat the test until the amount of vibration is at the lowest level. Bend the slack end of the clamps so the screws will not loosen.

(15) If the vibration remains unacceptable, apply the same steps to the front end of the propeller shaft.

PROPELLER SHAFT (Continued)

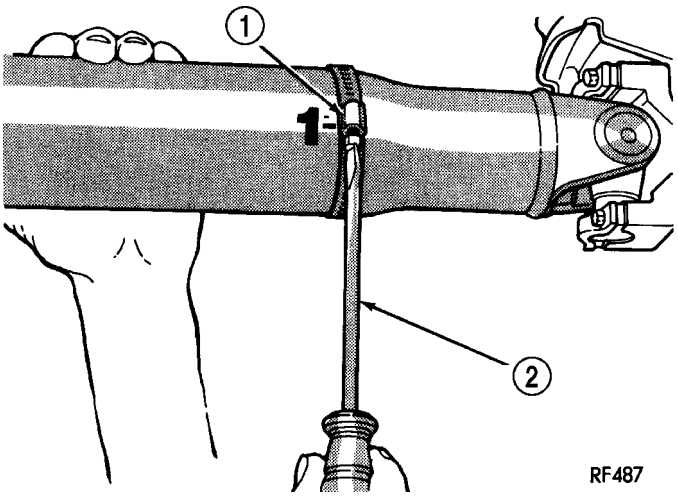


Fig. 1 CLAMP SCREW - POSITION 1

1 - CLAMP
2 - SCREWDRIVER

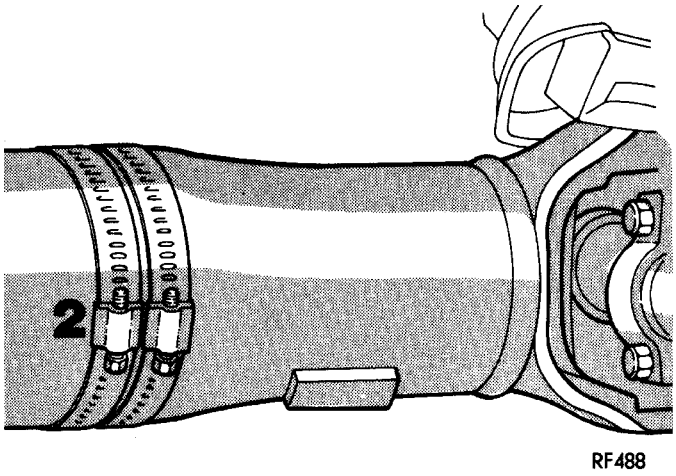


Fig. 2 TWO CLAMP SCREWS

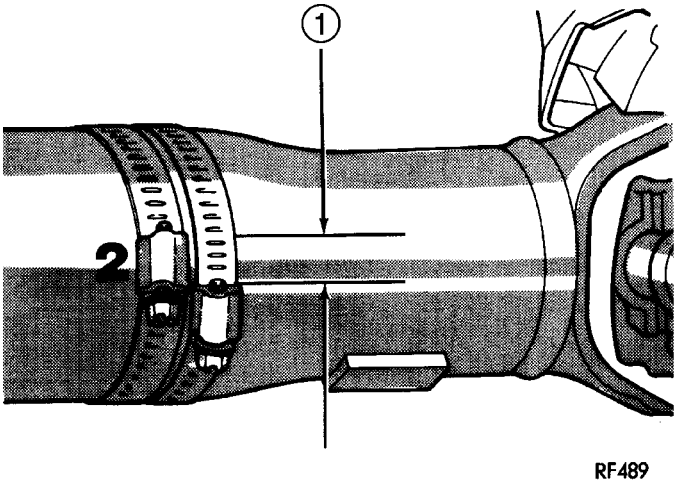


Fig. 3 CLAMP SCREWS SEPARATED

1 - ½ INCH

(16) Install the wheel and tires. Lower the vehicle.

RUNOUT

(1) Remove dirt, rust, paint, and undercoating from the propeller shaft surface where the dial indicator will contact the shaft.

(2) The dial indicator must be installed perpendicular to the shaft surface.

(3) Measure runout at the center and ends of the shaft sufficiently far away from weld areas to ensure that the effects of the weld process will not enter into the measurements.

(4) Refer to Runout Specifications chart.

(5) If the propeller shaft runout is out of specification, remove the propeller shaft, index the shaft 180°, and re-install the propeller shaft. Measure shaft runout again.

(6) If the propeller shaft runout is now within specifications, mark the shaft and yokes for proper orientation.

(7) If the propeller shaft runout is not within specifications, verify that the runout of the transmission/transfer case and axle are within specifications. Correct as necessary and re-measure propeller shaft runout.

(8) Replace the propeller shaft if the runout still exceeds the limits.

RUNOUT SPECIFICATIONS

Front of Shaft	0.020 in. (0.50 mm)
Center of Shaft	0.025 in. (0.63 mm)
Rear of Shaft	0.020 in. (0.50 mm)
note: Measure front/rear runout approximately 3 inches (76 mm) from the weld seam at each end of the shaft tube for tube lengths over 30 inches. For tube lengths under 30 inches, the maximum allowed runout is 0.020 in. (0.50 mm) for the full length of the tube.	

STANDARD PROCEDURE

STANDARD PROCEDURES

This procedure applies to both the front propeller shafts and the rear propeller shaft. To obtain the front (output) angle on the C/V front propeller shaft, the inclinometer is placed on the machined ring of the pinion flange. To obtain the propeller shaft angle measurement on the C/V front propeller shaft, the inclinometer is placed on the propeller shaft tube.

PROPELLER SHAFT ANGLE

(1) Raise and support the vehicle at the axles as level as possible. Allow the wheels and propeller shaft to turn.

(2) Remove any external bearing snap rings from universal joint if equipped, so the inclinometer base will sits flat.

PROPELLER SHAFT (Continued)

(3) Rotate the shaft until transmission/transfer case output yoke bearing cap is facing downward, if necessary.

NOTE: Always make measurements from front to rear.

(4) Place Inclinometer on yoke bearing cap, or the pinion flange ring, (A) parallel to the shaft (Fig. 4). Center bubble in sight glass and record measurement.

NOTE: This measurement will give you the transmission or Output Yoke Angle (A).

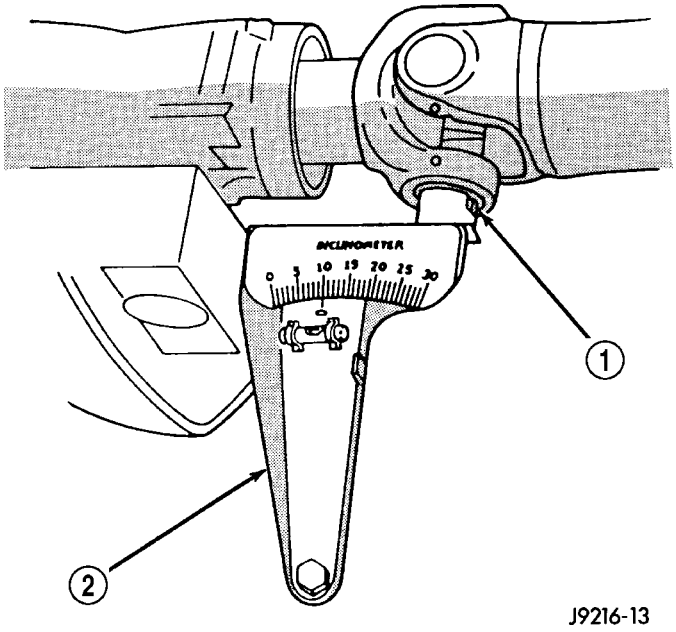


Fig. 4 OUTPUT YOKE ANGLE (A)

1 - SLIP YOKE BEARING CAP
2 - INCLINOMETER

(5) Rotate propeller shaft 90 degrees and place Inclinometer on yoke bearing cap, or propeller shaft tube on C/V propeller shaft, parallel to the shaft (Fig. 5). Center bubble in sight glass and record measurement. This measurement can also be taken at the rear end of the shaft.

NOTE: This measurement will give you the propeller shaft angle (C).

(6) Subtract smaller figure from larger (C minus A) to obtain transmission output operating angle.

(7) Rotate propeller shaft 90 degrees and place Inclinometer on pinion yoke bearing cap parallel to the shaft (Fig. 6). Center bubble in sight glass and record measurement.

NOTE: This measurement will give you the pinion shaft or input yoke angle (B).

(8) Subtract smaller figure from larger (C minus B) to obtain axle Input Operating Angle.

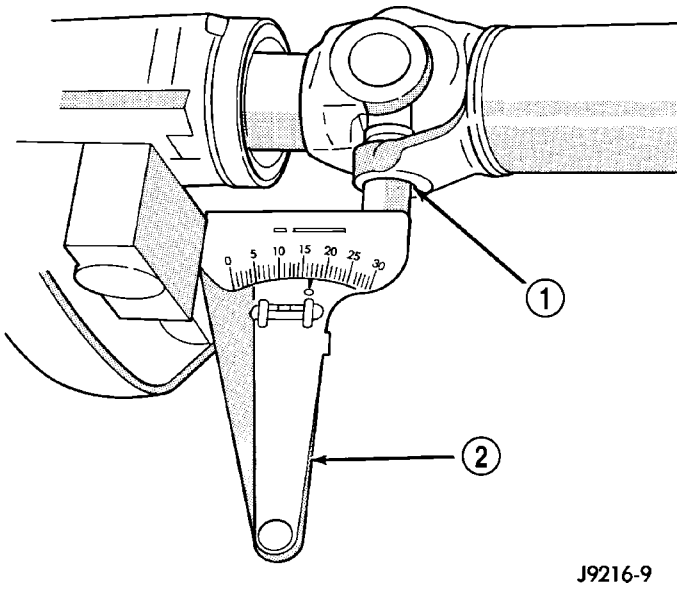


Fig. 5 PROPELLER SHAFT ANGLE (C)

1 - SHAFT YOKE BEARING CAP
2 - INCLINOMETER

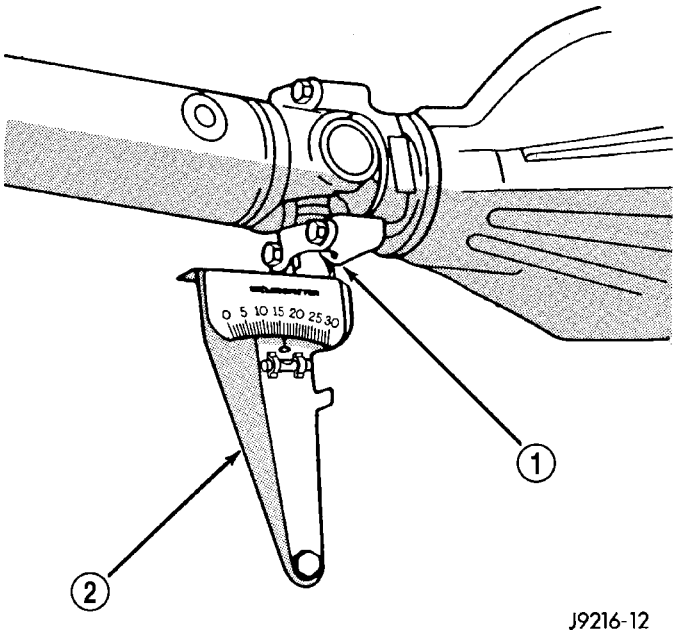


Fig. 6 INPUT YOKE ANGLE (B)

1 - PINION YOKE BEARING CAP
2 - INCLINOMETER

Refer to rules given below and the example in (Fig. 7) for additional information.

- Good cancellation of U-joint operating angles (within 1°).
- Operating angles less than 3°.
- Operating angles less than 10° for double cardan U-joint.
- At least 1/2 of one degree continuous operating (propeller shaft) angle.

PROPELLER SHAFT (Continued)

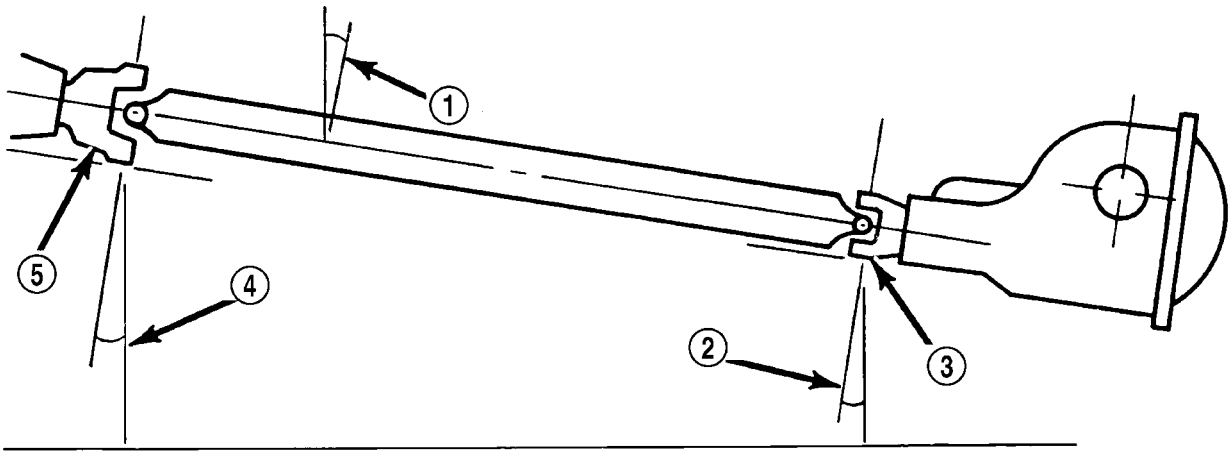


Fig. 7 U-JOINT ANGLE EXAMPLE

1 - 4.9° Angle (C)
2 - 3.2° Angle (B)
3 - Input Yoke
4 - 3.0° Angle (A)
5 - Output Yoke

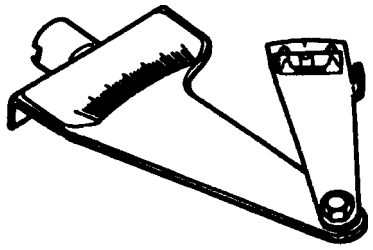
SPECIFICATIONS

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Front Shaft - Companion Flange Bolts	32	24	-
4.7L Front Shaft - Axle Yoke Nuts	19	14	-
4.7L Front Shaft - Transfer Case Bolts	27	20	-
Rear Shaft - Yoke Nuts	19	14	-

PROPELLER SHAFT (Continued)

SPECIAL TOOLS



INCLINOMETER 7663

PROPELLER SHAFT - FRONT

REMOVAL

NOTE: Different length propeller shafts are used for different drivetrain applications. Ensure that the correct propeller shaft is used.

(1) Place vehicle on floor or drive-on hoist with full weight of vehicle on suspension.

(2) Shift the transmission and transfer case, if necessary, into the Neutral position.

(3) Measure the distance from the face of the C/V joint cup to the end of the C/V joint boot (Fig. 8).

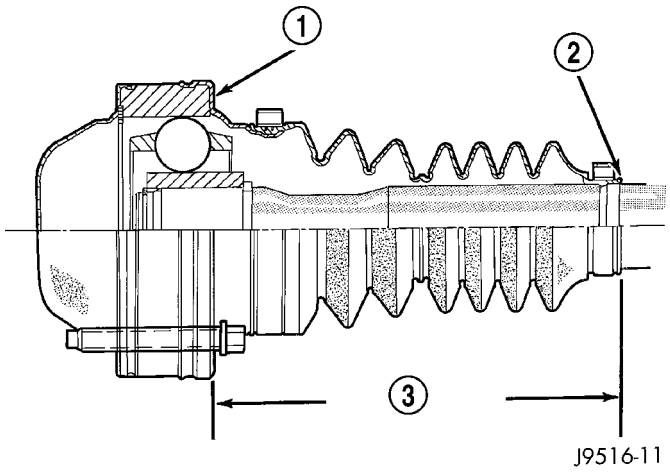


Fig. 8 MEASUREMENT

1 - C/V JOINT CUP
2 - C/V BOOT END
3 - MEASUREMENT

(4) The correct length is 142.7 mm (5.61 in.).

NOTE: If the measurement is not correct, the wrong shaft may have been installed or a mating component (front axle or transfer case) may be installed incorrectly. Investigate and correct as necessary.

(5) Mark a line across the companion flange at the transfer case and C/V joint at the rear of the front propeller shaft for installation reference.

(6) Mark a line across the C/V joints and the pinion companion flanges for installation reference.

(7) Remove bolts from the front C/V joint to the pinion companion flange.

(8) Remove bolts from the rear C/V joint to the transfer case companion flange.

(9) Push the propeller shaft forward to clear transfer case companion flange and remove the shaft.

INSTALLATION

NOTE: Different length propeller shafts are used for different drivetrain applications. Ensure that the correct propeller shaft is used.

(1) Install the shaft between companion flanges.

(2) The shaft should rotate freely in the pinion flange.

(3) Align marks on the companion flanges with the marks on the C/V joints.

(4) Install bolts to the front C/V joint and tighten bolts to 32 N·m (24 ft. lbs.).

(5) Install the bolts to the rear C/V joint and tighten bolts to 32 N·m (24 ft. lbs.).

(6) Verify propeller shaft length.

(7) Lower vehicle.

PROPELLER SHAFT - FRONT 4.7L

REMOVAL

(1) Raise and support vehicle.

(2) Remove crossmember/skid plate as necessary to gain access to the propeller shaft.

(3) Shift transmission and transfer case, if necessary into Neutral.

(4) Mark a line across the yoke at the transfer case, link yoke and propeller shaft yoke at the rear of the front propeller shaft for installation reference (Fig. 9).

(5) Mark a line across the propeller shaft yoke and pinion shaft yoke for installation reference.

(6) Remove the U-joint strap bolts at the pinion shaft yoke (Fig. 10).

(7) Remove bolts holding rear universal joint to the transfer case yoke.

(8) Separate the rear universal joint from the transfer case yoke.

(9) Push rear of propeller shaft upward to clear transfer case yoke.

(10) Separate front universal joint from front axle.

(11) Separate propeller shaft from vehicle.

PROPELLER SHAFT - FRONT 4.7L (Continued)

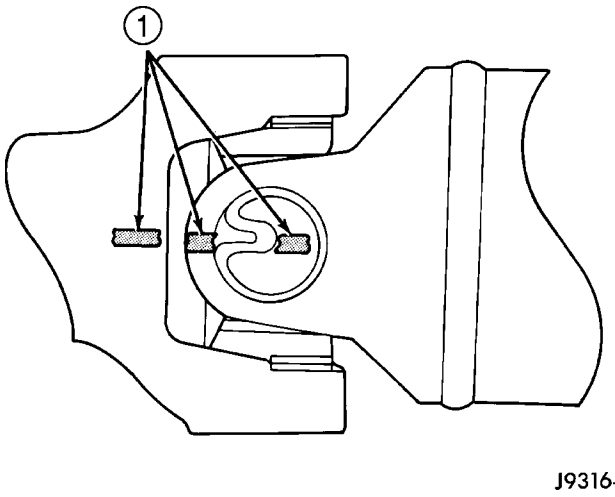


Fig. 9 REFERENCE MARKS ON YOKES

1 - REFERENCE MARKS

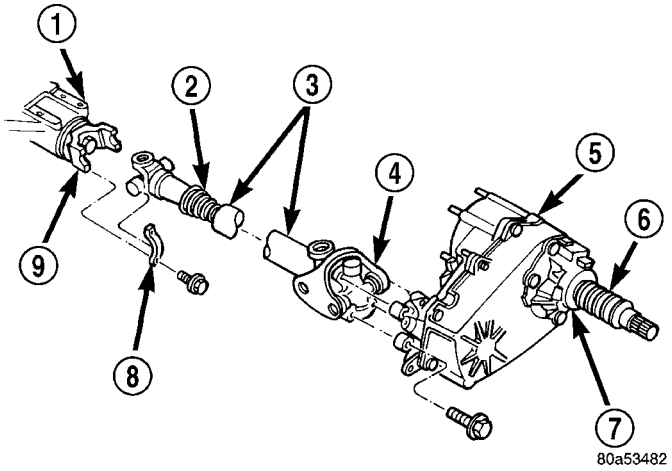


Fig. 10 FRONT PROPELLER SHAFT - 4.7L

1 - FRONT AXLE
2 - BOOT
3 - PROPELLER SHAFT
4 - DOUBLE CARDAN U-JOINT
5 - TRANSFER CASE
6 - BOOT
7 - SLINGER
8 - CLAMP
9 - YOKE

INSTALLATION

(1) Position front propeller shaft under vehicle with rear universal joint over the transfer case yoke.

(2) Place front universal joint into the axle pinion yoke.

(3) Align mark on the rear link yoke and universal joint to the mark on the transfer case yoke.

(4) Loosely install bolts to hold universal joint to transfer case yoke.

(5) Align mark on front universal joint to the mark on the axle pinion yoke.

(6) Tighten the U-joint strap/clamp bolts at the axle yoke to 19 N·m (14 ft. lbs.).

(7) Tighten the universal joint to transfer case bolts to 27 N·m (20 ft. lbs.).

(8) Lower the vehicle.

PROPELLER SHAFT - REAR

REMOVAL

(1) Raise and support vehicle on safety stands.

(2) Shift the transmission and transfer case if necessary, to their neutral positions.

(3) Mark a line across the axle pinion yoke and the propeller shaft yoke for installation reference.

(4) Remove the bolts holding the universal joint clamps to the pinion yoke.

(5) Slide the slip yoke off of the transmission, or transfer case, output shaft and remove the propeller shaft (Fig. 11).

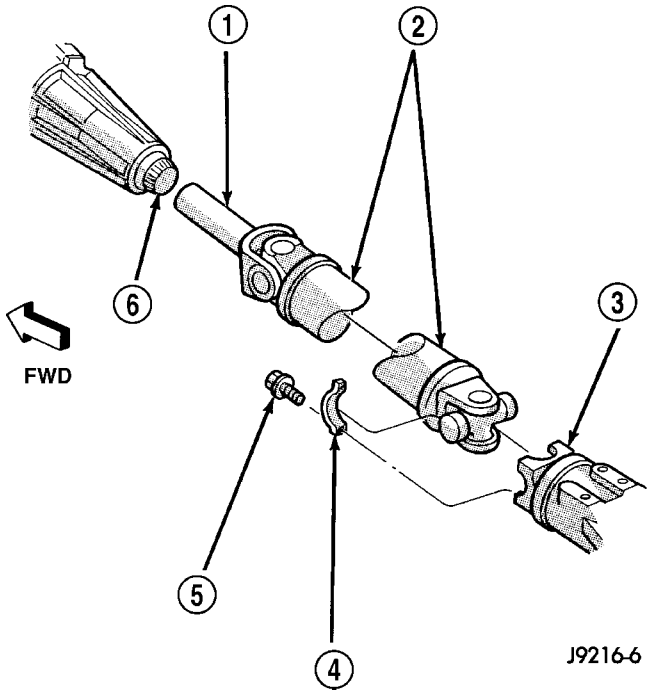


Fig. 11 REAR PROPELLER SHAFT

1 - SLIDING YOKE
2 - PROPELLER SHAFT
3 - PINION YOKE
4 - CLAMP/STRAP
5 - BOLT
6 - OUTPUT SHAFT

INSTALLATION

(1) Slide the slip yoke on the transmission, or transfer case, output shaft.

(2) Align the installation reference marks made on the propeller shaft and pinion yoke.

(3) Position universal joint into pinion yoke.

(4) Install the universal joint clamp and clamp bolts to the pinion yoke. Tighten bolts to 19 N·m (14 ft. lbs.).

(5) Lower the vehicle.

SINGLE CARDAN UNIVERSAL JOINTS

DISASSEMBLY

NOTE: Individual components of cardan universal joints are not serviceable. If worn or leaking, they must be replaced as an assembly.

(1) Remove the propeller shaft.
(2) Tap the outside of the bearing cap assembly with a drift to loosen snap ring.
(3) Remove snap rings from both sides of yoke (Fig. 12).

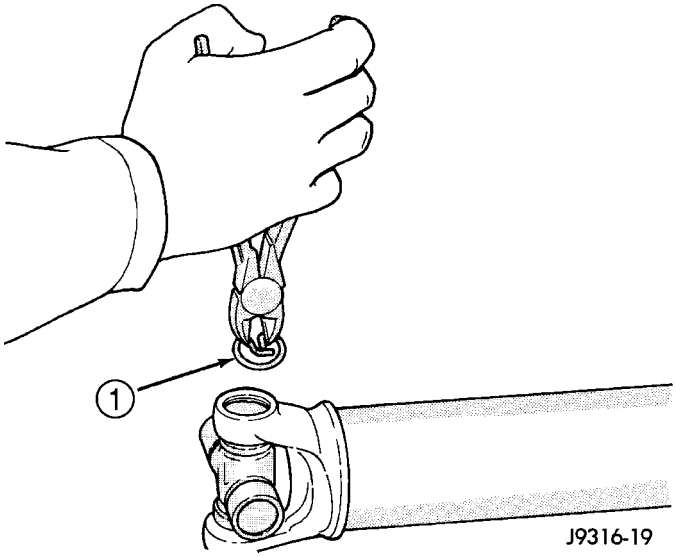


Fig. 12 REMOVE SNAP RING

1 - SNAP RING

(4) Set the yoke in an arbor press or vise with a socket whose inside diameter is large enough to receive the bearing cap positioned beneath the yoke.
(5) Position the yoke with the grease fitting, if equipped, pointing up.
(6) Place a socket with an outside diameter smaller than the upper bearing cap on the upper bearing cap and press the cap through the yoke to release the lower bearing cap (Fig. 13).
(7) If the bearing cap will not pull out of the yoke by hand after pressing, tap the yoke ear near the bearing cap to dislodge the cap.
(8) To remove the opposite bearing cap, turn the yoke over and straighten the cross in the open hole. Then, carefully press the end of the cross until the remaining bearing cap can be removed (Fig. 14).

CAUTION: If the cross or bearing cap are not straight during installation, the bearing cap will score the walls of the yoke bore and damage can occur.

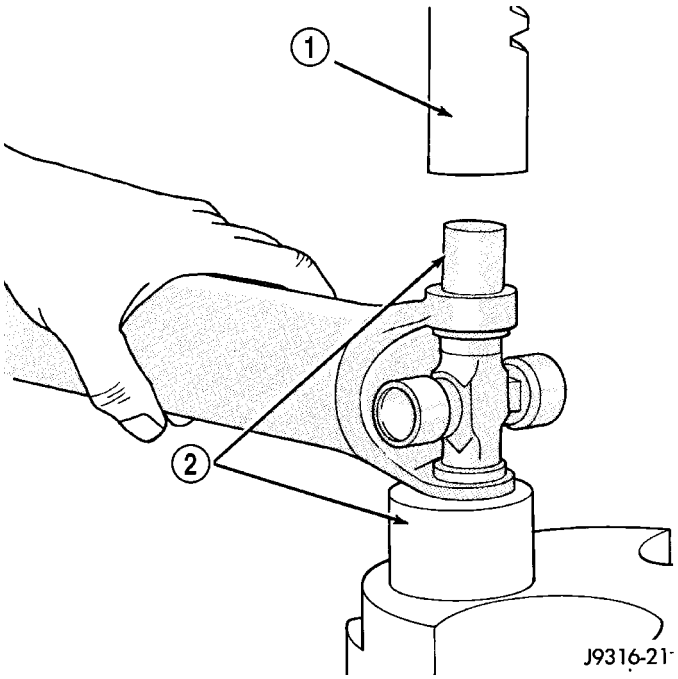


Fig. 13 PRESS OUT BEARING

1 - PRESS
2 - SOCKET

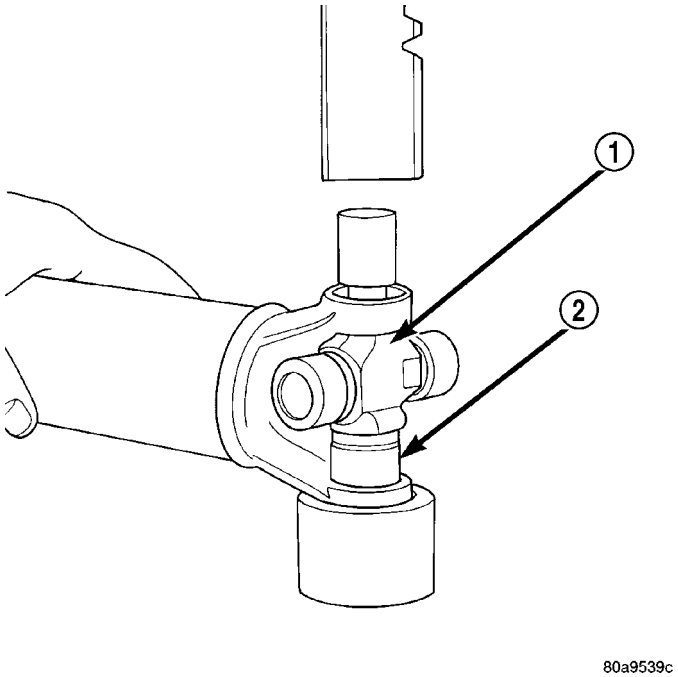


Fig. 14 PRESS OUT REMAINING BEARING

1 - CROSS
2 - BEARING CAP

SINGLE CARDAN UNIVERSAL JOINTS (Continued)

ASSEMBLY

(1) Apply extreme pressure (EP) N.L.G.I. Grade 1 or 2 grease to inside of yoke bores.

(2) Position the cross in the yoke with its lube fitting, if equipped, pointing up (Fig. 15).

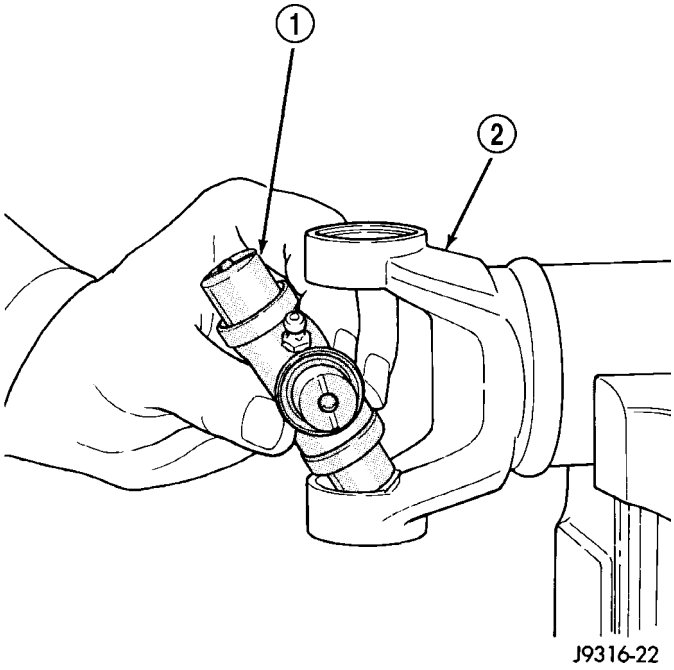


Fig. 15 CROSS IN YOKE

1 - CROSS
2 - YOKE

(3) Place a bearing cap over the trunnion and align the cap with the yoke bore (Fig. 16). Keep the needle bearings upright in the bearing cap.

(4) Press the bearing cap into the yoke bore enough to clear snap ring groove.

(5) Install a snap ring.

(6) Repeat Step 3 and Step 4 to install the opposite bearing cap.

NOTE: If the joint is stiff or binding, strike the yoke with a soft hammer to seat the needle bearings.

(7) Add grease to lube fitting, if equipped.

(8) Install the propeller shaft.

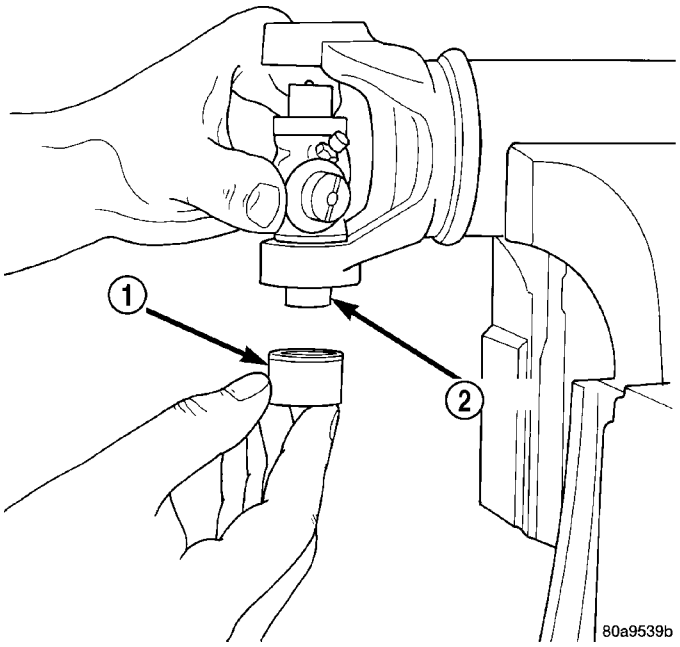


Fig. 16 INSTALL BEARING ON TRUNNION

1 - BEARING CAP
2 - TRUNNION

DOUBLE CARDAN UNIVERSAL JOINTS

DISASSEMBLY

NOTE: Individual components of cardan universal joints are not serviceable they must be replaced as an assembly.

(1) Remove the propeller shaft.

(2) Mark the propeller shaft yoke and link yoke for assembly reference.

(3) Tap the outside of the bearing cap assembly with drift to loosen snap rings.

DOUBLE CARDAN UNIVERSAL JOINTS (Continued)

(4) Remove all the bearing cap snap rings (Fig. 17).

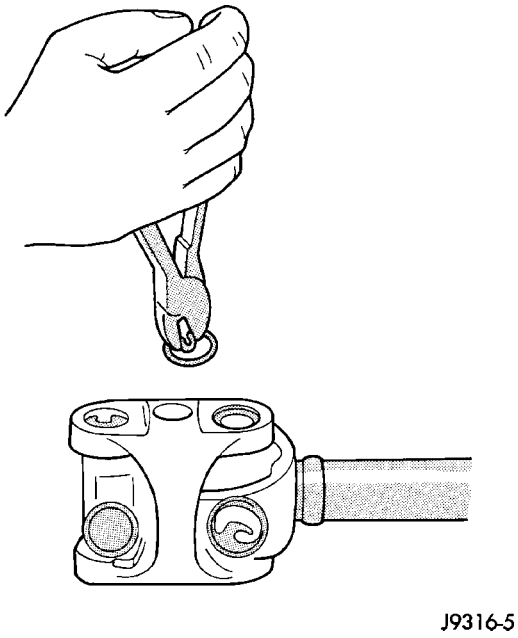


Fig. 17 SNAP RINGS

(5) Remove any grease fittings if equipped.

(6) Position a socket on the press with an inside diameter large enough to receive the bearing cap under the link yoke.

(7) Place another socket with an outside diameter smaller than the bearing cap on the upper bearing cap.

(8) Press one bearing cap from the outboard side of the link yoke enough to grasp the cap with vise jaws (Fig. 18).

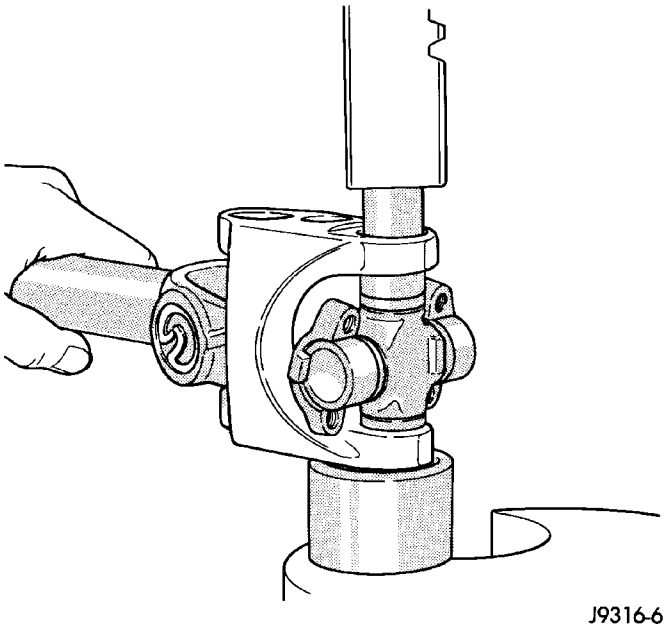


Fig. 18 PRESS OUT BEARING

(9) Grasp protruding bearing cap with vise jaws and tap link yoke with a mallet and drift to remove bearing cap (Fig. 19).

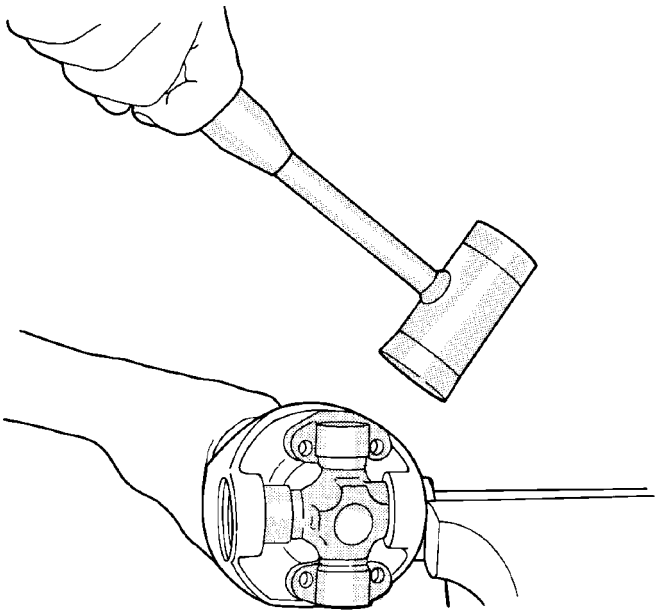


Fig. 19 REMOVE BEARING FROM YOKE

(10) Flip assembly and repeat Step 6, Step 7, Step 8 and Step 9 to remove the opposite bearing cap.

(11) Remove the cross centering kit assembly and spring (Fig. 20).

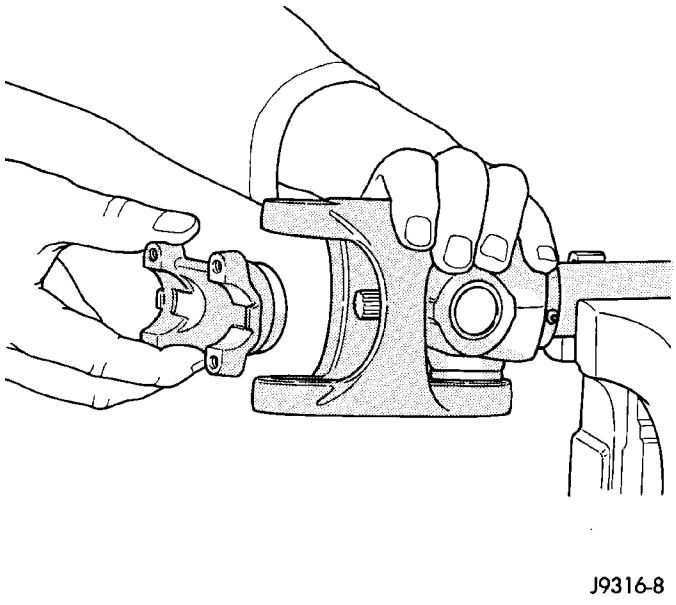


Fig. 20 REMOVE CENTERING KIT

(12) Press the remaining bearing caps out the other end of the link yoke as described above to complete the disassembly.

DOUBLE CARDAN UNIVERSAL JOINTS (Continued)

ASSEMBLY

CAUTION: All alignment marks on the link yoke and propeller shaft yoke must be aligned during assembled.

(1) Apply extreme pressure (EP) N.L.G.I. Grade 1 or 2 grease to inside of yoke bores.

(2) Fit a cross into the propeller shaft yoke (Fig. 21).

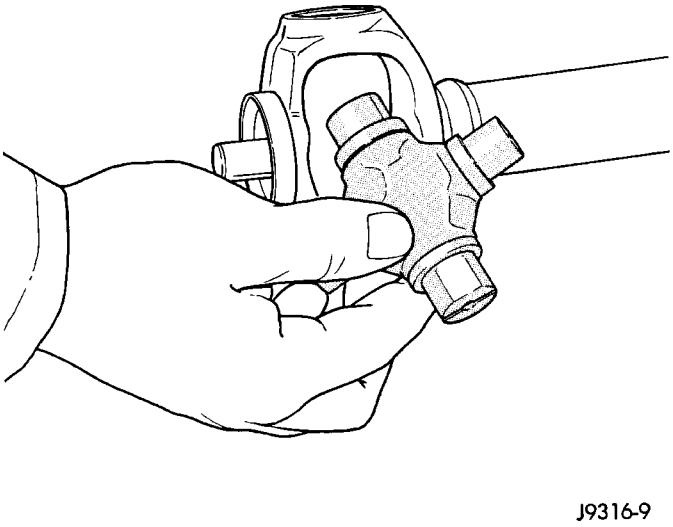


Fig. 21 INSTALL CROSS IN YOKE

(3) Place a bearing cap over the trunnion and align the cap with the yoke bore (Fig. 22). Keep needle bearings upright in the bearing cap.

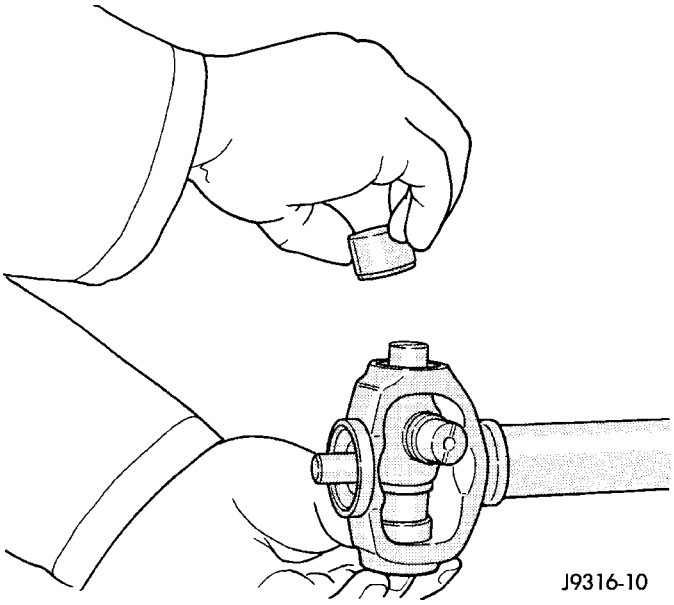


Fig. 22 INSTALL BEARING CAP

(4) Press bearing cap into the yoke bore enough to clear snap ring groove (Fig. 23).

(5) Install a snap ring.

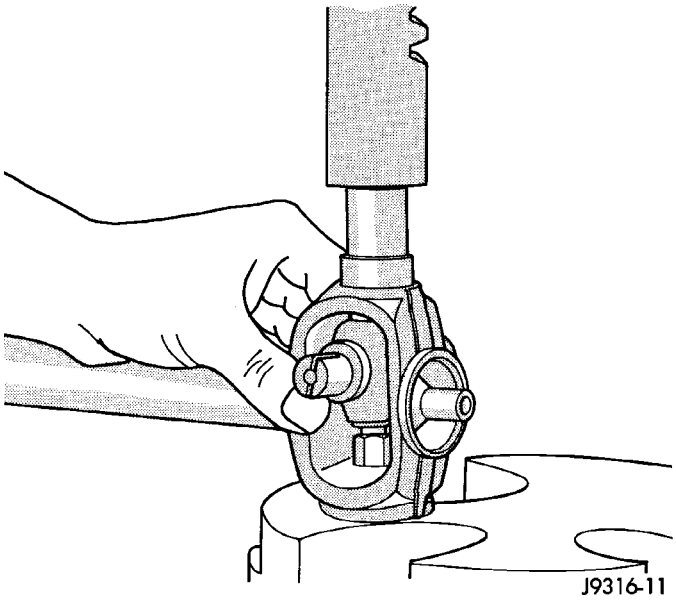


Fig. 23 PRESS BEARING CAP

(6) Flip propeller shaft yoke and install other bearing cap onto the opposite trunnion and install a snap ring (Fig. 24).

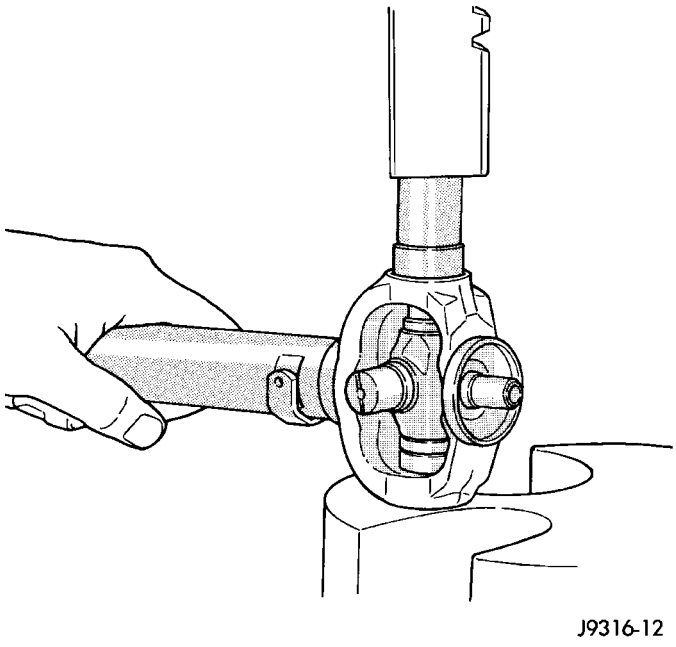


Fig. 24 PRESS BEARING CAP

DOUBLE CARDAN UNIVERSAL JOINTS (Continued)

(7) Fit the link yoke onto the remaining trunnions and press both bearing caps into place and install snap rings (Fig. 25).

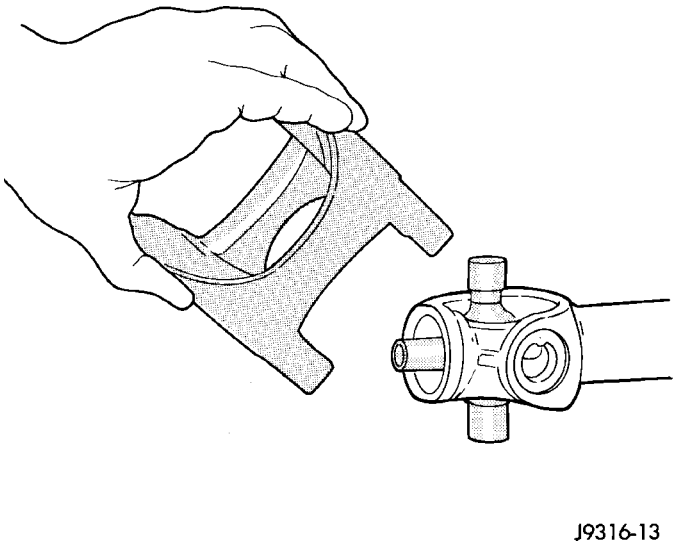


Fig. 25 INSTALL LINK YOKE

(8) Install centering kit assembly inside the link yoke (Fig. 26).

NOTE: Making sure the spring is properly positioned.

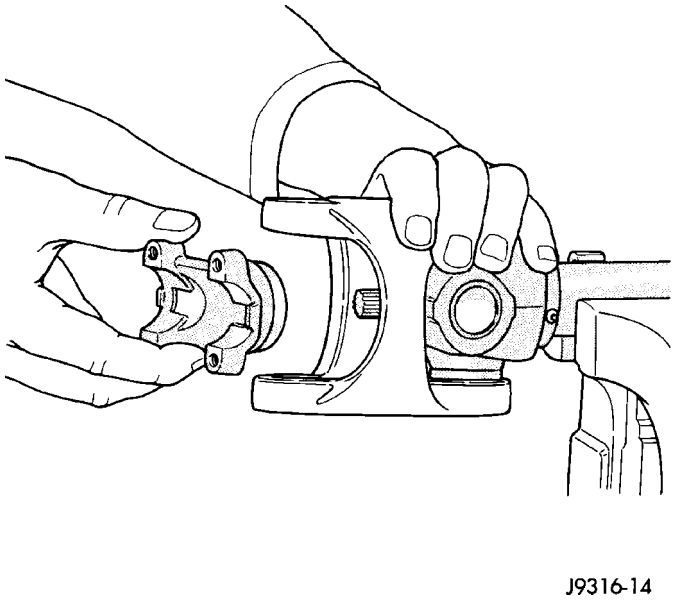


Fig. 26 CENTERING KIT

(9) Place two bearing caps on opposite trunnions of the remaining cross. Fit the open trunnions into the link yoke bores and the bearing caps into the centering kit (Fig. 27).

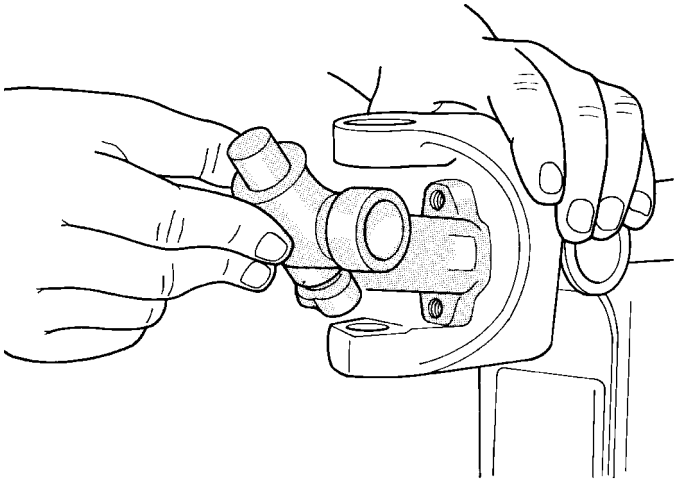


Fig. 27 REMAINING CROSS

(10) Press the remaining two bearing caps into place and install snap rings (Fig. 28).

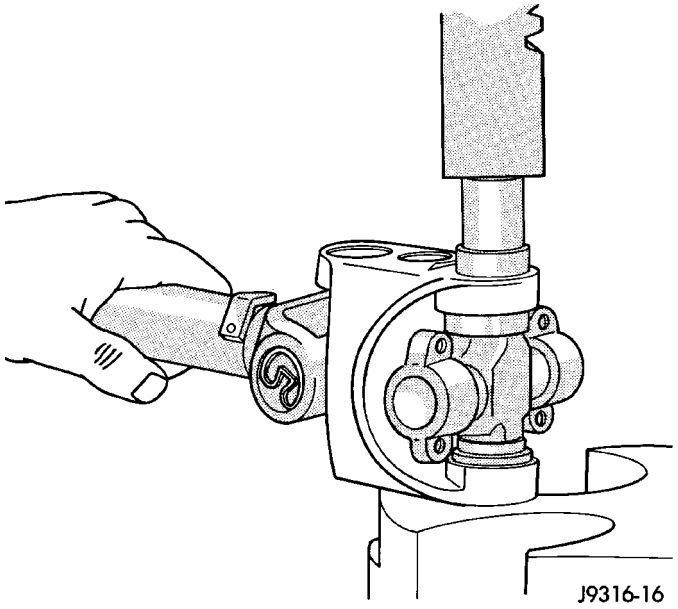


Fig. 28 PRESS BEARING CAP

DOUBLE CARDAN UNIVERSAL JOINTS (Continued)

(11) Tap the snap rings to seat them into the grooves (Fig. 29).

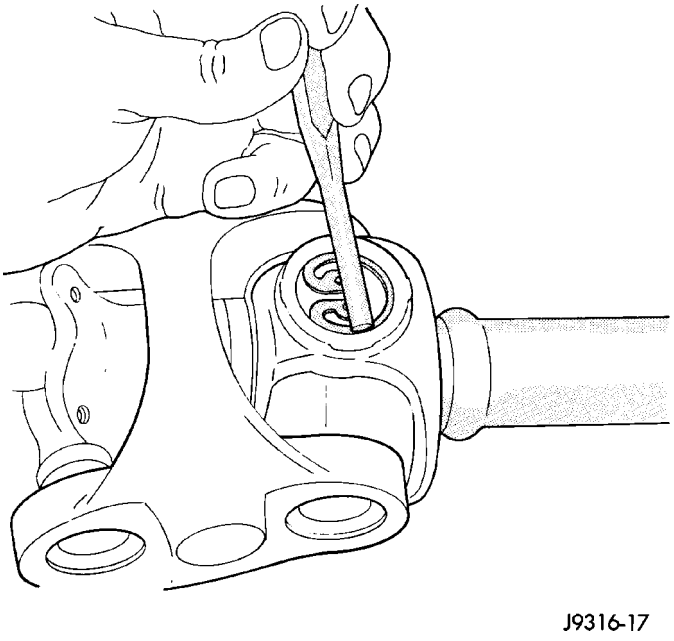


Fig. 29 SEAT SNAP RINGS

(12) Verify for proper assembly. Flexing the joint beyond center, the joint should snap over-center in both directions if correctly assembled (Fig. 30).

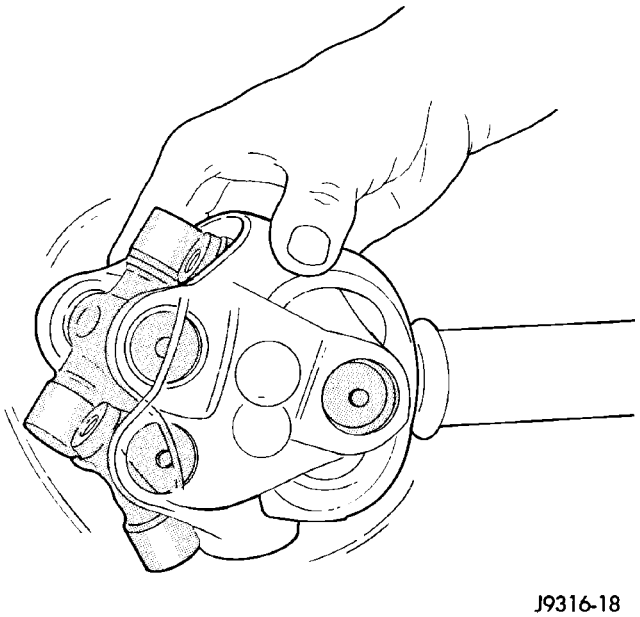


Fig. 30 VERIFY ASSEMBLY

(13) Install the propeller shaft.

FRONT TUBE AXLE

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FRONT TUBE AXLE

REMOVAL

(1) Raise and support the vehicle.
(2) Position a lifting device under the axle and secure axle to lift.
(3) Remove the wheels and tires.
(4) Remove the brake rotors (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL) and calipers.
(5) Disconnect wheel sensor wiring harness from the vehicle wiring harness.
(6) Remove stabilizer bar links at the axle.
(7) Remove shock absorbers from axle brackets.
(8) Removet track bar.
(9) Remove tie rod and drag link from the steering knuckle.
(10) Remove steering damper from the axle bracket.
(11) Remove upper and lower suspension arms from the axle brackets.
(12) Lower the lift enough to remove the axle. The coil springs will drop with the axle.
(13) Remove the coil springs from the axle.

INSTALLATION

CAUTION: The weight of the vehicle must be supported by the springs before suspension arms and track bar fasteners are tightened. If not at their normal ride position, ride height and handling could be affected.

(1) Install springs and retainer clips and tighten retainer bolts to 21 N·m (16 ft. lbs.).
(2) Lift and position axle under the vehicle and align it with the spring pads.
(3) Position upper and lower suspension arms in the axle brackets and loosely install bolts and nuts.
(4) Install track bar to the axle bracket and loosely install bolt.
(5) Install shock absorbers and tighten bolts to 23 N·m (17 ft. lbs.).
(6) Install stabilizer bar links to the axle brackets and tighten nuts to 95 N·m (70 ft. lbs.).
(7) Install drag link and tie rod to the steering knuckles.
(8) Install steering damper to the axle bracket and tighten nut to 75 N·m (55 ft. lbs.).
(9) Install the brake rotors and calipers.
(10) Connect wheel speed sensor wiring harness, if equipped.
(11) Install the wheel and tire assemblies.
(12) Remove lift from the axle and lower the vehicle.
(13) Tighten upper suspension arm nuts to 75 N·m (55 ft. lbs.). Tighten lower suspension arm nuts to 115 N·m (85 ft. lbs.).
(14) Tighten track bar bolt at the axle bracket to 100 N·m (74 ft. lbs.).
(15) Check the front wheel alignment.

FRONT AXLE - 186FBI

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FRONT AXLE - 186FBI

DESCRIPTION

The Front Beam-design Iron (FBI) axle consists of a cast iron differential housing with axle shaft tubes extending from either side. The tubes are pressed into the differential housing and welded. The axles are semi-floating axle shafts, meaning the loads are supported by the hub bearings. The axle shafts are retained by nuts at the hub bearings.

OPERATION

The axle receives power from the transfer case through the front propeller shaft. The front propeller shaft is connected to the pinion gear which rotates the differential through the gear mesh with the ring gear bolted to the differential case. The engine power is transmitted to the axle shafts through the pinion mate and side gears. The side gears are splined to the axle shafts.

DIAGNOSIS AND TESTING

GEAR NOISE

Axle gear noise can be caused by insufficient lubricant, incorrect backlash, tooth contact, worn/damaged gears or the carrier housing not having the proper offset and squareness.

Gear noise usually happens at a specific speed range. The noise can also occur during a specific type of driving condition. These conditions are acceleration, deceleration, coast or constant load.

When road testing, first warm-up the axle fluid by driving the vehicle at least 5 miles and then accelerate the vehicle to the speed range where the noise is the greatest. Shift out-of-gear and coast through the peak-noise range. If the noise stops or changes greatly:

- Check for insufficient lubricant.
- Incorrect ring gear backlash.
- Gear damage.

FRONT AXLE - 186FBI (Continued)

Differential side gears and pinions can be checked by turning the vehicle. They usually do not cause noise during straight-ahead driving when the gears are unloaded. The side gears are loaded during vehicle turns. A worn pinion mate shaft can also cause a snapping or a knocking noise.

BEARING NOISE

The axle shaft, differential and pinion bearings can all produce noise when worn or damaged. Bearing noise can be either a whining or a growling sound.

Pinion bearings have a constant-pitch noise. This noise changes only with vehicle speed. Pinion bearing noise will be higher pitched because it rotates at a faster rate. Drive the vehicle and load the differential. If bearing noise occurs, the rear pinion bearing is the source of the noise. If the bearing noise is heard during a coast, the front pinion bearing is the source.

Worn or damaged differential bearings usually produce a low pitch noise. Differential bearing noise is similar to pinion bearing noise. The pitch of differential bearing noise is also constant and varies only with vehicle speed.

Axle shaft bearings produce noise and vibration when worn or damaged. The noise generally changes when the bearings are loaded. Road test the vehicle. Turn the vehicle sharply to the left and to the right. This will load the bearings and change the noise level. Where axle bearing damage is slight, the noise is usually not noticeable at speeds above 30 mph.

LOW SPEED KNOCK

Low speed knock is generally caused by a worn U-joint or by worn side-gear thrust washers. A worn pinion shaft bore will also cause low speed knock.

VIBRATION

Vibration at the rear of the vehicle is usually caused by a:

- Damaged drive shaft.
- Missing drive shaft balance weight(s).
- Worn or out-of-balance wheels.
- Loose wheel lug nuts.
- Worn U-joint(s).
- Loose/broken springs.
- Damaged axle shaft bearing(s).
- Loose pinion gear nut.
- Excessive pinion yoke run out.
- Bent axle shaft(s).

Check for loose or damaged front–end components or engine/transmission mounts. These components can contribute to what appears to be a rear-end vibration. Do not overlook engine accessories, brackets and drive belts.

All driveline components should be examined before starting any repair.

(Refer to 22 - TIRES/WHEELS - DIAGNOSIS AND TESTING)

DRIVELINE SNAP

A snap or clunk noise when the vehicle is shifted into gear (or the clutch engaged), can be caused by:

- High engine idle speed.
- Transmission shift operation.
- Loose engine/transmission/transfer case mounts.
- Worn U-joints.
- Loose spring mounts.
- Loose pinion gear nut and yoke.
- Excessive ring gear backlash.
- Excessive side gear to case clearance.

The source of a snap or a clunk noise can be determined with the assistance of a helper. Raise the vehicle on a hoist with the wheels free to rotate. Instruct the helper to shift the transmission into gear. Listen for the noise, a mechanics stethoscope is helpful in isolating the source of a noise.

FRONT AXLE - 186FBI (Continued)

DIAGNOSTIC CHART

Condition	Possible Causes	Correction
Wheel Noise	1. Wheel loose.	1. Tighten loose nuts.
	2. Faulty, brinelled wheel bearing.	2. Replace bearing.
Axle Shaft Noise	1. Misaligned axle tube.	1. Inspect axle tube alignment. Correct as necessary.
	2. Bent or sprung axle shaft.	2. Inspect and correct as necessary.
	3. End-play in pinion bearings.	3. Refer to pinion pre-load information and correct as necessary.
	4. Excessive gear backlash between the ring gear and pinion.	4. Check adjustment of the ring gear and pinion backlash. Correct as necessary.
	5. Improper adjustment of pinion gear bearings.	5. Adjust the pinion bearings pre-load.
	6. Loose pinion yoke nut.	6. Tighten the pinion yoke nut.
	7. Scuffed gear tooth contact surfaces.	7. Inspect and replace as necessary.
Axle Shaft Broke	1. Misaligned axle tube.	1. Replace the broken shaft after correcting tube mis-alignment.
	2 Vehicle overloaded.	2. Replace broken shaft and avoid excessive weight on vehicle.
	3. Erratic clutch operation.	3. Replace broken shaft and avoid or correct erratic clutch operation.
	4. Grabbing clutch.	4. Replace broken shaft and inspect and repair clutch as necessary.
Differential Cracked	1. Improper adjustment of the differential bearings.	1. Replace case and inspect gears and bearings for further damage. Set differential bearing pre-load properly.
	2. Excessive ring gear backlash.	2. Replace case and inspect gears and bearings for further damage. Set ring gear backlash properly.
	3. Vehicle overloaded.	3. Replace case and inspect gears and bearings for further damage. Avoid excessive vehicle weight.
	4. Erratic clutch operation.	4. Replace case and inspect gears and bearings for further damage. Avoid erratic use of clutch.

FRONT AXLE - 186FBI (Continued)

Condition	Possible Causes	Correction
Differential Gears Scored	1. Insufficient lubrication.	1. Replace scored gears. Fill differential with the correct fluid type and quantity.
	2. Improper grade of lubricant.	2. Replace scored gears. Fill differential with the correct fluid type and quantity.
	3. Excessive spinning of one wheel/tire.	3. Replace scored gears. Inspect all gears, pinion bores, and shaft for damage. Service as necessary.
Loss Of Lubricant	1. Lubricant level too high.	1. Drain lubricant to the correct level.
	2. Worn axle shaft seals.	2. Replace seals.
	3. Cracked differential housing.	3. Repair as necessary.
	4. Worn pinion seal.	4. Replace seal.
	5. Worn/scored yoke.	5. Replace yoke and seal.
	6. Axle cover not properly sealed.	6. Remove, clean, and re-seal cover.
Axle Overheating	1. Lubricant level low.	1. Fill differential to correct level.
	2. Improper grade of lubricant.	2. Fill differential with the correct fluid type and quantity.
	3. Bearing pre-loads too high.	3. Re-adjust bearing pre-loads.
	4. Insufficient ring gear backlash.	4. Re-adjust ring gear backlash.
Gear Teeth Broke	1. Overloading.	1. Replace gears. Examine other gears and bearings for possible damage.
	2. Erratic clutch operation.	2. Replace gears and examine the remaining parts for damage. Avoid erratic clutch operation.
	3. Ice-spotted pavement.	3. Replace gears and examine remaining parts for damage.
	4. Improper adjustments.	4. Replace gears and examine remaining parts for damage. Ensure ring gear backlash is correct.

FRONT AXLE - 186FBI (Continued)

Condition	Possible Causes	Correction
Axle Noise	1. Insufficient lubricant.	1. Fill differential with the correct fluid type and quantity.
	2. Improper ring gear and pinion adjustment.	2. Check ring gear and pinion contact pattern.
	3. Unmatched ring gear and pinion.	3. Replace gears with a matched ring gear and pinion.
	4. Worn teeth on ring gear and/or pinion.	4. Replace ring gear and pinion.
	5. Loose pinion bearings.	5. Adjust pinion bearing pre-load.
	6. Loose differential bearings.	6. Adjust differential bearing pre-load.
	7. Mis-aligned or sprung ring gear.	7. Measure ring gear run-out. Replace components as necessary.
	8. Loose differential bearing cap bolts.	8. Inspect differential components and replace as necessary. Ensure that the bearing caps are torqued tot he proper specification.
	9. Housing not machined properly.	9. Replace housing.

REMOVAL

(1) Raise and support the vehicle.
(2) Position a suitable lifting device under the axle.
(3) Secure axle to lift.
(4) Remove the wheels and tires.
(5) Remove the brake calipers and rotors (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL) from the axle.
(6) Disconnect the wheel sensor wiring harness from the vehicle wiring harness.
(7) Disconnect the vent hose from the axle shaft tube.
(8) Mark propeller shaft and yoke/pinion flange for installation alignment reference.
(9) Remove propeller shaft.
(10) Disconnect stabilizer bar links at the axle.
(11) Disconnect shock absorbers from axle brackets.
(12) Disconnect track bar.
(13) Disconnect the tie rod and drag link from the steering knuckle.
(14) Disconnect the steering damper from the axle bracket.
(15) Disconnect the upper and lower suspension arms from the axle brackets.
(16) Lower the lifting device enough to remove the axle. The coil springs will drop with the axle.
(17) Remove the coil springs from the axle.

INSTALLATION

CAUTION: The weight of the vehicle must be supported by the springs before suspension arms and track bar fasteners can be tightened. If springs are not at their normal ride position, ride height and handling could be affected.

(1) Install the springs and retainer clips. Tighten the retainer bolts to 21 N·m (16 ft. lbs.).
(2) Support the axle on a lifting device and position axle under the vehicle.
(3) Raise the axle and align it with the spring pads.
(4) Position the upper and lower suspension arms in the axle brackets. Loosely install bolts and nuts to hold suspension arms to the axle brackets.
(5) Install vent hose to the axle shaft tube.
(6) Install track bar in the axle bracket and install the bolt loosely.
(7) Install shock absorbers and tighten the bolts to 23 N·m (17 ft. lbs.).
(8) Install stabilizer bar links to the axle brackets and tighten the nuts to 95 N·m (70 ft. lbs.).
(9) Install drag link and tie rod to the steering knuckles.
(10) Install steering damper to the axle bracket and tighten the nut to 75 N·m (55 ft. lbs.).
(11) Install the brake rotors (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION) and calipers.

FRONT AXLE - 186FBI (Continued)

(12) Connect the wheel speed sensor wiring harness to the vehicle wiring harness.

(13) Align the previously made marks on the propeller shaft and the yoke/pinion flange.

(14) Install propeller shaft to pinion flange bolts , if equipped.

(15) Install propeller shaft to yoke straps and bolts, if equipped.

(16) Check and fill axle lubricant.

(17) Install the wheel and tire assemblies.

(18) Remove the lifting device from the axle and lower the vehicle.

(19) Tighten the upper suspension arm nuts to 75 N·m (55 ft. lbs.). Tighten the lower suspension arm nuts to 115 N·m (85 ft. lbs.).

(20) Tighten the track bar bolt at the axle bracket to 100 N·m (74 ft. lbs.).

(21) Check the front wheel alignment.

ADJUSTMENTS

Ring and pinion gears are supplied as matched sets only. The identifying numbers for the ring and pinion gear are etched onto each gear (Fig. 1). A plus (+) number, minus (–) number or zero (0) is etched into the face of the pinion gear. This number is the amount (in thousandths of an inch) the depth varies from the standard depth setting of a pinion etched with a (0). The standard depth provides the best gear tooth contact pattern. Refer to Backlash and Contact Pattern Analysis paragraph in this section for additional information.

Compensation for pinion depth variance is achieved with a select shim/oil slinger. The shims are placed between the rear pinion bearing and the pinion gear head (Fig. 2).

If a new gear set is being installed, note the depth variance etched into both the original and replacement pinion. Add or subtract this number from the thickness of the original depth shim/oil slinger to compensate for the difference in the depth variances. Refer to the Pinion Gear Depth Variance chart.

Note where Old and New Pinion Marking columns intersect. Intersecting figure represents plus or minus the amount needed.

Note the etched number on the face of the pinion gear head (–1, –2, 0, +1, +2, etc.). The numbers represent thousands of an inch deviation from the standard. If the number is negative, add that value to the required thickness of the depth shims. If the number is positive, subtract that value from the thickness of the depth shim. If the number is 0 no change is necessary.

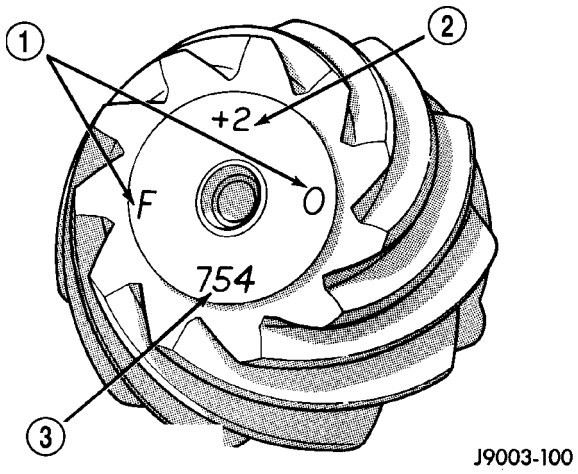


Fig. 1 PINION GEAR ID NUMBERS

1 - PRODUCTION NUMBERS
2 - DRIVE PINION GEAR DEPTH VARIANCE
3 - GEAR MATCHING NUMBER

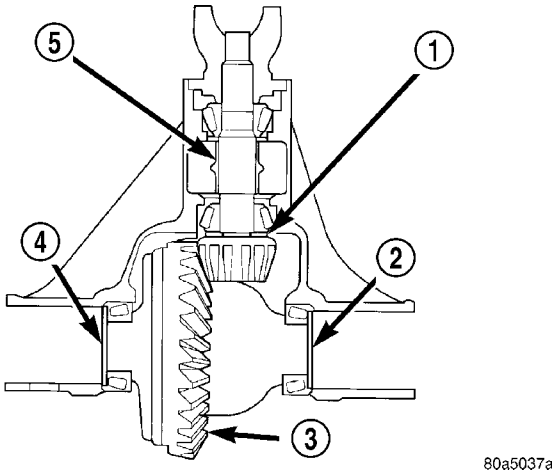


Fig. 2 ADJUSTMENT SHIM LOCATIONS

1 - PINION DEPTH SHIM/OIL SLINGER
2 - DIFFERENTIAL BEARING SHIM
3 - RING GEAR
4 - DIFFERENTIAL BEARING SHIM
5 - COLLAPSIBLE SPACER

FRONT AXLE - 186FBI (Continued)

PINION GEAR DEPTH VARIANCE

Original Pinion Gear Depth Variance	Replacement Pinion Gear Depth Variance									
	−4	−3	−2	−1	0	+1	+2	+3	+4	
+4		+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0
+3		+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001
+2		+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002
+1		+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003
0		+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004
−1		+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005
−2		+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006
−3		+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007
−4		0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007	−0.008

PINION DEPTH MEASUREMENT

Measurements are taken with pinion bearing cups and pinion bearings installed in the housing. Take measurements with Pinion Gauge Set and Dial Indicator C-3339 (Fig. 3).

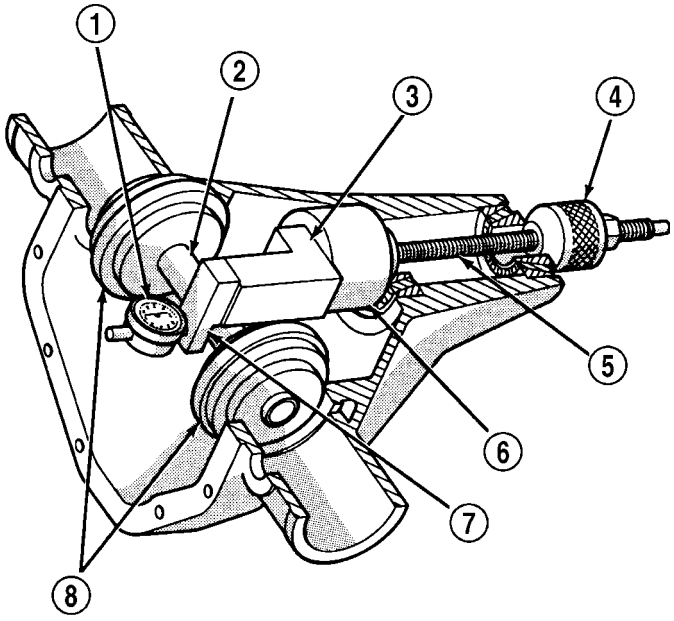


Fig. 3 PINION GEAR DEPTH TOOLS

1 - DIAL INDICATOR
2 - ARBOR
3 - PINION HEIGHT BLOCK
4 - CONE
5 - SCREW
6 - PINION BLOCK
7 - SCOOTER BLOCK
8 - ARBOR DISC

(1) Assemble Pinion Height Block 6739, Pinion Block 6733 and rear pinion bearing onto Screw 6741 (Fig. 3).

(2) Insert assembled height gauge components, rear bearing and screw into the housing through pinion bearing cups (Fig. 4).

(3) Install front pinion bearing and Cone-nut 6740 hand tight (Fig. 3).

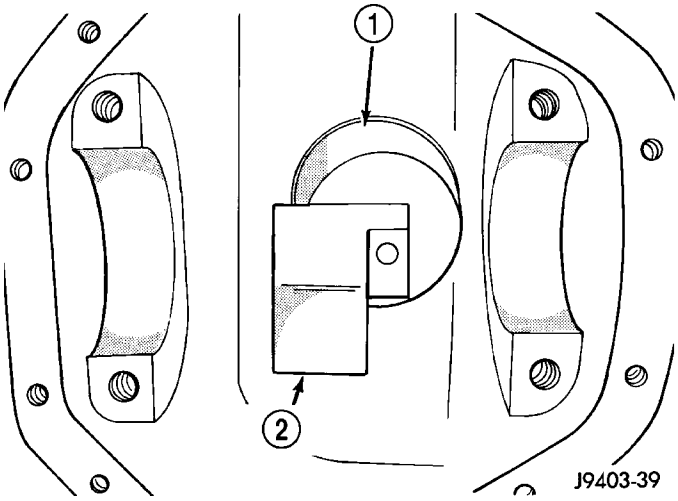


Fig. 4 PINION HEIGHT BLOCK

1 - PINION BLOCK
2 - PINION HEIGHT BLOCK

(4) Place Arbor Disc 6732 on Arbor D-115-3 in position, in the housing side bearing cradles (Fig. 5). Install differential bearing caps on Arbor Discs and tighten cap bolts to 41 N·m (30 ft. lbs.).

FRONT AXLE - 186FBI (Continued)

NOTE: Arbor Discs 6732 has different step diameters to fit other axles. Choose proper step for axle being serviced.

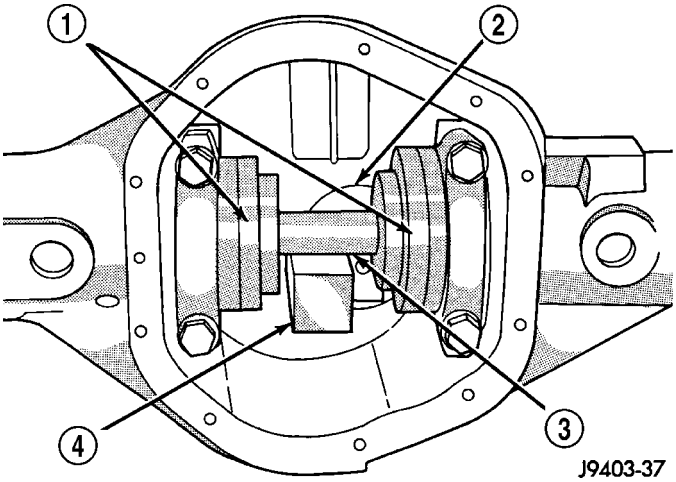


Fig. 5 GAUGE TOOLS IN HOUSING

1 - ARBOR DISC
2 - PINION BLOCK
3 - ARBOR
4 - PINION HEIGHT BLOCK

(5) Assemble Dial Indicator C-3339 into Scooter Block D-115-2 and secure set screw.

(6) Posttion Scooter Block/Dial Indicator so dial probe and scooter block are flush on the surface of the pinion height block (Fig. 3). Hold scooter block and zero the dial indicator.

(7) Hold scooter block against the pinion height block and slowly slide across the pinion height block to the arbor (Fig. 6). Move the scooter block till the dial probe crests the arbors and record the highest reading.

(8) Select a shim/oil slinger equal to the dial indicator reading plus the pinion depth variance number etched in the face of the pinion (Fig. 1). For example, if the depth variance is –2, add +0.002 in. to the dial indicator reading.

DIFFERENTIAL

Differential side bearing preload and gear backlash is achieved by selective shims positioned behind the differential side bearing cones. The proper shim thickness can be determined using slip-fit Dummy Bearings D-348 in place of the differential side bearings and a Dial Indicator C-3339. Before proceeding with the differential bearing preload and gear backlash measurements, measure the pinion gear depth and prepare the pinion for installation. Establishing proper pinion gear depth is essential to establishing gear backlash and tooth contact patterns. After the overall shim thickness to take up differential side play is measured, the pinion is installed, and the gear backlash shim thickness is measured. The overall shim thickness is the total of the dial indicator reading and the preload specification added together. The gear backlash measurement determines the thickness of the shim used on the ring gear side of the differential case. Subtract the gear backlash shim thickness from the total overall shim thickness and select that amount for the pinion gear side of the differential (Fig. 7). Differential shim measurements are performed with spreader W-129-B removed.

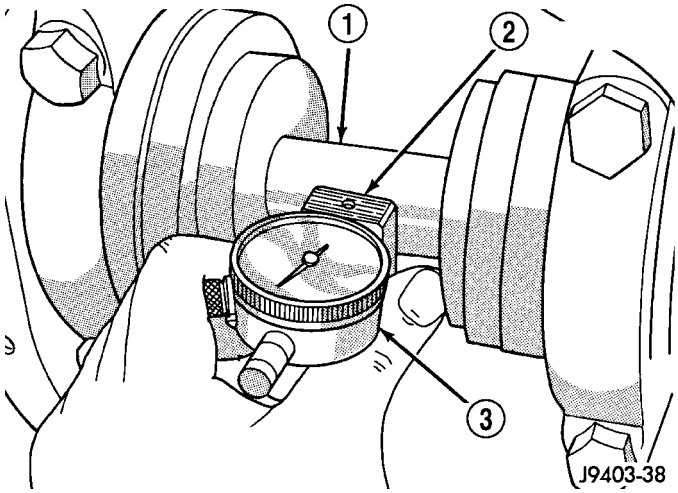


Fig. 6 PINION GEAR DEPTH MEASUREMENT

1 - ARBOR
2 - SCOOTER BLOCK
3 - DIAL INDICATOR

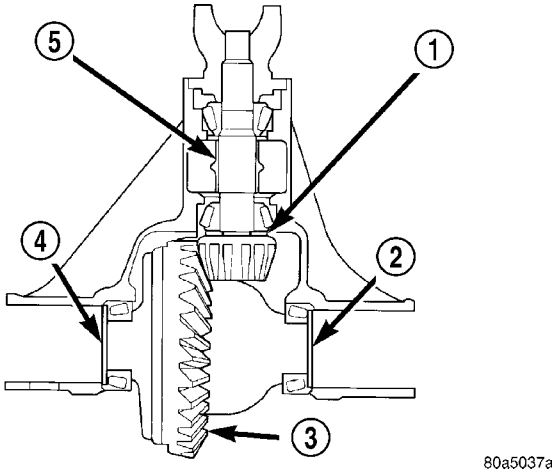


Fig. 7 ADJUSTMENT SHIM LOCATIONS

1 - PINION DEPTH SHIM/OIL SLINGER
2 - DIFFERENTIAL BEARING SHIM
3 - RING GEAR
4 - DIFFERENTIAL BEARING SHIM
5 - COLLAPSIBLE SPACER

FRONT AXLE - 186FBI (Continued)

SHIM SELECTION

NOTE: It is difficult to salvage the differential side bearings during the removal procedure. Install replacement bearings if necessary.

(1) Remove differential side bearings from differential case.
(2) Install ring gear on differential case and tighten bolts to specification.
(3) Install dummy side bearings D-348 on differential case.
(4) Install differential case in the housing.

CAUTION: When installing a Vari-Lok® differential, the oil feed tube must point to the bottom of the housing. If differential is forced in with the oil feed towards the top, the anti-rotation tabs will be damaged.

(5) Record the thickness of Dummy Shims 8107. Insert the shims between the dummy bearings and the differential housing (Fig. 8).

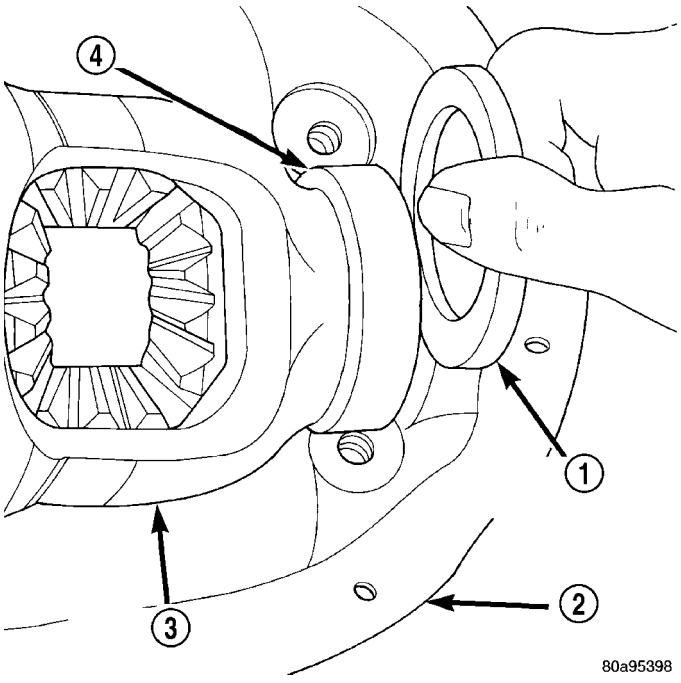


Fig. 8 DUMMY SHIM LOCATION

1 - DUMMY SHIM
2 - DIFFERENTIAL HOUSING
3 - DIFFERENTIAL CASE
4 - DUMMY BEARINGS

(6) Install the bearing caps in their correct positions and snug the bolts (Fig. 9).

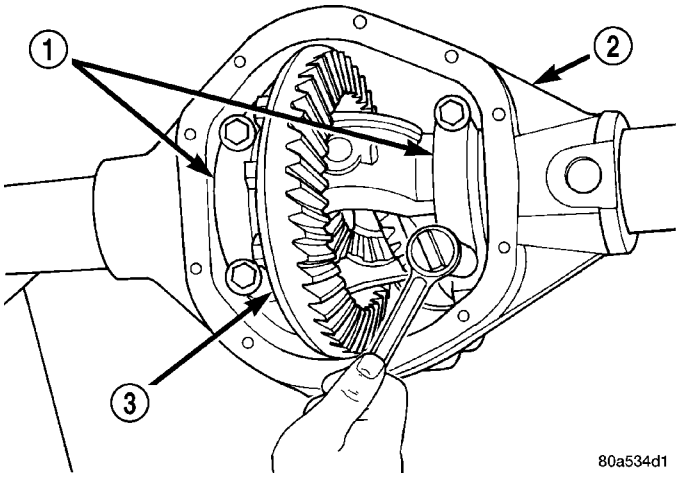


Fig. 9 BEARING CAP BOLTS

1 - BEARING CAP
2 - DIFFERENTIAL HOUSING
3 - DIFFERENTIAL CASE

(7) With a dead-blow hammer, seat the differential dummy bearings to each side of the housing (Fig. 10) and (Fig. 11).

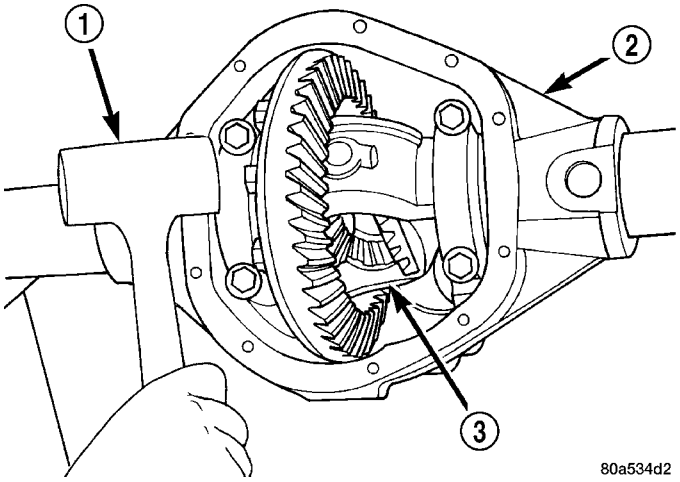


Fig. 10 SEAT DUMMY BEARING PINION SIDE

1 - HAMMER
2 - DIFFERENTIAL HOUSING
3 - DIFFERENTIAL CASE

FRONT AXLE - 186FBI (Continued)

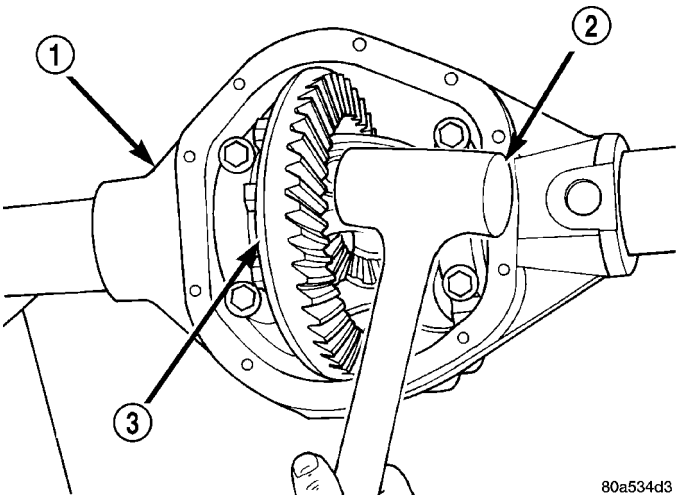


Fig. 11 SEAT DUMMY BEARING RING GEAR SIDE

1 - DIFFERENTIAL HOUSING
2 - HAMMER
3 - DIFFERENTIAL CASE

(8) Thread Pilot Stud C-3288-B into rear cover bolt hole below ring gear (Fig. 12).

(9) Attach a dial indicator C-3339 to Pilot Stud. Position the dial indicator plunger on a flat surface between the ring gear bolt heads (Fig. 12).

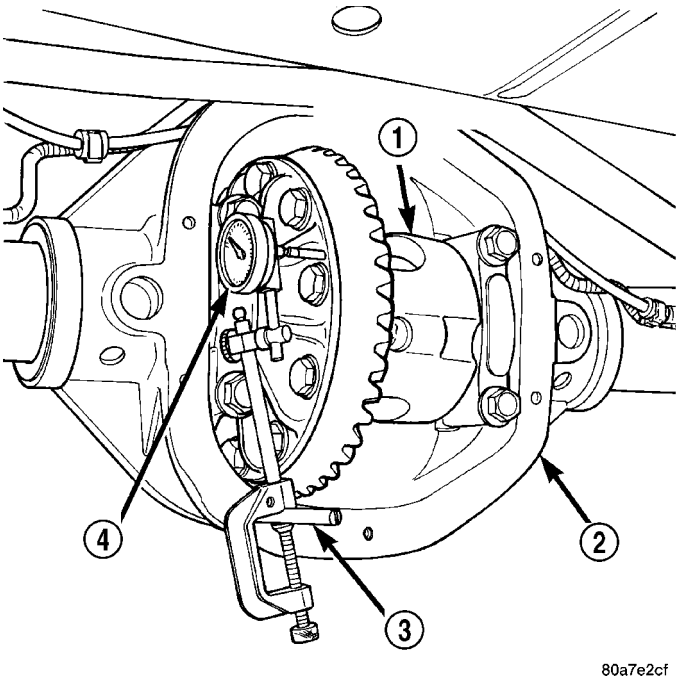


Fig. 12 DIAL INDICATOR LOCATION

1 - DIFFERENTIAL CASE
2 - DIFFERENTIAL HOUSING
3 - PILOT STUD
4 - DIAL INDICATOR

(10) Push and hold differential case to pinion gear side of the housing and zero dial indicator (Fig. 13).

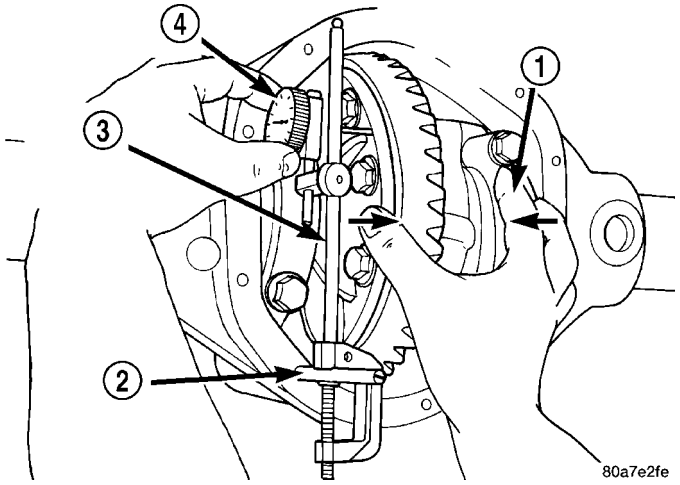


Fig. 13 ZERO DIAL INDICATOR

1 - HOLD DIFFERENTIAL CASE TO PINION GEAR SIDE
2 - PILOT STUD
3 - INDICATOR EXTENSION
4 - DIAL INDICATOR FACE

(11) Push and hold differential case to ring gear side of the housing and record dial indicator reading (Fig. 14).

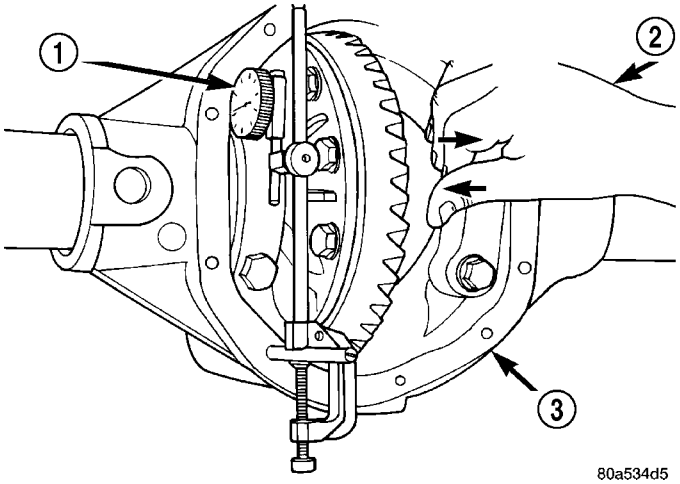


Fig. 14 RECORED DIAL INDICATOR READING

1 - DIAL INDICATOR
2 - DIFFERENTIAL CASE TO RING GEAR SIDE
3 - DIFFERENTIAL HOUSING

FRONT AXLE - 186FBI (Continued)

(12) Add 0.152 mm (0.006 in.) to the zero end play total. This new total represents the thickness of shims to compress or preload the new bearings when the differential is installed.

(13) Rotate dial indicator out of the way on the pilot stud.

(14) Remove differential case and dummy bearings from the housing.

(15) Install the pinion gear in the housing. Install the pinion yoke and establish the correct pinion rotating torque.

(16) Install differential case and Dummy Bearings D-348 in the housing.

(17) Install a single dummy shim in the ring gear side. Install bearing caps and tighten bolts snug.

(18) Seat ring gear side dummy bearing (Fig. 11).

(19) Position the dial indicator plunger on a flat surface between the ring gear bolt heads (Fig. 12).

(20) Push and hold differential case toward pinion gear and zero dial indicator (Fig. 15).

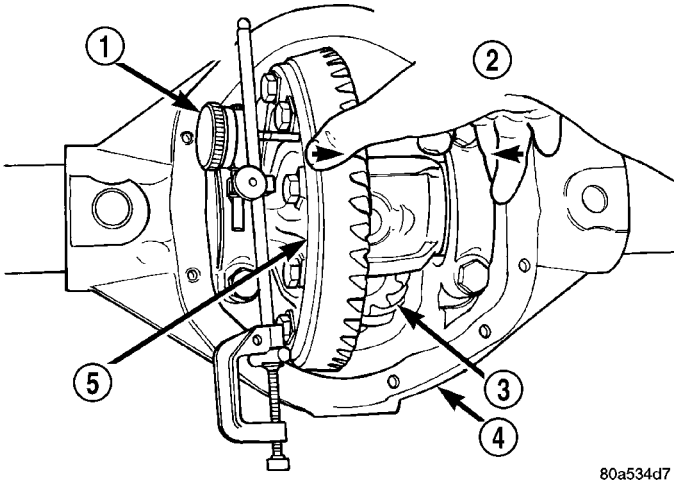


Fig. 15 ZERO DIAL INDICATOR

1 - DIAL INDICATOR
2 - HOLD DIFFERENTIAL CASE TO PINION GEAR SIDE
3 - PINION GEAR
4 - DIFFERENTIAL HOUSING
5 - DIFFERENTIAL CASE

(21) Push and hold differential case to ring gear side of the housing and record dial indicator reading (Fig. 16). Add dummy shim thickness to this reading. This will be the total shim thickness to achieve zero backlash.

(22) Subtract 0.076 mm (0.003 in.) from the dial indicator reading to compensate for backlash between ring and pinion gears. This total is the thickness shim required to achieve proper backlash.

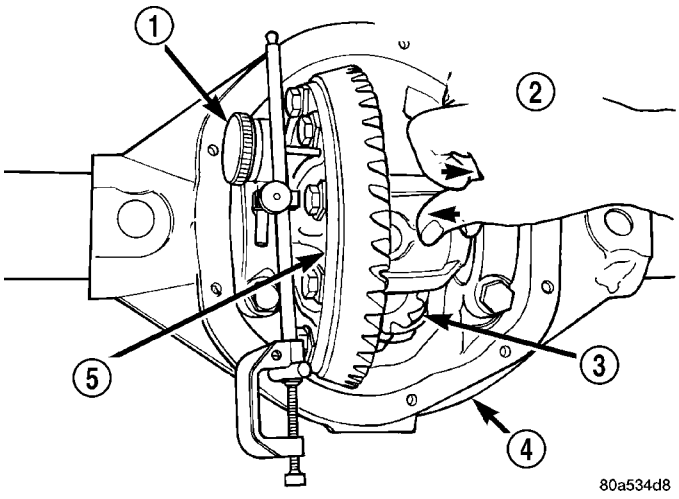


Fig. 16 RECORED DIAL INDICATOR READING

1 - DIAL INDICATOR
2 - HOLD DIFFERENTIAL CASE TO RING GEAR SIDE
3 - PINION GEAR
4 - DIFFERENTIAL HOUSING
5 - DIFFERENTIAL CASE

(23) Subtract the backlash shim thickness from the total preload shim thickness. The remainder is the shim thickness required on the pinion side of the axle housing.

(24) Rotate dial indicator out of the way on pilot stud.

(25) Remove differential case and dummy bearings from the housing.

(26) Install side bearings and cups on differential case.

(27) Install spreader W-129-B with Adapter Set 6987 on the housing and spread axle opening enough to receive differential case.

CAUTION: Never spread the housing over 0.38 mm (0.015 in.). If housing is over spread, it could distorted or damaged.

(28) Place the bearing preload shims in the axle housing, against the axle tubes.

(29) Install differential case into the housing.

CAUTION: When installing a Vari-Lok® differential, the oil feed tube must point to the bottom of the housing. If differential is forced in with the oil feed towards the top, the anti-rotation tabs will be damaged.

FRONT AXLE - 186FBI (Continued)

(30) Remove spreader from the housing.

(31) Rotate the differential case several times to seat the side bearings.

(32) Position the indicator plunger against a ring gear tooth (Fig. 17).

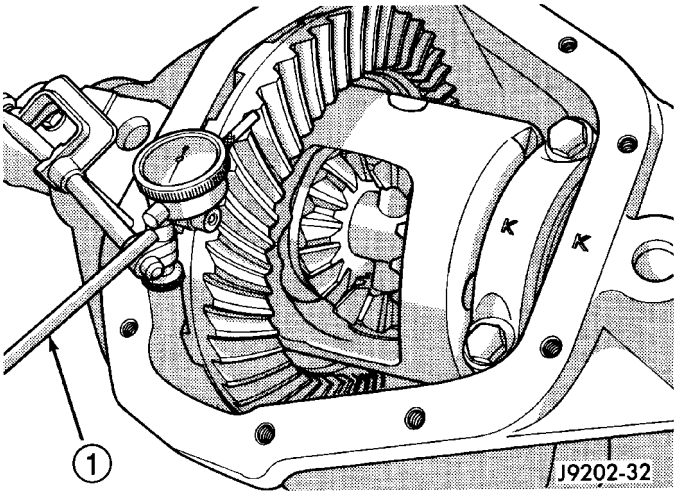


Fig. 17 RING GEAR BACKLASH

1 - DIAL INDICATOR

(33) Push and hold ring gear upward while not allowing the pinion gear to rotate.

(34) Zero dial indicator face to pointer.

(35) Push and hold ring gear downward while not allowing the pinion gear to rotate. Dial indicator reading should be between 0.12 mm (0.005 in.) and 0.20 mm (0.008 in.). If backlash is not within specifications transfer the necessary amount of shim thickness from one side of the housing to the other (Fig. 18).

(36) Verify differential case and ring gear runout by measuring ring to pinion gear backlash at eight locations around the ring gear. Readings should not vary more than 0.05 mm (0.002 in.). If readings vary more than specified, the ring gear or the differential case is defective.

After the proper backlash is achieved, check the torque to rotate for differential bearing preload. If within specification perform Gear Contact Pattern Analysis procedure.

GEAR CONTACT PATTERN

The ring gear and pinion teeth contact patterns will show if the pinion depth is correct in the housing. It will also show if the ring gear backlash has been adjusted correctly. The backlash can be adjusted within specifications to achieve desired tooth contact patterns.

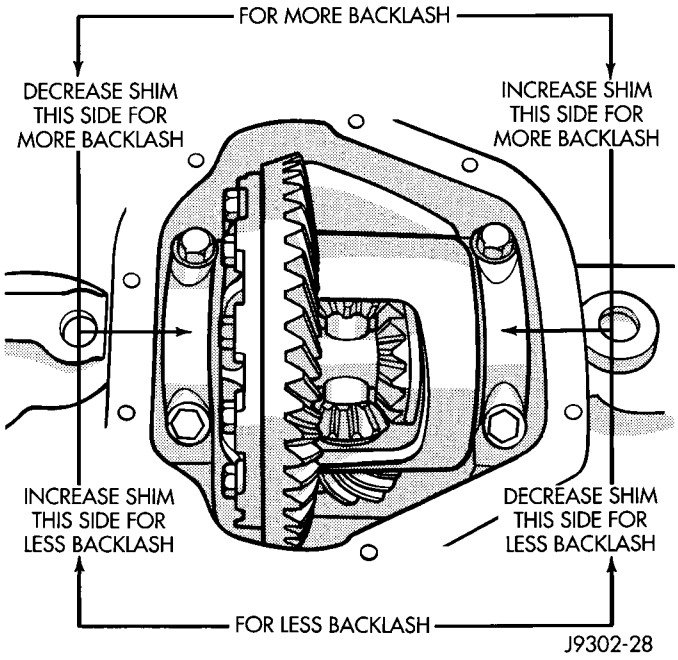


Fig. 18 BACKLASH SHIM ADJUSTMENT

(1) Apply a thin coat of hydrated ferric oxide or equivalent to the drive and coast side of the ring gear teeth.

(2) Wrap, twist and hold a shop towel around the pinion yoke to increase the turning resistance of the pinion. This will provide a more distinct contact pattern.

(3) With a boxed end wrench on a ring gear bolt, rotate the differential case one complete revolution in both directions while a load is being applied from shop towel.

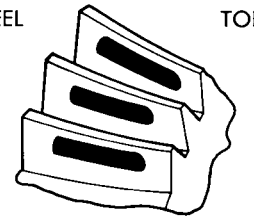
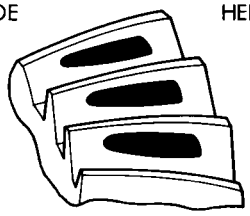
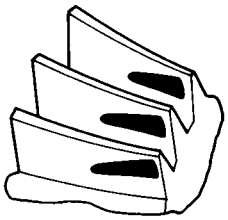
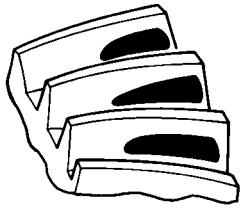
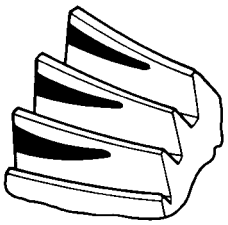
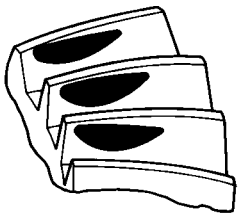
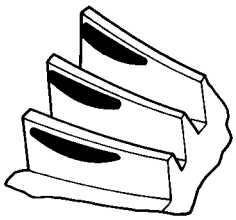
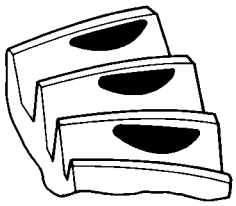
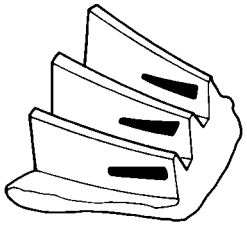
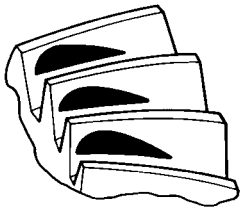
The areas on the ring gear teeth with the greatest degree of contact against the pinion teeth will squeegee the compound to the areas with the least amount of contact. Note and compare patterns on the ring gear teeth to Gear Tooth Contact Patterns chart (Fig. 19)and adjust pinion depth and gear backlash as necessary.

DIFFERENTIAL BEARING PRELOAD CHECK

The final check on the differential assembly before installing the axles is torque to rotate pinion and differential combined. This will verify the correct differential bearing preload.

Torque to rotate the differential and pinion should be the torque to rotate the pinion plus 0.79-1.24 N·m (7-11 in. lbs.).

FRONT AXLE - 186FBI (Continued)

DRIVE SIDE OF RING GEAR TEETH	COAST SIDE OF RING GEAR TEETH	
HEEL TOE 	TOE HEEL 	DESIRABLE CONTACT PATTERN. PATTERN SHOULD BE CENTERED ON THE DRIVE SIDE OF TOOTH. PATTERN SHOULD BE CENTERED ON THE COAST SIDE OF TOOTH, BUT MAY BE SLIGHTLY TOWARD THE TOE. THERE SHOULD ALWAYS BE SOME CLEARANCE BETWEEN CONTACT PATTERN AND TOP OF THE TOOTH.
		RING GEAR BACKLASH CORRECT. **THINNER** PINION GEAR DEPTH SHIM REQUIRED.
		RING GEAR BACKLASH CORRECT. **THICKER** PINION GEAR DEPTH SHIM REQUIRED.
		PINION GEAR DEPTH SHIM CORRECT. **DECREASE** RING GEAR BACKLASH.
		PINION GEAR DEPTH SHIM CORRECT. **INCREASE** RING GEAR BACKLASH.

J9003-24

Fig. 19 GEAR TOOTH CONTACT PATTERNS

FRONT AXLE - 186FBI (Continued)

SPECIFICATIONS

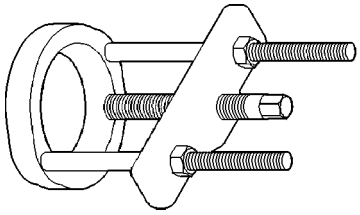
AXLE SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Axle Ratio	3.55, 3.73
Differential Side Gear Clearance	0.13-0.20 mm (0.005-0.008 in.)
Differential Bearing Preload	0.152 mm (0.006 in.)
Ring Gear Diameter	186 mm (7.33 in.)
Ring Gear Backlash	0.13-0.20 mm (0.005-0.008 in.)
Pinion Bearing Preload - Original Bearings	1-2 N·m (10-20 in. lbs.)
Pinion Bearing Preload - New Bearings	1.7-3.4 N·m (15-30 in. lbs.)

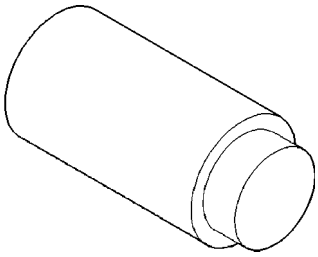
TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Fill Hole Plug	34	25	-
Differential Cover Bolts	41	30	-
Bearing Cap Bolts	61	45	-
Ring Gear Bolts	108	80	-
Pinion Nut Min / Max	298 - 500	220 - 368	-
Axle Nut	237	175	-
Hub Bearing Bolts	102	75	-

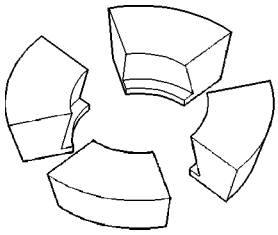
SPECIAL TOOLS



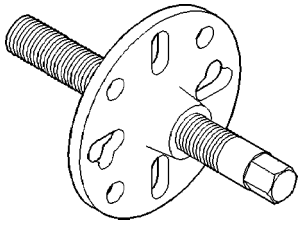
PULLER C-293-PA



PLUG SP-3289

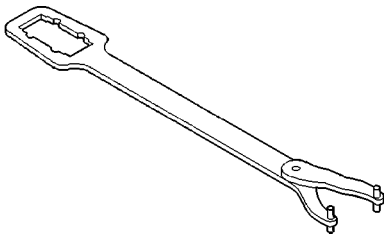


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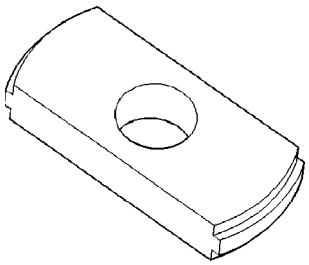


PULLER C-452

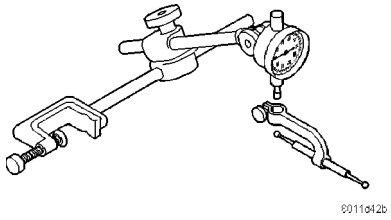
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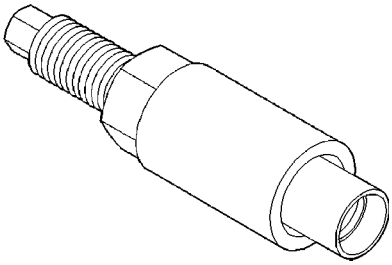
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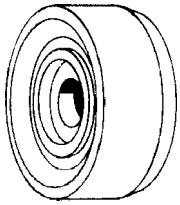
REMOVER C-4345



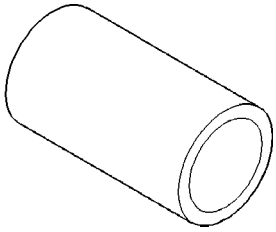
DIAL INDICATOR C-3339



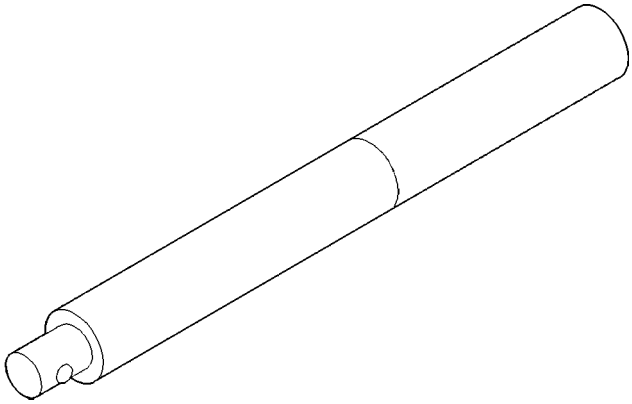
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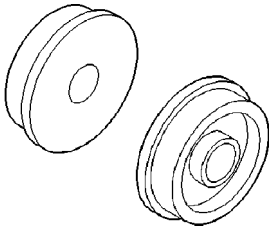
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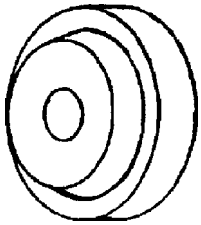
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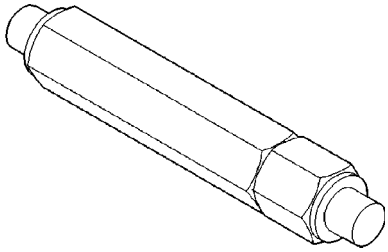
HANDLE C-4171



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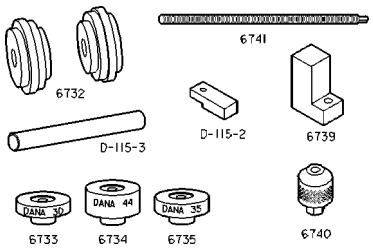


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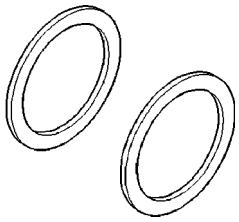


TURNBUCKLE 6797

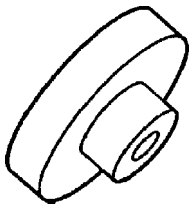
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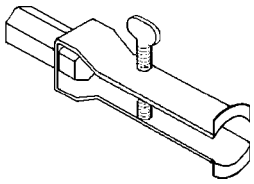
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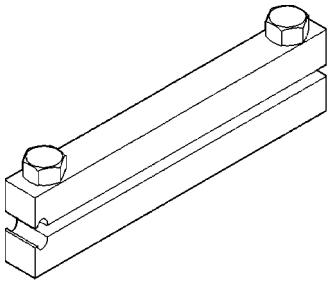
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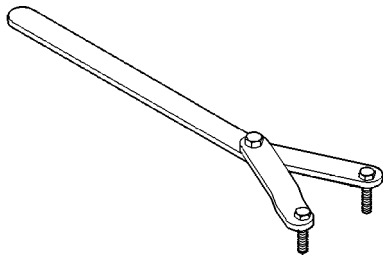
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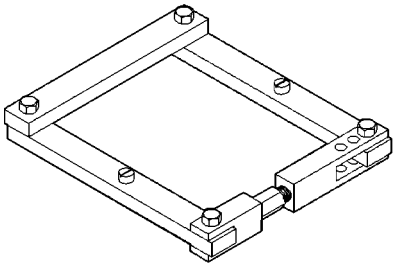
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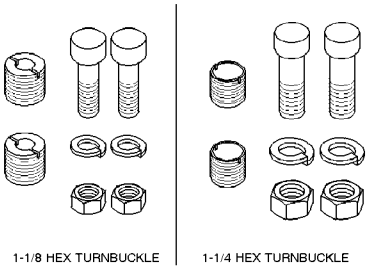
CLAMP INSTALLER C-4975-A



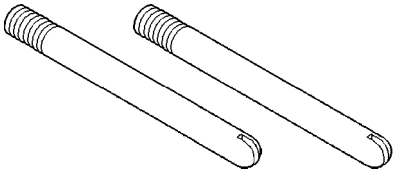
SPANNER WRENCH 6958



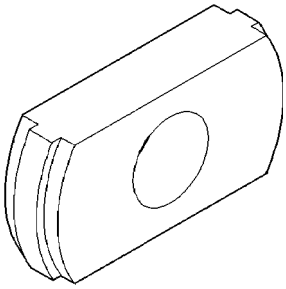
SPREADER W-129-B



ADAPTER KIT 6987B

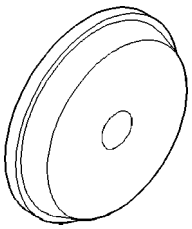


PILOT STUD C-3288-B

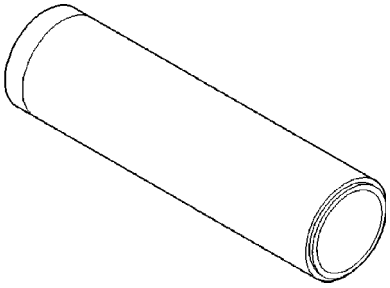


REMOVER D-149

FRONT AXLE - 186FBI (Continued)



INSTALLER D-130



INSTALLER W-262

AXLE SHAFTS

REMOVAL

If the axle shaft and hub bearing are being removed in order to service another component, the axle shaft and hub bearing can be removed as an assembly.

(1) Raise and support the vehicle.

(2) Remove the wheel and tire assembly.

(3) Remove brake caliper, rotor and ABS wheel speed sensor.

(4) Remove cotter pin, nut retainer and axle nut.

(5) Remove the hub bearing bolts (Fig. 20).

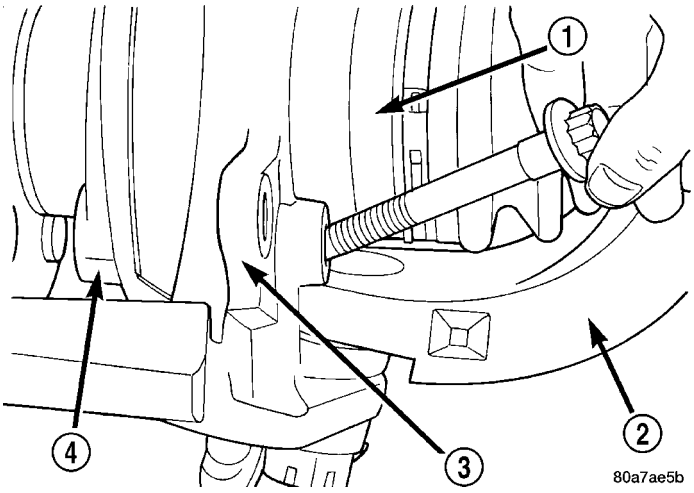


Fig. 20 HUB BEARING BOLTS

1 - AXLE SHAFT
2 - AXLE
3 - KNUCKLE
4 - HUB BEARING

(6) Remove hub bearing and axle shaft assembly (Fig. 21). **Avoid damaging the axle shaft oil seals in the axle housing.**

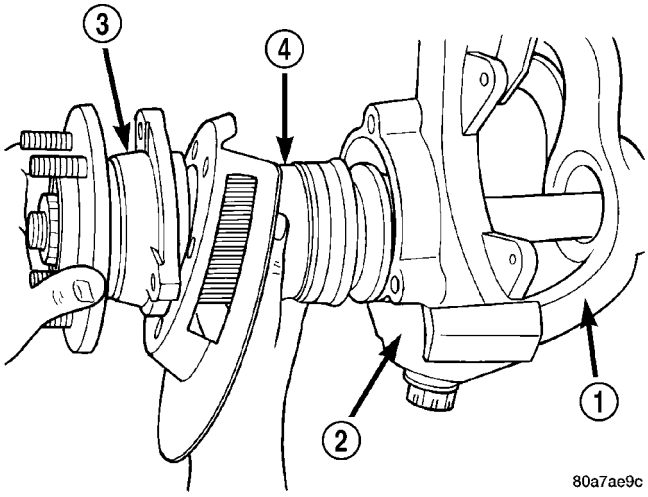


Fig. 21 HUB BEARING AND AXLE ASSEMBLY

1 - AXLE
2 - KNUCKLE
3 - HUB BEARING
4 - AXLE SHAFT

(7) Remove brake rotor shield from the hub bearing or knuckle.

INSTALLATION

(1) Thoroughly clean the axle shaft and apply a thin film of Mopar Wheel Bearing Grease or equivalent to the shaft splines, seal contact surface and hub bore.

(2) Install brake rotor shield to the knuckle.

(3) Install hub bearing and axle shaft assembly or axle shaft into the housing and differential side gears. Avoid damaging the axle shaft oil seals in the axle housing.

(4) Install the hub bearing.

(5) Install hub bearing bolts and tighten to 102 N·m (75 ft. lbs.).

(6) Install axle hub washer and nut and tighten nut to 237 N·m (175 ft. lbs.). Install the nut retainer and a new cotter pin.

(7) Install ABS wheel speed sensor, brake rotor and caliper.

(8) Install the wheel and tire assembly.

(9) Remove support and lower the vehicle.

AXLE SHAFT SEALS

REMOVAL

(1) Raise and support vehicle.

(2) Remove axle shafts.

(3) Remove differential assembly.

AXLE SHAFT SEALS (Continued)

(4) Remove inner axle shaft seals with a pry bay.

INSTALLATION

(1) Remove any sealer remaining from original seals.

(2) Install oil seals with Discs 8110 and Turnbuckle 6797 (Fig. 22). Tighten tool until disc bottoms in housing.

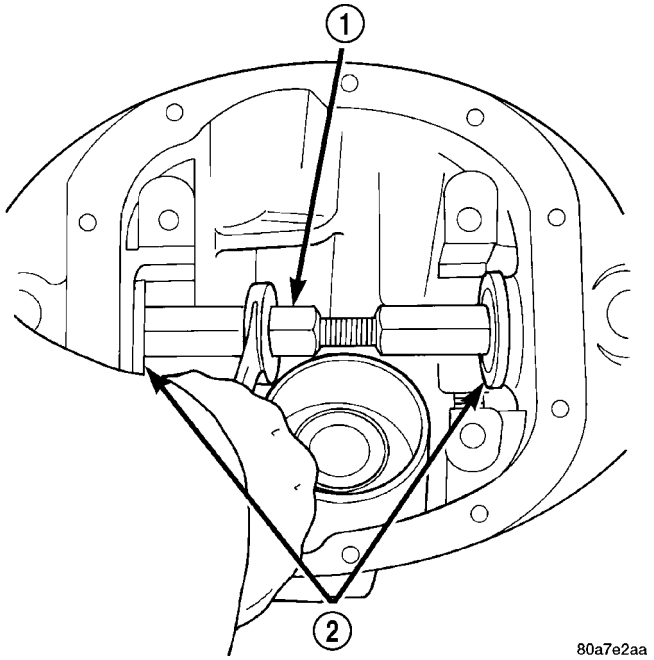


Fig. 22 AXLE SEAL TOOLS

1 - TURNBUCKLE
2 - DISCS

(3) Install differential and axle shafts.

(4) Fill differential with lubricant.

(5) Remove support and lower vehicle.

AXLE - C/V JOINT

REMOVAL

NOTE: The only service procedure to be performed on the axle C/V joint, is the replacement of the joint seal boot. If any failure of internal axle shaft components is diagnosed during a vehicle road test, the axle shaft must be replaced as an assembly.

(1) Remove axle shaft.

(2) Remove large and small C/V boot clamps (Fig. 23) and discard.

(3) Slid boot off the C/V joint housing and slide it down the axle shaft.

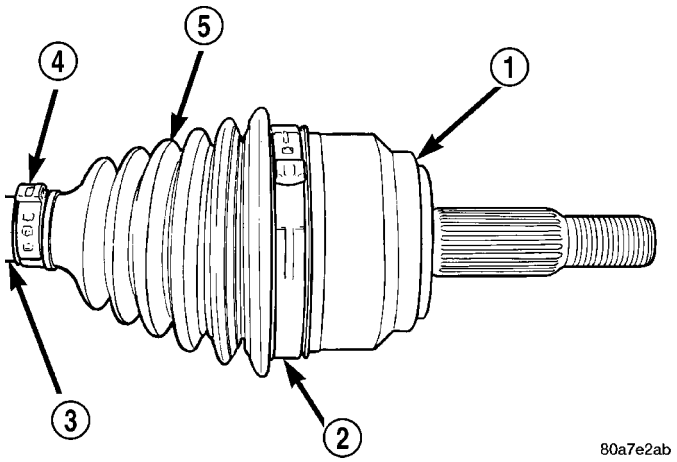


Fig. 23 OUTER C/V BOOT CLAMPS

1 - C/V JOINT HOUSING
2 - LARGE CLAMP
3 - AXLE SHAFT
4 - SMALL CLAMP
5 - SEALING BOOT

(4) Remove C/V joint from axle then slid boot off the axle.

(5) Thoroughly clean and inspect axle C/V joint assembly and axle shaft for any signs of excessive wear.

INSTALLATION

(1) Slide **new** boot over axle shaft.

(2) Install C/V joint onto the axle shaft.

(3) Distribute 1/2 the amount of grease provided in seal boot service package **(DO NOT USE ANY OTHER TYPE OF GREASE)** into axle C/V joint assembly housing. Put the remaining amount into the sealing boot.

(4) Position boot on the axle locating grove and on the C/V joint.

CAUTION: Boot must not be dimpled, stretched or out of shape in any way. If not shaped correctly, equalize pressure in boot and shape it by hand.

(5) Install the two boot clamps.

(6) Crimp the boot clamps with Clamp Installer C-4975A. Place clamp tool over bridge of clamp (Fig. 24).

(7) Tighten nut on the tool until jaws on tool are closed completely together (Fig. 25) and (Fig. 26).

AXLE - C/V JOINT (Continued)

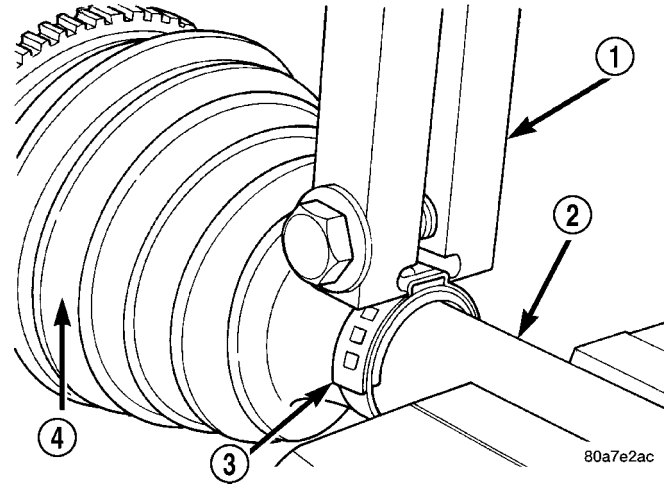


Fig. 24 CRIMPING TOOL

1 - INSTALLER
2 - AXLE SHAFT
3 - CLAMP
4 - SEALING BOOT

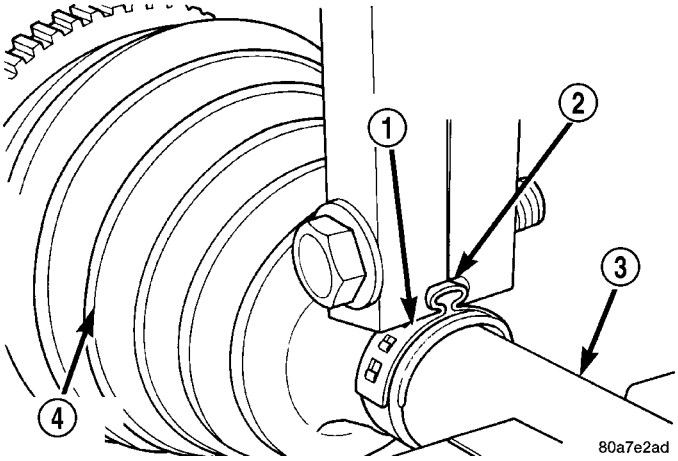


Fig. 25 SMALL BOOT CLAMP

1 - CLAMP
2 - INSTALLER
3 - AXLE SHAFT
4 - SEALING BOOT

(8) Install the axle shaft.

AXLE - U-JOINT

REMOVAL

CAUTION: Clamp only the narrow forged portion of the yoke in the vise. Do not over tighten the vise jaws, to avoid distorting the yoke.

(1) Remove axle shaft.
(2) Remove the bearing cap retaining snap rings (Fig. 27).

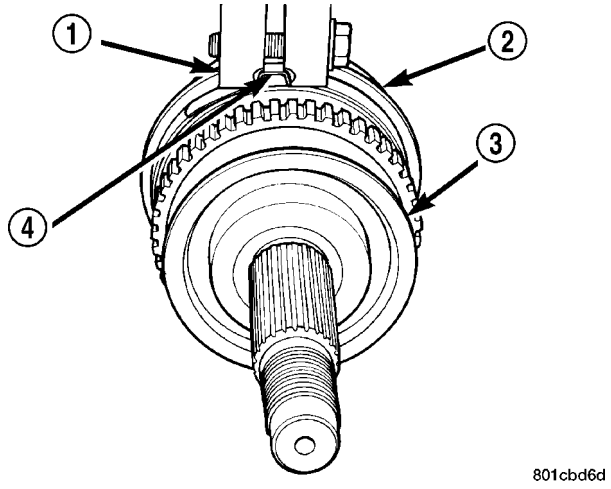


Fig. 26 LARGE BOOT CLAMP

1 - CLAMP TOOL
2 - SEALING BOOT
3 - OUTER C/V JOINT
4 - BOOT CLAMP

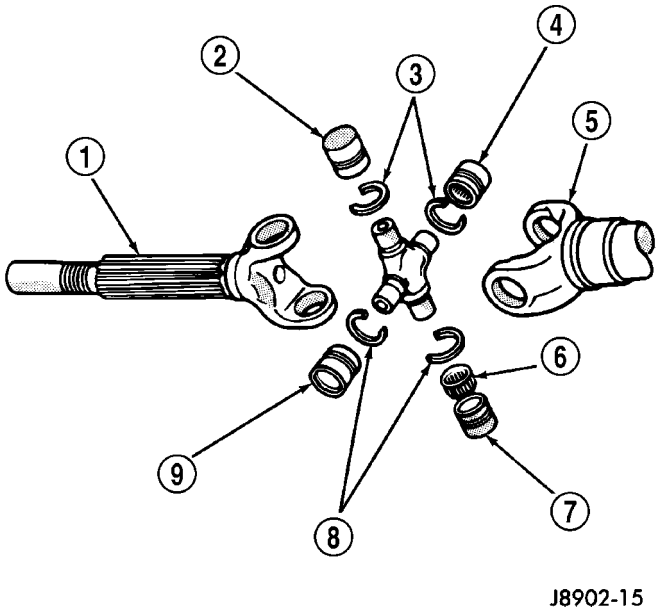


Fig. 27 AXLE SHAFT OUTER U-JOINT

1 - SHAFT YOKE
2 - BEARING CAP
3 - SNAP RINGS
4 - BEARING CAP
5 - SPINDLE YOKE
6 - BEARING
7 - BEARING CAP
8 - SNAP RINGS
9 - BEARING CAP

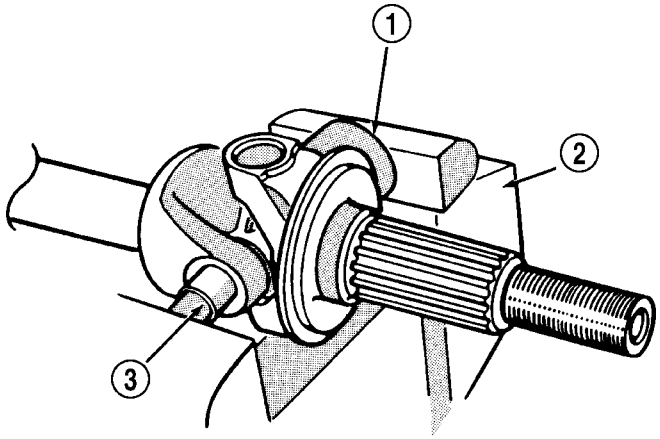
NOTE: Saturate the bearing caps with penetrating oil prior to removal.

(3) Locate a socket with an inside diameter is larger than the bearing cap. Place the socket (receiver) against the yoke and around the perimeter of the bearing cap to be removed.

AXLE - U-JOINT (Continued)

(4) Locate a socket with an outside diameter is smaller than the bearing cap. Place the socket (driver) against the opposite bearing cap.

(5) Position the yoke with the sockets in a vise (Fig. 28).



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Fig. 28 YOKE BEARING CAP

1 - LARGE-DIAMETER SOCKET
2 - VISE
3 - SMALL-DIAMETER SOCKET

(6) Tighten the vise jaws to force the bearing cap into the larger socket (receiver).

(7) Release the vise jaws. Remove the sockets and bearing cap that was partially forced out of the yoke.

(8) Repeat the above procedure for the remaining bearing cap and remove spider from the propeller shaft yoke.

INSTALLATION

(1) Pack the bearing caps 1/3 full of wheel bearing lubricant. Apply extreme pressure (EP), lithium-base lubricant to aid in installation.

(2) Position the spider in the yoke. Insert the seals and bearings, then tap bearing caps into the yoke bores far enough to hold the spider in position.

(3) Place the socket (driver) against one bearing cap. Position the yoke with the socket in a vise.

(4) Tighten the vise to force the bearing caps into the yoke. Force the caps enough to install the retaining clips.

(5) Install the bearing cap retaining clips.

(6) Install axle shaft.

PINION SEAL

REMOVAL

(1) Raise and support the vehicle.

(2) Remove wheel and tire assemblies.

(3) Remove brake rotors and calipers.

(4) Mark propeller shaft and pinion companion flange for installation reference.

(5) Remove propeller shaft from the pinion companion flange.

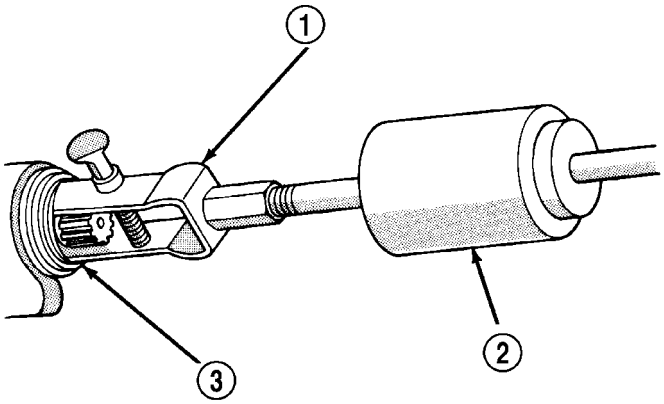
(6) Rotate pinion gear a minimum of ten times and verify the pinion rotates smoothly.

(7) Record torque necessary to rotate the pinion gear with a inch pound torque wrench.

(8) Using a short piece of pipe and Spanner Wrench 6958 to hold the pinion companion flange and remove the pinion nut and washer.

(9) Remove pinion companion flange with Remover C-452 and Flange Wrench C-3281.

(10) Remove pinion seal with Remover 7794-A and a slide hammer (Fig. 29).



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Fig. 29 PINION SEAL REMOVER

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

INSTALLATION

(1) Apply a light coating of gear lubricant on the lip of pinion seal and install seal with Installer 8890.

(2) Install pinion companion flange on the pinion gear with Installer W-162-D, Cup 8109 and Wrench 6958.

CAUTION: Never exceed the minimum tightening torque 298 N·m (220 ft. lbs.) while installing pinion nut at this point. Damage to collapsible spacer or bearings may result.

(3) Install the pinion washer and a **new** nut on the pinion gear. **Tighten the nut only enough to remove the shaft end play.**

PINION SEAL (Continued)

CAUTION: Never loosen pinion nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque or rotating torque is exceeded a new collapsible spacer must be installed.

(4) Rotate pinion a minimum of ten time and verify pinion rotates smoothly. Rotate the pinion shaft with an inch pound torque wrench. Rotating torque should be equal to the reading recorded during removal plus 0.56 N·m (5 in. lbs.) (Fig. 30).

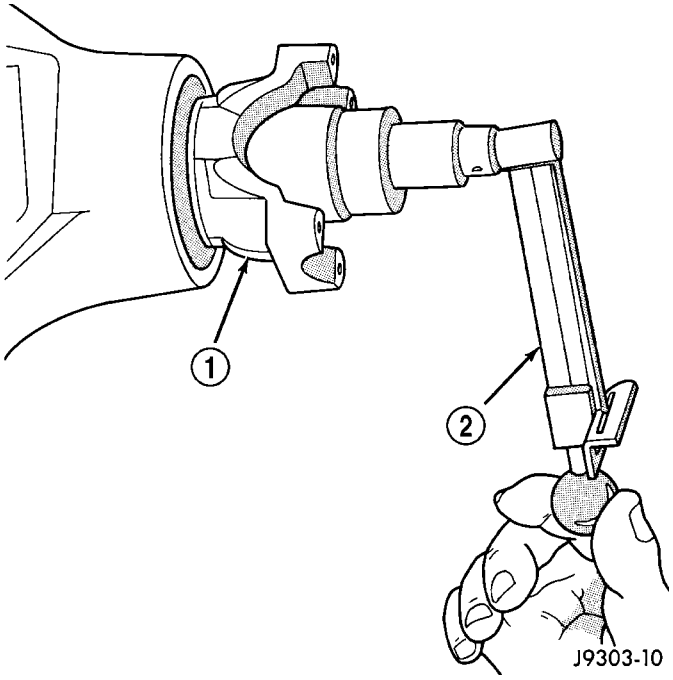


Fig. 30 PINION ROTATION TORQUE

1 - PINION YOKE/COMPANION FLANGE
2 - INCH POUND TORQUE WRENCH

(5) If the rotating torque is low, use Spanner Wrench 6958 to hold the pinion companion flange (Fig. 31), and tighten the pinion shaft nut in 6.8 N·m (5 ft. lbs.) increments until proper rotating torque is achieved.

CAUTION: If maximum tightening torque of 500 N·m (386 ft. lbs.) is reached prior to reaching the required rotating torque, the collapsible spacer may have been damaged. Replace the collapsible spacer.

(6) Install propeller shaft with installation reference marks aligned.
(7) Fill differential with gear lubricant.
(8) Install brake rotors and calipers.
(9) Install wheel and tire assemblies.
(10) Lower the vehicle.

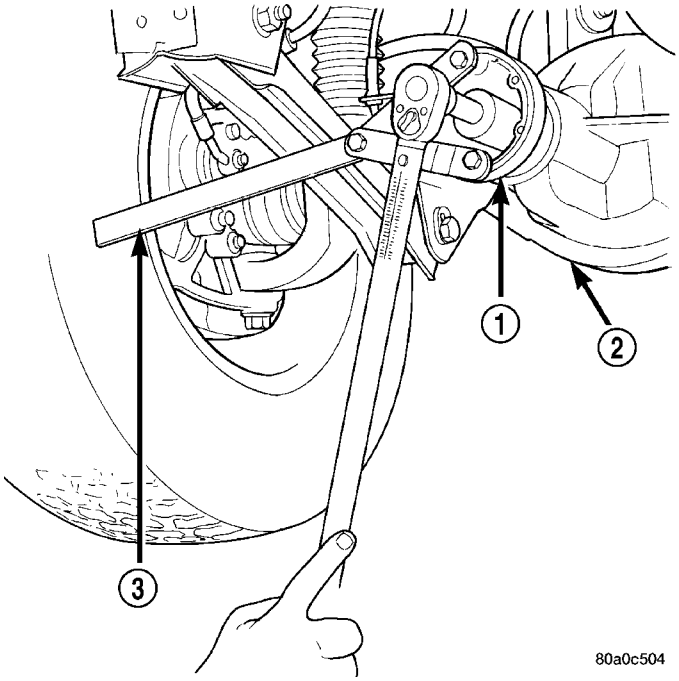


Fig. 31 PINION SHAFT NUT

1 - PINION FLANGE
2 - FRONT AXLE
3 - SPANNER WRENCH

COLLAPSIBLE SPACER

REMOVAL

(1) Raise and support the vehicle.
(2) Remove wheel and tire assemblies.
(3) Remove brake rotors and calipers.
(4) Mark the propeller shaft and pinion companion flange for installation reference.
(5) Remove propeller shaft from the pinion companion flange.
(6) Rotate pinion gear a minimum of ten times and verify pinion rotates smoothly.
(7) Record pinion gear rotating torque with a torque wrench for installation reference.
(8) Remove pinion nut and washer. Using a short piece of pipe and Spanner Wrench 6958 to hold the pinion companion flange.
(9) Remove pinion companion flange with Remover C-452 and Flange Wrench C-3281.
(10) Remove pinion shaft seal with Remover 7794-A and slide hammer (Fig. 32).
(11) Remove front pinion bearing using a pair of pick tools to pull the bearing straight off pinion shaft.

NOTE: If bearing becomes bound on the pinion shaft, lightly tap the end of the pinion gear with a rawhide/rubber mallet.

(12) Remove the collapsible spacer.

COLLAPSIBLE SPACER (Continued)

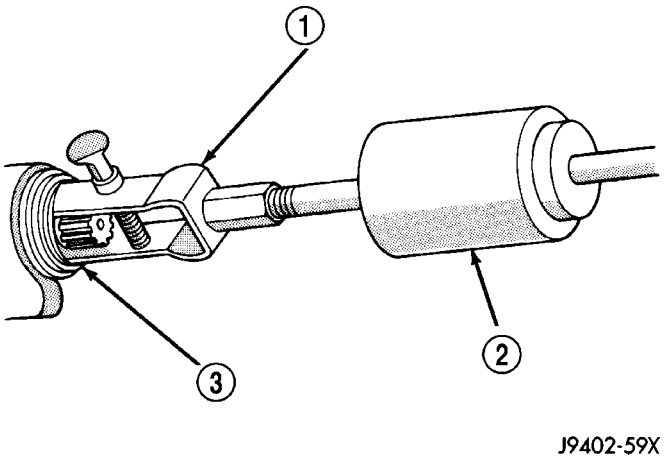


Fig. 32 PINION SEAL REMOVER

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

INSTALLATION

(1) Install a **new** collapsible preload spacer on pinion shaft.

(2) Install pinion front bearing.

(3) Apply a light coating of gear lubricant on the lip of pinion seal. Install seal with an appropriate installer (Fig. 33).

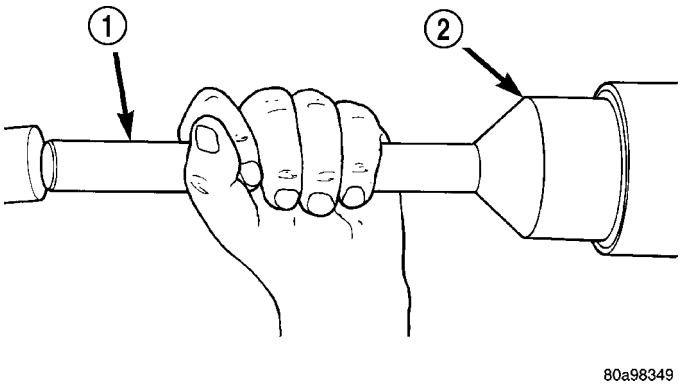


Fig. 33 PINION SEAL INSTALLER

1 - HANDLE
2 - INSTALLER

(4) Install pinion companion flange with Installer W-162-D, Cup 8109 and Flange Holder 6958.

(5) Install pinion washer and a **new** nut on the pinion gear. Tighten the nut to 298 N·m (220 ft. lbs.) minimum. **Do not overtighten.** Maximum torque is 500 N·m (368 ft. lbs.).

CAUTION: Never loosen pinion nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque is exceeded a new collapsible spacer must be installed.

NOTE: New collapsible spacers require high initial torque to start the collapsing of the spacer. This may reach 678 N·m (500 ft. lbs.).

(6) Using Spanner Wrench 6958, a length of 1 in. pipe and a torque wrench set at 500 N·m (368 ft. lbs.) crush collapsible spacer until bearing end play is taken up (Fig. 34).

(7) Slowly tighten the nut in 6.8 N·m (5 ft. lbs.) increments until the required rotating torque is achieved. Measure the rotating torque frequently to avoid over crushing the collapsible spacer.

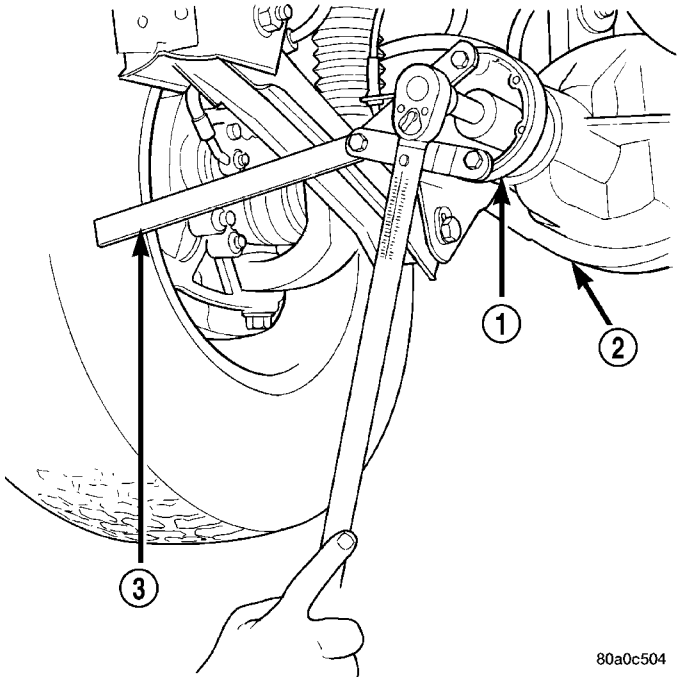


Fig. 34 PINION COMPANION FLANGE

1 - COMPANION FLNAGE
2 - DIFFERENTIAL HOUSING
3 - SPANNER WRENCH

(8) Rotate pinion gear a minimum of ten times and verify pinion rotates smoothly. Check rotating torque with an inch pound torque wrench. The rotating torque should be the amount recorded during removal plus:

- Original Bearings: 0.56 N·m (5 in. lbs.).
- New Bearings: 1.7 to 3.4 N·m (15 to 30 in. lbs.).

(9) Install propeller shaft with reference marks aligned.

(10) Install brake rotors and calipers.

(11) Add gear lubricant if necessary.

(12) Install wheel and tire assemblies.

(13) Lower vehicle.

DIFFERENTIAL

DESCRIPTION

The differential case is a one-piece design. Differential bearing preload and ring gear backlash is adjusted by the use of shims located between the differential bearing cups and housing. Pinion bearing preload is set and maintained by the use of a collapsible spacer. A differential cover provides a means for inspection and servicing.

OPERATION

During straight-ahead driving, the differential pinion gears do not rotate on the pinion mate shaft. This occurs because input torque applied to the gears is divided and distributed equally between the two side gears. As a result, the pinion gears revolve with the pinion mate shaft but do not rotate around it (Fig. 35).

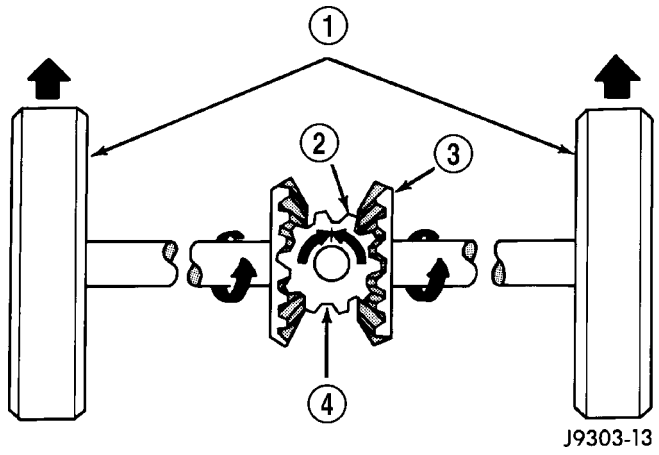


Fig. 35 DIFFERENTIAL-STRAIGHT AHEAD DRIVING

1 - IN STRAIGHT AHEAD DRIVING EACH WHEEL ROTATES AT 100% OF CASE SPEED
2 - PINION GEAR
3 - SIDE GEAR
4 - PINION GEARS ROTATE WITH CASE

When turning corners, the outside wheel must travel a greater distance than the inside wheel to complete a turn. The difference must be compensated for to prevent the tires from scuffing and skidding through turns. To accomplish this, the differential allows the axle shafts to turn at unequal speeds (Fig. 36). In this instance, the input torque applied to the pinion gears is not divided equally. The pinion gears now rotate around the pinion mate shaft in opposite directions. This allows the side gear and axle shaft attached to the outside wheel to rotate at a faster speed.

REMOVAL

(1) Raise and support the vehicle.

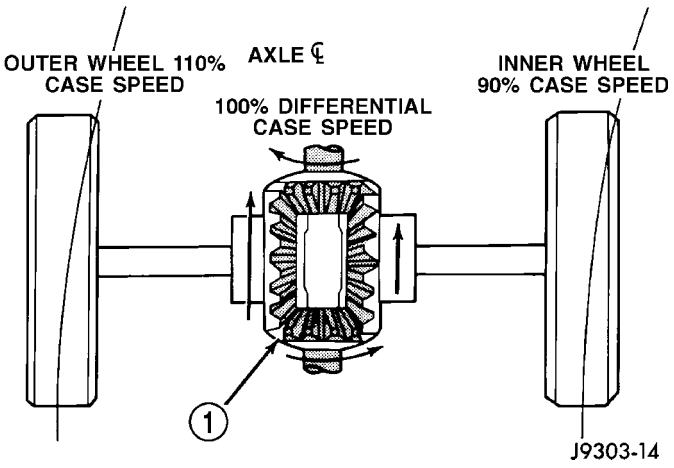


Fig. 36 DIFFERENTIAL-ON TURNS

1 - PINION GEARS ROTATE ON PINION SHAFT

(2) Remove lubricant fill hole plug from the differential housing cover.

(3) Remove differential cover and drain lubricant.

(4) Clean the housing cavity with a flushing oil, light engine oil or lint free cloth. **Never use water, steam, kerosene or gasoline for cleaning.**

(5) Remove hub bearings and axle shafts.

(6) Note installation reference letters stamped on the bearing caps and housing machined sealing surface (Fig. 37).

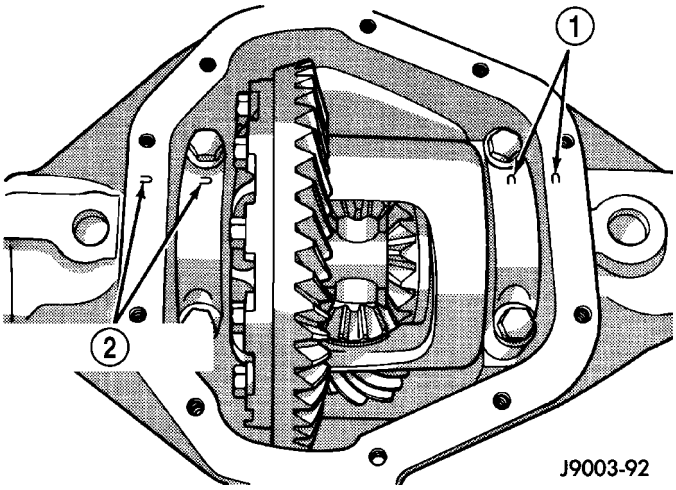


Fig. 37 BEARING CAP IDENTIFICATION

1 - REFERENCE LETTERS
2 - REFERENCE LETTERS

(7) Loosen the differential bearing cap bolts.

(8) Position Spreader W-129-B with Adapter Kit 6987B on differential locating holes (Fig. 38). Install hold down clamps and tighten the tool turnbuckle finger-tight.

(9) Install a Pilot Stud C-3288-B at the left side of the differential housing. Attach Dial Indicator C-3339

DIFFERENTIAL (Continued)

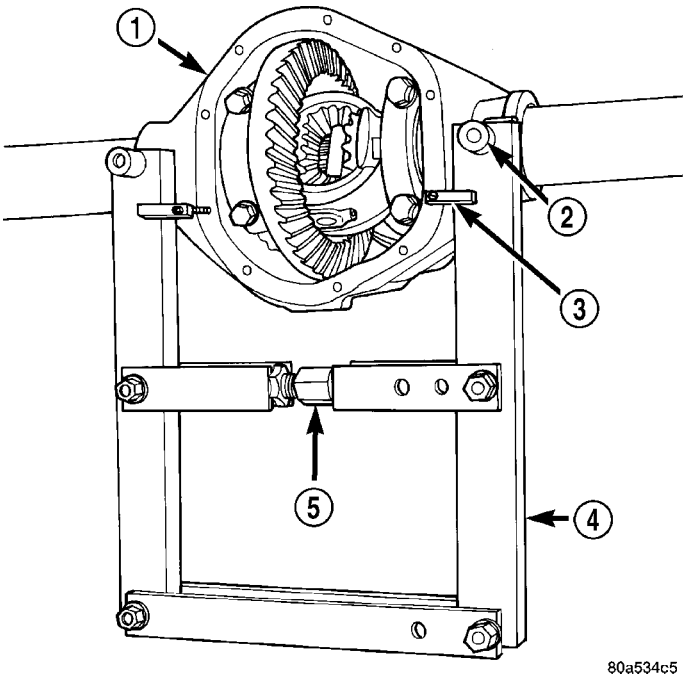


Fig. 38 DIFFERENTIAL SPREADER LOCATION

1 - DIFFERENTIAL HOUSING
2 - ADAPTER
3 - HOLD DOWN CLAMPS
4 - SPREADER
5 - TURNBUCKLE

to stud. Load the lever adapter against the opposite side of the housing (Fig. 39) and zero the indicator.

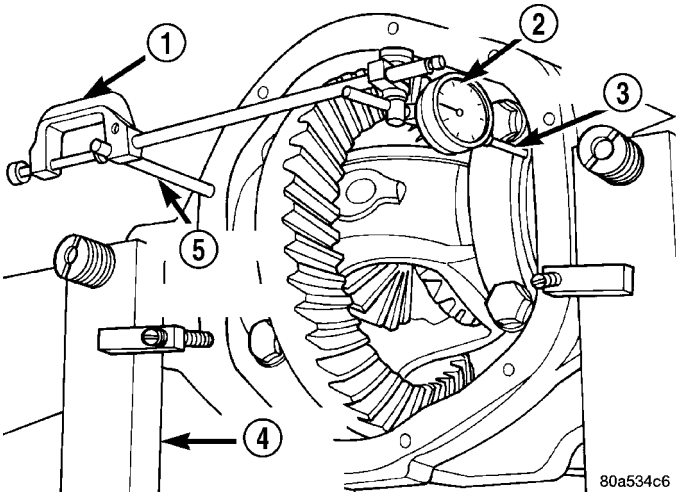


Fig. 39 DIAL INDICATOR LOCATION

1 - CLAMP
2 - DIAL INDICATOR
3 - LEVER ADAPTER
4 - SPREADER
5 - PILOT STUD

(10) Spread housing enough to remove the differential case from the housing. Measure the distance with the dial indicator (Fig. 40).

CAUTION: Never spread the housing over 0.38 mm (0.015 in). If housing is over-spread, it could distorted and damaged the housing.

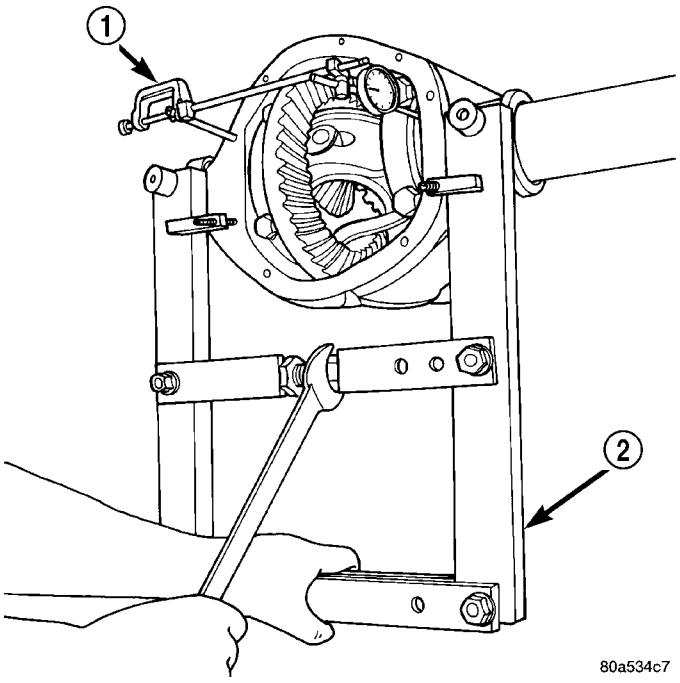


Fig. 40 SPREAD DIFFERENTIAL HOUSING

1 - DIAL INDICATOR
2 - SPREADER

(11) Remove the dial indicator.

(12) Hold differential case in position and remove differential bearing cap bolts and caps.

(13) Remove differential from the housing and tag differential bearing cups to ensure location (Fig. 41).

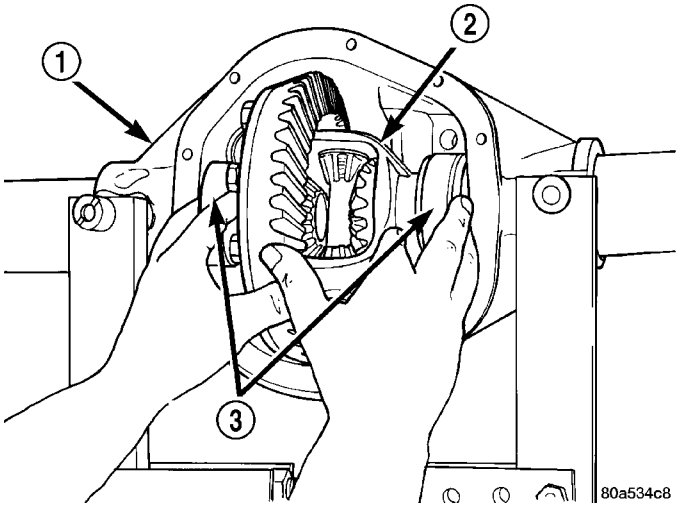


Fig. 41 DIFFERENTIAL CASE REMOVAL

1 - DIFFERENTIAL HOUSING
2 - DIFFERENTIAL CASE
3 - BEARING CUPS

DIFFERENTIAL (Continued)

(14) Remove differential case preload shims from the axle housing.

(15) Remove spreader from housing. Tag differential bearing preload shims to ensure correct location.

DISASSEMBLY

(1) Remove the ring gear.

(2) Drive out the roll pin holding pinion gear mate shaft with a hammer and punch (Fig. 42).

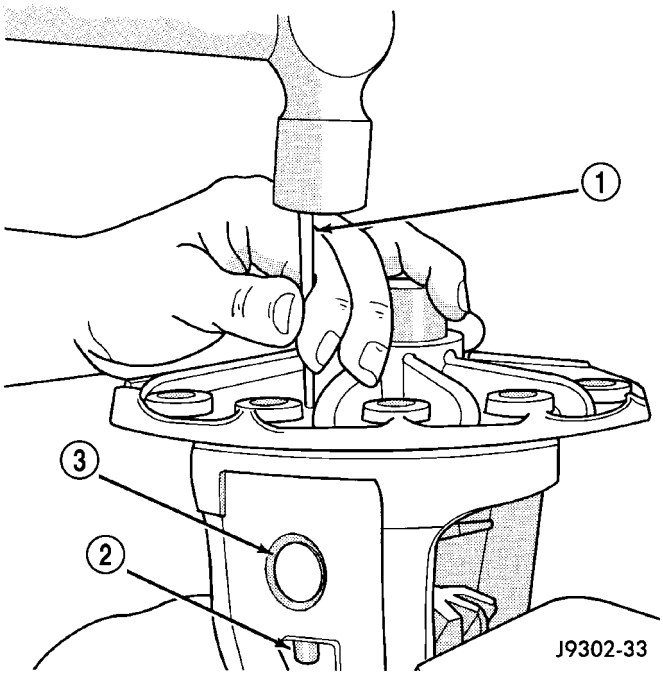


Fig. 42 MATE SHAFT ROLL PIN

1 - PUNCH
2 - LOCKPIN
3 - MATE SHAFT

(3) Remove pinion gear mate shaft from the differential case and the pinion mate gears.

(4) Rotate differential side gears and remove the pinion mate gears and thrust washers (Fig. 43).

(5) Remove differential side gears and thrust washers.

ASSEMBLY

(1) Install differential side gears and thrust washers.

(2) Install pinion mate gears and thrust washers.

(3) Install pinion gear mate shaft. Align the roll pin holes in shaft and the differential case.

(4) Install the roll pin in the differential case (Fig. 44).

(5) Install the ring gear.

(6) Lubricate all differential components with hypoid gear lubricant.

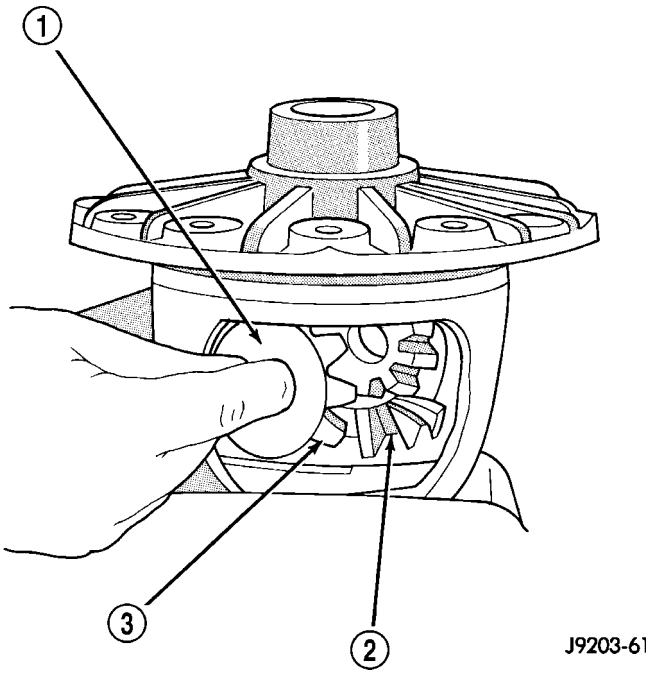


Fig. 43 PINION MATE GEAR

1 - THRUST WASHER
2 - SIDE GEAR
3 - PINION MATE GEAR

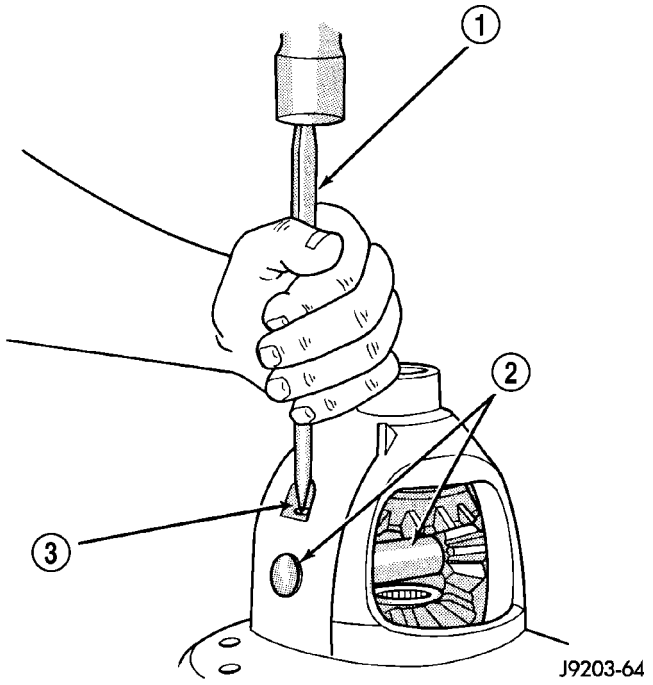


Fig. 44 MATE SHAFT ROLL PIN

1 - PUNCH
2 - PINION MATE SHAFT
3 - MATE SHAFT LOCKPIN

DIFFERENTIAL (Continued)

INSTALLATION

NOTE: If replacement differential bearings or differential case are being installed, differential side bearing shim requirements may change. Refer to Adjustments (Differential Bearing Preload and Gear Backlash) to determine the proper shim selection.

(1) Position Spreader W-129-B with Adapter Kit 6987B on differential locating holes. Install hold down clamps and tighten the tool turnbuckle finger-tight.

(2) Install a Pilot Stud C-3288-B at the left side of the differential housing. Attach Dial Indicator C-3339 to pilot stud. Load the indicator plunger against the opposite side of the housing and zero the indicator.

(3) Spread the housing enough to install the case in the housing. Measure the distance with the dial indicator.

CAUTION: Never spread the housing over 0.38 mm (0.015 in.). If housing is over-spread, it could distorted and damaged the housing.

(4) Remove the dial indicator.

(5) Install differential case in the housing (Fig. 45). Make sure the differential bearing cups remain on the bearings and the preload shims remain between the face of the bearing cup and housing. Tap the differential case to ensure the bearings cups and shims are fully seated in the housing.

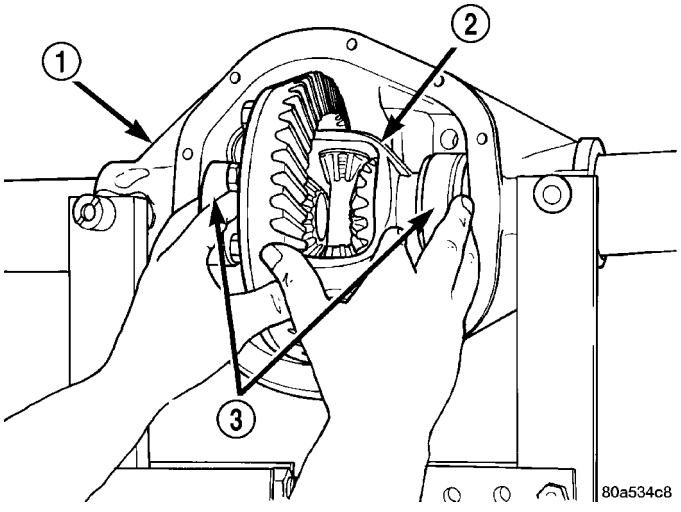


Fig. 45 DIFFERENTIAL CASE REMOVAL

1 - DIFFERENTIAL HOUSING
2 - DIFFERENTIAL CASE
3 - BEARING CUPS

CAUTION: On a Vari-lok® differential the oil feed tube must be pointed at the bottom of the housing (Fig. 46). If differential is installed with the oil feed tube pointed at the top, the anti-rotation tabs will be damaged.

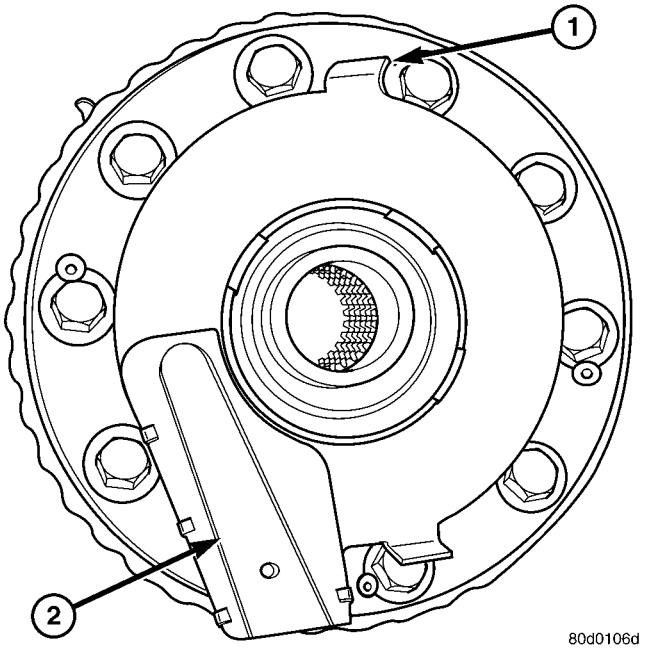


Fig. 46 VARI-LOK

1 - ANTI-ROTATION TAB
2 - OIL FEED TUBE

(6) Install the bearing caps at their original locations (Fig. 47).

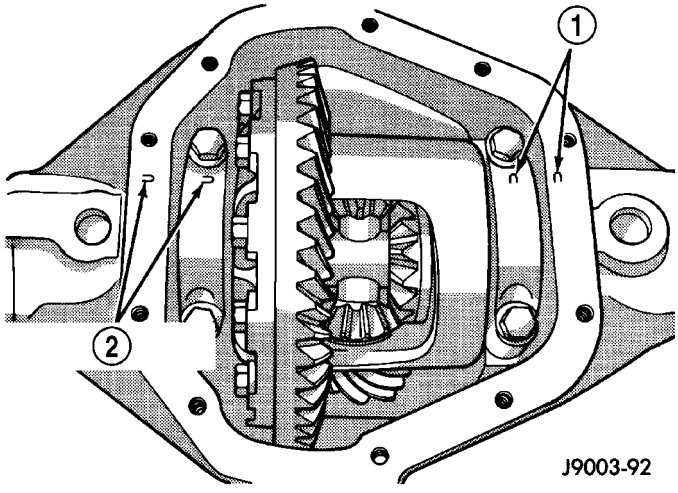


Fig. 47 Bearing Cap Reference

1 - REFERENCE LETTERS
2 - REFERENCE LETTERS

(7) Loosely install differential bearing cap bolts.

(8) Remove axle housing spreader.

(9) Tighten the bearing cap bolts to 61 N·m (45 ft. lbs.).

(10) Install the hub bearings and axle shafts.

DIFFERENTIAL (Continued)

(11) Apply a bead 6.35mm (1/4 inch) of red Mopar Silicone Rubber Sealant or equivalent to the housing cover (Fig. 48).

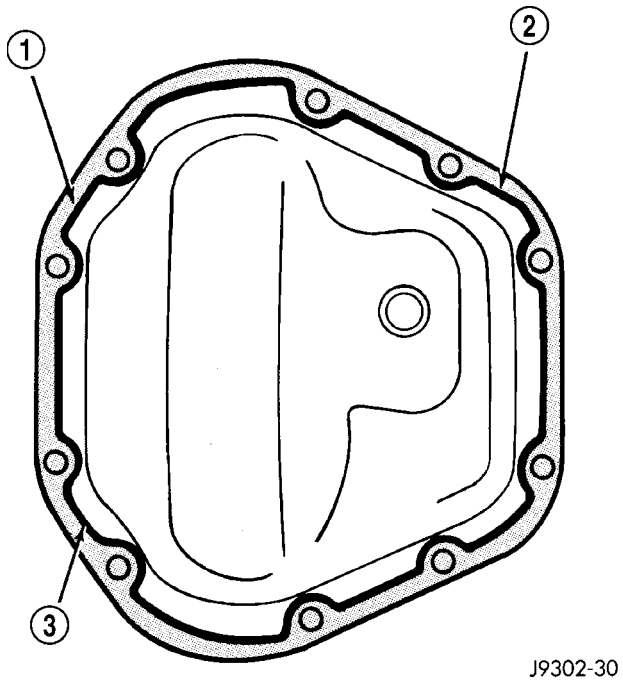


Fig. 48 DIFFERENTIAL COVER

1 - COVER
2 - SEALANT
3 - SEALANT BEAD

CAUTION: If cover is not installed within 3 to 5 minutes, the cover must be cleaned and new RTV applied or adhesion quality will be compromised.

(12) Install differential cover and tighten cover bolts in a criss-cross pattern to 41 N·m (30 ft. lbs.).

(13) Fill differential with gear lubricant to bottom of the fill plug hole.

(14) Tighten fill plug to 34 N·m (25 ft. lbs.).

(15) Remove support and lower the vehicle.

DIFFERENTIAL - VARI-LOK

DESCRIPTION

The optional Vari-Lok® differential has a one-piece differential case which contains the gerotor pump assembly and the clutch mechinism. This unit is serviced as an assembly only.

OPERATION

In a standard differential if one wheel spins, the opposite wheel will generate only as much torque as the spinning wheel.

A gerotor pump and clutch pack are used to provide the torque transfer capability. One axle shaft is splined to the gerotor pump and one of the differential side gears, which provides the input to the pump. As a wheel begins to lose traction, the speed differential is transmitted from one side of the differential to the other through the side gears. The motion of one side gear relative to the other turns the inner rotor of the pump. Since the outer rotor of the pump is grounded to the differential case, the inner and outer rotors are now moving relative to each other and therefore creates pressure in the pump. The tuning of the front and rear axle orifices and valves inside the gerotor pump is unique and each system includes a torque-limiting pressure relief valve to protect the clutch pack, which also facilitates vehicle control under extreme side-to-side traction variations. The resulting pressure is applied to the clutch pack and the transfer of torque is completed.

Under conditions in which opposite wheels are on surfaces with widely different friction characteristics, Vari-lok® delivers far more torque to the wheel on the higher traction surface than do conventional Trac-lok® systems. Because conventional Trac-lok® differentials are initially pre-loaded to assure torque transfer, normal driving (where inner and outer wheel speeds differ during cornering, etc.) produces torque transfer during even slight side-to-side speed variations. Since these devices rely on friction from this preload to transfer torque, normal use tends to cause wear that reduces the ability of the differential to transfer torque over time. By design, the Vari-lok® system is less subject to wear, remaining more consistent over time in its ability to transfer torque. The coupling assembly is serviced as a unit. From a service standpoint the coupling also benefits from using the same lubricant supply as the ring and pinion gears.

DIAGNOSIS AND TESTING

(1) Park the vehicle on a level surface or raise vehicle on hoist so that the vehicle is level.

(2) Remove the axle fill plug.

(3) Verify that the axle fluid level is correct. The fluid level is correct if the fluid is level with the bottom of the fill hole.

(4) Shift the transfer case into the 4WD full-time position.

(5) Drive the vehicle in a tight circle for 2 minutes at 5mph to fully prime the pump.

(6) Block the tires opposite the axle to be tested to prevent the vehicle from moving.

(7) Shift the transfer case into the 4WD Low position and the transmission into the Park position.

(8) Raise both the wheels of the axle to be tested off of the ground.

(9) Rotate the left wheel by hand at a minimum of one revolution per second while an assistant rotates the right wheel in the opposite direction.

DIFFERENTIAL - VARI-LOK (Continued)

(10) The left wheel should spin freely at first and then increase in resistance within 5 revolutions until the wheels cannot be continuously rotated in opposite directions.

(11) The Vari-lok® differential has engaged properly if the wheels cannot be rotated in opposite directions for a moment. After the wheels stop rotating for a moment, the fluid pressure will drop in the differential and the wheels begin to rotate once again.

(12) If the system does not operate properly, replace the Vari-lok® differential.

DIFFERENTIAL CASE BEARINGS

REMOVAL

(1) Remove differential case from housing.

(2) Remove bearings from the differential case with Puller C-293-PA, Adapters 8352 and Plug SP-3289 (Fig. 49).

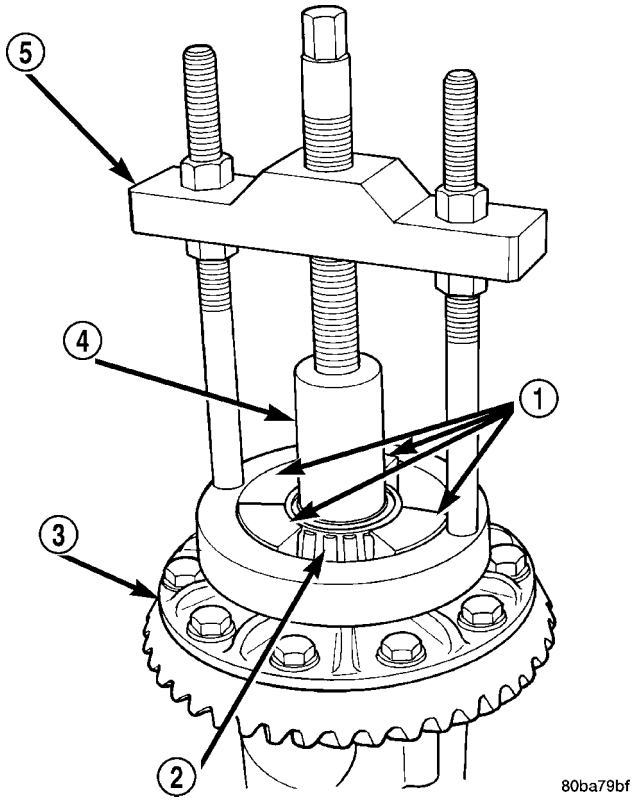


Fig. 49 DIFFERENTIAL CASE BEARING

1 - ADAPTERS
2 - BEARING
3 - DIFFERENTIAL
4 - PLUG
5 - PULLER

INSTALLATION

NOTE: If replacement differential side bearings or differential case are being installed, differential side bearing shim requirements may change. Refer to Adjustments (Differential Bearing Preload and Gear Backlash) to determine the proper shim selection.

CAUTION: Vari-lok® plenum must be fully seated against the differential case prior to installing the ring gear side differential bearing.

(1) Install differential side bearings with Handle C-4171 and Installer C-3716-A (Fig. 50).

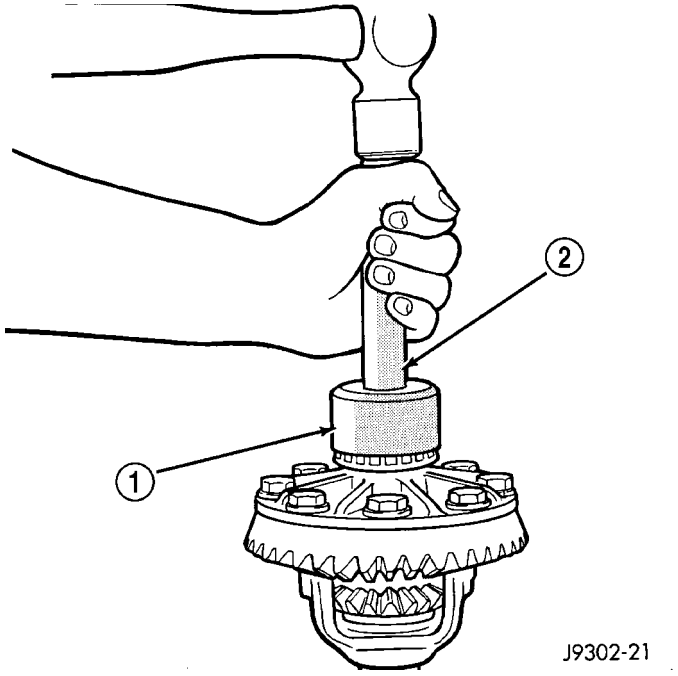


Fig. 50 DIFFERENTIAL CASE BEARING

1 - INSTALLER
2 - HANDLE

(2) Install differential in housing.

PINION GEAR/RING GEAR

REMOVAL

NOTE: The ring gear and pinion are serviced as a matched set. Nevar replace one gear without replacing the other matching gear.

(1) Raise and support vehicle

(2) Mark pinion companion flange and propeller shaft for installation alignment.

(3) Remove propeller shaft from pinion companion flange and tie propeller shaft to underbody.

PINION GEAR/RING GEAR (Continued)

(4) Remove differential from axle housing.
(5) Place differential case in a vise with soft metal jaw (Fig. 51).
(6) Remove bolts holding ring gear to differential case.

NOTE: On Veri-Lok® differential the side bearing and oil feed plenum must be removed before removing the ring gear bolts.

(7) Driver ring gear off the differential case with a rawhide hammer (Fig. 51).

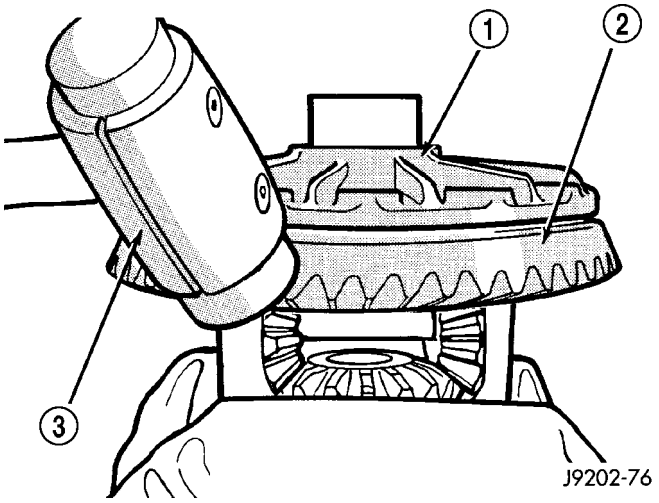


Fig. 51 RING GEAR

1 - DIFFERENTIAL CASE
2 - RING GEAR
3 - HAMMER

(8) With Spanner Wrench 6958 and a short length of 1 in. pipe, hold pinion companion flange and remove pinion nut and washer (Fig. 52).
(9) Remove pinion companion flange from pinion shaft with Remover C-452 and Flange Wrench C-3281.
(10) Remove pinion gear and collapsible spacer from housing (Fig. 53).
(11) Remove front pinion bearing cup, bearing, oil slinger and pinion seal with Remover C-4345 and Handle C-4171 (Fig. 54).
(12) Remove rear pinion bearing cup (Fig. 55) with Remover D-149 and Handle C-4171.
(13) Remove collapsible preload spacer from pinion gear (Fig. 56).

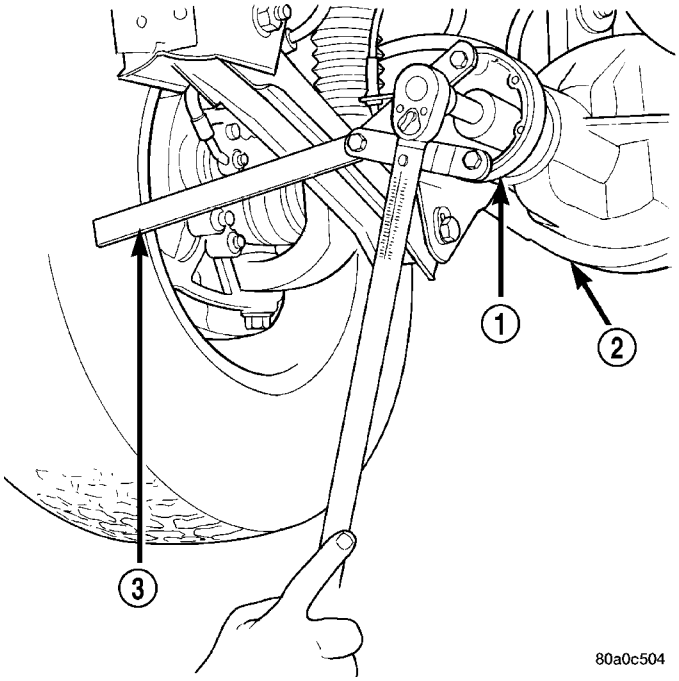


Fig. 52 Pinion Flange

1 - PINION FLANGE
2 - FRONT AXLE
3 - SPANNER WRENCH

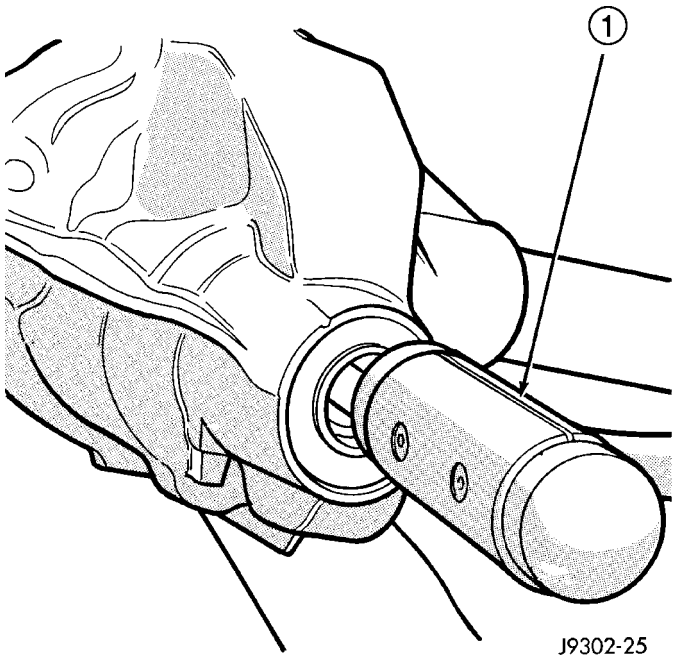


Fig. 53 REMOVE PINION GEAR

1 - DEAD-BLOW HAMMER

PINION GEAR/RING GEAR (Continued)

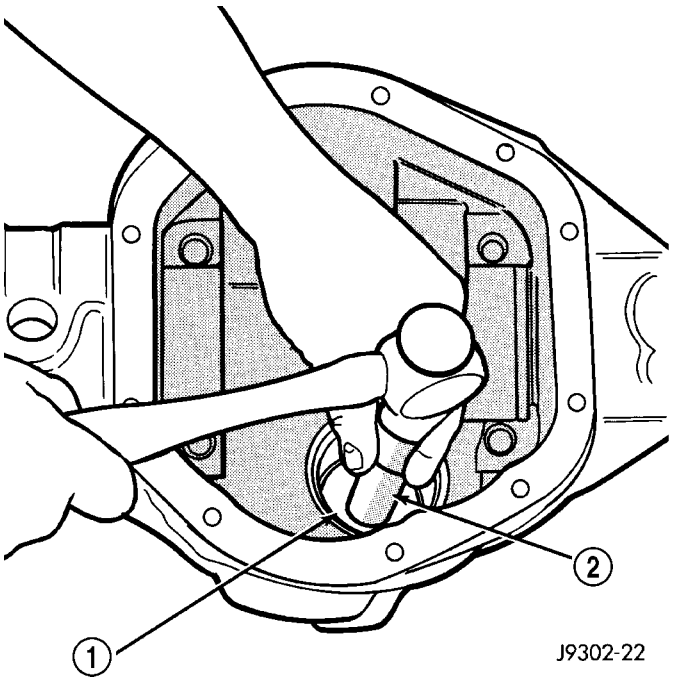


Fig. 54 FRONT PINION BEARING CUP

1 - REMOVER
2 - HANDLE

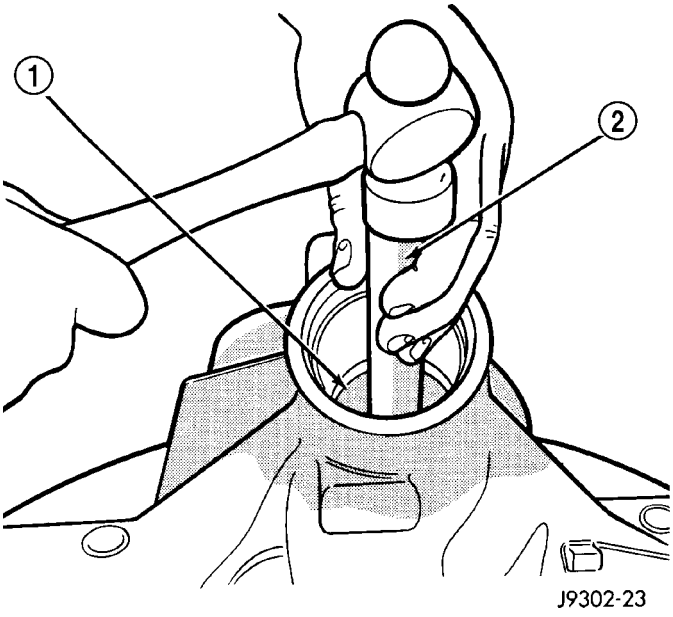


Fig. 55 REAR PINION BEARING CUP

1 - REMOVER
2 - HANDLE

(14) Remove rear pinion bearing from the pinion with Puller/Press C-293-PA and Adapters C-293-39 (Fig. 57). Remove oil slinger/pinion depth shim from the pinion shaft and record thickness.

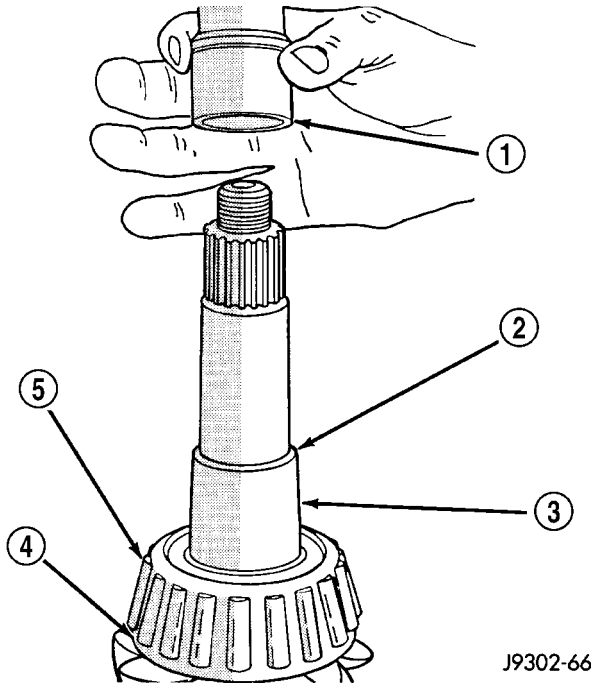


Fig. 56 COLLAPSIBLE SPACER

1 - COLLAPSIBLE SPACER
2 - SHOULDER
3 - PINION GEAR
4 - DEPTH SHIM
5 - REAR BEARING

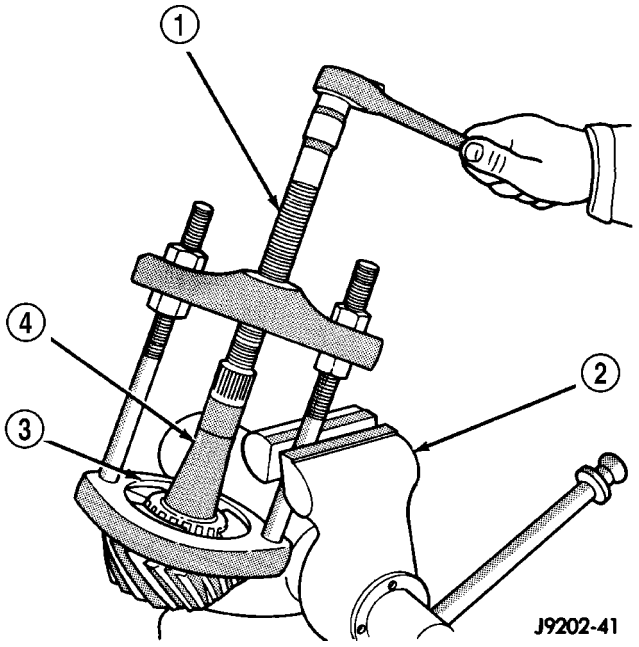


Fig. 57 REAR PINION BEARING

1 - PULLER
2 - VISE
3 - ADAPTERS
4 - PINION GEAR SHAFT

PINION GEAR/RING GEAR (Continued)

INSTALLATION

NOTE: Pinion depth shims are placed between the rear pinion bearing cone and the pinion head to achieve proper ring and pinion gear mesh. If ring and pinion gears are reused, the pinion oil slinger/ depth shim should not require replacement. Refer to Adujstments (Pinion Gear Depth) to select the proper thickness shim before installing pinion gear.

(1) Apply Mopar Door Ease or equivalent lubricant to outside surface of pinion bearing cups.

(2) Install rear bearing cup with Installer D-146 and Handle C-4171 and verify cup is seated (Fig. 58).

(3) Install bearing cup with Installer D-130 and Handle C-4171 (Fig. 59) and verify cup is seated.

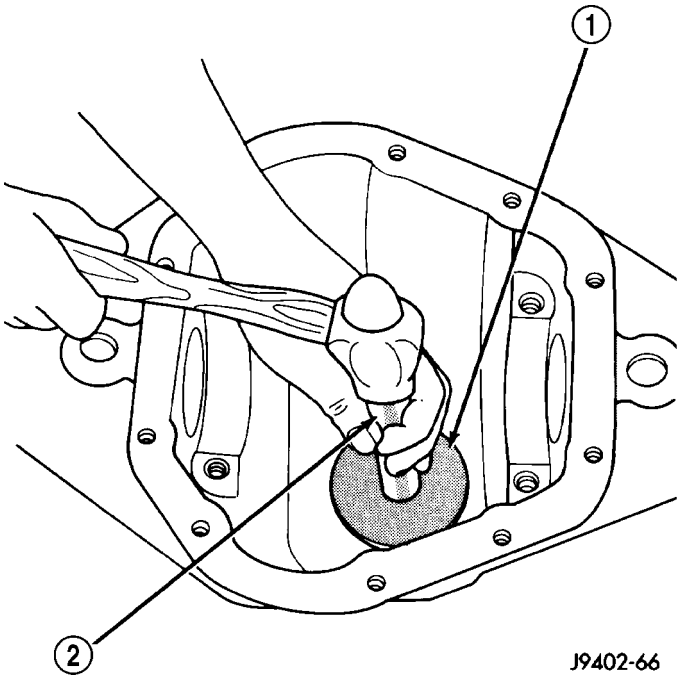


Fig. 58 REAR PINION BEARING CUP

1 - INSTALLER
2 - HANDLE

(4) Install front pinion bearing, and oil slinger if equipped.

(5) Apply a light coating of gear lubricant on the lip of pinion seal and install seal with Installer 8890.

(6) Install rear pinion bearing and oil slinger/depth shim onto the pinion shaft with Installer W262 and a press (Fig. 60).

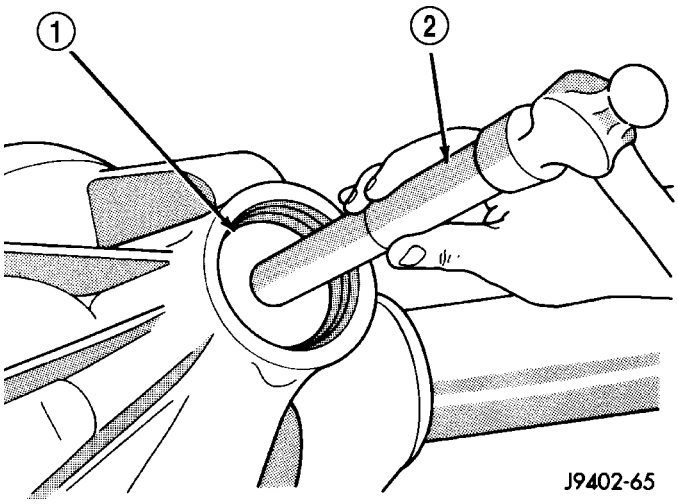


Fig. 59 FRONT PINION BEARING CUP

1 - INSTALLER
2 - HANDLE

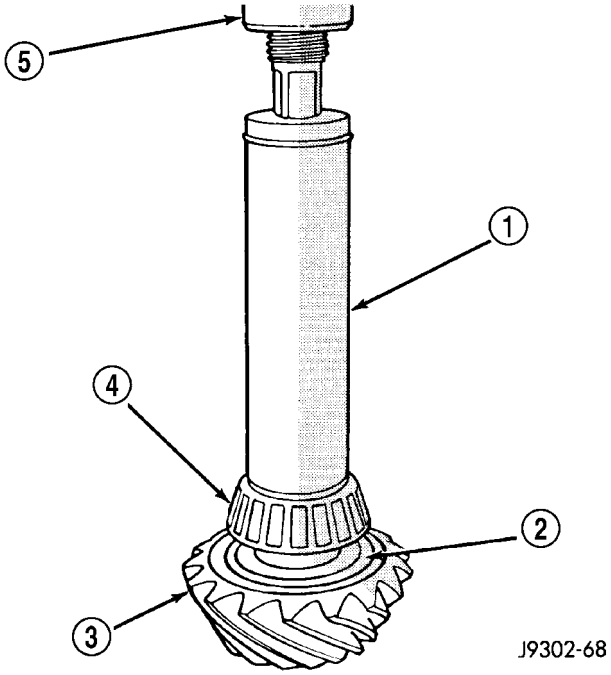


Fig. 60 REAR PINION BEARING

1 - INSTALLER
2 - OIL SLINGER
3 - PINION GEAR
4 - REAR PINION BEARING
5 - PRESS

PINION GEAR/RING GEAR (Continued)

(7) Install a **new** collapsible spacer on pinion shaft and install the pinion into the housing (Fig. 61).

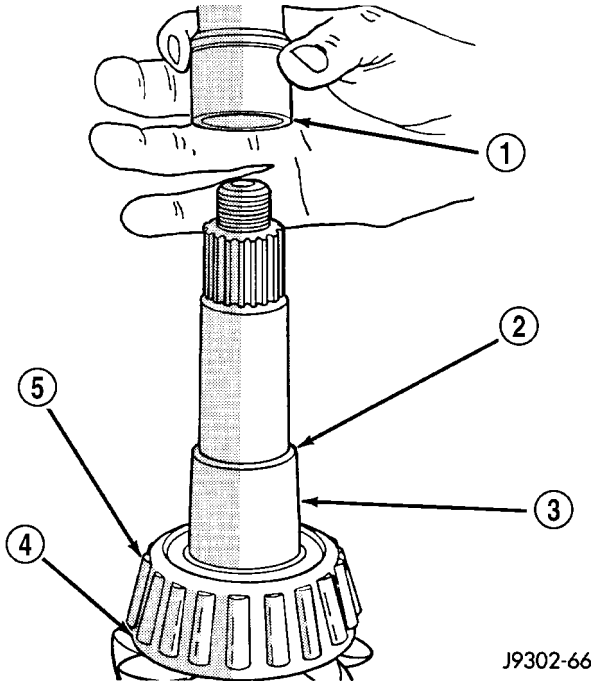


Fig. 61 COLLAPSIBLE PRELOAD SPACER

1 - COLLAPSIBLE SPACER
2 - SHOULDER
3 - PINION GEAR
4 - DEPTH SHIM
5 - REAR BEARING

(8) Install pinion companion flange, with Installer W-162-B, Cup 8109 and Spanner Wrench 6958.

(9) Install pinion washer and a **new** nut onto the pinion gear and tighten the nut to 298 N·m (220 ft. lbs.). **Do not over-tighten.**

CAUTION: Never loosen pinion gear nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque is exceeded a new collapsible spacer must be installed.

NOTE: New collapsible spacers require high initial torque to start the collapsing of the spacer. This may reach 678 N·m (500 ft. lbs.).

(10) Use Flange Wrench 6958, a length of 1 in. pipe and a torque wrench set at 500 N·m (368 ft. lbs.) and crush collapsible spacer until bearing end play is taken up (Fig. 62).

(11) Slowly tighten the nut in 6.8 N·m (5 ft. lb.) increments until the required rotating torque is achieved. Measure the rotating torque frequently to avoid over crushing the collapsible spacer (Fig. 63).

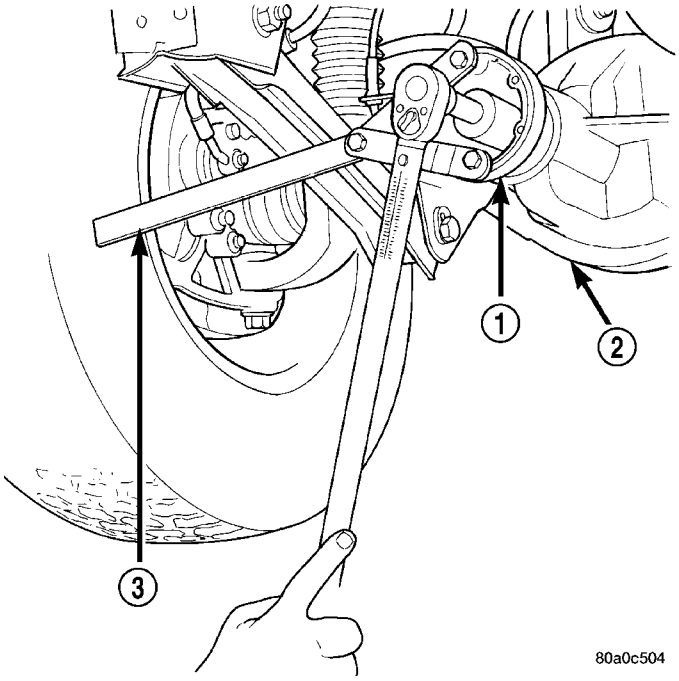


Fig. 62 Pinion Nut

1 - PINION FLANGE
2 - FRONT AXLE
3 - SPANNER WRENCH

(12) Rotate the pinion a minimum of ten times. Verify pinion rotates smoothly and check rotating torque with an inch pound torque wrench (Fig. 63). Pinion gear rotating torque is:

- Original Bearings: 1 to 2.25 N·m (10 to 20 in. lbs.).

PINION GEAR/RING GEAR (Continued)

- New Bearings: 1.7 to 3.4 N·m (15 to 30 in. lbs.).

(13) Invert the differential case and start two ring gear bolts. This will provide case-to-ring gear bolt hole alignment.

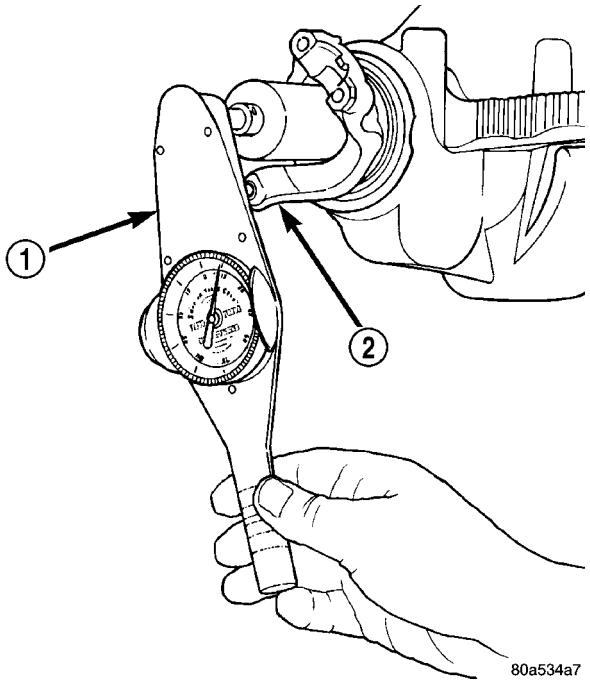


Fig. 63 PINION ROTATING TORQUE

1 - TORQUE WRENCH
2 - PINION YOKE/FLANGE

(14) Invert the differential case in the vise.

(15) Install new ring gear bolts and alternately tighten to 108 N·m (80 ft. lbs.) (Fig. 64).

CAUTION: Never reuse the ring gear bolts. The bolts can fracture causing extensive damage.

NOTE: If equipped with Veri-Lok® differential install oil feed plenum and side bearing.

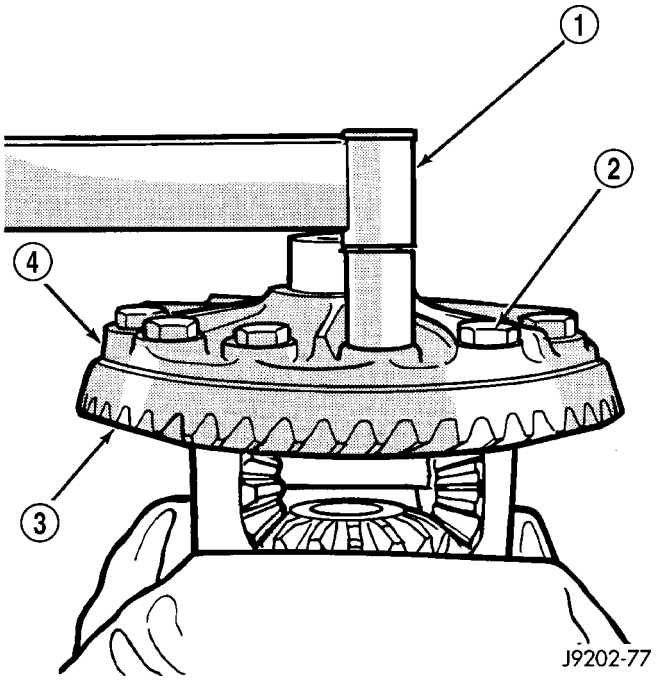


Fig. 64 RING GEAR BOLTS

1 - TORQUE WRENCH
2 - RING GEAR BOLTS
3 - RING GEAR
4 - DIFFERENTIAL CASE

(16) Install differential in housing and verify differential bearing preload, gear mesh and contact pattern. Refer to Adjustment for procedure.

(17) Install differential cover and fill with gear lubricant.

(18) Install propeller shaft with reference marks aligned.

(19) Remove supports and lower vehicle.

REAR AXLE - 198RBI

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REAR AXLE - 198RBI

DESCRIPTION

The Rear Beam-design Iron (RBI) axle housing has an iron center casting with axle shaft tubes extending from either side. The tubes are pressed into and welded to the differential housing to form a one-piece axle housing. The axles has semi-floating axle shafts, meaning that loads are supported by the axle shaft and bearings. The axle shafts are retained by bearing retainer plates on the axles which are bolted to flanges at the outboard end of the axle tubes.

OPERATION

The axle receives power from the transmission/transfer case through the rear propeller shaft. The rear propeller shaft is connected to the pinion gear which rotates the differential through the gear mesh with the ring gear bolted to the differential case. The engine power is transmitted to the axle shafts through the pinion mate and side gears. The side gears are splined to the axle shafts.

DIAGNOSIS AND TESTING

GEAR NOISE

Axle gear noise can be caused by insufficient lubricant, incorrect backlash, tooth contact, worn/damaged gears, or the carrier housing not having the proper offset and squareness.

Gear noise usually happens at a specific speed range. The noise can also occur during a specific type of driving condition. These conditions are acceleration, deceleration, coast, or constant load.

When road testing, first warm-up the axle fluid by driving the vehicle at least 5 miles and then accelerate the vehicle to the speed range where the noise is the greatest. Shift out-of-gear and coast through the peak-noise range. If the noise stops or changes greatly:

- Check for insufficient lubricant.
- Incorrect ring gear backlash.
- Gear damage.

Differential side gears and pinions can be checked by turning the vehicle. They usually do not cause noise during straight-ahead driving when the gears are unloaded. The side gears are loaded during vehicle turns. A worn pinion mate shaft can also cause a snapping or a knocking noise.

REAR AXLE - 198RBI (Continued)

BEARING NOISE

The axle shaft, differential and pinion bearings can all produce noise when worn or damaged. Bearing noise can be either a whining, or a growling sound.

Pinion bearings have a constant-pitch noise. This noise changes only with vehicle speed. Pinion bearing noise will be higher pitched because it rotates at a faster rate. Drive the vehicle and load the differential. If bearing noise occurs, the rear pinion bearing is the source of the noise. If the bearing noise is heard during a coast, the front pinion bearing is the source.

Worn or damaged differential bearings usually produce a low pitch noise. Differential bearing noise is similar to pinion bearing noise. The pitch of differential bearing noise is also constant and varies only with vehicle speed.

Axle shaft bearings produce noise and vibration when worn or damaged. The noise generally changes when the bearings are loaded. Road test the vehicle. Turn the vehicle sharply to the left and to the right. This will load the bearings and change the noise level. Where axle bearing damage is slight, the noise is usually not noticeable at speeds above 30 mph.

LOW SPEED KNOCK

Low speed knock is generally caused by a worn U-joint or by worn side–gear thrust washers. A worn pinion shaft bore will also cause low speed knock.

VIBRATION

Vibration at the rear of the vehicle is usually caused by a:

- Damaged drive shaft.
- Missing drive shaft balance weight(s).
- Worn or out-of-balance wheels.
- Loose wheel lug nuts.
- Worn U-joint(s).
- Loose/broken springs.
- Damaged axle shaft bearing(s).
- Loose pinion gear nut.
- Excessive pinion yoke run out.
- Bent axle shaft(s).

Check for loose or damaged front-end components or engine/transmission mounts. These components can contribute to what appears to be a rear end vibration. Do not overlook engine accessories, brackets and drive belts.

All driveline components should be examined before starting any repair.

DRIVELINE SNAP

A snap or clunk noise when the vehicle is shifted into gear (or the clutch engaged), can be caused by:

- High engine idle speed.
- Transmission shift operation.
- Loose engine/transmission/transfer case mounts.
- Worn U-joints.
- Loose spring mounts.
- Loose pinion gear nut and yoke.
- Excessive ring gear backlash.
- Excessive side gear to case clearance.

The source of a snap or a clunk noise can be determined with the assistance of a helper. Raise the vehicle on a hoist with the wheels free to rotate. Instruct the helper to shift the transmission into gear. Listen for the noise, a mechanics stethoscope is helpful in isolating the source of a noise.

REAR AXLE - 198RBI (Continued)

DIAGNOSTIC CHART

Condition	Possible Causes	Correction
Wheel Noise	1. Wheel loose.	1. Tighten loose nuts.
	2. Faulty, brinelled wheel bearing.	2. Replace bearing.
Axle Shaft Noise	1. Misaligned axle tube.	1. Inspect axle tube alignment. Correct as necessary.
	2. Bent or sprung axle shaft.	2. Inspect and correct as necessary.
	3. End-play in pinion bearings.	3. Refer to pinion pre-load information and correct as necessary.
	4. Excessive gear backlash between the ring gear and pinion.	4. Check adjustment of the ring gear and pinion backlash. Correct as necessary.
	5. Improper adjustment of pinion gear bearings.	5. Adjust the pinion bearings pre-load.
	6. Loose pinion yoke nut.	6. Tighten the pinion yoke nut.
	7. Scuffed gear tooth contact surfaces.	7. Inspect and replace as necessary.
Axle Shaft Broke	1. Misaligned axle tube.	1. Replace the broken shaft after correcting tube mis-alignment.
	2 Vehicle overloaded.	2. Replace broken shaft and avoid excessive weight on vehicle.
	3. Erratic clutch operation.	3. Replace broken shaft and avoid or correct erratic clutch operation.
	4. Grabbing clutch.	4. Replace broken shaft and inspect and repair clutch as necessary.
Differential Cracked	1. Improper adjustment of the differential bearings.	1. Replace case and inspect gears and bearings for further damage. Set differential bearing pre-load properly.
	2. Excessive ring gear backlash.	2. Replace case and inspect gears and bearings for further damage. Set ring gear backlash properly.
	3. Vehicle overloaded.	3. Replace case and inspect gears and bearings for further damage. Avoid excessive vehicle weight.
	4. Erratic clutch operation.	4. Replace case and inspect gears and bearings for further damage. Avoid erratic use of clutch.

REAR AXLE - 198RBI (Continued)

Condition	Possible Causes	Correction
Differential Gears Scored	1. Insufficient lubrication.	1. Replace scored gears. Fill differential with the correct fluid type and quantity.
	2. Improper grade of lubricant.	2. Replace scored gears. Fill differential with the correct fluid type and quantity.
	3. Excessive spinning of one wheel/tire.	3. Replace scored gears. Inspect all gears, pinion bores, and shaft for damage. Service as necessary.
Loss Of Lubricant	1. Lubricant level too high.	1. Drain lubricant to the correct level.
	2. Worn axle shaft seals.	2. Replace seals.
	3. Cracked differential housing.	3. Repair as necessary.
	4. Worn pinion seal.	4. Replace seal.
	5. Worn/scored yoke.	5. Replace yoke and seal.
	6. Axle cover not properly sealed.	6. Remove, clean, and re-seal cover.
Axle Overheating	1. Lubricant level low.	1. Fill differential to correct level.
	2. Improper grade of lubricant.	2. Fill differential with the correct fluid type and quantity.
	3. Bearing pre-loads too high.	3. Re-adjust bearing pre-loads.
	4. Insufficient ring gear backlash.	4. Re-adjust ring gear backlash.
Gear Teeth Broke	1. Overloading.	1. Replace gears. Examine other gears and bearings for possible damage.
	2. Erratic clutch operation.	2. Replace gears and examine the remaining parts for damage. Avoid erratic clutch operation.
	3. Ice-spotted pavement.	3. Replace gears and examine remaining parts for damage.
	4. Improper adjustments.	4. Replace gears and examine remaining parts for damage. Ensure ring gear backlash is correct.

REAR AXLE - 198RBI (Continued)

Condition	Possible Causes	Correction
Axle Noise	1. Insufficient lubricant.	1. Fill differential with the correct fluid type and quantity.
	2. Improper ring gear and pinion adjustment.	2. Check ring gear and pinion contact pattern.
	3. Unmatched ring gear and pinion.	3. Replace gears with a matched ring gear and pinion.
	4. Worn teeth on ring gear and/or pinion.	4. Replace ring gear and pinion.
	5. Loose pinion bearings.	5. Adjust pinion bearing pre-load.
	6. Loose differential bearings.	6. Adjust differential bearing pre-load.
	7. Mis-aligned or sprung ring gear.	7. Measure ring gear run-out. Replace components as necessary.
	8. Loose differential bearing cap bolts.	8. Inspect differential components and replace as necessary. Ensure that the bearing caps are torqued tot he proper specification.
	9. Housing not machined properly.	9. Replace housing.

REMOVAL

(1) Raise and support the vehicle.
(2) Position a lifting device under the axle and secure axle.
(3) Remove the wheels and tires.
(4) Remove brake calipers and rotors.
(5) Disconnect parking brake cables from brackets and lever.
(6) Remove wheel speed sensors.
(7) Remove brake hose at the axle junction block. Do not disconnect the brake hydraulic lines at the calipers.
(8) Disconnect the vent hose from the axle shaft tube.
(9) Mark propeller shaft and yokes for installation reference.
(10) Remove propeller shaft.
(11) Disconnect stabilizer bar links.
(12) Remove upper suspension arm rear axle ball joint nut.
(13) Separate rear axle ball joint from the upper suspension arm with Remover 8278 (Fig. 1).
(14) Disconnect shock absorbers from axle.
(15) Disconnect track bar.
(16) Disconnect lower suspension arms from the axle brackets.
(17) Separate the axle from the vehicle.

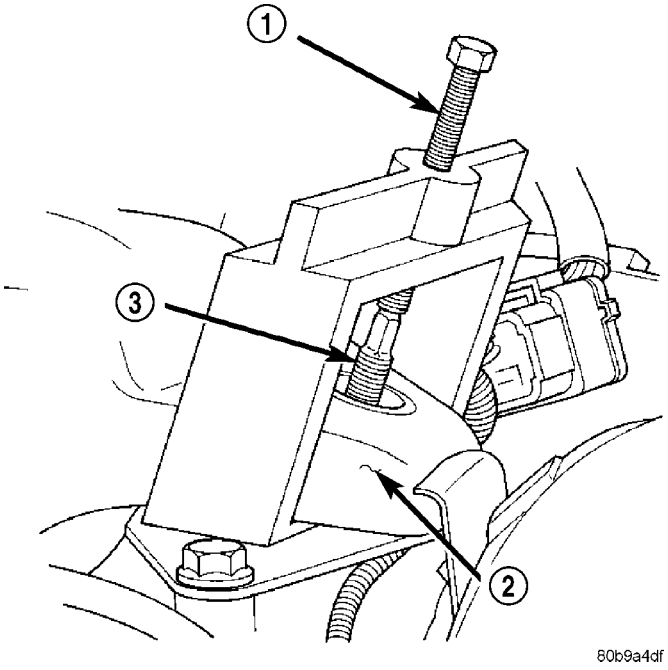


Fig. 1 BALL JOINT REMOVER

1 - REMOVER
2 - UPPER SUSPENSION ARM
3 - BALL JOINT STUD

INSTALLATION

CAUTION: The weight of the vehicle must be supported by the springs before suspension arms and track bar fasteners are tightened. If springs are not at their normal ride position, vehicle ride height and handling could be affected.

(1) Raise axle with lift and align coil springs.

REAR AXLE - 198RBI (Continued)

(2) Install lower suspension arms in axle brackets. Install nuts and bolts, do not tighten bolts at this time.

(3) Install upper suspension arm on rear axle ball joint.

(4) Install rear axle ball joint nut and tighten to 122 N·m (90 ft.lbs.) (Fig. 2).

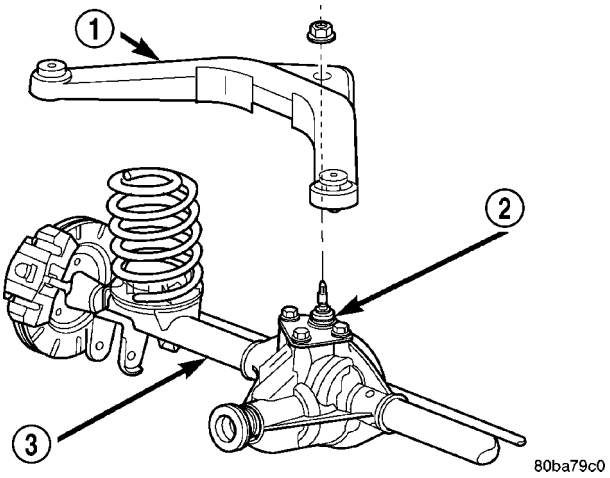


Fig. 2 REAR BALL JOINT NUT

1 - UPPER SUSPENSION ARM
2 - REAR AXLE BALL JOINT
3 - REAR AXLE

(5) Install track bar and attachment bolts, do not tighten bolts at this time.

(6) Install shock absorbers and tighten nuts to 60 N·m (44 ft. lbs.).

(7) Install stabilizer bar links and tighten nuts to 36 N·m (27 ft. lbs.).

(8) Install wheel speed sensors.

(9) Connect parking brake cable to brackets and lever.

(10) Install brake rotors and calipers.

(11) Install the brake hose to the axle junction block.

(12) Install axle vent hose.

(13) Align propeller shaft and pinion yoke reference marks. Install U-joint straps and nuts tighten to 19 N·m (14 ft. lbs.).

(14) Install the wheels and tires.

(15) Add gear lubricant, if necessary.

(16) Remove support and lower the vehicle.

(17) Tighten lower suspension arm bolts to 177 N·m (130 ft. lbs.).

(18) Tighten track bar bolts to 100 N·m (74 ft. lbs.).

ADJUSTMENTS

Ring and pinion gears are supplied as matched sets only. The identifying numbers for the ring and pinion gear are etched into the face of each gear (Fig. 3). A plus (+) number, minus (–) number or zero (0) is etched into the face of the pinion gear. This number is the amount (in thousandths of an inch) the depth varies from the standard depth setting of a pinion etched with a (0). The standard depth provides the best gear tooth contact pattern. Refer to Backlash and Contact Pattern Analysis paragraph in this section for additional information.

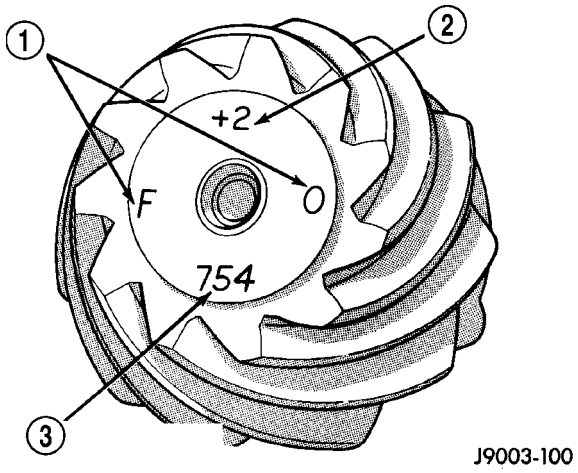


Fig. 3 PINION GEAR ID NUMBERS

1 - PRODUCTION NUMBERS
2 - PINION GEAR DEPTH VARIANCE
3 - GEAR MATCHING NUMBER

Compensation for pinion depth variance is achieved with a select shim. The shims are placed between the rear pinion bearing and the pinion gear head (Fig. 4).

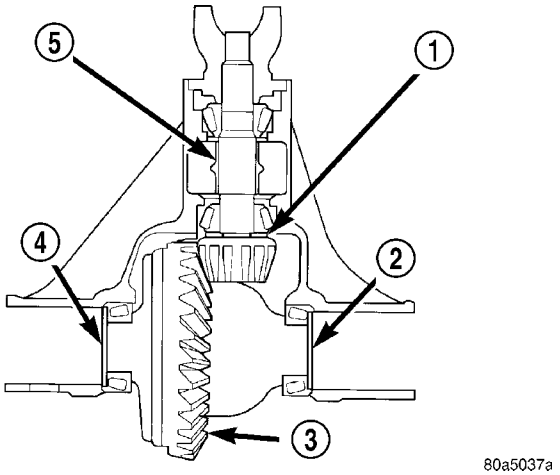


Fig. 4 ADJUSTMENT SHIM LOCATIONS

1 - PINION GEAR DEPTH SHIM
2 - DIFFERENTIAL BEARING SHIM
3 - RING GEAR
4 - DIFFERENTIAL BEARING SHIM
5 - COLLAPSIBLE SPACER

If a new gear set is being installed, note the depth variance etched into both the original and replacement pinion. Add or subtract this number from the

thickness of the original depth shim/oil slinger to compensate for the difference in the depth variances. Refer to the Pinion Gear Depth Variance chart.

Note where Old and New Pinion Marking columns intersect. Intersecting figure represents plus or minus the amount needed.

Note the etched number on the face of the pinion gear head (–1, –2, 0, +1, +2, etc.). The numbers represent thousands of an inch deviation from the standard. If the number is negative, add that value to the required thickness of the depth shims. If the number is positive, subtract that value from the thickness of the depth shim. If the number is 0 no change is necessary.

PINION GEAR DEPTH VARIANCE

Original Pinion Gear Depth Variance	Replacement Pinion Gear Depth Variance								
	−4	−3	−2	−1	0	+1	+2	+3	+4
+4	+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0
+3	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001
+2	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002
+1	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003
0	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004
−1	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005
−2	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006
−3	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007
−4	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007	−0.008

PINION DEPTH MEASUREMENT

Measurements are taken with pinion bearing cups and pinion bearings installed in the housing. Take measurements with Pinion Gauge Set and Dial Indicator C-3339 (Fig. 5).

(1) Assemble Pinion Height Block 6739, Pinion Block 6735 and rear pinion bearing onto Screw 6741.

(2) Insert assembled height gauge components, rear bearing and screw into the housing through pinion bearing cups (Fig. 6).

(3) Install front pinion bearing and Cone-nut 6740 hand tight (Fig. 5).

(4) Place Arbor Disc 6732 on Arbor D-115-3 in position in the housing side bearing cradles (Fig. 7). Install differential bearing caps on Arbor Discs and tighten cap bolts to 41 N·m (30 ft. lbs.).

NOTE: Arbor Discs 6732 has different step diameters to fit other axles. Choose proper step for axle being serviced.

(5) Assemble Dial Indicator C-3339 into Scooter Block D-115-2 and secure set screw.

(6) Place Scooter Block/Dial Indicator in position in the housing so dial probe and scooter block are flush against the pinion height block (Fig. 5). Hold scooter block in place and zero the dial indicator.

(7) Slide the dial indicator probe across the gap between the pinion height block and the arbor bar with the scooter block against the pinion height block (Fig. 8). Continue moving the dial indicator probe to the crest of the arbor bar and record the highest reading. If the dial indicator can not achieve the zero reading, the rear bearing cup or the pinion depth gauge set is not installed correctly.

(8) Select a shim equal to the dial indicator reading plus the pinion depth variance number etched in the face of the pinion (Fig. 3). For example, if the depth variance is –2, add +0.002 in. to the dial indicator reading.

DIFFERENTIAL

Differential side bearing preload and gear backlash is achieved by selective shims positioned behind the differential cas bearing cups. The proper shim thickness can be determined using slip-fit Dummy Bearings D-348 in place of the differential side bearings and a Dial Indicator C-3339. Before proceeding with the differential bearing preload and gear backlash measurements, measure the pinion gear depth and prepare the pinion for installation. Establishing proper pinion gear depth is essential to establishing gear backlash and tooth contact patterns. After the overall shim thickness to take up differential side play is measured, the pinion is installed, and the gear backlash shim thickness is measured. The overall shim thickness is the total of the dial indicator reading and the preload specification added together.

REAR AXLE - 198RBI (Continued)

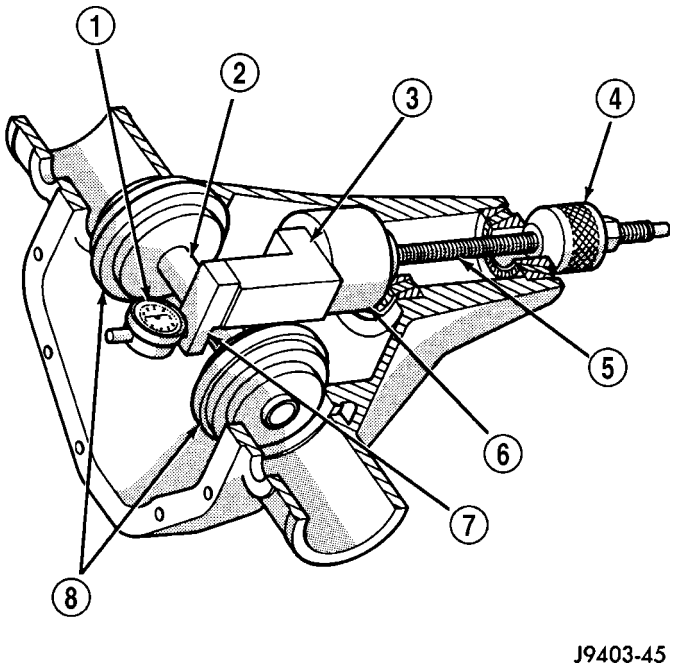


Fig. 5 PINION DEPTH GAUGE TOOLS

1 - DIAL INDICATOR
2 - ARBOR
3 - PINION HEIGHT BLOCK
4 - CONE
5 - SCREW
6 - PINION BLOCK
7 - SCOOTER BLOCK
8 - ARBOR DISC

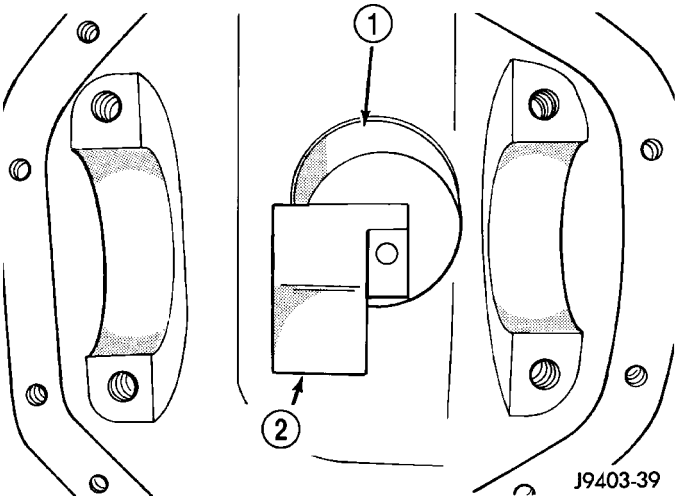


Fig. 6 PINION HEIGHT BLOCK

1 - PINION BLOCK
2 - PINION HEIGHT BLOCK

The gear backlash measurement determines the thickness of the shim used on the ring gear side of the differential case. Subtract the gear backlash shim thickness from the total overall shim thickness and select that amount for the pinion gear side of the differential (Fig. 9). Differential shim measurements are performed with the spreader W-129-B removed.

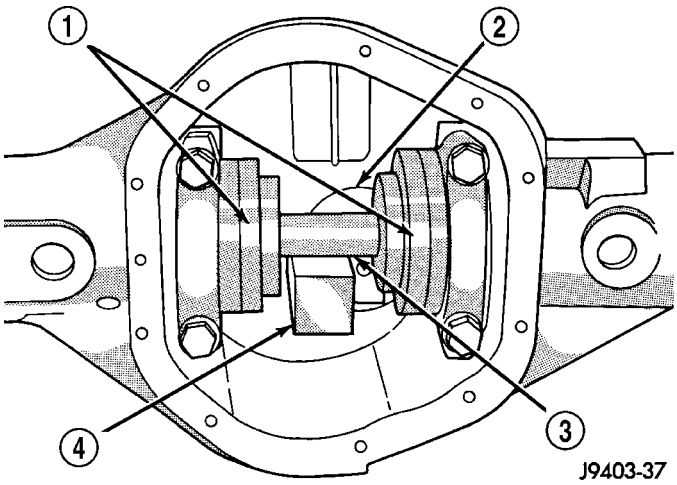


Fig. 7 GAUGE TOOLS IN HOUSING

1 - ARBOR DISC
2 - PINION BLOCK
3 - ARBOR
4 - PINION HEIGHT BLOCK

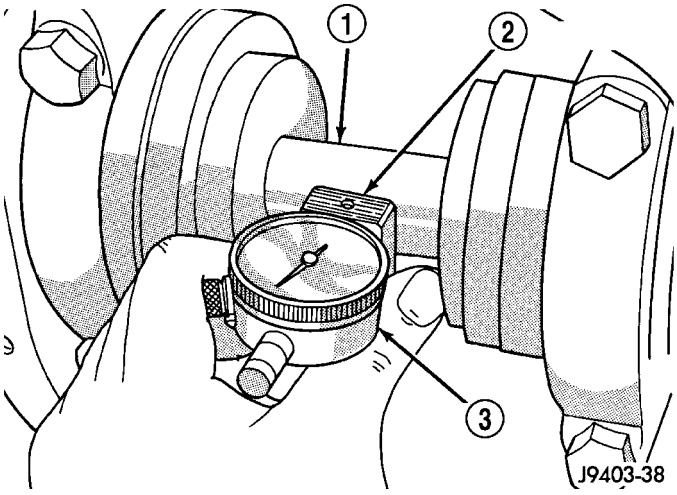


Fig. 8 PINION GEAR DEPTH MEASUREMENT

1 - ARBOR
2 - SCOOTER BLOCK
3 - DIAL INDICATOR

PRELOAD SHIM SELECTION

NOTE: It is difficult to salvage the differential side bearings during the removal procedure. Install replacement bearings if necessary.

(1) Remove differential side bearings from differential case.

(2) Install ring gear on differential case and tighten bolts to specification.

(3) Install Dummy Bearings D-348 on differential case.

(4) Install differential case in the housing.

REAR AXLE - 198RBI (Continued)

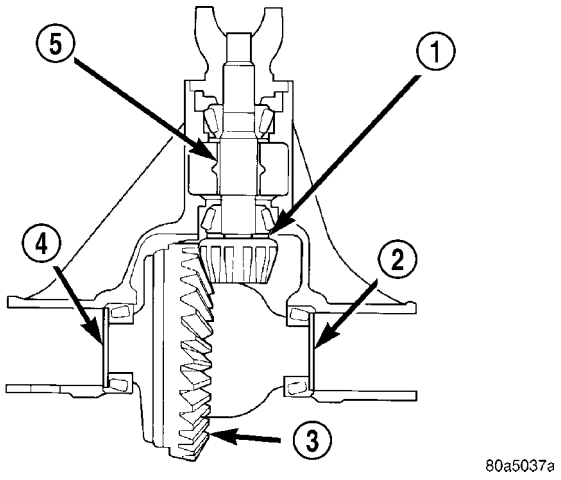


Fig. 9 ADJUSTMENT SHIM LOCATIONS

1 - PINION GEAR DEPTH SHIM
2 - DIFFERENTIAL BEARING SHIM
3 - RING GEAR
4 - DIFFERENTIAL BEARING SHIM
5 - COLLAPSIBLE SPACER

(5) Record the thickness of Dummy Shims 8107. Insert the shims between the dummy bearings and the differential housing (Fig. 10).

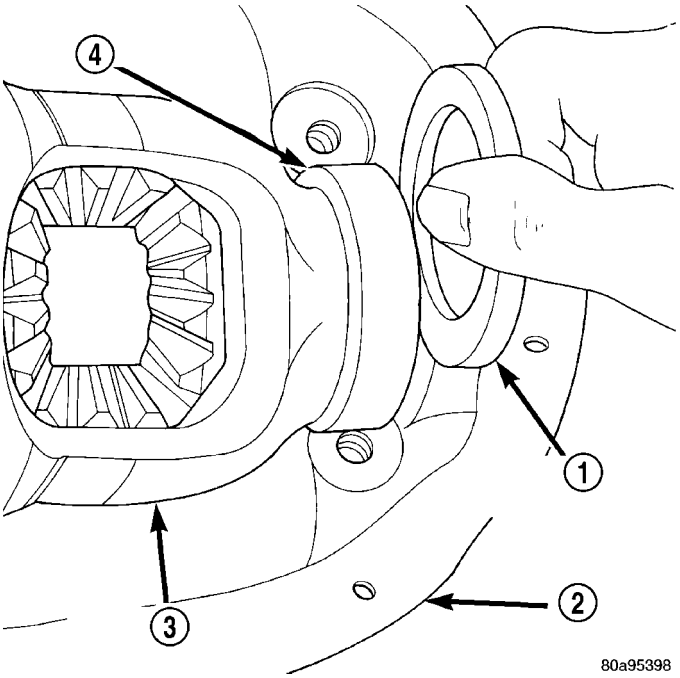


Fig. 10 DUMMY SHIM LOCATION

1 - DUMMY SHIM
2 - DIFFERENTIAL HOUSING
3 - DIFFERENTIAL CASE
4 - DUMMY BEARINGS

(6) Install the marked bearing caps in their correct positions. Install and snug the bolts (Fig. 11).

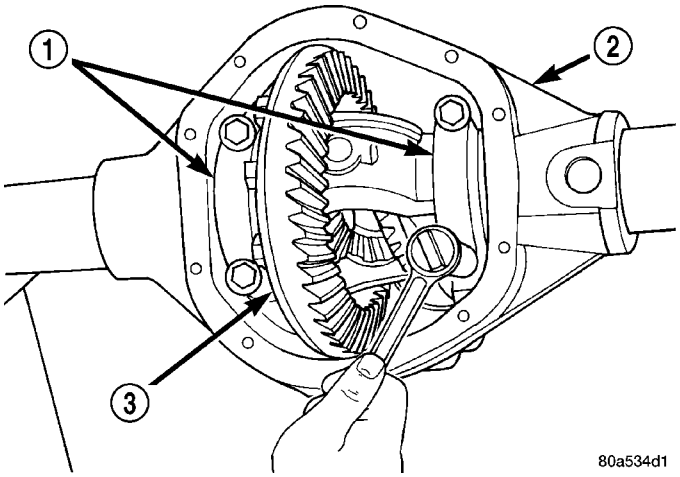


Fig. 11 BEARING CAP BOLTS

1 - BEARING CAP
2 - DIFFERENTIAL HOUSING
3 - DIFFERENTIAL CASE

(7) Using a dead-blow type hammer seat the differential dummy bearings to each side of the housing (Fig. 12) and (Fig. 13).

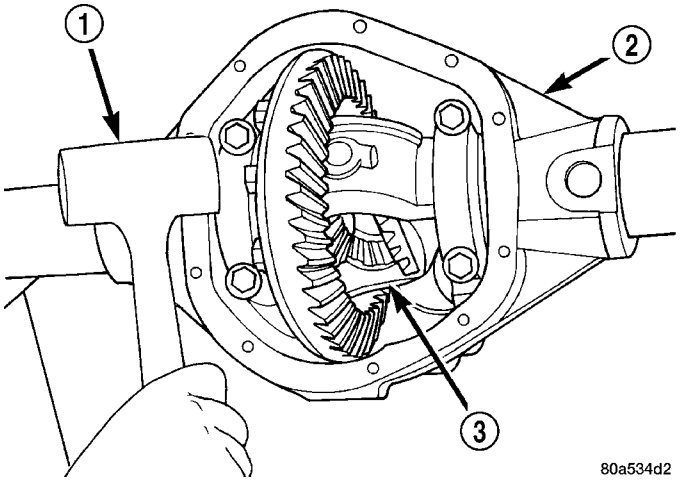


Fig. 12 SEAT DUMMY BEARING PINION SIDE

1 - HAMMER
2 - DIFFERENTIAL HOUSING
3 - DIFFERENTIAL CASE

REAR AXLE - 198RBI (Continued)

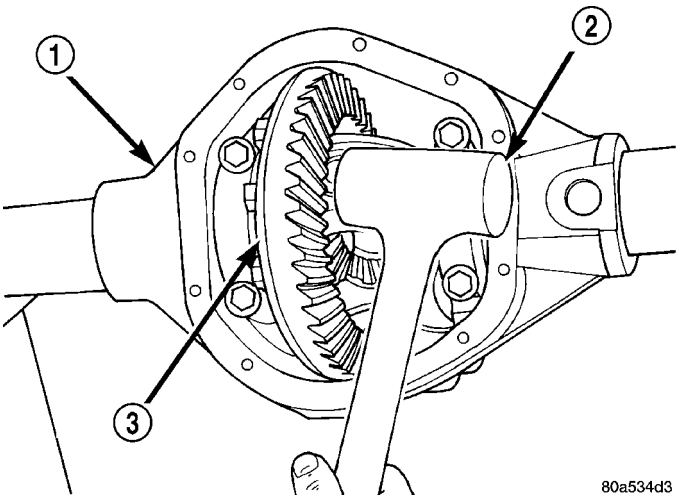


Fig. 13 SEAT DUMMY BEARING RING GEAR SIDE

1 - DIFFERENTIAL HOUSING
2 - HAMMER
3 - DIFFERENTIAL CASE

(8) Thread Pilot Stud C-3288-B into rear cover bolt hole below ring gear (Fig. 14).

(9) Attach a Dial Indicator C-3339 to pilot stud. Position the dial indicator plunger on a flat surface between the ring gear bolt heads (Fig. 14).

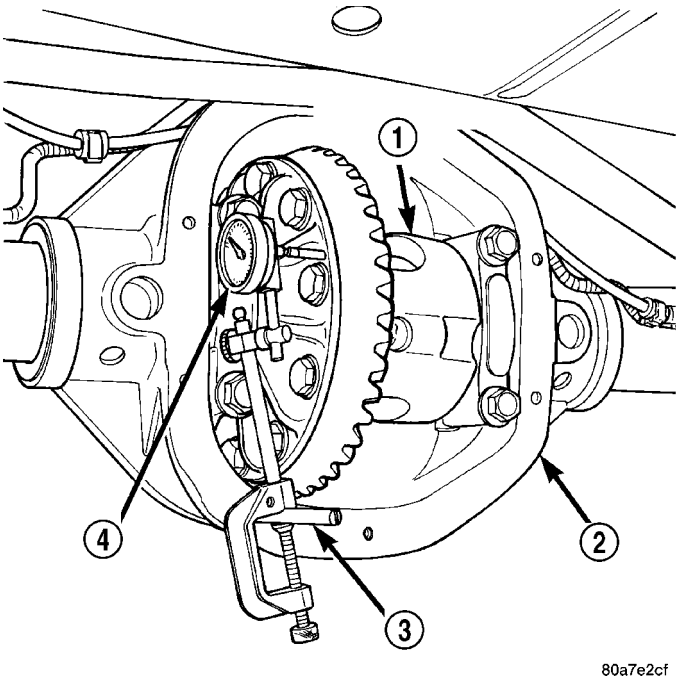


Fig. 14 DIAL INDICATOR LOCATION

1 - DIFFERENTIAL CASE
2 - DIFFERENTIAL HOUSING
3 - PILOT STUD
4 - DIAL INDICATOR

(10) Push and hold differential case to pinion gear side of the housing and zero dial indicator (Fig. 15).

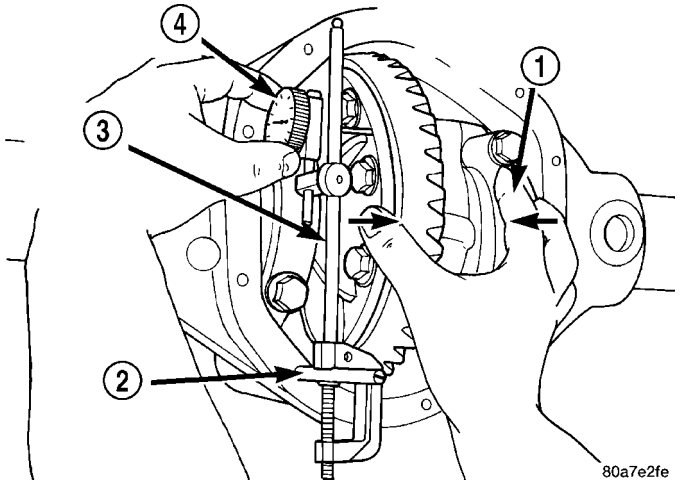


Fig. 15 ZERO DIAL INDICATOR

1 - HOLD DIFFERENTIAL CASE TO PINION GEAR SIDE
2 - PILOT STUD
3 - DIAL INDICATOR EXTENSION
4 - DIAL INDICATOR

(11) Push and hold differential case to ring gear side of the housing and record dial indicator reading (Fig. 16).

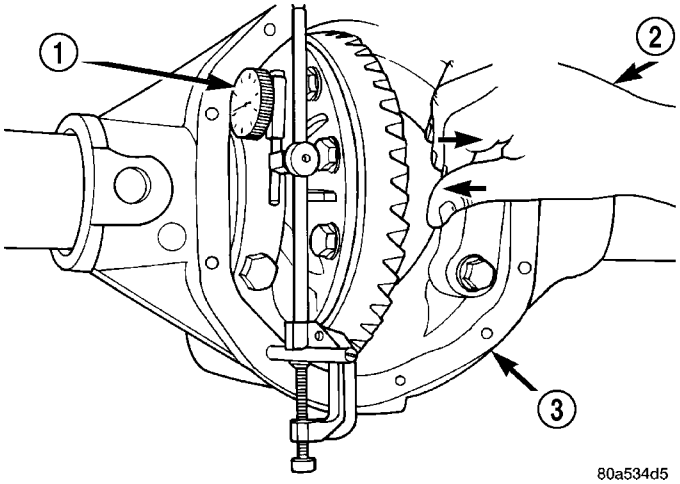


Fig. 16 RECORD DIAL INDICATOR READING

1 - DIAL INDICATOR
2 - HOLD DIFFERENTIAL CASE TO RING GEAR SIDE
3 - DIFFERENTIAL HOUSING

REAR AXLE - 198RBI (Continued)

(12) Add 0.152 mm (0.006 in.) to the zero end play total. This new total represents the thickness of shims to compress, or preload the new bearings when the differential is installed.

(13) Rotate dial indicator out of the way on the pilot stud.

(14) Remove differential case and dummy bearings from the housing.

(15) Install the pinion gear in axle housing. Install the pinion yoke and establish the correct pinion rotating torque.

(16) Install differential case and Dummy Bearings D-348 in the housing.

(17) Install a single dummy shim in the ring gear side. Install bearing caps and tighten bolts snug.

(18) Seat ring gear side dummy bearing (Fig. 13).

(19) Position the dial indicator plunger on a flat surface between the ring gear bolt heads. (Fig. 14).

(20) Push and hold differential case toward pinion gear and zero dial indicator (Fig. 17).

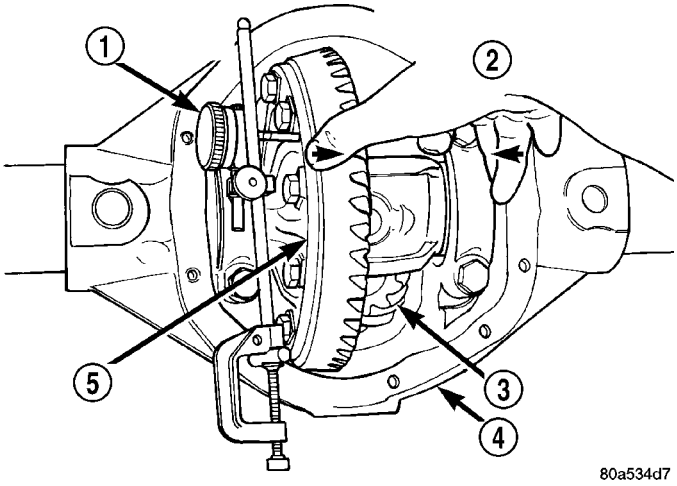


Fig. 17 ZERO DIAL INDICATOR

1 - DIAL INDICATOR
2 - HOLD DIFFERENTIAL CASE TO PINION GEAR SIDE
3 - PINION GEAR
4 - DIFFERENTIAL HOUSING
5 - DIFFERENTIAL CASE

(21) Push and hold differential case to ring gear side of the housing and record dial indicator reading (Fig. 18). Add dummy shim thickness to this reading. This will be the total shim thickness to achieve zero backlash.

(22) Subtract 0.076 mm (0.003 in.) from the dial indicator reading to compensate for backlash between ring and pinion gears. This total is the thickness shim required to achieve proper backlash.

(23) Subtract the backlash shim thickness from the total preload shim thickness. The remainder is the shim thickness required on the pinion side of the housing.

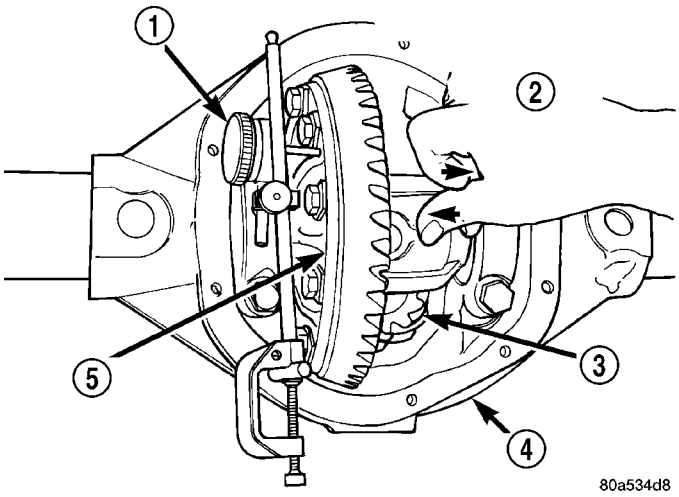


Fig. 18 RECORD DIAL INDICATOR READING

1 - DIAL INDICATOR
2 - HOLD DIFFERENTIAL CASE TO RING GEAR SIDE
3 - PINION GEAR
4 - DIFFERENTIAL HOUSING
5 - DIFFERENTIAL CASE

(24) Rotate dial indicator out of the way on pilot stud.

(25) Remove differential case and dummy bearings from the housing.

(26) Install side bearings and cups on differential case.

(27) Install spreader W-129-B utilizing some items from Adapter Set 6987, on the housing and spread axle opening enough to receive differential case.

CAUTION: Never spread over 0.38 mm (0.015 in.). If housing is over-spread, it could be distorted or damaged.

(28) Place the bearing preload shims in the housing, against the axle tubes.

(29) Install differential case into the housing.

(30) Remove spreader from the housing.

(31) Install differential bearing caps in their original locations.

(32) Install bearing cap bolts and tighten to 77 N·m (57 ft. lbs.).

(33) Rotate the differential case several times to seat the side bearings.

(34) Position the indicator plunger against a ring gear tooth (Fig. 19).

(35) Push and hold ring gear upward while not allowing the pinion gear to rotate.

(36) Zero dial indicator face to pointer.

(37) Push and hold ring gear downward while not allowing the pinion gear to rotate. Dial indicator reading should be between 0.12-0.20 mm (0.005-0.008 in.). If backlash is not within specifications transfer the necessary amount of shim thickness from one side of the axle housing to the other (Fig. 20).

REAR AXLE - 198RBI (Continued)

(38) Verify differential case and ring gear runout by measuring ring to pinion gear backlash at eight locations around the ring gear. Readings should not vary more than 0.05 mm (0.002 in.). If readings vary more than specified, the ring gear or the differential case is defective.

After the proper backlash is achieved, perform Gear Contact Pattern Analysis procedure.

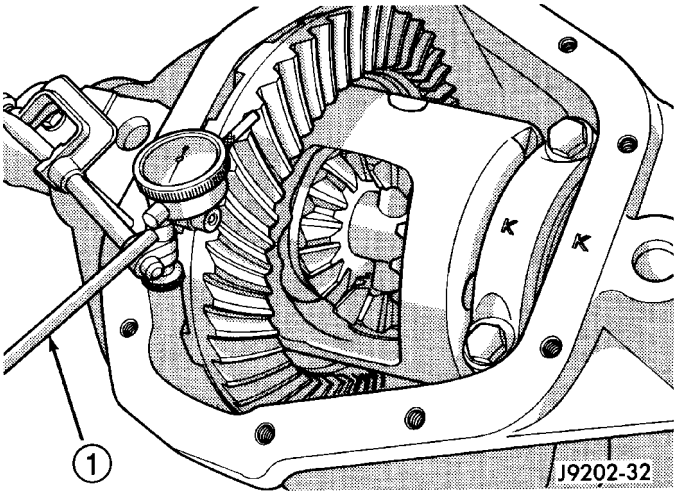


Fig. 19 RING GEAR BACKLASH MEASUREMENT

1 - DIAL INDICATOR

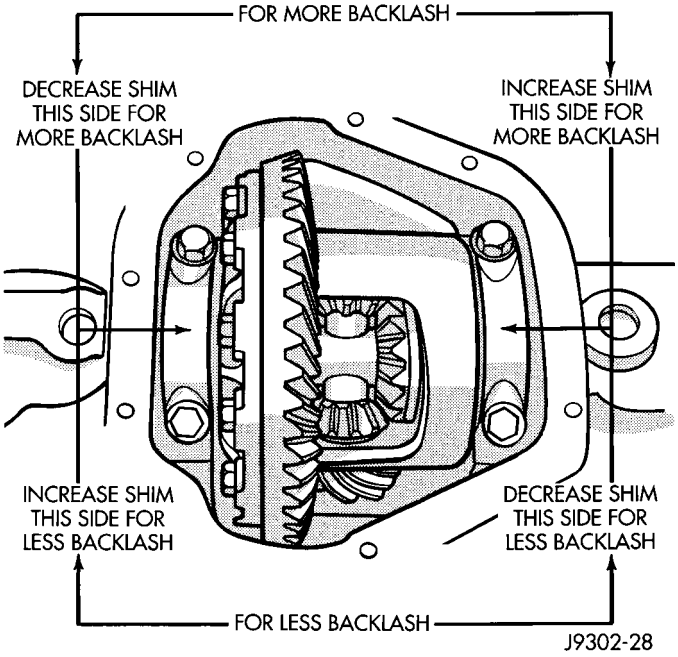


Fig. 20 BACKLASH SHIM LOCATION

GEAR CONTACT PATTERN

The ring gear and pinion teeth contact patterns will show if the pinion depth is correct in the housing. It will also show if the ring gear backlash has been adjusted correctly. The backlash can be adjusted within specifications to achieve desired tooth contact patterns.

(1) Apply a thin coat of hydrated ferric oxide or equivalent to the drive and coast side of the ring gear teeth.

(2) Wrap, twist and hold a shop towel around the pinion yoke to increase the turning resistance of the pinion. This will provide a more distinct contact pattern.

(3) With a boxed end wrench on a ring gear bolt, rotate the differential case one complete revolution in both directions while a load is being applied from shop towel.

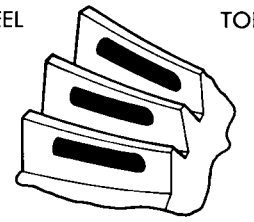
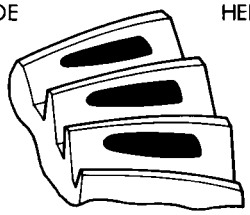
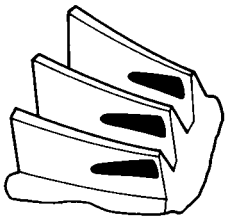
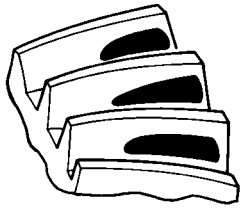
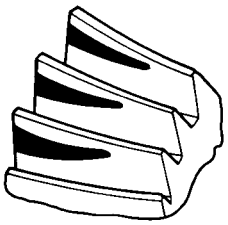
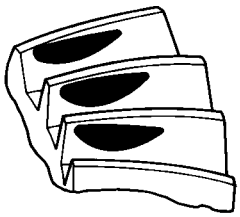
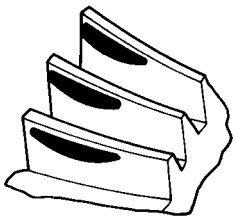
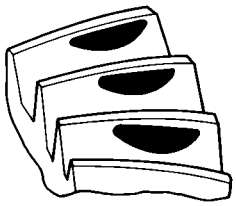
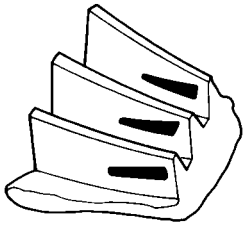
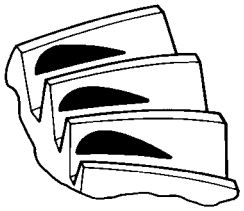
The areas on the ring gear teeth with the greatest degree of contact against the pinion teeth will squeegee the compound to the areas with the least amount of contact. Note and compare patterns on the ring gear teeth to Gear Tooth Contact Patterns chart (Fig. 21) and adjust pinion depth and gear backlash as necessary.

DIFFERENTIAL BEARING PRELOAD CHECK

The final check on the differential assembly before installing the axles is torque to rotate pinion and differential combined. This will verify the correct differential bearing preload.

Torque to rotate the differential and pinion should be the torque to rotate the pinion plus 0.15 N·m (6 in. lbs.).

REAR AXLE - 198RBI (Continued)

DRIVE SIDE OF RING GEAR TEETH	COAST SIDE OF RING GEAR TEETH	
HEEL TOE 	TOE HEEL 	DESIRABLE CONTACT PATTERN. PATTERN SHOULD BE CENTERED ON THE DRIVE SIDE OF TOOTH. PATTERN SHOULD BE CENTERED ON THE COAST SIDE OF TOOTH, BUT MAY BE SLIGHTLY TOWARD THE TOE. THERE SHOULD ALWAYS BE SOME CLEARANCE BETWEEN CONTACT PATTERN AND TOP OF THE TOOTH.
		RING GEAR BACKLASH CORRECT. **THINNER** PINION GEAR DEPTH SHIM REQUIRED.
		RING GEAR BACKLASH CORRECT. **THICKER** PINION GEAR DEPTH SHIM REQUIRED.
		PINION GEAR DEPTH SHIM CORRECT. **DECREASE** RING GEAR BACKLASH.
		PINION GEAR DEPTH SHIM CORRECT. **INCREASE** RING GEAR BACKLASH.

J9003-24

Fig. 21 GEAR CONTACT PATTERNS

REAR AXLE - 198RBI (Continued)

SPECIFICATIONS

AXLE SPECIFICATIONS

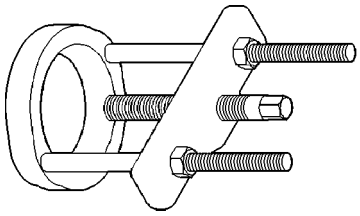
DESCRIPTION	SPECIFICATION
Axle Ratio	3.55, 3.73
Differential Bearing Preload	0.15 mm (0.006 in.)
Ring Gear Diameter	198 mm (7.795 in.)
Ring Gear Backlash	0.12-0.20 mm (0.005-0.008 in.)
Pinion Bearing Preload - Original Bearings	1-2 N·m (10-20 in. lbs.)
Pinion Bearing Preload - New Bearings	1.7-3.9 N·m (15-35 in. lbs.)

TORQUE SPECIFICATIONS

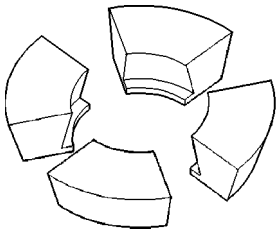
DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Differential Cover Bolts	41	30	-
Bearing Cap Bolts	77	57	-
Ring Gear Bolts	129-142	95-105	-
Pinion Nut Min / Max	271 - 474	200 - 350	-
Pinion Mate Shaft Screw	16.25	12	-
Axle Bearing Retainer Plate Nuts	61	45	-

REAR AXLE - 198RBI (Continued)

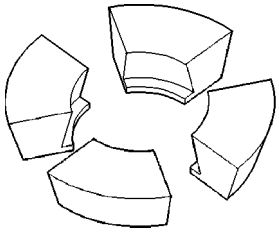
SPECIAL TOOLS



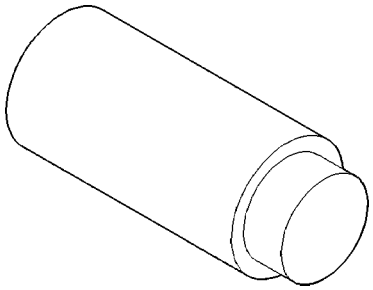
PULLER C-293-PA



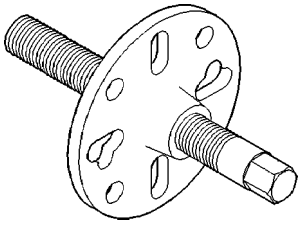
ADAPTER C-293-39



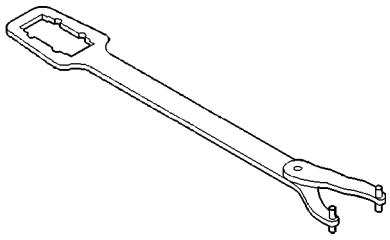
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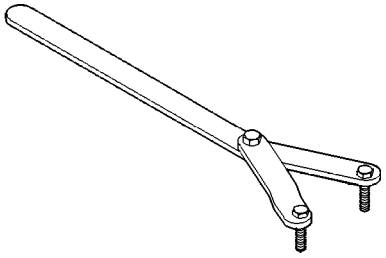
PLUG SP-3289



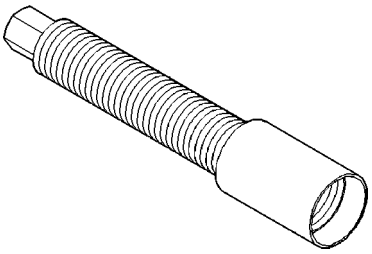
PULLER C-452



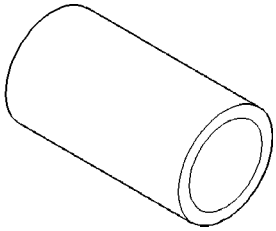
WRENCH C-3281



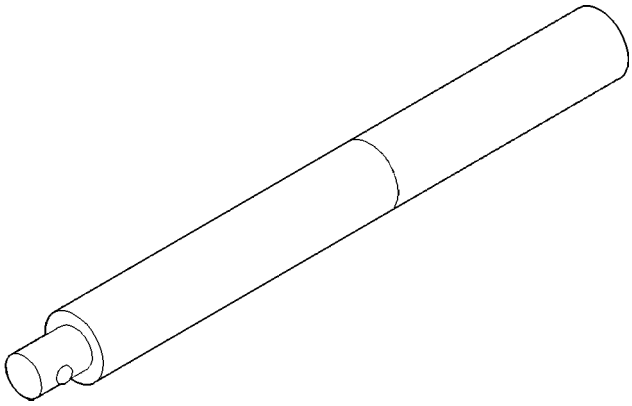
SPANNER WRENCH 6958



INSTALLER 8112

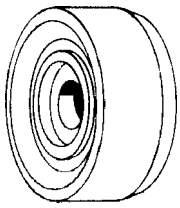


CUP 8109

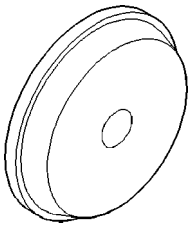


HANDLE C-4171

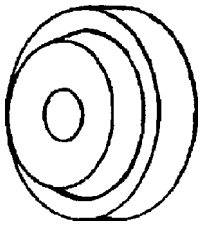
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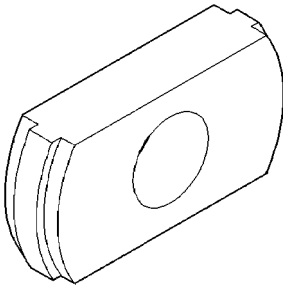
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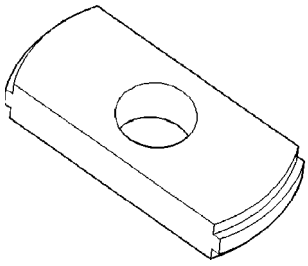
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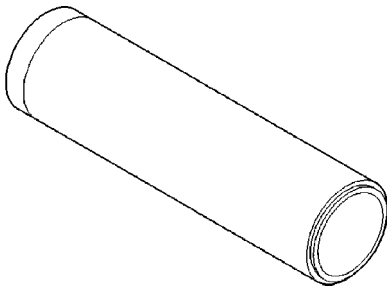
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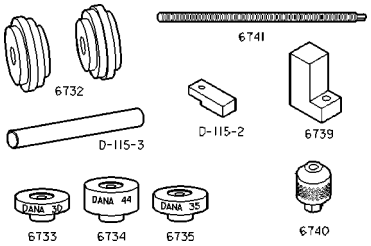
REMOVER C-4345



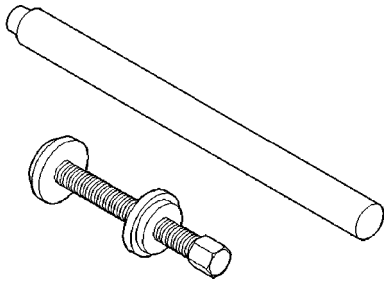
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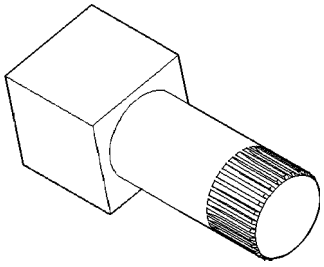
INSTALLER W-262



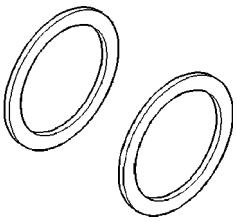
PINION DEPTH 6774



TRAC-LOK TOOLS 6960

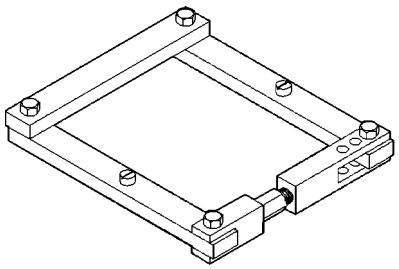


FIXTURE 6965

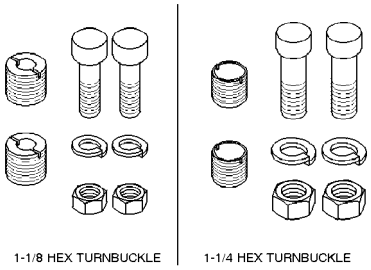


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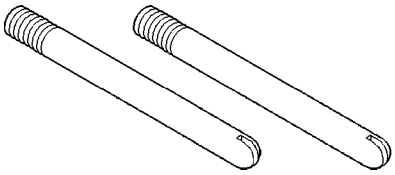
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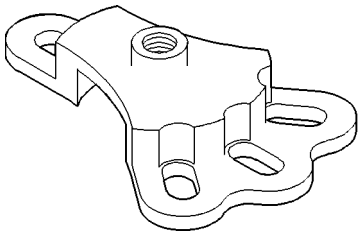
SPREADER W-129-B



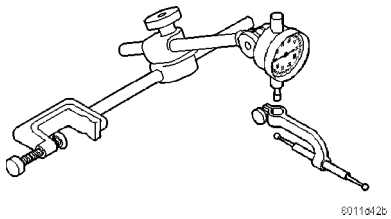
ADAPTER KIT 6987



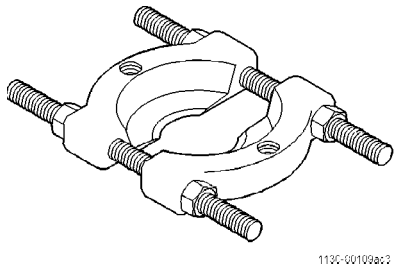
PILOT STUDS C-3288-B



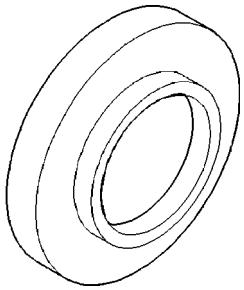
PULLER 6790



DIAL INDICATOR C-3339



SPLITTER BEARING 1130



INSTALLER 7913-A

AXLE SHAFTS

REMOVAL

(1) Place transmission in neutral.
(2) Raise and support vehicle.
(3) Remove wheel and tire assembly.
(4) Remove brake caliper and rotor.
(5) Remove nuts holding axle retainer plate to axle tube from the rear of the axle flange.
(6) Pull axle shaft from the axle with Slide Hammer 7420 and Adapter 6790. Mount the adapter to the axle with lug nuts.

NOTE: The axle bearing race is normally loose in the axle tube.

INSTALLATION

(1) Insall axle into the axle tube with the flat area of the retainer plate upward.
(2) Insert retaining plate studs into the brake backing plate and axle tube flange.
(3) Install retainer nuts and tighten nuts to 61 N·m (45 ft. lbs.).
(4) Install the brake rotor and caliper.
(5) Install wheel and tire.
(6) Check and fill the differential with gear lubricant.
(7) Lower vehicle.

AXLE BEARINGS/SEALS

REMOVAL

(1) Remove axle shaft from vehicle.

NOTE: The axle bearing race is normally loose in the axle tube.

(2) Drill a shallow hole into soft steel axle bearing retaining ring with a 3/8 in. drill bit (Fig. 22). Use a drill depth stop to avoid marking the axle.

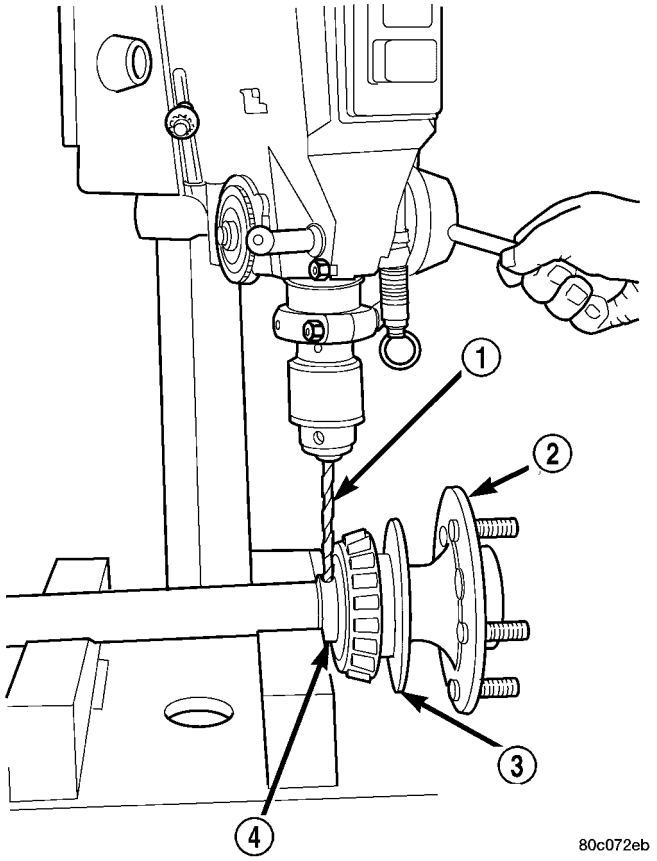


Fig. 22 DRILL RETAINING RING

1 - DRILL BIT
2 - AXLE
3 - RETAINING PLATE
4 - RETAINING RING

(3) With a cold chisel cut the retaining ring across drilled hole. (Fig. 23)

(4) Slide retaining ring from axle shaft.

(5) Remove axle bearing from the shaft with, a press and Splitter 1130 placed between the seal and bearing (Fig. 24).

(6) Remove seal from axle.

(7) Remove retaining plate from axle shaft.

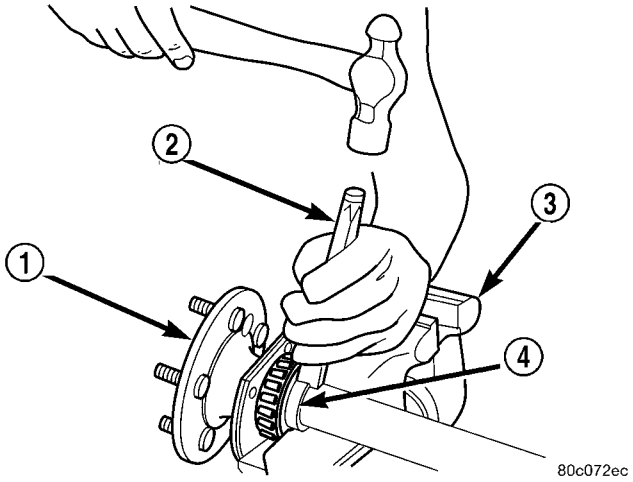


Fig. 23 RETAINING RING

1 - AXLE
2 - COLD CHISEL
3 - VISE
4 - RETAINING RING

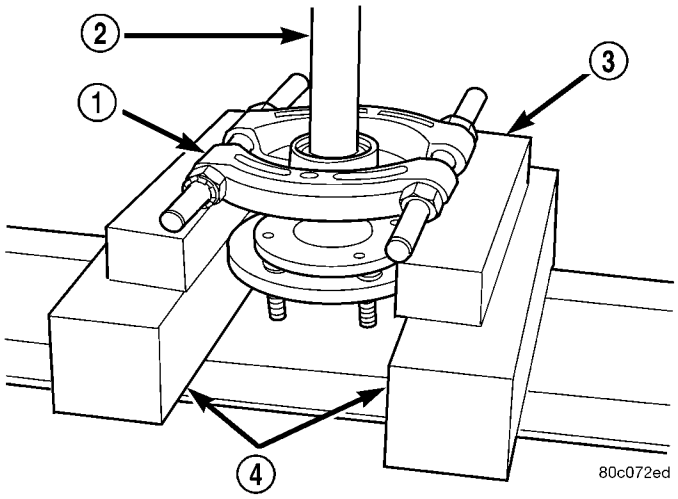


Fig. 24 AXLE BEARING AND SEAL

1 - SPLITTER
2 - AXLE
3 - BLOCKS
4 - PRESS PLATES

INSTALLATION

(1) Verify axle shaft retaining plate is flat with a straight edge.

NOTE: If the plate is warped or the studs are loose in the plate replace the retaining plate.

(2) Install retaining plate on the axle shaft (Fig. 25).

(3) Apply a coat of multi-purpose grease on sealing surface of axle seal.

(4) Install seal on the axle shaft with cavity away from retaining plate (Fig. 25).

AXLE BEARINGS/SEALS (Continued)

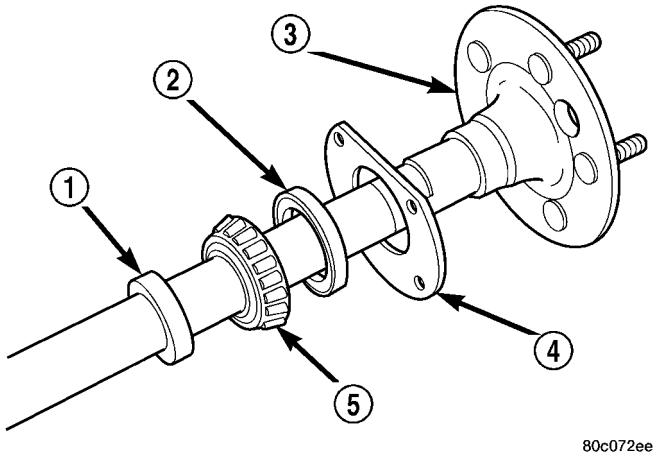


Fig. 25 AXLE BEARING AND SEAL COMPONENTS

1 - RETAINING RING
2 - SEAL
3 - AXLE
4 - RETAINING PLATE
5 - AXLE BEARING

(5) Lubricate bearing with Mopar Wheel Bearing Grease or equivalent. Wipe excess grease from the bearing.

(6) Install bearing on the axle shaft with Installer 7913 and a press (Fig. 26).

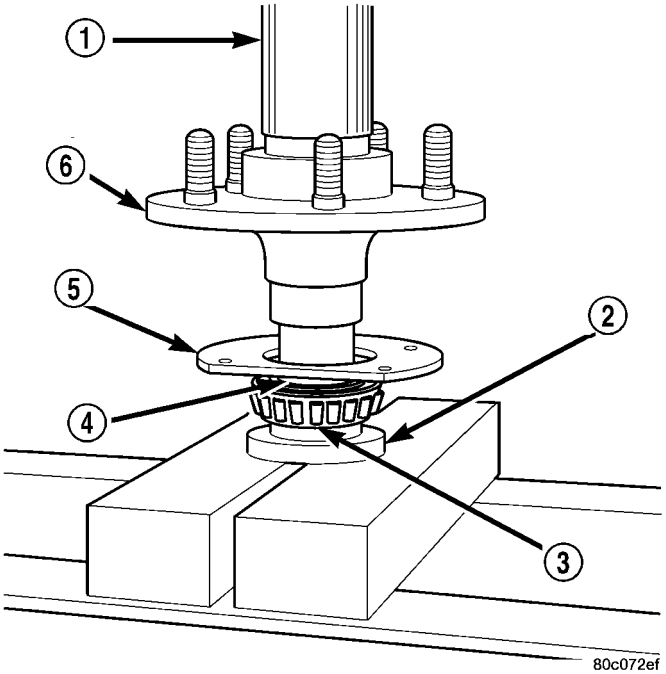


Fig. 26 PRESS BEARING ON AXLE

1 - PRESS RAM
2 - INSTALLER
3 - AXLE BEARING
4 - SEAL
5 - RETAINING PLATE
6 - AXLE

(7) Press metal retaining ring onto axle shaft with Installer 7913 and a press (Fig. 27).

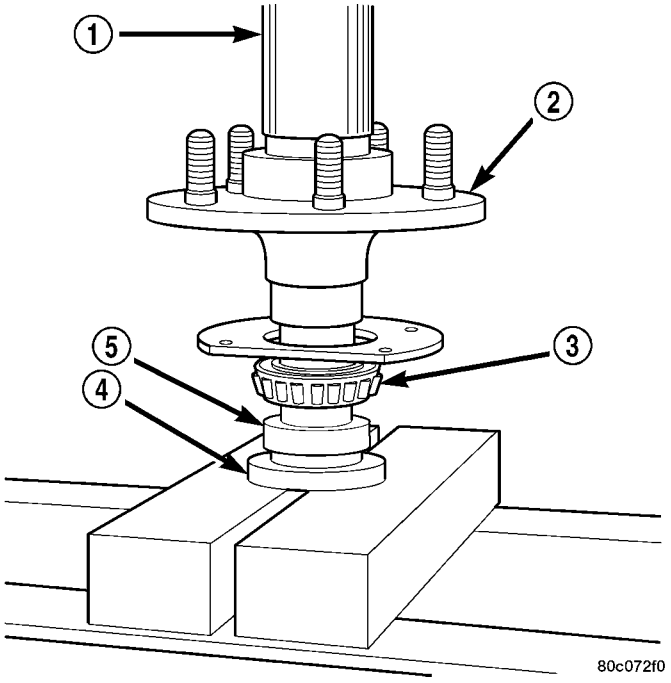


Fig. 27 BEARING RETAINING RING

1 - PRESS
2 - AXLE
3 - AXLE BEARING
4 - INSTALLER
5 - METAL RETAINING RING

(8) Install axle in vehicle.

PINION SEAL

REMOVAL

(1) Raise and support the vehicle.

(2) Remove wheel and tire assemblies.

(3) Remove brake calipers and rotors.

(4) Mark propeller shaft and pinion yoke for installation reference.

(5) Remove propeller shaft from the yoke.

(6) Rotate pinion gear a minimum of ten times and verify pinion rotates smoothly.

(7) Record rotating torque of the pinion gear with an inch pound dial-type torque wrench, for installation reference.

(8) Hold the pinion yoke with Spanner Wrench 6958 and remove the pinion nut and washer (Fig. 28).

(9) Remove pinion yoke with Remover C-452 and Wrench C-3281 (Fig. 29).

(10) Remove pinion gear seal with Remover 7794-A and slide hammer (Fig. 30).

PINION SEAL (Continued)

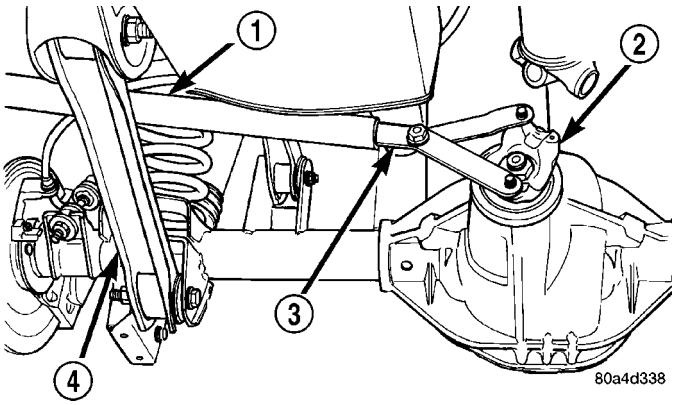


Fig. 28 PINION YOKE SPANNER

1 - PIPE
2 - PINION YOKE
3 - SPANNER WRENCH
4 - LOWER CONTROL ARM

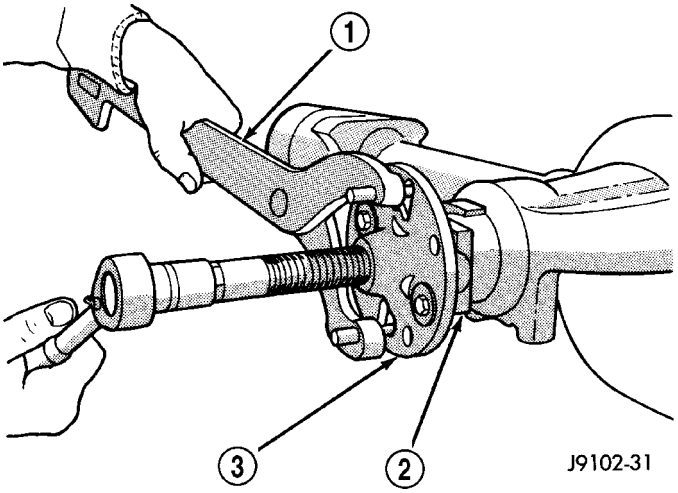


Fig. 29 PINION YOKE REMOVER

1 - FLANGE WRENCH
2 - YOKE
3 - YOKE PULLER

INSTALLATION

(1) Apply a light coating of gear lubricant on the lip of pinion seal and install seal with an appropriate installer (Fig. 31).

(2) Install yoke on pinion gear with Screw 8112, Cup 8109 and Spanner Wrench 6958 (Fig. 32).

CAUTION: Do not exceed the minimum tightening torque 271 N·m (200 ft. lbs.) when installing the pinion yoke at this point. Damage to the collapsible spacer or bearings may result.

(3) Install yoke washer and a **new** nut on the pinion gear and tighten the nut until there is zero bearing end-play.

(4) Tighten the nut to 271 N·m (200 ft. lbs.).

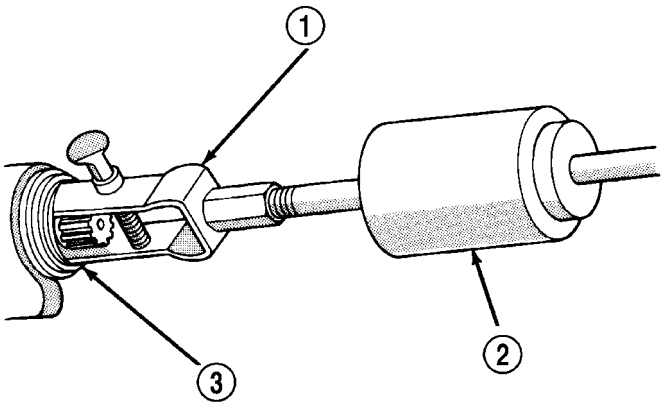


Fig. 30 PINION SEAL REMOVER

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

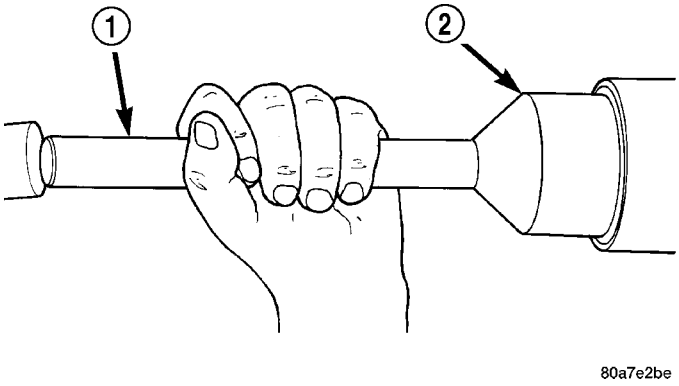


Fig. 31 PINION SEAL INSTALLER

1 - HANDLE
2 - INSTALLER

CAUTION: Never loosen pinion gear nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque or rotating torque is exceeded a new collapsible spacer must be installed.

(5) Rotate the pinion gear a minimum of ten times and verify pinion rotates smoothly. Rotate pinion shaft an inch pound torque wrench. Rotating torque should be equal to recorded reading plus an additional 0.56 N·m (5 in. lbs.) (Fig. 33).

(6) If the rotating torque is low, use Spanner Wrench 6958 to hold the pinion yoke (Fig. 34), and tighten the pinion nut in 6.8 N·m (5 ft. lbs.) increments until the proper rotating torque is achieved.

CAUTION: If maximum tightening torque is reached prior to reaching required rotating torque, the collapsible spacer may have been damaged. Replace the collapsible spacer.

PINION SEAL (Continued)

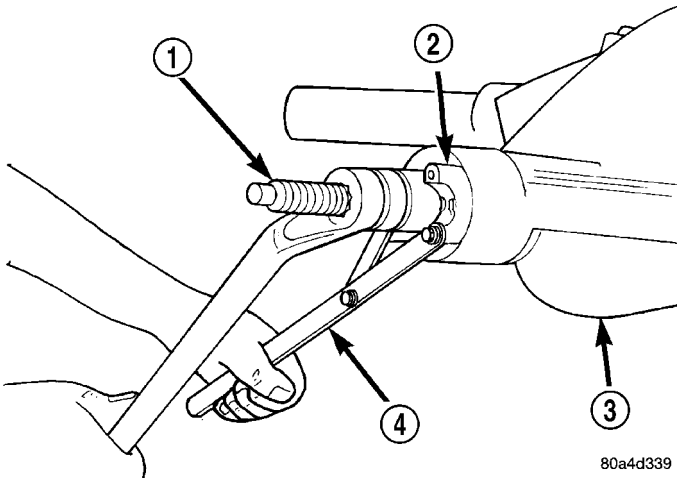


Fig. 32 PINION YOKE INSTALLER

1 - INSTALLER
2 - PINION YOKE
3 - DIFFERENTIAL HOUSING
4 - SPANNER WRENCH

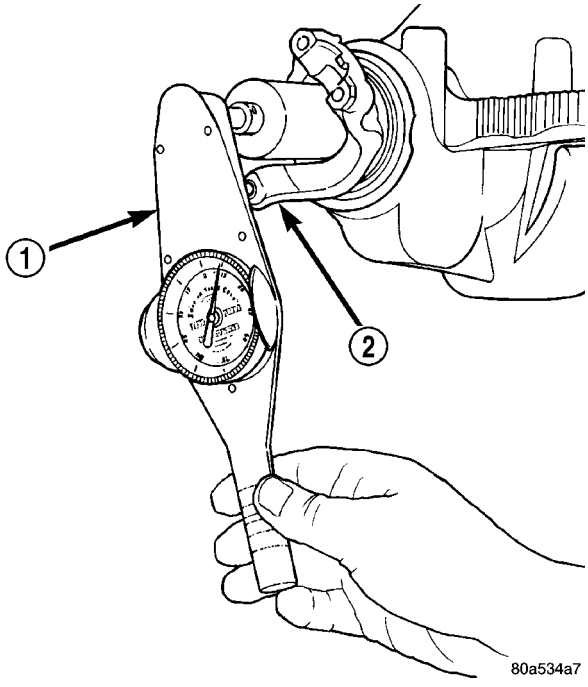


Fig. 33 PINION ROTATING TORQUE

1 - TORQUE WRENCH
2 - PINION YOKE

(7) Install the propeller shaft with reference marks aligned.

(8) Add gear lubricant to the differential if necessary.

(9) Install brake rotors and calipers.

(10) Install wheel and tire assemblies.

(11) Lower the vehicle.

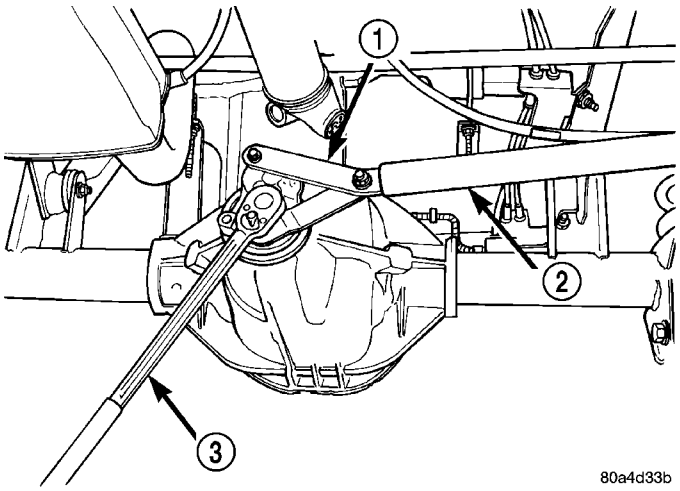


Fig. 34 PINION SHAFT NUT

1 - SPANNER WRENCH
2 - PIPE
3 - TORQUE WRENCH

COLLAPSIBLE SPACER

REMOVAL

(1) Raise and support the vehicle.

(2) Remove wheel and tire assemblies.

(3) Remove rear brake calipers and rotors.

(4) Mark propeller shaft and pinion yoke for installation reference and remove propeller shaft.

(5) Rotate pinion gear a minimum of ten times and verify pinion rotates smoothly.

(6) Record rotate torque of the pinion gear, with an inch pound torque wrench.

(7) Hold pinion yoke with Spanner Wrench 6958 and remove pinion nut and washer (Fig. 35).

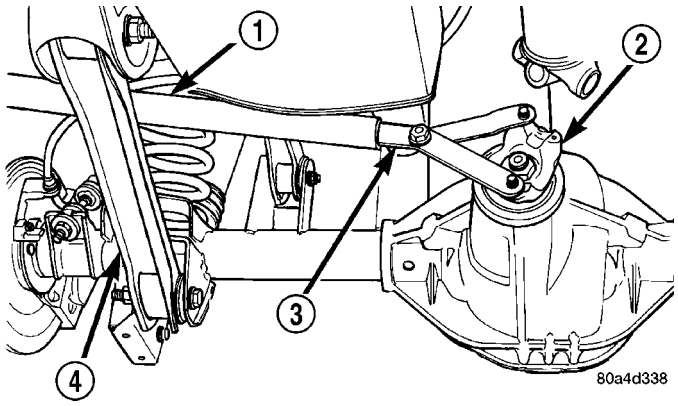


Fig. 35 PINION YOKE HOLDER

1 - 1 in. PIPE
2 - PINION YOKE
3 - SPANNER WRENCH
4 - LOWER CONTROL ARM

(8) Remove pinion yoke with Remover C-452 and Wrench C-3281 (Fig. 36).

COLLAPSIBLE SPACER (Continued)

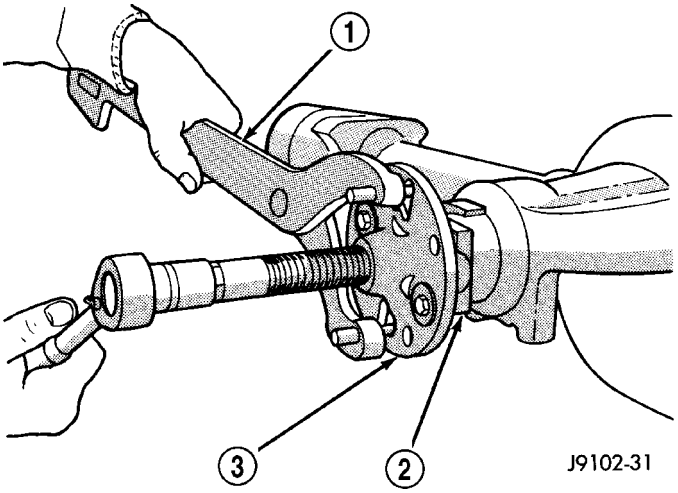


Fig. 36 PINION YOKE REMOVER

1 - WRENCH
2 - PINION YOKE
3 - PULLER

(9) Remove pinion shaft seal with Remover 7794-A and slide hammer (Fig. 37).

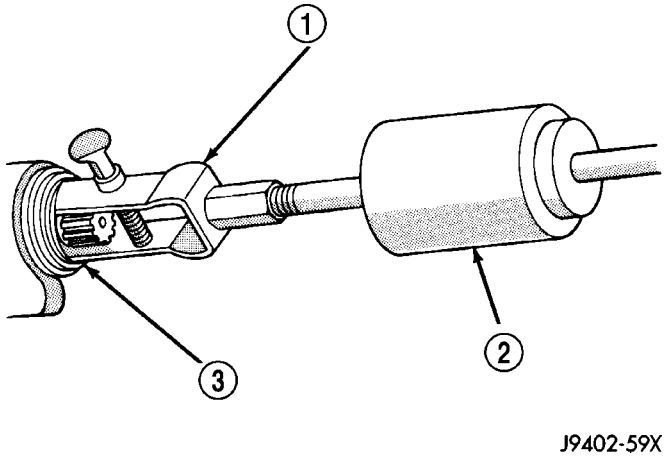


Fig. 37 PINION SEAL REMOVER

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

(10) Remove front pinion bearing using a pair of pick tools to pull the bearing off the pinion gear shaft.

NOTE: If the pinion bearing becomes bound on the pinion shaft, lightly tap the end of the shaft with a rawhide/rubber mallet.

(11) Remove the collapsible spacer.

INSTALLATION

(1) Install a **new** collapsible spacer on pinion shaft.

(2) Install pinion front bearing on the pinion shaft.

(3) Apply a light coating of gear lubricant on the lip of pinion seal and install seal with an appropriate installer (Fig. 38).

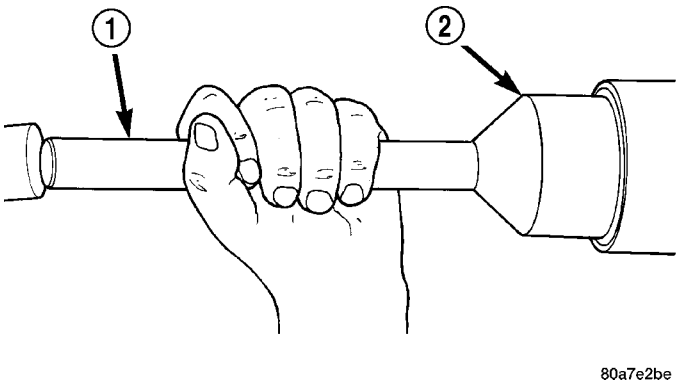


Fig. 38 PINION SEAL INSTALLER

1 - HANDLE
2 - INSTALLER

(4) Install yoke with Screw 8112, Cup 8109 and Spanner Wrench 6958 (Fig. 39).

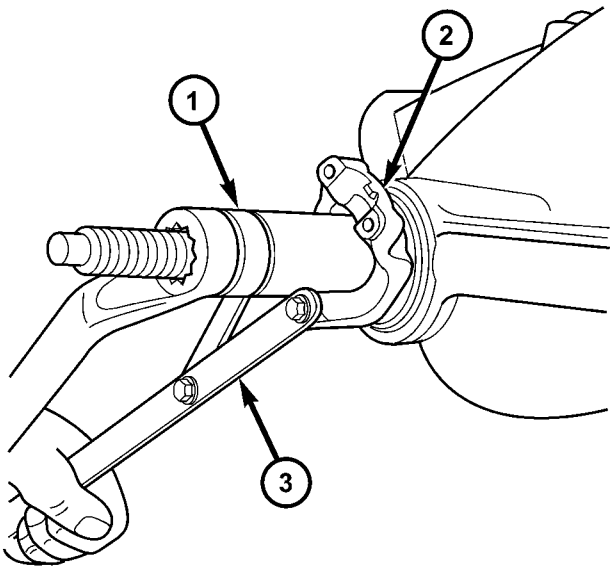


Fig. 39 PINION YOKE INSTALLER

1 - INSTALLER
2 - PINION YOKE
3 - SPANNER WRENCH

(5) Install yoke washer and **new** nut on the pinion gear. Tighten the nut to 271 N·m (200 ft. lbs.).

CAUTION: Never loosen pinion gear nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque or rotating torque is exceeded a new collapsible spacer must be installed.

COLLAPSIBLE SPACER (Continued)

NOTE: New collapsible spacers require high initial torque to start the collapsing of the spacer. This may reach 678 N·m (500 ft. lbs.).

(6) Using Spanner Wrench 6958, a length of 1 in. pipe and a torque wrench set at 474 N·m (350 ft. lbs.), (Fig. 40) slowly tighten the nut in 6.8 N·m (5 ft. lbs.) increments until the rotating torque is achieved. Measure the rotating torque frequently to avoid over crushing the collapsible spacer (Fig. 41).

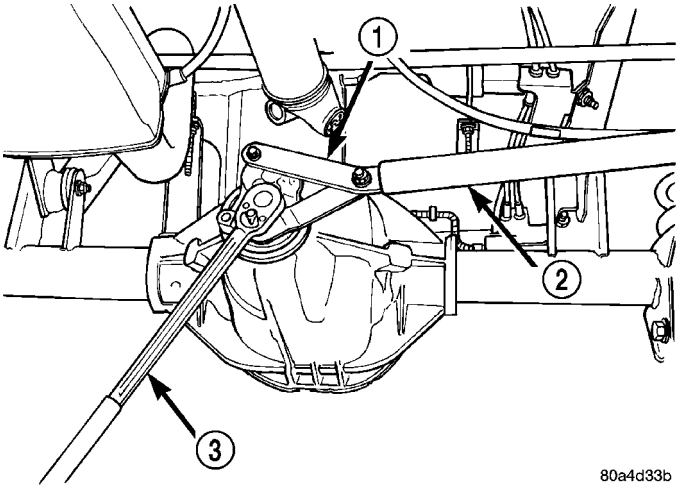


Fig. 40 PINION NUT

1 - SPANNER WRENCH
2 - PIPE
3 - TORQUE WRENCH

(7) Check rotating torque with an inch pound torque wrench (Fig. 41). The rotating torque of the pinion gear should be, the reading recorded during removal plus an additional 0.56 N·m (5 in. lbs.).

(8) Install propeller shaft with reference marks align.

(9) Install rear brake calipers and rotors (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION).

(10) Add gear lubricant, if necessary.

(11) Install wheel and tire assemblies.

(12) Remove supports and lower vehicle.

DIFFERENTIAL

DESCRIPTION

The differential case is a one-piece design. Differential bearing preload and ring gear backlash is adjusted by the use of selective spacer shims. Pinion bearing preload is set and maintained by the use of a collapsible spacer. A differential cover provides a means for inspection and service.

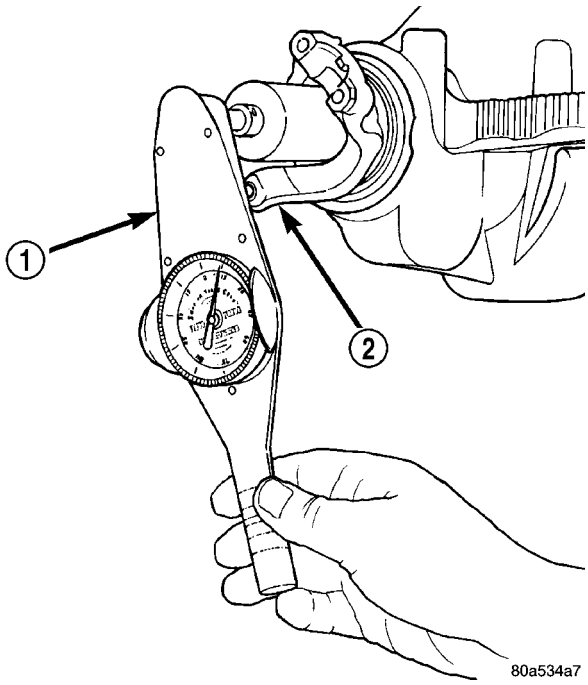


Fig. 41 PINION ROTATING TORQUE

1 - TORQUE WRENCH
2 - PINION YOKE

OPERATION

During straight-ahead driving, the differential pinion gears do not rotate on the pinion mate shaft. This occurs because input torque applied to the gears is divided and distributed equally between the two side gears. As a result, the pinion gears revolve with the pinion mate shaft but do not rotate around it (Fig. 42).

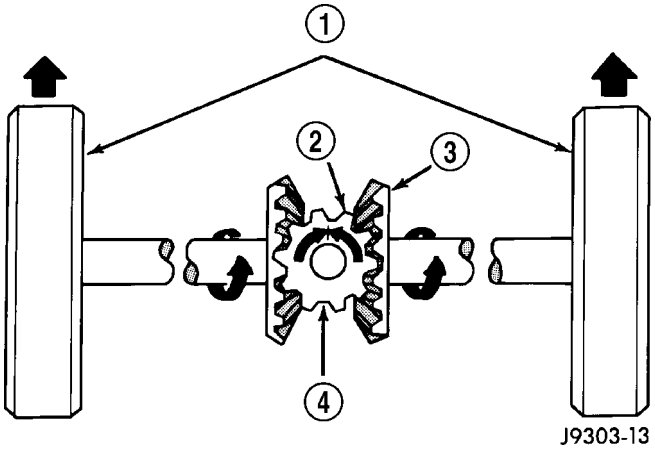


Fig. 42 STRAIGHT AHEAD DRIVING

1 - WHEELS ROTATE AT CASE SPEED
2 - PINION GEAR
3 - SIDE GEAR
4 - PINION GEARS ROTATE WITH CASE

DIFFERENTIAL (Continued)

When turning corners, the outside wheel must travel a greater distance than the inside wheel to complete a turn. The difference must be compensated for to prevent the tires from scuffing and skidding through turns. To accomplish this, the differential allows the axle shafts to turn at unequal speeds (Fig. 43). In this instance, the input torque applied to the pinion gears is not divided equally. The pinion gears now rotate around the pinion mate shaft in opposite directions. This allows the side gear and axle shaft attached to the outside wheel to rotate at a faster speed.

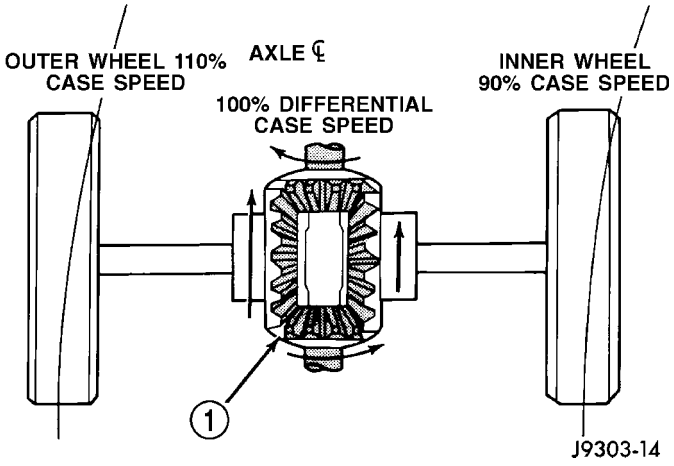


Fig. 43 DIFFERENTIAL ON TURNS

1 - PINION GEARS ROTATE ON PINION SHAFT

REMOVAL

(1) Raise and support vehicle.

(2) Remove fill hole plug from the differential housing cover.

(3) Remove differential housing cover and drain fluid.

(4) Clean the housing cavity with flushing oil, light engine oil or lint free cloth.

NOTE: Do not use water, steam, kerosene or gasoline for cleaning.

(5) Remove axle shafts.

(6) Note the reference letters stamped on the bearing caps and housing machined sealing surface (Fig. 44).

(7) Loosen the differential bearing cap bolts.

(8) Position Spreader W-129-B with Adapter Kit 6987B on differential locating holes (Fig. 45). Install holddown clamps and tighten the turnbuckle finger-tight.

(9) Install a Pilot Stud C-3288-B at the left side of the differential housing. Attach Dial Indicator C-3339 to pilot stud. Load the indicator plunger against the opposite side of the housing (Fig. 46) and zero the indicator.

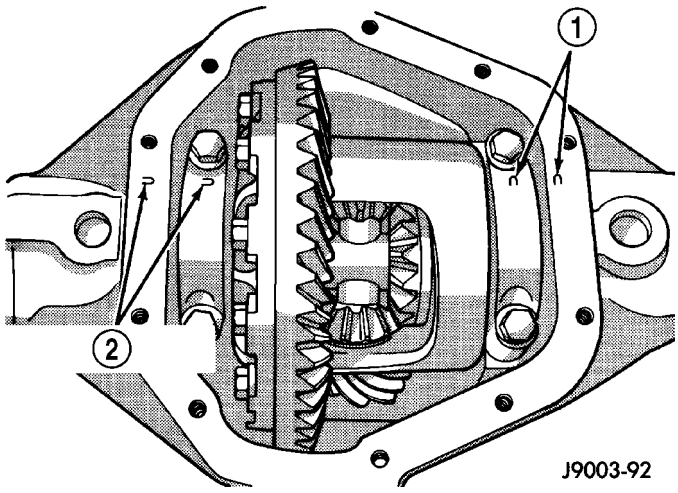


Fig. 44 Differential Bearing Cap Reference Letters

1 - REFERENCE LETTERS
2 - REFERENCE LETTERS

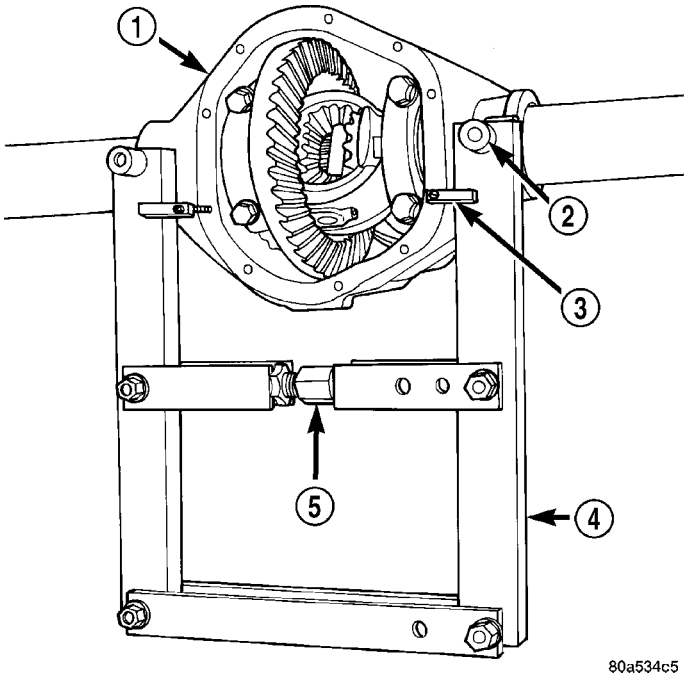


Fig. 45 Install Axle Housing Spreader

1 - DIFFERENTIAL HOUSING
2 - DOWEL
3 - SAFETY HOLD DOWN
4 - SPREADER
5 - TURNBUCKLE

CAUTION: Never spread the housing over 0.38 mm (0.015 in). If housing is over-spread, it could distorted and damaged the housing.

(10) Spread housing enough to remove the differential case from the housing. Measure the distance with the dial indicator (Fig. 47).

(11) Remove the dial indicator.

DIFFERENTIAL (Continued)

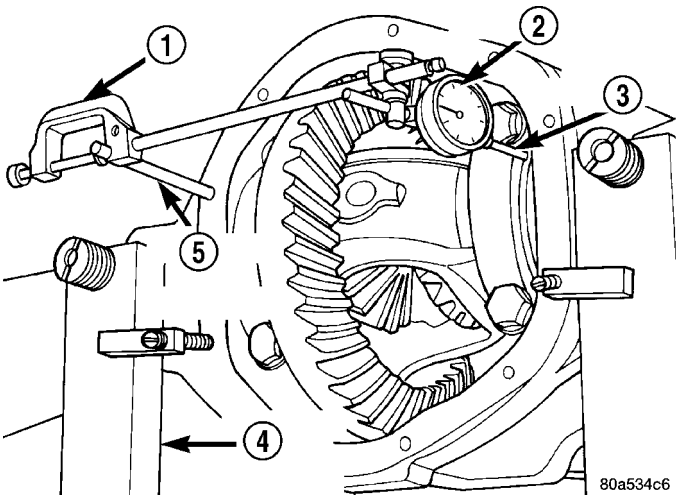


Fig. 46 Install Dial Indicator

1 - CLAMP
2 - DIAL INDICATOR
3 - LEVER ADAPTER
4 - SPREADER
5 - PILOT STUD

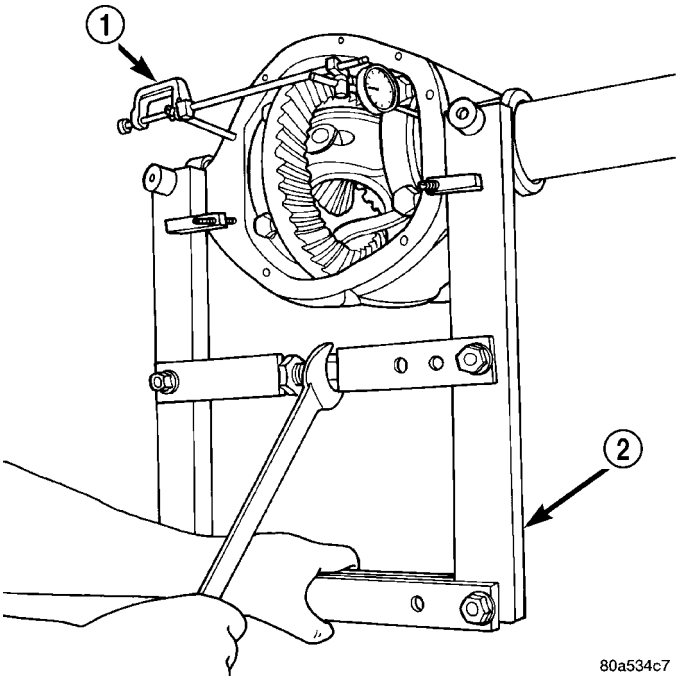


Fig. 47 Spread Axle Housing

1 - DIAL INDICATOR
2 - SPREADER

(12) While holding the differential case in position, remove the differential bearing cap bolts and caps.

(13) Remove differential from the housing and tag differential bearing cups to indicate location (Fig. 48).

(14) Remove spreader from housing.

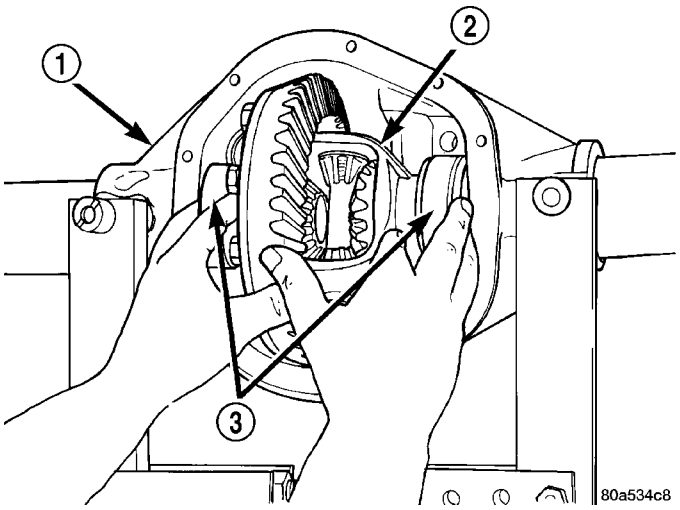


Fig. 48 Differential Case Removal

1 - DIFFERENTIAL HOUSING
2 - DIFFERENTIAL CASE
3 - BEARING CUPS

DISASSEMBLY

(1) Remove pinion shaft lock screw (Fig. 49).

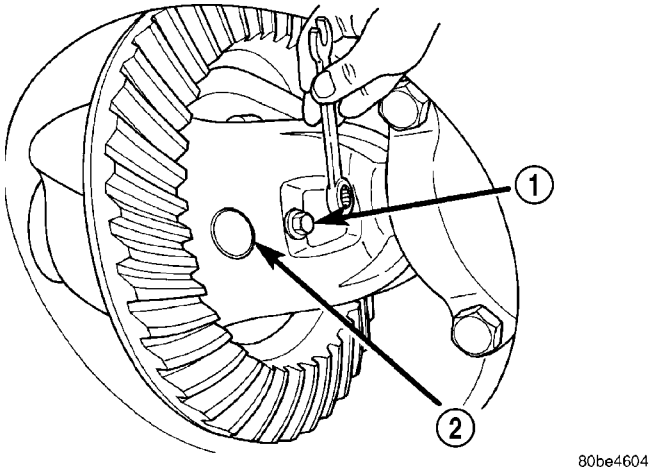


Fig. 49 Pinion Mate Shaft Lock Screw

1 - LOCK SCREW
2 - PINION SHAFT

(2) Remove pinion shaft.

(3) Rotate differential side gears and remove differential pinions and thrust washers (Fig. 50).

(4) Remove differential side gears and thrust washers.

DIFFERENTIAL (Continued)

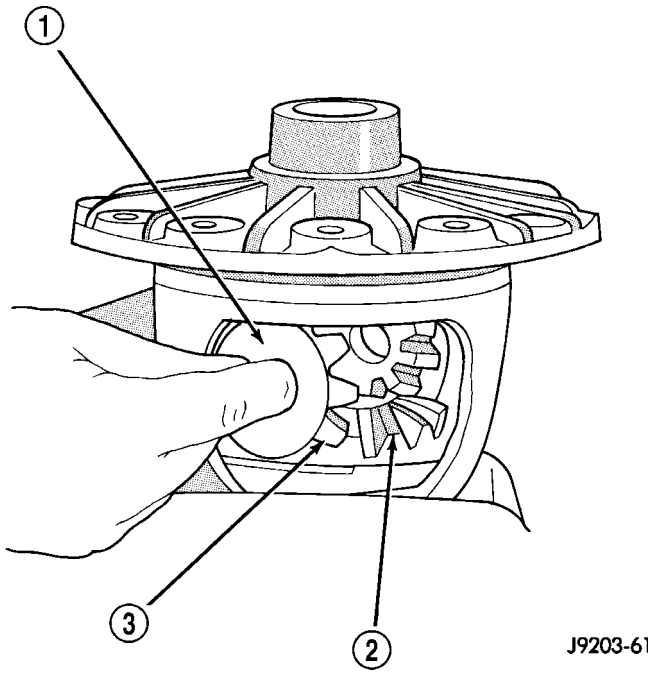


Fig. 50 PINION MATE GEAR REMOVAL

1 - THRUST WASHER
2 - SIDE GEAR
3 - DIFFERENTIAL PINION

ASSEMBLY

(1) Install differential side gears and thrust washers.

(2) Install differential pinion gears and thrust washers.

(3) Install the pinion mate shaft.

(4) Align hole in the pinion mate shaft with the hole in the differential case and install the pinion mate shaft lock screw.

(5) Lubricate all differential components with hypoid gear lubricant.

INSTALLATION

NOTE: If replacement differential bearings or differential case are being installed, differential side bearing shim requirements may change. Refer Adjustments (Differential Bearing Preload and Gear Backlash) to determine the proper shim selection.

(1) Position Spreader W-129-B with Adapter set 6987 on differential housing locating holes. Install the holddown clamps and tighten the tool turnbuckle finger-tight.

(2) Install a Pilot Stud C-3288-B at the left side of the differential housing. Attach Dial Indicator C-3339 to pilot stud. Load the indicator plunger against the opposite side of the housing and zero the indicator.

CAUTION: Never spread the housing over 0.38 mm (0.015 in). If housing is over-spread, it could be distorted or damaged.

(3) Spread housing enough to install the case in the housing.

(4) Remove the dial indicator.

(5) Install differential case in housing (Fig. 51). Verify differential bearing cups remain in position on the bearings and preload shims are between the face of the bearing cup and the housing. Tap the differential case to ensure bearings cups and shims are seated in the housing.

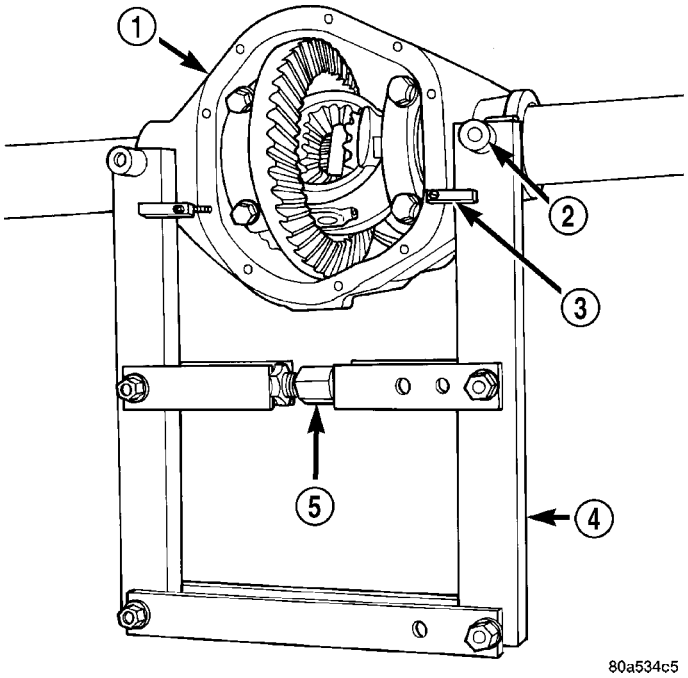


Fig. 51 Install Axle Housing Spreader

1 - DIFFERENTIAL HOUSING
2 - DOWEL
3 - SAFETY HOLD DOWN
4 - SPREADER
5 - TURNBUCKLE

CAUTION: On a Vari-lok® differential the oil feed tube must be pointed at the bottom of the housing (Fig. 52). If differential is installed with the oil feed tube pointed at the top, the anti-rotation tabs will be damaged.

DIFFERENTIAL (Continued)

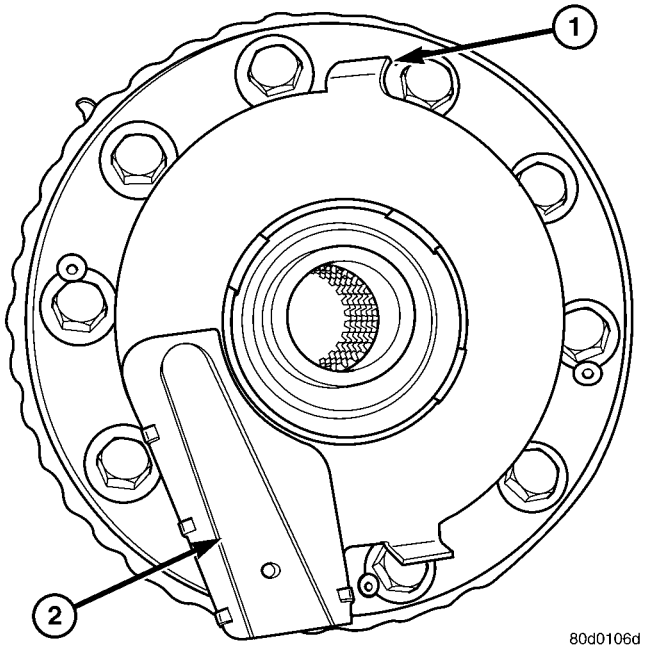


Fig. 52 VARI-LOK

1 - ANTI-ROTATION TAB
2 - OIL FEED TUBE

(6) Install bearing caps in their original locations (Fig. 53).

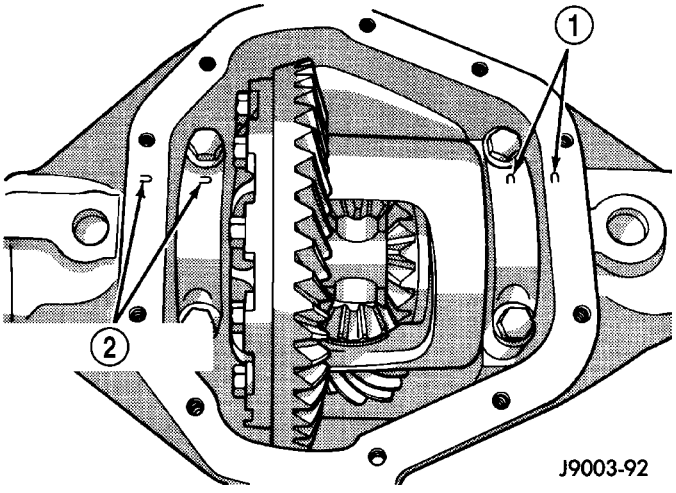


Fig. 53 Differential Bearing Cap Reference Letters

1 - REFERENCE LETTERS
2 - REFERENCE LETTERS

(7) Loosely install differential bearing cap bolts.
(8) Remove axle housing spreader.
(9) Tighten bearing cap bolts in a criss-cross pattern to 77 N·m (57 ft. lbs.).
(10) Install the axle shafts.
(11) Apply a 6.35mm (1/4 in.) bead of red Mopar Silicone Rubber Sealant or equivalent to the housing cover (Fig. 54).

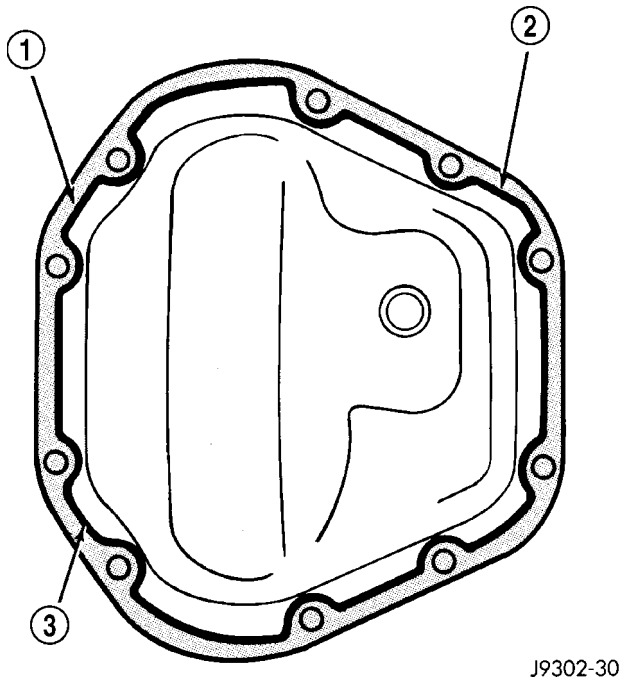


Fig. 54 DIFFERENTIAL COVER - TYPICAL

1 - COVER
2 - SEALANT
3 - SEALANT BEAD

CAUTION: If cover is not installed within 3 to 5 minutes, the cover must be cleaned and new RTV applied or adhesion quality will be compromised.

(12) Install cover and tighten bolts in a criss-cross pattern to 41 N·m (30 ft. lbs.).
(13) Refill the differential with Mopar Hypoid Gear Lubricant or equivalent to bottom of the fill plug hole.
(14) Install fill hole plug.
(15) Remove support and lower the vehicle.

DIFFERENTIAL-TRAC-LOC

DESCRIPTION

The Trac-Lok® differential has a one-piece differential case, and similar internal components as a standard differential, plus two clutch disc packs. Differential bearing preload and ring gear backlash are set and maintained by threaded adjusters at the outside of the differential housing. Pinion bearing preload is set and maintained by the use of a collapsible spacer.

DIFFERENTIAL-TRAC-LOC (Continued)

OPERATION

This differentials clutches are engaged by two concurrent forces. The first being the preload force exerted through Belleville spring washers within the clutch packs. The second is the separating forces generated by the side gears as torque is applied through the ring gear (Fig. 55).

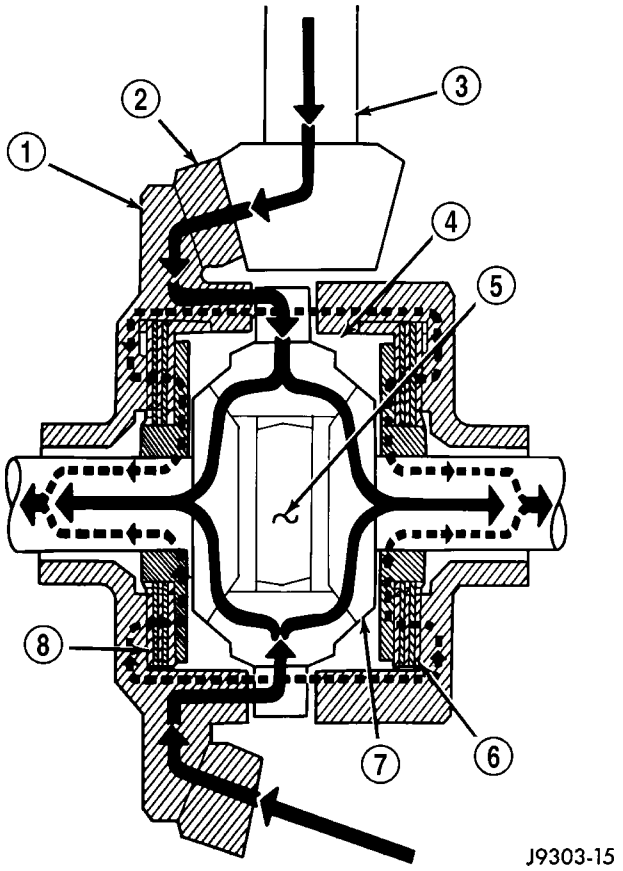


Fig. 55 TRAC-LOK LIMITED SLIP DIFFERENTIAL

1 - CASE
2 - RING GEAR
3 - DRIVE PINION
4 - PINION GEAR
5 - MATE SHAFT
6 - CLUTCH PACK
7 - SIDE GEAR
8 - CLUTCH PACK

This design provides the differential action needed for turning corners and for driving straight ahead during periods of unequal traction. When one wheel looses traction, the clutch packs transfer additional torque to the wheel having the most traction. This differential resist wheel spin on bumpy roads and provide more pulling power when one wheel looses traction. Pulling power is provided continuously until both wheels loose traction. If both wheels slip due to unequal traction, Trac-lok™ operation is normal. In extreme cases of differences of traction, the wheel with the least traction may spin.

DIAGNOSIS AND TESTING

The most common problem is a chatter noise when turning corners. Before removing the unit for repair, drain, flush and refill the axle with the specified lubricant. A container of Mopar Trac-lok® Lubricant (friction modifier) should be added after repair service or during a lubricant change.

After changing the lubricant, drive the vehicle and make 10 to 12 slow, figure-eight turns. This maneuver will pump lubricant through the clutches. This will correct the condition in most instances. If the chatter persists, clutch damage could have occurred.

DIFFERENTIAL TEST

The differential can be tested without removing the differential case by measuring rotating torque. Make sure brakes are not dragging during this measurement.

(1) Place blocks in front and rear of both front wheels.

(2) Raise one rear wheel until it is completely off the ground.

(3) Engine off, transmission in neutral, and parking brake off.

(4) Remove wheel and bolt Special Tool 6790 or equivalent tool to studs.

(5) Use torque wrench on special tool to rotate wheel and read rotating torque (Fig. 56).

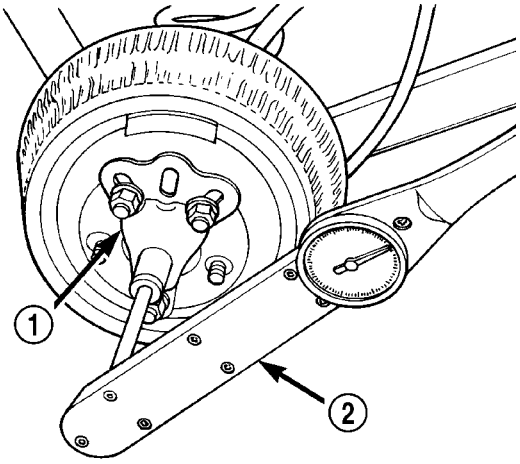


Fig. 56 Trac-lok™ Test —Typical

1 - SPECIAL TOOL WITH BOLT IN CENTER HOLE
2 - TORQUE WRENCH

(6) If rotating torque is less than 41 N·m (56 ft. lbs.) or more than 271 N·m (200 ft. lbs.) on either wheel the unit should be serviced.

DIFFERENTIAL-TRAC-LOC (Continued)

DISASSEMBLY

(1) Clamp side gear Holding Fixture 6965 in a vise and position the differential case on the Holding Fixture (Fig. 57).

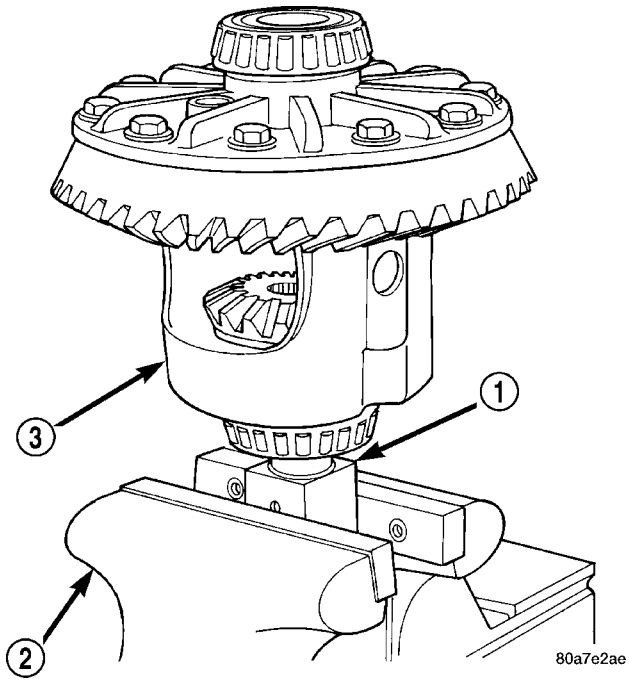


Fig. 57 Differential Case Holding Tool

1 - HOLDING FIXTURE
2 - VISE
3 - DIFFERENTIAL

(2) Remove ring gear if the ring gear is to be replaced. The Trac-lok® differential can be serviced with the ring gear installed.

(3) Remove the pinion gear mate shaft lock screw (Fig. 58).

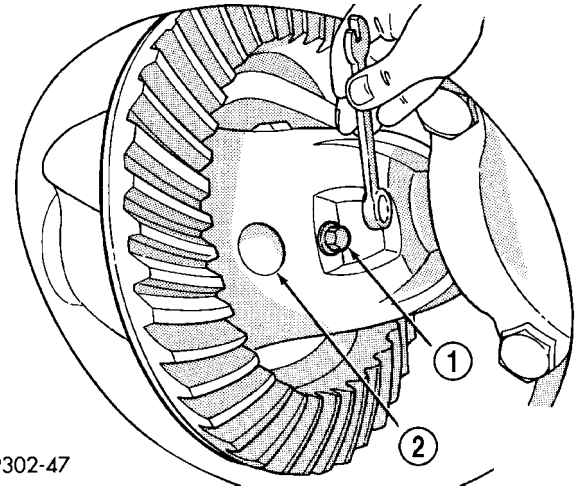


Fig. 58 Mate Shaft Lock Screw

1 - LOCK SCREW
2 - PINION GEAR MATE SHAFT

(4) Remove pinion gear mate shaft with a drift and hammer (Fig. 59).

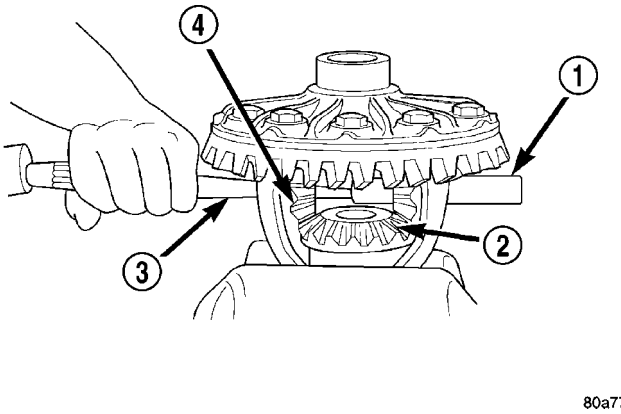


Fig. 59 PINION MATE SHAFT

1 - PINION MATE SHAFT
2 - SIDE GEAR
3 - DRIFT
4 - PINION MATE GEAR

(5) Install and lubricate Step Plate C-6960-3 (Fig. 60).

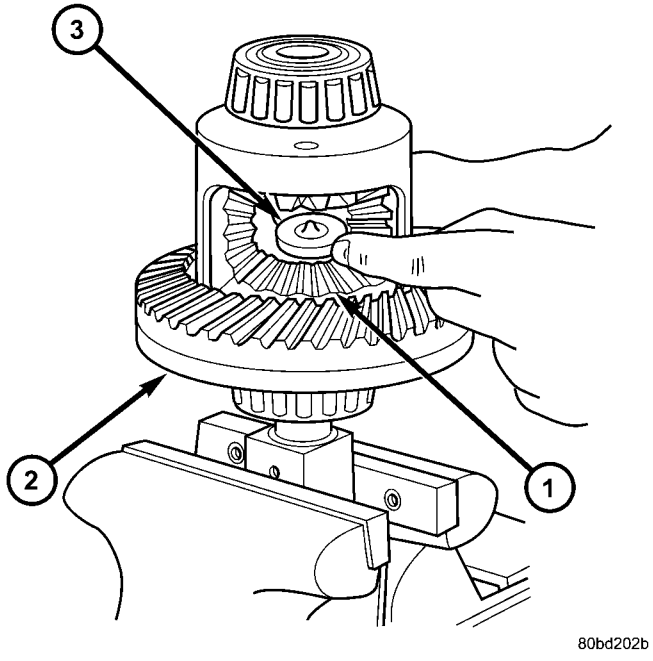


Fig. 60 STEP PLATE

1 - LOWER SIDE GEAR
2 - DIFFERENTIAL CASE
3 - STEP PLATE

(6) Assemble Threaded Adapter C-6960-1 into top side gear. Thread Forcing Screw C-6960-4 into adapter until it becomes centered in adapter plate.

DIFFERENTIAL-TRAC-LOC (Continued)

(7) Position a small screw driver in slot of Threaded Adapter Disc C-6960-1 (Fig. 61) to prevent adapter from turning.

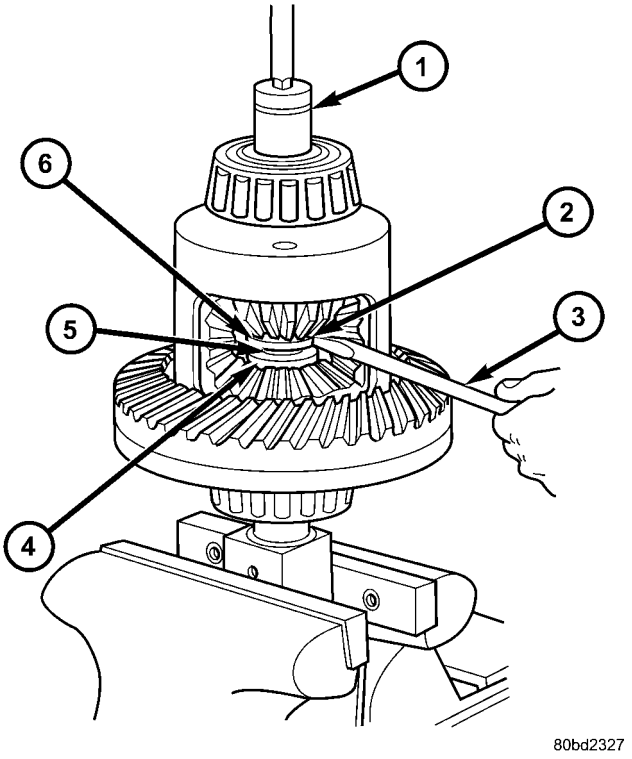


Fig. 61 THREAD ADAPTER DISC

1 - SOCKET
2 - SLOT IN ADAPTER
3 - SCREWDRIVER
4 - STEP PLATE
5 - FORCING SCREW
5 - THREAD ADAPTER DISC

(8) Install Forcing Screw C-6960-4 and tighten screw to 122 N·m (90 ft. lbs.) maximum to compress Belleville springs in clutch packs (Fig. 62).

(9) With a feeler gauge remove thrust washers from behind the pinion gears (Fig. 63).

(10) Insert Turning Bar C-6960-2 into the pinion mate shaft hole in the case (Fig. 64).

(11) Loosen the Forcing Screw in small increments until the clutch pack tension is relieved and the differential case can be turned using Turning Bar.

(12) Rotate differential case until the pinion gears can be removed.

(13) Remove pinion gears from differential case.

(14) Remove Forcing Screw, Step Plate and Threaded Adapter.

(15) Remove top side gear, clutch pack retainer and clutch pack. Keep plates in correct order during removal (Fig. 65).

(16) Remove differential case from the Holding Fixture. Remove side gear, clutch pack retainer and clutch pack. Keep plates in correct order during removal.

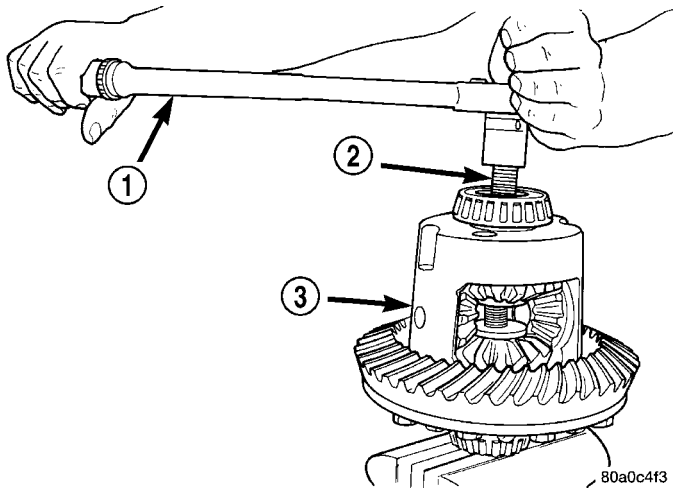


Fig. 62 Tighten Belleville Spring Compressor Tool

1 - TORQUE WRENCH
2 - TOOL ASSEMBLED
3 - DIFFERENTIAL CASE

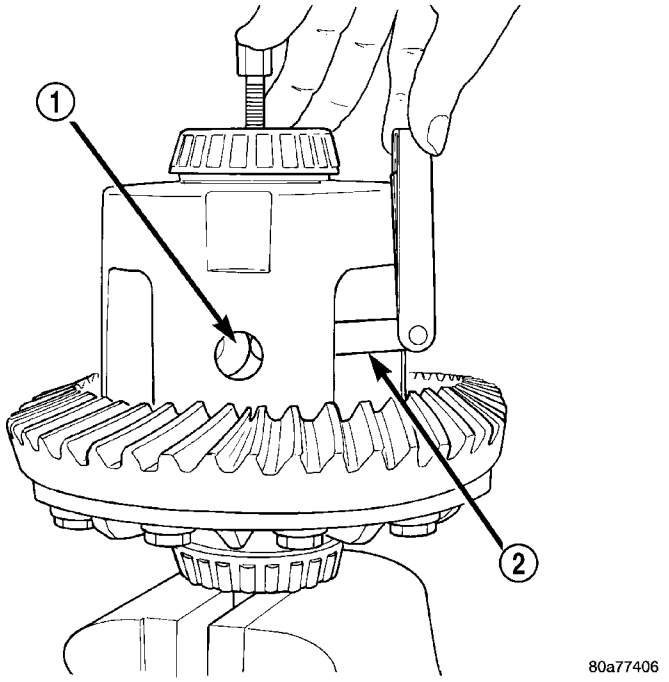


Fig. 63 Remove Pinion Gear Thrust Washer

1 - THRUST WASHER
2 - FEELER GAUGE

ASSEMBLY

NOTE: New Plates and discs with fiber coating (no grooves or lines) must be presoaked in Friction Modifier before assembly. Soak plates and discs for a minimum of 20 minutes.

DIFFERENTIAL-TRAC-LOC (Continued)

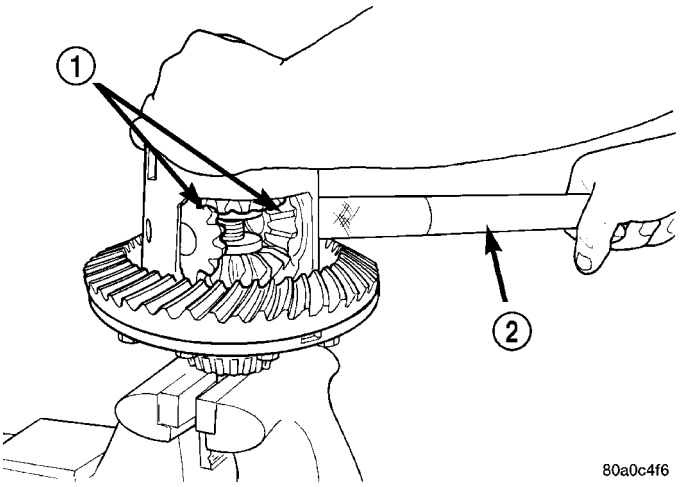


Fig. 64 Pinion Gear Removal

1 - PINION GEARS
2 - TURNING BAR

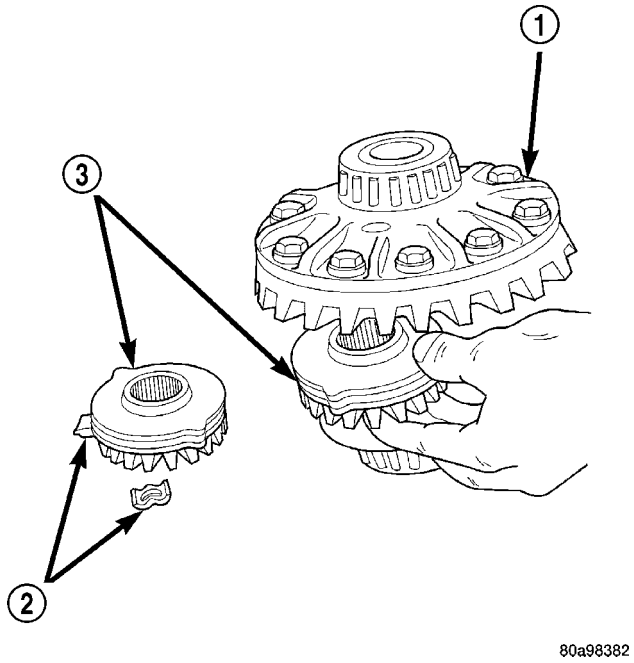


Fig. 65 Side Gear & Clutch Disc Removal

1 - DIFFERENTIAL CASE
2 - RETAINER
3 - SIDE GEAR AND CLUTCH DISC PACK

(1) Lubricate components with gear lubricant.

(2) Assemble clutch discs into packs and secure disc packs with retaining clips (Fig. 66).

NOTE: Dished plate is position with the convex side against the side gear.

(3) Position assembled clutch disc packs on the side gear hubs.

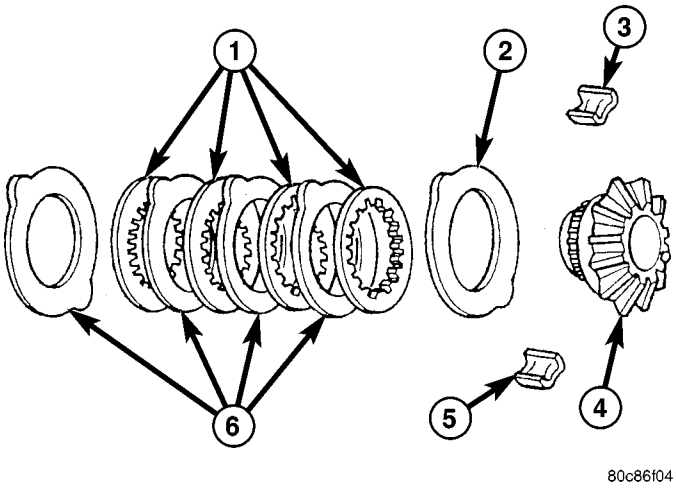


Fig. 66 CLUTCH PACK

1 - DISCS
2 - DISHED PLATE
3 - RETAINER
4 - SIDE GEAR
5 - RETAINER
6 - PLATES

(4) Install clutch pack and side gear in the ring gear side of the differential case (Fig. 67). **Verify clutch pack retaining clips are in position and seated in the case pockets.**

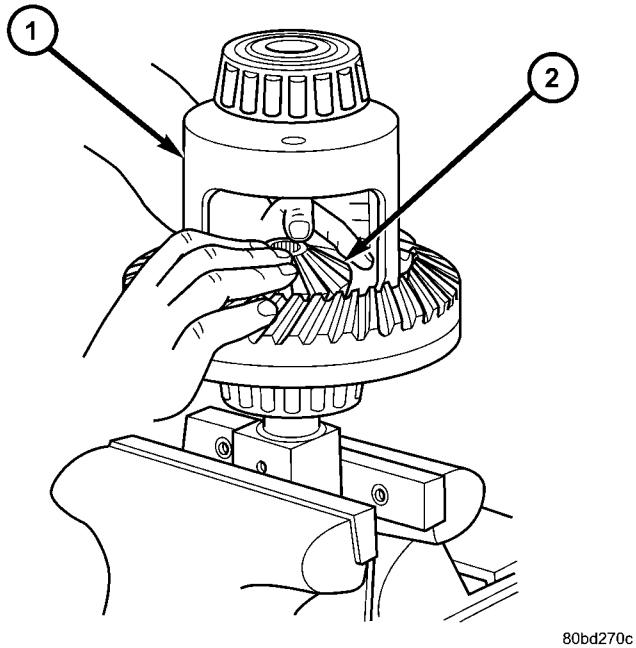


Fig. 67 CLUTCH PACK AND LOWER SIDE GEAR

1 - DIFFERENTIAL CASE
2 - SIDE GEAR AND CLUTCH PACK

DIFFERENTIAL-TRAC-LOC (Continued)

(5) Position the differential case on the Holding Fixture 6965.

(6) Install lubricated Step Plate C-6960-3 in lower side gear (Fig. 68).

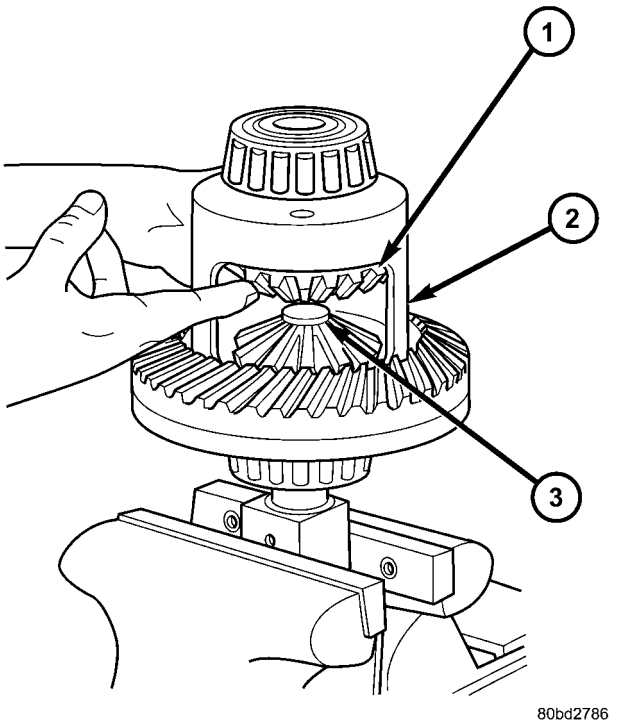


Fig. 68 CLUTCH PACK AND UPPER SIDE GEAR

1 - SIDE GEAR AND CLUTCH PACK
2 - DIFFERENTIAL CASE
3 - STEP PLATE

(7) Install the upper side gear and clutch disc pack (Fig. 68).

(8) Hold assembly in position. Insert Threaded Adapter C-6960-1 into top side gear.

(9) Install Forcing Screw C-6960-4 and tighten screw to slightly compress clutch disc.

(10) Place pinion gears in position in side gears and verify that the pinion mate shaft hole is aligned.

(11) Rotate case with Turning Bar C-6960-2 until the pinion mate shaft holes in pinion gears align with holes in case. It may be necessary to slightly tighten the forcing screw in order to install the pinion gears.

(12) Tighten forcing screw to 122 N·m (90 ft. lbs.) maximum to compress the Belleville springs.

(13) Lubricate and install thrust washers behind pinion gears and align washers with a small screw driver. Insert mate shaft into each pinion gear to verify alignment.

(14) Remove Forcing Screw, Step Plate and Threaded Adapter.

(15) Install pinion gear mate shaft and align holes in shaft and case.

(16) Install pinion mate shaft lock screw finger tight to hold shaft during differential installation.

(17) Lubricate all differential components with hypoid gear lubricant.

DIFFERENTIAL CASE BEARINGS

REMOVAL

(1) Raise and support vehicle.

(2) Remove differential case from axle housing.

(3) Remove bearings from the differential case with Puller/Press C-293-PA, Adapter C-293-39 and Plug SP-3289 (Fig. 69).

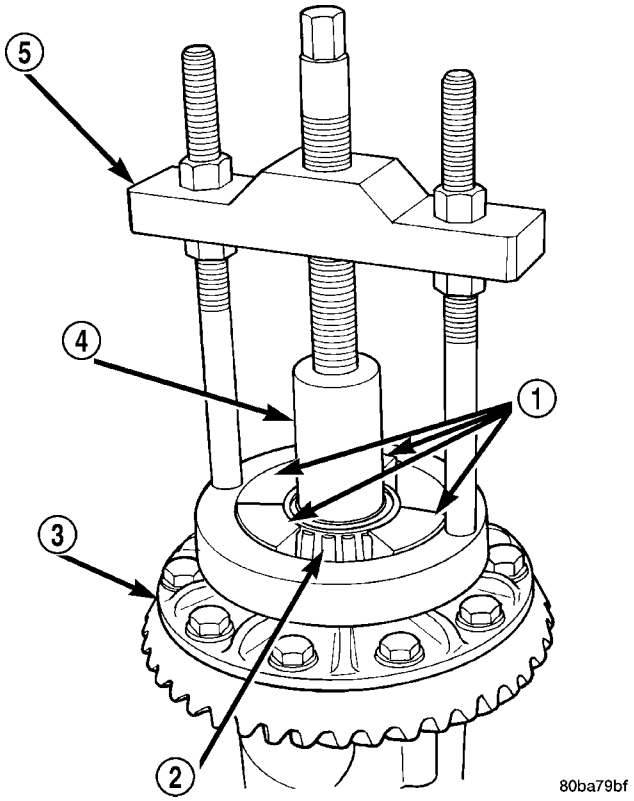


Fig. 69 DIFFERENTIAL CASE BEARING

1 - ADAPTERS
2 - BEARING
3 - DIFFERENTIAL
4 - PLUG
5 - PULLER

INSTALLATION

NOTE: If differential side bearings or differential case are replaced, differential side bearing shim requirements may change. Refer to Adjustments (Differential Bearing Preload and Gear Backlash) for procedures.

DIFFERENTIAL CASE BEARINGS (Continued)

(1) Install differential case bearings with Installer C-3716-A and Handle C-4171 (Fig. 70).

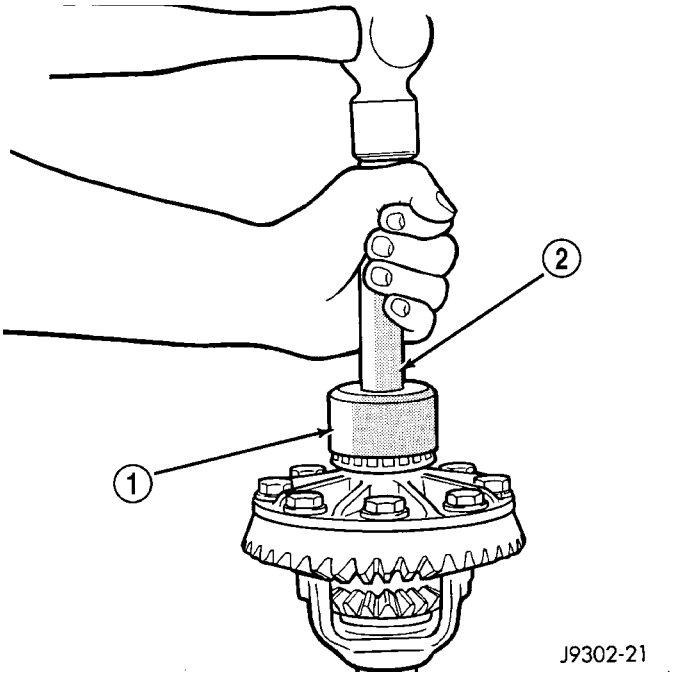


Fig. 70 DIFFERENTIAL SIDE BEARING

1 - INSTALLER
2 - HANDLE

(2) Install differential in axle housing.
(3) Remove support and lower vehicle.

PINION GEAR/RING GEAR

REMOVAL

NOTE: The ring and pinion gears are serviced as a matched set. Never replace one gear without the other gear.

(1) Raise and support vehicle.
(2) Mark pinion yoke and propeller shaft for installation reference.
(3) Disconnect propeller shaft from pinion yoke and tie shaft to underbody.
(4) Remove differential from the housing.
(5) Place differential case in a vise with soft metal jaw.
(6) Remove bolts holding ring gear to differential case.
(7) Drive ring gear from differential case with a rawhide hammer (Fig. 71).

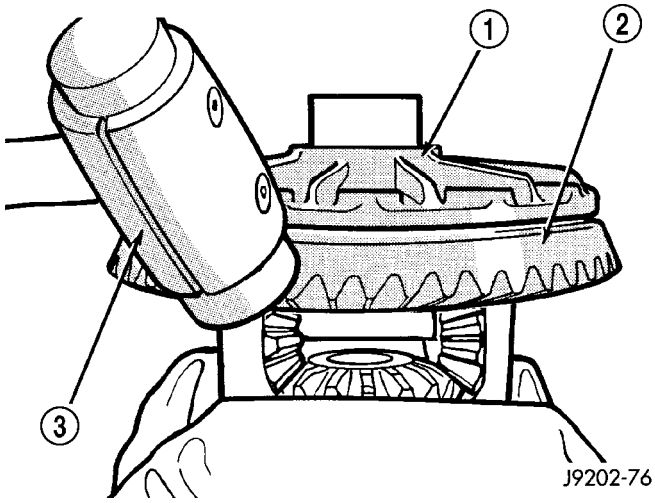


Fig. 71 Ring Gear Removal

1 - DIFFERENTIAL CASE
2 - RING GEAR
3 - HAMMER

(8) Hold the pinion yoke with Spanner Wrench 6958 and remove the pinion yoke nut and washer (Fig. 72).

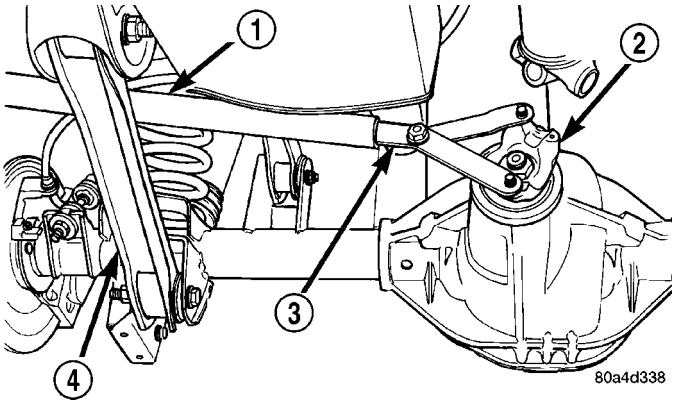


Fig. 72 Pinion Yoke Holder—Typical

1 - 1 in. PIPE
2 - PINION YOKE
3 - HOLDER
4 - LOWER CONTROL ARM

PINION GEAR/RING GEAR (Continued)

(9) Remove pinion yoke from pinion shaft with Remover C-452 and Flange Wrench C-3281 (Fig. 73).

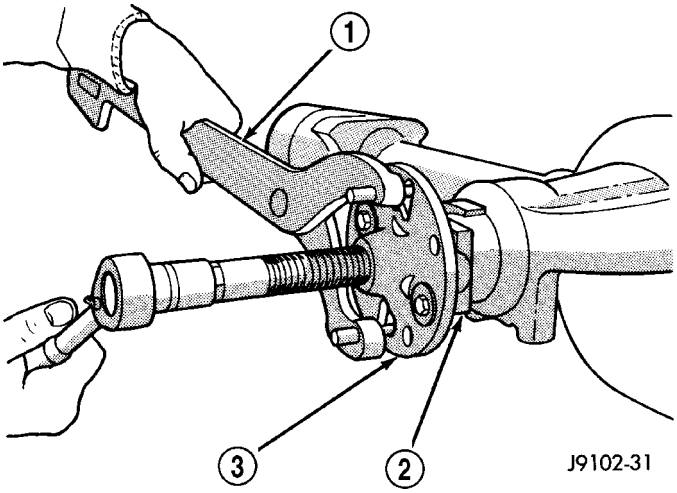


Fig. 73 Pinion Yoke Removal

1 - FLANGE WRENCH
2 - YOKE
3 - REMOVER

(10) Remove pinion gear from housing (Fig. 74).

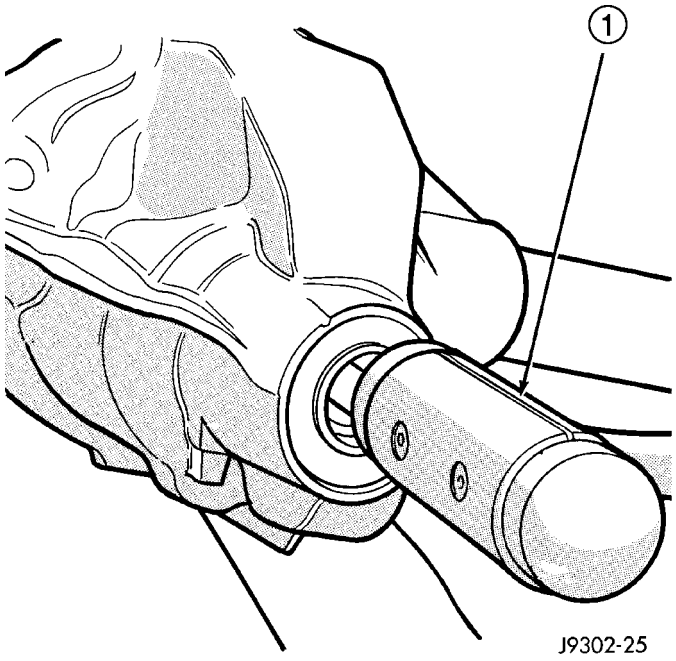


Fig. 74 Remove Pinion Gear

1 - RAWHIDE HAMMER

(11) Remove pinion seal with Remover 7794-A and a slide hammer (Fig. 75).

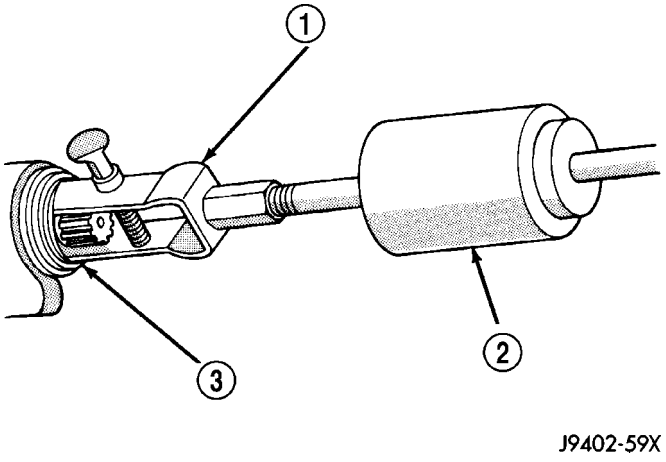


Fig. 75 Seal Removal

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

(12) Remove oil slinger, if equipped, and front pinion bearing.

(13) Remove front pinion bearing cup with Remover C-4345 and Handle C-4171 (Fig. 76).

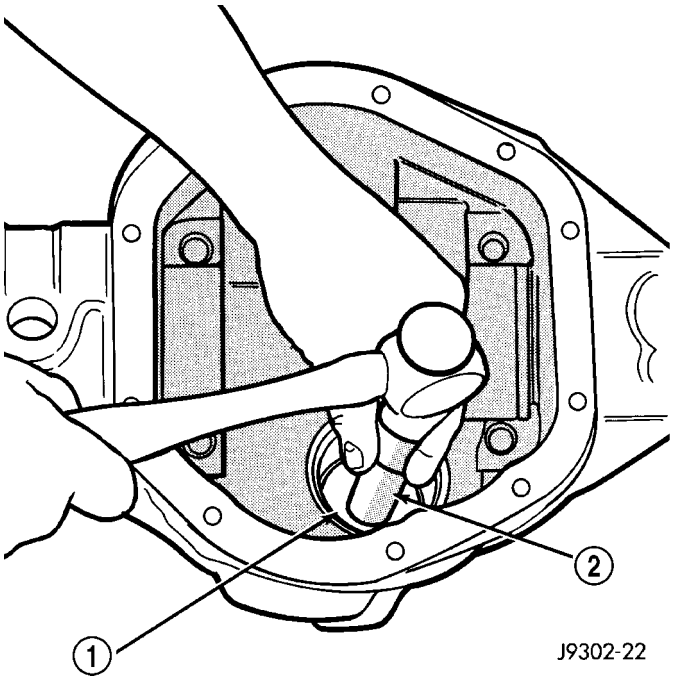


Fig. 76 Front Bearing Cup Removal

1 - REMOVER
2 - HANDLE

PINION GEAR/RING GEAR (Continued)

(14) Remove rear bearing cup (Fig. 77) with Remover D-149 and Handle C-4171.

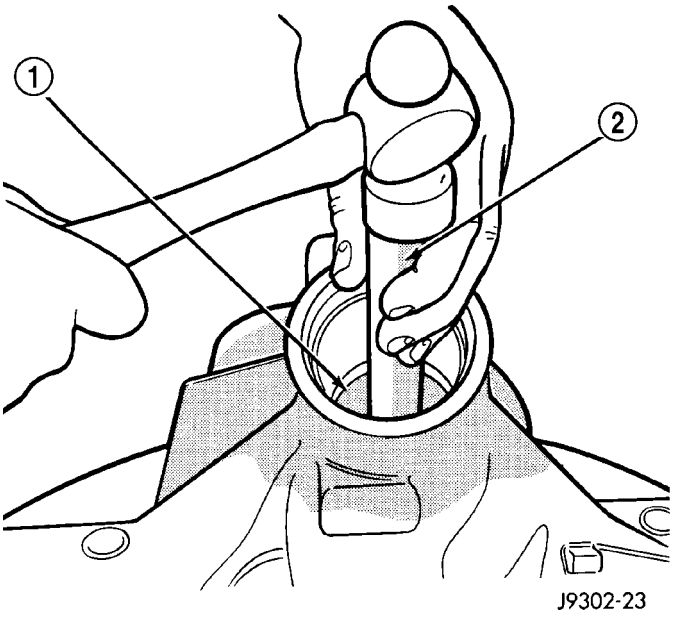


Fig. 77 Rear Bearing Cup Removal

1 - REMOVER
2 - HANDLE

(15) Remove collapsible preload spacer (Fig. 78).

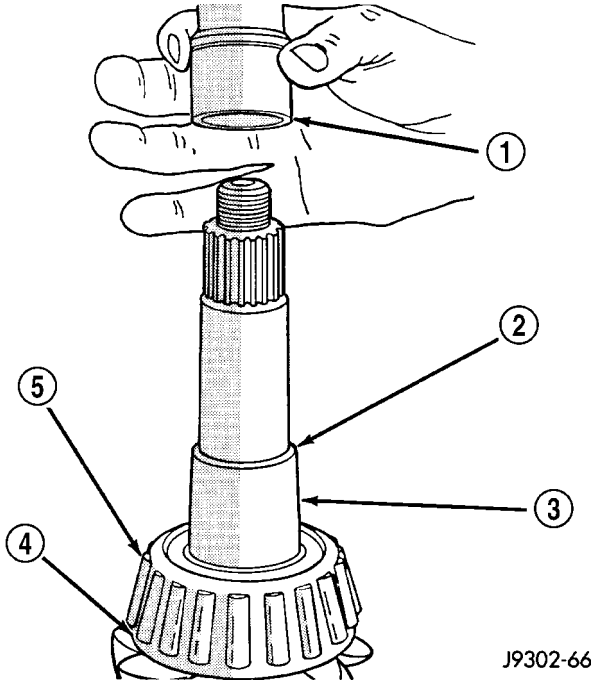


Fig. 78 Collapsible Preload Spacer

1 - COLLAPSIBLE SPACER
2 - SHOULDER
3 - PINION GEAR
4 - SHIM
5 - REAR BEARING

(16) Remove rear bearing from the pinion with Puller/Press C-293-PA and Adapters C-293-40 (Fig. 79).

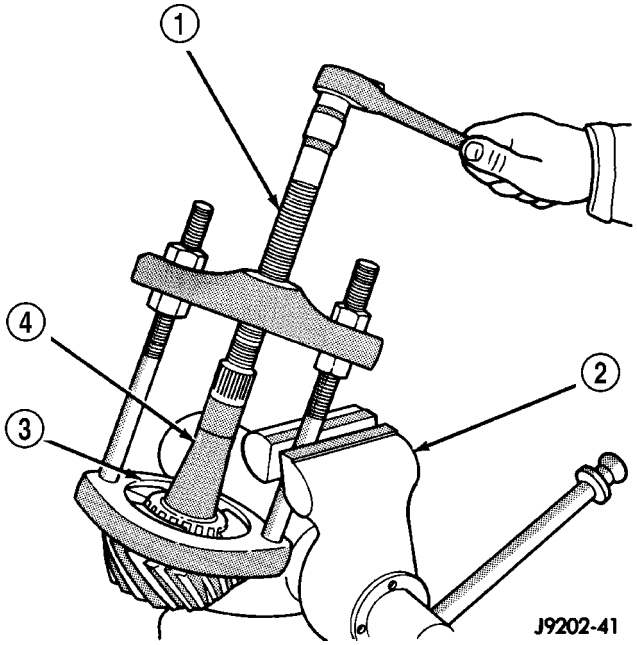


Fig. 79 Rear Bearing Removal

1 - PULLER
2 - VISE
3 - ADAPTERS
4 - PINION GEAR SHAFT

(17) Remove depth shims from the pinion gear shaft and record shim thickness.

INSTALLATION

NOTE: A pinion depth shim/oil slinger is placed between the rear pinion bearing cone and the pinion head to achieve proper ring gear and pinion mesh. If ring gear and pinion are reused, the pinion depth shim/oil slinger should not require replacement. Refer to Adjustment (Pinion Gear Depth) to select the proper thickness shim/oil slinger if ring and pinion gears are replaced.

PINION GEAR/RING GEAR (Continued)

(1) Apply Mopar Door Ease or equivalent lubricant to outside surface of the pinion bearing cups.

(2) Install pinion rear bearing cup with Installer D-146 and Driver Handle C-4171 (Fig. 80) and verify cup is seated.

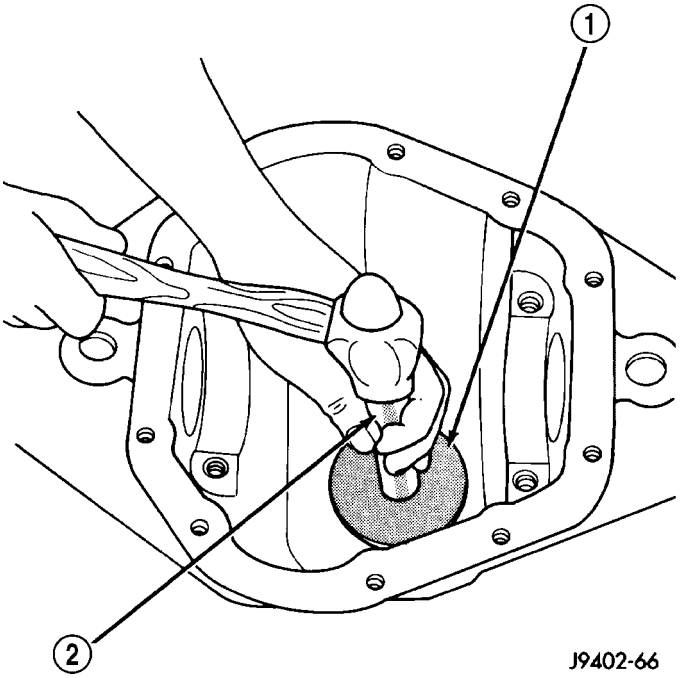


Fig. 80 REAR PINION BEARING CUP

1 - INSTALLER
2 - HANDLE

(3) Install pinion front bearing cup with Installer D-130 and Handle C-4171 (Fig. 81) and verify cup is seated.

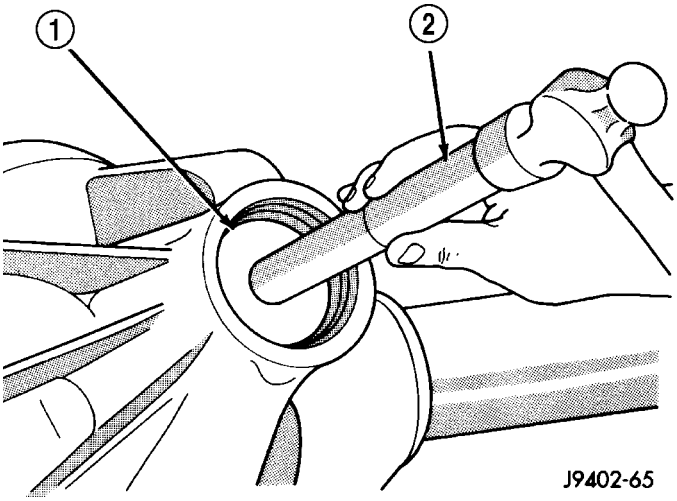


Fig. 81 PINION FRONT BEARING CUP

1 - INSTALLER
2 - HANDLE

(4) Install pinion front bearing and oil slinger, if equipped.

(5) Apply a light coating of gear lubricant on the lip of pinion seal. Install seal with an appropriate installer (Fig. 82).

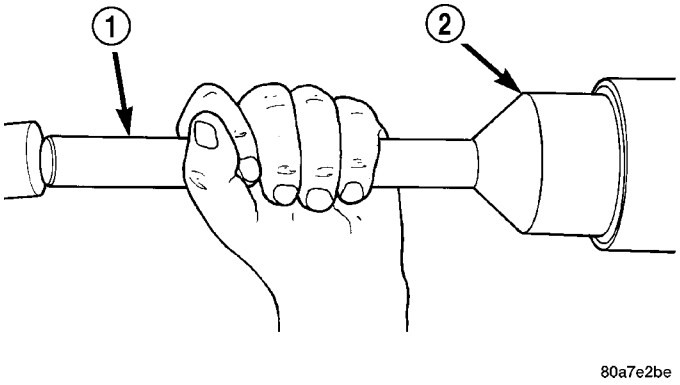


Fig. 82 PINION SEAL INSTALLER

1 - HANDLE
2 - INSTALLER

(6) Install depth shim on the pinion gear.

(7) Install rear bearing and slinger if equipped, on the pinion gear with Installer W-262 and a press (Fig. 83).

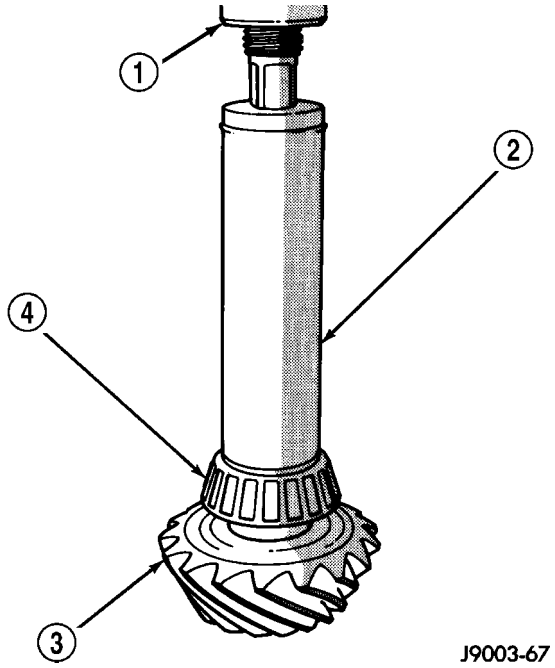


Fig. 83 REAR PINION BEARING

1 - PRESS
2 - INSTALLER
3 - PINION GEAR
4 - PINION BEARING

PINION GEAR/RING GEAR (Continued)

(8) Install a **new** collapsible preload spacer on pinion shaft and install pinion gear in the housing (Fig. 84).

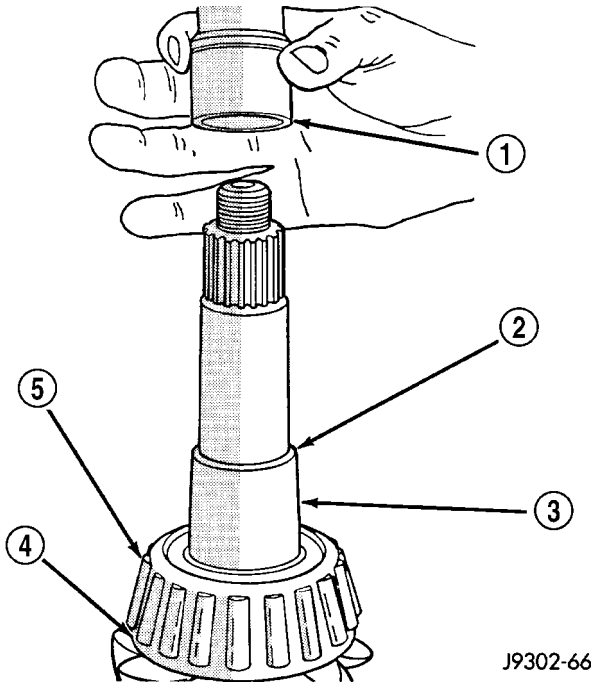


Fig. 84 COLLAPSIBLE SPACER

1 - COLLAPSIBLE SPACER
2 - SHOULDER
3 - PINION GEAR
4 - DEPTH SHIM
5 - REAR BEARING

(9) Install yoke with Installer C-3718 and Spanner Wrench 6958 (Fig. 85).

(10) Install the yoke washer and a new nut on the pinion gear and tighten the pinion nut until there is zero bearing end-play.

(11) Tighten the nut to 271 N·m (200 ft. lbs.).

CAUTION: Never loosen pinion gear nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque or rotating torque is exceeded a new collapsible spacer must be installed.

NOTE: New collapsible spacers require high initial torque to start the collapsing of the spacer. This may reach 678 N·m (500 ft. lbs.).

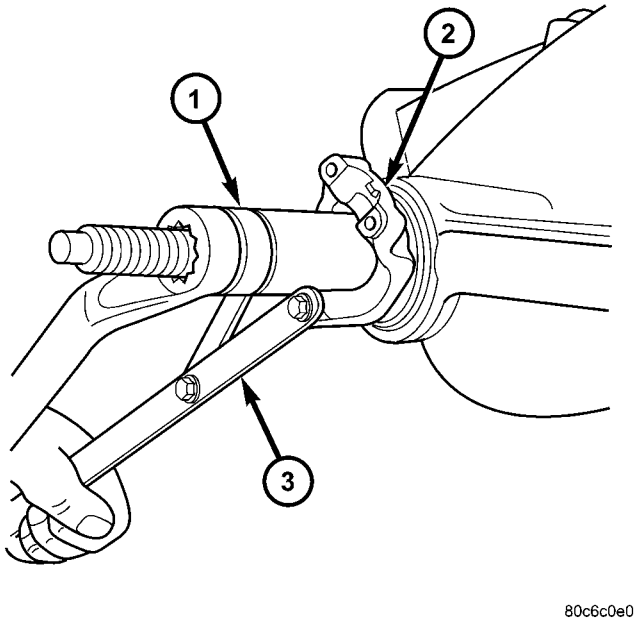


Fig. 85 PINION YOKE INSTALLER

1 - INSTALLER
2 - PINION YOKE

(12) Using Spanner Wrench 6958 and a torque wrench set at 474 N·m (350 ft. lbs.), (Fig. 86) slowly tighten the nut in 6.8 N·m (5 ft. lbs.) increments until the rotating torque is achieved. Measure the rotating torque frequently to avoid over crushing the collapsible spacer (Fig. 87).

NOTE: If more than 474 N·m (350 ft. lbs.) torque is required to crush the collapsible spacer, the spacer is defective and must be replaced.

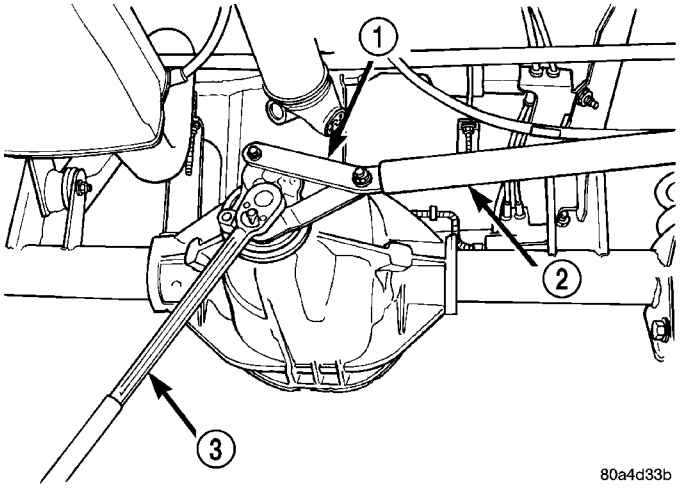


Fig. 86 PINION SHAFT NUT

1 - SPANNER WRENCH
2 - PIPE
3 - TORQUE WRENCH

PINION GEAR/RING GEAR (Continued)

(13) Check bearing rotating torque with a inch pound torque wrench (Fig. 87). The pinion gear rotating torque should be:

- Original Bearings: 1 to 2.25 N·m (10 to 20 in. lbs.).
- New Bearings: 1.7 to 3.9 N·m (15 to 35 in. lbs.).

(14) Invert the differential case and start two ring gear bolts. This will provide case-to-ring gear bolt hole alignment.

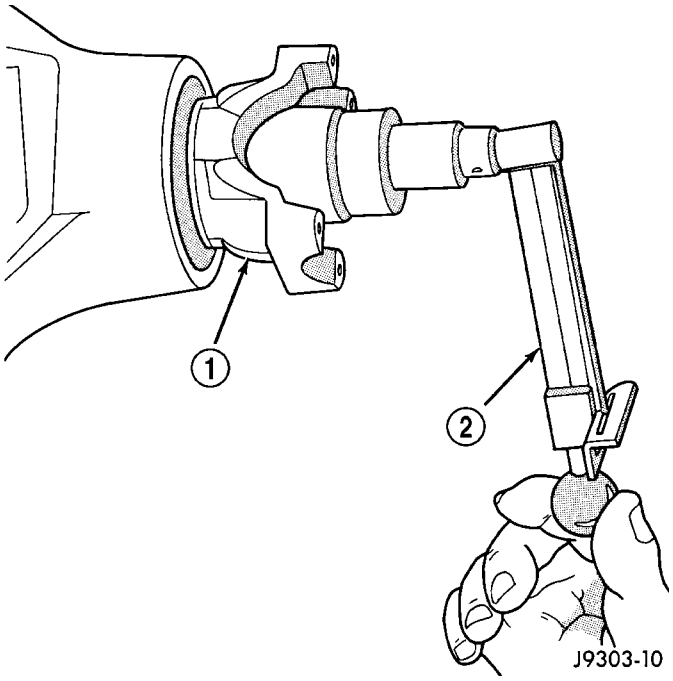


Fig. 87 Check Pinion Rotation Torque

1 - PINION YOKE/COMPANION FLANGE
2 - INCH POUND TORQUE WRENCH

(15) Invert the differential case in the vise.

(16) Install **new** ring gear bolts and alternately tighten to 136 N·m (100 ft. lbs.) (Fig. 88).

CAUTION: Never reuse the ring gear bolts. The bolts can fracture causing extensive damage.

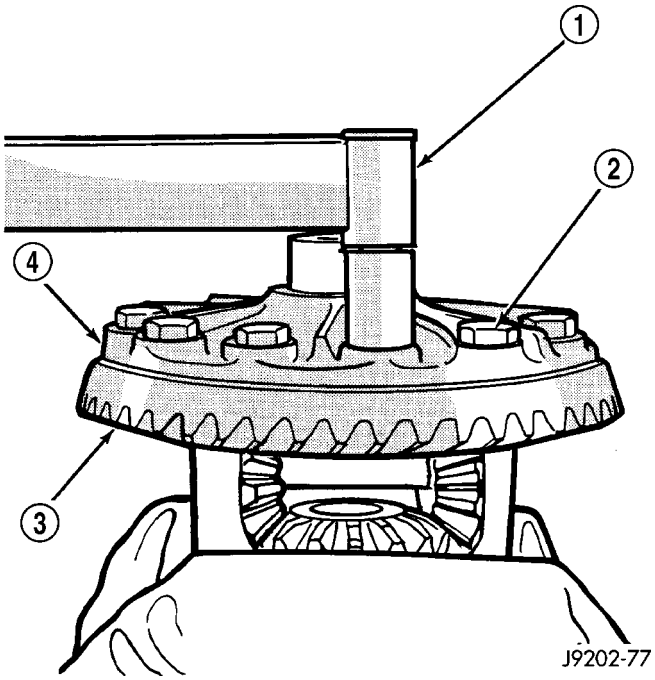


Fig. 88 RING GEAR

1 - TORQUE WRENCH
2 - RING GEAR BOLT
3 - RING GEAR
4 - CASE

(17) Install differential in housing and verify differential bearing preload, gear mesh and contact pattern. Refer to Adjustments for procedure.

(18) Install differential cover and fill with gear lubricant.

(19) Install the propeller shaft with the reference marks aligned.

(20) Remove supports and lower vehicle.

REAR AXLE - 226RBA

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REAR AXLE - 226RBA

DESCRIPTION

The Rear Beam-design Aluminum (RBA) axle housing has an aluminum center casting (differential housing) with axle shaft tubes extending from either side. The tubes are pressed into the differential housing to form a one-piece axle housing. The axle has semi-floating axle shafts, meaning that vehicle load is supported by the axle shaft and bearings.

OPERATION

The axle receives power from the transfer case through the front propeller shaft. The front propeller shaft is connected to the pinion gear which rotates the differential through the gear mesh with the ring gear bolted to the differential case. The engine power is transmitted to the axle shafts through the pinion mate and side gears. The side gears are splined to the axle shafts.

DIAGNOSIS AND TESTING

GEAR NOISE

Axle gear noise can be caused by insufficient lubricant, incorrect backlash, tooth contact, worn/damaged gears, or the carrier housing not having the proper offset and squareness.

Gear noise usually happens at a specific speed range. The noise can also occur during a specific type of driving condition. These conditions are acceleration, deceleration, coast, or constant load.

When road testing, first warm-up the axle fluid by driving the vehicle at least 5 miles and then accelerate the vehicle to the speed range where the noise is the greatest. Shift out-of-gear and coast through the peak-noise range. If the noise stops or changes greatly:

- Check for insufficient lubricant.
- Incorrect ring gear backlash.
- Gear damage.

REAR AXLE - 226RBA (Continued)

Differential side gears and pinions can be checked by turning the vehicle. They usually do not cause noise during straight-ahead driving when the gears are unloaded. The side gears are loaded during vehicle turns. A worn pinion mate shaft can also cause a snapping or a knocking noise.

BEARING NOISE

The axle shaft, differential and pinion bearings can all produce noise when worn or damaged. Bearing noise can be either a whining, or a growling sound.

Pinion bearings have a constant-pitch noise. This noise changes only with vehicle speed. Pinion bearing noise will be higher pitched because it rotates at a faster rate. Drive the vehicle and load the differential. If bearing noise occurs, the rear pinion bearing is the source of the noise. If the bearing noise is heard during a coast, the front pinion bearing is the source.

Worn or damaged differential bearings usually produce a low pitch noise. Differential bearing noise is similar to pinion bearing noise. The pitch of differential bearing noise is also constant and varies only with vehicle speed.

Axle shaft bearings produce noise and vibration when worn or damaged. The noise generally changes when the bearings are loaded. Road test the vehicle. Turn the vehicle sharply to the left and to the right. This will load the bearings and change the noise level. Where axle bearing damage is slight, the noise is usually not noticeable at speeds above 30 mph.

LOW SPEED KNOCK

Low speed knock is generally caused by a worn U-joint or by worn side–gear thrust washers. A worn pinion shaft bore will also cause low speed knock.

VIBRATION

Vibration at the rear of the vehicle is usually caused by a:

- Damaged drive shaft.
- Missing drive shaft balance weight(s).
- Worn or out-of-balance wheels.
- Loose wheel lug nuts.
- Worn U-joint(s).
- Loose/broken springs.
- Damaged axle shaft bearing(s).
- Loose pinion gear nut.
- Excessive pinion yoke run out.
- Bent axle shaft(s).

Check for loose or damaged front-end components or engine/transmission mounts. These components can contribute to what appears to be a rearend vibration. Do not overlook engine accessories, brackets and drive belts.

All driveline components should be examined before starting any repair.

(Refer to 22 - TIRES/WHEELS - DIAGNOSIS AND TESTING)

DRIVELINE SNAP

A snap or clunk noise when the vehicle is shifted into gear (or the clutch engaged), can be caused by:

- High engine idle speed.
- Transmission shift operation.
- Loose engine/transmission/transfer case mounts.
- Worn U-joints.
- Loose spring mounts.
- Loose pinion gear nut and yoke.
- Excessive ring gear backlash.
- Excessive side gear to case clearance.

The source of a snap or a clunk noise can be determined with the assistance of a helper. Raise the vehicle on a hoist with the wheels free to rotate. Instruct the helper to shift the transmission into gear. Listen for the noise, a mechanics stethoscope is helpful in isolating the source of a noise.

REAR AXLE - 226RBA (Continued)

DIAGNOSTIC CHART

Condition	Possible Causes	Correction
Wheel Noise	1. Wheel loose.	1. Tighten loose nuts.
	2. Faulty, brinelled wheel bearing.	2. Replace bearing.
Axle Shaft Noise	1. Misaligned axle tube.	1. Inspect axle tube alignment. Correct as necessary.
	2. Bent or sprung axle shaft.	2. Inspect and correct as necessary.
	3. End-play in pinion bearings.	3. Refer to pinion pre-load information and correct as necessary.
	4. Excessive gear backlash between the ring gear and pinion.	4. Check adjustment of the ring gear and pinion backlash. Correct as necessary.
	5. Improper adjustment of pinion gear bearings.	5. Adjust the pinion bearings pre-load.
	6. Loose pinion yoke nut.	6. Tighten the pinion yoke nut.
	7. Scuffed gear tooth contact surfaces.	7. Inspect and replace as necessary.
Axle Shaft Broke	1. Misaligned axle tube.	1. Replace the broken shaft after correcting tube mis-alignment.
	2 Vehicle overloaded.	2. Replace broken shaft and avoid excessive weight on vehicle.
	3. Erratic clutch operation.	3. Replace broken shaft and avoid or correct erratic clutch operation.
	4. Grabbing clutch.	4. Replace broken shaft and inspect and repair clutch as necessary.
Differential Cracked	1. Improper adjustment of the differential bearings.	1. Replace case and inspect gears and bearings for further damage. Set differential bearing pre-load properly.
	2. Excessive ring gear backlash.	2. Replace case and inspect gears and bearings for further damage. Set ring gear backlash properly.
	3. Vehicle overloaded.	3. Replace case and inspect gears and bearings for further damage. Avoid excessive vehicle weight.
	4. Erratic clutch operation.	4. Replace case and inspect gears and bearings for further damage. Avoid erratic use of clutch.

REAR AXLE - 226RBA (Continued)

Condition	Possible Causes	Correction
Differential Gears Scored	1. Insufficient lubrication.	1. Replace scored gears. Fill differential with the correct fluid type and quantity.
	2. Improper grade of lubricant.	2. Replace scored gears. Fill differential with the correct fluid type and quantity.
	3. Excessive spinning of one wheel/tire.	3. Replace scored gears. Inspect all gears, pinion bores, and shaft for damage. Service as necessary.
Loss Of Lubricant	1. Lubricant level too high.	1. Drain lubricant to the correct level.
	2. Worn axle shaft seals.	2. Replace seals.
	3. Cracked differential housing.	3. Repair as necessary.
	4. Worn pinion seal.	4. Replace seal.
	5. Worn/scored yoke.	5. Replace yoke and seal.
	6. Axle cover not properly sealed.	6. Remove, clean, and re-seal cover.
Axle Overheating	1. Lubricant level low.	1. Fill differential to correct level.
	2. Improper grade of lubricant.	2. Fill differential with the correct fluid type and quantity.
	3. Bearing pre-loads too high.	3. Re-adjust bearing pre-loads.
	4. Insufficient ring gear backlash.	4. Re-adjust ring gear backlash.
Gear Teeth Broke	1. Overloading.	1. Replace gears. Examine other gears and bearings for possible damage.
	2. Erratic clutch operation.	2. Replace gears and examine the remaining parts for damage. Avoid erratic clutch operation.
	3. Ice-spotted pavement.	3. Replace gears and examine remaining parts for damage.
	4. Improper adjustments.	4. Replace gears and examine remaining parts for damage. Ensure ring gear backlash is correct.

REAR AXLE - 226RBA (Continued)

Condition	Possible Causes	Correction
Axle Noise	1. Insufficient lubricant.	1. Fill differential with the correct fluid type and quantity.
	2. Improper ring gear and pinion adjustment.	2. Check ring gear and pinion contact pattern.
	3. Unmatched ring gear and pinion.	3. Replace gears with a matched ring gear and pinion.
	4. Worn teeth on ring gear and/or pinion.	4. Replace ring gear and pinion.
	5. Loose pinion bearings.	5. Adjust pinion bearing pre-load.
	6. Loose differential bearings.	6. Adjust differential bearing pre-load.
	7. Mis-aligned or sprung ring gear.	7. Measure ring gear run-out. Replace components as necessary.
	8. Loose differential bearing cap bolts.	8. Inspect differential components and replace as necessary. Ensure that the bearing caps are torqued tot he proper specification.
	9. Housing not machined properly.	9. Replace housing.

REMOVAL

(1) Raise and support the vehicle.
(2) Position a lifting device under the axle and secure axle.
(3) Remove the wheels and tires.
(4) Remove brake calipers and rotors.
(5) Disconnect parking brake cables from brackets and lever.
(6) Remove wheel speed sensors.
(7) Remove brake hose at the axle junction block. Do not disconnect the brake hydraulic lines at the calipers.
(8) Disconnect the vent hose from the axle shaft tube.
(9) Mark propeller shaft and yokes for installation reference.
(10) Remove propeller shaft.
(11) Disconnect stabilizer bar links.
(12) Remove upper suspension arm rear axle ball joint nut.
(13) Separate rear axle ball joint from the upper suspension arm with Remover 8278 (Fig. 1).
(14) Disconnect shock absorbers from axle.
(15) Disconnect track bar.
(16) Disconnect lower suspension arms from the axle brackets.
(17) Separate the axle from the vehicle.

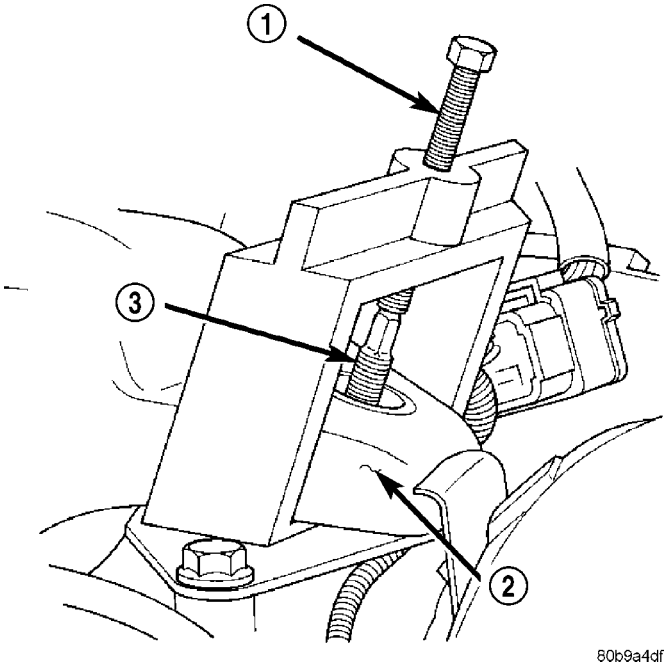


Fig. 1 REAR BALL JOINT

1 - REMOVER
2 - UPPER SUSPENSION ARM
3 - BALL JOINT STUD

INSTALLATION

CAUTION: The weight of the vehicle must be supported by the springs before suspension arms and track bar fasteners are tightened. If springs are not at their normal ride position, vehicle ride height and handling could be affected.

(1) Raise axle with lift and align coil springs.

REAR AXLE - 226RBA (Continued)

(2) Install lower suspension arms in axle brackets. Install nuts and bolts, do not tighten bolts at this time.

(3) Install upper suspension arm on rear axle ball joint.

(4) Install rear axle ball joint nut and tighten to 122 N·m (90 ft.lbs.) (Fig. 2).

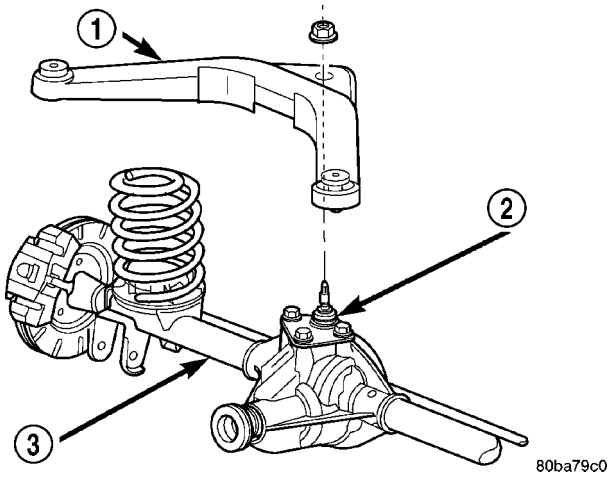


Fig. 2 REAR BALL JOINT NUT

1 - UPPER SUSPENSION ARM
2 - REAR AXLE BALL JOINT
3 - REAR AXLE

(5) Install track bar and attachment bolts, do not tighten bolts at this time.

(6) Install shock absorbers and tighten nuts to 60 N·m (44 ft. lbs.).

(7) Install stabilizer bar links and tighten nuts to 36 N·m (27 ft. lbs.).

(8) Install wheel speed sensors.

(9) Connect parking brake cable to brackets and lever.

(10) Install brake rotors and calipers.

(11) Install the brake hose to the axle junction block.

(12) Install axle vent hose.

(13) Align propeller shaft and pinion yoke reference marks. Install U-joint straps and nuts tighten to 19 N·m (14 ft. lbs.).

(14) Install the wheels and tires.

(15) Add gear lubricant, if necessary.

(16) Remove support and lower the vehicle.

(17) Tighten lower suspension arm bolts to 177 N·m (130 ft. lbs.).

(18) Tighten track bar bolts to 100 N·m (74 ft. lbs.).

ADJUSTMENTS

Ring and pinion gears are supplied as matched sets only. The identifying numbers for the ring and pinion gear are etched into the face of each gear (Fig. 3). A plus (+) number, minus (–) number or zero (0) is etched into the face of the pinion gear. This number is the amount (in thousandths of an inch) the depth varies from the standard depth setting of a pinion etched with a (0). The standard depth provides the best gear tooth contact pattern. Refer to Backlash and Contact Pattern in this section for additional information.

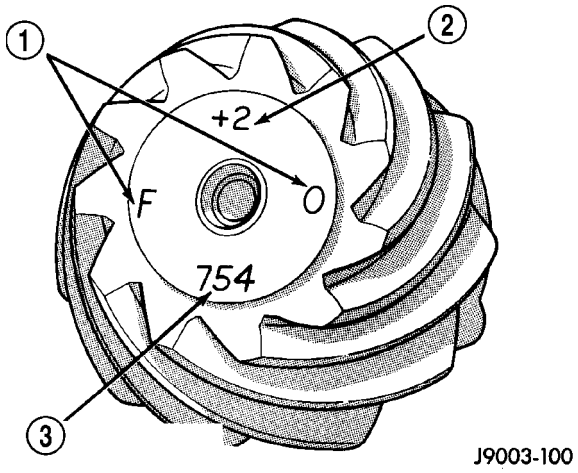


Fig. 3 PINION GEAR ID NUMBERS

1 - PRODUCTION NUMBERS
2 - DRIVE PINION GEAR DEPTH VARIANCE
3 - GEAR MATCHING NUMBER

Compensation for pinion depth variance is achieved with a select shim/oil baffle. The shims are placed between the rear pinion bearing and the pinion gear head (Fig. 4).

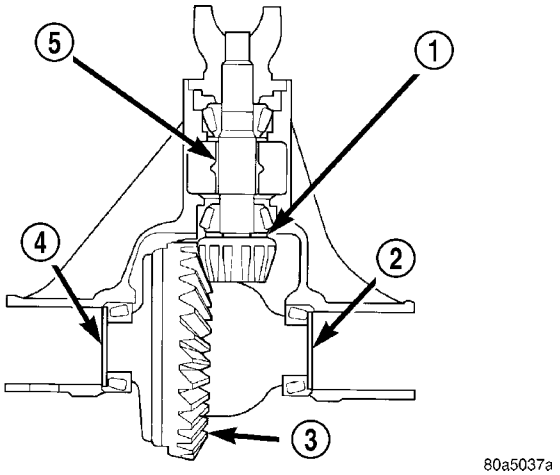


Fig. 4 ADJUSTMENT SHIM LOCATIONS

1 - PINION GEAR DEPTH SHIM
2 - DIFFERENTIAL BEARING SHIM
3 - RING GEAR
4 - DIFFERENTIAL BEARING SHIM
5 - COLLAPSIBLE SPACER

If a new gear set is being installed, note the depth variance etched into both the original and replacement pinion. Add or subtract this number from the

thickness of the original depth shim/oil slinger to compensate for the difference in the depth variances. Refer to the Pinion Gear Depth Variance chart.

Note where Old and New Pinion Marking columns intersect. Intersecting figure represents plus or minus the amount needed.

Note the etched number on the face of the pinion gear head (–1, –2, 0, +1, +2, etc.). The numbers represent thousands of an inch deviation from the standard. If the number is negative, add that value to the required thickness of the depth shims. If the number is positive, subtract that value from the thickness of the depth shim. If the number is 0 no change is necessary.

PINION GEAR DEPTH VARIANCE

Original Pinion Gear Depth Variance	Replacement Pinion Gear Depth Variance								
	−4	−3	−2	−1	0	+1	+2	+3	+4
+4	+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0
+3	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001
+2	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002
+1	+0.005	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003
0	+0.004	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004
−1	+0.003	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005
−2	+0.002	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006
−3	+0.001	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007
−4	0	−0.001	−0.002	−0.003	−0.004	−0.005	−0.006	−0.007	−0.008

PINION DEPTH MEASUREMENT

Measurements are taken with pinion bearing cups and pinion bearings installed in the housing. Take measurements with Pinion Gauge Set 6775 and Dial Indicator C-3339 (Fig. 5).

(1) Assemble Pinion Height Block 6739, Pinion Block 8144 and rear pinion bearing onto Screw 6741.

(2) Insert assembled height gauge components, rear bearing and screw into the housing through pinion bearing cups (Fig. 6).

(3) Install front pinion bearing and Cone-nut 6740 hand tight.

(4) Place Arbor Disc 6927A on Arbor D-115-3 in position in the housing side bearing cradles (Fig. 7). Install differential bearing caps in their original positions on arbor discs and tighten cap bolts to 85 N·m (63 ft. lbs.).

NOTE: Arbor Discs 6927A has different step diameters to fit other axles. Choose proper step for axle being serviced.

(5) Assemble Dial Indicator C-3339 into Scooter Block D-115-2 and secure set screw.

(6) Place Scooter Block/Dial Indicator in position in axle housing so dial probe and scooter block are flush against the rearward surface of the pinion height block (Fig. 5). Hold scooter block in place and zero the dial indicator face to the pointer.

(7) Slide the dial indicator probe across the gap between the pinion height block and the arbor bar with the scooter block against the pinion height block (Fig. 8). Continue moving the dial indicator probe to the crest of the arbor bar and record the highest reading.

(8) Select a depth shim equal to the dial indicator reading plus the pinion depth variance number etched in the face of the pinion (Fig. 3). For example, if the depth variance is –2, add +0.002 in. to the dial indicator reading.

REAR AXLE - 226RBA (Continued)

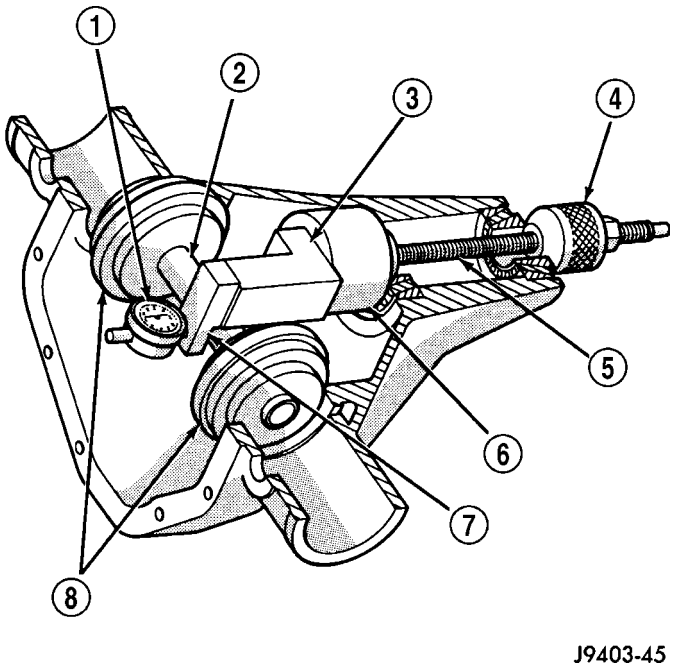


Fig. 5 PINION GEAR DEPTH GAUGE

1 - DIAL INDICATOR
2 - ARBOR
3 - PINION HEIGHT BLOCK
4 - CONE
5 - SCREW
6 - PINION BLOCK
7 - SCOOTER BLOCK
8 - ARBOR DISC

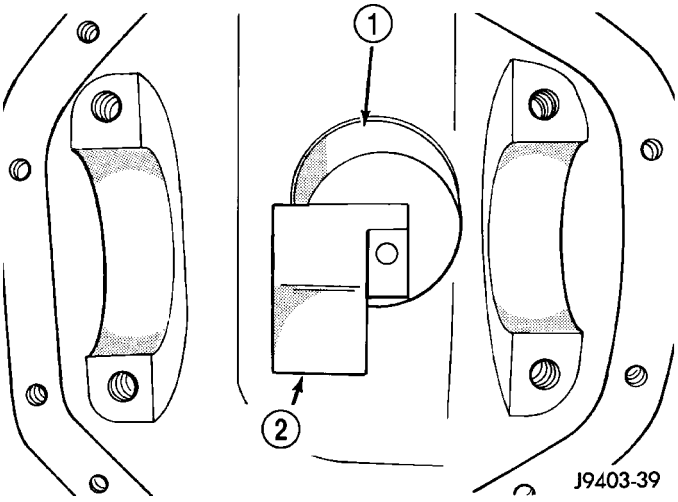


Fig. 6 PINION HEIGHT BLOCK

1 - PINION BLOCK
2 - PINION HEIGHT BLOCK

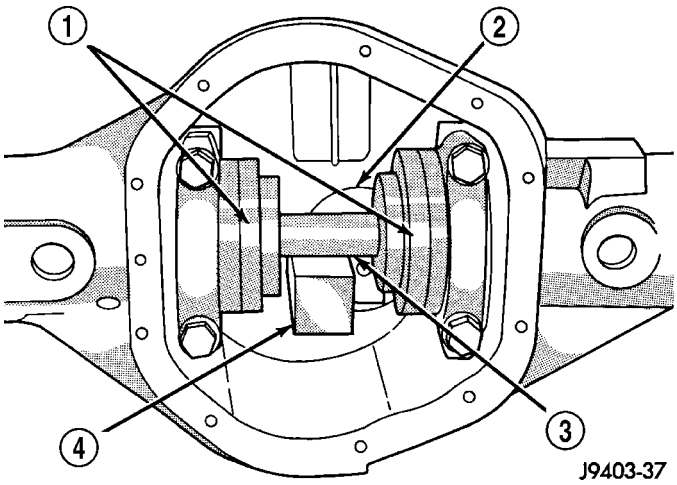


Fig. 7 GAUGE TOOLS IN HOUSING

1 - ARBOR DISC
2 - PINION BLOCK
3 - ARBOR
4 - PINION HEIGHT BLOCK

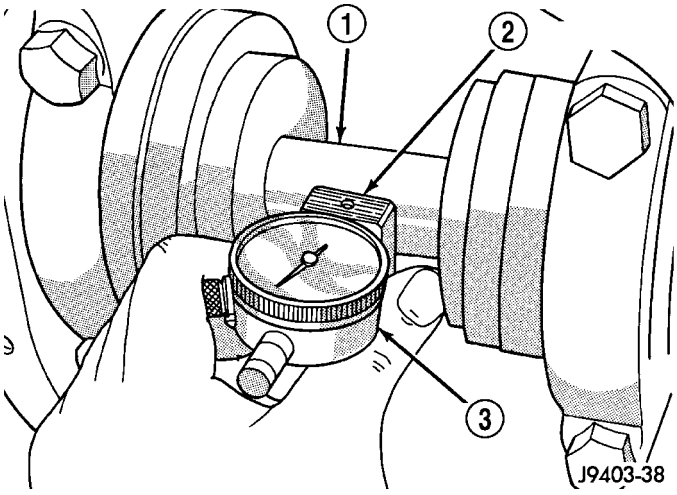


Fig. 8 PINION GEAR DEPTH MEASUREMENT

1 - ARBOR
2 - SCOOTER BLOCK
3 - DIAL INDICATOR

REAR AXLE - 226RBA (Continued)

DIFFERENTIAL BEARING PRELOAD & GEAR BACKLASH

Differential side bearing preload and gear backlash is achieved by selective shims positioned behind the differential side bearing cones. The proper shim thickness can be determined using slip-fit Dummy Bearings 6929-A in place of the differential side bearings and a Dial Indicator C-3339. Before proceeding with the differential bearing preload and gear backlash measurements, measure the pinion gear depth and prepare the pinion for installation. Establishing proper pinion gear depth is essential to establishing gear backlash and tooth contact patterns. After the overall shim thickness to take up differential side play is measured, the pinion is installed, and the gear backlash shim thickness is measured. The overall shim thickness is the total of the dial indicator reading and the preload specification added together. The gear backlash measurement determines the thickness of the shim used on the ring gear side of the differential case. Subtract the gear backlash shim thickness from the total overall shim thickness and select that amount for the pinion gear side of the differential (Fig. 9). Differential shim measurements are performed with the spreader W-129-B removed.

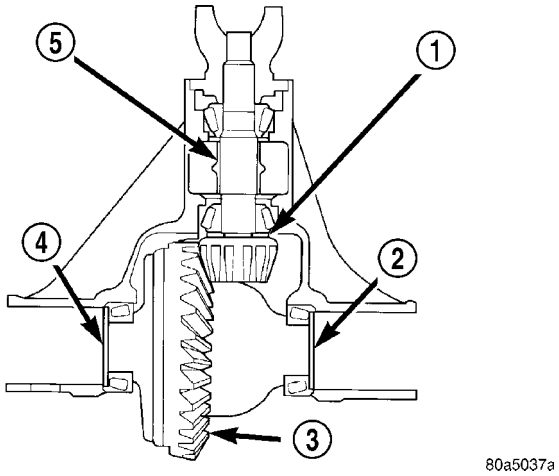


Fig. 9 ADJUSTMENT SHIM LOCATIONS

1 - PINION GEAR DEPTH SHIM
2 - DIFFERENTIAL BEARING SHIM
3 - RING GEAR
4 - DIFFERENTIAL BEARING SHIM
5 - COLLAPSIBLE SPACER

SHIM SELECTION

NOTE: It is difficult to salvage the differential side bearings during the removal procedure. Install replacement bearings if necessary.

(1) Remove differential side bearings from differential case.

(2) Install ring gear on differential case and tighten bolts to specification.

(3) Install Dummy Bearings 6929-A on differential case.

(4) Install differential case in the housing.

(5) Record the thickness of Dummy Shims 8107, then insert the shims between the dummy bearings and the differential housing (Fig. 10).

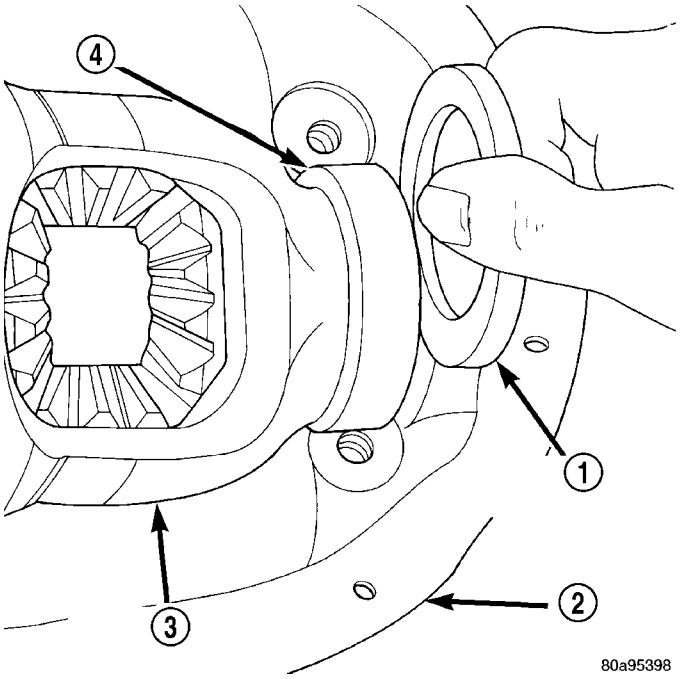


Fig. 10 DUMMY SHIM LOCATION

1 - DUMMY SHIMS
2 - HOUSING
3 - DIFFERENTIAL CASE
4 - DUMMY BEARINGS

(6) Install the bearing caps in their original positions and snug the bolts (Fig. 11).

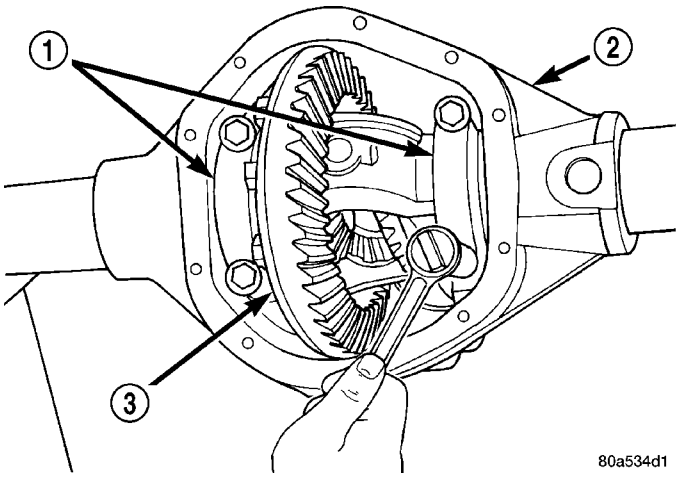


Fig. 11 BEARING CAP BOLTS

1 - BEARING CAPS
2 - HOUSING
3 - DIFFERENTIAL CASE

REAR AXLE - 226RBA (Continued)

(7) With a dead-blow hammer, seat the differential dummy bearings to each side of the housing (Fig. 12) and (Fig. 13).

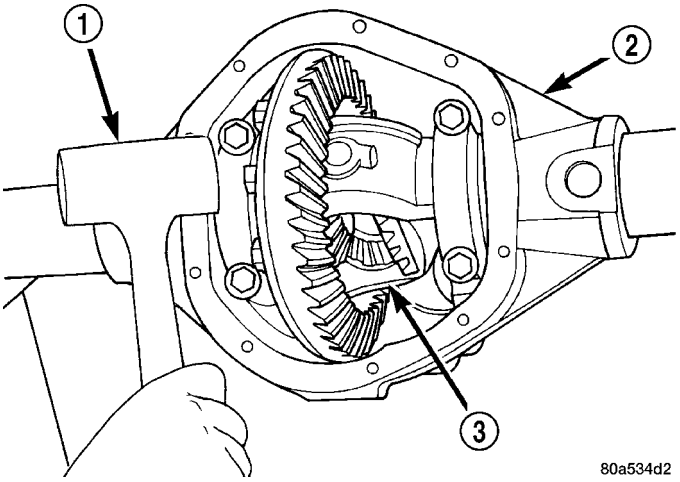


Fig. 12 SEAT DUMMY BEARING PINION GEAR SIDE

1 - HAMMER
2 - HOUSING
3 - DIFFERENTIAL CASE

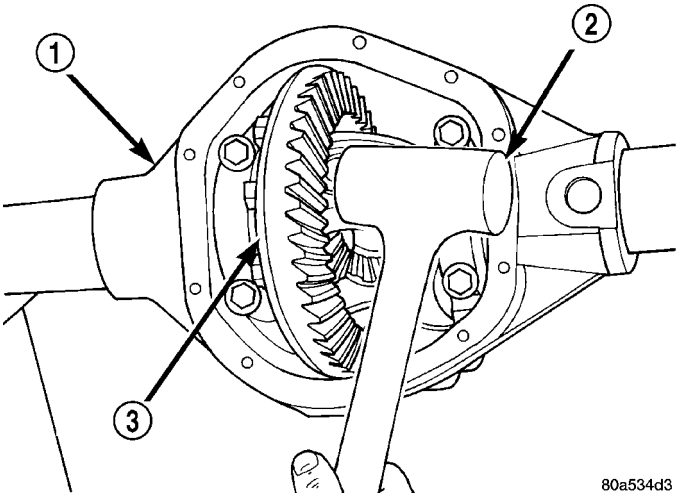


Fig. 13 SEAT DUMMY BEARING RING GEAR SIDE

1 - HOUSING
2 - HAMMER
3 - DIFFERENTIAL CASE

(8) Thread Pilot Stud C-3288-B into rear cover bolt hole below ring gear (Fig. 14).

(9) Attach the Dial Indicator C-3339 to pilot stud and position the indicator plunger on the flat surface between the ring gear bolts (Fig. 14).

(10) Push and hold differential case to pinion gear side of the housing and zero dial indicator (Fig. 15).

(11) Push and hold differential case to ring gear side of the housing and record dial indicator reading (Fig. 16).

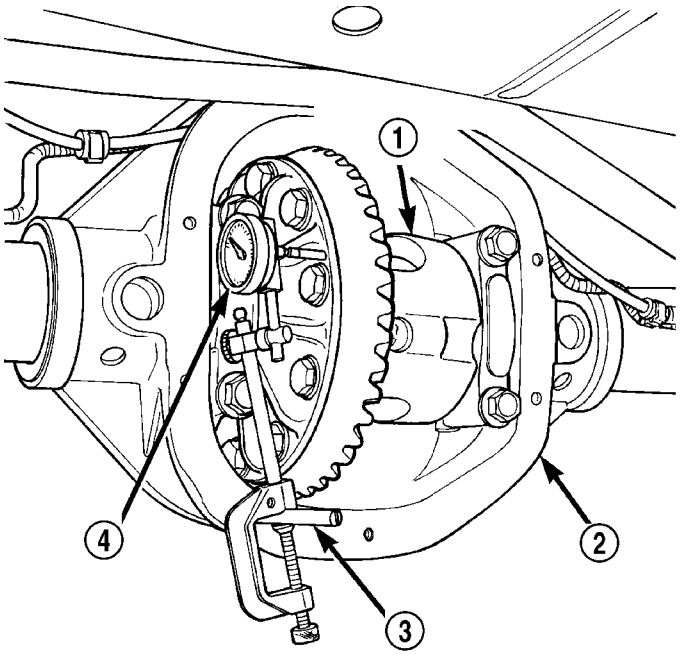


Fig. 14 DIFFERENTIAL SIDE PLAY MEASUREMENT

1 - DIFFERENTIAL CASE
2 - HOUSING
3 - PILOT STUD
4 - DIAL INDICATOR

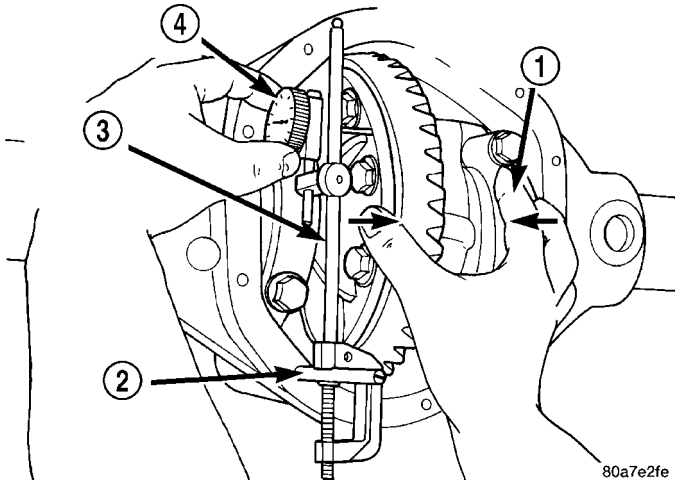


Fig. 15 ZERO DIAL INDICATOR

1 - HOLD DIFFERENTIAL CASE TO PINION GEAR SIDE
2 - PILOT STUD
3 - DIAL INDICATOR
4 - DIAL INDICATOR FACE

(12) Add 0.0254 mm (0.001 in.) to the zero end play total. This new total represents the thickness of shims to preload the new bearings when the differential is installed.

(13) Rotate dial indicator out of the way on the pilot stud.

(14) Remove differential case and dummy bearings from the housing.

REAR AXLE - 226RBA (Continued)

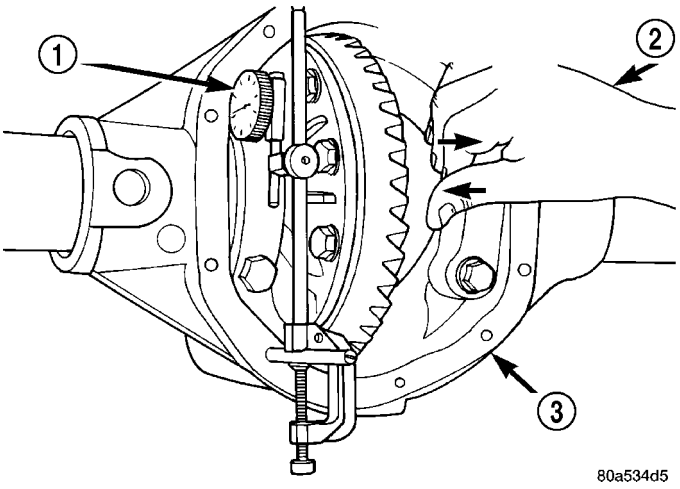


Fig. 16 RECORD DIAL INDICATOR READING

1 - DIAL INDICATOR
2 - HOLD DIFFERENTIAL CASE TO RING GEAR SIDE
3 - DIFFERENTIAL HOUSING

(15) Install the pinion gear in the housing. Install the pinion yoke and establish the correct pinion rotating torque.

(16) Install differential case and Dummy Bearings 6929-A in the housing.

(17) Install a single dummy shim in the ring gear side. Install bearing caps and tighten bolts snug.

(18) Seat ring gear side dummy bearing.

(19) Position the dial indicator plunger on a flat surface between the ring gear bolt heads. (Fig. 14).

(20) Push and hold differential case toward pinion gear and zero dial indicator (Fig. 17).

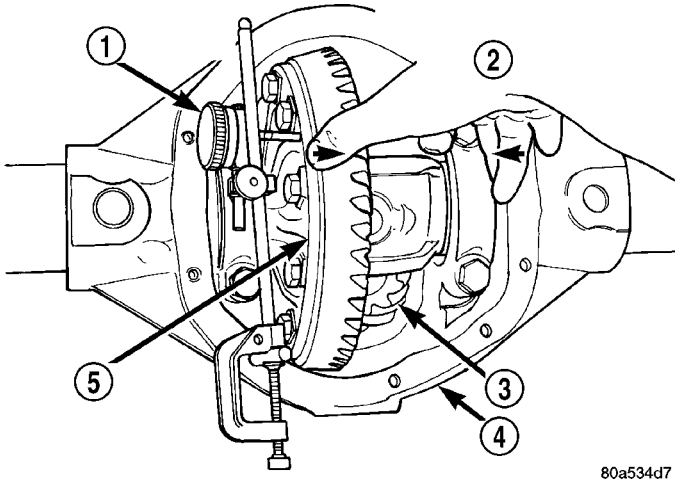


Fig. 17 ZERO DIAL INDICATOR

1 - DIAL INDICATOR FACE
2 - HOLD DIFFERENTIAL CASE TO PINION GEAR SIDE
3 - PINION GEAR
4 - HOUSING
5 - DIFFERENTIAL CASE

(21) Push and hold differential case to ring gear side of the housing and record dial indicator reading (Fig. 18). Add Dummy Shim thickness to this reading. This will be the total shim thickness to achieve zero backlash.

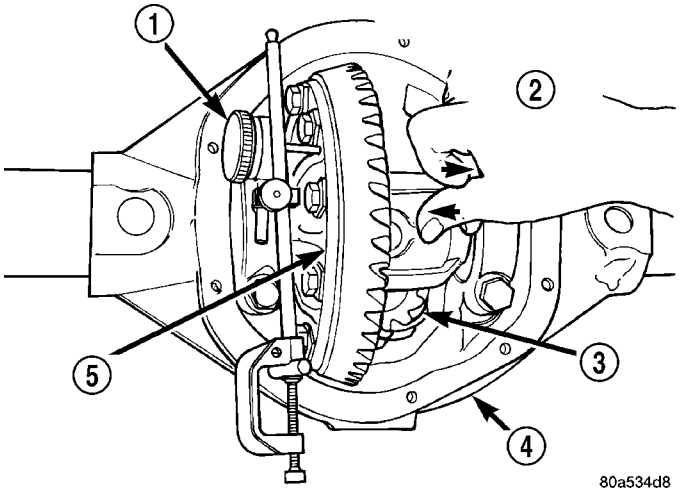


Fig. 18 RECORD DIAL INDICATOR READING

1 - READ DIAL INDICATOR
2 - HOLD DIFFERENTIAL CASE TO RING GEAR SIDE
3 - PINION GEAR
4 - DIFFERENTIAL HOUSING
5 - DIFFERENTIAL CASE

(22) Subtract 0.152 mm (0.006 in.) from the dial indicator reading to compensate for backlash between ring and pinion gears. This total is the thickness shim required to achieve proper backlash.

(23) Subtract backlash shim thickness from the total preload shim thickness. The remainder is the shim thickness required on the pinion side of the housing.

(24) Rotate dial indicator out of the way on pilot stud.

(25) Remove differential case and dummy bearings from the housing.

(26) Install side bearings and cups on differential case.

(27) Install spreader W-129-B, utilizing some items from Adapter Set 6987, on the housing and spread axle opening enough to receive differential case.

(28) Place the bearing preload shims in the housing against the axle tubes.

(29) Install differential case into the housing.

(30) Remove spreader from housing.

(31) Rotate the differential case several times to seat the side bearings.

(32) Position the indicator plunger against a ring gear tooth (Fig. 19).

(33) Push and hold ring gear upward while not allowing the pinion gear to rotate.

(34) Zero dial indicator face to pointer.

(35) Push and hold ring gear downward while not allowing the pinion gear to rotate. Dial indicator reading should be between 0.076 mm (0.003 in.) and 0.15 mm (0.006 in.). If backlash is not within specifications transfer the necessary amount of shim thickness from one side of the housing to the other (Fig. 20).

(36) Verify differential case and ring gear runout by measuring ring to pinion gear backlash at eight locations around the ring gear. Readings should not vary more than 0.05 mm (0.002 in.). If readings vary more than specified, the ring gear or the differential case is defective.

After the proper backlash is achieved, perform Gear Contact Pattern procedure.

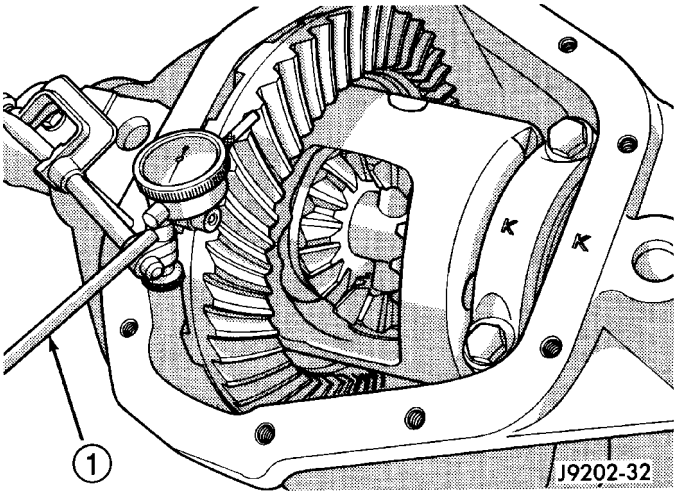


Fig. 19 RING GEAR BACKLASH

1 - DIAL INDICATOR

GEAR CONTACT PATTERN

The ring gear and pinion teeth contact patterns will show if the pinion depth is correct in the axle housing. It will also show if the ring gear backlash has been adjusted correctly. The backlash can be adjusted within specifications to achieve desired tooth contact patterns.

(1) Apply a thin coat of hydrated ferric oxide or equivalent to the drive and coast side of the ring gear teeth.

(2) Wrap, twist and hold a shop towel around the pinion yoke to increase the turning resistance of the pinion. This will provide a more distinct contact pattern.

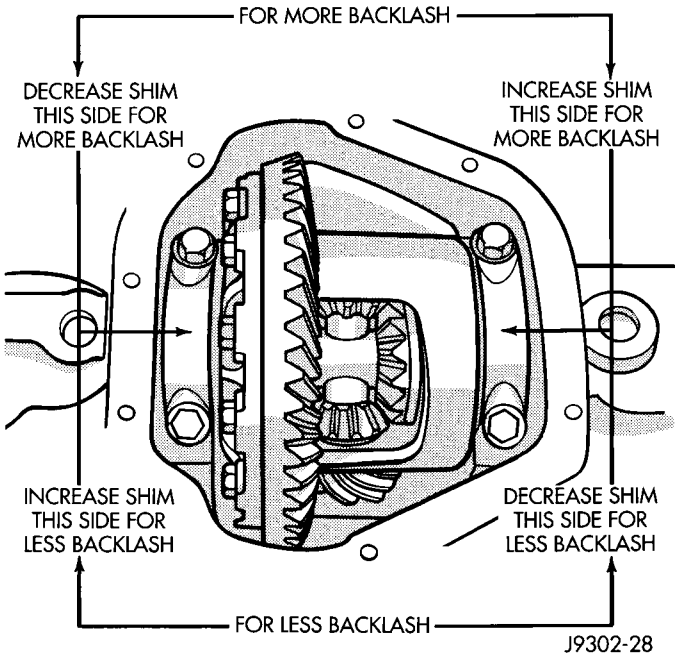


Fig. 20 BACKLASH SHIM ADJUSTMENT

(3) With a boxed end wrench on a ring gear bolt, rotate the differential case one complete revolution in both directions while a load is being applied from shop towel.

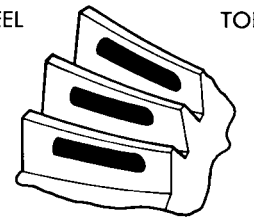
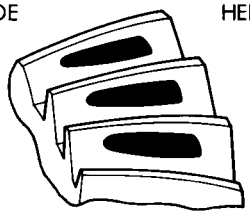
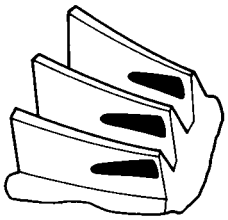
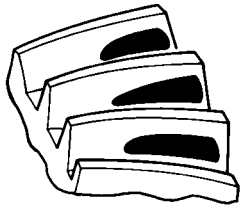
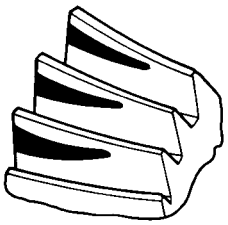
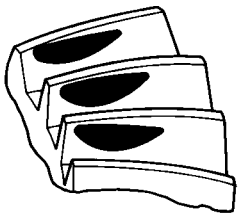
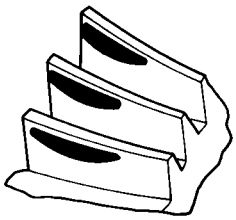
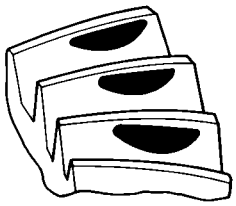
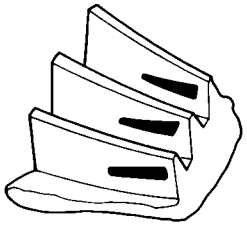
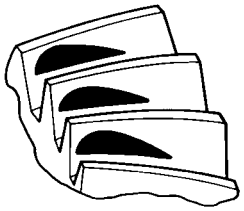
The areas on the ring gear teeth with the greatest degree of contact against the pinion teeth will squeegee the compound to the areas with the least amount of contact. Note and compare patterns on the ring gear teeth to Gear Tooth Contact Patterns chart (Fig. 21) and adjust pinion depth and gear backlash as necessary.

DIFFERENTIAL BEARING PRELOAD CHECK

The final check on the differential assembly before installing the axles is torque to rotate pinion and differential combined. This will verify the correct differential bearing preload.

Torque to rotate the differential and pinion should be the torque to rotate the pinion plus 0.79-1.24 N·m (7-11 in. lbs.).

REAR AXLE - 226RBA (Continued)

DRIVE SIDE OF RING GEAR TEETH	COAST SIDE OF RING GEAR TEETH	
HEEL TOE 	TOE HEEL 	DESIRABLE CONTACT PATTERN. PATTERN SHOULD BE CENTERED ON THE DRIVE SIDE OF TOOTH. PATTERN SHOULD BE CENTERED ON THE COAST SIDE OF TOOTH, BUT MAY BE SLIGHTLY TOWARD THE TOE. THERE SHOULD ALWAYS BE SOME CLEARANCE BETWEEN CONTACT PATTERN AND TOP OF THE TOOTH.
		RING GEAR BACKLASH CORRECT. **THINNER** PINION GEAR DEPTH SHIM REQUIRED.
		RING GEAR BACKLASH CORRECT. **THICKER** PINION GEAR DEPTH SHIM REQUIRED.
		PINION GEAR DEPTH SHIM CORRECT. **DECREASE** RING GEAR BACKLASH.
		PINION GEAR DEPTH SHIM CORRECT. **INCREASE** RING GEAR BACKLASH.

J9003-24

Fig. 21 GEAR CONTACT PATTERNS

REAR AXLE - 226RBA (Continued)

SPECIFICATIONS

AXLE SPECIFICATIONS

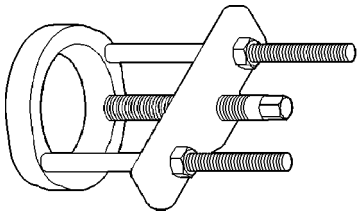
DESCRIPTION	SPECIFICATION
Axle Ratio	3.55, 3.73
Differential Bearing Preload	0.025 mm (0.001 in.)
Ring Gear Diameter	226 mm (8.9 in.)
Ring Gear Backlash	0.076.-0.15 mm (0.003-0.006 in.)
Pinion Bearing Preload - Original Bearings	1-2 N·m (10-20 in. lbs.)
Pinion Bearing Preload - New Bearings	2.8-4 N·m (25-35 in. lbs.)

TORQUE SPECIFICATIONS

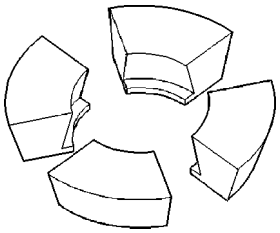
DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Differential Cover Bolts	41	30	-
Bearing Cap Bolts	85	63	-
Ring Gear Bolts	136	100	-
Pinion Nut Min / Max	298-380	220-280	-
Pinion Mate Shaft Screw	17.6	13	-
Axle Bearing Retainer Plate Nuts	61	45	-

REAR AXLE - 226RBA (Continued)

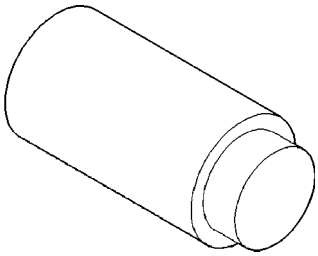
SPECIAL TOOLS



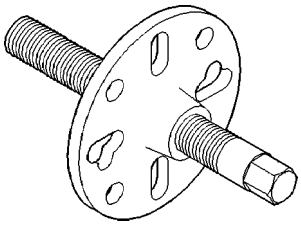
PULLER C-293-PA



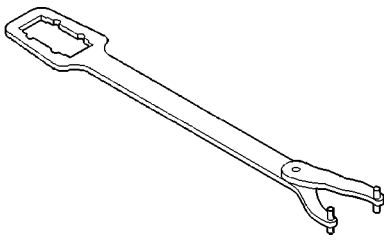
ADAPTER 8353



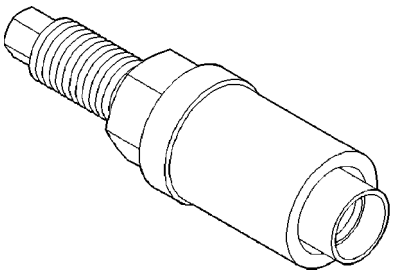
PLUG C-293-3



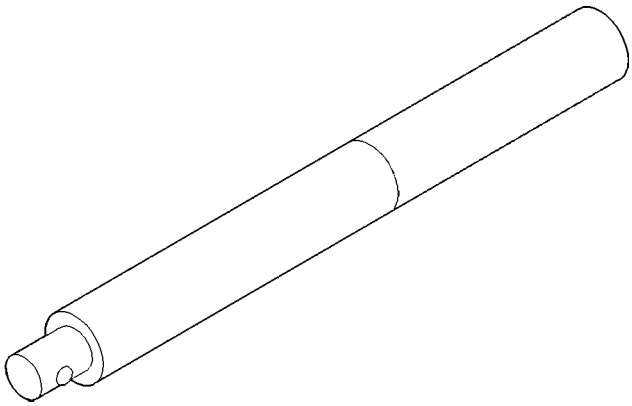
PULLER C-452



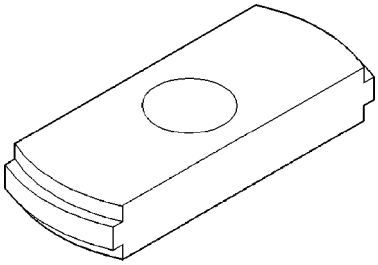
FLANGE WRENCH C-3281



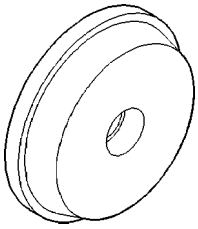
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HANDLE C-4171

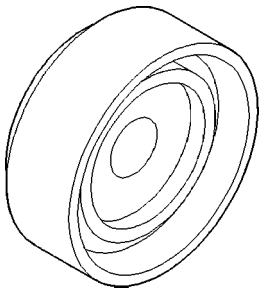


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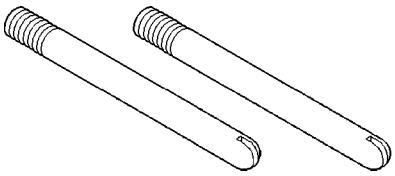


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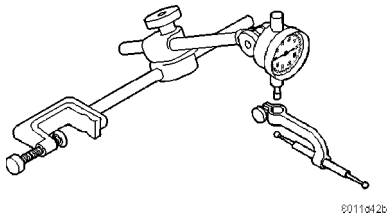
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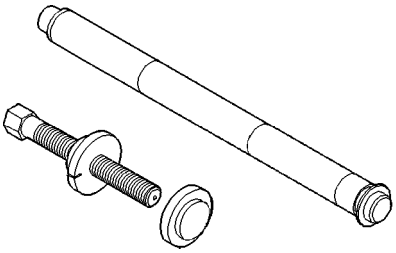
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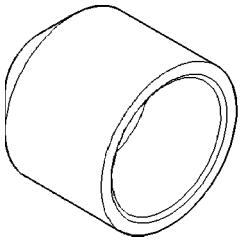
PILOT STUDS C-3288-B



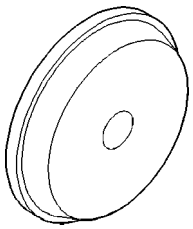
DIAL INDICATOR C-3339



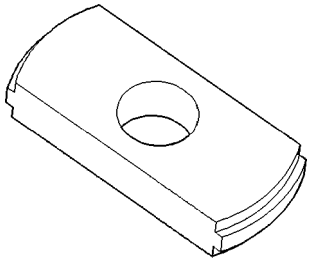
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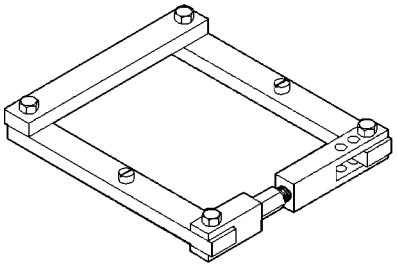
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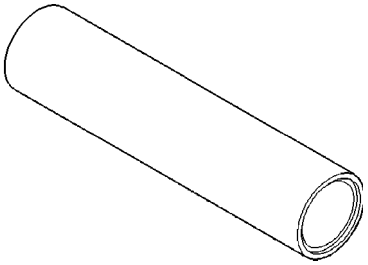
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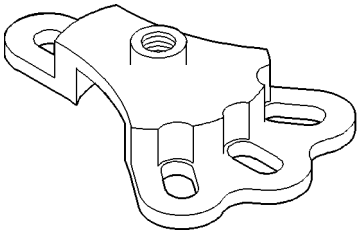
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SPREADER W-129-B

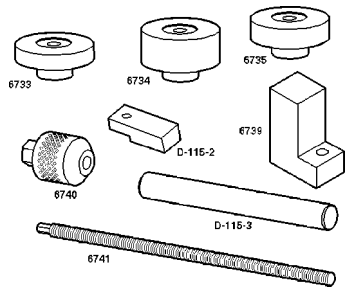


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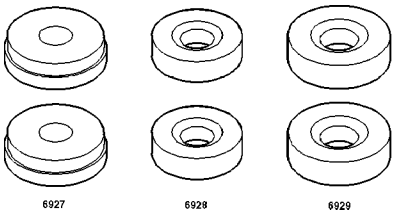


PULLER 6790

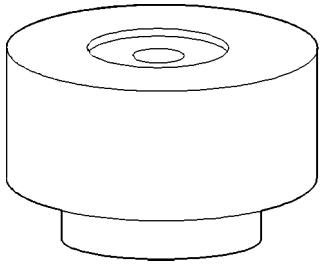
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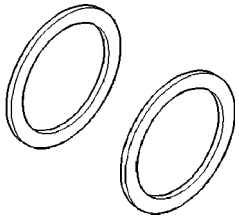
PINION DEPTH SET 6955



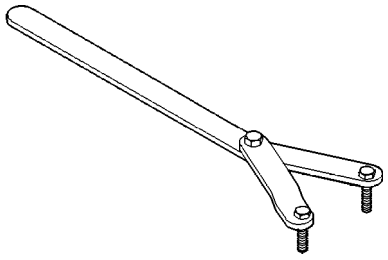
DIFFERENTIAL TOOL SET 6956



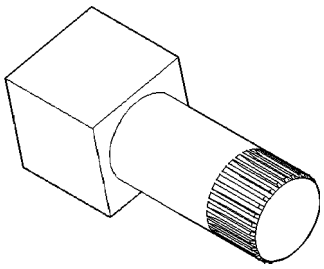
PINION BLOCK 8144



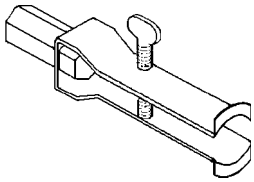
DUMMY SHIMS 8107



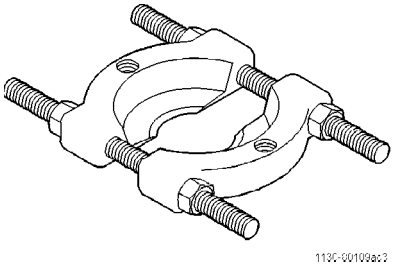
SPANNER WRENCH 6958



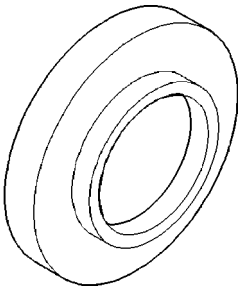
FIXTURE 6963



REMOVER 7794-A



SPLITTER 1130



INSTALLER 7913-A

AXLE SHAFTS

REMOVAL

(1) Place transmission in neutral.
(2) Raise and support vehicle.
(3) Remove wheel and tire assembly.
(4) Remove brake caliper and rotor.
(5) Remove nuts holding axle retainer plate to axle tube from the rear of the axle flange.
(6) Pull axle shaft from the axle with Slide Hammer 7420 and Puller 6790. Mount the adapter to the axle with lug nuts.

NOTE: The axle bearing race is normally loose in the axle tube.

INSTALLATION

(1) Insall axle into the axle tube with the flat area of the retainer plate upward.
(2) Insert retaining plate studs into the brake backing plate and axle tube flange.
(3) Install retainer nuts and tighten nuts to 61 N·m (45 ft. lbs.).
(4) Install the brake rotor and caliper.
(5) Install wheel and tire.
(6) Check and fill the differential with gear lubricant.
(7) Lower vehicle.

AXLE BEARINGS/SEALS

REMOVAL

(1) Remove axle shaft from vehicle.

NOTE: The axle bearing race is normally loose in the axle tube.

(2) Drill a shallow hole into soft steel axle bearing retaining ring with a 3/8 in. drill bit (Fig. 22). Use a drill depth stop to avoid marking the axle.
(3) With a cold chisel cut the retaining ring across drilled hole. (Fig. 23)
(4) Slide retaining ring from axle shaft.
(5) Remove axle bearing from the shaft with, a press and Splitter 1130 placed between the seal and bearing (Fig. 24).
(6) Remove seal from axle.
(7) Remove retaining plate from axle shaft.

INSTALLATION

(1) Verify axle shaft retaining plate is flat with a straight edge.

NOTE: If the plate is warped or the studs are loose in the plate replace the retaining plate.

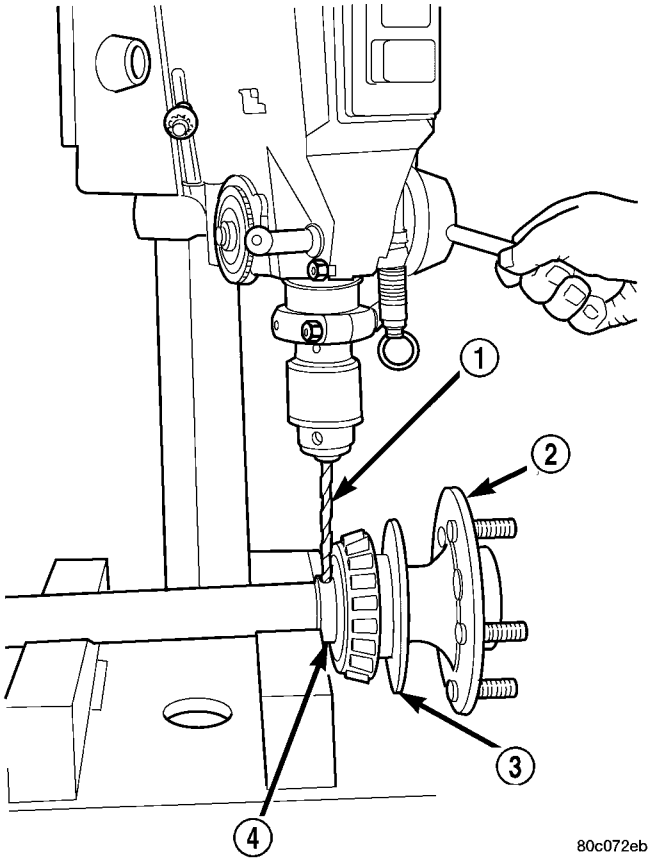


Fig. 22 DRILL RETAINING RING

1 - DRILL BIT
2 - AXLE
3 - RETAINING PLATE
4 - RETAINING RING

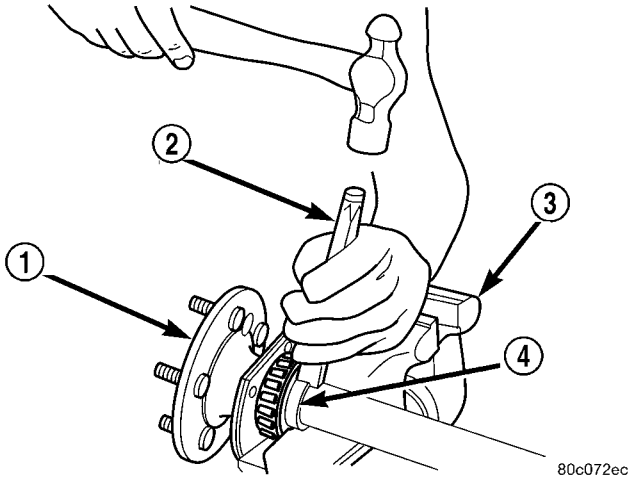


Fig. 23 RETAINING RING

1 - AXLE
2 - COLD CHISEL
3 - VISE
4 - RETAINING RING

(2) Install retaining plate on the axle shaft (Fig. 25).

AXLE BEARINGS/SEALS (Continued)

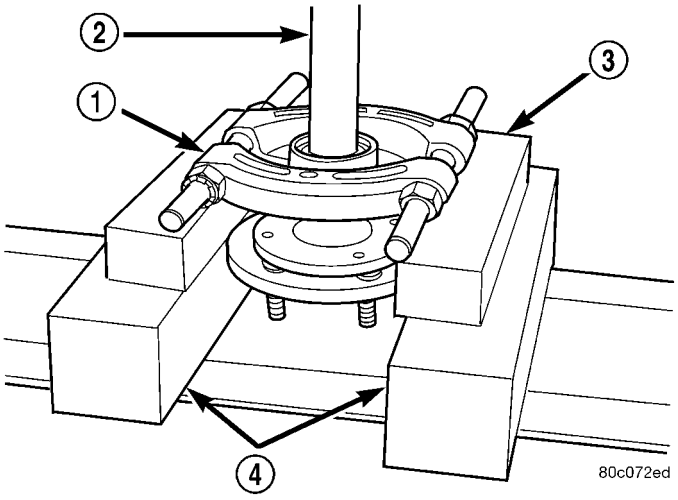


Fig. 24 AXLE BEARING AND SEAL

1 - SPLITTER
2 - AXLE
3 - BLOCKS
4 - PRESS PLATES

(3) Apply a coat of multi-purpose grease on sealing surface of axle seal.

(4) Install seal on the axle shaft with cavity away from retaining plate (Fig. 25).

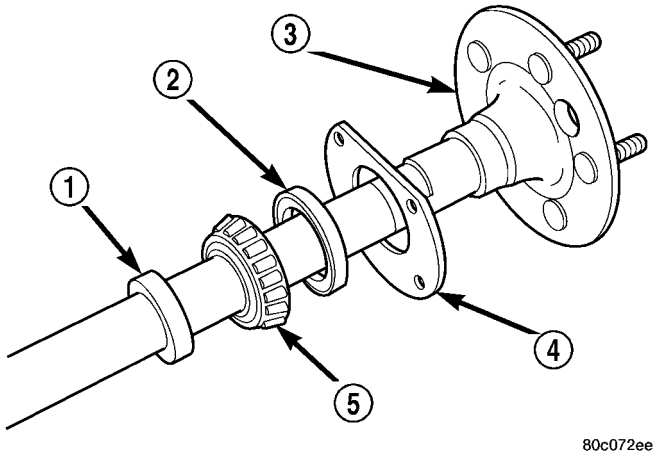


Fig. 25 AXLE BEARING AND SEAL COMPONENTS

1 - RETAINING RING
2 - SEAL
3 - AXLE
4 - RETAINING PLATE
5 - AXLE BEARING

(5) Lubricate bearing with Mopar Wheel Bearing Grease or equivalent. Wipe excess grease from the bearing.

(6) Install bearing on the axle shaft with Installer 7913-A and a press (Fig. 26).

(7) Press metal retaining ring onto axle shaft with Installer 7913-A and a press (Fig. 27).

(8) Install axle in vehicle.

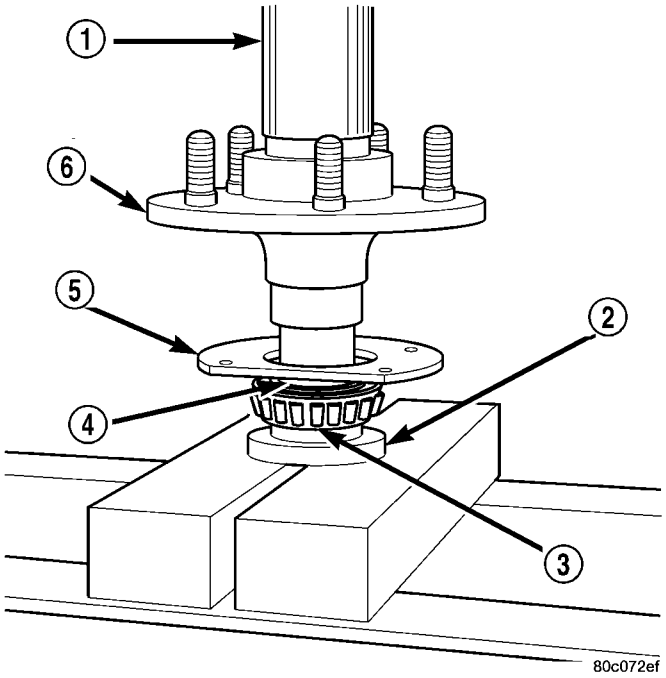


Fig. 26 PRESS BEARING ON AXLE

1 - PRESS RAM
2 - INSTALLER
3 - AXLE BEARING
4 - SEAL
5 - RETAINING PLATE
6 - AXLE

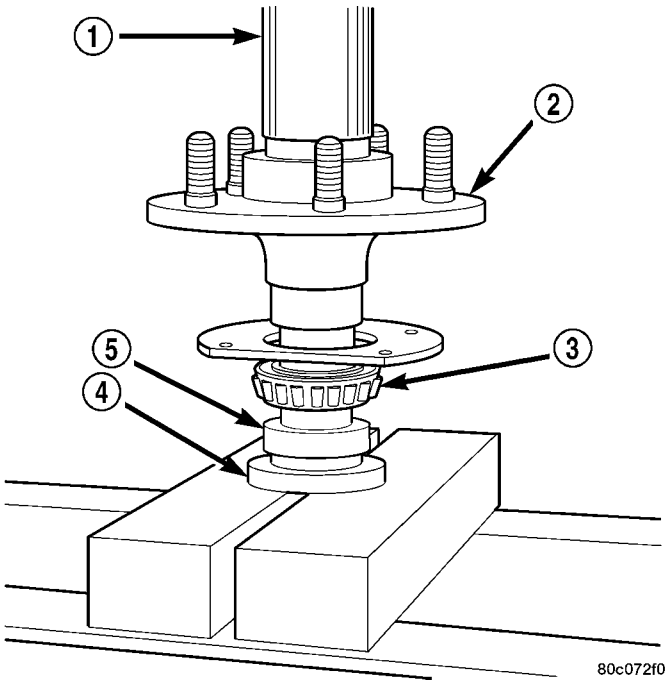


Fig. 27 BEARING RETAINING RING

1 - PRESS
2 - AXLE
3 - AXLE BEARING
4 - INSTALLER
5 - METAL RETAINING RING

PINION SEAL

REMOVAL

(1) Raise and support the vehicle.
(2) Remove wheel and tire assemblies.
(3) Remove rear brake calipers and rotors.
(4) Mark propeller shaft and pinion yoke for installation reference.
(5) Remove the propeller shaft from the yoke.
(6) Rotate pinion gear three or four times and verify that pinion rotates smoothly.
(7) Record torque necessary to rotate the pinion gear with a inch pound dial-type torque wrench.
(8) Using a short piece of pipe and Spanner Wrench 6958 to hold the pinion yoke and remove pinion nut and washer (Fig. 28).

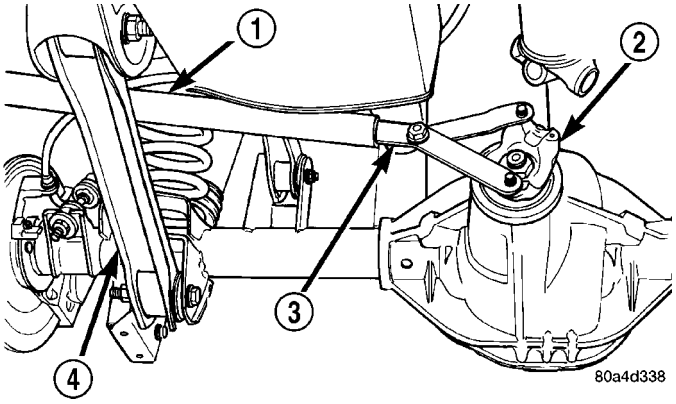


Fig. 28 Pinion Yoke Holder

1 - PIPE
2 - PINION YOKE
3 - SPANNER WRENCH
4 - LOWER CONTROL ARM

(9) Remove pinion companion flange with Remover C-452 and Flange Wrench C-3281. (Fig. 29)
(10) Remove pinion seal with Remover 7794-A and a slide hammer (Fig. 30).

INSTALLATION

(1) Apply a light coating of gear lubricant on the lip of pinion seal. Install seal with an appropriate in installer (Fig. 31).
(2) Install yoke on the pinion gear with Installer C-3718 and Spanner Wrench 6958 (Fig. 32).
(3) Install a **new** nut on the pinion gear. **Tighten the nut only enough to remove the shaft end play.**

CAUTION: Do not exceed the minimum tightening torque 298 N·m (220 ft. lbs.) when installing the pinion yoke retaining nut at this point. Damage to bearings may result.

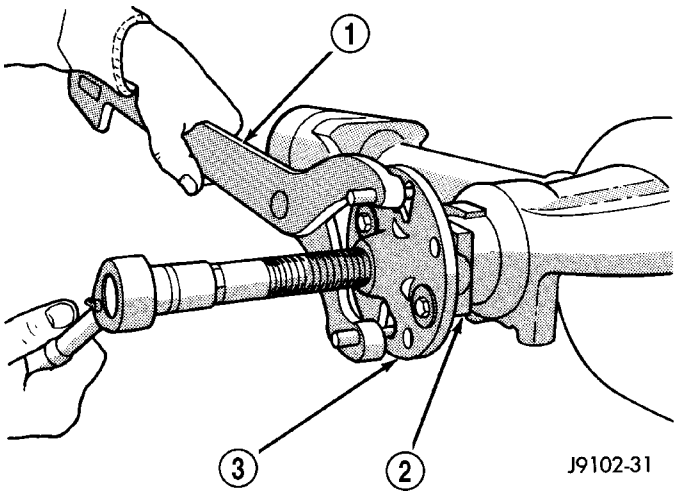


Fig. 29 Pinion Yoke Remover

1 - FLANGE WRENCH
2 - YOKE
3 - YOKE PULLER

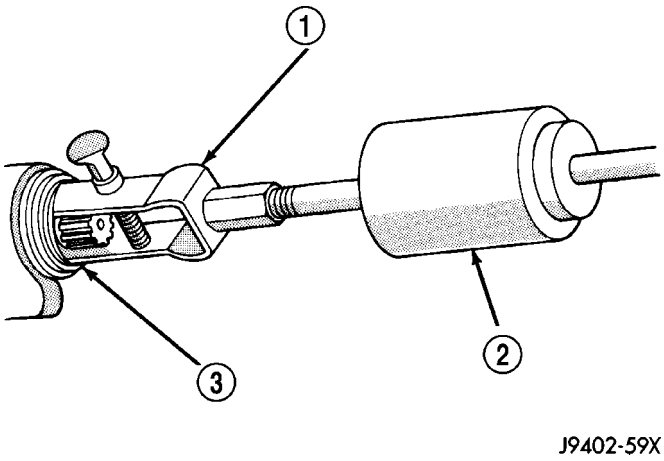


Fig. 30 Pinion Seal Remover

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

(4) Rotate the pinion a minimum of ten times and verify pinion rotates smoothly. Rotate the pinion shaft using an inch pound torque wrench. Rotating torque should be equal to the reading recorded during removal, plus 0.56 N·m (5 in. lbs.) (Fig. 33).
(5) If rotating torque is low, use Wrench 6958 to hold the pinion yoke (Fig. 34) and tighten the pinion shaft nut in 6.8 N·m (5 ft. lbs.) increments until rotating torque is achieved.

PINION SEAL (Continued)

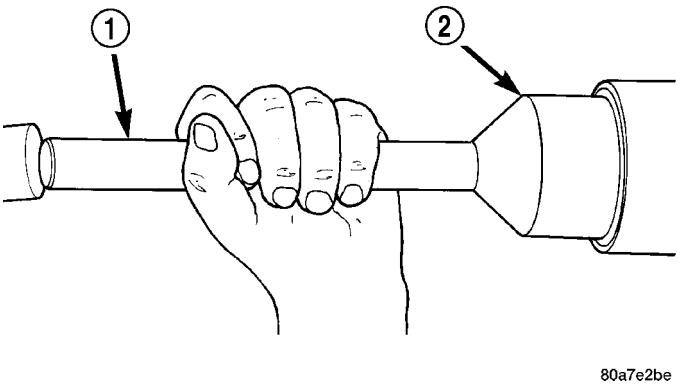


Fig. 31 PINION SEAL INSTALLER

1 - HANDLE
2 - INSTALLER

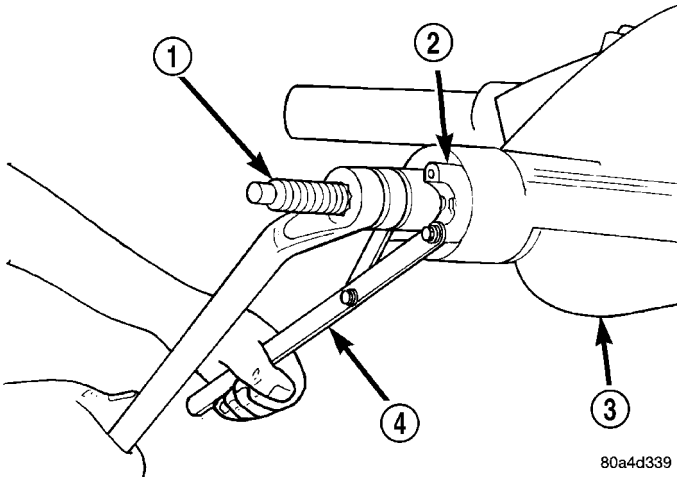


Fig. 32 PINION YOKE INSTALLER

1 - INSTALLER
2 - PINION YOKE
3 - DIFFERENTIAL HOUSING
4 - SPANNER WRENCH

CAUTION: If the maximum tightening torque is reached prior to reaching the required rotating torque, the collapsible spacer may have been damaged. Replace the collapsible spacer.

(6) Install propeller shaft with reference marks aligned.
(7) Fill differential with gear lubricant.
(8) Install the brake rotors and calipers.
(9) Install wheel and tire assemblies.
(10) Lower the vehicle.

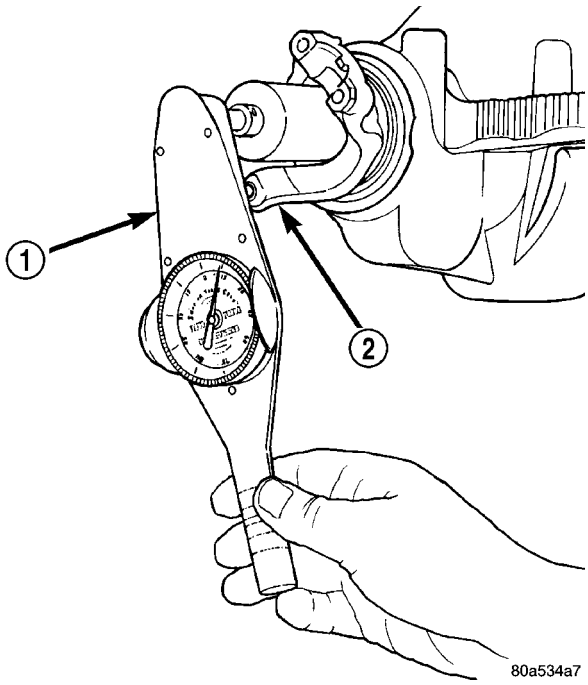


Fig. 33 PINION ROTATING TORQUE

1 - TORQUE WRENCH
2 - PINION YOKE

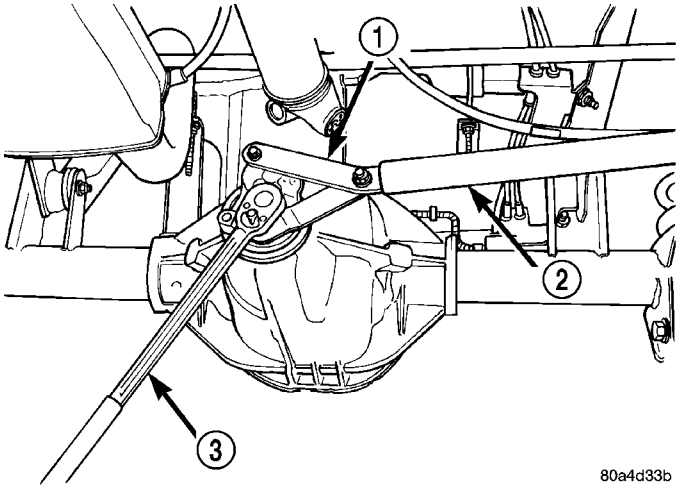


Fig. 34 PINION SHAFT NUT

1 - SPANNER WRENCH
2 - PIPE
3 - TORQUE WRENCH

COLLAPSIBLE SPACER

REMOVAL

(1) Raise and support the vehicle.
(2) Remove wheel and tire assemblies.
(3) Remove rear brake calipers and rotors.
(4) Mark propeller shaft and pinion yoke for installation reference and remove propeller shaft.
(5) Rotate pinion gear a minimum of ten times and verify pinion rotates smoothly.
(6) Record rotate torque of the pinion gear, with an inch pound torque wrench.
(7) Hold pinion yoke with Spanner Wrench 6958 and remove pinion nut and washer (Fig. 35).

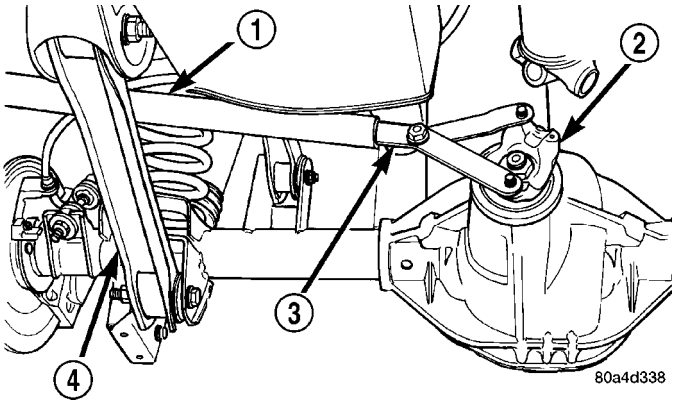


Fig. 35 PINION YOKE HOLDER

1 - 1 in. PIPE
2 - PINION YOKE
3 - SPANNER WRENCH
4 - LOWER CONTROL ARM

(8) Remove pinion yoke with Remover C-452 and Wrench C-3281 (Fig. 36).

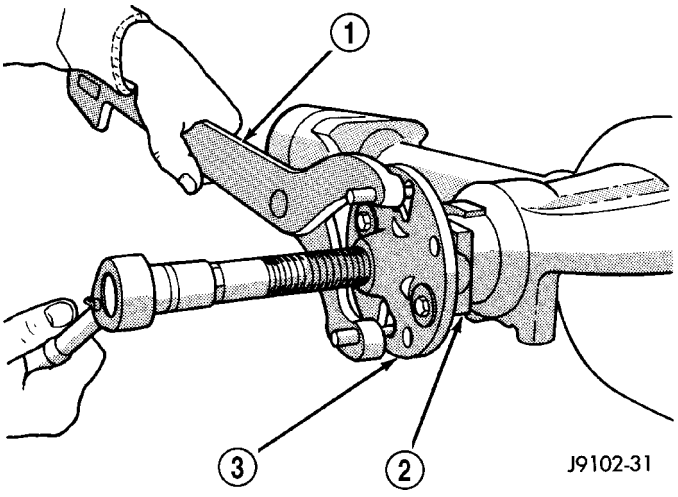


Fig. 36 PINION YOKE PULLER

1 - WRENCH
2 - PINION YOKE
3 - PULLER

(9) Remove pinion shaft seal with Remover 7794-A and slide hammer (Fig. 37).

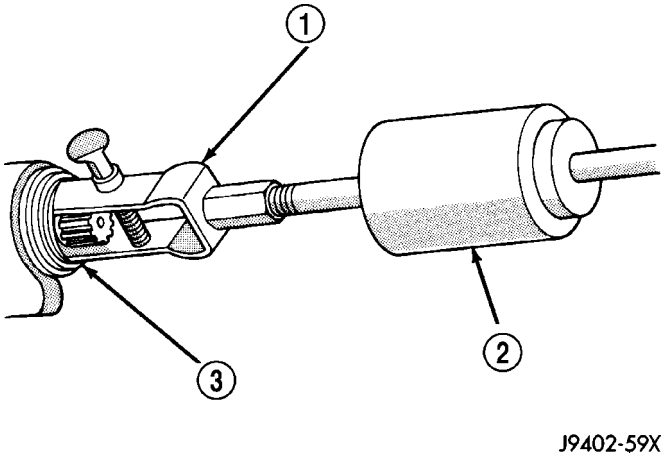


Fig. 37 PINION SEAL REMOVER

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

(10) Remove front pinion bearing using a pair of pick tools to pull the bearing off the pinion gear shaft.

NOTE: If the pinion bearing becomes bound on the pinion shaft, lightly tap the end of the shaft with a rawhide/rubber mallet.

(11) Remove the collapsible spacer.

INSTALLATION

(1) Install a **new** collapsible spacer on pinion shaft.
(2) Install pinion front bearing on the pinion shaft.
(3) Apply a light coating of gear lubricant on the lip of pinion seal and install seal with an appropriate installer (Fig. 38).

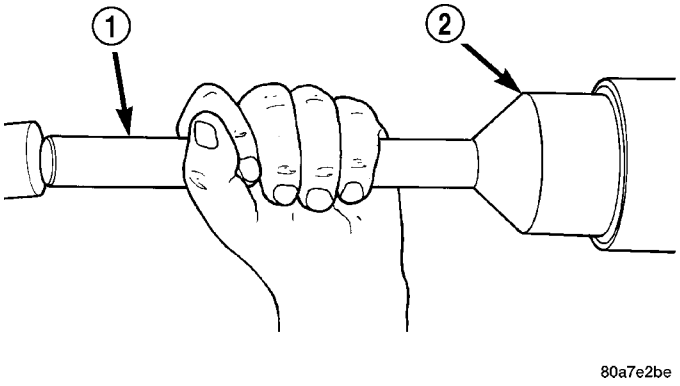


Fig. 38 PINION SEAL INSTALLER

1 - HANDLE
2 - INSTALLER

COLLAPSIBLE SPACER (Continued)

(4) Install yoke with Installer C-3718 and Spanner Wrench 6958 (Fig. 39).

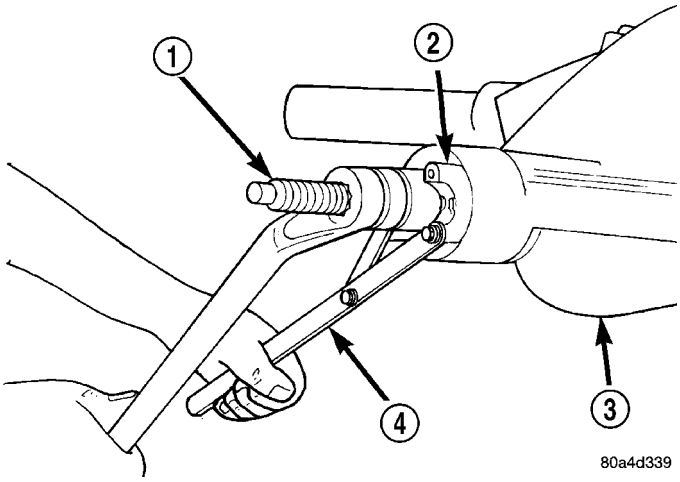


Fig. 39 Pinion Yoke Installer

1 - INSTALLER
2 - PINION YOKE
3 - DIFFERENTIAL HOUSING
4 - SPANNER WRENCH

(5) Install yoke washer and **new** nut on the pinion gear. Tighten the nut to remove all end-play. Tighten the nut to a minimum torque of 298 N·m (220 ft. lbs.).

CAUTION: Never loosen pinion gear nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque or rotating torque is exceeded a new collapsible spacer must be installed.

NOTE: New collapsible spacers require high initial torque to start the collapsing of the spacer. This may reach 678 N·m (500 ft. lbs.).

(6) Hold yoke with Spanner Wrench 6958 and a torque wrench set at 380 N·m (280 ft. lbs.), (Fig. 40) slowly tighten the nut in 6.8 N·m (5 ft. lbs.) increments until the rotating torque is achieved. Measure the rotating torque frequently to avoid over crushing the collapsible spacer (Fig. 41).

(7) Check rotating torque with an inch pound torque wrench (Fig. 41). The rotating torque of the pinion gear should be, the reading recorded during removal plus an additional 0.56 N·m (5 in. lbs.).

(8) Install propeller shaft with reference marks align.

(9) Install rear brake rotors and calipers.

(10) Add gear lubricant, if necessary.

(11) Install wheel and tire assemblies.

(12) Remove supports and lower vehicle.

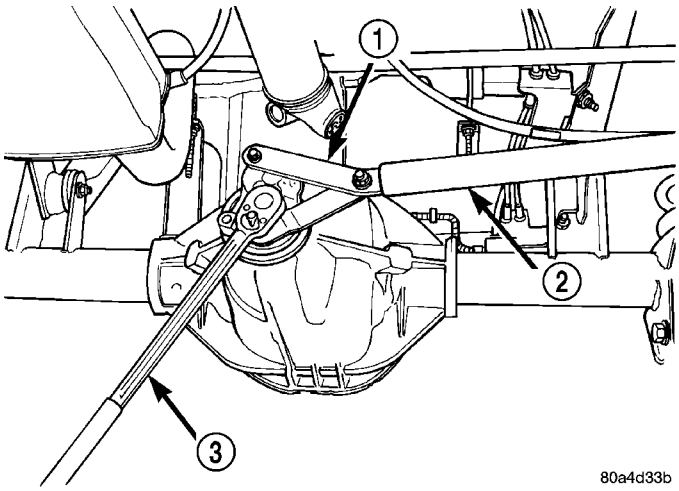


Fig. 40 PINION NUT

1 - SPANNER WRENCH
2 - PIPE
3 - TORQUE WRENCH

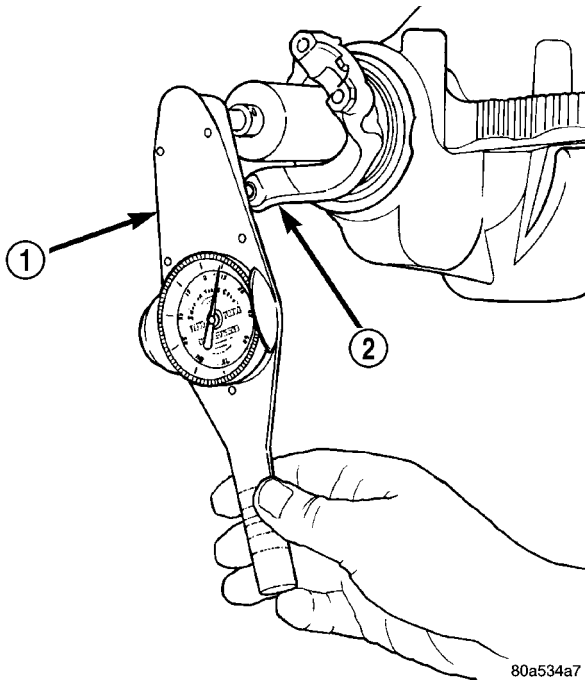


Fig. 41 PINION ROTATING TORQUE

1 - TORQUE WRENCH
2 - PINION YOKE

DIFFERENTIAL

DESCRIPTION

The differential case is a one-piece design. Differential bearing preload and ring gear backlash is adjusted with selective shims. Pinion bearing preload is set and maintained by the use of a collapsible spacer. The cover provides a means for inspection and service.

DIFFERENTIAL (Continued)

OPERATION

During straight-ahead driving, the differential pinion gears do not rotate on the pinion mate shaft. This occurs because input torque applied to the gears is divided and distributed equally between the two side gears. As a result, the pinion gears revolve with the pinion mate shaft but do not rotate around it (Fig. 42).

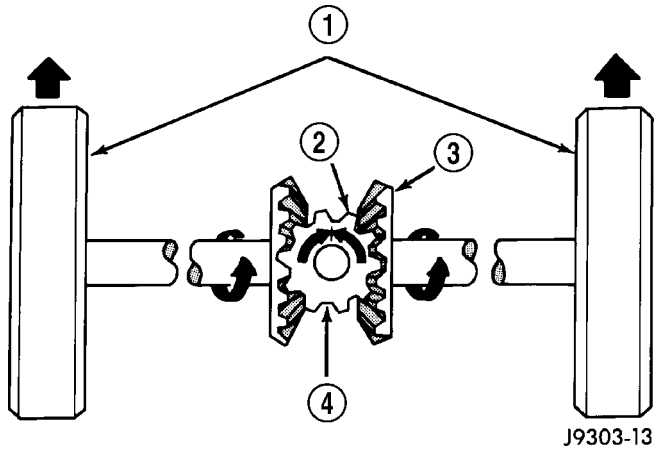


Fig. 42 DIFFERENTIAL-STRAIGHT AHEAD DRIVING

1 - IN STRAIGHT AHEAD DRIVING EACH WHEEL ROTATES AT 100% OF CASE SPEED
2 - PINION GEAR
3 - SIDE GEAR
4 - PINION GEARS ROTATE WITH CASE

When turning corners, the outside wheel must travel a greater distance than the inside wheel to complete a turn. The difference must be compensated for to prevent the tires from scuffing and skidding through turns. To accomplish this, the differential allows the axle shafts to turn at unequal speeds (Fig. 43). In this instance, the input torque applied to the pinion gears is not divided equally. The pinion gears now rotate around the pinion mate shaft in opposite directions. This allows the side gear and axle shaft attached to the outside wheel to rotate at a faster speed.

REMOVAL

(1) Raise and support vehicle.

(2) Remove fill hole plug from the differential housing cover.

(3) Remove differential housing cover and drain fluid.

(4) Remove axle shafts.

(5) Note the reference letters stamped on the bearing caps and housing machined sealing surface (Fig. 44).

(6) Loosen the differential bearing cap bolts.

(7) Position Spreader W-129-B with Adapter Kit 6987B on differential locating holes (Fig. 45). Install

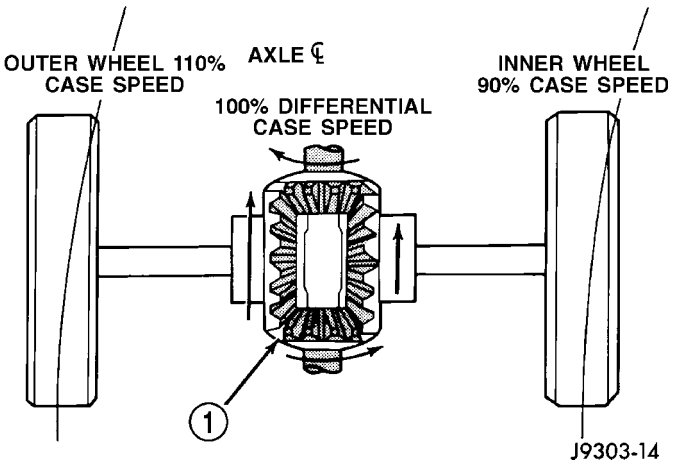


Fig. 43 DIFFERENTIAL-ON TURNS

1 - PINION GEARS ROTATE ON PINION SHAFT

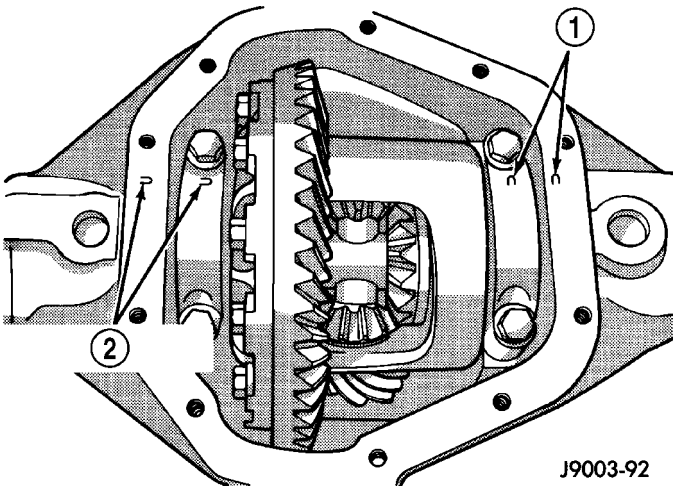


Fig. 44 BEARING CAP REFERENCE

1 - REFERENCE LETTERS
2 - REFERENCE LETTERS

holddown clamps and tighten the turnbuckle finger-tight.

(8) Install a Pilot Stud C-3288-B at the left side of the differential housing. Attach Dial Indicator C-3339 to pilot stud. Load the indicator plunger against the opposite side of the housing (Fig. 46) and zero the indicator.

CAUTION: Never spread the housing over 0.25 mm (0.010 in). If housing is over-spread, it could distorted and damaged the housing.

(9) Spread housing enough to remove the differential case from the housing. Measure the distance with the dial indicator (Fig. 47).

(10) Remove the dial indicator.

(11) While holding the differential case in position, remove the differential bearing cap bolts and caps.

DIFFERENTIAL (Continued)

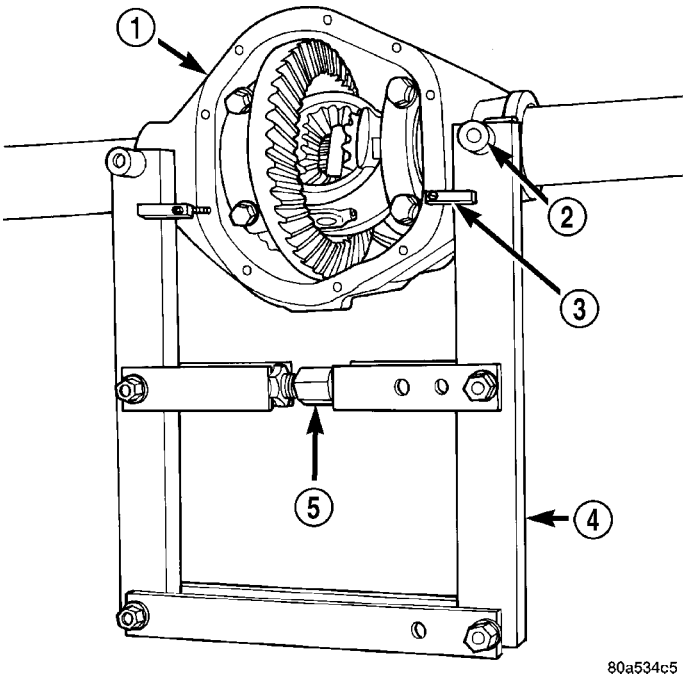


Fig. 45 SPREADER LOCATION

1 - DIFFERENTIAL HOUSING
2 - DOWEL
3 - SAFETY HOLD DOWN
4 - SPREADER
5 - TURNBUCKLE

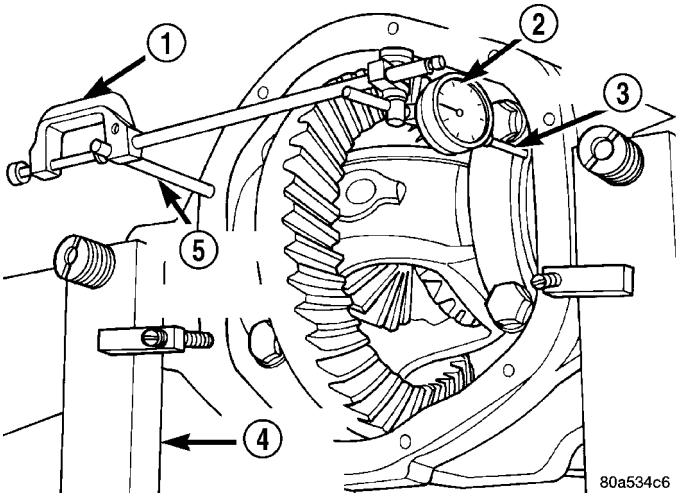


Fig. 46 DIAL INDICATOR LOCATION

1 - CLAMP
2 - DIAL INDICATOR
3 - LEVER ADAPTER
4 - SPREADER
5 - PILOT STUD

(12) Remove differential from the housing and tag differential bearing cups to indicate location (Fig. 48).

(13) Remove spreader from housing.

(14) Clean the housing cavity with flushing oil, light engine oil or lint free cloth.

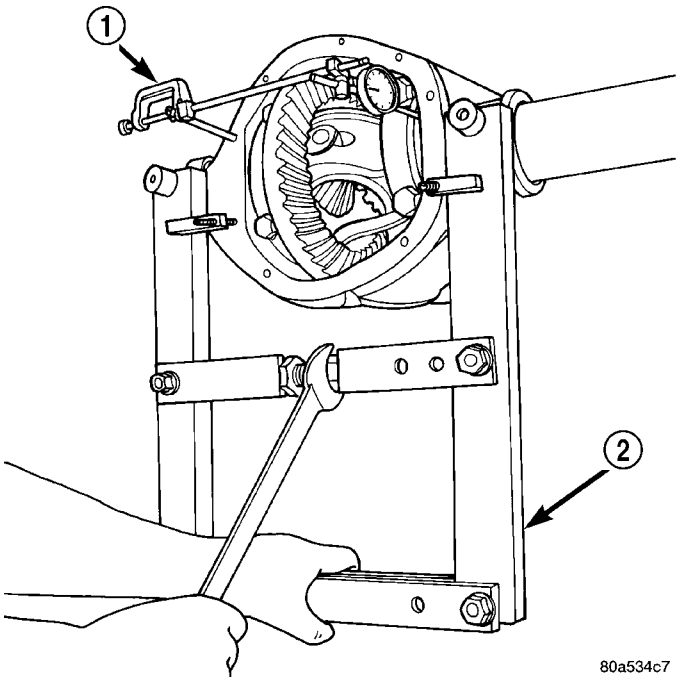


Fig. 47 SPREAD DIFFERENTIAL HOUSING

1 - DIAL INDICATOR
2 - SPREADER

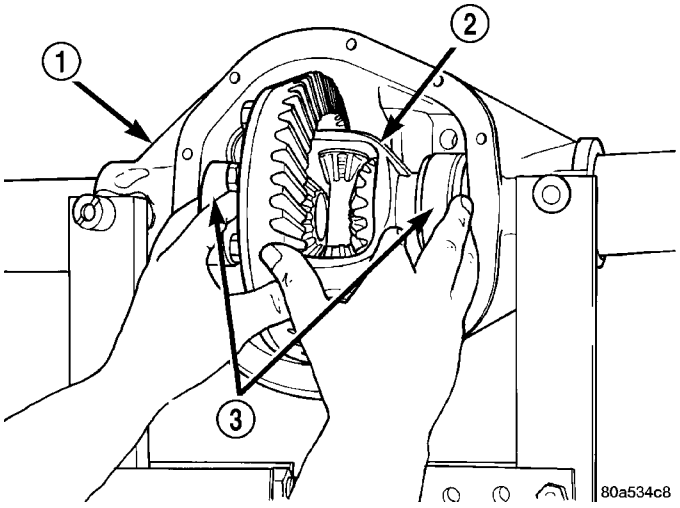


Fig. 48 DIFFERENTIAL CASE REMOVAL

1 - DIFFERENTIAL HOUSING
2 - DIFFERENTIAL CASE
3 - BEARING CUPS

NOTE: Do not use water, steam, kerosene or gasoline for cleaning.

DISASSEMBLY

(1) Remove pinion shaft lock screw (Fig. 49).

(2) Remove pinion shaft.

(3) Rotate differential side gears and remove differential pinions and thrust washers (Fig. 50).

DIFFERENTIAL (Continued)

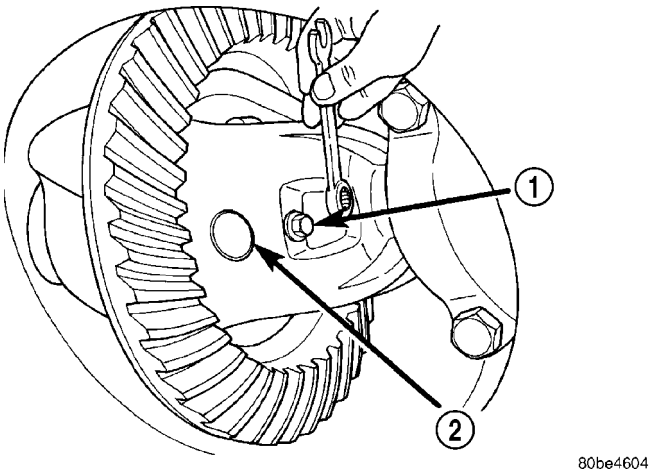


Fig. 49 SHAFT LOCK SCREW

1 - LOCK SCREW
2 - PINION SHAFT

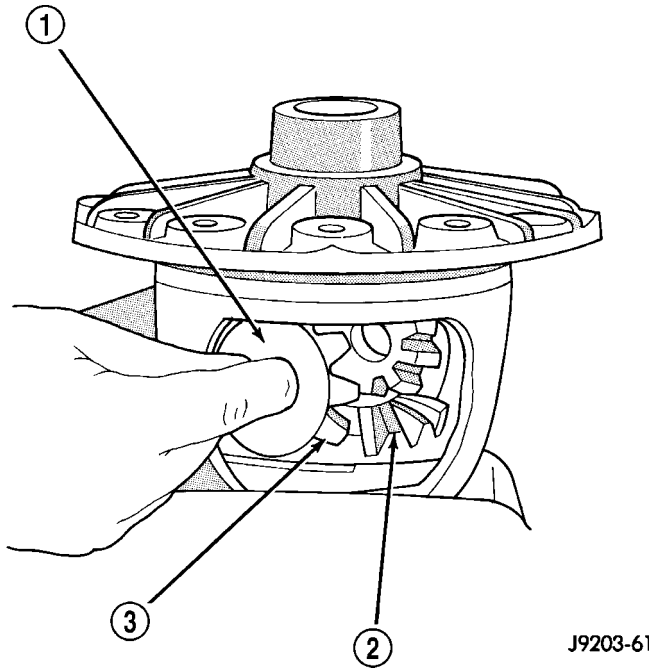


Fig. 50 DIFFERENTIAL GEARS

1 - THRUST WASHER
2 - SIDE GEAR
3 - DIFFERENTIAL PINION

(4) Remove differential side gears and thrust washers.

ASSEMBLY

(1) Install differential side gears and thrust washers.

(2) Install differential pinion gears and thrust washers.

(3) Install the pinion mate shaft.

(4) Align hole in the pinion mate shaft with the hole in the differential case and install the pinion mate shaft lock screw.

(5) Lubricate all differential components with hypoid gear lubricant.

INSTALLATION

NOTE: If replacement differential bearings or differential case are being installed, differential side bearing shim requirements may change. Refer Adjustments (Differential Bearing Preload and Gear Backlash) to determine the proper shim selection.

(1) Position Spreader W-129-B with Adapter set 6987 on differential housing locating holes. Install the holddown clamps and tighten the tool turnbuckle finger-tight.

(2) Install a Pilot Stud C-3288-B at the left side of the differential housing. Attach Dial Indicator C-3339 to pilot stud. Load the indicator plunger against the opposite side of the housing and zero the indicator.

CAUTION: Never spread the housing over 0.25 mm (0.010 in). If housing is over-spread, it could be distorted or damaged.

(3) Spread housing enough to install the case in the housing.

(4) Remove the dial indicator.

(5) Install differential case in housing (Fig. 51). Verify differential bearing cups remain in position on the bearings and preload shims are between the face of the bearing cup and the housing. Tap the differential case to ensure bearings cups and shims are seated in the housing.

CAUTION: On a Vari-lok® differential the oil feed tube must be pointed at the bottom of the housing (Fig. 52). If differential is installed with the oil feed tube pointed at the top, the anti-rotation tabs will be damaged.

(6) Install bearing caps in their original locations (Fig. 53).

(7) Loosely install differential bearing cap bolts.

(8) Remove axle housing spreader.

(9) Tighten bearing cap bolts in a criss-cross pattern to 77 N·m (57 ft. lbs.).

(10) Install the axle shafts.

(11) Apply a 6.35 mm (1/4 in.) bead of red Mopar Silicone Rubber Sealant or equivalent to the housing cover (Fig. 54).

CAUTION: If cover is not installed within 3 to 5 minutes, the cover must be cleaned and new RTV applied or adhesion quality will be compromised.

DIFFERENTIAL (Continued)

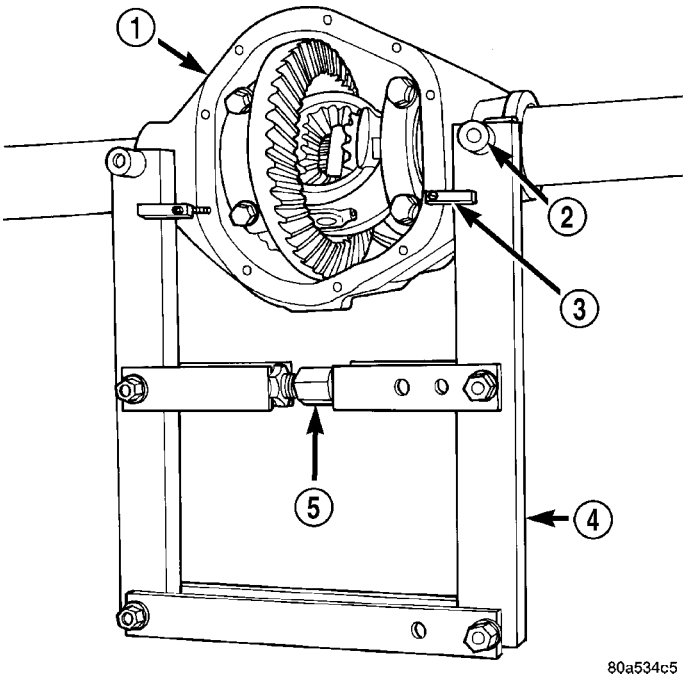


Fig. 51 SPREADER LOCATION

1 - DIFFERENTIAL HOUSING
2 - DOWEL
3 - SAFETY HOLD DOWN
4 - SPREADER
5 - TURNBUCKLE

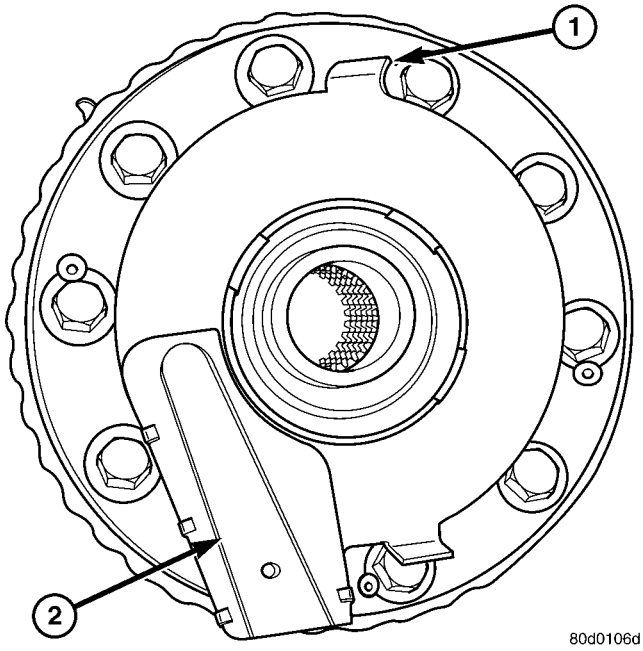


Fig. 52 VARI-LOK

1 - ANTI-ROTATION TAB
2 - OIL FEED TUBE

(12) Install cover and tighten bolts in a criss-cross pattern to 41 N·m (30 ft. lbs.).

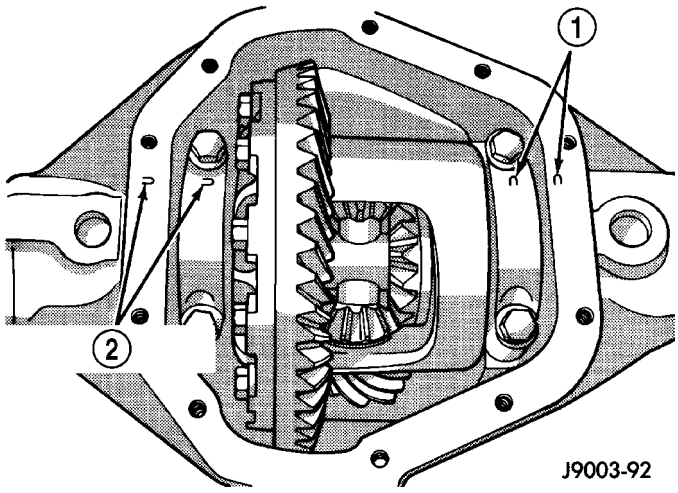


Fig. 53 BEARING CAP REFERENCE

1 - REFERENCE LETTERS
2 - REFERENCE LETTERS

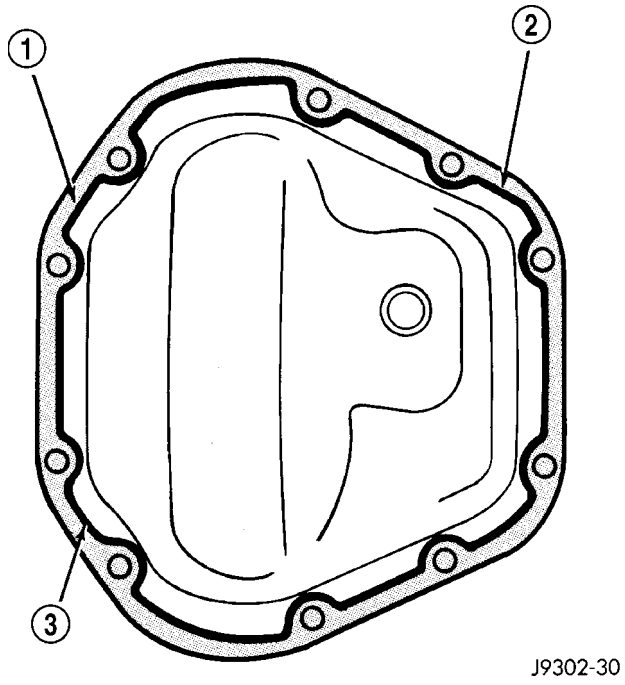


Fig. 54 DIFFERENTIAL COVER - TYPICAL

1 - COVER
2 - SEALANT
3 - SEALANT BEAD

(13) Refill the differential with Mopar Hypoid Gear Lubricant or equivalent to bottom of the fill plug hole.

(14) Install fill hole plug.

(15) Remove support and lower the vehicle.

DIFFERENTIAL - TRAC-LOK

DESCRIPTION

The Trac-Lok® differential has a one-piece differential case, and similar internal components as a standard differential, plus two clutch disc packs. Differential bearing preload and ring gear backlash are set and maintained by threaded adjusters at the outside of the differential housing. Pinion bearing preload is set and maintained by the use of a collapsible spacer.

OPERATION

This differentials clutches are engaged by two concurrent forces. The first being the preload force exerted through Belleville spring washers within the clutch packs. The second is the separating forces generated by the side gears as torque is applied through the ring gear (Fig. 55).

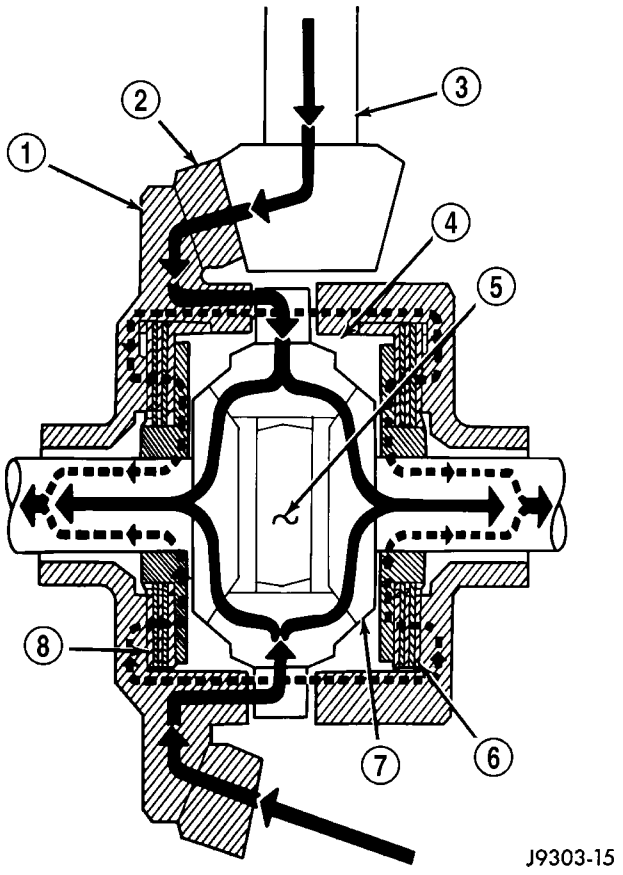


Fig. 55 TRAC-LOK LIMITED SLIP DIFFERENTIAL

1 - CASE
2 - RING GEAR
3 - DRIVE PINION
4 - PINION GEAR
5 - MATE SHAFT
6 - CLUTCH PACK
7 - SIDE GEAR
8 - CLUTCH PACK

This design provides the differential action needed for turning corners and for driving straight ahead during periods of unequal traction. When one wheel looses traction, the clutch packs transfer additional torque to the wheel having the most traction. This differential resist wheel spin on bumpy roads and provide more pulling power when one wheel looses traction. Pulling power is provided continuously until both wheels loose traction. If both wheels slip due to unequal traction, Trac-lok™ operation is normal. In extreme cases of differences of traction, the wheel with the least traction may spin.

DIAGNOSIS AND TESTING

The most common problem is a chatter noise when turning corners. Before removing the unit for repair, drain, flush and refill the axle with the specified lubricant. A container of Mopar Trac-lok® Lubricant (friction modifier) should be added after repair service or during a lubricant change.

After changing the lubricant, drive the vehicle and make 10 to 12 slow, figure-eight turns. This maneuver will pump lubricant through the clutches. This will correct the condition in most instances. If the chatter persists, clutch damage could have occurred.

DIFFERENTIAL TEST

The differential can be tested without removing the differential case by measuring rotating torque. Make sure brakes are not dragging during this measurement.

(1) Place blocks in front and rear of both front wheels.

(2) Raise one rear wheel until it is completely off the ground.

(3) Engine off, transmission in neutral, and parking brake off.

(4) Remove wheel and bolt Special Tool 6790 or equivalent tool to studs.

(5) Use torque wrench on special tool to rotate wheel and read rotating torque (Fig. 56).

(6) If rotating torque is less than 41 N·m (30 ft. lbs.) or more than 271 N·m (200 ft. lbs.) on either wheel the unit should be serviced.

DIFFERENTIAL - TRAC-LOK (Continued)

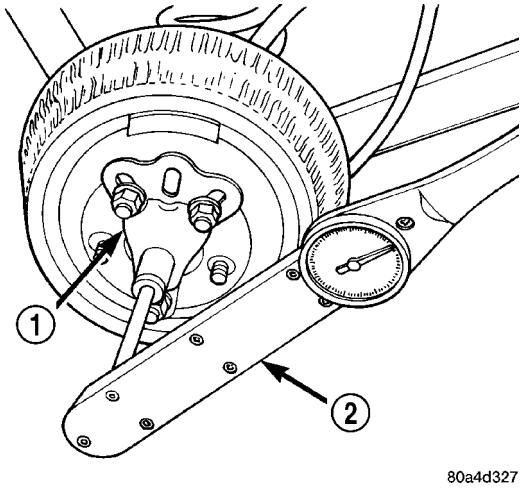


Fig. 56 ROTATING TORQUE TEST

1 - SPECIAL TOOL WITH BOLT IN CENTER HOLE
2 - TORQUE WRENCH

DISASSEMBLY

(1) Clamp side gear Holding Fixture 6965 in a vise and position the differential case on the Holding Fixture (Fig. 57).

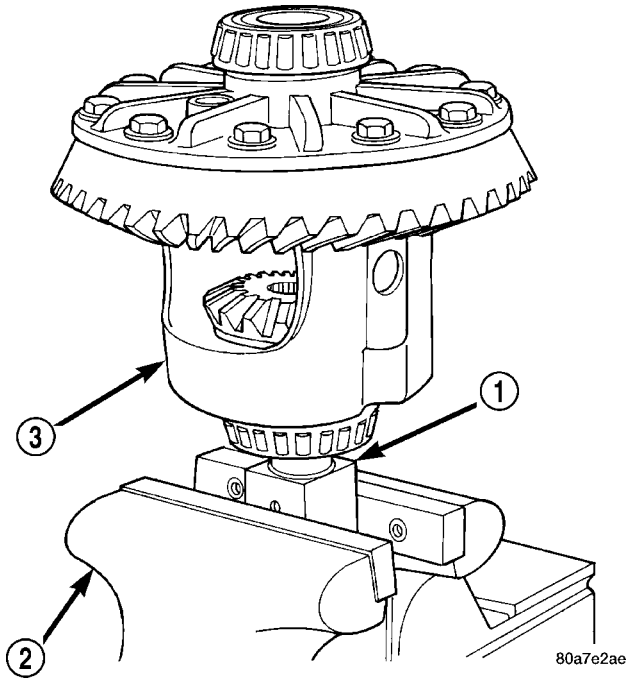


Fig. 57 DIFFERENTIAL CASE FIXTURE

1 - HOLDING FIXTURE
2 - VISE
3 - DIFFERENTIAL

(2) Remove ring gear if the ring gear is to be replaced. The Trac-lok® differential can be serviced with the ring gear installed.

(3) Remove the pinion gear mate shaft lock screw (Fig. 58).

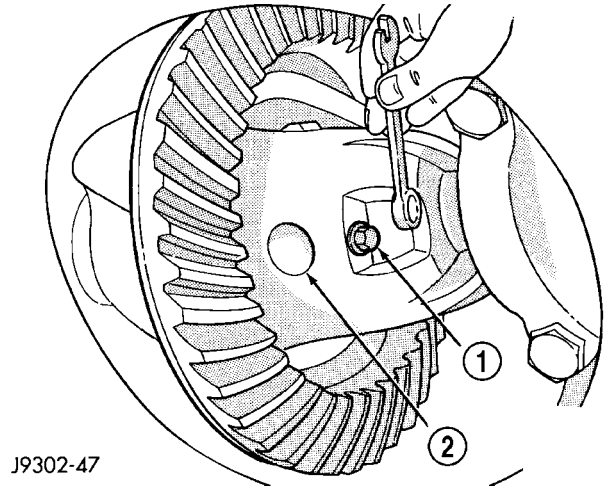


Fig. 58 MATE SHAFT LOCK SCREW

1 - LOCK SCREW
2 - PINION GEAR MATE SHAFT

(4) Remove pinion gear mate shaft with a drift and hammer (Fig. 59).

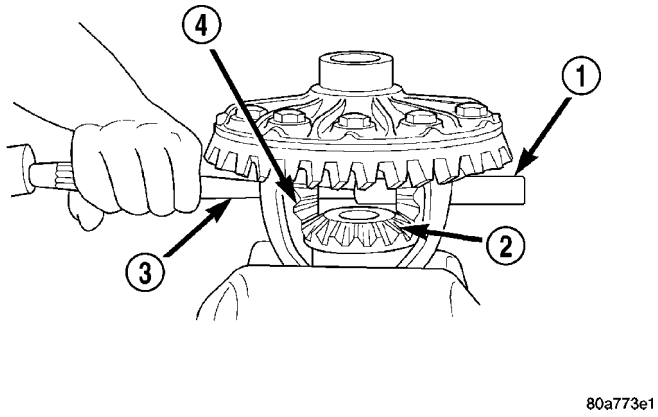


Fig. 59 PINION MATE SHAFT

1 - PINION MATE SHAFT
2 - SIDE GEAR
3 - DRIFT
4 - PINION MATE GEAR

DIFFERENTIAL - TRAC-LOK (Continued)

(5) Install and lubricate Step Plate C-4487-3 (Fig. 60).

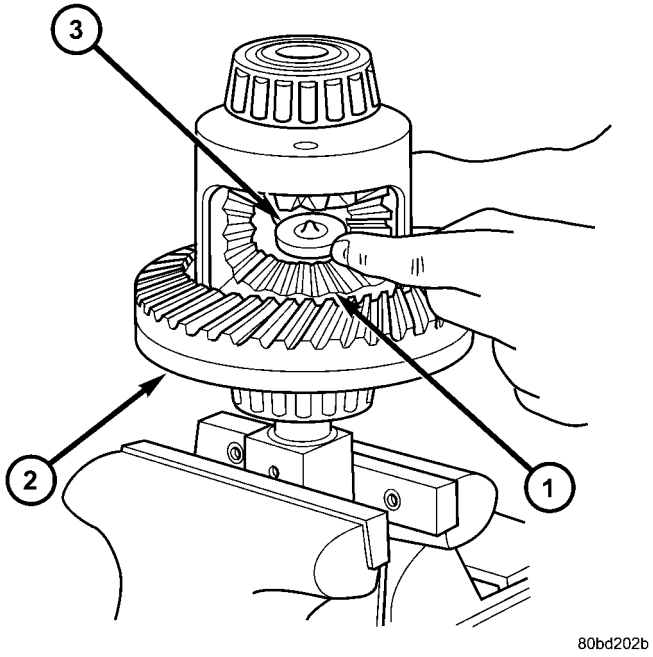


Fig. 60 STEP PLATE

1 - LOWER SIDE GEAR
2 - DIFFERENTIAL CASE
3 - STEP PLATE

(6) Assemble Threaded Adapter C-4487-1 into top side gear. Thread Forcing Screw C-4487-4 into adapter until it becomes centered in adapter plate.

(7) Position a small screw driver in slot of Threaded Adapter Disc C-4487-1 (Fig. 61) to prevent adapter from turning.

(8) Install Forcing Screw C-4487-4 and tighten screw to 122 N·m (90 ft. lbs.) maximum to compress Belleville springs in clutch packs (Fig. 62).

(9) With a feeler gauge remove thrust washers from behind the pinion gears (Fig. 63).

(10) Insert Turning Bar C-4487-2 into the pinion mate shaft hole in the case (Fig. 64).

(11) Loosen the Forcing Screw in small increments until the clutch pack tension is relieved and the differential case can be turned using Turning Bar.

(12) Rotate differential case until the pinion gears can be removed.

(13) Remove pinion gears from differential case.

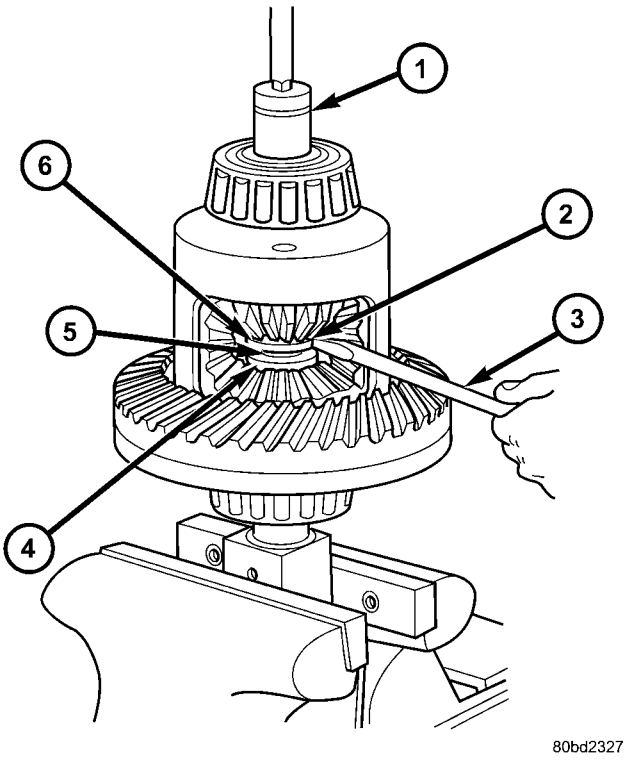


Fig. 61 THREADED ADAPTER DISC

1 - SOCKET
2 - SLOT IN ADAPTER
3 - SCREWDRIVER
4 - STEP PLATE
5 - FORCING SCREW
5 - THREAD ADAPTER DISC

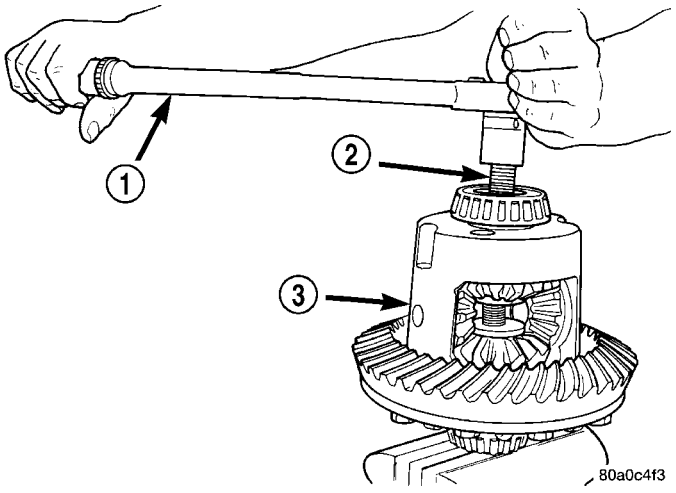


Fig. 62 COMPRESS BELLEVILLE SPRING

1 - TORQUE WRENCH
2 - TOOL ASSEMBLED
3 - DIFFERENTIAL CASE

DIFFERENTIAL - TRAC-LOK (Continued)

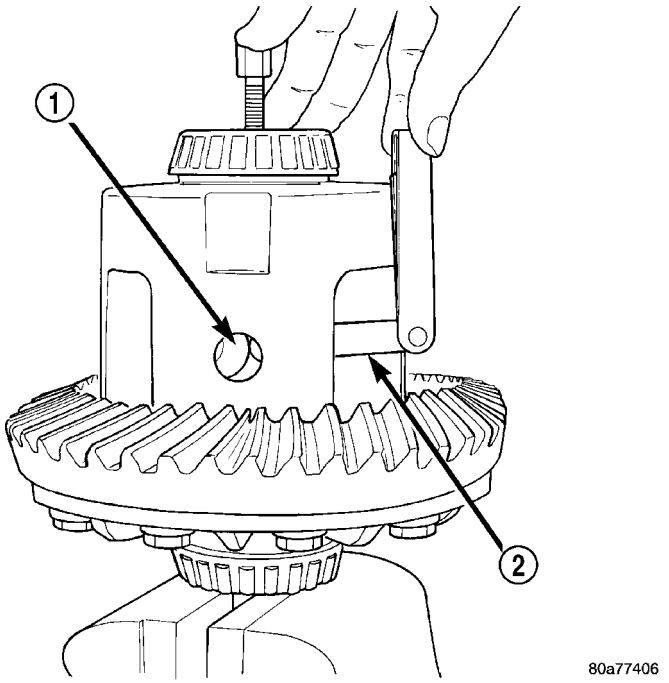


Fig. 63 PINION GEAR THRUST WASHER

1 - THRUST WASHER
2 - FEELER GAUGE

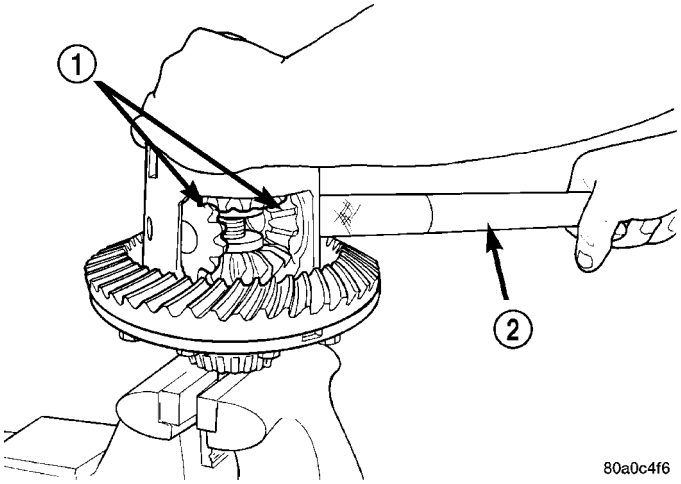


Fig. 64 PINION GEARS

1 - PINION GEARS
2 - TURNING BAR

(14) Remove Forcing Screw, Step Plate and Threaded Adapter.

(15) Remove top side gear, clutch pack retainer and clutch pack. Keep plates in correct order during removal (Fig. 65).

(16) Remove differential case from the Holding Fixture. Remove side gear, clutch pack retainer and clutch pack. Keep plates in correct order during removal.

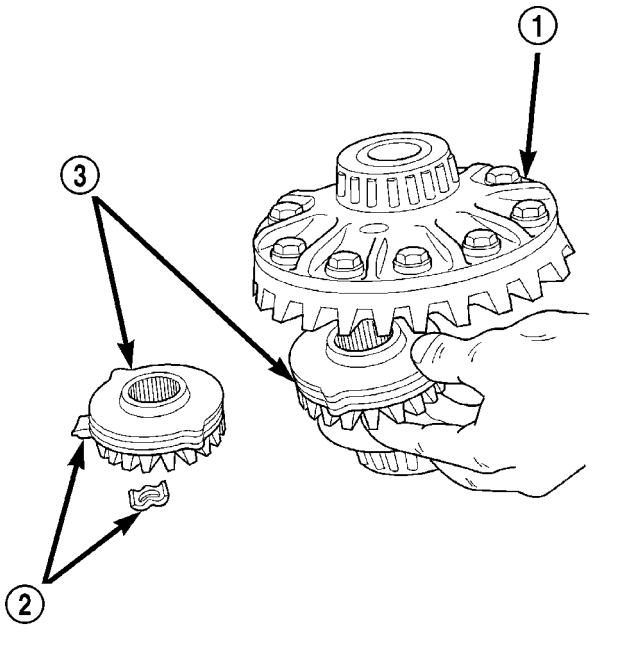


Fig. 65 SIDE GEARS AND CLUTCH DISCS

1 - DIFFERENTIAL CASE
2 - RETAINER
3 - SIDE GEAR AND CLUTCH DISC PACK

ASSEMBLY

Clean all components in cleaning solvent and dry components with compressed air. Inspect clutch pack plates for wear, scoring or damage. Replace both clutch packs if any one component in either pack is damaged. Inspect side gears and pinions. Replace any gear that is worn, cracked, chipped or damaged. Inspect differential case and pinion shaft. Replace if worn or damaged.

NOTE: New Plates and discs with fiber coating (no grooves or lines) must be presoaked in Friction Modifier before assembly. Soak plates and discs for a minimum of 20 minutes.

(1) Lubricate each component with gear lubricant before assembly.

(2) Assemble the clutch discs into packs and secure disc packs with retaining clips (Fig. 66).

NOTE: Dished plate is position with the convex side against the side gear.

(3) Position assembled clutch disc packs on the side gear hubs.

(4) Install clutch pack and side gear in the ring gear side of the differential case (Fig. 67). **Be sure clutch pack retaining clips remain in position and are seated in the case pockets.**

(5) Position the differential case on the Holding Fixture 6965.

DIFFERENTIAL - TRAC-LOK (Continued)

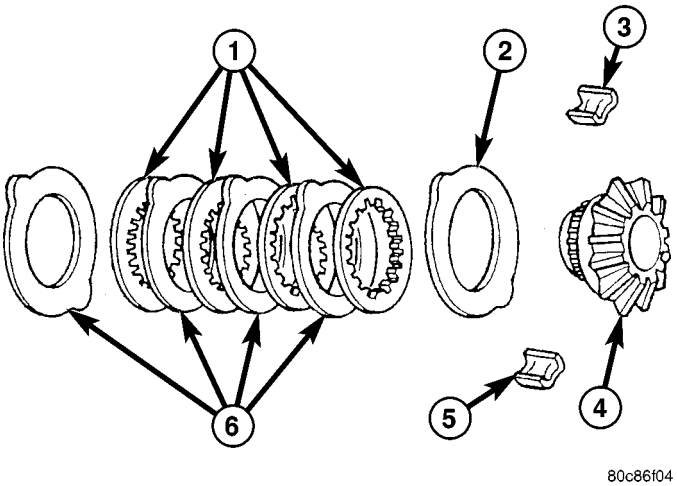


Fig. 66 CLUTCH PACK

1 - DISCS
2 - DISHED PLATE
3 - RETAINER
4 - SIDE GEAR
5 - RETAINER
6 - PLATES

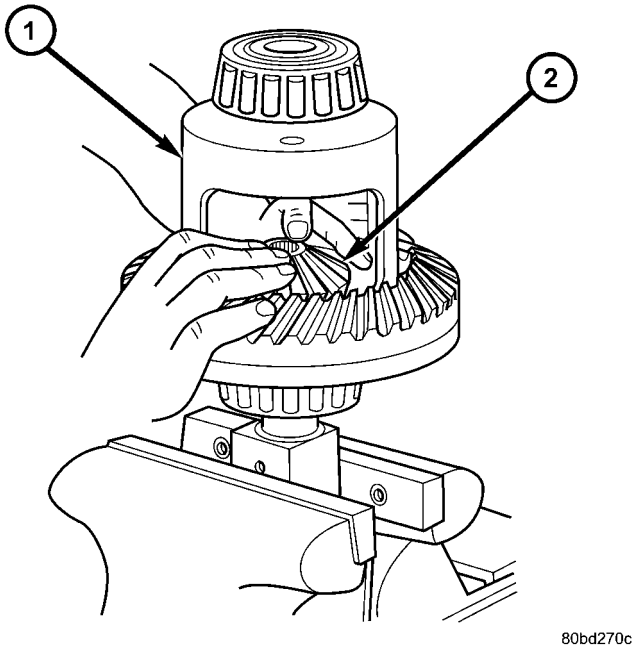


Fig. 67 CLUTCH PACK AND LOWER SIDE GEAR

1 - DIFFERENTIAL CASE
2 - LOWER SIDE GEAR AND CLUTCH DISC PACK

(6) Install lubricated Step Plate C-4487-3 in lower side gear (Fig. 68).

(7) Install the upper side gear and clutch disc pack (Fig. 68).

(8) Hold assembly in position. Insert Threaded Adapter C-4487-1 into top side gear.

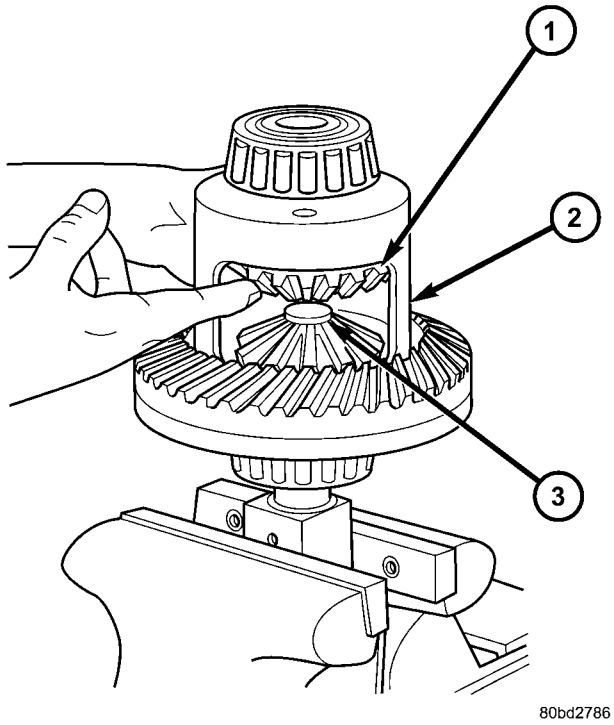


Fig. 68 CLUTCH PACK AND UPPER SIDE GEAR

1 - SIDE GEAR AND CLUTCH PACK
2 - DIFFERENTIAL CASE
3 - STEP PLATE

(9) Install Forcing Screw C-4487-4 and tighten screw to slightly compress clutch disc.

(10) Place pinion gears in position in side gears and verify that the pinion mate shaft hole is aligned.

(11) Rotate case with Turning Bar C-4487-2 until the pinion mate shaft holes in pinion gears align with holes in case. It may be necessary to slightly tighten the forcing screw in order to install the pinion gears.

(12) Tighten forcing screw to 122 N·m (90 ft. lbs.) maximum to compress the Belleville springs.

(13) Lubricate and install thrust washers behind pinion gears and align washers with a small screw driver. Insert mate shaft into each pinion gear to verify alignment.

(14) Remove Forcing Screw, Step Plate and Threaded Adapter.

(15) Install pinion gear mate shaft and align holes in shaft and case.

(16) Install pinion mate shaft lock screw finger tight to hold shaft during differential installation.

(17) Lubricate all differential components with hypoid gear lubricant.

DIFFERENTIAL - VARI-LOK

DESCRIPTION

The optional Vari-Lok® differential has a one-piece differential case which contains the gerotor pump assembly and the clutch mechinism. This unit is serviced as an assembly only.

OPERATION

In a standard differential if one wheel spins, the opposite wheel will generate only as much torque as the spinning wheel.

A gerotor pump and clutch pack are used to provide the torque transfer capability. One axle shaft is splined to the gerotor pump and one of the differential side gears, which provides the input to the pump. As a wheel begins to lose traction, the speed differential is transmitted from one side of the differential to the other through the side gears. The motion of one side gear relative to the other turns the inner rotor of the pump. Since the outer rotor of the pump is grounded to the differential case, the inner and outer rotors are now moving relative to each other and therefore creates pressure in the pump. The tuning of the front and rear axle orifices and valves inside the gerotor pump is unique and each system includes a torque-limiting pressure relief valve to protect the clutch pack, which also facilitates vehicle control under extreme side-to-side traction variations. The resulting pressure is applied to the clutch pack and the transfer of torque is completed.

Under conditions in which opposite wheels are on surfaces with widely different friction characteristics, Vari-lok® delivers far more torque to the wheel on the higher traction surface than do conventional Trac-lok® systems. Because conventional Trac-lok® differentials are initially pre-loaded to assure torque transfer, normal driving (where inner and outer wheel speeds differ during cornering, etc.) produces torque transfer during even slight side-to-side speed variations. Since these devices rely on friction from this preload to transfer torque, normal use tends to cause wear that reduces the ability of the differential to transfer torque over time. By design, the Vari-lok® system is less subject to wear, remaining more consistent over time in its ability to transfer torque. The coupling assembly is serviced as a unit. From a service standpoint the coupling also benefits from using the same lubricant supply as the ring and pinion gears.

DIAGNOSIS AND TESTING

(1) Park the vehicle on a level surface or raise vehicle on hoist so that the vehicle is level.

(2) Remove the axle fill plug.

(3) Verify that the axle fluid level is correct. The fluid level is correct if the fluid is level with the bottom of the fill hole.

(4) Shift the transfer case into the 4WD full-time position.

(5) Drive the vehicle in a tight circle for 2 minutes at 5mph to fully prime the pump.

(6) Block the tires opposite the axle to be tested to prevent the vehicle from moving.

(7) Shift the transfer case into the 4WD Low position and the transmission into the Park position.

(8) Raise both the wheels of the axle to be tested off of the ground.

(9) Rotate the left wheel by hand at a minimum of one revolution per second while an assistant rotates the right wheel in the opposite direction.

(10) The left wheel should spin freely at first and then increase in resistance within 5 revolutions until the wheels cannot be continuously rotated in opposite directions.

(11) The Vari-lok® differential has engaged properly if the wheels cannot be rotated in opposite directions for a moment. After the wheels stop rotating for a moment, the fluid pressure will drop in the differential and the wheels begin to rotate once again.

(12) If the system does not operate properly, replace the Vari-lok® differential.

DIFFERENTIAL CASE BEARINGS

REMOVAL

(1) Remove differential case from axle housing.

(2) Remove side bearings from the differential case with Puller/Press C-293-PA, Adapters 8353 and Plug C-293-3 (Fig. 69).

INSTALLATION

NOTE: If differential side bearings or differential case are replaced, differential side bearing shim requirements may change. Refer to Adjustments (Differential Bearing Preload and Gear Backlash) for procedures.

CAUTION: Vari-lok® plenum must be seated against the differential case prior to installing the ring gear side differential bearing.

DIFFERENTIAL CASE BEARINGS (Continued)

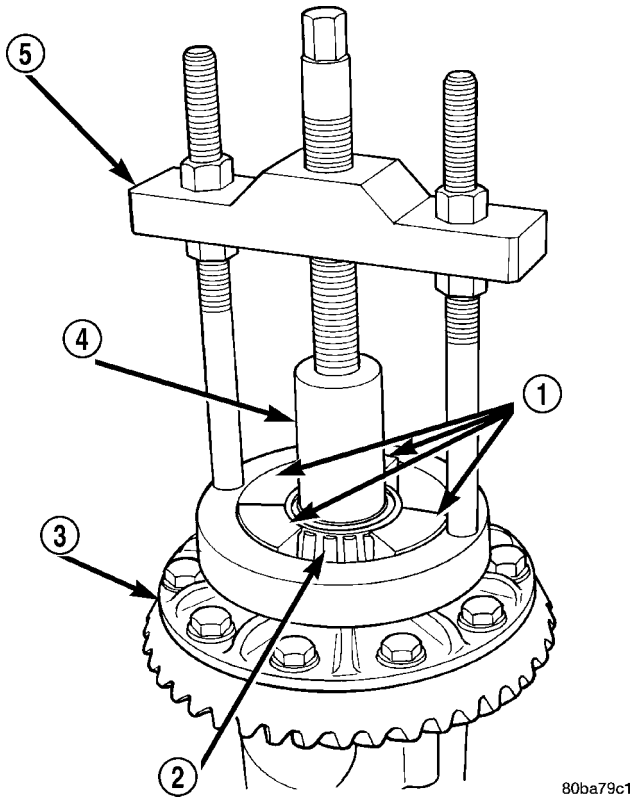


Fig. 69 DIFFERENTIAL BEARING REMOVAL

1 - ADAPTERS
2 - BEARING
3 - DIFFERENTIAL
4 - PLUG
5 - PULLER

(1) Install differential side bearings with Installer C-4340 and Handle C-4171 (Fig. 70).
(2) Install differential case into the housing.
(3) Remove support and lower vehicle.

PINION GEAR/RING GEAR

REMOVAL

NOTE: The ring and pinion gears are serviced as a matched set. Never replace one gear without the other matched gear.

(1) Raise and support vehicle.
(2) Mark pinion yoke and propeller shaft for installation reference.
(3) Disconnect propeller shaft from pinion yoke and tie shaft to underbody.
(4) Remove differential from axle housing.
(5) Place differential case in a vise with soft metal jaw.
(6) Remove bolts holding ring gear to differential case.

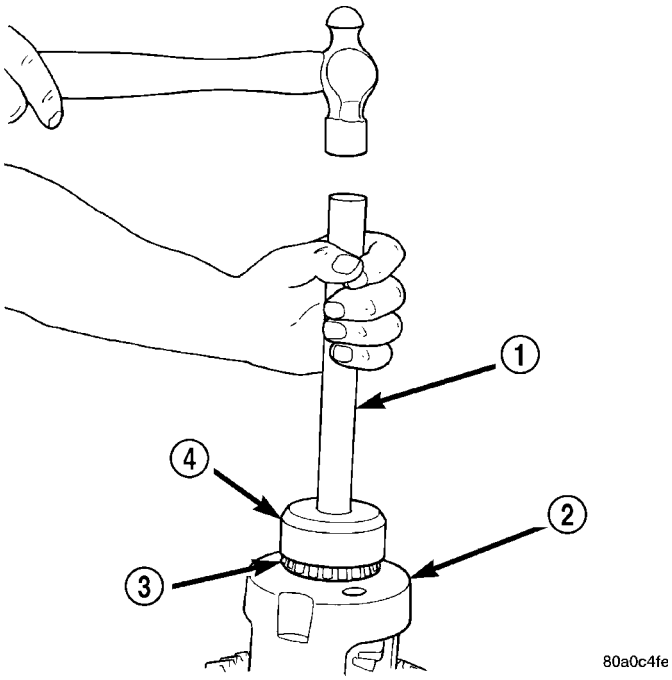


Fig. 70 DIFFERENTIAL BEARING INSTALLER

1 - HANDLE
2 - DIFFERENTIAL
3 - BEARING
4 - INSTALLER

(7) Drive ring gear from differential case with a rawhide hammer (Fig. 71).

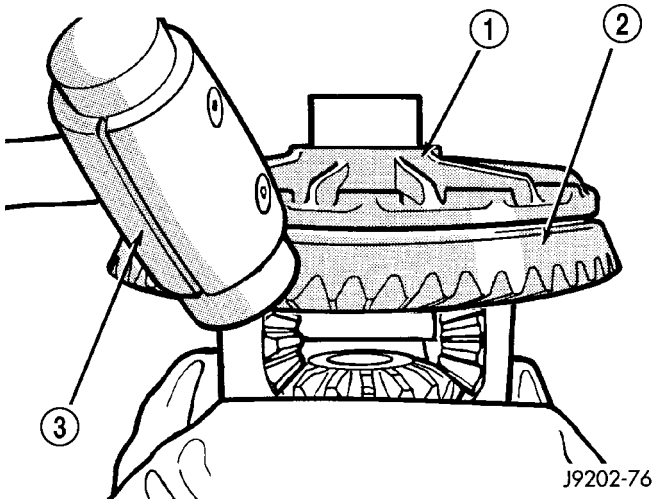


Fig. 71 RING GEAR

1 - DIFFERENTIAL CASE
2 - RING GEAR
3 - RAWHIDE HAMMER

PINION GEAR/RING GEAR (Continued)

(8) Hold the pinion yoke with Spanner Wrench 6958 and remove the pinion yoke nut and washer (Fig. 72).

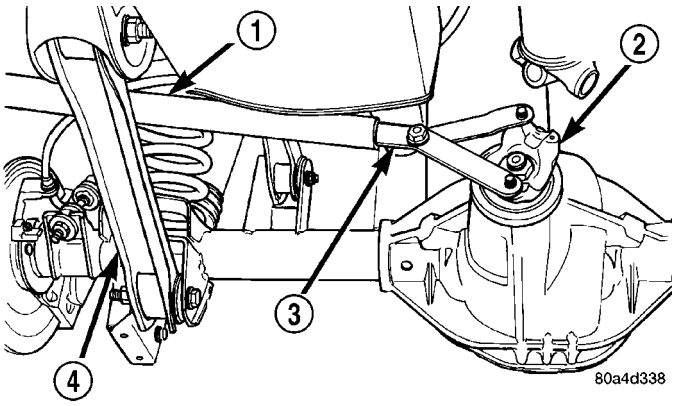


Fig. 72 PINION YOKE HOLDER

1 - PIPE
2 - PINION YOKE
3 - SPANNER WRENCH
4 - LOWER CONTROL ARM

(9) Remove pinion yoke from pinion shaft with Remover C-452 and Wrench C-3281 (Fig. 73).

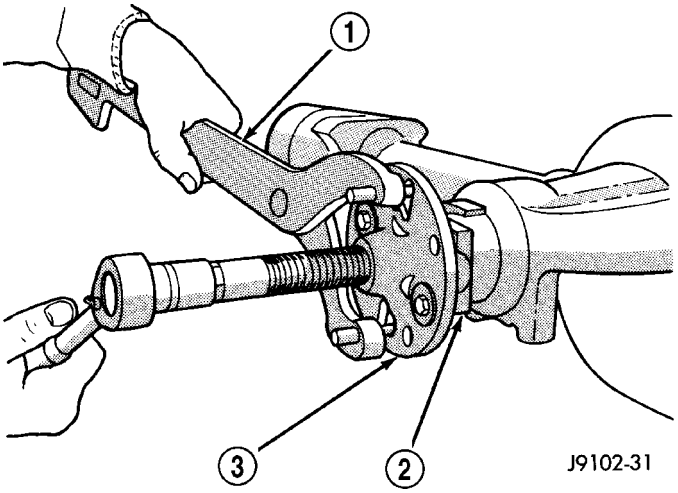


Fig. 73 PINION YOKE REMOVER

1 - FLANGE WRENCH
2 - YOKE
3 - YOKE PULLER

(10) Remove pinion gear from housing (Fig. 74).

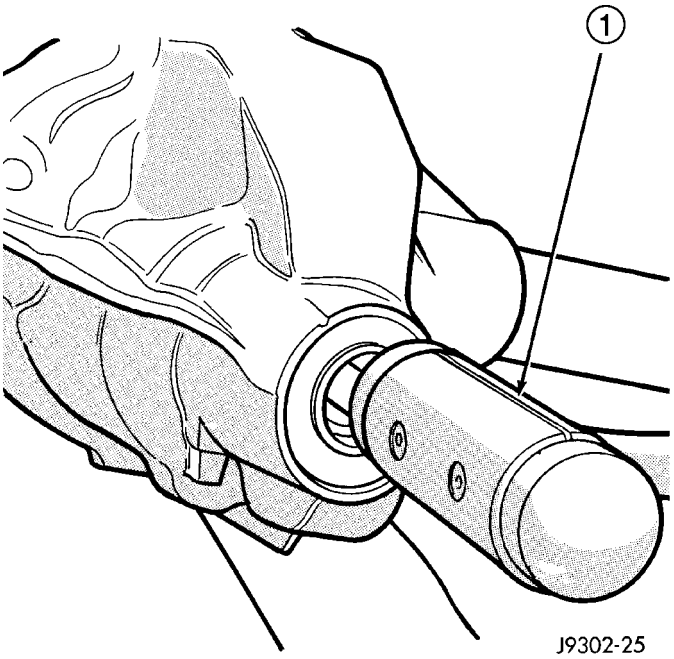


Fig. 74 PINION GEAR

1 - DEAD-BLOW HAMMER

(11) Remove pinion seal with Remover 7794-A and a slide hammer (Fig. 75).

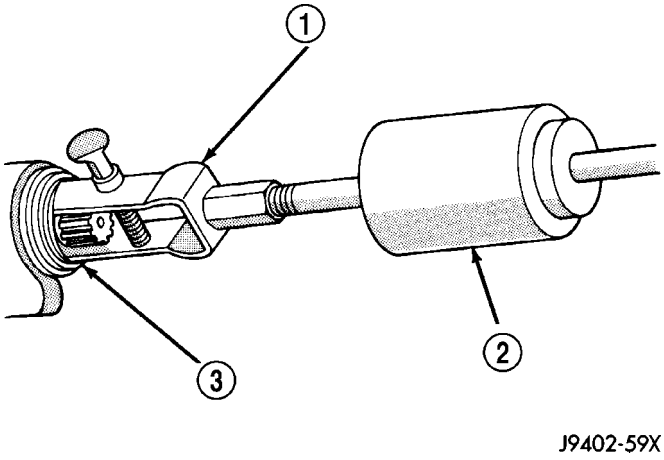


Fig. 75 PINION SEAL REMOVER

1 - REMOVER
2 - SLIDE HAMMER
3 - PINION SEAL

PINION GEAR/RING GEAR (Continued)

(12) Remove oil slinger, if equipped, and front pinion bearing.

(13) Remove the front pinion bearing cup with Remover D-103 and Handle C-4171 (Fig. 76).

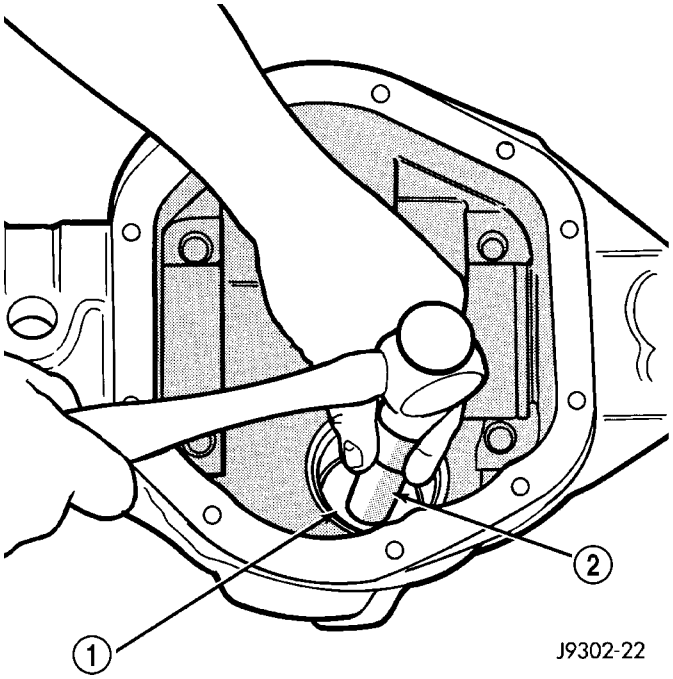


Fig. 76 FRONT PINION BEARING CUP

1 - REMOVER
2 - HANDLE

(14) Remove rear bearing cup from housing (Fig. 77) with Remover C-4307 and Handle C-4171.

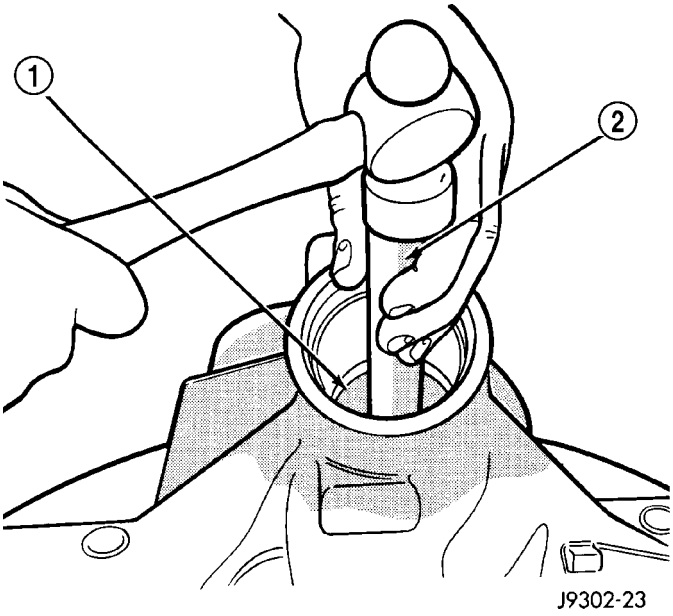


Fig. 77 REAR PINION BEARING CUP

1 - REMOVER
2 - HANDLE

(15) Remove collapsible preload spacer (Fig. 78).

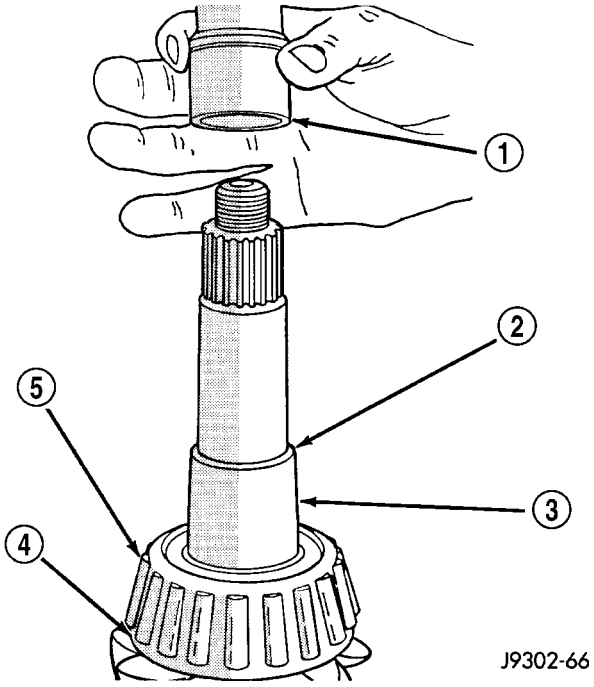


Fig. 78 COLLAPSIBLE SPACER

1 - COLLAPSIBLE SPACER
2 - SHOULDER
3 - PINION GEAR
4 - DEPTH SHIM
5 - REAR BEARING

(16) Remove rear bearing from the pinion with Puller/Press C-293-PA and Adapters C-293-42 (Fig. 79).

(17) Remove depth shims from the pinion gear shaft and record shim thickness.

INSTALLATION

NOTE: A pinion depth shim/oil slinger is placed between the rear pinion bearing cone and the pinion head to achieve proper ring gear and pinion mesh. If ring gear and pinion are reused, the pinion depth shim/oil slinger should not require replacement. Refer to Adjustment (Pinion Gear Depth) to select the proper thickness shim/oil slinger if ring and pinion gears are replaced.

(1) Apply Mopar Door Ease or equivalent lubricant to outside surface of pinion bearing cups.

(2) Install pinion rear bearing cup with Installer C-4308 and Driver Handle C-4171 (Fig. 80) and verify cup is seated.

(3) Install pinion front bearing cup with Installer D-129 and Handle C-4171 (Fig. 81) and verify cup is seated.

(4) Install pinion front bearing and oil slinger, if equipped.

PINION GEAR/RING GEAR (Continued)

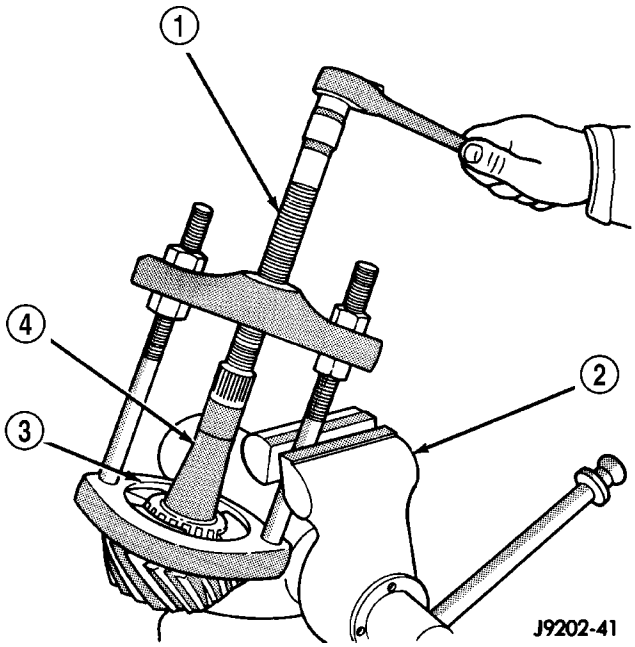


Fig. 79 REAR PINION BEARING PULLER

1 - PULLER
2 - VISE
3 - ADAPTERS
4 - PINION GEAR SHAFT

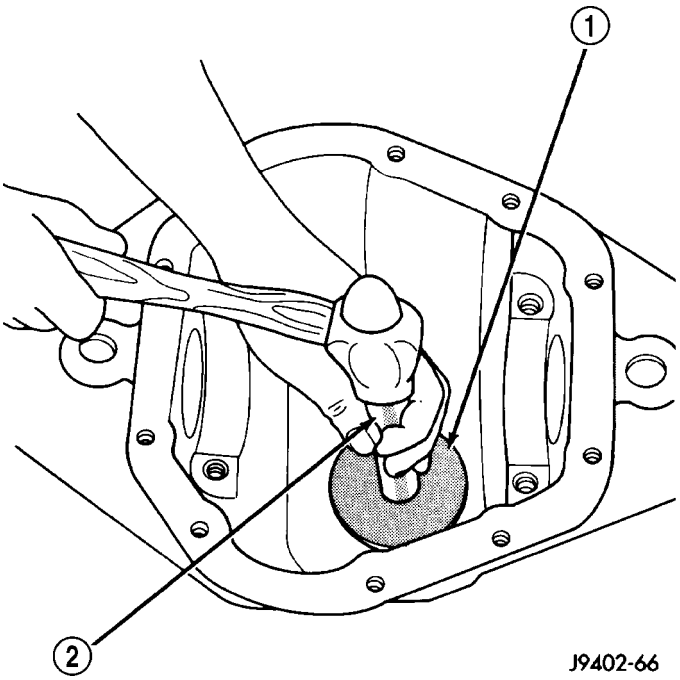


Fig. 80 REAR PINION BEARING CUP

1 - INSTALLER
2 - HANDLE

(5) Apply a light coating of gear lubricant on the lip of pinion seal. Install seal with an appropriate (Fig. 82).

(6) Install depth shim on the pinion gear.

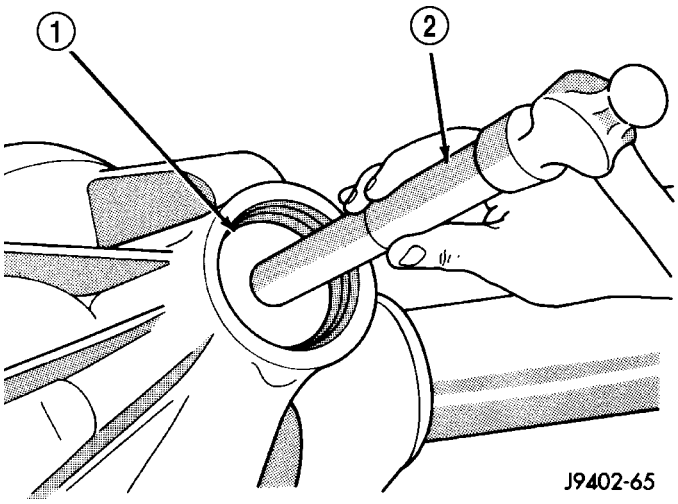


Fig. 81 FRONT PINION BEARING CUP

1 - INSTALLER
2 - HANDLE

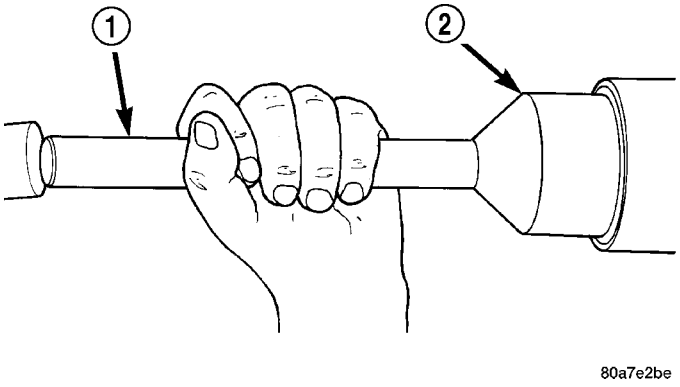


Fig. 82 PINION SEAL INSTALLER

1 - HANDLE
2 - INSTALLER

(7) Install rear bearing on the pinion gear with Installer 6448 and a press (Fig. 83).

(8) Install a **new** collapsible preload spacer on pinion shaft and install pinion gear in the housing (Fig. 84).

(9) Install yoke with Installer C-3718 and Spanner Wrench 6958 (Fig. 85).

(10) Install yoke washer and a **new** nut on the pinion gear and tighten the pinion nut until there is zero bearing end-play.

(11) Tighten the nut to 298 N·m (220 ft. lbs.).

CAUTION: Never loosen pinion gear nut to decrease pinion rotating torque and never exceed specified preload torque. If preload torque or rotating torque is exceeded a new collapsible spacer must be installed.

PINION GEAR/RING GEAR (Continued)

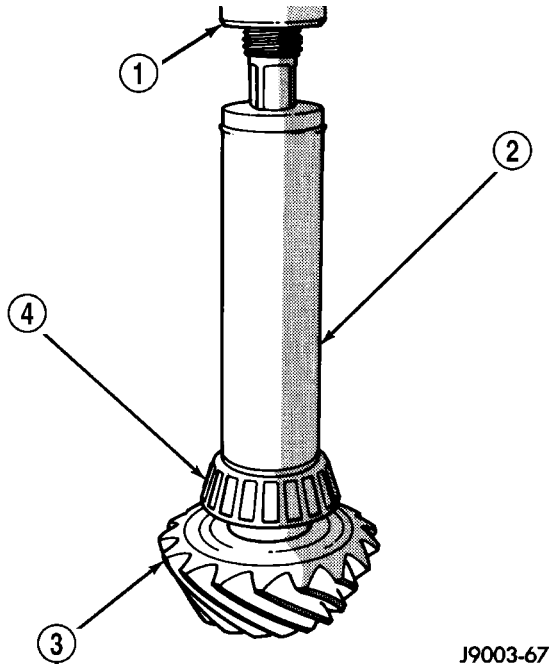


Fig. 83 REAR PINION BEARING

1 - PRESS
2 - INSTALLER
3 - PINION GEAR
4 - PINION BEARING

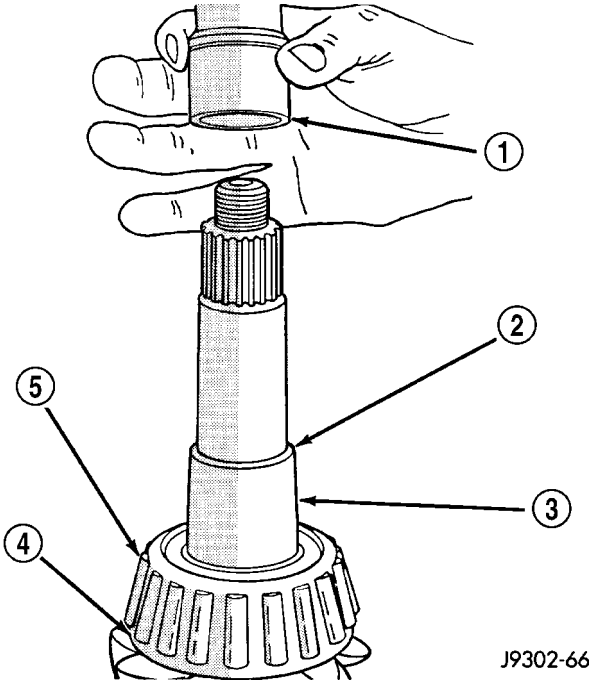


Fig. 84 COLLAPSIBLE SPACER

1 - COLLAPSIBLE SPACER
2 - SHOULDER
3 - PINION GEAR
4 - DEPTH SHIM
5 - REAR BEARING

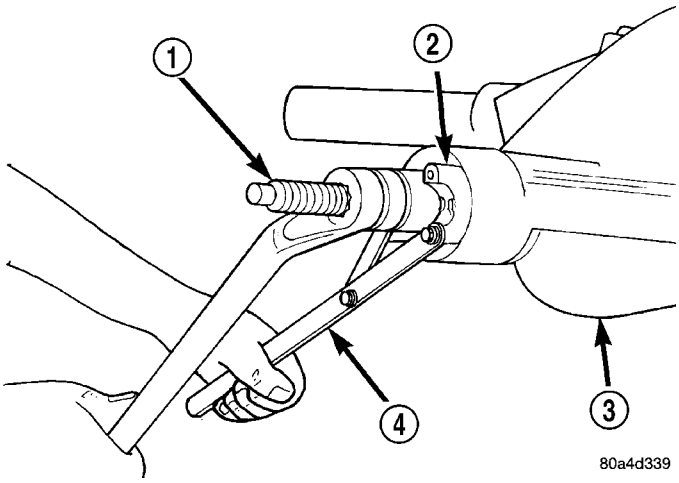


Fig. 85 PINION YOKE INSTALLER

1 - INSTALLER
2 - PINION YOKE
3 - DIFFERENTIAL HOUSING
4 - SPANNER WRENCH

NOTE: New collapsible spacers require high initial torque to start the collapsing of the spacer. This may reach 678 N·m (500 ft. lbs.).

(12) Using Spanner Wrench 6958 and a torque wrench set at 380 N·m (280 ft. lbs.), (Fig. 86) slowly tighten the nut in 6.8 N·m (5 ft. lbs.) increments until the rotating torque is achieved. Measure the rotating torque frequently to avoid over crushing the collapsible spacer (Fig. 87).

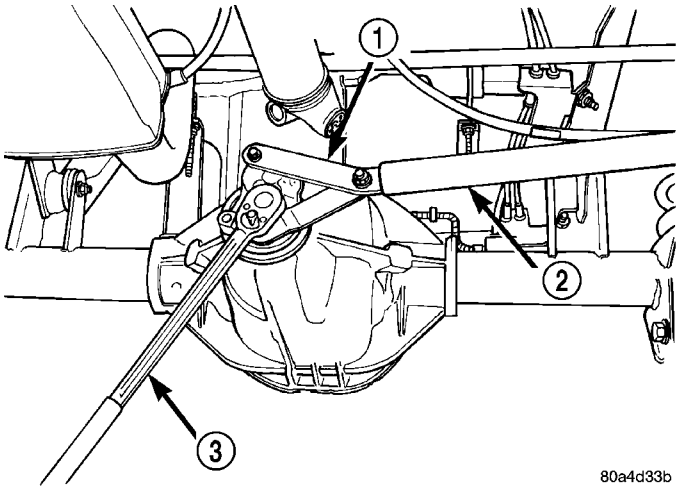


Fig. 86 PINION NUT

1 - SPANNER WRENCH
2 - PIPE
3 - TORQUE WRENCH

(13) Check bearing rotating torque with a inch pound torque wrench (Fig. 87). The pinion gear rotating torque should be:

- Original Bearings: 1 to 2.25 N·m (10 to 20 in. lbs.).

PINION GEAR/RING GEAR (Continued)

- New Bearings: 2.8 to 4 N·m (25 to 35 in. lbs.).

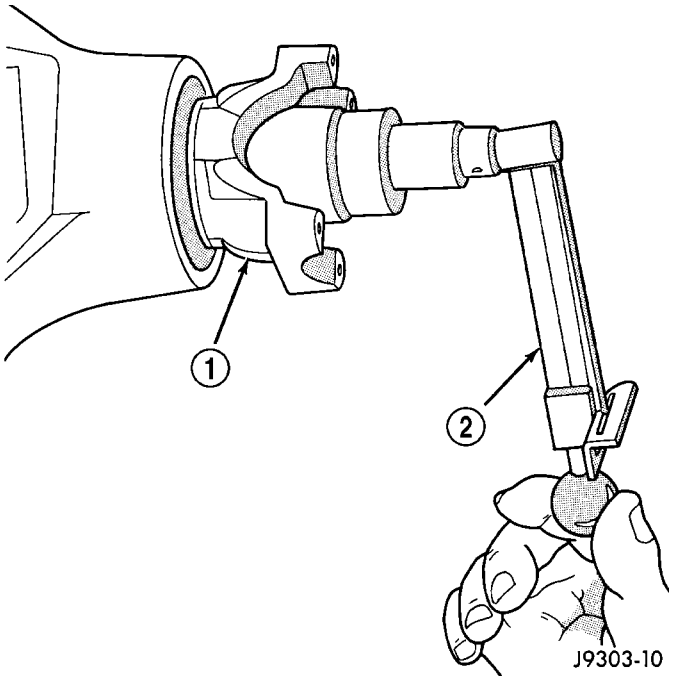


Fig. 87 PINION ROTATING TORQUE

1 - PINION YOKE/COMPANION FLANGE
2 - INCH POUND TORQUE WRENCH

(14) Invert the differential case and start two ring gear bolts. This will provide case-to-ring gear bolt hole alignment.

(15) Invert the differential case in the vise.

(16) Install **new** ring gear bolts and alternately tighten to 129-142 N·m (95-105 ft. lbs.) (Fig. 88).

CAUTION: Never reuse the ring gear bolts. The bolts can fracture causing extensive damage.

NOTE: If equipped with Vari-Lok® differential install oil feed plenum and side bearing.

(17) Install differential in housing.

CAUTION: When installing a Vari-lok® differential (Fig. 89), the oil feed tube must point to the bottom of the housing. If differential is installed with the oil feed tube pointed toward the top, the anti-rotation tabs will be damaged.

(18) Verify differential bearing preload, gear mesh and contact pattern. Refer to Adjustments for procedure.

(19) Install differential cover and fill with gear lubricant.

(20) Install the propeller shaft with the reference marks aligned.

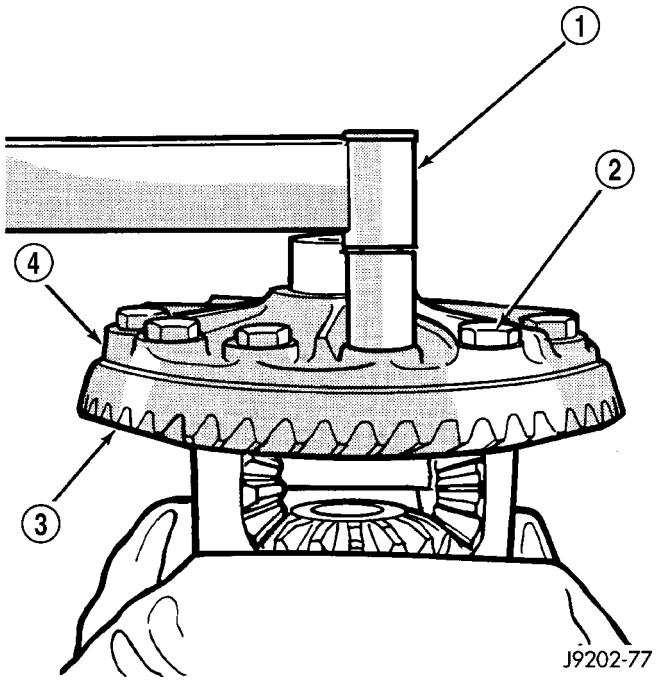


Fig. 88 RING GEAR

1 - TORQUE WRENCH
2 - RING GEAR BOLT
3 - RING GEAR
4 - CASE

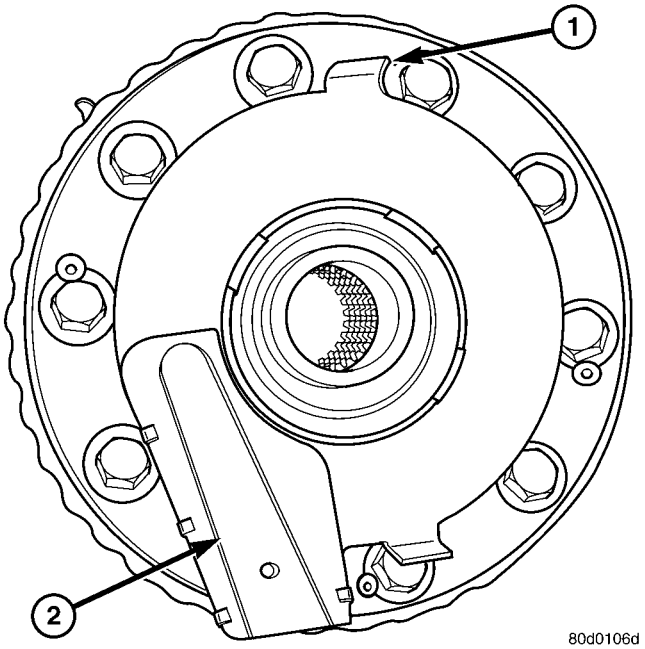


Fig. 89 VARI-LOK

1 - ANTI-ROTATION TAB
2 - OIL FEED TUBE

(21) Remove supports and lower vehicle.

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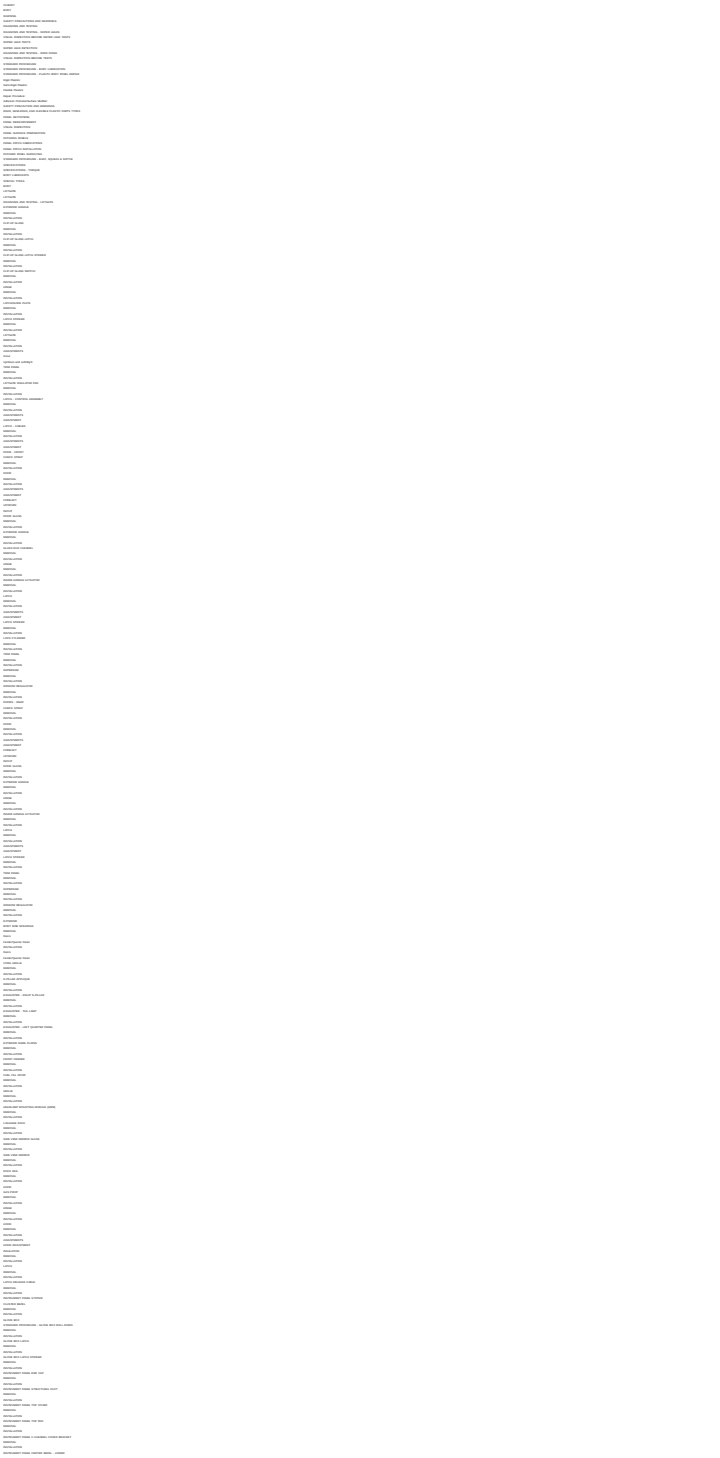
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BRAKES

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BRAKES - BASE

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BRAKES - BASE

DESCRIPTION

Dual piston disc brake calipers are used on the front. Single piston disc brake calipers are used on the rear. Ventilated disc brake rotors are used on the front and solid rotors are used on the rear.

Power brake assist is supplied by a vacuum operated, dual diaphragm power brake booster. The master cylinder used for all applications has an aluminum body and nylon reservoir with single filler cap. A fluid level indicator is mounted to the side of the reservoir.

The braking force of the rear wheels is controlled by electronic brake distribution (EBD). The EBD functions like a rear proportioning valve. The EBD system uses the ABS system to control the slip of the rear wheels in partial braking range. The braking force of the rear wheels is controlled electronically by using the inlet and outlet valves located in the HCU.

Factory installed brake linings on all models consists of organic base material combined with metallic particles.

DIAGNOSIS AND TESTING - BASE BRAKE SYSTEM

Base brake components consist of the brake shoes, calipers, rear park brake drums/rotors, front brake rotors, brake lines, master cylinder, booster, HCU and parking brake shoes.

Brake diagnosis involves determining if the problem is related to a mechanical, hydraulic, electrical or vacuum operated component.

The first diagnosis step is the preliminary check.

BRAKES - BASE (Continued)

PRELIMINARY BRAKE CHECK

(1) Check condition of tires and wheels. Damaged wheels and worn, damaged, or underinflated tires can cause pull, shudder, vibration, and a condition similar to grab.

(2) If complaint was based on noise when braking, check suspension components. Jounce front and rear of vehicle and listen for noise that might be caused by loose, worn or damaged suspension or steering components.

(3) Inspect brake fluid level and condition. Note that the brake reservoir fluid level will decrease in proportion to normal lining wear. **Also note that brake fluid tends to darken over time. This is normal and should not be mistaken for contamination.**

(a) If fluid level is abnormally low, look for evidence of leaks at calipers, brake lines, master cylinder, and HCU.

(b) If fluid appears contaminated, drain out a sample to examine. System will have to be flushed if fluid is separated into layers, or contains a substance other than brake fluid. The system seals, cups, hoses, master cylinder, and HCU will also have to be replaced after flushing. Use clean brake fluid to flush the system.

(4) Check parking brake operation. Verify free movement and full release of cables and lever. Also note if vehicle was being operated with parking brake partially applied.

(5) Check brake pedal operation. Verify that pedal does not bind and has adequate free play. If pedal lacks free play, check pedal and power booster for being loose or for bind condition. Do not road test until condition is corrected.

(6) Check booster vacuum check valve and hose.

(7) If components checked appear OK, road test the vehicle.

ROAD TESTING

(1) If complaint involved low brake pedal, pump pedal and note if it comes back up to normal height.

(2) Check brake pedal response with transmission in neutral and engine running. Pedal should remain firm under constant foot pressure.

(3) During road test, make normal and firm brake stops in 25-40 mph range. Note faulty brake operation such as low pedal, hard pedal, fade, pedal pulsation, pull, grab, drag, noise, etc.

(4) Attempt to stop the vehicle with the parking brake only (do not exceed 25 mph) and note grab, drag, noise, etc.

PEDAL FALLS AWAY

A brake pedal that falls away under steady foot pressure is generally the result of a system leak. The leak point could be at a brake line, fitting, hose, or caliper. If leakage is severe, fluid will be evident at or around the leaking component.

Internal leakage (seal by-pass) in the master cylinder caused by worn or damaged piston cups, may also be the problem cause.

An internal leak in the ABS system may also be the problem with no visual fluid leak.

LOW PEDAL

If a low pedal is experienced, pump the pedal several times. If the pedal comes back up, the most likely causes are worn linings, rotors, or calipers are not sliding on the slide pins. The proper course of action is to inspect and replace all worn component.

SPONGY PEDAL

A spongy pedal is most often caused by air in the system. However substandard brake hoses can cause a spongy pedal. The proper course of action is to bleed the system, and replace substandard quality brake hoses if suspected.

HARD PEDAL OR HIGH PEDAL EFFORT

A hard pedal or high pedal effort may be due to lining that is water soaked, contaminated, glazed, or badly worn. The power booster, check valve, check valve seal/grommet or vacuum leak could also cause a hard pedal or high pedal effort.

PEDAL PULSATION

Pedal pulsation is caused by components that are loose, or beyond tolerance limits.

The primary cause of pulsation are disc brake rotors with excessive lateral runout or thickness variation. Other causes are loose wheel bearings or calipers and worn, damaged tires.

NOTE: Some pedal pulsation may be felt during ABS activation.

BRAKE DRAG

Brake drag occurs when the lining is in constant contact with the rotor or drum. Drag can occur at one wheel, all wheels, fronts only, or rears only.

Drag is a product of incomplete brake release. Drag can be minor or severe enough to overheat the linings, rotors and park brake drums.

BRAKES - BASE (Continued)

Minor drag will usually cause slight surface charring of the lining. It can also generate hard spots in rotors and park brake drums from the overheat-cool down process. In most cases, the rotors, wheels and tires are quite warm to the touch after the vehicle is stopped.

Severe drag can char the brake lining all the way through. It can also distort and score rotors to the point of replacement. The wheels, tires and brake components will be extremely hot. In severe cases, the lining may generate smoke as it chars from overheating.

Common causes of brake drag are:

- Parking brake partially applied.
- Loose/worn wheel bearing.
- Seized caliper.
- Caliper binding.
- Loose caliper mounting.
- Mis-assembled components.
- Damaged brake lines.

If brake drag occurs at the front, rear or all wheels, the problem may be related to a blocked master cylinder return port, faulty power booster (binds-does not release) or the ABS system.

BRAKE FADE

Brake fade is usually a product of overheating caused by brake drag. However, brake overheating and resulting fade can also be caused by riding the brake pedal, making repeated high deceleration stops in a short time span, or constant braking on steep mountain roads. Refer to the Brake Drag information in this section for causes.

BRAKE PULL

Front brake pull condition could result from:

- Contaminated lining in one caliper
- Seized caliper piston
- Binding caliper
- Loose caliper
- Rusty caliper slide surfaces
- Improper brake shoes
- Damaged rotor
- Wheel alignment.
- Tire pressure.

A worn, damaged wheel bearing or suspension component are further causes of pull. A damaged front tire (bruised, ply separation) can also cause pull.

A common and frequently misdiagnosed pull condition is where direction of pull changes after a few stops. The cause is a combination of brake drag followed by fade at one of the brake units.

As the dragging brake overheats, efficiency is so reduced that fade occurs. Since the opposite brake unit is still functioning normally, its braking effect is magnified. This causes pull to switch direction in favor of the normally functioning brake unit.

An additional point when diagnosing a change in pull condition concerns brake cool down. Remember that pull will return to the original direction, if the dragging brake unit is allowed to cool down (and is not seriously damaged).

REAR BRAKE DRAG OR PULL

Rear drag or pull may be caused by improperly adjusted park brake shoes or seized parking brake cables, contaminated lining, bent or binding shoes or improperly assembled components. This is particularly true when only one rear wheel is involved. However, when both rear wheels are affected, the master cylinder or ABS system could be at fault.

BRAKES DO NOT HOLD AFTER DRIVING THROUGH DEEP WATER PUDDLES

This condition is generally caused by water soaked lining. If the lining is only wet, it can be dried by driving with the brakes very lightly applied for a mile or two. However, if the lining is both soaked and dirt contaminated, cleaning and or replacement will be necessary.

BRAKE LINING CONTAMINATION

Brake lining contamination is mostly a product of leaking calipers or worn seals, driving through deep water puddles, or lining that has become covered with grease and grit during repair. Contaminated lining should be replaced to avoid further brake problems.

WHEEL AND TIRE PROBLEMS

Some conditions attributed to brake components may actually be caused by a wheel or tire problem.

A damaged wheel can cause shudder, vibration and pull. A worn or damaged tire can also cause pull.

NOTE: Propshaft angle can also cause vibration/ shudder.

Severely worn tires with very little tread left can produce a grab-like condition as the tire loses and recovers traction. Flat-spotted tires can cause vibration and generate shudder during brake operation. Tire damage such as a severe bruise, cut, ply separation, low air pressure can cause pull and vibration.

BRAKES - BASE (Continued)

BRAKE NOISES

Some brake noise is common on some disc brakes during the first few stops after a vehicle has been parked overnight or stored. This is primarily due to the formation of trace corrosion (light rust) on metal surfaces. This light corrosion is typically cleared from the metal surfaces after a few brake applications causing the noise to subside.

BRAKE SQUEAK/SQUEAL

Brake squeak or squeal may be due to linings that are wet or contaminated with brake fluid, grease, or oil. Glazed linings and rotors with hard spots can also contribute to squeak. Dirt and foreign material embedded in the brake lining will also cause squeak/squeal.

A very loud squeak or squeal is frequently a sign of severely worn brake lining. If the lining has worn through to the brake shoes in spots, metal-to-metal contact occurs. If the condition is allowed to continue, rotors may become so scored that replacement is necessary.

NOTE: The front outer brake shoes are equipped with a wear indicator. The indicator will produce an audible noise when it contacts the rotor surface.

BRAKE CHATTER

Brake chatter is usually caused by loose or worn components, or glazed/burnt lining. Rotors with hard spots can also contribute to chatter. Additional causes of chatter are out-of-tolerance rotors, brake lining not securely attached to the shoes, loose wheel bearings and contaminated brake lining.

THUMP/CLUNK NOISE

Thumping or clunk noises during braking are frequently **not** caused by brake components. In many cases, such noises are caused by loose or damaged steering, suspension, or engine components.

STANDARD PROCEDURE

STANDARD PROCEDURE - MANUAL BLEEDING

Use Mopar brake fluid, or an equivalent quality fluid meeting SAE J1703-F and DOT 3 standards only. Use fresh, clean fluid from a sealed container at all times.

Do not pump the brake pedal at any time while bleeding. Air in the system will be compressed into small bubbles that are distributed throughout the hydraulic system. This will make additional bleeding operations necessary.

Do not allow the master cylinder to run out of fluid during bleed operations. An empty cylinder will allow additional air to be drawn into the system. Check the cylinder fluid level frequently and add fluid as needed.

Bleed only one brake component at a time in the following sequence:

(1) Fill the master cylinder reservoir with brake fluid.

(2) If calipers are overhauled, open all caliper bleed screws. Then close each bleed screw as fluid starts to drip from it. Top off master cylinder reservoir once more before proceeding.

(3) Attach one end of bleed hose to bleed screw and insert opposite end in glass container partially filled with brake fluid (Fig. 1). Be sure end of bleed hose is immersed in fluid.

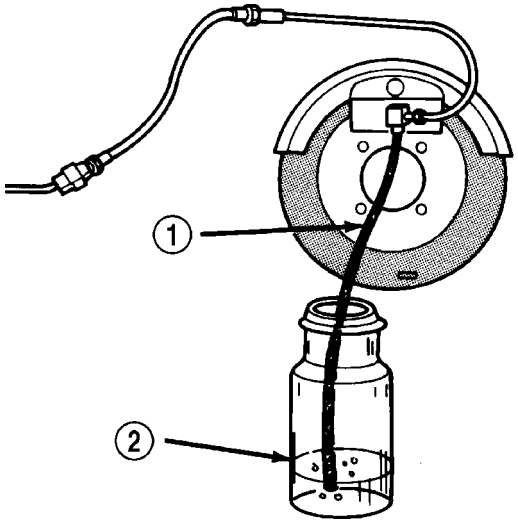


Fig. 1 Bleed Hose Setup

1 - BLEED HOSE
2 - FLUID CONTAINER PARTIALLY FILLED WITH FLUID

(4) Open up bleeder, then have a helper press down the brake pedal. Once the pedal is down close the bleeder. Repeat bleeding until fluid stream is clear and free of bubbles. Then move to the next wheel.

STANDARD PROCEDURE - PRESSURE BLEEDING

Use Mopar brake fluid, or an equivalent quality fluid meeting SAE J1703-F and DOT 3 standards only. Use fresh, clean fluid from a sealed container at all times.

Do not pump the brake pedal at any time while bleeding. Air in the system will be compressed into small bubbles that are distributed throughout the hydraulic system. This will make additional bleeding operations necessary.

Do not allow the master cylinder to run out of fluid during bleed operations. An empty cylinder will allow additional air to be drawn into the system. Check the cylinder fluid level frequently and add fluid as needed.

Bleed only one brake component at a time in the following sequence:

Follow the manufacturers instructions carefully when using pressure equipment. Do not exceed the tank manufacturers pressure recommendations. Generally, a tank pressure of 51-67 kPa (15-20 psi) is sufficient for bleeding.

Fill the bleeder tank with recommended fluid and purge air from the tank lines before bleeding.

Do not pressure bleed without a proper master cylinder adapter. The wrong adapter can lead to leakage, or drawing air back into the system. Use adapter provided with the equipment or Adapter 6921.

SPECIFICATIONS

BRAKE COMPONENTS

SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Front Disc Brake Caliper Type	Floating
Front Disc Brake Caliper Piston	48 mm (1.889 in.)
Front Disc Brake Rotor Type	Ventilated
Front Disc Brake Rotor Diameter	305 mm (12 in.)
Front Disc Brake Rotor Max. Runout	0.05 mm (0.002 in.)
Front Disc Brake Rotor Max. Thickness Variation	0.0127 mm (0.0005 in.)
Front Disc Brake Rotor Min. Thickness	24.5 mm (0.9646 in.)
Rear Disc Brake Caliper Type	Floating
Rear Disc Brake Caliper Piston	48 mm (1.889 in.)
Rear Disc Brake Rotor Type Diameter	Solid
Rear Disc Brake Rotor Diameter	305 mm (12 in.)
Rear Disc Brake Rotor Max. Runout	0.76 mm (0.003 in.)
Rear Disc Brake Rotor Max. Thickness Variation	0.0127 mm (0.0005 in.)
Rear Disc Brake Rotor Min. Thickness	8.5 mm (0.335 in.)
Rear Disc Brake Rotor Drum Max. Diameter	196 mm (7.7166 in.)
Brake Booster Type	Dual Diaphragm

TORQUE CHART

TORQUE SPECIFICATIONS

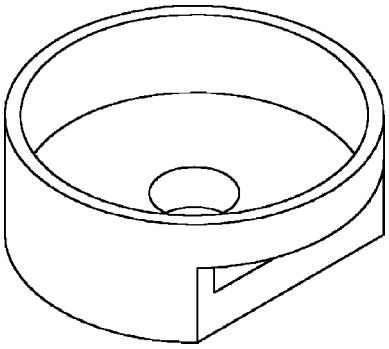
DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Brake Pedal Support Bolt	24	17	—
Brake Pedal Pivot Nut	31	23	—
Brake Pedal Bracket Adjustable pedals	28	21	250
Brake Pedal Bracket To Dash	12	9	105
Brake Booster Mounting Nuts	39	29	—
Master Cylinder Mounting Nuts	25	18	—
Master Cylinder Primary Brake Line	16	—	144

BRAKES - BASE (Continued)

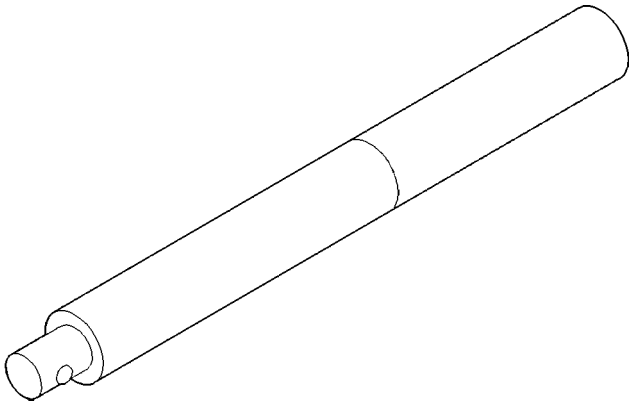
DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Master Cylinder Secondary Brake Line	16	—	144
Front Caliper Slide Pins	72	53	—
Front Caliper Anchor Bolts	103	76	—
Front Caliper Brake Hose Banjo Bolt	31	23	—
Front Caliper Bleed Screw	10	—	88
Rear Caliper Slide Pins	35	26	—
Rear Caliper Anchor Bolts	103	76	—
Rear Caliper Brake Hose Banjo Bolt	31	23	—
Rear Caliper Bleed Screw	16	—	144

SPECIAL TOOLS

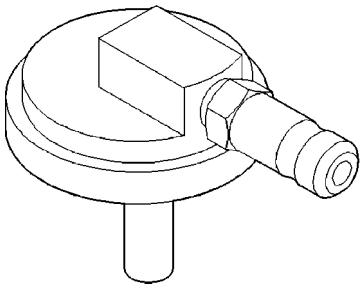
BASE BRAKES



Installer Caliper Dust Boot 8280



Handle C-4171



Adapter Pressure Bleeder 6921

BRAKE FLUID LEVEL SWITCH

REMOVAL

(1) Remove the wire connector from the fluid level sensor.

(2) From the same side of the master cylinder reservoir release the sensor locking taps with a small screw driver.

(3) Pull the sensor out of the reservoir from the connector side of the sensor.

INSTALLATION

(1) Install the sensor with a new o-ring into the reservoir until the locking tabs are engaged.

(2) Install the wire connector to the fluid level sensor.

RED BRAKE WARN INDICATOR SWITCH

DESCRIPTION

A red warning lamp is used for the service brake portion of the hydraulic system. The lamp is located in the instrument cluster.

RED BRAKE WARN INDICATOR SWITCH (Continued)

OPERATION

The lamp is turned on momentarily when the ignition switch is turn to the on position. This is a self test to verify the lamp is operational.

The red warning light alerts the driver if the fluid level is low or the parking brakes are applied. A red warning lamp with an amber warning lamp may indicate a electronic brake distribution fault.

DIAGNOSIS AND TESTING - RED BRAKE WARNING LAMP

The red warning lamp illuminates when the parking brake is applied or when the fluid level in the master cylinder is low. It will also illuminate at start up as part of a bulb check.

If the light comes on, first verify that the parking brakes are fully released. Then check pedal action and fluid level. If a problem is confirmed, inspect the brake hydraulic system for leaks.

A red warning lamp with a amber warning lamp may indicate a electronic brake distribution fault.

ADJUSTABLE PEDAL SWITCH

REMOVAL

(1) Remove the steering column opening cover (Fig. 2)(Refer to 23 - BODY/INSTRUMENT PANEL/ STEERING COLUMN OPENING COVER - REMOVAL).

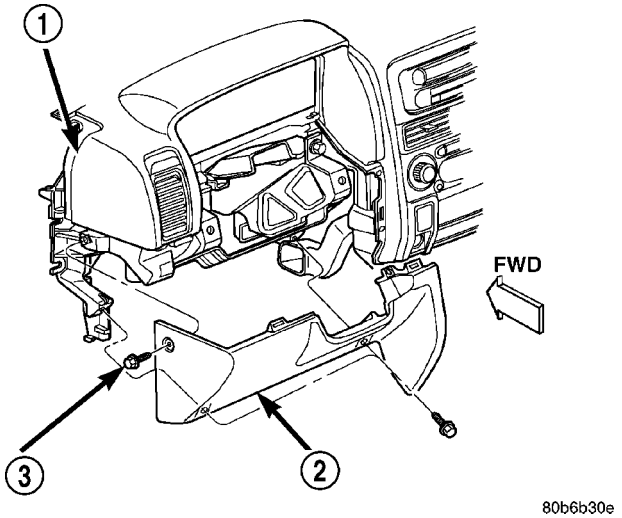


Fig. 2 STEERING COLUMN OPENING COVER REMOVAL/INSTALL

1 - INSTRUMENT PANEL TOP PAD
2 - STEERING COLUMN OPENING COVER
3 - SCREW (3)

(2) Disconnect the electrical connector from the adjustable pedal switch.

(3) Remove the switch from the steering column opening cover by squeezing the retaining clips together and pushing the switch outwards (Fig. 3).

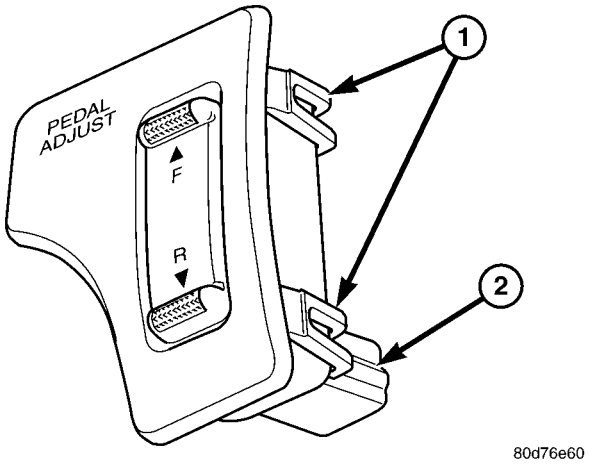


Fig. 3 ADJUSTABLE PEDAL SWITCH

1 - RETAINING CLIPS
2 - ELECTRICAL CONNECTION

INSTALLATION

(1) Install the switch to the steering column opening cover by pushing the switch inwards seating the retaining clips to the steering column opening cover (Fig. 3).

(2) Reconnect the electrical connector to the adjustable pedal switch.

(3) Install the steering column opening cover (Fig. 2)(Refer to 23 - BODY/INSTRUMENT PANEL/ STEERING COLUMN OPENING COVER - INSTALLATION).

BRAKE LINES

DESCRIPTION

Flexible rubber hose is used at both front brakes, rear brakes and at the rear axle junction block. Double walled steel tubing is used. Double inverted style and ISO style flares are used on the brake lines.

DIAGNOSIS AND TESTING - BRAKE HOSES AND LINES

Flexible rubber hose is used at both front and rear brakes and at the rear axle junction block. Inspect the hoses whenever the brake system is serviced, at every engine oil change, or whenever the vehicle is in for service.

Inspect the hoses for surface cracking, scuffing, or worn spots. Replace any brake hose immediately if the fabric casing of the hose is exposed due to cracks or abrasions.

BRAKE LINES (Continued)

Also check brake hose installation. Faulty installation can result in kinked, twisted hoses, or contact with the wheels and tires or other chassis components. All of these conditions can lead to scuffing, cracking and eventual failure.

The steel brake lines should be inspected periodically for evidence of corrosion, twists, kinks, leaks, or other damage. Heavily corroded lines will eventually rust through causing leaks. In any case, corroded or damaged brake lines should be replaced.

Factory replacement brake lines and hoses are recommended to ensure quality, correct length and superior fatigue life. Care should be taken to make sure that brake line and hose mating surfaces are clean and free from nicks and burrs. Also remember that right and left brake hoses are not interchangeable.

Use new copper gaskets at all caliper connections. Be sure brake line connections are properly made (not cross threaded) and tightened to recommended torque.

STANDARD PROCEDURE

STANDARD PROCEDURE - DOUBLE INVERTED FLARING

A preformed metal brake tube is recommended and preferred for all repairs. However, double-wall steel tube can be used for emergency repair when factory replacement parts are not readily available.

Special bending tools are needed to avoid kinking or twisting of metal brake tubes. Special flaring tools are needed to make a double inverted flare or ISO flare.

(1) Cut off damaged tube with Tubing Cutter.

(2) Ream cut edges of tubing to ensure proper flare.

(3) Install replacement tube nut on the tube.

(4) Insert tube in flaring tool.

(5) Place gauge form over the end of the tube.

(6) Push tubing through flaring tool jaws until tube contacts recessed notch in gauge that matches tube diameter.

(7) Tighten the tool bar on the tube

(8) Insert plug on gauge in the tube. Then swing compression disc over gauge and center tapered flaring screw in recess of compression disc (Fig. 4).

(9) Tighten tool handle until plug gauge is squarely seated on jaws of flaring tool. This will start the inverted flare.

(10) Remove the plug gauge and complete the inverted flare.

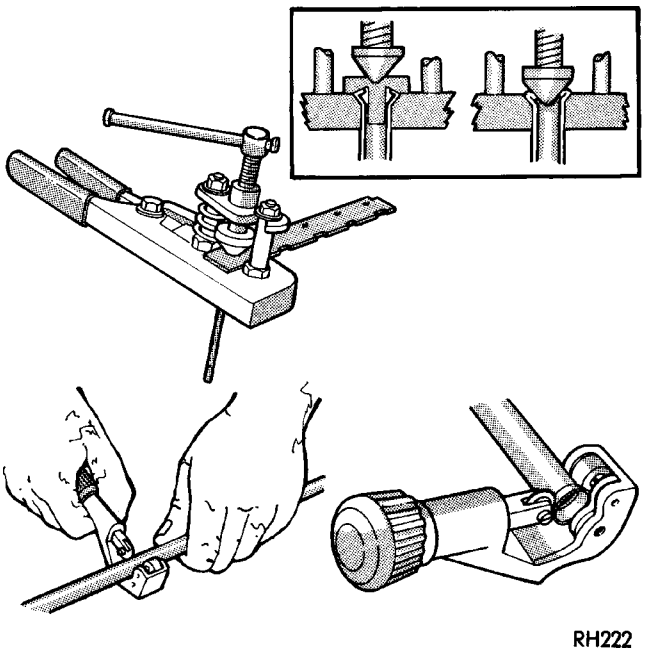


Fig. 4 Inverted

STANDARD PROCEDURE - ISO FLARING

A preformed metal brake tube is recommended and preferred for all repairs. However, double-wall steel tube can be used for emergency repair when factory replacement parts are not readily available.

Special bending tools are needed to avoid kinking or twisting of metal brake tubes. Special flaring tools are needed to make a double inverted flare or ISO flare.

To make a ISO flare use Snap-On® Flaring Tool TFM-428 or equivalent.

(1) Cut off damaged tube with Tubing Cutter.

(2) Remove any burrs from the inside of the tube.

(3) Install tube nut on the tube.

(4) Position the tube in the flaring tool flush with the top of the tool bar (Fig. 5). Then tighten the tool bar on the tube.

(5) Install the correct size adaptor on the flaring tool yoke screw.

(6) Lubricate the adaptor.

(7) Align the adaptor and yoke screw over the tube (Fig. 5).

(8) Turn the yoke screw in until the adaptor is squarely seated on the tool bar.

BRAKE LINES (Continued)

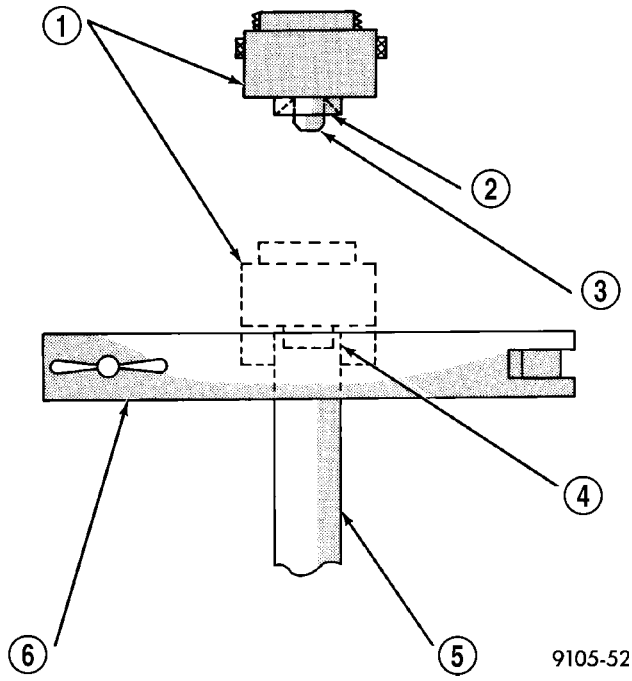


Fig. 5 ISO Flaring

1 - ADAPTER
2 - LUBRICATE HERE
3 - PILOT
4 - FLUSH WITH BAR
5 - TUBING
6 - BAR ASSEMBLY

BRAKE PADS / SHOES

DESCRIPTION

DESCRIPTION - FRONT DISC BRAKE PADS

The calipers are twin piston type. The calipers are free to slide laterally on the anchor, this allows continuous compensation for lining wear.

DESCRIPTION - REAR DISC BRAKE PADS

The rear disc brakes consist of single piston floating-type calipers and solid rotors. The rear caliper is mounted on an anchor attached to an adapter attached the rear axle tube flange. The anchors are secured to the adapters with mounting bolts. The disc brake rotor splash shield is part of the adaptor. The disc brake rotor has a built in brake drum used for the parking brakes (Fig. 6). The parking brake shoes are mounted to the adaptor.

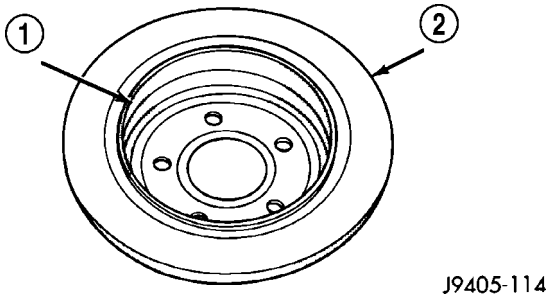


Fig. 6 Rear Disc Brake Rotor

1 - PARKING BRAKE DRUM SURFACE
2 - REAR DISC BRAKE ROTOR

OPERATION

OPERATION - FRONT DISC BRAKE PADS

When the brakes are applied fluid pressure is exerted against the caliper pistons. The fluid pressure is exerted equally and in all directions. This means pressure exerted against the caliper pistons and within the caliper bores will be equal (Fig. 7).

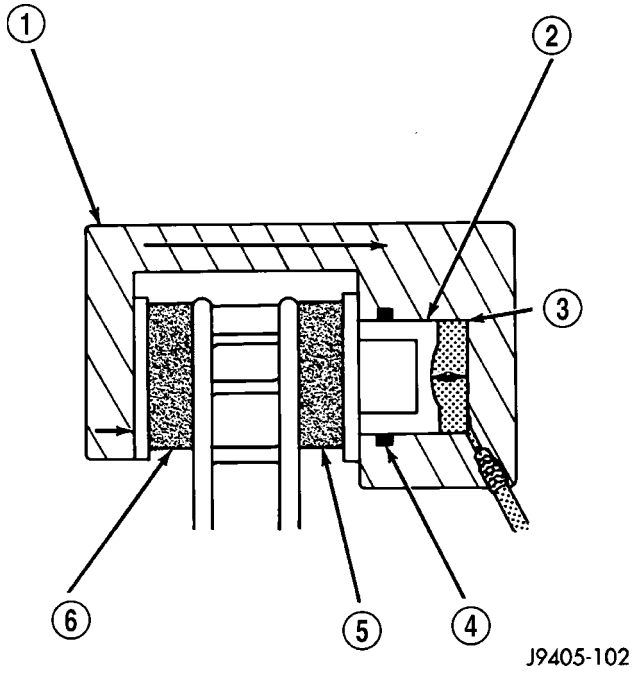


Fig. 7 Brake Caliper Operation

1 - CALIPER
2 - PISTON
3 - PISTON BORE
4 - SEAL
5 - INBOARD SHOE
6 - OUTBOARD SHOE

BRAKE PADS / SHOES (Continued)

Fluid pressure applied to the pistons is transmitted directly to the inboard brake pad. This forces the pad lining against the inner surface of the disc brake rotor. At the same time, fluid pressure within the piston bores forces the caliper to slide inward on the slide pins. This action brings the outboard brake pad lining into contact with the outer surface of the disc brake rotor.

Fluid pressure acting simultaneously on the pistons and caliper to produces a strong clamping action. When sufficient force is applied, friction will stop the rotors from turning and bring the vehicle to a stop.

Application and release of the brake pedal generates only a very slight movement of the caliper and pistons. Upon release of the pedal, the caliper and pistons return to a rest position. The brake pads do not retract an appreciable distance from the rotor. In fact, clearance is usually at, or close to zero. The reasons for this are to keep road debris from getting between the rotor and lining and in wiping the rotor surface clear each revolution.

The caliper piston seals control the amount of piston extension needed to compensate for normal lining wear.

During brake application, the seals are deflected outward by fluid pressure and piston movement (Fig. 8). When the brakes (and fluid pressure) are released, the seals relax and retract the pistons.

The front outboard brake pads have wear indicators.

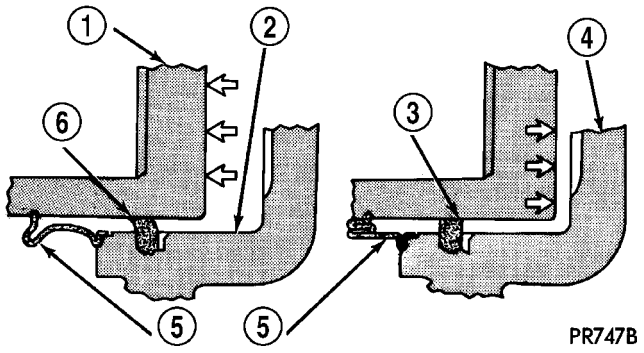


Fig. 8 Lining Wear Compensation By Piston Seal

1 - PISTON
2 - CYLINDER BORE
3 - PISTON SEAL BRAKE PRESSURE OFF
4 - CALIPER HOUSING
5 - DUST BOOT
6 - PISTON SEAL BRAKE PRESSURE ON

OPERATION - REAR DISC BRAKE PADS

When the brakes are applied fluid pressure is exerted against the caliper pistons. The fluid pressure is exerted equally and in all directions. This means pressure exerted against the caliper pistons and within the caliper bores will be equal (Fig. 7).

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The caliper piston seals control the amount of piston extension needed to compensate for normal lining wear.

During brake application, the seals are deflected outward by fluid pressure and piston movement (Fig. 8). When the brakes (and fluid pressure) are released, the seals relax and retract the pistons.

REMOVAL

REMOVAL- FRONT DISC BRAKE SHOES

(1) Raise and support vehicle.

(2) Remove wheel and tire assembly.

(3) Drain small amount of fluid from master cylinder brake reservoir with **clean** suction gun.

(4) Remove the caliper slide pin bolts and remove the caliper off the caliper adapter.

(5) Secure caliper to nearby suspension part with wire. **Do not allow brake hose to support caliper weight.**

BRAKE PADS / SHOES (Continued)

(6) Remove the inboard and outboard brake pads from the caliper adapter (Fig. 9).

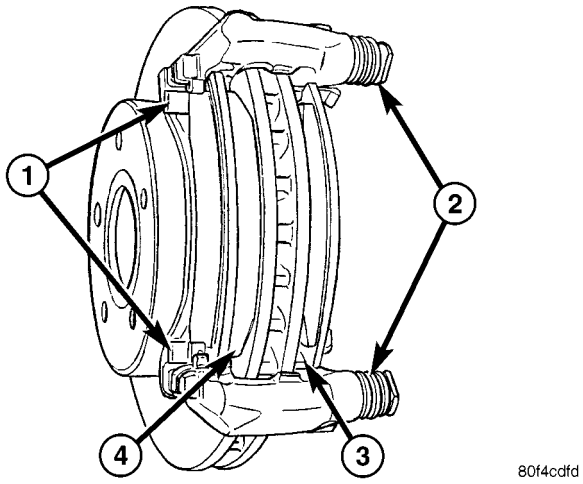


Fig. 9 BRAKE PADS REMOVE/INSTALL

1 - ANTI-RATTLE CLIPS
2 - CALIPER SLIDES
3 - INBOARD PAD
4 - OUTBOARD PAD

(7) Remove the anti-rattle clips from the brake caliper adapter (Fig. 9).

REMOVAL - REAR DISC BRAKE PADS

(1) Raise and support vehicle.
(2) Remove rear wheel and tire assembly.
(3) Drain small amount of fluid from master cylinder brake reservoir with a **clean** suction gun.
(4) Bottom caliper pistons into the caliper by prying the caliper over (Fig. 10).
(5) Remove the caliper support spring by prying the spring out of the caliper (Fig. 11).
(6) Remove the caliper slide pin bushing caps and remove the slide pins (Fig. 12).
(7) Remove caliper from the anchor.
(8) Secure caliper to nearby suspension part with wire. **Do not allow brake hose to support caliper weight.**
(9) Remove the inboard brake pad from the caliper (Fig. 13).
(10) Remove outboard brake pad (Fig. 14) from the caliper anchor.

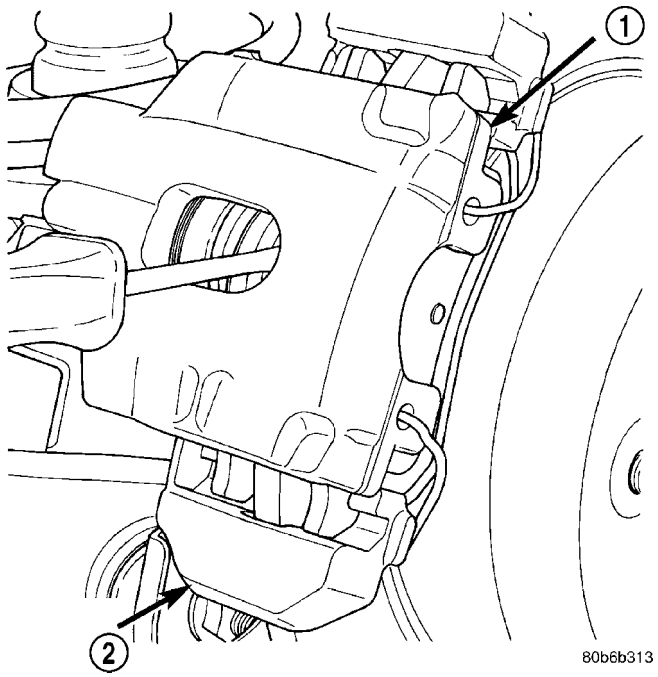


Fig. 10 Bottoming Caliper Piston

1 - CALIPER
2 - CALIPER ANCHOR

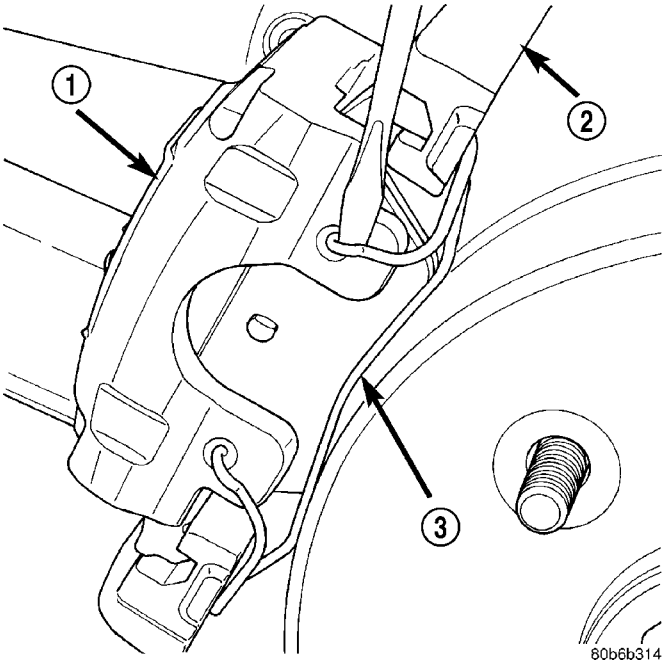


Fig. 11 Caliper Support Spring

1 - CALIPER
2 - ANCHOR
3 - SUPPORT SPRING

BRAKE PADS / SHOES (Continued)

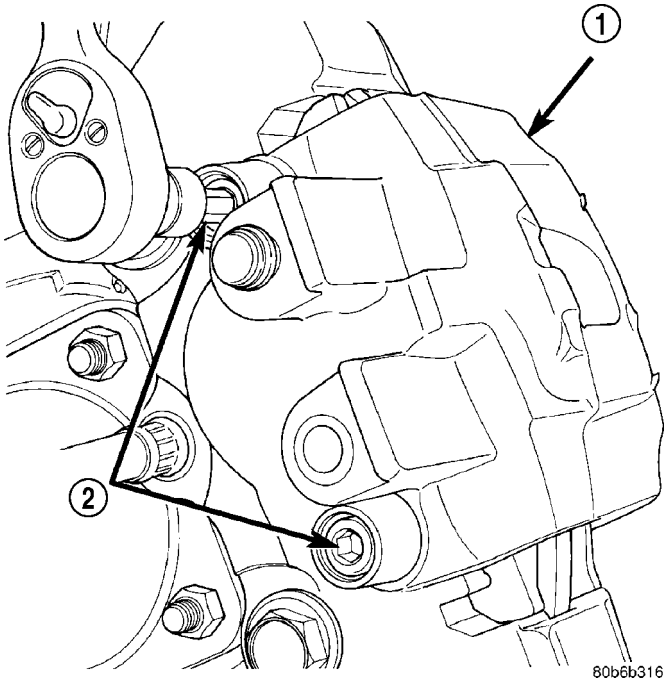


Fig. 12 Caliper Slide Pins

1 - CALIPER
2 - SLIDE PINS

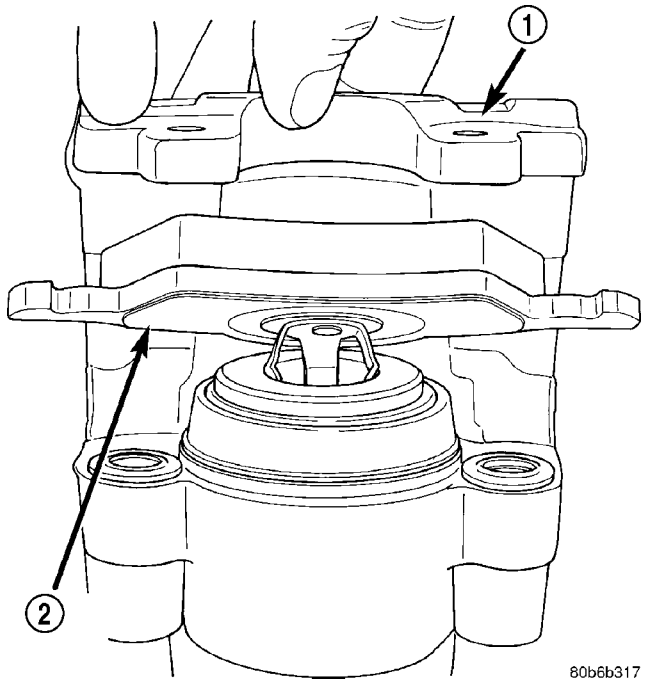


Fig. 13 Inboard Brake pad

1 - CALIPER
2 - INBOARD SHOE

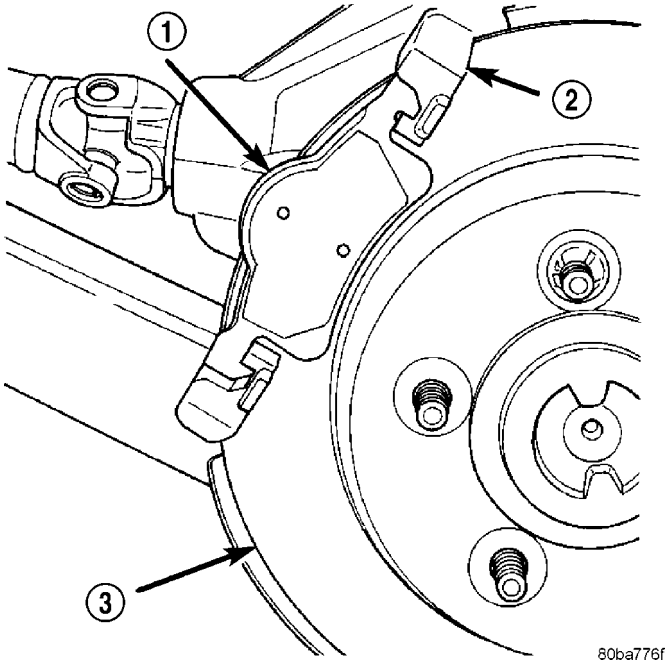


Fig. 14 Outboard Brake pad

1 - OUTBOARD BRAKE SHOE
2 - CALIPER ANCHOR
3 - ROTOR

INSTALLATION

INSTALLATION - FRONT DISC BRAKE SHOES

(1) Remove and clean all rust and debris from the anti-rattle clip mounting surfaces on the brake caliper adapter.

(2) Install new anti-rattle clips into the caliper adapter.

(3) Install the inboard and outboard brake pads onto the caliper adapter (Fig. 9).

(4) Install caliper on the caliper adapter.

(5) Install the caliper slide pin bolts and tighten to 72 N·m (53 ft. lbs.).

(6) Install wheel and tire assembly.

(7) Remove support and lower vehicle.

(8) Pump brake pedal until caliper pistons and brake pads are seated and a firm brake pedal is obtained.

(9) Fill brake fluid.

INSTALLATION - REAR DISC BRAKE PADS

(1) Install the inboard brake pad onto the caliper (Fig. 13).

(2) Install the outboard brake pad onto the caliper anchor (Fig. 14).

(3) Lubricate the slide pins and slide pin bushings with Dow Corning® grease G807 or the grease provided with the brake pads.

(4) Install caliper on the anchor.

BRAKE PADS / SHOES (Continued)

(5) Install the caliper slide pin and tighten to 29-41 N·m (21-30 ft. lbs.).

(6) Install the caliper slide pin bushing caps.

(7) Install the caliper support spring in the top end of the caliper and under the anchor. Then install other end into the lower caliper hole. Hold the spring into the caliper hole with your thumb while prying the end of the spring out and down under the anchor with a screw drive.

(8) Install wheel and tire assembly.

(9) Remove support and lower vehicle.

(10) Pump brake pedal until caliper piston and brake pads are seated and a firm brake pedal is obtained.

(11) Fill brake fluid level if necessary.

DISC BRAKE CALIPERS

REMOVAL

REMOVAL - FRONT DISC BRAKE CALIPER

(1) Raise and support vehicle.

(2) Remove front wheel and tire assembly.

(3) Drain small amount of fluid from master cylinder brake reservoir with **clean** suction gun.

(4) Bottom caliper pistons into the caliper by prying the caliper over (Fig. 15).

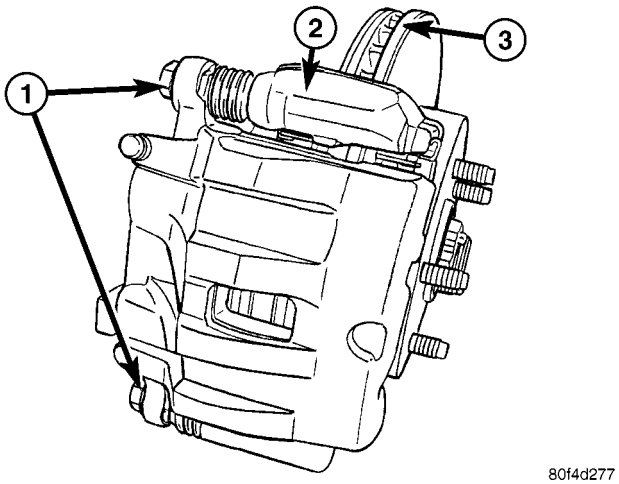


Fig. 15 CALIPER MOUNTED

1 - CALIPER SLIDE BOLTS
2 - CALIPER ADAPTER
3 - ROTOR

(5) Remove brake hose banjo bolt and gasket washers. Discard gasket washers.

(6) Remove the caliper slide bolts.

(7) Remove the caliper from the adapter (Fig. 16).

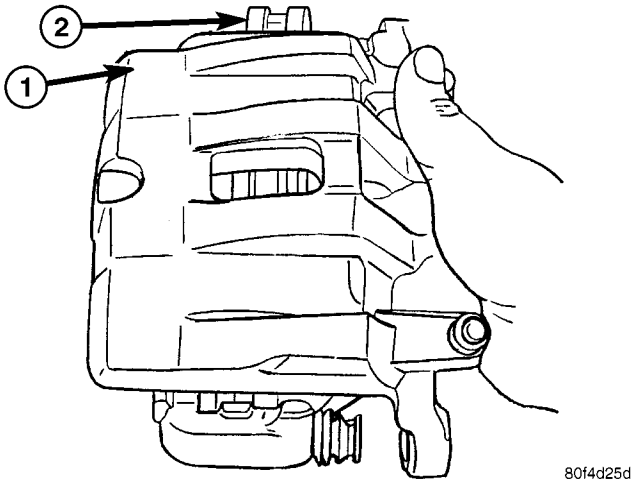


Fig. 16 CALIPER REMOVE/INSTALL

1 - CALIPER
2 - ROTOR

REMOVAL - REAR DISC BRAKE CALIPER

(1) Raise and support vehicle.

(2) Remove rear wheel and tire assembly.

(3) Drain small amount of fluid from master cylinder brake reservoir with a **clean** suction gun.

(4) Bottom caliper pistons into the caliper by prying the caliper over (Fig. 17).

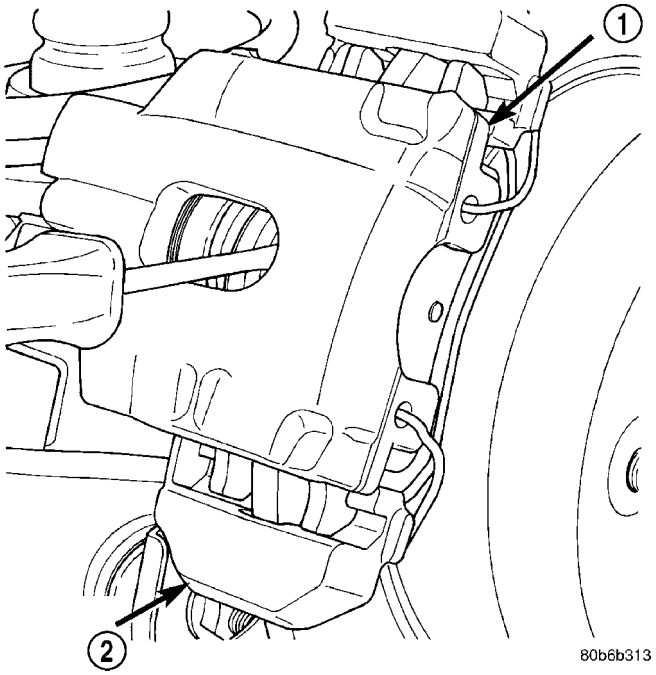


Fig. 17 Bottoming Caliper Piston

1 - CALIPER
2 - CALIPER ANCHOR

(5) Remove brake hose banjo bolt and discard gasket washers.

DISC BRAKE CALIPERS (Continued)

(6) Remove the caliper support spring by prying the spring out of the caliper (Fig. 18).

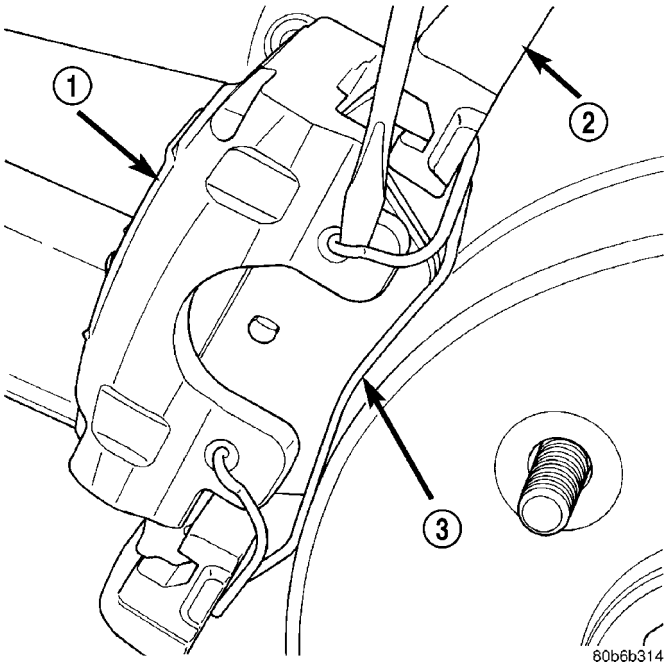


Fig. 18 Caliper Support Spring

1 - CALIPER
2 - ANCHOR
3 - SUPPORT SPRING

(7) Remove the caliper slide pin bushing caps and remove the slide pins (Fig. 19).

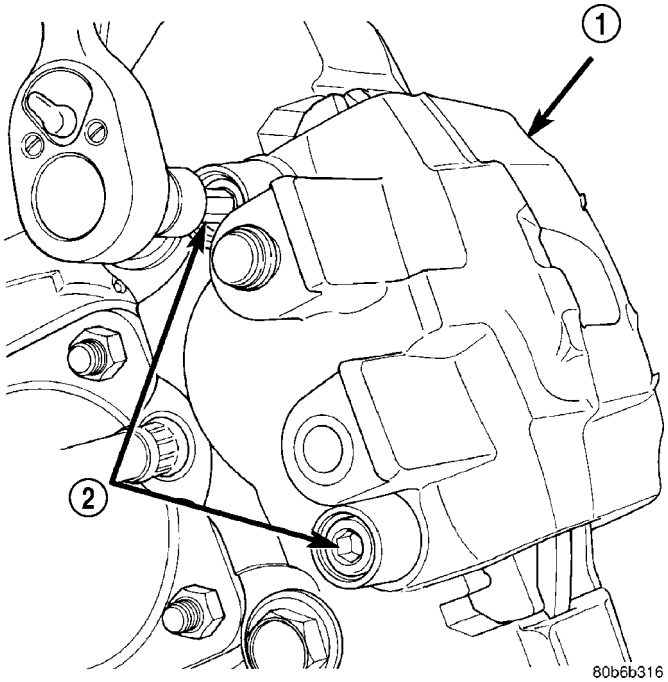


Fig. 19 Caliper Slide Pins

1 - CALIPER
2 - SLIDE PINS

(8) Remove caliper from the anchor.
(9) Remove the inboard brake shoe (Fig. 20).

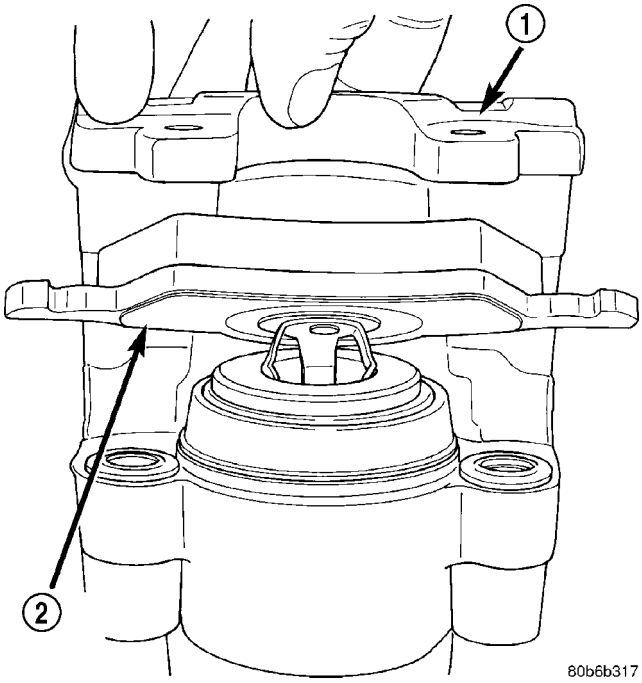


Fig. 20 Inboard Brake Shoe

1 - CALIPER
2 - INBOARD SHOE

DISASSEMBLY

DISASSEMBLY - FRONT DISC BRAKE CALIPER

(1) Drain the brake fluid from caliper.
(2) C-clamp a block of wood over one piston (Fig. 21).

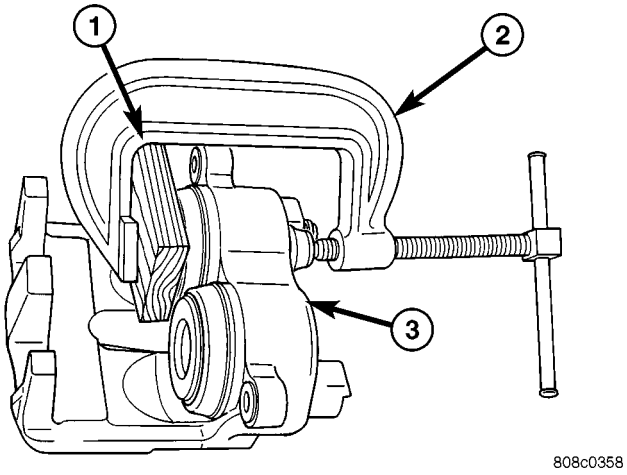


Fig. 21 C-CLAMP ONE PISTON

1 - BLOCK OF WOOD
2 - C-CLAMP
3 - CALIPER

DISC BRAKE CALIPERS (Continued)

(3) Take another piece of wood and pad it with one-inch thickness of shop towels. Place this piece in the outboard shoe side of the caliper in front of the other piston. This will cushion and protect caliper piston during removal (Fig. 22).

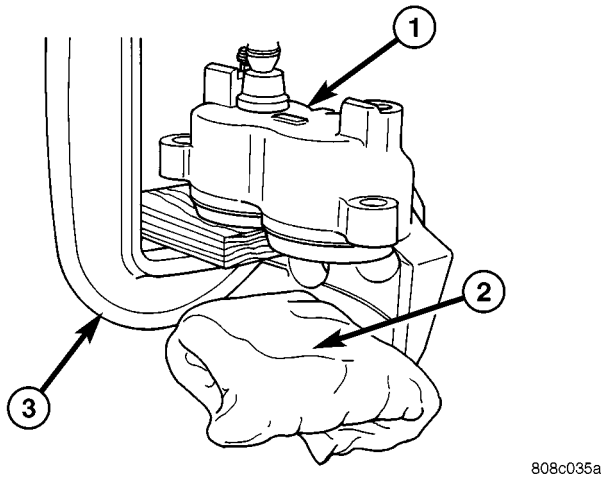


Fig. 22 PROTECT CALIPER PISTON

1 - CALIPER
2 - PADDED BLOCK OF WOOD
3 - C-CLAMP

(4) To remove the caliper piston direct **short bursts of low pressure air** with a blow gun through the caliper brake hose port. Use only enough air pressure to ease the piston out.

CAUTION: Do not blow the piston out of the bore with sustained air pressure. This could result in a cracked piston.

WARNING: NEVER ATTEMPT TO CATCH THE PISTON AS IT LEAVES THE BORE. THIS COULD RESULT IN PERSONAL INJURY.

(5) Remove the C-clamp and block of wood from the caliper and clamp it over the dust boot of the first piston removed. This will seal the empty piston bore.

(6) Move the padded piece of wood in front of the other piston.

(7) Remove the second piston using the same procedure with **short bursts of low pressure air**.

(8) Remove piston dust boots with a suitable pry tool (Fig. 23)and discard.

(9) Remove piston seals from caliper (Fig. 24)and discard.

CAUTION: Do not scratch piston bore while removing the seals.

(10) Remove caliper bleed screw.

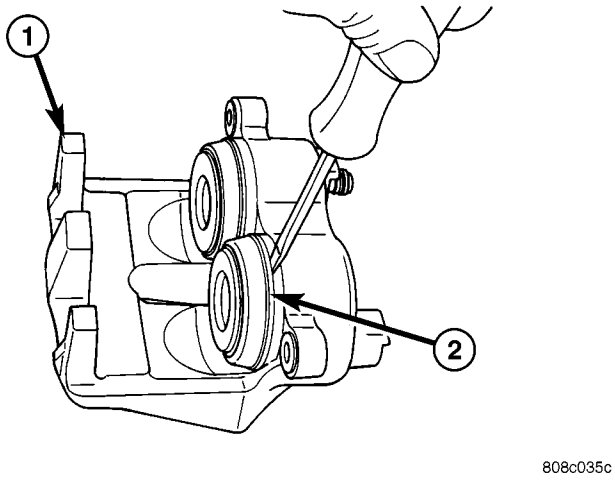


Fig. 23 Piston Dust Boot Removal

1 - CALIPER
2 - PISTON DUST BOOT

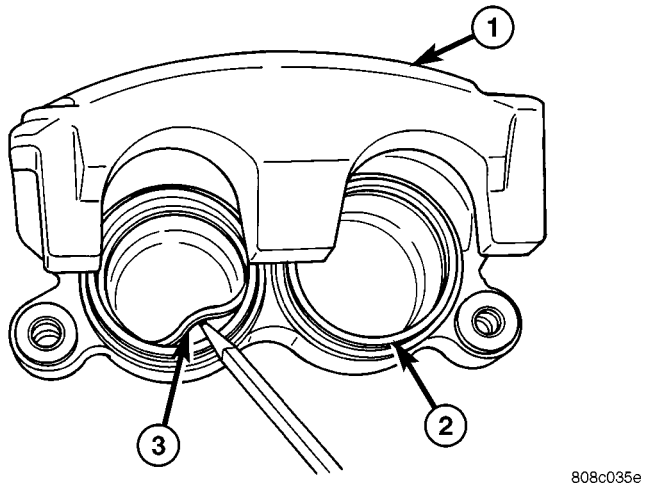


Fig. 24 Piston Seal

1 - CALIPER
2 - PISTON BORE
3 - PISTON SEAL

DISASSEMBLY - REAR DISC BRAKE CALIPER

(1) Drain brake fluid out of caliper.

(2) Take a piece of wood and pad it with one-inch thickness of shop towels. Place this piece in the outboard shoe side of the caliper in front of the piston. This will cushion and protect caliper piston during removal (Fig. 25).

(3) To remove caliper piston direct **short bursts of low pressure air** with a blow gun through the caliper brake hose port (Fig. 26). Use only enough air pressure to ease the piston out.

CAUTION: Do not blow the piston out of the bore with sustained air pressure. This could result in a cracked piston.

DISC BRAKE CALIPERS (Continued)

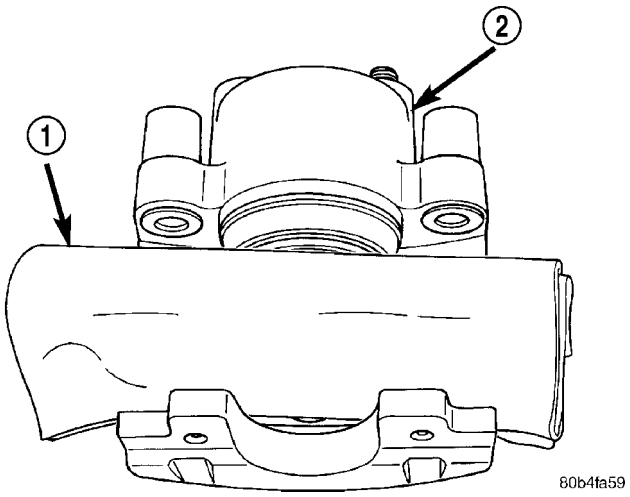


Fig. 25 Padding Caliper Interior

1 - SHOP TOWELS OR CLOTHS
2 - CALIPER

WARNING: NEVER ATTEMPT TO CATCH THE PISTON AS IT LEAVES THE BORE. THIS MAY RESULT IN PERSONAL INJURY.

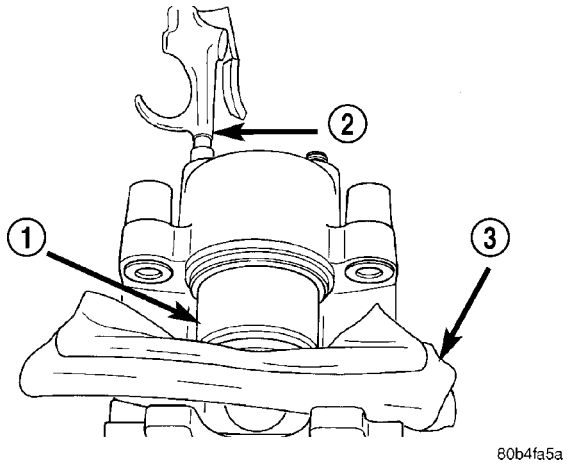


Fig. 26 Caliper Piston Removal

1 - CALIPER PISTON
2 - AIR GUN
3 - PADDING MATERIAL

(4) Remove caliper piston dust boot with a suitable pry tool (Fig. 27) and discard.

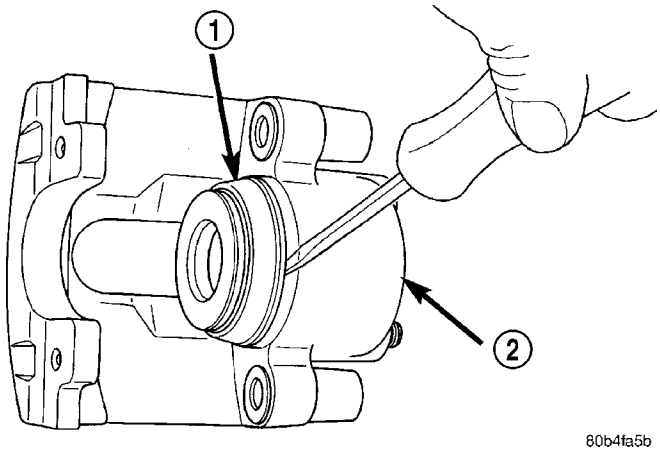


Fig. 27 Caliper Piston Dust

1 - PISTON DUST BOOT
2 - CALIPER

(5) Remove piston seal from the caliper (Fig. 28)and discard.

CAUTION: Do not scratch the piston bore while removing the seal.

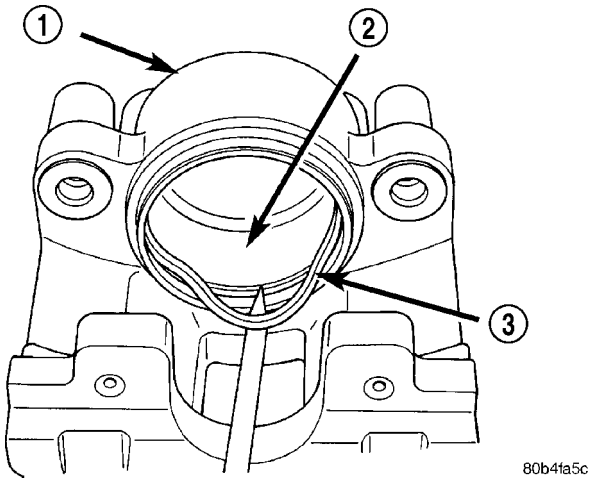


Fig. 28 Piston Seal Removal

1 - CALIPER
2 - PISTON BORE
3 - PISTON SEAL

DISC BRAKE CALIPERS (Continued)

(6) Remove caliper slide pin bushings (Fig. 29).

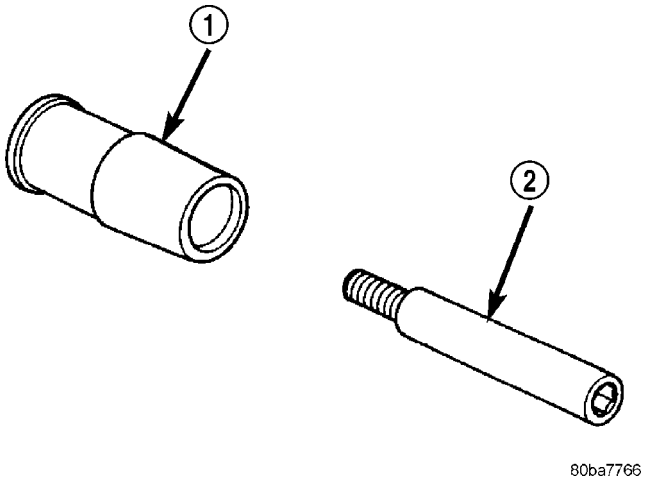


Fig. 29 Slide Pin And Bushing

1 - BUSHING
2 - CALIPER SLIDE PIN

(7) Remove caliper bleed screw.

CLEANING - DISC BRAKE CALIPER

Clean the caliper components with clean brake fluid or brake clean only. Wipe the caliper and piston dry with lint free towels or use low pressure compressed air.

CAUTION: Do not use gasoline, kerosene, paint thinner, or similar solvents. These products may leave a residue that could damage the piston and seal.

INSPECTION - DISC BRAKE CALIPER

The piston is made from a phenolic resin (plastic material) and should be smooth and clean.

The piston must be replaced if cracked or scored. Do not attempt to restore a scored piston surface by sanding or polishing.

CAUTION: If the caliper piston is replaced, install the same type of piston in the caliper. Never interchange phenolic resin and steel caliper pistons. The pistons, seals, seal grooves, caliper bore and piston tolerances are different.

The bore can be **lightly** polished with a brake hone to remove very minor surface imperfections (Fig. 30). The caliper should be replaced if the bore is severely corroded, rusted, scored, or if polishing would increase bore diameter more than 0.025 mm (0.001 inch).

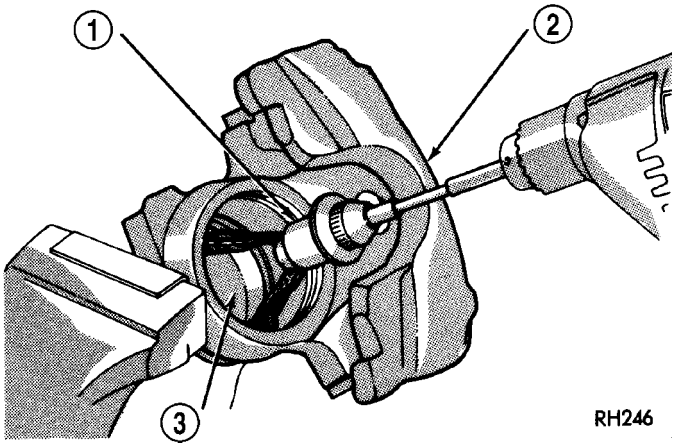


Fig. 30 Polishing Piston Bore

1 - SPECIAL HONE
2 - CALIPER
3 - PISTON BORE

ASSEMBLY

ASSEMBLY - FRONT DISC BRAKE CALIPER

CAUTION: Dirt, oil, and solvents can damage caliper seals. Insure assembly area is clean and dry.

(1) Lubricate caliper pistons, piston seals and piston bores with clean brake fluid.

(2) Install new piston seals into seal groove with finger (Fig. 31).

NOTE: Verify seal is fully seated and not twisted.

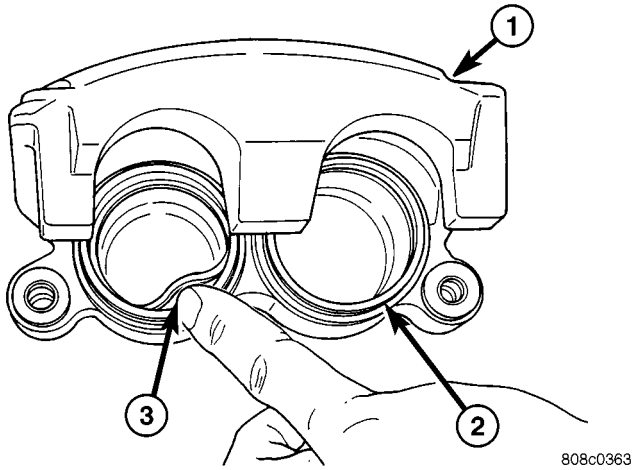


Fig. 31 PISTON SEAL

1 - CALIPER
2 - PISTON BORE
3 - PISTON SEAL

DISC BRAKE CALIPERS (Continued)

(3) Install new dust boot on caliper piston and seat boot lip into piston groove (Fig. 32).

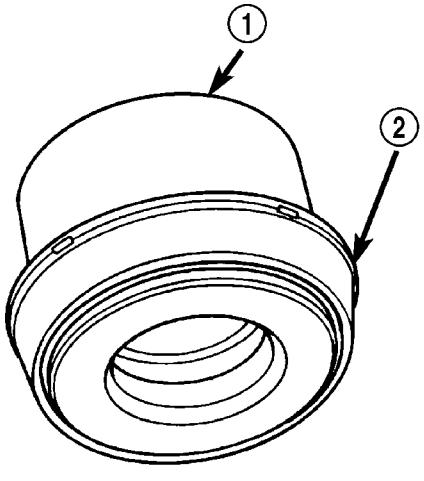


Fig. 32 Dust Boot On Piston

1 - PISTON
2 - DUST BOOT

(4) Stretch boot rearward to straighten boot folds, then move boot forward until folds snap into place.

(5) Install piston into caliper bore and press piston down to the bottom of the caliper bore by hand or with hammer handle (Fig. 33).

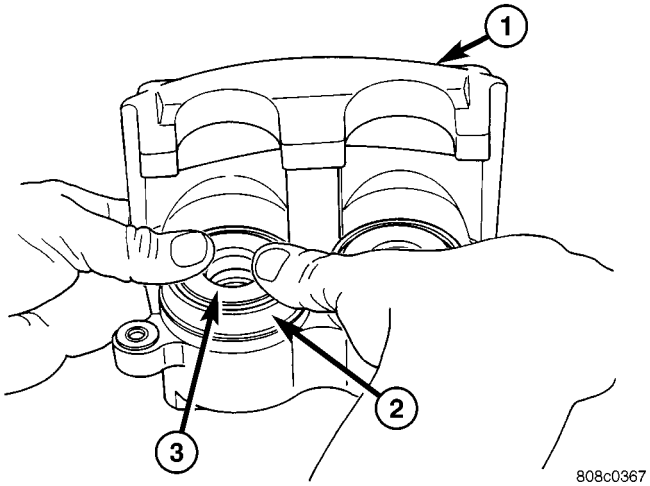


Fig. 33 CALIPER PISTON

1 - CALIPER
2 - DUST BOOT
3 - PISTON

(6) Seat dust boot in caliper (Fig. 34) with Installer 8280 and Handle C-4171.

(7) Install the second piston and dust boot.

(8) Install caliper bleed screw.

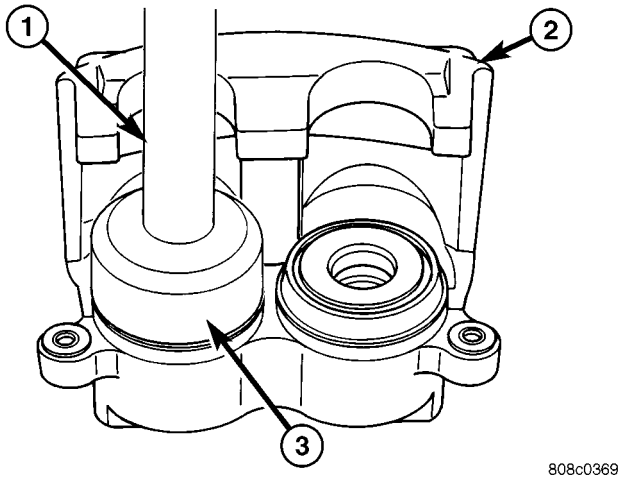


Fig. 34 SEATING DUST BOOT

1 - HANDLE
2 - CALIPER
3 - DUST BOOT INSTALLER

ASSEMBLY - REAR DISC BRAKE CALIPER

CAUTION: Dirt, oil, and solvents can damage caliper seals. Insure assembly area is clean and dry.

(1) Lubricate caliper piston, piston seal and piston bore with clean brake fluid.

(2) Install new piston seal into seal groove with finger (Fig. 35).

NOTE: Verify seal is fully seated and not twisted.

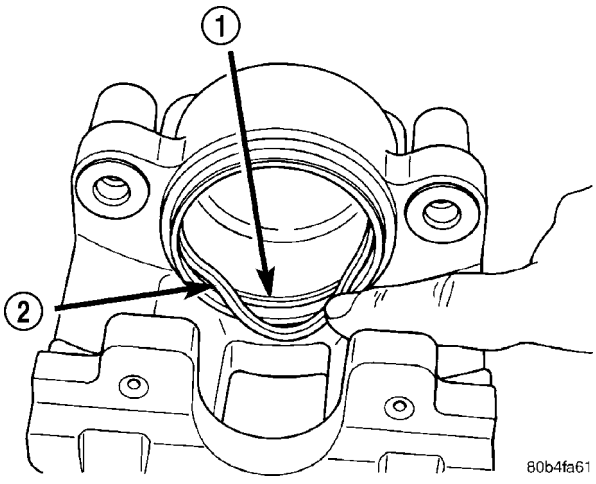


Fig. 35 Piston Seal Installation

1 - SEAL GROOVE
2 - PISTON SEAL

DISC BRAKE CALIPERS (Continued)

(3) Install new dust boot on caliper piston and seat boot lip into piston groove (Fig. 36).

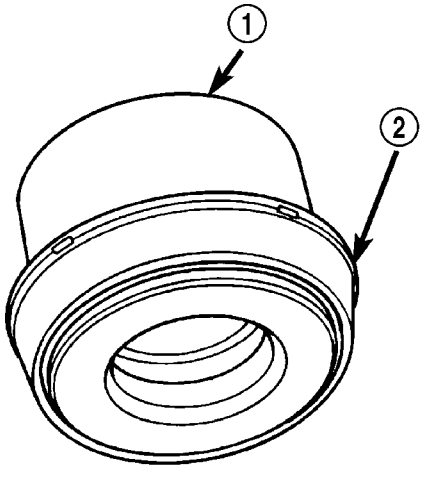


Fig. 36 Dust Boot On Piston

1 - PISTON
2 - DUST BOOT

(4) Stretch boot rearward to straighten boot folds, then move boot forward until folds snap into place.

(5) Install piston into caliper bore and press piston down to the bottom of the caliper bore by hand or with hammer handle (Fig. 37).

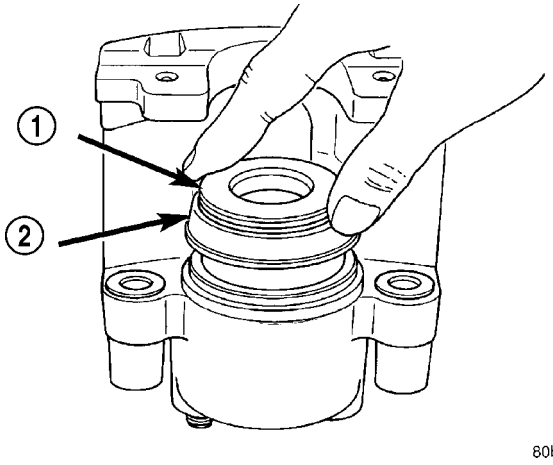


Fig. 37 Caliper Piston Installation

1 - PISTON
2 - BOOT

(6) Seat dust boot in caliper with Installer 8280 and Handle C-4171 (Fig. 38).

(7) Install caliper slide pin bushings into the caliper (Fig. 39).

(8) Install caliper bleed screw.

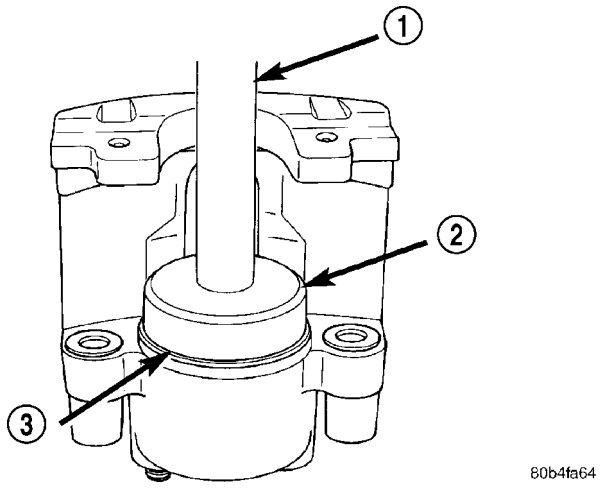


Fig. 38 Piston Dust Boot Installation

1 - HANDLE
2 - INSTALLER
3 - DUST BOOT

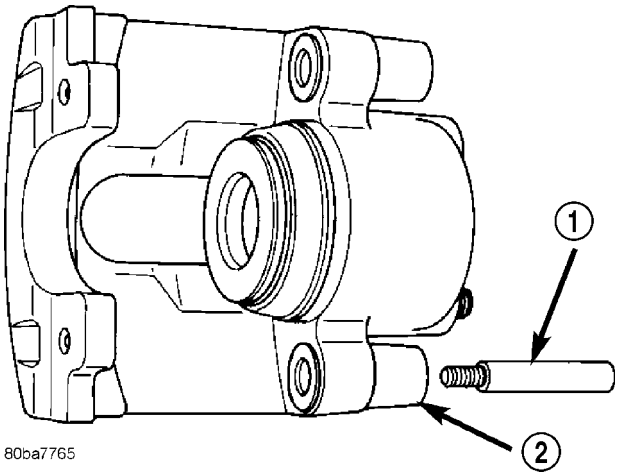


Fig. 39 Slide Pin And Bushing

1 - CALIPER SLIDE PIN
2 - BUSHING

INSTALLATION

INSTALLATION - FRONT DISC BRAKE CALIPER

(1) Caliper slide pins should be free from debris and lightly lubricated..

(2) Install the caliper on the adapter (Fig. 40).

(3) Install the caliper slide pin bolts and tighten to 72 N·m (53 ft. lbs.).

(4) Gently lift one end of the slide pin boot to equalize air pressure, then release the boot and verify that the boot is fully covering the slide pin.

DISC BRAKE CALIPERS (Continued)

(5) Install brake hose to caliper with **new gasket washers** and tighten banjo bolt to 31 N·m (23 ft. lbs.).

CAUTION: Verify brake hose is not twisted or kinked before tightening banjo bolt.

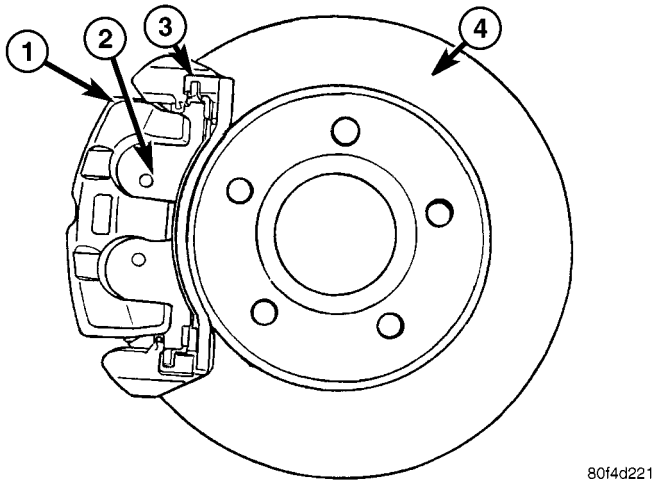


Fig. 40 CALIPER INSTALLED

1 - CALIPER
2 - BRAKE PAD
3 - CALIPER ADAPTER
4 - ROTOR

(6) Fill and bleed brake system.
(7) Install wheel and tire assemblies.
(8) Remove supports and lower vehicle.
(9) Verify brake fluid level.

INSTALLATION - REAR DISC BRAKE CALIPER

(1) Install the inboard brake shoe (Fig. 20).
(2) Lubricate the slide pins and slide pin bushings with Dow Corning® grease G807 or the grease provided with the caliper.
(3) Install the caliper on the anchor.
(4) Install the caliper slide pin and tighten to 35 N·m (26 ft. lbs.).
(5) Install the caliper slide pin caps.
(6) Install the caliper support spring in the top end of the caliper and under the anchor. Then install other end into the lower caliper hole. Hold the spring into the caliper hole with your thumb while prying the end of the spring out and down under the anchor with a screw drive.

CAUTION: Verify brake hose is not twisted or kinked before tightening fitting bolt.

(7) Install brake hose to caliper with a **new** gasket washers and tighten banjo bolt to 31 N·m (23 ft. lbs.).
(8) Fill and bleed brake system.
(9) Install wheel and tire assemblies.
(10) Remove supports and lower vehicle.

FLUID

DIAGNOSIS AND TESTING - BRAKE FLUID CONTAMINATION

Indications of fluid contamination are swollen or deteriorated rubber parts.

Swollen rubber parts indicate the presence of petroleum in the brake fluid.

To test for contamination, put a small amount of drained brake fluid in clear glass jar. If fluid separates into layers, there is mineral oil or other fluid contamination of the brake fluid.

If brake fluid is contaminated, drain and thoroughly flush system. Replace master cylinder with reservoir, caliper seals, HCU and all hydraulic fluid hoses.

SPECIFICATIONS

BRAKE FLUID

The brake fluid used in this vehicle must conform to DOT 3 specifications and SAE J1703 standards. No other type of brake fluid is recommended or approved for usage in the vehicle brake system. Use only Mopar brake fluid or an equivalent from a tightly sealed container.

CAUTION: Never use reclaimed brake fluid or fluid from an container which has been left open. An open container of brake fluid will absorb moisture from the air and contaminate the fluid.

CAUTION: Never use any type of a petroleum-based fluid in the brake hydraulic system. Use of such type fluids will result in seal damage of the vehicle brake hydraulic system causing a failure of the vehicle brake system. Petroleum based fluids would be items such as engine oil, transmission fluid, power steering fluid, etc.

FLUID RESERVOIR

REMOVAL

(1) Remove reservoir cap and remove fluid with a **clean**suction gun.

(2) Remove the wire connector from the brake fluid level sensor.

(3) Insert the tool (Fig. 41) provided with the reservoir to release the reservoir retaining tabs.

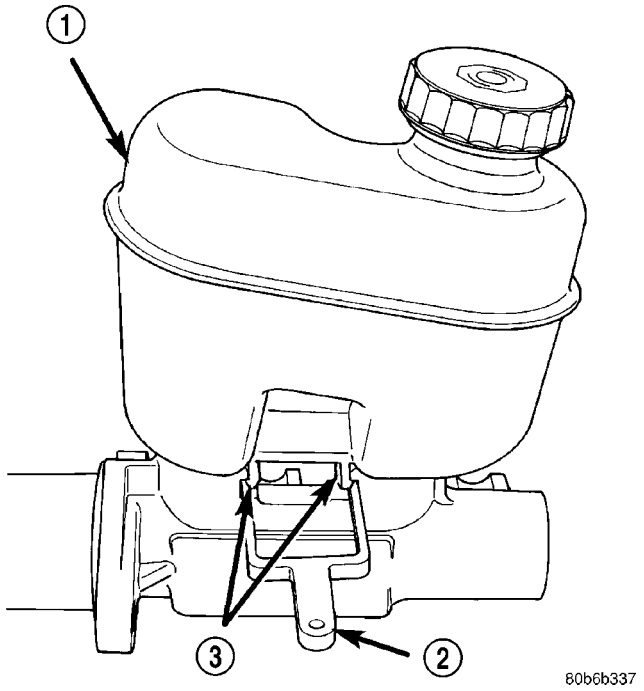


Fig. 41 Release Tool

1 - RESERVOIR
2 - RELEASE TOOL
3 - RETAINING TABS

(4) Pull the reservoir straight up out of the cylinder.

(5) Remove and discard grommets from the cylinder body.

INSTALLATION

(1) Lubricate new grommets with clean brake fluid. Install new grommets into the cylinder body.

CAUTION: Do not use tools to install the grommets. Tools may cut, or tear the grommets. Install the grommets using finger pressure only.

(2) Start reservoir in grommets then press the reservoir straight down to seat the reservoir into the cylinder grommets.

CAUTION: Do not rock the reservoir during installation.

(3) Verify retaining tabs are seated.

(4) Install the wire connector to the brake fluid level sensor.

(5) Fill master cylinder.

MASTER CYLINDER

DESCRIPTION

The master cylinder body is made of aluminum and contains a primary and secondary piston assembly. The cylinder body including the piston assemblies are not serviceable. If diagnosis indicates an internal problem with the cylinder body, it must be replaced as an assembly. The master cylinder has a removable reservoir and fluid level indicator. The reservoir, reservoir grommets, reservoir cap and fluid level switch are the only replaceable parts on the master cylinder.

OPERATION

The master cylinder bore contains a primary and secondary piston. The primary piston supplies hydraulic pressure to the front brakes. The secondary piston supplies hydraulic pressure to the rear brakes. The master cylinder reservoir stores reserve brake fluid for the hydraulic brake circuits.

DIAGNOSIS AND TESTING - MASTER CYLINDER/POWER BOOSTER

NOTE: Inspect and repair any external fluid leaks before performing test.

(1) Start engine and check booster vacuum hose connections. A hissing noise indicates vacuum leak. Correct any vacuum leak before proceeding.

(2) Stop engine and shift transmission into Neutral.

(3) Pump brake pedal until all vacuum reserve in booster is depleted.

(4) Press and hold brake pedal under light foot pressure. The pedal should hold firm, if the pedal falls away the master cylinder or HCU may be faulty (internal leakage).

(5) Start engine and note pedal action. It should fall away slightly under light foot pressure then hold firm. If no pedal action is discernible, power booster, vacuum supply, or vacuum check valve is faulty. Proceed to the POWER BOOSTER VACUUM TEST.

(6) If the POWER BOOSTER VACUUM TEST passes, rebuild booster vacuum reserve as follows: Release brake pedal. Increase engine speed to 1500 rpm, close the throttle and turn off the engine.

(7) Wait a minimum of 90 seconds and try brake action again. Booster should provide two or more vac-

MASTER CYLINDER (Continued)

uum assisted pedal applications. If vacuum assist is not provided, some component of the booster is faulty.

POWER BOOSTER VACUUM TEST

(1) Connect vacuum gauge to booster check valve with short length of hose and T-fitting (Fig. 42).

(2) Start and run engine at curb idle speed for one minute.

(3) Observe the vacuum supply. If vacuum supply is not adequate, repair vacuum supply.

(4) Clamp hose shut between vacuum source and check valve.

(5) Stop engine and observe vacuum gauge.

(6) If vacuum drops more than one inch HG (33 millibars) within 15 seconds, booster diaphragm, check valve or check valve seal/grommet is faulty.

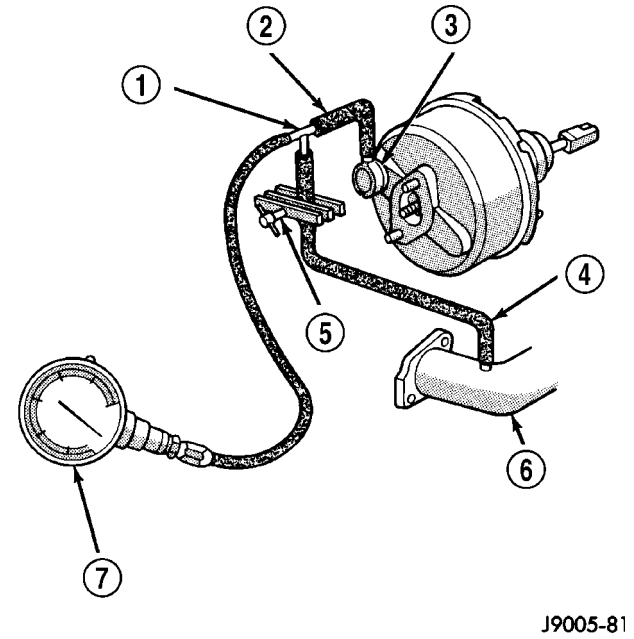


Fig. 42 Typical Booster Vacuum Test Connections

1 - TEE FITTING
2 - SHORT CONNECTING HOSE
3 - CHECK VALVE
4 - CHECK VALVE HOSE
5 - CLAMP TOOL
6 - INTAKE MANIFOLD
7 - VACUUM GAUGE

POWER BOOSTER CHECK VALVE TEST

(1) Disconnect vacuum hose from check valve.

(2) Remove check valve and valve seal from booster.

(3) Use a hand operated vacuum pump for test.

(4) Apply 51-67 kPa (15-20 in.) vacuum at large end of check valve (Fig. 43).

(5) Vacuum should hold steady. If gauge on pump indicates vacuum loss the check valve and seal should be replaced.

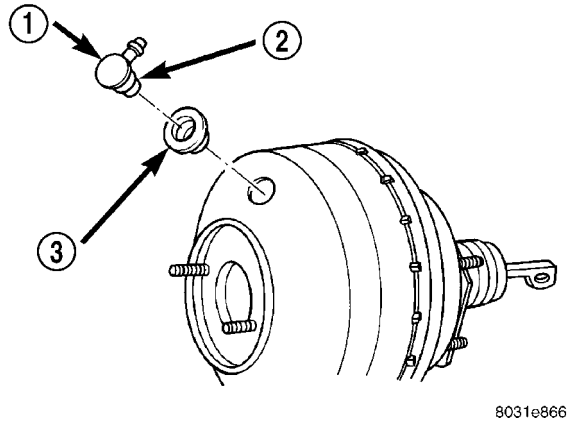


Fig. 43 Vacuum Check Valve And Seal

1 - BOOSTER CHECK VALVE
2 - APPLY TEST VACUUM HERE
3 - VALVE SEAL

STANDARD PROCEDURE - MASTER CYLINDER BLEEDING PROCEDURE

A new master cylinder should be bled before installation on the vehicle. Required bleeding tools include bleed tubes and a wood dowel to stroke the pistons. Bleed tubes can be fabricated from brake line.

(1) Mount master cylinder in vise with brass jaws.

(2) Attach bleed tubes to cylinder outlet ports. Then position each tube end into the bottom of the reservoir (Fig. 44).

(3) Fill reservoir with fresh brake fluid.

(4) Press cylinder pistons inward with wood dowel. Then release pistons and allow them to return under spring pressure. Continue bleeding operations until air bubbles are no longer visible in fluid.

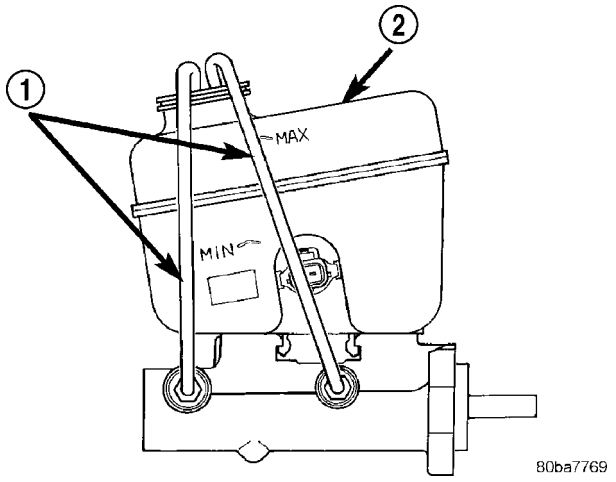


Fig. 44 Master Cylinder Bleeding

1 - BLEEDING TUBES
2 - RESERVOIR

MASTER CYLINDER (Continued)

REMOVAL

(1) Remove the wire connector from the brake fluid level sensor.
(2) Remove brake lines from master cylinder.
(3) Remove nuts that attach master cylinder to booster studs (Fig. 45).
(4) Remove master cylinder from booster.

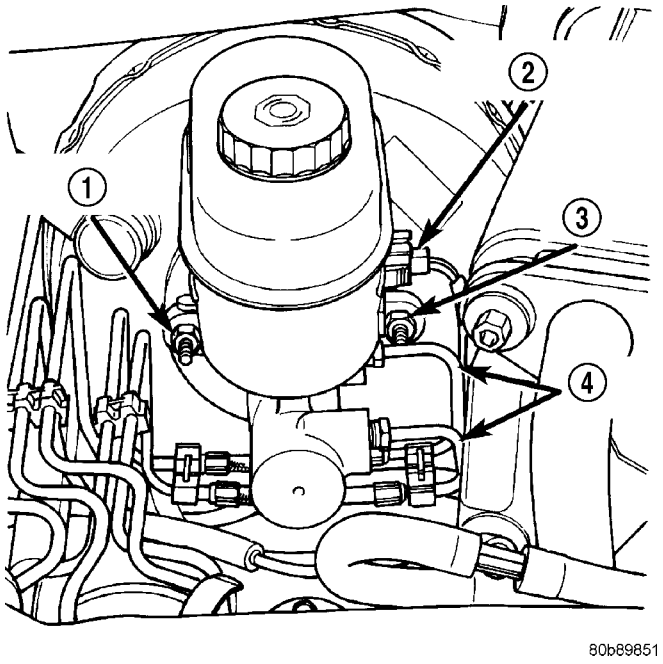


Fig. 45 Master Cylinder Mounting

1 - MOUNTING NUT
2 - SENSOR CONNECTOR
3 - MOUNTING NUT
4 - BRAKE LINES

INSTALLATION

NOTE: Bleed new master cylinder on bench before installation, refer to Service Procedures.

(1) Have an assistant depress the brake pedal while guiding the master cylinder on the booster rod and mounting studs.

CAUTION: Do not depress brake pedal too hard and ensure the booster rod is in the master cylinder piston or booster/master cylinder damage will occur.

(2) Install master cylinder mounting nuts and tighten nuts to 25 N·m (18 lb. lbs.).

NOTE: Use original or factory replacement nuts only.

(3) Install brake lines and tighten to 16 N·m (144 in. lbs.).
(4) Install fluid level sensor connector.
(5) Fill and bleed brake system.

PEDAL

DESCRIPTION

DESCRIPTION - STANDARD PEDAL

A suspended-type brake pedal is used, the pedal pivots on a shaft mounted in the pedal support bracket. The bracket is attached to the dash panel.

The brake pedal assembly and pedal pad are the only serviceable component.

DESCRIPTION - ADJUSTABLE PEDALS

The Adjustable Pedals System (APS) is designed to enable the fore and aft repositioning of the brake and accelerator pedals. This results in improved ergonomics in relation to the steering wheel for taller and shorter drivers. Being able to adjust the pedal positions also allows the driver to set steering wheel tilt and seat position to the most comfortable position. The position of the brake and accelerator pedals can be adjusted without compromising safety or comfort in actuating the pedals. Repositioning the pedals does not change the effort required for actuation.

Change of pedal position is accomplished by means of a motor driven screw. Operating the adjustable pedal switch activates the pedal drive motor. The pedal drive motor turns a screw that changes the position of the brake and accelerator pedals. The pedal can be moved rearward (closer to the driver) or forward (away from driver). The brake pedal is moved on its drive screw to a position where the driver feels most comfortable (Fig. 46).

The accelerator pedal is moved at the same time and the same distance as the brake pedal. The accelerator pedal adjustment screw is turned by a flexible shaft slaved off the brake adjustment screw.

Neither the pedal drive motor nor drive mechanism are subject to the mechanical stress of brake or accelerator application.

- SYSTEM FEATURES:
  - Range of Adjustment: The pedals may be adjusted up to 3 in. (75 mm)
  - Pedal Adjustment Speed: 0.5 in./sec (12.5 mm/sec)
  - Pedal Adjustment Inhibitors: Pedal adjustment is inhibited when the vehicle is in reverse or when cruise control is activated.
  - Memory: An optional memory feature is available. This allows storing of one or two preferred pedal positions in the Adjustable Pedal Module (APM). A preferred position can be stored and recalled using the door-mounted switches. A stored pedal position can be recalled (but not stored) using the Remote Keyless Entry (RKE).

PEDAL (Continued)

- Adjustable Pedal Feedback Message: The Electronic Vehicle Information Center (EVIC) will display a message when the APS is disabled. ie: ″Adjustable Pedal Disabled - Cruise Control Engaged″ or ″Adjustable Pedal Disabled - Vehicle in Reverse″.
- Damage Prevention: Foot pressure or debris can stall pedal adjustment. In order to avoid damage to system components during pedal adjustment, the APM will monitor pedal position sensor voltage. If the APM does not detect expected voltage change within 1.5 seconds, it will cut power to the adjustable pedal motor.

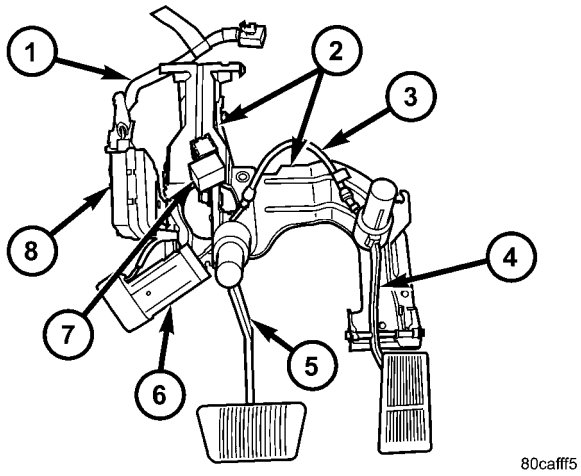


Fig. 46 ADJUSTABLE PEDALS ASSEMBLY

1 - HARNESS
2 - ADJUSTABLE PEDAL BRACKET
3 - CABLE
4 - ACCELERATOR PEDAL
5 - BRAKE PEDAL
6 - ADJUSTABLE PEDAL MOTOR
7 - BRAKE LIGHT SWITCH
8 - ADJUSTABLE PEDALS MODULE

OPERATION

The brake pedal is attached to the booster push rod. When the pedal is depressed, the primary booster push rod is depressed which moves the booster secondary rod. The booster secondary rod depresses the master cylinder piston.

REMOVAL

REMOVAL - NON-ADJUSTABLE PEDAL

(1) Remove retainer clip that holds booster to pedal pin (Fig. 47).
(2) Remove nut from pedal shaft.
(3) Slide pedal shaft out and remove brake pedal.
(4) Remove pedal bushings (Fig. 48) if they are to be replaced.

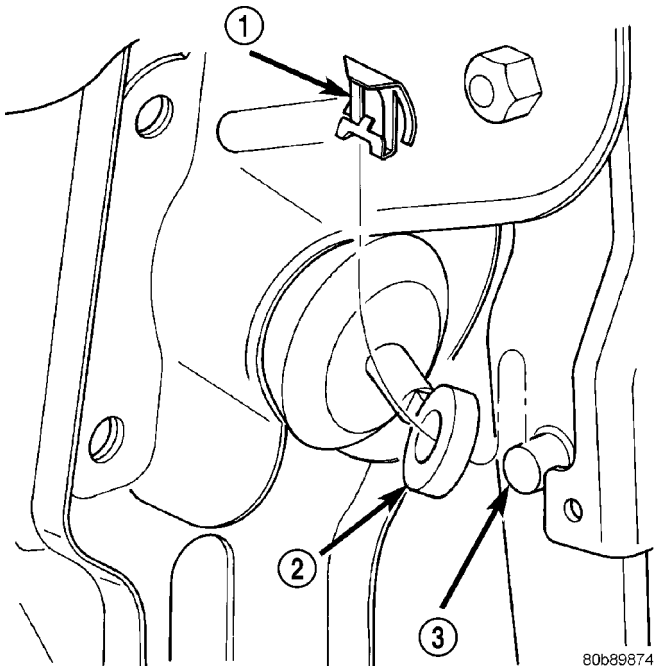


Fig. 47 Push Rod Retainer Clip

1 - RETAINER CLIP
2 - PUSH ROD
3 - PEDAL PIN

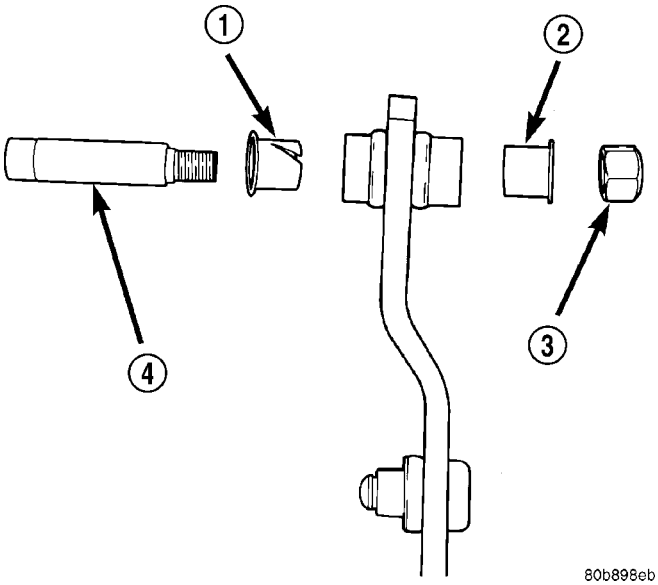


Fig. 48 Pedal Bushings

1 - BUSHING
2 - BUSHING
3 - SHAFT NUT
4 - PEDAL SHAFT

PEDAL (Continued)

REMOVAL - ADJUSTABLE PEDALS

NOTE: If possible put the pedals in the full forward position.

(1) Disconnect the negative battery cable.
(2) Remove the cluster bezel (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - REMOVAL).
(3) Remove the steering column opening cover (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).
(4) Disconnect the module electrical connector.
(5) Remove the brake light switch.
(6) Disconnect the booster rod clip (Fig. 47).
(7) Disconnect the accelerator cable from the pedal.
(8) Lock the steering wheel into place.
(9) Remove the lower steering shaft pinch bolt (Fig. 50).
(10) Separate the lower shaft coupler and push forward (Fig. 50).
(11) Remove the two pedal bracket upper nuts (Fig. 49).

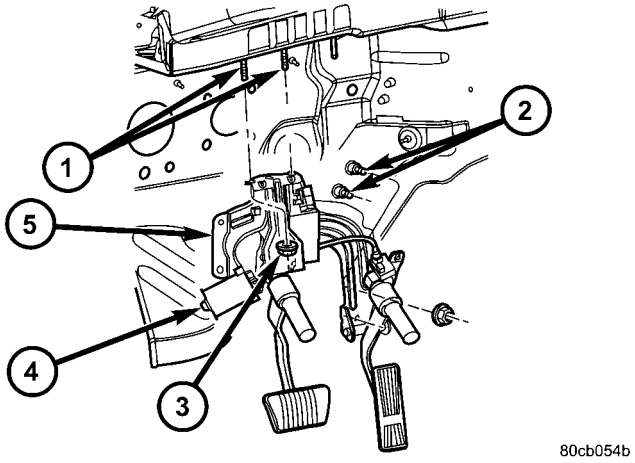


Fig. 49 UPPER MOUNTING NUTS

1 - UPPER MOUNTING STUDS
2 - ACCELERATOR MOUNTING STUDS
3 - UPPER MOUNTING NUT
4 - MOTOR
5 - ADJUSTABLE PEDAL BRACKET

(12) Remove the brake booster nuts (Fig. 50).
(13) Remove the accelerator pedal nuts (Fig. 51).
(14) Remove the ICU mounting bracket nuts and bolts and move the ICU and booster forward this will allow enough clearance to remove the adjustable pedal bracket from over the booster push rod.
(15) Remove the pedal from the vehicle (Fig. 50).
(16) Transfer the module if needed.

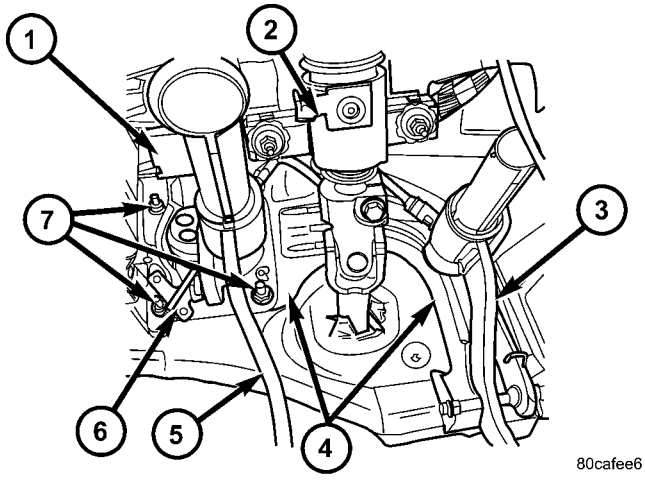


Fig. 50 ADJUSTABLE PEDAL BRACKET

1 - BRAKE LIGHT SWITCH
2 - STEERING COLUMN
3 - ACCELERATOR PEDAL
4 - ADJUSTABLE PEDALS MOUNTING BRACKET
5 - BRAKE PEDAL
6 - MOTOR MOUNTING BRACKET
7 - BRAKE BOOSTER MOUNTING NUTS (4)

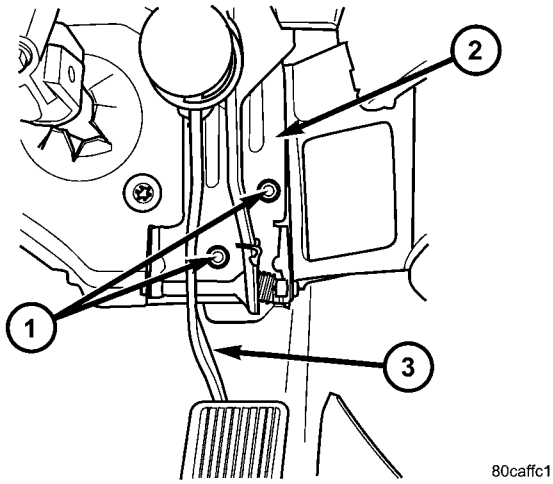


Fig. 51 ACCELERATOR MOUNTING BRACKET

1 - ACCELERATOR MOUNTING NUTS
2 - ADJUSTABLE PEDALS BRACKET
3 - ACCELERATOR PEDAL

INSTALLATION

INSTALLATION - NON-ADJUSTABLE PEDAL

(1) Lubricate bushings, pedal shaft and pedal pin with Mopar multi-mileage grease.
(2) Install bushings into pedal.
(3) Position pedal in bracket and install pedal shaft in support and through pedal.
(4) Install new nut on pedal shaft and tighten to 27 N·m (20 ft. lbs.).

NOTE: Pedal shaft nut should not be reused.

PEDAL (Continued)

(5) Install booster push rod on pedal pin and install retainer clip on pedal pin.
(6) Check and adjust stop lamp switch if necessary.

INSTALLATION - ADJUSTABLE PEDALS

(1) Install the pedal to the vehicle (Fig. 50).
(2) Reposition the ICU and booster, Install the ICU mounting bracket nuts and bolts.
(3) Install the brake booster nuts. Tighten to 28 N·m (21 ft. lbs.). (Fig. 50).
(4) Install the pedal bracket upper nuts. Tighten to 12 N·m (9 ft. lbs.). (Fig. 50).
(5) Install the accelerator pedal nuts. Tighten to 28 N·m (21 ft. lbs.). (Fig. 51).
(6) Install the lower steering shaft coupler over the shaft (Fig. 50).
(7) Install the lower steering shaft pinch bolt (Fig. 50).
(8) Unlock the steering wheel.
(9) Reconnect the accelerator cable to the pedal (Fig. 50).
(10) Reconnect the booster rod clip (Fig. 50).
(11) Install the brake light switch.
(12) Reconnect the module electrical connector.
(13) Install the steering column opening cover (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).
(14) Install the cluster bezel (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - INSTALLATION).
(15) Reconnect the negative battery cable.

PEDAL MOTOR

REMOVAL

(1) Disconnect the negative battery cable.
(2) Remove the cluster bezel (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - REMOVAL).
(3) Remove the steering column opening cover (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).
(4) Remove the two mounting screws (Fig. 52).
(5) Disconnect the electrical connector (Fig. 52).
(6) Remove the adjustable pedal motor (Fig. 52).

INSTALLATION

(1) Install the adjustable pedal motor (Fig. 52).
(2) Reconnect the electrical connector (Fig. 52).
(3) Install the two mounting screws (Fig. 52).

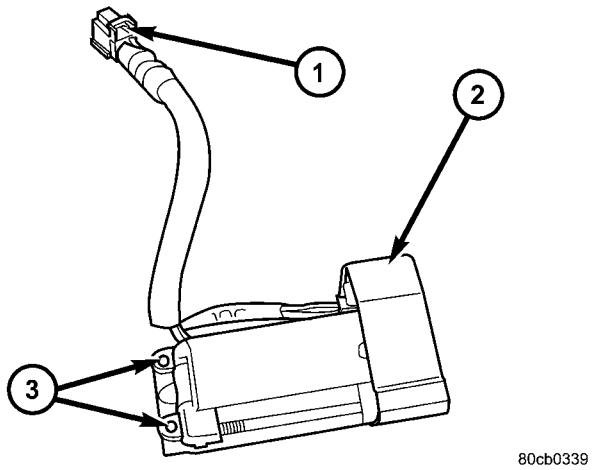


Fig. 52 ADJUSTABLE PEDALS MOTOR

1 - ELECTRICAL CONNECTOR
2 - PEDALS MOTOR
3 - MOUNTING SCREWS HOLES

(4) Install the steering column opening cover (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).
(5) Install the cluster bezel (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - INSTALLATION).
(6) Reconnect the negative battery cable.

POWER BRAKE BOOSTER

DESCRIPTION

The booster assembly consists of a housing divided into separate chambers by two internal diaphragms. The outer edge of each diaphragm is attached to the booster housing.

Two push rods are used in the booster. The primary push rod connects the booster to the brake pedal. The secondary push rod connects the booster to the master cylinder to stroke the cylinder pistons.

OPERATION

The atmospheric inlet valve is opened and closed by the primary push rod. Booster vacuum supply is through a hose attached to an intake manifold fitting at one end and to the booster check valve at the other. The vacuum check valve in the booster housing is a one-way device that prevents vacuum leak back.

POWER BRAKE BOOSTER (Continued)

Power assist is generated by utilizing the pressure differential between normal atmospheric pressure and a vacuum. The vacuum needed for booster operation is taken directly from the engine intake manifold. The entry point for atmospheric pressure is through a filter and inlet valve at the rear of the housing (Fig. 53) .

The chamber areas forward of the booster diaphragms are exposed to vacuum from the intake manifold. The chamber areas to the rear of the diaphragms, are exposed to normal atmospheric pressure of 101.3 kilopascals (14.7 pounds/square in.).

Brake pedal application causes the primary push rod to open the atmospheric inlet valve. This exposes the area behind the diaphragms to atmospheric pressure. The resulting pressure differential provides the extra apply force for power assist.

The booster check valve, check valve grommet and booster seals are serviceable.

REMOVAL

(1) Remove the master cylinder.
(2) Disconnect vacuum hose at booster check valve.

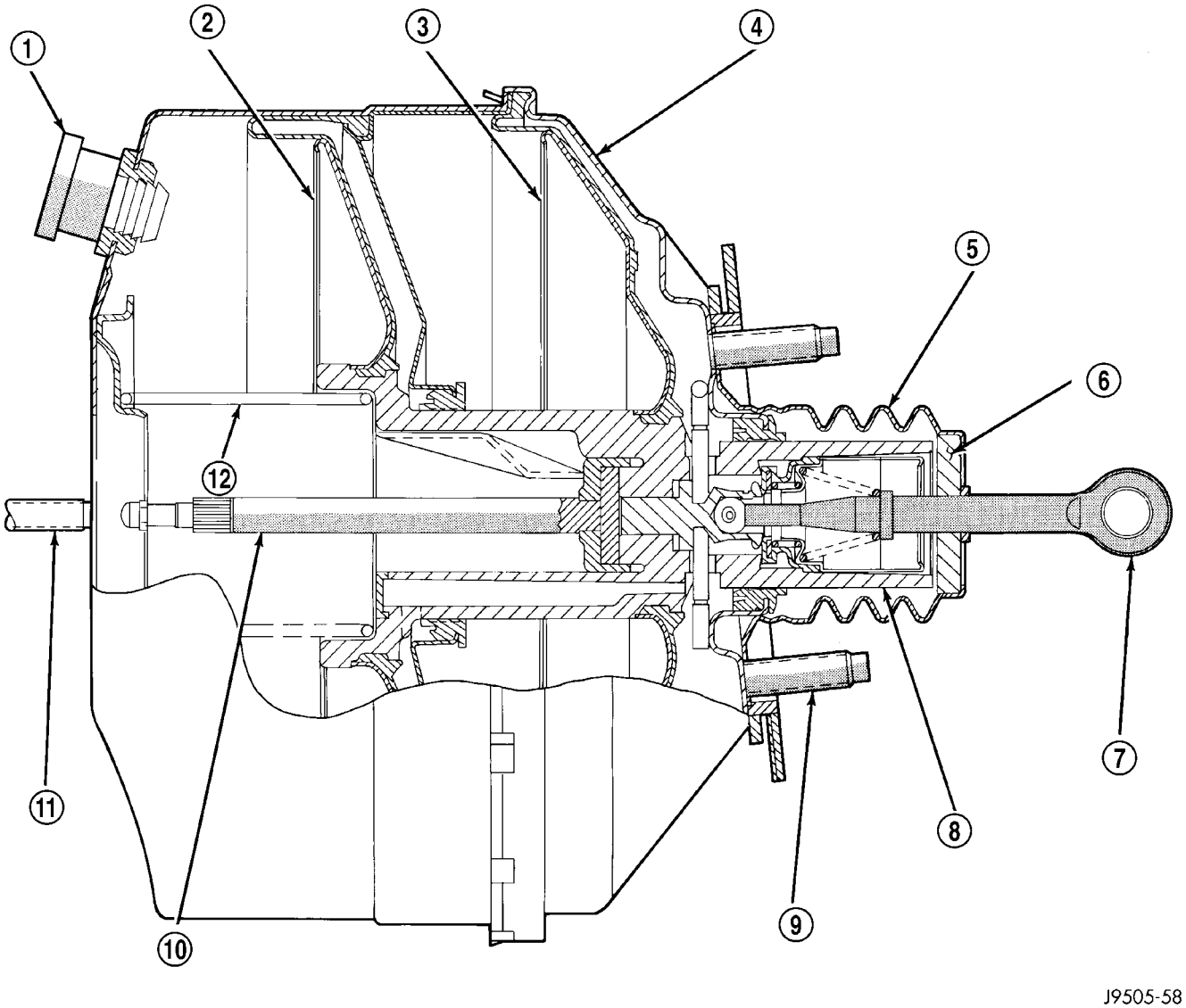


Fig. 53 Power Brake Booster–Typical

1 - VACUUM CHECK VALVE
2 - FRONT DIAPHRAGM
3 - REAR DIAPHRAGM
4 - HOUSING
5 - SEAL
6 - AIR FILTER
7 - PRIMARY PUSH ROD (TO BRAKE PEDAL)
8 - ATMOSPHERIC INLET VALVE ASSEMBLY
9 - BOOSTER MOUNTING STUDS (4)
10 - SECONDARY PUSH ROD (TO MASTER CYLINDER)
11 - MASTER CYLINDER MOUNTING STUD (2)
12 - SPRING

POWER BRAKE BOOSTER (Continued)

(3) Remove retainer clip (Fig. 54) that holds booster push rod on pedal pin. Then slide push rod off pin.

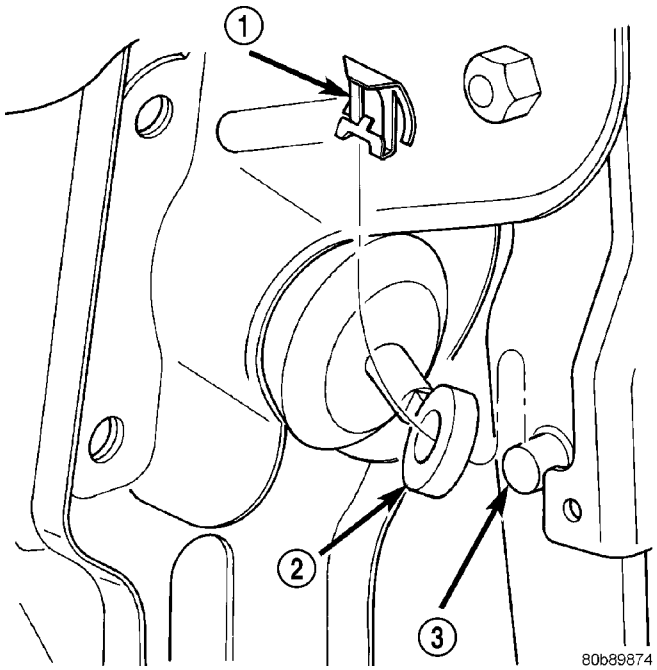


Fig. 54 Retainer Clip

1 - RETAINER CLIP
2 - PUSH ROD
3 - PEDAL PIN

(4) Remove four nuts (Fig. 55) that attach booster to dash panel.

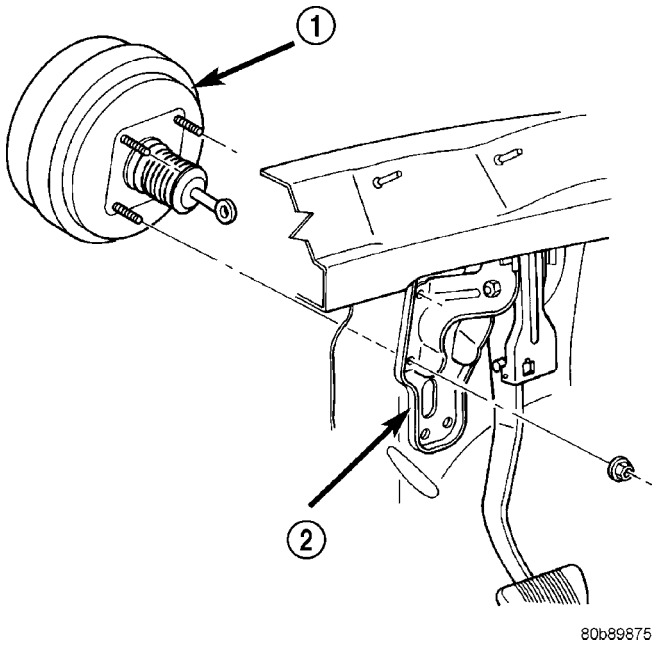


Fig. 55 Power Brake Booster Mounting

1 - BOOSTER
2 - DASH PANEL

(5) In engine compartment, slide booster forward, tilt it upward slightly, and remove it from engine compartment.

INSTALLATION

(1) Check condition of grommet that secures check valve in booster. Replace grommet if cut, torn, or loose.

(2) Install new booster dash seal.

(3) Align and position booster on engine compartment side of dash panel.

(4) Inside passenger compartment:

(a) Lubricate pedal pin Mopar multi-mileage grease.

(b) Install booster attaching nuts on studs. Tighten attaching nuts to 39 N·m (29 ft. lbs.).

(c) Slide booster push rod on pedal pin. Then secure rod to pin with retainer clip.

(5) In engine compartment, attach vacuum hose to booster check valve.

(6) Install the master cylinder with new gasket and nuts.

CAUTION: The master cylinder installation procedure must be perform as written or damage to the booster/master cylinder may occur.

(7) Fill and bleed brake system.

ROTORS

DIAGNOSIS AND TESTING

DIAGNOSIS AND TESTING - FRONT DISC BRAKE ROTOR

ROTOR MINIMUM THICKNESS

Rotor minimum usable thickness is 24.5 mm (0.964 in.). Do not resurface a rotor if machining would cause thickness to fall below this limit.

Measure rotor thickness at the center of the brake shoe contact surface. Replace the rotor if worn below minimum thickness, or if refinishing would reduce thickness below the allowable minimum.

FRONT ROTOR THICKNESS VARIATION

Variations in rotor thickness will cause pedal pulsation, noise and shudder.

Measure rotor thickness a minimum of six points around the rotor face. Position the micrometer approximately 19 mm (3/4 in.) from the rotor outer circumference for each measurement (Fig. 56).

Thickness should not vary by more than 0.0127 mm (0.0005 in.) from point to point on the rotor. Refinish or replace the rotor if necessary.

ROTORS (Continued)

NOTE: A hub mounted on-vehicle lathe is recommended. This type of lathe trues the rotor to the vehicles hub/bearing.

CAUTION: For vehicles equipped with the Quadra-Drive System, consisting of the NV-247 transfer case and a Vari-Lok differential in the front and rear axles, the following steps must be done prior to the use of a hub mounted on-vehicle brake lathe. Disconnect the driveshaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL) from the respective axle on which the brake rotors are being machined. Temporarily remove both brake calipers (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL) from the axle while disc rotor machining is in process. Both steps will prevent unnecessary loads to the hub mounted on-vehicle lathe and speed machining times. Install a thread lock material to the driveshaft attaching bolts when reinstalling (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION).

Front rotors and hub/bearings are matched mounted for minimum lateral runout. Before removing the rotor, mark the rotor and hub/bearing to maintain original orientation.

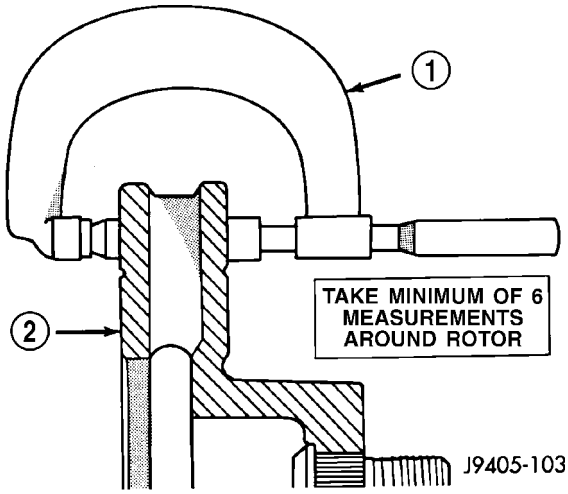


Fig. 56 Measuring Rotor Thickness Variation

1 - MICROMETER
2 - ROTOR

FRONT ROTOR LATERAL RUNOUT

Check rotor lateral runout whenever pedal pulsation, or rapid, uneven brake lining wear has occurred.

The rotor must be securely clamped to the hub to ensure an accurate runout measurement. Secure the rotor with a minimum of 3 lug nuts and large diameter flat washers on each stud.

Use a dial indicator to check lateral runout (Fig. 57).

Maximum allowable rotor lateral runout is 0.025 mm (0.001 in.).

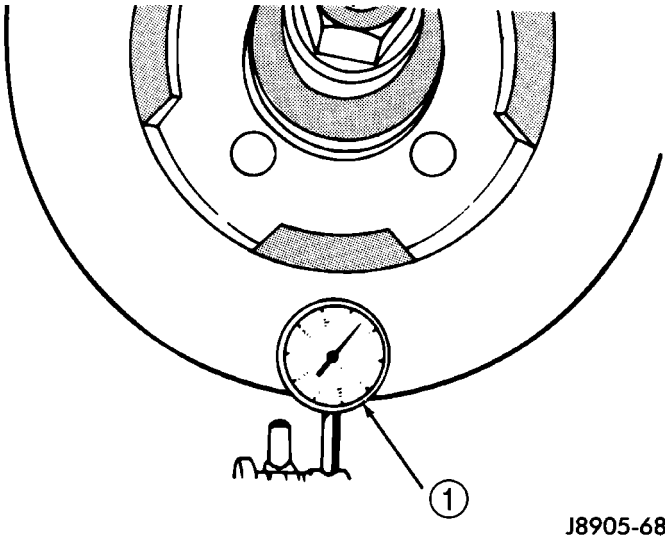


Fig. 57 Checking Rotor Lateral Runout

1 - DIAL INDICATOR

DIAGNOSIS AND TESTING - REAR DISC BRAKE ROTOR

ROTOR MINIMUM THICKNESS

Minimum usable thickness of the rear disc brake rotor is 8.5 mm (0.335 in.). The thickness specification is located on the center section of the rotor.

Never resurface a rotor if machining would cause thickness to fall below this limit.

Measure rotor thickness at the center of the brake shoe contact surface. Replace the rotor if worn below minimum thickness, or if refinishing would reduce thickness below the allowable minimum.

REAR ROTOR THICKNESS VARIATION

Variations in rotor thickness will cause pedal pulsation, noise and shudder.

Measure rotor thickness at a minimum of six points around the rotor face. Position the micrometer approximately 19 mm (3/4 in.) from the rotor outer circumference for each measurement (Fig. 56).

Thickness should not vary by more than 0.0127 mm (0.0005 in.) from point to point on the rotor. Refinish or replace the rotor if necessary.

REAR ROTOR LATERAL RUNOUT

Check rotor lateral runout whenever diagnosis indicates pedal pulsation and rapid, uneven brake lining wear.

ROTORS (Continued)

The rotor must be securely clamped to the hub to ensure an accurate runout measurement. Secure the rotor with the wheel nuts and 4 or 5 large diameter flat washers on each stud.

Use a dial indicator to check lateral runout (Fig. 57). Maximum allowable lateral runout is 0.76 mm (0.003 in.).

STANDARD PROCEDURE - DISC BRAKE ROTOR MACHINING

CAUTION: For vehicles equipped with the Quadra-Drive System, consisting of the NV-247 transfer case and a Vari-Lok differential in the front and rear axles, the following steps must be done prior to the use of a hub mounted on-vehicle brake lathe. Disconnect the driveshaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL) from the respective axle on which the brake rotors are being machined. Temporarily remove both brake calipers (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL) from the axle while disc rotor machining is in process. Both steps will prevent unnecessary loads to the hub mounted on-vehicle lathe and speed machining times. Install a thread lock material to the driveshaft attaching bolts when reinstalling (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION).

NOTE: A hub mounted on-vehicle lathe is recommended. This type of lathe trues the rotor to the vehicles hub/bearing.

The disc brake rotor can be machined if scored or worn. The lathe must machine both sides of the rotor simultaneously with dual cutter heads. The rotor mounting surface must be clean before placing on the lathe. Equipment capable of machining only one side at a time may produce a tapered rotor.

CAUTION: Brake rotors that do not meet minimum thickness specifications before or after machining must be replaced.

REMOVAL

REMOVAL - FRONT DISC BRAKE ROTOR

NOTE: Front rotors and hub/bearings are matched mounted for minimum lateral runout. Before removing the rotor, mark the rotor and hub/bearing to maintain original orientation.

(1) Raise and support the vehicle.

(2) Remove wheel and tire assembly.

(3) Remove the caliper (Fig. 58),(Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).

(4) Secure caliper anchor assembly to nearby suspension part with a wire. **Do not allow brake hose to support caliper weight.**

(5) Remove the caliper adapter mounting bolts (Fig. 58)and remove the caliper adapter from the steering knuckle.

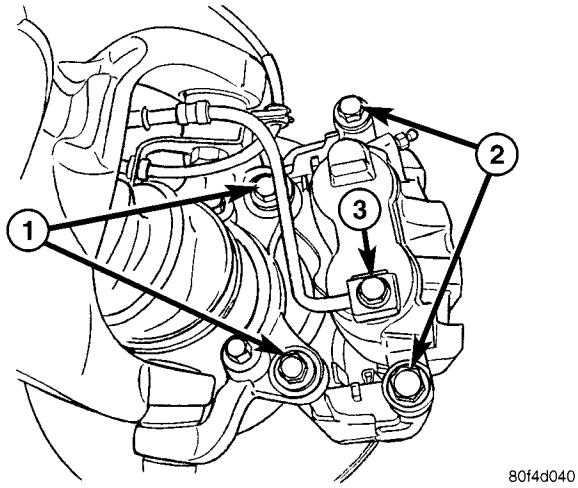


Fig. 58 CALIPER & ADAPTER MOUNTING

1 - CALIPER ADAPTER MOUNTING BOLTS
2 - CALIPER MOUNTING BOLTS
3 - BANJO BOLT

(6) Mark the rotor and hub/bearing to maintain original orientation. Remove retainers securing rotor to hub studs.

(7) Remove rotor from hub/bearing.

ROTORS (Continued)

REMOVAL - REAR DISC BRAKE ROTOR

(1) Raise and support the vehicle.
(2) Remove wheel and tire assembly.
(3) Remove the caliper anchor bolts (Fig. 59).

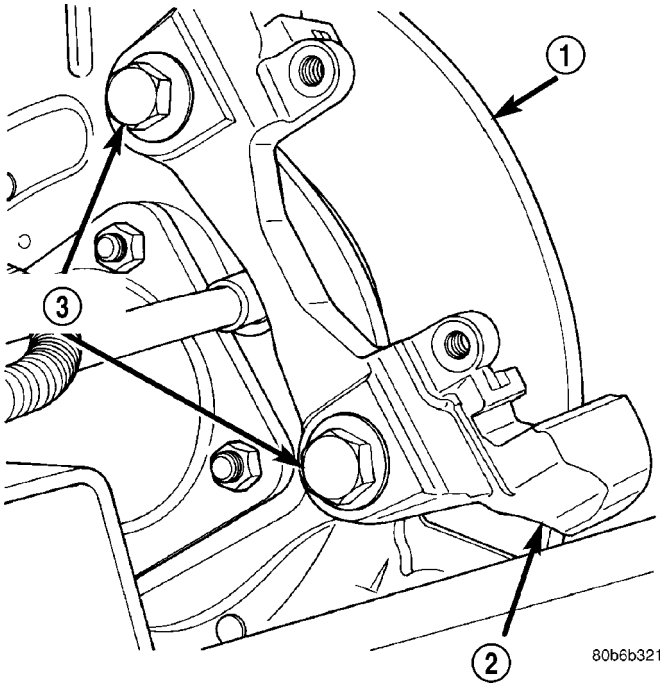


Fig. 59 Caliper Anchor Bolts

1 - ROTOR
2 - ANCHOR
3 - ANCHOR BOLTS

(4) Remove caliper and anchor as an assembly.
(5) Secure caliper anchor assembly to nearby suspension part with wire. **Do not allow brake hose to support caliper weight.**
(6) Remove retainers securing rotor to axle studs.
(7) Remove rotor off axle studs.

INSTALLATION

INSTALLATION - FRONT DISC BRAKE ROTOR

NOTE: If a new rotor is installed it must be match mounted to the hub/bearing.

(1) Install the rotor on hub studs in its original location.
(2) Install the caliper adapter on the knuckle. Install adapter bolts and tighten to 90-115 N·m (66-85 ft. lbs.).
(3) Install the caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
(4) Install wheel and tire assembly.
(5) Remove support and lower the vehicle.
(6) Pump brake pedal to seat caliper pistons and brake pads. Do not move vehicle until firm brake pedal is obtained.

INSTALLATION - REAR DISC BRAKE ROTOR

(1) Install rotor on axle studs.
(2) Install the caliper anchor assembly.
(3) Install anchor bolts and tighten to 90-115 N·m (66-85 ft. lbs.).
(4) Install wheel and tire assembly.
(5) Remove support and lower the vehicle.
(6) Pump brake pedal until caliper pistons and brake shoes are seated.

DISC BRAKE CALIPER ADAPTER

REMOVAL

(1) Raise and support the vehicle.
(2) Remove the front wheel and tire assembly.
(3) Remove the caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).
(4) Remove the disc brake caliper from the adapter.

CAUTION: Never allow the disc brake caliper to hang from the brake hose. Damage to the brake hose will result. Provide a suitable support to hang the caliper securely.

(5) Remove the inboard and outboard brake pads. (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/BRAKE PADS/SHOES - REMOVAL).
(6) Remove the caliper adapter mounting bolts (Fig. 60).

DISC BRAKE CALIPER ADAPTER (Continued)

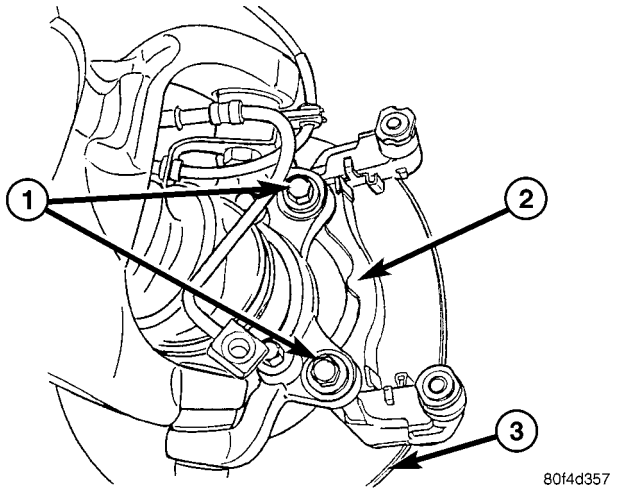


Fig. 60 CALIPER ADAPTER MOUNTING

1 - CALIPER ADAPTER MOUNTING BOLTS
2 - CALIPER ADAPTER
3 - ROTOR

INSTALLATION

(1) Install the caliper adapter mounting bolts. Tighten the mounting bolts to 103 N·m (76 ft.lbs).

(2) Install the inboard and outboard pads. (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ BRAKE PADS/SHOES - INSTALLATION).

(3) Install the caliper (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).

(4) Install the tire and wheel assembly. (Refer to 22 - TIRES/WHEELS/WHEELS - STANDARD PROCEDURE).

PARKING BRAKE

OPERATION

The parking brakes operated by a automatic tensioner mechanism built into the hand lever and cable system. The front cable is connected to the hand lever and the equalizer. The rear cables attached to the equalizer and the parking brake shoe actuator.

A set of drum type brake shoes are used for parking brakes. The shoes are mounted to the rear disc brake adaptor. The parking brake drum is integrated into the rear disc brake rotor.

Parking brake cable adjustment is controlled by an automatic tensioner mechanism. The only adjustment if necessary is to the park brake shoes if the linings are worn.

DIAGNOSIS AND TESTING - PARKING BRAKE

NOTE: Parking brake adjustment is controlled by an automatic cable tensioner and does not require adjustment. The only adjustment that may be necessary would be to the park brake shoes if they are worn.

The parking brake switch is in circuit with the red warning lamp in the dash. The switch will cause the lamp to illuminate only when the parking brakes are applied. If the lamp remains on after parking brake release, the switch or wires are faulty.

If the red lamp comes on a fault has occurred in the front or rear brake hydraulic system.

If the red warning lamp and yellow warning lamp come on, the electronic brake distribution may be at fault.

In most cases, the actual cause of an improperly functioning parking brake (too loose/too tight/won't hold), can be traced to a parking brake component.

NOTE: The leading cause of improper parking brake operation, is excessive clearance between the parking brake shoes and the shoe braking surface. Excessive clearance is a result of lining and/or drum wear, drum surface machined oversize.

Excessive parking brake lever travel (sometimes described as a loose lever or too loose condition), is the result of worn brake shoes, improper brake shoe adjustment, or improperly assembled brake parts.

A too loose condition can also be caused by inoperative or improperly assembled parking brake shoe parts.

A condition where the parking brakes do not hold, will most probably be due to a wheel brake component.

Items to look for when diagnosing a parking brake problem, are:

- Brake shoe wear
- Drum surface (in rear rotor) machined oversize
- Front cable not secured to lever
- Rear cable not attached to actuator
- Rear cable seized
- Parking brake lever not seated
- Parking brake lever bind

CABLES

REMOVAL

REMOVAL - FRONT PARKING BRAKE CABLE

(1) Remove center console,(Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).

(2) Lift up rear seat and carpet covering the parking brake cables.

(3) Place a screw driver through the front cable eyelet (Fig. 61) and pry back on the front cable.

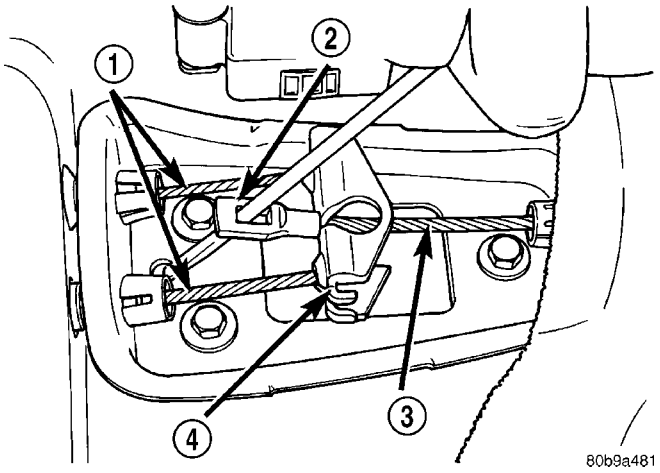


Fig. 61 Front Cable Eyelet

1 - REAR CABLES
2 - FRONT CABLE EYELET
3 - FRONT CABLE
4 - EQUALIZER

(4) Have an assistant pry down the lock out spring through the hole in the side of the park brake lever (Fig. 62) with a small screw driver. Then slowly release the front cable.

NOTE: Their should be slack in the cable if the lock out spring is engaged.

(5) Disengage front cable end from the equalizer (Fig. 63).

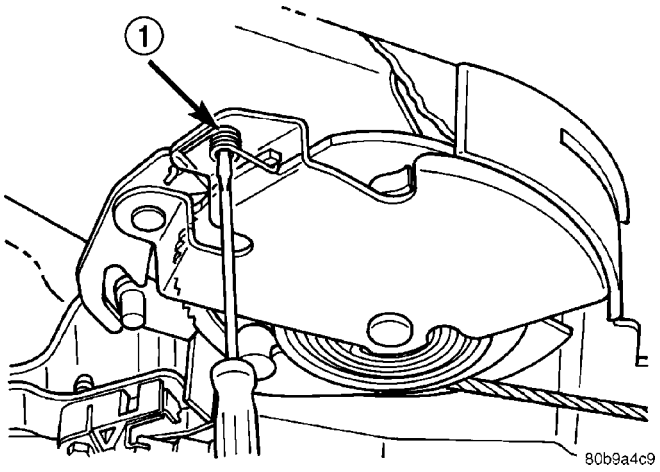


Fig. 62 Lock Out Spring

1 - LOCK OUT SPRING

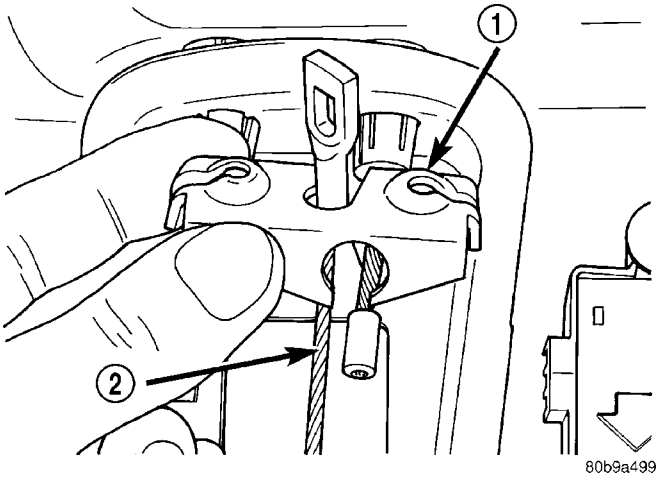


Fig. 63 Cable Equalizer

1 - EQUALIZER
2 - FRONT CABLE

(6) Disengage front cable end from the parking brake lever.

(7) Remove the front carpet,(Refer to 23 - BODY/INTERIOR/CARPETS AND FLOOR MATS - REMOVAL).

CABLES (Continued)

(8) Remove front cable retainer nuts (Fig. 64) from the floor pan.

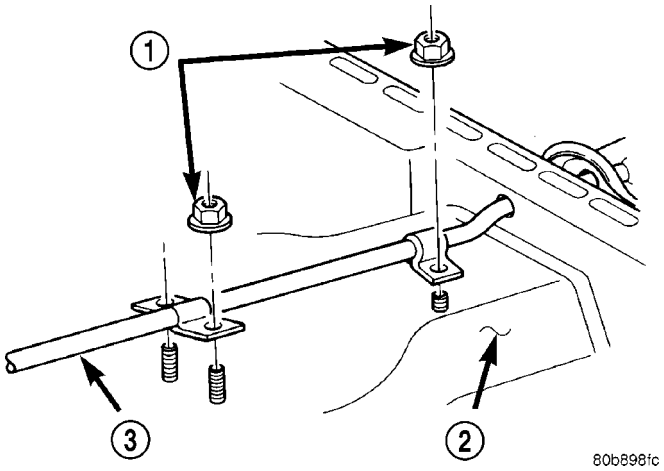


Fig. 64 Front Parking Brake Cable

1 - RETAINER NUT
2 - FLOOR PAN
3 - FRONT CABLE

(9) Compress the cable retainers with a 13 mm wrench (Fig. 65). Remove the cable from parking brake lever bracket and equalizer bracket.

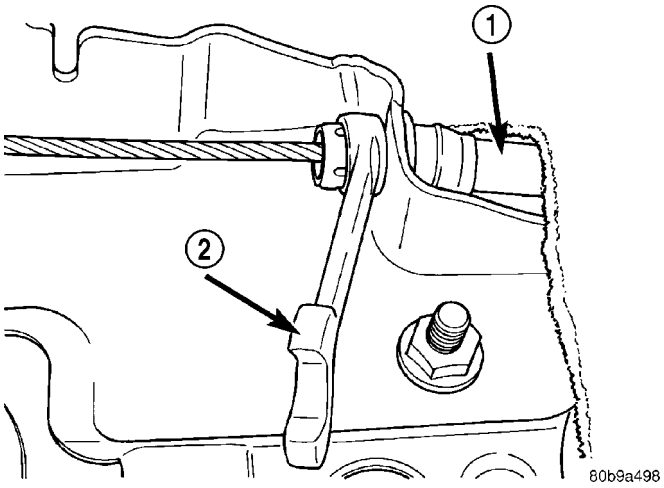


Fig. 65 Brake Lever Bracket

1 - FRONT CABLE
2 - WRENCH

REMOVAL - REAR PARKING BRAKE CABLES

(1) Remove center console, (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).

(2) Lift up rear seat and carpet covering the parking brake cables.

(3) Place a screw driver through the front cable eyelet (Fig. 66) and pry back on the front cable.

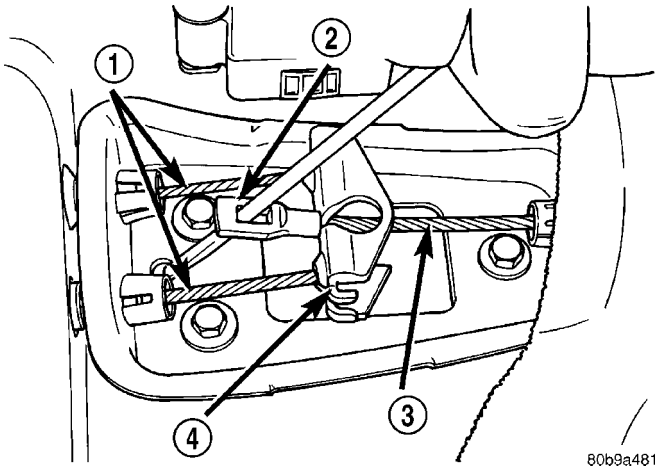


Fig. 66 Front Cable Eyelet

1 - REAR CABLES
2 - FRONT CABLE EYELET
3 - FRONT CABLE
4 - EQUALIZER

(4) Have an assistant pry down the lock out spring through the hole in the side of the park brake lever (Fig. 67) with a small screw driver. Then slowly release the front cable.

NOTE: Their should be slack in the cable if the lock out spring is engaged.

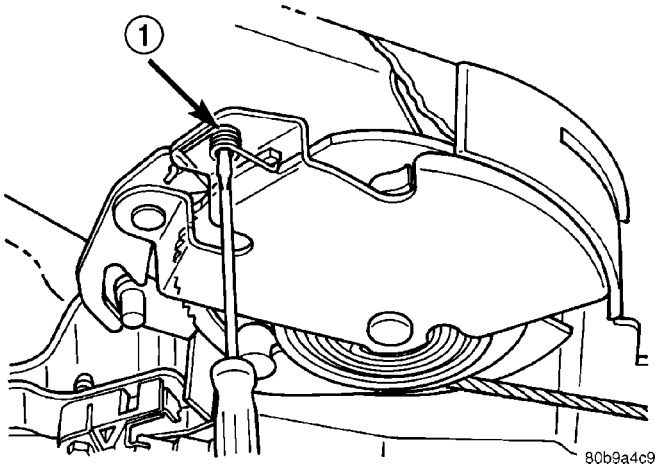


Fig. 67 Lock Out Spring

1 - LOCK OUT SPRING

(5) Disengage rear cables ends from the equalizer.

CABLES (Continued)

(6) Compress the cable retainers with a 13 mm wrench (Fig. 68) and remove the cable from equalizer bracket.

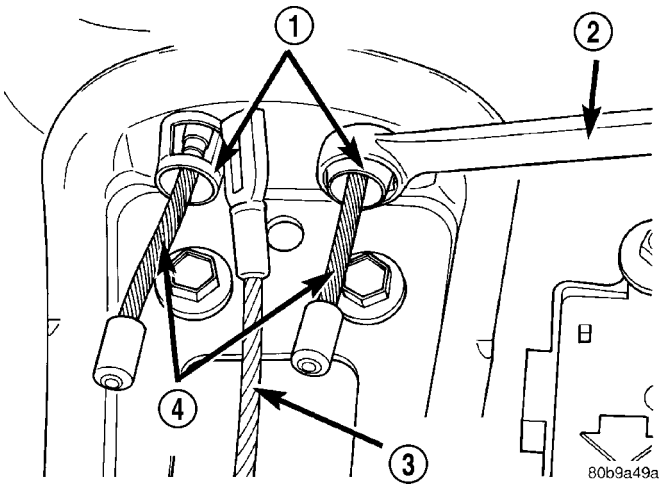


Fig. 68 Cable Retainers

1 - CABLE RETAINER
2 - WRENCH
3 - FRONT CABLE
4 - REAR CABLES

(7) Raise and support the vehicle.

(8) Remove the wheel and tire assemblies.

(9) Remove the brake calipers, caliper anchors and rotors.

(10) Remove the ABS sensor wiring harness (Fig. 69)from the rear brake cables.

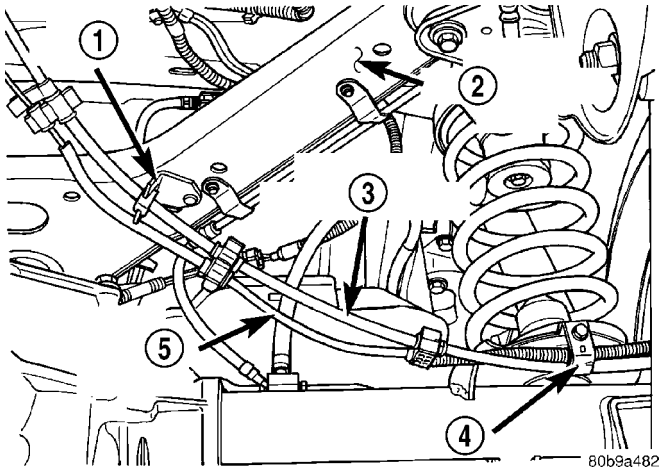


Fig. 69 Left Rear Parking Brake Cable

1 - CABLE BRACKET
2 - UPPER SUSPENSION ARM
3 - PARKING BRAKE CABLE
4 - CABLE RETAINER
5 - ABS SENSOR WIRING

(11) Remove the cable retainer bolts (Fig. 69) from the rear spring pads.

(12) Pull the cables out of the upper suspension arm brackets.

(13) Push the cable in and lift up the end of cable with a small screw driver to disengage the cable from the parking brake actuator (Fig. 70).

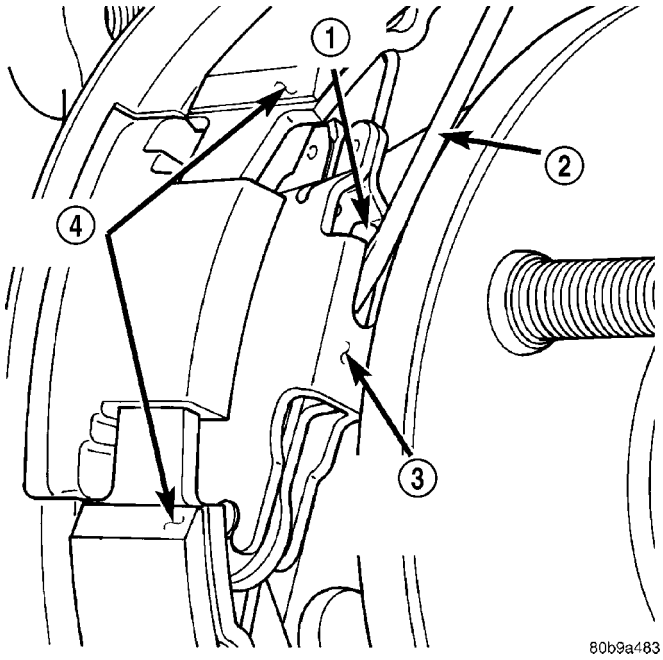


Fig. 70 Parking Brake

1 - CABLE END
2 - SCREW DRIVER
3 - PARKING BRAKE ACTUATOR
4 - BRAKE SHOES

(14) Remove the cable from the vehicle.

INSTALLATION

INSTALLATION - FRONT PARKING BRAKE CABLE

(1) Install thecable into the parking brake lever bracket and equalizer bracket.

(2) Install the front cable to the floor pan and install retainer nuts.

(3) Engage the front cable ends to the parking brake lever and equalizer.

(4) Install the front carpet, (Refer to 23 - BODY/ INTERIOR/CARPETS AND FLOOR MATS - INSTALLATION).

(5) Pull on the lever to release the lock out spring.

(6) Install the center console, (Refer to 23 - BODY/ INTERIOR/FLOOR CONSOLE - INSTALLATION).

(7) Fold down the rear carpet cover and rear seat.

INSTALLATION - REAR PARKING BRAKE CABLES

(1) Install the cables through the caliper anchor mount. Then push the end of cable strand in to engage the cable end to the parking brake actuator.

CABLES (Continued)

(2) Feed the other end of the cables through the body and into the equalizer bracket (Fig. 71).

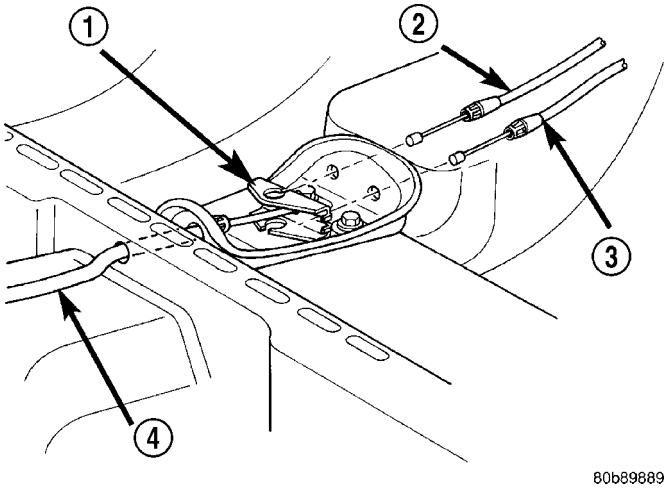


Fig. 71 Equalizer Bracket

1 - EQUALIZER
2 - RIGHT REAR CABLE
3 - LEFT REAR CABLE
4 - FRONT CABLE

(3) Push the cables into the upper suspension arm brackets.

(4) Install the cable retainer bolts to the rear spring pads.

(5) Install the ABS sensor wiring harness to the rear brake cables.

(6) Install the rotors, caliper anchors and brake calipers.

(7) Install the wheel and tire assemblies.

(8) Remove support and lower the vehicle.

(9) Engage the cable ends into the parking brake equalizer.

(10) Pull on the lever to release the lock out spring.

(11) Install center console, (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - INSTALLATION).

(12) Fold down the rear carpet cover and rear seat.

(13) Verify parking brake operation.

LEVER

REMOVAL

(1) Remove the center console,(Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).

(2) Have an assistant pry down the lock out spring through the hole in the side of the park brake lever (Fig. 72) with a small screw driver. Then slowly release the front cable.

NOTE: Their should be slack in the cable if the lock out spring is engaged.

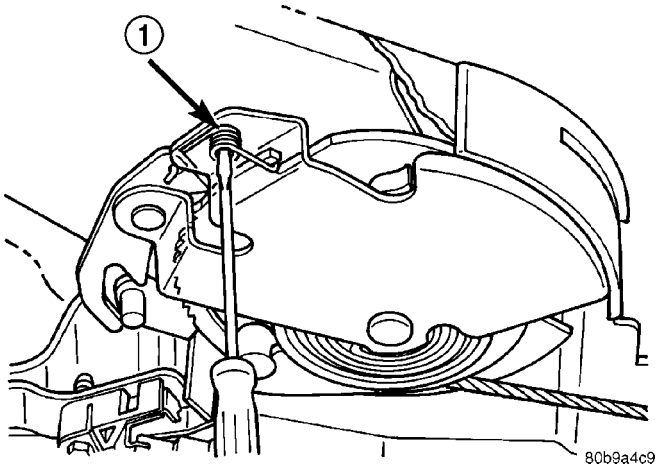


Fig. 72 Lock Out Spring

1 - LOCK OUT SPRING

(3) Disconnect the parking brake switch wiring connector.

(4) Disengage the front cable end from the parking brake lever.

(5) Compress the cable retainer with a 13 mm wrench (Fig. 73) and remove the cable from the parking brake lever bracket.

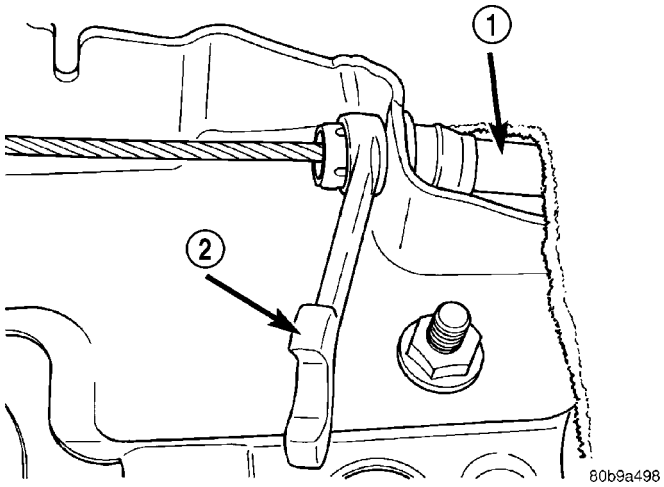


Fig. 73 Parking Brake Lever Bracket

1 - FRONT CABLE
2 - WRENCH

LEVER (Continued)

(6) Remove the four park brake lever mounting nuts and two console bracket nuts (Fig. 74).

(7) Lift the lever assembly off the mounting studs and pull the front cable out of the lever bracket.

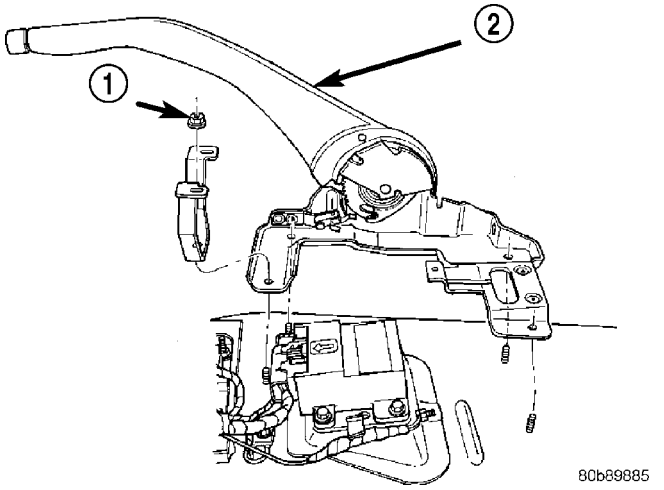


Fig. 74 Parking Brake Lever Mounting

1 - MOUNTING NUT
2 - PARK BRAKE LEVER

INSTALLATION

(1) Install the lever assembly on the mounting studs while feeding the front cable into the lever bracket.

(2) Install the parking brake lever mounting nuts.

(3) Install the console bracket (Fig. 74) and mounting nuts.

(4) Engage the front cable end to the lever.

(5) Connect the parking brake switch wire connector.

(6) Cut the shipping lock out tie strap and remove the strap.

(7) Check the operation of the parking brake lever and cable.

(8) Install the center console,(Refer to 23 - BODY/ INTERIOR/FLOOR CONSOLE - INSTALLATION).

SHOES

DESCRIPTION

Drum in hat park brakes are dual shoe, internal expanding units with an automatic self adjusting mechanism (Fig. 75).

OPERATION

When the parking brake pedal is depressed the brake cable pulls the brake shoes outward against the brake drum. When the brake pedal is released the return springs attached to the brake shoes pull the shoes back to there original position.

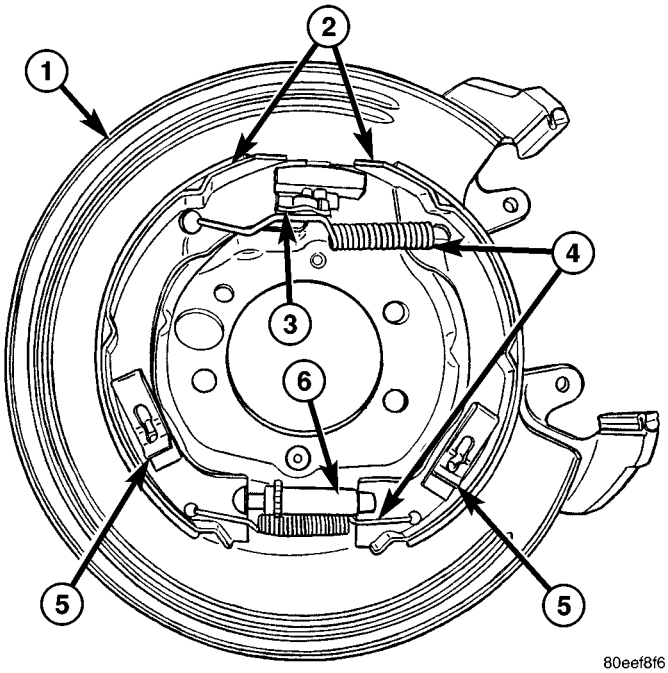


Fig. 75 BRAKE SHOES

1 - SUPPORT PLATE
2 - PARK BRAKE SHOES
3 - EQUALIZER
4 - SPRINGS
5 - HOLD DOWN CLIPS
6 - ADJUSTER

REMOVAL

(1) Lock out park brake lever (Fig. 76).

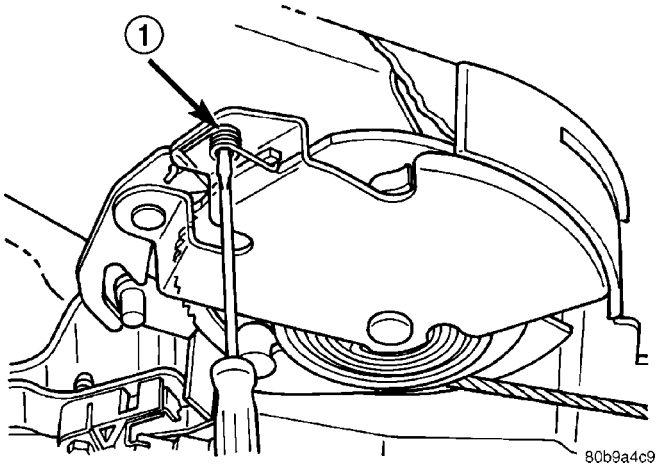


Fig. 76 Lock Out Spring

1 - LOCK OUT SPRING

(2) Raise vehicle.

(3) Remove rear wheel and tire assembly.

(4) Remove caliper and anchor as an assembly.

(5) Remove rubber access plug from back of rear disc brake splash shield.

SHOES (Continued)

(6) If necessary retract parking brake shoes with brake adjuster tool (Fig. 77). Position tool at top of star wheel and rotate wheel.

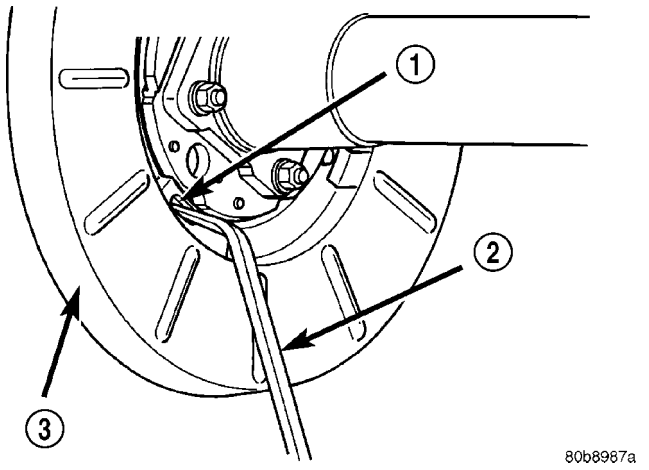


Fig. 77 Retracting Parking Brake Shoes

1 - ACCESS HOLE
2 - BRAKE ADJUSTING TOOL
3 - SPLASH SHIELD

(7) Remove rotor from axle hub flange.

(8) Remove the lower shoe to shoe spring/adjuster spring with needle nose pliers (Fig. 78).

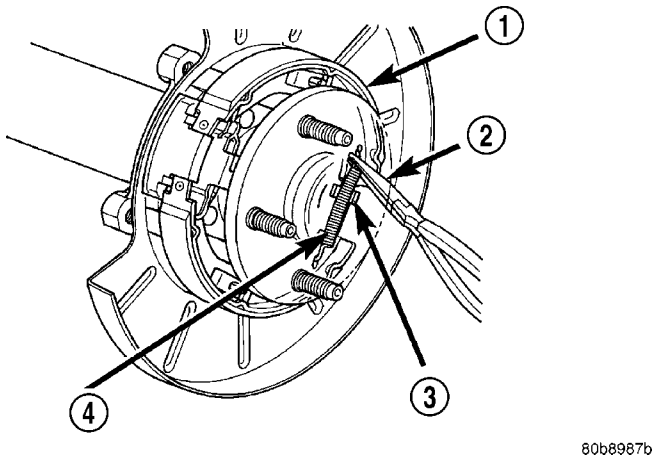


Fig. 78 Lower Spring

1 - REAR SHOE
2 - NEEDLENOSE PLIERS
3 - ADJUSTER SCREW
4 - LOWER SPRING

(9) Remove the upper shoe to shoe spring/return spring with brake pliers (Fig. 79).

(10) Remove shoe hold-down clips and pins (Fig. 80). Clip is held in place by pin which fits in clip notch. To remove clip, first push clip ends together and slide clip until head of pin clears narrow part of notch. Then remove clip and pin.

(11) Remove shoes and adjuster.

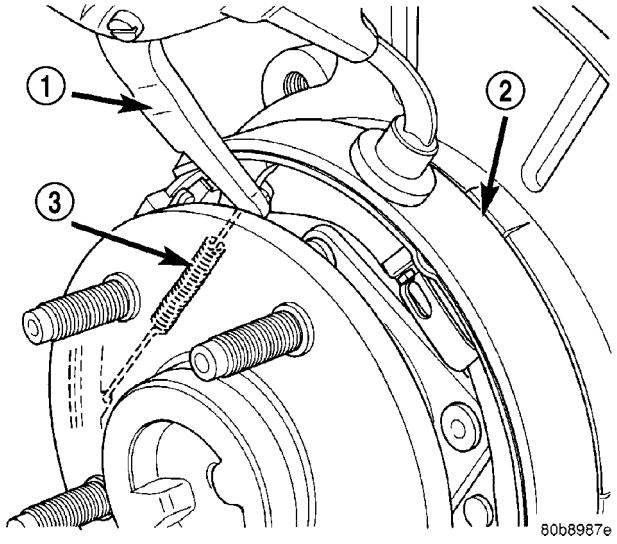


Fig. 79 Upper Spring

1 - BRAKE PLIERS
2 - REAR SHOE
3 - UPPER SPRING

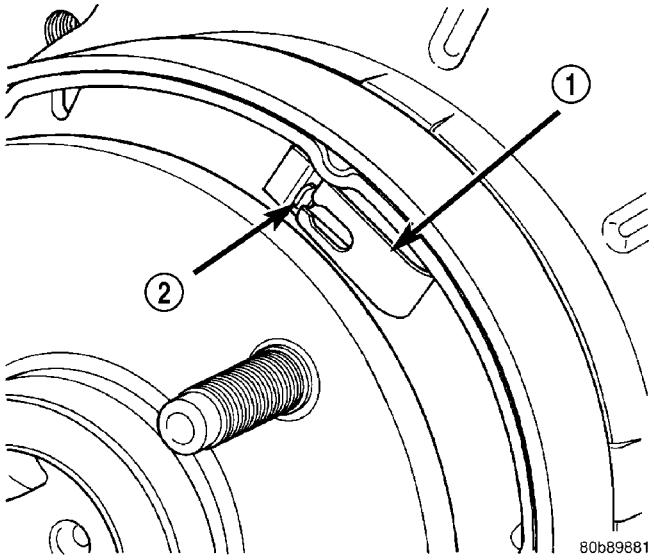


Fig. 80 Hold-Down Clip And Pin

1 - HOLD-DOWN CLIP
2 - HOLD-DOWN PIN

CLEANING - REAR DRUM IN HAT BRAKE

Clean the individual brake components, including the support plate exterior, with a water dampened cloth or with brake cleaner. Do not use any other cleaning agents. Remove light rust and scale from the brake shoe contact pads on the support plate with fine sandpaper.

INSPECTION - REAR DRUM IN HAT BRAKE

As a general rule, riveted brake shoes should be replaced when worn to within 0.78 mm (1/32 in.) of

SHOES (Continued)

the rivet heads. Bonded lining should be replaced when worn to a thickness of 1.6 mm (1/16 in.).

Examine the lining contact pattern to determine if the shoes are bent or the drum is tapered. The lining should exhibit contact across its entire width. Shoes exhibiting contact only on one side should be replaced and the drum checked for runout or taper (Fig. 81).

Inspect the adjuster screw assembly. Replace the assembly if the star wheel or threads are damaged, or the components are severely rusted or corroded (Fig. 81).

Discard the brake springs and retainer components if worn, distorted or collapsed. Also replace the springs if a brake drag condition had occurred. Overheating will distort and weaken the springs.

Inspect the brake shoe contact pads on the support plate, replace the support plate if any of the pads are worn or rusted through. Also replace the plate if it is bent or distorted (Fig. 81).

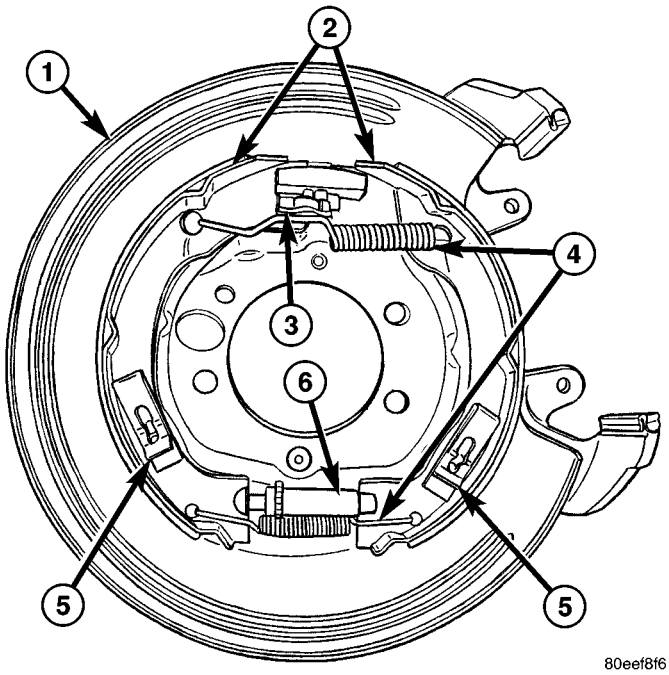


Fig. 81 BRAKE SHOES

1 - SUPPORT PLATE
2 - PARK BRAKE SHOES
3 - EQUALIZER
4 - SPRINGS
5 - HOLD DOWN CLIPS
6 - ADJUSTER

INSTALLATION

(1) Install shoes on splash shield with hold down clips and pins. Be sure shoes are properly engaged in the park brake actuator.

(2) Lubricate and install adjuster screw assembly. Be sure notched ends of screw assembly are properly seated on shoes and that star wheel is aligned with access hole in shield.

(3) Install lower shoe to shoe spring/adjuster spring. Needle nose pliers can be used to connect spring to each shoe.

(4) Install the upper shoe to shoe spring/return spring with brake pliers (Fig. 78).

(5) Install rotor and caliper anchor assembly.

(6) Install anchor bolts and tighten to 90-115 N·m (66-85 ft. lbs.).

(7) Actuate park brake lever to unlock the park brake system.

(8) Adjust the parking brake shoes (Fig. 77).

(9) Install wheel and tire assembly.

(10) Lower vehicle and verify correct parking brake operation.

ADJUSTMENTS

ADJUSTMENT - REAR DRUM IN HAT PARK BRAKE (ROTOR REMOVED)

Under normal circumstances, the only time adjustment is required is when the shoes are replaced, removed for access to other parts, or when one or both rotors are replaced.

Adjustment can be made with a standard brake gauge or with adjusting tool. Adjustment is performed with the complete brake assembly installed on the backing plate.

CAUTION: Before adjusting the park brake shoes be sure that the park brake pedal is in the fully released position. If park brake pedal is not in the fully released position, the park brake shoes can not be accurately adjusted.

(1) Raise vehicle.

(2) Remove tire and wheel.

(3) Remove disc brake caliper from caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - REMOVAL).

(4) Remove rotor from the axleshaft (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL).

NOTE: When measuring the brake drum diameter, the diameter should be measured in the center of the area in which the park brake shoes contact the surface of the brake drum.

(5) Using Brake Shoe Gauge, Special Tool C-3919, or equivalent, **accurately** measure the inside diameter of the park brake drum portion of the rotor (Fig. 82).

SHOES (Continued)

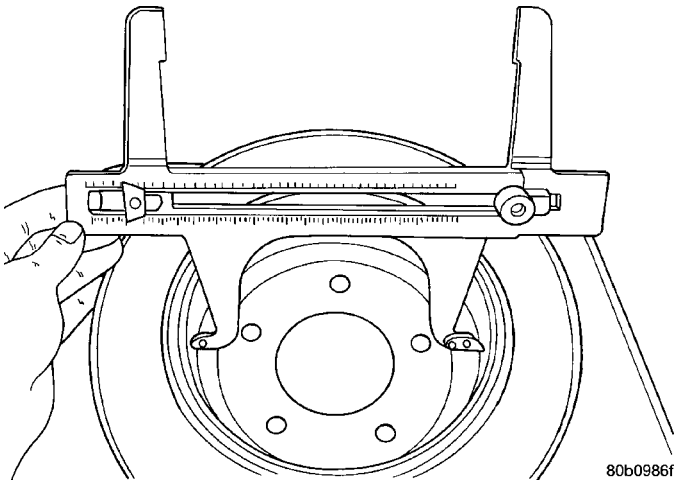


Fig. 82 MEASURING PARK BRAKE DRUM DIAMETER

(6) Using a ruler that reads in 64th of an inch, accurately read the measurement of the inside diameter of the park brake drum from the special tool (Fig. 83).

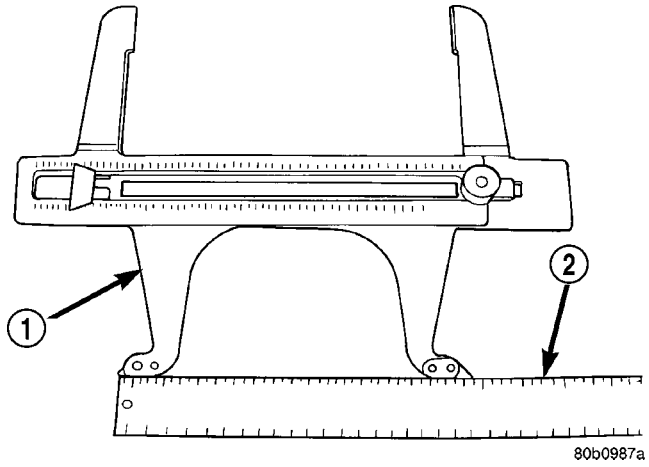


Fig. 83 READING PARK BRAKE DRUM DIAMETER

1 - SPECIAL TOOL C-3919
2 - RULER

(7) Reduce the inside diameter measurement of the brake drum that was taken using Special Tool C-3919 by 1/64 of an inch. Reset Gauge, Brake Shoe, Special Tool C-3919 or the equivalent used, so that the outside measurement jaws are set to the reduced measurement (Fig. 84).

(8) Place Gauge, Brake Shoe, Special Tool C-3919, or equivalent over the park brake shoes. The special tool must be located diagonally across at the top of one shoe and bottom of opposite shoe (widest point) of the park brake shoes.

(9) Using the star wheel adjuster, adjust the park brake shoes until the lining on the park brake shoes just touches the jaws on the special tool.

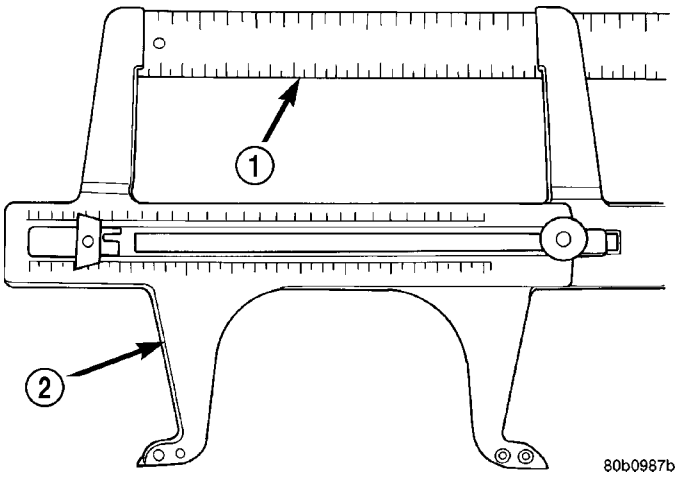


Fig. 84 SETTING GAUGE TO PARK BRAKE SHOE MEASUREMENT

1 - RULER
2 - SPECIAL TOOL C-3919

(10) Repeat step 8 above and measure shoes in both directions.

(11) Install brake rotor on the axleshaft (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - INSTALLATION).

(12) Rotate rotor to verify that the park brake shoes are not dragging on the brake drum. If park brake shoes are dragging, remove rotor and back off star wheel adjuster one notch and recheck for brake shoe drag against drum. Continue with the previous step until brake shoes are not dragging on brake drum.

(13) Install disc brake caliper on caliper adapter (Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).

(14) Install wheel and tire.

(15) Tighten the wheel mounting nuts in the proper sequence until all nuts are torqued to half the specified torque. Then repeat the tightening sequence to the full specified torque of 129 N·m (95 ft. lbs.).

(16) Lower vehicle.

CAUTION: Before moving vehicle, pump brake pedal several times to ensure the vehicle has a firm enough pedal to stop the vehicle.

NOTE: After parking brake lining replacement, it is recommended that the parking brake system be conditioned prior to use. This is done by making one stop from 25 mph on dry pavement or concrete using light to moderate force on the parking brake hand lever.

(17) Road test the vehicle to ensure proper function of the vehicle's brake system.

SHOES (Continued)

ADJUSTMENT - WITH ADJUSTING TOOL

Adjustment can be made with a standard brake gauge or with adjusting tool. Adjustment is performed with the complete brake assembly installed on the backing plate.

(1) Be sure parking brake lever is fully released.

(2) Raise vehicle so rear wheels can be rotated freely.

(3) Remove plug from each access hole in brake support plates.

(4) Loosen parking brake cable adjustment nut until there is slack in front cable.

(5) Insert adjusting tool through support plate access hole and engage tool in teeth of adjusting screw star wheel (Fig. 85).

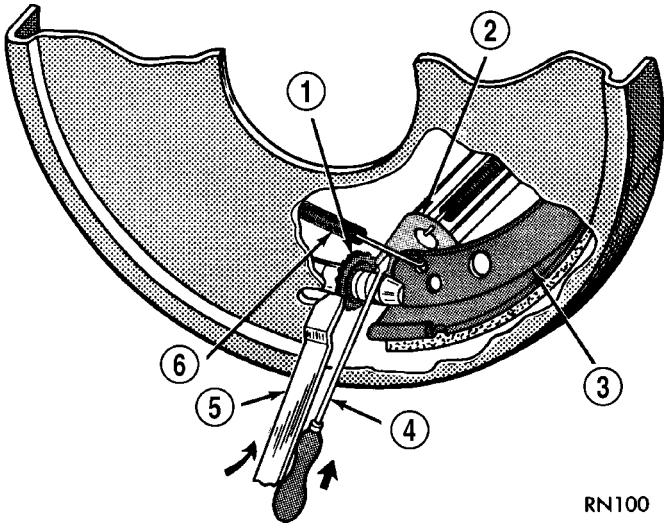


Fig. 85 Brake Adjustment

1 - STAR WHEEL
2 - LEVER
3 - BRAKE SHOE WEB
4 - SCREWDRIVER
5 - ADJUSTING TOOL
6 - ADJUSTER SPRING

(6) Rotate adjuster screw star wheel (move tool handle upward) until slight drag can be felt when wheel is rotated.

(7) Push and hold adjuster lever away from star wheel with thin screwdriver.

(8) Back off adjuster screw star wheel until brake drag is eliminated.

(9) Repeat adjustment at opposite wheel. Be sure adjustment is equal at both wheels.

(10) Install support plate access hole plugs.

(11) Adjust parking brake cable and lower vehicle.

(12) Depress park brake lever and make sure park brakes hold the vehicle staionary.

(13) Release park brake lever.

BRAKES - ABS

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BRAKES - ABS

DESCRIPTION

The purpose of the antilock system is to prevent wheel lockup during periods of high wheel slip. Preventing lockup helps maintain vehicle braking action and steering control.

The hydraulic system is a three channel design. The front brakes are controlled individually and the rear brakes in tandem.

The ABS electrical system is separate from other vehicle electrical circuits. A separate controller operates the system.

OPERATION

The antilock CAB activates the system whenever sensor signals indicate periods of high wheel slip. High wheel slip can be described as the point where wheel rotation begins approaching 20 to 30 percent of actual vehicle speed during braking. Periods of high wheel slip occur when brake stops involve high pedal pressure and rate of vehicle deceleration.

Battery voltage is supplied to the CAB ignition terminal when the ignition switch is turned to Run position. The CAB performs a system initialization procedure at this point. Initialization consists of a static and dynamic self check of system electrical components.

The static check occurs after the ignition switch is turned to Run position. The dynamic check occurs when vehicle road speed reaches approximately 30 kph (18 mph). During the dynamic check, the CAB briefly cycles the pump and solenoids to verify operation.

If an ABS component exhibits a fault during initialization, the CAB illuminates the amber warning light and registers a fault code in the microprocessor memory.

ANTILOCK BRAKING

The antilock system prevents lockup during high slip conditions by modulating fluid apply pressure to the wheel brake units.

Brake fluid apply pressure is modulated according to wheel speed, degree of slip and rate of deceleration. A sensor at each wheel converts wheel speed into electrical signals. These signals are transmitted to the CAB for processing and determination of wheel slip and deceleration rate.

The ABS system has three fluid pressure control channels. The front brakes are controlled separately and the rear brakes in tandem. A speed sensor input signal indicating a high slip condition activates the CAB antilock program.

Two solenoid valves are used in each antilock control channel. The valves are all located within the HCU valve body and work in pairs to either increase, hold, or decrease apply pressure as needed in the individual control channels.

The solenoid valves are not static during antilock braking. They are cycled continuously to modulate pressure. Solenoid cycle time in antilock mode can be measured in milliseconds.

DIAGNOSIS AND TESTING - ANTILOCK BRAKES

The ABS brake system performs several self-tests every time the ignition switch is turned on and the vehicle is driven. The CAB monitors the systems input and output circuits to verify the system is operating correctly. If the on board diagnostic system senses that a circuit is malfunctioning the system will set a trouble code in its memory.

NOTE: An audible noise may be heard during the self-test. This noise should be considered normal.

NOTE: The MDS or DRB III scan tool is used to diagnose the ABS system. For additional information refer to the Electrical section. For test procedures refer to the Chassis Diagnostic Manual.

STANDARD PROCEDURE - BLEEDING ABS BRAKE SYSTEM

ABS system bleeding requires conventional bleeding methods plus use of the DRB scan tool. The procedure involves performing a base brake bleeding, followed by use of the scan tool to cycle and bleed the HCU pump and solenoids. A second base brake bleeding procedure is then required to remove any air remaining in the system.

(1) Perform base brake bleeding. (Refer to 5 - BRAKES - STANDARD PROCEDURE) OR (Refer to 5 - BRAKES - STANDARD PROCEDURE).

(2) Connect scan tool to the Data Link Connector.

(3) Select ANTILOCK BRAKES, followed by MISCELLANEOUS, then ABS BRAKES. Follow the instructions displayed. When scan tool displays TEST COMPLETE, disconnect scan tool and proceed.

(4) Perform base brake bleeding a second time. (Refer to 5 - BRAKES - STANDARD PROCEDURE) OR (Refer to 5 - BRAKES - STANDARD PROCEDURE).

(5) Top off master cylinder fluid level and verify proper brake operation before moving vehicle.

SPECIFICATIONS

TORQUE CHART

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
G-Sensor Bolt	5.6	—	50
Hydraulic Control Unit/Controller Antilock Brakes Mounting Bolts	12	9	125
Hydraulic Control Unit/Controller Antilock Brakes Brake Lines	16	—	144
Hydraulic Control Unit/Controller Antilock Brakes CAB Screws	1.8	—	16
Wheel Speed Sensors Front Sensor Bolt	12-14	106-124	—
Wheel Speed Sensors Rear Sensor Bolt	12-14	106-124	—

ELECTRIC BRAKE

DESCRIPTION

The electronic brake distribution (EBD) functions like a rear proportioning valve. The EBD system uses the ABS system to control the slip of the rear wheels in partial braking range. The braking force of the rear wheels is controlled electronically by using the inlet and outlet valves located in the HCU.

OPERATION

Upon entry into EBD the inlet valve for the rear brake circuit is switched on so that the fluid supply from the master cylinder is shut off. In order to decrease the rear brake pressure the outlet valve for the rear brake circuit is pulsed. This allows fluid to enter the low pressure accumulator (LPA) in the HCU resulting in a drop in fluid pressure to the rear brakes. In order to increase the rear brake pressure the outlet valve is switched off and the inlet valve is pulsed. This increases the pressure to the rear brakes. This will continue until the required slip difference is obtained. At the end of EBD braking (no brake application) the fluid in the LPA drains back to the master cylinder by switching on the outlet valve and draining through the inlet valve check valve. At the same time the inlet valve is switched on to prevent a hydraulic short circiut in case of another brake application.

The EBD will remain functional during many ABS fault modes. If the red and amber warning lamps are illuminated the EBD may have a fault.

FRONT WHEEL SPEED SENSOR

DESCRIPTION

A wheel speed sensor is used at each wheel. The front sensors are mounted to the steering knuckles. The rear sensors are mounted at the outboard end of the axle. Tone wheels are mounted to the outboard ends of the front and rear axle shafts. The gear type tone wheel serves as the trigger mechanism for each sensor.

OPERATION

The sensors convert wheel speed into a small digital signal. The CAB sends 12 volts to the sensors. The sensor has an internal magneto resistance bridge that alters the voltage and amperage of the signal circuit. This voltage and amperage is changed by magnetic induction when the toothed tone wheel passes the wheel speed sensor. This digital signal is sent to the CAB. The CAB measures the voltage and amperage of the digital signal for each wheel.

REMOVAL

(1) Raise and support the vehicle.

(2) Remove the front wheel sensor mounting bolt (Fig. 1).

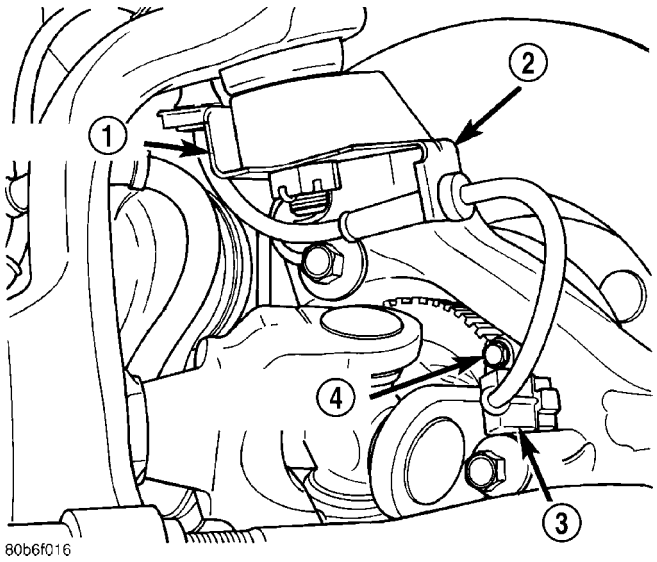


Fig. 1 Sensor Location

1 - BRACKET
2 - BRACKET
3 - WHEEL SPEED SENSOR
4 - MOUNTING BOLT

(3) Remove the sensor from the steering knuckle.

(4) Disengage the sensor wire from the brackets (Fig. 1)on the steering knuckle.

(5) Disconnect the sensor from the sensor harness (Fig. 2)and (Fig. 3).

(6) Remove the sensor and wire.

FRONT WHEEL SPEED SENSOR (Continued)

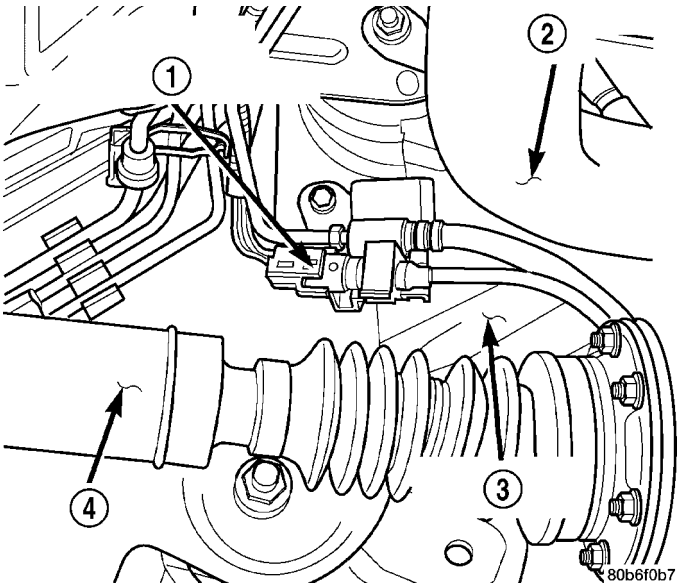


Fig. 2 Left Sensor Connector

1 - LEFT FRONT WHEEL SPEED SENSOR CONNECTOR
2 - ENGINE EXHAUST PIPE
3 - LEFT FRONT FRAME RAIL
4 - FRONT DRIVESHAFT

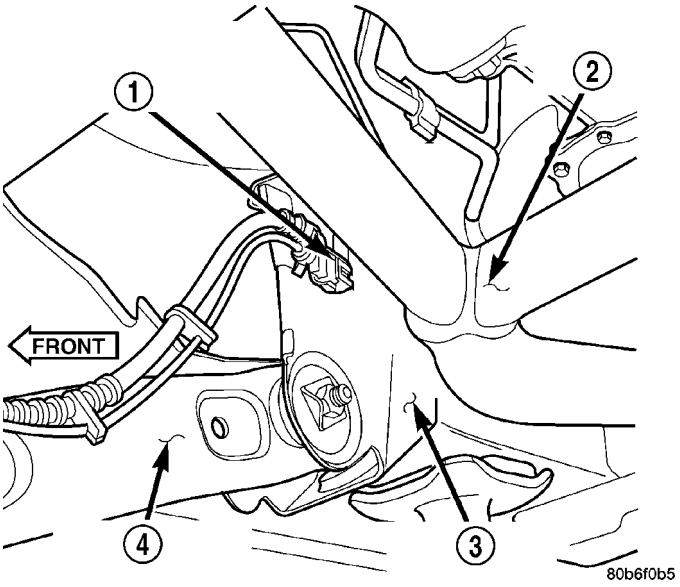


Fig. 3 Right Sensor Connector

1 - RIGHT FRONT WHEEL SPEED SENSOR CONNECTOR
2 - ENGINE EXHAUST Y-PIPE
3 - RIGHT FRONT FRAME RAIL
4 - RIGHT LOWER SUSPENSION ARM

INSTALLATION

(1) Install the sensor on the steering knuckle.

(2) Apply Mopar Lock N' Seal or Loctite® 242 to the sensor mounting bolt. Use new sensor bolt if original bolt is worn or damaged.

(3) Install the sensor mounting bolt and tighten bolt to 12-14 N·m (106-124 in. lbs.).

(4) Engage the grommets on the sensor wire to the steering knuckle brackets.

(5) Connect the sensor wire to the harness connector.

(6) Check the sensor wire routing. Be sure the wire is clear of all chassis components and is not twisted or kinked at any spot.

(7) Remove the support and lower vehicle.

G-SENSOR

DESCRIPTION

The G-sensor is located inside the ABS controller. The sensor is not a separate serviceable part from the controller.

REAR WHEEL SPEED SENSOR

DESCRIPTION

A wheel speed sensor is used at each wheel. The front sensors are mounted to the steering knuckles. The rear sensors are mounted at the outboard end of the axle. Tone wheels are mounted to the outboard ends of the front and rear axle shafts. The gear type tone wheel serves as the trigger mechanism for each sensor.

OPERATION

The sensors convert wheel speed into a small digital signal. The CAB sends 12 volts to the sensors. The sensor has an internal magneto resistance bridge that alters the voltage and amperage of the signal circuit. This voltage and amperage is changed by magnetic induction when the toothed tone wheel passes the wheel speed sensor. This digital signal is sent to the CAB. The CAB measures the voltage and amperage of the digital signal for each wheel.

REMOVAL

(1) Raise and fold the rear seat forward. Then move the carpeting aside for access to the rear sensor connectors.

(2) Disconnect the rear sensor wire at the harness connectors (Fig. 4).

(3) Push the sensor wires and grommets through the floorpan holes.

(4) Raise and support the vehicle.

(5) Disengage the sensor wire from the axle and the chassis brackets and from the brake line retainers.

(6) Remove the sensor mounting bolt from the rear brake backing plate. (Fig. 5).

(7) Remove the sensor from the backing plate.

REAR WHEEL SPEED SENSOR (Continued)

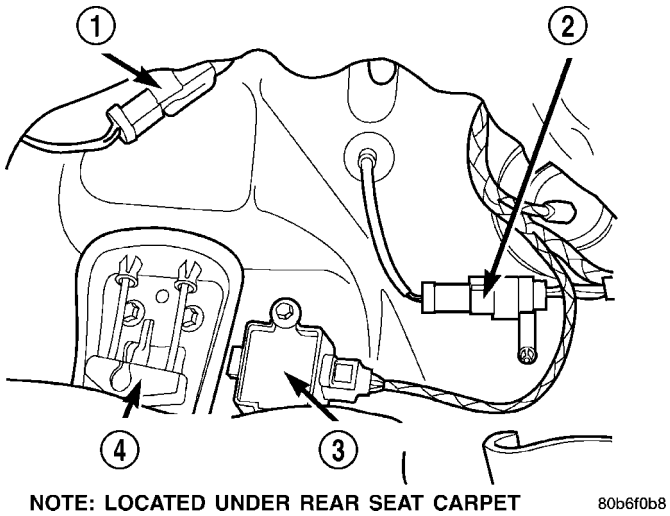


Fig. 4 Rear Sensor Connector

1 - RIGHT REAR WHEEL SPEED SENSOR CONNECTOR
2 - LEFT REAR WHEEL SPEED SENSOR CONNECTOR
3 - G-SWITCH SENSOR
4 - PARKING BRAKE CABLES

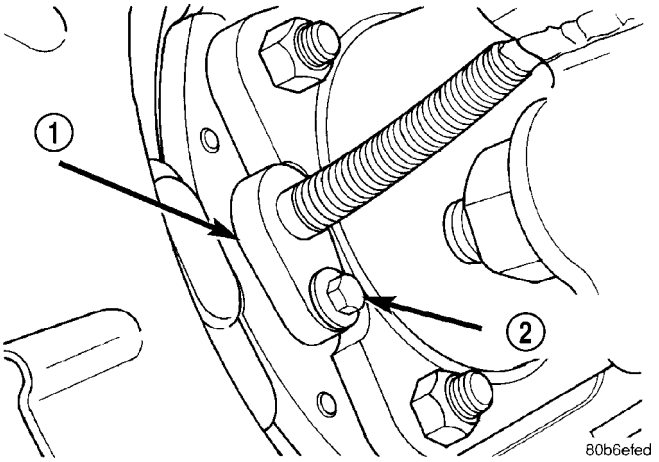


Fig. 5 Sensor Mounting Bolt

1 - WHEEL SPEED SENSOR
2 - MOUNTING BOLT

INSTALLATION

(1) Insert the sensor through the backing plate (Fig. 6).

(2) Apply Mopar Lock N' Seal or Loctite 242® to the original sensor bolt. Use a new bolt if the original is worn or damaged.

(3) Tighten the sensor bolt to 12-14 N·m (106-124 in. lbs.).

(4) Secure the sensor wire in the brackets and the retainers on the rear brake lines. Verify that the sensor wire is secure and clear of the rotating components.

(5) Route the sensor wires to the rear seat area.

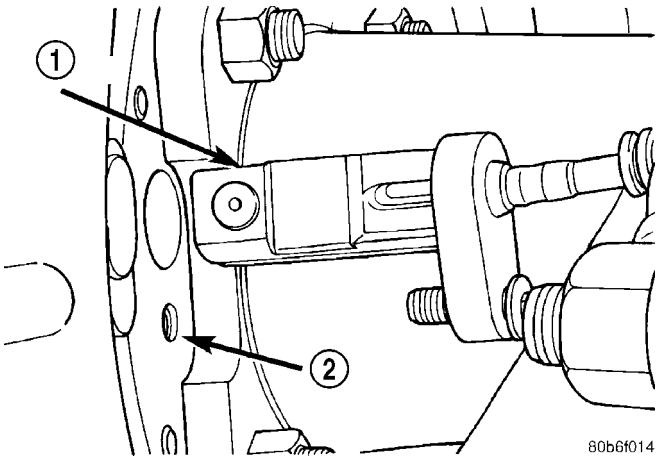


Fig. 6 Wheel Speed Sensor

1 - WHEEL SPEED SENSOR
2 - BACKING PLATE

(6) Feed the sensor wires the through floorpan access hole and seat the sensor grommets into the floorpan.

(7) Remove the support and lower the vehicle.

(8) Fold the rear seat and carpet forward for access to the sensor wires and connectors.

(9) Connect the sensor wires to the harness connectors.

(10) Reposition the carpet and fold the rear seat down.

HCU (HYDRAULIC CONTROL UNIT)

DESCRIPTION

The HCU consists of a valve body, pump motor, and wire harness.

OPERATION

Accumulators in the valve body store extra fluid released to the system for ABS mode operation. The pump is used to clear the accumulator of brake fluid and is operated by a DC type motor. The motor is controlled by the CAB.

The valves modulate brake pressure during antilock braking and are controlled by the CAB.

The HCU provides three channel pressure control to the front and rear brakes. One channel controls the rear wheel brakes in tandem. The two remaining channels control the front wheel brakes individually.

During antilock braking, the solenoid valves are opened and closed as needed. The valves are not static. They are cycled rapidly and continuously to modulate pressure and control wheel slip and deceleration.

HCU (HYDRAULIC CONTROL UNIT) (Continued)

During normal braking, the HCU solenoid valves and pump are not activated. The master cylinder and power booster operate the same as a vehicle without an ABS brake system.

During antilock braking, solenoid valve pressure modulation occurs in three stages, pressure increase, pressure hold, and pressure decrease. The valves are all contained in the valve body portion of the HCU.

PRESSURE DECREASE

The outlet valve is opened and the inlet valve is closed during the pressure decrease cycle.

A pressure decrease cycle is initiated when speed sensor signals indicate high wheel slip at one or more wheels. At this point, the CAB closes the inlet then opens the outlet valve, which also opens the return circuit to the accumulators. Fluid pressure is allowed to bleed off (decrease) as needed to prevent wheel lock.

Once the period of high wheel slip has ended, the CAB closes the outlet valve and begins a pressure increase or hold cycle as needed.

PRESSURE HOLD

Both solenoid valves are closed in the pressure hold cycle. Fluid apply pressure in the control channel is maintained at a constant rate. The CAB maintains the hold cycle until sensor inputs indicate a pressure change is necessary.

PRESSURE INCREASE

The inlet valve is open and the outlet valve is closed during the pressure increase cycle. The pressure increase cycle is used to counteract unequal wheel speeds. This cycle controls re-application of fluid apply pressure due to changing road surfaces or wheel speed.

REMOVAL

(1) Remove the negative battery cable from the battery.

(2) Remove the air cleaner housing,(Refer to 9 - ENGINE/AIR INTAKE SYSTEM/AIR CLEANER HOUSING - REMOVAL).

(3) Pull the CAB harness connector release up and remove connector (Fig. 7).

(4) Remove the brake lines from the HCU.

(5) Remove the HCU/CAB side mounting bolt and the two rear mounting bolts. (Fig. 8).

(6) Remove the HCU/CAB assembly from the vehicle.

INSTALLATION

NOTE: If the CAB is being replaced with a new CAB is must be reprogrammed with the use of a DRB III.

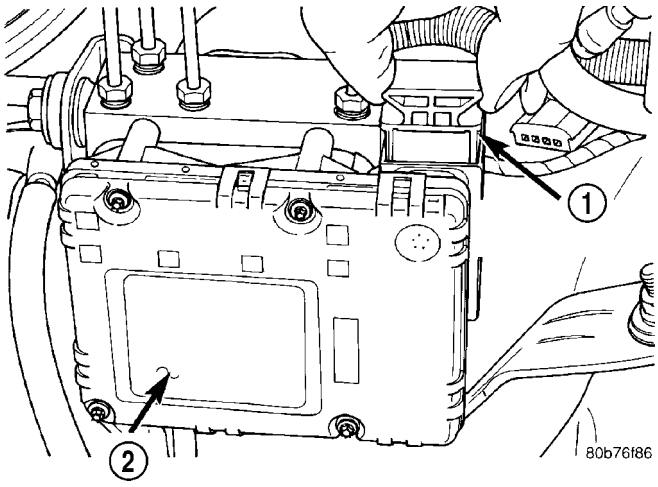


Fig. 7 CAB Connector Release

1 - CONNECTOR RELEASE
2 - CAB

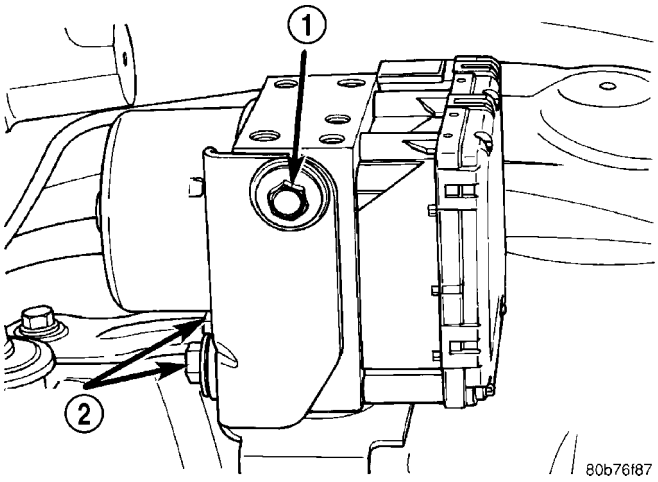


Fig. 8 HCU/CAB Assembly

1 - SIDE MOUNTING BOLT
2 - REAR MOUNTING BOLTS

(1) Install HCU/CAB assembly into the mounting bracket and tighten mounting bolts to 12 N·m (9 ft. lbs.).

(2) Install the brake lines to the HCU and tighten to 16 N·m (12 ft. lbs.).

(3) Install CAB harness connector and push down connector release.

(4) Install air cleaner housing,(Refer to 9 - ENGINE/AIR INTAKE SYSTEM/AIR CLEANER HOUSING - INSTALLATION).

(5) Install negative battery cable to the battery.

(6) Bleed base and ABS brake systems,(Refer to 5 - BRAKES - STANDARD PROCEDURE) OR (Refer to 5 - BRAKES - STANDARD PROCEDURE).

AUDIO

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AUDIO

DESCRIPTION

An audio system is standard factory-installed equipment on this model. Several combinations of radio receivers and speaker systems are offered as optional equipment on this model. The audio system uses an ignition switched control of battery current so that the system will only operate when the ignition switch is in the On or Accessory positions.

A optional navigation radio (RB1) is available on this vehicle. With this system, the operator has the option of choosing a street address, point of interest,

trip itinerary and other features outlined in the operator's manual.

A Compact Disc (CD) changer with a ten disc magazine, remote radio switches with six functions mounted to the backs of the steering wheel spokes, and a memory system that automatically stores and recalls up to twenty radio station presets (ten AM and ten FM) and the last station listened to for two drivers are optional factory-installed equipment on this model. Refer to Electrical, Power Seats for more information on the memory system.

The audio system includes the following components:

- Antenna
- Compact disc changer
- Power amplifier (with premium speaker system only)
- Radio noise suppression components
- Radio receiver
- Remote radio switches
- Speakers

Certain functions and features of the audio system rely upon resources shared with other electronic modules in the vehicle over the Programmable Communications Interface (PCI) data bus network. The PCI data bus network allows the sharing of sensor information. This helps to reduce wire harness complexity, internal controller hardware, and component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities. For diagnosis of these electronic modules or of the PCI data bus network, the use of a DRB III® scan tool and the proper Diagnostic Procedures manual are recommended.

OPERATION

The audio system components are designed to provide audio entertainment and information through the reception, tuning and amplification of locally broadcast radio signals in both the Amplitude Modulating (AM) and Frequency Modulating (FM) commercial frequency ranges.

The optional navigation radio system receives GPS signals from up to eight satellites to display the position and direction of the vehicle. Map information is supplied through a DVD-ROM. An electronic gyrosensor and the vehicle's speed sensor enable the system to display the present vehicle position even in locations where GPS signals may be blocked.

When a destination is selected, the navigation system uses information from the map to quickly calculate a route. As the vehicle is driven along the chosen route, the operator is guided with pictorial displays and voice prompts. For complete operating instructions, refer to the manual included with the vehicle.

The audio system components operate on battery current received through a fuse in the Junction Block (JB) on a fused ignition switch output (run-acc) circuit so that the system will only operate when the ignition switch is in the On or Accessory positions.

On vehicles that are equipped with the optional remote radio switches, the BCM receives hard wired resistor multiplexed inputs from the remote radio switches. The programming in the BCM allows it to process those inputs and send the proper messages to the radio receiver over the PCI data bus to control the radio volume up or down, station seek up or down, preset station advance, and mode advance functions.

On vehicles equipped with the optional memory system, when the DDM receives a Driver 1 or Driver 2 memory recall input from the memory switch on the driver side front door trim panel or a memory recall message from the Remote Keyless Entry (RKE) receiver in the PDM, the DDM sends a memory recall message back to the radio receiver over the PCI data bus to recall the radio station presets and last station listened to information.

See the owner's manual in the vehicle glove box for more information on the features, use and operation of each of the available audio systems.

DIAGNOSIS AND TESTING - AUDIO

Any diagnosis of the Audio system should begin with the use of the DRB III® diagnostic tool. For information on the use of the DRB III®, refer to the appropriate Diagnostic Service Manual.

Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

AUDIO (Continued)

AUDIO SYSTEM DIAGNOSIS

CONDITION	POSSIBLE CAUSES	CORRECTION
NO AUDIO	1. Fuse faulty.	1. Check radio fuse in Junction Block (JB) and Ignition-Off Draw (IOD) fuse in Power Distribution Center (PDC). Replace fuses, if required.
	2. Radio connector faulty.	2. Check for loose or corroded radio connector. Repair, if required.
	3. Wiring faulty.	3. Check for battery voltage at radio connector. Repair wiring, if required.
	4. Radio ground faulty.	4. Check for continuity between radio chassis and a known good ground. There should be continuity. Repair ground, if required.
	5. Radio faulty.	5. (Refer to 8 - ELECTRICAL/AUDIO/RADIO - DIAGNOSIS AND TESTING).
	6. Speakers faulty.	6. (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - DIAGNOSIS AND TESTING).
	7. Amplifier faulty (if equipped).	7. (Refer to 8 - ELECTRICAL/AUDIO/AMPLIFIER - DIAGNOSIS AND TESTING).
NO RADIO DISPLAY	1. Fuse faulty.	1. Check radio fuse in Junction Block (JB) and Ignition-Off Draw (IOD) fuse in Power Distribution Center (PDC). Replace fuses, if required.
	2. Radio connector faulty.	2. Check for loose or corroded radio connector. Repair, if required.
	3. Wiring faulty.	3. Check for battery voltage at radio connector. Repair wiring, if required.
	4. Radio ground faulty.	4. Check for continuity between radio chassis and a known good ground. There should be continuity. Repair ground, if required.
	5. Radio faulty.	5. (Refer to 8 - ELECTRICAL/AUDIO/RADIO - DIAGNOSIS AND TESTING).
CLOCK WILL NOT KEEP SET TIME	1. Fuse faulty.	1. Check Ignition-Off Draw (IOD) fuse in the Power Distribution Center (PDC). Replace fuse, if required.
	2. Radio connector faulty.	2. Check for loose or corroded radio connector. Repair, if required.
	3. Wiring faulty.	3. Check for battery voltage at radio connector. Repair wiring, if required.
	4. Radio ground faulty.	4. Check for continuity between radio chassis and a known good ground. There should be continuity. Repair ground, if required.
	5. Radio faulty.	5. (Refer to 8 - ELECTRICAL/AUDIO/RADIO - DIAGNOSIS AND TESTING).

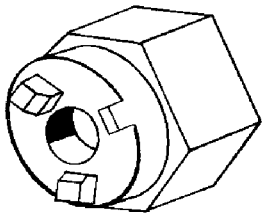
AUDIO (Continued)

CONDITION	POSSIBLE CAUSES	CORRECTION
POOR RADIO RECEPTION	1. Antenna faulty.	1. (Refer to 8 - ELECTRICAL/AUDIO/ANTENNA BODY & CABLE - DIAGNOSIS AND TESTING).
	2. Radio ground faulty.	2. Check for continuity between radio chassis and a known good ground. There should be continuity. Repair ground, if required.
	3. Radio noise suppression faulty.	3. (Refer to 8 - ELECTRICAL/AUDIO/RADIO NOISE SUPPRESSION - DIAGNOSIS AND TESTING).
	4. Radio faulty.	4. (Refer to 8 - ELECTRICAL/AUDIO/RADIO - DIAGNOSIS AND TESTING).
NO/POOR TAPE OPERATION	1. Faulty tape.	1. Insert known good tape and test operation.
	2. Foreign objects behind tape door.	2. Remove foreign objects and test operation.
	3. Dirty cassette tape head.	3. Clean head with Mopar Cassette Head Cleaner.
	4. Faulty tape deck.	4. Exchange or replace radio, if required.
NO COMPACT DISC OPERATION, OR CD SKIPPING SOUND	1. Faulty CD.	1. Insert known good CD and test operation.
	2. Foreign material on CD.	2. Clean CD and test operation.
	3. Condensation on CD or optics.	3. Allow temperature of vehicle interior to stabilize and test operation.
	4. Faulty CD player.	4. Exchange or replace radio, if required.
NO COMPACT DISC CHANGER OPERATION, OR CD SKIPPING SOUND	1. Faulty CD.	1. Insert known good CD and test operation.
	2. Foreign material on CD.	2. Clean CD and test operation.
	3. Condensation on CD or optics.	3. Allow temperature of vehicle interior to stabilize and test operation.
	4. CD changer connector faulty.	4. Check for loose or corroded CD changer connections. Repair, if required.
	5. Wiring faulty.	5. Refer to Compact Disc Changer in the Diagnosis and Testing section of this group.
	6. PCI data bus faulty.	6. Use DRB scan tool and the Diagnostic Procedures manual to test PCI data bus. Repair, if required.
	7. CD changer faulty.	7. Refer to Compact Disc Changer in the Diagnosis and Testing section of this group.

AUDIO (Continued)

SPECIAL TOOLS

AUDIO SYSTEMS



Antenna Nut Wrench C-4816

AMPLIFIER

DESCRIPTION

Models equipped with the Infinity premium speaker package have a separate power amplifier unit. This power amplifier is rated at 180 watts output. The power amplifier unit is mounted to the rear floor panel under the passenger side rear seat cushion. The power amplifier unit can be accessed for service by unlatching and tilting the passenger side rear seat cushion forward.

The power amplifier unit should be checked if there is no sound output noted from the speakers. For diagnosis of the power amplifier, (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - DIAGNOSIS AND TESTING). The power amplifier cannot be repaired or adjusted and, if faulty or damaged, the unit must be replaced.

OPERATION

The power amplifier is energized by a fused 12 volt output from the radio receiver whenever the radio is turned on. The power amplifier receives the sound signal inputs for four speaker channels from the radio receiver, then sends the amplified speaker outputs for each of those channels to the six Infinity speakers. For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

DIAGNOSIS AND TESTING - AMPLIFIER

The power amplifier unit should be checked if there is no sound output noted from the speakers. For diagnosis of the power amplifier, (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - DIAGNOSIS AND TESTING). For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Unlatch and lift the right rear seat cushion to the upright position.

(3) Disconnect the two right body wire harness connectors from the amplifier (Fig. 1).

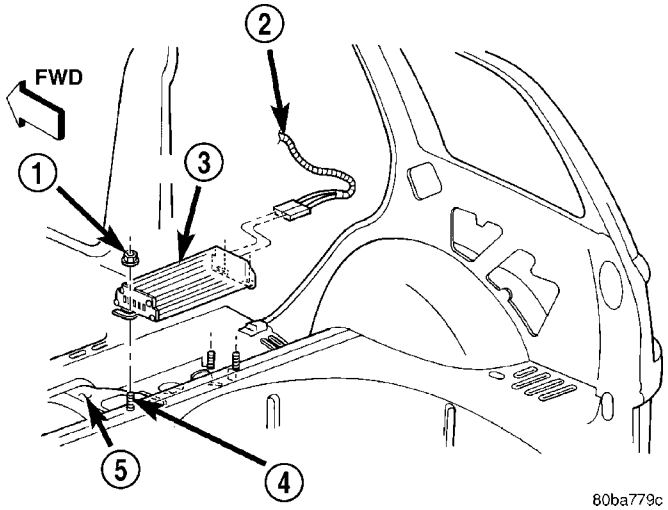


Fig. 1 Power Amplifier Remove/Install

1 - NUT (3)
2 - RIGHT BODY WIRE HARNESS
3 - AMPLIFIER
4 - STUD (3)
5 - RIGHT REAR FLOOR PANEL

(4) Remove the three mounting nuts.

(5) Remove the power amplifier.

INSTALLATION

(1) Position the power amplifier onto the three floor panel studs.

(2) Install the mounting nuts. Tighten the nuts to 11.8 N·m (105 in. lbs.).

(3) Reconnect the two right body wire harness connectors.

(4) Lower the right rear seat cushion to the floor panel.

(5) Reconnect the battery negative cable.

ANTENNA BODY & CABLE

DESCRIPTION

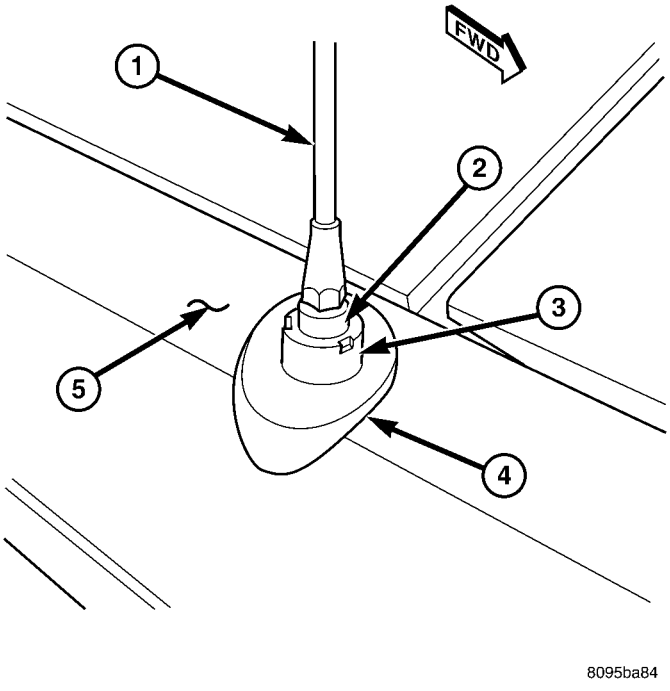


Fig. 2 Antenna Body and Cable

1 - MAST
2 - BODY & CABLE
3 - CAP NUT
4 - ADAPTER
5 - RIGHT FRONT FENDER

The antenna body and cable is secured below the fender panel by the antenna cap nut through a mounting hole in the of the right front fender (Fig. 2). The primary coaxial antenna cable is then routed beneath the fender sheet metal and through a entry hole in the right cowl side panel into the interior of the vehicle. Inside the vehicle, the primary coaxial cable is connected to a secondary instrument panel antenna coaxial cable with an in-line connector that is located behind the right kick panel. The secondary coaxial cable is then routed behind the instrument panel to the back of the radio.

OPERATION

The antenna body and cable connects the antenna mast to the radio. The radio antenna is an electromagnetic circuit component used to capture radio frequency signals that are broadcast by local commercial radio stations in both the Amplitude Modulating (AM) and Frequency Modulating (FM) frequency ranges. These electromagnetic radio frequency signals induce small electrical modulations into the antenna as they move past the mast. The antenna body transfers the weak electromagnetic radio waves induced into the rigid antenna mast into the center conductor of the flexible primary antenna coaxial cable. The braided outer shield of the antenna coaxial cable is grounded through both the antenna body and the radio chassis, effectively shielding the radio waves as they are conducted to the radio. The radio then tunes and amplifies the weak radio signals into stronger electrical signals in order to operate the audio system speakers.

DIAGNOSIS AND TESTING - ANTENNA BODY AND CABLE

The following four tests are used to diagnose the antenna with an ohmmeter:

- **Test 1** - Mast to ground test
- **Test 2** - Tip-of-mast to tip-of-conductor test
- **Test 3** - Body ground to battery ground test
- **Test 4** - Body ground to antenna coaxial cable shield test.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

The ohmmeter test lead connections for each test are shown in the illustration (Fig. 3).

NOTE: This model has a two-piece antenna coaxial cable. Tests 2 and 4 must be conducted in two steps to isolate an antenna cable problem. First, test the primary antenna cable (integral to the antenna body and cable) from the coaxial cable connector under the right end of the instrument panel near the right cowl side inner panel to the antenna body. Then, test the secondary antenna cable (instrument panel antenna cable) from the coaxial cable connector under the right end of the instrument panel near the right cowl side inner panel to the coaxial cable connector at the radio.

NOTE: Use extreme caution when checking continuity of center conductor to avoid damage.

ANTENNA BODY & CABLE (Continued)

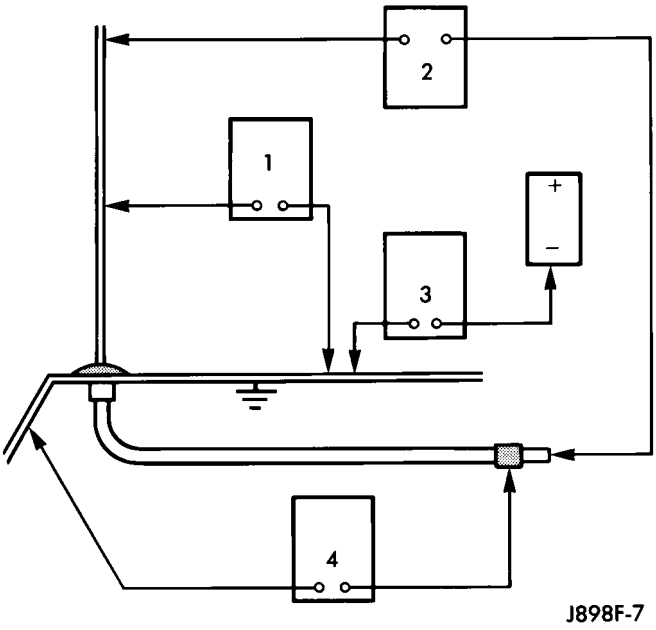


Fig. 3 Antenna Tests - Typical

TEST 1

Test 1 determines if the antenna mast is insulated from ground. Proceed as follows:

(1) Disconnect and isolate the antenna coaxial cable connector under the right end of the instrument panel near the right cowl side inner panel.

(2) Touch one ohmmeter test lead to the tip of the antenna mast. Touch the other test lead to the antenna cap nut. Check the ohmmeter reading for continuity.

(3) There should be no continuity. If OK, go to Test 2. If not OK, replace the faulty antenna body and cable.

TEST 2

Test 2 checks the antenna conductor components for an open circuit. This test should be performed first on the entire antenna circuit, from the antenna mast to the center conductor of the coaxial cable connector at the radio. If an open circuit is detected, each of the three antenna conductor components (antenna mast, antenna body and primary cable unit, instrument panel antenna secondary cable) should be isolated and tested individually to locate the exact component that is the source of the open circuit. To begin this test, proceed as follows:

(1) Disconnect the instrument panel (secondary) antenna cable coaxial connector from the back of the radio.

(2) Touch one ohmmeter test lead to the tip of the antenna mast. Touch the other test lead to the center conductor pin of the instrument panel antenna cable coaxial connector for the radio. Check the ohmmeter reading for continuity.

(3) There should be continuity. The ohmmeter should register only a fraction of an ohm resistance. High or infinite resistance indicates a damaged or open antenna conductor. If OK, go to Test 3. If not OK, isolate and test each of the individual antenna conductor components. Replace only the faulty antenna conductor component.

TEST 3

Test 3 checks the condition of the vehicle body ground connection. To begin this test, proceed as follows:

(1) This test must be performed with the battery positive cable disconnected from the battery. Disconnect and isolate both battery cables, negative cable first.

(2) Reconnect the battery negative cable.

(3) Touch one ohmmeter test lead to a good clean ground point on the vehicle fender. Touch the other test lead to the battery negative terminal post. Check the ohmmeter reading for continuity.

(4) There should be continuity. The ohmmeter should register less than one ohm resistance. High or infinite resistance indicates a loose, corroded, or damaged connection between the battery negative terminal and the vehicle body. If OK, go to Test 4. If not OK, check the battery negative cable connection to the vehicle body and the radio noise suppression ground strap connections to the engine and the vehicle body for being loose or corroded. Clean or tighten these connections as required.

TEST 4

Test 4 checks the condition of the connection between the antenna coaxial cable shield and the vehicle body ground as follows:

(1) Disconnect and isolate the antenna coaxial cable connector under the right end of the instrument panel near the right cowl side inner panel.

(2) Touch one ohmmeter test lead to a good clean ground point on the vehicle fender. Touch the other test lead to the outer crimp on the antenna coaxial cable connector under the right end of the instrument panel near the right cowl side inner panel. Check the ohmmeter reading for continuity.

(3) There should be continuity. The ohmmeter should register less than one ohm resistance. High or infinite resistance indicates a loose, corroded, or damaged connection between the antenna body and the vehicle body or between the antenna body and the antenna coaxial cable shield. If not OK, clean the antenna body to fender mating surfaces and tighten the antenna cap nut to specifications.

ANTENNA BODY & CABLE (Continued)

(4) Check the resistance again with an ohmmeter. If the resistance is still more then one ohm, replace the faulty antenna body and cable.

REMOVAL

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the scuff plate from the right front door sill. (Refer to 23 - BODY/INTERIOR/DOOR SILL SCUFF PLATE - REMOVAL) for the procedures.

(3) Remove the trim panel from the right inner cowl side.(Refer to 23 - BODY/INTERIOR/COWL TRIM - REMOVAL) for the procedures.

(4) Reach under the passenger side of the instrument panel near the right cowl side inner panel to disconnect the antenna coaxial cable connector by pulling it apart while twisting the metal connector halves (Fig. 4). Do not pull on the cable.

(5) Remove the lower rear half of the inner liner from the right front fender wheel house. (Refer to 23 - BODY/EXTERIOR/FRONT FENDER - REMOVAL) for the procedures.

(6) Reach through the rear of the right front fender wheel house opening to access and unseat the antenna lead grommet from the hole in the right cowl side outer panel.

(7) Pull the antenna lead coaxial cable and connector out of the passenger compartment and into the right front fender wheel house through the hole in the right cowl side outer panel.

(8) Unscrew the antenna mast from the antenna base (Fig. 5).

(9) Remove the plastic shroud from the antenna base cap nut.

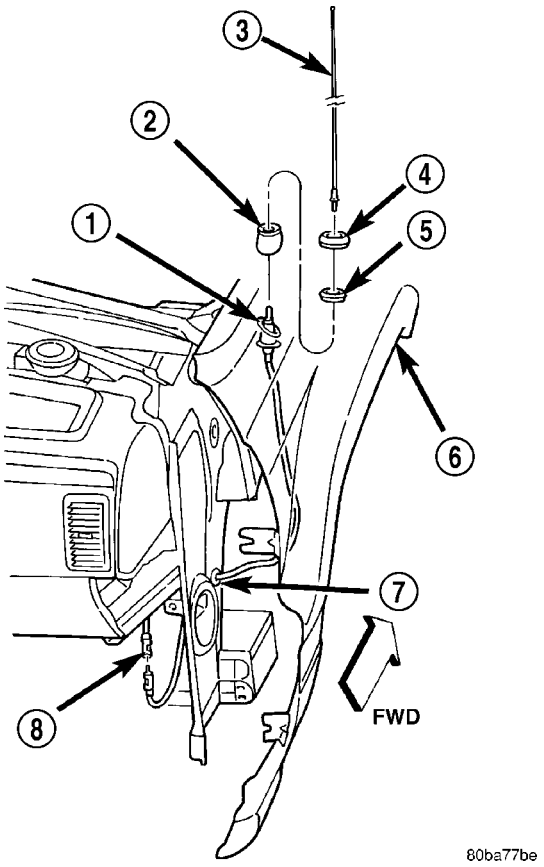


Fig. 4 Antenna Base and Lead Remove/Install

1 - BASE AND LEAD
2 - ESCUTCHEON
3 - MAST
4 - SHROUD
5 - CAP NUT
6 - RIGHT FRONT FENDER
7 - GROMMET
8 - CONNECTOR

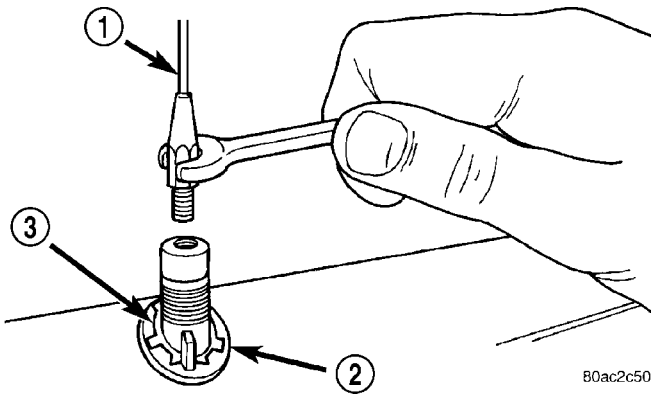


Fig. 5 Antenna Mast Remove/Install - Typical

1 - ANTENNA MAST
2 - ADAPTER
3 - CAP NUT

ANTENNA BODY & CABLE (Continued)

(10) Remove the antenna base cap nut using an antenna nut wrench (Special Tool C-4816) (Fig. 6).

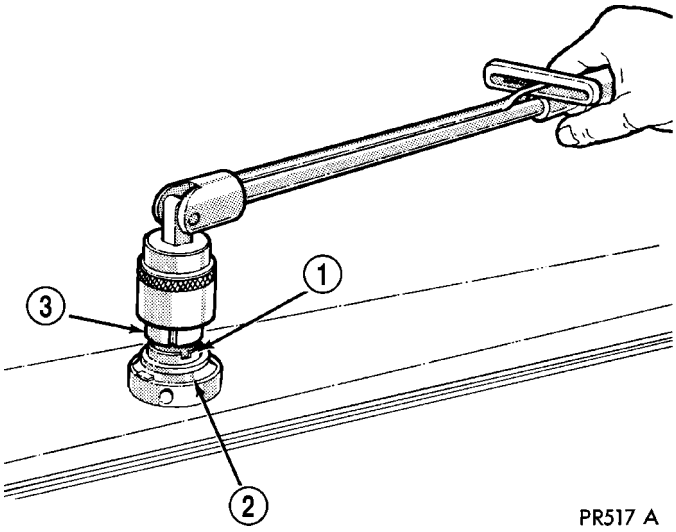


Fig. 6 Antenna Base Cap Nut Remove/Install - Typical

1 - CAP NUT
2 - ANTENNA ADAPTER
3 - TOOL

(11) Remove the antenna escutcheon from the antenna base on the top of the right front fender.

(12) Lower the antenna base from the mounting hole in the top of the right front fender.

(13) Remove the antenna base and lead from the rear of the right front fender wheel house opening.

INSTALLATION

(1) Position the antenna base and lead into the rear of the right front fender wheel house opening.

(2) Insert the antenna base into the mounting hole in the top of the right front fender.

(3) Install the antenna escutcheon onto the antenna base on the top of the right front fender.

(4) Install and tighten the antenna base cap nut using an antenna nut wrench (Special Tool C-4816). Tighten the cap nut to 6.8 N·m (60 in. lbs.).

(5) Install the plastic shroud onto the antenna base cap nut.

(6) Install and tighten the antenna mast onto the antenna base. Tighten the antenna mast to 3.3 N·m (30 in. lbs.).

(7) Reach through the rear of the right front fender wheel house opening to access and insert the antenna lead coaxial cable and connector into the passenger compartment through the hole in the right cowl side outer panel.

(8) From the right front fender wheel house, seat the antenna lead grommet into the hole in the right cowl side outer panel.

(9) Install the lower rear half of the inner liner into the right front fender wheel house.

(10) Reach under the passenger side of the instrument panel near the right cowl side inner panel to reconnect the antenna coaxial cable connector halves.

(11) Install the trim panel onto the right inner cowl side.

(12) Install the scuff plate onto the right front door sill.

(13) Reconnect the battery negative cable.

ANTENNA - NAVIGATION RADIO

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the radio (Refer to 8 - ELECTRICAL/AUDIO/RADIO - REMOVAL).

(3) Remove the instrument cluster (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - REMOVAL).

(4) Remove the navigation radio antenna.

INSTALLATION

(1) Install antenna to instrument panel.

(2) Install instrument cluster (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - INSTALLATION).

(3) Install radio (Refer to 8 - ELECTRICAL/AUDIO/RADIO - INSTALLATION).

(4) Connect battery negative cable.

ANTENNA MODULE - EXPORT

DESCRIPTION

The antenna module (Fig. 7) is an electromagnetic circuit component designed to capture and enhance RF (Radio Frequency) signals in both the AM and FM broadcast bands. The antenna module is mounted to the right rear roof rail under the headliner. The modules mounting brackets also double as the ground circuit. The module has a two wire electrical connector that connects to the electric backlite integral radio antenna, located on the right rear quarter glass, a connector for the radio coax cable and a connector for battery voltage.

OPERATION

The antenna module receives both AM and FM radio signals supplied by the side window integral radio antenna system and selectively amplifies them while at the same time avoiding unusable or unwanted signals. The amplified signal is then sent through the body length coax cable to the radio input.

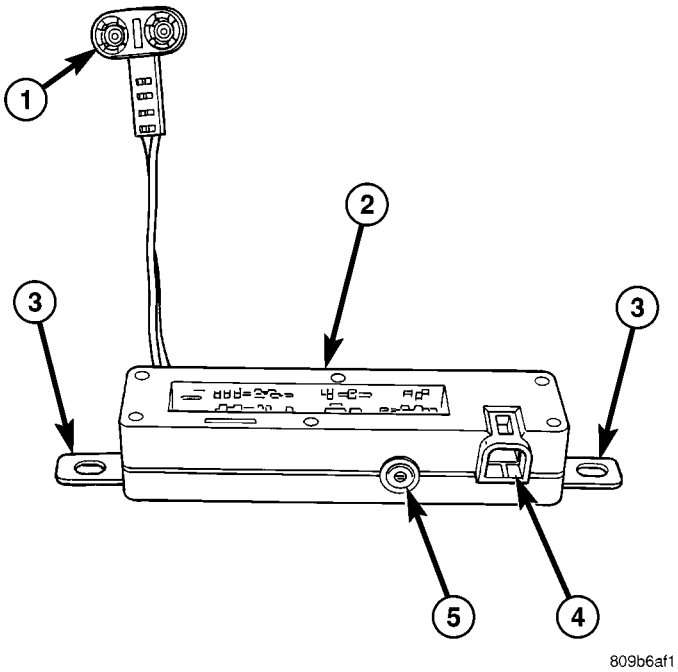


Fig. 7 ANTENNA MODULE

1 - ANTENNA LEAD CONNECTOR
2 - ANTENNA MODULE
3 - ANTENNA MODULE MOUNT/GROUND BRACKETS
4 - BATTERY SUPPLY CONNECTION POINT
5 - COAX CONNECTION POINT

DIAGNOSIS AND TESTING - ANTENNA MODULE - EXPORT

ANTENNA MODULE DIAGNOSIS TABLE

CONDITION	POSSIBLE CAUSES	CORRECTION
NO AM RECEPTION, WEAK FM RECEPTION	1. Antenna module to antenna connector open or disconnected.	1. Repair open, reconnect antenna module connector to glass mounted antenna.
	2. Coax open or disconnected.	2. Repair open, reconnect coax.
	3. No battery power at antenna module.	3. Check fuse. if okay, repair open in battery voltage circuit.
NO AM OR FM RECEPTION	1. Coax disconnected at radio.	1. Reconnect coax.
	2. Coax shorted to ground.	2. Repair or Replace coax
WEAK OR NO AM/FM RECEPTION	1. Antenna Module faulty.	1. Substitute known good module. If reception improves, Antenna Module was faulty.

ANTENNA MODULE - EXPORT (Continued)

REMOVAL

(1) Remove the headliner. (Refer to 23 - BODY/INTERIOR/HEADLINER - REMOVAL)

(2) Disconnect the battery power lead connector from the antenna module.

(3) Disconnect the antenna module connector from the integral antenna (Fig. 8).

(4) Remove the mounting screws and the antenna module.

(5) Disconnect the coax lead from the antenna module.

INSTALLATION

(1) Plug coax into antenna module.

(2) Position antenna module onto right side upper roof rail and install screws. Tighten the screws to 8 N·m (71 in. lbs.).

(3) Connect antenna module lead to the integral antenna.

(4) Connect battery power supply lead to antenna module.

(5) Install headliner. (Refer to 23 - BODY/INTERIOR/HEADLINER - INSTALLATION)

CD CHANGER

DESCRIPTION

A factory-installed Compact Disc (CD) changer featuring a ten-CD magazine is an available option on this model when it is also equipped with the premium speaker package and a radio receiver including the CD controls feature. The CD changer is mounted in the cargo area of the passenger compartment on the right rear quarter panel.

The CD changer is connected to a take out from the right body wire harness and receives both ground and radio-switched battery current through the radio receiver. The controls on the radio receiver operate the CD changer through messages sent over the Programmable Communications Interface (PCI) data bus network. The two-channel audio outputs of the CD changer are hard wired back to the radio receiver, which then outputs the signal through four channels to the power amplifier. For diagnosis of the messaging functions of the radio receiver and the CD changer, or of the PCI data bus, a DRB scan tool and the proper Diagnostic Procedures manual are required.

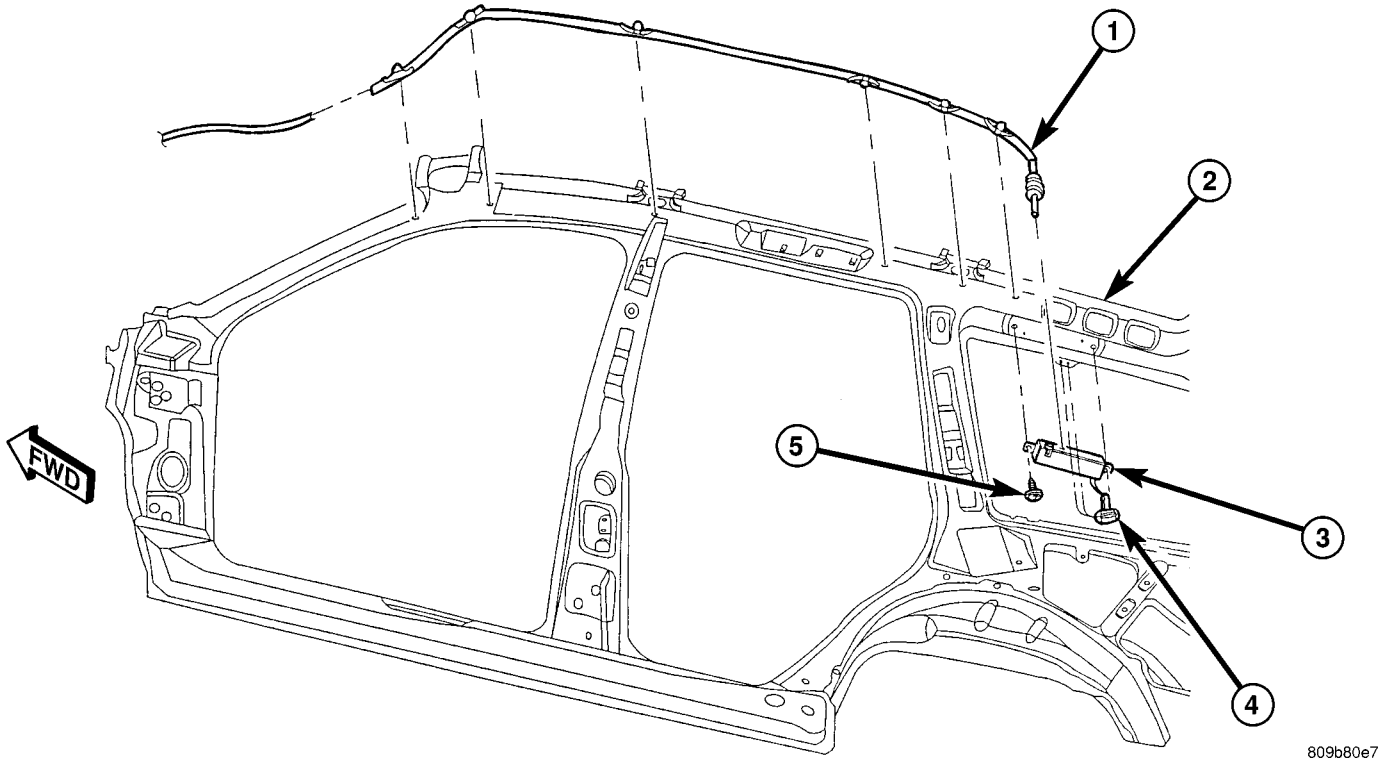


Fig. 8 ANTENNA MODULE

1 - COAX
2 - RIGHT SIDE ROOF RAIL
3 - ANTENNA MODULE
4 - ANTENNA MODULE TO ANTENNA CONNECTOR
5 - SCREW (2)

CD CHANGER (Continued)

The CD changer can only be serviced by an authorized radio repair station. See the latest Warranty Policies and Procedures manual for a current listing of authorized radio repair stations.

OPERATION

The CD changer will only operate when the ignition switch is in the On or Accessory positions, and the radio is turned on. For more information on the features, loading procedures and radio control functions for the operation of the CD changer, see the owner's manual in the vehicle glove box.

DIAGNOSIS AND TESTING - CD CHANGER

Following are tests that will help to diagnose the hard wired components and circuits of the Compact Disc (CD) changer unit. However, these tests may not prove conclusive in the diagnosis of this unit. In order to obtain conclusive testing of the CD changer unit, the Programmable Communications Interface (PCI) data bus network, the CD changer unit, the radio receiver unit and any other electronic modules that provide inputs to, or receive outputs from the audio system must be checked.

Any diagnosis of the Audio system should begin with the use of the DRB III® diagnostic tool. For information on the use of the DRB III®, refer to the appropriate Diagnostic Service Manual.

Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

COMPACT DISC CHANGER INOPERATIVE

(1) Turn the ignition switch to the On position. Turn the radio receiver on and check its operation. If OK, go to Step 2. If not OK, (Refer to 8 - ELECTRICAL/AUDIO/RADIO - OPERATION).

(2) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the right body wire harness connector from the CD changer connector receptacle. Check for continuity between the power ground (Z17) circuit of the right body wire harness connector for the CD changer and a good ground. There should be continuity. If OK, go to Step 3. If not OK, repair the open power ground circuit to the radio receiver as required.

(3) Reconnect the battery negative cable. Check for battery voltage at the B(+) circuit cavity of the right body wire harness connector for the CD changer. If OK, go to Step 4. If not OK, go to Step 5.

(4) Turn the ignition switch to the On position. Check for battery voltage at the ignition switch output circuit cavity of the right body wire harness connector for the CD changer. If OK, use a DRB scan tool and the proper Diagnostic Procedures manual for further diagnosis. If not OK, go to Step 6.

(5) Disconnect and isolate the battery negative cable. Remove the radio receiver from the instrument panel. Disconnect the 10 pin cable connector from the radio receiver, but do not disconnect the other wire harness connectors. Reconnect the battery negative cable. Check for battery voltage at the B(+) circuit cavity of the 10 pin connector receptacle on the radio receiver. If OK, repair the open B(+) circuit to the CD changer as required. If not OK, check for a shorted B(+) circuit to the CD changer and repair as required, then replace the faulty radio receiver.

(6) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the radio receiver from the instrument panel. Disconnect the 10 pin cable connector from the radio receiver, but do not disconnect the other wire harness connectors. Reconnect the battery negative cable. Turn the ignition switch to the On position. Check for battery voltage at the ignition switch output circuit cavity of the 10 pin connector receptacle on the radio receiver. If OK, repair the open ignition switch output circuit to the CD changer as required. If not OK, check for a shorted ignition switch output circuit to the CD changer and repair as required, then replace the faulty radio receiver.

NO SOUND OR ONLY ONE CHANNEL SOUND FROM CD CHANGER

(1) Turn the ignition switch to the On position. Turn the radio receiver on and check its audio output operation. If OK, go to Step 2. If not OK, (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - OPERATION).

(2) Disconnect and isolate the battery negative cable. Disconnect the right body wire harness connector from the CD changer connector receptacle. Remove the radio receiver from the instrument

CD CHANGER (Continued)

panel. Disconnect the 10 pin cable connector from the radio receiver. Check for continuity between the audio ground (Z4) circuit cavity of the right body wire harness connector for the CD changer and a good ground. There should be no continuity. If OK, go to Step 3. If not OK, repair the shorted audio ground (Z4) circuit as required.

(3) Check for continuity between the audio ground (Z4) circuit cavity of the right body wire harness connector for the CD changer and the audio ground (Z4) circuit pin of the 10 pin cable connector for the radio receiver. There should be continuity. If OK, go to Step 4. If not OK, repair the open audio ground (Z4) circuit as required.

(4) Check for continuity between the audio out right circuit cavity of the right body wire harness connector for the CD changer and a good ground. There should be no continuity. If OK, go to Step 5. If not OK, repair the shorted audio out right circuit as required.

(5) Check for continuity between the audio out right circuit cavity of the right body wire harness connector for the CD changer and the audio out right circuit pin of the 10 pin cable connector for the radio receiver. There should be continuity. If OK, go to Step 6. If not OK, repair the open audio out right circuit as required.

(6) Check for continuity between the audio out left circuit cavity of the right body wire harness connector for the CD changer and a good ground. There should be no continuity. If OK, go to Step 7. If not OK, repair the shorted audio out left circuit as required.

(7) Check for continuity between the audio out left circuit cavity of the right body wire harness connector for the CD changer and the audio out left circuit pin of the 10 pin cable connector for the radio receiver. There should be continuity. If OK, replace the faulty CD changer. If not OK, repair the open audio out left circuit as required.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Release the latch and open the lid of the compact disc changer storage bin on the right side quarter trim panel (Fig. 9).

(3) Remove the two mounting screws.

(4) Grasp the bottom of the compact disc changer storage bin firmly with both hands and lift it upwards.

(5) Remove the compact disc changer storage bin from the right side quarter trim panel.

(6) Disconnect the right body wire harness connector from compact disc changer (Fig. 10).

(7) Remove the four mounting nuts.

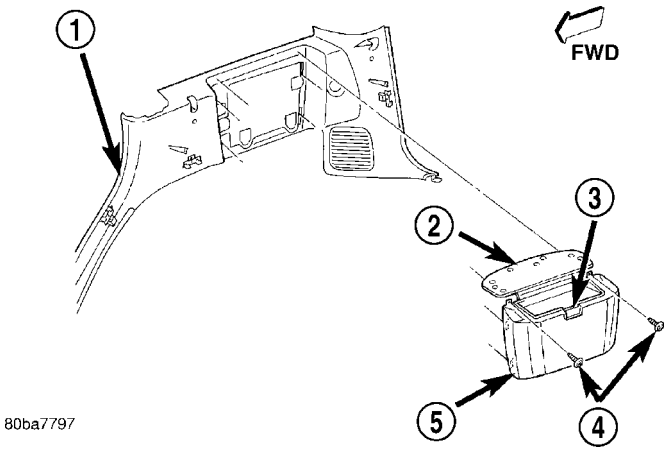


Fig. 9 Compact Disc Changer Storage Bin Remove/Install

1 - RIGHT SIDE QUARTER TRIM PANEL
2 - LID
3 - LATCH
4 - SCREW (2)
5 - CD CHANGER STORAGE BIN

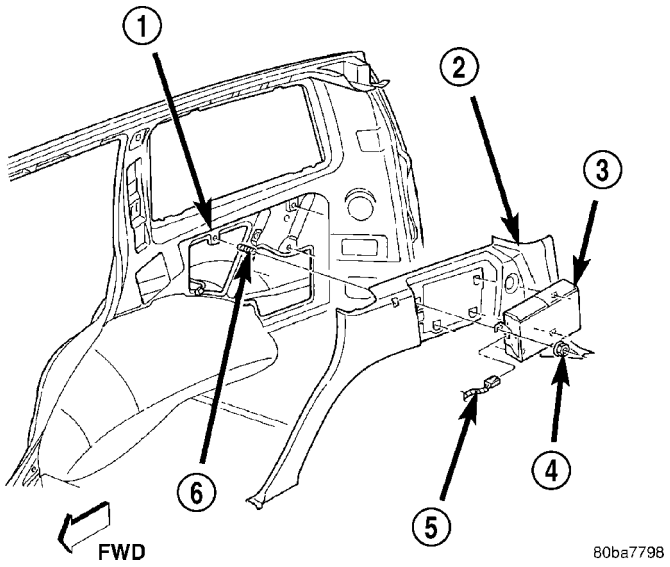


Fig. 10 Compact Disc Changer Remove/Install

1 - RIGHT SIDE QUARTER INNER PANEL
2 - RIGHT SIDE QUARTER TRIM PANEL
3 - COMPACT DISC CHANGER
4 - NUT (4)
5 - RIGHT BODY WIRE HARNESS
6 - STUD (4)

(8) Remove the compact disc changer from the right side quarter inner panel.

INSTALLATION

(1) Position the compact disc changer onto the four studs.

(2) Install the four mounting nuts. Tighten the nuts to 12 N·m (105 in. lbs.).

CD CHANGER (Continued)

(3) Reconnect the right body wire harness connector.
(4) Position the compact disc changer storage bin onto the right side quarter trim panel.
(5) Using both hands push the compact disc changer storage bin firmly and evenly toward the right side quarter trim panel far enough to engage the hooks on the bin with the slots in the panel.
(6) Using both hands push the compact disc changer storage bin firmly and evenly downward far enough to align the screw holes in the bin with the mounting holes in the right side quarter trim panel.
(7) Install the two screws that secure the top of the compact disc changer storage bin. Tighten the screws to 1.7 N·m (15 in. lbs.).
(8) Reconnect the battery negative cable.

INSTRUMENT PANEL ANTENNA CABLE

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO ELECTRICAL, RESTRAINTS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.
(2) Remove the scuff plate from the right front door sill. (Refer to 23 - BODY/INTERIOR/DOOR SILL SCUFF PLATE - REMOVAL) for the procedures.
(3) Remove the trim panel from the right inner cowl side. (Refer to 23 - BODY/INTERIOR/COWL TRIM - REMOVAL) for the procedures.
(4) Reach under the passenger side of the instrument panel near the right cowl side inner panel to disconnect the antenna coaxial cable connector by pulling it apart while twisting the metal connector halves. Do not pull on the cable.
(5) Disengage the antenna cable retainer from the mounting hole in the wire harness mounting tab under the passenger side end of the instrument panel.
(6) Remove the radio receiver from the instrument panel. (Refer to 8 - ELECTRICAL/AUDIO/RADIO - REMOVAL) for the procedures.

CAUTION: Pulling the antenna cable straight out of the radio without pulling on the locking antenna connector could damage the cable or radio.

(7) Disconnect the antenna cable by pulling the locking antenna connector away from the radio (Fig. 11)

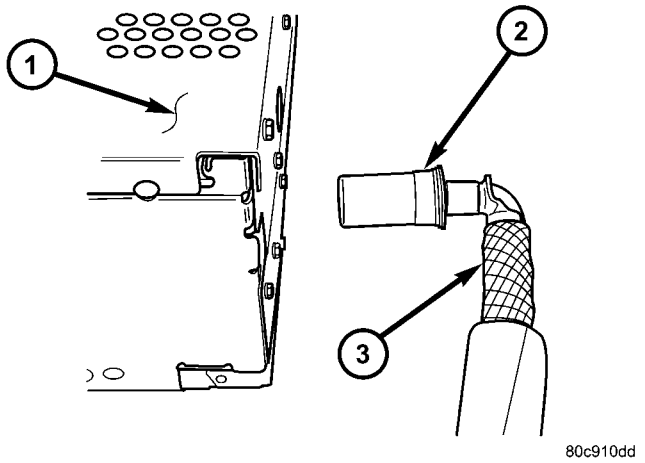


Fig. 11 ANTENNA TO RADIO

1 - INSTRUMENT PANEL
2 - SCREW (4)
3 - RADIO RECEIVER

(8) Remove the passenger side airbag module from the instrument panel. (Refer to 8 - ELECTRICAL/ RESTRAINTS/PASSENGER AIRBAG - REMOVAL) for the procedures.
(9) Disengage the antenna cable retainer from the mounting hole in the top of the radio mount on the instrument panel structural duct (Fig. 12).

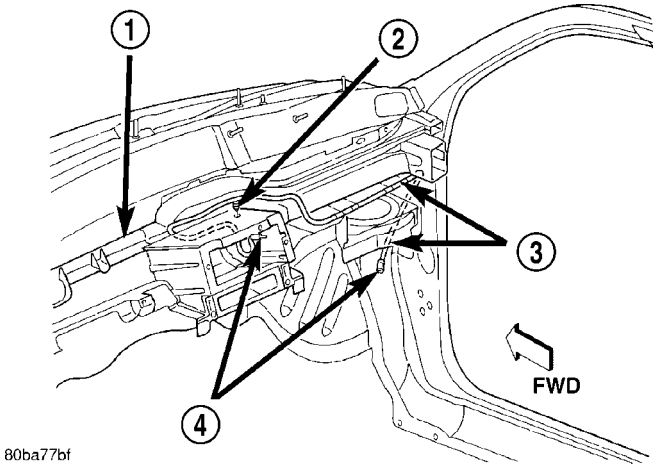


Fig. 12 Instrument Panel Antenna Cable Routing

1 - INSTRUMENT PANEL STRUCTURAL DUCT
2 - RETAINER
3 - COAXIAL CABLE
4 - COAXIAL CABLE CONNECTORS

(10) Disengage the antenna cable from the locator tabs on the top of the instrument panel structural duct above the glove box opening.
(11) Remove the antenna cable from the instrument panel.

INSTALLATION

(1) Position the antenna cable onto the instrument panel.

(2) Engage the antenna cable with the locator tabs on the top of the instrument panel structural duct above the glove box opening.

(3) Engage the antenna cable retainer into the mounting hole in the top of the radio mount on the instrument panel structural duct.

(4) Install the passenger side airbag module onto the instrument panel. (Refer to 8 - ELECTRICAL/ RESTRAINTS/PASSENGER AIRBAG - INSTALLATION) for the procedures.

(5) Install the radio receiver onto the instrument panel. (Refer to 8 - ELECTRICAL/AUDIO/RADIO - INSTALLATION) for the procedures.

(6) Engage the antenna cable retainer into the mounting hole in the wire harness mounting tab under the passenger side end of the instrument panel.

(7) Reach under the passenger side of the instrument panel near the right cowl side inner panel to reconnect the antenna coaxial cable connector halves.

(8) Install the trim panel onto the right inner cowl side. (Refer to 23 - BODY/INTERIOR/COWL TRIM - INSTALLATION) for the procedures.

(9) Install the scuff plate onto the right front door sill. (Refer to 23 - BODY/INTERIOR/DOOR SILL SCUFF PLATE - INSTALLATION) for the procedures.

(10) Reconnect the battery negative cable.

QUARTER GLASS INTEGRAL ANTENNA - EXPORT

DESCRIPTION

The integral radio antenna element is bonded to the right rear quarter glass and is replaced with the glass assembly only.

OPERATION

The integral antenna receives RF (Radio Frequencies) and sends them to the antenna module for amplification.

DIAGNOSIS AND TESTING - QUARTER GLASS INTEGRAL ANTENNA - EXPORT

For complete circuit diagrams, refer to the Appropriate Wiring Information. To detect breaks in the integral antenna elements, the following procedure is required:

(1) Disconnect the antenna module connector from the antenna.

(2) Using an Ohmmeter, place one test lead on the left hand terminal. Place the other test lead on the end of the conductor. Trace down the path to the end of the conductors. There should be continuity to each end of this conductive trace.

(3) Place one test lead on the right hand terminal. Place the other test lead on the end of the conductor. Trace down the path to the end of the conductors. There should be continuity to each end of this conductive trace.

(4) While keeping the Ohmmeter lead on the left hand terminal, place the other lead on the right hand terminal. There should be an open circuit with no continuity between the terminals.

(5) A break in the antenna grid can be repaired using a Mopar Rear Window Defogger Repair Kit (Part Number 4267922) or equivalent. (Refer to 8 - ELECTRICAL/WINDOW DEFOGGER/REAR WINDOW DEFOGGER GRID - STANDARD PROCEDURE).

RADIO

DESCRIPTION

Available factory-installed radio receivers for this model include:

- AM/FM/CD with CD changer control feature (RBK sales code)
- AM/FM/cassette/CD/graphic equalizer with CD changer control feature (RBP sales code)
- AM/FM/DVD with GPS navigation (RB1 sales code)

All factory-installed radio receivers can communicate on the Programmable Communications Interface (PCI) data bus network. All factory-installed receivers are stereo Electronically Tuned Radios (ETR) and include an electronic digital clock function.

These radio receivers can only be serviced by an authorized radio repair station. See the latest Warranty Policies and Procedures manual for a current listing of authorized radio repair stations.

OPERATION

The radio receiver operates on ignition switched battery current that is available only when the ignition switch is in the On or Accessory positions. The electronic digital clock function of the radio operates on fused battery current supplied through the IOD fuse, regardless of the ignition switch position.

For more information on the features, setting procedures, and control functions for each of the available factory-installed radio receivers, refer to the owner's manual. For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

RADIO (Continued)

DIAGNOSIS AND TESTING - RADIO

Any diagnosis of the Audio system should begin with the use of the DRB III® diagnostic tool. For information on the use of the DRB III®, refer to the appropriate Diagnostic Service Manual.

If the vehicle is equipped with the optional remote radio switches located on the steering wheel and the problem being diagnosed is related to one of the symptoms listed below, be certain to check the remote radio switches and circuits. (Refer to 8 - ELECTRICAL/AUDIO/REMOTE SWITCHES - OPERATION).

- Stations changing with no remote radio switch input
- Radio memory presets not working properly
- Volume changes with no remote radio switch input
- Remote radio switch buttons taking on other functions
- CD player skipping tracks
- Mode (AM, FM, CD, CD changer) changes with no remote radio switch input
- Remote radio switch inoperative.

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

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CAUTION: The speaker output of the radio receiver is a "floating ground" system. Do not allow any speaker lead to short to ground, as damage to the radio receiver may result.

(1) Check the fused B(+) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit to the Power Distribution Center (PDC) fuse as required.

(3) Check the fused ignition switch output (acc/run) fuse in the junction block. If OK, go to Step 4. If not OK, repair the shorted circuit or component as required and replace the faulty fuse(s).

(4) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (acc/run) fuse in the junction block. If OK, go to Step 5. If not OK, repair the open fused ignition switch output (acc/run) circuit to the ignition switch as required.

(5) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the radio receiver from the instrument panel, but do not disconnect the wire harness connectors. Check for continuity between the radio receiver chassis and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit to ground as required.

(6) Test the radio receiver antenna. (Refer to 8 - ELECTRICAL/AUDIO/ANTENNA BODY & CABLE - DIAGNOSIS AND TESTING). If OK, go to Step 7. If not OK, replace the faulty antenna or coaxial cable as required.

(7) Connect the battery negative cable. Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (acc/run) circuit cavity of the 22 pin radio wire harness connector. If OK, go to Step 8. If not OK, repair the open fused ignition switch output (acc/run) circuit to the junction block fuse as required.

(8) Turn the ignition switch to the Off position. Check for battery voltage at the fused B(+) circuit cavity of the 22 pin radio wire harness connector. If OK, replace the faulty radio receiver. If not OK, repair the open fused B(+) circuit to the junction block fuse as required.

REMOVAL

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

RADIO (Continued)

(1) Disconnect and isolate the battery negative cable.

(2) Remove the center upper bezel from the instrument panel.(Refer to 23 - BODY/INSTRUMENT PANEL - REMOVAL).

(3) Remove the four screws that secure the radio receiver to the instrument panel (Fig. 13).

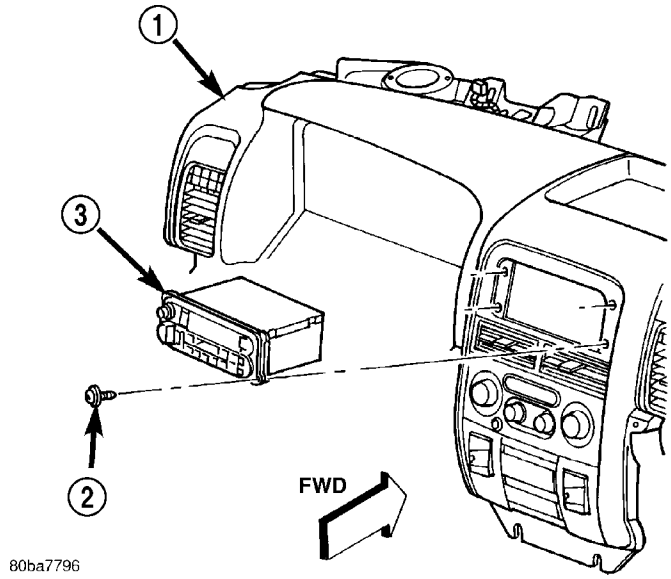


Fig. 13 Radio Remove/Install

1 - INSTRUMENT PANEL
2 - SCREW (4)
3 - RADIO RECEIVER

(4) Disconnect the instrument panel wire harness connector from the radio receiver.

CAUTION: Pulling the antenna cable straight out of the radio without pulling on the locking antenna connector could damage the cable or radio.

(5) Disconnect the antenna cable by pulling the locking antenna connector away from the radio (Fig. 14)

(6) Remove the radio receiver from the instrument panel.

INSTALLATION

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRE-

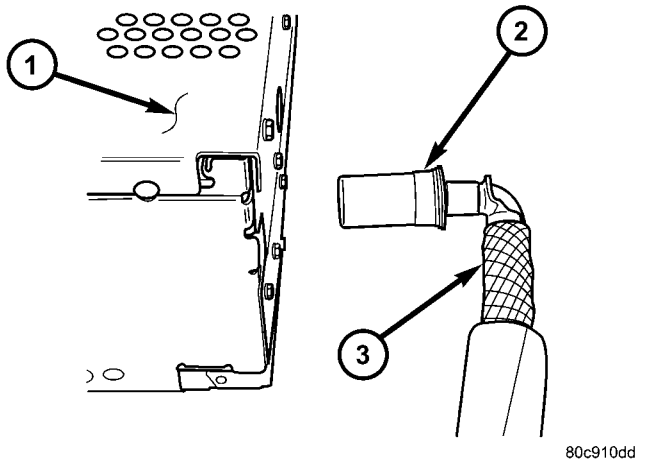


Fig. 14 ANTENNA TO RADIO

1 - RADIO
2 - LOCKING ANTENNA CONNECTOR
3 - INSTRUMENT PANEL ANTENNA CABLE

CAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the radio receiver to the instrument panel.

(2) Reconnect the instrument panel wire harness connectors and the antenna coaxial cable connector to the receptacles on the rear of the radio receiver.

(3) Install the four mounting screws. Tighten the screws to 2.2 N·m (20 in. lbs.).

(4) Install the center upper bezel onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL - INSTALLATION) for the procedures.

(5) Reconnect the battery negative cable.

RADIO NOISE SUPPRESSION GROUND STRAP

DESCRIPTION

Radio Frequency Interference (RFI) and Electro-Magnetic Interference (EMI) noise suppression is accomplished primarily through circuitry internal to the radio receivers. These internal suppression devices are only serviced as part of the radio receiver.

External suppression devices that are used on this vehicle to control RFI or EMI noise include the following:

- Radio antenna base ground
- Radio receiver chassis ground wire or strap
- Engine-to-body ground strap(s)
- Exhaust system-to-body and transmission ground strap (4.7L engines only)
- Resistor-type spark plugs

RADIO NOISE SUPPRESSION GROUND STRAP (Continued)

- Radio suppression-type secondary ignition wiring.

For more information on the spark plugs and secondary ignition components, refer to Ignition System in Ignition System.

REMOVAL

REMOVAL - ENGINE-TO-BODY GROUND STRAP

(1) Remove the screw that secures the engine-to-body ground strap eyelet to the lower plenum panel (Fig. 15) or (Fig. 16).

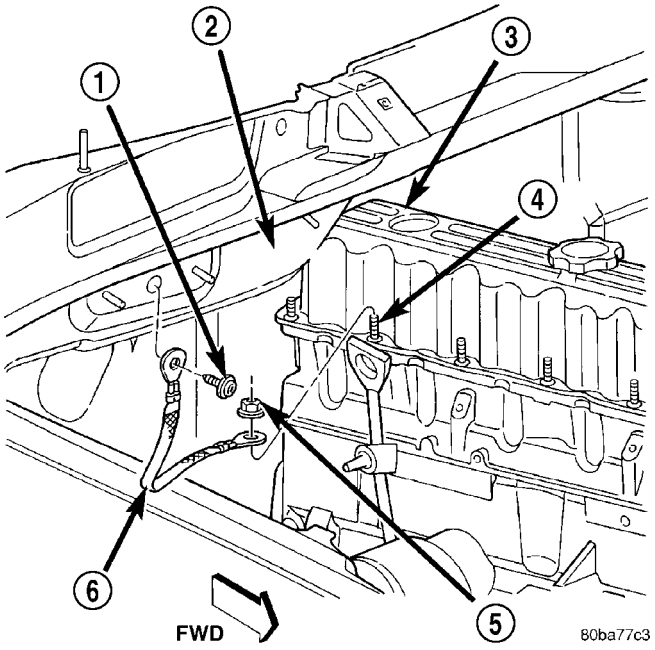


Fig. 15 Engine-To-Body Ground Strap Remove/ Install - 4.0L Engine

1 - SCREW
2 - LOWER PLENUM PANEL
3 - ENGINE
4 - STUD
5 - NUT
6 - GROUND STRAP

(2) On models with a 4.0L engine, remove the nut that secures the engine-to-body ground strap eyelet to the stud on the right rear side of the engine cylinder head.

(3) On models with a 4.7L engine, remove the two nuts that secure the engine-to-body ground strap eyelets to the studs on the right and left rear sides of the engine intake manifold.

(4) Remove the engine-to-body ground strap eyelet(s) from the stud(s) on the engine.

(5) Remove the engine-to-body ground strap from the engine compartment.

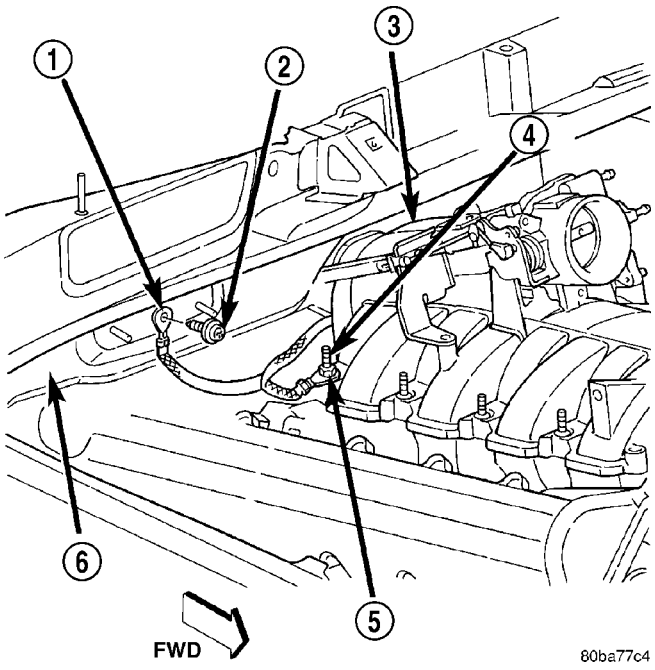


Fig. 16 Engine-To-Body Ground Strap Remove/ Install - 4.7L Engine

1 - GROUND STRAP
2 - SCREW
3 - ENGINE
4 - STUD (2)
5 - NUT (2)
6 - LOWER PLENUM PANEL

REMOVAL - EXHAUST-TO-BODY GROUND STRAP

(1) Raise and support vehicle.

(2) Remove fasteners from exhaust, crossmember and transmission/transfer case.

(3) Remove the ground strap.

INSTALLATION

INSTALLATION - ENGINE TO BODY GROUND STRAP

(1) Position the engine-to-body ground strap into the engine compartment.

(2) Install the engine-to-body ground strap eyelet(s) onto the stud(s) on the engine.

(3) On models with a 4.0L engine, install and tighten the nut that secures the engine-to-body ground strap eyelet to the stud on the right rear side of the engine cylinder head. Tighten the nut to 5.6 N·m (50 in. lbs.).

(4) On models with a 4.7L engine, install and tighten the two nuts that secure the engine-to-body ground strap eyelets to the studs on the right and left rear sides of the engine intake manifold. Tighten the nuts to 11.3 N·m (100 in. lbs.).

(5) Install and tighten the screw that secures the engine-to-body ground strap eyelet to the lower plenum panel. Tighten the screw to 4.5 N·m (40 in. lbs.).

INSTALLATION - EXHAUST-TO-BODY GROUND STRAP

(1) Install the ground strap to the exhaust, crossmember and transmission/transfer case.
(2) Install the fasteners.
(3) Lower the vehicle.

REMOTE SWITCHES

DESCRIPTION

Remote radio control switches are included on models equipped with the optional leather-wrapped steering wheel. The two rocker-type switch units (Fig. 17) are mounted in the upper spoke covers of the rear (instrument panel side) steering wheel trim cover. The switch unit on the left side is the seek switch and has seek up, seek down, and preset station advance switch functions. The switch unit on the right side is the volume control switch and has volume up, volume down, and mode advance switch functions.

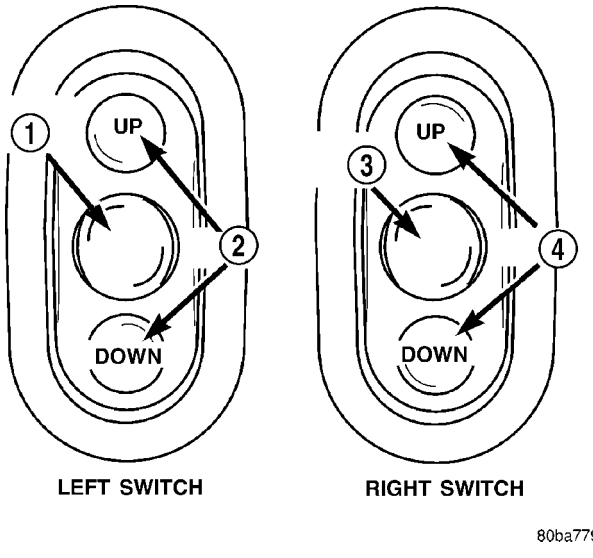


Fig. 17 Remote Radio Switches

1 - PRESET ADVANCE
2 - SEEK
3 - MODE ADVANCE
4 - VOLUME

The two remote radio switch units share a common steering wheel wire harness with the vehicle speed control switches. The steering wheel wire harness is connected to the instrument panel wire harness through the clockspring. (Refer to 8 - ELECTRICAL/ RESTRAINTS/CLOCKSPRING - DESCRIPTION) for more information on this component.

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

OPERATION

The six switches in the two remote radio switch units are normally open, resistor multiplexed momentary switches that are hard wired to the Body Control Module (BCM) through the clockspring. The BCM sends a five volt reference signal to both switch units on one circuit, and senses the status of all of the switches by reading the voltage drop on a second circuit.

When the BCM senses an input (voltage drop) from any one of the remote radio switches, it sends the proper switch status messages on the Programmable Communication Interface (PCI) data bus network to the radio receiver. The electronic circuitry within the radio receiver is programmed to respond to these remote radio switch status messages by adjusting the radio settings as requested. For diagnosis of the BCM or the PCI data bus, the use of a DRB scan tool and the proper Diagnostic Procedures manual are recommended.

For more information on the features and control functions for each of the remote radio switches, see the owner's manual in the vehicle glove box.

DIAGNOSIS AND TESTING - REMOTE SWITCHES

Any diagnosis of the Audio system should begin with the use of the DRB III® diagnostic tool. For information on the use of the DRB III®, refer to the appropriate Diagnostic Service Manual.

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

REMOTE SWITCHES (Continued)

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable. Remove the remote radio switch(es) (Fig. 18) from the steering wheel.

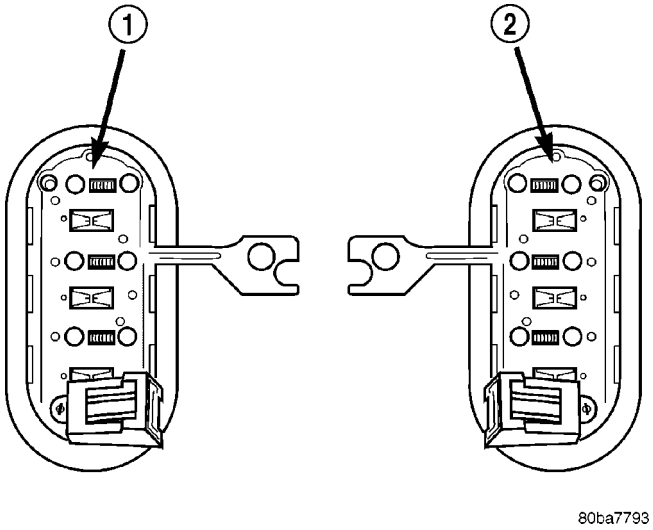


Fig. 18 Remote Radio Switches

1 - BLACK (LEFT) SWITCH
2 - WHITE (RIGHT) SWITCH

(2) Use an ohmmeter to check the switch resistances as shown in the Remote Radio Switch Test chart. If the remote radio switch resistances check OK, go to Step 3. If not OK, replace the faulty switch.

Remote Radio Switch Test		
Switch	Switch Position	Resistance
Right (White)	Volume Up	1.210 Kilohms
Right (White)	Volume Down	3.010 Kilohms
Right (White)	Mode Advance	0.0511 Kilohms
Left (Black)	Seek Up	0.261 Kilohms
Left (Black)	Seek Down	0.681 Kilohms
Left (Black)	Pre-Set Station Advance	0.162 Kilohms

(3) Reconnect the battery negative cable. Turn the ignition switch to the On position. Check for 5 volts at the radio control mux circuit cavities of the steering wheel wire harness connectors for both remote radio switches. If OK, go to Step 4. If not OK, repair the open or shorted radio control mux circuit to the Body Control Module (BCM) as required.

(4) Disconnect and isolate the battery negative cable. Disconnect the 22-way instrument panel wire harness connector from the BCM. Check for continuity between the remote radio switch ground circuit cavities of the steering wheel wire harness connectors for both remote radio switches and a good ground. There should be no continuity. If OK, go to Step 5. If not OK, repair the shorted remote radio switch ground circuit to the BCM as required.

(5) Check for continuity between the remote radio switch ground circuit cavities of the steering wheel wire harness connectors for both remote radio switches and the 22-way instrument panel wire harness connector for the BCM. There should be continuity. If OK, refer to the proper Diagnostic Procedures manual to test the BCM and the PCI data bus. If not OK, repair the open remote radio switch ground circuit as required.

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO ELECTRICAL, RESTRAINTS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the driver side airbag from the steering wheel. (Refer to 8 - ELECTRICAL/RESTRAINTS/ DRIVER AIRBAG - REMOVAL) for the procedures.

(3) Remove the speed control switch located on the same side of the steering wheel as the remote radio switch that is being serviced. Refer to Electrical, Speed Control for the procedures.

(4) Disconnect the steering wheel wire harness connector from the connector receptacle of the remote radio switch (Fig. 19).

(5) From the inside of the steering wheel rear trim cover, press firmly and evenly outward on the back of the switch.

(6) From the outside of the steering wheel rear trim cover, remove the remote radio switch from the trim cover mounting hole.

REMOTE SWITCHES (Continued)

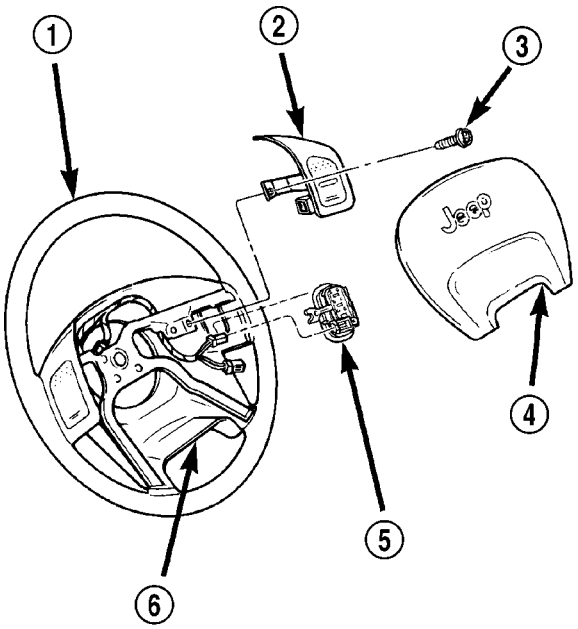


Fig. 19 Remote Radio Switches Remove/Install

1 - STEERING WHEEL
2 - SPEED CONTROL SWITCH
3 - SCREW
4 - DRIVER SIDE AIRBAG MODULE
5 - REMOTE RADIO SWITCH
6 - REAR TRIM COVER

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO ELECTRICAL, RESTRAINTS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the remote radio switch to the mounting hole on the outside of the steering wheel rear trim cover. Be certain that the connector receptacle is oriented toward the bottom of the switch and pointed toward the center of the steering wheel.

(2) Press firmly and evenly on the remote radio switch until each of the switch snap features is fully engaged in the mounting hole of the steering wheel rear trim cover.

(3) Reconnect the steering wheel wire harness connector to the connector receptacle of the remote radio switch.

(4) Install the speed control switch onto the steering wheel. Refer to Electrical, Speed Control for the procedures.

(5) Install the driver side airbag onto the steering wheel. (Refer to 8 - ELECTRICAL/RESTRAINTS/ DRIVER AIRBAG - INSTALLATION) for the procedures.

(6) Reconnect the battery negative cable.

SPEAKER

DESCRIPTION

STANDARD

The standard equipment speaker system includes speakers in six locations. One 6.4 centimeter (2.50 inch) diameter tweeter is installed on each end of the instrument panel top pad. One 15.2 by 22.9 centimeter (6 by 9 inch) full-range speaker is located in each front door. There is also one full-range 16.5 centimeter (6.5 inch) diameter full-range speaker located in each rear door.

PREMIUM

The optional premium speaker system features six Infinity model speakers in six locations. Each of the standard speakers is replaced with Infinity model speakers. One 6.4 centimeter (2.50 inch) diameter Infinity tweeter is installed on each end of the instrument panel top pad. One 15.2 by 22.9 centimeter (6 by 9 inch) Infinity woofer is located in each front door. There is also one full-range 16.5 centimeter (6.5 inch) diameter Infinity full-range speaker located in each rear door. The premium speaker system also includes an additional Infinity power amplifier. The total available power of the premium speaker system is about 180 watts.

OPERATION

STANDARD

Each of the two tweeters and four full-range speakers used in the standard speaker system is driven by the amplifier that is integral to the factory-installed radio receiver. For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

PREMIUM

The six Infinity speakers used in the premium speaker system are all driven by the radio receiver through an Infinity power amplifier. For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

SPEAKER (Continued)

DIAGNOSIS AND TESTING - SPEAKER

Any diagnosis of the Audio system should begin with the use of the DRB III® diagnostic tool. For information on the use of the DRB III®, refer to the appropriate Diagnostic Service Manual.

Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, SEAT BELT TENSIONER, SIDE AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

CAUTION: The speaker output of the radio is a "floating ground" system. Do not allow any speaker lead to short to ground, as damage to the radio may result.

(1) Turn the ignition switch to the On position. Turn the radio receiver on. Adjust the balance and fader controls to check the performance of each individual speaker. Note the speaker locations that are not performing correctly. Go to Step 2.

(2) Turn the radio receiver off. Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the radio receiver from the instrument panel. If the vehicle is equipped with the Infinity speaker package, also disconnect the wire harness connectors at the power amplifier. Check both the speaker feed (+) circuit and return (–) circuit cavities for the inoperative speaker location(s) at the radio receiver wire harness connectors for continuity to ground. In each case, there should be no continuity. If OK, go to Step 3. If not OK, repair the shorted speaker feed (+) and/or return (–) circuit(s) to the speaker as required.

(3) If the vehicle is equipped with the Infinity speaker package, go to Step 6. If the vehicle is equipped with the standard speaker system, check the resistance between the speaker feed (+) circuit and return (–) circuit cavities of the radio receiver wire harness connectors for the inoperative speaker location(s). The meter should read between 2 and 3 ohms (speaker resistance). If OK, go to Step 4. If not OK, go to Step 5.

(4) Install a known good radio receiver. Connect the battery negative cable. Turn the ignition switch to the On position. Turn on the radio receiver and test the speaker operation. If OK, replace the faulty radio receiver. If not OK, turn the radio receiver off, turn the ignition switch to the Off position, disconnect and isolate the battery negative cable, remove the test radio receiver, and go to Step 5.

(5) Disconnect the wire harness connector at the inoperative speaker. Check for continuity between the speaker feed (+) circuit cavities of the radio receiver wire harness connector and the speaker wire harness connector. Repeat the check between the speaker return (–) circuit cavities of the radio receiver wire harness connector and the speaker wire harness connector. In each case, there should be continuity. If OK, replace the faulty speaker. If not OK, repair the open speaker feed (+) and/or return (–) circuit(s) as required.

(6) For each inoperative speaker location, check for continuity between the speaker feed (+) circuit cavities of the radio receiver wire harness connectors and the power amplifier wire harness connectors. Repeat the check for each inoperative speaker location between the speaker return (–) circuit cavities of the radio receiver wire harness connectors and the power amplifier wire harness connectors. In each case, there should be continuity. If OK, go to Step 7. If not OK, repair the open speaker feed (+) and/or return (–) circuit(s) as required.

(7) Check for continuity between the two ground circuit cavities of the power amplifier wire harness connector and a good ground. There should be continuity. If OK, go to Step 8. If not OK, repair the open ground circuit(s) to ground as required.

(8) Check the fused B(+) fuse for the power amplifier in the junction block. If OK, go to Step 9. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(9) Install the radio receiver. Connect the battery negative cable. Check for battery voltage at the fused B(+) fuse for the power amplifier in the junction block. If OK, go to Step 10. If not OK, repair the open fused B(+) circuit to the Power Distribution Center (PDC) fuse as required.

(10) Check for battery voltage at the two fused B(+) circuit cavities of the power amplifier wire harness connector. If OK, go to Step 11. If not OK, repair the open fused B(+) circuit(s) to the power amplifier fuse in the junction block as required.

(11) Turn the ignition switch to the On position. Turn the radio receiver on. Check for battery voltage

SPEAKER (Continued)

at the enable signal to amplifier circuit cavity of the power amplifier wire harness connector. If OK, go to Step 12. If not OK, repair the open enable signal to amplifier circuit to the radio receiver as required.

(12) Turn the radio receiver off. Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. For each inoperative speaker location, check both the amplified feed (+) circuit and the amplified return (–) circuit cavities of the power amplifier wire harness connectors for continuity to ground. In each case there should be no continuity. If OK, go to Step 13. If not OK, repair the shorted amplified feed (+) and/or amplified return (–) circuit(s) to the speaker as required.

(13) For each inoperative speaker location, check the resistance between the amplified feed (+) circuit and the amplified return (–) circuit cavities of the power amplifier wire harness connectors. The meter should read between 2 and 3 ohms (speaker resistance). If OK, replace the faulty power amplifier. If not OK, go to Step 14.

(14) Disconnect the speaker wire harness connector at the inoperative speaker. Check for continuity between the amplified feed (+) circuit cavities of the speaker wire harness connector and the power amplifier wire harness connector. Repeat the check between the amplified return (–) circuit cavities of the speaker wire harness connector and the power amplifier wire harness connector. In each case there should be continuity. If OK, replace the faulty speaker. If not OK, repair the open amplified feed (+) and/or amplified return (–) circuit(s) as required.

REMOVAL

REAR DOOR SPEAKER

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the trim panel from the rear door. (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - REMOVAL) for the procedures.

(3) Remove the three screws that secure the speaker to the rear door inner panel (Fig. 20).

(4) Disconnect the rear door wire harness connector from the speaker connector receptacle.

(5) Remove the speaker from the rear door inner panel.

INSTRUMENT PANEL SPEAKER

REMOVAL

(1) Disconnect and isolate the battery negative cable.

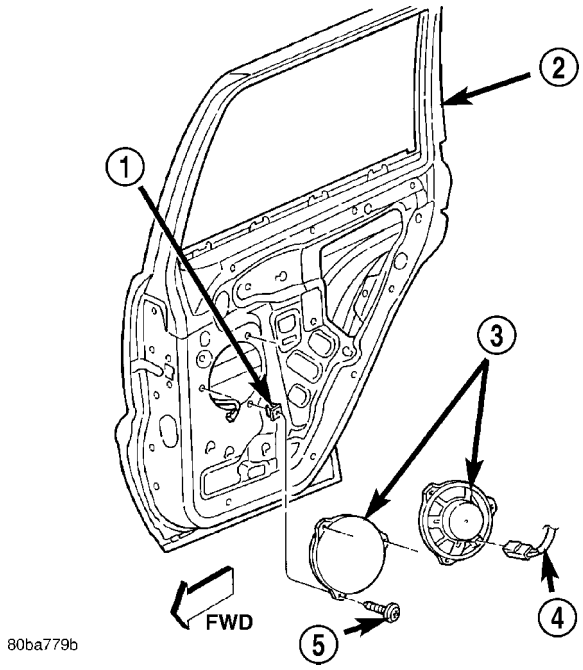


Fig. 20 Rear Door Speaker Remove/Install

1 - PLASTIC NUT (3)
2 - REAR DOOR
3 - REAR DOOR SPEAKER
4 - REAR DOOR WIRE HARNESS
5 - SCREW (3)

(2) Remove the top cover from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/ INSTRUMENT PANEL TOP COVER - REMOVAL).

(3) Disconnect the instrument panel wire harness connector from the speaker wire harness connector (Fig. 21).

(4) Remove the two screws that secure the speaker to the top of the instrument panel.

(5) Remove the speaker from the top of instrument panel.

FRONT DOOR SPEAKER

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the trim panel from the front door. (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL) for the procedures.

(3) Remove the four screws that secure the speaker to the front door inner panel (Fig. 22).

(4) Disconnect the front door wire harness connector from the speaker connector receptacle.

(5) Remove the speaker from the front door inner panel.

SPEAKER (Continued)

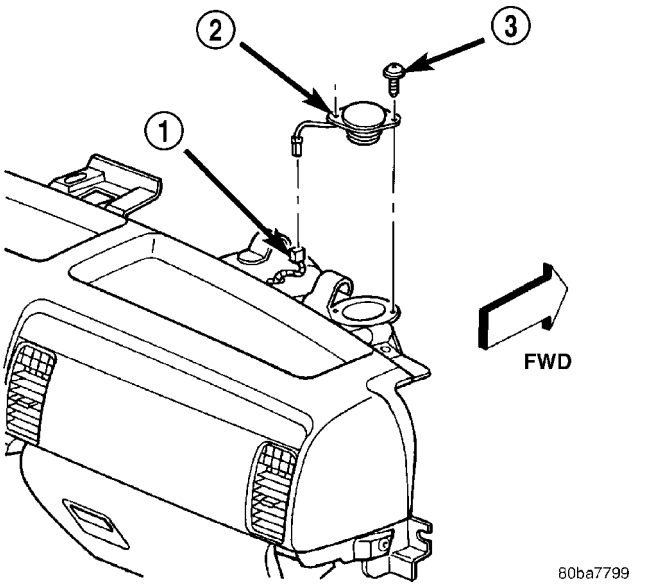


Fig. 21 Instrument Panel Speaker Remove/Install

1 - INSTRUMENT PANEL WIRE HARNESS
2 - INSTRUMENT PANEL SPEAKER
3 - SCREW (2)

INSTALLATION

INSTALLATION - REAR DOOR SPEAKER

(1) Position the speaker to the rear door inner panel.

(2) Reconnect the rear door wire harness connector to the speaker connector receptacle.

(3) Position the speaker onto the rear door inner panel.

(4) Install and tighten the three screws that secure the speaker to the rear door inner panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Install the trim panel onto the rear door. (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - INSTALLATION) for the procedures.

(6) Reconnect the battery negative cable.

INSTALLATION - INSTRUMENT PANEL SPEAKER

(1) Position the speaker onto the top of the instrument panel.

(2) Install and tighten the two screws that secure the speaker to the top of the instrument panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(3) Reconnect the instrument panel wire harness connector to the speaker wire harness connector.

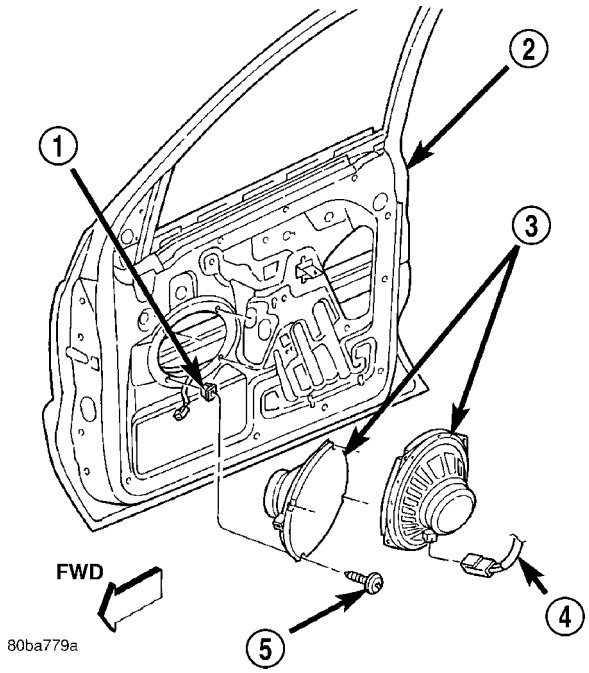


Fig. 22 Front Door Speaker Remove/Install

1 - PLASTIC NUT (4)
2 - FRONT DOOR
3 - FRONT DOOR SPEAKER
4 - FRONT DOOR WIRE HARNESS
5 - SCREW (4)

(4) Install the top cover onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP COVER - INSTALLATIONl for the procedures.

(5) Reconnect the battery negative cable.

INSTALLATION - FRONT DOOR SPEAKER

(1) Position the speaker to the front door inner panel.

(2) Reconnect the front door wire harness connector to the speaker connector receptacle.

(3) Position the speaker onto the front door inner door panel.

(4) Install and tighten the four screws that secure the speaker to the front door inner panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Install the trim panel onto the front door. (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - INSTALLATION) for the procedures.

(6) Reconnect the battery negative cable.

INSTRUMENT CLUSTER

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INSTRUMENT CLUSTER

DESCRIPTION

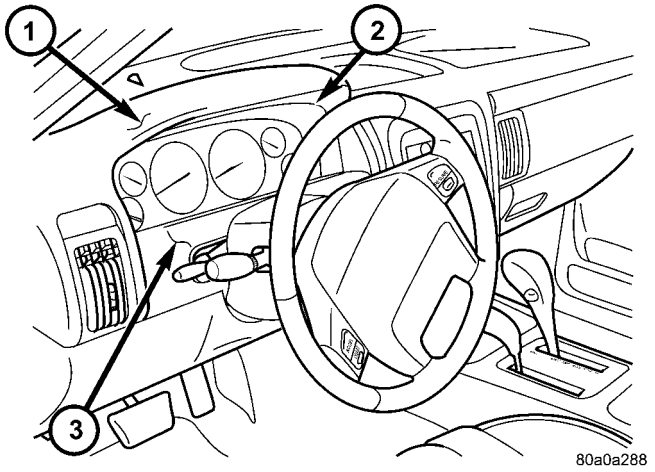


Fig. 1 Instrument Cluster

1 - INSTRUMENT PANEL TOP PAD HOOD FORMATION
2 - INSTRUMENT CLUSTER
3 - CLUSTER BEZEL

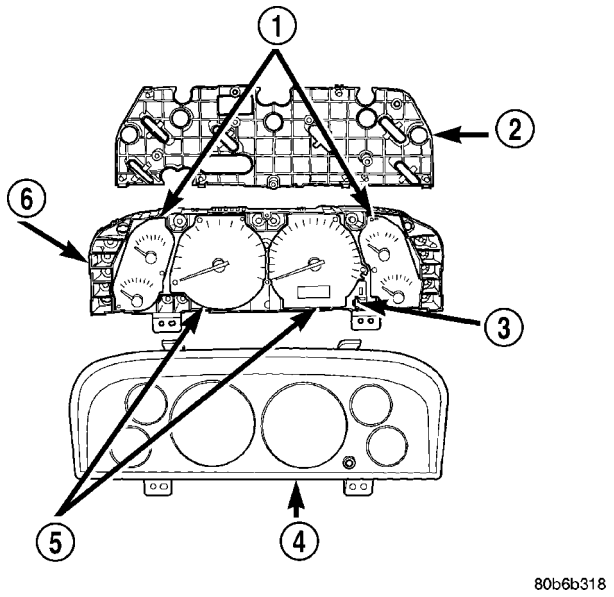


Fig. 2 Instrument Cluster Components

1 - MINOR GAUGE SETS
2 - REAR COVER
3 - TRIP ODOMETER RESET BUTTON
4 - LENS, HOOD & MASK
5 - MAJOR GAUGES
6 - CLUSTER HOUSING

The instrument cluster for this model is an ElectroMechanical Instrument Cluster (EMIC) that is located in the instrument panel above the steering column opening, directly in front of the driver (Fig. 1). The remainder of the EMIC, including the mounts and the electrical connections, are concealed within the instrument panel behind the cluster bezel. Besides analog gauges and indicators, the EMIC module incorporates a blue-green digital Vacuum Fluorescent Display (VFD) unit for displaying odometer/trip odometer information, some warning or reminder indications and certain diagnostic information.

The EMIC gauges and indicators are visible through a dedicated hooded opening in the instrument panel top pad and are protected by an integral clear plastic cluster lens (Fig. 2). Just behind and integral to the cluster lens is the cluster hood and an integral cluster mask, which are constructed of molded black plastic. Two cluster masks are used; a base version features a black matte face and no trim ring around the perimeter of each gauge opening, while a premium version features a black matte face and a raised trim ring around the perimeter of each gauge opening. The cluster hood serves as a visor and shields the face of the cluster from ambient light and reflections to reduce glare, while the cluster mask serves to separate and define the individual gauges of the EMIC. A black plastic odometer/trip odometer switch button protrudes through dedicated holes in the cluster mask and the cluster lens near the lower edge of the cluster just to the right of the speedometer. The molded plastic EMIC lens, hood and mask unit has four integral mounting tabs, two extending downward vertically from the lower edge of the unit and two extending horizontally rearward from the upper surface of the hood. The two lower mounting tabs are used to secure the EMIC to the molded plastic instrument panel cluster carrier with two screws, while the two upper tabs are secured to the underside of the hood formation of the instrument panel top pad with two screws.

The rear of the cluster housing and the EMIC electronic circuitry are protected by a molded plastic rear cover. The rear cover is secured to the cluster housing with seven screws, while the cluster lens, hood, and mask unit is secured to the cluster housing with several integral plastic latch features. The rear cover includes clearance holes for service access to each of the incandescent bulb and bulb holder units installed on the cluster circuit board for general illumination lighting and for the cluster connector receptacle. The single connector receptacle on the back of the cluster electronic circuit board connects the EMIC to the vehicle electrical system through a single dedicated take out and connector of the instrument panel wire harness.

Sandwiched between the rear cover and the lens, hood and mask unit is the cluster housing. The molded plastic cluster housing serves as the carrier for the cluster circuit board and circuitry, the cluster connector receptacle, the gauges, a Light Emitting

INSTRUMENT CLUSTER (Continued)

Diode (LED) for many of the cluster indicators, the VFD unit, the cluster overlay, the gauge pointers, the odometer/trip odometer switch and the switch button. The premium cluster housing also includes an electro-luminescent lamp for general cluster illumination.

The cluster mask features two large round openings near its center through which the two major gauges are visible, and two smaller round openings stacked at the outboard side of each of the large openings through which the four minor gauges are visible. The cluster mask incorporates the cluster overlay. The cluster overlay and the dial faces of the gauges are laminated plastic units. The dark, visible, outer surface of the cluster overlay and the gauge dial faces are marked with all of the gauge graduations, but this layer is also translucent. The darkness of this outer layer prevents the cluster from appearing too cluttered or busy by concealing the cluster indicators that are not illuminated, while the translucence of this layer allows those indicators and icons that are illuminated to be readily visible.

The underlying layer of these overlays is opaque and allows light from the various indicators and illumination lamps behind it to be visible through the outer layer of the overlays only through predetermined cutouts. A rectangular opening in the gauge dial face overlay at the base of the speedometer has a smoked clear lens through which the illuminated VFD unit can be viewed. On the base instrument clusters the graphics, increments, and numerals on the gauge faces are also translucent and illuminated from behind, while the orange gauge pointers are illuminated internally. On the premium instrument clusters the graphics, increments, numerals and gauge needles are opaque while the remainder of the gauge faces are translucent and illuminated from behind by the electro-luminescent lamp.

Twelve versions of the EMIC module are offered on this model, two base and ten premium. These versions accommodate all of the variations of optional equipment and regulatory requirements for the various markets in which the vehicle will be offered. The microprocessor-based EMIC utilizes integrated circuitry and information carried on the Programmable Communications Interface (PCI) data bus network along with several hard wired analog and multiplexed inputs to monitor sensors and switches throughout the vehicle. In response to those inputs, the internal circuitry and programming of the EMIC allow it to control and integrate many electronic functions and features of the vehicle through both hard wired outputs and the transmission of electronic message outputs to other electronic modules in the vehicle over the PCI data bus. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/COMMUNICATION - DESCRIPTION - PCI BUS).

The EMIC houses six analog gauges and has provisions for up to twenty indicators (Fig. 3). The EMIC includes the following analog gauges:

- **Coolant Temperature Gauge**
- **Fuel Gauge**
- **Oil Pressure Gauge**
- **Speedometer**
- **Tachometer**
- **Voltage Gauge**

Some of the EMIC indicators are automatically configured when the EMIC is connected to the vehicle electrical system for compatibility with certain optional equipment or equipment required for regulatory purposes in certain markets. While each EMIC may have provisions for indicators to support every available option, the configurable indicators will not be functional in a vehicle that does not have the equipment that an indicator supports. The EMIC includes provisions for the following indicators (Fig. 3):

- **Airbag Indicator (with Airbags only)**
- **Antilock Brake System (ABS) Indicator**
- **Brake Indicator**
- **Check Gauges Indicator**
- **Coolant Low Indicator (with Diesel Engine only)**
- **Cruise Indicator**
- **Four-Wheel Drive Part Time Indicator (with Selec-Trac Transfer Case only)**
- **Front Fog Lamp Indicator (with Front Fog Lamps only)**
- **High Beam Indicator**
- **Low Fuel Indicator**
- **Malfunction Indicator Lamp (MIL)**
- **Overdrive-Off Indicator (except Diesel Engine)**
- **Rear Fog Lamp Indicator (with Rear Fog Lamps only)**
- **Seatbelt Indicator**
- **Sentry Key Immobilizer System (SKIS) Indicator**
- **Transmission Overtemp Indicator (except Diesel Engine)**
- **Turn Signal (Right and Left) Indicators**
- **Wait-To-Start Indicator (with Diesel Engine only)**
- **Water-In-Fuel Indicator (with Diesel Engine only)**

Many indicators in the EMIC are illuminated by a dedicated Light Emitting Diode (LED) that is soldered onto the EMIC electronic circuit board. The LED units are not available for service replacement and, if damaged or faulty, the entire EMIC must be replaced. Base cluster illumination is accomplished

INSTRUMENT CLUSTER (Continued)

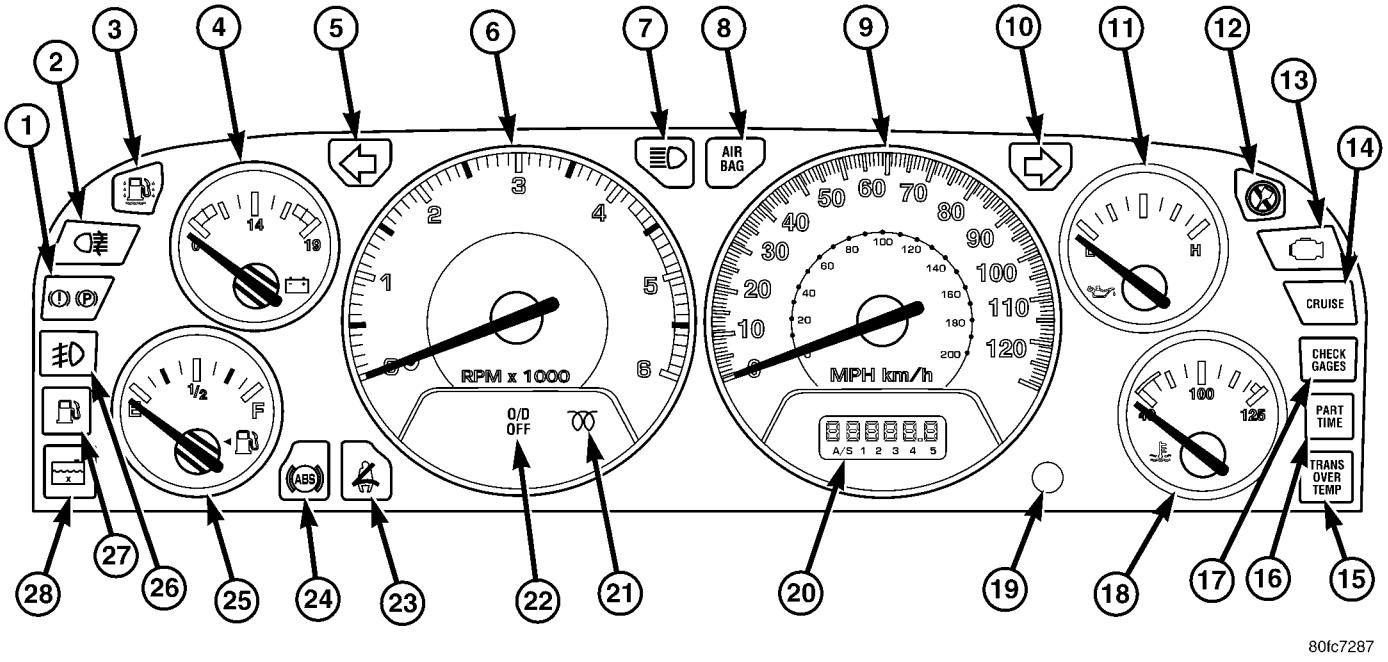


Fig. 3 Gauges & Indicators

1 - BRAKE INDICATOR
2 - REAR FOG LAMP INDICATOR
3 - WATER-IN-FUEL INDICATOR
4 - VOLTAGE GAUGE
5 - LEFT TURN INDICATOR
6 - TACHOMETER
7 - HIGH BEAM INDICATOR
8 - AIRBAG INDICATOR
9 - SPEEDOMETER
10 - RIGHT TURN INDICATOR
11 - OIL PRESSURE GAUGE
12 - SKIS INDICATOR
13 - MALFUNCTION INDICATOR LAMP (MIL)
14 - CRUISE INDICATOR
15 - TRANSMISSION OVERTEMP INDICATOR
16 - PART TIME 4WD INDICATOR
17 - CHECK GAUGES INDICATOR
18 - ENGINE TEMPERATURE GAUGE
19 - ODOMETER/TRIP ODOMETER SWITCH BUTTON
20 - ODOMETER/TRIP ODOMETER DISPLAY
21 - WAIT-TO-START INDICATOR
22 - OVERDRIVE-OFF INDICATOR
23 - SEATBELT INDICATOR
24 - ABS INDICATOR
25 - FUEL GAUGE
26 - FRONT FOG LAMP INDICATOR
27 - LOW FUEL INDICATOR
28 - COOLANT LOW INDICATOR

by dimmable incandescent back lighting, which illuminates the gauges for visibility when the exterior lighting is turned on. Each of the incandescent bulbs is secured by an integral bulb holder to the electronic circuit board from the back of the cluster housing.

Hard wired circuitry connects the EMIC to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the EMIC through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

The EMIC modules for this model are serviced only as complete units. The EMIC module cannot be adjusted or repaired. If a gauge, an LED indicator, the VFD unit, the electronic circuit board, the circuit board hardware, the cluster overlay, the electro-luminescent lamp (premium model only) or the EMIC housing are damaged or faulty, the entire EMIC module must be replaced. The cluster lens, hood and mask unit and the individual incandescent lamp bulbs with holders are available for individual service replacement.

OPERATION

The ElectroMechanical Instrument Cluster (EMIC) is designed to allow the vehicle operator to monitor the conditions of many of the vehicle components and operating systems. The gauges and indicators in the EMIC provide valuable information about the various standard and optional powertrains, fuel and emissions systems, cooling systems, lighting systems, safety systems and many other convenience items.

INSTRUMENT CLUSTER (Continued)

The EMIC is installed in the instrument panel so that all of these monitors can be easily viewed by the vehicle operator when driving, while still allowing relative ease of access for service. The microprocessor-based EMIC hardware and software uses various inputs to control the gauges and indicators visible on the face of the cluster. Some of these inputs are hard wired, but most are in the form of electronic messages that are transmitted by other electronic modules over the Programmable Communications Interface (PCI) data bus network. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/COMMUNICATION - OPERATION).

The EMIC microprocessor smooths the input data using algorithms to provide gauge readings that are accurate, stable and responsive to operating conditions. These algorithms are designed to provide gauge readings during normal operation that are consistent with customer expectations. However, when abnormal conditions exist, such as high coolant temperature, the algorithm can drive the gauge pointer to an extreme position and the microprocessor turns on the Check Gauges indicator and sends an electronic chime request message to the Body Control Module (BCM) over the PCI data bus to provide distinct visual and audible indications of a problem to the vehicle operator.

The EMIC circuitry operates on battery current received through fused B(+) fuses in the Power Distribution Center (PDC) and the Junction Block (JB) on a non-switched fused B(+) circuit, and on battery current received through a fused ignition switch output (run-start) fuse in the JB on a fused ignition switch output (run-start) circuit. This arrangement allows the EMIC to provide some features regardless of the ignition switch position, while other features will operate only with the ignition switch in the On or Start positions. The EMIC circuitry is grounded through two separate ground circuits of the instrument panel wire harness. These ground circuits receive a path to ground through take outs of the instrument panel wire harness with eyelet terminal connectors that are secured by a nut to a ground stud located on the floor panel transmission tunnel beneath the center floor console, just forward of the Airbag Control Module (ACM).

The EMIC also has a self-diagnostic actuator test capability, which will test each of the PCI bus message-controlled functions of the cluster by lighting the appropriate indicators (except the airbag indicator), sweeping the gauge needles across the gauge faces from their minimum to their maximum readings, and stepping the odometer display sequentially from all zeros through all nines. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). The self-diagnostic actuator test can be initialized manually or by using a DRBIII® scan tool. Refer to the appropriate diagnostic information. See the owner's manual in the vehicle glove box for more information on the features, use and operation of the EMIC.

GAUGES

All gauges receive battery current through the EMIC circuitry when the ignition switch is in the On or Start positions. With the ignition switch in the Off position battery current is not supplied to any gauges, and the EMIC circuitry is programmed to move all of the gauge needles back to the low end of their respective scales. Therefore, the gauges do not accurately indicate any vehicle condition unless the ignition switch is in the On or Start positions.

All of the EMIC gauges are air core magnetic units. Two fixed electromagnetic coils are located within each gauge. These coils are wrapped at right angles to each other around a movable permanent magnet. The movable magnet is suspended within the coils on one end of a pivot shaft, while the gauge needle is attached to the other end of the shaft. One of the coils has a fixed current flowing through it to maintain a constant magnetic field strength. Current flow through the second coil changes, which causes changes in its magnetic field strength. The current flowing through the second coil is changed by the EMIC circuitry in response to messages received over the PCI data bus. The gauge needle moves as the movable permanent magnet aligns itself to the changing magnetic fields created around it by the electromagnets.

The gauges are diagnosed using the EMIC self-diagnostic actuator test. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). Proper testing of the PCI data bus and the electronic data bus message inputs to the EMIC that control each gauge requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information. Specific operation details for each gauge may be found elsewhere in this service information.

VACUUM-FLUORESCENT DISPLAY

The Vacuum-Fluorescent Display (VFD) unit is soldered to the EMIC electronic circuit board. The display is active with the ignition switch in the On or Start positions, and inactive when the ignition switch is in any other position. The illumination intensity of the VFD unit is controlled by the EMIC circuitry based upon electronic dimming level messages received from the BCM over the PCI data bus, and is synchronized with the illumination intensity of other VFD units in the vehicle. The BCM provides dimming level messages based upon internal program-

INSTRUMENT CLUSTER (Continued)

ming and inputs it receives from the circuitry of the left (lighting) multi-function switch on the steering column based upon the settings of the control knob and control ring on the control stalk that have been selected by the vehicle operator.

During normal operation, the EMIC VFD unit has several display capabilities including odometer, trip odometer, and some warning or reminder indications. An odometer/trip odometer switch on the EMIC circuit board is used to control some of the display modes. This switch is actuated manually by depressing the odometer/trip odometer switch button that extends through the lower edge of the cluster lens, just right of the speedometer. Actuating this switch momentarily with the ignition switch in the On position will toggle the VFD between the odometer and trip odometer modes. Depressing the switch button for about two seconds while the VFD is in the trip odometer mode will reset the trip odometer value to zero. Holding this switch depressed while turning the ignition switch from the Off position to the On position will initiate the EMIC self-diagnostic actuator test. Refer to the appropriate diagnostic information for additional details on this VFD function. The EMIC microprocessor remembers which display mode is active when the ignition switch is turned to the Off position, and returns the VFD display to that mode when the ignition switch is turned On again.

The VFD unit is diagnosed using the EMIC self-diagnostic actuator test. (Refer to 8 - ELECTRICAL/ INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). Proper testing of the PCI data bus and the electronic data bus message inputs to the EMIC that control some of the VFD functions requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information. Specific operation details for the odometer, the trip odometer, and the various indicator functions of the VFD may be found elsewhere in this service information.

INDICATORS

Indicators are located in various positions within the EMIC and are all connected to the EMIC electronic circuit board. The turn signal indicators are hard wired. The brake indicator is controlled by PCI data bus messages from the Controller Antilock Brake (CAB) as well as by hard wired park brake switch and brake fluid level switch inputs to the EMIC. The Malfunction Indicator Lamp (MIL) is normally controlled by PCI data bus messages from the Powertrain Control Module (PCM); however, if the EMIC loses PCI data bus communication, the EMIC circuitry will automatically turn the MIL on until PCI data bus communication is restored. The EMIC uses PCI data bus messages from the Airbag Control Module (ACM), the BCM, the PCM, the CAB, the Sentry Key Immobilizer Module (SKIM), and the Transmission Control Module (TCM) to control all of the remaining indicators.

The various EMIC indicators are controlled by different strategies; some receive fused ignition switch output from the EMIC circuitry and have a switched ground, others are grounded through the EMIC circuitry and have a switched battery feed, while still others are completely controlled by the EMIC microprocessor based upon various hard wired and electronic message inputs. Some indicators are illuminated at a fixed intensity, while the illumination intensity of others is synchronized with that of the EMIC general illumination lamps.

In addition, certain indicators in this instrument cluster are automatically configured or self-configured. This feature allows the configurable indicators to be enabled by the EMIC circuitry for compatibility with certain optional equipment. The automatically configured or self-configured indicators remain latent in each EMIC at all times and will be active only when the EMIC receives the appropriate PCI message or hard wired inputs for the optional system or equipment.

The hard wired indicator inputs are diagnosed using conventional diagnostic methods. However, the EMIC circuitry and PCI bus message controlled indicators are diagnosed using the EMIC self-diagnostic actuator test. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). Proper testing of the PCI data bus and the electronic message inputs to the EMIC that control an indicator require the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information. Specific details of the operation for each indicator may be found elsewhere in this service information.

CLUSTER ILLUMINATION

Two types of general cluster illumination are available in this model. Base versions of the EMIC have several incandescent illumination lamps, while premium versions of the EMIC have a single electro-luminescent lamp. Both types of lamps provide cluster back lighting whenever the exterior lighting is turned On with the control knob on the left (lighting) multi-function switch control stalk. The illumination intensity of these lamps is adjusted by the EMIC microprocessor based upon electronic dimming level messages received from the Body Control Module (BCM) over the PCI data bus. The BCM provides electronic dimming level messages to the EMIC based upon internal programming and inputs it receives when the control ring on the left (lighting) multi-function switch control stalk is rotated (down to dim, up to brighten) to one of six available minor detent positions.

INSTRUMENT CLUSTER (Continued)

The incandescent illumination lamps receive battery current at all times, while the ground for these lamps is controlled by a 12-volt Pulse Width Modulated (PWM) output of the EMIC electronic circuitry. The illumination intensity of these bulbs and of the electronic Vacuum-Fluorescent Display (VFD) unit are controlled by the instrument cluster microprocessor based upon dimming level messages received from the Body Control Module (BCM) over the PCI data bus. The BCM uses inputs from the headlamp and panel dimmer switches within the left (lighting) multi-function switch control stalk and internal programming to decide what dimming level message is required. The BCM then sends the proper dimming level messages to the EMIC over the PCI data bus.

The electro-luminescent lamp unit consists of layers of phosphor, carbon, idium tin oxide, and dielectric applied by a silk-screen process between two polyester membranes and includes a short pigtail wire and connector. The lamp pigtail wire is connected to a connector receptacle on the EMIC circuit board through a small clearance hole in the cluster housing rear cover. The EMIC electronic circuitry also uses a PWM strategy to control the illumination intensity of this lamp; however, the EMIC powers this lamp with an Alternating Current (AC) rated at 80 volts rms (root mean squared) and 415 Hertz, which excites the phosphor particles causing them to luminesce.

The BCM also has several hard wired panel lamp driver outputs and sends the proper panel lamps dimming level messages over the PCI data bus to coordinate the illumination intensity of all of the instrument panel lighting and the VFD units of other electronic modules on the PCI data bus. Vehicles equipped with the Auto Headlamps option have an automatic parade mode. In this mode, the BCM uses an input from the auto headlamp light sensor to determine the ambient light levels. If the BCM decides that the exterior lighting is turned on in the daylight, it overrides the selected panel dimmer switch signal by sending a message over the PCI data bus to illuminate all VFD units at full (daytime) intensity for improved visibility when driving during the day with the exterior lighting turned on. The automatic parade mode has no effect on the incandescent bulb illumination intensity.

The hard wired cluster illumination circuits between the left (lighting) multi-function switch and the BCM may be diagnosed using conventional diagnostic tools and methods. The electro-luminescent lamp is diagnosed using the EMIC self-diagnostic actuator test. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). However, proper testing of the EMIC and the electronic dimming level messages sent by the BCM over the PCI data bus requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

CHIME SERVICE

The EMIC is programmed to request chime service from the Body Control Module (BCM) when certain indicators are illuminated. The EMIC chime request for illumination of the low fuel indicator is a customer programmable feature. When the programmed conditions are met, the EMIC generates an electronic chime request message and sends it over the PCI data bus to the BCM. Upon receiving the proper chime request, the BCM activates an integral chime tone generator to provide the audible chime tone to the vehicle operator. (Refer to 8 - ELECTRICAL/ CHIME WARNING SYSTEM - OPERATION). Proper testing of the PCI data bus and the electronic chime request message outputs from the EMIC requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

INPUT AND OUTPUT CIRCUITS

HARD WIRED INPUTS

The hard wired inputs to the EMIC include the following:

- **Body Control Module Flash Enable**
- **Fused B(+)**
- **Fused Ignition Switch Output (Run-Start)**
- **Left Turn Signal**
- **Red Brake Warning Indicator Driver**
- **Right Turn Signal**

Refer to the appropriate wiring information for additional details.

GROUNDS

The EMIC receives a ground path through the following hard wired circuits:

- **Ground (Two Circuits)**

Refer to the appropriate wiring information for additional details.

COMMUNICATION

The EMIC has provisions for the following communication circuits:

- **PCI Data Bus**

Refer to the appropriate wiring information for additional details.

DIAGNOSIS AND TESTING - INSTRUMENT CLUSTER

If all of the instrument cluster gauges and/or indicators are inoperative, refer to PRELIMINARY DIAGNOSIS . If an individual gauge or Programmable Communications Interface (PCI) data bus message-controlled indicator is inoperative, refer to

INSTRUMENT CLUSTER (Continued)

ACTUATOR TEST . If an individual hard wired indicator is inoperative, refer to the diagnosis and testing information for that specific indicator. If the base instrument cluster incandescent illumination lighting is inoperative, refer to CLUSTER ILLUMINATION DIAGNOSIS . If the premium instrument cluster electro-luminescent illumination lighting is inoperative, refer to ACTUATOR TEST . Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

NOTE: Occasionally, a condition may be encountered where the gauge pointer for the speedometer or the tachometer becomes caught on the wrong side of the pointer stop. To correct this condition, the technician should use a DRBIII® scan tool and the appropriate diagnostic information to perform the instrument cluster self-diagnostic actuator test procedure. When performed, the actuator test procedure will automatically return the pointer to the correct side of the pointer stop.

PRELIMINARY DIAGNOSIS

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: ON VEHICLES EQUIPPED WITH THE PREMIUM INSTRUMENT CLUSTER, THE CLUSTER CIRCUITRY PROVIDES AN ALTERNATING CURRENT TO SUPPLY POWER TO THE ELECTRO-LUMINESCENT ILLUMINATION LAMP THROUGH A PIGTAIL WIRE AND CONNECTOR THAT IS ACCESSIBLE AT THE BACK OF THE CLUSTER HOUSING. USE PROPER PRECAUTIONS WHEN HANDLING THIS UNIT DURING DIAGNOSIS OR SERVICE TO AVOID ELECTRICAL SHOCK AND POSSIBLE PERSONAL INJURY.

(1) Check the fused B(+) fuse (Fuse 17 - 10 ampere) in the Junction Block (JB). If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse (Fuse 17 - 10 ampere) in the JB. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit between the JB and the Power Distribution Center (PDC) as required.

(3) Check the fused ignition switch output (run-start) fuse (Fuse 22 - 10 ampere) in the JB. If OK, go to Step 4. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(4) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run-start) fuse (Fuse 22 - 10 ampere) in the JB. If OK, go to Step 5. If not OK, repair the open fused ignition switch output (run-start) circuit between the JB and the ignition switch as required.

(5) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the instrument cluster. Reconnect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the instrument panel wire harness connector for the instrument cluster. If OK, go to Step 6. If not OK, repair the open fused B(+) circuit between the instrument cluster and the JB as required.

(6) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run-start) circuit cavity of the instrument panel wire harness connector for the instrument cluster. If OK, go to Step 7. If not OK, repair the open fused ignition switch output (run-start) circuit between the instrument cluster and the JB as required.

(7) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Check for continuity between each of the ground circuit cavities of the instrument panel wire harness connector for the instrument cluster and a good ground. There should be continuity. If OK, refer to the ACTUATOR TEST . If not OK, repair the open ground circuit(s) between the instrument cluster and ground (G200) as required.

INSTRUMENT CLUSTER (Continued)

ACTUATOR TEST

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: ON VEHICLES EQUIPPED WITH THE PREMIUM INSTRUMENT CLUSTER, THE CLUSTER CIRCUITRY PROVIDES AN ALTERNATING CURRENT TO SUPPLY POWER TO THE ELECTRO-LUMINESCENT ILLUMINATION LAMP THROUGH A PIGTAIL WIRE AND CONNECTOR THAT IS ACCESSIBLE AT THE BACK OF THE CLUSTER HOUSING. USE PROPER PRECAUTIONS WHEN HANDLING THIS UNIT DURING DIAGNOSIS OR SERVICE TO AVOID ELECTRICAL SHOCK AND POSSIBLE PERSONAL INJURY.

The instrument cluster actuator test will put the instrument cluster into its self-diagnostic mode. In this mode the instrument cluster can perform a self-diagnostic test that will confirm that the instrument cluster circuitry, the gauges, the PCI data bus message controlled indicators, and the electro-luminescent illumination lamp (if equipped) are capable of operating as designed. During the actuator test the instrument cluster circuitry will sweep each of the gauge needles across the gauge faces, illuminate each of the segments in the Vacuum-Fluorescent Display (VFD), turn all of the PCI data bus message-controlled indicators on and off again, and turn the electro-luminescent illumination lamp (if equipped) on and off again.

Successful completion of the actuator test will confirm that the instrument cluster is operational. However, there may still be a problem with the PCI data bus, the Powertrain Control Module, the Airbag Control Module (ACM), the Body Control Module (BCM), the Controller Anti-lock Brake (CAB), the Sentry Key Immobilizer Module (SKIM), or the inputs to one of these electronic control modules. Use a DRBIII® scan tool to diagnose these components. Refer to the appropriate diagnostic information.

If an individual indicator lamp or the electro-luminescent illumination lamp do not illuminate during the actuator test, the instrument cluster should be removed. However, check that the incandescent lamp bulb is not faulty, that the bulb holder is properly installed on the instrument cluster electronic circuit board, or that the electro-luminescent lamp pigtail wire connector is properly connected to the instrument cluster electronic circuit board before considering instrument cluster replacement. If the bulb and bulb holder, or the electro-luminescent lamp connection check OK, replace the faulty instrument cluster unit.

(1) Begin the test with the ignition switch in the Off position.

(2) Depress the odometer/trip odometer switch button.

(3) While still holding the odometer/trip odometer switch button depressed, turn the ignition switch to the On position, but do not start the engine.

(4) Release the odometer/trip odometer switch button.

(5) The instrument cluster will automatically begin the actuator test sequence, as follows:

(a) The cluster will turn on, then off again each of the PCI data bus message controlled indicators (except Airbag) to confirm the functionality of the indicator and the cluster control circuitry:

(b) The cluster will sweep the needles for each of the gauges from minimum to maximum and back to minimum to confirm the functionality of the gauge and the cluster control circuitry:

(c) Only on models with a premium version of the cluster, the cluster will illuminate the electro-luminescent lamp and turn it off again to confirm the functionality of the lamp and the cluster control circuitry.

(d) The cluster will sequentially step the odometer/trip odometer VFD display from all zeros (000000) through all nines (999999) to confirm the functionality of all VFD segments and their control circuitry, then display the software version number, followed by “DONE”.

(6) The actuator test is now completed. The instrument cluster will automatically exit the self-diagnostic mode and return to normal operation at the completion of the test, if the ignition switch is turned to the Off position during the test, or if a vehicle speed message indicating that the vehicle is moving is received from the PCM over the PCI data bus during the test.

(7) Go back to Step 1 to repeat the test, if required.

INSTRUMENT CLUSTER (Continued)

CLUSTER ILLUMINATION DIAGNOSIS

On models equipped with a base version of the instrument cluster, the EMIC has several incandescent illumination lamps that are illuminated whenever the exterior lighting is turned On. If the problem being diagnosed is a single inoperative illumination lamp, be certain that the bulb and bulb holder unit are properly installed in the instrument cluster electronic circuit board. If no installation problems are found replace the faulty bulb and bulb holder unit. If all of the cluster illumination lamps are inoperative, the most reliable, efficient, and accurate means to diagnose the cluster illumination function of the instrument cluster requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: ON VEHICLES EQUIPPED WITH THE PREMIUM INSTRUMENT CLUSTER, THE CLUSTER CIRCUITRY PROVIDES AN ALTERNATING CURRENT TO SUPPLY POWER TO THE ELECTRO-LUMINESCENT ILLUMINATION LAMP THROUGH A PIGTAIL WIRE AND CONNECTOR THAT IS ACCESSIBLE AT THE BACK OF THE CLUSTER HOUSING. USE PROPER PRECAUTIONS WHEN HANDLING THIS UNIT DURING DIAGNOSIS OR SERVICE TO AVOID ELECTRICAL SHOCK AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the cluster bezel from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/ CLUSTER BEZEL - REMOVAL).

(3) Remove the two screws that secure the upper mounting tabs of the instrument cluster to the underside of the instrument cluster hood formation of the instrument panel top pad.

(4) Remove the two screws that secure the lower mounting tabs of the instrument cluster to the instrument panel structural duct.

(5) Pull the upper mounting tabs of the instrument cluster downward, then pull the instrument cluster rearward far enough to access the instrument panel wire harness connector for the instrument cluster (Fig. 4).

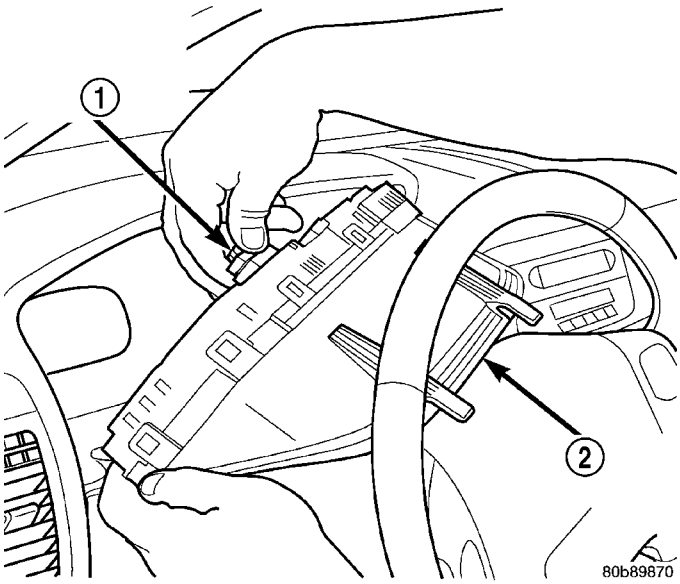


Fig. 4 Instrument Cluster Remove/Install

1 - INSTRUMENT PANEL WIRE HARNESS CONNECTOR
2 - INSTRUMENT CLUSTER

(6) Disconnect the instrument panel wire harness connector for the instrument cluster from the connector receptacle on the back of the instrument cluster housing.

(7) Remove the instrument cluster from the instrument panel.

DISASSEMBLY

Some of the components for the instrument cluster used in this vehicle are serviced individually. The serviced components include: the incandescent instrument cluster indicator and illumination lamp bulbs (including the integral bulb holders), the cluster lens, hood and mask unit, and the cluster housing rear cover. Following are the procedures for disassembling these components from the instrument cluster unit.

INSTRUMENT CLUSTER (Continued)

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: ON VEHICLES EQUIPPED WITH THE PREMIUM INSTRUMENT CLUSTER, THE CLUSTER CIRCUITRY PROVIDES AN ALTERNATING CURRENT TO SUPPLY POWER TO THE ELECTRO-LUMINESCENT ILLUMINATION LAMP THROUGH A PIGTAIL WIRE AND CONNECTOR THAT IS ACCESSIBLE AT THE BACK OF THE CLUSTER HOUSING. USE PROPER PRECAUTIONS WHEN HANDLING THIS UNIT DURING DIAGNOSIS OR SERVICE TO AVOID ELECTRICAL SHOCK AND POSSIBLE PERSONAL INJURY.

CLUSTER BULB

This procedure applies to each of the incandescent cluster illumination lamp or indicator bulb and bulb holder units. However, the illumination lamps and the indicators use different bulb and bulb holder unit sizes. They must never be interchanged. Be certain that any bulb holder removed from the electronic circuit board is reinstalled in the correct position.

(1) Disconnect and isolate the battery negative cable.

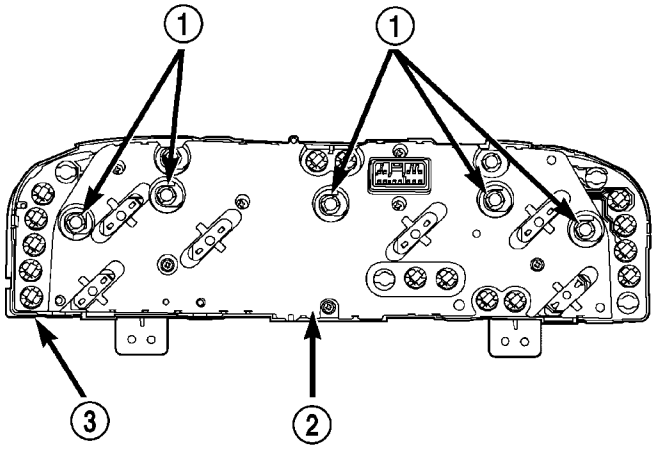
(2) Remove the instrument cluster from the instrument panel. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - REMOVAL).

(3) Turn the bulb holder counterclockwise about sixty degrees on the cluster electronic circuit board (Fig. 5).

(4) Pull the bulb and bulb holder straight back to remove it from the bulb mounting hole in the cluster electronic circuit board.

CLUSTER LENS, HOOD AND MASK

(1) Disconnect and isolate the battery negative cable.



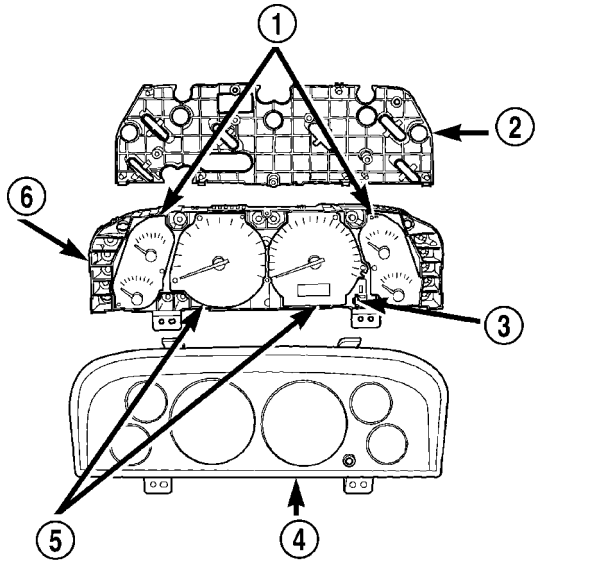
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Fig. 5 Cluster Bulb Locations - Typical

1 - ILLUMINATION LAMP BULBS AND HOLDERS (5)
2 - CLUSTER HOUSING REAR COVER
3 - CLUSTER HOUSING

(2) Remove the instrument cluster from the instrument panel. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - REMOVAL).

(3) Work around the perimeter of the cluster housing to disengage each of the eight latches that secure the cluster lens, hood and mask unit to the cluster housing (Fig. 6).



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Fig. 6 Instrument Cluster Components

1 - MINOR GAUGE SETS
2 - REAR COVER
3 - TRIP ODOMETER RESET BUTTON
4 - LENS, HOOD & MASK
5 - MAJOR GAUGES
6 - CLUSTER HOUSING

INSTRUMENT CLUSTER (Continued)

(4) Gently pull the cluster lens, hood and mask unit away from the cluster housing.

CLUSTER HOUSING REAR COVER

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument cluster from the instrument panel. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - REMOVAL).

(3) On models with a premium cluster only, disconnect the electro-luminescent illumination lamp pigtail wire connector from the receptacle on the cluster electronic circuit board and disengage the pigtail wire from the integral routing clip on the rear cover (Fig. 7).

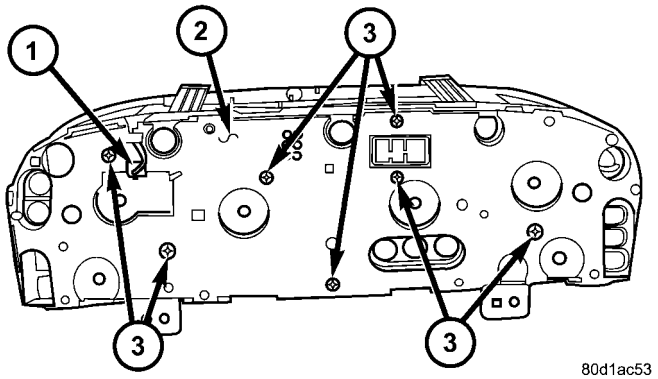


Fig. 7 Cluster Housing Rear Cover Screws

1 - ELECTRO-LUMINESCENT LAMP PIGTAIL WIRE CONNECTOR
2 - REAR COVER
3 - SCREW (7)

(4) Remove the seven screws that secure the rear cover to the back of the cluster housing.

(5) Disengage the eight latch features (four on top, four on the bottom) that secure the upper and lower edges of the rear cover to the top and bottom of the cluster housing.

(6) Remove the rear cover from the back of the cluster housing.

ASSEMBLY

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: ON VEHICLES EQUIPPED WITH THE PREMIUM INSTRUMENT CLUSTER, THE CLUSTER CIRCUITRY PROVIDES AN ALTERNATING CURRENT TO SUPPLY POWER TO THE ELECTRO-LUMINESCENT ILLUMINATION LAMP THROUGH A PIGTAIL WIRE AND CONNECTOR THAT IS ACCESSIBLE AT THE BACK OF THE CLUSTER HOUSING. USE PROPER PRECAUTIONS WHEN HANDLING THIS UNIT DURING DIAGNOSIS OR SERVICE TO AVOID ELECTRICAL SHOCK AND POSSIBLE PERSONAL INJURY.

CLUSTER BULB

This procedure applies to each of the incandescent cluster illumination lamp or indicator bulb and bulb holder units. However, the illumination lamps and the indicators use different bulb and bulb holder unit sizes. They must never be interchanged.

CAUTION: Be certain that any bulb and bulb holder unit removed from the cluster electronic circuit board is reinstalled in the correct position. Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the instrument cluster, the electronic circuit board and/or the gauges.

(1) Insert the bulb and bulb holder straight into the correct bulb mounting hole in the cluster electronic circuit board (Fig. 5).

(2) With the bulb holder fully seated against the cluster electronic circuit board, turn the bulb holder clockwise about sixty degrees to lock it into place.

(3) Reinstall the instrument cluster onto the instrument panel. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - INSTALLATION).

(4) Reconnect the battery negative cable.

CLUSTER LENS, HOOD AND MASK

(1) Position the cluster lens, hood and mask unit over the face of the instrument cluster (Fig. 6). Be certain that the odometer/trip odometer switch button is inserted through the proper clearance holes in the mask and the lens.

(2) Press firmly and evenly on the cluster lens, hood and mask unit to install it onto the cluster housing.

(3) Work around the perimeter of the cluster housing to be certain that each of the eight latches that secure the cluster lens, hood and mask unit to the cluster housing is fully engaged.

INSTRUMENT CLUSTER (Continued)

(4) Reinstall the instrument cluster into the instrument panel. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - INSTALLATION).

(5) Reconnect the battery negative cable.

CLUSTER HOUSING REAR COVER

(1) Position the rear cover onto the back of the cluster housing (Fig. 7).

(2) Press firmly and evenly on the rear cover until each of the eight latches (four on top, four on the bottom) that secure the upper and lower edges of the rear cover to the top and bottom of the cluster housing are fully engaged.

(3) Install and tighten the seven screws that secure the rear cover to the back of the cluster housing. Tighten the screws to 2 N·m (20 in. lbs.).

(4) On models with a premium cluster only, reconnect the electro-luminescent illumination lamp pigtail wire connector to the receptacle on the cluster electronic circuit board and engage the pigtail wire under the integral routing clip on the rear cover.

(5) Reinstall the instrument cluster onto the instrument panel. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - INSTALLATION).

(6) Reconnect the battery negative cable.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

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(1) Position the instrument cluster to the instrument panel.

(2) Reconnect the instrument panel wire harness connector for the instrument cluster to the connector receptacle on the back of the instrument cluster housing (Fig. 8).

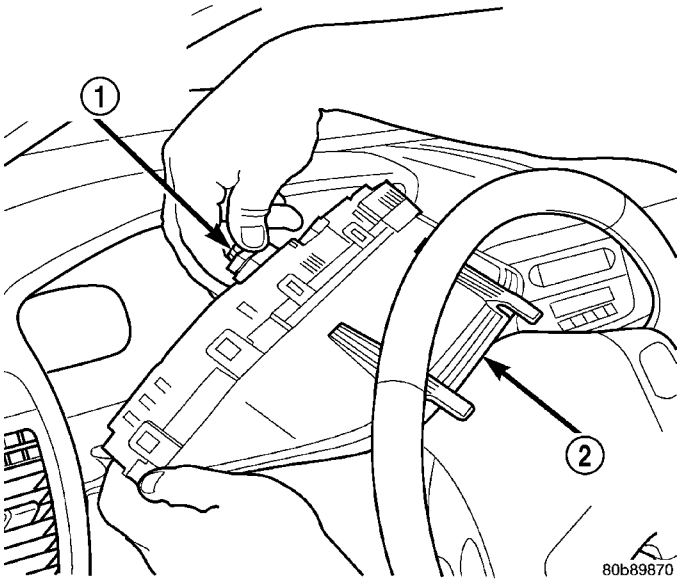


Fig. 8 Instrument Cluster Remove/Install

1 - INSTRUMENT PANEL WIRE HARNESS CONNECTOR
2 - INSTRUMENT CLUSTER

(3) Position the lower mounting tabs of the instrument cluster to the mounting holes on the instrument panel structural duct, then tilt the top of the instrument cluster forward until the upper mounting tabs are positioned to the mounting holes on the underside of the instrument cluster hood formation of the instrument panel top pad.

(4) Install and tighten the two screws that secure the upper mounting tabs of the instrument cluster to the underside of the instrument cluster hood formation of the instrument panel top pad. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Install and tighten the two screws that secure the lower mounting tabs of the instrument cluster to the instrument panel structural duct. Tighten the screws to 2.2 N·m (20 in. lbs.).

(6) Reinstall the cluster bezel onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - INSTALLATION).

(7) Reconnect the battery negative cable.

ABS INDICATOR

DESCRIPTION

An Anti-lock Brake System (ABS) indicator is standard equipment on all instrument clusters. The ABS indicator is located on the lower left edge of the instrument cluster, to the left of the tachometer. The ABS indicator consists of the International Control and Display Symbol icon for "Failure of Anti-lock Braking System" imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The icon appears silhouetted against an amber field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. The ABS indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The ABS indicator gives an indication to the vehicle operator when the ABS system is faulty or inoperative. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Controller Anti-lock Brake (CAB) over the Programmable Communications Interface (PCI) data bus. The ABS indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the indicator will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the ABS indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the ABS indicator is illuminated for about three seconds as a bulb test.
- **ABS Lamp-On Message** - Each time the cluster receives a lamp-on message from the CAB, the ABS indicator will be illuminated. The indicator remains illuminated until the cluster receives a lamp-off message from the CAB, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Communication Error** - If the cluster receives no lamp-on or lamp-off messages from the CAB for six consecutive seconds, the ABS indicator is illuminated. The indicator remains illuminated until the cluster receives a valid message from the CAB, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the instrument cluster is put through the actuator test, the ABS indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.
- **ABS Diagnostic Test** - The ABS indicator is blinked on and off by lamp-on and lamp-off messages from the CAB during the performance of the ABS diagnostic tests.

The CAB continually monitors the ABS circuits and sensors to decide whether the system is in good operating condition. The CAB then sends the proper lamp-on or lamp-off messages to the instrument cluster. If the ABS indicator fails to light during the bulb test, replace the bulb with a known good unit. If the CAB sends a lamp-on message after the bulb test, it indicates that the CAB has detected a system malfunction and/or that the ABS system has become inoperative. The CAB will store a Diagnostic Trouble Code (DTC) for any malfunction it detects. Each time the ABS indicator fails to light due to an open or short in the cluster ABS indicator circuit or bulb, the cluster sends a message notifying the CAB of the condition, then the instrument cluster and the CAB will each store a DTC. For proper diagnosis of the anti-lock brake system, the CAB, the PCI data bus, or the electronic message inputs to the instrument cluster that control the ABS indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

AIRBAG INDICATOR

DESCRIPTION

An airbag indicator is standard equipment on all instrument clusters. However, the instrument cluster is programmed to automatically enable this indicator only on vehicles equipped with the airbag system, which is not available in some markets. The airbag indicator is located on the upper edge of the instrument cluster, between the speedometer and the tachometer. The airbag indicator consists of the words "AIR BAG" imprinted on a red lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The "AIR BAG" text appears silhouetted against a red field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a Light Emitting Diode (LED), which is soldered onto the instrument cluster electronic circuit board. The airbag

AIRBAG INDICATOR (Continued)

indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The airbag indicator gives an indication to the vehicle operator when the airbag system is faulty or inoperative. The airbag indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Airbag Control Module (ACM) over the Programmable Communications Interface (PCI) data bus. The airbag indicator Light Emitting Diode (LED) is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the indicator will always be off when the ignition switch is in any position except On or Start. The LED only illuminates when it is switched to ground by the instrument cluster transistor. The instrument cluster will turn on the airbag indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the airbag indicator is illuminated for about six seconds. The entire six second bulb test is a function of the ACM.
- **ACM Lamp-On Message** - Each time the cluster receives a lamp-on message from the ACM, the airbag indicator will be illuminated. The indicator remains illuminated for about twelve seconds or until the cluster receives a lamp-off message from the ACM, whichever is longer.
- **Communication Error** - If the cluster receives no airbag messages for six consecutive seconds, the airbag indicator is illuminated. The indicator remains illuminated until the cluster receives a single lamp-off message from the ACM.
- **Actuator Test** - Each time the cluster is put through the actuator test, the airbag indicator will be turned on, then off again during the bulb check portion of the test to confirm the functionality of the LED and the cluster control circuitry. The actuator test illumination of the airbag indicator is also a function of the ACM.

The ACM continually monitors the airbag system circuits and sensors to decide whether the system is in good operating condition. The ACM then sends the proper lamp-on or lamp-off messages to the instrument cluster. If the ACM sends a lamp-on message after the bulb test, it indicates that the ACM has detected a system malfunction and/or that the airbags may not deploy when required, or may deploy when not required. The ACM will store a Diagnostic Trouble Code (DTC) for any malfunction it detects. Each time the airbag indicator fails to illuminate due to an open or short in the cluster airbag indicator circuit, the cluster sends a message notifying the ACM of the condition, then the instrument cluster and the ACM will each store a DTC. For proper diagnosis of the airbag system, the ACM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the airbag indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

BRAKE/PARK BRAKE INDICATOR

DESCRIPTION

A brake indicator is standard equipment on all instrument clusters. The brake indicator is located near the left edge of the instrument cluster, to the left of the tachometer. There are two versions of the brake indicator. The version used depends upon the market for which the vehicle is manufactured. The version used for vehicles manufactured for the United States market consists of the word “BRAKE” imprinted on a red lens. The version for all other markets has two International Control and Display Symbol icons imprinted on the red lens; one is the icon for “Brake Failure”, and the other is the icon for “Parking Brake”. In either case, the lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The “BRAKE” text or the two icons appear silhouetted against a red field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a Light Emitting Diode (LED), which is soldered onto the instrument cluster electronic circuit board. The brake indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The brake indicator gives an indication to the vehicle operator when the parking brake is applied, when there are certain brake hydraulic system malfunctions as indicated by a low brake hydraulic fluid level condition, or when certain faults are detected in the Anti-lock Brake System (ABS). This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming, electronic messages received by the cluster from the Controller Anti-lock Brake (CAB) over the Programmable Communications Interface (PCI) data bus, and a hard wired input to the cluster from the park brake switch. The brake indicator Light Emitting Diode (LED) is completely controlled by the instrument cluster logic circuit, and that logic will only

BRAKE/PARK BRAKE INDICATOR (Continued)

allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the LED will always be off when the ignition switch is in any position except On or Start. The LED only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the brake indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the brake indicator is illuminated by the instrument cluster for about three seconds as a bulb test.
- **Brake Lamp-On Message** - Each time the cluster receives a lamp-on message from the CAB, the brake indicator will be illuminated. The indicator remains illuminated until the cluster receives a lamp-off message from the CAB, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Park Brake Switch Input** - Each time the cluster detects ground on the park brake switch sense circuit (park brake switch closed = park brake applied or not fully released) while the ignition switch is in the On position, the brake indicator is illuminated. The indicator remains illuminated until the park brake switch sense input to the cluster is an open circuit (park brake switch open = park brake fully released), or until the ignition switch is turned to the Off position, whichever occurs first.
- **Communication Error** - If the cluster receives no lamp-on or lamp-off messages from the CAB for six consecutive seconds, the brake indicator is illuminated. The indicator remains illuminated until the cluster receives a single valid lamp-off message from the CAB.
- **Actuator Test** - Each time the instrument cluster is put through the actuator test, the brake indicator will be turned on for the duration of the test to confirm the functionality of the LED and the cluster control circuitry.

The park brake switch on the park brake lever mechanism provides a hard wired ground input to the instrument cluster circuitry through the red brake warning indicator driver circuit whenever the park brake is applied or not fully released. The CAB continually monitors the ABS system circuits and sensors, including the brake fluid level switch on the brake master cylinder reservoir, to decide whether the system is in good operating condition. The CAB then sends the proper lamp-on or lamp-off messages to the instrument cluster. If the CAB sends a lamp-on message after the bulb test, it indicates that the CAB has detected a brake hydraulic system malfunction and/or that the ABS system has become inoperative. The CAB will store a Diagnostic Trouble Code (DTC) for any malfunction it detects.

For further diagnosis of the brake indicator or the instrument cluster circuitry that controls the LED, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). The park brake switch input to the instrument cluster may be diagnosed using conventional diagnostic tools and methods. For proper diagnosis of the brake fluid level switch input to the CAB, the ABS, the CAB, the PCI data bus, or the electronic message inputs to the instrument cluster that control the brake indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

DIAGNOSIS AND TESTING - BRAKE INDICATOR

The diagnosis found here addresses an inoperative brake indicator condition. If there are problems with several indicators in the instrument cluster, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). If the brake indicator stays on with the ignition switch in the On position and the park brake released, or comes on while driving, the brake system must be diagnosed and repaired prior to performing the following tests. (Refer to 5 - BRAKES - DIAGNOSIS AND TESTING). If no brake system problem is found, the following procedures will help to locate a shorted or open circuit, or a faulty park brake switch input. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

BRAKE/PARK BRAKE INDICATOR (Continued)

INDICATOR ILLUMINATES DURING BULB TEST, BUT DOES NOT WHEN PARK BRAKE APPLIED

(1) Disconnect and isolate the battery negative cable. Disconnect the instrument panel wire harness connector for the park brake switch from the switch terminal. Apply the parking brake. Check for continuity between the park brake switch terminal and a good ground. There should be continuity. If OK, go to Step 2. If not OK, replace the faulty park brake switch.

(2) Disconnect the instrument panel wire harness connector for the instrument cluster from the cluster connector receptacle. Check for continuity between the red brake warning indicator driver circuit cavities of the instrument panel wire harness connector for the park brake switch and the instrument panel wire harness connector for the instrument cluster. There should be continuity. If not OK, repair the open red brake warning indicator driver circuit between the park brake switch and the instrument cluster as required.

INDICATOR REMAINS ILLUMINATED - BRAKE SYSTEM CHECKS OK

(1) Disconnect and isolate the battery negative cable. Disconnect the instrument panel wire harness connector for the park brake switch from the park brake switch terminal. Check for continuity between the terminal of the park brake switch and a good ground. There should be no continuity with the park brake released, and continuity with the park brake applied. If OK, go to Step 2. If not OK, replace the faulty park brake switch.

(2) Disconnect the instrument panel wire harness connector for the instrument cluster from the cluster connector receptacle. Check for continuity between the red brake warning indicator driver circuit cavity of the instrument panel wire harness connector for the park brake switch and a good ground. There should be no continuity. If not OK, repair the shorted red brake warning indicator driver circuit between the park brake switch and the instrument cluster as required.

CHECK GAUGES INDICATOR

DESCRIPTION

A check gauges indicator is standard equipment on all instrument clusters. The check gauges indicator is located on the right edge of the instrument cluster, to the right of the speedometer. The check gauges indicator consists of the words “CHECK GAGES” imprinted on a red lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The “CHECK GAGES” text appears silhouetted against a red field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a Light Emitting Diode (LED), which is soldered onto the instrument cluster electronic circuit board. The check gauges indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The check gauges indicator gives an indication to the vehicle operator when certain instrument cluster gauge readings reflect a condition requiring immediate attention. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The check gauges indicator Light Emitting Diode (LED) is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the LED will always be off when the ignition switch is in any position except On or Start. The LED only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the check gauges indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the check gauges indicator is illuminated for about three seconds as a bulb test.
- **Engine Temperature High/Critical Message** - Each time the cluster receives a message from the PCM indicating the engine coolant temperature is high or critical [above about 127° C (261° F) for gasoline engines except Gulf Coast Country (GCC), 129° C (264° F) for GCC gasoline engines, and 118° C (244° F) for diesel engines], the check gauges indicator will be illuminated. The indicator remains illuminated until the cluster receives a message indicating the engine coolant temperature is not high or critical [below about 125° C (255° F) or below for all gasoline engines, or 115° C (239° F) for all diesel engines].
- **Engine Oil Pressure Low Message** - Each time the cluster receives a message from the PCM indicating the engine oil pressure is about 0.28 kg/cm^2 or lower (about 4 psi or lower), the check gauges indicator will be illuminated. The indicator remains illuminated until the cluster receives a message from the PCM indicating that the engine oil pressure is about 0.56 kg/cm^2 or higher (about 8 psi or higher). The cluster will only turn the indicator on in response to an engine oil pressure low message if the engine speed is 300 rpm or greater.

CHECK GAUGES INDICATOR (Continued)

- **System Voltage Low (Charge Fail) Message** - Each time the cluster receives a message from the PCM indicating the electrical system voltage is about 11.0 volts or lower (charge fail condition), the check gauges indicator will be illuminated. The indicator remains illuminated until the cluster receives a message from the PCM indicating the electrical system voltage is greater than about 11.0 volts (but less than 16.0 volts), or until the ignition switch is turned to the Off position, whichever occurs first.
- **System Voltage High Message** - Each time the cluster receives a message from the PCM indicating the electrical system voltage is greater than about 16.0 volts, the check gauges indicator will be illuminated. The indicator remains illuminated until the cluster receives a message from the PCM indicating the electrical system voltage is less than about 16.0 volts (but greater than about 11.0 volts), or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the check gauges indicator will be turned on for the duration of the test to confirm the functionality of the LED and the cluster control circuitry.

The PCM continually monitors the engine temperature, oil pressure, and electrical system voltage, then sends the proper messages to the instrument cluster. For further diagnosis of the check gauges indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the check gauges indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

COOLANT LOW INDICATOR

DESCRIPTION

A coolant low indicator is only found in the instrument clusters of vehicles equipped with an optional diesel engine. The coolant low indicator should not be confused with the coolant level low indication provided by the Electronic Vehicle Information Center (EVIC) of vehicles equipped with a gasoline engine, although they do perform the same function. The coolant low indicator is located in the lower left corner of the instrument cluster, to the left of the tachometer. The coolant low indicator consists of an International Control and Display Symbol icon for “Low Engine Coolant” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The icon appears silhouetted against an amber field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. When the exterior lighting is turned On, the illumination intensity of the coolant low indicator is dimmable, which is adjusted along with the cluster illumination lighting using the panel lamps dimmer control ring on the control stalk of the left multifunction switch. The coolant low indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The coolant low indicator gives an indication to the vehicle operator when the diesel engine coolant level is low. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Body Control Module (BCM) over the Programmable Communications Interface (PCI) data bus. The coolant low indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the coolant low indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the coolant low indicator is illuminated for about three seconds as a bulb test.
- **Coolant Low Lamp-On Message** - Each time the cluster receives a coolant low lamp-on message from the BCM indicating the engine coolant is below the minimum level in the coolant reservoir, the coolant low indicator will be illuminated. The indicator remains illuminated until the cluster receives a coolant low lamp-off message from the BCM indicating that the engine coolant level is above the minimum level, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the coolant low indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The BCM continually monitors the input from the coolant level switch, then sends the proper coolant

COOLANT LOW INDICATOR (Continued)

low indicator lamp-on and lamp-off messages to the instrument cluster. If the coolant low indicator fails to light during the bulb test, replace the bulb with a known good unit. For further diagnosis of the coolant low indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the coolant level switch, the BCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the coolant low indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

CRUISE INDICATOR

DESCRIPTION

A cruise indicator is standard equipment on all instrument clusters. However, on vehicles not equipped with the optional speed control system, this indicator is electronically disabled. The cruise indicator is located on the right edge of the instrument cluster, to the right of the speedometer. The cruise indicator consists of the word “CRUISE” imprinted on a blue/green lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The “CRUISE” text appears silhouetted against a blue/green field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable bulb and bulb holder unit located on the instrument cluster electronic circuit board. When the exterior lighting is turned On, the illumination intensity of the cruise indicator is dimmable, which is adjusted along with the cluster illumination lighting using the panel lamps dimmer control ring on the control stalk of the left multi-function switch. The cruise indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The cruise indicator gives an indication to the vehicle operator when the speed control system is turned On, regardless of whether the speed control is engaged. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The cruise indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the cruise indicator for the following reasons:

- **Cruise Lamp-On Message** - Each time the cluster receives a cruise lamp-on message from the PCM indicating the speed control system has been turned On, the cruise indicator is illuminated. The indicator remains illuminated until the cluster receives a cruise lamp-off message from the PCM or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the cruise indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The PCM continually monitors the speed control switches to determine the proper outputs to the speed control servo. The PCM then sends the proper cruise indicator lamp-on and lamp-off messages to the instrument cluster. If the cruise indicator fails to light during the actuator test, replace the bulb with a known good unit. For further diagnosis of the cruise indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the speed control switches, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the cruise indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

ENGINE TEMPERATURE GAUGE

DESCRIPTION

An engine coolant temperature gauge is standard equipment on all instrument clusters. The engine coolant temperature gauge is located in the lower right corner of the instrument cluster, to the right of the speedometer. The engine coolant temperature gauge consists of a movable gauge needle or pointer controlled by the instrument cluster circuitry and a fixed 90 degree scale on the gauge dial face that reads left-to-right from 40° C to 125° C, or from 100° F to 260° F, depending upon the market for which the vehicle is manufactured. An International Control and Display Symbol icon for “Engine Coolant

ENGINE TEMPERATURE GAUGE (Continued)

Temperature" is located on the gauge dial face directly below the left end of the gauge scale.

The engine coolant temperature gauge graphics are either white, gray and orange against a black gauge dial face (base cluster) or black, gray and red against a taupe gauge dial face (premium cluster), making them clearly visible within the instrument cluster in daylight. When illuminated from behind by the panel lamps dimmer controlled cluster illumination lighting with the exterior lamps turned On, the base cluster white gauge graphics appear blue-green and the orange graphics still appear orange, while the premium cluster taupe gauge dial face appears blue-green with the black graphics silhouetted against the illuminated background and the red graphics still appear red. The gray gauge graphics for both versions of the cluster are not illuminated. The orange gauge needle in the base cluster gauge is internally illuminated, while the black gauge needle in the premium cluster gauge is not.

Base cluster gauge illumination is provided by replaceable incandescent bulb and bulb holder units located on the instrument cluster electronic circuit board. Premium cluster gauge illumination is provided by an integral electro-luminescent lamp that is serviced as a unit with the instrument cluster. The engine coolant temperature gauge is serviced as a unit with the instrument cluster.

OPERATION

The engine coolant temperature gauge gives an indication to the vehicle operator of the engine coolant temperature. This gauge is controlled by the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The engine coolant temperature gauge is an air core magnetic unit that is completely controlled by the instrument cluster electronic circuit board. The cluster is programmed to move the gauge needle back to the low end of the scale after the ignition switch is turned to the Off position. The instrument cluster circuitry controls the gauge needle position and provides the following features:

- **Engine Temperature Normal Message** - Each time the cluster receives a message from the PCM indicating the engine coolant temperature is within the normal operating range [up to about 124° C (255° F) for gasoline engines, or about 115° C (239° F) for diesel engines], the gauge needle is moved to the actual relative temperature position of the gauge scale.
- **Engine Temperature High Message** - Each time the cluster receives a message from the PCM indicating the engine coolant temperature is high [above about 127° C (260° F) for gasoline engines except Gulf Coast Country (GCC), 129° C (264° F) for GCC gasoline engines, or 118° C (244° F) for diesel engines], the gauge needle is moved into the center of the red warning zone on the gauge scale.
- **Engine Temperature Critical Message** - Each time the cluster receives a message from the PCM indicating the engine coolant temperature is critical [above about 132° C (269° F) for gasoline engines, or 126° C (259° F) for diesel engines], the gauge needle is moved to the high end of the red warning zone on the gauge scale.
- **Communication Error** - If the cluster fails to receive an engine temperature message, it will hold the gauge needle at the last indication for about twelve seconds or until the ignition switch is turned to the Off position, whichever occurs first. After twelve seconds, the cluster will move the gauge needle to the low end of the gauge scale.
- **Actuator Test** - Each time the cluster is put through the actuator test, the engine coolant temperature gauge needle will be swept across the entire gauge scale and back in order to confirm the functionality of the gauge and the cluster control circuitry.

The PCM continually monitors the engine coolant temperature sensor to determine the engine operating temperature. The PCM then sends the proper engine coolant temperature messages to the instrument cluster. For further diagnosis of the engine coolant temperature gauge or the instrument cluster circuitry that controls the gauge, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). If the instrument cluster moves the engine coolant temperature gauge needle to indicate a high or critical engine temperature, it may indicate that the engine or the engine cooling system requires service. For proper diagnosis of the engine coolant temperature sensor, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the engine coolant temperature gauge, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

FRONT FOG LAMP INDICATOR

DESCRIPTION

A front fog lamp indicator is optional equipment on vehicles equipped with base versions of the instrument cluster, and standard equipment on vehicles equipped with premium versions of the instrument cluster. The front fog lamp indicator is located on the left edge of the instrument cluster, to the left of the tachometer. The front fog lamp indicator consists of an International Control and Display Symbol icon for

FRONT FOG LAMP INDICATOR (Continued)

"Front Fog Light" imprinted on a green lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The icon appears silhouetted against a green field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. When the exterior lighting is turned On, the illumination intensity of the front fog lamp indicator is dimmable, which is adjusted along with the cluster illumination lighting using the panel lamps dimmer control ring on the control stalk of the left multi-function switch. The front fog lamp indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The front fog lamp indicator gives an indication to the vehicle operator whenever the front fog lamps are illuminated. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Body Control Module (BCM) over the Programmable Communications Interface (PCI) data bus. The front fog lamp indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will allow this indicator to operate whenever the instrument cluster receives a battery current input on the fused B(+) circuit. Therefore, the bulb can be illuminated regardless of the ignition switch position. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the front fog lamp indicator for the following reasons:

- **Front Fog Lamp-On Message** - Each time the cluster receives a front fog lamp-on message from the BCM indicating the front fog lamps are turned On, the front fog lamp indicator will be illuminated. The indicator remains illuminated until the cluster receives a front fog lamp-off message from the BCM.
- **Actuator Test** - Each time the cluster is put through the actuator test, the front fog lamp indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The BCM continually monitors the exterior lighting (left multi-function) switch to determine the proper outputs to the front fog lamp relay. The BCM then sends the proper front fog lamp indicator lamp-on and lamp-off messages to the instrument cluster. If the front fog lamp indicator fails to light during the actuator test, replace the bulb with a known good unit. For further diagnosis of the front fog lamp indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the front fog lamp system, the BCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the front fog lamp indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

FUEL GAUGE

DESCRIPTION

A fuel gauge is standard equipment on all instrument clusters. The fuel gauge is located in the lower left corner of the instrument cluster, to the left of the tachometer. The fuel gauge consists of a movable gauge needle or pointer controlled by the instrument cluster circuitry and a fixed 90 degree scale on the gauge dial face that reads left-to-right from "E" (or Empty) to "F" (or Full). An International Control and Display Symbol icon for "Fuel" is located on the gauge dial face, directly below the right end of the gauge scale. An arrowhead pointed to the left side of the vehicle is imprinted on the gauge dial face next to the "Fuel" icon to provide the driver with a reminder as to the location of the fuel filler access.

The fuel gauge graphics are either white, gray and orange against a black gauge dial face (base cluster) or black and gray against a taupe gauge dial face (premium cluster), making them clearly visible within the instrument cluster in daylight. When illuminated from behind by the panel lamps dimmer controlled cluster illumination lighting with the exterior lamps turned On, the base cluster white gauge graphics appear blue-green and the orange graphics still appear orange, while the premium cluster taupe gauge dial face appears blue-green with the black graphics silhouetted against the illuminated background. The gray gauge graphics for both versions of the cluster are not illuminated. The orange gauge needle in the base cluster gauge is internally illuminated, while the black gauge needle in the premium cluster gauge is not.

Base cluster gauge illumination is provided by replaceable incandescent bulb and bulb holder units located on the instrument cluster electronic circuit board. Premium cluster gauge illumination is provided by an integral electro-luminescent lamp that is serviced as a unit with the instrument cluster. The fuel gauge is serviced as a unit with the instrument cluster.

FUEL GAUGE (Continued)

OPERATION

The fuel gauge gives an indication to the vehicle operator of the level of fuel in the fuel tank. This gauge is controlled by the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The fuel gauge is an air core magnetic unit that receives battery current on the instrument cluster electronic circuit board through the fused ignition switch output (run-start) circuit whenever the ignition switch is in the On or Start positions. The cluster is programmed to move the gauge needle back to the low end of the scale after the ignition switch is turned to the Off position. The instrument cluster circuitry controls the gauge needle position and provides the following features:

- **Percent Tank Full Message** - Each time the cluster receives a message from the PCM indicating the percent tank full, the cluster moves the gauge needle to the proper relative position on the gauge scale. The PCM applies an algorithm to the input from the fuel tank sending unit to dampen gauge needle movement against the negative effect that fuel sloshing within the fuel tank can have on accurate inputs to the PCM.
- **Less Than 15 Percent Tank Full Message** - Each time the cluster receives messages from the PCM indicating the percent tank full is less than 15, the gauge needle is moved to below the one-eighth position on the gauge scale and the low fuel indicator is illuminated. The low fuel indicator remains illuminated until the cluster receives messages from the PCM indicating that the percent tank full is greater than 15 (one-eighth), or until the ignition switch is turned to the Off position, whichever occurs first.
- **Less Than Empty Percent Tank Full Message** - Each time the cluster receives a message from the PCM indicating the percent tank full is less than empty, the gauge needle is moved to the far left (low) end of the gauge scale and the low fuel indicator is illuminated immediately. This message would indicate that the fuel tank sending unit input to the PCM is a short circuit.
- **More Than Full Percent Tank Full Message** - Each time the cluster receives a message from the PCM indicating the percent tank full is more than full, the gauge needle is moved to the far left (low) end of the gauge scale and the low fuel indicator is illuminated immediately. This message would indicate that the fuel tank sending unit input to the PCM is an open circuit.
- **Communication Error** - If the cluster fails to receive a percent tank full message, it will hold the gauge needle at the last indication for about twelve seconds or until the ignition switch is turned to the Off position, whichever occurs first. After twelve seconds, the cluster will move the gauge needle to the low end of the gauge scale.
- **Actuator Test** - Each time the cluster is put through the actuator test, the fuel gauge needle will be swept across the entire gauge scale and back in order to confirm the functionality of the gauge and the cluster control circuitry.

The PCM continually monitors the fuel tank sending unit input to determine the level of fuel in the fuel tank. The PCM then applies an algorithm to the input and sends the proper percent tank full messages to the instrument cluster. For further diagnosis of the fuel gauge or the instrument cluster circuitry that controls the gauge, (Refer to 8 - ELECTRICAL/ INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the fuel tank sending unit, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the fuel gauge, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

HIGH BEAM INDICATOR

DESCRIPTION

A high beam indicator is standard equipment on all instrument clusters. The high beam indicator is located near the upper edge of the instrument cluster, between the tachometer and the speedometer. The high beam indicator consists of an International Control and Display Symbol icon for “High Beam” imprinted on a blue lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The icon appears silhouetted against a blue field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. When the exterior lighting is turned On, the illumination intensity of the high beam indicator is dimmable, which is adjusted along with the cluster illumination lighting using the panel lamps dimmer control ring on the control stalk of the left multi-function switch. The high beam indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The high beam indicator gives an indication to the vehicle operator whenever the headlamp high beams are illuminated. This indicator is controlled by a

transistor on the instrument cluster electronic circuit board based upon cluster programming and electronic messages received by the cluster from the Body Control Module (BCM) over the Programmable Communications Interface (PCI) data bus. The high beam indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will allow this indicator to operate whenever the instrument cluster receives a battery current input on the fused B(+) circuit. Therefore, the bulb can be illuminated regardless of the ignition switch position. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the high beam indicator for the following reasons:

- **High Beam Headlamps-On Message** - Each time the cluster receives a high beam headlamps-on message from the BCM indicating the headlamp high beams are turned On, the high beam indicator will be illuminated. The indicator remains illuminated until the cluster receives a high beam headlamps-off message from the BCM.
- **Actuator Test** - Each time the cluster is put through the actuator test, the high beam indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The BCM continually monitors the exterior lighting (left multi-function) switch to determine the proper outputs to the headlamp low beam and high beam relays. The BCM then sends the proper high beam indicator lamp-on and lamp-off messages to the instrument cluster. If the high beam indicator fails to light during the actuator test, replace the bulb with a known good unit. For further diagnosis of the high beam indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the headlamp system, the BCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the high beam indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

LOW FUEL INDICATOR

DESCRIPTION

A low fuel indicator is standard equipment on all instrument clusters. The low fuel indicator is located near the left edge of the instrument cluster, to the left of the tachometer. The low fuel indicator consists of an International Control and Display Symbol icon for “Fuel” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the icon from being clearly visible when the indicator is not illuminated. The icon appears silhouetted against an amber field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. When the exterior lighting is turned On, the illumination intensity of the low fuel indicator is dimmable, which is adjusted along with the cluster illumination lighting using the panel lamps dimmer control ring on the control stalk of the left multi-function switch. The low fuel indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The low fuel indicator gives an indication to the vehicle operator when the level of fuel in the fuel tank becomes low. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The low fuel indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is switched to ground by the instrument cluster transistor. The instrument cluster will turn on the low fuel indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the low fuel indicator is illuminated for about three seconds as a bulb test.
- **Less Than 15 Percent Tank Full Message** - Each time the cluster receives messages from the PCM indicating that the percent tank full is less than 15, the low fuel indicator is illuminated. The indicator remains illuminated until the cluster receives messages from the PCM indicating that the percent tank full has increased to greater than 15. The PCM applies an algorithm to the input from the fuel tank sending unit to dampen the illumination of the low fuel indicator against the negative effect that fuel sloshing within the fuel tank can have on accurate inputs to the PCM.
- **Less Than Empty Percent Tank Full Message** - Each time the cluster receives a message from the PCM indicating the percent tank full is less than empty, the low fuel indicator is illuminated immedi-

LOW FUEL INDICATOR (Continued)

ately. This message would indicate that the fuel tank sending unit input to the PCM is a short circuit.

- **More Than Full Percent Tank Full Message** - Each time the cluster receives a message from the PCM indicating the percent tank full is more than full, the low fuel indicator is illuminated immediately. This message would indicate that the fuel tank sending unit input to the PCM is an open circuit.
- **Communication Error** - If the cluster fails to receive a percent tank full message for more than about twelve seconds, the cluster control circuitry will illuminate the low fuel indicator until a new percent tank full message is received, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the low fuel indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The PCM continually monitors the fuel tank sending unit input to determine the level of fuel in the fuel tank. The PCM then applies an algorithm to the input and sends the proper percent tank full messages to the instrument cluster. If the low fuel indicator fails to light during the bulb test, replace the bulb with a known good unit. For further diagnosis of the low fuel indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the fuel tank sending unit, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the low fuel indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

MALFUNCTION INDICATOR LAMP (MIL)

DESCRIPTION

A Malfunction Indicator Lamp (MIL) is standard equipment on all instrument clusters. The MIL is located near the right edge of the instrument cluster, to the right of the speedometer. The MIL consists of an International Control and Display Symbol icon for “Engine” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The icon appears silhouetted against an amber field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. The MIL lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The Malfunction Indicator Lamp (MIL) gives an indication to the vehicle operator when the Powertrain Control Module (PCM) has recorded a Diagnostic Trouble Code (DTC) for an On-Board Diagnostics II (OBDII) emissions-related circuit or component malfunction. The MIL is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the PCM over the Programmable Communications Interface (PCI) data bus. The MIL bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the MIL for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the MIL is illuminated for about three seconds as a bulb test.
- **MIL Lamp-On Message** - Each time the cluster receives a MIL lamp-on message from the PCM, the indicator will be illuminated. The indicator can be flashed on and off, or illuminated solid, as dictated by the PCM message. For some DTC's, if a problem does not recur, the PCM will send a lamp-off message automatically. Other DTC's may require that a fault be repaired and the PCM be reset before a lamp-off message will be sent. For more information on the PCM and the DTC set and reset parameters, (Refer to 25 - EMISSIONS CONTROL - OPERATION).
- **Communication Error** - If the cluster receives no lamp-on or lamp-off messages from the PCM for twenty consecutive seconds, the MIL is illuminated by the instrument cluster. The indicator remains controlled and illuminated by the cluster until a valid lamp-on or lamp-off message is received from the PCM.
- **Actuator Test** - Each time the cluster is put through the actuator test, the MIL will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The PCM continually monitors the fuel and emissions system circuits and sensors to decide whether the system is in good operating condition. The PCM then sends the proper lamp-on or lamp-off messages to the instrument cluster. If the MIL fails to light

MALFUNCTION INDICATOR LAMP (MIL) (Continued)

during the bulb test, replace the bulb with a known good unit. For further diagnosis of the MIL or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). If the instrument cluster turns on the MIL after the bulb test, it may indicate that a malfunction has occurred and that the fuel and emissions systems may require service. For proper diagnosis of the fuel and emissions systems, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the MIL, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

ODOMETER

DESCRIPTION

An odometer and trip odometer are standard equipment in all instrument clusters. The odometer and trip odometer information are displayed in a common electronic, blue-green Vacuum-Fluorescent Display (VFD). The VFD is soldered onto the cluster electronic circuit board and is visible through a window with a smoked clear lens located in the lower edge of the speedometer dial face in the instrument cluster. The dark lens over the VFD prevents it from being clearly visible when it is not illuminated. However, the odometer and trip odometer information are not displayed simultaneously. The trip odometer reset switch on the instrument cluster circuit board toggles the display between odometer and trip odometer modes by depressing the odometer/trip odometer switch button that extends through the lower edge of the cluster lens, just right of the speedometer.

All odometer and trip odometer distance information is stored in the instrument cluster memory. This information can be increased when the proper inputs are provided to the instrument cluster, but the information cannot be decreased. The odometer can display values up to 999,999 kilometers (999,999 miles). The odometer latches at these values, and will not roll over to zero. The trip odometer can display values up to 999.9 kilometers (999.9 miles) before it rolls over to zero. The odometer display does not have a decimal point and will not show values less than a full unit (kilometer or mile), while the trip odometer display does have a decimal point and will show tenths of a unit (kilometer or mile). The unit of measure for the odometer and trip odometer display is not shown in the VFD. The unit of measure for the instrument cluster odometer/trip odometer is selected at the time that it is manufactured, and cannot be changed. If the instrument cluster has a kilometers-per-hour primary speedometer scale, the odometer/trip odometer registers kilometers; and if the cluster features a miles-per-hour primary speedometer scale, the odometer/trip odometer registers miles.

During daylight hours (exterior lamps Off) the VFD is illuminated at full brightness for clear visibility. At night (exterior lamps are On) the VFD is illuminated at full brightness for clear visibility. At night (exterior lamps are On) the VFD lighting level is adjusted with the other cluster illumination lamps using the panel lamps dimmer control ring on the control stalk of the left multi-function switch. The instrument cluster converts an electronic dimming level message received from the Body Control Module (BCM) over the Programmable Communication Interface (PCI) data bus to a digital dimming level signal for controlling the lighting level of the VFD. However, a “Parade” mode position of the panel lamps dimmer control ring allows the VFD to be illuminated at full brightness if the exterior lamps are turned On during daylight hours.

The VFD, the trip odometer switch, and the trip odometer switch button are serviced as a unit with the instrument cluster.

OPERATION

The odometer and trip odometer give an indication to the vehicle operator of the distance the vehicle has traveled. This indicator is controlled by the instrument cluster circuitry based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The odometer and trip odometer information is displayed by the instrument cluster Vacuum Fluorescent Display (VFD). The VFD will only display odometer or trip odometer information after the ignition switch is turned to the On or Start positions, and will display the last previously selected odometer or trip odometer information when the ignition switch is turned to the On or Start positions. The instrument cluster circuitry controls the VFD and provides the following features:

- **Odometer/Trip Odometer Display Toggling** - Actuating the trip odometer reset switch button momentarily with the VFD illuminated will toggle the display between the odometer and trip odometer information. Each time the VFD is illuminated with the ignition switch in the On or Start positions, the display will automatically return to the last mode selected (odometer or trip odometer).
- **Trip Odometer Reset** - When the trip odometer reset switch button is pressed and held for longer than about two seconds with the ignition switch in the On or Start positions, the trip odometer will be reset to 0.0 kilometers (miles). The VFD must be dis-

ODOMETER (Continued)

playing the trip odometer information in order for the trip odometer information to be reset.

- **Communication Error** - If the cluster fails to receive a distance message during normal operation, it will hold and display the last data received until the ignition switch is turned to the Off position. If the cluster does not receive a distance message within one second after the ignition switch is turned to the On position, it will display the last distance message stored in the cluster memory. If it is determined that the distance information stored in the cluster memory is corrupt, it will display "------" in the VFD. If the cluster is unable to display distance information due to an error internal to the cluster, the VFD display will be blank.
- **Actuator Test** - Each time the cluster is put through the actuator test, the VFD will step sequentially through a display of "000000" through "999999", then display the cluster software version number to confirm the functionality of each of the VFD segments and the cluster control circuitry.

The PCM continually monitors the vehicle speed pulse information received from the vehicle speed sensor, then sends the proper distance messages to the instrument cluster. For further diagnosis of the odometer/trip odometer or the instrument cluster circuitry that controls these functions, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the vehicle speed sensor, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the odometer/trip odometer, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

OIL PRESSURE GAUGE

DESCRIPTION

An oil pressure gauge is standard equipment on all instrument clusters. The oil pressure gauge is located in the upper right corner of the instrument cluster, to the right of the speedometer. The oil pressure gauge consists of a movable gauge needle or pointer controlled by the instrument cluster circuitry and a fixed 90 degree scale on the gauge dial face that reads left-to-right from "L" (or Low) to "H" (or High). An International Control and Display Symbol icon for "Engine Oil" is located on the gauge dial face, directly below the left end of the gauge scale.

The oil pressure gauge graphics are either white, gray and orange against a black gauge dial face (base cluster) or black and gray against a taupe gauge dial face (premium cluster), making them clearly visible within the instrument cluster in daylight. When illuminated from behind by the panel lamps dimmer controlled cluster illumination lighting with the exterior lamps turned On, the base cluster white gauge graphics appear blue-green and the orange graphics still appear orange, while the premium cluster taupe gauge dial face appears blue-green with the black graphics silhouetted against the illuminated background. The gray gauge graphics for both versions of the cluster are not illuminated. The orange gauge needle in the base cluster gauge is internally illuminated, while the black gauge needle in the premium cluster gauge is not.

Base cluster gauge illumination is provided by replaceable incandescent bulb and bulb holder units located on the instrument cluster electronic circuit board. Premium cluster gauge illumination is provided by an integral electro-luminescent lamp that is serviced as a unit with the instrument cluster. The oil pressure gauge is serviced as a unit with the instrument cluster.

OPERATION

The oil pressure gauge gives an indication to the vehicle operator of the engine oil pressure. This gauge is controlled by the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The oil pressure gauge is an air core magnetic unit that receives battery current on the instrument cluster electronic circuit board through the fused ignition switch output (run-start) circuit whenever the ignition switch is in the On or Start positions. The cluster is programmed to move the gauge needle back to the low end of the scale after the ignition switch is turned to the Off position. The instrument cluster circuitry controls the gauge needle position and provides the following features:

- **Engine Oil Pressure Message** - Each time the cluster receives a message from the PCM indicating the engine oil pressure is within the normal operating range [above 0.28 kg/cm^2 (above 4 psi), the gauge needle is moved to the proper relative pressure position of the gauge scale.
- **Engine Oil Pressure Low Message** - Each time the cluster receives a message from the PCM indicating the engine oil pressure is below about 0.28 kg/cm^2 (4 psi), the gauge needle is moved to the far left end of the gauge scale, the check gauges indicator is illuminated, and a single chime tone is generated. The gauge needle remains at the left end of the gauge scale and the check gauges indicator remains illuminated until the cluster receives a message from the PCM indicating that the engine oil pressure is above about 0.56 kg/cm^2 (8 psi), or until the ignition switch is turned to the Off position, whichever occurs

OIL PRESSURE GAUGE (Continued)

first. The cluster will only turn the check gauges indicator on in response to an engine oil pressure low message if the ignition switch is in the On position and the engine speed message is 300 rpm or greater.

- **Communication Error** - If the cluster fails to receive an engine oil pressure message, it will hold the gauge needle at the last indication for about twelve seconds or until the ignition switch is turned to the Off position, whichever occurs first. After twelve seconds, the cluster will move the gauge needle to the left end of the gauge scale.
- **Actuator Test** - Each time the cluster is put through the actuator test, the oil pressure gauge needle will be swept across the entire gauge scale and back in order to confirm the functionality of the gauge and the cluster control circuitry.

The PCM continually monitors the engine oil pressure sensor to determine the engine oil pressure. The PCM then sends the proper engine oil pressure messages to the instrument cluster. For further diagnosis of the oil pressure gauge or the instrument cluster circuitry that controls the gauge, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). If the instrument cluster turns on the check gauges indicator due to a low oil pressure gauge reading, it may indicate that the engine or the engine oiling system requires service. For proper diagnosis of the engine oil pressure sensor, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the oil pressure gauge, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

OVERDRIVE OFF INDICATOR

DESCRIPTION

An overdrive off indicator is standard equipment on all gasoline engine instrument clusters. The overdrive off indicator is located in the lower edge of the tachometer gauge dial face in the instrument cluster. The overdrive off indicator consists of the words “O/D OFF” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the tachometer gauge dial face overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The words “O/D OFF” appear silhouetted against an amber field through the translucent outer layer of the gauge dial face overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. When the exterior lighting is turned On, the illumination intensity of the overdrive off indicator is dimmable, which is adjusted along with the cluster illumination lighting using the panel lamps dimmer control ring on the control stalk of the left multi-function switch. The overdrive off indicator lens is serviced as a unit with the instrument cluster.

OPERATION

The overdrive off indicator gives an indication to the vehicle operator when the Off position of the overdrive off switch has been selected, disabling the electronically controlled overdrive feature of the automatic transmission. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster over the Programmable Communications Interface (PCI) data bus. These messages are sent by the Powertrain Control Module (PCM) or by the Transmission Control Module (TCM), depending upon the model of the automatic transmission. The overdrive off indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the overdrive off indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the overdrive off indicator is illuminated for about three seconds as a bulb test.
- **Overdrive Off Lamp-On Message** - Each time the cluster receives an overdrive off lamp-on message from the PCM or TCM indicating that the Off position of the overdrive off switch has been selected, the overdrive off indicator will be illuminated. The indicator remains illuminated until the cluster receives an overdrive off lamp-off message from the PCM or TCM, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the overdrive off indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The PCM or TCM continually monitors the overdrive off switch to determine the proper outputs to the automatic transmission. The PCM or TCM then sends the proper overdrive off indicator lamp-on or lamp-off messages to the instrument cluster. If the overdrive off indicator fails to light during the bulb test, replace the bulb with a known good unit. For further diagnosis of the overdrive off indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT

OVERDRIVE OFF INDICATOR (Continued)

CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the overdrive control system, the PCM, the TCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the overdrive off indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

REAR FOG LAMP INDICATOR

DESCRIPTION

A rear fog lamp indicator is standard equipment on all instrument clusters. However, on vehicles not equipped with optional rear fog lamps, which are available only in certain international markets where they are required, this indicator is electronically disabled. The rear fog lamp indicator is located on the left edge of the instrument cluster, to the left of the tachometer. The rear fog lamp indicator consists of an International Control and Display Symbol icon for “Rear Fog Light” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The icon appears silhouetted against an amber field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. When the exterior lighting is turned On, the illumination intensity of the rear fog lamp indicator is dimmable, which is adjusted along with the cluster illumination lighting using the panel lamps dimmer control ring on the control stalk of the left multi-function switch. The rear fog lamp indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The rear fog lamp indicator gives an indication to the vehicle operator whenever the rear fog lamps are illuminated. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Body Control Module (BCM) over the Programmable Communications Interface (PCI) data bus. The rear fog lamp indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will allow this indicator to operate whenever the instrument cluster receives a battery current input on the fused B(+) circuit. Therefore, the bulb can be illuminated regardless of the ignition switch position. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the rear fog lamp indicator for the following reasons:

- **Rear Fog Lamp-On Message** - Each time the cluster receives a rear fog lamp-on message from the BCM indicating the rear fog lamps are turned On, the rear fog lamp indicator will be illuminated. The indicator remains illuminated until the cluster receives a rear fog lamp-off message from the BCM.
- **Actuator Test** - Each time the cluster is put through the actuator test, the rear fog lamp indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The BCM continually monitors the exterior lighting (left multi-function) switch to determine the proper outputs to the rear fog lamp relay. The BCM then sends the proper rear fog lamp indicator lamp-on and lamp-off messages to the instrument cluster. If the rear fog lamp indicator fails to light during the actuator test, replace the bulb with a known good unit. For further diagnosis of the rear fog lamp indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the rear fog lamp system, the BCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the rear fog lamp indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

SEATBELT INDICATOR

DESCRIPTION

A seatbelt indicator is standard equipment on all instrument clusters. The seatbelt indicator is located near the lower edge of the instrument cluster, to the left of the tachometer. The seatbelt indicator consists of an International Control and Display Symbol icon for “Seat Belt” imprinted on a red lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the icon from being clearly visible when the indicator is not illuminated. The icon appears silhouetted against a red field through the translucent outer layer of the overlay when it is illuminated from behind by a Light Emitting Diode (LED), which is soldered onto the instrument cluster electronic circuit board. The seatbelt indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

SEATBELT INDICATOR (Continued)

OPERATION

The seatbelt indicator gives an indication to the vehicle operator of the status of the driver side front seatbelt. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming. On models equipped with airbags the indicator is also controlled by electronic messages received by the cluster from the Airbag Control Module (ACM) over the Programmable Communications Interface (PCI) data bus. The seatbelt indicator Light Emitting Diode (LED) is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the LED will always be off when the ignition switch is in any position except On or Start. The LED only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the seatbelt indicator for the following reasons:

- **Seatbelt Reminder Function** - Each time the cluster receives a battery current input on the fused ignition switch output (run-start) circuit, the indicator will be illuminated as a seatbelt reminder for about six seconds, or until the ignition switch is turned to the Off position, whichever occurs first. This reminder function will occur regardless of the status of the electronic seat belt lamp-on or lamp-off messages received by the cluster from the ACM.
- **Seat Belt Lamp-On Message** - On models equipped with airbags, following the seatbelt reminder function, each time the cluster receives a seat belt lamp-on message from the ACM indicating the driver side front seat belt is not fastened with the ignition switch in the Start or On positions, the seatbelt indicator will be illuminated. The indicator remains illuminated until the cluster receives a seat belt lamp-off message from the ACM, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the seatbelt indicator will be turned on for the duration of the test to confirm the functionality of the LED and the cluster control circuitry.

The instrument cluster continually monitors the status of the ignition switch through the hard wired fused ignition switch output (run-start) circuit to determine when to provide the seatbelt reminder function. On models equipped with airbags, the ACM continually monitors the status of both front seat belt switches to determine the proper airbag system response to a vehicle frontal impact. The ACM then sends the proper seatbelt indicator lamp-on and lamp-off messages to the instrument cluster based upon the status of the driver side front seat belt switch input. For further diagnosis of the seatbelt indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the seatbelt switches, the ACM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the seatbelt indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

SHIFT INDICATOR (TRANSFER CASE)

DESCRIPTION

A part time indicator is standard equipment on all instrument clusters. However, on vehicles not equipped with the standard equipment Selec-Trac four-wheel drive system, this indicator is electronically disabled. The part time indicator is located near the right edge of the instrument cluster, to the right of the speedometer. The part time indicator consists of the words “PART TIME” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The words “PART TIME” appear silhouetted against an amber field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. The part time indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The part time indicator gives an indication to the vehicle operator whenever a part time operating mode of the four-wheel drive transfer case is selected. On vehicles with the Selec-Trac four-wheel drive system, the part time indicator illuminates when the transfer case is engaged in the “4 X 4 Part Time” or “4 Lo” positions. This indicator is controlled by a transistor on the instrument cluster electronic circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The part time indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) cir-

SHIFT INDICATOR (TRANSFER CASE) (Continued)

cuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the part time indicator for the following reasons:

- **Part Time Lamp-On Message** - Each time the cluster receives a part time lamp-on message from the PCM indicating that a part time position of the four-wheel drive transfer case has been selected, the part time indicator will be illuminated. The indicator remains illuminated until the cluster receives a part time lamp-off message from the PCM or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the part time indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The PCM continually monitors the transfer case switch to determine the driveline operating mode. The PCM then sends the proper part time lamp-on and lamp-off messages to the instrument cluster. If the part time indicator fails to light during the actuator test, replace the bulb with a known good unit. For further diagnosis of the part time indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the transfer case switch, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the part time indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

SKIS INDICATOR

DESCRIPTION

A Sentry Key Immobilizer System (SKIS) indicator is standard equipment on all instrument clusters. However, on vehicles not equipped with the optional SKIS, this indicator is electronically disabled. The SKIS indicator is located in the upper right corner of the instrument cluster, to the right of the speedometer. The SKIS indicator consists of an icon that represents a key that is circled and crossed-out imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The icon appears silhouetted against an amber field through the translucent outer layer of the overlay when it is illuminated from behind by an incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. The SKIS indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The Sentry Key Immobilizer System (SKIS) indicator gives an indication to the vehicle operator of the status of the SKIS. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Sentry Key Immobilizer Module (SKIM) over the Programmable Communications Interface (PCI) data bus. The SKIS indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is switched to ground by the instrument cluster transistor. The instrument cluster will turn on the SKIS indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position, the SKIM tells the cluster to illuminate the SKIS indicator for about three seconds as a bulb test.
- **SKIS Lamp-On Message** - Each time the cluster receives a SKIS lamp-on message from the SKIM, the SKIS indicator will be illuminated. The indicator can be flashed on and off, or illuminated solid, as dictated by the SKIM message. For more information on the SKIS and the SKIS indicator control parameters, (Refer to 8 - ELECTRICAL/VEHICLE THEFT SECURITY - OPERATION). The indicator remains illuminated until the cluster receives a SKIS lamp-off message from the SKIM or until the ignition switch is turned to the Off position, whichever occurs first.
- **Communication Error** - If the cluster receives no SKIS lamp-on or lamp-off messages from the SKIM for twenty consecutive seconds, the SKIS indicator is illuminated by the instrument cluster. The indicator remains controlled and illuminated by the cluster until a valid SKIS lamp-on or lamp-off message is received from the SKIM.
- **Actuator Test** - Each time the cluster is put through the actuator test, the SKIS indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The SKIM performs a self-test each time the ignition switch is turned to the On position to decide whether the system is in good operating condition and whether a valid key is present in the ignition

SKIS INDICATOR (Continued)

lock cylinder. The SKIM then sends the proper SKIS lamp-on or lamp-off messages to the instrument cluster. If the SKIS indicator fails to light during the bulb test, replace the bulb with a known good unit. For further diagnosis of the SKIS indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). If the instrument cluster flashes the SKIS indicator upon ignition On, or turns on the SKIS indicator solid after the bulb test, it indicates that a SKIS malfunction has occurred or that the SKIS is inoperative. For proper diagnosis of the SKIS, the PCI data bus, or the electronic message inputs to the instrument cluster that control the SKIS indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

SPEEDOMETER

DESCRIPTION

A speedometer is standard equipment on all instrument clusters. The speedometer is located next to the tachometer, just to the right of center in the instrument cluster. The speedometer consists of a movable gauge needle or pointer controlled by the instrument cluster circuitry, and a fixed 255 degree primary scale on the gauge dial face that reads left-to-right either from “0” to “120” mph, from “0” to “140” mph, from “0” to “220” km/h, or from “0” to “230” km/h, depending upon the vehicle equipment and the market for which the vehicle is manufactured. Most versions also have a secondary inner scale on the gauge dial face that provides the equivalent opposite measurement units from the primary scale. Text appearing in the center of the gauge dial face just beneath the hub of the speedometer needle abbreviates the unit of measure for the primary scale (i.e.: MPH or km/h). On models with a secondary scale, the abbreviation for that scale follows the abbreviation for the primary scale.

The speedometer graphics are either white, gray and orange against a black gauge dial face (base cluster) or black and gray against a taupe gauge dial face (premium cluster), making them clearly visible within the instrument cluster in daylight. When illuminated from behind by the panel lamps dimmer controlled cluster illumination lighting with the exterior lamps turned On, the base cluster white gauge graphics appear blue-green and the orange graphics still appear orange, while the premium cluster taupe gauge dial face appears blue-green with the black graphics silhouetted against the illuminated background. The gray gauge graphics for both versions of the cluster are not illuminated. The orange gauge needle in the base cluster gauge is internally illuminated, while the black gauge needle in the premium cluster gauge is not.

Base cluster gauge illumination is provided by replaceable incandescent bulb and bulb holder units located on the instrument cluster electronic circuit board. Premium cluster gauge illumination is provided by an integral electro-luminescent lamp that is serviced as a unit with the instrument cluster. The speedometer is serviced as a unit with the instrument cluster.

OPERATION

The speedometer gives an indication to the vehicle operator of the vehicle road speed. This gauge is controlled by the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The speedometer is an air core magnetic unit that receives battery current on the instrument cluster electronic circuit board through the fused ignition switch output (run-start) circuit whenever the ignition switch is in the On or Start positions. The cluster is programmed to move the gauge needle back to the low end of the scale after the ignition switch is turned to the Off position. The instrument cluster circuitry controls the gauge needle position and provides the following features:

- **Vehicle Speed Message** - Each time the cluster receives a vehicle speed message from the PCM it will calculate the correct vehicle speed reading and position the gauge needle at that speed position on the gauge scale. The cluster will receive a new vehicle speed message and reposition the gauge pointer accordingly about every 86 milliseconds. The gauge needle will continue to be positioned at the actual vehicle speed position on the gauge scale until the ignition switch is turned to the Off position.
- **Communication Error** - If the cluster fails to receive a speedometer message, it will hold the gauge needle at the last indication for about six seconds, or until the ignition switch is turned to the Off position, whichever occurs first. After six seconds, the gauge needle will return to the left end of the gauge scale.
- **Actuator Test** - Each time the cluster is put through the actuator test, the speedometer needle will be swept across the entire gauge scale and back in order to confirm the functionality of the gauge and the cluster control circuitry.

The PCM continually monitors the vehicle speed information received from the Controller Anti-lock Brake (CAB) to determine the vehicle road speed, then sends the proper vehicle speed messages to the instrument cluster. For further diagnosis of the speedometer or the instrument cluster circuitry that

SPEEDOMETER (Continued)

controls the gauge, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the CAB, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the speedometer, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

TACHOMETER

DESCRIPTION

A tachometer is standard equipment on all instrument clusters. The tachometer is located to the left of the speedometer, just to the left of center in the instrument cluster. The tachometer consists of a movable gauge needle or pointer controlled by the instrument cluster circuitry and a fixed 255 degree scale on the gauge dial face that reads left-to-right from “0” to “7” for gasoline engines, or from “0” to “6” for diesel engines. The text “X 1000” (base cluster) or “RPM X 1000” (premium cluster) imprinted on the gauge dial face directly below the hub of the tachometer needle identifies that each number on the tachometer scale is to be multiplied by 1000 rpm. The gasoline engine tachometer has a red zone beginning at 5800 rpm, while the red zone for the diesel engine tachometer begins at 4200 rpm. The tachometer for the diesel engine also includes text located in the center of the gauge dial face just above the hub of the tachometer needle that specifies the diesel fuel requirement.

The tachometer graphics are either white, gray and orange against a black gauge dial face (base cluster) or black, gray and red against a taupe gauge dial face (premium cluster), making them clearly visible within the instrument cluster in daylight. When illuminated from behind by the panel lamps dimmer controlled cluster illumination lighting with the exterior lamps turned On, the base cluster white gauge graphics appear blue-green and the orange graphics still appear orange, while the premium cluster taupe gauge dial face appears blue-green with the black graphics silhouetted against the illuminated background and the red graphics still appear red. The gray gauge graphics for both versions of the cluster are not illuminated. The orange gauge needle in the base cluster gauge is internally illuminated, while the black gauge needle in the premium cluster gauge is not.

Base cluster gauge illumination is provided by replaceable incandescent bulb and bulb holder units located on the instrument cluster electronic circuit board. Premium cluster gauge illumination is provided by an integral electro-luminescent lamp that is serviced as a unit with the instrument cluster. The tachometer is serviced as a unit with the instrument cluster.

OPERATION

The tachometer gives an indication to the vehicle operator of the engine speed. This gauge is controlled by the instrument cluster electronic circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The tachometer is an air core magnetic unit that receives battery current on the instrument cluster electronic circuit board through the fused ignition switch output (run-start) circuit whenever the ignition switch is in the On or Start positions. The cluster is programmed to move the gauge needle back to the low end of the scale after the ignition switch is turned to the Off position. The instrument cluster circuitry controls the gauge needle position and provides the following features:

- **Engine Speed Message** - Each time the cluster receives an engine speed message from the PCM it will calculate the correct engine speed reading and position the gauge needle at that relative speed position on the gauge scale. The cluster will receive a new engine speed message and reposition the gauge pointer accordingly about every 86 milliseconds. The gauge needle will continue to be positioned at the relative engine speed position on the gauge scale until the engine stops running, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Communication Error** - If the cluster fails to receive an engine speed message, it will hold the gauge needle at the last indication for about six seconds, or until the ignition switch is turned to the Off position, whichever occurs first. After six seconds, the gauge needle will return to the left end of the gauge scale.
- **Actuator Test** - Each time the cluster is put through the actuator test, the tachometer needle will be swept across the entire gauge scale and back in order to confirm the functionality of the gauge and the cluster control circuitry.

The PCM continually monitors the crankshaft position sensor to determine the engine speed. The PCM then sends the proper engine speed messages to the instrument cluster. For further diagnosis of the tachometer or the instrument cluster circuitry that controls the gauge, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the crankshaft position sensor, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the tachometer, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

TRANS TEMP INDICATOR

DESCRIPTION

A transmission over-temperature indicator is standard equipment on all gasoline engine instrument clusters. The transmission over-temperature indicator is located near the lower right corner of the instrument cluster, to the right of the speedometer. The transmission over-temperature indicator consists of the words “TRANS OVER TEMP” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the indicator from being clearly visible when it is not illuminated. The words “TRANS OVER TEMP” appear silhouetted against an amber field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. The transmission over-temperature indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The transmission over-temperature indicator gives an indication to the vehicle operator when the transmission fluid temperature is excessive, which may lead to accelerated transmission component wear or failure. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster over the Programmable Communications Interface (PCI) data bus. These messages are sent by the Powertrain Control Module (PCM) or by the Transmission Control Module (TCM), depending upon the model of the automatic transmission. The transmission over-temperature indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the transmission over-temperature indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the transmission over-temperature indicator is illuminated for about three seconds as a bulb test.
- **Trans Over-Temp Lamp-On Message** - Each time the cluster receives a trans over-temp lamp-on message from the PCM or TCM indicating that the transmission fluid temperature is 135° C (275° F) or higher, the indicator will be illuminated. The indicator remains illuminated until the cluster receives a trans over-temp lamp-off message from the PCM or TCM, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the transmission over-temperature indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The PCM or TCM continually monitors the transmission temperature sensor to determine the transmission operating condition. The PCM or TCM then sends the proper trans over-temp lamp-on or lamp-off messages to the instrument cluster. If the instrument cluster turns on the transmission over-temperature indicator due to a high transmission oil temperature condition, it may indicate that the transmission or the transmission cooling system are being overloaded or that they require service. If the transmission over-temperature indicator fails to light during the bulb test, replace the bulb with a known good unit. For further diagnosis of the transmission over-temperature indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the transmission temperature sensor, the PCM, the TCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the transmission over-temperature indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

TURN SIGNAL INDICATOR

DESCRIPTION

Two turn signal indicators, one right and one left, are standard equipment on all instrument clusters. The turn signal indicators are located near the upper edge of the instrument cluster, the left one is left of the tachometer, and the right one is right of the speedometer. Each turn signal indicator consists of an International Control and Display Symbol icon for “Turn Warning” imprinted on a green lens. Each lens is located behind a dedicated cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents these icons from being clearly visible when they are not illuminated. The icons appear silhouetted against a green field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit

TURN SIGNAL INDICATOR (Continued)

board. The turn signal indicator lenses are serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The turn signal indicators give an indication to the vehicle operator that the turn signal (left or right indicator flashing) or hazard warning (both left and right indicators flashing) have been selected and are operating. These indicators are controlled by two individual hard wired inputs from the combination flasher circuitry to the instrument cluster electronic circuit board. Each turn signal indicator bulb is grounded on the instrument cluster electronic circuit board at all times. Therefore, each bulb can be illuminated regardless of the ignition switch position. Each bulb only illuminates when it is provided with battery current by the combination flasher in the Junction Block (JB). The turn signal indicators will be illuminated for the following reasons:

- **Turn Signal-On Input** - Each time a turn signal indicator bulb receives battery current pulses from the turn signal circuitry of the combination flasher, the requested turn signal lamps and turn signal indicator will be flashed on and off. The selected turn signal lamps and turn signal indicator will continue to flash on and off until the combination flasher stops feeding them battery current pulses, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Hazard Warning-On Input** - Each time the turn signal indicator bulbs receive battery current pulses from the hazard warning circuitry of the combination flasher, all turn signal lamps and both turn signal indicators will be flashed on and off. All turn signal lamps and both turn signal indicators will continue to flash on and off until the combination flasher stops feeding them battery current pulses, regardless of the ignition switch position.

The turn signal indicators are connected in parallel with the other turn signal circuits. This arrangement allows the turn signal indicators to remain functional, regardless of the condition of the other circuits in the turn signal and hazard warning systems. The combination flasher outputs to the instrument cluster turn signal indicator inputs may be diagnosed using conventional diagnostic tools and methods. For more information on the turn signal and hazard warning system, (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR - OPERATION - TURN SIGNAL & HAZARD WARNING SYSTEM).

DIAGNOSIS AND TESTING - TURN SIGNAL INDICATOR

The diagnosis found here addresses an inoperative turn signal indicator condition. If the problem being diagnosed is related to inoperative turn signal or hazard warning lamps, be certain to repair the turn signal and hazard warning system before attempting to diagnose or repair the turn signal indicators. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR - DIAGNOSIS AND TESTING - TURN SIGNAL & HAZARD WARNING SYSTEM). If no turn signal and hazard warning system problem is found, the following procedure will help locate an open in the turn signal indicator circuit. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable. Remove the instrument cluster from the instrument panel and disconnect the instrument panel wire harness for the instrument cluster from the cluster connector receptacle.

(2) Reconnect the battery negative cable. Activate the hazard warning system by moving the hazard warning switch button to the On position. Check for battery voltage at the inoperative (right or left) turn signal circuit cavity of the instrument panel wire harness connector for the instrument cluster. There should be a switching (on and off) battery voltage signal present. If OK, replace the faulty (right or left) turn signal indicator bulb. If not OK, repair the open (right or left) turn signal circuit between the instrument cluster and the combination flasher in the Junction Block (JB) as required.

VOLTAGE GAUGE

DESCRIPTION

A voltage gauge is standard equipment on all instrument clusters. The voltage gauge is located in the upper left corner of the instrument cluster, to the left of the tachometer. The voltage gauge consists of a movable gauge needle or pointer controlled by the instrument cluster circuitry and a fixed 90 degree scale on the gauge dial face that reads left-to-right from “9” volts to “19” volts. An International Control and Display Symbol icon for “Battery Charging Condition” is located on the gauge dial face, directly below the right end of the gauge scale.

The voltage gauge graphics are either white, gray and orange against a black gauge dial face (base cluster) or black, gray and red against a taupe gauge dial face (premium cluster), making them clearly visible within the instrument cluster in daylight. When illuminated from behind by the panel lamps dimmer controlled cluster illumination lighting with the exterior lamps turned On, the base cluster white gauge graphics appear blue-green and the orange graphics still appear orange, while the premium cluster taupe gauge dial face appears blue-green with the black graphics silhouetted against the illuminated background and the red graphics still appear red. The gray gauge graphics for both versions of the cluster are not illuminated. The orange gauge needle in the base cluster gauge is internally illuminated, while the black gauge needle in the premium cluster gauge is not.

Base cluster gauge illumination is provided by replaceable incandescent bulb and bulb holder units located on the instrument cluster electronic circuit board. Premium cluster gauge illumination is provided by an integral electro-luminescent lamp that is serviced as a unit with the instrument cluster. The voltage gauge is serviced as a unit with the instrument cluster.

OPERATION

The voltage gauge gives an indication to the vehicle operator of the electrical system voltage. This gauge is controlled by the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The voltage gauge is an air core magnetic unit that receives battery current on the instrument cluster electronic circuit board through the fused ignition switch output (run-start) circuit whenever the ignition switch is in the On or Start positions. The cluster is programmed to move the gauge needle back to the left end of the scale after the ignition switch is turned to the Off position. The instrument cluster circuitry controls the gauge needle position and provides the following features:

- **System Voltage Message** - Each time the cluster receives a system voltage message from the PCM indicating the system voltage is between about 11 volts and about 16 volts, the gauge needle is moved to the relative voltage position on the gauge scale.
- **System Voltage Low (Charge Fail) Message** - Each time the cluster receives a message from the PCM indicating the system voltage is less than about 11 volts (charge fail condition), the gauge needle is moved to the relative voltage position in the red zone of the gauge scale and the check gauges indicator is illuminated. The gauge needle remains in the red zone and the check gauges indicator remains illuminated until the cluster receives a message from the PCM indicating the system voltage is greater than above about 11 volts (but less than about 16 volts), or until the ignition switch is turned to the Off position, whichever occurs first.
- **System Voltage High Message** - Each time the cluster receives a message from the PCM indicating the electrical system voltage is greater than about 16 volts, the gauge needle is moved to the relative voltage position in the red zone of the gauge scale and the check gauges indicator is illuminated. The gauge needle remains in the red zone and the check gauges indicator remains illuminated until the cluster receives a message from the PCM indicating the electrical system voltage is less than about 16 volts (but greater than about 11 volts), or until the ignition switch is turned to the Off position, whichever occurs first.
- **Communication Error** - If the cluster fails to receive a system voltage message, it will hold the gauge needle at the last indication for about twelve seconds, or until the ignition switch is turned to the Off position, whichever occurs first. After twelve seconds, the cluster will move the gauge needle to the far left end of the gauge scale.
- **Actuator Test** - Each time the cluster is put through the actuator test, the voltage gauge needle will be swept across the entire gauge scale and back to confirm the functionality of the gauge and the cluster control circuitry.

The PCM continually monitors the system voltage to control the generator output. The PCM then sends the proper system voltage messages to the instrument cluster. For further diagnosis of the voltage gauge or the instrument cluster circuitry that controls the gauge, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). If the instrument cluster turns on the check gauges indicator due to a charge fail or voltage high condition, it may indicate that the charging system

VOLTAGE GAUGE (Continued)

requires service. For proper diagnosis of the charging system, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the voltage gauge, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

WAIT-TO-START INDICATOR

DESCRIPTION

A wait-to-start indicator is only found in the instrument clusters of vehicles equipped with an optional diesel engine. The wait-to-start indicator is located near the lower edge of the tachometer gauge dial face, to the right of center. The wait-to-start indicator consists of an International Control and Display Symbol icon for “Diesel Preheat” imprinted on an amber lens. The lens is located behind a cutout in the opaque layer of the tachometer gauge dial face overlay. The dark outer layer of the gauge dial face overlay prevents the icon from being clearly visible when the indicator is not illuminated. The icon appears silhouetted against an amber field through the translucent outer layer of the gauge dial face overlay when the indicator is illuminated from behind by a replaceable incandescent bulb and bulb holder unit located on the instrument cluster electronic circuit board. The wait-to-start indicator lens is serviced as a unit with the instrument cluster.

OPERATION

The wait-to-start indicator gives an indication to the vehicle operator when the diesel engine glow plugs are energized in their preheat operating mode. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The wait-to-start indicator bulb is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the bulb will always be off when the ignition switch is in any position except On or Start. The bulb only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the wait-to-start indicator for the following reasons:

- **Wait-To-Start Lamp-On Message** - Each time the cluster receives a wait-to-start lamp-on message from the PCM indicating that the glow plugs are not properly heated for efficient and reliable engine starting, the wait-to-start indicator will be illuminated. The indicator remains illuminated until the cluster receives a wait-to-start lamp-off message, until the PCM detects the engine is running or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the wait-to-start indicator will be turned on for the duration of the test to confirm the functionality of the bulb and the cluster control circuitry.

The PCM continually monitors the ambient temperature and the glow plug pre-heater circuits to determine how long the glow plugs must be heated in the pre-heat operating mode. The PCM then sends the proper wait-to-start lamp-on and lamp-off messages to the instrument cluster. If the wait-to-start indicator fails to light during the actuator test, replace the bulb with a known good unit. For further diagnosis of the wait-to-start indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the glow plug pre-heater control circuits, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the wait-to-start indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

WATER-IN-FUEL INDICATOR

DESCRIPTION

A water-in-fuel indicator is only found in the instrument clusters for vehicles equipped with an optional diesel engine. The water-in-fuel indicator is located near the left edge of the instrument cluster, to the left of the tachometer. The water-in-fuel indicator consists of an International Control and Display Symbol icon for “Water In Fuel” imprinted on a red lens. The lens is located behind a cutout in the opaque layer of the instrument cluster overlay. The dark outer layer of the overlay prevents the icon from being clearly visible when the indicator is not illuminated. The icon appears silhouetted against a red field through the translucent outer layer of the overlay when the indicator is illuminated from behind by a Light Emitting Diode (LED), which is soldered onto the instrument cluster electronic circuit board. The water-in-fuel indicator lens is serviced as a unit with the instrument cluster lens, hood and mask unit.

OPERATION

The water-in-fuel indicator gives an indication to the vehicle operator when there is excessive water in

WATER-IN-FUEL INDICATOR (Continued)

the fuel system. This indicator is controlled by a transistor on the instrument cluster circuit board based upon cluster programming and electronic messages received by the cluster from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus. The water-in-fuel indicator Light Emitting Diode (LED) is completely controlled by the instrument cluster logic circuit, and that logic will only allow this indicator to operate when the instrument cluster receives a battery current input on the fused ignition switch output (run-start) circuit. Therefore, the LED will always be off when the ignition switch is in any position except On or Start. The LED only illuminates when it is provided a path to ground by the instrument cluster transistor. The instrument cluster will turn on the water-in-fuel indicator for the following reasons:

- **Bulb Test** - Each time the ignition switch is turned to the On position the water-in-fuel indicator is illuminated for about three seconds as a bulb test.
- **Water-In-Fuel Lamp-On Message** - Each time the cluster receives a water-in-fuel lamp-on message from the PCM indicating there is excessive water in the diesel fuel system, the water-in-fuel indicator will be illuminated. The indicator remains illuminated until the cluster receives a water-in-fuel lamp-off message, or until the ignition switch is turned to the Off position, whichever occurs first.
- **Actuator Test** - Each time the cluster is put through the actuator test, the water-in-fuel indicator will be turned on for the duration of the test to confirm the functionality of the LED and the cluster control circuitry.

The PCM continually monitors the water-in-fuel sensor to determine whether there is excessive water in the diesel fuel. The PCM then sends the proper water-in-fuel lamp-on and lamp-off messages to the instrument cluster. For further diagnosis of the water-in-fuel indicator or the instrument cluster circuitry that controls the indicator, (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - DIAGNOSIS AND TESTING). For proper diagnosis of the water-in-fuel sensor, the PCM, the PCI data bus, or the electronic message inputs to the instrument cluster that control the water-in-fuel indicator, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

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POWER LOCKS

DESCRIPTION

DESCRIPTION - POWER LOCK SYSTEM

A power operated door and liftgate lock system is standard factory-installed equipment on this model. The power lock system allows all of the doors and the liftgate to be locked or unlocked electrically by operating a switch on either front door trim panel. The power lock system receives non-switched battery feed through a fuse in the Power Distribution Center (PDC), so that the power locks remain operational, regardless of the ignition switch position.

The power lock system for this vehicle also has a door lock inhibit feature, which prevents the power lock system from being energized with a power door lock switch if a front door is open with the key in the ignition. However, the locks can still be operated manually, with a key, energized with the RKE transmitter or by sliding the door lock lever to the appropriate position.

This vehicle also offers several customer programmable features, which allows the selection of several optional electronic features to suit individual prefer-

ences. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/ELECTRONIC VEHICLE INFO CENTER - DESCRIPTION). Customer programmable feature options affecting the power door lock system include:

- **Auto Door Locks** - Automatically locks all of the vehicle doors and the liftgate when the vehicle reaches a speed of about 24 kilometers-per-hour (15 miles-per-hour) with 10% throttle tip-in.
- **Auto Unlock on Exit** - Automatically unlocks all of the vehicle doors and the liftgate when the driver side front door is opened, if the vehicle is stopped and the transmission gear selector is in the Park or Neutral positions. This feature is linked to the Auto Door Locks feature, and will only occur one time following each Auto Door Lock event.

The power lock system for this vehicle can also be operated remotely using the standard equipment Remote Keyless Entry (RKE) system radio frequency transmitters. (Refer to 8 - ELECTRICAL/POWER LOCKS - DESCRIPTION - REMOTE KEYLESS ENTRY SYSTEM).

The components of the power lock system include:

- **Driver Door Module (DDM)**
- **Passenger Door Module (PDM)**
- **PCI Bus Messages**
- **Power Lock Motors**

Certain functions and features of the power lock system rely upon resources shared with other electronic modules in the vehicle over the Programmable Communications Interface (PCI) data bus network. The PCI data bus network allows the sharing of sensor information. This helps to reduce wire harness complexity, internal controller hardware, and component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities. For proper diagnosis of these electronic modules or of the PCI data bus network, the use of a DRBIII® scan tool and the appropriate diagnostic information are required.

The other electronic modules that may affect power lock system operation are as follows:

- **Body Control Module (BCM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/BODY CONTROL/CENTRAL TIMER MODULE - DESCRIPTION).
- **Electronic Vehicle Information Center (EVIC)** - (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/ELECTRONIC VEHICLE INFO CENTER - DESCRIPTION).
- **Powertrain Control Module (PCM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/POWERTRAIN CONTROL MODULE - DESCRIPTION).

Hard wired circuitry connects the power lock system components to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the power lock system components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

DESCRIPTION - REMOTE KEYLESS ENTRY SYSTEM

A Radio Frequency (RF) type Remote Keyless Entry (RKE) system is standard factory-installed equipment on this model. The RKE system allows the use of a remote battery-powered radio transmitter to control the power lock system. The RKE receiver operates on non-switched battery current through a fuse in the Power Distribution Center (PDC), so that the system remains operational, regardless of the ignition switch position.

In addition to Lock and Unlock buttons, the RKE transmitters are also equipped with a Panic button. If the Panic button on the RKE transmitter is depressed, the horn will sound and the exterior lights will flash on the vehicle for about three minutes, or until the Panic button is depressed a second time, if ignition is in the Off position. A vehicle speed of about 24 kilometers-per-hour (15 miles-per-hour) will also cancel the panic event.

The RKE system can also perform other functions on this vehicle. If the vehicle is equipped with the optional Vehicle Theft Security System (VTSS), the RKE transmitter will arm the VTSS when the Lock button is depressed, and disarm the VTSS when the Unlock button is depressed. (Refer to 8 - ELECTRICAL/VEHICLE THEFT SECURITY - DESCRIPTION - VEHICLE THEFT SECURITY SYSTEM). If the vehicle is equipped with the optional Memory System, each of the two numbered and color-coded RKE transmitters can be used to recall the stored driver side front seat position, both outside power rear view mirror positions, and the radio station presets for the two assigned drivers. (Refer to 8 - ELECTRICAL/POWER SEATS - DESCRIPTION - MEMORY SYSTEM).

The RKE system includes two transmitters when the vehicle is shipped from the factory, but the system can retain the vehicle access codes of up to four transmitters. The transmitter codes are retained in the RKE receiver memory, even if the battery is disconnected. If an RKE transmitter is faulty or lost,

POWER LOCKS (Continued)

new transmitter vehicle access codes can be programmed into the system using a DRBIII® scan tool and the appropriate diagnostic information.

This vehicle also offers several customer programmable features, which allows the selection of several optional electronic features to suit individual preferences. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/ELECTRONIC VEHICLE INFO CENTER - DESCRIPTION). Customer programmable feature options affecting the RKE system include:

- **Remote Unlock** - Allows the option of having only the driver side front door unlock when the RKE transmitter Unlock button is depressed the first time and the remaining doors and the liftgate unlock when the button is depressed a second time, or having all doors and the liftgate unlock upon the first depression of the RKE transmitter Unlock button.
- **Remote Linked to Memory** - If the vehicle is equipped with the Memory System, this feature allows the option of having the RKE transmitter Unlock button activate the recall of the stored settings, or having the recall function assigned solely to the memory switch on the driver side front door trim panel.
- **Sound Horn on Lock** - Allows the option of having the horn sound a short chirp as an audible verification that the doors have locked, or having no audible verification.
- **Flash Lights with Lock** - Allows the option of having the lights flash as an optical verification that the doors have locked, or having no optical verification.

This group covers the following components of the RKE system:

- **RKE Receiver**
- **RKE Transmitter**

Certain functions and features of the RKE system rely upon resources shared with other electronic modules in the vehicle over the Programmable Communications Interface (PCI) data bus network. The PCI data bus network allows the sharing of sensor information. This helps to reduce wire harness complexity, internal controller hardware, and component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities. For diagnosis of these electronic modules or of the PCI data bus network, the use of a DRBIII® scan tool and the appropriate diagnostic information are required.

The other electronic modules that may affect RKE system operation are as follows:

- **Body Control Module (BCM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/BODY CONTROL/CENTRAL TIMER MODULE - DESCRIPTION).
- **Driver Door Module (DDM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DOOR MODULE - DESCRIPTION).
- **Electronic Vehicle Information Center (EVIC)** - (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE/ELECTRONIC VEHICLE INFO CENTER - DESCRIPTION).
- **Passenger Door Module (PDM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DOOR MODULE - DESCRIPTION).
- **Powertrain Control Module (PCM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/POWERTRAIN CONTROL MODULE - DESCRIPTION).

Hard wired circuitry connects the RKE system components via the PDM to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the RKE system components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

COMBINATION FLASHER

The combination flasher is a smart relay that functions as both the turn signal system and the hazard warning system flasher. The combination flasher contains active electronic Integrated Circuitry (IC) elements. This flasher can be energized by the BCM to flash all of the park/turn signal/front side marker lamps as an optical alert for the RKE panic function and, if the Flash Lights with Lock programmable feature is enabled, as an optical verification for the RKE lock event. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/COMBINATION FLASHER - DESCRIPTION).

HORN RELAY

The horn relay is a electromechanical device that switches battery current to the horn when the horn switch grounds the relay coil. The horn relay is located in the Power Distribution Center (PDC) in the engine compartment. This relay can be energized by the BCM to sound the horns as an audible alert for the RKE panic function and, if the Sound Horn on Lock programmable feature is enabled, as an audible verification for the RKE lock event. (Refer to 8 - ELECTRICAL/HORN/HORN RELAY - DESCRIPTION).

POWER LOCKS (Continued)

LOW BEAM HEADLAMP RELAY

The low beam headlamp relay is a electromechanical device that switches battery current to the headlamp low beams when the BCM grounds the relay coil. The low beam headlamp relay is located in the junction block in the passenger compartment. This relay can be energized by the BCM to flash the headlamp low beams as an optical alert for the RKE panic function. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/HEADLAMP - DESCRIPTION).

DESCRIPTION - LIFTGATE FLIP-UP GLASS POWER RELEASE SYSTEM

A power operated liftgate flip-up glass release system is standard factory installed equipment on this model. The liftgate flip-up glass power release system allows the flip-up glass latch to be released electrically by depressing a switch located on the bottom of the liftgate license plate lamp housing unit, above the license plate on the outside of the liftgate.

The liftgate flip-up glass release system operates on non-switched battery current supplied through a fuse in the junction block so that the system remains functional, regardless of the ignition switch position. However, a limit switch that is integral to the liftgate latch actuator unit opens to prevent the flip-up glass latch from being actuated when the liftgate latch is locked.

The liftgate flip-up glass power release system includes the following components:

- **Liftgate Flip-Up Glass Limit Switch** - The liftgate flip-up glass limit switch is integral to the liftgate latch unit. (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/LATCH - REMOVAL) and (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/LATCH - INSTALLATION).
- **Liftgate Flip-Up Glass Release Motor** - The liftgate flip-up glass release motor is integral to the liftgate flip-up glass latch unit. (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/FLIP-UP GLASS LATCH - REMOVAL) and (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/FLIP-UP GLASS LATCH - INSTALLATION).
- **Liftgate Flip-Up Glass Release Switch** - The liftgate flip-up glass release switch is integral to the liftgate license plate lamp housing. (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/FLIP-UP GLASS SWITCH - REMOVAL) and (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/FLIP-UP GLASS SWITCH - INSTALLATION).

Hard wired circuitry connects the liftgate flip-up glass power release system components to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the liftgate flip-up glass power release system components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

OPERATION

OPERATION - POWER LOCK SYSTEM

The Passenger Door Module (PDM) contains the power door lock control logic and a power lock switch. The Driver Door Module (DDM) contains a power lock switch and controls the output to the driver side front door power lock motor, while the PDM controls the output to the power lock motors for the remaining doors and the liftgate.

When the power lock switch on the DDM is used to lock or unlock the doors, the DDM sends a control output to the driver side front door power lock motor and sends lock or unlock request messages to the PDM over the Programmable Communications Interface (PCI) data bus. The PDM responds to these messages by sending control outputs to the power lock motors of the remaining doors and the liftgate. When the power lock switch on the PDM is used to lock or unlock the doors, the PDM sends control outputs to the power lock motors in the passenger side front door, both rear doors and the liftgate, then sends lock or unlock request messages to the DDM over the Programmable Communications Interface (PCI) data bus. The DDM responds to these messages by sending control outputs to the power lock motor of the driver side front door.

In order to support the auto door locks and unlock on exit features, if enabled, the power lock system logic in the PDM needs to know the door ajar switch status, vehicle speed, and transmission gear selector lever position. The passenger side front door ajar switch is the only hard wired input to the PDM. The PDM obtains the remaining information from messages it receives from other electronic modules over the PCI data bus network.

See the owner's manual in the vehicle glove box for more information on the features, use and operation of the power lock system.

POWER LOCKS (Continued)

OPERATION - REMOTE KEYLESS ENTRY SYSTEM

The Passenger Door Module (PDM) contains the RKE system control logic and the RKE receiver. When the RKE receiver recognizes a Lock, Unlock or Panic message from a valid RKE transmitter, the RKE receiver provides that input to the PDM. The PDM circuitry and programming responds by sending the proper messages to the other electronic modules over the Programmable Communications Interface (PCI) data bus.

When an RKE lock message is received, the doors and the liftgate lock, the interior lighting fades to off, the horn chirps (if this feature is enabled), the exterior lamps flash (if this feature is enabled) and, if the vehicle is so equipped, the Vehicle Theft Security System (VTSS) is armed. When an RKE unlock message is received, the driver side front door (or all doors and the liftgate if this feature is enabled) unlock, the interior lighting is turned on and, if the vehicle is so equipped, the VTSS is disarmed. If the vehicle is equipped with the Memory System and the RKE Linked to Memory feature is enabled, the RKE unlock message also recalls the driver seat, outside mirror and radio settings assigned to the RKE transmitter that sent the unlock signal.

When an RKE panic message is received, it causes the exterior lamps (including the headlights) to flash, and the horn to pulse for about three minutes, or until a second panic message is received. A vehicle speed of about 24 kilometers-per-hour (15 miles-per-hour) will also cancel the panic event.

See the owner's manual in the vehicle glove box for more information on the features, use and operation of the RKE system.

OPERATION - LIFTGATE FLIP-UP GLASS POWER RELEASE SYSTEM

When the liftgate mounted flip-up glass release switch is depressed, battery current is directed to the electric release motor that is integral to the flip-up glass latch located inside the liftgate. When the release motor is energized the latch releases and the flip-up glass can be opened. A liftgate flip-up glass limit switch is integral to the liftgate latch actuator mechanism. The limit switch automatically enables or disables the liftgate flip-up glass power release circuitry, depending upon the position of the liftgate latch lock mechanism. When the liftgate latch is unlocked, the limit switch closes and battery current is available at the release switch. When the liftgate latch is locked , the limit switch opens, and the release switch is disabled.

See the owner's manual in the vehicle glove box for more information on the features, use and operation of the liftgate flip-up glass power release system.

DIAGNOSIS AND TESTING

DIAGNOSIS AND TESTING - POWER LOCK SYSTEM

Following are tests that will help to diagnose the hard wired components and circuits of the power lock system. However, these tests may not prove conclusive in the diagnosis of this system. In order to obtain conclusive testing of the power lock system, the Programmable Communications Interface (PCI) data bus network and all of the electronic modules that provide inputs to, or receive outputs from the power lock system components must be checked.

The most reliable, efficient, and accurate means to diagnose the power lock system requires the use of a DRBIII® scan tool and the proper Diagnostic Procedures manual. The DRBIII® scan tool can provide confirmation that the PCI data bus is functional, that all of the electronic modules are sending and receiving the proper messages on the PCI data bus, and that the power lock motors are being sent the proper hard wired outputs by the door modules for them to perform their power lock system functions.

Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

PRELIMINARY DIAGNOSIS

As a preliminary diagnosis for the power lock system, note the system operation while you actuate both the Lock and Unlock functions with the power lock switches and with the Remote Keyless Entry (RKE) transmitter. Then, proceed as follows:

- If the entire power lock system fails to function with either the power lock switches or the RKE transmitter, check the fused B(+) fuse in the Power Distribution Center. If the fuse is OK, proceed to diagnosis of the door modules. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ DOOR MODULE - DIAGNOSIS AND TESTING).
- If the power lock system functions with both power lock switches, but not with the RKE transmitter, proceed to diagnosis of the Remote Keyless Entry (RKE) system. (Refer to 8 - ELECTRICAL/POWER LOCKS - DIAGNOSIS AND TESTING - REMOTE KEYLESS ENTRY SYSTEM).
- If the power lock system functions with the RKE transmitter, but not with one or both power lock switches, proceed to diagnosis of the door modules. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DOOR MODULE - DIAGNOSIS AND TESTING).

• If the driver side power lock switch operates only the driver side front door power lock motor, but all other power lock motors operate with the passenger side power lock switch or the RKE transmitter, use a DRBIII® scan tool and the appropriate diagnostic information to diagnose the Programmable Communications Interface (PCI) data bus.

• If only one power lock motor fails to operate with both power lock switches and the RKE transmitter, proceed to diagnosis of the power lock motor. (Refer to 8 - ELECTRICAL/POWER LOCKS/POWER LOCK MOTOR - DIAGNOSIS AND TESTING).

DIAGNOSIS AND TESTING - REMOTE KEYLESS ENTRY SYSTEM

Following are tests that will help to diagnose the Remote Keyless Entry (RKE) system. However, these tests may not prove conclusive in the diagnosis of this system. In order to obtain conclusive testing of the RKE system, the Programmable Communications Interface (PCI) data bus network and all of the electronic modules that provide inputs to, or receive outputs from the RKE system components must be checked.

The most reliable, efficient, and accurate means to diagnose the RKE system requires the use of a DRBIII® scan tool and the appropriate diagnostic information. The DRBIII® scan tool can provide confirmation that the PCI data bus is functional, that all of the electronic modules are sending and receiving the proper messages on the PCI data bus, and that the RKE receiver is being sent the proper radio frequency signals by the RKE transmitters to perform its RKE system functions.

Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

PRELIMINARY DIAGNOSIS

As a preliminary diagnosis for the RKE system, note the system operation while you perform both the Lock and Unlock functions with the power lock switches and with the Remote Keyless Entry (RKE) transmitter. Then, proceed as follows:

• If the entire power lock system fails to function with either the power lock switches or the RKE transmitter, check the fused B(+) fuse in the Power Distribution Center. If the fuse is OK, proceed to the diagnosis for the door modules. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ DOOR MODULE - DIAGNOSIS AND TESTING).

• If the power lock system functions with both power lock switches, but not with the RKE transmitter, proceed to the diagnosis for the RKE transmitter. (Refer to 8 - ELECTRICAL/POWER LOCKS/REMOTE KEYLESS ENTRY TRANSMITTER - DIAGNOSIS AND TESTING).

• If the driver side power lock switch operates only the driver side front door power lock motor, but all other power lock motors operate with the passenger side power lock switch or the RKE transmitter, use a DRBIII® scan tool and the appropriate diagnostic information to diagnose the Programmable Communications Interface (PCI) data bus.

If the problem being diagnosed involves only the Sound Horn on Lock or the Flash Lights with Locks features, be certain that these programmable features are enabled. If the features are enabled and the service horn and turn signals still operate, the Body Control Module (BCM) and the PCI data bus must be tested. For diagnosis of the BCM or the PCI data bus, the use of a DRBIII scan tool and the appropriate diagnostic information are required.

DIAGNOSIS AND TESTING - LIFTGATE FLIP-UP GLASS POWER RELEASE SYSTEM

Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

(1) Check the fused B(+) fuse in the Junction Block (JB). If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse in the JB. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit to the Power Distribution Center (PDC) as required.

(3) Disconnect the liftgate wire harness connector for the liftgate lock motor and flip-up glass limit switch from the motor and switch connector receptacle. Check for battery voltage at the fused B(+) circuit cavity of the liftgate wire harness connector for the liftgate lock motor and flip-up glass limit switch. If OK, go to Step 4. If not OK, repair the open fused B(+) circuit between the liftgate lock motor and flip-up glass limit switch and the JB as required.

(4) Check for continuity between the two liftgate flip-up glass limit switch terminals. There should be continuity with the liftgate latch unlocked, and no continuity with the latch locked. If OK, go to Step 5. If not OK, replace the faulty liftgate latch actuator (brainplate) unit.

(5) Disconnect the liftgate wire harness connector for the liftgate flip-up glass release switch from the switch connector receptacle. With the liftgate latch unlocked, check for battery voltage at the liftgate

POWER LOCKS (Continued)

flip-up glass limit switch output circuit cavity of the liftgate wire harness connector for the release switch. If OK, go to Step 6. If not OK, repair the open liftgate flip-up glass limit switch output circuit between the release switch and the limit switch as required.

(6) Check for continuity between the two terminals of the liftgate flip-up glass release switch. There should be no continuity. Depress the switch, there should now be continuity. If OK, go to Step 7. If not OK, replace the faulty liftgate flip-up glass release switch.

(7) Disconnect the liftgate wire harness connector for the liftgate flip-up glass latch motor from the motor connector receptacle. Check for continuity between the ground circuit cavity of the liftgate wire harness connector for the latch motor and a good ground. There should be continuity. If OK, go to Step 8. If not OK, repair the open ground circuit to ground as required.

(8) With the liftgate latch unlocked and the flip-up glass release switch depressed, check for battery voltage at the liftgate flip-up glass release switch output circuit cavity of the liftgate wire harness connector for the latch motor. If OK, replace the faulty liftgate flip-up glass latch unit. If not OK, repair the open liftgate flip-up glass release switch output circuit between the latch motor and the release switch as required.

DOOR CYLINDER LOCK SWITCH

DESCRIPTION

The driver cylinder lock switch is integral to the key lock cylinder inside the driver side front door. The driver cylinder lock switch is a resistive multiplexed switch that is hard wired between a body ground and the Driver Door Module (DDM) through the front door wire harness. It maintains a path to ground, and changes voltages through an internal resistor when the lock cylinder is rotated to the lock or unlock position.

The driver cylinder lock switch cannot be adjusted or repaired and, if faulty or damaged, the driver side front door lock cylinder unit must be replaced. (Refer to 23 - BODY/DOOR - FRONT/LOCK CYLINDER - REMOVAL) and (Refer to 23 - BODY/DOOR - FRONT/LOCK CYLINDER - INSTALLATION). Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pinout and location views for the various wire harness connectors, splices and grounds.

OPERATION

The driver cylinder lock switch is actuated by the key lock cylinder when the key is inserted in the lock cylinder and turned to the unlock position. The driver cylinder lock switch maintains a path to ground and changes voltages through an internal resistor for the DDM when the driver door key lock cylinder is in the lock or unlock position. The DDM reads the switch status through an internal pull-up, then sends the proper switch status messages to other electronic modules over the Programmable Communications Interface (PCI) data bus network. The driver cylinder lock switch unlock status message is used by the BCM as an input for Vehicle Theft Security System (VTSS) operation and interior lighting.

POWER LOCK MOTOR

DESCRIPTION

Power operated front door, rear door, and liftgate locking mechanisms are standard equipment on this model. The lock mechanisms are actuated by a reversible electric motor mounted within each door and the liftgate. The power lock motors for the doors are integral to the door latch units. The liftgate power lock motor is a separate unit secured to the latch brainplate near the center of the liftgate and operates the liftgate latch lock mechanism through a connecting linkage rod.

The power lock motors for the four doors cannot be adjusted or repaired and, if faulty or damaged, the entire door latch unit must be replaced. The liftgate power lock motor cannot be adjusted or repaired and, if faulty or damaged, the entire liftgate latch actuator (brainplate) unit must be replaced.

OPERATION

The driver side front door power lock motor is controlled by the Driver Door Module (DDM). The remaining power door lock motors and the liftgate power lock motor are controlled by the Passenger Door Module (PDM). A positive and negative battery connection to the two motor terminals will cause the power lock motor plunger to move in one direction. Reversing the current through these same two connections will cause the power lock motor plunger to move in the opposite direction.

POWER LOCK MOTOR (Continued)

DIAGNOSIS AND TESTING - POWER LOCK MOTOR

Remember, the Driver Door Module (DDM) circuitry controls the output to the driver side front door power lock motor. The Passenger Door Module (PDM) circuitry controls the output to the power lock motors for the remaining doors and the liftgate. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

(1) Check each power lock motor for correct operation while moving the power lock switch to both the Lock and Unlock positions. If all of the power lock motors are inoperative, go to Step 2. If one power lock motor is inoperative, go to Step 3.

(2) If all of the power lock motors except the driver side front door are inoperative, the problem may be caused by one shorted motor. Disconnecting a shorted power lock motor from the power lock circuit will allow the good power lock motors to operate. Disconnect the wire harness connector from each PDM-controlled power lock motor, one at a time, and recheck both the lock and unlock functions by operating the power lock switch. If all of the PDM-controlled power lock motors are still inoperative after the above test, check for a short or open circuit between the power lock motors and the PDM. If disconnecting one power lock motor causes the other motors to become functional, go to Step 3 to test the power lock motor that was last disconnected.

(3) Once it is determined which power lock motor is inoperative, that motor can be tested as follows. Disconnect the door or liftgate wire harness connector from the inoperative power lock motor. Apply 12 volts to the lock and unlock driver circuit cavities of the power lock motor connector to check its operation in one direction. Reverse the polarity to check the motor operation in the opposite direction. If OK, repair the shorted or open circuits between the lock motor and the DDM or PDM as required. If not OK, replace the faulty power lock motor.

POWER LOCK SWITCH

DESCRIPTION

The power lock motors are controlled by a two-way momentary switch mounted on the trim panel of each front door. Each power lock switch is illuminated by a Light-Emitting Diode (LED) that is integral to the switch paddle.

The driver side front door power lock switch is integral to the Driver Door Module (DDM), and the passenger side front door power lock switch is integral to the Passenger Door Module (PDM). The power lock switches and their lamps cannot be adjusted or repaired and, if faulty or damaged, the entire DDM or PDM unit must be replaced. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DOOR MODULE - DESCRIPTION).

OPERATION

The front door power lock switches provide a lock and unlock signal to the door module circuitry. The Driver Door Module (DDM) circuitry controls the output to the driver side front door power lock motor, while the Passenger Door Module (PDM) circuitry controls the output to the passenger side front door, both rear door and the liftgate power lock motors.

When the DDM-integrated power lock switch is actuated, the DDM circuitry sends control outputs to the driver side front door power lock motor and sends a message to the PDM over the Programmable Communications Interface (PCI) data bus to control the output to the passenger side front door, both rear door and the liftgate power lock motors. When the PDM-integrated power lock switch is actuated, the PDM circuitry sends control outputs to the passenger side front door, both rear door and the liftgate power lock motors and sends a message to the DDM over the Programmable Communications Interface (PCI) data bus to control the output to the driver side front door power lock motor.

Each power lock switch is illuminated by a Light-Emitting Diode (LED) when the ignition switch is turned to the On position. See the owner's manual in the vehicle glove box for more information on the features, use and operation of the power lock switches.

REMOTE KEYLESS ENTRY MODULE

DESCRIPTION

The Remote Keyless Entry (RKE) receiver is a radio frequency unit contained within the Passenger Door Module (PDM). The PDM also contains the program logic circuitry for the RKE system. The PDM is secured with screws to the back of the trim panel inside the passenger side front door. The RKE receiver has a memory function to retain the vehicle access codes of up to four RKE transmitters. The receiver is designed to retain the transmitter codes in memory, even if the battery is disconnected.

For diagnosis of the RKE receiver, the PDM, or the Programmable Communications Interface (PCI) data bus a DRBIII® scan tool and the appropriate diagnostic information are required. The RKE receiver is only serviced as a unit with the PDM and, if faulty or damaged, the entire PDM unit must be replaced. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DOOR MODULE - DESCRIPTION).

OPERATION

The RKE receiver is energized by one of three messages from the RKE transmitter: Unlock, Lock, or Panic. The PDM circuitry responds to these messages to lock or unlock the power lock motors that it controls. The PDM circuitry also sends Lock, Unlock, and Panic messages to other electronic modules over the Programmable Communications Interface (PCI) data bus. These messages will result in the Driver Door Module (DDM) locking or unlocking the driver side front door, and the other electronic modules in the vehicle responding as their programming dictates.

REMOTE KEYLESS ENTRY TRANSMITTER

DESCRIPTION

The Remote Keyless Entry (RKE) system Radio Frequency (RF) transmitter is equipped with three buttons, labeled Lock, Unlock, and Panic. It is also equipped with a key ring and is designed to serve as a key fob. The operating range of the transmitter radio signal is up to 10 meters (30 feet) from the RKE receiver.

Each RKE transmitter has a different vehicle access code, which must be programmed into the memory of the RKE receiver in the vehicle in order to operate the RKE system. Two transmitters are provided with the vehicle, but the RKE receiver can retain the access codes of up to four transmitters in its memory. (Refer to 8 - ELECTRICAL/POWER LOCKS/REMOTE KEYLESS ENTRY TRANSMITTER - STANDARD PROCEDURE - RKE TRANSMITTER PROGRAMMING).

In addition, the RKE transmitters for vehicles equipped with the optional Memory System are color-coded.Driver 1 (Black) and Driver 2 (Grey) coincide with the buttons of the memory switch on the driver side front door trim panel. These transmitters must also have their access codes programmed into the RKE receiver so that they coincide with the “Driver 1” and “Driver 2” buttons of the memory switch. (Refer to 8 - ELECTRICAL/POWER SEATS - DESCRIPTION - MEMORY SYSTEM).

The RKE transmitter operates on two Panasonic CR2016 (or equivalent) batteries. Typical battery life is from one to two years. The RKE transmitter cannot be repaired and, if faulty or damaged, it must be replaced.

OPERATION

See the owner's manual in the vehicle glove box for more information on the features, use and operation of the Remote Keyless Entry (RKE) transmitters.

DIAGNOSIS AND TESTING - REMOTE KEYLESS ENTRY TRANSMITTER

Using special tool 9001, first test to ensure that the transmitter is functioning. Typical testing distance is 2.5 centimeters (1 inch) for Asian transmitters and 30.5 centimeters (12 inches) for all others. To test, position the transmitter as shown (Fig. 1). Press any transmitter button, then test each button individually. The tool will beep if a radio signal strength that lights five or more LED's is detected. Repeat this test three times. If transmitter fails any of the test refer to the Diagnostic Procedures manual.

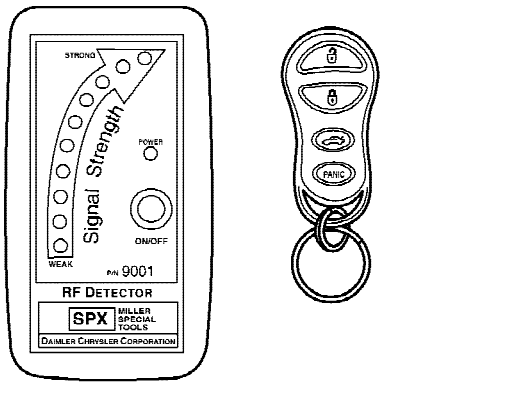


Fig. 1 TRANSMITTER DIAGNOSIS

REMOTE KEYLESS ENTRY TRANSMITTER (Continued)

STANDARD PROCEDURE

STANDARD PROCEDURE - RKE TRANSMITTER PROGRAMMING

To program the Remote Keyless Entry (RKE) transmitter access codes into the RKE receiver in the Passenger Door Module (PDM) requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

STANDARD PROCEDURE - RKE TRANSMITTER BATTERIES

The Remote Keyless Entry (RKE) transmitter case snaps open and shut for battery access. To replace the RKE transmitter batteries:

(1) Using a trim stick or a thin coin, gently pry at the notch in the center seam of the RKE transmitter case halves near the key ring until the two halves unsnap.

(2) Lift the back half of the transmitter case off of the RKE transmitter.

(3) Remove the two batteries from the RKE transmitter.

(4) Replace the two batteries with new Panasonic CR2016, or their equivalent. Be certain that the batteries are installed with their polarity correctly oriented.

(5) Align the two RKE transmitter case halves with each other, and squeeze them firmly and evenly together until they snap back into place.

NOTE: The RKE system for this model uses a rolling code security strategy. This strategy requires that synchronization be maintained between the RKE transmitter and the RKE receiver. RKE transmitter battery removal or replacement can cause a loss of synchronization. If the RKE receiver fails to respond to the RKE transmitter following battery removal or replacement, depress and release the RKE transmitter Unlock button repeatedly while listening carefully for the power door locks in the vehicle to cycle. After between five and eight presses of the Unlock button, the power door locks should cycle, indicating that re-synchronization has occurred.

POWER WINDOWS

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POWER WINDOWS

DESCRIPTION

Power operated driver side and passenger side front and rear door windows are standard factory-installed equipment on this model. The power window system allows each of the door windows to be raised or lowered electrically by operating a switch on the trim panel for that door. Additionally, the master switches on the driver side front door trim panel allow all of the windows to be operated from the driver seat position. A power window lockout switch on the driver side front door trim panel will allow the driver to disable all of the passenger door window switches.

The power window system functionally operates when the ignition switch is in the On position. However, a unique feature of this system will allow the power windows to be operated for up to forty-five seconds after the ignition switch is turned to the Off position, or until a front door is opened, whichever occurs first.

An auto-down feature allows the driver side front door window to be lowered all the way, even if the window switch is released. The driver side front door window switch must be depressed in the down direction to a second detent to begin an auto-down event. Depressing the switch again in any direction cancel the auto-down event and begin movement in the direction specified.

This group covers the following components of the power window system:

- Power window switches
- Power window motors.

Certain functions and features of the power window system rely upon resources shared with other electronic modules in the vehicle over the Programmable Communications Interface (PCI) data bus network. The PCI data bus network allows the sharing of sensor information. This helps to reduce wire harness complexity, internal controller hardware, and component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities. For diagnosis of these electronic modules or of the PCI data bus network, the use of a DRB scan tool and the proper Diagnostic Procedures manual are recommended.

The other electronic modules that may affect power window system operation are as follows:

- **Body Control Module (BCM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/BODY CONTROL/CENTRAL TIMER MODUL - DESCRIPTION) for more information.
- **Driver Door Module (DDM)** -(Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DRIVER DOOR MODULE - DESCRIPTION) for more information.
- **Passenger Door Module (PDM)** - (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DRIVER DOOR MODULE - DESCRIPTION) for more information.

This group covers diagnosis and service of only the electrical components in the power window system. For service of mechanical components, such as the regulator, lift plate, window tracks, or glass refer to Body. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pinout information and location views for the various wire harness connectors, splices and grounds. Following are general descriptions of the major components in the power window system.

POWER WINDOWS (Continued)

OPERATION

The power window system includes the Driver Door Module (DDM) and Passenger Door Module (PDM), which are mounted in their respective front door, the rear door power window switches mounted on the rear doors, and the power window motors mounted to the window regulator in each door. The DDM houses four master power window switches, the power window lockout switch and the control logic for the driver side front and rear door power windows. The PDM houses the passenger side front door power window switch and the control logic for the passenger side front and rear door power windows.

When a master power window switch on the DDM is used to operate a passenger side power window, the DDM sends the window switch actuation message to the PDM over the Programmable Communications Interface (PCI) data bus. The PDM responds to these messages by sending control outputs to move the passenger side power window motors. In addition, when the power window lockout switch in the DDM is actuated to disable power window operation, a lockout message is sent to the PDM over the PCI data bus.

The Body Control Module (BCM) also supports and controls certain features of the power window system. The BCM receives a hard wired input from the ignition switch. The programming in the BCM allows it to process the information from this input and send ignition switch status messages to the DDM and the PDM over the PCI data bus. The DDM and PDM use this information and hard wired inputs from the front door ajar switches to control the lighting of the power window switch lamps, and to control the operation of the power window after ignition-off feature.

See the owner's manual in the vehicle glove box for more information on the features, use and operation of the power window system.

DIAGNOSIS AND TESTING - POWER WINDOWS

Following are tests that will help to diagnose the hard wired components and circuits of the power window system. However, these tests may not prove conclusive in the diagnosis of this system. In order to obtain conclusive testing of the power window system, the Programmable Communications Interface (PCI) data bus network and all of the electronic modules that provide inputs to, or receive outputs from the power window system components must be checked.

The most reliable, efficient, and accurate means to diagnose the power window system requires the use of a DRB scan tool and the proper Diagnostic Procedures manual. The DRB scan tool can provide confirmation that the PCI data bus is functional, that all of the electronic modules are sending and receiving the proper messages on the PCI data bus, and that the power window motors are being sent the proper hard wired outputs by the door modules for them to perform their power window system functions.

For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

ALL WINDOWS INOPERATIVE

(1) Check the operation of the power lock switch on the driver side front door. If all of the doors lock and unlock, but none of the power windows operate, use a DRB scan tool and the proper Diagnostic Procedures manual to check the Body Control Module (BCM), the Driver Door Module (DDM) and the PCI data bus for proper operation. If not OK, go to Step 2.

(2) Check the operation of the power lock switch on the passenger side front door. If the passenger doors lock and unlock, but the driver side front door does not, go to Step 5. If all of the power locks and power windows are inoperative from both front doors, go to Step 3.

(3) Check the fused B(+) fuse in the Power Distribution Center (PDC). If OK, go to Step 4. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(4) Check for battery voltage at the fused B(+) fuse in the PDC. If OK, go to Step 5. If not OK, repair the open fused B(+) circuit to the battery as required.

(5) Disconnect and isolate the battery negative cable. Remove the trim panel from the driver side front door. Disconnect the 15-way door wire harness connector from the DDM connector receptacle. Check for continuity between the ground circuit cavity of the 15-way door wire harness connector for the DDM and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit to ground as required.

(6) Reconnect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the 15-way door wire harness connector for the DDM. If OK, replace the faulty DDM. If not OK, repair the open fused B(+) circuit to the fuse in the PDC as required.

POWER WINDOWS (Continued)

PASSENGER SIDE FRONT AND REAR WINDOWS INOPERATIVE

If the driver side front and rear power windows operate, but the passenger side front and rear do not, use a DRB scan tool and the proper Diagnostic Procedures manual to check the PCI data bus for proper operation.

ONE WINDOW INOPERATIVE

The window glass and regulator mechanism must be free to slide up and down for the power window motor to function properly. If the window glass and regulator is not free to move up and down, the motor will overload and trip the integral circuit breaker. To determine if the window glass and regulator are free, disconnect the regulator plate from the glass. Then slide the window up and down by hand.

There is an alternate method to check if the window glass and regulator mechanism is free. Position the glass between the up and down stops. Then, shake the glass in the door. Check that the glass can be moved slightly from side to side, front to rear, and up and down. Then check that the glass is not bound tight in the tracks.

If the window glass and regulator mechanism is free, refer to **Door Module** in Electrical, Power Windows. If the glass is not free, inspect the window glass mounting and operating hardware for damage or improperly installed components. Refer to **Body** to check for proper installation or damage of the window glass mounting and operating hardware.

DOOR MODULE

NOTE: The following tests may not prove conclusive in the diagnosis of this component. The most reliable, efficient, and accurate means to diagnose this component requires the use of a DRB scan tool and the proper Diagnostic Procedures manual.

If the problem being diagnosed is a rear door window that does not operate from the rear door switch, but does operate from the master switch on the driver side front door, (Refer to 8 - ELECTRICAL/ POWER WINDOWS/POWER WINDOW SWITCH - DIAGNOSIS AND TESTING). If the problem is a passenger side front or rear window that operates from the switch on that door, but does not operate from the master switch on the driver side front door, use a DRB scan tool and the proper Diagnostic Procedures manual to diagnose the circuitry of both door modules and the PCI data bus. For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

(1) Disconnect and isolate the battery negative cable. Remove the trim panel from the front door, but do not disconnect the door wire harness connectors from the door module. Go to Step 2.

(2) Check the 15-way door wire harness connector for the door module to see that it is fully seated in the door module connector receptacle. If OK, go to Step 3. If not OK, properly connect the 15-way door wire harness connector for the door module to the door module connector receptacle.

(3) Disconnect the 15-way door wire harness connector from the door module connector receptacle. Check for continuity between the ground circuit cavity of the 15-way door wire harness connector for the door module and a good ground. There should be continuity. If OK, go to Step 4. If not OK, repair the open ground circuit to ground as required.

(4) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the 15-way door wire harness connector for the door module. If OK, go to Step 5. If not OK, repair the open fused B(+) circuit to the fuse in the Power Distribution Center (PDC) as required.

(5) If the inoperative window is on a front door, go to Step 6. If the inoperative window is on a rear door go to Step 9.

(6) Disconnect and isolate the battery negative cable. Disconnect the door wire harness connector from the inoperative power window motor wire harness connector. Check for continuity between the front window driver up circuit cavity of the 15-way door wire harness connector for the door module and a good ground. Repeat the check for the front window driver down circuit. In each case there should be no continuity. If OK, go to Step 7. If not OK, repair the shorted front window driver up or down circuit as required.

(7) Check for continuity between the front window driver up circuit cavities of the 15-way door wire harness connector for the door module and the door wire harness connector for the power window motor. Repeat the check for the front window driver down circuit. In each case there should be continuity. If OK, go to Step 8. If not OK, repair the open front window driver up or down circuit as required.

(8) Reconnect the 15-way door wire harness connector back into the door module connector receptacle. Connect the battery negative cable. Connect the probes of a reversible DC digital voltmeter to the door wire harness connector for the power window motor. Observe the voltmeter while actuating the switch for that window in the up and down directions. There should be battery voltage for as long as the switch is held in both the up and down positions,

and no voltage in the neutral position. If OK,(Refer to 8 - ELECTRICAL/POWER WINDOWS/WINDOW MOTOR - DIAGNOSIS AND TESTING). If not OK, replace the faulty door module.

(9) Check the rear door power window switch continuity. (Refer to 8 - ELECTRICAL/POWER WINDOWS/POWER WINDOW SWITCH - DIAGNOSIS AND TESTING). If OK, go to Step 10. If not OK, replace the faulty rear door power window switch.

(10) Disconnect and isolate the battery negative cable. Reconnect the door wire harness connector to the rear door power window switch. Disconnect the door wire harness connector from the inoperative power window motor wire harness connector. Check for continuity between the rear window driver up circuit cavity of the 15-way door wire harness connector for the door module and a good ground. Repeat the check for the rear window driver down circuit. In each case there should be no continuity. If OK, go to Step 11. If not OK, repair the shorted rear window driver up or down circuit as required.

(11) Check for continuity between the rear window driver up circuit cavities of the 15-way door wire harness connector for the door module and the power window motor wire harness connector. Repeat the check for the rear window driver down circuit. In each case there should be continuity. If OK, go to Step 12. If not OK, repair the open rear window driver up or down circuit as required.

NOTE: The door module feeds battery current to both terminals of the rear door power window motors when the power window lockout switch is in the Unlock position, until the master window switch on the driver side front door is actuated. The door module feeds ground to both terminals of the rear door power window motor when the power window lockout switch is in the Lock position, until the master window switch on the driver side front door is actuated.

(12) Reconnect the 15-way door wire harness connector for the door module to the door module connector receptacle. Connect the battery negative cable. Check for battery voltage at each cavity in the door wire harness connector for the power window motor. Each cavity should have battery voltage when the power window switch is in the neutral position. Each cavity should also have battery voltage in one other switch position, either up or down, and zero volts with the switch in the opposite position. If OK, (Refer to 8 - ELECTRICAL/POWER WINDOWS/WINDOW MOTOR - DIAGNOSIS AND TESTING). If not OK, replace the faulty door module.

POWER WINDOW SWITCH

DESCRIPTION

The power window motors are controlled by a two-way momentary switch mounted on the trim panel of each passenger door, and four two-way momentary switches on the driver side front door trim panel. The driver side front door trim panel also has a two-position power window lockout switch. Each power window switch, except the lockout switch, is illuminated by a Light-Emitting Diode (LED) that is integral to the switch paddle.

The front door power window switches and the power window lockout switch are integral to the Driver Door Module (DDM) and Passenger Door Module (PDM). The front door power window switches and their lamps cannot be adjusted or repaired and, if faulty or damaged, the entire DDM or PDM unit must be replaced. The rear door power window switches and their lamps cannot be adjusted or repaired but, if faulty or damaged, only the affected rear door power window switch must be replaced. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DRIVER DOOR MODULE - REMOVAL).

OPERATION

The front door power window switches provide an up or down (or lock and unlock signal in the case of the lockout switch) to the door module circuitry. The Driver Door Module (DDM) circuitry controls the output to the driver side front and rear door power window motors, and supplies electrical current as required for the stand-alone operation of the driver side rear door power window switch. The Passenger Door Module (PDM) circuitry controls the output to the passenger side front and rear door power window motors, and supplies electrical current as required for the stand-alone operation of the passenger side rear door power window switch.

When a DDM-integrated master power window switch for a passenger side window is actuated, or when the power window lockout switch is actuated to disable the passenger door power windows, the DDM circuitry sends a message to the PDM over the Programmable Communications Interface (PCI) data bus to control the output to that power window motor(s).

The power window switch for the driver side front door power window has two detent positions in the Down direction. The first detent provides normal power window down operation. If this switch is depressed to the second detent, the Auto Down circuitry of the DDM is activated. The Auto-Down circuitry will automatically move the driver side front door window to its fully lowered position, even if the power window switch is released. The Auto-Down

POWER WINDOW SWITCH (Continued)

event will be automatically cancelled and the window movement will be stopped if the DDM circuitry detects a second input from the driver side front door power window switch, in either direction.

Each power window switch, except the lockout switch, is illuminated by a Light-Emitting Diode (LED) when the ignition switch is turned to the On position. However, when the lockout switch is placed in the Lock position, the LED for the locked-out front and rear passenger door power window switches is turned off.

See the owner's manual in the vehicle glove box for more information on the features, use and operation of the power window switches.

DIAGNOSIS AND TESTING - POWER WINDOW SWITCH

The diagnosis found here applies only to the rear door power window switches. If the problem being diagnosed is an inoperative power window switch illumination lamp, but the power window switch operates as designed, replace the faulty rear door power window switch **(verify the power lockout switch is not actuated)**. For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the power window switch from the rear door trim panel. (Refer to 8 - ELECTRICAL/ POWER WINDOWS/POWER WINDOW SWITCH - REMOVAL).

(3) Check the rear door power window switch continuity as shown in the Rear Door Power Window Switch Continuity chart (Fig. 1). If OK, (Refer to 8 - ELECTRICAL/POWER WINDOWS/WINDOW MOTOR - DIAGNOSIS AND TESTING). If not OK, replace the faulty rear door power window switch.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the trim panel from the rear door. (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - REMOVAL) for the procedures.

(3) Using a trim stick or another suitable wide flat-bladed tool, gently pry the sides of the switch receptacle on the back of the rear door trim panel away from the perimeter of the power window switch to release the switch from the receptacle (Fig. 2).

(4) Remove the power window switch from the rear door trim panel switch receptacle.

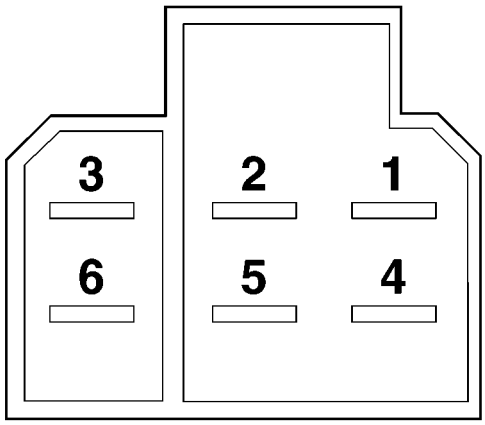


Fig. 1 Rear Door Power Window Switch Continuity

SWITCH POSITION	CONTINUITY BETWEEN
LED	3 AND 6
OFF	1 AND 2
OFF	4 AND 5
FORWARD	1 AND 2
FORWARD	5 AND 6
REARWARD	2 AND 6
REARWARD	4 AND 5

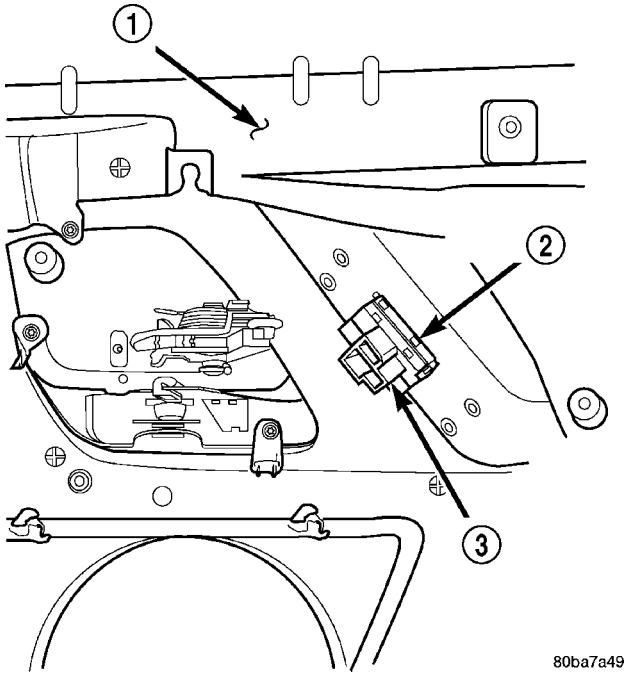


Fig. 2 Rear Door Power Window Switch Remove/ Install

1 - REAR DOOR TRIM PANEL
2 - TRIM PANEL RECEPTACLE
3 - POWER WINDOW SWITCH

POWER WINDOW SWITCH (Continued)

INSTALLATION

(1) Position the power window switch to the rear door trim panel switch receptacle.

(2) Press firmly and evenly on the back of the power window switch until it snaps into rear door trim panel switch receptacle.

(3) Install the trim panel onto the rear door. (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - INSTALLATION) for the procedures.

(4) Reconnect the battery negative cable.

WINDOW MOTOR

DESCRIPTION

Power operated front and rear door windows are standard equipment on this model. Each door has a permanent magnet reversible electric motor with an integral right angle gearbox mechanism that operates the window regulator. In addition, each power window motor is equipped with an integral self-resetting circuit breaker to protect the motor from overloads.

The power window motor gearbox housing is secured to the window regulator drum housing with screws. The window regulators used in all four doors are single vertical post cable-and-drum type. A molded plastic slider guided by the post is driven by the regulator cables. The slider raises and lowers the window glass through a steel lift plate attachment. Front and rear glass channels within each door guide and stabilize each end of the glass.

The power window motor and gearbox assembly cannot be repaired and, if faulty or damaged, the entire power window motor and gearbox unit must be replaced. The window regulators are available for service. (Refer to 23 - BODY/DOOR - FRONT/WINDOW REGULATOR - REMOVAL) or (Refer to 23 - BODY/DOORS - REAR/WINDOW REGULATOR - REMOVAL) for the regulator service procedures.

OPERATION

A positive and negative battery connection to the two motor terminals will cause the power window motor to rotate in one direction. Reversing the current through these same two connections will cause the motor to rotate in the opposite direction.

When the power window motor operates, it rotates the regulator cable drum through its gearbox. The window regulator cable drum is connected through two cables to the plastic slider on the vertical post. As the cable drum rotates, it lets cable out on one side of the drum, and takes cable in on the other side of the drum. The changes in cable length move the slider up or down the vertical post, raising or lowering the window glass.

If the window regulator or window glass bind, encounter obstructions, or reach their travel limits it overloads the power window motor. The overloading condition causes the power window motor self-resetting circuit breaker to open, which stops the motor from running.

DIAGNOSIS AND TESTING - WINDOW MOTOR

Before you proceed with this diagnosis, confirm proper switch operation. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/DRIVER DOOR MODULE - OPERATION) or (Refer to 8 - ELECTRICAL/POWER WINDOWS/POWER WINDOW SWITCH - OPERATION). For complete circuit diagrams, refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

(1) Remove the trim panel from the door with the inoperative power window. (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL) or (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - REMOVAL) for the procedures.

(2) Disconnect the door wire harness connector from the power window motor wire harness connector. Apply battery current to one cavity of the power window motor wire harness connector, and apply ground to the other cavity of the connector. The power window motor should operate in one direction. Remember, if the window is in the full up or full down position, the motor will not operate in that direction by design. If OK, go to Step 3. If not OK, replace the faulty power window motor.

(3) Reverse the battery and ground connections to the two cavities of the power window motor wire harness connector. The power window motor should now operate in the other direction. Remember, if the window is in the full up or full down position, the motor will not operate in that direction by design. If OK, go to Step 4. If not OK, replace the faulty power window motor.

(4) If the power window motor operates in both directions, check the operation of the window glass and regulator mechanism through its complete up and down travel. There should be no binding or sticking of the window glass or regulator mechanism through the entire travel range. If not OK, (Refer to 23 - BODY/DOOR - FRONT/WINDOW REGULATOR - REMOVAL) or (Refer to 23 - BODY/DOORS - REAR/WINDOW REGULATOR - REMOVAL) to check for proper installation or damage of the window glass mounting and operating hardware.

WINDOW MOTOR (Continued)

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the window regulator from the door. (Refer to 23 - BODY/DOOR - FRONT/WINDOW REGULATOR - REMOVAL) or (Refer to 23 - BODY/DOORS - REAR/WINDOW REGULATOR - REMOVAL) for the procedures.

(3) Place the window regulator on a suitable work surface and remove the screws that secure the power window motor to the window regulator.

(4) Remove the power window motor from the window regulator.

INSTALLATION

(1) Position the power window motor onto the window regulator.

(2) Install and tighten the screws that secure the power window motor to the window regulator. Tighten the screws to 9 N·m (80 in. lbs.).

(3) Install the window regulator onto the door. (Refer to 23 - BODY/DOOR - FRONT/WINDOW REGULATOR - INSTALLATION) or(Refer to 23 - BODY/DOORS - REAR/WINDOW REGULATOR - INSTALLATION) for the procedures.

(4) Reconnect the battery negative cable.

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RESTRAINTS

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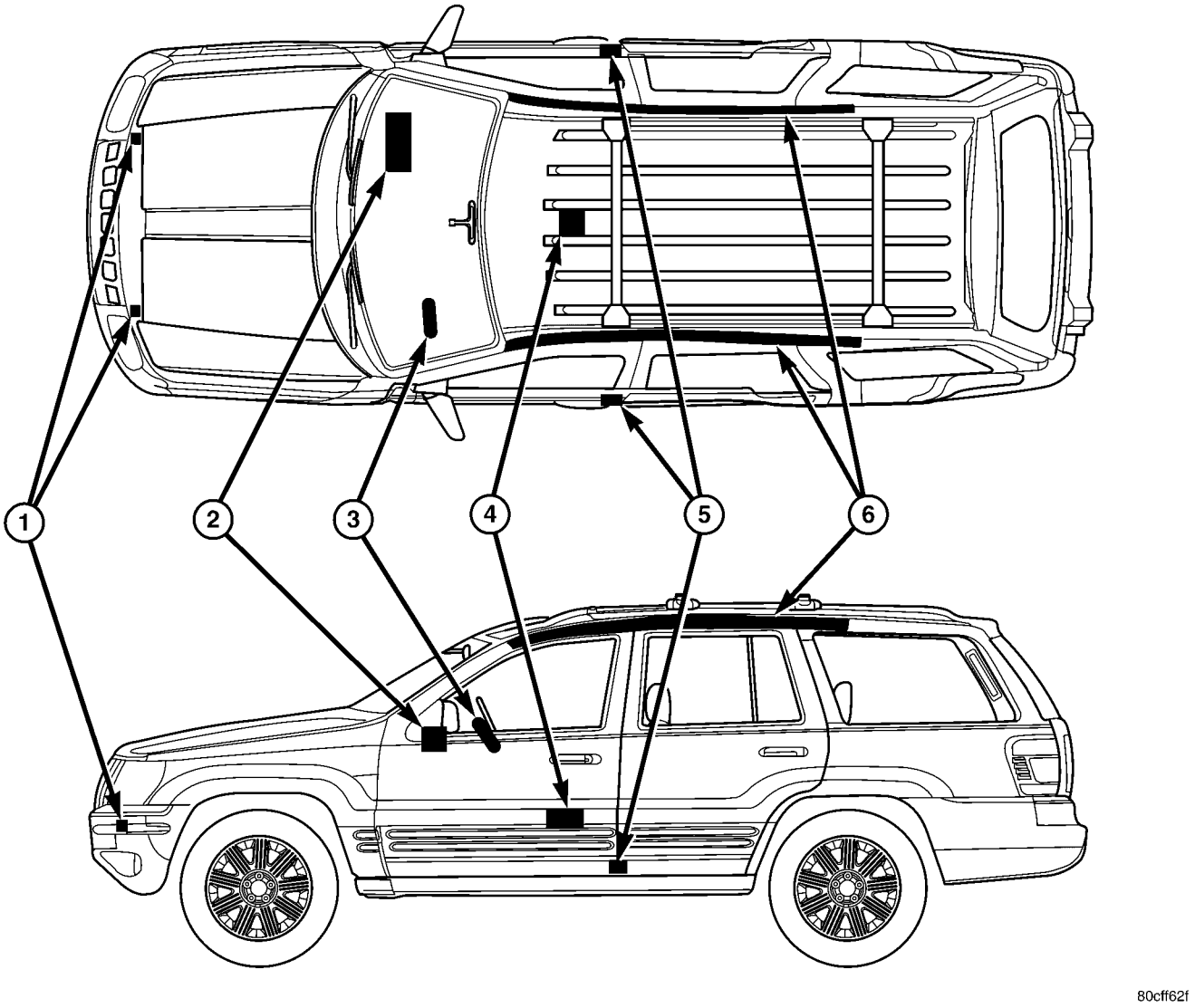


Fig. 1 Supplemental Restraints

1 - FRONT IMPACT SENSOR (2)
2 - PASSENGER AIRBAG
3 - DRIVER AIRBAG
4 - AIRBAG CONTROL MODULE
5 - SIDE IMPACT SENSOR (2)
6 - SIDE CURTAIN AIRBAG (2)

An occupant restraint system is standard factory-installed safety equipment on this model. Available occupant restraints for this model include both active and passive types. Active restraints are those which require the vehicle occupants to take some action to employ, such as fastening a seat belt; while passive restraints require no action by the vehicle occupants to be employed (Fig. 1).

ACTIVE RESTRAINTS

The active restraints for this model include:

- **Front Seat Belts** - Both front seating positions are equipped with three-point seat belt systems employing a lower B-pillar mounted inertia latch-type retractor, height-adjustable upper B-pillar mounted turning loops, a fixed lower seat belt anchor secured to the lower B-pillar, and a fixed end-release seat belt buckle secured to the side of the floor panel

RESTRAINTS (Continued)

transmission tunnel of vehicles manufactured for sale in North America, or a traveling end-release buckle secured to the inboard side of the seat cushion frame of vehicles manufactured for sale outside of North America. The driver side front seat belt buckle includes an integral Hall-effect seat belt switch that detects whether the driver side front seat belt has been fastened.

- **Rear Seat Belts** - Both outboard rear seating positions are equipped with three-point seat belt systems. The outboard seating position belts employ a lower C-pillar mounted inertia latch-type retractor, a fixed position upper C-pillar mounted turning loop, and a fixed lower seat belt anchor secured to the floor panel. The rear seat center seating position of vehicles manufactured for sale in North America has a lap belt that is anchored to the rear floor panel with the right outboard seat belt buckle. Vehicles manufactured for sale outside of North America are equipped with a three-point seat belt in the rear seat center seating position. This seat belt has an inertia latch-type retractor that is integral to the rear seat back panel, and a cable from the seat back latch locks the center belt retractor spool unless the seat back is fully latched. The rear seat center seating position belt lower anchor is secured to the rear floor panel with the right outboard seat belt buckle. All three rear seat belts have fixed end-release seat belt buckles secured to the rear floor panel, a single buckle unit on the right side and a double buckle unit on the left side.
- **Child Restraint Anchors** - Vehicles manufactured for sale in North America are equipped with two, fixed-position, child seat upper tether anchors located on the inner liftgate opening header. Vehicles manufactured for sale outside of North America are equipped with three, fixed-position, child seat upper tether anchors. Two anchors are integral to the back of the right rear seat back panel, and one is integral to the left rear seat back panel. Two lower anchors are also provided for each rear outboard seating position on all vehicles manufactured for North America. The lower anchors are integral to the lower edge of the rear seat back panels and are accessed from the front of the rear seat where the seat back meets the seat cushion.

PASSIVE RESTRAINTS

The passive restraints available for this model include the following:

- **Dual Front Airbags** - Multistage driver and front passenger airbags are available for this model. This airbag system is a passive, inflatable, Supplemental Restraint System (SRS) and vehicles with this equipment can be readily identified by the "SRS - AIRBAG" logo molded into the driver airbag trim cover in the center of the steering wheel and also into the passenger airbag door area of the instrument panel top pad above the glove box (Fig. 2). Vehicles with the airbag system can also be identified by the airbag indicator, which will illuminate in the instrument cluster for about seven seconds as a bulb test each time the ignition switch is turned to the On position.
- **Side Curtain Airbags** - Optional side curtain airbags are available for this model when it is also equipped with dual front airbags. This airbag system is a passive, inflatable, Supplemental Restraint System (SRS) and vehicles with this equipment can be readily identified by a molded identification trim button with the "SRS - AIRBAG" logo located on the headliner above each B-pillar (Fig. 2).



8098029e

Fig. 2 SRS Logo

The supplemental restraint system includes the following major components, which are described in further detail elsewhere in this service information:

- **Airbag Control Module** - The Airbag Control Module (ACM) is also sometimes referred to as the Occupant Restraint Controller (ORC). The ACM is located on a mount on the floor panel transmission tunnel near the park brake release mechanism, under the center floor console.
- **Airbag Indicator** - The airbag indicator is integral to the ElectroMechanical Instrument Cluster (EMIC), which is located on the instrument panel in front of the driver.
- **Clockspring** - The clockspring is located near the top of the steering column, directly beneath the steering wheel.
- **Driver Airbag** - The driver airbag is located in the center of the steering wheel, beneath the driver airbag trim cover.
- **Driver Knee Blocker** - The driver knee blocker is a structural unit secured to the back side of and integral to the instrument panel steering column opening cover.

RESTRAINTS (Continued)

- **Front Impact Sensor** - Two front impact sensors are used on vehicles equipped with dual front airbags, one left side and one right side. One sensor is located on a bracket on the lower inboard side of each vertical member of the radiator support.
- **Passenger Airbag** - The passenger airbag is located on the instrument panel, beneath the instrument panel top pad and above the glove box on the passenger side of the vehicle.
- **Passenger Knee Blocker** - The passenger knee blocker is a structural reinforcement that is integral to and concealed within the glove box door.
- **Side Impact Sensor** - Two side impact sensors are used on vehicles equipped with the optional side curtain airbags, one left side and one right side. One sensor is located behind the B-pillar trim near the base of each B-pillar.
- **Side Curtain Airbag** - In vehicles equipped with this option, a side curtain airbag is located on each inside roof side rail above the headliner, and extends from the A-pillar to just beyond the C-pillar.

The ACM and the EMIC each contain a central processing unit and programming that allow them to communicate with each other using the Programmable Communications Interface (PCI) data bus network. This method of communication is used by the ACM for control of the airbag indicator on all models equipped with dual front airbags. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/ COMMUNICATION - DESCRIPTION).

Hard wired circuitry connects the supplemental restraint system components to each other through the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system, and to the supplemental restraint system components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

OPERATION

ACTIVE RESTRAINTS

The primary passenger restraints in this or any other vehicle are the standard equipment factory-installed seat belts and child restraint anchors. Seat belts and child restraint anchors are referred to as an active restraint because the vehicle occupants are required to physically fasten and properly adjust these restraints in order to benefit from them. See the owner's manual in the vehicle glove box for more information on the features, use and operation of all of the factory-installed active restraints.

PASSIVE RESTRAINTS

The passive restraints are referred to as a supplemental restraint system because they were designed and are intended to enhance the protection for the occupants of the vehicle **only** when used in conjunction with the seat belts. They are referred to as passive restraints because the vehicle occupants are not required to do anything to make them operate; however, the vehicle occupants must be wearing their seat belts in order to obtain the maximum safety benefit from the factory-installed supplemental restraint system.

The supplemental restraint system electrical circuits are continuously monitored and controlled by a microprocessor and software contained within the Airbag Control Module (ACM). An airbag indicator in the ElectroMechanical Instrument Cluster (EMIC) illuminates for about seven seconds as a bulb test each time the ignition switch is turned to the On or Start positions. Following the bulb test, the airbag indicator is turned on or off by the ACM to indicate the status of the supplemental restraint system. If the airbag indicator comes on at any time other than during the bulb test, it indicates that there is a problem in the supplemental restraint system electrical circuits. Such a problem may cause airbags not to deploy when required, or to deploy when not required.

Deployment of the supplemental restraints depends upon the angle and severity of an impact. Deployment is not based upon vehicle speed; rather, deployment is based upon the rate of deceleration as measured by the forces of gravity (G force) upon the impact sensors. When an impact is severe enough, the microprocessor in the ACM signals the inflator of the airbag units to deploy their airbag cushions. During a frontal vehicle impact, the knee blockers work in concert with properly fastened and adjusted seat belts to restrain both the driver and the front seat passenger in the proper position for an airbag deployment. The knee blockers also absorb and distribute the crash energy from the driver and the front seat passenger to the structure of the instrument panel.

Typically, the vehicle occupants recall more about the events preceding and following a collision than they do of an airbag deployment itself. This is because the airbag deployment and deflation occur so rapidly. In a typical 48 kilometer-per-hour (30 mile-per-hour) barrier impact, from the moment of impact until the airbags are fully inflated takes about 40

RESTRAINTS (Continued)

milliseconds. Within one to two seconds from the moment of impact, the airbags are almost entirely deflated. The times cited for these events are approximations, which apply only to a barrier impact at the given speed. Actual times will vary somewhat, depending upon the vehicle speed, impact angle, severity of the impact, and the type of collision.

When the ACM monitors a problem in any of the airbag system circuits or components, it stores a fault code or Diagnostic Trouble Code (DTC) in its memory circuit and sends an electronic message to the EMIC to turn on the airbag indicator. Proper testing of the airbag system components, the Programmable Communications Interface (PCI) data bus, the electronic message inputs to and outputs from the EMIC or the ACM, as well as the retrieval or erasure of a DTC from the ACM or EMIC requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

See the owner's manual in the vehicle glove box for more information on the features, use and operation of all of the factory-installed passive restraints.

WARNING

WARNINGS - RESTRAINT SYSTEM

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: AN AIRBAG INFLATOR UNIT MAY CONTAIN SODIUM AZIDE AND POTASSIUM NITRATE. THESE MATERIALS ARE POISONOUS AND EXTREMELY FLAMMABLE. CONTACT WITH ACID, WATER, OR HEAVY METALS MAY PRODUCE HARMFUL AND IRRITATING GASES (SODIUM HYDROXIDE IS FORMED IN THE PRESENCE OF MOISTURE) OR COMBUSTIBLE COMPOUNDS. AN AIRBAG INFLATOR UNIT MAY ALSO CONTAIN A GAS CANISTER PRESSURIZED TO OVER 2500 PSI. DO NOT ATTEMPT TO DISMANTLE AN AIRBAG UNIT OR TAMPER WITH ITS INFLATOR. DO NOT PUNCTURE, INCINERATE, OR BRING INTO CONTACT WITH ELECTRICITY. DO NOT STORE AT TEMPERATURES EXCEEDING 93° C (200° F).

WARNING: REPLACE ALL RESTRAINT SYSTEM COMPONENTS ONLY WITH PARTS SPECIFIED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG. SUBSTITUTE PARTS MAY APPEAR INTERCHANGEABLE, BUT INTERNAL DIFFERENCES MAY RESULT IN INFERIOR OCCUPANT PROTECTION.

WARNING: THE FASTENERS, SCREWS, AND BOLTS ORIGINALLY USED FOR THE RESTRAINT SYSTEM COMPONENTS HAVE SPECIAL COATINGS AND ARE SPECIFICALLY DESIGNED FOR THE RESTRAINT SYSTEM. THEY MUST NEVER BE REPLACED WITH ANY SUBSTITUTES. ANY TIME A NEW FASTENER IS NEEDED, REPLACE IT WITH THE CORRECT FASTENERS PROVIDED IN THE SERVICE PACKAGE OR SPECIFIED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

WARNING: WHEN A STEERING COLUMN HAS AN AIRBAG UNIT ATTACHED, NEVER PLACE THE COLUMN ON THE FLOOR OR ANY OTHER SURFACE WITH THE STEERING WHEEL OR AIRBAG UNIT FACE DOWN.

RESTRAINTS (Continued)

DIAGNOSIS AND TESTING - SUPPLEMENTAL RESTRAINT SYSTEM

Proper diagnosis and testing of the supplemental restraint system components, the Programmable Communications Interface (PCI) data bus, the data bus electronic message inputs to and outputs from the ElectroMechanical Instrument Cluster (EMIC) or the Airbag Control Module (ACM), as well as the retrieval or erasure of a Diagnostic Trouble Code (DTC) from the ACM requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

STANDARD PROCEDURE

STANDARD PROCEDURE - HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS

At no time should any source of electricity be permitted near the inflator on the back of a non-deployed airbag. When carrying a non-deployed airbag, the trim cover or airbag cushion side of the unit should be pointed away from the body to minimize injury in the event of an accidental deployment. If the airbag unit is placed on a bench or any other surface, the trim cover or airbag cushion side of the unit should be face up to minimize movement in the event of an accidental deployment. In addition, the supplemental restraint system should be disarmed whenever any steering wheel, steering column, driver airbag, passenger airbag, front impact sensor, side impact sensor, side curtain airbag, or instrument panel components require diagnosis or service. Failure to observe this warning could result in accidental airbag deployment and possible personal injury.

All damaged, faulty or non-deployed airbags which are replaced on vehicles are to be handled and disposed of properly. If an airbag unit is faulty or damaged and non-deployed, refer to the Hazardous Substance Control System for proper disposal. Dispose of all non-deployed and deployed airbags in a manner consistent with state, provincial, local and federal regulations.

SUPPLEMENTAL RESTRAINT STORAGE

Airbags must be stored in their original, special container until they are used for service. Also, they must be stored in a clean, dry environment; away from sources of extreme heat, sparks, and high electrical energy. Always place or store any airbag on a surface with its trim cover or airbag cushion side facing up, to minimize movement in case of an accidental deployment.

STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT

Any vehicle which is to be returned to use following a supplemental restraint deployment, must have the deployed restraints replaced. In addition, if the driver airbag has been deployed, the clockspring must be replaced. If the passenger airbag is deployed, the instrument panel top pad must be replaced. If a side curtain airbag has been deployed, the complete airbag unit, the headliner, as well as the upper A, B, C and D-pillar trim must be replaced. These components are not intended for reuse and will be damaged or weakened as a result of a supplemental restraint deployment, which may or may not be obvious during a visual inspection.

The passenger airbag mounting points on the instrument panel structural duct must be closely inspected for damage, and the instrument panel assembly replaced if structural duct damage is evident. On vehicles with an optional sunroof, the sunroof drain tubes and hoses must be closely inspected following a side curtain airbag deployment. It is also critical that the mounting surfaces and/or mounting brackets for the Airbag Control Module (ACM) and the front and side impact sensors be closely inspected and restored to their original conditions following any vehicle impact damage. Because the ACM and each impact sensor are used by the supplemental restraint system to monitor or confirm the direction and severity of a vehicle impact, improper orientation or insecure fastening of these components may cause airbags not to deploy when required, or to deploy when not required.

All other vehicle components should be closely inspected following any supplemental restraint deployment, but are to be replaced only as required by the extent of the visible damage incurred.

RESTRAINTS (Continued)

AIRBAG SQUIB STATUS

Multistage airbags with multiple initiators (squibs) must be checked to determine that all squibs were used during the deployment event. The driver and passenger airbags in this model are deployed by electrical signals generated by the Airbag Control Module (ACM) through the driver or passenger squib 1 and squib 2 circuits to the two initiators in the airbag inflators. Typically, both initiators are used and all potentially hazardous chemicals are burned during an airbag deployment event. However, it is possible for only one initiator to be used due to an airbag system fault; therefore, it is always necessary to confirm that both initiators have been used in order to avoid the improper handling or disposal of potentially live pyrotechnic or hazardous materials. The following procedure should be performed using a DRBIII® scan tool to verify the status of both airbag squibs before either deployed airbag is removed from the vehicle for disposal.

CAUTION: Deployed front airbags having two initiators (squibs) in the airbag inflator may or may not have live pyrotechnic material within the inflator. Do not dispose of these airbags unless you are sure of complete deployment. Refer to the Hazardous Substance Control System for proper disposal procedures. Dispose of all non-deployed and deployed airbags in a manner consistent with state, provincial, local, and federal regulations.

(1) Be certain that the DRBIII® scan tool contains the latest version of the proper DRBIII® software. Connect the DRBIII® to the 16-way Data Link Connector (DLC). The DLC is located on the driver side lower edge of the instrument panel, outboard of the steering column.

(2) Turn the ignition switch to the On position.

(3) Using the DRBIII®, read and record the active (current) Diagnostic Trouble Code (DTC) data.

Using the active DTC information, refer to the **Airbag Squib Status** table to determine the status of both driver and/or passenger airbag squibs.

AIRBAG SQUIB STATUS

IF the Active DTC is:	Conditions	Squib Status
Driver or Passenger Squib 1 open Driver or Passenger Squib 2 open	**AND** the stored DTC minutes for both Driver or Passenger squibs are within 15 minutes of each other	Both Squib 1 and 2 were used.
Driver or Passenger Squib 1 open Driver or Passenger Squib 2 open	**AND** the stored DTC minutes for Driver or Passenger Squib 2 open is GREATER than the stored DTC minutes for Driver or Passenger Squib 1 by 15 minutes or more	Squib 1 was used; Squib 2 is live.
Driver or Passenger Squib 1 open Driver or Passenger Squib 2 open	**AND** the stored DTC minutes for Driver or Passenger Squib 1 open is GREATER than the stored DTC minutes for Driver or Passenger Squib 2 by 15 minutes or more	Squib 1 is live; Squib 2 was used.
Driver or Passenger Squib 1 open	**AND** Driver or Passenger Squib 2 open is NOT an active code	Squib 1 was used; Squib 2 is live.
Driver or Passenger Squib 2 open	**AND** Driver or Passenger Squib 1 open is NOT an active code	Squib 1 is live; Squib 2 was used.

If none of the Driver or Passenger Squib 1 or 2 open are active codes, the status of the airbag squibs is unknown. In this case the airbag should be handled and disposed of as if the squibs were both live.

CLEANUP PROCEDURE

Following a supplemental restraint deployment, the vehicle interior will contain a powdery residue. This residue consists primarily of harmless particulate by-products of the small pyrotechnic charge that initiates the propellant used to deploy a supplemental restraint. However, this residue may also contain traces of sodium hydroxide powder, a chemical by-product of the propellant material that is used to generate the inert gas that inflates the airbag. Since sodium hydroxide powder can irritate the skin, eyes, nose, or throat, be sure to wear safety glasses, rubber gloves, and a long-sleeved shirt during cleanup (Fig. 3).

RESTRAINTS (Continued)

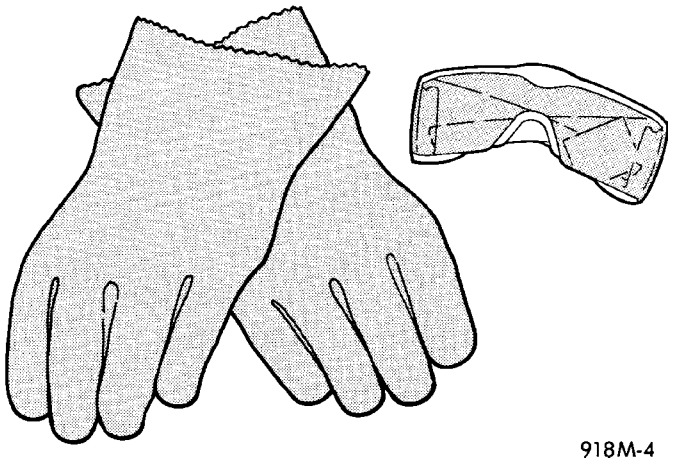


Fig. 3 Wear Safety Glasses and Rubber Gloves - Typical

WARNING: IF YOU EXPERIENCE SKIN IRRITATION DURING CLEANUP, RUN COOL WATER OVER THE AFFECTED AREA. ALSO, IF YOU EXPERIENCE IRRITATION OF THE NOSE OR THROAT, EXIT THE VEHICLE FOR FRESH AIR UNTIL THE IRRITATION CEASES. IF IRRITATION CONTINUES, SEE A PHYSICIAN.

(1) Begin the cleanup by using a vacuum cleaner to remove any residual powder from the vehicle interior. Clean from outside the vehicle and work your way inside, so that you avoid kneeling or sitting on a non-cleaned area.

(2) Be certain to vacuum the heater and air conditioning outlets as well (Fig. 4). Run the heater and air conditioner blower on the lowest speed setting and vacuum any powder expelled from the outlets.

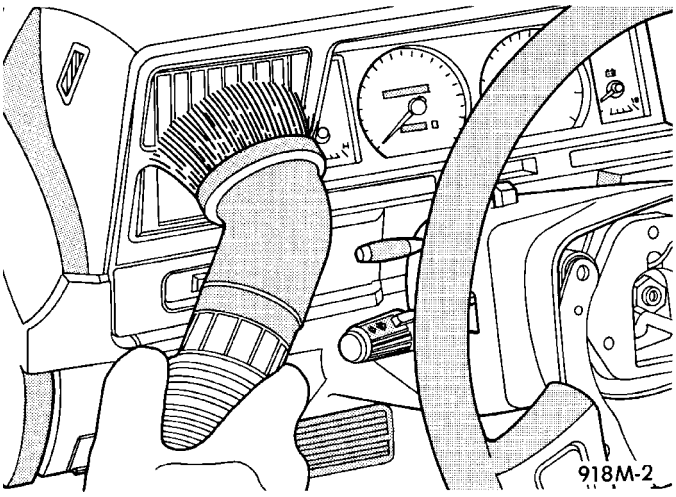


Fig. 4 Vacuum Heater and A/C Outlets - Typical

CAUTION: Deployed front airbags having two initiators (squibs) in the airbag inflator may or may not have live pyrotechnic material within the inflator. Do not dispose of these airbags unless you are sure of complete deployment. Refer to AIRBAG SQUIB STATUS . All damaged, faulty, or non-deployed supplemental restraints which are replaced on vehicles are to be handled and disposed of properly. If an airbag unit is faulty or damaged and non-deployed, refer to the Hazardous Substance Control System for proper disposal. Be certain to dispose of all non-deployed and deployed supplemental restraints in a manner consistent with state, provincial, local and federal regulations.

(3) Next, remove the deployed supplemental restraints from the vehicle. Refer to the appropriate service removal procedures.

(4) You may need to vacuum the interior of the vehicle a second time to recover all of the powder.

STANDARD PROCEDURE - VERIFICATION TEST

The following procedure should be performed using a DRBIII® scan tool to verify proper supplemental restraint system operation following the service or replacement of any supplemental restraint system component.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) During the following test, the battery negative cable remains disconnected and isolated, as it was during the supplemental restraint system component removal and installation procedures.

(2) Be certain that the DRBIII® scan tool contains the latest version of the proper DRBIII® software. Connect the DRBIII® to the 16-way Data Link Connector (DLC). The DLC is located on the driver side lower edge of the instrument panel, outboard of the steering column (Fig. 5).

(3) Turn the ignition switch to the On position and exit the vehicle with the DRBIII® scan tool.

(4) Check to be certain that nobody is in the vehicle, then reconnect the battery negative cable.

(5) Using the DRBIII®, read and record the active (current) Diagnostic Trouble Code (DTC) data.

RESTRAINTS (Continued)

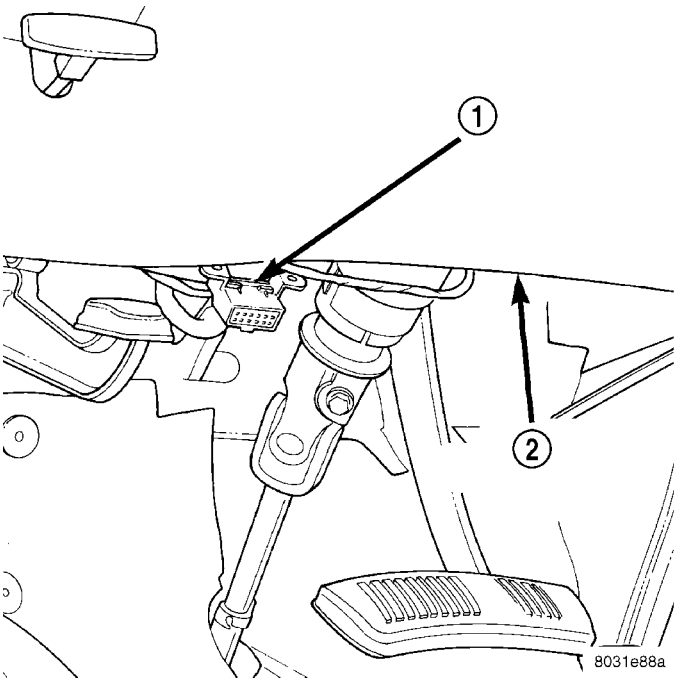


Fig. 5 16-Way Data Link Connector - Typical

1 - 16–WAY DATA LINK CONNECTOR
2 - BOTTOM OF INSTRUMENT PANEL

(6) Next, use the DRBIII® to read and record any stored (historical) DTC data.

(7) If any DTC is found in Step 5 or Step 6, refer to the appropriate diagnostic information.

(8) Use the DRBIII® to erase the stored DTC data. If any problems remain, the stored DTC data will not erase. Refer to the appropriate diagnostic information to diagnose any stored DTC that will not erase. If the stored DTC information is successfully erased, go to Step 9.

(9) Turn the ignition switch to the Off position for about fifteen seconds, and then back to the On position. Observe the airbag indicator in the instrument cluster. It should light for six to eight seconds, and then go out. This indicates that the supplemental restraint system is functioning normally and that the repairs are complete. If the airbag indicator fails to light, or lights and stays on, there is still an active supplemental restraint system fault or malfunction. Refer to the appropriate diagnostic information to diagnose the problem.

AIRBAG CONTROL MODULE

DESCRIPTION

The Airbag Control Module (ACM) is also sometimes referred to as the Occupant Restraint Controller (ORC) (Fig. 6). The ACM is concealed beneath the center floor console, where it is secured by four screws to a stamped steel mounting bracket welded

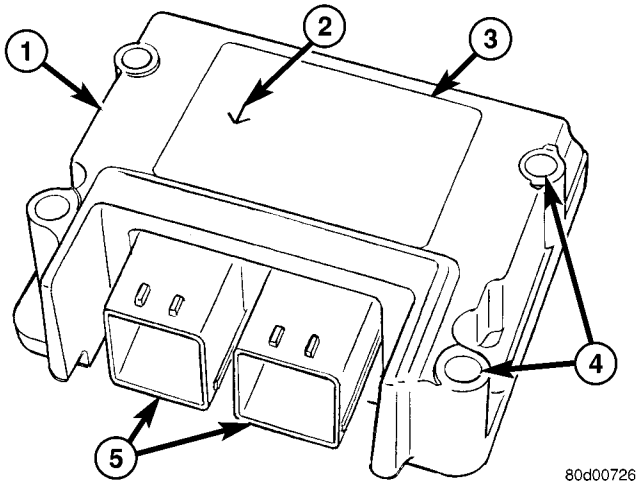


Fig. 6 OCCUPANT RESTRAINT CONTROLLER (ORC)

1 - AIRBAG CONTROL MODULE
2 - ORIENTATION ARROW
3 - LABEL
4 - MOUNTING HOLE (4)
5 - CONNECTOR RECEPTACLE (2)

onto the top of the floor panel transmission tunnel just forward of the park brake mechanism in the passenger compartment of the vehicle. Concealed within a hollow in the center of the die cast aluminum ACM housing is the electronic circuitry of the ACM which includes a microprocessor, an electronic impact sensor, an electronic safing sensor, and an energy storage capacitor. A stamped metal cover plate is secured to the bottom of the ACM housing with four screws to enclose and protect the internal electronic circuitry and components.

An arrow printed on the label on the top of the ACM housing provides a visual verification of the proper orientation of the unit, and should always be pointed toward the front of the vehicle. Two molded plastic electrical connector receptacles exit the forward side of the ACM housing. These two receptacles connect the ACM to the vehicle electrical system through a dedicated take out and connector of the instrument panel wire harness, and a dedicated take out and connector of the airbag overlay wire harness. For vehicles equipped with the optional side curtain airbags, both ACM connector receptacles are black in color and the ACM contains a second bi-directional safing sensor for the side airbags. For vehicles not equipped with the optional side curtain airbags, the ACM connector receptacles are both gray.

The impact sensor and safing sensor internal to the ACM are calibrated for the specific vehicle, and are only serviced as a unit with the ACM. The ACM cannot be repaired or adjusted and, if damaged or faulty, it must be replaced.

AIRBAG CONTROL MODULE (Continued)

OPERATION

The microprocessor in the Airbag Control Module (ACM) contains the supplemental restraint system logic circuits and controls all of the supplemental restraint system components. The ACM uses On-Board Diagnostics (OBD) and can communicate with other electronic modules in the vehicle as well as with the DRBIII® scan tool using the Programmable Communications Interface (PCI) data bus network. This method of communication is used for control of the airbag indicator in the ElectroMechanical Instrument Cluster (EMIC) and for supplemental restraint system diagnosis and testing through the 16-way data link connector located on the driver side lower edge of the instrument panel. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/COMMUNICATION - OPERATION).

The ACM microprocessor continuously monitors all of the supplemental restraint system electrical circuits to determine the system readiness. If the ACM detects a monitored system fault, it sets an active and stored Diagnostic Trouble Code (DTC) and sends electronic messages to the EMIC over the PCI data bus to turn on the airbag indicator. An active fault only remains for the duration of the fault or in some cases the duration of the current ignition switch cycle, while a stored fault causes a DTC to be stored in memory by the ACM. For some DTCs, if a fault does not recur for a number of ignition cycles, the ACM will automatically erase the stored DTC. For other internal faults, the stored DTC is latched forever.

The ACM also monitors a Hall effect-type seat belt switch located in the buckle of the driver side front seat belt to determine whether the seatbelt is buckled, and provides an input to the EMIC over the PCI data bus to control the seatbelt indicator operation based upon the status of the driver side front seat belt switch.

The ACM receives battery current through two circuits; a fused ignition switch output (run) circuit through a fuse in the Junction Block (JB), and a fused ignition switch output (start-run) circuit through a second fuse in the JB. The ACM is grounded through a ground circuit and take out of the instrument panel floor wire harness. This take out has a single eyelet terminal connector secured by a nut to a ground stud located behind the ACM mount on the floor panel transmission tunnel. These connections allow the ACM to be operational whenever the ignition switch is in the Start or On positions.

The ACM also contains an energy-storage capacitor. When the ignition switch is in the Start or On positions, this capacitor is continually being charged with enough electrical energy to deploy the airbags for up to one second following a battery disconnect or failure. The purpose of the capacitor is to provide backup supplemental restraint system protection in case there is a loss of battery current supply to the ACM during an impact.

Two sensors are contained within the ACM, an electronic impact sensor and a safing sensor. The ACM also monitors inputs from two remote front impact sensors located on brackets on the inboard sides of the right and left vertical members of the radiator support near the front of the vehicle. The electronic impact sensors are accelerometers that sense the rate of vehicle deceleration, which provide verification of the direction and severity of an impact. On models equipped with optional side curtain airbags, the ACM also monitors inputs from two remote side impact sensors located near the base of both the left and right inner B-pillars to control the deployment of the side curtain airbag units.

The safing sensor is an electronic accelerometer sensor within the ACM that provides an additional logic input to the ACM microprocessor. The safing sensor is used to verify the need for a supplemental restraint deployment by detecting impact energy of a lesser magnitude than that of the primary electronic impact sensors, and must exceed a safing threshold in order for the airbags to deploy. Vehicles with the optional side curtain airbags feature a second safing sensor within the ACM to provide confirmation to the ACM of side impact forces. This second safing sensor is a bi-directional unit that detects impact forces from either side of the vehicle.

Pre-programmed decision algorithms in the ACM microprocessor determine when the deceleration rate as signaled by the impact sensors and the safing sensors indicate an impact that is severe enough to require supplemental restraint system protection and, based upon the severity of the monitored impact, determines the level of front airbag deployment force required for each front seating position. When the programmed conditions are met, the ACM sends the proper electrical signals to deploy the dual multistage front airbags at the programmed force levels and, if the vehicle is so equipped, either side curtain airbag.

The hard wired inputs and outputs for the ACM may be diagnosed and tested using conventional diagnostic tools and procedures. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the ACM, the PCI data bus network, or the electronic message inputs to and outputs from the ACM. The most reliable, efficient, and accurate means to diagnose the ACM, the PCI data bus network, and the electronic message inputs to and outputs from the ACM requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

AIRBAG CONTROL MODULE (Continued)

REMOVAL

Two different Airbag Control Modules (ACM) are available for this vehicle. For vehicles equipped with the optional side curtain airbags, both ACM connector receptacles are black in color and the ACM contains a second bi-directional safing sensor for the side airbags. For vehicles not equipped with the optional side curtain airbags, the ACM connector receptacles are gray.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: THE AIRBAG CONTROL MODULE CONTAINS THE IMPACT SENSOR, WHICH ENABLES THE SYSTEM TO DEPLOY THE SUPPLEMENTAL RESTRAINTS. NEVER STRIKE OR DROP THE AIRBAG CONTROL MODULE, AS IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN AIRBAG CONTROL MODULE IS ACCIDENTALLY DROPPED DURING SERVICE, THE MODULE MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER SUPPLEMENTAL RESTRAINT DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

(1) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(2) Remove the center console from the top of the floor panel transmission tunnel. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).

(3) Remove the one or two nuts that secure the center console bracket to a stud or studs on the floor panel transmission tunnel just forward of the Airbag Control Module (ACM) (Fig. 7).

(4) Remove the center console bracket from the one or two studs on the floor panel transmission tunnel.

(5) Disconnect the airbag overlay wire harness connector for the ACM from the ACM connector receptacle (Fig. 8). To disconnect the airbag overlay wire harness connector from the ACM:

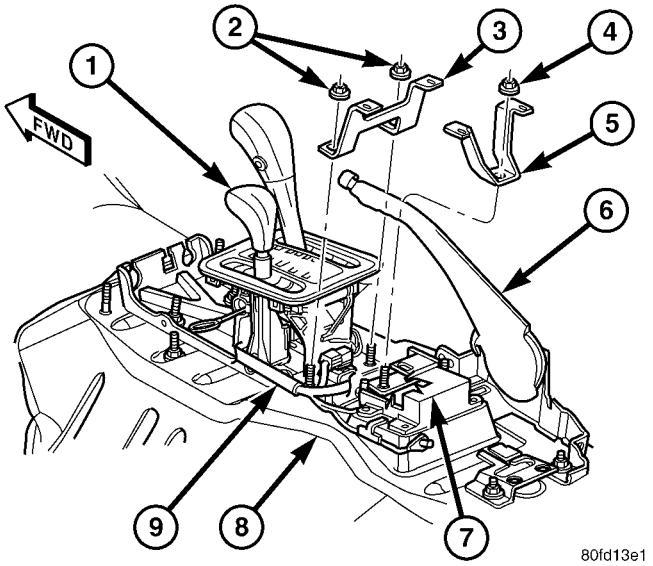


Fig. 7 Center Console Bracket Remove/Install

1 - SHIFTER
2 - NUT (2)
3 - BRACKET (EXPORT MARKET)
4 - NUT (1)
5 - BRACKET (DOMESTIC MARKET)
6 - PARK BRAKE LEVER
7 - AIRBAG CONTROL MODULE
8 - FLOOR PANEL TRANSMISSION TUNNEL
9 - INSTRUMENT PANEL WIRE HARNESS

(a) Slide the red Connector Position Assurance (CPA) lock on the top of the connector toward the front of the vehicle.

(b) Depress the forward edge of the CPA lock to release the connector latch tab and pull the connector straight away from the ACM connector receptacle.

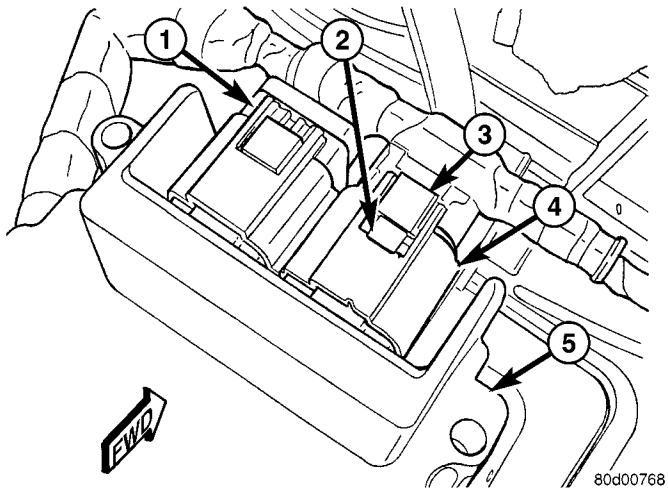


Fig. 8 Airbag Control Module Connector

1 - INSTRUMENT PANEL WIRE HARNESS CONNECTOR
2 - LATCH TAB
3 - CPA LOCK
4 - AIRBAG OVERLAY WIRE HARNESS CONNECTOR
5 - AIRBAG CONTROL MODULE

AIRBAG CONTROL MODULE (Continued)

(6) Disconnect the instrument panel wire harness connector for the ACM from the ACM connector receptacle.

(7) Remove the four screws that secure the ACM to the mount that is welded onto the top of the floor panel transmission tunnel (Fig. 9).

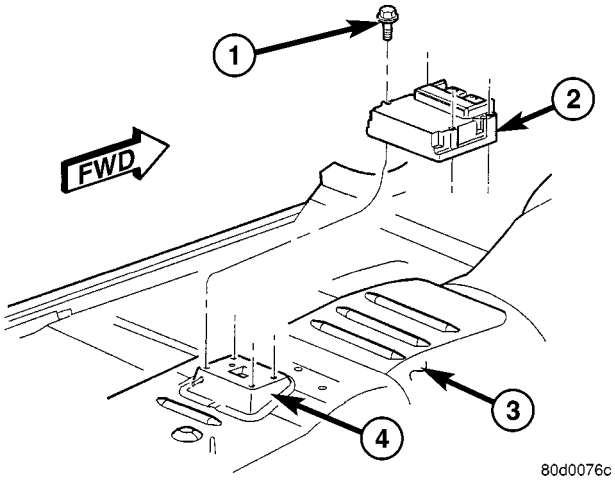


Fig. 9 Airbag Control Module Remove/Install

1 - SCREW (4)
2 - AIRBAG CONTROL MODULE
3 - FLOOR PANEL TRANSMISSION TUNNEL
4 - MOUNT

(8) Remove the ACM from the ACM mount on the top of the floor panel transmission tunnel.

INSTALLATION

Two different Airbag Control Modules (ACM) are available for this vehicle. For vehicles equipped with the optional side curtain airbags, both ACM connector receptacles are black in color and the ACM contains a second bi-directional safing sensor for the side airbags. For vehicles not equipped with the optional side curtain airbags, the ACM connector receptacles are gray.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: THE AIRBAG CONTROL MODULE CONTAINS THE IMPACT SENSOR, WHICH ENABLES THE SYSTEM TO DEPLOY THE SUPPLEMENTAL RESTRAINTS. NEVER STRIKE OR DROP THE AIRBAG CONTROL MODULE, AS IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN AIRBAG CONTROL MODULE IS ACCIDENTALLY DROPPED DURING SERVICE, THE MODULE MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER SUPPLEMENTAL RESTRAINT DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

(1) Carefully position the Airbag Control Module (ACM) to the mount that is welded onto the top of the floor panel transmission tunnel (Fig. 9). The bottom of the ACM housing is keyed. When the ACM is correctly positioned, the bottom of the housing will fit flush with the mount and the orientation arrow on the label on top of the housing will be pointed forward in the vehicle.

(2) Install and tighten the four screws that secure the ACM to the mount that is welded onto the top of the floor panel transmission tunnel. Tighten the screws to 11 N·m (95 in. lbs.).

(3) Reconnect the instrument panel wire harness connector for the ACM to the ACM connector receptacle. Be certain that the connector latch and the red CPA lock are fully engaged (Fig. 8).

(4) Reconnect the airbag overlay wire harness connector for the ACM to the ACM connector receptacle. Be certain that the connector latch and the red CPA lock are fully engaged.

(5) Reinstall the center console bracket onto the one or two studs on the floor panel transmission tunnel just forward of the ACM (Fig. 7).

(6) Install and tighten the nut or nuts that secure the center console bracket to the stud or studs on the floor panel transmission tunnel. Tighten the nuts to 28 N·m (21 ft. lbs.).

(7) Reinstall the center console onto the top of the floor panel transmission tunnel. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - INSTALLATION).

(8) Do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

CHILD RESTRAINT ANCHOR

DESCRIPTION

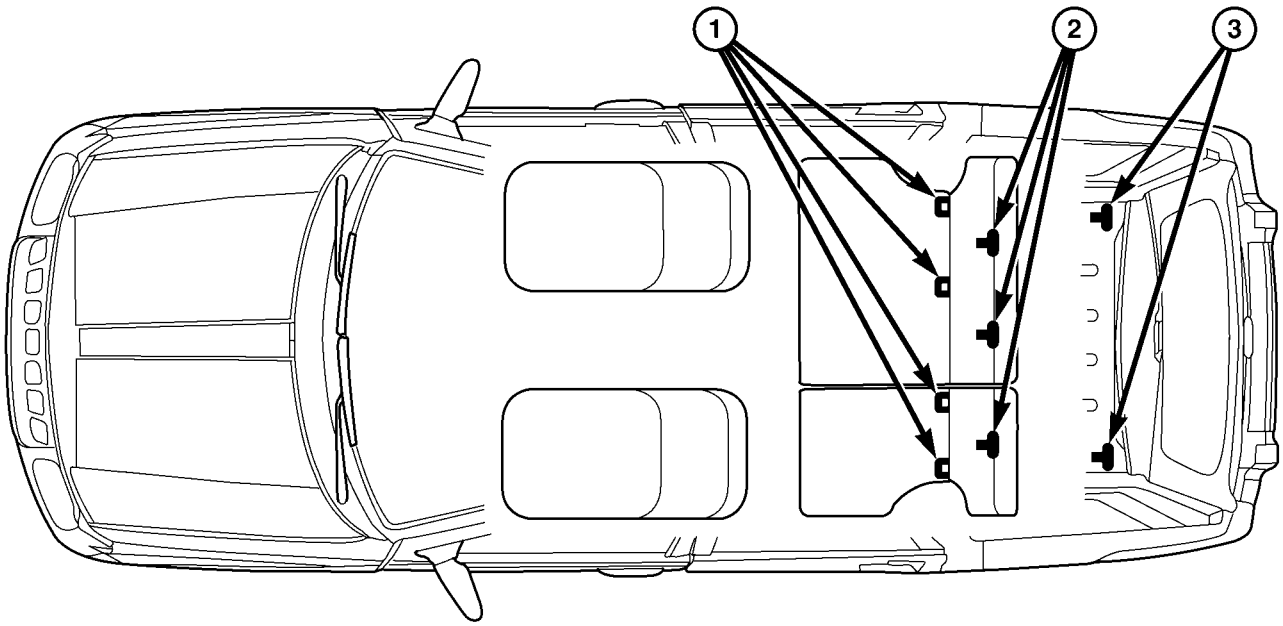


Fig. 10 Child Restraint Anchor Locations

1 - LOWER ANCHOR (PROVIDED FOR REAR OUTBOARD SEATING POSITIONS IN NORTH AMERICA ONLY)
2 - TETHER ANCHOR (3 LOCATIONS PROVIDED FOR REAR CENTER & OUTBOARD SEATING POSITIONS EXCEPT NORTH AMERICA)
3 - TETHER ANCHOR (2 LOCATIONS FOR REAR OUTBOARD SEATING POSITIONS IN NORTH AMERICA ONLY)

Vehicles manufactured for sale in the North American market are equipped with a Lower Anchors and Tether for CHildren, or LATCH child restraint anchorage system (Fig. 10). The LATCH system provides for the installation of suitable child restraints in certain seating positions without using the standard equipment seat belt provided for that seating position. The rear seat in these models are equipped with a fixed-position child restraint upper tether anchor and child restraint lower anchors for the two outboard seating positions only. Vehicles manufactured for sale outside of North America are equipped with a fixed-position child restraint upper tether anchor for both the center and the two outboard seating positions, but does not have the child restraint lower anchors.

Vehicles manufactured for sale in North America have two stamped steel upper tether anchor brackets, one secured with a screw to each outboard end of the inner liftgate opening header at the rear of the passenger compartment (Fig. 11). These child tether anchors are concealed behind a removable molded plastic cap that snaps into a bezel located in the headliner over each anchor bracket position. The North American child seat tether anchor brackets are available for individual service replacement.

Vehicles manufactured for sale in markets outside of North America have two upper tether anchors that are integral to the back of the right rear seat back panel, and one that is integral to the left rear seat back panel (Fig. 12). These anchors are each constructed from a short piece of round steel bar stock that is securely welded into a stamped cup integral

CHILD RESTRAINT ANCHOR (Continued)

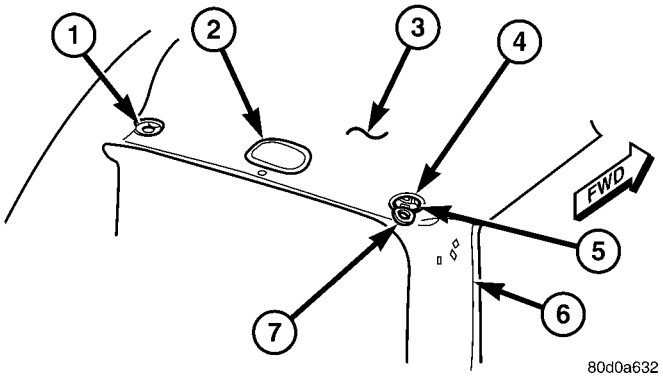


Fig. 11 Child Tether Anchors - North America

1 - CHILD TETHER ANCHOR (RIGHT)
2 - CARGO LAMP
3 - HEADLINER
4 - BEZEL
5 - CHILD TETHER ANCHOR BRACKET
6 - D-PILLAR
7 - CAP

to the seat back panel. There is a separate molded plastic trim bezel located around each of the three anchors. These child restraint upper tether anchors cannot be adjusted or repaired and, if faulty or damaged, they must be replaced as a unit with their respective rear seat back panels.

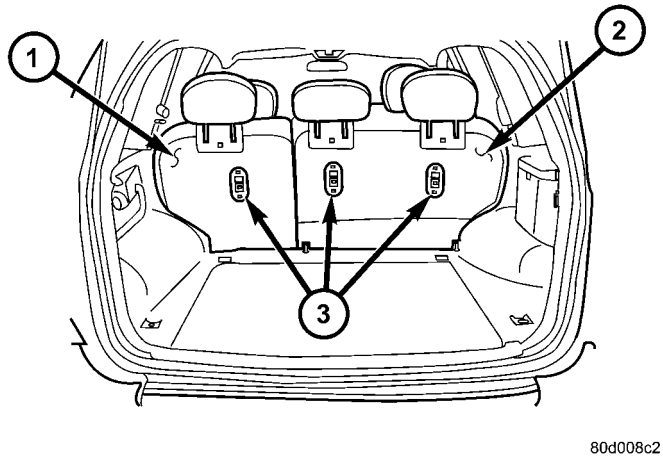


Fig. 12 Child Tether Anchors - except North America

1 - REAR SEAT BACK (LEFT)
2 - REAR SEAT BACK (RIGHT)
3 - CHILD TETHER ANCHOR (3)

Vehicles manufactured for sale in North America also have two lower anchors for each rear outboard seating position that are also integral to their respective rear seat back panel (Fig. 13). These anchors are constructed from round steel bar stock that is formed, then securely welded to the lower edge of the seat back panel. They are each accessed from the front of their respective seats, at each side where the seat back meets the seat cushion. These lower anchors cannot be adjusted or repaired and, if faulty or damaged, they must be replaced as a unit with their respective rear seat back panel.

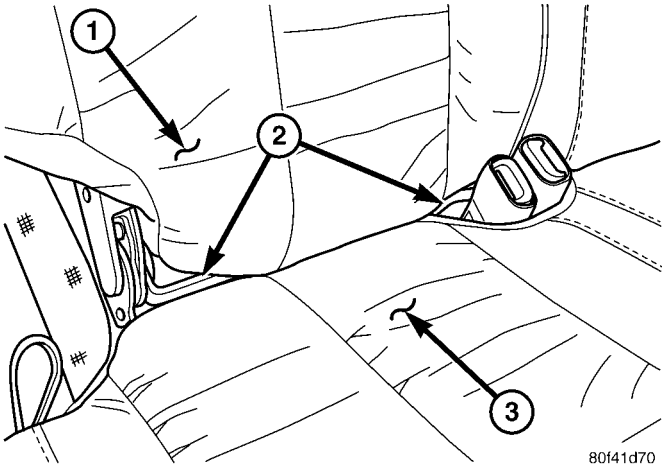


Fig. 13 Child Restraint Lower Anchors

1 - REAR SEAT BACK
2 - LOWER ANCHOR (2 PER OUTBOARD REAR SEATING POSITION)
3 - REAR SEAT CUSHION

OPERATION

See the owner's manual in the vehicle glove box for more information on the proper use of all of the factory-installed child restraint anchors.

REMOVAL

The following service procedure applies to vehicles manufactured for sale in North America, which have removable child restraint upper tether anchor brackets that are located on the inner liftgate opening header. Vehicles manufactured for sale in markets outside of North America have upper tether anchors that are integral to, and are only serviced with the rear seat back panels.

CHILD RESTRAINT ANCHOR (Continued)

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Remove the cover from the upper tether anchor bezel in the headliner near the liftgate opening header.

(2) Remove the screw that secures the upper tether anchor bracket to the inner liftgate opening header (Fig. 14).

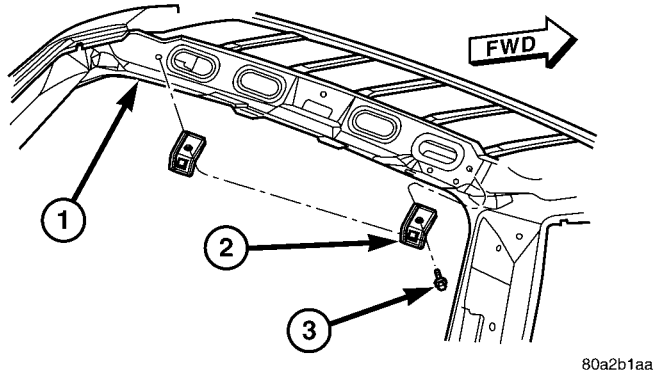


Fig. 14 Upper Tether Anchor Remove/Install

1 - INNER LIFTGATE OPENING HEADER
2 - UPPER TETHER ANCHOR BRACKET
3 - SCREW

(3) Remove the upper tether anchor bracket from the inner liftgate opening header.

INSTALLATION

The following service procedure applies to vehicles manufactured for sale in North America, which have removable child restraint upper tether anchor brackets that are located on the inner liftgate opening header. Vehicles manufactured for sale in markets outside of North America have upper tether anchors that are integral to, and are only serviced with the rear seat back panels.

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Position the upper tether anchor bracket onto the inner liftgate opening header (Fig. 14).

(2) Install and tighten the screw that secures the upper tether anchor bracket to the inner liftgate opening header. Tighten the screw to 12 N·m (105 in. lbs.).

(3) Reinstall the cover into the upper tether anchor bezel in the headliner near the liftgate opening header.

CLOCKSPRING

DESCRIPTION

The clockspring assembly is secured with two screws to the multi-function switch mounting housing near the top of the steering column behind the steering wheel (Fig. 15). The clockspring consists of a flat, round molded plastic case with a stubby tail that hangs below the steering column (Fig. 16). The tail contains two connector receptacles that face toward the instrument panel. Within the plastic case is a spool-like molded plastic rotor with a large exposed hub. The upper surface of the rotor hub has a large center hole, two large flats, an index hole, two short pigtail wires with connectors, and two connector receptacles that face toward the steering wheel.

The lower surface of the rotor hub has three pins, two round and one oblong. These pins index the clockspring to the turn signal cancel cam unit in the

CLOCKSPRING (Continued)

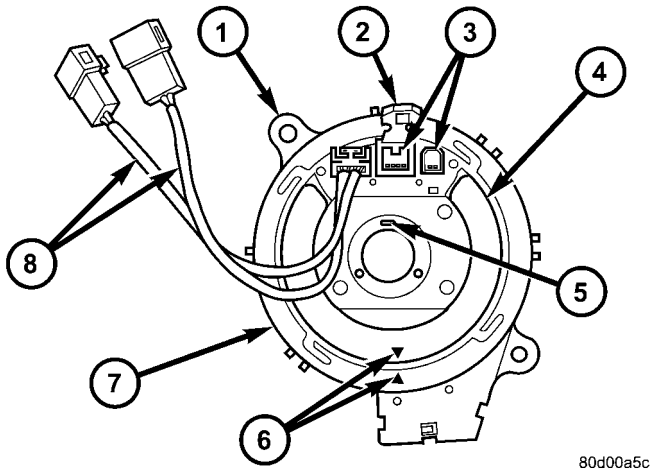


Fig. 15 Clockspring (Upper View)

1 - MOUNTING EAR (2)
2 - LOCKING PIN
3 - UPPER CONNECTOR RECEPTACLE (2)
4 - LABEL
5 - OBLONG PIN
6 - ALIGNMENT ARROWS
7 - CASE
8 - PIGTAIL WIRE (2)

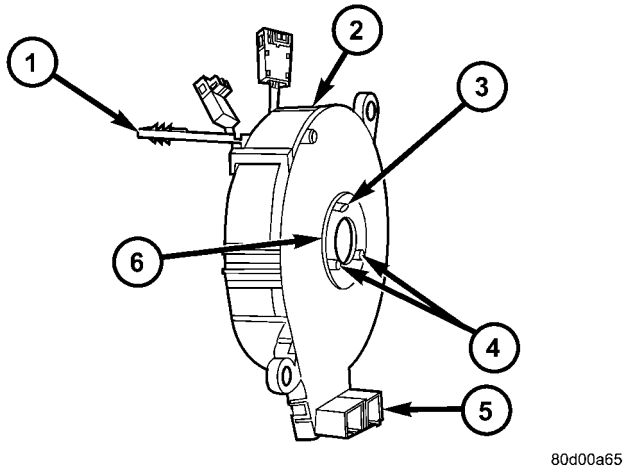


Fig. 16 Clockspring (Lower View)

1 - LOCKING PIN
2 - CASE
3 - OBLONG PIN
4 - ROUND PIN (2)
5 - LOWER CONNECTOR RECEPTACLE (2)
6 - ROTOR

multi-function switch mounting housing. Within the plastic case and wound around the rotor spool is a long ribbon-like tape that consists of several thin copper wire leads sandwiched between two thin plastic membranes. The outer end of the tape terminates at the connector receptacles that face the instrument panel, while the inner end of the tape terminates at the pigtail wires and connector receptacles on the hub of the clockspring rotor that face the steering wheel.

Service replacement clocksprings are shipped precentered and with a molded plastic locking pin installed. The locking pin secures the centered clockspring rotor to the clockspring case during shipment and handling, but must be removed from the clockspring after it and the multi-function switch mounting housing are installed on the steering column. (Refer to 8 - ELECTRICAL/RESTRAINTS/CLOCKSPRING - STANDARD PROCEDURE - CLOCKSPRING CENTERING).

The clockspring cannot be repaired. If the clockspring is faulty, damaged, or if the driver airbag has been deployed, the clockspring must be replaced.

OPERATION

The clockspring is a mechanical electrical circuit component that is used to provide continuous electrical continuity between the fixed instrument panel wire harness and the electrical components mounted on or in the rotating steering wheel. On this model the rotating electrical components include the driver airbag, the horn switch, the speed control switches, and the remote radio switches, if the vehicle is so equipped. The clockspring case is positioned and secured to the multi-function switch mounting housing near the top of the steering column. The connector receptacles on the tail of the fixed clockspring case connect the clockspring to the vehicle electrical system through two take outs with connectors from the instrument panel wire harness.

The clockspring rotor is movable and is keyed to the hub of the steering wheel by two large flats that are molded into the rotor hub. The three pins (two round and one oblong) on the lower surface of the clockspring rotor hub engage and index the clockspring rotor to the turn signal cancel cam. The turn signal cancel cam is integral to the multi-function switch mounting housing and is keyed to the upper steering column shaft. Two short, yellow-sleeved pigtail wires on the upper surface of the clockspring rotor connect the clockspring to the driver airbag, while a steering wheel wire harness connects the two connector receptacles on the upper surface of the clockspring rotor to the horn switch, the two speed control switches and, if the vehicle is so equipped, to the optional remote radio switches on the steering wheel.

Like the clockspring in a timepiece, the clockspring tape has travel limits and can be damaged by being wound too tightly during full stop-to-stop steering wheel rotation. To prevent this from occurring, the clockspring is centered when it is installed on the steering column. Centering the clockspring indexes the clockspring tape to the movable steering compo-

CLOCKSPRING (Continued)

nents so that the tape can operate within its designed travel limits. However, if the clockspring is removed from the steering column or if the steering shaft is disconnected from the steering gear, the clockspring spool can change position relative to the movable steering components and must be re-centered following completion of the service or the tape may be damaged.

Service replacement clocksprings are shipped pre-centered and with a locking pin installed. This locking pin should not be removed until the clockspring has been installed on the steering column. If the locking pin is removed before the clockspring is installed on a steering column, the clockspring centering procedure must be performed. (Refer to 8 - ELECTRICAL/RESTRAINTS/CLOCKSPRING - STANDARD PROCEDURE - CLOCKSPRING CENTERING).

STANDARD PROCEDURE - CLOCKSPRING CENTERING

The clockspring is designed to wind and unwind when the steering wheel is rotated, but is only designed to rotate the same number of turns (about five complete rotations) as the steering wheel can be turned from stop to stop. Centering the clockspring indexes the clockspring tape to other steering components so that it can operate within its designed travel limits. The rotor of a centered clockspring can be rotated two and one-half turns in either direction from the centered position, without damaging the clockspring tape.

However, if the clockspring is removed for service or if the steering column is disconnected from the steering gear, the clockspring tape can change position relative to the other steering components. The clockspring must then be re-centered following completion of such service or the clockspring tape may be damaged. Service replacement clocksprings are shipped pre-centered and with a molded plastic locking pin installed. This locking pin should not be removed until the clockspring has been installed on the steering column. If the locking pin is removed before the clockspring is installed on a steering column, the clockspring centering procedure must be performed.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

NOTE: Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position.

(1) Place the front wheels in the straight-ahead position.

(2) Remove the clockspring from the steering column. (Refer to 8 - ELECTRICAL/RESTRAINTS/CLOCKSPRING - REMOVAL).

(3) Hold the clockspring case in one hand so that it is oriented as it would be when it is installed on the steering column (Fig. 17).

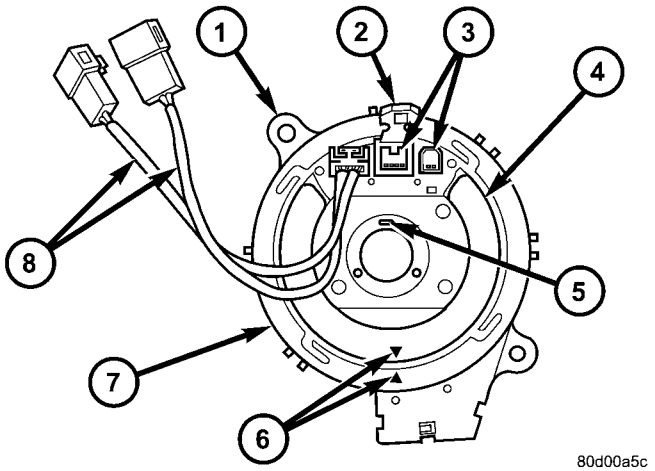


Fig. 17 Clockspring

1 - MOUNTING EAR (2)
2 - LOCKING PIN
3 - UPPER CONNECTOR RECEPTACLE (2)
4 - LABEL
5 - OBLONG PIN
6 - ALIGNMENT ARROWS
7 - CASE
8 - PIGTAIL WIRE (2)

(4) Use your other hand to rotate the clockspring rotor clockwise to the end of its travel. **Do not apply excessive torque.**

(5) From the end of the clockwise travel, rotate the rotor about two and one-half turns counterclockwise, until the arrows on the clockspring rotor label and the clockspring case are aligned. The uppermost pin on the lower surface of the clockspring rotor should now be the oblong pin.

(6) The clockspring is now centered. Secure the clockspring rotor to the clockspring case to maintain

CLOCKSPRING (Continued)

clockspring centering until it is reinstalled on the steering column.

(7) The front wheels should still be in the straight-ahead position. Reinstall the clockspring onto the steering column. (Refer to 8 - ELECTRICAL/RESTRAINTS/CLOCKSPRING - INSTALLATION).

REMOVAL

The clockspring cannot be repaired. It must be replaced if faulty or damaged, or if the driver airbag has been deployed.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

NOTE: Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position.

(1) Place the front wheels in the straight ahead position.

(2) Remove the driver airbag from the steering wheel. (Refer to 8 - ELECTRICAL/RESTRAINTS/DRIVER AIRBAG - REMOVAL).

(3) Disconnect the steering wheel wire harness connectors from the upper clockspring connector receptacles.

(4) Remove the steering wheel from the steering column. (Refer to 19 - STEERING/COLUMN/STEERING WHEEL - REMOVAL).

(5) From below the steering column, remove the screw that secures the lower tilting steering column shroud to the steering column multi-function switch mounting housing (Fig. 18).

(6) Using hand pressure, push gently inward on both sides of the upper shroud near the parting line between the upper and lower shrouds to release the snap features that secure the two halves to each other.

(7) Remove both the upper and lower shrouds from the steering column.

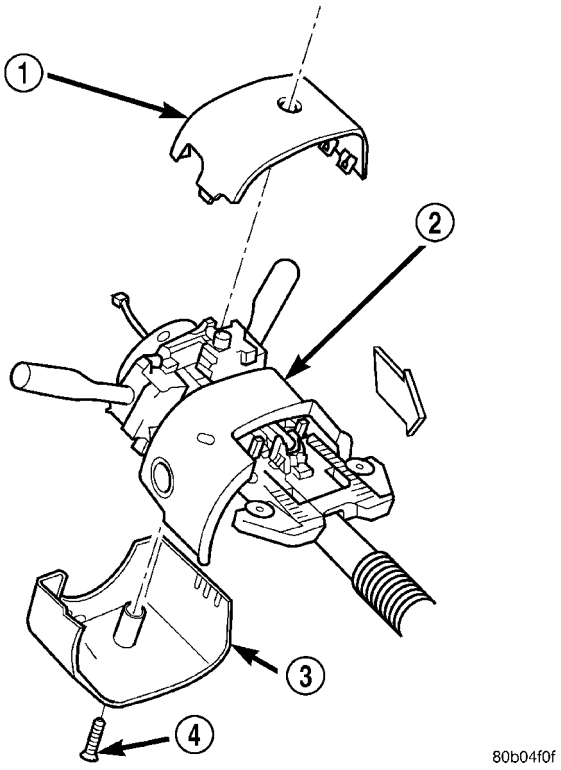


Fig. 18 Steering Column Shrouds Remove/Install

1 - UPPER TILTING COLUMN SHROUD
2 - FIXED COLUMN SHROUD
3 - LOWER TILTING COLUMN SHROUD
4 - SCREW

(8) Disconnect the two instrument panel wire harness connectors for the clockspring from the two connector receptacles below the steering column on the back of the clockspring case.

(9) Remove the two screws that secure the clockspring case to the multi-function switch mounting housing (Fig. 19).

(10) Remove the clockspring from the multi-function switch mounting housing. The clockspring cannot be repaired. It must be replaced if faulty or damaged, or if the driver airbag has been deployed.

(11) If the removed clockspring is to be reused, be certain to secure the clockspring rotor to the clockspring case to maintain clockspring centering until it is reinstalled on the steering column. If clockspring centering is not maintained, the clockspring must be centered again before it is reinstalled. (Refer to 8 - ELECTRICAL/RESTRAINTS/CLOCKSPRING - STANDARD PROCEDURE - CLOCKSPRING CENTERING).

INSTALLATION

The clockspring cannot be repaired. It must be replaced if faulty or damaged, or if the driver airbag has been deployed.

CLOCKSPRING (Continued)

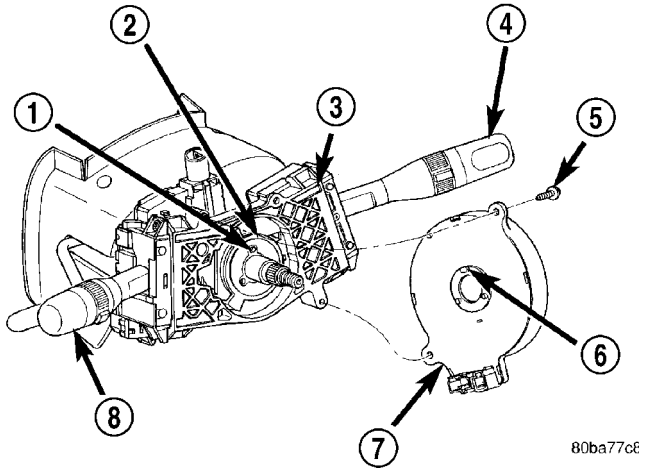


Fig. 19 Clockspring Remove/Install

1 - OBLONG HOLE
2 - TURN SIGNAL CANCEL CAM
3 - MULTI-FUNCTION SWITCH MOUNTING HOUSING
4 - RIGHT MULTI-FUNCTION SWITCH
5 - SCREW (2)
6 - OBLONG PIN
7 - CLOCKSPRING
8 - LEFT MULTI-FUNCTION SWITCH

If the clockspring is not properly centered in relation to the steering wheel, steering shaft and steering gear, it may be damaged. (Refer to 8 - ELECTRICAL/RESTRAINTS/CLOCKSPRING - STANDARD PROCEDURE - CLOCKSPRING CENTERING). Service replacement clocksprings are shipped pre-centered and with a locking pin installed. This locking pin should not be removed until the clockspring has been installed on the steering column. If the locking pin is removed before the clockspring is installed on a steering column, the clockspring centering procedure must be performed.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

NOTE: Before starting this procedure, be certain that the front wheels are in the straight-ahead position.

(1) While holding the centered clockspring rotor and case stationary in relation to each other, carefully slide the clockspring down over the steering column upper shaft.

(2) Align and seat the three pins on the lower surface of the clockspring rotor hub with the three holes in the hub of the turn signal cancel cam (Fig. 19). It should be noted that when the clockspring is properly centered the uppermost pin on the clockspring rotor hub is the oblong pin, and it will only fit in the oblong hole in the hub of the turn signal cancel cam.

(3) Align and seat the one pin and the two mounting ears on the clockspring case to their respective holes in the multi-function switch mounting housing.

(4) Install and tighten the two clockspring mounting screws. Tighten the screws to 2.5 N·m (22 in. lbs.).

(5) Reconnect the two instrument panel wire harness connectors for the clockspring to the two connector receptacles below the steering column on the back of the clockspring housing.

(6) Position the lower tilting steering column shroud onto the steering column (Fig. 18).

(7) Install and tighten the screw that secures the lower tilting steering column shroud to the multi-function switch mounting housing. Tighten the screw to 2 N·m (17 in. lbs.).

(8) Position the upper tilting column shroud onto the steering column with the hazard warning switch button inserted through the hole in the upper surface of the shroud.

(9) Align the snap features on the upper and lower shrouds and apply hand pressure to snap them together.

(10) If a new clockspring has been installed, remove the plastic locking pin that secures the clockspring rotor to the clockspring case to maintain clockspring centering.

(11) Reinstall the steering wheel onto the steering column. (Refer to 19 - STEERING/COLUMN/STEERING WHEEL - INSTALLATION).

(12) Reconnect the steering wheel wire harness connectors to the upper clockspring connector receptacles.

(13) Reinstall the driver airbag onto the steering wheel. (Refer to 8 - ELECTRICAL/RESTRAINTS/DRIVER AIRBAG - INSTALLATION).

DRIVER AIRBAG

DESCRIPTION

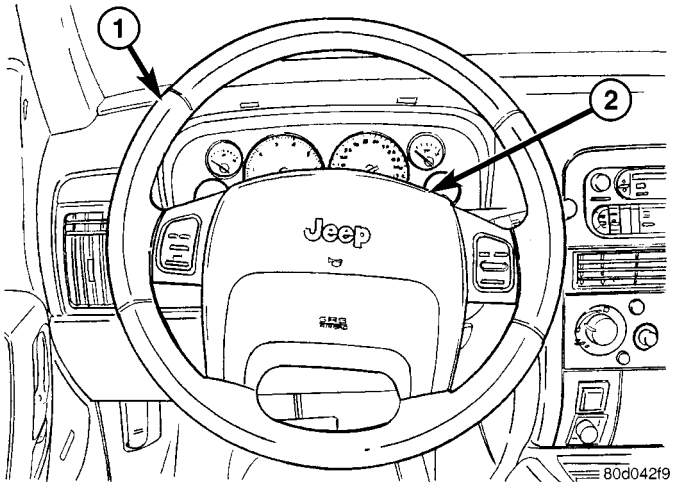


Fig. 20 Driver Airbag Trim Cover

1 - STEERING WHEEL
2 - TRIM COVER

The injection molded, thermoplastic driver airbag protective trim cover is the most visible part of the driver airbag (Fig. 20). The driver airbag is located in the center of the steering wheel, where it is secured with two screws to the two horizontal spokes of the four-spoke steering wheel armature. A stamped, satin polished emblem with the Jeep® logo is applied to the center of the trim cover. Concealed beneath the driver airbag trim cover are the horn switch, the folded airbag cushion, the airbag cushion retainer, the airbag housing, the airbag inflator, and the retainers that secure the inflator to the airbag housing.

The airbag cushion, housing, and inflator are secured within an integral receptacle molded into the back of the trim cover. Locking blocks molded into the back of the trim cover around the receptacle engage a lip formed around the perimeter of the airbag housing stamping. Two stamped metal retainers then fit over the inflator mounting studs on the back of the airbag housing and are engaged in slots within the upper and lower trim cover locking blocks, securely locking the cover into place.

The resistive membrane-type horn switch is secured within a plastic tray that is inserted in a pocket or pouch sewn onto the airbag cushion retainer strap, between the trim cover and the folded airbag cushion. The horn switch ground pigtail wire has an eyelet terminal connector that is captured on the upper right inflator mounting stud between the inflator and the upper trim cover retainer. The horn switch feed pigtail wire has a white, molded plastic insulator that is secured by an integral retainer to a mounting hole located in the upper trim cover retainer near the upper left corner on the back of the airbag housing, and is connected to the vehicle electrical system through a take out and connector of the steering wheel wire harness.

The airbag used in this model is a multistage, Next Generation-type that complies with revised federal airbag standards to deploy with less force than those used in some prior models. A radial deploying fabric airbag cushion with internal tethers is used. The airbag inflator is a dual-initiator, non-azide, pyrotechnic-type unit with four mounting studs and is secured to the stamped metal airbag housing using four hex nuts with washers. Two keyed and color-coded connector receptacles on the driver airbag inflator connect the two inflator initiators to the vehicle electrical system through two yellow-jacketed, two-wire pigtail harnesses of the clockspring. The driver airbag cannot be repaired, and must be replaced if deployed or in any way damaged. The driver airbag trim cover and the horn switch are available for individual service replacement.

OPERATION

The multistage driver airbag is deployed by electrical signals generated by the Airbag Control Module (ACM) through the driver airbag squib 1 and squib 2 circuits to the two initiators in the airbag inflator. By using two initiators, the airbag can be deployed at multiple levels of force. The force level is controlled by the ACM to suit the monitored impact conditions by providing one of four delay intervals between the electrical signals provided to the two initiators. The longer the delay between these signals, the less forcefully the airbag will deploy.

When the ACM sends the proper electrical signals to each initiator, the electrical energy generates enough heat to initiate a small pyrotechnic charge which, in turn ignites chemical pellets within the inflator. Once ignited, these chemical pellets burn rapidly and produce a large quantity of inert gas. The inflator is sealed to the back of the airbag housing and a diffuser in the inflator directs all of the inert gas into the airbag cushion, causing the cushion to inflate. As the cushion inflates, the driver airbag trim cover will split at predetermined breakout lines, then fold back out of the way along with the horn switch and tray unit. Following an airbag deployment, the airbag cushion quickly deflates by venting the inert gas towards the instrument panel through vent holes within the fabric used to construct the back (steering wheel side) panel of the airbag cushion.

Some of the chemicals used to create the inert gas may be considered hazardous while in their solid state before they are burned, but they are securely

DRIVER AIRBAG (Continued)

sealed within the airbag inflator. Typically, both initiators are used and all potentially hazardous chemicals are burned during an airbag deployment event. However, it is possible for only one initiator to be used during a deployment due to an airbag system fault; therefore, it is necessary to always confirm that both initiators have been used in order to avoid the improper disposal of potentially live pyrotechnic or hazardous materials. (Refer to 8 - ELECTRICAL/ RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

The inert gas that is produced when the chemicals are burned is harmless. However, a small amount of residue from the burned chemicals may cause some temporary discomfort if it contacts the skin, eyes, or breathing passages. If skin or eye irritation is noted, rinse the affected area with plenty of cool, clean water. If breathing passages are irritated, move to another area where there is plenty of clean, fresh air to breath. If the irritation is not alleviated by these actions, contact a physician.

REMOVAL

The following procedure is for replacement of a faulty or damaged driver airbag. If the airbag is faulty or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. (Refer to 8 - ELECTRICAL/ RESTRAINTS - STANDARD PROCEDURE - HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS). If the driver airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: WHEN REMOVING A DEPLOYED AIRBAG, RUBBER GLOVES, EYE PROTECTION, AND A LONG-SLEEVED SHIRT SHOULD BE WORN. THERE MAY BE DEPOSITS ON THE AIRBAG CUSHION AND OTHER INTERIOR SURFACES. IN LARGE DOSES, THESE DEPOSITS MAY CAUSE IRRITATION TO THE SKIN AND EYES.

(1) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(2) From the underside of the steering wheel, remove the two screws that secure the driver airbag to the steering wheel armature (Fig. 21).

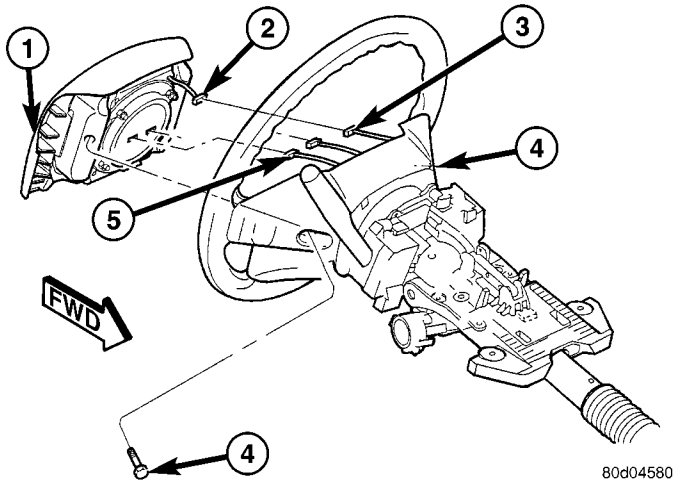


Fig. 21 Driver Airbag Remove/Install

1 - DRIVER AIRBAG
2 - HORN SWITCH FEED WIRE CONNECTOR
3 - STEERING WHEEL WIRE HARNESS CONNECTOR
4 - SCREW (2)
5 - CLOCKSPRING PIGTAIL WIRE CONNECTOR (2)

(3) Pull the driver airbag away from the steering wheel far enough to access the three electrical connections on the back of the airbag housing.

(4) Disconnect the steering wheel wire harness connector for the horn switch from the horn switch feed pigtail wire connector, which is located on the back of the driver airbag housing.

CAUTION: Do not pull on the clockspring pigtail wires or pry on the connector insulator to disengage the connector from the driver airbag inflator connector receptacle. Improper removal of these pigtail wires and their connector insulators can result in damage to the airbag circuits or connector insulators.

(5) The clockspring driver airbag pigtail wire connectors are secured by an integral lock to the airbag inflator connector receptacles, which are located at the back of the driver airbag housing. Firmly grasp

DRIVER AIRBAG (Continued)

and pull the lock straight out from the connector insulator, then pull the insulators straight out from the airbag inflator to disconnect them from the connector receptacles.

(6) Remove the driver airbag from the steering wheel.

(7) If the driver airbag has been deployed, the clockspring must be replaced. (Refer to 8 - ELECTRICAL/RESTRAINTS/CLOCKSPRING - REMOVAL).

DISASSEMBLY

The following procedures can be used to replace the driver airbag trim cover and/or to access the horn switch unit for service. If the driver airbag is faulty or deployed, the entire driver airbag, trim cover, and horn switch must be replaced as a unit.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: THE HORN SWITCH IS INTEGRAL TO THE DRIVER AIRBAG UNIT. SERVICE OF THIS UNIT SHOULD BE PERFORMED ONLY BY DAIMLERCHRYSLER-TRAINED AND AUTHORIZED DEALER SERVICE TECHNICIANS. FAILURE TO TAKE THE PROPER PRECAUTIONS OR TO FOLLOW THE PROPER PROCEDURES COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER AIRBAG DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE DRIVER AIRBAG, OR BECOMING ENTRAPPED BETWEEN THE DRIVER AIRBAG CUSHION AND THE DRIVER AIRBAG TRIM COVER. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

WARNING: THE DRIVER AIRBAG TRIM COVER MUST NEVER BE PAINTED. REPLACEMENT TRIM COVERS ARE SERVICED IN THE ORIGINAL COLORS. PAINT MAY CHANGE THE WAY IN WHICH THE MATERIAL OF THE TRIM COVER RESPONDS TO AN AIRBAG DEPLOYMENT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

(1) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(2) Remove the driver airbag from the steering wheel. (Refer to 8 - ELECTRICAL/RESTRAINTS/DRIVER AIRBAG - REMOVAL).

(3) Place the driver airbag on a suitable work surface with the trim cover facing down. If the trim cover will be reused, be certain to take the proper precautions to prevent the trim cover from receiving cosmetic damage during the following procedures.

(4) Remove the four nuts that secure the upper and lower trim cover retainers to the studs on the back of the driver airbag housing (Fig. 22).

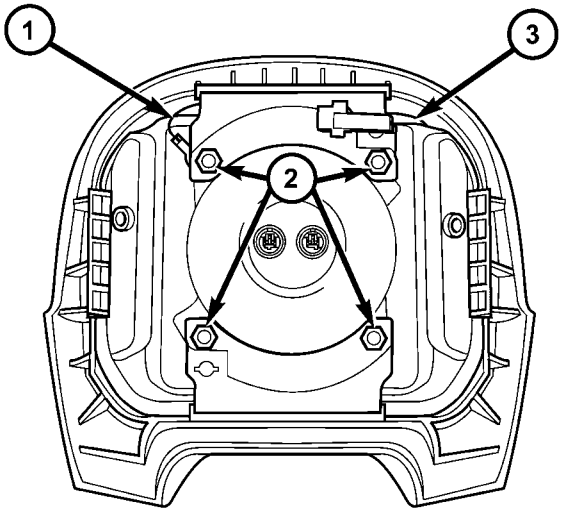


Fig. 22 Driver Airbag Trim Cover Retainer Nuts Remove/Install

1 - HORN SWITCH GROUND PIGTAIL WIRE
2 - NUT (4)
3 - HORN SWITCH FEED PIGTAIL WIRE

(5) Remove the upper and lower trim cover retainers from the airbag housing studs (Fig. 23).

(6) Disengage the horn switch feed pigtail wire connector retainer from the mounting hole in the upper trim cover retainer.

(7) Remove the horn switch ground pigtail wire eyelet terminal from the upper right inflator stud on the back of the driver airbag housing.

DRIVER AIRBAG (Continued)

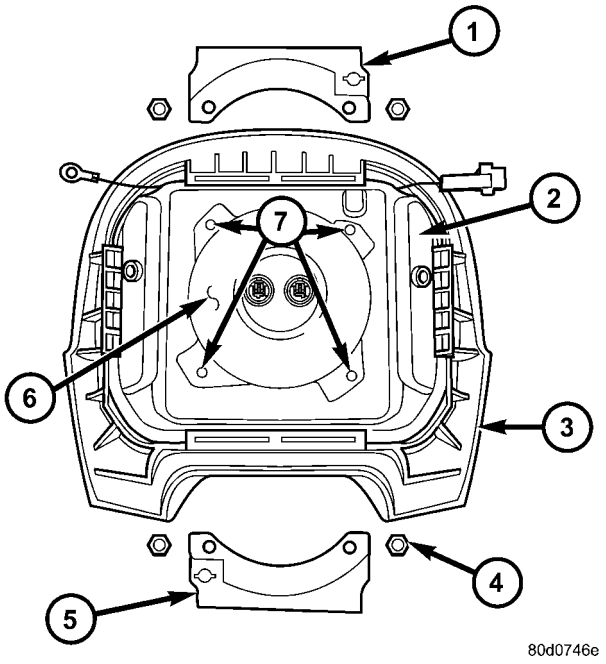


Fig. 23 Driver Airbag Trim Cover

1 - UPPER RETAINER
2 - AIRBAG HOUSING
3 - TRIM COVER
4 - NUT (4)
5 - LOWER RETAINER
6 - INFLATOR
7 - STUD (4)

(8) Disengage the four trim cover locking blocks from the lip around the outside edge of the driver airbag housing and remove the housing from the trim cover receptacle (Fig. 24).

ASSEMBLY

The following procedures can be used to replace the driver airbag trim cover and/or to access the horn switch unit for service. If the driver airbag is faulty or deployed, the entire driver airbag, trim cover, and horn switch must be replaced as a unit.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

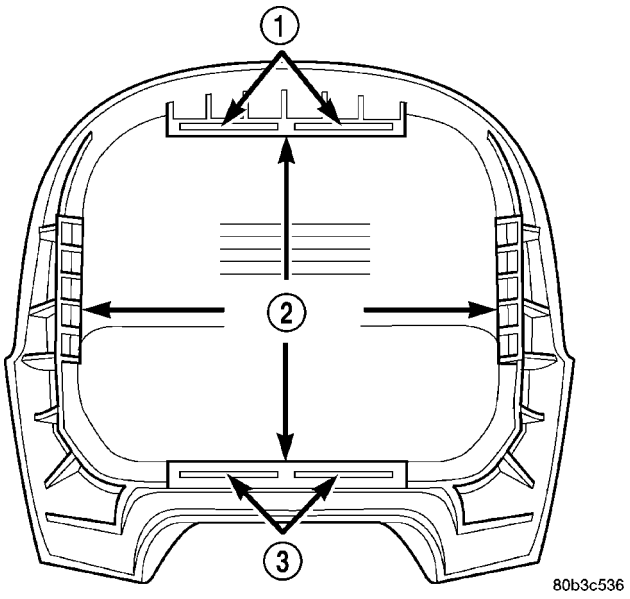


Fig. 24 Driver Airbag Trim Cover Remove/Install

1 - UPPER RETAINER SLOT (2)
2 - LOCKING BLOCK (4)
3 - LOWER RETAINER SLOT (2)

WARNING: THE HORN SWITCH IS INTEGRAL TO THE DRIVER AIRBAG UNIT. SERVICE OF THIS UNIT SHOULD BE PERFORMED ONLY BY DAIMLERCHRYSLER-TRAINED AND AUTHORIZED DEALER SERVICE TECHNICIANS. FAILURE TO TAKE THE PROPER PRECAUTIONS OR TO FOLLOW THE PROPER PROCEDURES COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER AIRBAG DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE DRIVER AIRBAG, OR BECOMING ENTRAPPED BETWEEN THE DRIVER AIRBAG CUSHION AND THE DRIVER AIRBAG TRIM COVER. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

WARNING: THE DRIVER AIRBAG TRIM COVER MUST NEVER BE PAINTED. REPLACEMENT TRIM COVERS ARE SERVICED IN THE ORIGINAL COLORS. PAINT MAY CHANGE THE WAY IN WHICH THE MATERIAL OF THE TRIM COVER RESPONDS TO AN AIRBAG DEPLOYMENT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

DRIVER AIRBAG (Continued)

NOTE: If the horn switch and tray have been removed from the sewn pouch in the airbag cushion retaining strap, be certain that they are properly reinstalled with the horn switch feed and ground pigtail wires properly oriented before assembling the trim cover onto the airbag housing. (Refer to 8 - ELECTRICAL/HORN/HORN SWITCH - INSTALLATION).

(1) Place the new driver airbag trim cover on a suitable work surface with the airbag receptacle facing up. Be certain to take the proper precautions to prevent the trim cover from receiving cosmetic damage during the following procedures.

(2) Carefully position the driver airbag into the trim cover receptacle. Be certain that the horn switch feed and ground pigtail wires are not pinched between the airbag housing and the trim cover locking blocks.

(3) Engage the upper and lower trim cover locking blocks with the lip of the driver airbag housing, then engage the locking blocks on each side of the trim cover with the lip of the housing. Be certain that each of the locking blocks is fully engaged on the lip of the airbag housing (Fig. 25).

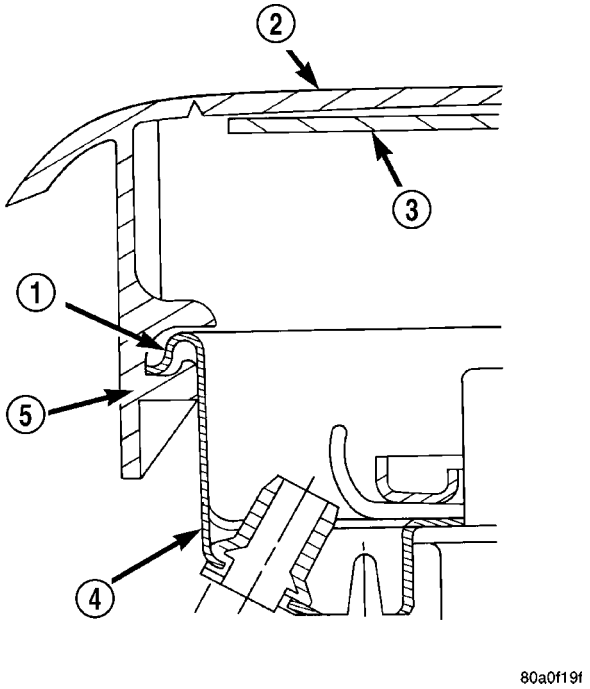


Fig. 25 Driver Airbag Trim Cover Locking Blocks Engaged

1 - LIP
2 - TRIM COVER
3 - HORN SWITCH
4 - AIRBAG HOUSING
5 - LOCKING BLOCK

(4) Reinstall the horn switch ground pigtail wire eyelet terminal over the upper right inflator stud on the back of the driver airbag housing.

(5) Reinstall the upper and lower airbag trim cover retainers over the inflator studs on the back of the driver airbag housing. Be certain that the tabs on each retainer are engaged in the slots of the upper and lower trim cover locking blocks (Fig. 24).

(6) Install and tighten the four nuts that secure the trim cover retainers to the inflator studs on the back of the driver airbag housing. Tighten the nuts to 7 N·m (60 in. lbs.).

(7) Engage the horn switch feed pigtail wire connector retainer in the mounting hole in the upper trim cover retainer.

(8) Reinstall the driver airbag onto the steering wheel. (Refer to 8 - ELECTRICAL/RESTRAINTS/ DRIVER AIRBAG - INSTALLATION).

INSTALLATION

The following procedure is for replacement of a faulty or damaged driver airbag. If the airbag is faulty or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. (Refer to 8 - ELECTRICAL/ RESTRAINTS - STANDARD PROCEDURE - HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS). If the driver airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

DRIVER AIRBAG (Continued)

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE DRIVER AIRBAG, OR BECOMING ENTRAPPED BETWEEN THE DRIVER AIRBAG CUSHION AND THE DRIVER AIRBAG TRIM COVER. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

WARNING: THE DRIVER AIRBAG TRIM COVER MUST NEVER BE PAINTED. REPLACEMENT AIRBAGS AND TRIM COVERS ARE SERVICED IN THE ORIGINAL COLORS. PAINT MAY CHANGE THE WAY IN WHICH THE MATERIAL OF THE TRIM COVER RESPONDS TO AN AIRBAG DEPLOYMENT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

(1) Position the driver airbag close enough to the steering wheel to reconnect the three electrical connections on the back of the airbag housing.

(2) When installing the driver airbag, reconnect the two clockspring driver airbag pigtail wire connectors to the airbag inflator connector receptacles by pressing straight in on the connectors (Fig. 21), then pushing the locks straight into the connectors. You can be certain that the connector is fully engaged by listening carefully for a distinct, audible click as the connector latches snap into place.

(3) Reconnect the steering wheel wire harness connector for the horn switch to the horn switch feed pigtail wire connector, which is located at the back of the driver airbag housing.

(4) Carefully position the driver airbag in the steering wheel. Be certain that the clockspring pigtail wires and steering wheel wire harness in the steering wheel hub area are not pinched between the driver airbag and the steering wheel armature.

(5) From the underside of the steering wheel, install and tighten the two screws that secure the driver airbag to the steering wheel armature. Tighten the screws to 10 N·m (90 in. lbs.).

(6) Do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

FRONT IMPACT SENSOR

DESCRIPTION

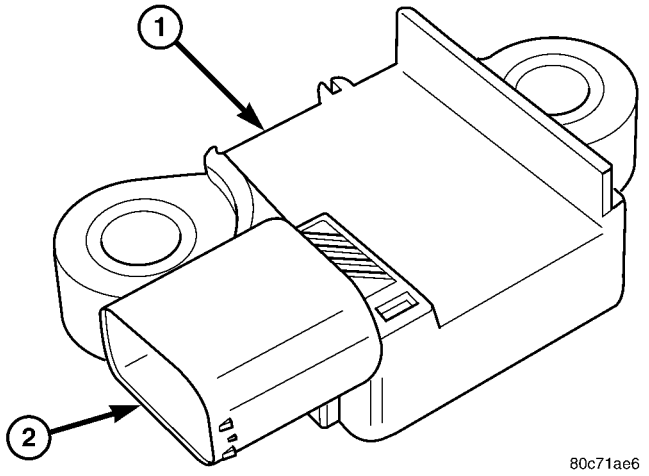


Fig. 26 Front Impact Sensor

1 - SENSOR
2 - CONNECTOR RECEPTACLE

Two front impact sensors are used on this model, one each for the left and right sides of the vehicle (Fig. 26). These sensors are mounted remotely from the impact sensor that is internal to the Airbag Control Module (ACM). The right and left front and side impact sensors are identical in construction and calibration with the exception of the right-hand and left-hand die cast aluminum mounting brackets to which each front impact sensor is secured with two screws. The front impact sensor brackets are secured with three screws to the front and inboard sides of the right and left vertical members of the radiator support within the engine compartment.

The impact sensor housing has an integral connector receptacle and two integral mounting ears, each with a metal sleeve to provide crush protection. A cavity in the center of the molded black plastic impact sensor housing contains the electronic circuitry of the sensor which includes an electronic communication chip and an electronic impact sensor. Potting material fills the cavity to seal and protect the internal electronic circuitry and components. The front impact sensors are each connected to the vehicle electrical system through a dedicated take out and connector of the right or left headlamp and dash wire harnesses.

The front impact sensors cannot be repaired or adjusted and, if damaged or faulty, they must be replaced. If a front impact sensor is faulty, only the sensor needs to be replaced. If the sensor or the sensor mounting bracket is damaged or faulty, or if proper tightening torque of the screws that secure

FRONT IMPACT SENSOR (Continued)

the sensor to the bracket cannot be achieved, the sensor and bracket unit must be replaced.

OPERATION

The front impact sensors are electronic accelerometers that sense the rate of vehicle deceleration, which provides verification of the direction and severity of an impact. Each sensor also contains an electronic communication chip that allows the unit to communicate the sensor status as well as sensor fault information to the microprocessor in the Airbag Control Module (ACM). The ACM microprocessor continuously monitors all of the passive restraint system electrical circuits to determine the system readiness. If the ACM detects a monitored system fault, it sets a Diagnostic Trouble Code (DTC) and controls the airbag indicator operation accordingly.

The impact sensors each receive battery current and ground through dedicated left and right sensor plus and minus circuits from the ACM. The impact sensors and the ACM communicate by modulating the voltage in the sensor plus circuit. The hard wired circuits between the front impact sensors and the ACM may be diagnosed and tested using conventional diagnostic tools and procedures. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the ACM or the impact sensors. The most reliable, efficient, and accurate means to diagnose the impact sensors, the ACM, and the electronic message communication between the sensors and the ACM requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

REMOVAL

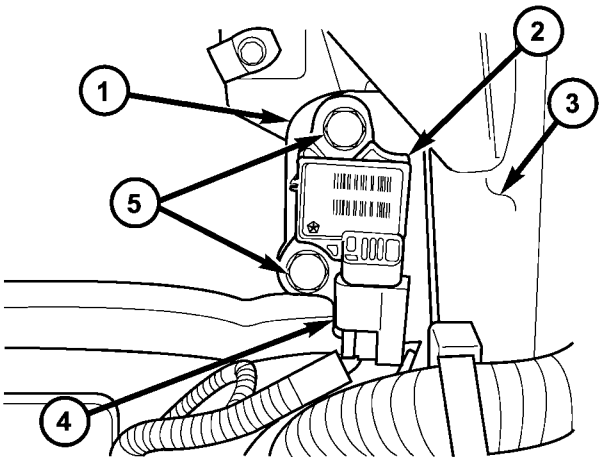
The front and side impact sensors are interchangeable except that the front impact sensors are serviced with a right or left mounting bracket, while the side impact sensors use no mounting bracket. If a front impact sensor is faulty, but not damaged, the sensor may be removed from the sensor mounting bracket and replaced with a side impact sensor. If the front impact sensor or the sensor mounting bracket are damaged in any way, or if proper tightening torque of the screws that secure the sensor to the bracket cannot be achieved, the front impact sensor and bracket must be replaced as a unit.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: THE FRONT IMPACT SENSOR ENABLES THE SYSTEM TO DEPLOY THE FRONT SUPPLEMENTAL RESTRAINTS. NEVER STRIKE OR DROP THE FRONT IMPACT SENSOR, AS IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN IMPACT SENSOR IS ACCIDENTALLY DROPPED DURING SERVICE, THE SENSOR MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER FRONT SUPPLEMENTAL RESTRAINT DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

(1) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(2) From the engine compartment, disconnect the right or left headlamp and dash wire harness connector for the front impact sensor from the sensor connector receptacle (Fig. 27).



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Fig. 27 Front Impact Sensor Remove/Install (Right Side Shown, Left Side Similar)

1 - BRACKET
2 - IMPACT SENSOR
3 - RADIATOR SUPPORT
4 - WIRE HARNESS CONNECTOR
5 - SCREW (2)

FRONT IMPACT SENSOR (Continued)

(3) From the engine compartment, remove the two screws that secure the right or left front impact sensor to the sensor mounting bracket on the right or left radiator support vertical member.

(4) Remove the front impact sensor from the sensor mounting bracket.

INSTALLATION

The front and side impact sensors are interchangeable except that the front impact sensors are serviced with a right or left mounting bracket, while the side impact sensors use no mounting bracket. If a front impact sensor is faulty, but not damaged, the sensor may be removed from the sensor mounting bracket and replaced with a side impact sensor. If the front impact sensor or the sensor mounting bracket are damaged in any way, or if proper tightening torque of the screws that secure the sensor to the bracket cannot be achieved, the front impact sensor and bracket must be replaced as a unit.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

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(1) Position the right or left front impact sensor to the sensor mounting bracket on the right or left radiator support vertical member in the engine compartment (Fig. 27).

(2) Install and tighten the two screws that secure the right or left front impact sensor to the sensor mounting bracket. Tighten the screws to 10 N·m (85 in. lbs.).

(3) Reconnect the right or left headlamp and dash wire harness connector for the front impact sensor to the sensor connector receptacle.

(4) Do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

FRONT IMPACT SENSOR & BRACKET

REMOVAL

The front and side impact sensors are interchangeable except that the front impact sensors are serviced with a right or left mounting bracket, while the side impact sensors use no mounting bracket. If a front impact sensor is faulty, but not damaged, the sensor may be removed from the sensor mounting bracket and replaced with a side impact sensor. If the front impact sensor or the sensor mounting bracket are damaged in any way, or if proper tightening torque of the screws that secure the sensor to the bracket cannot be achieved, the front impact sensor and bracket must be replaced as a unit.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

FRONT IMPACT SENSOR & BRACKET (Continued)

WARNING: THE FRONT IMPACT SENSOR ENABLES THE SYSTEM TO DEPLOY THE FRONT SUPPLEMENTAL RESTRAINTS. NEVER STRIKE OR DROP THE FRONT IMPACT SENSOR, AS IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN IMPACT SENSOR IS ACCIDENTALLY DROPPED DURING SERVICE, THE SENSOR MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER FRONT SUPPLEMENTAL RESTRAINT DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

(1) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(2) Remove the headlamp mounting module from the front of the vehicle. (Refer to 23 - BODY/EXTERIOR/HEADLAMP MOUNTING MODULE - REMOVAL).

(3) Disconnect the right or left headlamp and dash wire harness connector for the front impact sensor from the sensor connector receptacle.

(4) Remove the three screws that secure the right or left front impact sensor and bracket unit to the right or left radiator support vertical member (Fig. 28).

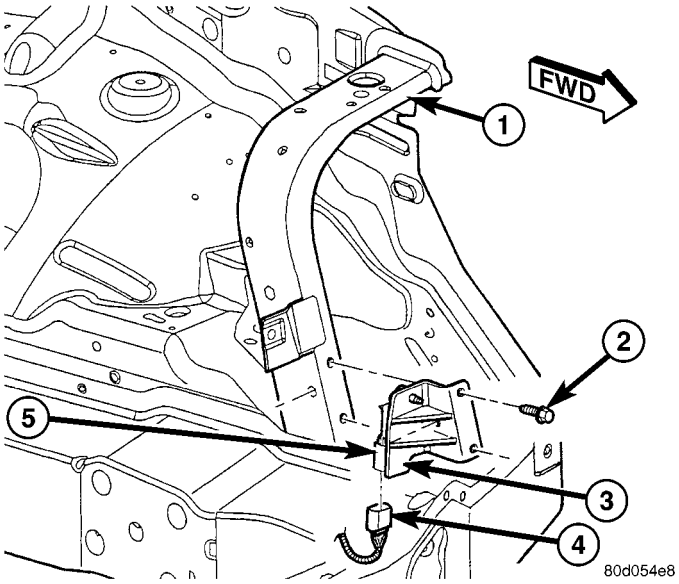


Fig. 28 Front Impact Sensor & B Remove/Install

1 - RADIATOR SUPPORT
2 - SCREW (3)
3 - BRACKET
4 - WIRE HARNESS CONNECTOR
5 - IMPACT SENSOR

(5) Remove the right or left front impact sensor and bracket unit from the front of the vehicle.

INSTALLATION

The front and side impact sensors are interchangeable except that the front impact sensors are serviced with a right or left mounting bracket, while the side impact sensors use no mounting bracket. If a front impact sensor is faulty, but not damaged, the sensor may be removed from the sensor mounting bracket and replaced with a side impact sensor. If the front impact sensor or the sensor mounting bracket are damaged in any way, or if proper tightening torque of the screws that secure the sensor to the bracket cannot be achieved, the front impact sensor and bracket must be replaced as a unit.

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(1) Position the right or left front impact sensor and bracket unit to the front of the vehicle (Fig. 28).

(2) Position the right or left front impact sensor and bracket unit to the right or left radiator support vertical member.

(3) Loosely install the three screws that secure the right or left front impact sensor and bracket unit right or left radiator support vertical member.

(4) For the right impact sensor and bracket unit, the tightening sequence for the three screws that

FRONT IMPACT SENSOR & BRACKET (Continued)

secure it to the right radiator support vertical member is from top to bottom. For the left impact sensor and bracket unit, the tightening sequence for the three screws that secure it to the left radiator support vertical member is from bottom to top. Tighten the screws to 12 N·m (105 in. lbs.).

(5) Reconnect the right or left headlamp and dash wire harness connector for the front impact sensor to the sensor connector receptacle.

(6) Reinstall the headlamp mounting module to the front of the vehicle. (Refer to 23 - BODY/EXTERIOR/HEADLAMP MOUNTING MODULE - INSTALLATION).

(7) Do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

FRONT SEAT BELT & RETRACTOR

REMOVAL

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Adjust the front seat to its most forward position for easiest access to the front seat belt lower anchor and the B-pillar trim.

(2) Disconnect and isolate the battery negative cable.

(3) Lift the front seat belt lower anchor cover far enough to access the screw that secures it to the lower B-pillar (Fig. 29).

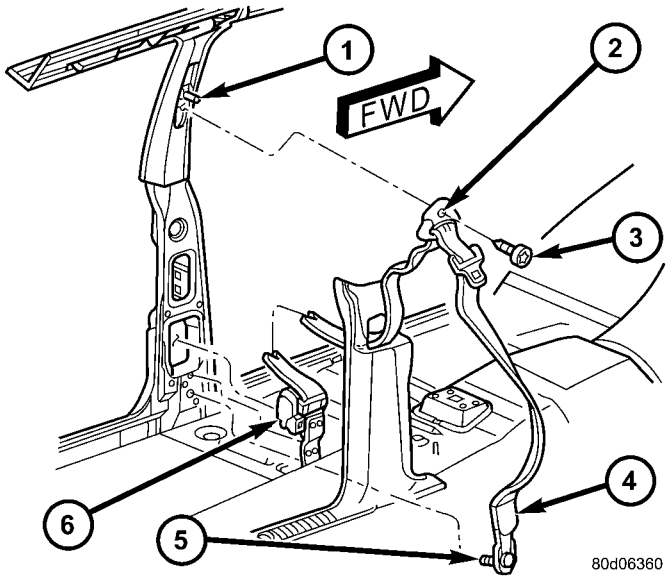


Fig. 29 Front Seat Belt & Retractor Remove/Install

1 - ADJUSTER
2 - TURNING LOOP
3 - SCREW
4 - LOWER ANCHOR
5 - SCREW
6 - RETRACTOR

(4) Remove the screw that secures the lower anchor to the B-pillar.

(5) Using a trim stick or another suitable wide flat-bladed tool, gently pry the top of the turning loop trim cover to unsnap it from the height adjuster and access the screw that secures the front seat belt turning loop to the adjuster on the upper B-pillar (Fig. 30).

(6) Remove the screw that secures the seat belt turning loop to the height adjuster on the upper B-pillar.

(7) Remove the seat belt turning loop from the height adjuster.

(8) Remove the trim from the lower B-pillar. (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - REMOVAL).

(9) Pull the front seat belt turning loop and lower anchor through the access hole in the lower B-pillar trim.

(10) Remove the plastic push-in fastener that secures the retractor to the lower B-pillar (Fig. 31).

(11) Disengage the retractor locator tab from the slot in the B-pillar.

(12) Remove the front seat belt and retractor from the B-pillar as a unit.

FRONT SEAT BELT & RETRACTOR (Continued)

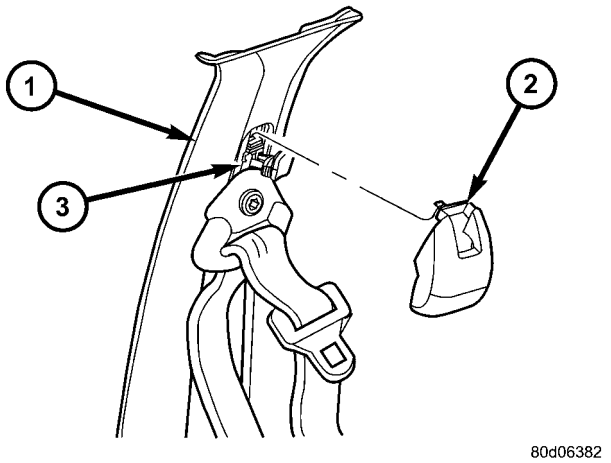


Fig. 30 Turning Loop Cover Remove/Install

1 - PILLAR
2 - TRIM COVER
3 - ADJUSTER

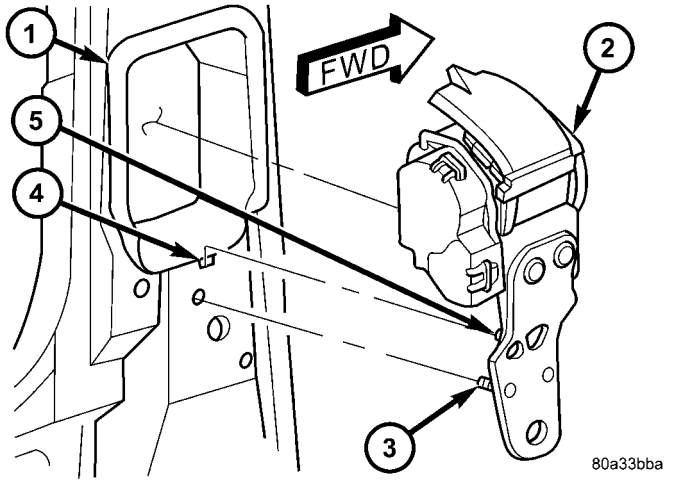


Fig. 31 Front Retractor

1 - NOT APPLICABLE
2 - RETRACTOR
3 - PLASTIC FASTENER
4 - SLOT
5 - LOCATOR TAB

INSTALLATION

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Position the front seat belt and retractor to the B-pillar as a unit. Be certain to engage the retractor locator tab in the slot in the lower B-pillar (Fig. 31).

(2) Using hand pressure, install the plastic push-in fastener that secures the retractor to the lower B-pillar.

(3) Push the seat belt lower anchor and turning loop through the access hole in the lower B-pillar trim (Fig. 29).

(4) Reinstall the trim onto the lower B-pillar. (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - INSTALLATION).

(5) Position the seat belt turning loop onto the height adjuster on the upper B-pillar.

(6) Install and tighten the screw that secures the seat belt turning loop to the height adjuster. Tighten the screw to 37 N·m (27 ft. lbs.).

(7) Using hand pressure, press the top of the turning loop trim cover to snap it onto the height adjuster and cover the screw that secures the front seat belt turning loop to the adjuster on the upper B-pillar (Fig. 30).

(8) Position the front seat belt lower anchor to the lower B-pillar.

(9) Install and tighten the screw that secures the seat belt lower anchor to the B-pillar. Tighten the screw to 37 N·m (27 ft. lbs.).

(10) Pull down the cover over the front seat belt lower anchor far enough to conceal the screw.

(11) Reconnect the battery negative cable.

FRONT SEAT BELT BUCKLE

REMOVAL

REMOVAL - NORTH AMERICA

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(1) Move the front seat to its most forward position for easiest access to the front seat belt buckle lower anchor screw.

(2) On the driver side only, disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(3) On the driver side only, disconnect the seat belt switch pigtail wire connector from the body wire harness connector for the seat belt switch with manual seats, or from the power seat wire harness connector for the seat belt switch with power seats (Fig. 32).

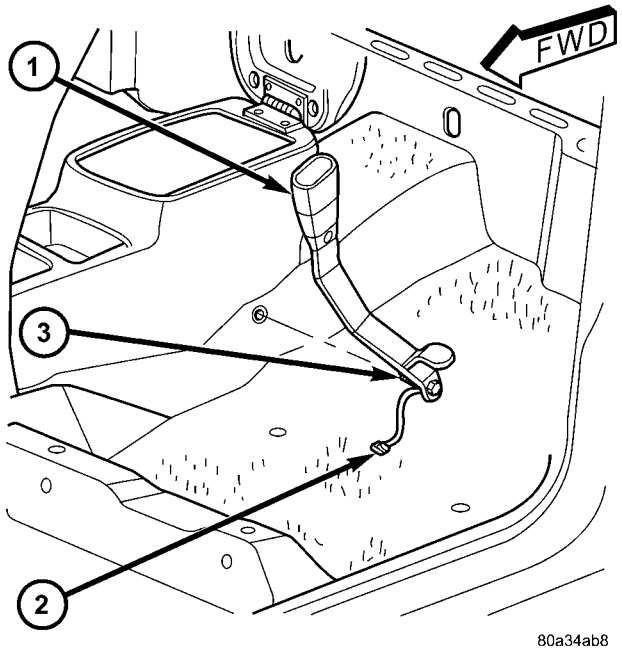


Fig. 32 Front Seat Belt Buckle - North America

1 - FRONT SEAT BELT BUCKLE
2 - SEAT BELT SWITCH PIGTAIL WIRE
3 - SCREW

(4) Remove the screw that secures the front seat belt buckle lower anchor to the side of the floor panel transmission tunnel.

(5) Remove the front seat belt buckle from the floor panel transmission tunnel.

REMOVAL - EXCEPT NORTH AMERICA

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FRONT SEAT BELT BUCKLE (Continued)

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(1) Move the front seat to its most rearward position for easiest access to the front seat belt buckle lower anchor screw.

(2) On the driver side only, disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(3) On the driver side only, disconnect the seat belt switch pigtail wire connector from the body wire harness connector for the seat belt switch with manual seats, or from the power seat wire harness connector for the seat belt switch with power seats.

(4) Remove the screw that secures the front seat belt buckle lower anchor to the inboard side of the seat cushion frame (Fig. 33).

(5) Remove the front seat belt buckle and the spacer from the inboard seat cushion frame.

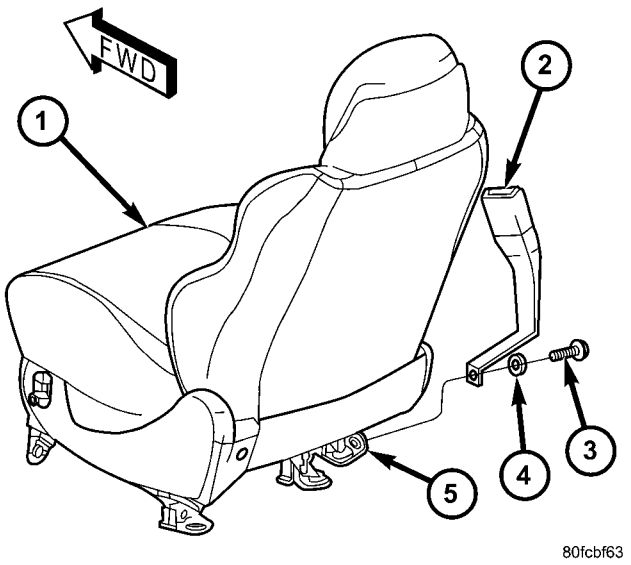


Fig. 33 Front Seat Belt Buckle - except North America

1 - FRONT SEAT
2 - FRONT SEAT BELT BUCKLE
3 - SCREW (1)
4 - SPACER (1)
5 - INBOARD SEAT CUSHION FRAME

INSTALLATION

INSTALLATION - NORTH AMERICA

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(1) Position the front seat belt buckle to the side of the floor panel transmission tunnel (Fig. 32).

FRONT SEAT BELT BUCKLE (Continued)

(2) Install and tighten the screw that secures the front seat belt buckle lower anchor to the side of the floor panel transmission tunnel. Tighten the screw to 43 N·m (32 ft. lbs.).

(3) On the driver side only, reconnect the seat belt switch pigtail wire connector to the body wire harness connector for the seat belt switch with manual seats, or to the power seat wire harness connector for the seat belt switch with power seats.

(4) On the driver side only, do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

INSTALLATION - EXCEPT NORTH AMERICA

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Position the front seat belt buckle and spacer to the inboard side of the seat cushion frame (Fig. 33).

(2) Install and tighten the screw that secures the front seat belt buckle lower anchor to the inboard side of the seat cushion frame. Tighten the screw to 27 N·m (20 ft. lbs.).

(3) On the driver side only, reconnect the seat belt switch pigtail wire connector to the body wire harness connector for the seat belt switch with manual seats, or to the power seat wire harness connector for the seat belt switch with power seats.

(4) On the driver side only, do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

PASSENGER AIRBAG

DESCRIPTION

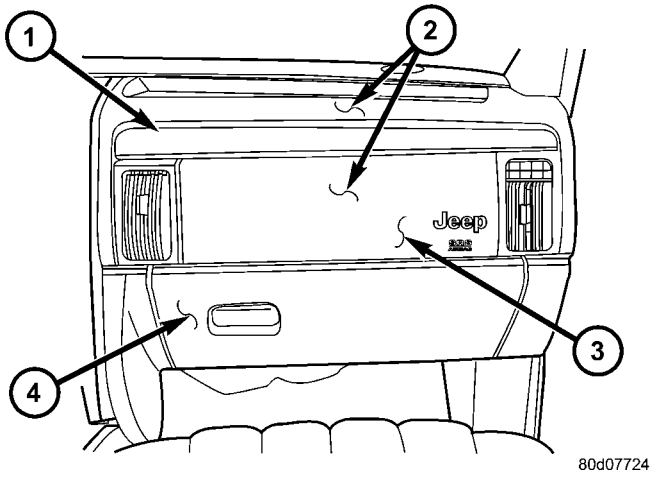


Fig. 34 Passenger Airbag Door

1 - BEZEL
2 - TOP PAD
3 - PASSENGER AIRBAG DOOR
4 - GLOVE BOX DOOR

The rearward facing surface of the instrument panel top pad above the glove box is the most visible part of the passenger airbag (Fig. 34). The passenger airbag door is concealed behind the instrument panel top pad and above the glove box opening on the instrument panel in front of the front seat passenger seating position. The stamped steel passenger airbag door is secured on the back of the instrument panel

PASSENGER AIRBAG (Continued)

top pad armature between the two passenger side panel outlets. A stamped metal reinforcement is secured to the instrument panel top pad armature near the upper edge of the passenger airbag door opening, and helps to define a predetermined hinge line beneath the decorative cover of the top pad. The instrument panel passenger side bezel is secured to the top of the airbag door from behind with four screws.

Located behind the passenger airbag door is the passenger airbag unit (Fig. 35). The passenger airbag unit is secured by two screws on each side to the instrument panel structural duct. A short four-wire pigtail harness with a keyed, yellow connector insulator connects the two inflator initiators to the vehicle electrical system through a dedicated take out and connector of the instrument panel wire harness.

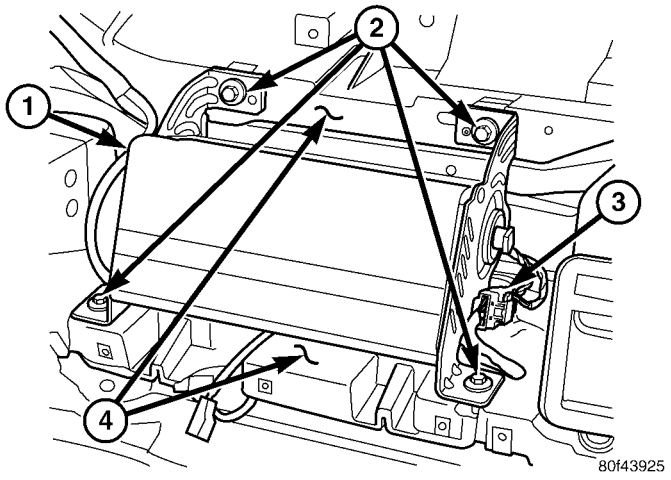


Fig. 35 Passenger Airbag

1 - PASSENGER AIRBAG
2 - SCREW (4)
3 - PIGTAIL WIRE CONNECTOR
4 - STRUCTURAL DUCT

The passenger airbag unit used in this model is a multistage, Next Generation-type that complies with revised federal airbag standards to deploy with less force than those used in some prior models. The passenger airbag unit consists of an extruded aluminum housing, two stamped steel end brackets, a molded plastic inner airbag cushion cover, the rectangular fabric airbag cushion, and the airbag inflator. The airbag housing contains the airbag inflator, while the inner cover contains the folded airbag cushion. The inner cover completely encloses the airbag cushion and is permanently retained to the housing. The airbag cushion is constructed of a coated nylon fabric. The airbag inflator is a dual-initiator, hybrid-type unit that is secured to and sealed within the airbag housing.

The passenger airbag cannot be repaired, and must be replaced if deployed, faulty, or in any way damaged. The passenger airbag door is serviced only as a unit with the instrument panel top pad. If the passenger airbag is deployed, the instrument panel top pad must also be replaced. If inspection reveals that the passenger airbag mounting points on the instrument panel structural duct have been cracked or damaged by the deployment event, the instrument panel structural duct assembly must also be replaced.

OPERATION

The multistage passenger airbag is deployed by electrical signals generated by the Airbag Control Module (ACM) through the passenger airbag squib 1 and squib 2 circuits to the two initiators in the airbag inflator. By using two initiators, the airbag can be deployed at multiple levels of force. The force level is controlled by the ACM to suit the monitored impact conditions by providing one of four delay intervals between the electrical signals provided to the two initiators. The longer the delay between these signals, the less forcefully the airbag will deploy.

The hybrid-type inflator assembly includes a small canister of highly compressed gas. When the ACM sends the proper electrical signal to the airbag initiator, the initiator generates enough heat to ignite chemical pellets within the inflator. Once ignited, these chemical pellets burn rapidly and produce the pressure necessary to rupture a containment disk in the pressurized gas canister. The inflator and gas canister are sealed to the airbag cushion so that all of the released inert gas is directed into the airbag cushion, causing the cushion to inflate. As the cushion inflates, the passenger airbag door will bend back the instrument panel top pad at the predetermined hinge line, then fold back over the top of the instrument panel and out of the way. Following a passenger airbag deployment, the airbag cushion quickly deflates by venting the inert gas through vent holes within the fabric used to construct the sides of the airbag cushion.

Typically, both initiators are used during an airbag deployment event. However, it is possible for only one initiator to be used during a deployment due to an airbag system fault; therefore, it is necessary to always confirm that both initiators have been used in order to avoid the improper disposal of potentially live pyrotechnic materials. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

REMOVAL

The following procedure is for replacement of a faulty or damaged passenger airbag. If the airbag is

PASSENGER AIRBAG (Continued)

faulty or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS). If the passenger airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: WHEN REMOVING A DEPLOYED AIRBAG, RUBBER GLOVES, EYE PROTECTION, AND A LONG-SLEEVED SHIRT SHOULD BE WORN. THERE MAY BE DEPOSITS ON THE AIRBAG UNIT AND OTHER INTERIOR SURFACES. IN LARGE DOSES, THESE DEPOSITS MAY CAUSE IRRITATION TO THE SKIN AND EYES.

(1) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(2) Remove the top pad from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP PAD - REMOVAL).

(3) Disconnect the passenger airbag pigtail wire connector from the instrument panel wire harness connector for the airbag. This connector is secured to the outside of the outboard airbag unit end bracket. To disconnect the connector:

(a) Slide the red Connector Position Assurance (CPA) lock on the top of the connector toward the side of the connector.

(b) Depress the connector latch tab and pull the two halves of the connector straight away from each other.

(4) Remove the two screws that secure the two airbag end bracket front mounting tabs to the top of the instrument panel structural duct (Fig. 36).

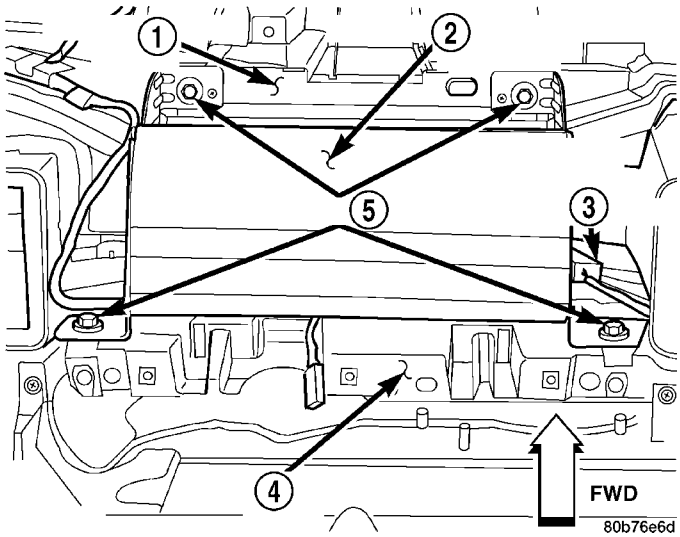


Fig. 36 Passenger Airbag Module Remove/Install

1 - STRUCTURAL DUCT
2 - PASSENGER AIRBAG
3 - WIRE HARNESS CONNECTOR
4 - STRUCTURAL DUCT
5 - SCREW (4)

(5) Remove the two screws that secure the two airbag end bracket rear mounting tabs to the rear of the structural duct, just above the instrument panel upper glove box opening reinforcement.

(6) Remove the passenger airbag from the instrument panel structural duct as a unit.

(7) If the passenger airbag has been deployed, carefully inspect the airbag mounting points on the instrument panel structural duct. If the airbag mounting points have been damaged or deformed, the instrument panel structural duct must be replaced. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL STRUCTURAL DUCT - REMOVAL).

INSTALLATION

The following procedure is for replacement of a faulty or damaged passenger airbag. If the airbag is faulty or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS). If the passenger airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

PASSENGER AIRBAG (Continued)

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: WHEN REMOVING A DEPLOYED AIRBAG, RUBBER GLOVES, EYE PROTECTION, AND A LONG-SLEEVED SHIRT SHOULD BE WORN. THERE MAY BE DEPOSITS ON THE AIRBAG UNIT AND OTHER INTERIOR SURFACES. IN LARGE DOSES, THESE DEPOSITS MAY CAUSE IRRITATION TO THE SKIN AND EYES.

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE PASSENGER AIRBAG, OR BECOMING ENTRAPPED BETWEEN THE PASSENGER AIRBAG CUSHION AND THE INSTRUMENT PANEL TOP PAD. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

WARNING: THE INSTRUMENT PANEL TOP PAD MUST NEVER BE PAINTED. REPLACEMENT TOP PADS ARE SERVICED IN THE ORIGINAL COLORS. PAINT MAY CHANGE THE WAY IN WHICH THE MATERIAL OF THE TOP PAD RESPONDS TO AN AIRBAG DEPLOYMENT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE PASSENGER AIRBAG, OR BECOMING ENTRAPPED BETWEEN THE PASSENGER AIRBAG CUSHION AND THE PASSENGER AIRBAG DOOR PROVISION OF THE INSTRUMENT PANEL TOP PAD. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

(1) Carefully position the passenger airbag unit onto the instrument panel structural duct (Fig. 36).

(2) Install and tighten the four screws that secure the passenger airbag to the instrument panel structural duct. Tighten the screws to 12 N·m (105 in. lbs.).

(3) Reconnect the passenger airbag pigtail wire connector to the instrument panel wire harness connector for the airbag. This connector is secured to the outside of the outboard airbag unit end bracket. Be certain that the latch on the connector and the red Connector Position Assurance (CPA) lock are each fully engaged.

(4) Reinstall the top pad onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP PAD - INSTALLATION).

(5) Do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

REAR CENTER SEAT BELT & RETRACTOR

REMOVAL

This procedure applies to vehicles manufactured for sale in markets outside of North America, which are equipped with a three-point seat belt and retractor unit for the rear center seating position. Vehicles manufactured for North America have a lap belt provided in the rear center seating position. (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR SEAT LAP BELT/BUCKLE - REMOVAL).

REAR CENTER SEAT BELT & RETRACTOR (Continued)

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Unlatch and fold the right rear seat cushion forward.

(2) Remove the screw that secures the rear center seat belt lower anchor to the right rear seat belt buckle unit bracket on the rear floor panel (Fig. 37).

(3) Unlatch and fold the right rear seat back forward and separate the cargo area carpet from the base of the seat back panel.

(4) Remove the right rear seat back panel from the vehicle. (Refer to 23 - BODY/SEATS/SEAT BACK - REAR - REMOVAL).

(5) Remove the two screws that secure the belt web guide to the top of the right rear seat back panel.

(6) Remove the trim from the right rear seat back. (Refer to 23 - BODY/SEATS/SEAT BACK COVER - REAR - REMOVAL).

(7) Route the rear seat belt lower anchor and belt web guide through the top of the seat back panel.

(8) Disengage the seat back latch cable fitting from the cable support on the retractor, which is a light snap fit (Fig. 38).

(9) Remove the screw that secures the retractor to the rear seat back panel (Fig. 39).

(10) Remove the rear center seat belt and retractor unit from the seat back panel.

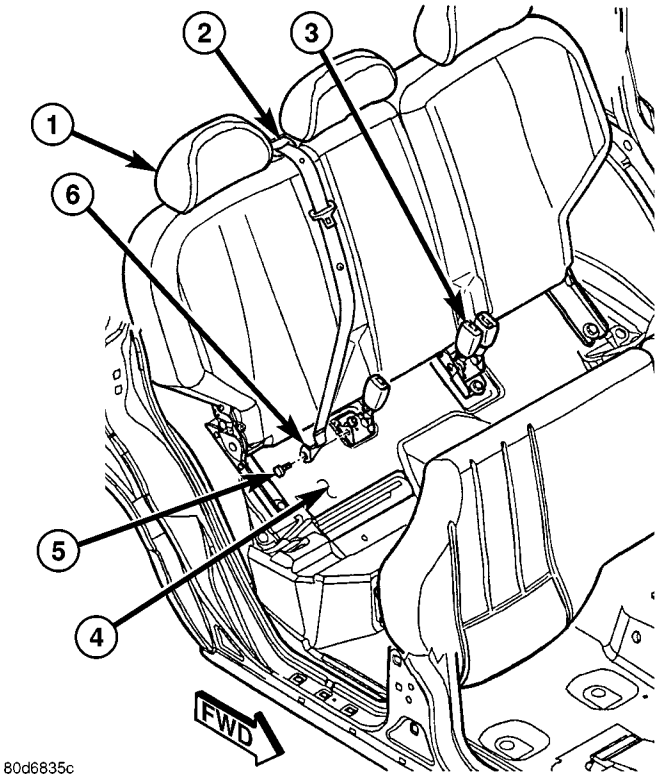


Fig. 37 Rear Center Seat Belt Lower Anchor Remove/Install

1 - REAR SEAT BACK
2 - REAR CENTER SEAT BELT & RETRACTOR
3 - RIGHT REAR SEAT BELT BUCKLE UNIT
4 - REAR FLOOR PANEL
5 - SCREW (1)
6 - LOWER ANCHOR

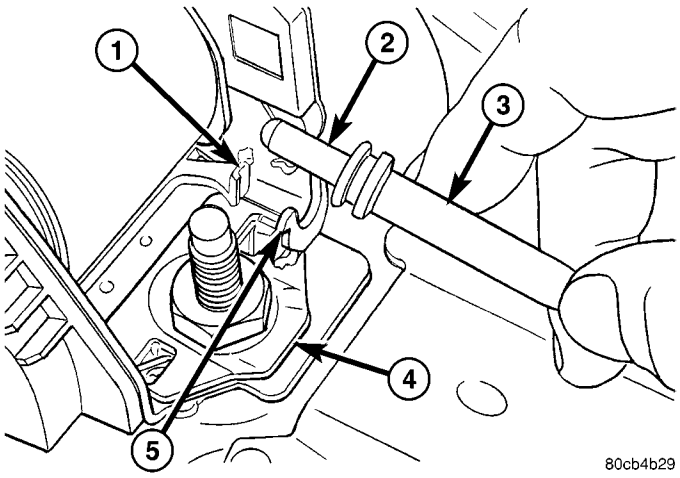


Fig. 38 Seat Back Latch Cable Disengage/Engage

1 - LEVER
2 - PLUNGER
3 - LATCH CABLE FITTING
4 - REAR CENTER RETRACTOR
5 - SUPPORT

REAR CENTER SEAT BELT & RETRACTOR (Continued)

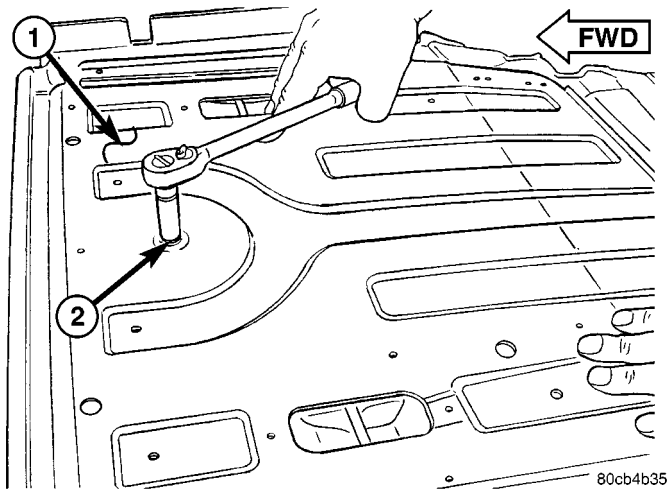


Fig. 39 Rear Center Retractor Remove/Install

1 - REAR SEAT BACK PANEL
2 - SCREW (1)

INSTALLATION

This procedure applies to vehicles manufactured for sale in markets outside of North America, which are equipped with a three-point seat belt and retractor unit for the rear center seating position. Vehicles manufactured for North America have a lap belt provided in the rear center seating position. (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR SEAT LAP BELT/BUCKLE - INSTALLATION).

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Position the rear center seat belt and retractor unit onto the seat back panel.

(2) Install and tighten the screw that secures the retractor to the rear seat back panel (Fig. 39). Tighten the screw to 43 N·m (32 ft. lbs.).

(3) Position the seat back latch cable plunger against the retractor latch lever, then engage the cable fitting into the cable support on the retractor, which is a light snap fit (Fig. 38).

(4) Route the rear seat belt lower anchor and belt web guide through the top of the seat back panel.

(5) Reinstall the trim onto the right rear seat back. (Refer to 23 - BODY/SEATS/SEAT BACK COVER - REAR - INSTALLATION).

(6) Install and tighten the two screws that secure the belt web guide to the top of the right rear seat back panel. Tighten the screws to 2 N·m (20 in. lbs.).

(7) Reinstall the right rear seat back panel into the vehicle. (Refer to 23 - BODY/SEATS/SEAT BACK - REAR - INSTALLATION).

(8) Restore the cargo area carpet to the base of the seat back panel and unfold the right rear seat back to its upright position.

(9) Position the rear center seat belt lower anchor to the right rear seat belt buckle unit bracket on the rear floor panel (Fig. 37).

(10) Install and tighten the screw that secures the rear center seat belt lower anchor to the right rear seat belt buckle unit bracket on the rear floor panel. Tighten the screw to 43 N·m (32 ft. lbs.).

(11) Fold and latch the right rear seat cushion in its normal seating position.

REAR OUTBOARD SEAT BELT & RETRACTOR

REMOVAL

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Disengage the rear seat cushion latch by pulling upward on the release strap.

(2) Fold the rear seat cushion forward against the back of the front bucket seat.

(3) Remove the screw that secures the rear outboard seat belt lower anchor to the rear floor panel (Fig. 40).

(4) Remove the lower anchor from the rear floor panel.

(5) Remove the trim from the quarter inner panel. (Refer to 23 - BODY/INTERIOR/QUARTER TRIM PANEL - REMOVAL).

(6) Remove the trim from the upper C-pillar. (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - REMOVAL).

(7) Remove the screw that secures the seat belt turning loop to the upper C-pillar.

(8) Remove the seat belt turning loop from the upper C-pillar.

(9) Remove the screw that secures the retractor to the mounting tab on the inner and outer rear wheelhouse flange.

(10) Disengage the retractor locator tab from the slot in the lower C-pillar (Fig. 41).

(11) Remove the rear outboard seat belt and retractor from the lower C-pillar as a unit.

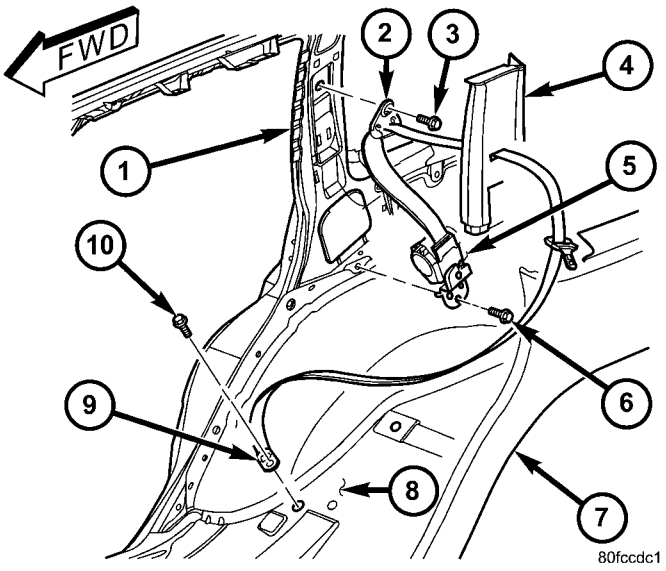


Fig. 40 Rear Outboard Seat Belt & Retractor Remove/Install

1 - C-PILLAR
2 - TURNING LOOP
3 - SCREW
4 - UPPER C-PILLAR TRIM
5 - RETRACTOR
6 - SCREW
7 - QUARTER TRIM PANEL
8 - REAR FLOOR PANEL
9 - LOWER ANCHOR
10 - SCREW

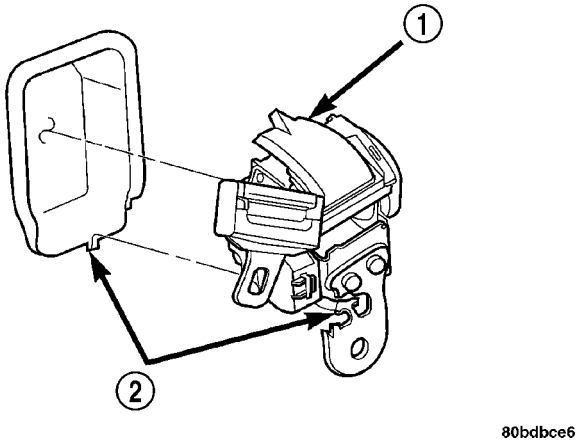


Fig. 41 Rear Outboard Retractor

1 - RETRACTOR
2 - SLOT/LOCATOR TAB

REAR OUTBOARD SEAT BELT & RETRACTOR (Continued)

INSTALLATION

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Position the retractor in the lower C-pillar and be certain that the retractor locator tab is engaged in the slot in the lower C-pillar below the retractor (Fig. 41).

(2) Install and tighten the screw that secures the retractor bracket to the mounting tab on the inner and outer rear wheelhouse flange (Fig. 40). Tighten the screw to 43 N·m (32 ft. lbs.).

(3) Position the seat belt turning loop to the upper C-pillar.

(4) Install and tighten the screw that secures the seat belt turning loop to the upper C-pillar. Tighten the screw to 43 N·m (32 ft. lbs.).

(5) Reinstall the trim onto the upper C-pillar. (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - INSTALLATION).

(6) Reinstall the trim onto the quarter inner panel. (Refer to 23 - BODY/INTERIOR/QUARTER TRIM PANEL - INSTALLATION).

(7) Position the rear outboard seat belt lower anchor to the rear floor panel.

(8) Install and tighten the screw that secures the rear outboard seat belt lower anchor to the rear floor panel. Tighten the screw to 43 N·m (32 ft. lbs.).

(9) Fold the rear seat cushion back into the seating position.

REAR SEAT BELT BUCKLE

REMOVAL

This procedure applies to the rear seat buckle units for all vehicles. Vehicles manufactured for North America also have a lap belt provided in the rear center seating position, which is integral to the right rear buckle unit. Vehicles manufactured for sale in markets outside of North America are equipped with a three-point seat belt and retractor unit for the rear center seating position. (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR CENTER SEAT BELT & RETRACTOR - REMOVAL).

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Disengage the rear seat cushion latch by pulling upward on the release strap.

(2) Fold the rear seat cushion forward against the back of the front bucket seat.

(3) Remove the screw that secures the anchor plate of the rear seat lap belt/buckle unit (right side) or buckle/buckle unit (left side) to the rear floor panel (Fig. 42).

NOTE: Vehicles equipped with a three-point center seat belt have the center seat belt lower anchor secured to the right buckle anchor plate with a screw instead of the center lap belt. (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR CENTER SEAT BELT & RETRACTOR - REMOVAL).

(4) Remove the rear seat lap belt/buckle unit (right side) or buckle/buckle unit (left side) from the rear floor panel.

REAR SEAT BELT BUCKLE (Continued)

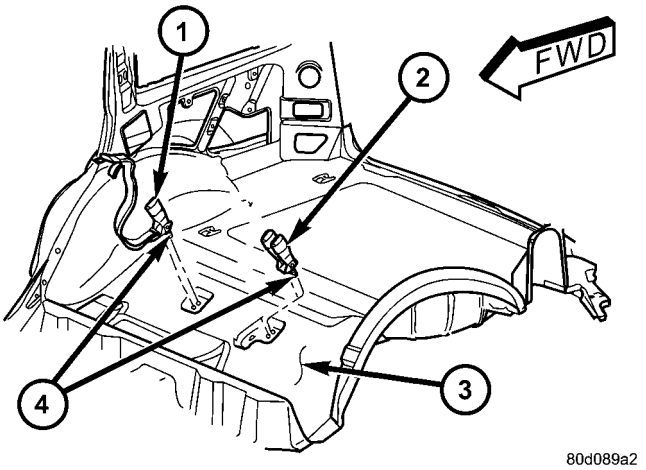


Fig. 42 Rear Seat Lap Belt/Buckle

1 - REAR SEAT LAP BELT/BUCKLE UNIT
2 - REAR SEAT BUCKLE/BUCKLE UNIT
3 - REAR FLOOR PANEL
4 - SCREW

INSTALLATION

This procedure applies to the rear seat buckle units for all vehicles. Vehicles manufactured for North America also have a lap belt provided in the rear center seating position, which is integral to the right rear buckle unit. Vehicles manufactured for sale in markets outside of North America are equipped with a three-point seat belt and retractor unit for the rear center seating position. (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR CENTER SEAT BELT & RETRACTOR - INSTALLATION).

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Position the rear seat lap belt/buckle unit (right side) or buckle/buckle unit (left side) onto the rear floor panel (Fig. 42). Be certain the locator tab on the anchor plate is installed in the locator hole near the mounting hole in the rear floor panel.

(2) Install and tighten the screw that secures the anchor plate of the rear seat lap belt/buckle unit (right side) or buckle/buckle unit (left side) to the rear floor panel. Tighten the screw to 43 N·m (32 ft. lbs.).

NOTE: Vehicles equipped with a three-point center seat belt have the center seat belt lower anchor secured to the right buckle anchor plate with a screw instead of the center lap belt. (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR CENTER SEAT BELT & RETRACTOR - INSTALLATION).

(3) Fold the rear seat cushion back into the seating position.

SEAT BELT SWITCH

DESCRIPTION

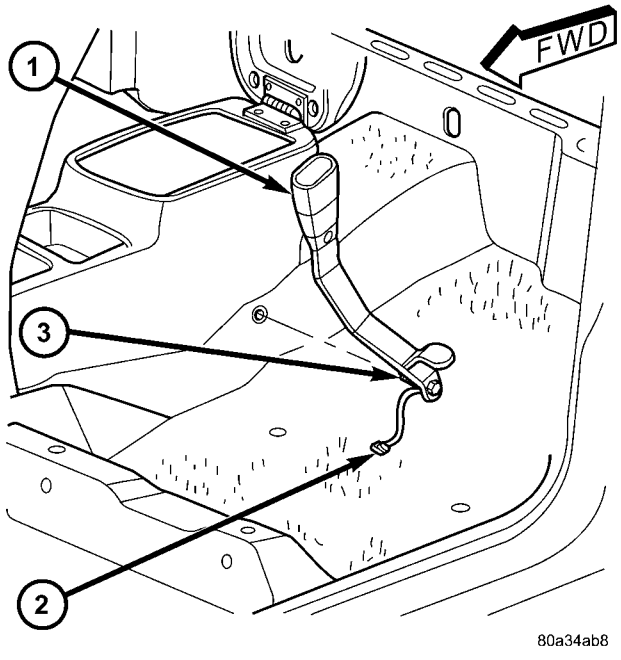


Fig. 43 Front Seat Belt Buckle

1 - FRONT SEAT BELT BUCKLE
2 - SEAT BELT SWITCH PIGTAIL WIRE
3 - SCREW

The seat belt switch for this model is actually a Hall Effect-type sensor. This sensor consists of a fixed-position, Hall Effect Integrated Circuit (IC) chip and a small permanent magnet that is integral to the driver side front seat belt buckle. The driver side

SEAT BELT SWITCH (Continued)

front seat belt buckle is located on a stamped steel stanchion within a molded plastic scabbard and secured with a screw to the floor panel transmission tunnel on the inboard side of the driver side front seat cushion (Fig. 43). The seat belt switch is connected to the vehicle electrical system through a two-lead pigtail wire and connector on the driver side front seat belt buckle-half, which is connected to a wire harness connector and take out of the body wire harness on vehicles with manual seat adjusters, or to a connector and take out of the power seat wire harness on vehicles with power seat adjusters. A radio noise suppression capacitor is connected in parallel with the IC where the two pigtail wire leads connect to the IC pins.

The seat belt switch cannot be adjusted or repaired and, if faulty or damaged, the entire driver side front seat belt buckle-half unit must be replaced.

OPERATION

The seat belt switch is designed to provide a status signal to the seat belt switch sense input of the Airbag Control Module (ACM) indicating whether the driver side front seat belt is fastened. The ACM uses the seat belt switch input as a factor in determining what level of force with which it should deploy the multistage driver and passenger airbags. In addition, the ACM sends electronic messages to the ElectroMechanical Instrument Cluster (EMIC) to control the seat belt indicator based upon the status of the driver side front seat belt switch.

A spring-loaded slide with a small window-like opening is integral to the buckle latch mechanism. When a seat belt tip-half is inserted and latched into the seat belt buckle, the slide is pushed downward and the window of the slide exposes the Hall Effect Integrated Circuit (IC) chip within the buckle. The field of the permanent magnet induces a current within the chip. The chip provides this induced current as an output to the ACM, which monitors the current to determine the status of the driver side front seat belt. When the seat belt is unbuckled, the spring-loaded slide moves upward and shields the IC from the field of the permanent magnet, causing the output current from the seat belt switch to be reduced.

The seat belt switch receives a supply current from the ACM, and the ACM senses the status of the driver side front seat belt through its pigtail wire connection to the airbag overlay wire harness. The ACM also monitors the condition of the seat belt switch circuit and will illuminate the airbag indicator in the EMIC then store a Diagnostic Trouble Code (DTC) for any fault that is detected in the seat belt switch circuit. For proper diagnosis of the seat belt switch, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

SEAT BELT TURNING LOOP ADJUSTER

REMOVAL

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Remove the turning loop from the front seat belt turning loop adjuster. (Refer to 8 - ELECTRICAL/RESTRAINTS/FRONT SEAT BELT & RETRACTOR - REMOVAL).

(2) Remove the trim from the upper B-pillar. (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - REMOVAL).

(3) Remove the screw that secures the upper end of the turning loop adjuster to the upper B-pillar (Fig. 44).

(4) Pull the upper end of the turning loop adjuster away from the B-pillar far enough to disengage the hooks on the lower end of the adjuster from the slots in the pillar.

(5) Remove the turning loop adjuster from the upper B-pillar.

SEAT BELT TURNING LOOP ADJUSTER (Continued)

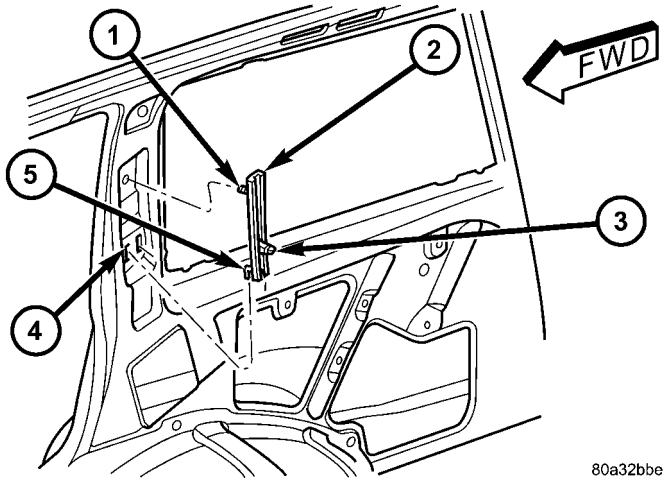


Fig. 44 Seat Belt Turning Loop Adjuster - Typical

1 - SCREW (1)
2 - ADJUSTER
3 - LEVER
4 - SLOTS (2)
5 - HOOKS (2)

INSTALLATION

WARNING: DURING AND FOLLOWING ANY SEAT BELT OR CHILD RESTRAINT ANCHOR SERVICE, CAREFULLY INSPECT ALL SEAT BELTS, BUCKLES, MOUNTING HARDWARE, RETRACTORS, TETHER STRAPS, AND ANCHORS FOR PROPER INSTALLATION, OPERATION, OR DAMAGE. REPLACE ANY BELT THAT IS CUT, FRAYED, OR TORN. STRAIGHTEN ANY BELT THAT IS TWISTED. TIGHTEN ANY LOOSE FASTENERS. REPLACE ANY BELT THAT HAS A DAMAGED OR INOPERATIVE BUCKLE OR RETRACTOR. REPLACE ANY BELT THAT HAS A BENT OR DAMAGED LATCH PLATE OR ANCHOR PLATE. REPLACE ANY CHILD RESTRAINT ANCHOR OR THE UNIT TO WHICH THE ANCHOR IS INTEGRAL THAT HAS BEEN BENT OR DAMAGED. NEVER ATTEMPT TO REPAIR A SEAT BELT OR CHILD RESTRAINT COMPONENT. ALWAYS REPLACE DAMAGED OR FAULTY SEAT BELT AND CHILD RESTRAINT COMPONENTS WITH THE CORRECT, NEW AND UNUSED REPLACEMENT PARTS LISTED IN THE DAIMLERCHRYSLER MOPAR PARTS CATALOG.

(1) Position the turning loop adjuster to the upper B-pillar.

(2) Engage the hooks on the lower end of the adjuster into the slots in the upper B-pillar (Fig. 44).

(3) Tilt the upper end of the turning loop adjuster into position against the B-pillar.

(4) Install and tighten the screw that secures the upper end of the front or rear height adjuster to the B-pillar. Tighten the screw to 43 N·m (32 ft. lbs.).

(5) Reinstall the trim onto the upper B-pillar. (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - INSTALLATION).

(6) Reinstall the front seat belt turning loop to the adjuster. (Refer to 8 - ELECTRICAL/RESTRAINTS/FRONT SEAT BELT & RETRACTOR - INSTALLATION).

SIDE CURTAIN AIRBAG

DESCRIPTION



Fig. 45 SRS Logo

Optional side curtain airbags are available for this model when it is also equipped with dual front airbags. These airbags are passive, inflatable, Supplemental Restraint System (SRS) components, and vehicles with this equipment can be readily identified by a molded identification trim button with the “SRS - AIRBAG” logo located on the headliner above each B-pillar (Fig. 45). This system is designed to reduce injuries to the vehicle occupants in the event of a side impact collision.

Vehicles equipped with side curtain airbags have two individually controlled curtain airbag units. These airbag units are concealed and mounted above the headliner where they are each secured to one of the roof side rails (Fig. 46). Each folded airbag cushion is contained within a long extruded plastic channel that extends along the roof rail from the A-pillar at the front of the vehicle to just behind the C-pillar at the rear of the vehicle. One tether extends down the A-pillar from the front of the airbag cushion, and a second tether extends to the roof rail above the D-pillar. The ends of these tethers are secured to slots in the sheet metal with metal hooks retained by plastic anchor clips.

The hybrid-type inflator for each airbag is secured to the roof rail at the rear of the airbag unit between the C-pillar and the D-pillar, and is connected to the

SIDE CURTAIN AIRBAG (Continued)

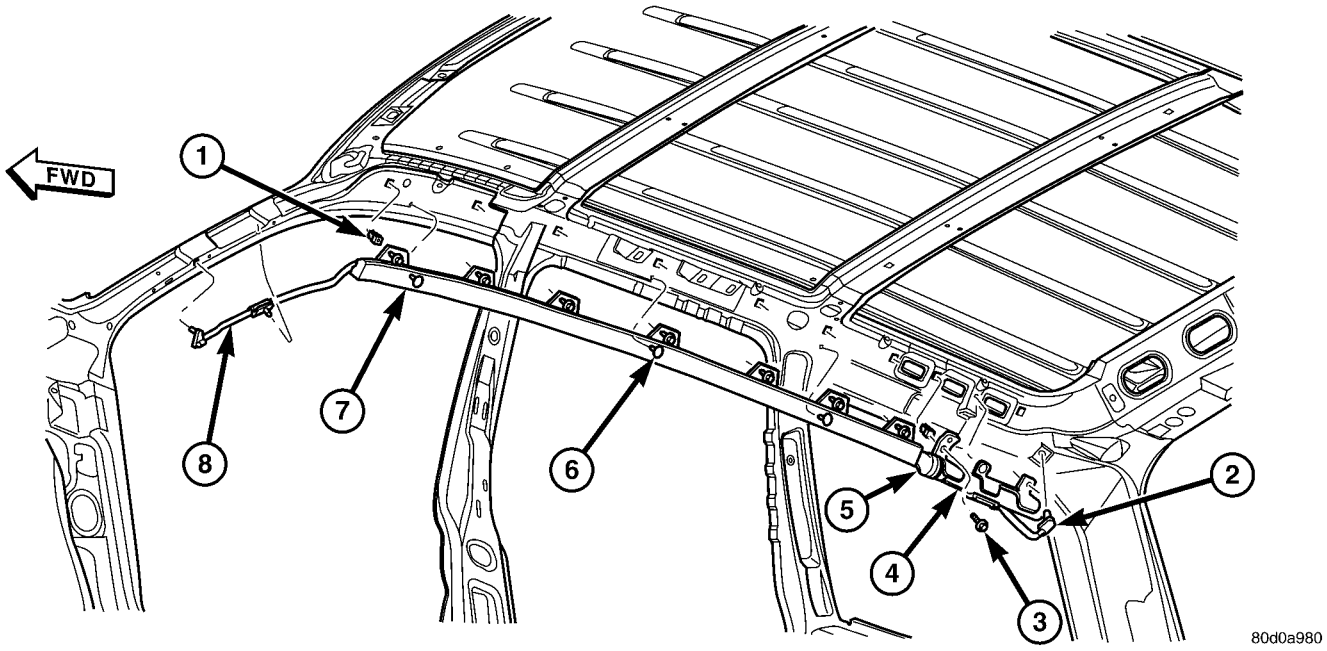


Fig. 46 Side Curtain Airbag

1 - NUT (9)
2 - REAR TETHER
3 - SCREW (9)
4 - INFLATOR
5 - MANIFOLD
6 - PUSH-IN FASTENER (4)
7 - CHANNEL
8 - FRONT TETHER

airbag cushion by a long tubular manifold. The inflator bracket and the extruded airbag cushion channel are secured with both plastic push-in fasteners and screws to the roof rail. A short pigtail wire and connector connect the airbag inflator to a dedicated take out and connector of the body wire harness near the top of the D-pillar.

The side curtain airbag unit cannot be adjusted or repaired and must be replaced if deployed, faulty, or in any way damaged. Once a side curtain airbag has been deployed, the complete airbag unit, the headliner, the upper A, B, and C-pillar trim, and all other visibly damaged components must be replaced.

OPERATION

Each side curtain airbag is deployed individually by an electrical signal generated by the Airbag Control Module (ACM) to which it is connected through left or right curtain airbag line 1 and line 2 (or squib) circuits. The hybrid-type inflator assembly for each airbag contains a small canister of highly compressed inert gas. When the ACM sends the proper electrical signal to the airbag inflator, the electrical energy creates enough heat to ignite chemical pellets within the inflator. Once ignited, these chemicals burn rapidly and produce the pressure necessary to rupture a containment disk in the inert gas canister. The inflator and inert gas canister are sealed and connected to a tubular manifold so that all of the released gas is directed into the folded side curtain airbag cushion, causing the cushion to inflate.

As the airbag cushion inflates it will drop down from the roof rail between the edge of the headliner and the side glass/body pillars to form a curtain-like cushion to protect the vehicle occupants during a side impact collision. The front and rear tethers keep the side curtain bag taut, thus ensuring that the bag will deploy in the proper position. Following the airbag deployment, the airbag cushion quickly deflates by venting the inert gas through the loose weave of the cushion fabric, and the deflated cushion hangs down loosely from the roof rail.

REMOVAL

The following procedure is for replacement of a faulty or damaged side curtain airbag. If the airbag is faulty or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. (Refer to 8 - ELECTRICAL/ RESTRAINTS - STANDARD PROCEDURE - HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS). If the side curtain airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

SIDE CURTAIN AIRBAG (Continued)

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: WHEN REMOVING A DEPLOYED AIRBAG, RUBBER GLOVES, EYE PROTECTION, AND A LONG-SLEEVED SHIRT SHOULD BE WORN. THERE MAY BE DEPOSITS ON THE AIRBAG UNIT AND OTHER INTERIOR SURFACES. IN LARGE DOSES, THESE DEPOSITS MAY CAUSE IRRITATION TO THE SKIN AND EYES.

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE SIDE CURTAIN AIRBAG, OR BECOMING ENTRAPPED BETWEEN THE SIDE CURTAIN AIRBAG CUSHION AND THE HEADLINER. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

(1) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(2) Remove the headliner from the vehicle. (Refer to 23 - BODY/INTERIOR/HEADLINER - REMOVAL).

(3) Disconnect the side curtain airbag inflator pigtail wire from the body wire harness connector for the inflator on the upper D-pillar (Fig. 47).

(4) Disengage the side curtain airbag rear tether hook and plastic retainer clip from the slot in the roof rail near the D-pillar.

(5) Disengage the side curtain airbag front tether hook and plastic retainer clip from the slot in the lower A-pillar (Fig. 48).

(6) Disengage the side curtain airbag front tether plastic retainer from the hole in the upper A-pillar.

(7) Remove the nine screws that secure the side curtain airbag channel and inflator mounting bracket to the spring nuts in the roof side rail.

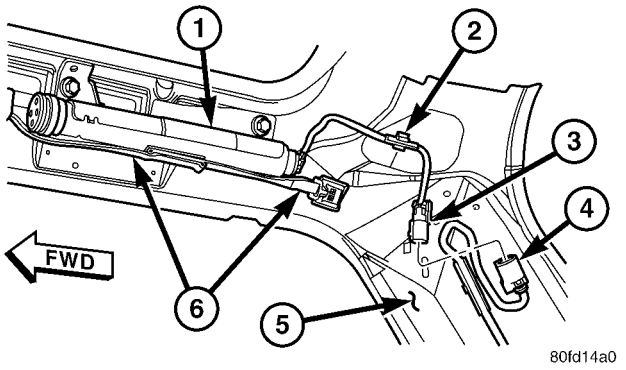


Fig. 47 Side Curtain Airbag Inflator

1 - INFLATOR
2 - CLIP
3 - PIGTAIL WIRE CONNECTOR
4 - BODY WIRE HARNESS
5 - D-PILLAR
6 - REAR TETHER

(8) Grasp the extruded plastic channel of the side curtain airbag firmly and pull it straight away from the body far enough to disengage all three plastic push-in fasteners that secure it to the locating holes in the roof side rail.

(9) Grasp the inflator of the side curtain airbag firmly and pull it straight away from the body far enough to disengage the push-in fastener that secures it to the locating hole in the roof side rail.

(10) Remove the side curtain airbag from the vehicle as a unit.

INSTALLATION

The following procedure is for replacement of a faulty or damaged side curtain airbag. If the airbag is faulty or damaged, but not deployed, review the recommended procedures for handling non-deployed supplemental restraints. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - HANDLING NON-DEPLOYED SUPPLEMENTAL RESTRAINTS). If the side curtain airbag has been deployed, review the recommended procedures for service after a supplemental restraint deployment before removing the airbag from the vehicle. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - SERVICE AFTER A SUPPLEMENTAL RESTRAINT DEPLOYMENT).

SIDE CURTAIN AIRBAG (Continued)

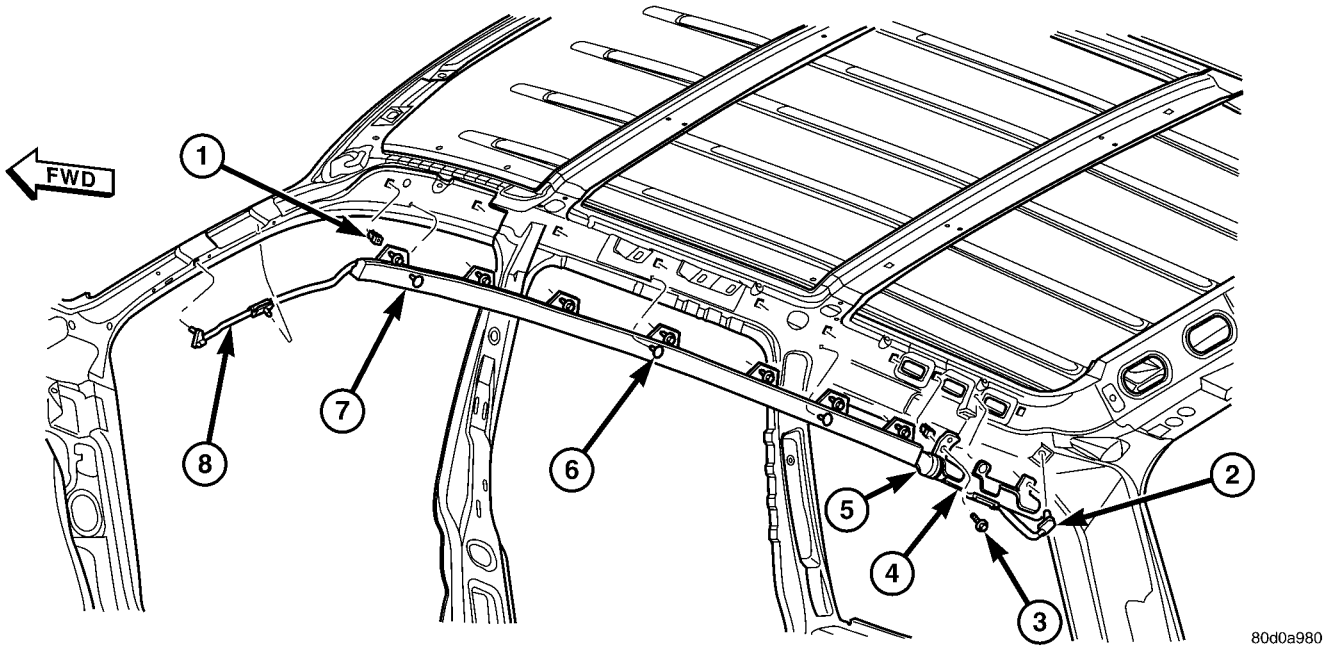


Fig. 48 Side Curtain Airbag Remove/Install

1 - NUT (9)
2 - REAR TETHER
3 - SCREW (9)
4 - INFLATOR
5 - MANIFOLD
6 - PUSH-IN FASTENER (4)
7 - CHANNEL
8 - FRONT TETHER

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: WHEN REMOVING A DEPLOYED AIRBAG, RUBBER GLOVES, EYE PROTECTION, AND A LONG-SLEEVED SHIRT SHOULD BE WORN. THERE MAY BE DEPOSITS ON THE AIRBAG UNIT AND OTHER INTERIOR SURFACES. IN LARGE DOSES, THESE DEPOSITS MAY CAUSE IRRITATION TO THE SKIN AND EYES.

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE SIDE CURTAIN AIRBAG, OR BECOMING ENTRAPPED BETWEEN THE SIDE CURTAIN AIRBAG CUSHION AND THE HEADLINER. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

(1) Position the side curtain airbag into the vehicle as a unit.

(2) Align the push-in fastener that secures the inflator of the side curtain airbag to the locating hole in the roof side rail and, using hand pressure, push firmly on the retainer until it is fully seated (Fig. 48).

(3) Align the three push-in fasteners that secure the extruded plastic channel of the side curtain airbag to the locating holes in the roof side rail and, using hand pressure, push firmly on each retainer until it is fully seated.

(4) Install and tighten the nine screws that secure the side curtain airbag channel and inflator mounting bracket to the spring nuts in the roof side rail. Tighten the screws to 6 N·m (50 in. lbs.).

(5) Align the side curtain airbag front tether plastic retainer with the hole in the upper A-pillar and, using hand pressure, push firmly on the retainer until it is fully seated.

SIDE CURTAIN AIRBAG (Continued)

(6) Engage the side curtain airbag front tether hook and plastic retainer clip into the slot in the lower A-pillar.

(7) Engage the side curtain airbag rear tether hook and plastic retainer clip into the slot in the roof rail near the D-pillar (Fig. 47).

(8) Reconnect the side curtain airbag inflator pigtail wire connector to the body wire harness connector for the inflator on the upper D-pillar.

(9) Reinstall the headliner into the vehicle. (Refer to 23 - BODY/INTERIOR/HEADLINER - INSTALLATION).

(10) Do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

SIDE IMPACT SENSOR

DESCRIPTION

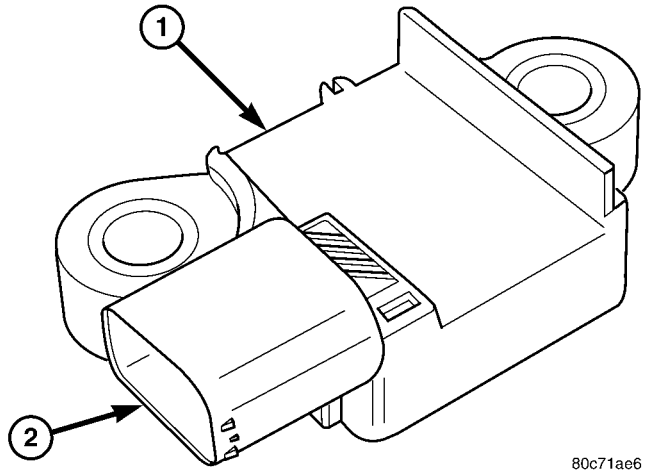


Fig. 49 Side Impact Sensor

1 - SENSOR
2 - CONNECTOR RECEPTACLE

On vehicles equipped with the optional side curtain airbags, two side impact sensors are used, one each for the left and right sides of the vehicle (Fig. 49). These sensors are mounted remotely from the bi-directional safing sensor that is internal to the Airbag Control Module (ACM). The side and front impact sensors are identical in construction and calibration with the exception of the right-hand and left-hand die cast aluminum mounting brackets to which each front impact sensor is secured with two screws. The side impact sensors are secured with two screws to the base of the right and left B-pillars just below the front seat belt retractors and behind the lower B-pillar trim within the passenger compartment.

The impact sensor housing has an integral connector receptacle and two integral mounting ears, each with a metal sleeve to provide crush protection. A cavity in the center of the molded black plastic impact sensor housing contains the electronic circuitry of the sensor which includes an electronic communication chip and an electronic impact sensor. Potting material fills the cavity to seal and protect the internal electronic circuitry and components. The side impact sensors are each connected to the vehicle electrical system through a dedicated take out and connector of the airbag overlay wire harness.

The side impact sensors cannot be repaired or adjusted and, if damaged or faulty, they must be replaced.

OPERATION

The side impact sensors are electronic accelerometers that sense the rate of vehicle deceleration, which provides verification of the direction and severity of an impact. Each sensor also contains an electronic communication chip that allows the unit to communicate the sensor status as well as sensor fault information to the microprocessor in the Airbag Control Module (ACM). The ACM microprocessor continuously monitors all of the passive restraint system electrical circuits to determine the system readiness. If the ACM detects a monitored system fault, it sets a Diagnostic Trouble Code (DTC) and controls the airbag indicator operation accordingly.

The impact sensors each receive battery current and ground through dedicated left and right sensor plus and minus circuits from the ACM. The impact sensors and the ACM communicate by modulating the voltage in the sensor plus circuit. The hard wired circuits between the side impact sensors and the ACM may be diagnosed and tested using conventional diagnostic tools and procedures. However, conventional diagnostic methods will not prove conclusive in the diagnosis of the ACM or the impact sensors. The most reliable, efficient, and accurate means to diagnose the impact sensors, the ACM, and the electronic message communication between the sensors and the ACM requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

SIDE IMPACT SENSOR (Continued)

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: THE SIDE IMPACT SENSOR ENABLES THE SYSTEM TO DEPLOY THE SIDE CURTAIN AIRBAG. NEVER STRIKE OR DROP THE SIDE IMPACT SENSOR, AS IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN IMPACT SENSOR IS ACCIDENTALLY DROPPED DURING SERVICE, THE SENSOR MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER SIDE CURTAIN AIRBAG DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

(1) Adjust the front seat to its most forward position for easiest access to the lower B-pillar trim.

(2) Disconnect and isolate the battery negative cable. Wait two minutes for the system capacitor to discharge before further service.

(3) Remove the trim from the lower right or left B-pillar. (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - REMOVAL).

(4) Disconnect the airbag overlay wire harness connector for the right or left side impact sensor from the sensor connector receptacle (Fig. 50).

(5) Remove the two screws that secure the right or left side impact sensor to the B-pillar.

(6) Remove the side impact sensor from the B-pillar.

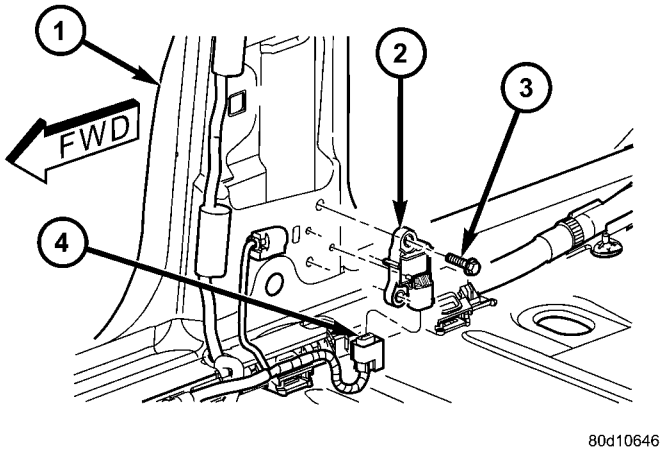


Fig. 50 Side Impact Sensor Remove/Install

1 - B-PILLAR
2 - SIDE IMPACT SENSOR
3 - SCREW (2)
4 - WIRE HARNESS CONNECTOR

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, SIDE CURTAIN AIRBAG, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

WARNING: THE SIDE IMPACT SENSOR ENABLES THE SYSTEM TO DEPLOY THE SIDE CURTAIN AIRBAG. NEVER STRIKE OR DROP THE SIDE IMPACT SENSOR, AS IT CAN DAMAGE THE IMPACT SENSOR OR AFFECT ITS CALIBRATION. IF AN IMPACT SENSOR IS ACCIDENTALLY DROPPED DURING SERVICE, THE SENSOR MUST BE SCRAPPED AND REPLACED WITH A NEW UNIT. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN ACCIDENTAL, INCOMPLETE, OR IMPROPER SIDE CURTAIN AIRBAG DEPLOYMENT AND POSSIBLE OCCUPANT INJURIES.

SIDE IMPACT SENSOR (Continued)

(1) Position the right or left side impact sensor onto the B-pillar (Fig. 50).

(2) Install and tighten the two screws that secure the right or left side impact sensor to the B-pillar. Tighten the screws to 12 N·m (105 in. lbs.).

(3) Reconnect the airbag overlay wire harness connector for the right or left side impact sensor to the sensor connector receptacle.

(4) Reinstall the trim onto the lower right or left B-pillar. (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - INSTALLATION).

(5) Do not reconnect the battery negative cable at this time. The supplemental restraint system verification test procedure should be performed following service of any supplemental restraint system component. (Refer to 8 - ELECTRICAL/RESTRAINTS - STANDARD PROCEDURE - VERIFICATION TEST).

WIPERS/WASHERS

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FRONT WIPERS/WASHERS

DESCRIPTION

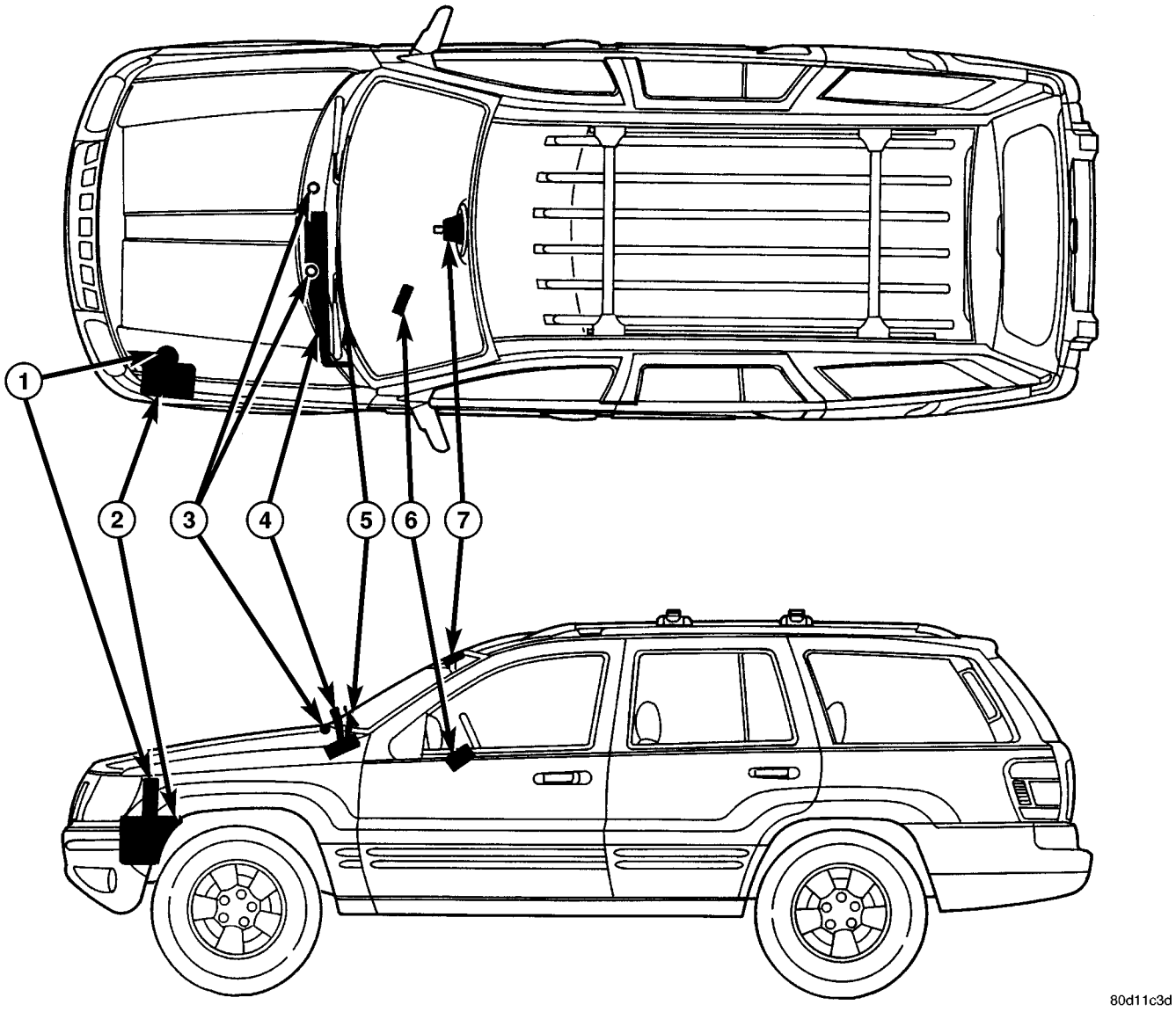


Fig. 1 Front Wiper & Washer System

1 - WASHER RESEVOIR FILLER TUBE
2 - WASHER RESERVOIR, PUMP/MOTOR, FLUID LEVEL SWITCH
3 - WASHER NOZZLE (2)
4 - WIPER MODULE
5 - WIPER ARM & BLADE (2)
6 - RIGHT (WIPER) MULTI-FUNCTION SWITCH RIGHT
7 - RAIN SENSOR MODULE

An electrically operated intermittent front wiper and washer system is standard factory-installed safety equipment on this model (Fig. 1). The front wiper and washer system includes the following major components, which are described in further detail elsewhere in this service information:

- **Body Control Module** - The Body Control Module (BCM) is located on the Junction Block (JB) under the driver side outboard end of the instrument panel. (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/BODY CONTROL MODULE - DESCRIPTION).

FRONT WIPERS/WASHERS (Continued)

- **Front Check Valve** - The front washer system check valve is integral to the wye fitting located in the washer plumbing between the cowl plenum washer hose and the front washer nozzles, and is concealed beneath the cowl plenum cover/grille panel at the base of the windshield.
- **Front Washer Nozzle** - Two fluidic front washer nozzles are secured with integral snap features to dedicated openings in the cowl plenum cover/grille panel located near the base of the windshield.
- **Front Washer Plumbing** - The plumbing for the front washer system consists of rubber hoses and molded plastic fittings. The plumbing is routed along the left side of the engine compartment from the washer reservoir, and through the dash panel into the cowl plenum beneath the cowl plenum cover/grille panel to the front washer nozzle fittings.
- **Front Washer Pump/Motor** - The front washer pump/motor unit is located in a dedicated hole on the lower outboard side of the washer reservoir, behind the inner fender liner ahead of the left front wheel. The front washer pump is located ahead of and below the rear washer pump.
- **Front Wiper Arm** - The two front wiper arms are secured with nuts to the threaded studs on the ends of the two wiper pivot shafts, which extend through the cowl plenum cover/grille panel located near the base of the windshield.
- **Front Wiper Blade** - The two front wiper blades are secured to the two front wiper arms with an integral latch, and are parked on the glass near the bottom of the windshield when the front wiper system is not in operation.
- **Front Wiper Module** - The front wiper pivot shafts are the only visible components of the front wiper module. The remainder of the module is concealed within the cowl plenum beneath the cowl plenum cover/grille panel. The front wiper module includes the wiper module bracket, four rubber-isolated wiper module mounts, the front wiper motor, the wiper motor crank arm, the two wiper drive links, and the two front wiper pivots.
- **Rain Sensor Module** - Models equipped with the optional automatic wiper feature have a Rain Sensor Module (RSM) located behind a trim cover on a bracket bonded to the inside surface of the windshield glass, just above the inside rear view mirror mounting button.
- **Right Multi-Function Switch** - The right (wiper) multi-function switch is secured to the right side of the multi-function switch mounting housing near the top of the steering column, just below the steering wheel. Only the control stalk for the right multi-function switch is visible, while the remainder of the switch is concealed beneath the steering column shrouds. The right multi-function switch contains all of the switches and control circuitry for both the front and rear wiper and washer systems.
- **Washer Fluid Level Switch** - The washer fluid level switch is located in a dedicated hole near the center of the forward facing surface of the washer reservoir, behind the left front wheel house splash shield.
- **Washer Reservoir** - The washer reservoir is concealed between the left inner fender shield and the left outer fender panel, behind the inner fender liner and ahead of the left front wheel. The washer reservoir filler neck is the only visible portion of the reservoir, and it is accessed from the left front corner of the engine compartment.
- **Wiper High-Low Relay** - The wiper high-low relay is an International Standards Organization (ISO) micro relay located in the Power Distribution Center (PDC) in the engine compartment near the battery.
- **Wiper On-Off Relay** - The wiper on-off relay is an International Standards Organization (ISO) micro relay located in the Power Distribution Center (PDC) in the engine compartment near the battery.

Hard wired circuitry connects the front wiper and washer system components to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the front wiper and washer system components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

OPERATING MODES

The components of the front wiper and washer system are designed to work in concert to provide the following operating modes:

- **Automatic Wipe Mode** - In models equipped with the optional automatic wiper feature, the internal circuitry of both the right (wiper) multi-function switch, the rain sensor module, and the BCM work in concert to provide an automatic wiper mode with five sensitivity selections. When selected, this switch position will automatically operate the front wipers at the programmed speed and intervals to maintain visibility through the windshield glass.
- **Continuous Wipe Mode** - The control knob on the control stalk of the right (wiper) multi-function

switch has two continuous wipe positions, Low and High. When selected, these switch positions will cause the two-speed front wiper motor to operate in a continuous low or high speed cycle.

- **Headlamps On With Wipers Mode** - The BCM provides an automatic headlamps on with wipers feature for models equipped with the optional automatic headlamps. This is a customer programmable feature. If this feature is enabled, the headlamps will turn on automatically whenever the windshield wipers are turned on; and, if the headlamps were turned on automatically when the wipers were turned on, they will also turn off automatically when the wipers are turned off. If this feature is enabled in models equipped with the optional automatic wiper feature, when the automatic wiper mode is selected the headlamps will turn on automatically only after the wipers complete three automatic wipe cycles within about thirty seconds, and they will turn off automatically after three minutes elapse without any automatic wipe cycles. (Refer to 8 - ELECTRICAL/ OVERHEAD CONSOLE - STANDARD PROCEDURE - ELECTRONIC VEHICLE INFORMATION CENTER PROGRAMMING).
- **Mist Wipe Mode** - The control stalk of the right (wiper) multi-function switch has a momentary Mist position. When selected, this switch position will operate the front wipers in a low speed continuous cycle for as long as the switch is held closed, then will complete the current wipe cycle and park the front wiper blades near the base of the windshield when the switch is released.
- **Speed Sensitive Intermittent Wipe Mode** - Except on models equipped with the optional automatic wiper system, the internal circuitry of both the right (wiper) multi-function switch and the BCM work in concert to provide an intermittent wipe mode with five delay interval selections. When this mode is selected, the BCM automatically adjusts each of the five manually selected delay intervals between complete wipe cycles to compensate for vehicle speed.
- **Washer Mode** - When the momentary front wash position of the control stalk for the right (wiper) multi-function switch is selected with the front wiper system operating in a continuous wipe mode, washer fluid will be dispensed onto the windshield glass through the washer nozzles for as long as the washer switch is held closed. When the front washer switch is actuated with the front wiper system operating in an intermittent wipe mode, washer fluid is still dispensed until the switch is released; however, the front wipers will operate in a low speed continuous cycle from the time the washer switch is closed until several wipe cycles after the switch is released, before returning to the selected intermittent wipe mode.
- **Wipe-After-Wash Mode** - When the momentary front wash position of the control stalk for the right (wiper) multi-function switch is selected with the front wiper system turned Off, the internal circuitry of the BCM provides a wipe-after-wash feature. When selected, this feature will operate the front washer pump/motor and the front wipers for as long as the front washer switch is held closed, then provide several additional wipe cycles after the switch is released before parking the front wiper blades near the base of the windshield.

OPERATION

The front wiper and washer system is designed to provide the vehicle operator with a convenient, safe, and reliable means of maintaining visibility through the windshield glass. The various components of this system are designed to convert electrical energy produced by the vehicle electrical system into the mechanical action of the wiper blades to wipe the outside surface of the glass, as well as into the hydraulic action of the washer system to apply washer fluid stored in an on-board reservoir to the area of the glass to be wiped. When combined, these components provide the means to effectively maintain clear visibility for the vehicle operator by removing excess accumulations of rain, snow, bugs, mud, or other minor debris from the outside windshield glass surface that might be encountered while driving the vehicle under numerous types of inclement operating conditions.

The vehicle operator initiates all front wiper and washer system functions with the control stalk of the right (wiper) multi-function switch that extends from the right side of the steering column, just below the steering wheel. Rotating the control knob on the end of the control stalk selects the Off, Delay (on models not equipped with the optional automatic wiper system), Auto (on models equipped with the optional automatic wiper system), Low, or High front wiper system operating modes. In the Delay mode, the control knob also allows the vehicle operator to select from one of five intermittent wipe Delay intervals. In the Auto mode, the control knob also allows the vehicle operator to select from one of five automatic wiper sensitivity levels. Pulling the right control stalk downwards actuates the momentary front wiper system Mist mode switch, while pulling the right control stalk towards the steering wheel actuates the momentary front washer system switch. The right multi-function switch provides hard wired resistor multiplexed inputs to the Body Control Module (BCM) for all of the front wiper system functions, as well as separate hard wired sense inputs to the BCM for the high speed continuous wipe and front washer system functions.

FRONT WIPERS/WASHERS (Continued)

The front wiper and washer system will only operate when the ignition switch is in the Accessory or On positions. Battery current is directed from a B(+) fuse in the Power Distribution Center (PDC) to the wiper and washer system circuit breaker in the Junction Block (JB) through a fused ignition switch output (run-acc) circuit. The automatic resetting circuit breaker then provides battery current through a fused ignition switch output (run-acc) circuit to the wiper on/off relay, and the park switch within the front wiper motor. A separate fuse in the JB provides battery current through another fused ignition switch output (run-acc) circuit to the right multi-function switch. The right multi-function switch circuitry uses this battery feed to directly control the operation of the front washer pump/motor unit. The BCM uses low side drivers to control front wiper system operation by energizing or de-energizing the wiper high/low and wiper on/off relays.

The hard wired circuits and components of the front wiper and washer system may be diagnosed and tested using conventional diagnostic tools and procedures. However, conventional diagnostic methods may not prove conclusive in the diagnosis of the Body Control Module (BCM), or the inputs to or outputs from the BCM that control the front wiper and washer system operating modes. The most reliable, efficient, and accurate means to diagnose the BCM, or the BCM inputs and outputs related to the various front wiper and washer system operating modes requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

OPERATING MODES

Following are paragraphs that briefly describe the operation of each of the front wiper and washer system operating modes.

CONTINUOUS WIPE MODE

When the Low position of the control knob on the control stalk of the right (wiper) multi-function switch is selected, the Body Control Module (BCM) energizes the wiper on/off relay. This directs battery current through the normally open contacts of the energized wiper on/off relay and the normally closed contacts of the de-energized wiper high/low relay to the low speed brush of the front wiper motor, causing the front wipers to cycle at low speed. When the High position of the control knob is selected, the BCM energizes both the wiper on/off relay and the wiper high/low relay. This directs battery current through the normally open contacts of the energized wiper on/off relay and the normally open contacts of the energized wiper high/low relay to the high speed brush of the front wiper motor, causing the front wipers to cycle at high speed.

When the Off position of the control knob is selected, the BCM de-energizes both the wiper on/off and wiper high/low relays, then one of two events will occur. The event that will occur depends upon the position of the wiper blades on the windshield at the moment that the control knob Off position is selected. If the wiper blades are in the down position on the windshield when the Off position is selected, the park switch that is integral to the front wiper motor is closed to ground and the wiper motor ceases to operate.

If the wiper blades are not in the down position on the windshield at the moment the Off position is selected, the park switch is closed to battery current from the fused ignition switch output (run-acc) circuit of the front wiper motor. The park switch directs this battery current to the low speed brush of the wiper motor through the wiper park switch sense circuit and the normally closed contacts of the de-energized wiper on/off and wiper high/low relays. This causes the wiper motor to continue running at low speed until the wiper blades are in the down position on the windshield and the park switch is again closed to ground.

INTERMITTENT WIPE MODE

On models not equipped with the optional automatic wiper system, when the control knob on the control stalk of the right (wiper) multi-function switch is moved to one of the five Delay interval positions, the BCM electronic intermittent wipe logic circuit responds by calculating the correct length of time between wiper sweeps based upon the selected delay interval input. The BCM monitors the changing state of the wiper motor park switch through a hard wired front wiper park switch sense circuit input. This input allows the BCM to determine the proper intervals at which to energize and de-energize the wiper on/off relay to operate the front wiper motor intermittently for one low speed cycle at a time.

The BCM logic is also programmed to provide an immediate wipe cycle and begin a new delay interval timing cycle each time a shorter delay interval is selected, and to add the remaining delay timing interval to the new delay interval timing before the next wipe cycle occurs each time a longer delay interval is selected. The intermittent wipe mode delay times are speed sensitive. The BCM monitors vehicle speed messages received from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus network in order to provide the speed sensitive delay intervals. Above about sixteen kilometers-per-hour (ten miles-per-hour) the delay is driver adjustable from about one-half second to about eighteen seconds. Below about

sixteen kilometers-per-hour (ten miles-per-hour) the delay times are doubled, from about one second to about thirty-six seconds.

AUTOMATIC WIPE MODE

On models equipped with the optional automatic wiper system, when the control knob on the control stalk of the right (wiper) multi-function switch is moved to one of the five Auto sensitivity positions, the BCM sends an electronic message to the Rain Sensor Module (RSM) over the Programmable Communications Interface (PCI) data bus network indicating the selected position. The RSM monitors an area within the wipe pattern of the windshield glass for the accumulation of moisture. Based upon internal programming and the selected sensitivity level, when sufficient moisture has accumulated the RSM sends the appropriate electronic wipe command messages to the BCM over the PCI data bus and the BCM operates the front wiper system accordingly.

As the sensitivity level is set higher, the RSM is more sensitive to moisture accumulation and will send wipe commands more frequently. The BCM logic is also programmed to provide an immediate wipe cycle each time the control knob on the control stalk of the right multi-function switch is moved from a non-automatic wipe position to one of the five Auto sensitivity positions, and another immediate wipe cycle each time the control knob is moved from a lower Auto sensitivity position to a higher Auto sensitivity position.

MIST WIPE MODE

When the control stalk of the right (wiper) multi-function switch is moved to the momentary Mist position, the BCM energizes the wiper on/off relay for as long as the Mist switch is held closed, then de-energizes the relay when the state of the Mist switch input changes to open. The BCM can operate the front wiper motor in this mode for only one low speed cycle at a time, or for an indefinite number of sequential low speed cycles, depending upon how long the Mist switch is held closed.

WASH MODE

When the control stalk of the right (wiper) multi-function switch is moved to the momentary front Wash position while the control knob is in the Low or High positions, the circuitry within the switch directs battery current to the front washer pump/motor unit. This will cause the front washer pump/motor unit to be energized for as long as the front Wash switch is held closed, and to de-energize when the front Wash switch is released.

When the control stalk of the right (wiper) multi-function switch is moved to the momentary front Wash position while the control knob is in one of the Delay interval or Auto sensitivity positions, the front washer pump/motor operation is the same. However, the BCM energizes the wiper on/off relay to override the selected delay interval or auto sensitivity level and operate the front wiper motor in a continuous low speed mode for as long as the front Wash switch is held closed, then de-energizes the relay and reverts to the selected delay mode interval or auto sensitivity level several wipe cycles after the front Wash switch is released. The BCM detects the front Wash switch state through a hard wired washer pump motor switch output circuit input from the right multi-function switch.

WIPE-AFTER-WASH MODE

When the control stalk of the right (wiper) multi-function switch is moved to the momentary front Wash position while the control knob is in the Off position, the BCM detects that switch state through a hard wired washer pump motor switch output circuit input from the right multi-function switch. The BCM responds to this input by energizing the wiper on/off relay for as long as the Wash switch is held closed, then de-energizes the relay several wipe cycles after the front Wash switch is released. The BCM monitors the changing state of the wiper motor park switch through a hard wired front wiper park switch sense circuit input. This input allows the BCM to count the number of wipe cycles that occur after the front Wash switch state changes to open, and to determine the proper interval at which to de-energize the wiper on/off relay to complete the wipe-after-wash mode cycle.

DIAGNOSIS AND TESTING - FRONT WIPER & WASHER SYSTEM

WIPER SYSTEM

If the front wiper motor operates, but the wipers do not move on the windshield, replace the faulty front wiper module. If the wipers operate, but chatter, lift, or do not clear the glass, clean and inspect the wiper system components as required. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - CLEANING) and (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - INSPECTION). Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

The hard wired circuits and components of the front wiper and washer system may be diagnosed and tested using conventional diagnostic tools and procedures. However, conventional diagnostic meth-

FRONT WIPERS/WASHERS (Continued)

ods may not prove conclusive in the diagnosis of the Body Control Module (BCM), the Rain Sensor Module (RSM), the Powertrain Control Module (PCM), or the inputs to or outputs from these modules that control the various front wiper and washer system operating modes. The most reliable, efficient, and accurate means to diagnose the BCM, the RSM, the PCM or the BCM inputs and outputs related to the various front wiper and washer system operating modes requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

AUTOMATIC WIPER ONLY - FALSE WIPES

False wipes are unnecessary wipes that occur when the control knob of the right multi-function switch is in one of the five Auto sensitivity positions and no rain or moisture is apparent within the wipe pattern on the windshield glass. Because this system is designed to operate whenever it detects moisture, if the switch is in one of the Auto sensitivity positions any road spray, bug splatters, or mist from passing cars or trucks may occasionally cause the wipers to cycle. Also, the system will perform an initialization wipe each time the ignition switch is turned to the On position while one of the Auto positions is still selected. These are normal characteristics of this system and are not false wipes.

False wipes generally are the result of foreign material or flaws that interfere with the system optics. The optics for this system allow the Rain Sensor Module (RSM) to precisely transmit several Infra-Red (IR) light beams and precisely monitor the intensity of these beams on the outer surface of the windshield glass to determine the presence of moisture. The sensitivity of this system is such that anything that distorts the focus or intensity of the IR light beams or affects the ability of the photo diodes within the RSM to see and accurately measure these light beams can result in the RSM logic misinterpreting the resulting input data as moisture on the windshield. The optics for this system include the lenses of the RSM, the lenses of the RSM bracket, the adhesive layer that bonds the RSM bracket to the inside of the windshield, and the windshield glass.

The following procedure should only be used if false wipe occurrences are frequent and persistent. Perform diagnosis of the front wiper system, the right multi-function switch, and the RSM using a DRBIII® scan tool and the appropriate diagnostic procedures before performing the following:

(1) Remove the RSM trim cover. Confirm that the spring clips of the RSM are fully engaged in their slots on each outboard edge of the RSM bracket on the inside of the windshield glass (Fig. 2). If OK, go to Step 2. If not OK, press the spring clips inward until they snap over the bracket and are fully engaged in their slots.

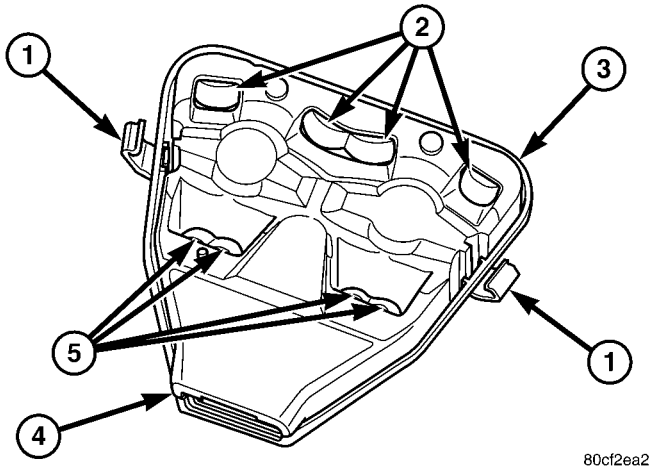


Fig. 2 Rain Sensor Module

1 - SPRING CLIP (2)
2 - INFRARED LENS (4)
3 - HOUSING
4 - CONNECTOR RECEPTACLE
5 - PHOTOCELL LENS (4)

(2) Remove the RSM from the RSM bracket. Inspect the RSM lenses and the RSM bracket lenses for contamination (Fig. 3). If OK, go to Step 3. If not OK, clean any foreign material from each of these lenses using rubbing alcohol and a lint-free cloth.

(3) Carefully inspect the RSM for any physical damage, including scratches on the RSM lenses. If OK, go to Step 4. If not OK, replace the damaged RSM.

NOTE: The Rain Sensor Module (RSM) bracket is serviced as a unit with the windshield glass. If either the bracket or the glass is faulty or damaged, the entire RSM bracket and windshield glass unit must be replaced.

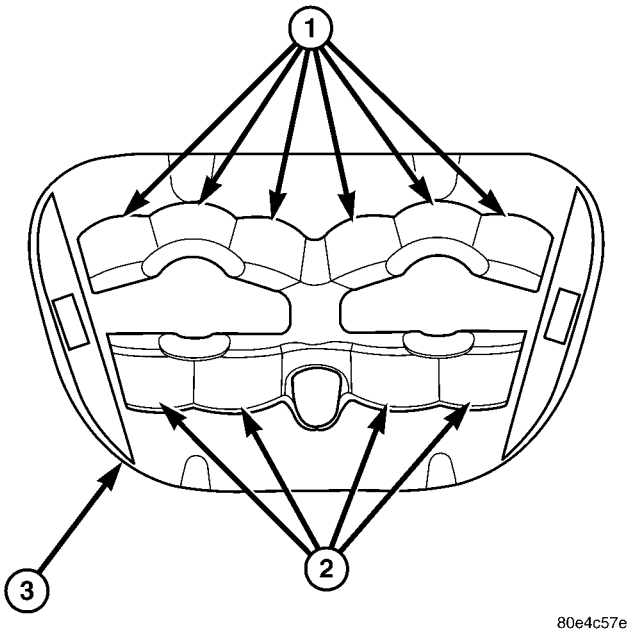


Fig. 3 RSM Bracket Inspection

1 - INFRARED LENS (6)
2 - PHOTOCELL LENS (4)
3 - RSM BRACKET

(4) Carefully inspect the RSM bracket for any physical damage, including scratches on the RSM bracket lenses. If OK. go to Step 5. If not OK, replace the damaged RSM bracket and windshield as a unit.

(5) Carefully inspect the outer surface of the windshield glass for physical damage, including scratches, cracks or chips in the vicinity of the RSM bracket lenses. **Scratches, cracks or chips in the windshield glass outside the area of the RSM bracket lenses will not cause false wipes.** If OK, go to Step 6. If not OK, replace the damaged windshield.

(6) From the outside of the windshield glass, carefully inspect the adhesive layer between the windshield glass and the RSM bracket for any large voids. If an adhesive void greater than about 8 millimeters (0.31 inch) is observed, replace the faulty RSM bracket and windshield unit.

WASHER SYSTEM

The diagnosis found here addresses an electrically inoperative front washer system. If the front washer pump/motor operates, but no washer fluid is emitted from the front washer nozzles, be certain to check the fluid level in the reservoir. Also clean and inspect the front washer system components as required. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - CLEANING) and (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - INSPECTION). Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Turn the ignition switch to the On position. Turn the control knob on the control stalk of the right (wiper) multi-function switch to the Low or High wiper position. Check whether the front wiper system is operating. If OK, go to Step 2. If not OK, test and repair the front wiper system before continuing with these tests. Refer to WIPER SYSTEM

(2) Turn the control knob on the control stalk of the right (wiper) multi-function switch to the Off position. Pull the control stalk of the right (wiper) multi-function switch toward the steering wheel to close the front washer switch. The front washer pump should operate and the front wipers should operate for about three sweep cycles after the switch is released before they park. If the front wipers are OK, but the front washers are not, go to Step 3. If the front washers are OK, but the front wipers are not, go to Step 5.

(3) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the left headlamp and dash wire harness connector for the front washer pump/motor from the pump/motor connector receptacle. Check for continuity between the ground circuit cavity of the left headlamp and dash wire harness connector for the front washer pump/motor and a good ground. There should be continuity. If OK, go to Step 4. If not OK, repair the open ground circuit to ground (G106) as required.

(4) Reconnect the battery negative cable. Turn the ignition switch to the On position. While pulling the control stalk of the right (wiper) multi-function switch toward the steering wheel to close the front washer switch, check for battery voltage at the

washer pump switch sense circuit cavity of the left headlamp and dash wire harness connector for the front washer pump/motor unit. If OK, replace the faulty front washer pump/motor. If not OK, repair the open washer pump switch sense circuit between the right (wiper) multi-function switch and the front washer pump/motor unit as required.

(5) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the instrument panel wire harness connector (Connector C2) for the Body Control Module (BCM) from the BCM connector receptacle. Reconnect the battery negative cable. Turn the ignition switch to the On position. While pulling the control stalk of the right (wiper) multi-function switch toward the steering wheel to close the front washer switch, check for battery voltage at the washer pump switch sense circuit cavity of the instrument panel wire harness connector (Connector C2) for the BCM. If OK, use a DRBIII® scan tool to diagnose the BCM. Refer to the appropriate diagnostic information. If not OK, repair the open washer pump switch sense circuit between the right (wiper) multi-function switch and the BCM as required.

CLEANING - FRONT WIPER & WASHER SYSTEM

WIPER SYSTEM

The squeegees of wiper blades exposed to the elements for a long time tend to lose their wiping effectiveness. Periodic cleaning of the squeegees is suggested to remove any deposits of salt or road film. The wiper blades, arms, and windshield glass should only be cleaned using a sponge or soft cloth and windshield washer fluid, a mild detergent, or a non-abrasive cleaner. If the wiper blades continue to leave streaks, smears, hazing, or beading on the glass after thorough cleaning of the squeegees and the glass, the entire wiper blade assembly must be replaced.

CAUTION: Protect the rubber squeegees of the wiper blades from any petroleum-based cleaners, solvents, or contaminants. These products can rapidly deteriorate the rubber squeegees.

WASHER SYSTEM

If the washer system is contaminated with foreign material, drain the washer reservoir by removing the front washer pump/motor from the reservoir. Clean foreign material from the inside of the front washer pump/motor inlet filter screen and the washer reservoir using clean washer fluid, a mild detergent, or a non-abrasive cleaner. Flush foreign material from the washer system plumbing by first disconnecting the washer hoses from the washer nozzles, then running the washer pump/motor to run clean washer fluid or water through the system. Plugged or restricted washer nozzles should be carefully back-flushed using compressed air. If the washer nozzle obstruction cannot be cleared, replace the washer nozzle.

CAUTION: Never introduce petroleum-based cleaners, solvents, or contaminants into the washer system. These products can rapidly deteriorate the rubber seals and hoses of the washer system, as well as the rubber squeegees of the wiper blades.

CAUTION: Never use compressed air to flush the washer system plumbing. Compressed air pressures are too great for the washer system plumbing components and will result in further system damage. Never use sharp instruments to clear a plugged washer nozzle or damage to the nozzle orifice and improper nozzle spray patterns will result.

INSPECTION - FRONT WIPER & WASHER SYSTEM

WIPER SYSTEM

The front wiper blades and wiper arms should be inspected periodically, not just when wiper performance problems are experienced. This inspection should include the following points:

(1) Inspect the wiper arms for any indications of damage, or contamination. If the wiper arms are contaminated with any foreign material, clean them as required. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - CLEANING). If a wiper arm is damaged or corrosion is evident, replace the wiper arm with a new unit. Do not attempt to repair a wiper arm that is damaged or corroded.

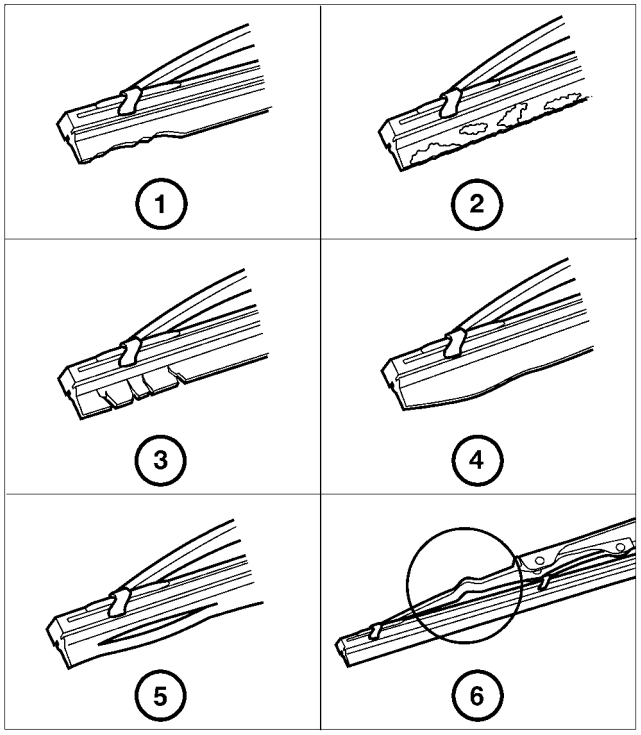
(2) Carefully lift the wiper blade off of the glass. Note the action of the wiper arm hinge. The wiper arm should pivot freely at the hinge, but with no lateral looseness evident. If there is any binding evident in the wiper arm hinge, or there is evident lateral play in the wiper arm hinge, replace the wiper arm.

CAUTION: Do not allow the wiper arm to spring back against the glass without the wiper blade in place or the glass may be damaged.

(3) Once proper hinge action of the wiper arm is confirmed, check the hinge for proper spring tension. Remove the wiper blade from the wiper arm. Either place a small postal scale between the blade end of the wiper arm and the glass, or carefully lift the blade end of the arm away from the glass using a

small fish scale. Compare the scale readings between the right and left wiper arms. Replace a wiper arm if it has comparatively lower spring tension, as evidenced by a lower scale reading.

(4) Inspect the wiper blades and squeegees for any indications of damage, contamination, or rubber deterioration (Fig. 4). If the wiper blades or squeegees are contaminated with any foreign material, clean them and the glass as required. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - CLEANING). After cleaning the wiper blade and the glass, if the wiper blade still fails to clear the glass without smearing, streaking, chattering, hazing, or beading, replace the wiper blade. Also, if a wiper blade is damaged or the squeegee rubber is damaged or deteriorated, replace the wiper blade with a new unit. Do not attempt to repair a wiper blade that is damaged.



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Fig. 4 Wiper Blade Inspection

1 - WORN OR UNEVEN EDGES
2 - ROAD FILM OR FOREIGN MATERIAL DEPOSITS
3 - HARD, BRITTLE, OR CRACKED
4 - DEFORMED OR FATIGUED
5 - SPLIT
6 - DAMAGED SUPPORT COMPONENTS

WASHER SYSTEM

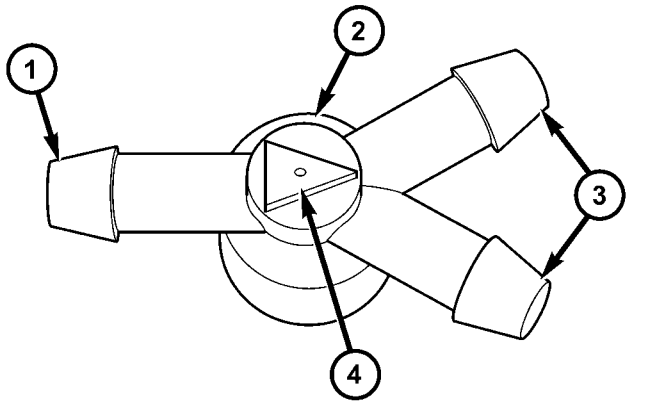
The washer system components should be inspected periodically, not just when washer performance problems are experienced. This inspection should include the following points:

(1) Check for ice or other foreign material in the washer reservoir. If contaminated, clean and flush the washer system. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - CLEANING).

(2) Inspect the washer plumbing for pinched, leaking, deteriorated, or incorrectly routed hoses and damaged or disconnected hose fittings. Replace damaged or deteriorated hoses and hose fittings. Leaking washer hoses can sometimes be repaired by cutting the hose at the leak and splicing it back together using an in-line connector fitting. Similarly, sections of deteriorated hose can be cut out and replaced by splicing in new sections of hose using in-line connector fittings. Whenever routing a washer hose or a wire harness containing a washer hose, it must be routed away from hot, sharp, or moving parts. Also, sharp bends that might pinch the washer hose must be avoided.

FRONT CHECK VALVE

DESCRIPTION



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Fig. 5 Front Check Valve

1 - INLET NIPPLE
2 - FRONT CHECK VALVE
3 - OUTLET NIPPLE (2)
4 - FLOW DIRECTION ARROW

A single front washer system check valve is standard equipment on this model, and is installed in the front washer system plumbing (Fig. 5). The front check valve is integral to the front washer nozzle plumbing wye fitting located in the cowl plenum area beneath the cowl plenum cover/grille panel near the base of the windshield. The check valve consists of a molded plastic body with a raised arrowhead molded into its center section that indicates the direction of the flow through the valve, and three barbed hose nipples formed in a wye configuration on the outside circumference of the center section of the valve body. The front check valve cannot be adjusted or repaired and, if faulty or damaged, it must be replaced.

FRONT CHECK VALVE (Continued)

OPERATION

The front check valve provides more than one function in this application. It serves as a wye connector fitting between the cowl grille panel and washer nozzle sections of the front washer supply hose. It prevents washer fluid from draining out of the front washer supply hoses back to the washer reservoir. This drain-back would result in a lengthy delay when the front washer switch is actuated until washer fluid was dispensed through the front washer nozzles, because the washer pump would have to refill the front washer plumbing from the reservoir to the nozzles. Such a drain-back condition could also result in water, dirt, or other outside contaminants being siphoned into the washer system through the washer nozzle orifice. This water could subsequently freeze and plug the nozzle, while other contaminants could interfere with proper nozzle operation and cause improper nozzle spray patterns. In addition, the check valve prevents washer fluid from siphoning through the washer nozzles after the washer system is turned Off.

When the washer pump pressurizes and pumps washer fluid from the reservoir through the washer plumbing, the fluid pressure unseats a diaphragm from over a sump well within the valve by overriding the spring pressure applied to it by a piston (Fig. 6). With the diaphragm unseated, washer fluid is allowed to flow toward the two washer nozzles. When the washer pump stops operating, the spring pressure on the piston seats the diaphragm over the sump well in the valve and fluid flow in either direction within the washer plumbing is prevented. The check valve cannot be adjusted or repaired and, if faulty or damaged, it must be replaced.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove both front wiper arms from the wiper pivots. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS/FRONT WIPER ARMS - REMOVAL).

(3) Remove the cowl plenum cover/grille panel from over the cowl plenum (Fig. 7). (Refer to 23 - BODY/EXTERIOR/COWL GRILLE - REMOVAL).

(4) From the underside of the cowl plenum cover/grille panel, disconnect the cowl plenum and washer nozzle hoses from the three barbed nipples of the front check valve

(5) Remove the front check valve from the underside of the cowl plenum cover/grille panel.

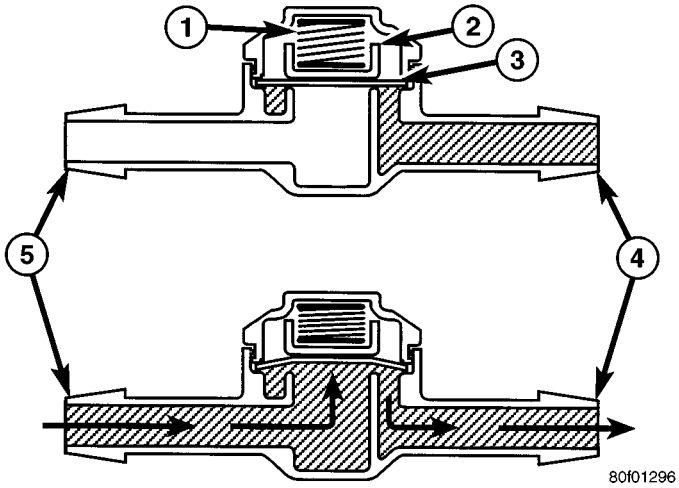


Fig. 6 Front Check Valve

1 - SPRING
2 - PISTON
3 - DIAPHRAGM
4 - TO WASHER NOZZLE
5 - FROM WASHER PUMP

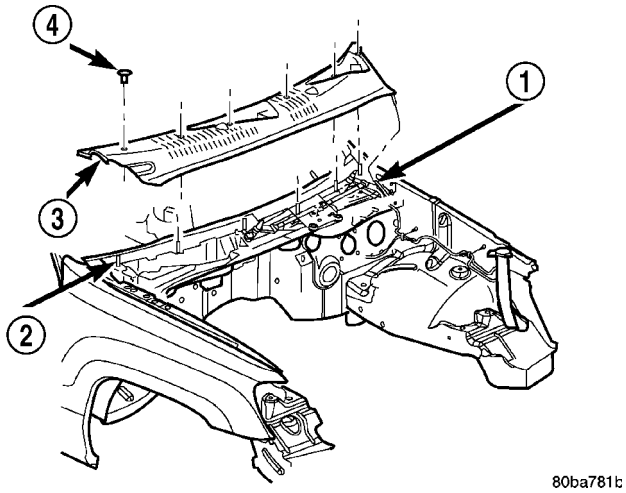


Fig. 7 Cowl Grille Cover Remove/Install

1 - WASHER HOSE CONNECTION
2 - STUDS (6)
3 - COWL GRILLE COVER
4 - PLASTIC NUT (6)

INSTALLATION

(1) Position the front check valve to the underside of the cowl plenum cover/grille panel. Be certain that the flow direction arrow molded into the front check valve body is oriented towards the front washer nozzles.

(2) From the underside of the cowl plenum cover/grille panel, reconnect the cowl plenum and washer nozzle hoses to the three barbed nipples of the front check valve.

(3) Reinstall the washer hoses for the front washer nozzles into their routing clips on the underside of the cowl plenum cover/grille panel.

FRONT CHECK VALVE (Continued)

(4) Reinstall the cowl plenum cover/grille panel over the cowl plenum (Fig. 7). (Refer to 23 - BODY/EXTERIOR/COWL GRILLE - INSTALLATION).

(5) Reinstall both front wiper arms onto the wiper pivots. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS/FRONT WIPER ARMS - INSTALLATION).

(6) Close and latch the hood.

FRONT WASHER HOSES/TUBES

DESCRIPTION

The front washer plumbing consists of a small diameter rubber hose that is routed from the barbed outlet nipple of the front washer pump/motor on the washer reservoir and along the reservoir filler neck into the engine compartment. Within the engine compartment, a molded plastic in-line fitting with barbed nipples joins the washer hose to another section of hose that is routed along side the left headlamp and dash wire harness to the cowl plenum area. The engine compartment washer hose passes from the engine compartment into the cowl plenum area through a dedicated hole with a rubber grommet near the left end of the cowl plenum panel.

A molded plastic elbow fitting with barbed nipples joins the engine compartment hose to the cowl plenum cover/grille panel hose. The cowl plenum cover/grille panel washer hose is routed through routing clips on the underside of the panel and connected to the inlet of the molded plastic wye fitting that includes the integral front check valve. The cowl grille cover hose is connected to one nipple on the wye fitting and the two washer nozzle hoses are connected to the other two wye fitting nipples. The washer nozzle hoses are then routed along the underside of the cowl plenum cover/grille panel to the two front washer nozzles.

Washer hose is available for service only as roll stock, which must then be cut to length. The molded plastic washer hose fittings cannot be repaired. If these fittings are faulty or damaged, they must be replaced.

OPERATION

Washer fluid in the washer reservoir is pressurized and fed by the front washer pump/motor through the front washer system plumbing and fittings to the two front washer nozzles. Whenever routing the washer hose or a wire harness containing a washer hose, it must be routed away from hot, sharp, or moving parts; and, sharp bends that might pinch the hose must be avoided.

FRONT WASHER NOZZLE

DESCRIPTION

The two front washer nozzles have integral snap features that secure them in dedicated holes in the cowl plenum cover/grille panel located near the base of the windshield. The domed upper surface of the washer nozzle is visible on the top of the plenum cover/grille panel, and the nozzle orifice is oriented towards the windshield glass. The washer plumbing fittings for the washer nozzles are concealed beneath the cowl plenum cover/grille panel. These fluidic washer nozzles are constructed of molded plastic. The cowl plenum cover/grille panel must be removed from the vehicle to access the nozzles for service. The washer nozzles cannot be adjusted or repaired. If faulty or damaged, they must be replaced.

OPERATION

The two front washer nozzles are designed to dispense washer fluid into the wiper pattern area on the outside of the windshield glass. Pressurized washer fluid is fed to each nozzle from the washer reservoir by the front washer pump/motor through a single hose, which is attached to a barbed nipple on each front washer nozzle below the cowl plenum cover/grille panel. A fluidic matrix within the washer nozzle causes the pressurized washer fluid to be emitted from the nozzle orifice as an oscillating stream to more effectively cover a larger area of the glass to be cleaned.

REMOVAL

(1) Unlatch and open the hood.

(2) Remove both front wiper arms from the wiper pivots. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS/FRONT WIPER ARMS - REMOVAL).

(3) Remove the cowl plenum cover/grille panel from over the cowl plenum (Fig. 8). (Refer to 23 - BODY/EXTERIOR/COWL GRILLE - REMOVAL).

(4) From the underside of the cowl plenum cover/grille panel, disconnect the washer nozzle hose from the barbed nipple of the front washer nozzle.

(5) From the underside of the cowl plenum cover/grille panel, release the integral snap features of the front washer nozzle and push the nozzle out through the mounting hole toward the top side of the cowl plenum cover/grille panel.

(6) Remove the front washer nozzle from the top of the cowl plenum cover/grille panel.

INSTALLATION

(1) From the top of the cowl plenum cover/grille panel, position the nipple end of the front washer nozzle through the mounting hole and engage the

FRONT WASHER NOZZLE (Continued)

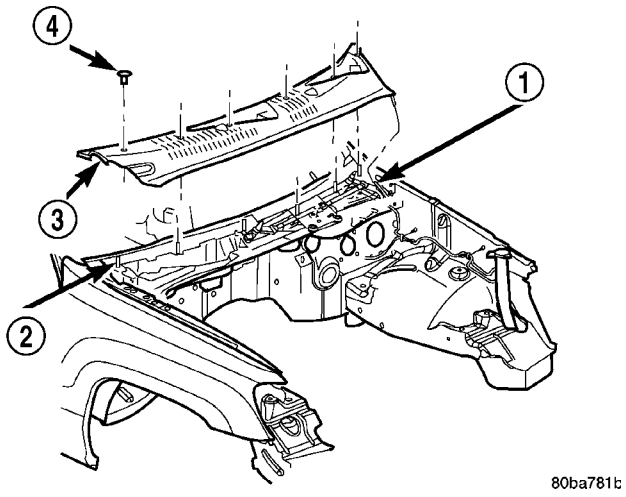


Fig. 8 Cowl Grille Cover Remove/Install

1 - WASHER HOSE CONNECTION
2 - STUDS (6)
3 - COWL GRILLE COVER
4 - PLASTIC NUT (6)

anti-rotation tab of the nipple into the anti-rotation notch in the mounting hole.

(2) Push firmly and evenly on the top of the front washer nozzle until the integral snap features lock into place on the underside of the cowl plenum cover/grille panel.

(3) From the underside of the cowl grille cover, reconnect the washer hose to the barbed nipple of the front washer nozzle.

(4) Reinstall the washer hose for the front washer nozzle into its routing clips on the underside of the cowl plenum cover/grille panel.

(5) Reinstall the cowl plenum cover/grille panel over the cowl plenum (Fig. 8). (Refer to 23 - BODY/EXTERIOR/COWL GRILLE - INSTALLATION).

(6) Reinstall both front wiper arms onto the wiper pivots. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS/FRONT WIPER ARM - INSTALLATION).

(7) Close and latch the hood.

FRONT WASHER PUMP/MOTOR

DESCRIPTION

The front washer pump/motor unit is located on the outboard side and near the front of the washer reservoir, between the left front inner and outer fender panels (Fig. 9). A small permanently lubricated and sealed electric motor is coupled to the rotor-type washer pump. A seal flange with a large barbed inlet nipple on the pump housing passes through a rubber grommet seal installed in one of two dedicated mounting holes near the bottom of the washer reservoir. The front washer pump/motor unit

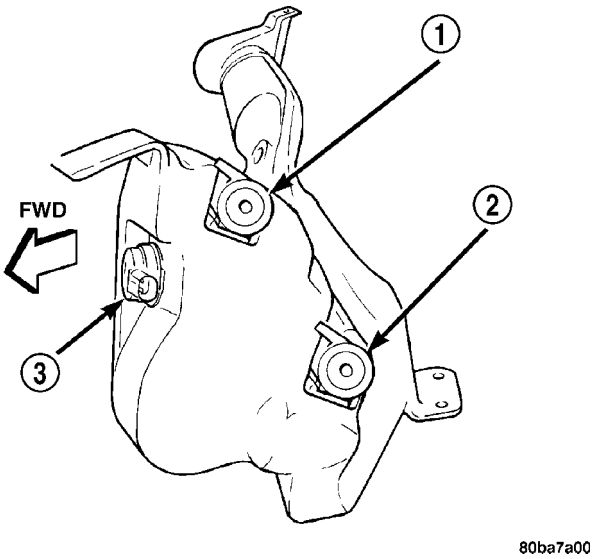


Fig. 9 Washer Pumps (Viewed from Bottom of Reservoir)

1 - REAR WASHER PUMP/MOTOR
2 - FRONT WASHER PUMP/MOTOR
3 - WASHER FLUID LEVEL SWITCH

is always mounted in the lower pump mounting hole of the reservoir.

A smaller barbed outlet nipple on the pump housing connects the unit to the front washer hose. The washer pump/motor unit is retained on the reservoir by the interference fit between the barbed pump inlet nipple and the grommet seal, which is a light press fit. An integral electrical connector receptacle on the top of the motor housing connects the unit to the vehicle electrical system through a dedicated take out and connector of the left headlamp and dash wire harness. The front washer pump/motor unit cannot be repaired. If faulty or damaged, the entire washer pump/motor unit must be replaced.

OPERATION

The front washer pump/motor unit is connected to the vehicle electrical system through a single take out and two-cavity connector of the left headlamp and dash wire harness. The washer pump/motor is grounded at all times through another take out of the left headlamp and dash wire harness with a single eyelet terminal connector that is secured under a ground screw to the top of the left inner fender shield in the engine compartment. The front washer pump/motor receives battery current on a fused ignition switch output (run-acc) circuit through the closed contacts of the momentary front washer switch circuitry within the right multi-function switch only when the switch control stalk is pulled towards the steering wheel.

Washer fluid is gravity-fed from the washer reservoir to the inlet side of the washer pump housing.

FRONT WASHER PUMP/MOTOR (Continued)

When the pump motor is energized, the rotor-type pump impeller rotates. When the pump impeller rotates, pressurized washer fluid is forced out of the pump outlet nipple, through the front washer plumbing and the front washer nozzles onto the windshield glass. The front washer pump/motor unit may be diagnosed using conventional diagnostic tools and methods.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Raise and support the vehicle.

(3) Remove the liner from the left front fender wheel house.

(4) Disconnect the left headlamp and dash wire harness connector for the front washer pump/motor from the motor connector receptacle on the top of the motor housing (Fig. 10).

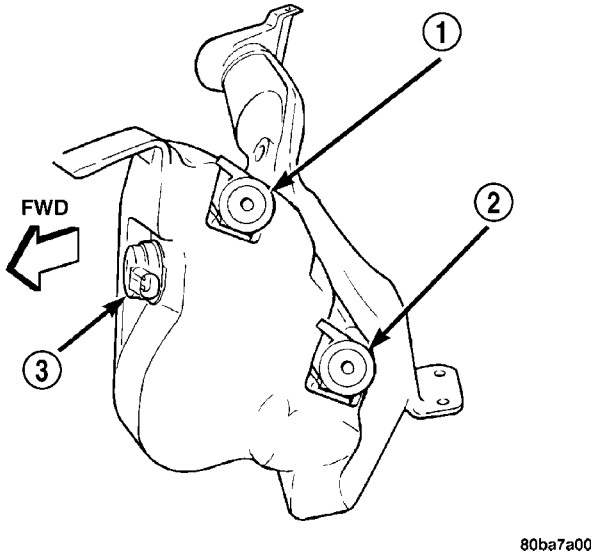


Fig. 10 Washer Pumps (Viewed from Bottom of Reservoir)

1 - REAR WASHER PUMP/MOTOR
2 - FRONT WASHER PUMP/MOTOR
3 - WASHER FLUID LEVEL SWITCH

(5) Disconnect the washer hose from the barbed outlet nipple of the front washer pump/motor and allow the washer fluid to drain into a clean container for reuse.

(6) Using a trim stick or another suitable wide flat-bladed tool, gently pry the barbed inlet nipple of the washer pump out of the rubber grommet seal in the reservoir. Care must be taken not to damage the reservoir.

(7) Remove the rubber grommet seal from the washer pump mounting hole in the washer reservoir and discard.

INSTALLATION

(1) Install a new rubber grommet seal into the washer pump mounting hole in the washer reservoir. Always use a new rubber grommet seal on the reservoir.

(2) Position the barbed inlet nipple of the washer pump to the rubber grommet seal in the reservoir (Fig. 10).

(3) Press firmly and evenly on the washer pump until the barbed inlet nipple is fully seated in the rubber grommet seal in the washer reservoir mounting hole.

(4) Reconnect the washer hose to the barbed outlet nipple of the washer pump.

(5) Reconnect the left headlamp and dash wire harness connector for the front washer pump/motor unit to the motor connector receptacle on the top of the motor housing.

(6) Reinstall the liner into the left front fender wheel house.

(7) Lower the vehicle.

(8) Refill the washer reservoir with the washer fluid drained from the reservoir during the removal procedure.

(9) Reconnect the battery negative cable.

FRONT WIPER ARM

DESCRIPTION

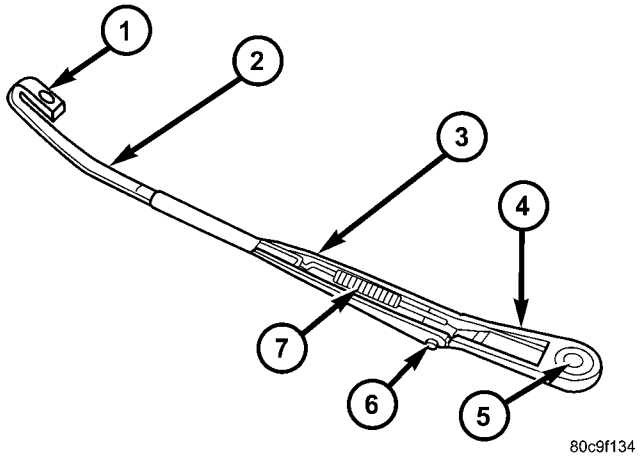


Fig. 11 Front Wiper Arm - Typical

1 - HOOK
2 - STRAP
3 - CHANNEL
4 - PIVOT END
5 - PIVOT HOLE
6 - HINGE PIN
7 - TENSION SPRING

The front wiper arms are the rigid members located between the wiper pivots that protrude from

FRONT WIPER ARM (Continued)

the cowl plenum cover/grille panel near the base of the windshield and the wiper blades on the windshield glass (Fig. 11). These wiper arms feature an over-center hinge that allows easy access to the windshield glass for cleaning. The wiper arm has a die cast metal pivot end with a large tapered mounting hole at one end. A molded black plastic cap fits over the wiper arm retaining nut to conceal the nut and this mounting hole following wiper arm installation.

The wide end of a tapered, stamped steel channel hinges on and is secured with a hinge pin to the blade end of the wiper arm pivot end. One end of a long, rigid, stamped steel strap, with a small hole near its pivot end, is riveted and crimped within the narrow end of the stamped steel channel. The tip of the wiper blade end of this strap is bent back under itself to form a small hook. Concealed within the stamped steel channel, one end of a long spring is engaged with a wire hook on the underside of the die cast pivot end, while the other end of the spring is hooked through the small hole in the steel strap. The entire wiper arm has a satin black finish applied to all of its visible surfaces.

A wiper arm cannot be adjusted or repaired. If damaged or faulty, the entire wiper arm unit must be replaced.

OPERATION

The front wiper arms are designed to mechanically transmit the motion from the wiper pivots to the wiper blades. The wiper arm must be properly indexed to the wiper pivot in order to maintain the proper wiper blade travel on the glass. The tapered mounting hole in the wiper arm pivot end interlocks with the serrations on the tapered outer circumference of the wiper pivot shaft, allowing positive engagement and finite adjustment of this connection. The mounting nut locks the wiper arm to the threaded stud of the wiper pivot shaft. The spring-loaded wiper arm hinge controls the down-force applied through the tip of the wiper arm to the wiper blade on the glass. The hook formation on the tip of the wiper arm provides a cradle for securing and latching the wiper blade pivot block to the wiper arm.

REMOVAL

(1) Lift the front wiper arm to its over-center position to hold the wiper blade off of the glass and relieve the spring tension on the wiper arm to wiper pivot shaft connection.

(2) Carefully pry the plastic nut cap off of the pivot end of the wiper arm (Fig. 12).

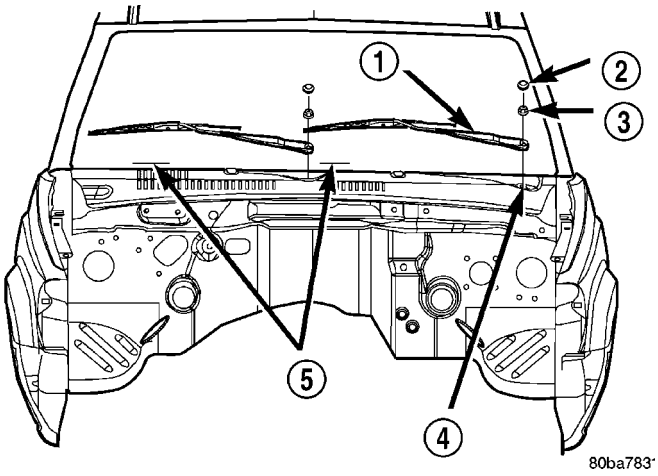


Fig. 12 Front Wiper Arm Remove/Install

1 - FRONT WIPER BLADE & ARM (2)
2 - CAP (2)
3 - NUT (2)
4 - PIVOT SHAFT (2)
5 - ALIGNMENT LINE (2)

(3) Remove the nut that secures the wiper arm to the wiper pivot shaft.

(4) If necessary, use a suitable battery terminal puller to disengage the wiper arm from the wiper pivot shaft (Fig. 13).

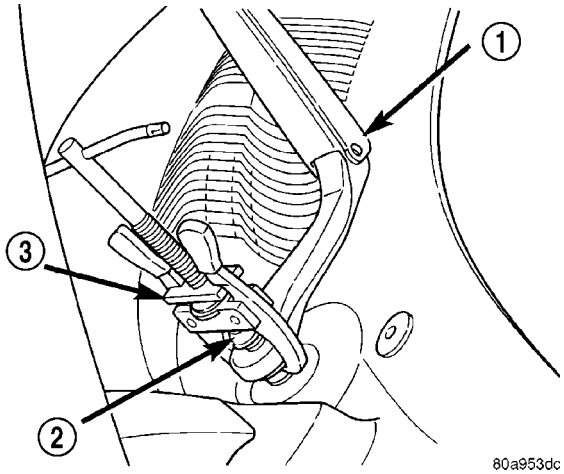


Fig. 13 Wiper Arm Puller - Typical

1 - WIPER ARM
2 - WIPER PIVOT SHAFT
3 - BATTERY TERMINAL PULLER

(5) Remove the front wiper arm pivot end from the wiper pivot shaft.

FRONT WIPER ARM (Continued)

INSTALLATION

NOTE: Be certain that the wiper motor is in the park position before attempting to install the front wiper arms. Turn the ignition switch to the On position and move the right (wiper) multi-function switch control knob to its Off position. If the wiper pivots move, wait until they stop moving, then turn the ignition switch back to the Off position. The wiper motor is now in its park position.

(1) The front wiper arms must be indexed to the wiper pivot shafts with the wiper motor in the park position to be properly installed. Position the front wiper arm pivot ends onto the wiper pivot shafts so that the lower edge of the blade is aligned with the wiper alignment lines located in the lower edge of the windshield glass (Fig. 12).

(2) Once the wiper blade is aligned, lift the wiper arm away from the windshield slightly to relieve the spring tension on the pivot end and push the pivot hole on the end of the wiper arm down firmly and evenly over the wiper pivot shaft.

(3) Install and tighten the nut that secures the wiper arm to the wiper pivot shaft. Tighten the nut to 24 N·m (18 ft. lbs.).

(4) Wet the windshield glass, then operate the front wipers. Turn the front wipers Off, then check for the correct wiper arm position and readjust as required.

(5) Reinstall the plastic nut cap onto the wiper arm pivot nut.

FRONT WIPER BLADE

DESCRIPTION

Each front wiper blade is secured by an integral latching pivot block to the hook formation on the tip of the front wiper arms, and rests on the glass near the base of the windshield when the wipers are not in operation (Fig. 14). The wiper blade consists of the following components:

- **Superstructure** - The superstructure includes several stamped steel bridges and links with claw formations that grip the wiper blade element. Also included in this unit is the latching, molded plastic pivot block that secures the superstructure to the wiper arm. All of the metal components of the wiper blade have a satin black finish applied.
- **Element** - The wiper element or squeegee is the resilient rubber member of the wiper blade that contacts the glass.
- **Flexor** - The flexor is a rigid metal component running along the length of each side of the wiper element where it is gripped by the claws of the superstructure.

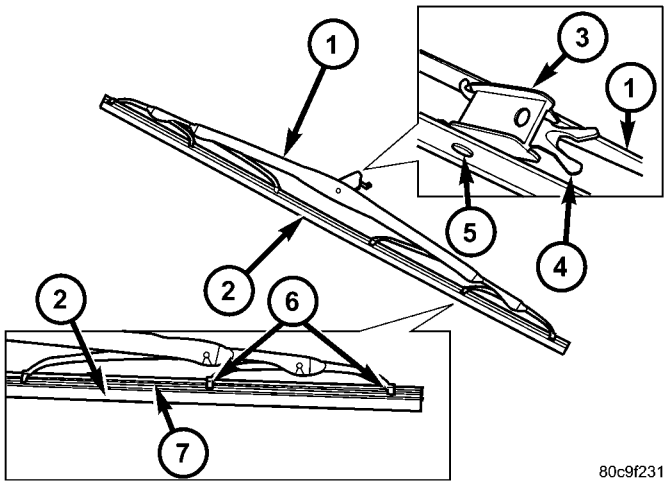


Fig. 14 Front Wiper Blade - Typical

1 - SUPERSTRUCTURE
2 - ELEMENT
3 - PIVOT BLOCK
4 - RELEASE TAB
5 - PIVOT PIN
6 - CLAWS
7 - FLEXOR

All Grand Cherokee models have two 52.50 centimeter (20.67 inch) long windshield wiper blades with non-replaceable rubber elements (squeegees). The wiper blades cannot be adjusted or repaired. If faulty, worn, or damaged the entire wiper blade unit must be replaced.

OPERATION

The front wiper blades are moved back and forth across the glass by the front wiper arms when the wipers are being operated. The wiper blade superstructure is the flexible frame that grips the wiper blade element and evenly distributes the force of the spring-loaded wiper arm along the length of the element. The combination of the wiper arm force and the flexibility of the superstructure makes the element conform to and maintain proper contact with the glass, even as the blade is moved over the varied curvature that may be encountered across the glass surface. The wiper element flexor provides the claws of the blade superstructure with a rigid, yet flexible component on the element which can be gripped. The rubber element is designed to be stiff enough to maintain an even cleaning edge as it is drawn across the glass, yet resilient enough to conform to the glass surface and flip from one cleaning edge to the other each time the wiper blade changes directions.

FRONT WIPER BLADE (Continued)

REMOVAL

NOTE: The notched end of the wiper element flexor should always be oriented towards the end of the wiper blade that is nearest to the wiper pivot.

(1) Lift the front wiper arm to raise the wiper blade and element off of the glass, until the wiper arm hinge is in its over-center position.

(2) To remove the wiper blade from the wiper arm, depress the pivot block latch release tab under the tip of the arm and slide the blade away from the tip towards the pivot end of the arm far enough to disengage the pivot block from the hook formation on the end of the arm (Fig. 15).

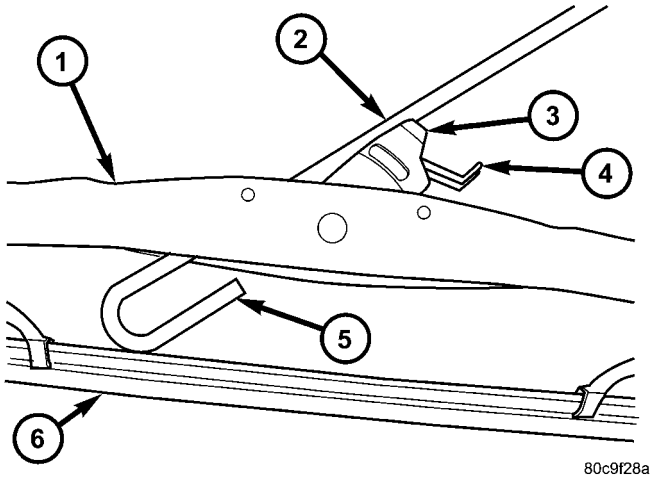


Fig. 15 Front Wiper Blade Remove/Install - Typical

1 - SUPERSTRUCTURE
2 - WIPER ARM
3 - PIVOT BLOCK
4 - RELEASE TAB
5 - HOOK
6 - ELEMENT

(3) Extract the hook formation on the tip of the wiper arm from the opening in the wiper blade superstructure just ahead of the wiper blade pivot block/latch unit.

CAUTION: Do not allow the wiper arm to spring back against the glass without the wiper blade in place or the glass may be damaged.

(4) Gently lower the tip of the wiper arm onto the glass.

INSTALLATION

NOTE: The notched end of the wiper element flexor should always be oriented towards the end of the wiper blade that is nearest to the wiper pivot.

(1) Lift the front wiper arm off of the windshield glass, until the wiper arm hinge is in its over-center position.

(2) Position the front wiper blade near the hook formation on the tip of the arm with the notched end of the wiper element flexor oriented towards the end of the wiper arm that is nearest to the wiper pivot.

(3) Insert the hook formation on the tip of the wiper arm through the opening in the wiper blade superstructure ahead of the wiper blade pivot block/latch unit far enough to engage the pivot block with the hook (Fig. 15).

(4) Slide the wiper blade pivot block/latch up into the hook formation on the tip of the wiper arm until the latch release tab snaps into its locked position. Latch engagement will be accompanied by an audible click.

(5) Gently lower the wiper blade onto the glass.

FRONT WIPER MODULE

DESCRIPTION

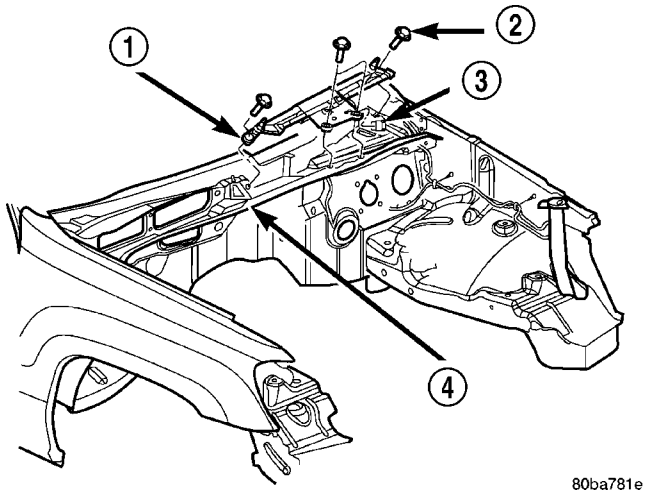


Fig. 16 Front Wiper Module

1 - FRONT WIPER MODULE
2 - SCREW (4)
3 - WIRE HARNESS CONNECTOR
4 - LOWER COWL PLENUM PANEL

The front wiper module bracket is secured with four screws through four rubber insulators to the cowl plenum panel beneath the cowl plenum cover/grille panel (Fig. 16). The ends of the wiper pivot shafts that protrude through dedicated openings in the cowl plenum cover/grille panel to drive the wiper arms and blades are the only visible components of the front wiper module. The front wiper module consists of the following major components:

- **Bracket** - The front wiper module bracket consists of a long tubular steel main member that has a stamped pivot bracket formation near each end

FRONT WIPER MODULE (Continued)

where the two wiper pivots are secured. A stamped steel mounting plate for the wiper motor is secured with welds near the center of the main member.

- **Crank Arm** - The front wiper motor crank arm is a stamped steel unit with a slotted hole on the driven end that is secured to the wiper motor output shaft with a nut, and a ball stud secured to the drive end.
- **Linkage** - Two stamped steel drive links connect the wiper motor crank arm to the wiper pivot lever arms. The right side drive link has a plastic socket-type bushing on each end. The left side drive link has a plastic socket-type bushing on one end, and a plastic sleeve-type bushing on the other end. The socket-type bushing on one end of each drive link is snap-fit over the ball stud on the lever arm of its respective pivot. The left side drive link sleeve-type bushing end is then fit over the motor crank arm ball stud, and the other socket-type bushing of the right side drive link is snap-fit over the exposed end of the wiper motor crank arm ball stud.
- **Motor** - The front wiper motor is secured with three screws to the motor mounting plate near the center of the wiper module bracket. The wiper motor output shaft passes through a hole in the module bracket, where a nut secures the wiper motor crank arm to the motor output shaft. The two-speed permanent magnet wiper motor features an integral transmission, an internal park switch, and an internal automatic resetting circuit breaker.
- **Pivots** - The two front wiper pivots are secured to the ends of the wiper module bracket. The lever arms that extend from the bottom of the pivot shafts each have a ball stud on their end. The upper end of each pivot shaft where the wiper arms will be fastened each is tapered and serrated with a threaded stud formation at the tip.

The front wiper module cannot be adjusted or repaired. If any component of the module is faulty or damaged, the entire front wiper module unit must be replaced. The reinforcement bracket and stud plate are available for individual service replacement.

OPERATION

The front wiper module operation is controlled by the battery current inputs received by the wiper motor from the wiper on/off and wiper high/low relays. The wiper motor speed is controlled by current flow to either the low speed or the high speed set of brushes. The park switch is a single pole, single throw, momentary switch within the wiper motor that is mechanically actuated by the wiper motor transmission components. The park switch alternately closes the wiper park switch sense circuit to ground or to battery current, depending upon the position of the wipers on the glass. This feature allows the motor to complete its current wipe cycle after the wiper system has been turned Off, and to park the wiper blades in the lowest portion of the wipe pattern. The automatic resetting circuit breaker protects the motor from overloads. The wiper motor crank arm, the two wiper linkage members, and the two wiper pivots mechanically convert the rotary output of the wiper motor to the back and forth wiping motion of the wiper arms and blades on the glass.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove both front wiper arms from the wiper pivots. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS/FRONT WIPER ARMS - REMOVAL).

(3) Unlatch and open the hood.

(4) Remove the cowl plenum cover/grille panel from over the cowl plenum (Fig. 17). (Refer to 23 - BODY/EXTERIOR/COWL GRILLE - REMOVAL).

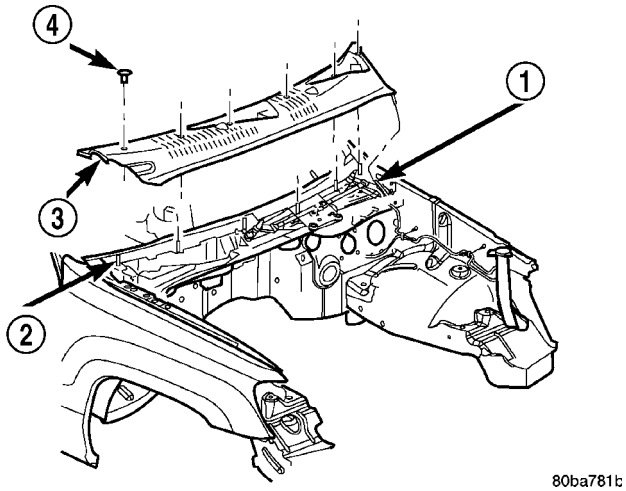


Fig. 17 Cowl Grille Cover Remove/Install

1 - WASHER HOSE CONNECTION
2 - STUDS (6)
3 - COWL GRILLE COVER
4 - PLASTIC NUT (6)

(5) Remove the four screws that secure the front wiper module to the cowl plenum panel (Fig. 18).

(6) Lift the left end of the front wiper module far enough to access the front wiper motor wire harness connector.

(7) Disconnect the left headlamp and dash wire harness connector for the front wiper motor from the motor pigtail wire connector.

(8) Remove the front wiper module from the cowl plenum as a unit.

INSTALLATION

(1) Position the front wiper module to the cowl plenum as a unit (Fig. 18).

FRONT WIPER MODULE (Continued)

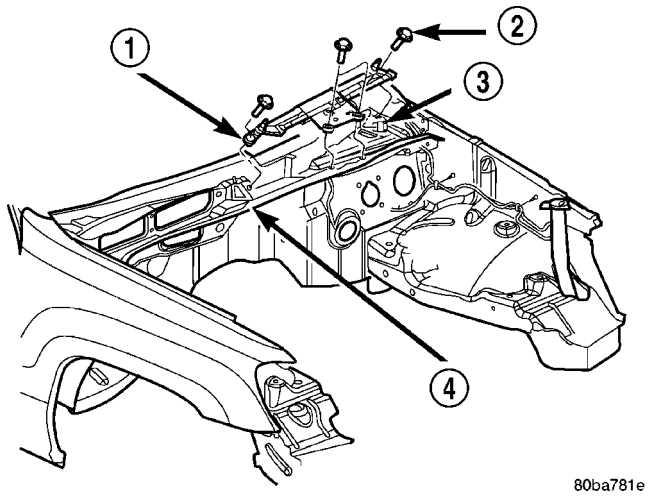


Fig. 18 Front Wiper Module Remove/Install

1 - FRONT WIPER MODULE
2 - SCREW (4)
3 - WIRE HARNESS CONNECTOR
4 - LOWER COWL PLENUM PANEL

(2) Lift the left end of the front wiper module far enough to access the front wiper motor wire harness connector.

(3) Reconnect the left headlamp and dash wire harness connector for the front wiper motor to the motor pigtail wire connector.

(4) Loosely install one of the front wiper module mounting screws to the mounting hole near the pivot on the right end of the module to locate the module in the plenum.

(5) Working from left to right, install and tighten the four screws that secure the front wiper module to the cowl plenum panel. Tighten the screws to 8 N·m (72 in. lbs.).

(6) Reinstall the cowl plenum cover/grille panel over the cowl plenum (Fig. 17). (Refer to 23 - BODY/EXTERIOR/COWL GRILLE - INSTALLATION).

(7) Reinstall both front wiper arms onto the wiper pivots. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS/FRONT WIPER ARMS - INSTALLATION).

(8) Reconnect the battery negative cable.

(9) Close and latch the hood.

RAIN SENSOR MODULE

DESCRIPTION

The Rain Sensor Module (RSM) is the primary component of the automatic wiper system (Fig. 19). The RSM is located on the inside of the windshield, between the rear view mirror mounting button and the windshield header and is concealed behind a molded plastic trim cover that snaps over the module housing. The triangular-shaped molded black plastic

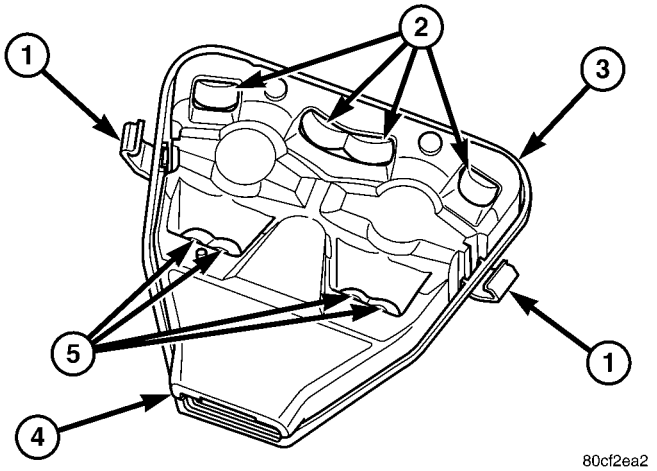


Fig. 19 Rain Sensor Module

1 - SPRING CLIP (2)
2 - INFRARED LENS (4)
3 - HOUSING
4 - CONNECTOR RECEPTACLE
5 - PHOTOCELL LENS (4)

housing of the RSM has a rectangular opening located on the upper end of the housing for the module connector receptacle, which contains four terminal pins. These terminal pins connect the rain sensor to the vehicle electrical system through a dedicated take out and connector of the overhead wire harness that extends from above the headliner. Five openings on the windshield side of the RSM housing are fitted with eight convex clear plastic lenses. A metal spring clip on each side of the housing near the bottom secures the RSM to a plastic mounting bracket that is bonded to the windshield glass. Concealed within the RSM housing is the electronic circuitry of the module, which includes four InfraRed (IR) diodes, two photocells, and a microprocessor.

The RSM software is Flash compatible, which means it can be reprogrammed using Flash reprogramming procedures. However, if any of the hardware of the RSM is damaged or faulty, the entire module must be replaced. The RSM bracket is serviced as a unit with the windshield glass. If the bracket is faulty, damaged, or separated from the windshield glass, the windshield unit must be replaced.

OPERATION

The microprocessor-based Rain Sensor Module (RSM) senses moisture in the wipe pattern on the outside of the windshield glass and sends wipe commands to the Body Control Module (BCM). Four InfraRed (IR) diodes within the RSM generate IR light beams that are aimed by four of the convex optical lenses near the base of the module through the windshield glass. Four additional convex optical

RAIN SENSOR MODULE (Continued)

lenses near the top of the RSM are focused on the IR light beams on the outside of the windshield glass and allow the two photocells within the module to sense changes in the intensity of these IR light beams. When sufficient moisture accumulates within the wipe pattern of the windshield glass, the RSM detects a change in the monitored IR light beam intensity.

The internal programming of the RSM then sends the appropriate electronic wipe command messages to the BCM over the Programmable Communications Interface (PCI) data bus. The BCM responds by activating or deactivating the front wiper system. The BCM also sends electronic sensitivity level messages to the RSM over the PCI data bus based upon the driver-selected sensitivity setting of the control knob on the control stalk of the right (wiper) multi-function switch. The higher the selected sensitivity setting the more sensitive the RSM is to the accumulated moisture on the windshield glass, and the more frequently the RSM will send wipe commands to the BCM to operate the front wiper system.

The RSM operates on battery current received through a fuse in the Junction Block (JB) on a fused B(+) circuit. This circuit is switched by the power accessory (sunroof) delay relay in the JB so that the RSM will operate whenever the relay is energized by the BCM. The RSM receives ground at all times through a take out of the left body wire harness with an eyelet terminal that is secured by a ground screw to the front seat crossmember on the floor panel under the left front seat. It is important to note that the default condition for the wiper system is automatic wipers Off; therefore, if no message is received from the RSM by the BCM for more than about five seconds, the automatic wipers will be disabled and the BCM will default the front wiper system operation to the low speed continuous wipe mode.

The RSM ground and battery current inputs may be diagnosed using conventional diagnostic tools and methods. However, conventional diagnostic methods may not prove conclusive in the diagnosis of the RSM internal circuitry, the BCM, the PCI data bus network, or the electronic messages received and transmitted by the RSM over the PCI data bus. The most reliable, efficient, and accurate means to diagnose the RSM requires the use of a DRBIII® scan tool. Refer to the appropriate diagnostic information.

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Adjust the inside rear view mirror on the windshield downward far enough to access the lower edge of the Rain Sensor Module (RSM) trim cover (Fig. 20).

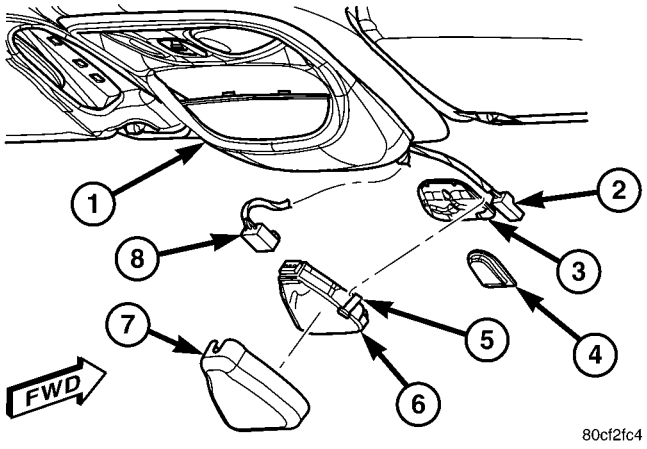


Fig. 20 Rain Sensor Module Remove/Install

1 - OVERHEAD CONSOLE
2 - REAR VIEW MIRROR CONNECTOR
3 - BRACKET
4 - REAR VIEW MIRROR BUTTON
5 - SPRING CLIP (2)
6 - RAIN SENSOR MODULE
7 - TRIM COVER
8 - WIRE HARNESS CONNECTOR

(3) Using a small thin-bladed screwdriver inserted into the notch at the bottom of trim cover, gently pry the trim cover away from the windshield glass until it unsnaps from the RSM.

(4) Using a small thin-bladed screwdriver, gently pry the spring clips on each side of the RSM away from the bracket on the windshield.

(5) Pull the RSM away from the bracket on the windshield far enough to access and disconnect the overhead wire harness connector for the module from the module connector receptacle.

(6) Remove the RSM from above the inside rear view mirror.

RAIN SENSOR MODULE (Continued)

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the Rain Sensor Module (RSM) above the inside rear view mirror (Fig. 20).

(2) Reconnect the overhead wire harness connector for the RSM to the module connector receptacle.

(3) Position the RSM to the bracket on the windshield above the inside rear view mirror.

(4) Using hand pressure, press the spring clips on each side of the RSM until they snap over the bracket on the windshield.

NOTE: The spring clips on the RSM will become deformed after numerous (about ten) removal and installation cycles. If the spring clips become deformed, the RSM must be replaced with a new unit.

(5) Align and engage the top of the trim cover over the top of the RSM.

(6) Using hand pressure, press the bottom of the trim cover toward the windshield glass until it snaps over the bottom of the RSM.

(7) Reconnect the battery negative cable.

RIGHT MULTI-FUNCTION SWITCH

DESCRIPTION

The right (wiper) multi-function switch is secured to the right side of the multi-function switch mounting housing at the top of the steering column, just below the steering wheel (Fig. 21). The only visible component of the right multi-function switch is the control stalk that extends through a dedicated opening in the right side of the steering column shrouds. The remainder of the right multi-function switch is concealed beneath the steering column shrouds. The switch housing and its control stalk are constructed of molded black plastic. A single connector receptacle containing up to ten terminal pins is located on the back of the switch housing and connects the switch to the vehicle electrical system through a take out and connector of the instrument panel wire harness. The switch is secured to the multi-function switch mounting housing near the top of the steering column by two screws.

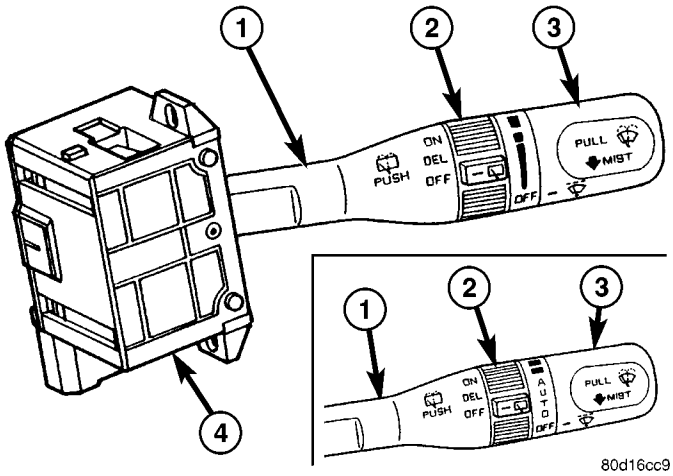


Fig. 21 Right (Wiper) Multi-Function Switch

1 - CONTROL STALK
2 - REAR WIPER CONTROL SLEEVE
3 - FRONT WIPER CONTROL KNOB
4 - RIGHT (WIPER) MULTI-FUNCTION SWITCH

There are two versions of the right multi-function switch: one to support the standard equipment speed sensitive intermittent front wiper system, and a second to support the optional front automatic wiper system. Each version of the right multi-function switch control stalk has both white nomenclature and International Control and Display Symbol icons applied to it, which clearly identify its many functions. The control stalk has a control knob on its end with a flattened face to allow it to be easily rotated. Just below the control knob is a knurled control sleeve. The right multi-function switch is the primary control for the front and rear wiper and washer systems, and contains switches and circuitry to provide signals to the Body Control Module (BCM) and the rear wiper module.

The right (wiper) multi-function switch cannot be adjusted or repaired. If any function of the switch is faulty, or if the switch is damaged, the entire switch unit must be replaced.

The right (wiper) multi-function switch supports the following functions and features:

- **Automatic Front Wipe Mode** - On models equipped with the optional automatic wiper system, the internal circuitry and hardware of the right

RIGHT MULTI-FUNCTION SWITCH (Continued)

(wiper) multi-function switch control knob provide an automatic front wipe mode with five sensitivity positions.

- **Continuous Front Wipe Modes** - The internal circuitry and hardware of the right (wiper) multi-function switch control knob provide two continuous front wipe switch positions, low speed or high speed.
- **Continuous Rear Wipe Mode** - The internal circuitry and hardware of the right (wiper) multi-function switch control sleeve provides one continuous rear wipe switch position.
- **Front Washer Mode** - The internal circuitry and hardware of the right (wiper) multi-function switch control stalk provide front washer system operation.
- **Front Wipe-After-Wash Mode** - The internal circuitry and hardware of the right (wiper) multi-function switch control stalk provide a wipe-after-wash mode.
- **Front Wiper Mist Mode** - The internal circuitry and hardware of the right (wiper) multi-function switch control stalk provide a front wiper system mist mode.
- **Intermittent Front Wipe Mode** - The internal circuitry and hardware of the right (wiper) multi-function switch control knob provide an intermittent front wipe mode with five delay interval positions, except on models equipped with the optional automatic wiper system.
- **Intermittent Rear Wipe Mode** - The internal circuitry and hardware of the right (wiper) multi-function switch control ring provide one fixed interval intermittent rear wipe mode switch position.
- **Rear Washer Mode** - The internal circuitry and hardware of the right (wiper) multi-function switch control stalk provide rear washer system operation.

OPERATION

The right (wiper) multi-function switch uses a combination of resistor multiplexed and conventionally switched outputs to control the many functions and features it provides. The switch receives battery current on a fused ignition switch output (run-acc) circuit from a fuse in the Junction Block (JB) whenever the ignition switch is in the On or Accessory positions, and receives ground from the Body Control Module (BCM) on a windshield wiper switch return circuit. The right (wiper) multi-function switch may be diagnosed using conventional diagnostic tools and methods.

Following are descriptions of how the right (wiper) multi-function switch control stalk operates to control the functions and features it provides:

- **Automatic Wipe Mode** - On models equipped with the optional automatic wiper system, the control knob on the end of the right (wiper) multi-function switch control stalk is rotated to one of five minor intermediate detents to select the desired automatic wipe sensitivity level. The control knob is rotated rearward (counterclockwise) to reduce the sensitivity (increase the interval between wipes), or forward (clockwise) to increase the sensitivity (decrease the interval between wipes). The right (wiper) multi-function switch provides a resistor multiplexed output to the Body Control Module (BCM) on a windshield wiper switch mux circuit. The BCM responds by sending an electronic message to the Rain Sensor Module (RSM) over the Programmable Communications Interface (PCI) data bus indicating the selected sensitivity level, and by operating the front wiper system based upon electronic wipe commands received from the RSM over the PCI data bus.
- **Continuous Front Wipe Modes** - The control knob on the end of the right (wiper) multi-function switch control stalk is rotated to an intermediate detent that is one detent rearward (counterclockwise) from the full forward (clockwise) detent to select the low speed continuous front wiper mode, or to its full forward (clockwise) detent to select the high speed continuous front wiper mode. For the low speed mode, the multi-function switch provides a resistor multiplexed output to the Body Control Module (BCM) on a windshield wiper switch mux circuit, and the BCM responds by energizing the wiper on/off relay in the Power Distribution Center (PDC) for the front low speed continuous wipe mode. For the high speed mode, the multi-function switch provides the same resistor multiplexed output to the BCM on the windshield wiper switch mux circuit as the low speed mode, but also provides a ground output to the BCM on a wiper high control circuit. The BCM responds to these inputs by energizing the wiper on/off relay and the wiper high/low relay in the PDC for the front high speed continuous wipe mode.
- **Continuous Rear Wipe Mode** - The control ring on the right (wiper) multi-function switch control stalk is rotated to the most forward (clockwise) detent to select the continuous rear wiper mode. The multi-function switch provides a battery current output to the rear wiper motor on a rear wiper motor control circuit to signal the rear wiper module to operate the rear wiper motor in the continuous wipe mode.
- **Front Washer Mode** - The control stalk of the right (wiper) multi-function switch is pulled toward the steering wheel to momentarily activate the front washer pump/motor in the front washer mode. The front washer pump will continue to operate in the front washer mode until the control stalk is released. The right (wiper) multi-function switch provides a battery current output on a washer pump motor

switch output circuit to energize the front washer pump in the front washer mode.

- **Front Wiper Mist Mode** - The control stalk of the right (wiper) multi-function switch is pushed towards the floor to momentarily activate the front wiper motor in the mist mode. The front wiper motor will continue to operate in the mist mode until the control stalk is released. The right (wiper) multi-function switch provides a resistor multiplexed output to the Body Control Module (BCM) on a windshield wiper switch mux circuit, and the BCM responds by energizing the wiper on/off relay in the Power Distribution Center (PDC) to operate the front wiper motor momentarily at low speed to provide the front wiper mist mode.
- **Intermittent Front Wipe Mode** - On models not equipped with the optional automatic wiper system, the control knob on the end of the right (wiper) multi-function switch control stalk is rotated to one of five minor intermediate detents to select the desired intermittent front wipe delay interval. The control knob is rotated rearward (counterclockwise) to increase the delay, or forward (clockwise) to decrease the delay. The right (wiper) multi-function switch provides a resistor multiplexed output to the Body Control Module (BCM) on a windshield wiper switch mux circuit. The BCM responds by monitoring electronic vehicle speed messages received from the Powertrain Control Module (PCM) over the Programmable Communications Interface (PCI) data bus, then energizing the wiper on/off relay in the Power Distribution Center (PDC) to operate the front wiper motor at the proper delay intervals.
- **Intermittent Rear Wipe Mode** - The control ring on the right (wiper) multi-function switch control stalk is rotated to the center detent to select the intermittent rear wiper mode. The right (wiper) multi-function switch provides a battery current output to the rear wiper motor on a rear wiper motor delay control circuit to signal the rear wiper module to operate the rear wiper in the intermittent wipe mode.
- **Rear Washer Mode** - The right (wiper) multi-function switch control stalk is pushed forward toward the instrument panel to a momentary positions to activate the rear washer pump/motor in the rear washer mode. The rear washer pump will continue to operate in the rear washer mode until the control stalk is released. The right (wiper) multi-function switch provides battery current on a rear washer pump motor control circuit to energize the rear washer pump in the rear washer mode.

DIAGNOSIS AND TESTING - RIGHT MULTI-FUNCTION SWITCH

Be certain to perform the diagnosis for the front wiper system, front washer system, rear wiper system, and/or rear washer system before testing the right multi-function switch. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS - DIAGNOSIS AND TESTING) or (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS - DIAGNOSIS AND TESTING). Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the right multi-function switch from the steering column and disconnect the instrument panel wire harness connector for the switch from the switch connector receptacle.

(3) Using an ohmmeter, check the right multi-function switch continuity and resistances at the switch terminals as shown in the Right Multi-Function Switch test chart (Fig. 22).

RIGHT MULTI-FUNCTION SWITCH (Continued)

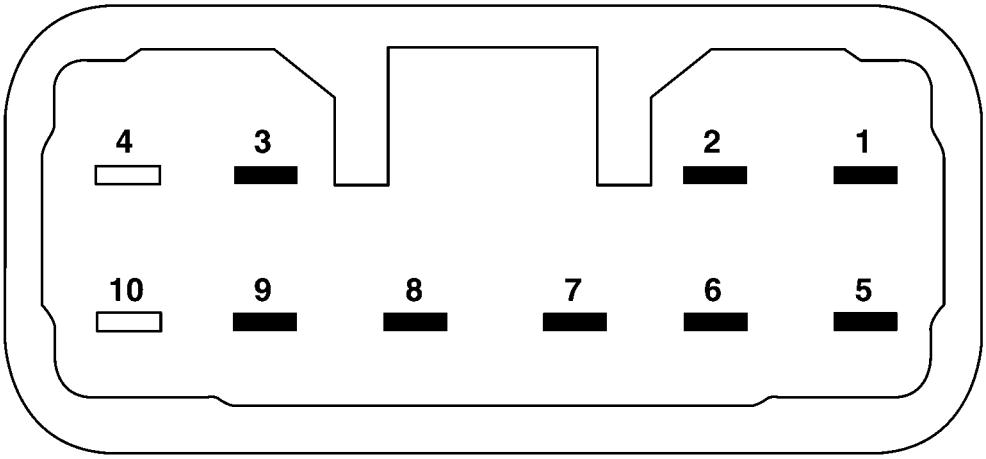


Fig. 22 Right Multi-Function Switch Tests

RIGHT (WIPER) MULTI-FUNCTION SWITCH			
FRONT WIPER/WASHER SWITCH TESTS			
SWITCH POSITION	CONTINUITY BETWEEN	RESISTANCE BETWEEN	RESISTANCE RANGE (OHMS)
Off	-	Pins 7 & 8	4286-4379
Intermittent Wipe or Sensitivity Position 1	-	Pins 7 & 8	1445-1480
Intermittent Wipe or Sensitivity Position 2	-	Pins 7 & 8	847-870
Intermittent Wipe or Sensitivity Position 3	-	Pins 7 & 8	556-573
Intermittent Wipe or Sensitivity Position 4	-	Pins 7 & 8	367-380
Intermittent Wipe or Sensitivity Position 5	-	Pins 7 & 8	218-229
Low Speed	-	Pins 7 & 8	99-106
High Speed	Pins 7 & 9	Pins 7 & 8	99-106
Mist	-	Pins 7 & 8	49-56
Wash	Pins 1 & 3	-	-
REAR WIPER/WASHER SWITCH TESTS			
SWITCH POSITION	CONTINUITY BETWEEN	RESISTANCE BETWEEN	RESISTANCE BETWEEN
Off	-	-	-
Delay	Pins 1 & 6	-	-
On	Pins 1 & 5	-	-
Wash	Pins 1 & 5 & 6 & 2	-	-

(4) If the right multi-function switch fails any of the continuity or resistance tests, replace the faulty right multi-function switch as required.

RIGHT MULTI-FUNCTION SWITCH (Continued)

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) From below the steering column, remove the screw that secures the lower tilting steering column shroud to the steering column multi-function switch mounting housing (Fig. 23).

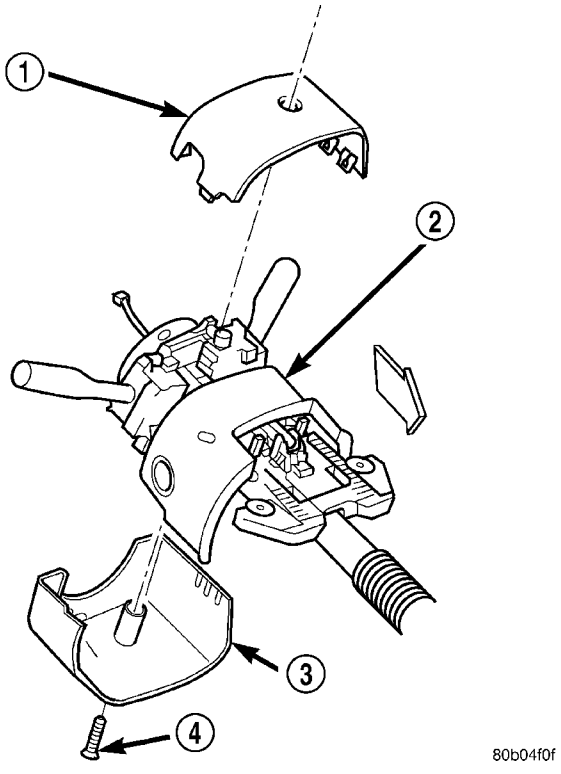


Fig. 23 Steering Column Shrouds Remove/Install

1 - UPPER TILTING COLUMN SHROUD
2 - FIXED COLUMN SHROUD
3 - LOWER TILTING COLUMN SHROUD
4 - SCREW

(3) Using hand pressure, push gently inward on both sides of the upper shroud near the parting line between the upper and lower shrouds to release the snap features that secure the two halves to each other.

(4) Remove both the upper and lower shrouds from the steering column.

(5) Disconnect the instrument panel wire harness connector for the right multi-function switch from the switch connector receptacle.

(6) Remove the two screws that secure the right multi-function switch to the multi-function switch mounting housing (Fig. 24).

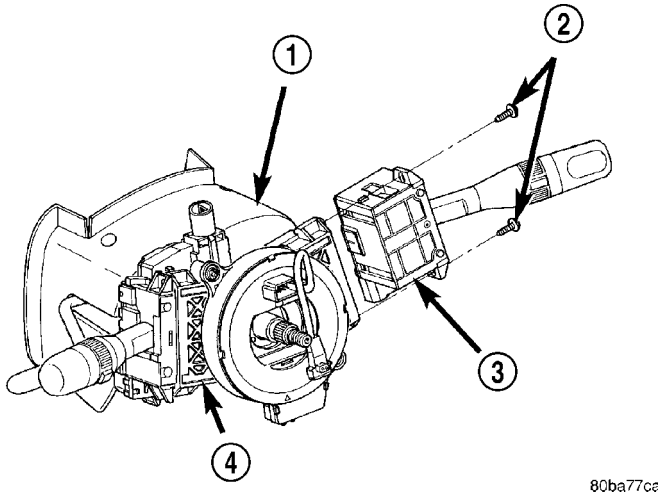


Fig. 24 Right Multi-Function Switch Remove/Install

1 - STEERING COLUMN
2 - SCREWS (2)
3 - RIGHT MULTI-FUNCTION SWITCH
4 - MULTI-FUNCTION SWITCH MOUNTING HOUSING

(7) Remove the right multi-function switch from the multi-function switch mounting housing.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

RIGHT MULTI-FUNCTION SWITCH (Continued)

(1) Position the right multi-function switch onto the multi-function switch mounting housing (Fig. 24).

(2) Install and tighten the two screws that secure the right multi-function switch to the multi-function switch mounting housing. Tighten the screws to 2.5 N·m (22 in. lbs.).

(3) Reconnect the instrument panel wire harness connector for the right multi-function switch to the switch connector receptacle.

(4) Position the lower tilting steering column shroud to the underside of the steering column (Fig. 23).

(5) Install and tighten the screw that secures the lower tilting steering column shroud to the multi-function switch mounting housing. Tighten the screw to 2 N·m (17 in. lbs.).

(6) Position the upper tilting column shroud over the steering column with the hazard warning switch button inserted through the hole in the upper surface of the shroud.

(7) Align the snap features on the upper and lower shrouds and apply hand pressure to snap them together.

(8) Reconnect the battery negative cable.

WASHER FLUID LEVEL SWITCH

DESCRIPTION

The washer fluid level switch is a single pole, single throw reed-type switch mounted at the front of the sump area near the bottom of the washer reservoir, forward of the two washer pump/motors (Fig. 25). Only the molded plastic switch mounting flange and the integral connector receptacle are visible when the switch is installed in the reservoir. A short nipple formation extends from the inner surface of the switch mounting flange, and a barb on the nipple near the switch mounting flange is pressed through a rubber grommet seal installed in the mounting hole of the reservoir. A small, molded plastic float has two pivot pins near its center that are snapped into two receptacles near the ends of two stanchions that extend toward the float from the switch nipple formation. A small magnet is secured within the end of the float nearest the switch nipple formation, and a reed switch is concealed within the nipple. A diagnostic resistor is connected between the two switch terminals within the switch mounting flange. The washer fluid level switch cannot be adjusted or repaired. If faulty or damaged, the switch must be replaced.

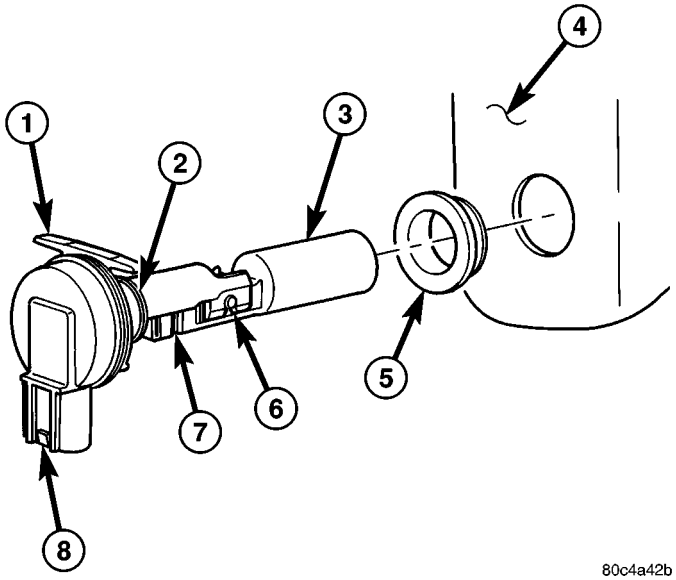


Fig. 25 Washer Fluid Level Switch

1 - MOUNTING FLANGE
2 - BARBED NIPPLE
3 - FLOAT
4 - RESERVOIR
5 - GROMMET SEAL
6 - PIVOT
7 - MAGNET
8 - CONNECTOR RECEPTACLE

OPERATION

The washer fluid level switch uses a pivoting, oblong float to monitor the level of the washer fluid in the washer reservoir. The float contains a small magnet. When the float pivots, the proximity of this magnet to a stationary reed switch within the nipple formation of the switch changes. When the fluid level in the washer reservoir is at or above the float level, the float moves to a vertical position, the influence of the float magnetic field is removed from the reed switch, and the normally open reed switch contacts open. When the fluid level in the washer reservoir falls below the level of the pivoting float, the float moves to a horizontal position, the influence of the float magnetic field is applied to the reed switch, and the contacts of the normally open reed switch close.

The washer fluid level switch is connected to the vehicle electrical system through a dedicated take out and connector of the left headlamp and dash wire harness. The switch receives a five volt reference signal from the Body Control Module (BCM) through the washer fluid switch output circuit. The switch is grounded at all times through another take out of the left headlamp and dash wire harness with a single eyelet terminal connector that is secured under a ground screw near the top of the left front fender inner shield in the engine compartment.

When the switch closes, the BCM senses the voltage change on the circuit. The BCM is programmed

WASHER FLUID LEVEL SWITCH (Continued)

to send low washer fluid messages to the Electronic Vehicle Information Center (EVIC) over the Programmable Communications Interface (PCI) data bus. The EVIC is programmed to respond to this message by displaying the Washer Fluid Low warning and sending a chime request message back to the BCM over the PCI data bus. Then the BCM generates an audible chime tone warning.

A diagnostic resistor within the washer fluid level switch allows the BCM to monitor and diagnose this circuit. The BCM will store a Diagnostic Trouble Code (DTC) for any fault that it detects. For retrieval of this fault information and further diagnosis of the washer fluid level switch, the BCM, the EVIC, the PCI data bus, the BCM electronic message outputs to the EVIC that control the Low Washer Fluid indicator, or the EVIC electronic message outputs to the BCM that control chime service, a DRBIII® scan tool is required. Refer to the appropriate diagnostic information.

REMOVAL

The washer fluid level switch can be removed from the washer reservoir without removing the reservoir from the vehicle.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the one screw that secures the washer reservoir filler neck to the left inner fender shield.

(3) Raise and support the vehicle.

(4) Remove the liner from the left front fender wheel house.

(5) Disconnect the washer hose from the barbed outlet nipple of the rearmost (front) washer pump/motor unit and allow the washer fluid to drain into a clean container for reuse.

(6) Remove the two screws that secure the inboard mounting flange of the washer reservoir to the left inner wheel house.

(7) Pull the bottom of the washer reservoir rearward far enough to access the left headlamp and dash wire harness connector for the washer fluid level switch on the front of the reservoir.

(8) Disconnect the left headlamp and dash wire harness connector for the washer fluid level switch from the switch connector receptacle.

NOTE: The pivoting float of the washer fluid level switch must be in a horizontal position within the reservoir in order to be removed. With the reservoir empty and in an upright position, the pivoting float will orient itself to the horizontal position when the switch connector receptacle is pointed straight downwards.

(9) Using a trim stick or another suitable wide flat-bladed tool, gently pry the barbed nipple of the washer fluid level switch out of the rubber grommet seal on the front of the reservoir sump (Fig. 26). Care must be taken not to damage the reservoir.

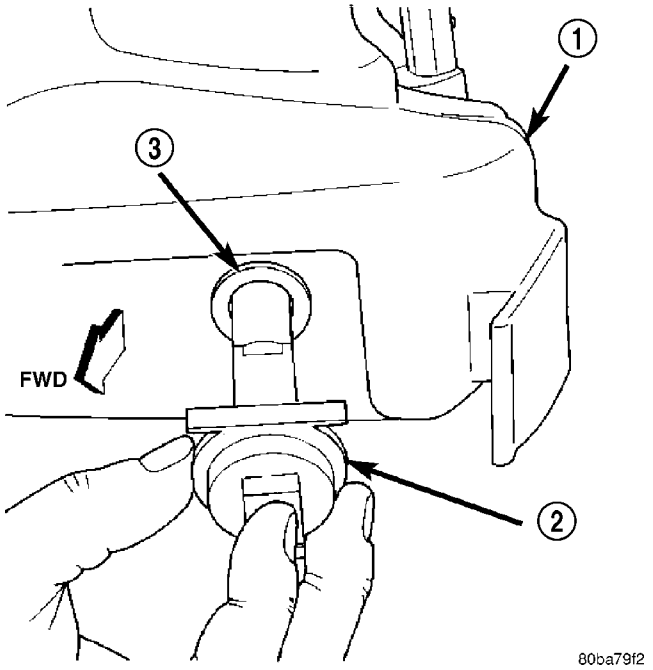


Fig. 26 Washer Fluid Level Switch Remove/Install

1 - WASHER RESERVOIR
2 - WASHER FLUID LEVEL SWITCH
3 - GROMMET SEAL

(10) Remove the washer fluid level switch from the washer reservoir.

(11) Remove the rubber grommet seal from the washer fluid level switch mounting hole in the washer reservoir and discard.

INSTALLATION

(1) Install a new rubber grommet seal into the washer fluid level switch mounting hole in the washer reservoir. Always use a new rubber grommet seal on the reservoir.

(2) Insert the float of the washer fluid level switch through the rubber grommet seal and into the washer reservoir (Fig. 26). The connector receptacle of the washer fluid level switch should be pointed downward.

(3) Using hand pressure, press firmly and evenly on the washer fluid level switch mounting flange until the barbed nipple is fully seated in the rubber grommet seal in the washer reservoir mounting hole.

(4) Reconnect the left headlamp and dash wire harness connector for the washer fluid level switch to the switch connector receptacle.

(5) Reconnect the washer hose to the barbed outlet nipple of the front washer pump/motor unit.

(6) Install and tighten the two screws that secure the inboard mounting flange of the washer reservoir

WASHER FLUID LEVEL SWITCH (Continued)

to the left inner wheel house. Tighten the screws to 7.4 N·m (66 in. lbs.).

(7) Reinstall the liner into the left front fender wheel house.

(8) Lower the vehicle.

(9) Install and tighten the one screw that secures the washer reservoir filler neck to the left inner fender shield. Tighten the screw to 7.4 N·m (66 in. lbs.).

(10) Fill the washer reservoir with the washer fluid drained from the reservoir during the removal procedure.

(11) Reconnect the battery negative cable.

WASHER RESERVOIR

DESCRIPTION

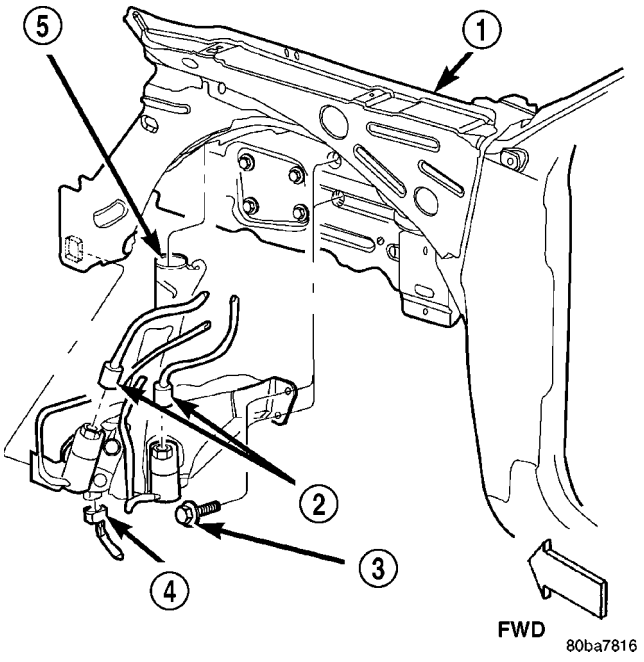


Fig. 27 Washer Reservoir

1 - LEFT FENDER INNER SHIELD
2 - SCREW (2)
3 - WASHER PUMP WIRE HARNESS CONNECTORS
4 - WASHER FLUID LEVEL SWITCH WIRE HARNESS CONNECTOR
5 - WASHER RESERVOIR

A single washer fluid reservoir is used for both the front and rear washer systems (Fig. 27). The molded plastic washer fluid reservoir is mounted on the outboard side of the left front frame rail in front of the left front wheel between the inner and outer fender panels, where it is concealed by the front inner fender liner. The only visible component of the washer reservoir is the filler neck and cap unit, which extends through a hole in the left front wheel house extension panel into the engine compartment. A bright yellow plastic filler cap with a rubber seal and an International Control and Display Symbol icon for “Windshield Washer” and the text “Washer Fluid Only” molded into it snaps over the open end of the filler neck. The cap hinges on and is secured to a molded-in hook formation on the rear of the reservoir filler neck.

There are separate, dedicated mounting holes on the outboard side of the reservoir provided for the front and rear washer/pump motor units, and another dedicated mounting hole on the front of the reservoir for the washer fluid level switch. The inboard side of the washer reservoir has an integral flange that is secured to the inside of the left front fender wheel house by two screws, while an integral molded tab engages a slot in the left front fender inner shield to support the outboard side of the reservoir. Another screw secures the reservoir filler neck to the left front fender inner shield near the front of the engine compartment. The left front fender wheel house inner liner must be removed to access the washer reservoir for service.

The washer reservoir cannot be repaired and, if faulty or damaged, it must be replaced. The washer reservoir, the grommet seals for the washer pump/motor units and the washer fluid level switch, and the filler cap are each available for individual service replacement.

OPERATION

The washer fluid reservoir provides a secure, on-vehicle storage location for a large reserve of washer fluid for operation of the front and rear washer systems. The washer reservoir filler neck provides a clearly marked and readily accessible point from which to add washer fluid to the reservoir. The front and rear washer/pump motor units are located in a sump area near the front of the reservoir to be certain that washer fluid will be available to the pumps as the fluid level in the reservoir becomes depleted. The front washer pump/motor unit is mounted in the lowest position in the sump so that the front washers will operate even after the rear washer system will no longer operate. The washer fluid level switch is mounted just above the sump area of the reservoir so that there will be adequate warning to the vehicle operator that the washer fluid level is low, before the washer system will no longer operate.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the air cleaner housing from the top of the left front fender wheel house. (Refer to 9 -

WASHER RESERVOIR (Continued)

ENGINE/AIR INTAKE SYSTEM/AIR CLEANER HOUSING - REMOVAL).

(3) Disconnect the two washer reservoir washer hoses from the two engine compartment washer hoses at the inline connectors located on the top of the left front fender wheel house (Fig. 28).

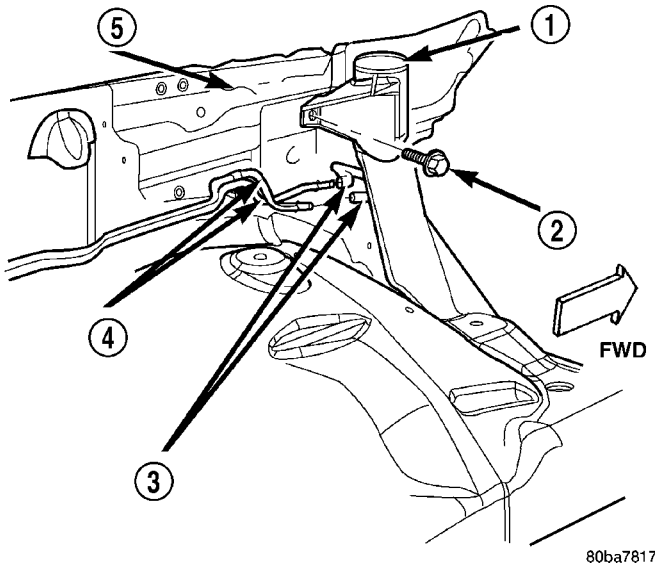


Fig. 28 Washer Reservoir Filler Neck Mounting

1 - WASHER RESERVOIR
2 - SCREW
3 - WASHER HOSES FROM PUMPS
4 - WASHER HOSES TO NOZZLES
5 - LEFT FENDER INNER SHIELD

(4) Open the washer reservoir filler cap and unsnap the filler cap hinge from the hook on the filler neck.

(5) Remove the one screw that secures the washer reservoir filler neck to the left inner fender shield.

(6) Raise and support the vehicle.

(7) Remove the liner from the left front fender wheel house.

(8) Disconnect the left headlamp and dash wire harness connectors for the two washer pump/motor units from the pump/motor connector receptacles (Fig. 29).

(9) Remove the two screws that secure the inboard mounting flange of the washer reservoir to the left front inner wheel house.

(10) Pull the bottom of the washer reservoir rearward far enough to access the left headlamp and dash wire harness connector for the washer fluid level switch on the front of the reservoir.

(11) Disconnect the left headlamp and dash wire harness connector for the washer fluid level switch from the switch connector receptacle.

(12) Pull the bottom of the washer reservoir rearward far enough to disengage the outboard mounting tab from the mounting slot on the left front inner fender shield.

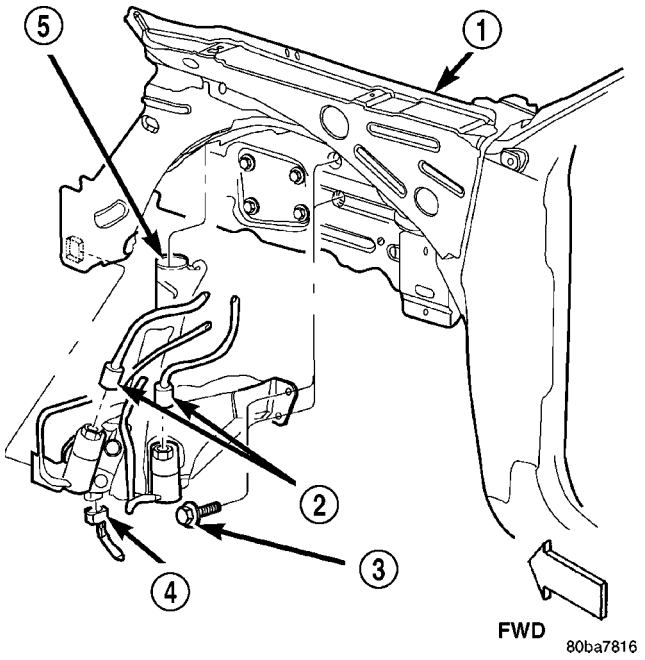


Fig. 29 Washer Reservoir

1 - LEFT FENDER INNER SHIELD
2 - SCREW (2)
3 - WASHER PUMP WIRE HARNESS CONNECTORS
4 - WASHER FLUID LEVEL SWITCH WIRE HARNESS CONNECTOR
5 - WASHER RESERVOIR

(13) Rotate the washer reservoir far enough so that the inboard mounting flange clears the front suspension components, then lower the reservoir far enough to disengage the filler neck from the hole in the left front wheel house extension.

(14) Remove the washer reservoir from the left front fender wheel house.

INSTALLATION

(1) Position the washer reservoir into the left front fender wheel house.

(2) Raise the washer reservoir filler neck through the hole in the left front fender wheelhouse extension into the engine compartment and rotate the reservoir as needed to orient the inboard mounting flange over the top of the front suspension components.

(3) Pull the bottom of the washer reservoir rearward far enough to engage the outboard mounting tab with the mounting slot in the left front inner fender shield (Fig. 29).

(4) Pull the bottom of the washer reservoir rearward far enough to access the washer fluid level switch connector receptacle on the front of the reservoir.

(5) Reconnect the left headlamp and dash wire harness connector for the washer fluid level switch to the switch connector receptacle.

WASHER RESERVOIR (Continued)

(6) Install and tighten the two screws that secure the inboard mounting flange of the washer reservoir to the left inner wheel house. Tighten the screws to 7.4 N·m (66 in. lbs.).

(7) Reconnect the left headlamp and dash wire harness connectors for the two washer pump/motor units to the pump/motor unit connector receptacles.

(8) Reinstall the liner into the left front fender wheel house.

(9) Lower the vehicle.

(10) Install and tighten the one screw that secures the washer reservoir filler neck to the left inner fender shield (Fig. 28). Tighten the screw to 7.4 N·m (66 in. lbs.).

(11) Reinstall the washer reservoir filler cap hinge onto the hook on the filler neck and close the cap.

(12) Reconnect the two washer reservoir washer hoses to the two engine compartment washer hoses at the inline connectors located on the top of the left front fender wheel house.

(13) Reinstall the air cleaner housing onto the top of the left front fender wheel house. (Refer to 9 - ENGINE/AIR INTAKE SYSTEM/AIR CLEANER HOUSING - INSTALLATION).

(14) Reconnect the battery negative cable.

WIPER HIGH/LOW RELAY

DESCRIPTION

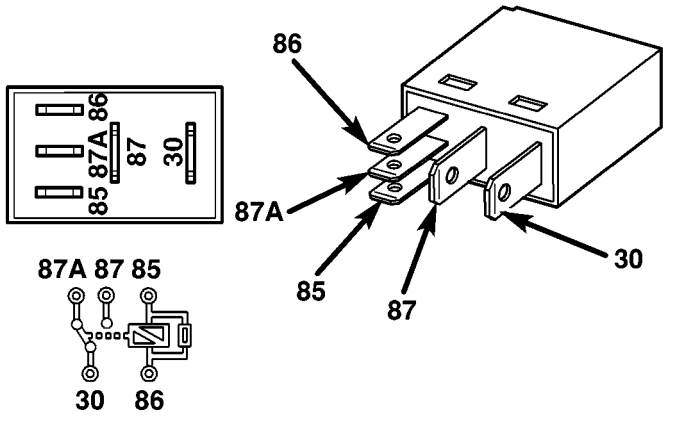


Fig. 30 ISO Micro Relay

30 - COMMON FEED
85 - COIL GROUND
86 - COIL BATTERY
87 - NORMALLY OPEN
87A - NORMALLY CLOSED

The wiper high/low relay is located in the Power Distribution Center (PDC) in the engine compartment near the battery. The wiper high/low relay is a conventional International Standards Organization (ISO) micro relay (Fig. 30). Relays conforming to the ISO specifications have common physical dimensions, current capacities, terminal patterns, and terminal functions. The relay is contained within a small, rectangular, molded plastic housing and is connected to all of the required inputs and outputs by five integral male spade-type terminals that extend from the bottom of the relay base.

The wiper high/low relay cannot be adjusted or repaired and, if faulty or damaged, the unit must be replaced.

OPERATION

The wiper high/low relay is an electromechanical switch that uses a low current input from the Body Control Module (BCM) to control a high current output to the front wiper motor. The movable common feed contact point is held against the fixed normally closed contact point by spring pressure. When the relay coil is energized, an electromagnetic field is produced by the coil windings. This electromagnetic field draws the movable relay contact point away from the fixed normally closed contact point, and holds it against the fixed normally open contact point. When the relay coil is de-energized, spring pressure returns the movable contact point back against the fixed normally closed contact point. A resistor is connected in parallel with the relay coil in the relay, and helps to dissipate voltage spikes and electromagnetic interference that can be generated as the electromagnetic field of the relay coil collapses.

The wiper high/low relay terminals are connected to the vehicle electrical system through a connector receptacle in the Power Distribution Center (PDC). The inputs and outputs of the wiper high/low relay include:

- **Common Feed Terminal** - The common feed terminal (30) is connected to the output of the wiper on/off relay at all times through the wiper on/off relay output circuit.
- **Coil Ground Terminal** - The coil ground terminal (85) is connected to a control output of the Body Control Module (BCM) through a front wiper high/low relay control circuit. The BCM controls front wiper motor operation by controlling a ground path through this circuit.
- **Coil Battery Terminal** - The coil battery terminal (86) receives battery current at all times from a circuit breaker in the Junction Block (JB) through a fused ignition switch output (run-acc) circuit.
- **Normally Open Terminal** - The normally open terminal (87) is connected to the high speed brush of the front wiper motor through a front wiper high/low relay high speed output circuit, and is connected to the high speed brush whenever the relay is energized.

WIPER HIGH/LOW RELAY (Continued)

• **Normally Closed Terminal** - The normally closed terminal (87A) is connected to the low speed brush of the front wiper motor through a front wiper high/low relay low speed output circuit, and is connected to the low speed brush whenever the relay is de-energized.

The wiper high/low relay can be diagnosed using conventional diagnostic tools and methods.

DIAGNOSIS AND TESTING - WIPER HIGH/LOW RELAY

The wiper high/low relay (Fig. 31) is located in the Power Distribution Center (PDC) in the engine compartment near the battery. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

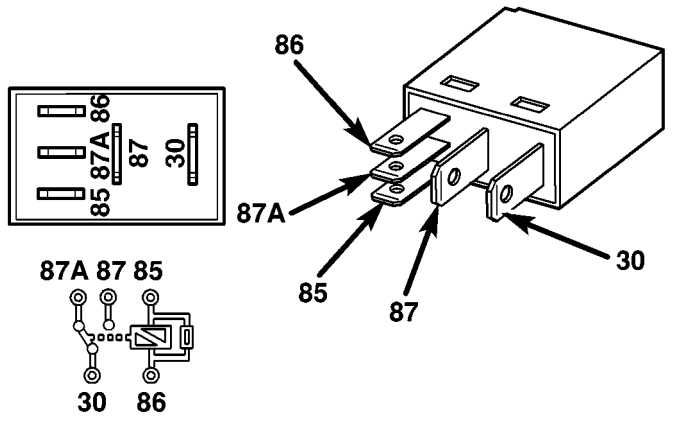


Fig. 31 ISO Micro Relay

30 - COMMON FEED
85 - COIL GROUND
86 - COIL BATTERY
87 - NORMALLY OPEN
87A - NORMALLY CLOSED

(1) Remove the wiper high/low relay from the PDC. (Refer to 8 - ELECTRICAL/WIPERS/WASHERS/WIPER HIGH/LOW RELAY - REMOVAL).

(2) A relay in the de-energized position should have continuity between terminals 87A and 30, and no continuity between terminals 87 and 30. If OK, go to Step 3. If not OK, replace the faulty relay.

(3) Resistance between terminals 85 and 86 (electromagnet) should be 75 ± 8 ohms. If OK, go to Step 4. If not OK, replace the faulty relay.

(4) Connect a battery to terminals 85 and 86. There should now be continuity between terminals 30 and 87, and no continuity between terminals 87A and 30. If OK, reinstall the relay and use a DRBIII® scan tool to perform further testing. Refer to the appropriate diagnostic information.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the cover from the Power Distribution Center (PDC) (Fig. 32).

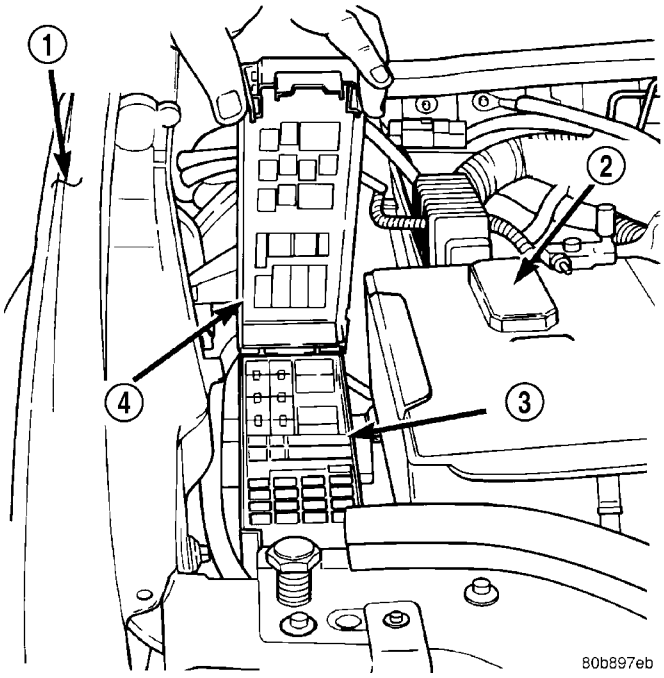


Fig. 32 Power Distribution Center

1 - RIGHT FENDER
2 - BATTERY
3 - POWER DISTRIBUTION CENTER
4 - COVER

(3) See the fuse and relay layout label affixed to the underside of the PDC cover for wiper high/low relay identification and location.

(4) Remove the wiper high/low relay by grasping it firmly and pulling it straight out from the receptacle in the PDC.

INSTALLATION

(1) See the fuse and relay layout label affixed to the underside of the PDC cover for the proper wiper high/low relay location (Fig. 32).

(2) Position the wiper high/low relay in the proper receptacle in the PDC.

(3) Align the wiper high/low relay terminals with the terminal cavities in the PDC receptacle.

(4) Push firmly and evenly on the top of the wiper high/low relay until the terminals are fully seated in the terminal cavities in the PDC receptacle.

(5) Reinstall the cover onto the PDC.

(6) Reconnect the battery negative cable.

WIPER ON/OFF RELAY

DESCRIPTION

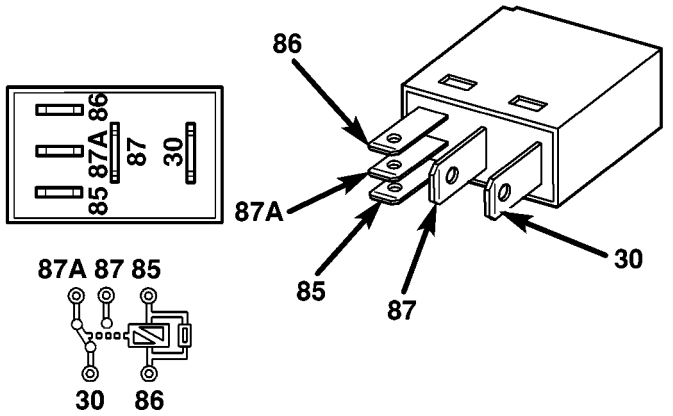


Fig. 33 ISO Micro Relay

30 - COMMON FEED
85 - COIL GROUND
86 - COIL BATTERY
87 - NORMALLY OPEN
87A - NORMALLY CLOSED

The wiper on/off relay is located in the Power Distribution Center (PDC) in the engine compartment near the battery. The wiper on/off relay is a conventional International Standards Organization (ISO) micro relay (Fig. 33). Relays conforming to the ISO specifications have common physical dimensions, current capacities, terminal patterns, and terminal functions. The relay is contained within a small, rectangular, molded plastic housing and is connected to all of the required inputs and outputs by five integral male spade-type terminals that extend from the bottom of the relay base.

The wiper on/off relay cannot be adjusted or repaired and, if faulty or damaged, the unit must be replaced.

OPERATION

The wiper on/off relay is an electromechanical switch that uses a low current input from the Body Control Module (BCM) to control a high current output to the front wiper motor. The movable common feed contact point is held against the fixed normally closed contact point by spring pressure. When the relay coil is energized, an electromagnetic field is produced by the coil windings. This electromagnetic field draws the movable relay contact point away from the fixed normally closed contact point, and holds it against the fixed normally open contact point. When the relay coil is de-energized, spring pressure returns the movable contact point back against the fixed normally closed contact point. A resistor is connected in parallel with the relay coil in the relay, and helps to dissipate voltage spikes and electromagnetic interference that can be generated as the electromagnetic field of the relay coil collapses.

The wiper on/off relay terminals are connected to the vehicle electrical system through a connector receptacle in the Power Distribution Center (PDC). The inputs and outputs of the wiper on/off relay include:

- **Common Feed Terminal** - The common feed terminal (30) is connected to the common feed terminal of the wiper high/low relay at all times through the wiper on/off relay output circuit.
- **Coil Ground Terminal** - The coil ground terminal (85) is connected to a control output of the Body Control Module (BCM) through a front wiper on/off relay control circuit. The BCM controls front wiper motor operation by controlling a ground path through this circuit.
- **Coil Battery Terminal** - The coil battery terminal (86) receives battery current at all times from a circuit breaker in the Junction Block (JB) through a fused ignition switch output (run-acc) circuit.
- **Normally Open Terminal** - The normally open terminal (87) receives battery current at all times from a circuit breaker in the Junction Block (JB) through a fused ignition switch output (run-acc) circuit, and provides battery current to the front wiper on/off relay output circuit whenever the relay is energized.
- **Normally Closed Terminal** - The normally closed terminal (87A) is connected to the wiper park switch in the front wiper motor through the front wiper park switch sense circuit, and is connected to the wiper park switch whenever the relay is de-energized.

The wiper on/off relay can be diagnosed using conventional diagnostic tools and methods.

DIAGNOSIS AND TESTING - WIPER ON/OFF RELAY

The wiper on/off relay (Fig. 34) is located in the Power Distribution Center (PDC) in the engine compartment near the battery. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

(1) Remove the wiper on/off relay from the PDC. (Refer to 8 - ELECTRICAL/WIPERS/WASHERS/ WIPER ON/OFF RELAY - REMOVAL).

(2) A relay in the de-energized position should have continuity between terminals 87A and 30, and

WIPER ON/OFF RELAY (Continued)

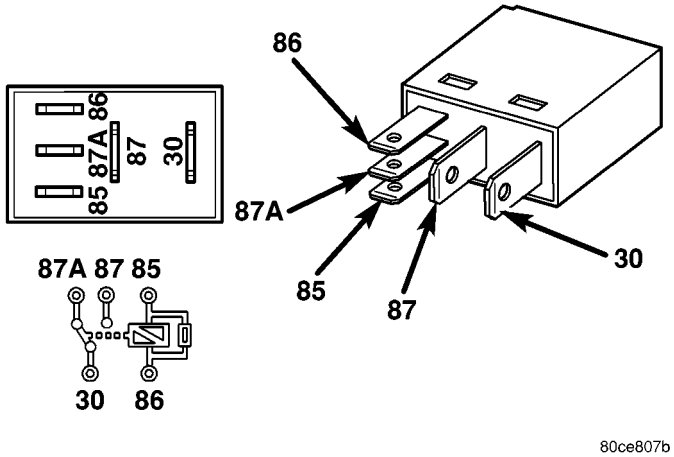


Fig. 34 ISO Micro Relay

30 - COMMON FEED
85 - COIL GROUND
86 - COIL BATTERY
87 - NORMALLY OPEN
87A - NORMALLY CLOSED

no continuity between terminals 87 and 30. If OK, go to Step 3. If not OK, replace the faulty relay.

(3) Resistance between terminals 85 and 86 (electromagnet) should be 75 ± 8 ohms. If OK, go to Step 4. If not OK, replace the faulty relay.

(4) Connect a battery to terminals 85 and 86. There should now be continuity between terminals 30 and 87, and no continuity between terminals 87A and 30. If OK, reinstall the relay and use a DRBIII® scan tool to perform further testing. Refer to the appropriate diagnostic information.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the cover from the Power Distribution Center (PDC) (Fig. 35).

(3) See the fuse and relay layout label affixed to the underside of the PDC cover for wiper on/off relay identification and location.

(4) Remove the wiper on/off relay by grasping it firmly and pulling it straight out from the receptacle in the PDC.

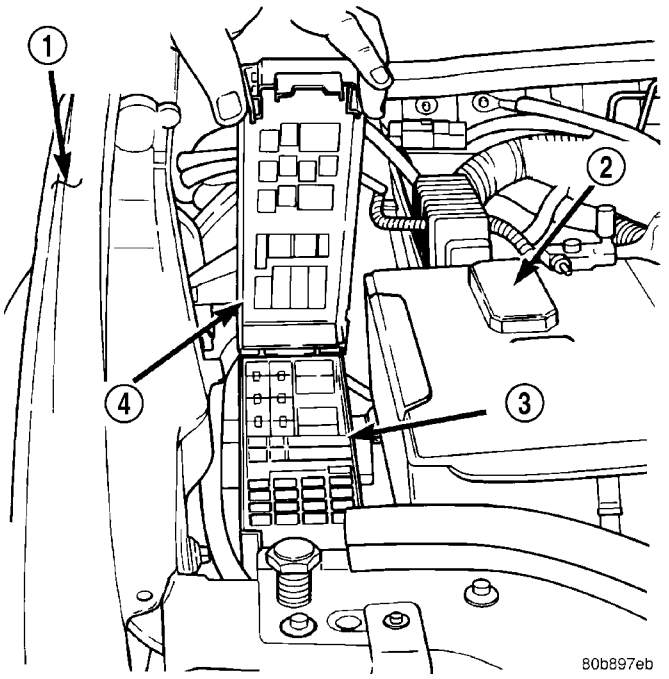


Fig. 35 Power Distribution Center

1 - RIGHT FENDER
2 - BATTERY
3 - POWER DISTRIBUTION CENTER
4 - COVER

INSTALLATION

(1) See the fuse and relay layout label affixed to the underside of the PDC cover for the proper wiper on/off relay location (Fig. 35).

(2) Position the wiper on/off relay in the proper receptacle in the PDC.

(3) Align the wiper on/off relay terminals with the terminal cavities in the PDC receptacle.

(4) Push firmly and evenly on the top of the wiper on/off relay until the terminals are fully seated in the terminal cavities in the PDC receptacle.

(5) Reinstall the cover onto the PDC.

(6) Reconnect the battery negative cable.

REAR WIPERS/WASHERS

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REAR WIPERS/WASHERS

DESCRIPTION

An electrically operated fixed interval intermittent rear wiper and washer system is standard factory-installed equipment on this model (Fig. 1). The rear wiper and washer system includes the following major components, which are described in further detail elsewhere in this service information:

- **Rear Washer Nozzle** - The rear washer nozzle is secured by a snap fit into a mounting hole in the liftgate outer panel above the liftgate glass. The rear washer nozzle includes an integral rear check valve.
- **Rear Washer Plumbing** - The plumbing for the rear washer system consists of rubber hoses and molded plastic fittings. The plumbing is routed along the left side of the engine compartment from the washer reservoir, through the dash into the passenger compartment, up the left cowl side and A-pillar to the headliner, and above the headliner to the rear roof header. The plumbing is then routed through grommets in the rear roof header and the liftgate inner panel to the fitting for the rear washer nozzle.
- **Rear Washer Pump/Motor** - The rear washer pump/motor unit is located in a dedicated hole on the lower outboard side of the washer reservoir, ahead of the left front wheel housing. The rear washer pump mounting hole is located higher on the reservoir than the front washer pump mounting hole.
- **Rear Wiper Arm** - The single rear wiper arm is secured by a nut directly to the rear wiper motor output shaft, which extends through the center of the liftgate outer panel near the base of the liftgate flip-up glass.
- **Rear Wiper Arm Park Ramp** - The molded rubber rear wiper arm park ramp is secured with a screw to the liftgate outer panel to the right of the rear wiper motor output shaft bezel. When the rear wiper system is not in operation, the rear wiper arm is parked off of the flip-up glass on this ramp so that it will not interfere with or be damaged by the flip-up glass operation.
- **Rear Wiper Blade** - The single rear wiper blade is secured to the rear wiper arm with an integral latch, and is parked off of the liftgate flip-up glass when the rear wiper system is not in operation.
- **Rear Wiper Module** - The rear wiper motor output shaft is the only visible component of the rear wiper module. The remainder of the module is concealed within the liftgate beneath the liftgate flip-up glass opening. The rear wiper module includes the module bracket, the rear wiper motor, and the rear wiper electronic control circuitry.
- **Right Multi-Function Switch** - The right (wiper) multi-function switch is secured to the right

REAR WIPERS/WASHERS (Continued)

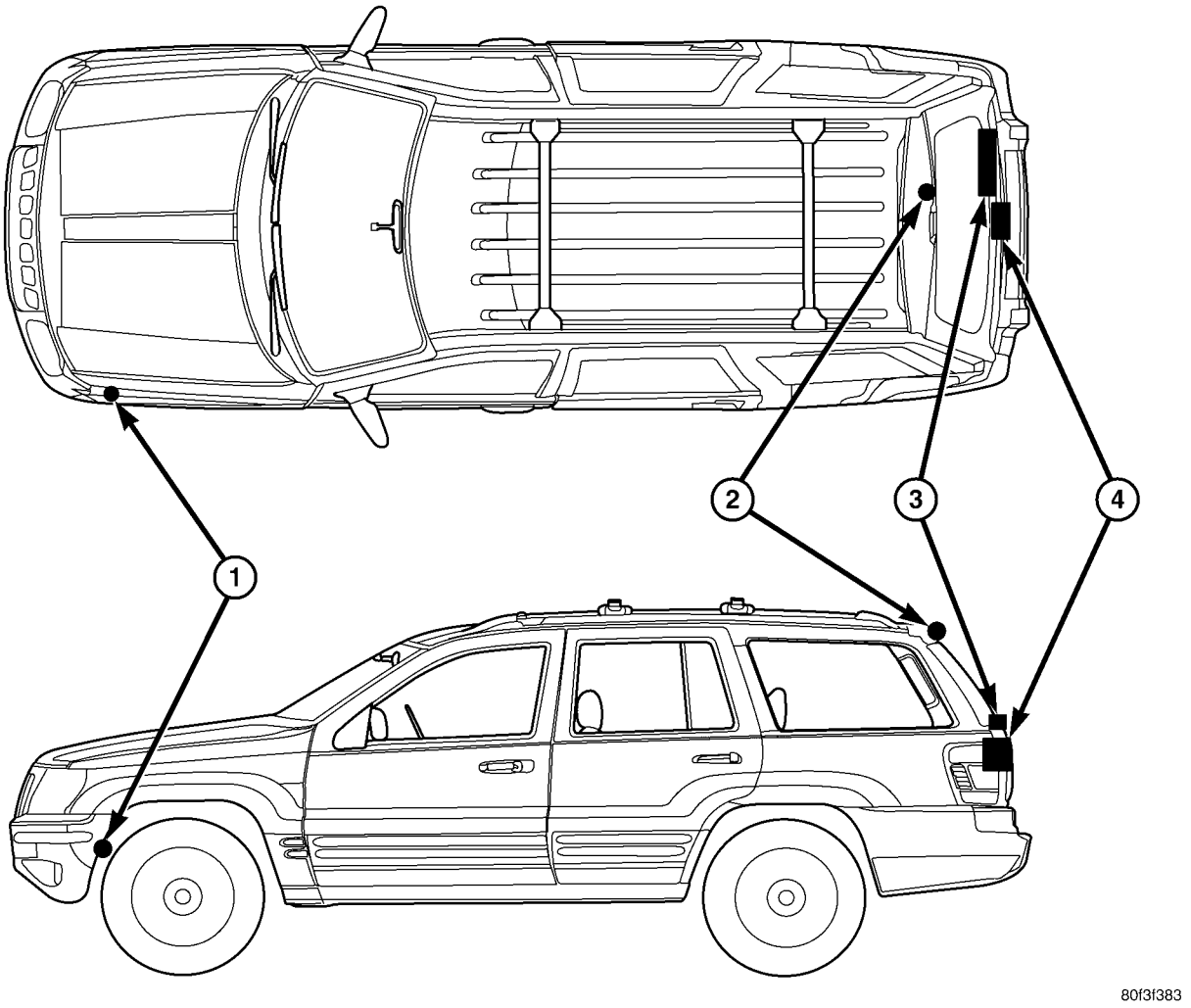


Fig. 1 Rear Wiper & Washer System

1 - REAR WASHER PUMP/MOTOR
2 - REAR WASHER NOZZLE
3 - REAR WIPER ARM, BLADE, & PARK RAMP
4 - REAR WIPER MODULE

side of the multi-function switch mounting housing near the top of the steering column, just below the steering wheel. Only the control stalk for the right multi-function switch is visible. The remainder of the switch is concealed beneath the steering column shrouds. The right multi-function switch control stalk is dedicated to providing all of the driver controls for both the front and rear wiper and washer systems.

- **Washer Reservoir** - The rear washer system shares a single reservoir with the front washer system, but has its own dedicated washer pump/motor and plumbing. The washer reservoir is concealed between the left inner fender shield and the left outer fender panel, behind the inner fender liner and ahead of the left front wheel. The washer reservoir filler neck is the only visible portion of the reservoir, and it is accessed from the left front corner of the engine compartment.

Hard wired circuitry connects the rear wiper and washer system components to the electrical system of the vehicle. These hard wired circuits are integral to several wire harnesses, which are routed throughout the vehicle and retained by many different methods. These circuits may be connected to each other, to the vehicle electrical system and to the rear wiper and washer system components through the use of a combination of soldered splices, splice block connectors, and many different types of wire harness terminal connectors and insulators. Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, further details on wire harness routing and retention, as well as pin-out and location views for the various wire harness connectors, splices and grounds.

REAR WIPERS/WASHERS (Continued)

OPERATING MODES

The components of the rear wiper and washer system are designed to work in concert to provide the following operating modes:

- **Continuous Wipe Mode** - When the right multi-function switch control sleeve is moved to the On position, the rear wiper will be operated at a fixed speed, continual wipe cycle until the switch sleeve is moved to the Delay or Off positions, until the ignition switch is turned to the Off position, or until the liftgate flip-up glass is ajar.
- **Intermittent Wipe Mode** - When the right multi-function switch control sleeve is moved to the Delay position, the rear wiper will be operated in a fixed interval, intermittent wipe cycle until the switch sleeve is moved to the On or Off positions, until the ignition switch is turned to the Off position, until the liftgate flip-up glass is ajar, or until the right multi-function switch control stalk is pushed forward to activate the rear washer system. The intermittent wipe mode delay time has a fixed delay interval of about five to eight seconds between sweeps.
- **Washer Mode** - When the right multi-function switch control stalk is pushed forward to activate the rear washer system, washer fluid will be dispensed from the washer reservoir onto the liftgate glass through the rear washer nozzle and the rear wiper will operate in a fixed cycle (not intermittent) for as long as the rear washer pump/motor unit remains energized.
- **Wipe-After-Wash Mode** - When the right multi-function switch control stalk is released from the momentary Wash position, the wipe-after-wash feature will continue to operate the rear wiper at a fixed cycle for about three additional wiper sweeps before returning to the previously selected mode.

OPERATION

The rear wiper and washer system is intended to provide the vehicle operator with a convenient, safe, and reliable means of maintaining visibility through the liftgate flip-up glass. The various components of this system are designed to convert electrical energy produced by the vehicle electrical system into the mechanical action of the wiper blade to wipe the outside surface of the glass, as well as into the hydraulic action of the washer system to apply washer fluid stored in an on-board reservoir to the area of the glass to be wiped. When combined, these components provide the means to effectively maintain clear visibility for the vehicle operator by removing excess accumulations of rain, snow, bugs, mud, or other minor debris from the outside liftgate flip-up glass surface that might be encountered while driving the vehicle under numerous types of inclement operating conditions.

The vehicle operator initiates all rear wiper and washer system functions with the control stalk of the right multi-function switch that extends from the right side of the steering column, just below the steering wheel. Rotating the control sleeve on the control stalk to a detent position selects the rear wiper system operating mode. Moving the switch control stalk forward actuates the momentary rear washer system switch. The right multi-function switch provides hard wired outputs to the rear wiper module and the rear washer pump/motor unit for all rear wiper and washer system functions.

The rear wiper and washer system will only operate when the ignition switch is in the Accessory or On positions, and the liftgate flip-up glass ajar switch is closed. When the ignition switch is in the Accessory or On positions, battery current from a fuse in the Junction Block (JB) is provided to the right multi-function switch through a fused ignition switch output (run-acc) circuit. The internal circuitry of the right (wiper) control stalk of the right multi-function switch then provides battery current signals through a rear wiper motor control circuit and a rear wiper motor delay control circuit to the rear wiper module. The multi-function switch circuitry also uses this battery current input to directly control the operation of the rear washer pump/motor unit.

A separate fuse in the JB provides battery current to the electronic control circuitry of the rear wiper module through a fused B(+) circuit. The rear wiper module uses this fused B(+) input to park the rear wiper blade off of the liftgate flip-up glass if the ignition switch is turned to the Off position while the rear wiper is operating, or if the ignition switch is turned to the Off position before the rear wiper blade has parked. However, if the ignition switch is turned to the Off position while the rear wiper is operating, then turned back On, the rear wiper switch must be cycled to the Off position and back to the On or Delay position before the rear wiper will operate again. In addition, the rear wiper module receives an input from the liftgate flip-up glass ajar switch on a liftgate flip-up ajar switch sense circuit, which prevents the rear wiper from operating when the flip-up glass is not closed or fully latched.

The hard wired circuits and components of the rear wiper and washer system may be diagnosed and tested using conventional diagnostic tools and procedures.

OPERATING MODES

Following are paragraphs that briefly describe the operation of each of the rear wiper and washer system operating modes.

REAR WIPERS/WASHERS (Continued)

CONTINUOUS WIPE MODE

When the On position of the control sleeve on the right (wiper) multi-function switch control stalk is selected, the multi-function switch circuitry directs a battery current signal to the rear wiper module through the rear wiper motor control circuit, causing the rear wiper to cycle continuously at a fixed speed.

INTERMITTENT WIPE MODE

When the Delay position of the control sleeve on the right (wiper) multi-function switch control stalk is selected, the multi-function switch circuitry directs a battery current signal to the rear wiper module through the rear wiper motor delay control circuit, causing the rear wiper to cycle intermittently at a fixed delay interval.

WASH MODE

When the control stalk of the right (wiper) multi-function switch is moved to the momentary Wash position, the multi-function switch circuitry directs battery current to the rear washer pump/motor unit through the rear washer pump motor control circuit, and battery current signals are also provided to the rear wiper module on both the rear wiper motor control circuit and the rear wiper motor delay control circuit. This will cause the rear washer pump/motor unit to be energized and the rear wiper to cycle continuously at a fixed speed for as long as the rear Wash switch is held closed.

WIPE-AFTER-WASH MODE

When the control stalk of the right (wiper) multi-function switch is released from the momentary Wash position, the rear washer pump/motor is de-energized, but the circuitry within the rear wiper module will provide several additional wipe cycles to complete the wipe-after-wash mode cycle.

DIAGNOSIS AND TESTING - REAR WIPER & WASHER SYSTEM

WIPER SYSTEM

The diagnosis found here addresses an electrically inoperative rear wiper system. If the rear wiper motor operates, but the wiper does not move on the liftgate flip-up glass, inspect the mechanical connection between the rear wiper arm and the rear wiper motor output shaft. If OK, replace the faulty rear wiper module. If the wiper operates, but chatters, lifts, or does not clear the glass, clean and inspect the rear wiper system components as required. (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS - INSPECTION) and (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS - CLEANING). Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Check that the interior lighting switch on the control stalk of the left (lighting) multi-function switch is not in the dome lamp disable position. With all four doors and the liftgate closed, open the liftgate flip-up glass. The interior lamps should light. If not, depress the cargo lamp lens to actuate the cargo lamp defeat switch and the interior lamps should light. Close all four doors, the liftgate and the liftgate flip-up glass. Note whether the interior lamps remain lighted. They should turn off after about thirty seconds. If OK, go to Step 2. If not OK, go to Step 9.

(2) Check the fused B(+) fuse (Fuse 8 - 15 ampere) in the Junction Block (JB). If OK, go to Step 3. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(3) Check for battery voltage at the fused B(+) fuse (Fuse 8 - 15 ampere) in the JB. If OK, go to Step 4. If not OK, repair the open fused B(+) circuit between the JB and the Power Distribution Center (PDC) as required.

(4) Check the fused ignition switch output (run-acc) fuse (Fuse 29 - 10 ampere) in the JB. If OK, go to Step 5. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(5) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run-acc) fuse (Fuse 29 - 10 ampere) in the JB. If OK, turn the ignition switch to the Off position and go to Step 6. If not OK, repair the open fused ignition switch output (run-acc) circuit between the JB and the ignition switch as required.

(6) Disconnect and isolate the battery negative cable. Disconnect the instrument panel wire harness

connector for the right multi-function switch from the switch connector receptacle. Reconnect the battery negative cable. Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run-acc) circuit cavity of the instrument panel wire harness connector for the right multi-function switch. If OK, go to Step 7. If not OK, repair the open fused ignition switch output (run-acc) circuit between the right multi-function switch and the JB as required.

(7) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Test the right multi-function switch. (Refer to 8 - ELECTRICAL/FRONT WIPERS/WASHERS/RIGHT MULTI-FUNCTION SWITCH - DIAGNOSIS AND TESTING). If the right multi-function switch tests OK, reconnect the instrument panel wire harness connector for the right multi-function switch to the switch connector receptacle and go to Step 8. If the right multi-function switch does not test OK, replace the faulty switch.

(8) Remove the liftgate inner trim panel. Disconnect the liftgate wire harness connector for the rear wiper module from the module connector receptacle. Check for continuity between the ground circuit cavity of the liftgate wire harness connector for the rear wiper module and a good ground. There should be continuity. If OK, go to Step 9. If not OK, repair the open ground circuit to ground (G301) as required.

(9) Check for continuity between the liftgate flip-up glass ajar switch sense circuit cavity of the liftgate wire harness connector for the rear wiper module and a good ground. There should be continuity with the liftgate flip-up glass open, and no continuity with the liftgate flip-up glass closed. If OK, go to Step 10. If not OK, repair the liftgate flip-up glass ajar circuit as required.

(10) Reconnect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the liftgate wire harness connector for the rear wiper module. If OK, go to Step 11. If not OK, repair the open fused B(+) circuit between the rear wiper module and the JB as required.

(11) Turn the ignition switch to the On position. Turn the right multi-function switch control sleeve to the Delay position. Check for battery voltage at the rear washer switch output circuit cavity of the liftgate wire harness connector for the rear wiper module. If OK, go to Step 12. If not OK, repair the open rear washer switch output circuit between the rear wiper module and the right multi-function switch as required.

(12) Turn the right multi-function switch control sleeve to the On position. Check for battery voltage at the rear wiper motor control circuit cavity of the liftgate wire harness connector for the rear wiper module. If OK, replace the faulty rear wiper module. If not OK, repair the open rear wiper motor control circuit between the rear wiper module and the right multi-function switch as required.

WASHER SYSTEM

The diagnosis found here addresses an electrically inoperative rear washer system. If the rear washer pump/motor operates, but no washer fluid is emitted from the rear washer nozzle, be certain to check the fluid level in the reservoir. Also inspect the rear washer system components as required. (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS - INSPECTION). Refer to the appropriate wiring information. The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, DRIVER AIRBAG, PASSENGER AIRBAG, SIDE CURTAIN AIRBAG, FRONT IMPACT SENSOR, SIDE IMPACT SENSOR, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE SUPPLEMENTAL RESTRAINT SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Turn the ignition switch to the On position. Turn the right multi-function switch control sleeve to the On position. Check whether the rear wiper system is operating. If OK, go to Step 2. If not OK, test and repair the rear wiper system before continuing with these tests. Refer to WIPER SYSTEM .

(2) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the left headlamp and dash wire harness connector for the rear washer pump/motor unit from the pump/motor unit connector receptacle. Check for continuity between the ground circuit cavity of the left headlamp and dash wire harness connector for the rear washer pump/motor unit and a good ground. There should be continuity. If OK, go to Step 3. If not OK, repair the open ground circuit to ground (G106) as required.

(3) Reconnect the battery negative cable. Turn the ignition switch to the On position. Push the right

multi-function switch control stalk toward the instrument panel to actuate the rear washer switch. With the rear washer switch actuated, check for battery voltage at the rear washer switch output circuit cavity of the left headlamp and dash wire harness connector for the rear washer pump/motor unit. If OK, replace the faulty rear washer pump/motor unit. If not OK, repair the open rear washer switch output circuit between the rear washer pump/motor unit and the right multi-function switch as required.

CLEANING - REAR WIPER & WASHER SYSTEM

WIPER SYSTEM

The squeegee of a wiper blade exposed to the elements for a long time tends to lose its wiping effectiveness. Periodic cleaning of the squeegee is suggested to remove any deposits of salt or road film. The wiper blade, arm, and liftgate flip-up glass should only be cleaned using a sponge or soft cloth and windshield washer fluid, a mild detergent, or a non-abrasive cleaner. If the wiper blade continues to leave streaks, smears, hazing, or beading on the glass after thorough cleaning of the squeegees and the glass, the entire wiper blade assembly must be replaced.

CAUTION: Protect the rubber squeegee of the wiper blade from any petroleum-based cleaners, solvents, or contaminants. These products can rapidly deteriorate the rubber squeegee.

WASHER SYSTEM

If the washer system is contaminated with foreign material, drain the washer reservoir by removing the rear washer pump/motor from the reservoir. Clean foreign material from the inside of the rear washer pump/motor inlet filter screen and the washer reservoir using clean washer fluid, a mild detergent, or a non-abrasive cleaner. Flush foreign material from the washer system plumbing by first disconnecting the washer hose from the washer nozzle, then running the rear washer pump/motor to run clean washer fluid or water through the system. A plugged or restricted washer nozzle should be carefully back-flushed using compressed air. If the washer nozzle obstruction cannot be cleared, replace the washer nozzle.

CAUTION: Never introduce petroleum-based cleaners, solvents, or contaminants into the washer system. These products can rapidly deteriorate the rubber seals and hoses of the washer system, as well as the rubber squeegee of the wiper blade.

CAUTION: Never use compressed air to flush the washer system plumbing. Compressed air pressures are too great for the washer system plumbing components and will result in further system damage. Never use sharp instruments to clear a plugged washer nozzle or damage to the nozzle orifice and improper nozzle spray patterns will result.

INSPECTION - REAR WIPER & WASHER SYSTEM

WIPER SYSTEM

The rear wiper blade and wiper arm should be inspected periodically, not just when wiper performance problems are experienced. This inspection should include the following points:

(1) Inspect the wiper arm for any indications of damage, or contamination. If the wiper arm is contaminated with any foreign material, clean as required. (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS - CLEANING). If a wiper arm is damaged or corrosion is evident, replace the wiper arm with a new unit. Do not attempt to repair a wiper arm that is damaged or corroded.

(2) Carefully lift the wiper arm off of the park ramp. Note the action of the wiper arm hinge. The wiper arm should pivot freely at the hinge, but with no lateral looseness evident. If there is any binding evident in the wiper arm hinge, or there is evident lateral play in the wiper arm hinge, replace the wiper arm.

CAUTION: Do not allow the wiper arm to spring back against the glass without the wiper blade in place or the glass may be damaged.

(3) Once proper hinge action of the wiper arm is confirmed, check the hinge for proper spring tension. The spring tension of the wiper arm should be sufficient to cause the rubber squeegee to conform to the curvature of the glass. Replace a wiper arm if it has low or no spring tension.

(4) Inspect the wiper blade and squeegee for any indications of damage, contamination, or rubber deterioration (Fig. 2). If the wiper blade or squeegee is contaminated with any foreign material, clean them and the glass as required. (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS - CLEANING). If after cleaning the wiper blade and the glass, the wiper blade fails to clear the glass without smearing, streaking, chattering, hazing, or beading, replace the wiper blade. Also, if a wiper blade is damaged or if the squeegee rubber is damaged or deteriorated, replace the wiper blade with a new unit. Do not attempt to repair a wiper blade that is damaged.

REAR WIPERS/WASHERS (Continued)

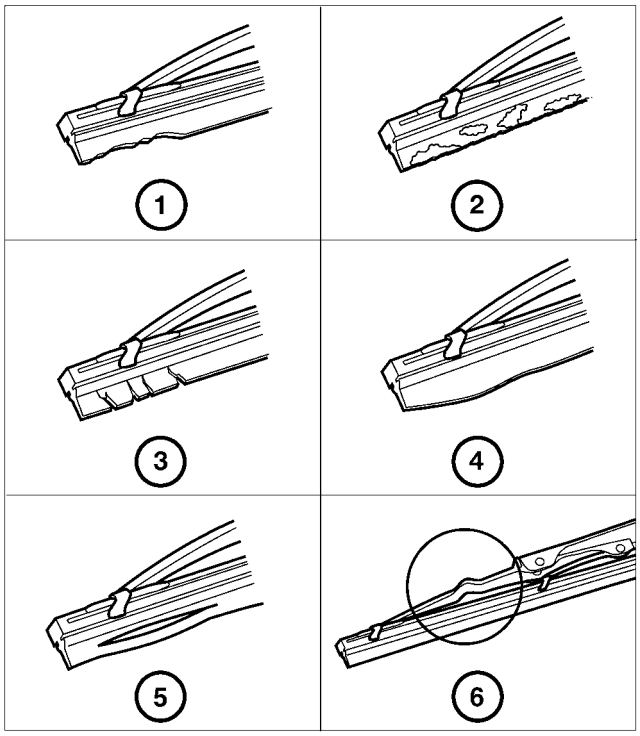


Fig. 2 Wiper Blade Inspection

1 - WORN OR UNEVEN EDGES
2 - ROAD FILM OR FOREIGN MATERIAL DEPOSITS
3 - HARD, BRITTLE, OR CRACKED
4 - DEFORMED OR FATIGUED
5 - SPLIT
6 - DAMAGED SUPPORT COMPONENTS

WASHER SYSTEM

The washer system components should be inspected periodically, not just when washer performance problems are experienced. This inspection should include the following points:

(1) Check for ice or other foreign material in the washer reservoir. If contaminated, clean and flush the washer system. (Refer to 8 - ELECTRICAL/ REAR WIPERS/WASHERS - CLEANING).

(2) Inspect the washer plumbing for pinched, leaking, deteriorated, or incorrectly routed hoses and damaged or disconnected hose fittings. Replace damaged or deteriorated hoses and hose fittings. Leaking washer hoses can sometimes be repaired by cutting the hose at the leak and splicing it back together using an in-line connector fitting. Similarly, sections of deteriorated hose can be cut out and replaced by splicing in new sections of hose using in-line connector fittings. Whenever routing a washer hose or a wire harness containing a washer hose, it must be routed away from hot, sharp, or moving parts. Also, sharp bends that might pinch the washer hose must be avoided.

REAR WASHER HOSES/TUBES

DESCRIPTION

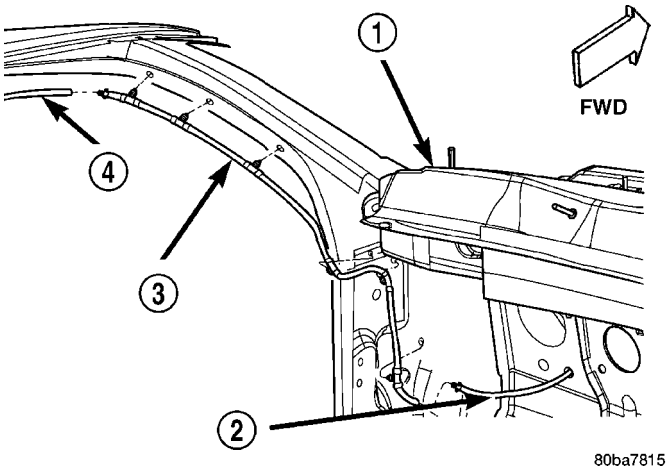


Fig. 3 Rear Washer Plumbing

1 - UPPER COWL PLENUM PANEL
2 - WASHER HOSE FROM ENGINE COMPARTMENT
3 - A-PILLAR WASHER HOSE
4 - HEADLINER WASHER HOSE

The rear washer plumbing consists of small diameter rubber hoses and molded plastic in-line connector fittings (Fig. 3). The washer reservoir hose is connected to the barbed outlet nipple of the rear washer pump/motor unit below the left front wheel house extension and routed up the washer reservoir filler neck to the engine compartment. Just rearward of the washer reservoir filler neck in the engine compartment, an in-line connector with barbed nipples joins the reservoir hose to the engine compartment hose. The engine compartment hose is routed along the top of the left front fender wheel house to the dash panel. The engine compartment hose passes through a hole with a rubber grommet in the dash panel into the passenger compartment.

Below the instrument panel in the passenger compartment near the left cowl side inner panel, another in-line connector joins the engine compartment hose to the A-pillar hose. The A-pillar hose is routed up the left A-pillar to the headliner. At the headliner, an in-line connector joins the A-pillar hose to the headliner hose. The headliner hose is routed above the headliner and along the left roof side rail to the rear of the vehicle. At the rear of the vehicle, the headliner hose is routed above the headliner and along the upper liftgate opening panel toward the right side of the vehicle. The headliner hose then passes through a hole with a rubber grommet in the upper liftgate opening panel and through another hole with a rubber grommet into the upper inner liftgate panel to the rear washer nozzle.

REAR WASHER HOSES/TUBES (Continued)

Washer hose is available for service only as roll stock, which must then be cut to length. The headliner washer hose is integral to the headliner unit and, if faulty or damaged, the headliner unit must be replaced. The molded plastic washer hose fittings cannot be repaired. If these fittings are faulty or damaged, they must be replaced.

OPERATION

Washer fluid in the washer reservoir is pressurized and fed by the rear washer pump/motor through the rear washer system plumbing and fittings to the rear washer nozzle on the liftgate outer panel above the liftgate flip-up glass. Whenever routing the washer hose or a wire harness containing a washer hose, it must be routed away from hot, sharp, or moving parts; and, sharp bends that might pinch the hose must be avoided.

REAR WASHER NOZZLE

DESCRIPTION

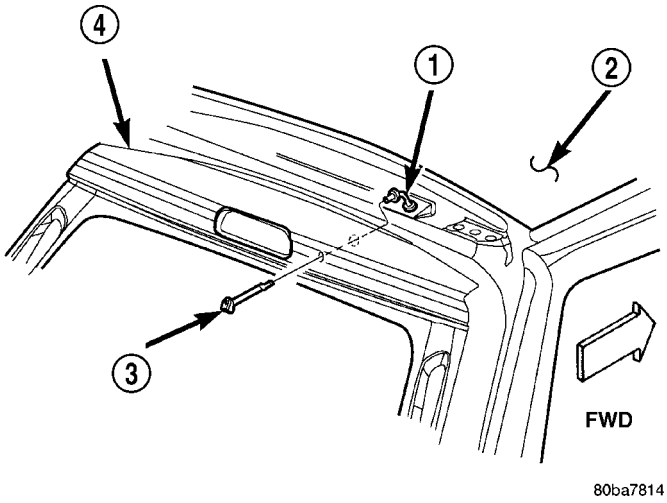


Fig. 4 Rear Washer Nozzle

1 - HEADLINER WASHER HOSE
2 - ROOF PANEL
3 - REAR WASHER NOZZLE
4 - LIFTGATE

The rear washer nozzle is a fluidic type unit constructed of molded plastic that includes an integral check valve (Fig. 4). The nozzle is secured by a snap fit in a dedicated mounting hole located in the outer liftgate panel above the liftgate flip-up glass. A rubber gasket on the back of the nozzle seals the nozzle to the liftgate panel opening. The back of the nozzle includes an integral alignment feature, an integral tab, and an integral latch feature, an integral check valve, and the washer plumbing nipple which are all concealed between the liftgate outer and inner panels.

Within the rear nozzle body, a small check ball is held against an integral valve seat at the inlet end of the nozzle by a small coiled spring. The rear washer nozzle and check valve unit cannot be adjusted or repaired. If faulty or damaged, the entire nozzle and check valve unit must be replaced.

OPERATION

The rear washer nozzle is designed to dispense washer fluid into the wiper pattern area on the outside of the liftgate flip-up glass. Pressurized washer fluid is fed to the nozzle from the washer reservoir by the rear washer pump/motor through a single hose, which is attached to a barbed nipple on the back of the rear washer nozzle. A fluidic matrix within the washer nozzle causes the pressurized washer fluid to be emitted from the nozzle orifice as an oscillating stream to more effectively cover a larger area of the glass to be cleaned.

The integral rear nozzle check valve provides more than one function in this application. It prevents washer fluid from draining out of the rear washer supply hoses back to the washer reservoir. This drain-back would result in a lengthy delay from when the rear washer switch is actuated until washer fluid was dispensed through the rear washer nozzle, because the rear washer pump would have to refill the rear washer plumbing from the reservoir to the nozzle. Such a drain-back condition could also result in water, dirt, or other outside contaminants being siphoned into the washer system through the washer nozzle orifice. This water could subsequently freeze and plug the nozzle, while other contaminants could interfere with proper nozzle operation and cause improper nozzle spray patterns. In addition, the rear check valve prevents washer fluid from siphoning out through the rear washer nozzle after the rear washer system is turned Off.

When the rear washer pump pressurizes and pumps washer fluid from the reservoir through the rear washer plumbing, the fluid pressure unseats a check ball from a seat within the valve by overriding the pressure applied to the ball within the valve by a small coiled spring. With the check ball unseated, washer fluid is allowed to flow toward the rear washer nozzle. When the rear washer pump stops operating, the spring pressure on the check ball seats the ball in the valve and fluid flow in either direction within the rear washer plumbing is prevented. The rear washer nozzle and check valve unit cannot be adjusted or repaired and, if faulty or damaged, it must be replaced.

REAR WASHER NOZZLE (Continued)

REMOVAL

The rear washer system check valve is integral to the rear washer nozzle.

NOTE: The rear washer nozzle latch feature is a one time component, and will be damaged if the nozzle is removed from its mounting hole for service. If removed from its mounting hole for any reason, the rear washer nozzle must be replaced with a new unit.

(1) Using a trim stick or another suitable wide flat-bladed tool, gently pry the bottom of the rear washer nozzle away from the liftgate outer panel until the latch features that secure it in the mounting hole of the panel unsnap.

(2) Pull the rear washer nozzle out from the liftgate outer panel far enough to access the washer supply hose (Fig. 5).

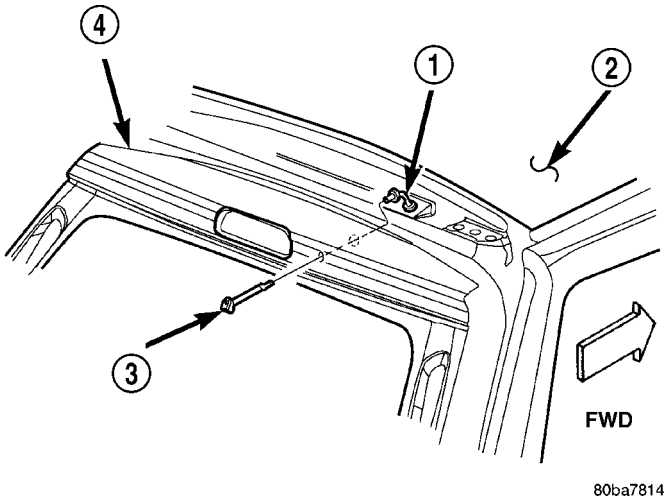


Fig. 5 Rear Washer Nozzle Remove/Install

1 - HEADLINER WASHER HOSE
2 - ROOF PANEL
3 - REAR WASHER NOZZLE
4 - LIFTGATE

(3) Disconnect the washer supply hose from the barbed nipple of the rear washer nozzle.

(4) Discard the rear washer nozzle.

INSTALLATION

NOTE: The rear washer nozzle latch feature is a one time component, and will be damaged if the nozzle is removed from its mounting hole for service. If removed from its mounting hole for any reason, the rear washer nozzle must be replaced with a new unit.

(1) Position the new rear washer nozzle to the liftgate outer panel (Fig. 5).

(2) Reconnect the washer supply hose to the barbed nipple of the rear washer nozzle.

(3) Insert the rear washer nozzle supply hose and nipple into the mounting hole in the liftgate outer panel.

(4) Using hand pressure, press firmly and evenly on the hood of the rear washer nozzle until the latch features snap into place behind the sheet metal of the liftgate outer panel mounting hole.

REAR WASHER PUMP/MOTOR

DESCRIPTION

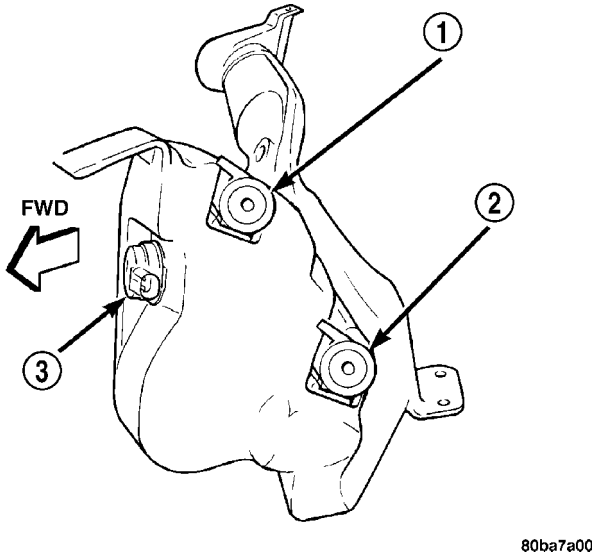


Fig. 6 Washer Pumps (Viewed from Bottom of Reservoir)

1 - REAR WASHER PUMP/MOTOR
2 - FRONT WASHER PUMP/MOTOR
3 - WASHER FLUID LEVEL SWITCH

The rear washer pump/motor unit is located on the outboard side and near the rear of the washer reservoir, between the left front inner and outer fender panels (Fig. 6). A small permanently lubricated and sealed electric motor is coupled to the rotor-type washer pump. A seal flange with a large barbed inlet nipple on the pump housing passes through a rubber grommet seal installed in one of two dedicated mounting holes near the bottom of the washer reservoir. The rear washer pump/motor unit is always mounted in the higher pump mounting hole of the reservoir.

A smaller barbed outlet nipple on the pump housing connects the unit to the rear washer hose. The washer pump/motor unit is retained on the reservoir by the interference fit between the barbed pump inlet nipple and the grommet seal, which is a light press fit. An integral electrical connector receptacle on the

REAR WASHER PUMP/MOTOR (Continued)

top of the motor housing connects the unit to the vehicle electrical system through a dedicated take out and connector of the left headlamp and dash wire harness. The rear washer pump/motor unit cannot be repaired. If faulty or damaged, the entire washer pump/motor unit must be replaced.

OPERATION

The rear washer pump/motor unit is connected to the vehicle electrical system through a single take out and two-cavity connector of the left headlamp and dash wire harness. The washer pump/motor is grounded at all times through another take out of the left headlamp and dash wire harness with a single eyelet terminal connector that is secured under a ground screw to the top of the left inner fender shield in the engine compartment. The rear washer pump/motor receives battery current on a fused ignition switch output (run-acc) circuit through the closed contacts of the momentary rear washer switch circuitry within the right multi-function switch only when the switch control stalk is pushed towards the instrument panel.

Washer fluid is gravity-fed from the washer reservoir to the inlet side of the washer pump. When the pump motor is energized, the rotor-type pump impeller rotates. When the pump impeller rotates, pressurized washer fluid is forced out of the pump outlet nipple, through the rear washer plumbing, and the rear washer nozzle onto the liftgate flip-up glass. The front washer pump/motor unit may be diagnosed using conventional diagnostic tools and methods.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Raise and support the vehicle.

(3) Remove the liner from the left front fender wheel house.

(4) Disconnect the left headlamp and dash wire harness connector for the rear washer pump/motor from the motor connector receptacle on the top of the motor housing (Fig. 7).

(5) Disconnect the washer hose from the barbed outlet nipple of the rear washer pump/motor and allow the washer fluid to drain into a clean container for reuse.

(6) Using a trim stick or another suitable wide flat-bladed tool, gently pry the barbed inlet nipple of the washer pump out of the rubber grommet seal in the reservoir. Care must be taken not to damage the reservoir.

(7) Remove the rubber grommet seal from the washer pump mounting hole in the washer reservoir and discard.

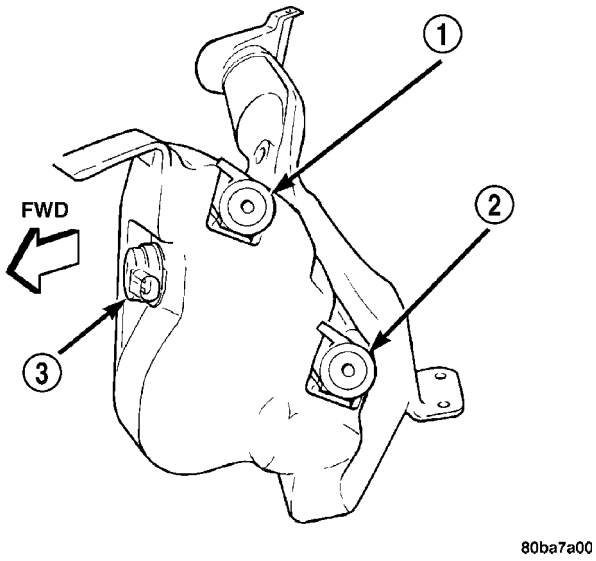


Fig. 7 Washer Pumps (Viewed from Bottom of Reservoir)

1 - REAR WASHER PUMP/MOTOR
2 - FRONT WASHER PUMP/MOTOR
3 - WASHER FLUID LEVEL SWITCH

INSTALLATION

(1) Install a new rubber grommet seal into the washer pump mounting hole in the washer reservoir. Always use a new rubber grommet seal on the reservoir.

(2) Position the barbed inlet nipple of the washer pump to the rubber grommet seal in the reservoir (Fig. 7).

(3) Press firmly and evenly on the washer pump until the barbed inlet nipple is fully seated in the rubber grommet seal in the washer reservoir mounting hole.

(4) Reconnect the washer hose to the barbed outlet nipple of the washer pump.

(5) Reconnect the left headlamp and dash wire harness connector for the rear washer pump/motor unit to the motor connector receptacle on the top of the motor housing.

(6) Reinstall the liner into the left front fender wheel house.

(7) Lower the vehicle.

(8) Refill the washer reservoir with the washer fluid drained from the reservoir during the removal procedure.

(9) Reconnect the battery negative cable.

REAR WIPER ARM

DESCRIPTION

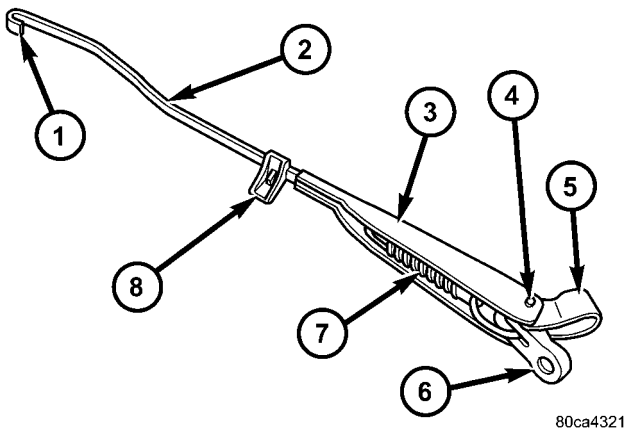


Fig. 8 Rear Wiper Arm

1 - HOOK
2 - STRAP
3 - CHANNEL
4 - HINGE PIN
5 - COVER
6 - PIVOT END
7 - TENSION SPRING
8 - SUPPORT

The rear wiper arm is the rigid member located between the rear wiper motor output shaft that protrudes from the outer liftgate panel near the base of the liftgate flip-up glass opening and the rear wiper blade (Fig. 8). This wiper arm features an over-center hinge that allows easy access to the liftgate and liftgate flip-up glass for cleaning. The wiper arm has a die cast metal pivot end with a large tapered mounting hole at one end. A molded plastic pivot cover is secured loosely to and pivots on the wiper arm hinge pin to conceal the wiper arm retaining nut.

The wide end of a tapered, stamped steel channel is secured with a hinge pin to the pivot end of the wiper arm. One end of a long, rigid, stamped steel strap, with a small hole near its pivot end, is riveted and crimped within the narrow end of the stamped steel channel. The tip of the wiper blade end of this strap is bent back under itself to form a small hook. Concealed within the stamped steel channel, one end of a long spring is engaged with a wire hook on the underside of the die cast pivot end, while the other end of the spring is hooked through the small hole in the steel strap. A molded plastic wiper arm support is snapped onto the wiper arm strap where it exits the channel. The entire wiper arm has a satin black finish applied to all of its visible surfaces.

A wiper arm cannot be adjusted or repaired. If damaged or faulty, the entire wiper arm unit must be replaced.

OPERATION

The rear wiper arm is designed to mechanically transmit the motion from the rear wiper motor output shaft to the rear wiper blade. The wiper arm must be properly indexed to the motor output shaft in order to maintain the proper wiper blade travel on the glass. The wiper arm support is designed to lift and support the rear wiper arm and blade off of the glass when the rear wiper blade is parked. This support and the park ramp on the liftgate outer panel below the glass also provide an alignment reference to ensure accurate rear wiper arm and blade installation.

The tapered hole in the wiper arm pivot end interlocks with the serrations on the outer circumference of the tapered motor output shaft, allowing positive engagement and finite adjustment of this connection. A hex nut secures the wiper arm pivot end to the threads on the rear wiper motor output shaft and the pivot cover hinges and snaps over this connection for a neat appearance. The spring-loaded wiper arm hinge controls the down-force applied through the tip of the wiper arm to the wiper blade on the glass. The hook formation on the tip of the wiper arm provides a cradle for securing and latching the wiper blade pivot block to the wiper arm.

REMOVAL

(1) Lift the rear wiper arm pivot cover by lifting it at the rear wiper motor output shaft end of the arm (Fig. 9).

(2) Remove the nut that secures the rear wiper arm to the rear wiper motor output shaft.

(3) Lift the rear wiper arm far enough to engage the over-center arm hinge in its upright position to hold the wiper blade off of the liftgate.

(4) If necessary, use a battery terminal puller to disengage the wiper arm from the rear wiper motor output shaft splines (Fig. 10).

(5) Remove the rear wiper arm pivot end from the motor output shaft.

INSTALLATION

NOTE: Always install the wiper arm and blade with the wiper motor in the Park position.

(1) The rear wiper arm must be indexed to the motor output shaft with the rear wiper motor in the park position to be properly installed. Place the wiper arm onto the liftgate with the wiper arm support positioned on the park ramp and the tapered

REAR WIPER ARM (Continued)

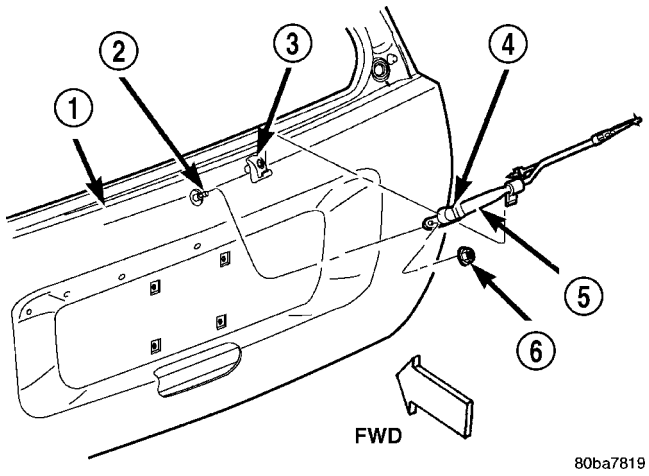


Fig. 9 Rear Wiper Arm Remove/Install

1 - LIFTGATE
2 - REAR WIPER MOTOR OUTPUT SHAFT
3 - PARK RAMP
4 - PIVOT COVER
5 - REAR WIPER ARM
6 - NUT

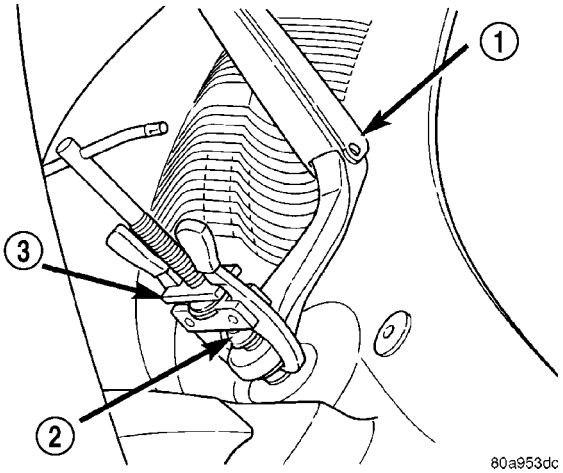


Fig. 10 Wiper Arm Puller - Typical

1 - WIPER ARM
2 - WIPER PIVOT SHAFT
3 - BATTERY TERMINAL PULLER

mounting hole on the pivot end of the arm positioned over the rear wiper motor output shaft.

(2) Position the tab on the back of the rear wiper arm support on the liftgate park ramp in the Installation Position (Fig. 11).

(3) With the wiper arm in the Installation Position, push the tapered mounting hole on the pivot end of the wiper arm down over the rear wiper motor output shaft.

(4) Install and tighten the nut that secures the rear wiper arm to the rear wiper motor output shaft. Tighten the nut to 18 N·m (13 ft. lbs.).

(5) Close the rear wiper arm pivot cover.

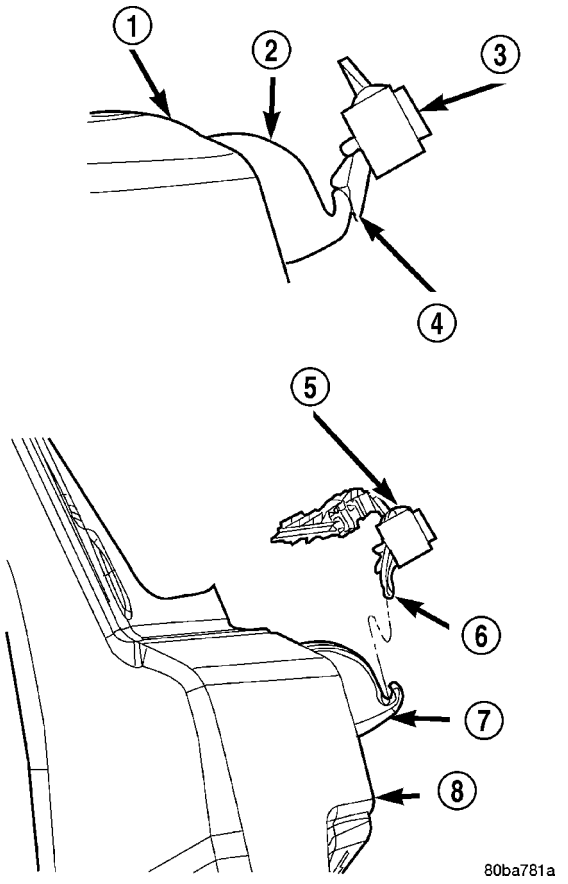


Fig. 11 Rear Wiper Arm Installation

1 - LIFTGATE
2 - PARK RAMP
3 - REAR WIPER ARM
4 - INSTALLATION POSITION
5 - REAR WIPER ARM AND BLADE
6 - PARK POSITION
7 - PARK RAMP
8 - LIFTGATE

(6) Lift the rear wiper arm support away from the park ramp, then place the wiper arm support in the park ramp in the Park Position (Fig. 11).

REAR WIPER BLADE

DESCRIPTION

The rear wiper blade is secured by an integral latching pivot block to the hook formation on the tip of the rear wiper arm, and rests off the glass on a park ramp on the liftgate near the base of the liftgate flip-up glass opening when the wiper is not in operation (Fig. 12). The rear wiper blade consists of the following components:

- **Superstructure** - The superstructure includes a stamped steel bridge and plastic links with claw formations that grip the wiper blade element. Also included in this unit is the latching, molded plastic pivot block that secures the superstructure to the

REAR WIPER BLADE (Continued)

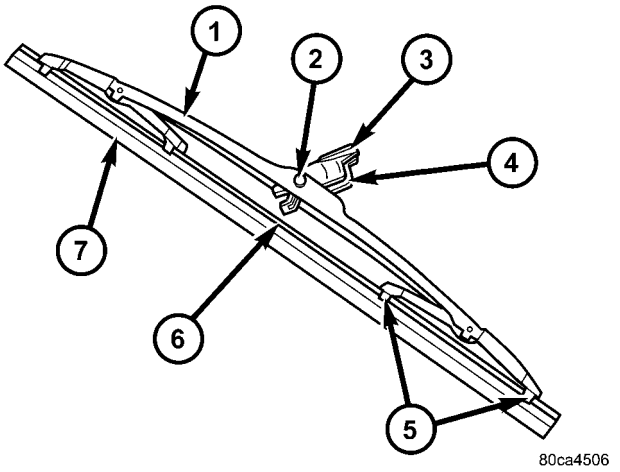


Fig. 12 Rear Wiper Blade - Typical

1 - SUPERSTRUCTURE
2 - PIVOT PIN
3 - LATCH RELEASE
4 - PIVOT BLOCK
5 - CLAW
6 - FLEXOR
7 - ELEMENT

wiper arm. All of the metal components of the wiper blade have a satin black finish applied.

- **Element** - The wiper element or squeegee is the resilient rubber member of the wiper blade that contacts the glass.
- **Flexor** - The flexor is a rigid metal component running along the length of each side of the wiper element where it is gripped by the claws of the superstructure.

All Grand Cherokee models have a single 31.00 centimeter (12.20 inch) rear wiper blade with a non-replaceable rubber element (squeegee). The wiper blade cannot be adjusted or repaired. If faulty, worn, or damaged the entire wiper blade unit must be replaced.

OPERATION

The rear wiper blade is moved back and forth across the glass by the wiper arm when the rear wiper system is in operation. The wiper blade superstructure is the flexible frame that grips the wiper blade element and evenly distributes the force of the spring-loaded wiper arm along the length of the element. The combination of the wiper arm force and the flexibility of the superstructure makes the element conform to and maintain proper contact with the glass, even as the blade is moved over the varied curvature found across the glass surface.

The wiper element flexor provides the claws of the blade superstructure with a rigid, yet flexible component on the element which can be gripped. The rubber element is designed to be stiff enough to maintain an even cleaning edge as it is drawn across the glass, but resilient enough to conform to the glass surface and flip from one cleaning edge to the other each time the wiper blade changes directions.

REMOVAL

NOTE: The notched end of the wiper element flexor should always be oriented towards the end of the wiper blade that is nearest to the rear wiper motor output shaft.

(1) Disengage the rear wiper arm support from the rubber rear wiper arm park ramp on the right side of the liftgate just below the liftgate flip-up glass.

(2) Lift the rear wiper arm to engage the arm hinge in its over-center position with the wiper blade and element off of the liftgate and the glass.

(3) To remove the wiper blade from the wiper arm, push the pivot block latch release tab under the tip of the arm and slide the blade away from the tip towards the rear wiper motor output shaft end of the arm (Fig. 13).

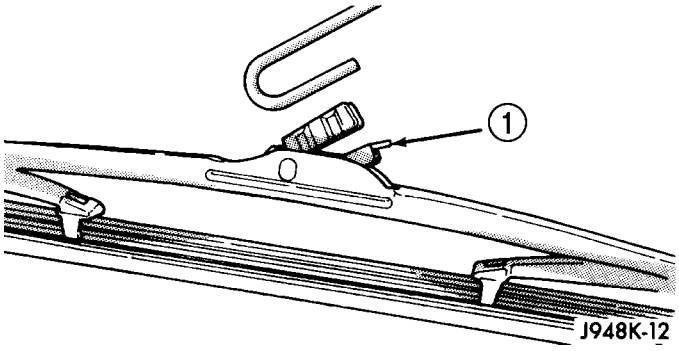


Fig. 13 Wiper Blade Remove/Install - Typical

1 - PIVOT BLOCK LATCH RELEASE TAB

(4) Slide the rear wiper blade away from the tip of the arm towards the pivot end of the arm far enough to disengage the pivot block from the hook formation on the end of the arm.

(5) Extract the hook formation on the tip of the wiper arm from the opening in the wiper blade superstructure ahead of the wiper blade pivot block/latch unit.

CAUTION: Do not allow the wiper arm to spring back against the liftgate or the glass without the wiper blade in place or they may be damaged.

(6) Gently lower the wiper arm and place the arm support in the park ramp.

REAR WIPER BLADE (Continued)

INSTALLATION

NOTE: The notched end of the wiper element flexor should always be oriented towards the end of the wiper blade that is nearest to the rear wiper motor output shaft.

(1) Lift the rear wiper arm off of the liftgate park ramp.

(2) Position the rear wiper blade near the hook formation on the tip of the arm with the notched end of the wiper element flexor oriented towards the end of the wiper arm that is nearest to the rear wiper motor output shaft.

(3) Insert the hook formation on the tip of the wiper arm through the opening in the wiper blade superstructure ahead of the wiper blade pivot block/ latch unit far enough to engage the pivot block with the hook (Fig. 13).

(4) Slide the wiper blade pivot block/latch up into the hook formation on the tip of the wiper arm until the latch release tab snaps into its locked position.

(5) Gently lower the wiper arm and place the arm support on the park ramp.

REAR WIPER MODULE

DESCRIPTION

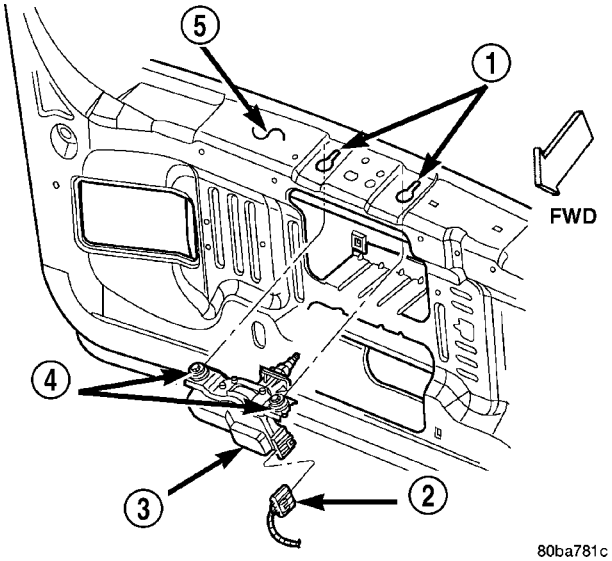


Fig. 14 Rear Wiper Module

1 - KEYED SLOTS
2 - LIFTGATE WIRE HARNESS CONNECTOR
3 - REAR WIPER MODULE
4 - NUT (2)
5 - LIFTGATE INNER PANEL

The rear wiper module is concealed within the liftgate, below the liftgate flip-up glass and behind the liftgate inner trim panel (Fig. 14). The end of the motor output shaft that protrudes through the liftgate outer panel to drive the rear wiper arm and blade is the only visible component of the rear wiper module. A rubber gasket, a bezel, and a nut secure and seal the motor output shaft to the liftgate outer panel. A molded plastic nut cover snaps onto the bezel to conceal the nut and improve appearance. An integral connector receptacle connects the rear wiper module to the vehicle electrical system through a dedicated take out and connector of the liftgate wire harness. The rear wiper module consists of the following major components:

- **Bracket** - The rear wiper module bracket consists of a stamped steel mounting plate for the wiper motor that is secured with screws through two rubber insulators to the liftgate inner panel.
- **Electronic Controls** - The rear wiper module electronic controls include the rear wiper system electronic logic and rear wiper motor electronic controls. The electronic controls for the motor include an electronic speed control that speeds the wiper blade near the center of the glass, but slows the wiper blade during directional reversals at each end of the wipe pattern and during wiper blade off-the-glass parking for quieter operation.
- **Motor** - The permanent magnet rear wiper motor is secured with screws to the rear wiper module bracket. The wiper motor includes an integral transmission, and the motor output shaft.

The rear wiper module cannot be adjusted or repaired. If any component of the module is faulty or damaged, the entire rear wiper module unit must be replaced. The motor output shaft gasket, bezel, nut, and nut cover are available for individual service replacement.

OPERATION

The rear wiper module receives non-switched battery current through a fuse in the Junction Block (JB) on a fused B(+) circuit and is connected to ground at all times. The rear wiper module operation is controlled by the vehicle operator through battery current signal inputs received by the rear wiper module electronic controls from the rear wiper switch circuitry of the right (wiper) multi-function switch on the steering column. The module also receives an external control input from the liftgate flip-up glass ajar switch circuit. If the rear wiper module senses that the flip-up glass is ajar, it will not allow the rear wiper motor to operate.

The rear wiper module electronic control logic uses these inputs, its internal inputs, and its programming to provide a continuous wipe mode, an intermittent wipe mode, a wipe-after-wash mode, and off-the-glass wiper blade parking. The wiper blade cycling is controlled by the internal electronic con-

REAR WIPER MODULE (Continued)

trols of the module. The module controls current flow to the wiper motor brushes and provides an electronic speed control that speeds the wiper blade near the center of the glass, but slows the wiper blade during directional reversals at each end of the wipe pattern and during wiper blade off-the-glass parking for quieter operation.

The wiper motor transmission converts the rotary output of the wiper motor to the back and forth wiping motion of the rear wiper arm and blade on the liftgate flip-up glass. The rear wiper module may be diagnosed using conventional diagnostic tools and methods.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the rear wiper arm from the rear wiper motor output shaft. (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS/REAR WIPER ARM - REMOVAL).

(3) Using door trim panel removal tool, gently pry at the base of the nut cover where it meets the wiper motor output shaft bezel and gasket on the outer liftgate panel to unsnap it from the bezel (Fig. 15). **Be certain to take proper precautions to protect the outer liftgate panel and its paint finish from damage during this procedure.**

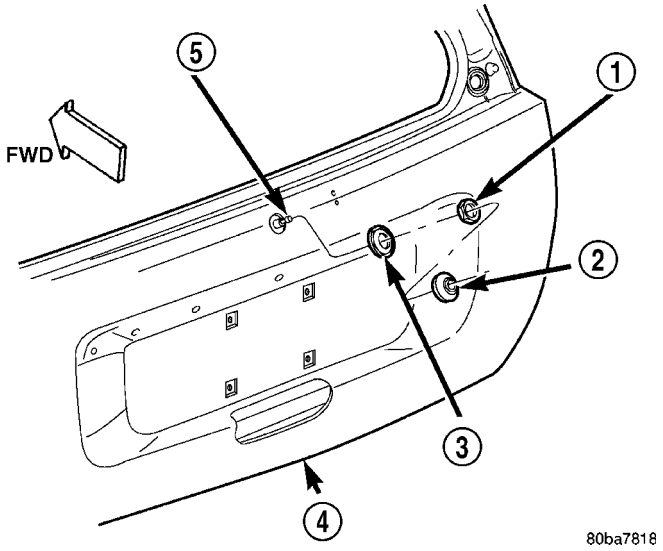


Fig. 15 Rear Wiper Motor Output Shaft Remove/Install

1 - NUT
2 - NUT COVER
3 - BEZEL AND GASKET
4 - LIFTGATE OUTER PANEL
5 - REAR WIPER MOTOR OUTPUT SHAFT

(4) Remove the nut that secures the rear wiper motor output shaft to the outer liftgate panel.

(5) Remove the bezel and gasket from the rear wiper motor output shaft.

(6) Remove the trim panel from the liftgate inner panel. (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/TRIM PANEL - REMOVAL).

(7) Disconnect the liftgate wire harness connector for the rear wiper module from the module connector receptacle (Fig. 16).

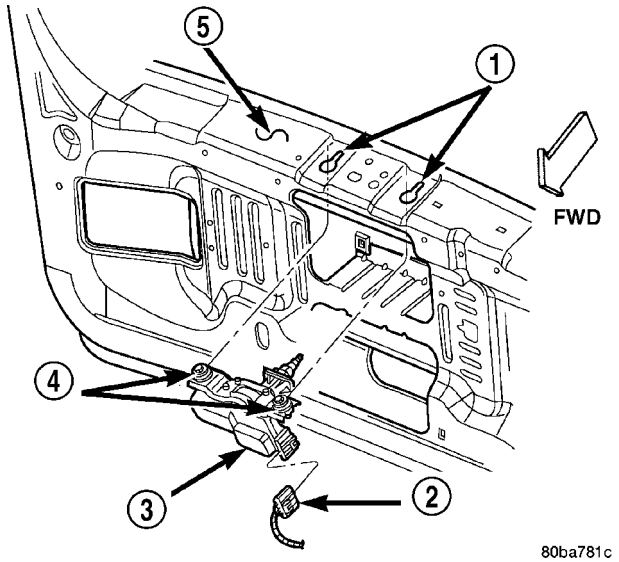


Fig. 16 Rear Wiper Module Remove/Install

1 - KEYED SLOTS
2 - LIFTGATE WIRE HARNESS CONNECTOR
3 - REAR WIPER MODULE
4 - NUT (2)
5 - LIFTGATE INNER PANEL

(8) Loosen the two nuts that secure the rear wiper module mounting bracket to the top of the lower flip-up glass opening of the liftgate inner panel.

(9) Slide the rear wiper module and mounting bracket forward far enough to disengage the mounting nuts from the keyed slots in the top of the lower flip-up glass opening of the liftgate inner panel.

(10) Remove the rear wiper module and mounting bracket from the liftgate as a unit.

INSTALLATION

(1) Position the rear wiper module and bracket into the liftgate as a unit (Fig. 16).

(2) Insert the rear wiper motor output shaft through the hole in the liftgate outer panel and engage the two mounting nuts into the keyed slots in the top of the lower flip-up glass opening of the liftgate inner panel.

(3) From the outside of the liftgate, center the rear wiper motor output shaft in the liftgate outer panel clearance hole and install the gasket and bezel over the centered shaft (Fig. 15).

REAR WIPER MODULE (Continued)

(4) Install and tighten the nut that secures the rear wiper motor output shaft to the outer liftgate panel. Tighten the nut to 5 N·m (43 in. lbs.).

(5) From the inside of the liftgate, install and tighten the two nuts that secure the rear wiper module mounting bracket to the top of the lower flip-up glass opening of the liftgate inner panel. Tighten the nuts to 5 N·m (47 in. lbs.).

(6) Reconnect the liftgate wire harness connector for the rear wiper module to the module connector receptacle.

(7) Reinstall the trim panel onto the liftgate inner panel. (Refer to 23 - BODY/DECKLID/HATCH/LIFTGATE/TAILGATE/TRIM PANEL - INSTALLATION).

(8) From the outside of the liftgate, press the nut cover firmly and evenly over the rear wiper motor output shaft bezel using hand pressure until it snaps into place.

(9) Reinstall the rear wiper arm onto the rear wiper motor output shaft. (Refer to 8 - ELECTRICAL/REAR WIPERS/WASHERS/REAR WIPER ARM - INSTALLATION).

(10) Reconnect the battery negative cable.

WIPER ARM PARK RAMP

REMOVAL

(1) Disengage the rear wiper arm support from the wiper arm park ramp on the right side of the liftgate just below the liftgate flip-up glass.

(2) Lift the wiper arm and blade away from the liftgate until the wiper arm hinge is in its over-center position.

(3) Remove the screw that secures the wiper arm park ramp to the liftgate outer panel (Fig. 17).

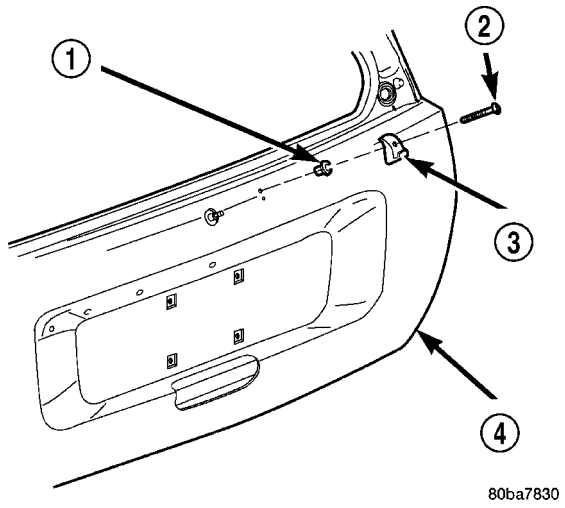


Fig. 17 Wiper Arm Park Ramp Remove/Install

1 - RIVET NUT
2 - SCREW
3 - PARK RAMP
4 - LIFTGATE

(4) Remove the wiper arm park ramp from the liftgate outer panel.

INSTALLATION

(1) Position the wiper arm park ramp onto the liftgate outer panel (Fig. 17).

(2) Install and tighten the screw that secures the wiper arm park ramp to the liftgate outer panel. Tighten the screw to 7 N·m (60 in. lbs.).

(3) Lower the rear wiper arm and blade and place the wiper arm support onto the wiper arm park ramp.

WIRING

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8W-01 WIRING DIAGRAM INFORMATION

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WIRING DIAGRAM INFORMATION

DESCRIPTION

DESCRIPTION - HOW TO USE WIRING DIAGRAMS

DaimlerChrysler Corporation wiring diagrams are designed to provide information regarding the vehicles wiring content. In order to effectively use the wiring diagrams to diagnose and repair DaimlerChrysler Corporation vehicles, it is important to understand all of their features and characteristics.

Diagrams are arranged such that the power (B+) side of the circuit is placed near the top of the page, and the ground (B-) side of the circuit is placed near the bottom of the page (Fig. 1).

All switches, components, and modules are shown in the at rest position with the doors closed and the key removed from the ignition (Fig. 2).

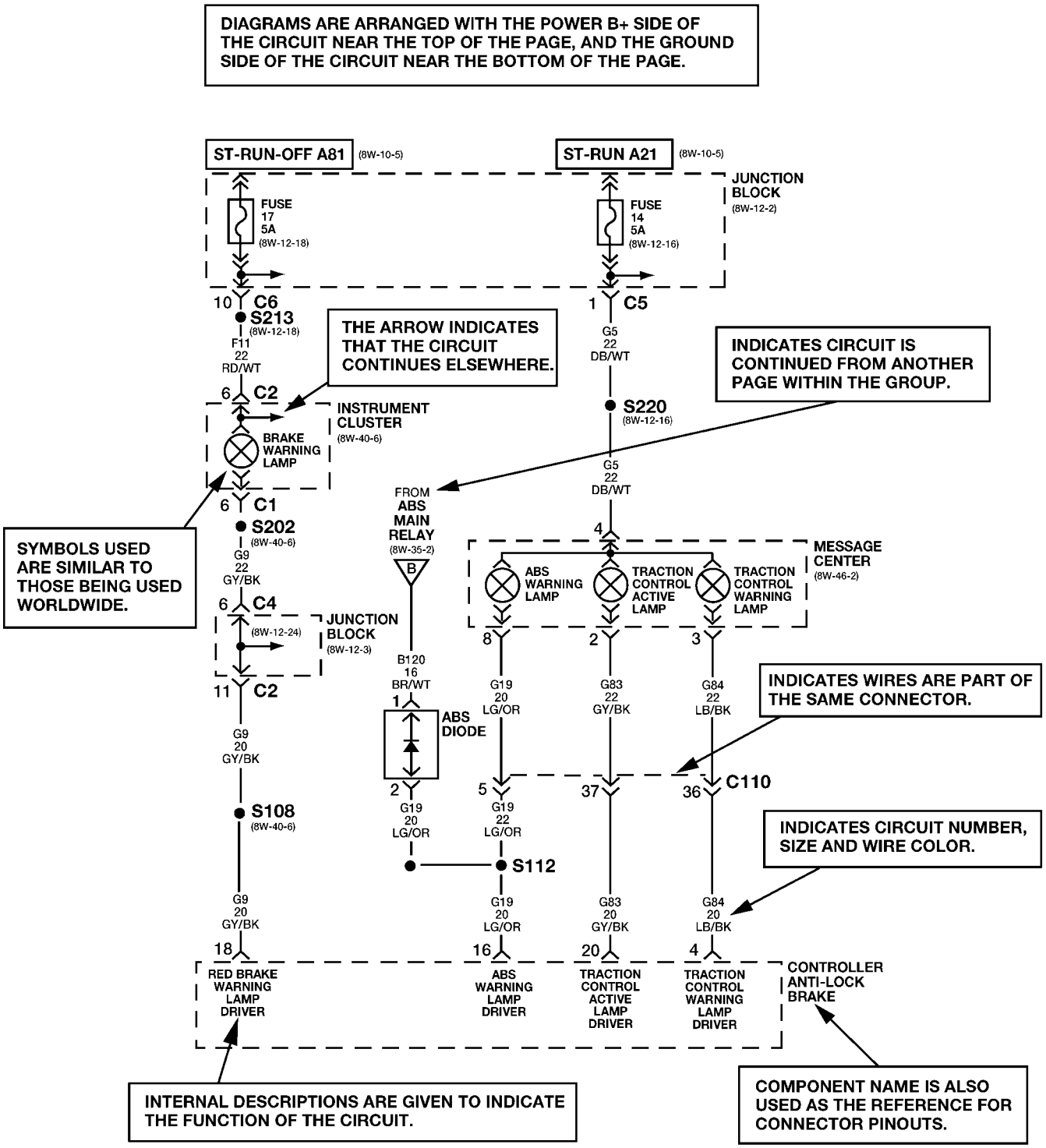
Components are shown two ways. A solid line around a component indicates that the component is complete. A dashed line around the component indicates that the component is being shown is not complete. Incomplete components have a reference number to indicate the page where the component is shown complete.

It is important to realize that no attempt is made on the diagrams to represent components and wiring as they appear on the vehicle. For example, a short piece of wire is treated the same as a long one. In addition, switches and other components are shown as simply as possible, with regard to function only.

SYMBOLS

International symbols are used throughout the wiring diagrams. These symbols are consistent with those being used around the world (Fig. 3).

WIRING DIAGRAM INFORMATION (Continued)

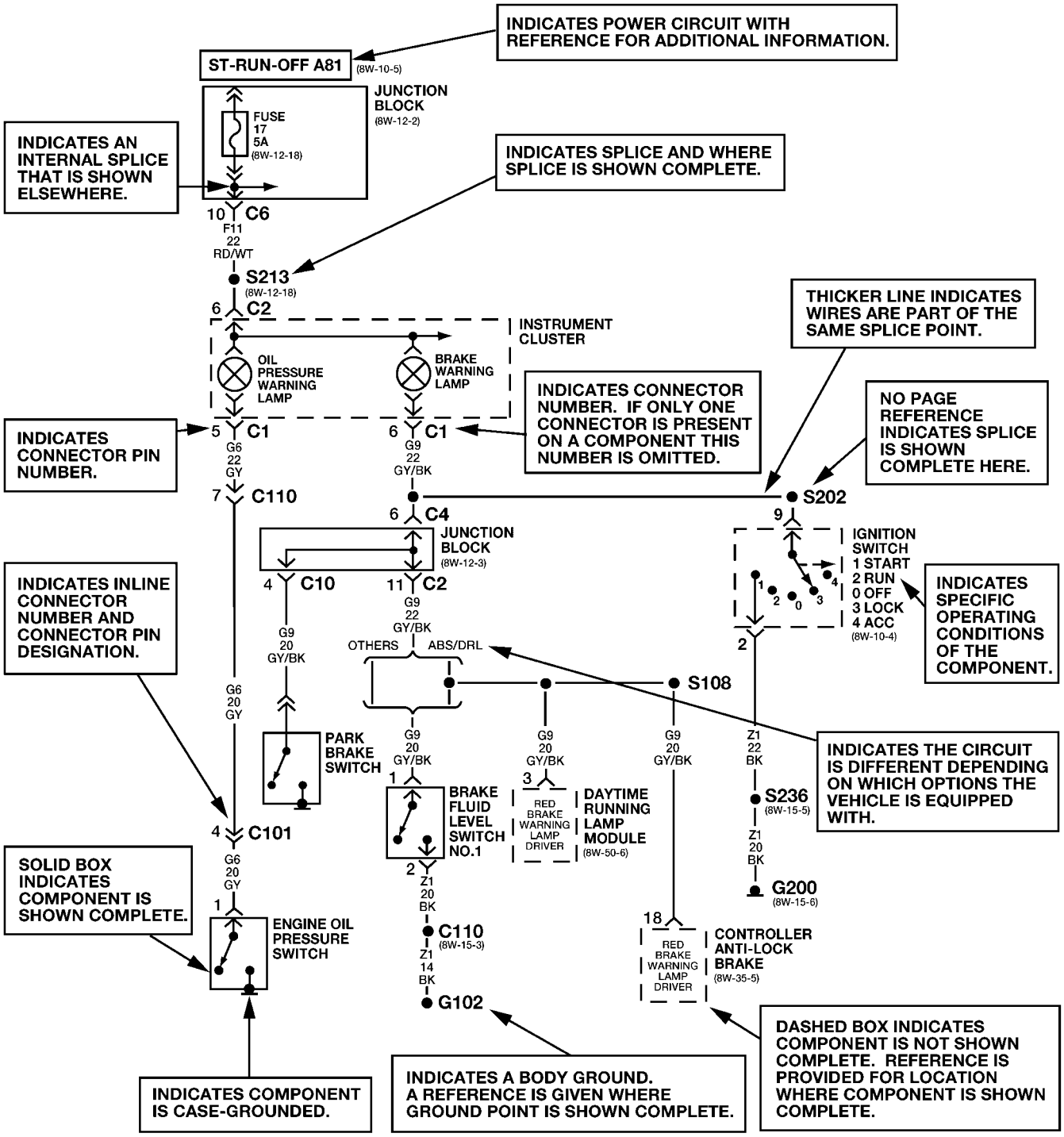


The System shown here is an EXAMPLE ONLY. It does not represent the actual circuit shown in the WIRING DIAGRAM SECTION.

80c06a01

Fig. 1 WIRING DIAGRAM EXAMPLE 1

WIRING DIAGRAM INFORMATION (Continued)

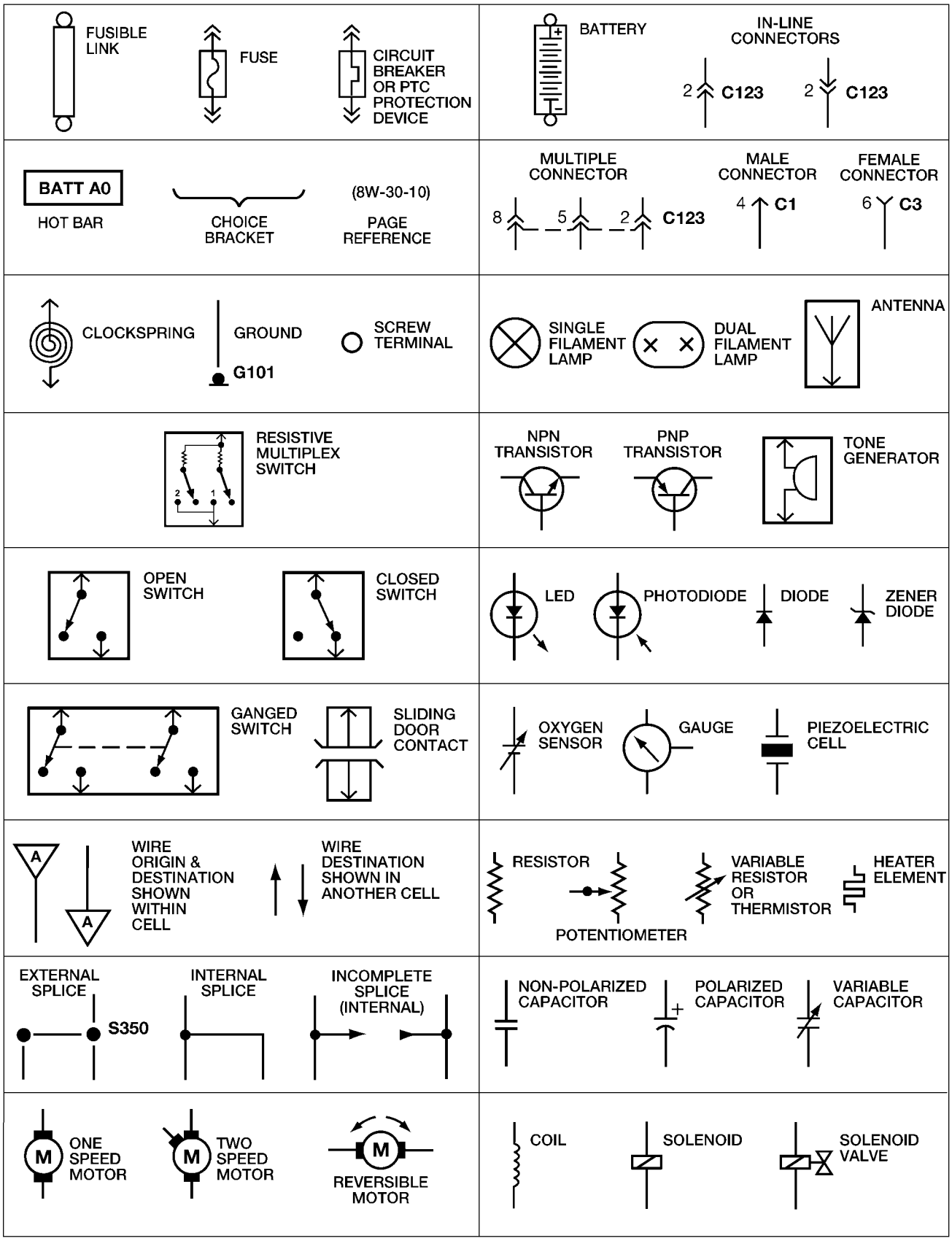


The System shown here is an EXAMPLE ONLY. It does not represent the actual circuit shown in the WIRING DIAGRAM SECTION.

80c06d02

Fig. 2 WIRING DIAGRAM EXAMPLE 2

WIRING DIAGRAM INFORMATION (Continued)



80910c6b

Fig. 3 WIRING DIAGRAM SYMBOLS

WIRING DIAGRAM INFORMATION (Continued)

TERMINOLOGY

This is a list of terms and definitions used in the wiring diagrams.

LHD . . . . . Left Hand Drive Vehicles
RHD . . . . . Right Hand Drive Vehicles
ATX . . Automatic Transmissions-Front Wheel Drive
MTX . . . Manual Transmissions-Front Wheel Drive
AT . . . . Automatic Transmissions-Rear Wheel Drive
MT . . . . . Manual Transmissions-Rear Wheel Drive
SOHC . . . . . Single Over Head Cam Engine
DOHC . . . . . Double Over Head Cam Engine
Built-Up-Export . . . . . Vehicles Built For Sale In Markets Other Than North America
Except Built-Up-Export . . . . . Vehicles Built For Sale In North America

DESCRIPTION - CIRCUIT INFORMATION

Each wire shown in the diagrams contains a code which identifies the main circuit, part of the main circuit, gage of wire, and color (Fig. 4).

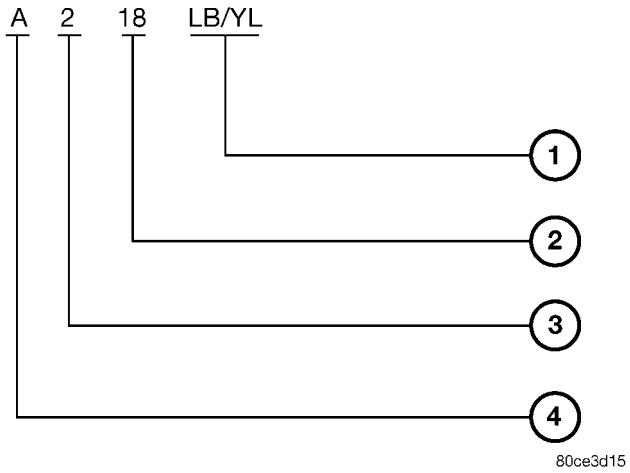


Fig. 4 WIRE CODE IDENTIFICATION

1 - COLOR OF WIRE (LIGHT BLUE WITH YELLOW TRACER
2 - GAGE OF WIRE (18 GAGE)
3 - PART OF MAIN CIRCUIT (VARIES DEPENDING ON EQUIPMENT)
4 - MAIN CIRCUIT IDENTIFICATION

WIRE COLOR CODE CHART

COLOR CODE	COLOR
BL	BLUE
BK	BLACK
BR	BROWN
DB	DARK BLUE
DG	DARK GREEN
GY	GRAY
LB	LIGHT BLUE
LG	LIGHT GREEN
OR	ORANGE
PK	PINK
RD	RED
TN	TAN
VT	VIOLET
WT	WHITE
YL	YELLOW
*	WITH TRACER

WIRING DIAGRAM INFORMATION (Continued)

DESCRIPTION - CIRCUIT FUNCTIONS

All circuits in the diagrams use an alpha/numeric code to identify the wire and it's function. To identify which circuit code applies to a system, refer to the Circuit Identification Code Chart. This chart shows the main circuits only and does not show the secondary codes that may apply to some models.

CIRCUIT IDENTIFICATION CODE CHART

CIRCUIT	FUNCTION
A	BATTERY FEED
B	BRAKE CONTROLS
C	CLIMATE CONTROLS
D	DIAGNOSTIC CIRCUITS
E	DIMMING ILLUMINATION CIRCUITS
F	FUSED CIRCUITS
G	MONITORING CIRCUITS (GAUGES)
H	OPEN
I	NOT USED
J	OPEN
K	POWERTRAIN CONTROL MODULE
L	EXTERIOR LIGHTING
M	INTERIOR LIGHTING
N	NOT USED
O	NOT USED
P	POWER OPTION (BATTERY FEED)
Q	POWER OPTIONS (IGNITION FEED)
R	PASSIVE RESTRAINT
S	SUSPENSION/STEERING
T	TRANSMISSION/TRANSAXLE/ TRANSFER CASE
U	OPEN
V	SPEED CONTROL, WIPER/ WASHER
W	OPEN
X	AUDIO SYSTEMS
Y	OPEN
Z	GROUNDS

DESCRIPTION - SECTION IDENTIFICATION AND INFORMATION

The wiring diagrams are grouped into individual sections. If a component is most likely found in a particular group, it will be shown complete (all wires, connectors, and pins) within that group. For example, the Auto Shutdown Relay is most likely to be found in Group 30, so it is shown there complete. It can, however, be shown partially in another group if it contains some associated wiring.

Splice diagrams in Section 8W-70 show the entire splice and provide references to other sections the splices serves. Section 8W-70 only contains splice diagrams that are not shown in their entirety somewhere else in the wiring diagrams.

Section 8W-80 shows each connector and the circuits involved with that connector. The connectors are identified using the name/number on the diagram pages.

WIRING SECTION CHART

GROUP	TOPIC
8W-01 thru 8W-09	General information and Diagram Overview
8W-10 thru 8W-19	Main Sources of Power and Vehicle Grounding
8W-20 thru 8W-29	Starting and Charging
8W-30 thru 8W-39	Powertrain/Drivetrain Systems
8W-40 thru 8W-49	Body Electrical items and A/C
8W-50 thru 8W-59	Exterior Lighting, Wipers and Trailer Tow
8W-60 thru 8W-69	Power Accessories
8W-70	Splice Information
8W-80	Connector Pin Outs
8W-91	Connector, Ground and Splice Locations

WIRING DIAGRAM INFORMATION (Continued)

DESCRIPTION - CONNECTOR, GROUND AND SPLICE INFORMATION

CAUTION: Not all connectors are serviced. Some connectors are serviced only with a harness. A typical example might be the Supplemental Restraint System connectors. Always check parts availability before attempting a repair.

IDENTIFICATION

In-line connectors are identified by a number, as follows:

- In-line connectors located in the engine compartment are C100 series numbers
- In-line connectors located in the Instrument Panel area are C200 series numbers.
- In-line connectors located in the body are C300 series numbers.
- Jumper harness connectors are C400 series numbers.
- Grounds and ground connectors are identified with a "G" and follow the same series numbering as the in-line connectors.
- Splices are identified with an "S" and follow the same series numbering as the in-line connectors.
- Component connectors are identified by the component name instead of a number. Multiple connectors on a component use a C1, C2, etc. identifier.

LOCATIONS

Section 8W-91 contains connector/ground/splice location illustrations. The illustrations contain the connector name (or number)/ground number/splice number and component identification. Connector/ground/splice location charts in section 8W-91 reference the figure numbers of the illustrations.

The abbreviation T/O is used in the component location section to indicate a point in which the wiring harness branches out to a component. The abbreviation N/S means Not Shown in the illustrations

WARNING

WARNINGS - GENERAL

WARNINGS provide information to prevent personal injury and vehicle damage. Below is a list of general warnings that should be followed any time a vehicle is being serviced.

WARNING: ALWAYS WEAR SAFETY GLASSES FOR EYE PROTECTION.

WARNING: USE SAFETY STANDS ANYTIME A PROCEDURE REQUIRES BEING UNDER A VEHICLE.

WARNING: BE SURE THAT THE IGNITION SWITCH ALWAYS IS IN THE OFF POSITION, UNLESS THE PROCEDURE REQUIRES IT TO BE ON.

WARNING: SET THE PARKING BRAKE WHEN WORKING ON ANY VEHICLE. AN AUTOMATIC TRANSMISSION SHOULD BE IN PARK. A MANUAL TRANSMISSION SHOULD BE IN NEUTRAL.

WARNING: OPERATE THE ENGINE ONLY IN A WELL-VENTILATED AREA.

WARNING: KEEP AWAY FROM MOVING PARTS WHEN THE ENGINE IS RUNNING, ESPECIALLY THE FAN AND BELTS.

WARNING: TO PREVENT SERIOUS BURNS, AVOID CONTACT WITH HOT PARTS SUCH AS THE RADIATOR, EXHAUST MANIFOLD(S), TAIL PIPE, CATALYTIC CONVERTER AND MUFFLER.

WARNING: DO NOT ALLOW FLAME OR SPARKS NEAR THE BATTERY. GASES ARE ALWAYS PRESENT IN AND AROUND THE BATTERY.

WARNING: ALWAYS REMOVE RINGS, WATCHES, LOOSE HANGING JEWELRY AND AVOID LOOSE CLOTHING.

DIAGNOSIS AND TESTING - WIRING HARNESS

TROUBLESHOOTING TOOLS

When diagnosing a problem in an electrical circuit there are several common tools necessary. These tools are listed and explained below.

- Jumper Wire - This is a test wire used to connect two points of a circuit. It can be used to bypass an open in a circuit.

WARNING: NEVER USE A JUMPER WIRE ACROSS A LOAD, SUCH AS A MOTOR, CONNECTED BETWEEN A BATTERY FEED AND GROUND.

- Voltmeter - Used to check for voltage on a circuit. Always connect the black lead to a known good ground and the red lead to the positive side of the circuit.

CAUTION: Most of the electrical components used in today's vehicles are Solid State. When checking voltages in these circuits, use a meter with a 10 - megohm or greater impedance rating.

WIRING DIAGRAM INFORMATION (Continued)

• Ohmmeter - Used to check the resistance between two points of a circuit. Low or no resistance in a circuit means good continuity.

CAUTION: Most of the electrical components used in today's vehicles are Solid State. When checking resistance in these circuits use a meter with a 10 - megohm or greater impedance rating. In addition, make sure the power is disconnected from the circuit. Circuits that are powered up by the vehicle's electrical system can cause damage to the equipment and provide false readings.

• Probing Tools - These tools are used for probing terminals in connectors (Fig. 5). Select the proper size tool from Special Tool Package 6807, and insert it into the terminal being tested. Use the other end of the tool to insert the meter probe.

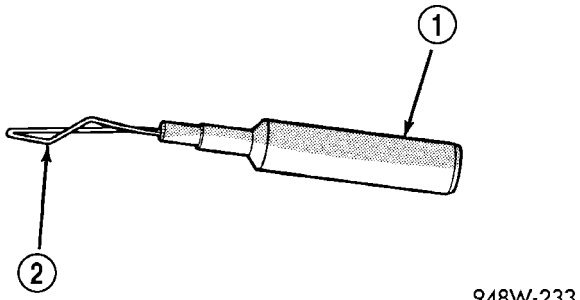


Fig. 5 PROBING TOOL

1 - SPECIAL TOOL 6801
2 - PROBING END

INTERMITTENT AND POOR CONNECTIONS

Most intermittent electrical problems are caused by faulty electrical connections or wiring. It is also possible for a sticking component or relay to cause a problem. Before condemning a component or wiring assembly, check the following items.

- Connectors are fully seated
- Spread terminals, or terminal push out
- Terminals in the wiring assembly are fully seated into the connector/component and locked into position
- Dirt or corrosion on the terminals. Any amount of corrosion or dirt could cause an intermittent problem
- Damaged connector/component casing exposing the item to dirt or moisture
- Wire insulation that has rubbed through causing a short to ground
- Some or all of the wiring strands broken inside of the insulation
- Wiring broken inside of the insulation

TROUBLESHOOTING WIRING PROBLEMS

When troubleshooting wiring problems there are six steps which can aid in the procedure. The steps are listed and explained below. Always check for non-factory items added to the vehicle before doing any diagnosis. If the vehicle is equipped with these items, disconnect them to verify these add-on items are not the cause of the problem.

(1) Verify the problem.

(2) Verify any related symptoms. Do this by performing operational checks on components that are in the same circuit. Refer to the wiring diagrams.

(3) Analyze the symptoms. Use the wiring diagrams to determine what the circuit is doing, where the problem most likely is occurring and where the diagnosis will continue.

(4) Isolate the problem area.

(5) Repair the problem area.

(6) Verify the proper operation. For this step, check for proper operation of all items on the repaired circuit. Refer to the wiring diagrams.

STANDARD PROCEDURE

STANDARD PROCEDURE - ELECTROSTATIC DISCHARGE (ESD) SENSITIVE DEVICES

All ESD sensitive components are solid state and a symbol (Fig. 6) is used to indicate this. When handling any component with this symbol, comply with the following procedures to reduce the possibility of electrostatic charge build up on the body and inadvertent discharge into the component. If it is not known whether the part is ESD sensitive, assume that it is.

(1) Always touch a known good ground before handling the part. This should be repeated while handling the part and more frequently after sliding across a seat, sitting down from a standing position, or walking a distance.

(2) Avoid touching electrical terminals of the part, unless instructed to do so by a written procedure.

(3) When using a voltmeter, be sure to connect the ground lead first.

(4) Do not remove the part form it's protective packing until it is time to install the part.

(5) Before removing the part from it's pakage, ground the pakage to a known good ground on the vehicle.

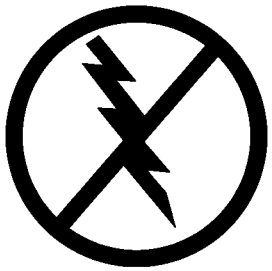


Fig. 6 ELECTROSTATIC DISCHARGE SYMBOL

WIRING DIAGRAM INFORMATION (Continued)

STANDARD PROCEDURE - TESTING OF VOLTAGE POTENTIAL

(1) Connect the ground lead of a voltmeter to a known good ground (Fig. 7).

(2) Connect the other lead of the voltmeter to the selected test point. The vehicle ignition may need to be turned ON to check voltage. Refer to the appropriate test procedure.

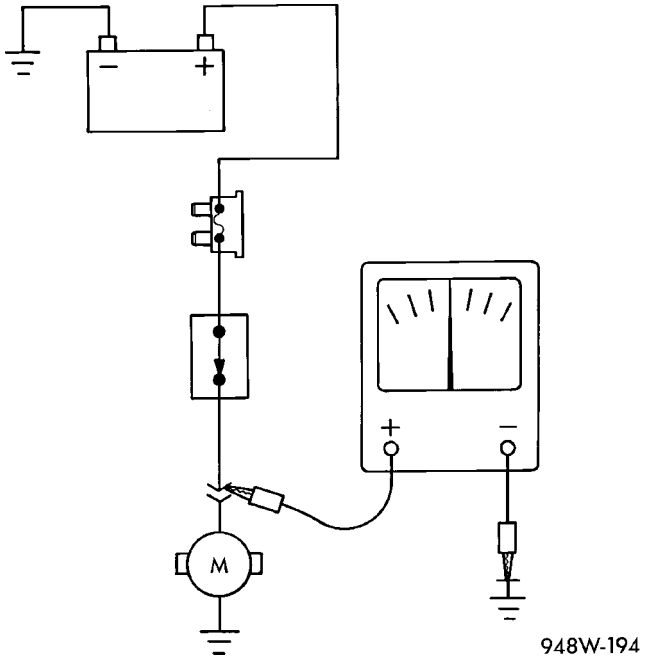


Fig. 7 TESTING FOR VOLTAGE POTENTIAL

STANDARD PROCEDURE - TESTING FOR CONTINUITY

(1) Remove the fuse for the circuit being checked or, disconnect the battery.

(2) Connect one lead of the ohmmeter to one side of the circuit being tested (Fig. 8).

(3) Connect the other lead to the other end of the circuit being tested. Low or no resistance means good continuity.

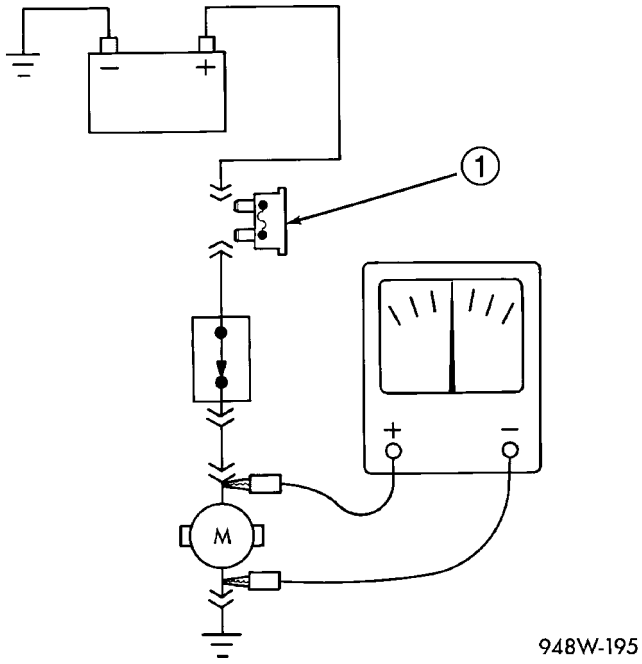


Fig. 8 TESTING FOR CONTINUITY

1 - FUSE REMOVED FROM CIRCUIT

STANDARD PROCEDURE - TESTING FOR A SHORT TO GROUND

(1) Remove the fuse and disconnect all items involved with the fuse.

(2) Connect a test light or a voltmeter across the terminals of the fuse.

(3) Starting at the fuse block, wiggle the wiring harness about six to eight inches apart and watch the voltmeter/test lamp.

(4) If the voltmeter registers voltage or the test lamp glows, there is a short to ground in that general area of the wiring harness.

WIRING DIAGRAM INFORMATION (Continued)

STANDARD PROCEDURE - TESTING FOR A SHORT TO GROUND ON FUSES POWERING SEVERAL LOADS

(1) Refer to the wiring diagrams and disconnect or isolate all items on the suspected fused circuits.
(2) Replace the blown fuse.
(3) Supply power to the fuse by turning ON the ignition switch or re-connecting the battery.
(4) Start connecting or energizing the items in the fuse circuit one at a time. When the fuse blows the circuit with the short to ground has been isolated.

STANDARD PROCEDURE - TESTING FOR A VOLTAGE DROP

(1) Connect the positive lead of the voltmeter to the side of the circuit closest to the battery (Fig. 9).
(2) Connect the other lead of the voltmeter to the other side of the switch, component or circuit.
(3) Operate the item.
(4) The voltmeter will show the difference in voltage between the two points.

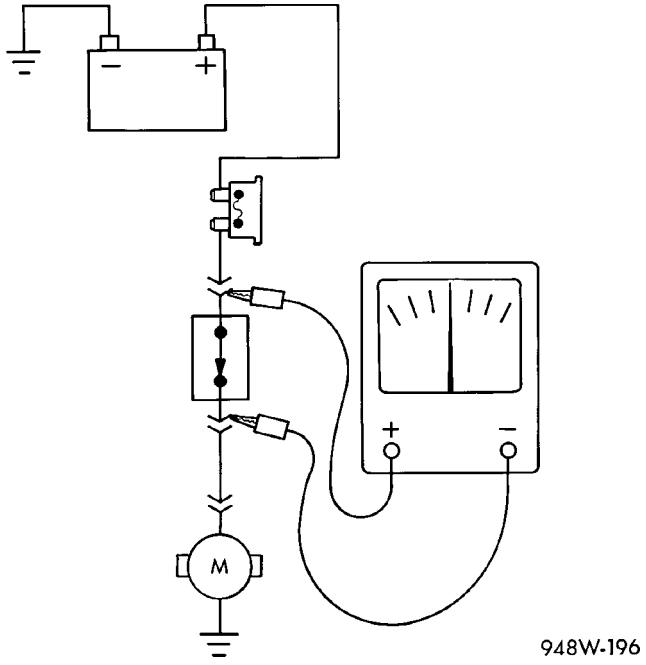
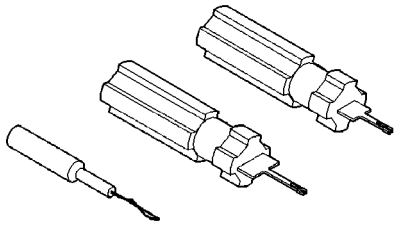


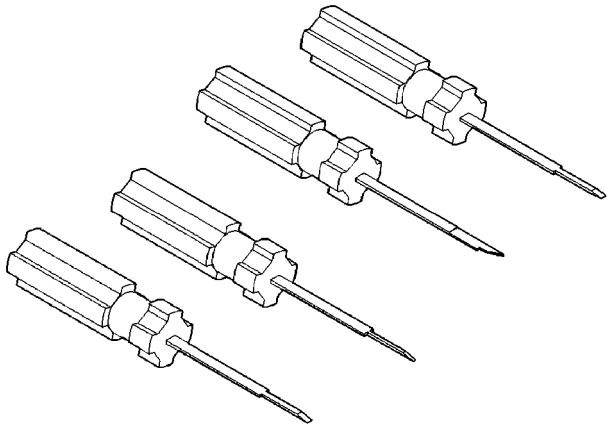
Fig. 9 TESTING FOR VOLTAGE DROP

SPECIAL TOOLS

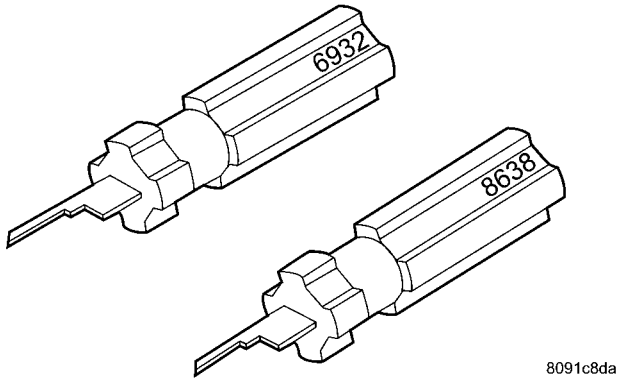
WIRING/TERMINAL



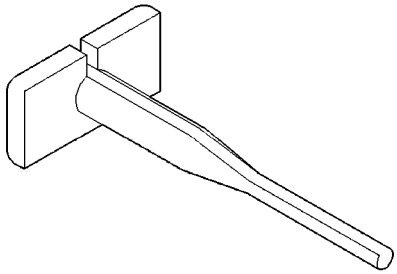
PROBING TOOL PACKAGE 6807



TERMINAL PICK TOOL SET 6680



TERMINAL REMOVING TOOLS 6932 AND 8638



TERMINAL REMOVING TOOL 6934

CONNECTOR

REMOVAL

(1) Disconnect battery.
(2) Release Connector Lock (Fig. 10).
(3) Disconnect the connector being repaired from its mating half/component.
(4) Remove the dress cover (if applicable) (Fig. 10).

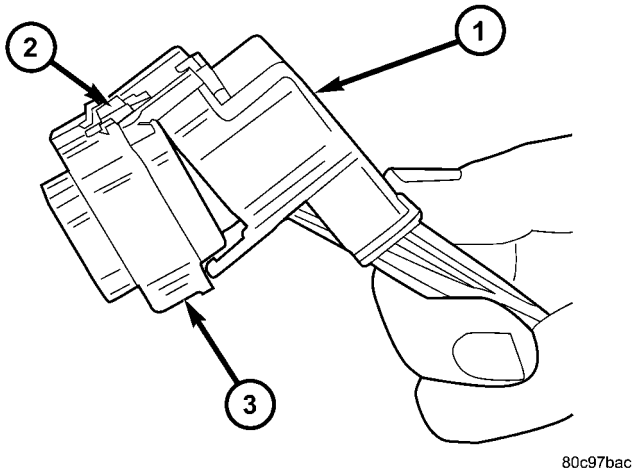


Fig. 10 REMOVAL OF DRESS COVER

1 - DRESS COVER
2 - CONNECTOR LOCK
3 - CONNECTOR

(5) Release the Secondary Terminal Lock, if required (Fig. 11).
(6) Position the connector locking finger away from the terminal using the proper special tool. Pull on the wire to remove the terminal from the connector (Fig. 12).

INSTALLATION

(1) Insert the removed terminal in the same cavity on the repair connector.
(2) Repeat steps for each terminal in the connector, being sure that all wires are inserted into the proper cavities. For additional connector pin-out identification, refer to the wiring diagrams.
(3) When the connector is re-assembled, the secondary terminal lock must be placed in the locked position to prevent terminal push out.
(4) Replace dress cover (if applicable).
(5) Connect connector to its mating half/component.
(6) Connect battery and test all affected systems.

CONNECTOR (Continued)

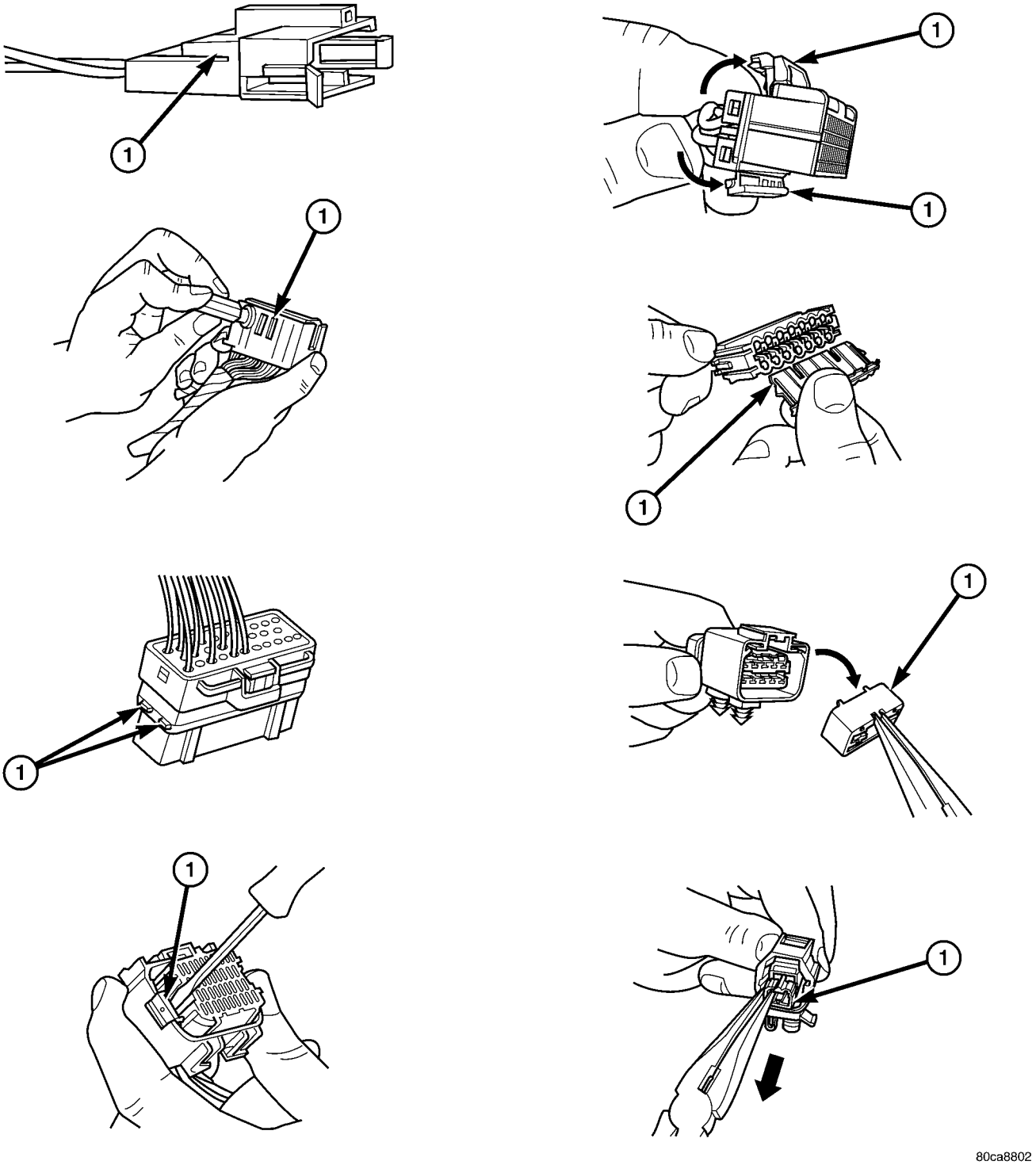


Fig. 11 EXAMPLES OF CONNECTOR SECONDARY TERMINAL LOCKS

1 - Secondary Terminal Lock

CONNECTOR (Continued)

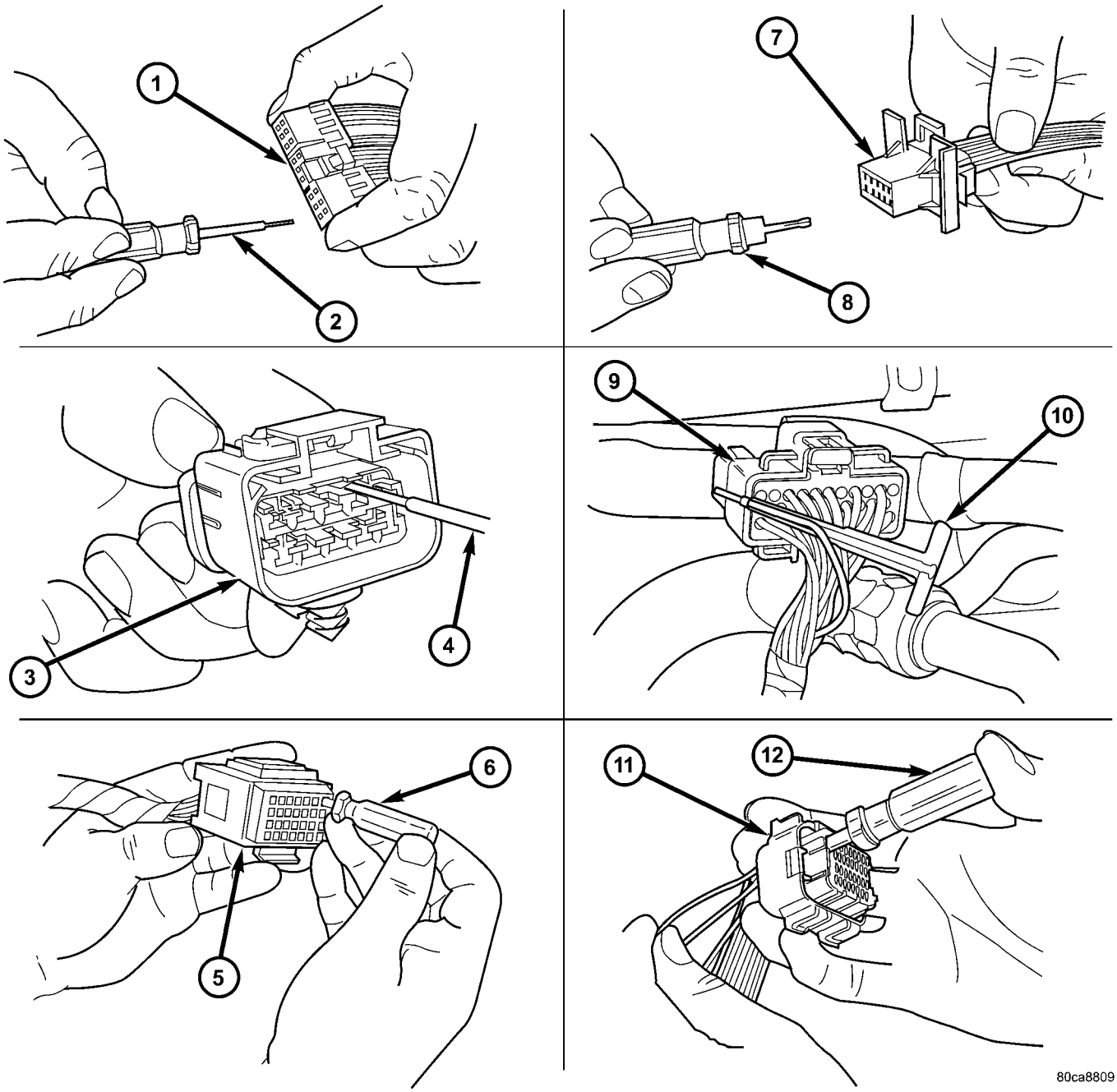


Fig. 12 TERMINAL REMOVAL

1 - TYPICAL CONNECTOR
2 - PICK FROM SPECIAL TOOL KIT 6680
3 - APEX CONNECTOR
4 - PICK FROM SPECIAL TOOL KIT 6680
5 - AUGAT CONNECTOR
6 - SPECIAL TOOL 6932
7 - MOLEX CONNECTOR
8 - SPECIAL TOOL 6742
9 - THOMAS AND BETTS CONNECTOR
10 - SPECIAL TOOL 6934
11 - TYCO CONNECTOR
12 - SPECIAL TOOL 8638

DIODE

REMOVAL

(1) Disconnect the battery.

(2) Locate the diode in the harness, and remove the protective covering.

(3) Remove the diode from the harness, pay attention to the current flow direction (Fig. 13).

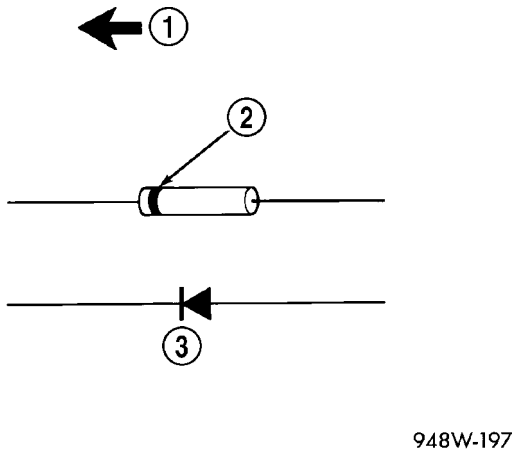


Fig. 13 DIODE IDENTIFICATION

1 - CURRENT FLOW
2 - BAND AROUND DIODE INDICATES CURRENT FLOW
3 - DIODE AS SHOWN IN THE DIAGRAMS

INSTALLATION

(1) Remove the insulation from the wires in the harness. Only remove enough insulation to solder in the new diode.

(2) Install the new diode in the harness, making sure current flow is correct. If necessary, refer to the appropriate wiring diagram for current flow (Fig. 13).

(3) Solder the connection together using rosin core type solder only. **Do not use acid core solder.**

(4) Tape the diode to the harness using electrical tape. Make sure the diode is completely sealed from the elements.

(5) Re-connect the battery and test affected systems.

TERMINAL

REMOVAL

(1) Follow steps for removing terminals described in the connector removal section.

(2) Cut the wire 6 inches from the back of the connector.

INSTALLATION

(1) Select a wire from the terminal repair kit that best matches the color and gage of the wire being repaired.

(2) Cut the repair wire to the proper length and remove one–half (1/2) inch of insulation.

(3) Splice the repair wire to the wire harness (see wire splicing procedure).

(4) Insert the repaired wire into the connector.

(5) Install the connector locking wedge, if required, and reconnect the connector to its mating half/component.

(6) Re-tape the wire harness starting at 1–1/2 inches behind the connector and 2 inches past the repair.

(7) Connect battery and test all affected systems.

WIRE

STANDARD PROCEDURE - WIRE SPLICING

When splicing a wire, it is important that the correct gage be used as shown in the wiring diagrams.

(1) Remove one-half (1/2) inch of insulation from each wire that needs to be spliced.

(2) Place a piece of adhesive lined heat shrink tubing on one side of the wire. Make sure the tubing will be long enough to cover and seal the entire repair area.

(3) Place the strands of wire overlapping each other inside of the splice clip (Fig. 14).

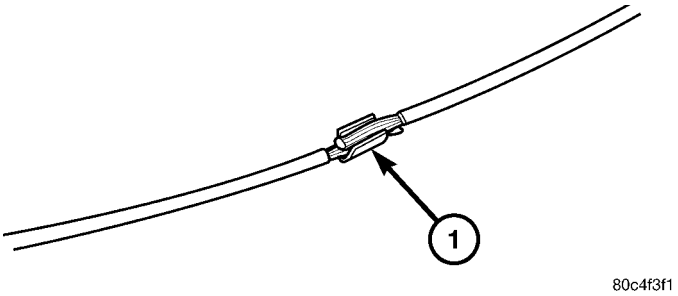


Fig. 14 SPLICE BAND

1 - SPLICE BAND

(4) Using crimping tool, Mopar p/n 05019912AA, crimp the splice clip and wires together (Fig. 15).

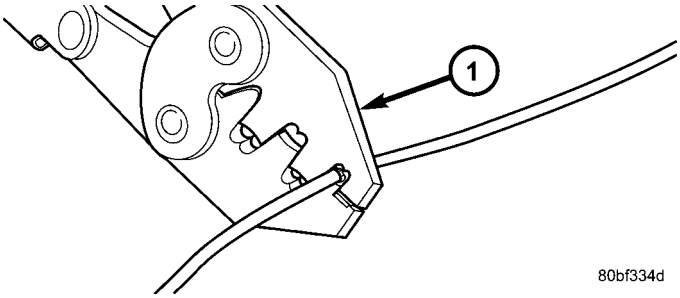


Fig. 15 CRIMPING TOOL

1 - CRIMPING TOOL

(5) Solder the connection together using rosin core type solder only (Fig. 16).

CAUTION: DO NOT USE ACID CORE SOLDER.

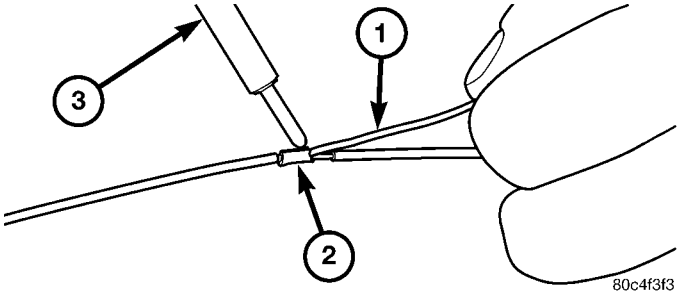


Fig. 16 SOLDER SPLICE

1 - SOLDER
2 - SPLICE BAND
3 - SOLDERING IRON

(6) Center the heat shrink tubing over the joint and heat using a heat gun. Heat the joint until the tubing is tightly sealed and sealant comes out of both ends of the tubing (Fig. 17).

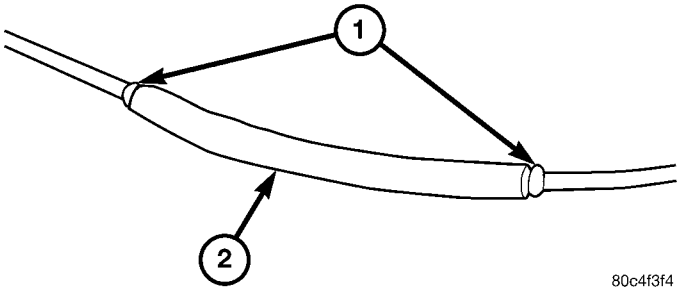


Fig. 17 HEAT SHRINK TUBE

1 - SEALANT
2 - HEAT SHRINK TUBE

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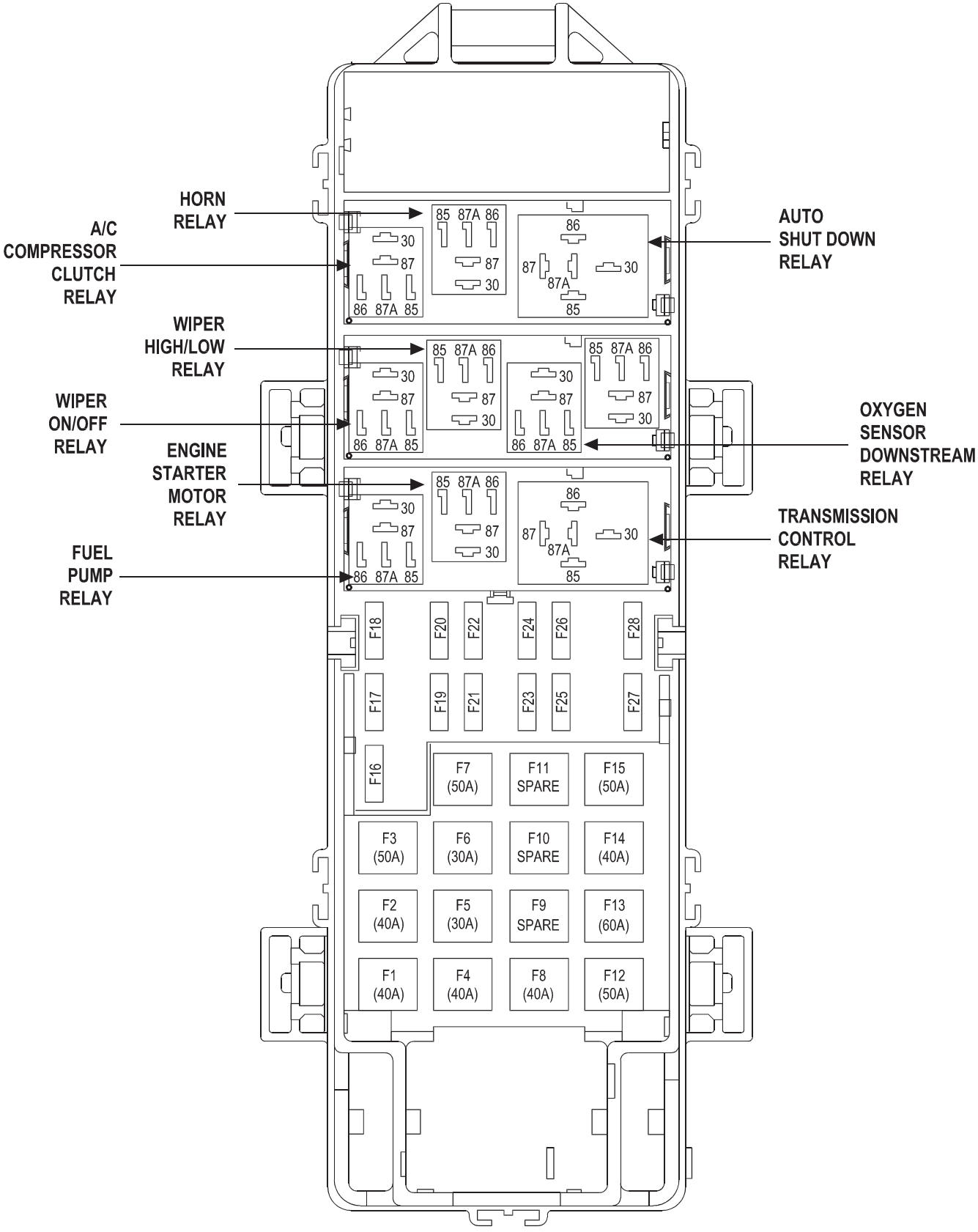
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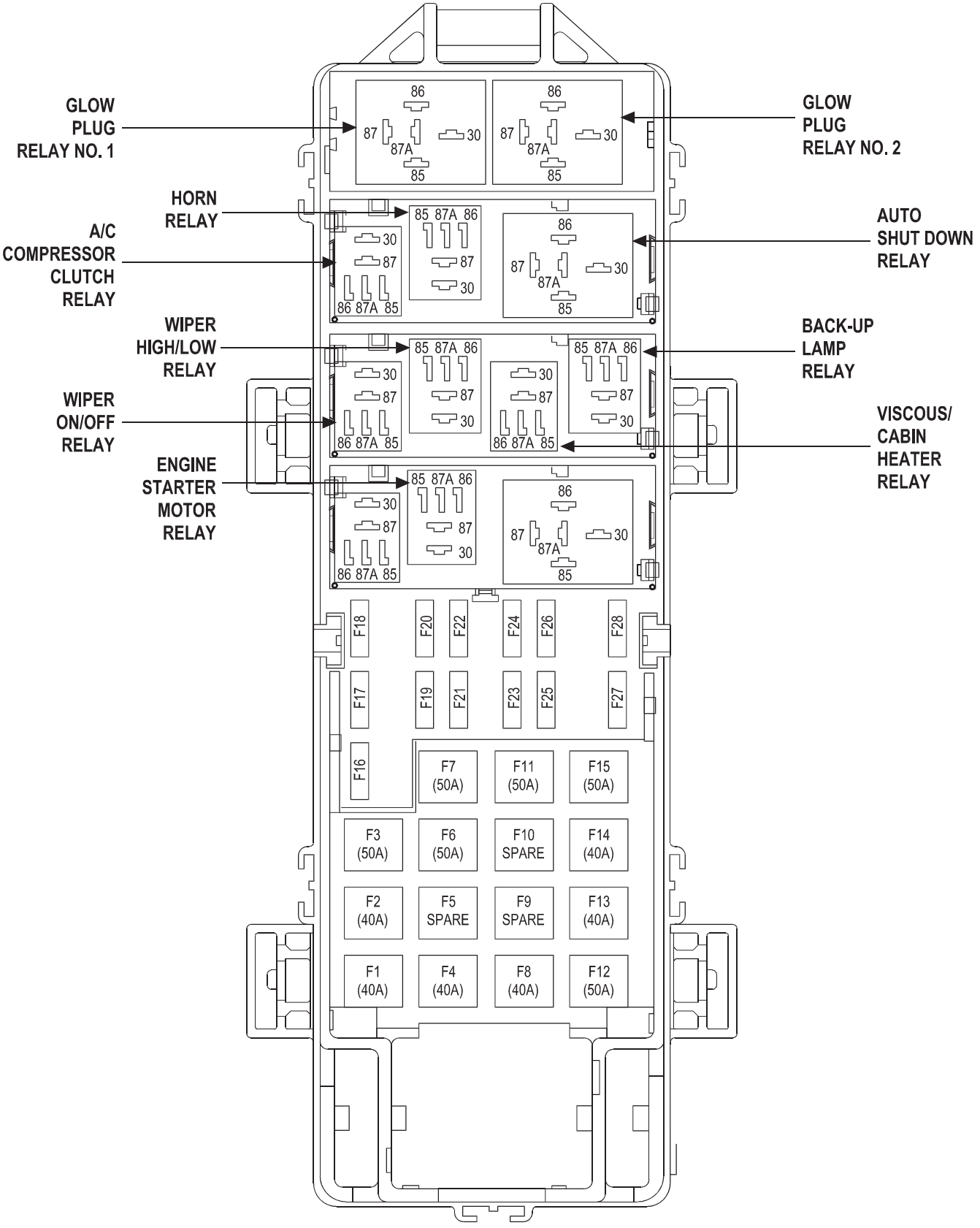
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Power Distribution Center	8W-10-2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 31, 34, 35, 36
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Rear Fog Lamp Relay	8W-10-27
Rear Power Outlet	8W-10-13, 14, 35
Rear Window Defogger Relay	8W-10-15
Transmission Control Module	8W-10-11, 17
Transmission Control Relay	8W-10-11, 17
Transmission Solenoid	8W-10-17
Transmission Solenoid/TRS Assembly	8W-10-17
Viscous/Cabin Heater Relay	8W-10-14, 28, 30
Viscous/Cabin Heater	8W-10-28
Wastegate Solenoid	8W-10-30
Water In Fuel Sensor	8W-10-29

POWER DISTRIBUTION CENTER



POWER DISTRIBUTION CENTER



FUSES (GAS)

FUSE NO.	AMPS	FUSED CIRCUIT	FUNCTION
1	40A	C1 12DG	FUSED B(+)
2	40A	A149 12RD/TN	FUSED B(+)
3	50A	A145 10WT/RD	FUSED B(+)
4	40A	A10 12RD/DG	FUSED B(+)
5	30A	A30 14RD/WT A30 14RD/WT ◇◇	FUSED B(+)
6	30A	A14 14RD/DG	FUSED B(+)
7	50A	A147 10RD/GY	FUSED B(+)
8	40A	A1 12RD	FUSED B(+)
9	-	-	-
10	40A	A16 12GY	FUSED B(+) -
11	-	-	-
12	50A	A146 10OR/WT	FUSED B(+)
13	60A	A80 10RD/LG	FUSED B(+)
14	40A	A2 12PK/BK	FUSED B(+)
15	50A	A148 10PK/WT	FUSED B(+)
16	15A	F142 18OR/DG F142 18OR/DG ◇◇	FUSED AUTO SHUT DOWN RELAY OUTPUT
17	-	-	-
18	15A	F62 18RD F62 18RD	FUSED B(+)
19	10A	A7 14RD/BK	FUSED B(+)
20	20A	A110 16VT/RD	FUSED B(+)
21	15A	A17 18RD/BK	FUSED B(+)
22	-	-	-
23	-	-	-
24	20A	A62 16VT/LB ●	FUSED B(+)
24	20A	A62 16VT/WT ●●	FUSED B(+)
25	20A	A20 12RD/DB	FUSED B(+)
26	15A	F42 18DG/LG F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT
27	20A	A148 16LG/RD	FUSED B(+)
28	15A	T15 18YL/BR ◇	FUSED TRANSMISSION CONTROL RELAY OUTPUT

◇ 4.0L ● LHD
◇◇ 4.7L ●● RHD

FUSES (DIESEL)

FUSE NO.	AMPS	FUSED CIRCUIT	FUNCTION
1	40A	C1 12DG	FUSED B(+)
2	40A	A149 12RD/TN	FUSED B(+)
3	50A	A145 10WT/RD	FUSED B(+)
4	40A	A10 12RD/DG	FUSED B(+)
5	-	-	-
6	50A	A105 10DB/RD	FUSED B(+)
7	50A	A147 10RD/GY	FUSED B(+)
8	40A	A1 12RD	FUSED B(+)
9	-	-	-
10	-	-	-
11	50A	A110 10VT/RD	FUSED B(+)
12	50A	A146 10OR/WT	FUSED B(+)
13	40A	A14 14RD/WT A14 14RD/WT	FUSED B(+)
14	40A	A2 12PK/BK	FUSED B(+)
15	50A	A148 10PK/WT	FUSED B(+)
16	20A	F15 18DB/WT F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
17	-	-	-
18	15A	F62 18RD F62 18RD	FUSED B(+)
19	-	-	-
20	-	-	-
21	15A	A17 14RD/BK	FUSED B(+)
22	10A	F300 18RD/BK	FUSED B(+)
23	15A	A80 18RD/LG	FUSED B(+)
24	-	-	-
25	20A	A20 12RD/DB	FUSED B(+)
26	20A	F142 14OR/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
27	20A	A148 16LG/RD	FUSED B(+)
28	-	-	-

RELAYS

A/C COMPRESSOR CLUTCH RELAY (DIESEL)

CAVITY	CIRCUIT	FUNCTION
30	A17 14RD/BK	FUSED B(+)
85	C13 18DB/OR	A/C COMPRESSOR CLUTCH RELAY CONTROL
86	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
87	C2 18DB/BK	A/C COMPRESSOR CLUTCH RELAY OUTPUT
87A	-	-

A/C COMPRESSOR CLUTCH RELAY (GAS)

CAVITY	CIRCUIT	FUNCTION
30	A17 18RD/BK	FUSED B(+)
85	C13 20DB/OR	A/C COMPRESSOR CLUTCH RELAY CONTROL
86	F12 18DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
87	C2 18DB/YL	A/C COMPRESSOR CLUTCH RELAY OUTPUT
87A	-	-

AUTO SHUT DOWN RELAY (DIESEL)

CAVITY	CIRCUIT	FUNCTION
30	A14 14RD/WT	FUSED B(+)
85	K51 18DB/YL	AUTO SHUT DOWN RELAY CONTROL
86	A14 14RD/WT	FUSED B(+)
87	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
87A	-	-

AUTO SHUT DOWN RELAY (GAS)

CAVITY	CIRCUIT	FUNCTION
30	A14 14RD/DG	FUSED B(+)
85	K51 18DB/YL	AUTO SHUT DOWN RELAY CONTROL
86	F991 18OR/DB ●	FUSED IGNITION SWITCH OUTPUT (RUN-START)
	F991 20OR/DB ●	
86	F991 20OR/DB ●●	FUSED IGNITION SWITCH OUTPUT (RUN-START)
	F991 20OR/DB ●●	
87	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
87A	-	-

BACK-UP LAMP RELAY (DIESEL)

CAVITY	CIRCUIT	FUNCTION
30	F22 18WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
85	F22 18WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
	F22 18WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
86	T2 18TN/BK	TRS T2 SENSE
87	L1 18VT/BK	BACK-UP LAMP FEED
87A	-	-

ENGINE STARTER MOTOR RELAY (DIESEL)

CAVITY	CIRCUIT	FUNCTION
30	A1 12RD	FUSED B(+)
85	T752 18DG/OR	ENGINE STARTER MOTOR RELAY CONTROL
86	F45 18YL/RD	FUSED IGNITION SWITCH OUTPUT (START)
87	T40 12BR	ENGINE STARTER MOTOR RELAY OUTPUT
87A	-	-

● LHD
●● RHD

ENGINE STARTER MOTOR RELAY (GAS)

CAVITY	CIRCUIT	FUNCTION
30	A1 12RD	FUSED B(+)
85	T41 18BK/WT	PARK/NEUTRAL POSITION SWITCH SENSE
	T41 18BK/WT ●●	PARK/NEUTRAL POSITION SWITCH SENSE
86	F45 18YL/RD ✳	FUSED IGNITION SWITCH OUTPUT (START)
	F45 18YL/RD ◇◇	FUSED IGNITION SWITCH OUTPUT (START)
86	F45 20YL/RD ✳✳	FUSED IGNITION SWITCH OUTPUT (START)
87	T40 12LG	ENGINE STARTER MOTOR RELAY OUTPUT
87A	-	-

FUEL PUMP RELAY (GAS)

CAVITY	CIRCUIT	FUNCTION
30	A62 16VT/LB ●	FUSED B(+)
30	A62 16VT/WT ●●	FUSED B(+)
85	K31 18BR	FUEL PUMP RELAY CONTROL
86	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
	F991 20OR/DB ●●	FUSED IGNITION SWITCH OUTPUT (RUN-START)
	F991 18OR/DB ●	FUSED IGNITION SWITCH OUTPUT (RUN-START)
87	A141 16DG/WT ●	FUEL PUMP RELAY OUTPUT
87	A141 16DG/BK ●●	FUEL PUMP RELAY OUTPUT
87A	-	-

GLOW PLUG RELAY NO. 1 (DIESEL)

CAVITY	CIRCUIT	FUNCTION
30	A105 10DB/RD	FUSED B(+)
85	K152 18WT	GLOW PLUG RELAY NO. 1 CONTROL
86	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
87	K154 10GY	GLOW PLUG RELAY NO. 1 OUTPUT
87A	-	-

● LHD
●● RHD
✳ EXCEPT 4.0L RHD
✳✳ 4.0L RHD
◇◇ 4.7L

GLOW PLUG RELAY NO. 2 (DIESEL)

CAVITY	CIRCUIT	FUNCTION
30	A110 10VT/RD	FUSED B(+)
85	K236 18GY/PK	GLOW PLUG RELAY NO. 2 CONTROL
86	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
	F15 18DB/WT	
87	K254 10GY/YL	GLOW PLUG RELAY NO. 2 OUTPUT
87A	-	-

HORN RELAY

CAVITY	CIRCUIT	FUNCTION
30	F62 18RD	FUSED B(+)
85	X3 20BK/RD	HORN RELAY CONTROL
86	F62 18RD	FUSED B(+)
87	X2 18DG/RD	HORN RELAY OUTPUT
	X2 18DG/RD ▽	HORN RELAY OUTPUT
87A	-	-

OXYGEN SENSOR DOWNSTREAM RELAY

CAVITY	CIRCUIT	FUNCTION
30	F142 18OR/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
	F142 18OR/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
85	K512 18RD/YL	OXYGEN SENSOR DOWNSTREAM RELAY CONTROL
86	F142 18OR/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
	F142 18OR/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
87	K200 18VT/OR	OXYGEN SENSOR DOWNSTREAM RELAY OUTPUT
87A	-	-

TRANSMISSION CONTROL RELAY (GAS)

CAVITY	CIRCUIT	FUNCTION
30	A30 14RD/WT	FUSED B(+)
85	K125 18WT/DB ◇	GENERATOR SOURCE
85	Z307 18BK ◇◇	GROUND
86	K30 20PK/YL ●	TRANSMISSION CONTROL RELAY CONTROL
86	K30 20PK ●●	TRANSMISSION CONTROL RELAY CONTROL
87	T16 14RD	TRANSMISSION CONTROL RELAY OUTPUT
87A	-	-

● LHD ▽ GAS
●● RHD ◇ 4.0L
◇◇ 4.7L

VISCOUS/ CABIN HEATER RELAY (DIESEL)

CAVITY	CIRCUIT	FUNCTION
30	A80 18RD/LG	FUSED B(+)
85	K132 18BR/BK	VISCOUS/CABIN HEATER RELAY CONTROL
86	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
87	A82 18PK/LG	VISCOUS/CABIN HEATER RELAY OUTPUT
87A	-	-

WIPER HIGH/LOW RELAY

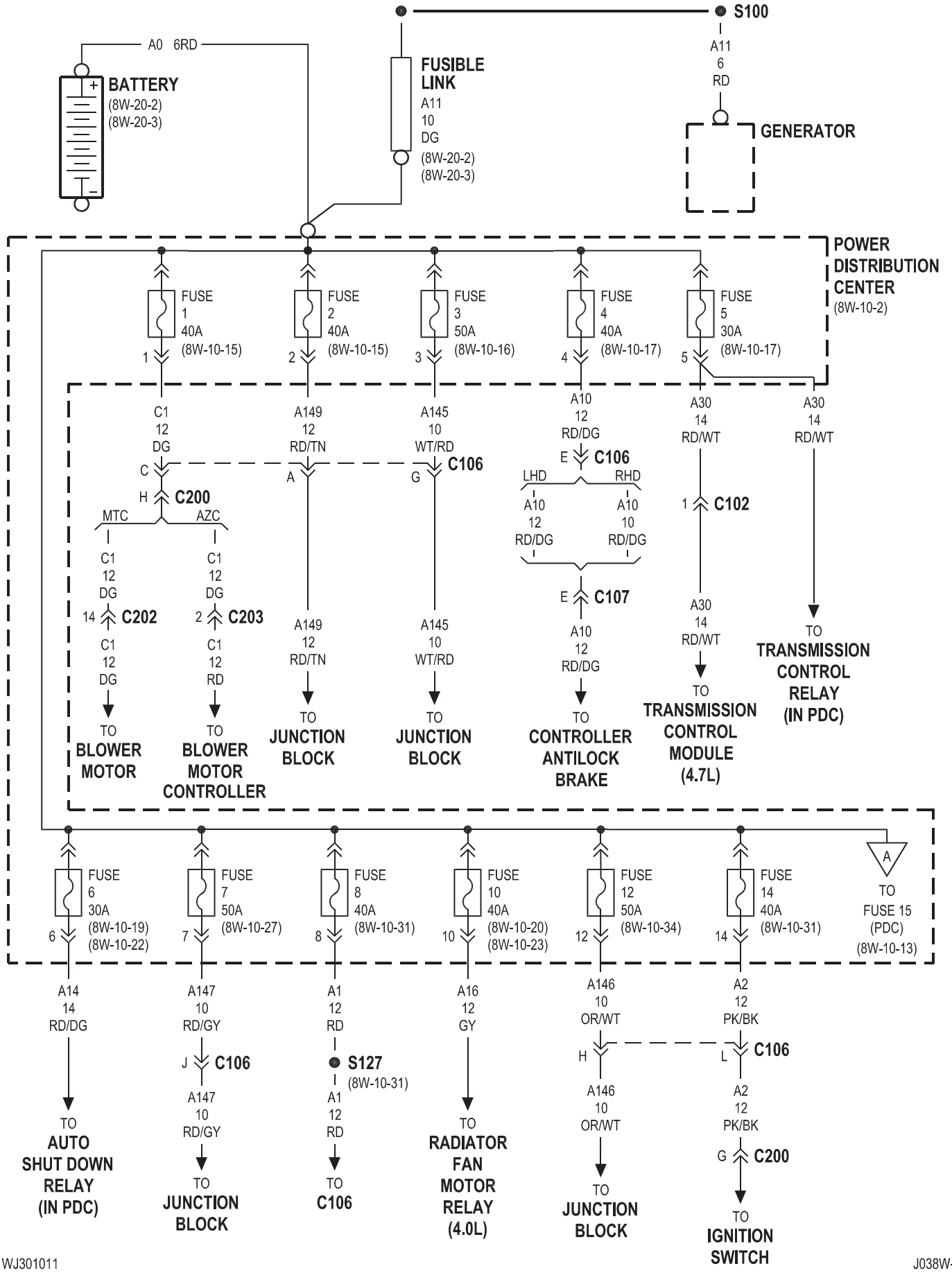
CAVITY	CIRCUIT	FUNCTION
30	V60 16YL/DG ▽	WIPER ON/OFF RELAY OUTPUT
30	V60 16TN/RD ▽▽	WIPER ON/OFF RELAY OUTPUT
85	V16 20VT	WIPER HIGH/LOW RELAY CONTROL
86	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
	V6 16DB ▽▽	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
87	V4 16RD/YL	WIPER HIGH/LOW RELAY HIGH SPEED OUTPUT
87A	V3 16BR/WT	WIPER HIGH/LOW RELAY LOW SPEED OUTPUT

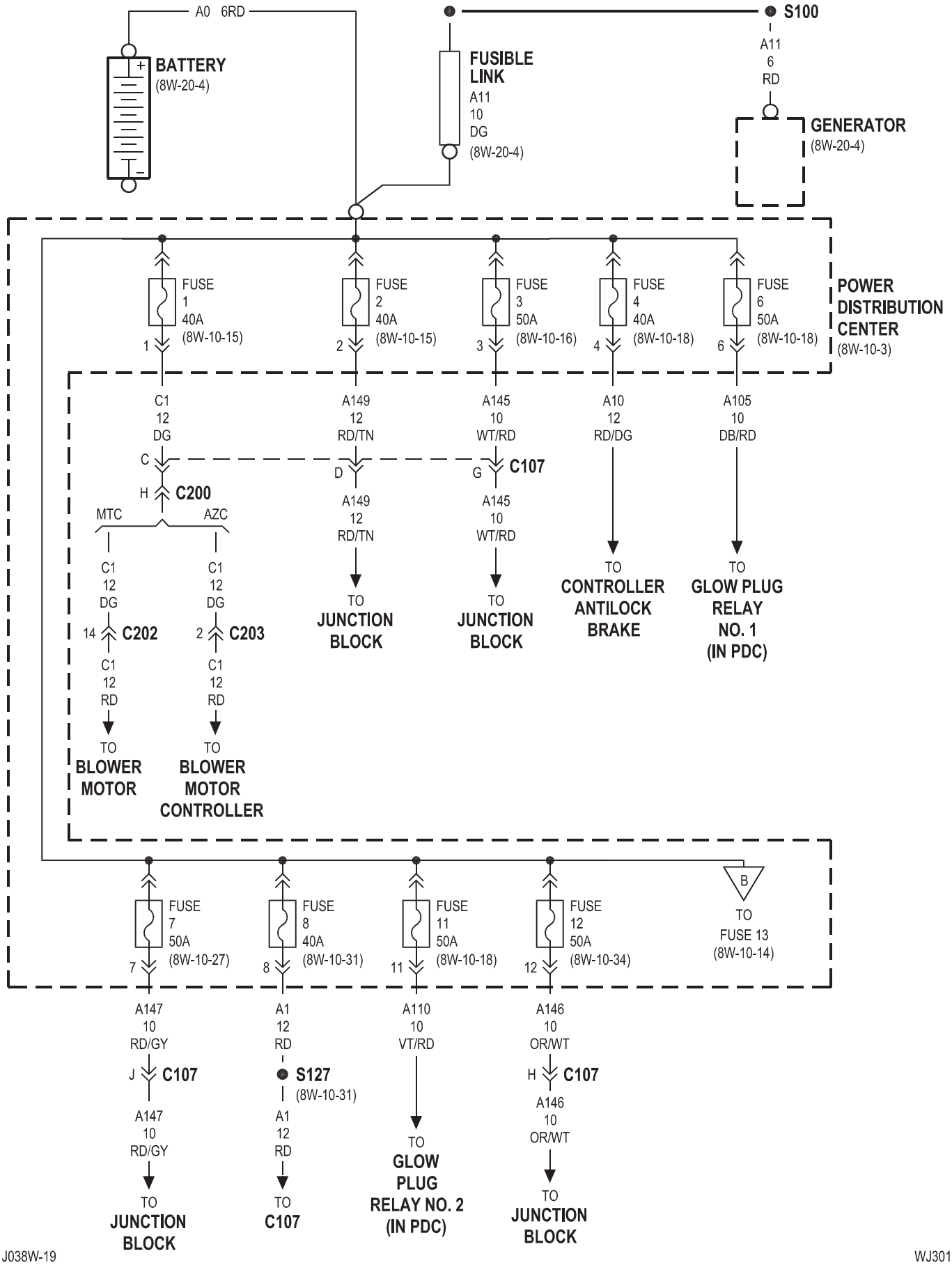
WIPER ON/OFF RELAY

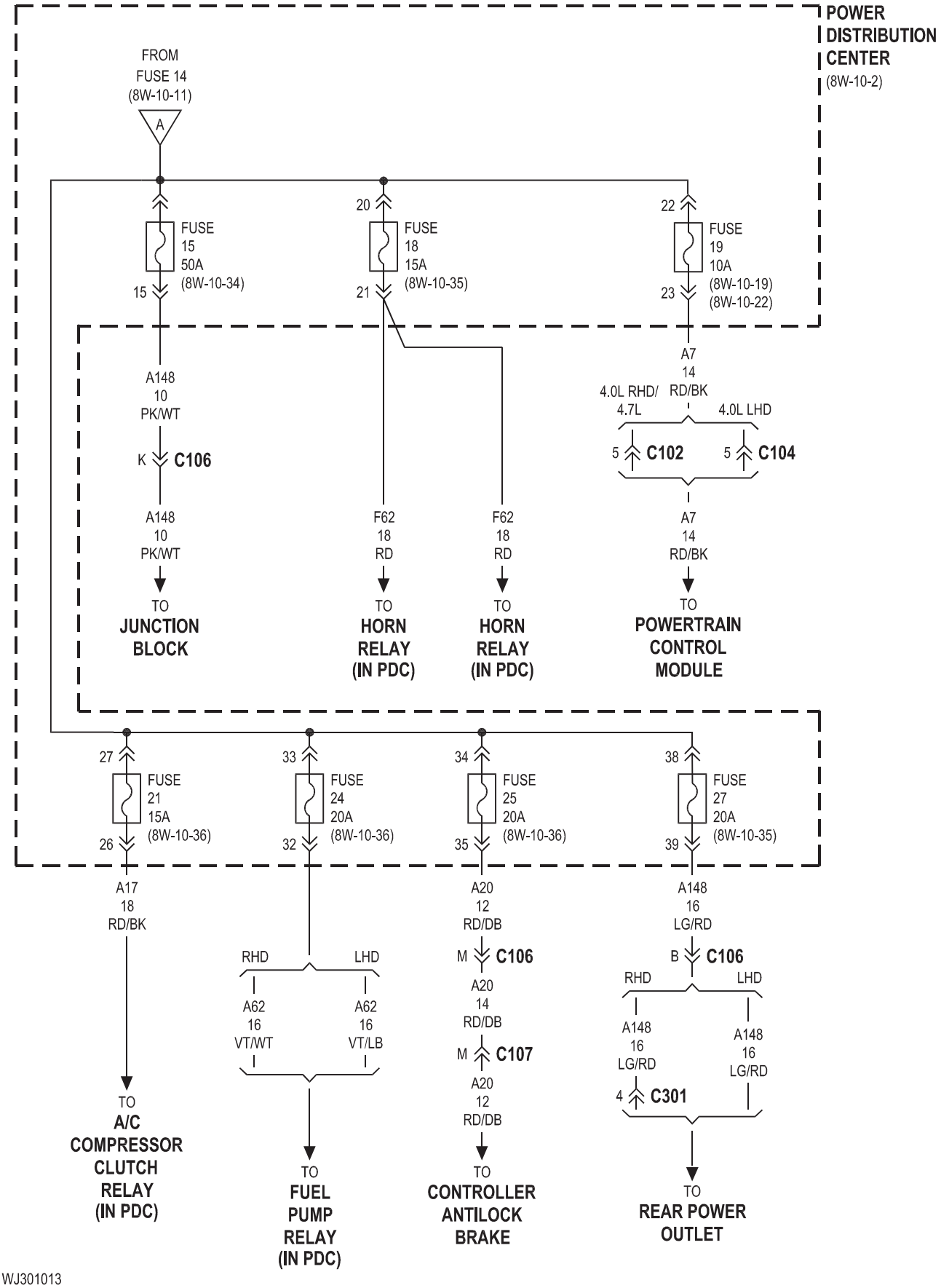
CAVITY	CIRCUIT	FUNCTION
30	V60 16YL/DG ▽	WIPER ON/OFF RELAY OUTPUT
30	V60 16TN/RD ▽▽	WIPER ON/OFF RELAY OUTPUT
85	V14 20RD/VT	WIPER ON/OFF RELAY CONTROL
86	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
87	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
87A	V55 16TN/RD	WIPER PARK SWITCH SENSE
	V55 16TN/RD ▽▽	WIPER PARK SWITCH SENSE

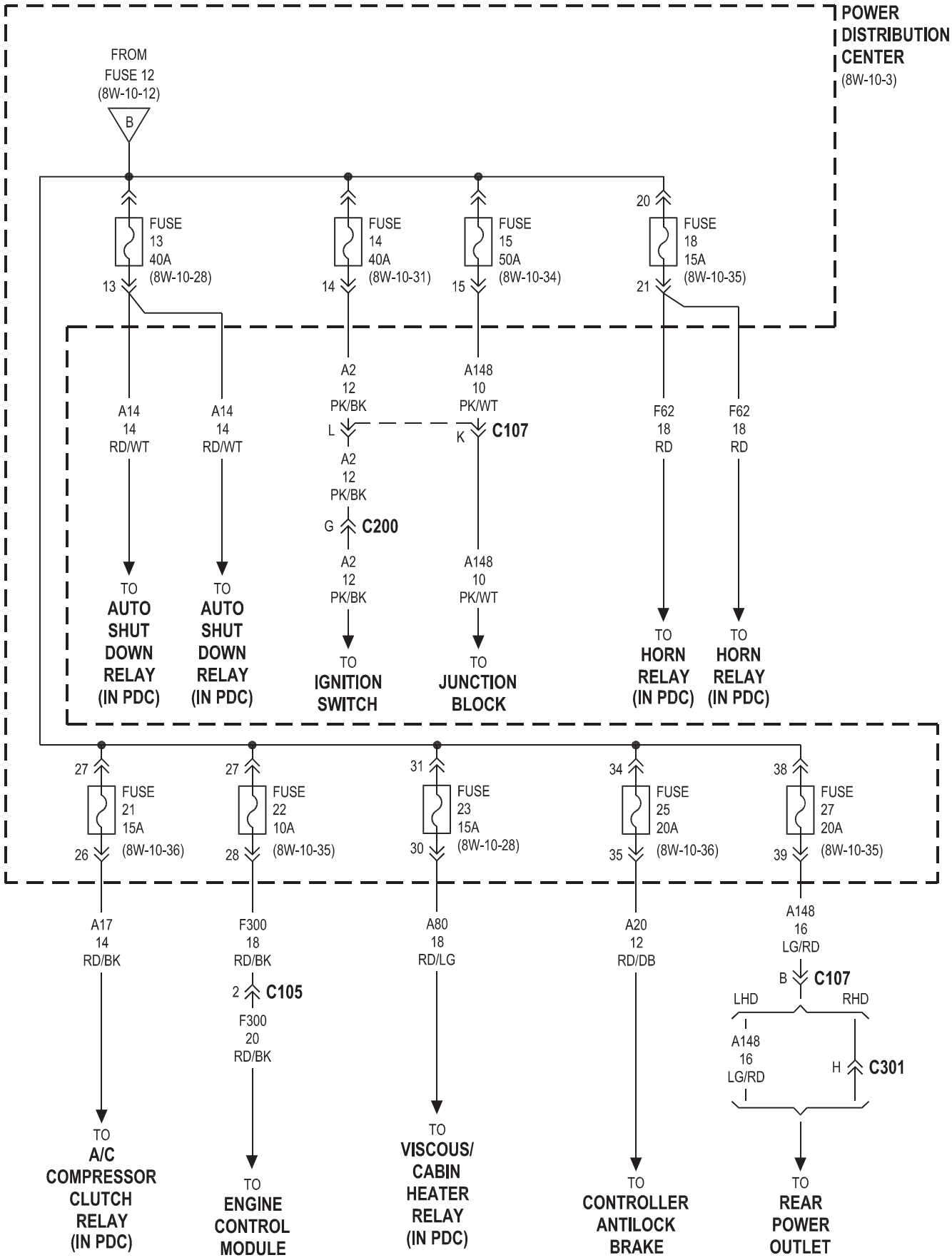
▽ GAS
▽▽ DIESEL

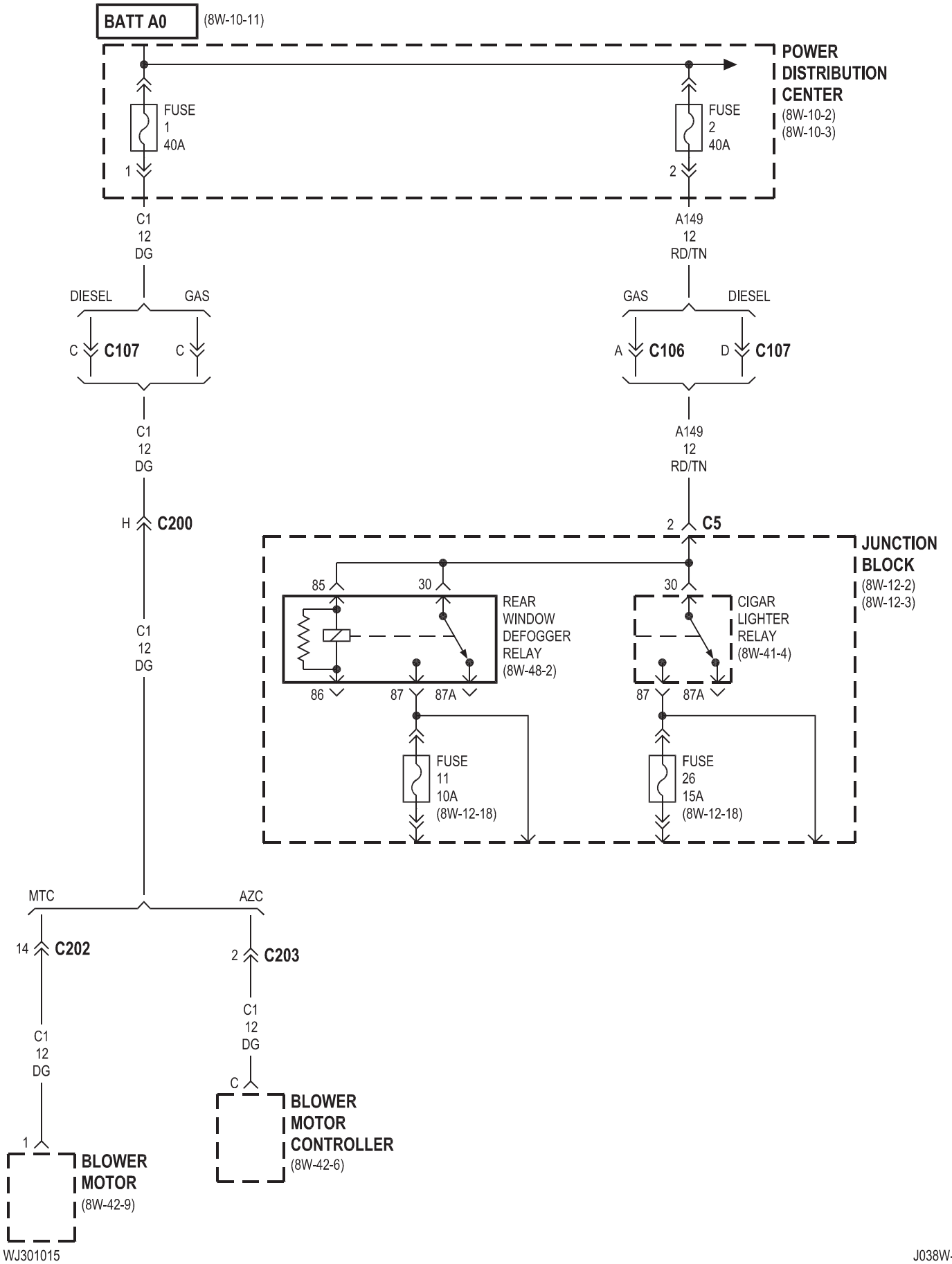
GAS


S100
A11
6
RD
GENERATOR
A0 6RD
BATTERY
(8W-20-2)
(8W-20-3)
FUSIBLE LINK
A11
10
DG
(8W-20-2)
(8W-20-3)
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE 1 40A (8W-10-15)
FUSE 2 40A (8W-10-15)
FUSE 3 50A (8W-10-16)
FUSE 4 40A (8W-10-17)
FUSE 5 30A (8W-10-17)
C1 12 DG
A149 12 RD/TN
A145 10 WT/RD
A10 12 RD/DG
A30 14 RD/WT
A30 14 RD/WT
C106
C200
MTC
AZC
C202
C203
C107
C102
LHD
RHD
A10 12 RD/DG
A10 10 RD/DG
TO BLOWER MOTOR
TO BLOWER MOTOR CONTROLLER
TO JUNCTION BLOCK
TO JUNCTION BLOCK
TO CONTROLLER ANTILOCK BRAKE
TO TRANSMISSION CONTROL MODULE (4.7L)
TO TRANSMISSION CONTROL RELAY (IN PDC)
FUSE 6 30A (8W-10-19) (8W-10-22)
FUSE 7 50A (8W-10-27)
FUSE 8 40A (8W-10-31)
FUSE 10 40A (8W-10-20) (8W-10-23)
FUSE 12 50A (8W-10-34)
FUSE 14 40A (8W-10-31)
TO FUSE 15 (PDC) (8W-10-13)
A14 14 RD/DG
A147 10 RD/GY
A1 12 RD
A16 12 GY
A146 10 OR/WT
A2 12 PK/BK
S127
(8W-10-31)
TO AUTO SHUT DOWN RELAY (IN PDC)
TO JUNCTION BLOCK
TO C106
TO RADIATOR FAN MOTOR RELAY (4.0L)
TO JUNCTION BLOCK
TO IGNITION SWITCH


A0 6RD
BATTERY
(8W-20-4)
FUSIBLE LINK
A11
10
DG
(8W-20-4)
S100
A11
6
RD
GENERATOR
(8W-20-4)
POWER DISTRIBUTION CENTER
(8W-10-3)
FUSE 1 40A (8W-10-15)
FUSE 2 40A (8W-10-15)
FUSE 3 50A (8W-10-16)
FUSE 4 40A (8W-10-18)
FUSE 6 50A (8W-10-18)
C1 12 DG
A149 12 RD/TN
A145 10 WT/RD
A10 12 RD/DG
A105 10 DB/RD
C200
C107
MTC
AZC
C202
C203
C1 12 RD
TO BLOWER MOTOR
TO BLOWER MOTOR CONTROLLER
TO JUNCTION BLOCK
TO JUNCTION BLOCK
TO CONTROLLER ANTILOCK BRAKE
TO GLOW PLUG RELAY NO. 1 (IN PDC)
FUSE 7 50A (8W-10-27)
FUSE 8 40A (8W-10-31)
FUSE 11 50A (8W-10-18)
FUSE 12 50A (8W-10-34)
B
TO FUSE 13 (8W-10-14)
A147 10 RD/GY
A1 12 RD
A110 10 VT/RD
A146 10 OR/WT
S127
(8W-10-31)
TO JUNCTION BLOCK
TO C107
TO GLOW PLUG RELAY NO. 2 (IN PDC)
TO JUNCTION BLOCK

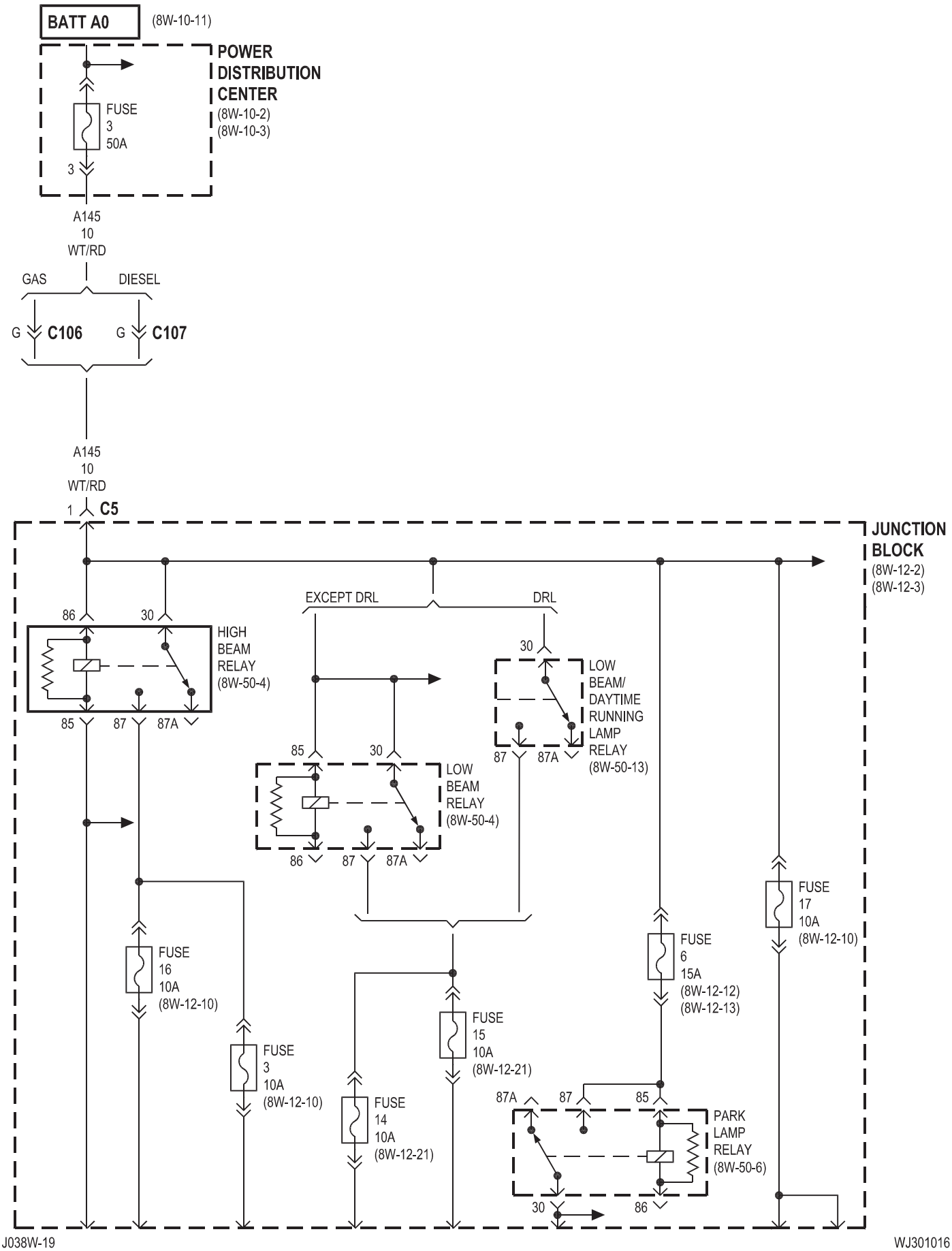

POWER DISTRIBUTION CENTER
(8W-10-2)
FROM FUSE 14 (8W-10-11)
A
FUSE 15 50A (8W-10-34)
15
FUSE 18 15A (8W-10-35)
20
21
FUSE 19 10A (8W-10-19) (8W-10-22)
22
23
A148 10 PK/WT
K C106
A148 10 PK/WT
TO JUNCTION BLOCK
F62 18 RD
TO HORN RELAY (IN PDC)
F62 18 RD
TO HORN RELAY (IN PDC)
A7 14 RD/BK
4.0L RHD/ 4.7L
4.0L LHD
5 C102
5 C104
A7 14 RD/BK
TO POWERTRAIN CONTROL MODULE
27
FUSE 21 15A (8W-10-36)
26
33
FUSE 24 20A (8W-10-36)
32
34
FUSE 25 20A (8W-10-36)
35
38
FUSE 27 20A (8W-10-35)
39
A17 18 RD/BK
TO A/C COMPRESSOR CLUTCH RELAY (IN PDC)
RHD
LHD
A62 16 VT/WT
A62 16 VT/LB
TO FUEL PUMP RELAY (IN PDC)
A20 12 RD/DB
M C106
A20 14 RD/DB
M C107
A20 12 RD/DB
TO CONTROLLER ANTILOCK BRAKE
A148 16 LG/RD
B C106
RHD
LHD
A148 16 LG/RD
4 C301
A148 16 LG/RD
TO REAR POWER OUTLET


POWER DISTRIBUTION CENTER (8W-10-3)
FROM FUSE 12 (8W-10-12)
B
FUSE 13 40A (8W-10-28)
13
FUSE 14 40A (8W-10-31)
14
FUSE 15 50A (8W-10-34)
15
20
FUSE 18 15A (8W-10-35)
21
A14 14 RD/WT
A14 14 RD/WT
A2 12 PK/BK
L
A2 12 PK/BK
G C200
A2 12 PK/BK
A148 10 PK/WT
K C107
A148 10 PK/WT
F62 18 RD
F62 18 RD
TO AUTO SHUT DOWN RELAY (IN PDC)
TO AUTO SHUT DOWN RELAY (IN PDC)
TO IGNITION SWITCH
TO JUNCTION BLOCK
TO HORN RELAY (IN PDC)
TO HORN RELAY (IN PDC)
27
FUSE 21 15A
26
(8W-10-36)
27
FUSE 22 10A
28
(8W-10-35)
31
FUSE 23 15A
30
(8W-10-28)
34
FUSE 25 20A
35
(8W-10-36)
38
FUSE 27 20A
39
(8W-10-35)
A17 14 RD/BK
F300 18 RD/BK
2 C105
F300 20 RD/BK
A80 18 RD/LG
A20 12 RD/DB
A148 16 LG/RD
B C107
LHD
RHD
A148 16 LG/RD
H C301
TO A/C COMPRESSOR CLUTCH RELAY (IN PDC)
TO ENGINE CONTROL MODULE
TO VISCOUS/ CABIN HEATER RELAY (IN PDC)
TO CONTROLLER ANTILOCK BRAKE
TO REAR POWER OUTLET



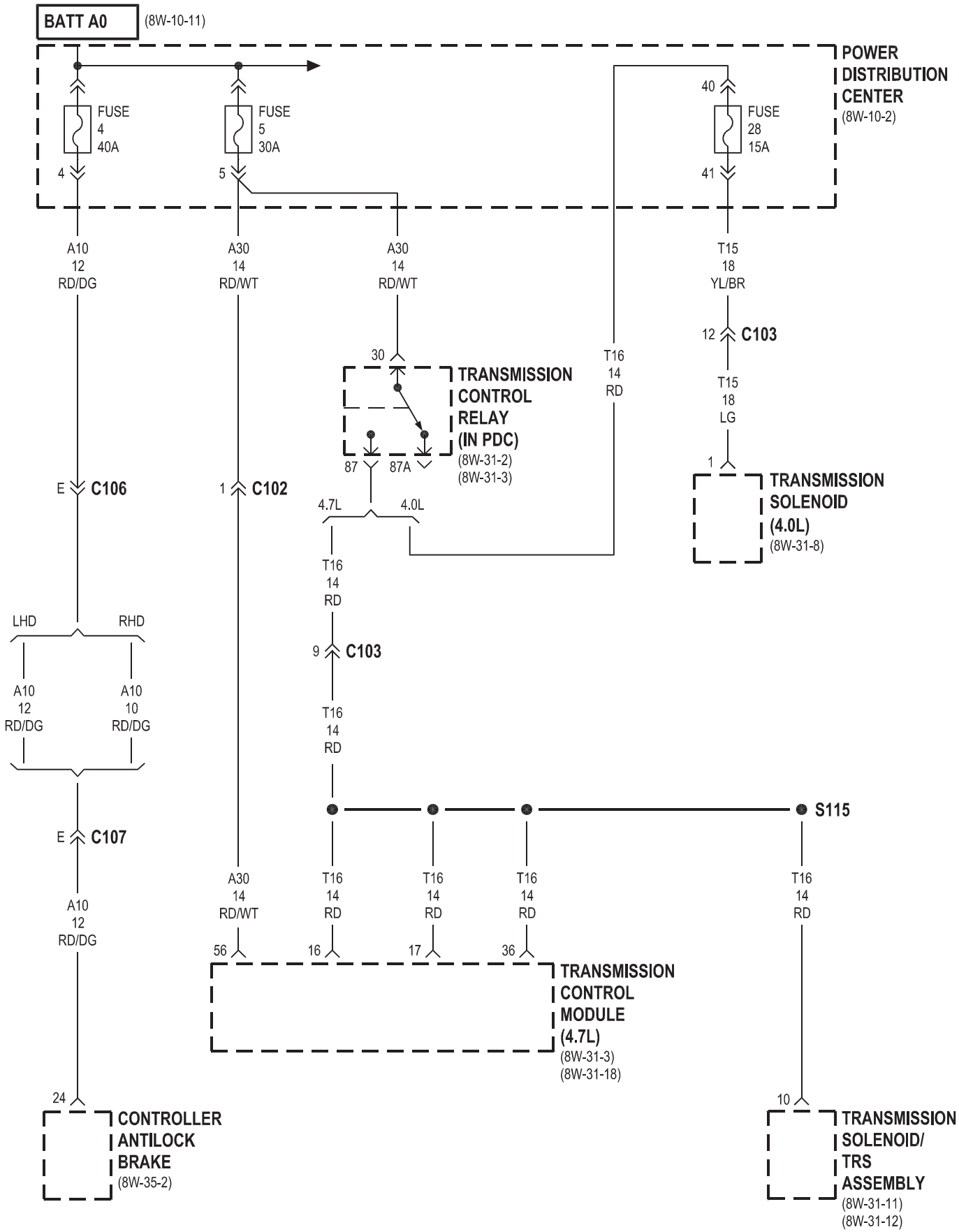
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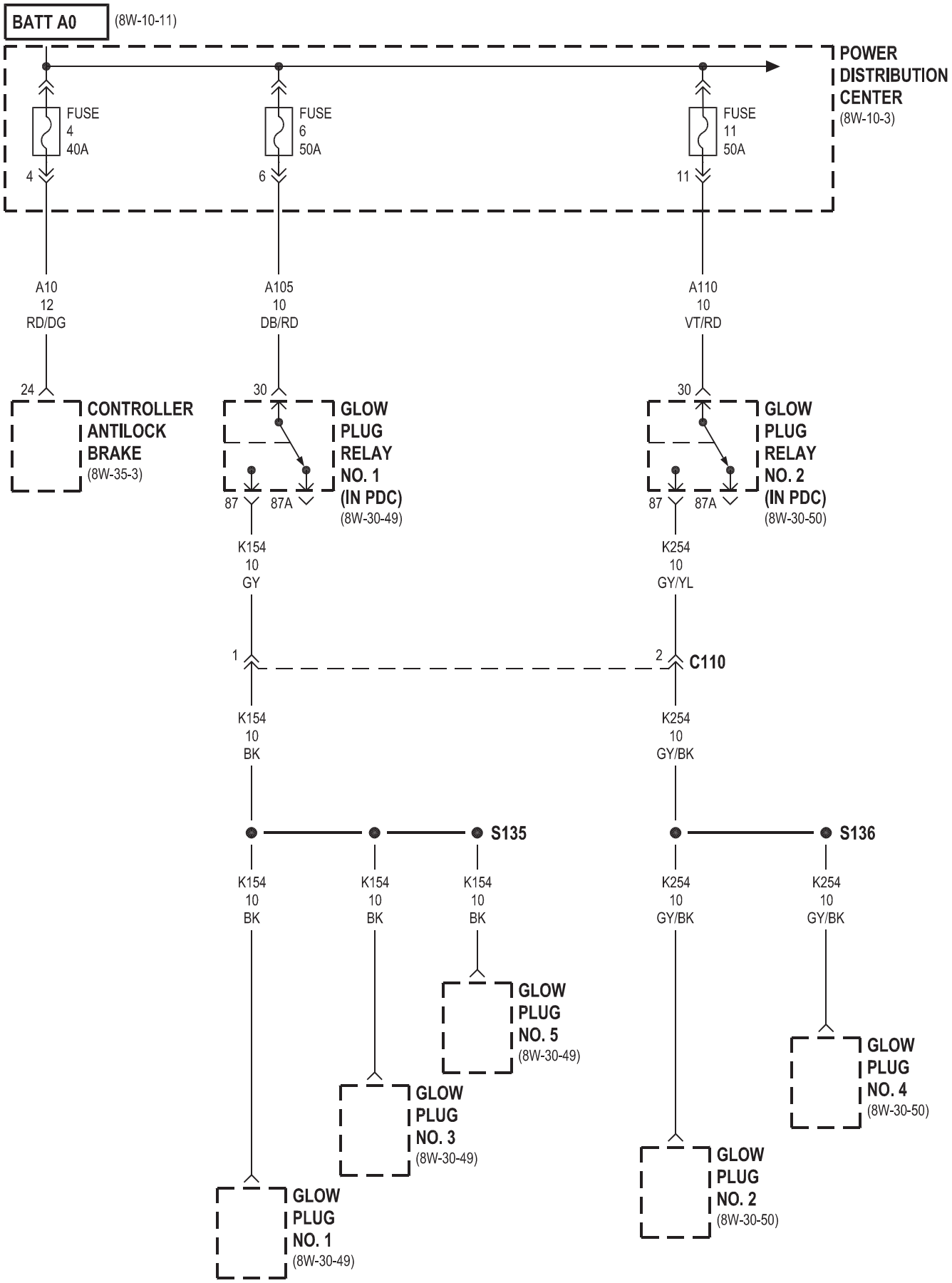
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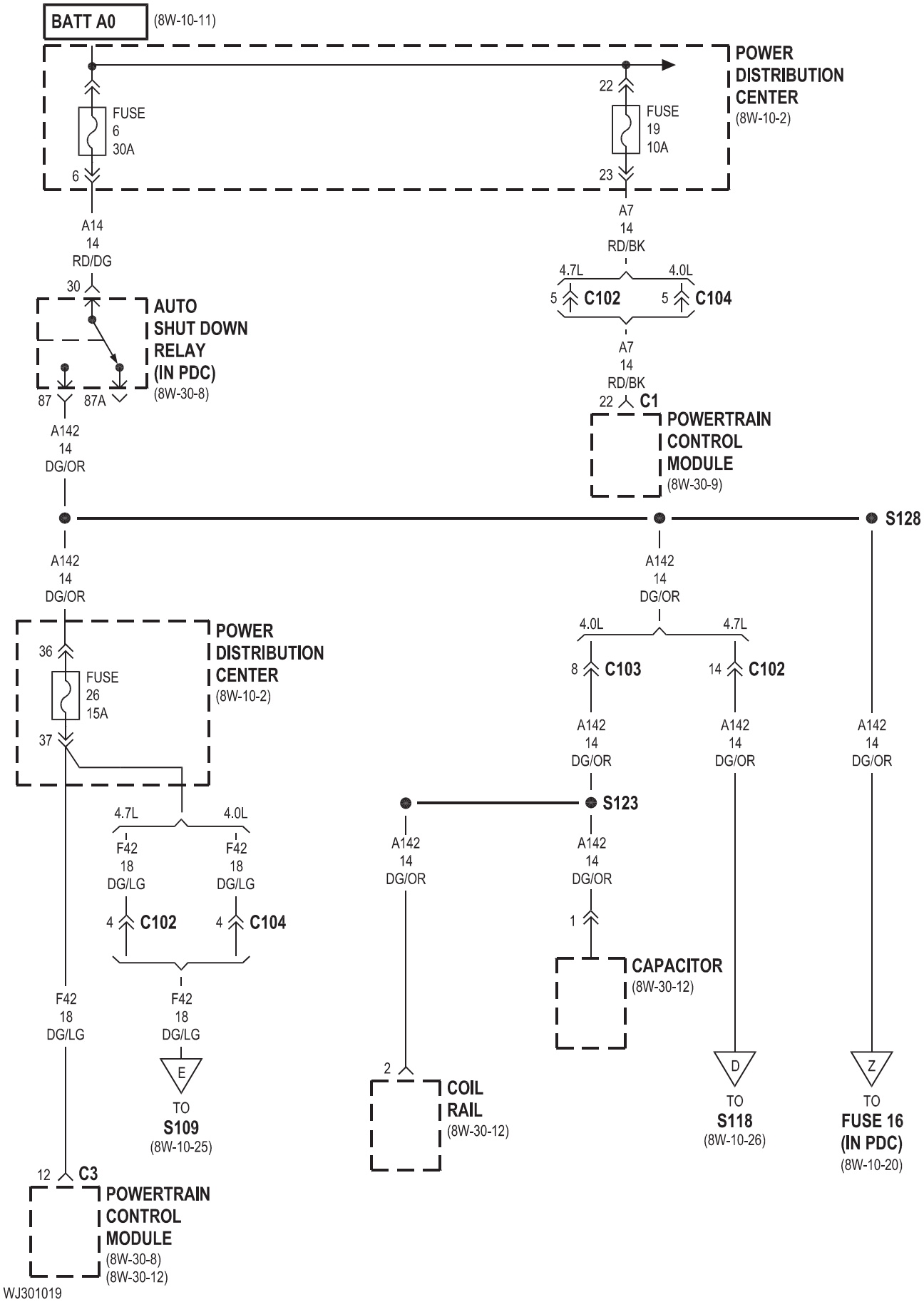


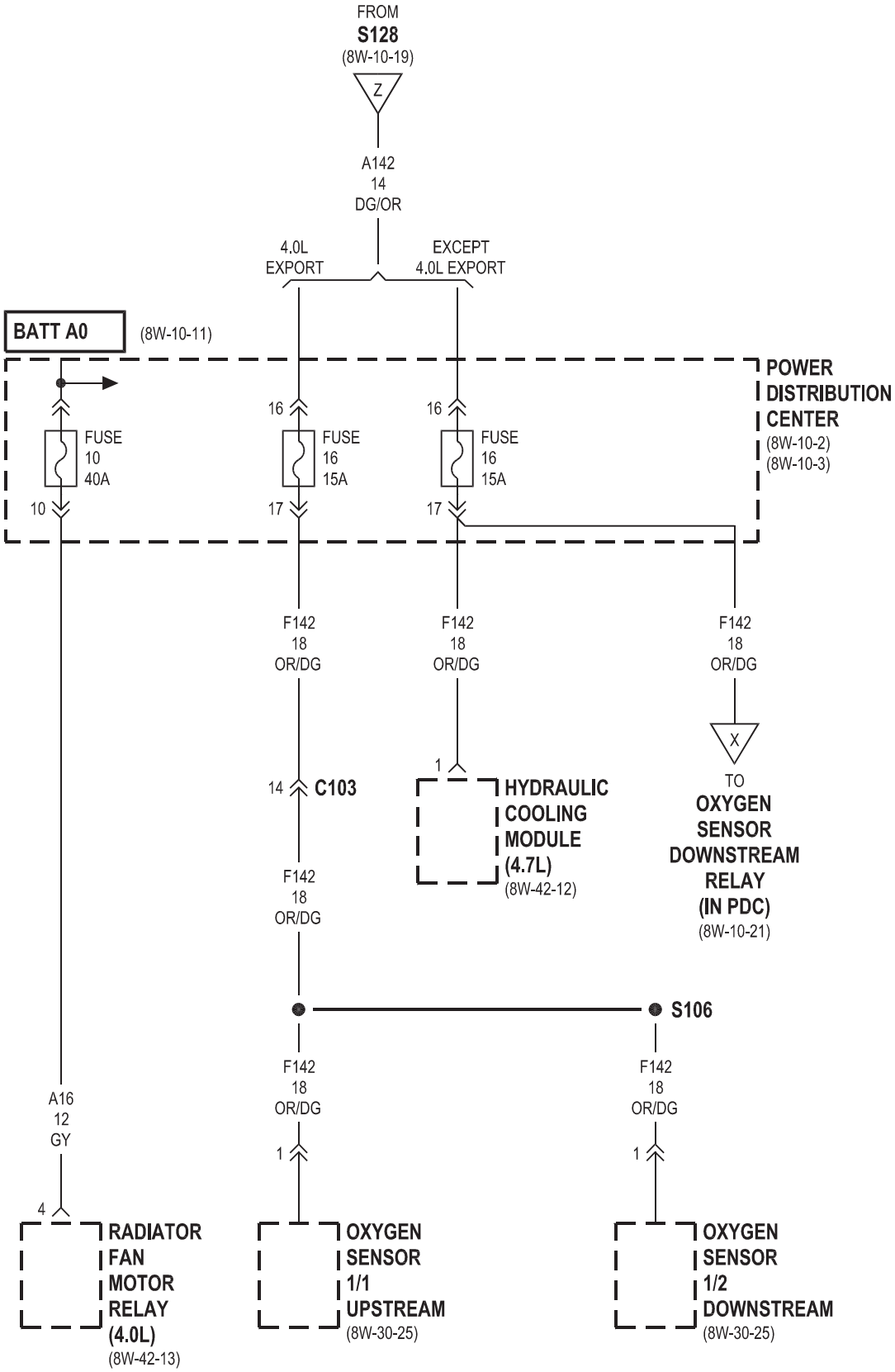
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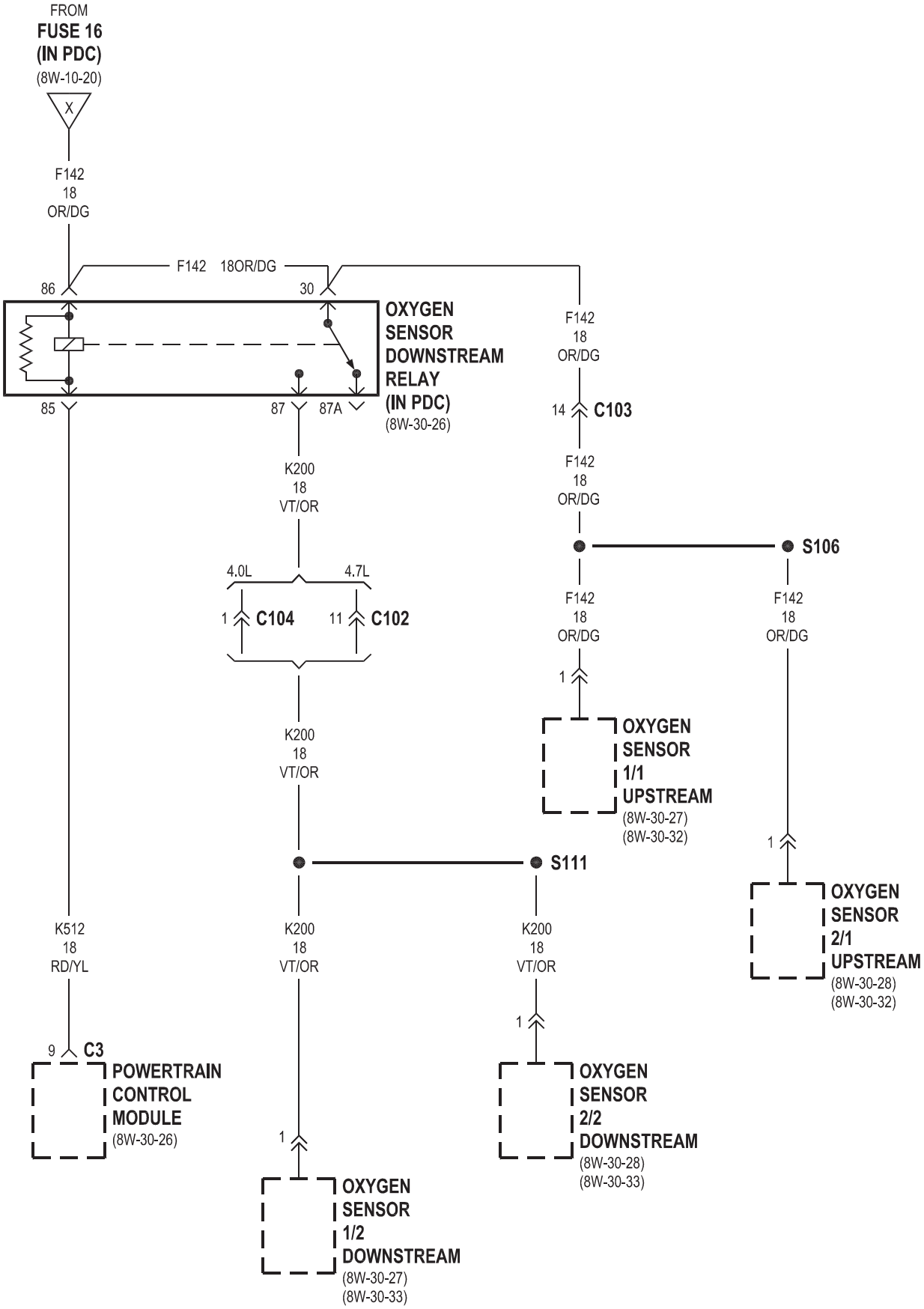

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE 4 40A
FUSE 5 30A
FUSE 28 15A
4
5
40
41
A10 12 RD/DG
A30 14 RD/WT
A30 14 RD/WT
T15 18 YL/BR
12 C103
T15 18 LG
1
30
TRANSMISSION CONTROL RELAY (IN PDC)
(8W-31-2)
(8W-31-3)
87
87A
T16 14 RD
4.7L
4.0L
TRANSMISSION SOLENOID (4.0L)
(8W-31-8)
E C106
1 C102
LHD
RHD
A10 12 RD/DG
A10 10 RD/DG
9 C103
T16 14 RD
S115
E C107
A10 12 RD/DG
A30 14 RD/WT
T16 14 RD
T16 14 RD
T16 14 RD
T16 14 RD
56
16
17
36
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-3)
(8W-31-18)
24
CONTROLLER ANTILOCK BRAKE
(8W-35-2)
10
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-11)
(8W-31-12)

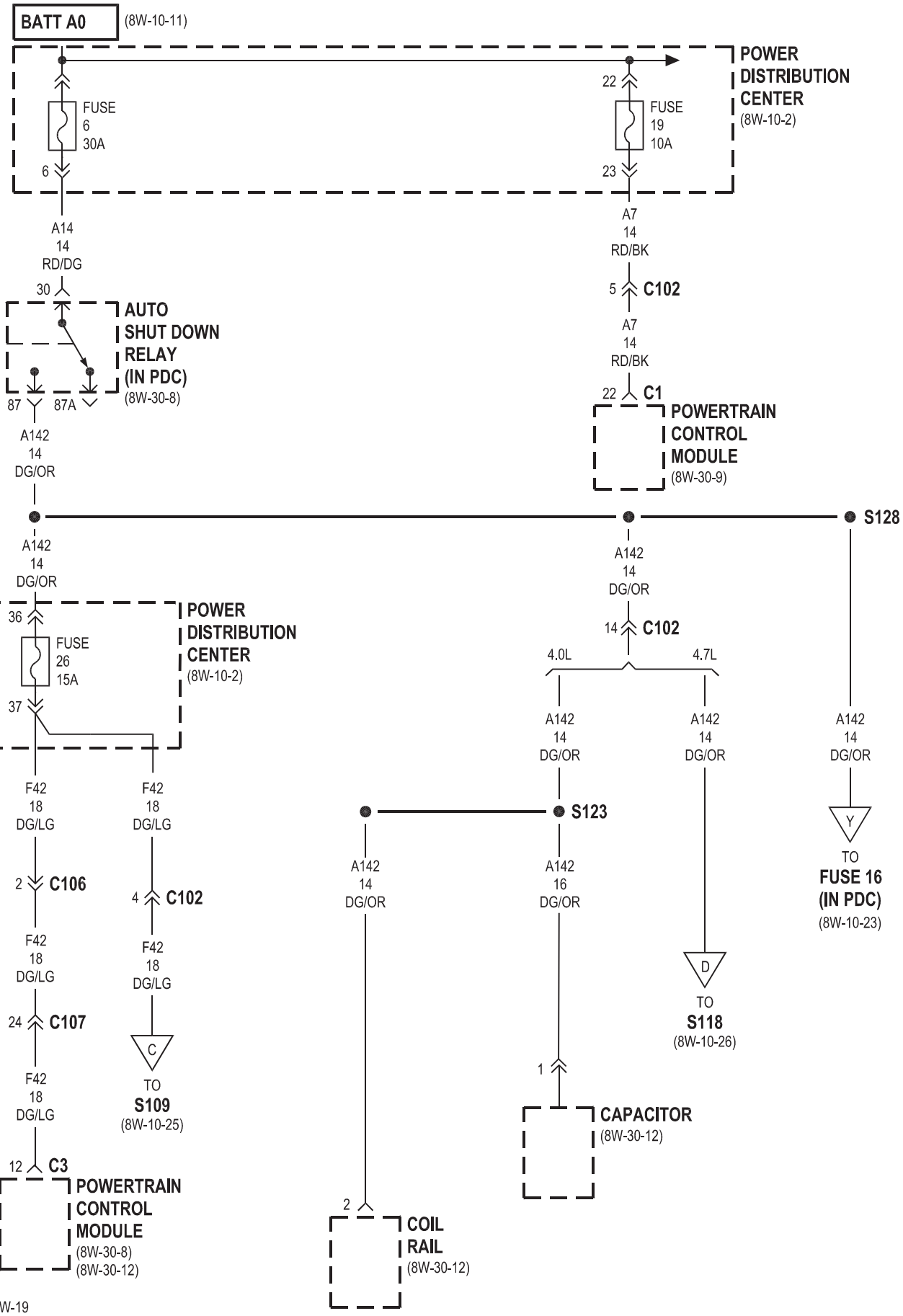

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
FUSE 4 40A
FUSE 6 50A
FUSE 11 50A
4
6
11
A10 12 RD/DG
A105 10 DB/RD
A110 10 VT/RD
24
30
30
CONTROLLER ANTILOCK BRAKE
(8W-35-3)
GLOW PLUG RELAY NO. 1 (IN PDC)
(8W-30-49)
GLOW PLUG RELAY NO. 2 (IN PDC)
(8W-30-50)
87
87A
87
87A
K154 10 GY
K254 10 GY/YL
1
2
C110
K154 10 BK
K254 10 GY/BK
S135
S136
K154 10 BK
K154 10 BK
K154 10 BK
K254 10 GY/BK
K254 10 GY/BK
GLOW PLUG NO. 5
(8W-30-49)
GLOW PLUG NO. 3
(8W-30-49)
GLOW PLUG NO. 1
(8W-30-49)
GLOW PLUG NO. 2
(8W-30-50)
GLOW PLUG NO. 4
(8W-30-50)

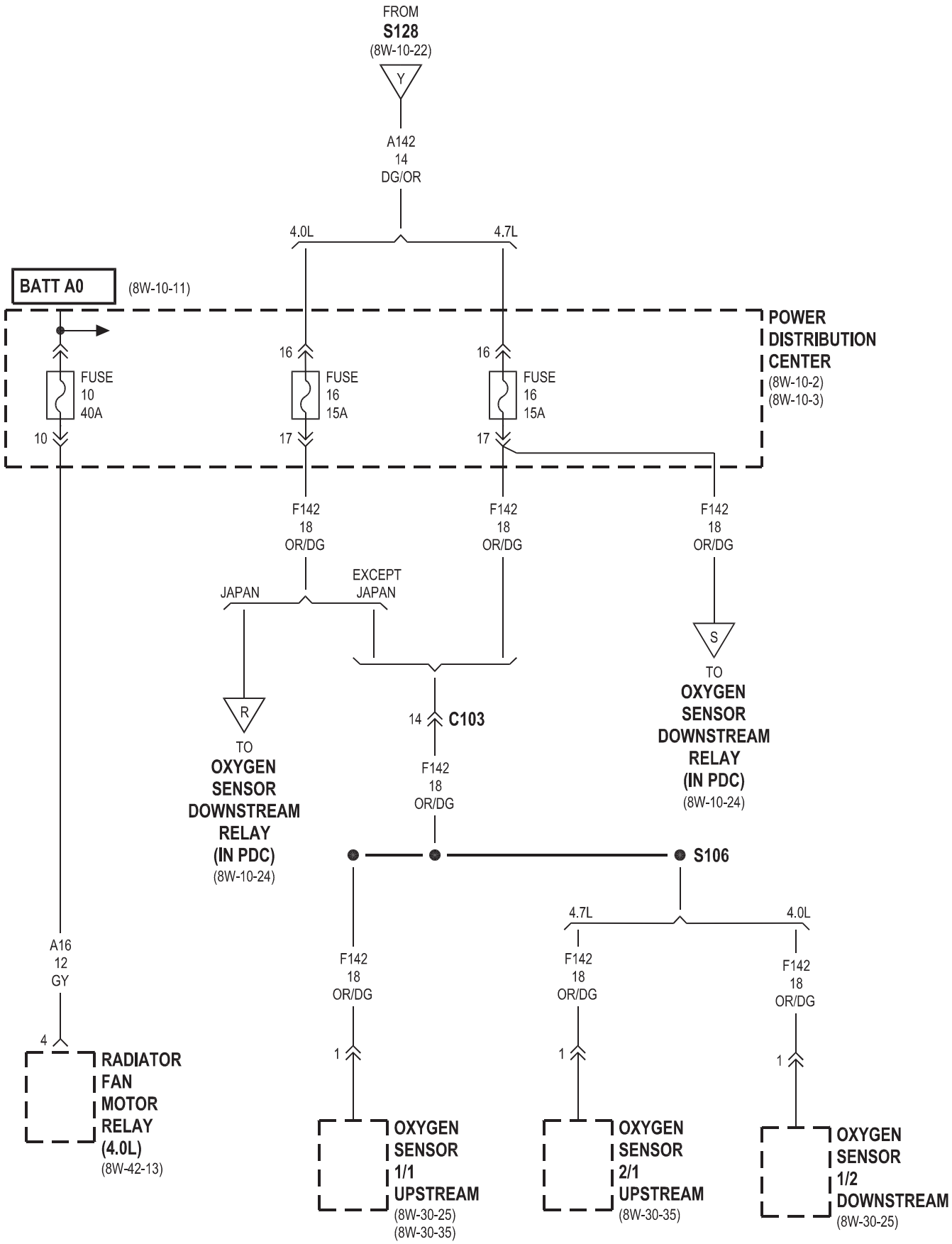

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE 6 30A
FUSE 19 10A
6
22
23
A14 14 RD/DG
A7 14 RD/BK
30
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-8)
87
87A
4.7L
4.0L
5 C102
5 C104
A142 14 DG/OR
A7 14 RD/BK
22 C1
POWERTRAIN CONTROL MODULE
(8W-30-9)
S128
36
FUSE 26 15A
37
POWER DISTRIBUTION CENTER
(8W-10-2)
F42 18 DG/LG
4 C102
4 C104
E
TO S109
(8W-10-25)
12 C3
POWERTRAIN CONTROL MODULE
(8W-30-8)
(8W-30-12)
8 C103
14 C102
S123
1
CAPACITOR
(8W-30-12)
2
COIL RAIL
(8W-30-12)
D
TO S118
(8W-10-26)
Z
TO FUSE 16 (IN PDC)
(8W-10-20)


FROM
S128
(8W-10-19)
Z
A142
14
DG/OR
4.0L
EXPORT
EXCEPT
4.0L EXPORT
BATT A0
(8W-10-11)
POWER
DISTRIBUTION
CENTER
(8W-10-2)
(8W-10-3)
16
FUSE
10
40A
10
16
FUSE
16
15A
17
16
FUSE
16
15A
17
F142
18
OR/DG
F142
18
OR/DG
F142
18
OR/DG
X
TO
OXYGEN
SENSOR
DOWNSTREAM
RELAY
(IN PDC)
(8W-10-21)
1
14
C103
HYDRAULIC
COOLING
MODULE
(4.7L)
(8W-42-12)
F142
18
OR/DG
S106
A16
12
GY
4
RADIATOR
FAN
MOTOR
RELAY
(4.0L)
(8W-42-13)
F142
18
OR/DG
1
OXYGEN
SENSOR
1/1
UPSTREAM
(8W-30-25)
F142
18
OR/DG
1
OXYGEN
SENSOR
1/2
DOWNSTREAM
(8W-30-25)

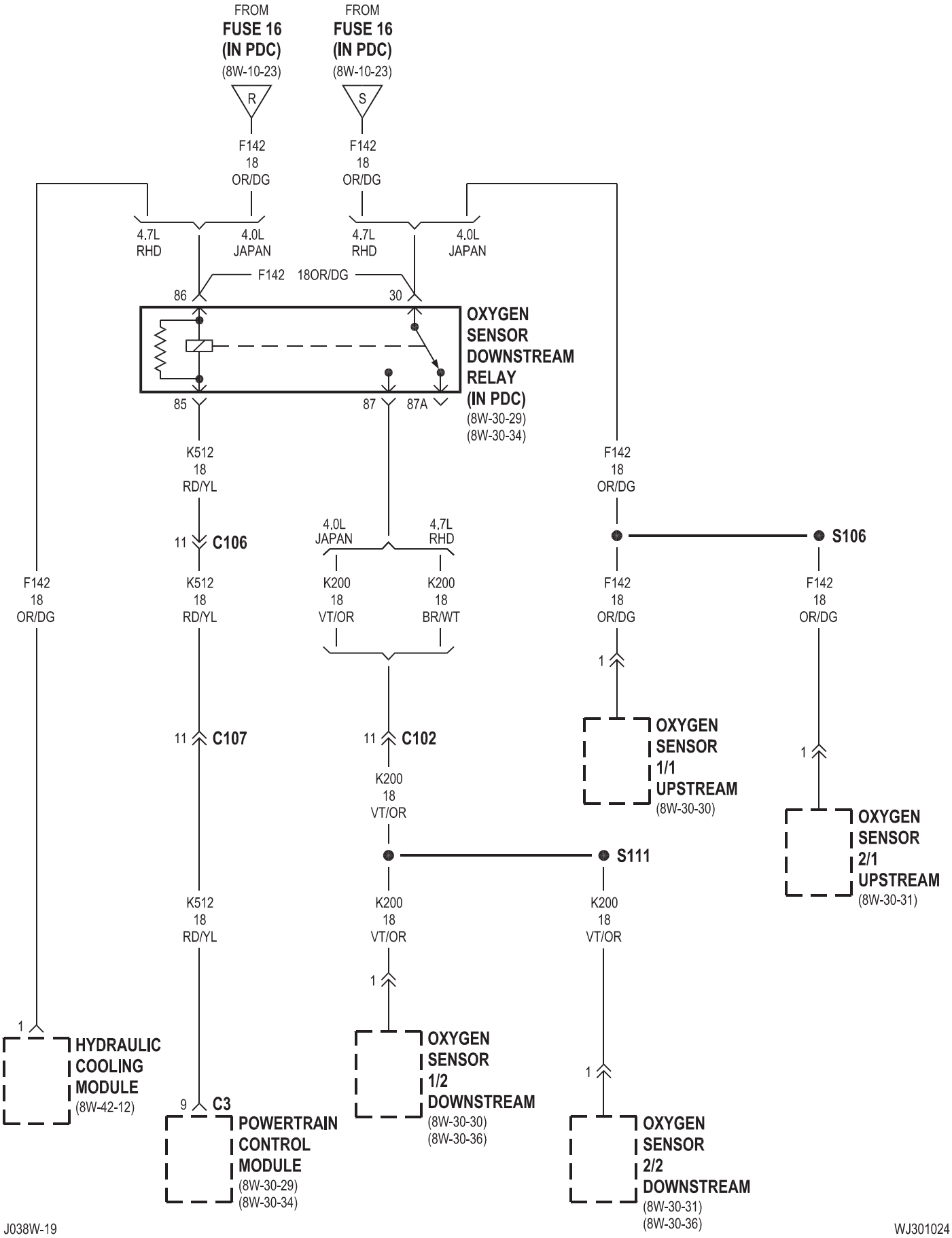
LHD GAS EXCEPT 4.0L EXPORT




BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE 6 30A
FUSE 19 10A
6
22
23
A14 14 RD/DG
A7 14 RD/BK
30
5 C102
A7 14 RD/BK
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-8)
87
87A
22 C1
POWERTRAIN CONTROL MODULE
(8W-30-9)
A142 14 DG/OR
S128
36
FUSE 26 15A
37
POWER DISTRIBUTION CENTER
(8W-10-2)
14 C102
4.0L
4.7L
F42 18 DG/LG
2 C106
4 C102
24 C107
C
TO S109
(8W-10-25)
S123
A142 16 DG/OR
1
CAPACITOR
(8W-30-12)
D
TO S118
(8W-10-26)
Y
TO FUSE 16 (IN PDC)
(8W-10-23)
12 C3
POWERTRAIN CONTROL MODULE
(8W-30-8)
(8W-30-12)
2
COIL RAIL
(8W-30-12)

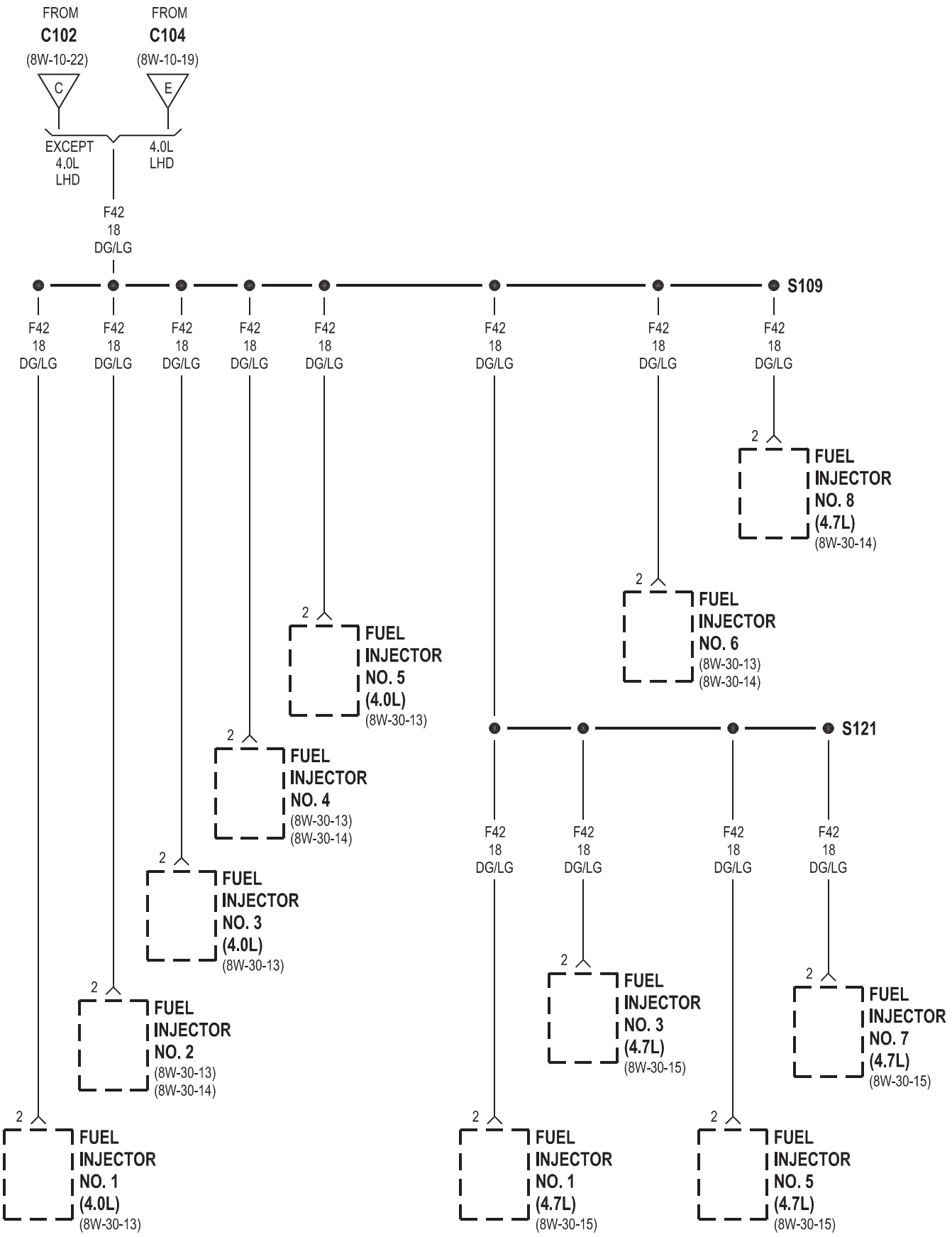

FROM
S128
(8W-10-22)
Y
A142
14
DG/OR
4.0L
4.7L
BATT A0
(8W-10-11)
POWER
DISTRIBUTION
CENTER
(8W-10-2)
(8W-10-3)
16
FUSE
10
40A
10
16
FUSE
16
15A
17
16
FUSE
16
15A
17
F142
18
OR/DG
F142
18
OR/DG
F142
18
OR/DG
JAPAN
EXCEPT
JAPAN
S
TO
OXYGEN
SENSOR
DOWNSTREAM
RELAY
(IN PDC)
(8W-10-24)
R
TO
OXYGEN
SENSOR
DOWNSTREAM
RELAY
(IN PDC)
(8W-10-24)
14
C103
F142
18
OR/DG
S106
A16
12
GY
4
RADIATOR
FAN
MOTOR
RELAY
(4.0L)
(8W-42-13)
4.7L
4.0L
F142
18
OR/DG
F142
18
OR/DG
F142
18
OR/DG
1
1
1
OXYGEN
SENSOR
1/1
UPSTREAM
(8W-30-25)
(8W-30-35)
OXYGEN
SENSOR
2/1
UPSTREAM
(8W-30-35)
OXYGEN
SENSOR
1/2
DOWNSTREAM
(8W-30-25)

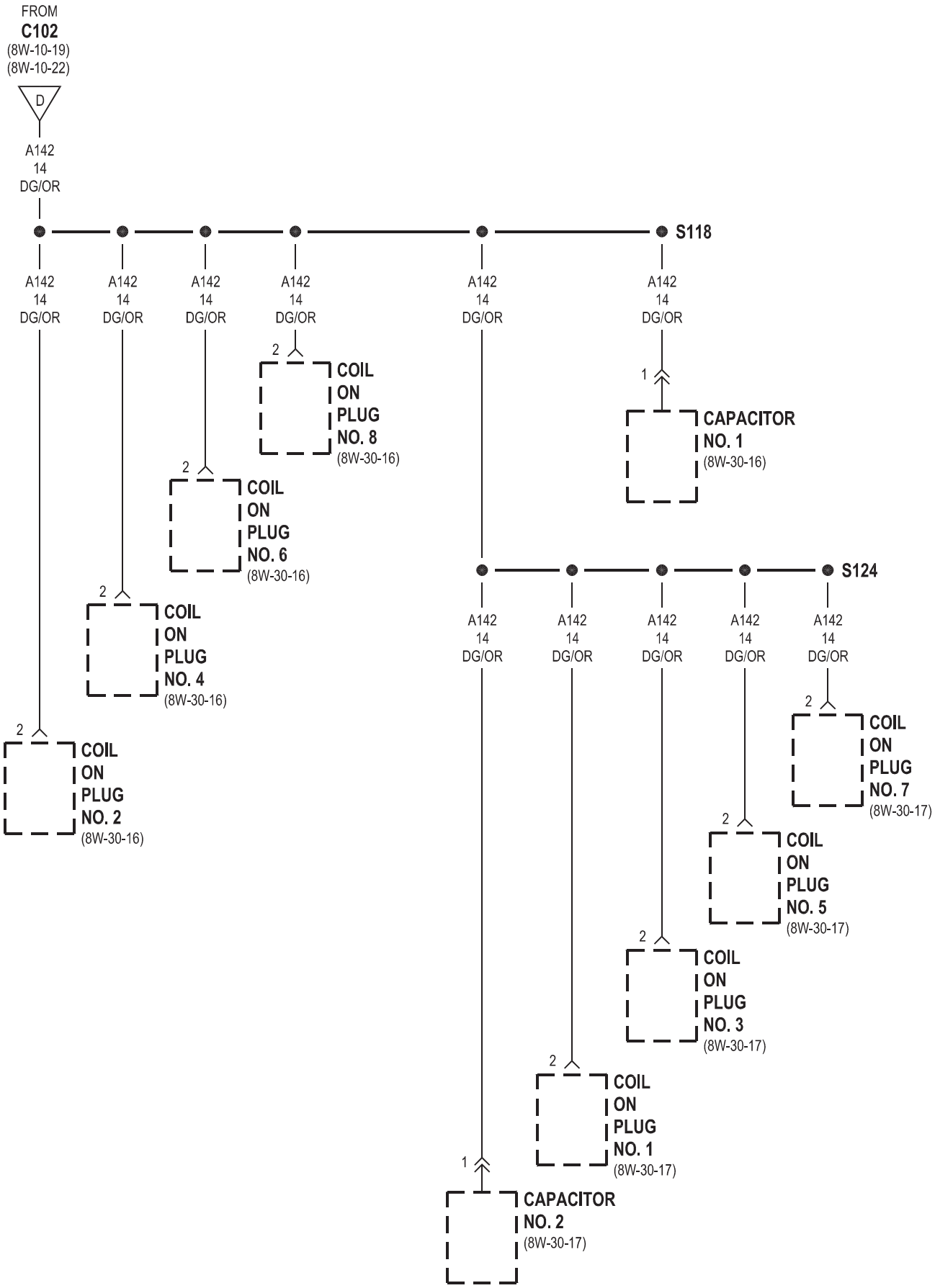
4.0L JAPAN/4.7L RHD

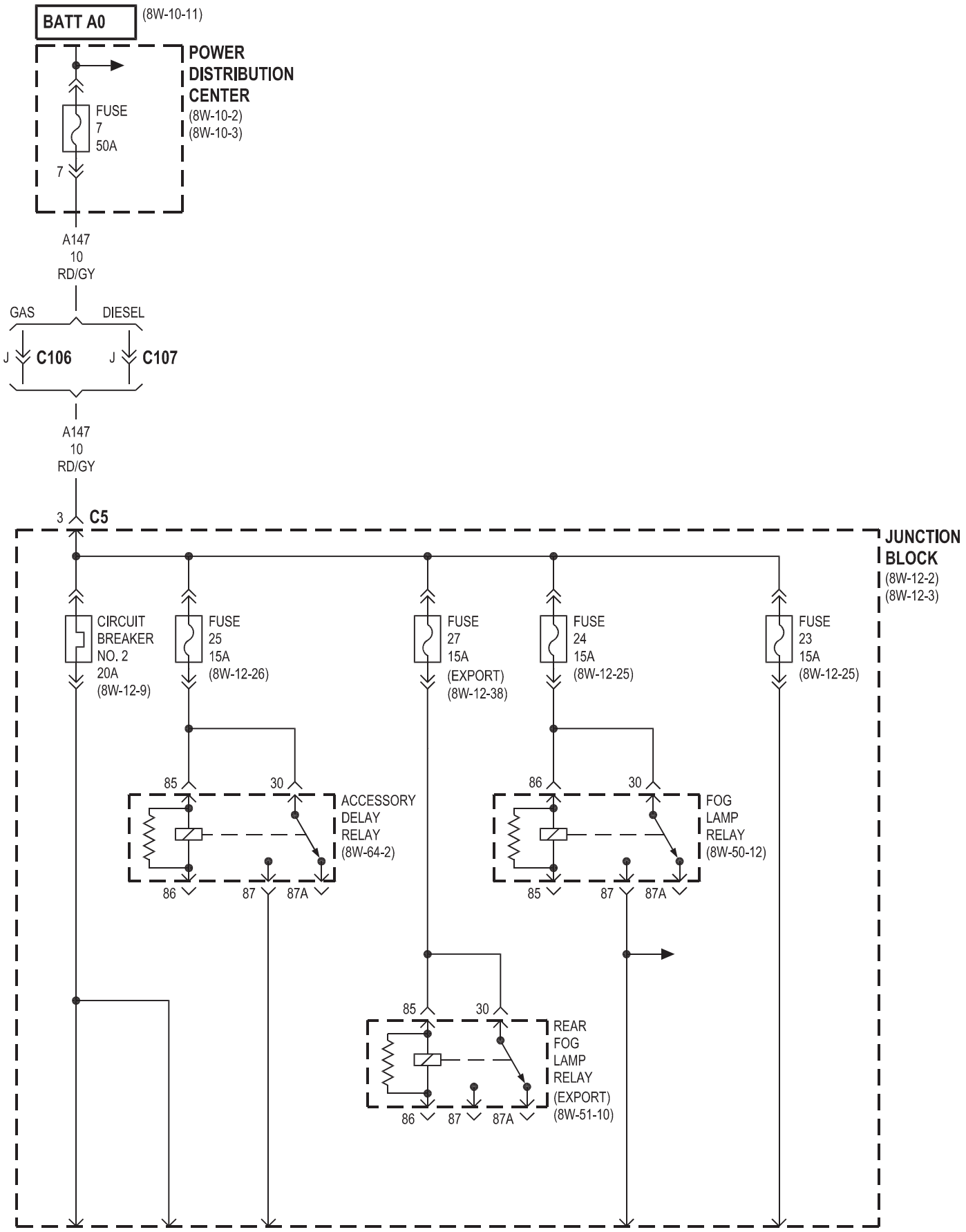


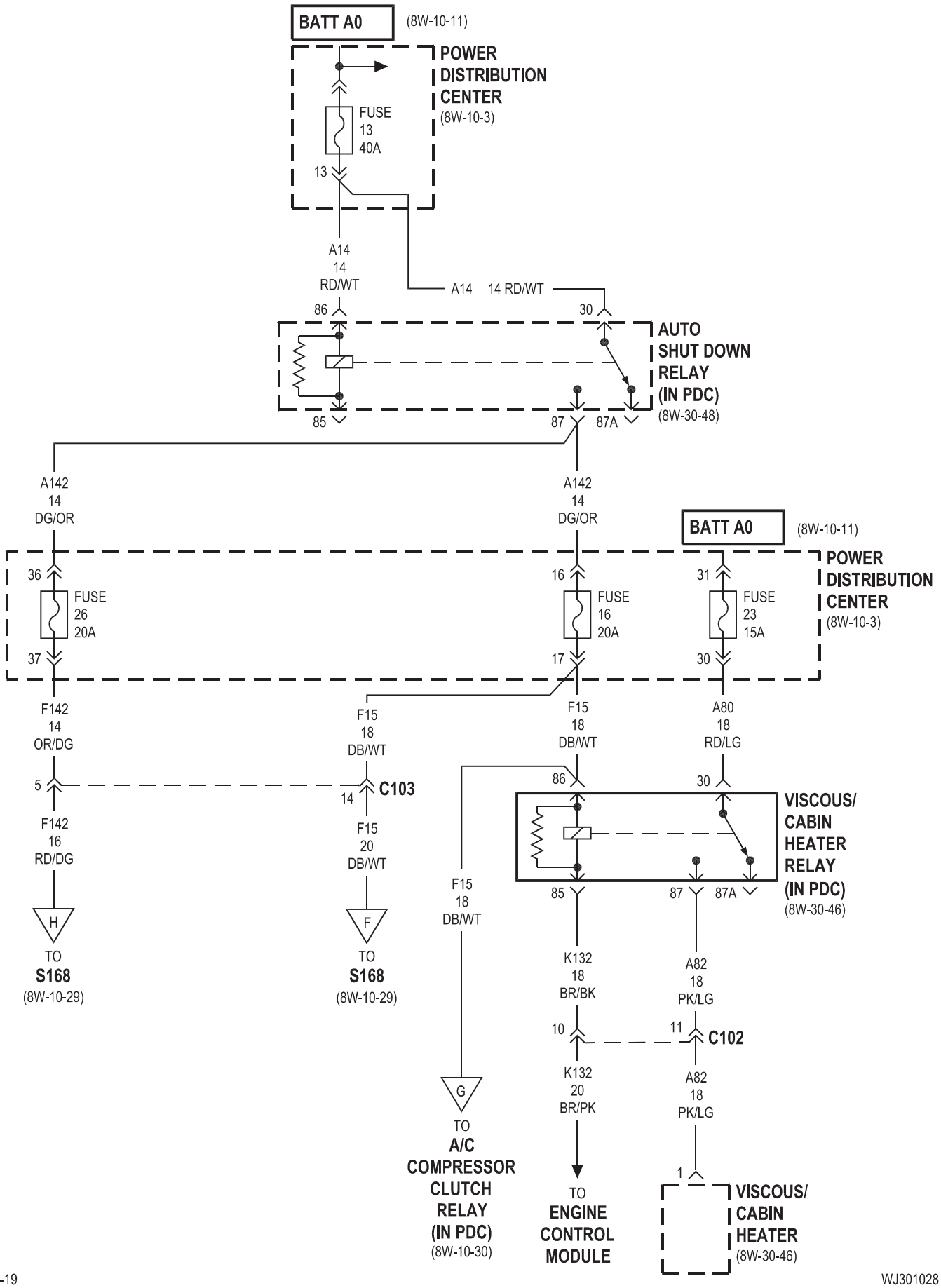
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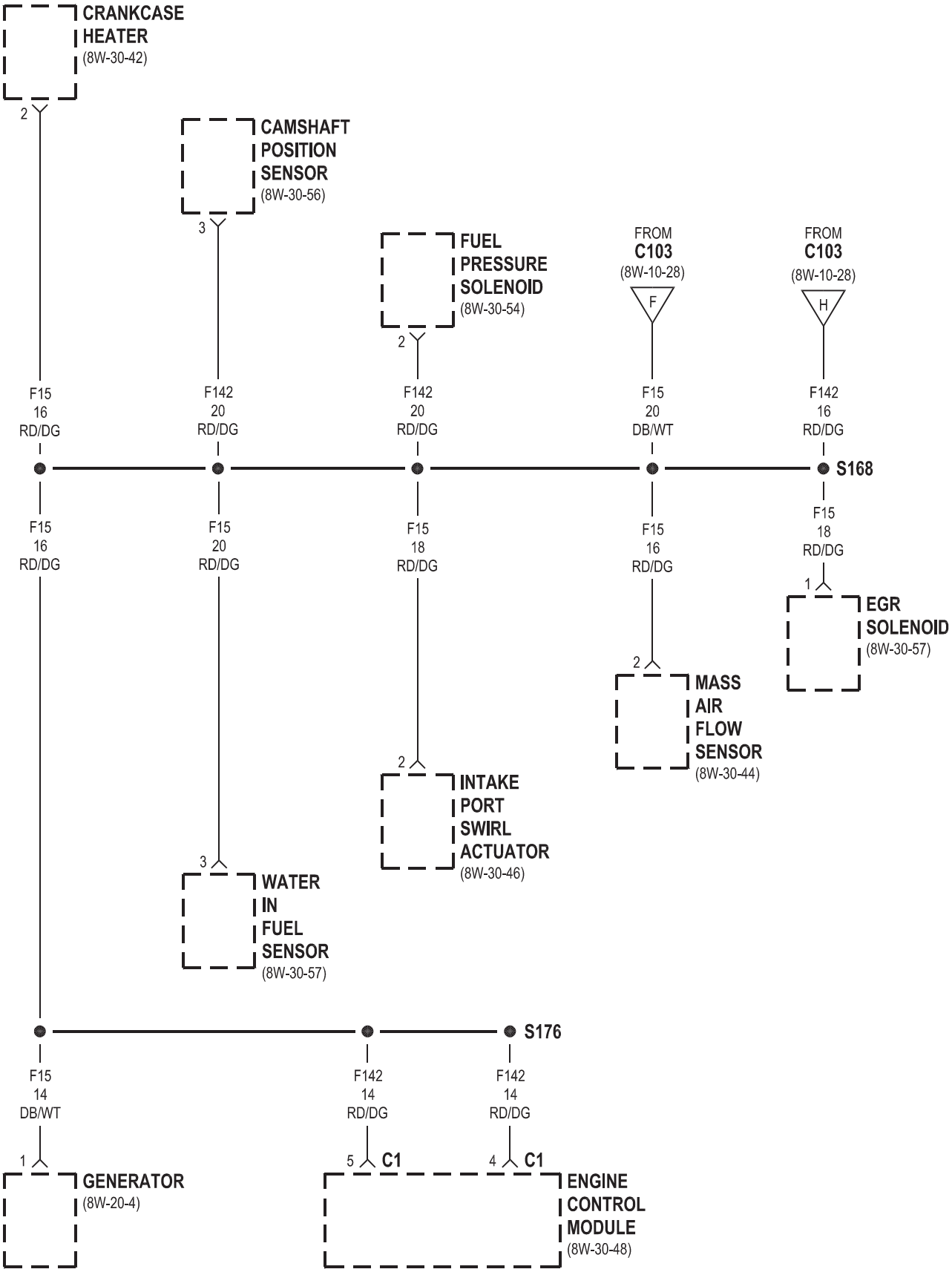
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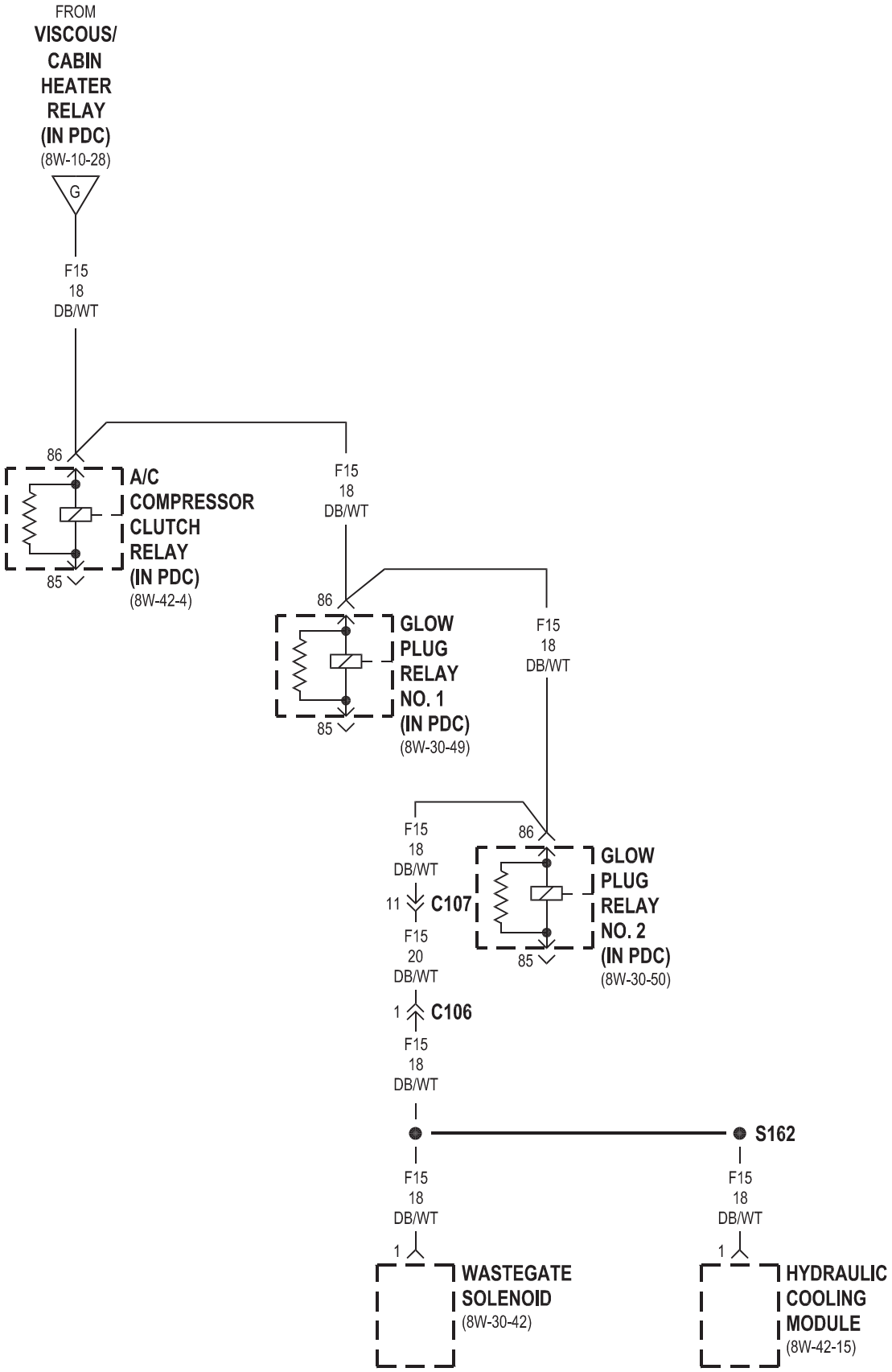

FROM
C102
(8W-10-22)
C
FROM
C104
(8W-10-19)
E
EXCEPT 4.0L LHD
4.0L LHD
F42
18
DG/LG
S109
S121
2
FUEL INJECTOR NO. 8 (4.7L)
(8W-30-14)
FUEL INJECTOR NO. 6
(8W-30-13)
(8W-30-14)
FUEL INJECTOR NO. 5 (4.0L)
(8W-30-13)
FUEL INJECTOR NO. 4
(8W-30-13)
(8W-30-14)
FUEL INJECTOR NO. 3 (4.0L)
(8W-30-13)
FUEL INJECTOR NO. 2
(8W-30-13)
(8W-30-14)
FUEL INJECTOR NO. 1 (4.0L)
(8W-30-13)
FUEL INJECTOR NO. 3 (4.7L)
(8W-30-15)
FUEL INJECTOR NO. 7 (4.7L)
(8W-30-15)
FUEL INJECTOR NO. 1 (4.7L)
(8W-30-15)
FUEL INJECTOR NO. 5 (4.7L)
(8W-30-15)

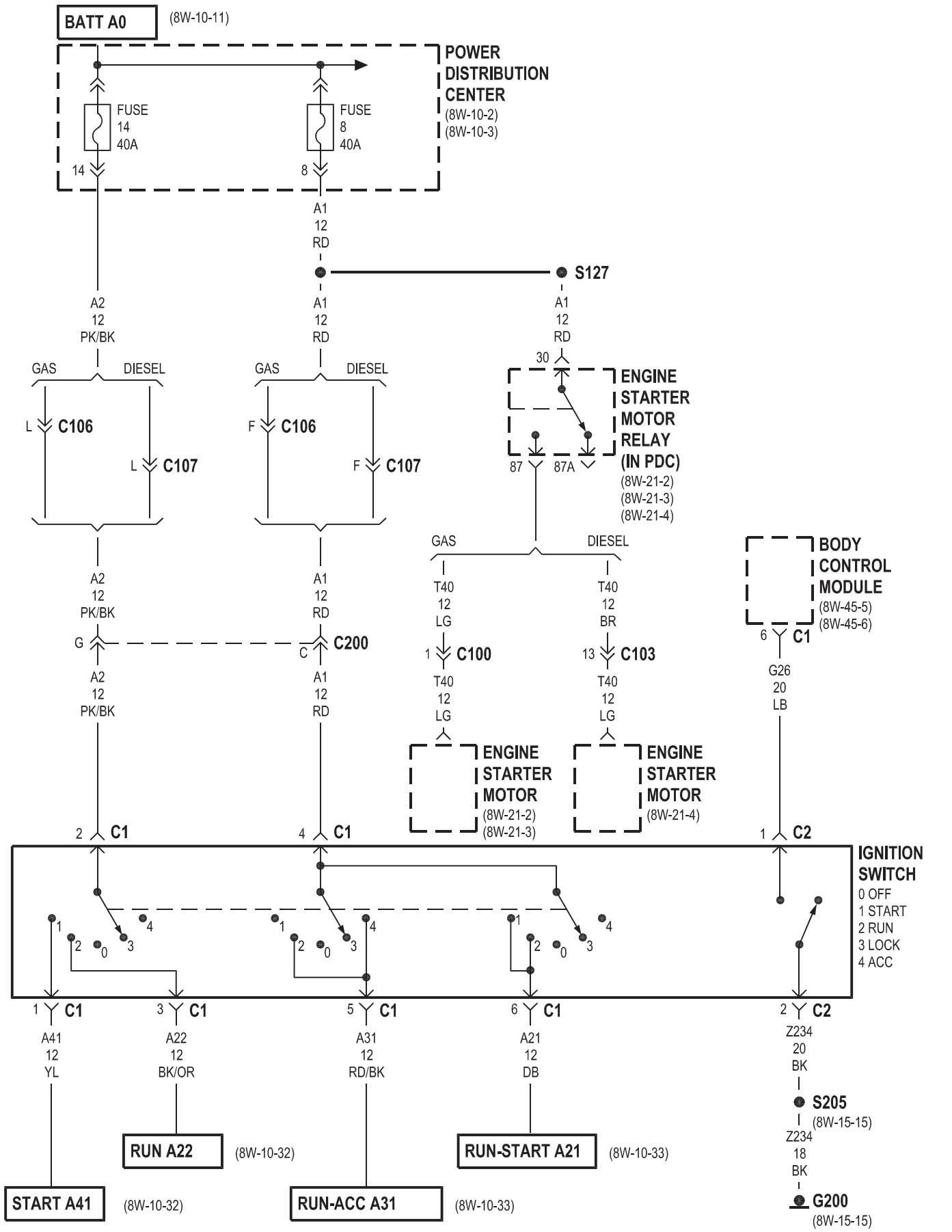

FROM
C102
(8W-10-19)
(8W-10-22)
D
A142
14
DG/OR
S118
A142
14
DG/OR
2
COIL
ON
PLUG
NO. 8
(8W-30-16)
2
COIL
ON
PLUG
NO. 6
(8W-30-16)
2
COIL
ON
PLUG
NO. 4
(8W-30-16)
2
COIL
ON
PLUG
NO. 2
(8W-30-16)
1
CAPACITOR
NO. 1
(8W-30-16)
S124
2
COIL
ON
PLUG
NO. 7
(8W-30-17)
2
COIL
ON
PLUG
NO. 5
(8W-30-17)
2
COIL
ON
PLUG
NO. 3
(8W-30-17)
2
COIL
ON
PLUG
NO. 1
(8W-30-17)
1
CAPACITOR
NO. 2
(8W-30-17)

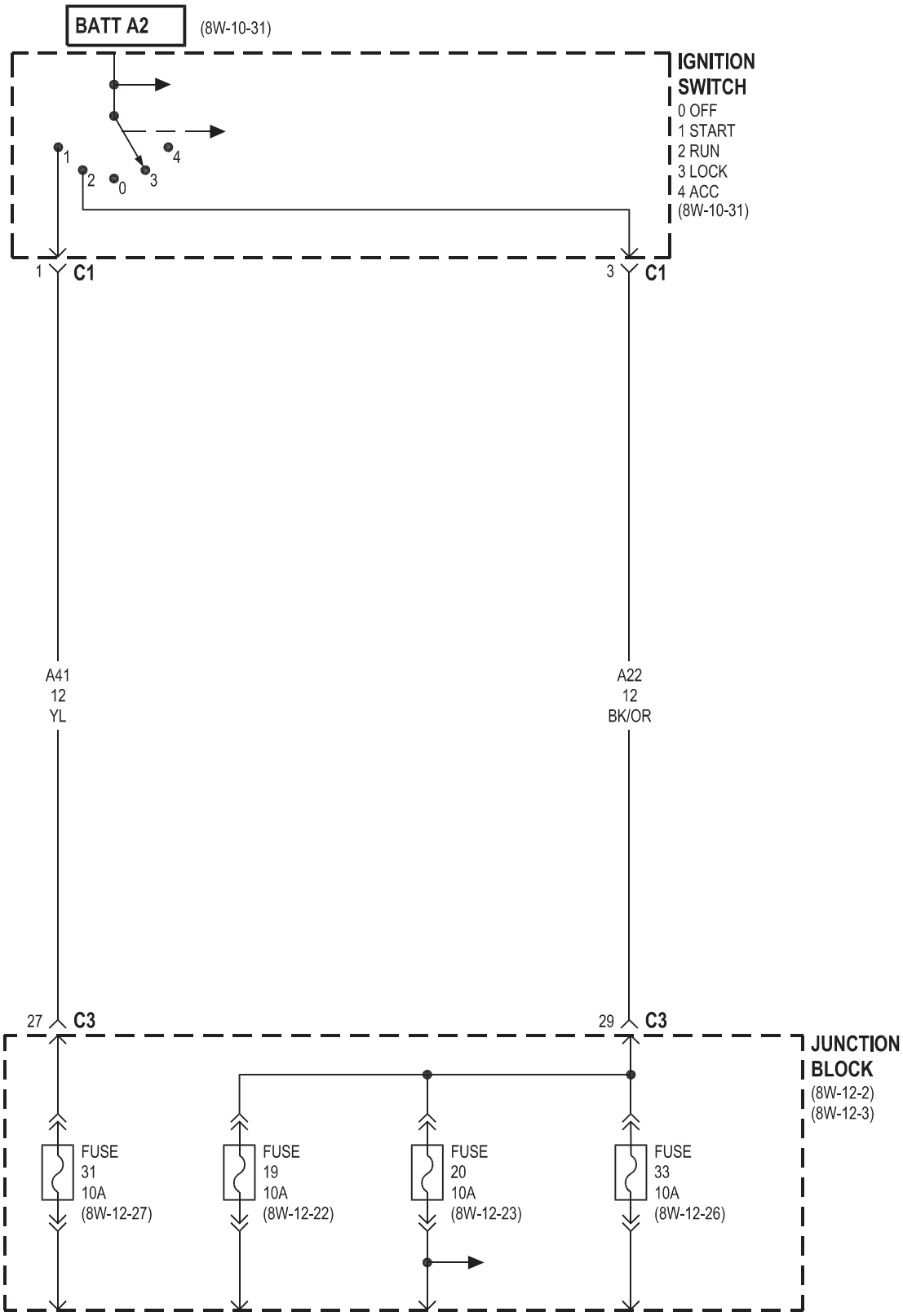

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 7 50A
7
A147 10 RD/GY
GAS
DIESEL
J C106
J C107
A147 10 RD/GY
3 C5
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
(8W-12-9)
FUSE 25 15A
(8W-12-26)
FUSE 27 15A (EXPORT)
(8W-12-38)
FUSE 24 15A
(8W-12-25)
FUSE 23 15A
(8W-12-25)
85
30
ACCESSORY DELAY RELAY
(8W-64-2)
86
87
87A
86
30
FOG LAMP RELAY
(8W-50-12)
85
87
87A
85
30
REAR FOG LAMP RELAY (EXPORT)
(8W-51-10)
86
87
87A

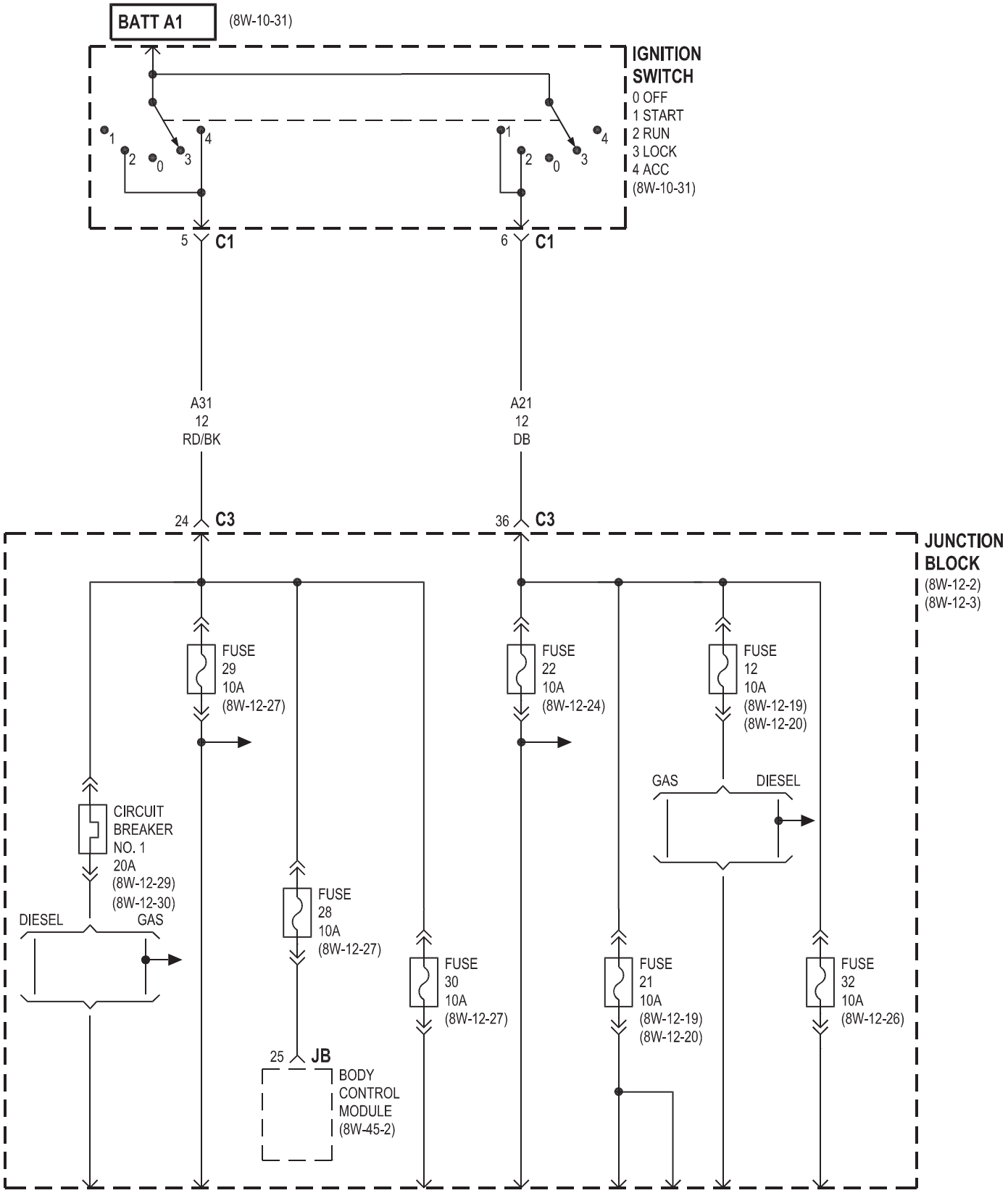

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
FUSE 13 40A
13
A14 14 RD/WT
A14 14 RD/WT
86
30
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-48)
85
87
87A
A142 14 DG/OR
A142 14 DG/OR
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
36
FUSE 26 20A
37
16
FUSE 16 20A
17
31
FUSE 23 15A
30
F142 14 OR/DG
F15 18 DB/WT
F15 18 DB/WT
A80 18 RD/LG
5
14
C103
86
30
VISCOUS/ CABIN HEATER RELAY (IN PDC)
(8W-30-46)
F142 16 RD/DG
F15 20 DB/WT
F15 18 DB/WT
85
87
87A
H
F
G
TO S168
(8W-10-29)
TO S168
(8W-10-29)
TO A/C COMPRESSOR CLUTCH RELAY (IN PDC)
(8W-10-30)
K132 18 BR/BK
A82 18 PK/LG
10
11
C102
K132 20 BR/PK
A82 18 PK/LG
TO ENGINE CONTROL MODULE
1
VISCOUS/ CABIN HEATER
(8W-30-46)

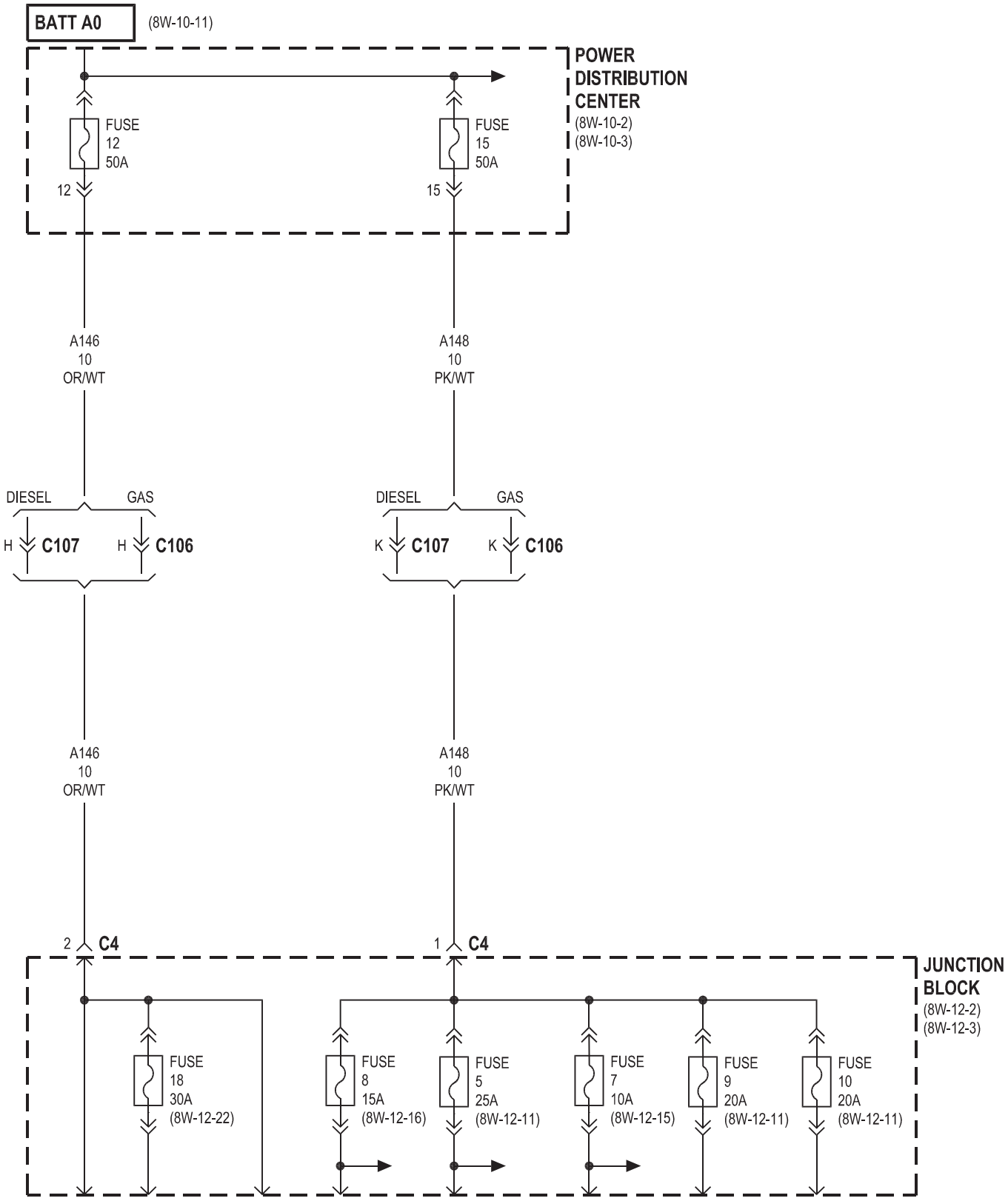

CRANKCASE HEATER (8W-30-42)
2
CAMSHAFT POSITION SENSOR (8W-30-56)
3
FUEL PRESSURE SOLENOID (8W-30-54)
2
FROM C103 (8W-10-28)
F
FROM C103 (8W-10-28)
H
F15 16 RD/DG
F142 20 RD/DG
F142 20 RD/DG
F15 20 DB/WT
F142 16 RD/DG
S168
F15 16 RD/DG
F15 20 RD/DG
F15 18 RD/DG
F15 16 RD/DG
F15 18 RD/DG
1
EGR SOLENOID (8W-30-57)
2
MASS AIR FLOW SENSOR (8W-30-44)
2
INTAKE PORT SWIRL ACTUATOR (8W-30-46)
3
WATER IN FUEL SENSOR (8W-30-57)
S176
F15 14 DB/WT
F142 14 RD/DG
F142 14 RD/DG
1
GENERATOR (8W-20-4)
5 C1
4 C1
ENGINE CONTROL MODULE (8W-30-48)

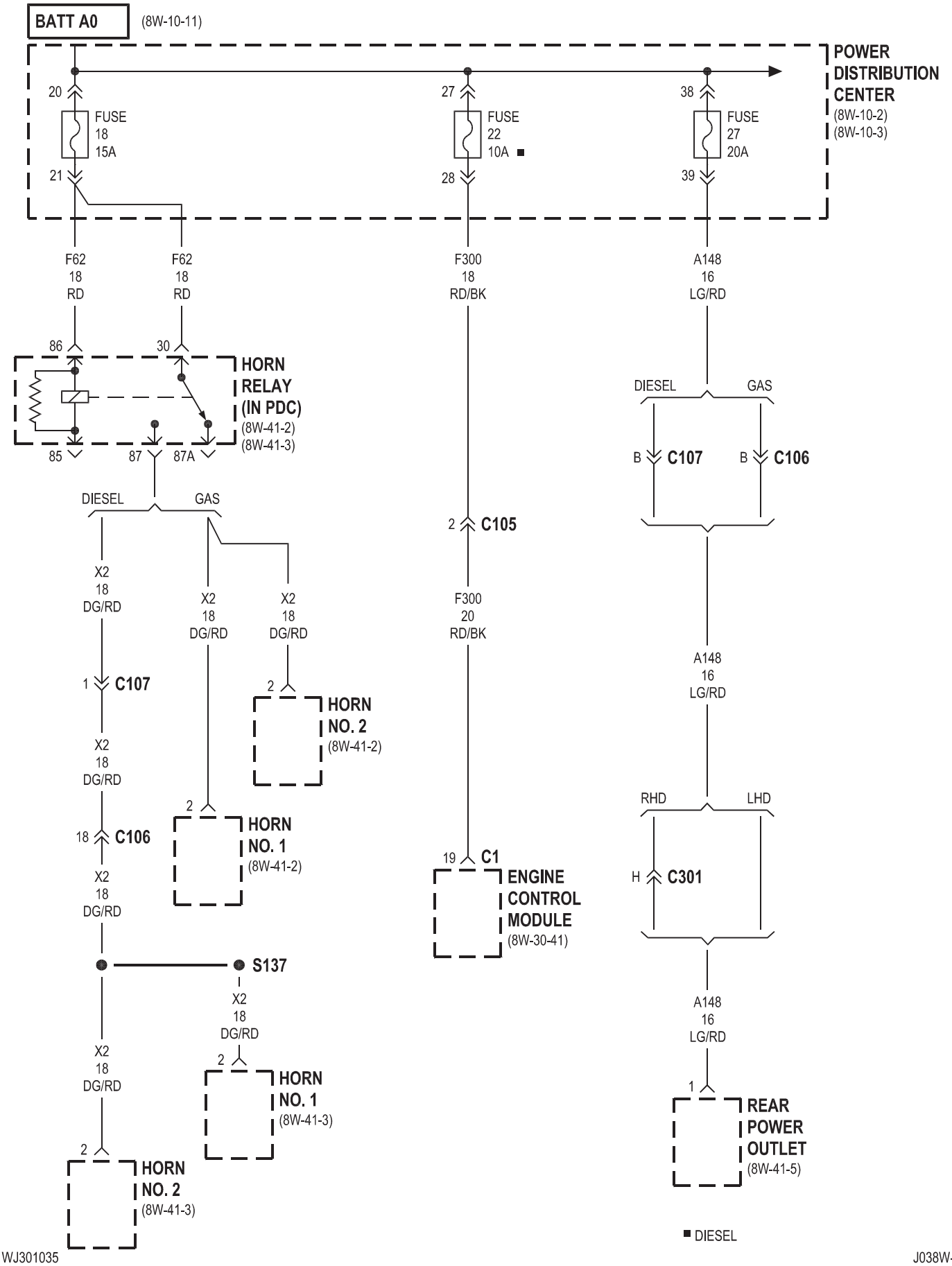

FROM
VISCOUS/
CABIN
HEATER
RELAY
(IN PDC)
(8W-10-28)
G
F15
18
DB/WT
86
A/C
COMPRESSOR
CLUTCH
RELAY
(IN PDC)
(8W-42-4)
85
F15
18
DB/WT
86
GLOW
PLUG
RELAY
NO. 1
(IN PDC)
(8W-30-49)
85
F15
18
DB/WT
F15
18
DB/WT
11
C107
F15
20
DB/WT
1
C106
F15
18
DB/WT
86
GLOW
PLUG
RELAY
NO. 2
(IN PDC)
(8W-30-50)
85
S162
F15
18
DB/WT
1
WASTEGATE
SOLENOID
(8W-30-42)
F15
18
DB/WT
1
HYDRAULIC
COOLING
MODULE
(8W-42-15)

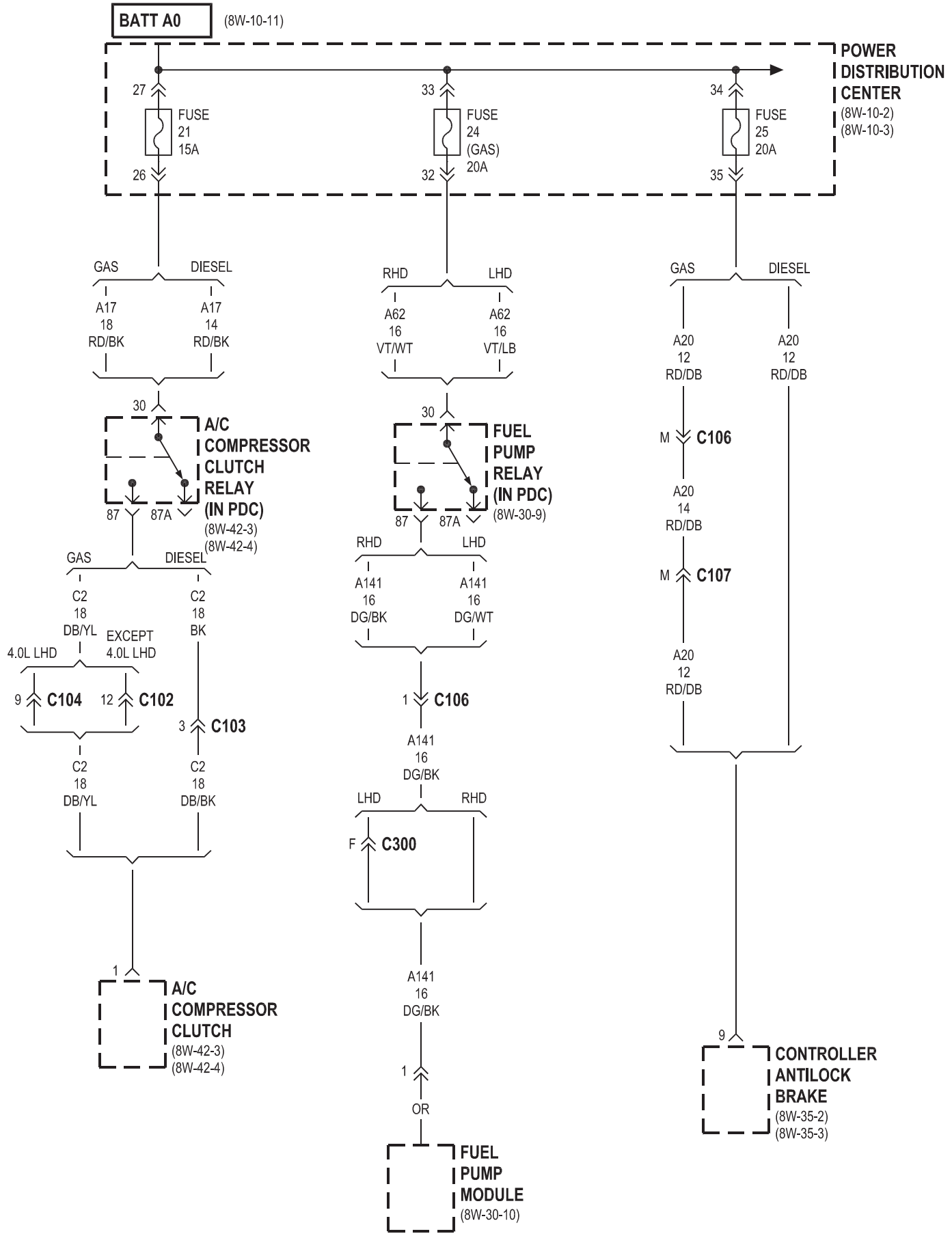

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 14 40A
FUSE 8 40A
14
8
A1 12 RD
S127
A2 12 PK/BK
A1 12 RD
A1 12 RD
GAS
DIESEL
L C106
L C107
F C106
F C107
30
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
(8W-21-3)
(8W-21-4)
87
87A
A2 12 PK/BK
A1 12 RD
G
C
C200
T40 12 LG
T40 12 BR
1 C100
13 C103
ENGINE STARTER MOTOR
(8W-21-2)
(8W-21-3)
ENGINE STARTER MOTOR
(8W-21-4)
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
6 C1
G26 20 LB
2 C1
4 C1
1 C2
IGNITION SWITCH
0 OFF
1 START
2 RUN
3 LOCK
4 ACC
1 C1
3 C1
5 C1
6 C1
2 C2
A41 12 YL
A22 12 BK/OR
A31 12 RD/BK
A21 12 DB
Z234 20 BK
S205
(8W-15-15)
Z234 18 BK
G200
(8W-15-15)
RUN A22
(8W-10-32)
RUN-START A21
(8W-10-33)
START A41
(8W-10-32)
RUN-ACC A31
(8W-10-33)


BATT A2
(8W-10-31)
IGNITION SWITCH
0 OFF
1 START
2 RUN
3 LOCK
4 ACC
(8W-10-31)
1
2
0
3
4
1 C1
3 C1
A41
12
YL
A22
12
BK/OR
27 C3
29 C3
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 31 10A (8W-12-27)
FUSE 19 10A (8W-12-22)
FUSE 20 10A (8W-12-23)
FUSE 33 10A (8W-12-26)


BATT A1
(8W-10-31)
IGNITION SWITCH
0 OFF
1 START
2 RUN
3 LOCK
4 ACC
(8W-10-31)
5 C1
6 C1
A31
12
RD/BK
A21
12
DB
24 C3
36 C3
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 29 10A (8W-12-27)
FUSE 22 10A (8W-12-24)
FUSE 12 10A (8W-12-19) (8W-12-20)
GAS
DIESEL
CIRCUIT BREAKER NO. 1 20A (8W-12-29) (8W-12-30)
DIESEL
GAS
FUSE 28 10A (8W-12-27)
FUSE 30 10A (8W-12-27)
FUSE 21 10A (8W-12-19) (8W-12-20)
FUSE 32 10A (8W-12-26)
25 JB
BODY CONTROL MODULE (8W-45-2)


BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 12 50A
FUSE 15 50A
12
15
A146 10 OR/WT
A148 10 PK/WT
DIESEL
GAS
H C107
H C106
K C107
K C106
A146 10 OR/WT
A148 10 PK/WT
2 C4
1 C4
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 18 30A (8W-12-22)
FUSE 8 15A (8W-12-16)
FUSE 5 25A (8W-12-11)
FUSE 7 10A (8W-12-15)
FUSE 9 20A (8W-12-11)
FUSE 10 20A (8W-12-11)

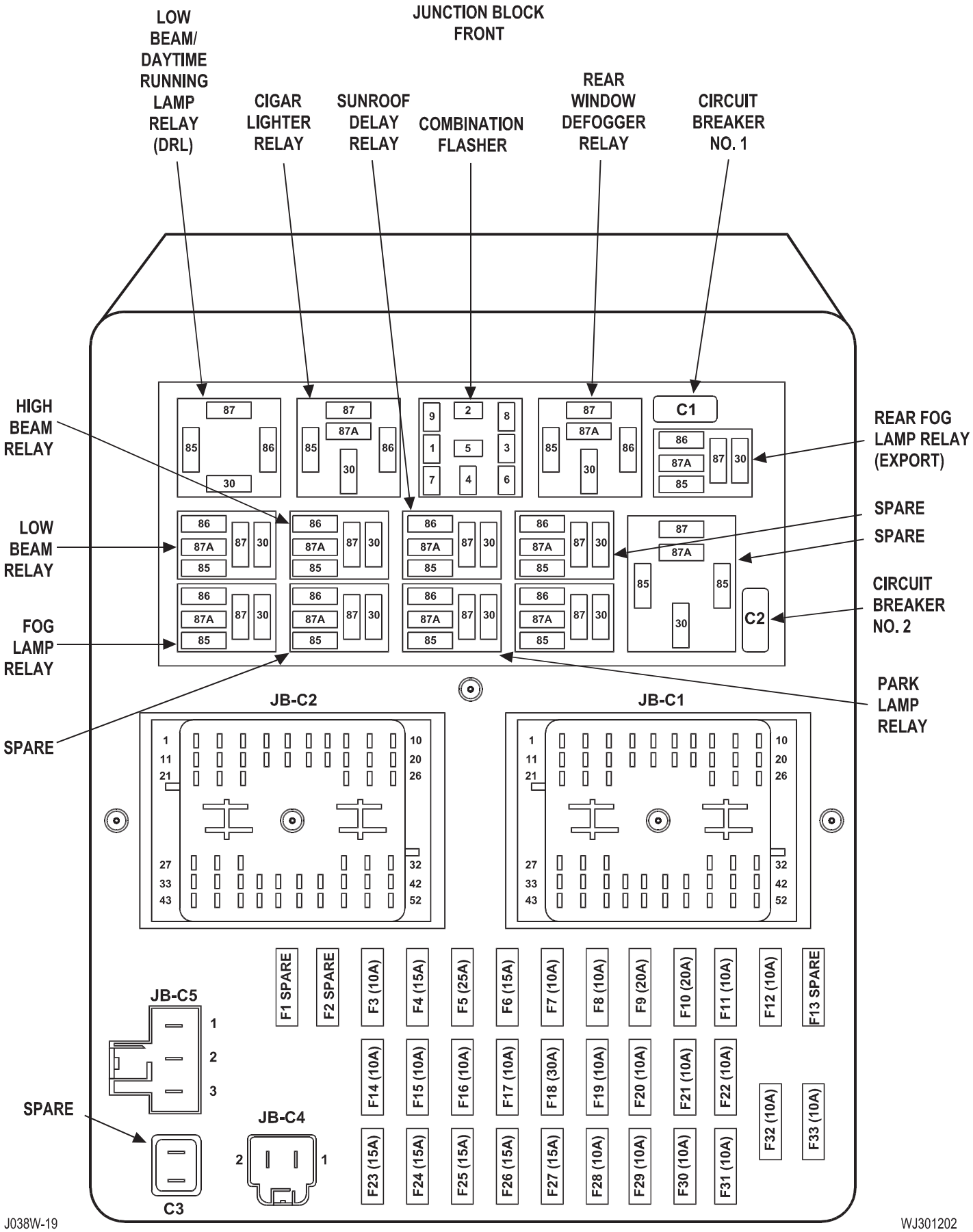

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
20
FUSE 18 15A
21
27
FUSE 22 10A ■
28
38
FUSE 27 20A
39
F62 18 RD
F62 18 RD
F300 18 RD/BK
A148 16 LG/RD
86
30
HORN RELAY (IN PDC)
(8W-41-2)
(8W-41-3)
85
87
87A
DIESEL
GAS
X2 18 DG/RD
X2 18 DG/RD
X2 18 DG/RD
1 C107
X2 18 DG/RD
18 C106
X2 18 DG/RD
2
HORN NO. 2
(8W-41-2)
2
HORN NO. 1
(8W-41-2)
S137
X2 18 DG/RD
2
HORN NO. 1
(8W-41-3)
X2 18 DG/RD
2
HORN NO. 2
(8W-41-3)
2 C105
F300 20 RD/BK
19 C1
ENGINE CONTROL MODULE
(8W-30-41)
DIESEL
GAS
B C107
B C106
A148 16 LG/RD
RHD
LHD
H C301
A148 16 LG/RD
1
REAR POWER OUTLET
(8W-41-5)
■ DIESEL


BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
27
FUSE 21 15A
26
33
FUSE 24 (GAS) 20A
32
34
FUSE 25 20A
35
GAS
DIESEL
A17 18 RD/BK
A17 14 RD/BK
30
A/C COMPRESSOR CLUTCH RELAY (IN PDC)
(8W-42-3)
(8W-42-4)
87
87A
GAS
DIESEL
C2 18 DB/YL
EXCEPT 4.0L LHD
4.0L LHD
C2 18 BK
9 C104
12 C102
3 C103
C2 18 DB/YL
C2 18 DB/BK
1
A/C COMPRESSOR CLUTCH
(8W-42-3)
(8W-42-4)
RHD
LHD
A62 16 VT/WT
A62 16 VT/LB
30
FUEL PUMP RELAY (IN PDC)
(8W-30-9)
87
87A
RHD
LHD
A141 16 DG/BK
A141 16 DG/WT
1 C106
A141 16 DG/BK
LHD
RHD
F C300
A141 16 DG/BK
1
OR
FUEL PUMP MODULE
(8W-30-10)
GAS
DIESEL
A20 12 RD/DB
A20 12 RD/DB
M C106
A20 14 RD/DB
M C107
A20 12 RD/DB
9
CONTROLLER ANTILOCK BRAKE
(8W-35-2)
(8W-35-3)

8W-12 JUNCTION BLOCK

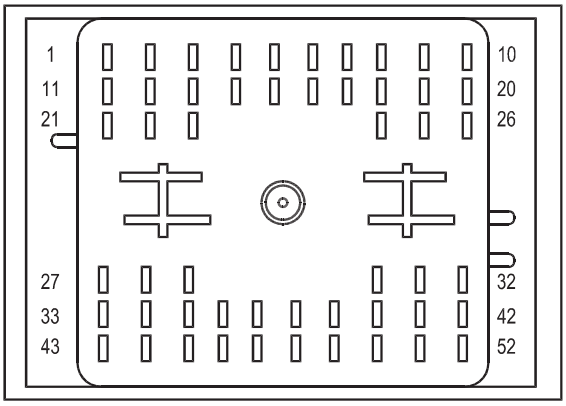
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Front Wiper Motor	8W-12-30
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Fuse 3	8W-12-10, 21
Fuse 4	8W-12-10
Fuse 5	8W-12-11
Fuse 6	8W-12-12, 13
Fuse 7	8W-12-15
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Fuse 10	8W-12-11
Fuse 11	8W-12-18
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Fuse 20	8W-12-23
Fuse 21	8W-12-19, 20
Fuse 22	8W-12-24
Fuse 23	8W-12-25
Fuse 24	8W-12-25
Fuse 25	8W-12-26
Fuse 26	8W-12-18
Fuse 27	8W-12-38
Fuse 28	8W-12-27
Fuse 29	8W-12-27
Fuse 30	8W-12-27
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Right Fog Lamp	8W-12-25
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Right Front Side Marker Lamp	8W-12-14, 35
Right Front Turn Signal Lamp	8W-12-35
Right Headlamp Leveling Motor	8W-12-14
Right High Beam Headlamp	8W-12-10
Right Liftgate Ajar Switch	8W-12-31
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Right Multi-Function Switch	8W-12-27
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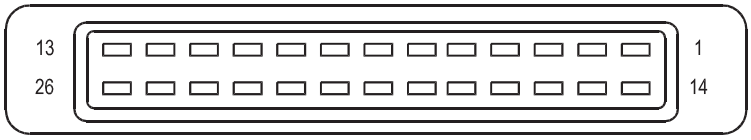

JUNCTION BLOCK FRONT
LOW BEAM/ DAYTIME RUNNING LAMP RELAY (DRL)
CIGAR LIGHTER RELAY
SUNROOF DELAY RELAY
COMBINATION FLASHER
REAR WINDOW DEFOGGER RELAY
CIRCUIT BREAKER NO. 1
HIGH BEAM RELAY
LOW BEAM RELAY
FOG LAMP RELAY
SPARE
REAR FOG LAMP RELAY (EXPORT)
SPARE
SPARE
CIRCUIT BREAKER NO. 2
PARK LAMP RELAY
C1
C2
JB-C2
JB-C1
JB-C5
JB-C4
C3
SPARE
F1 SPARE
F2 SPARE
F3 (10A)
F4 (15A)
F5 (25A)
F6 (15A)
F7 (10A)
F8 (10A)
F9 (20A)
F10 (20A)
F11 (10A)
F12 (10A)
F13 SPARE
F14 (10A)
F15 (10A)
F16 (10A)
F17 (10A)
F18 (30A)
F19 (10A)
F20 (10A)
F21 (10A)
F22 (10A)
F32 (10A)
F33 (10A)
F23 (15A)
F24 (15A)
F25 (15A)
F26 (15A)
F27 (15A)
F28 (10A)
F29 (10A)
F30 (10A)
F31 (10A)

JUNCTION BLOCK
BACK

JB-C3



JUNCTION BLOCK
BODY CONTROL MODULE



FUSES

FUSE	AMPS	FUSED CIRCUIT	FUNCTION
1	-	-	-
2	-	-	-
3	10A	L33 18RD	FUSED HIGH BEAM RELAY OUTPUT
4	15A	INTERNAL	FUSED B(+)
5	25A	INTERNAL	FUSED B(+)
6	15A	INTERNAL	FUSED B(+)
7	10A	INTERNAL	FUSED B(+)
8	15A	INTERNAL	FUSED B(+)
9	20A	INTERNAL	FUSED B(+)
10 *	20A	F72 16RD/YL	FUSED B(+)
11	10A	C15 20BK/WT	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
12	10A	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
13	-	-	-
14	10A	L43 18VT	FUSED LOW BEAM RELAY OUTPUT
15	10A	L44 18VT/RD	FUSED LOW BEAM RELAY OUTPUT
16	10A	L34 18RD/OR	FUSED HIGH BEAM RELAY OUTPUT
17	10A	INTERNAL	FUSED B(+)
18	30A	F9 20RD/BK	FUSED B(+)
19	10A	F20 18DB/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
20	10A	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN)
21	10A	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
22	10A	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
23	15A	F32 20PK/DB	FUSED B(+)
24	15A	INTERNAL	FUSED B(+)
25	15A	INTERNAL	FUSED B(+)
26	15A	F30 18RD	FUSED CIGAR LIGHTER RELAY OUTPUT
27 •	15A	INTERNAL	FUSED B(+)
28	10A	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
29	10A	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
30	10A	X12 20WT/RD	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
31	10A	F45 20YL/RD	FUSED IGNITION SWITCH OUTPUT (START)
32	10A	F14 18LG/YL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
33	10A	F23 18DB/YL	FUSED IGNITION SWITCH OUTPUT (RUN)

• EXPORT
* EXCEPT EXPORT

CIRCUIT BREAKERS

C.B.	AMPS	FUSED CIRCUIT	FUNCTION
1	20A	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
2	20A	F37 16RD/LB	FUSED B(+)
3	-	-	-

JUNCTION BLOCK
BODY CONTROL MODULE

CAVITY	CIRCUIT	FUNCTION
1	L308	PARK LAMP RELAY CONTROL
2	L26	FOG LAMP RELAY CONTROL
3	Q29	ACCESSORY DELAY RELAY CONTROL
4	L307	LOW BEAM RELAY CONTROL
5	G5	FUSED IGNITION SWITCH OUTPUT (RUN-START)
6	X4	HORN RELAY CONTROL
7	V16	WIPER HIGH/LOW RELAY CONTROL
8	G80	LIFTGATE FLIP-UP AJAR SWITCH SENSE
9	L309	HIGH BEAM RELAY CONTROL
10	L91	HAZARD SWITCH SENSE
11	C80	REAR WINDOW DEFOGGER RELAY CONTROL
12	Z2	GROUND
13 ▲▲	L96	REAR FOG LAMP RELAY CONTROL
14	L7	PARK LAMP RELAY OUTPUT
15	Z1	GROUND
16	M2	COURTESY LAMPS DRIVER
17	-	-
18	-	-
19	M20	COURTESY LAMP LOAD SHED
20	V55	WIPER PARK SWITCH SENSE
21	G78	LIFTGATE AJAR SWITCH SENSE
22	-	-
23	G77	LEFT REAR DOOR AJAR SWITCH SENSE
24	G73	LIFTGATE COURTESY DISABLE
25	V23	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
26	M1	FUSED B(+)

▲▲ EXPORT

ACCESSORY DELAY RELAY

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	FUSED B(+)
86	INTERNAL	ACCESSORY DELAY RELAY CONTROL
87	Q30 16TN	ACCESSORY DELAY RELAY OUTPUT
87A	-	-

CIGAR LIGHTER RELAY

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
86	INTERNAL	GROUND
87	INTERNAL	CIGAR LIGHTER RELAY OUTPUT
87A	-	-

COMBINATION FLASHER

CAVITY	CIRCUIT	FUNCTION
1	INTERNAL	FUSED B(+)
2	INTERNAL	LEFT TURN SIGNAL
3	INTERNAL	RIGHT TURN SIGNAL
4	L63 20DG/RD	LEFT TURN SIGNAL
5	L62 20BR/RD	RIGHT TURN SIGNAL
6	INTERNAL	FUSED IGNITION SWITCH OUTPUT (RUN)
7	L305 20LB/WT	LEFT TURN SWITCH SENSE
8	L302 20LB/YL	RIGHT TURN SWITCH SENSE
9	INTERNAL	HAZARD SWITCH SENSE

FOG LAMP RELAY

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	FOG LAMP RELAY CONTROL
86	INTERNAL	FUSED B(+)
87	INTERNAL	FOG LAMP RELAY OUTPUT
87A	-	-

HIGH BEAM RELAY

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	HIGH BEAM RELAY CONTROL
86	INTERNAL	FUSED B(+)
87	INTERNAL	HIGH BEAM RELAY OUTPUT
87A	-	-

LOW BEAM/ DAYTIME RUNNING LAMP RELAY (DRL)

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	GROUND
86	INTERNAL	RELAY CONTROL
87	INTERNAL	RELAY OUTPUT
87A	-	-

LOW BEAM RELAY

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	FUSED B(+)
86	INTERNAL	LOW BEAM RELAY CONTROL
87	INTERNAL	LOW BEAM RELAY OUTPUT
87A	-	-

PARK LAMP RELAY

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	PARK LAMP RELAY OUTPUT
85	INTERNAL	FUSED B(+)
86	INTERNAL	PARK LAMP RELAY CONTROL
87	INTERNAL	FUSED B(+)
87A	INTERNAL	GROUND

REAR FOG LAMP RELAY (EXPORT)

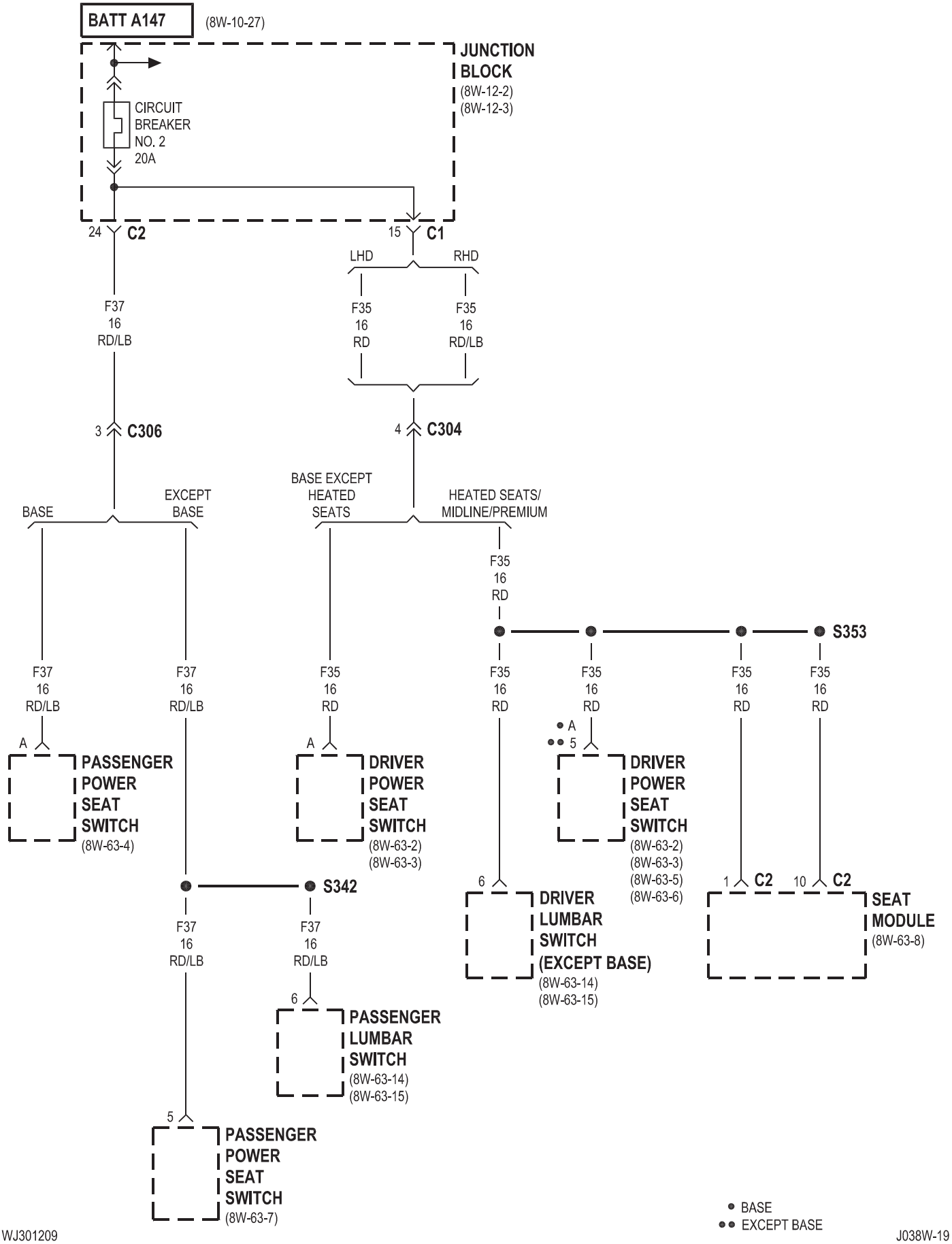
CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	FUSED B(+)
86	INTERNAL	REAR FOG LAMP RELAY CONTROL
87	L95 18DG/YL	REAR FOG LAMP RELAY OUTPUT
87A	-	-

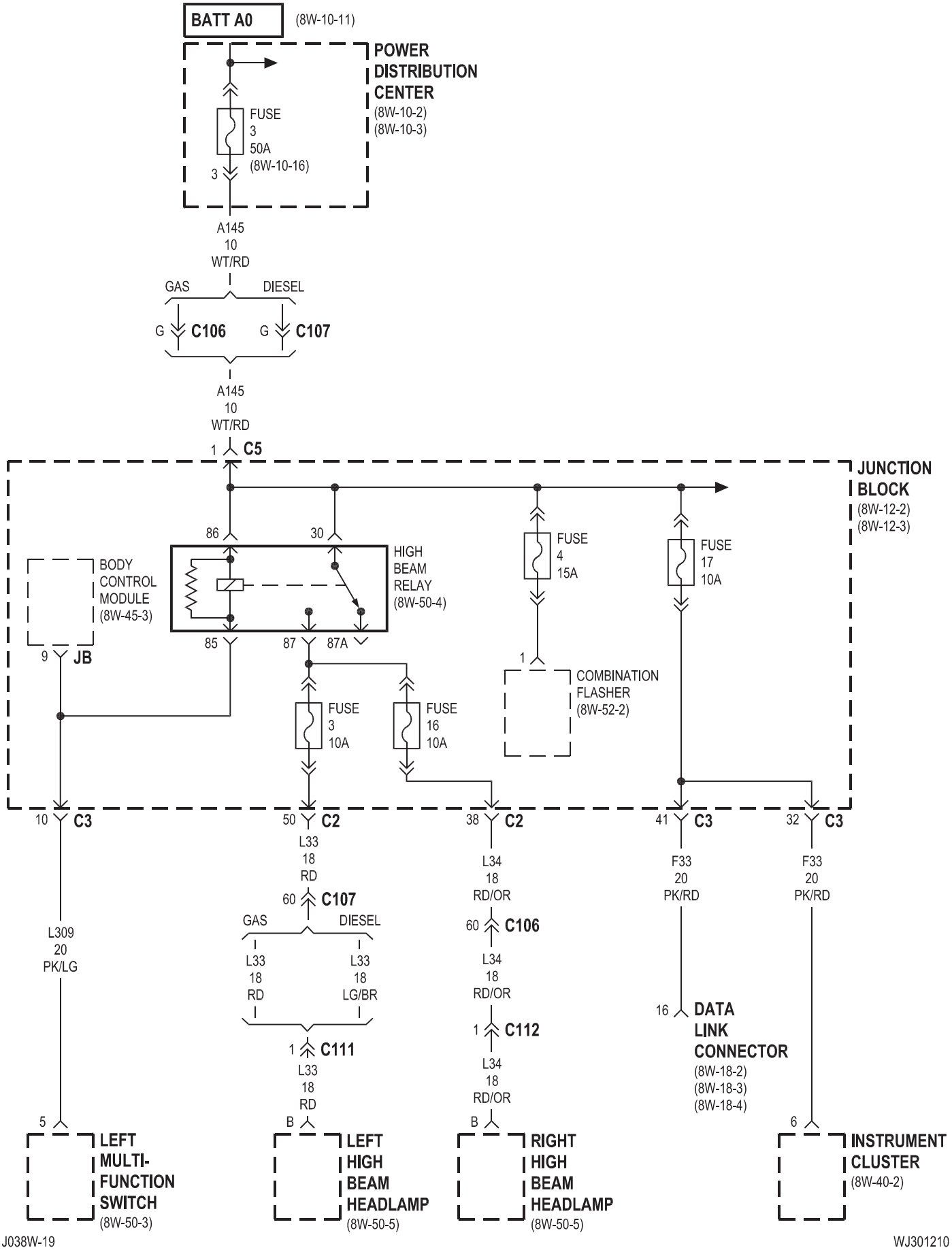
REAR WINDOW DEFOGGER RELAY

CAVITY	CIRCUIT	FUNCTION
30	INTERNAL	FUSED B(+)
85	INTERNAL	FUSED B(+)
86	INTERNAL	REAR WINDOW DEFOGGER RELAY CONTROL
87	INTERNAL	REAR WINDOW DEFOGGER RELAY OUTPUT
87A	-	-

• LHD
•• RHD

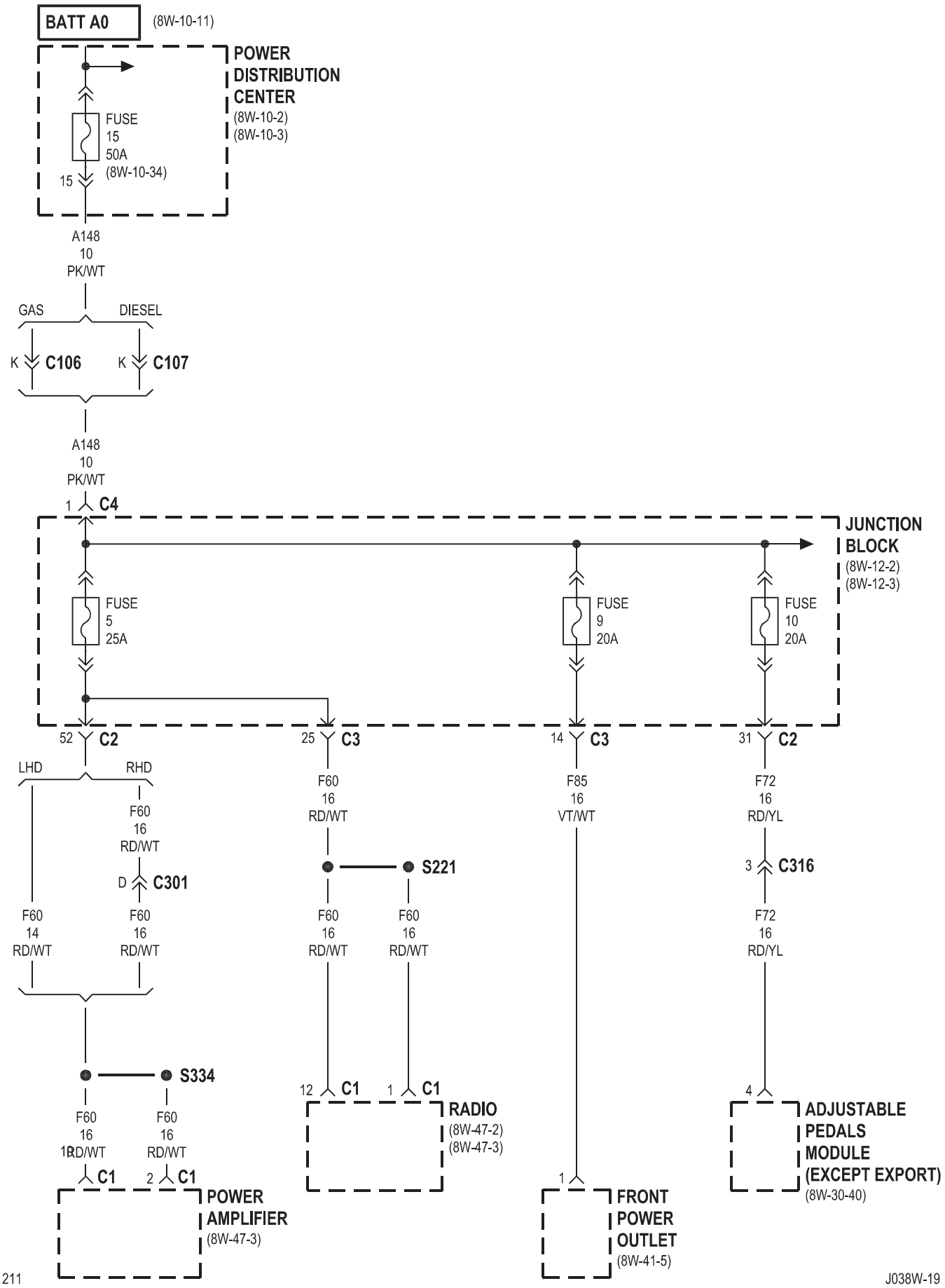
POWER SEATS


BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
24 C2
15 C1
LHD
RHD
F37 16 RD/LB
F35 16 RD
F35 16 RD/LB
3 C306
4 C304
BASE
EXCEPT BASE
BASE EXCEPT HEATED SEATS
HEATED SEATS/ MIDLINE/PREMIUM
F35 16 RD
S353
F37 16 RD/LB
F35 16 RD
A
PASSENGER POWER SEAT SWITCH
(8W-63-4)
DRIVER POWER SEAT SWITCH
(8W-63-2)
(8W-63-3)
5
DRIVER POWER SEAT SWITCH
(8W-63-2)
(8W-63-3)
(8W-63-5)
(8W-63-6)
S342
6
DRIVER LUMBAR SWITCH (EXCEPT BASE)
(8W-63-14)
(8W-63-15)
1 C2
10 C2
SEAT MODULE
(8W-63-8)
PASSENGER LUMBAR SWITCH
(8W-63-14)
(8W-63-15)
5
PASSENGER POWER SEAT SWITCH
(8W-63-7)
BASE
EXCEPT BASE



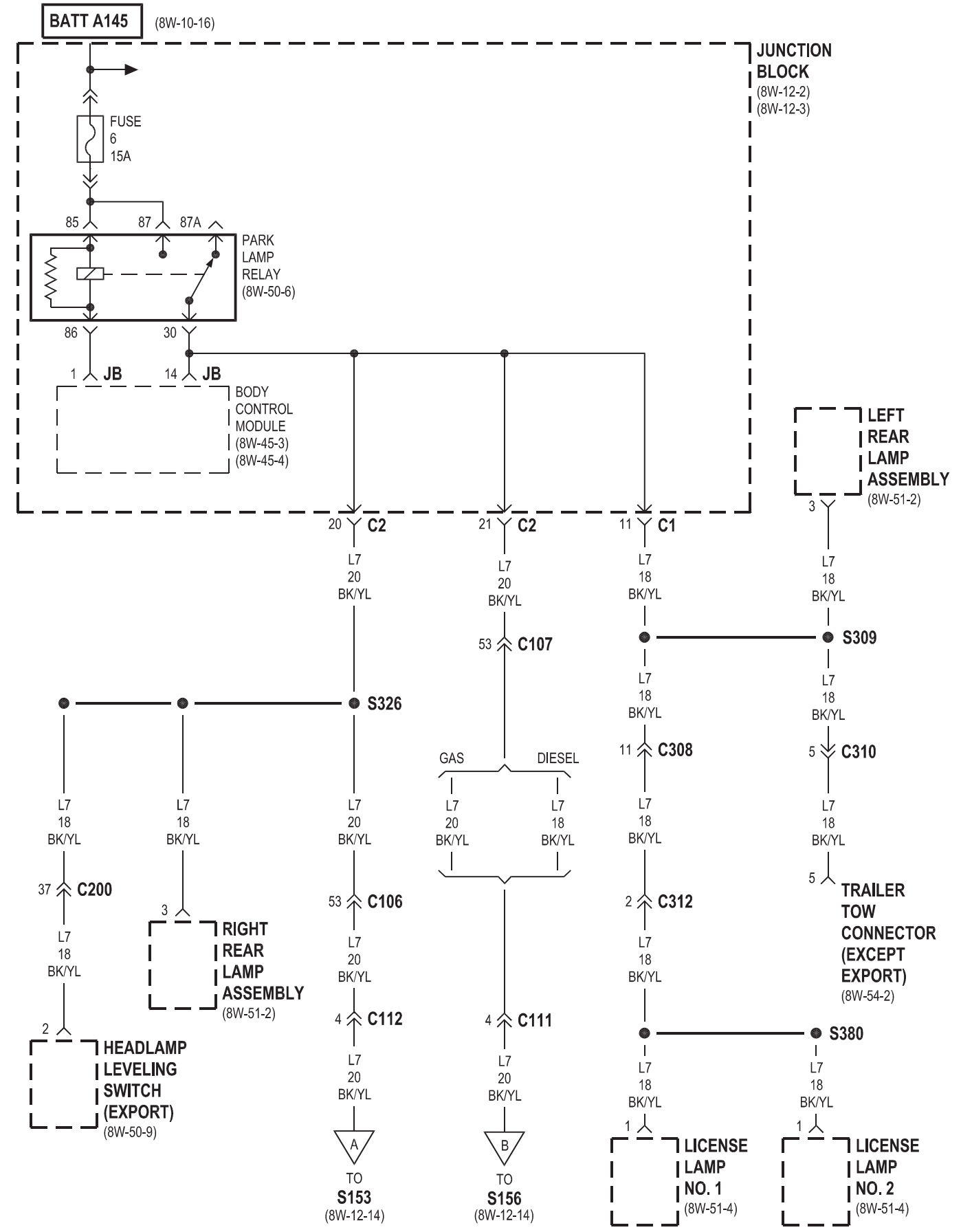
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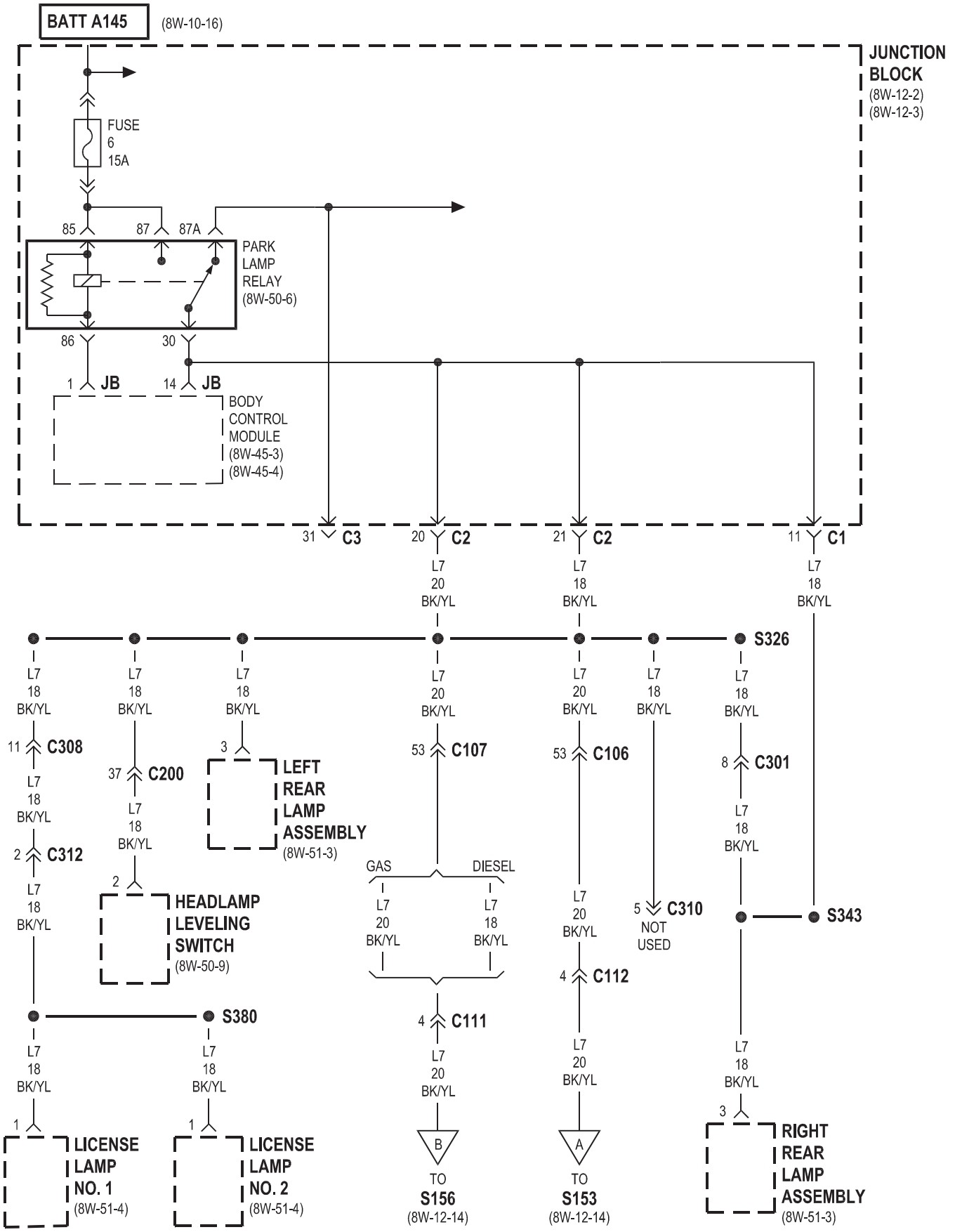
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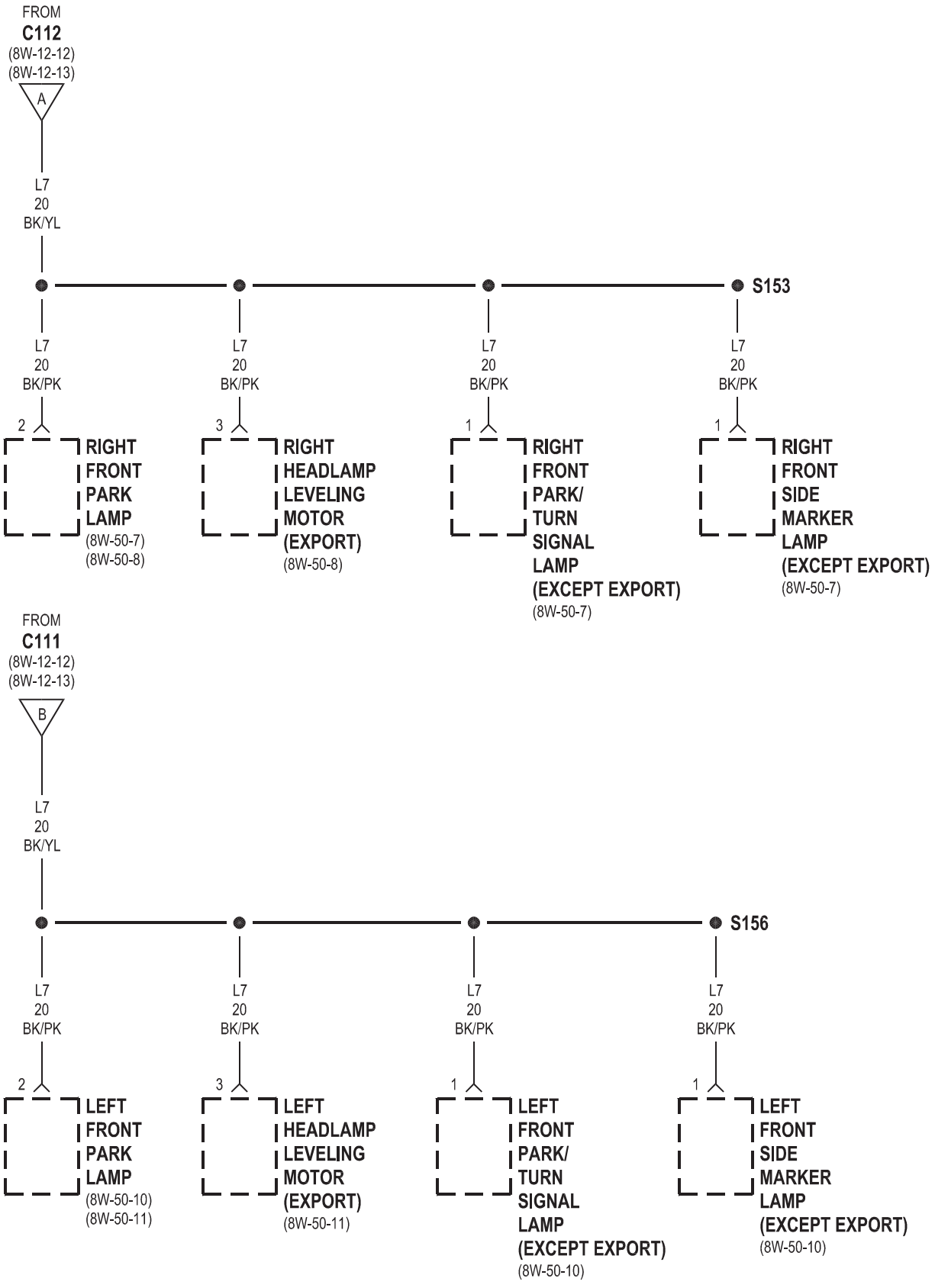


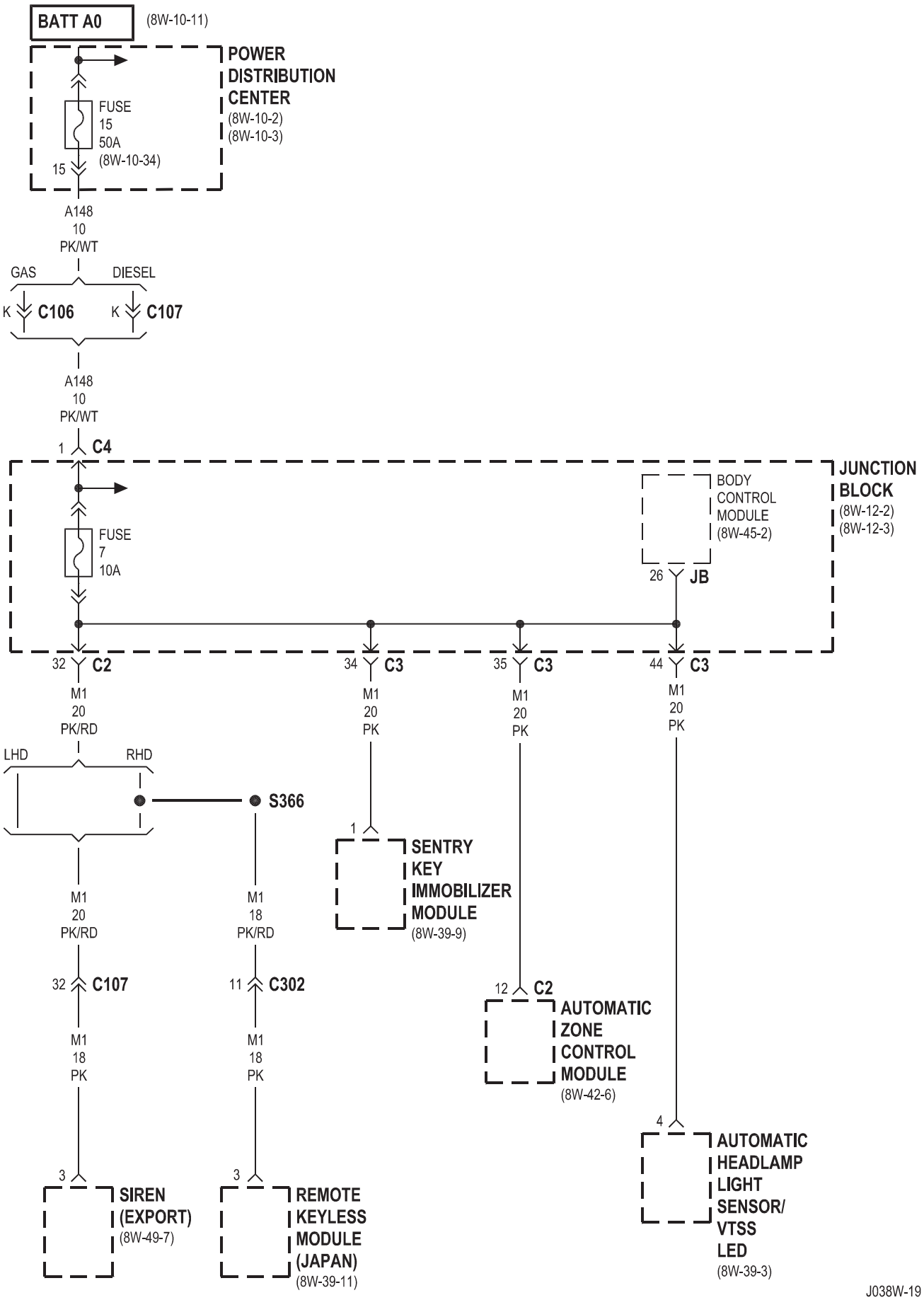
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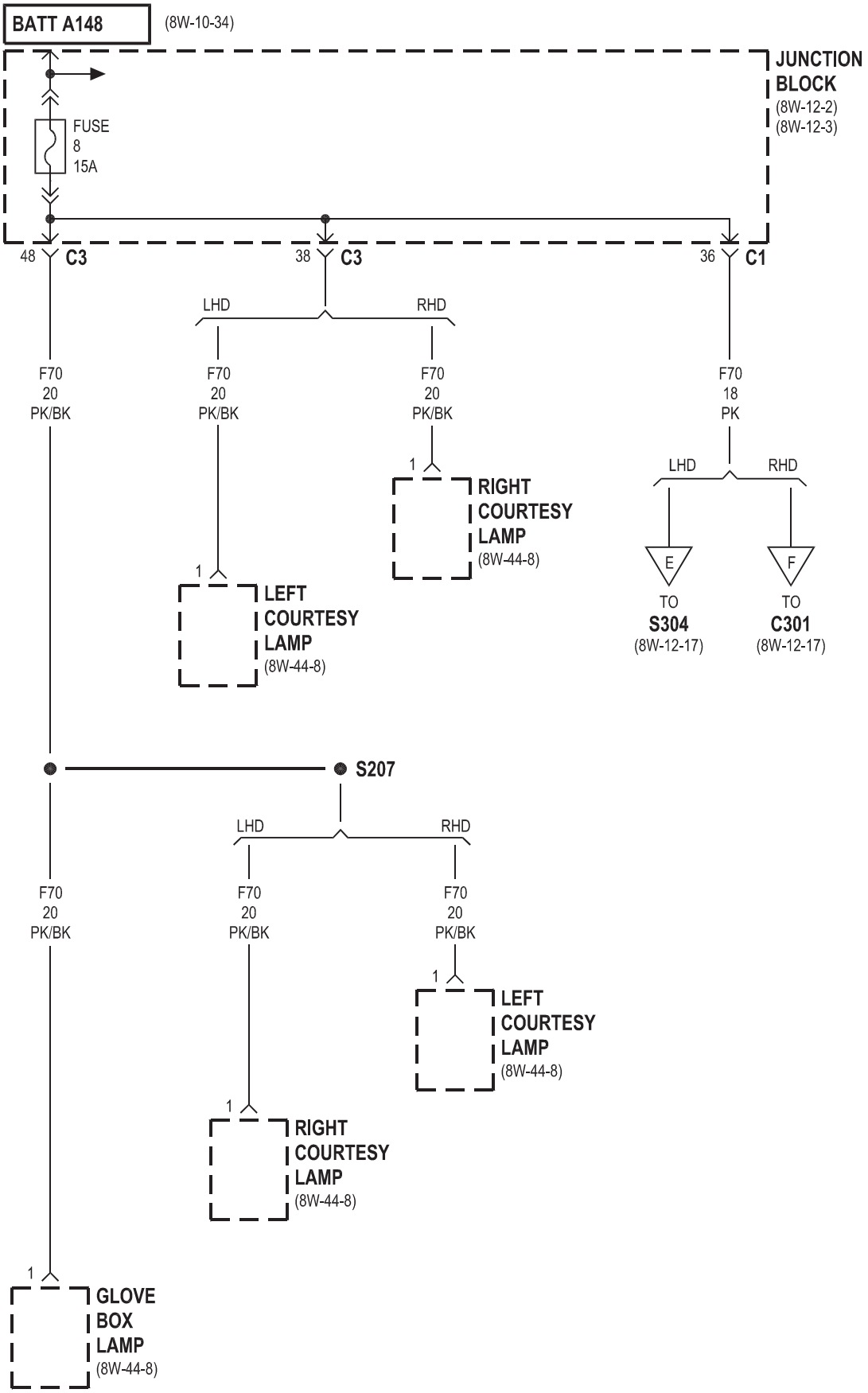
J038W-19

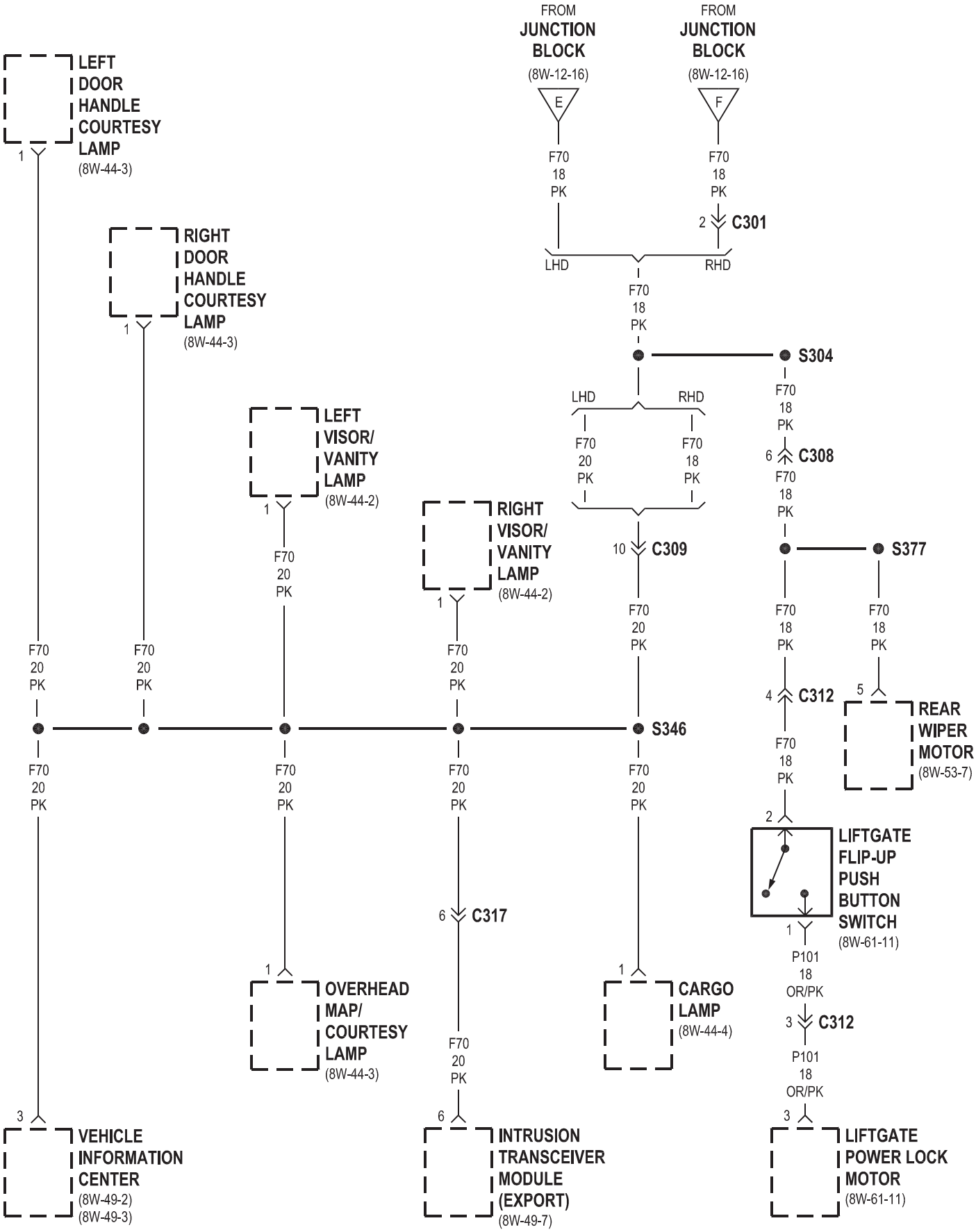

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
85
87
87A
PARK LAMP RELAY
(8W-50-6)
86
30
1 JB
14 JB
BODY CONTROL MODULE
(8W-45-3)
(8W-45-4)
20 C2
21 C2
11 C1
3
LEFT REAR LAMP ASSEMBLY
(8W-51-2)
L7 20 BK/YL
L7 18 BK/YL
S326
S309
53 C107
11 C308
5 C310
GAS
DIESEL
37 C200
3
RIGHT REAR LAMP ASSEMBLY
(8W-51-2)
53 C106
2 C312
5
TRAILER TOW CONNECTOR (EXCEPT EXPORT)
(8W-54-2)
4 C112
4 C111
S380
2
HEADLAMP LEVELING SWITCH (EXPORT)
(8W-50-9)
A
B
TO S153
(8W-12-14)
TO S156
(8W-12-14)
1
LICENSE LAMP NO. 1
(8W-51-4)
LICENSE LAMP NO. 2
(8W-51-4)

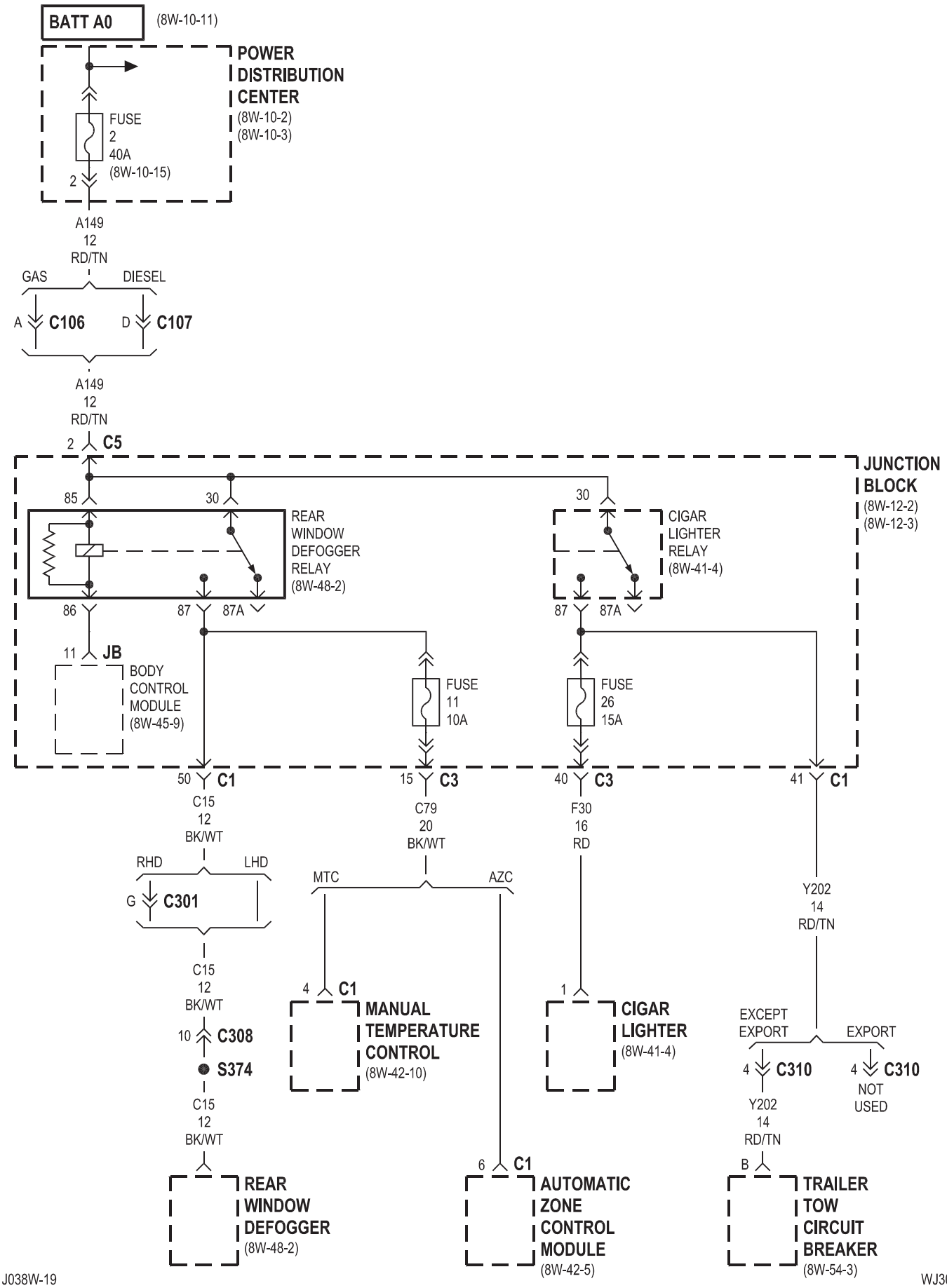

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 6 15A
85
87
87A
PARK LAMP RELAY
(8W-50-6)
86
30
1 JB
14 JB
BODY CONTROL MODULE
(8W-45-3)
(8W-45-4)
31 C3
20 C2
21 C2
11 C1
L7 20 BK/YL
L7 18 BK/YL
S326
11 C308
37 C200
3
LEFT REAR LAMP ASSEMBLY
(8W-51-3)
53 C107
53 C106
8 C301
2 C312
2
HEADLAMP LEVELING SWITCH
(8W-50-9)
GAS
DIESEL
5 C310
NOT USED
S343
4 C112
4 C111
S380
1
LICENSE LAMP NO. 1
(8W-51-4)
LICENSE LAMP NO. 2
(8W-51-4)
B
A
TO S156
(8W-12-14)
TO S153
(8W-12-14)
RIGHT REAR LAMP ASSEMBLY
(8W-51-3)

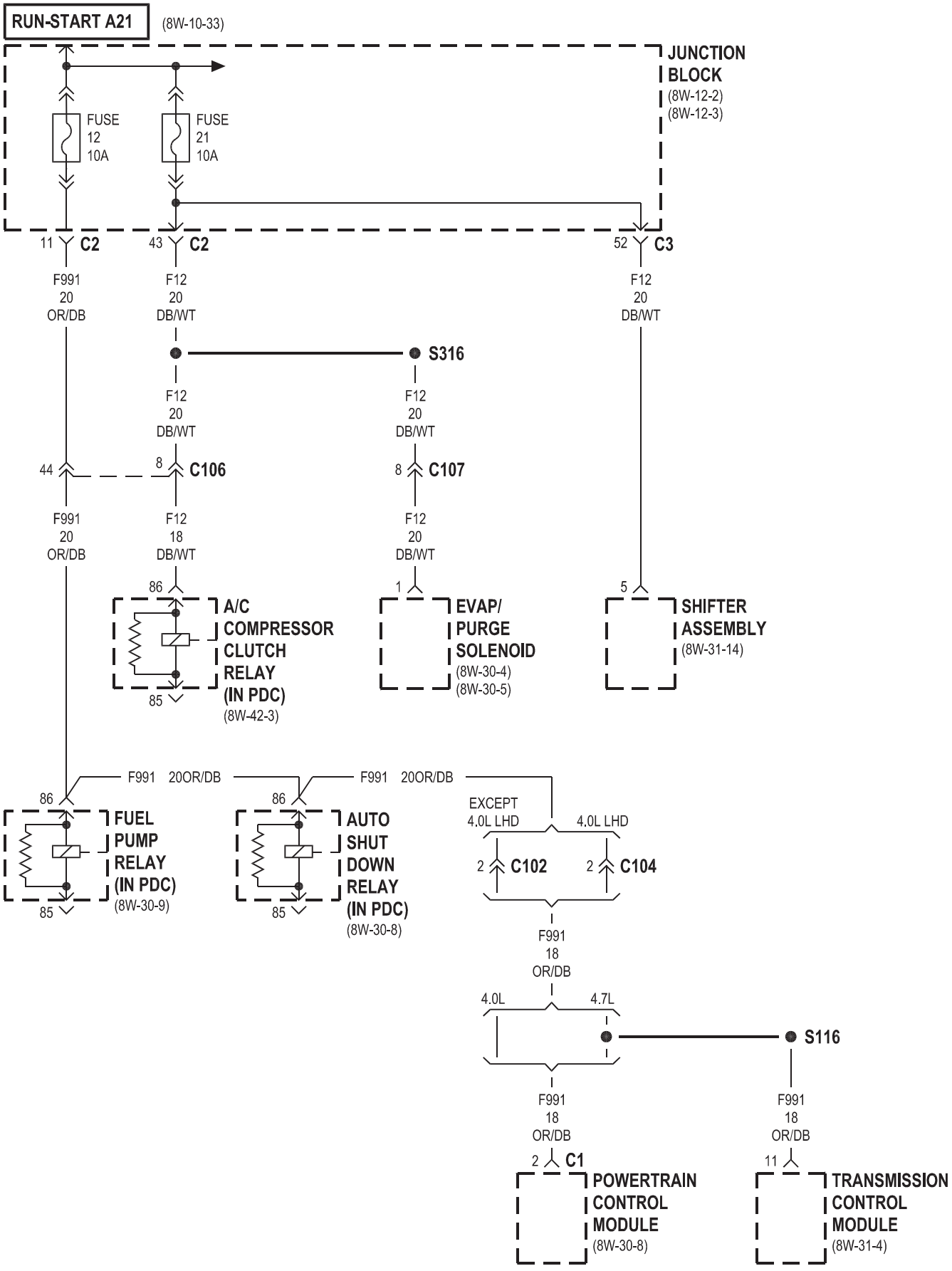

FROM
C112
(8W-12-12)
(8W-12-13)
A
L7
20
BK/YL
S153
L7
20
BK/PK
2
RIGHT
FRONT
PARK
LAMP
(8W-50-7)
(8W-50-8)
3
RIGHT
HEADLAMP
LEVELING
MOTOR
(EXPORT)
(8W-50-8)
1
RIGHT
FRONT
PARK/
TURN
SIGNAL
LAMP
(EXCEPT EXPORT)
(8W-50-7)
1
RIGHT
FRONT
SIDE
MARKER
LAMP
(EXCEPT EXPORT)
(8W-50-7)
FROM
C111
(8W-12-12)
(8W-12-13)
B
S156
2
LEFT
FRONT
PARK
LAMP
(8W-50-10)
(8W-50-11)
3
LEFT
HEADLAMP
LEVELING
MOTOR
(EXPORT)
(8W-50-11)
1
LEFT
FRONT
PARK/
TURN
SIGNAL
LAMP
(EXCEPT EXPORT)
(8W-50-10)
1
LEFT
FRONT
SIDE
MARKER
LAMP
(EXCEPT EXPORT)
(8W-50-10)

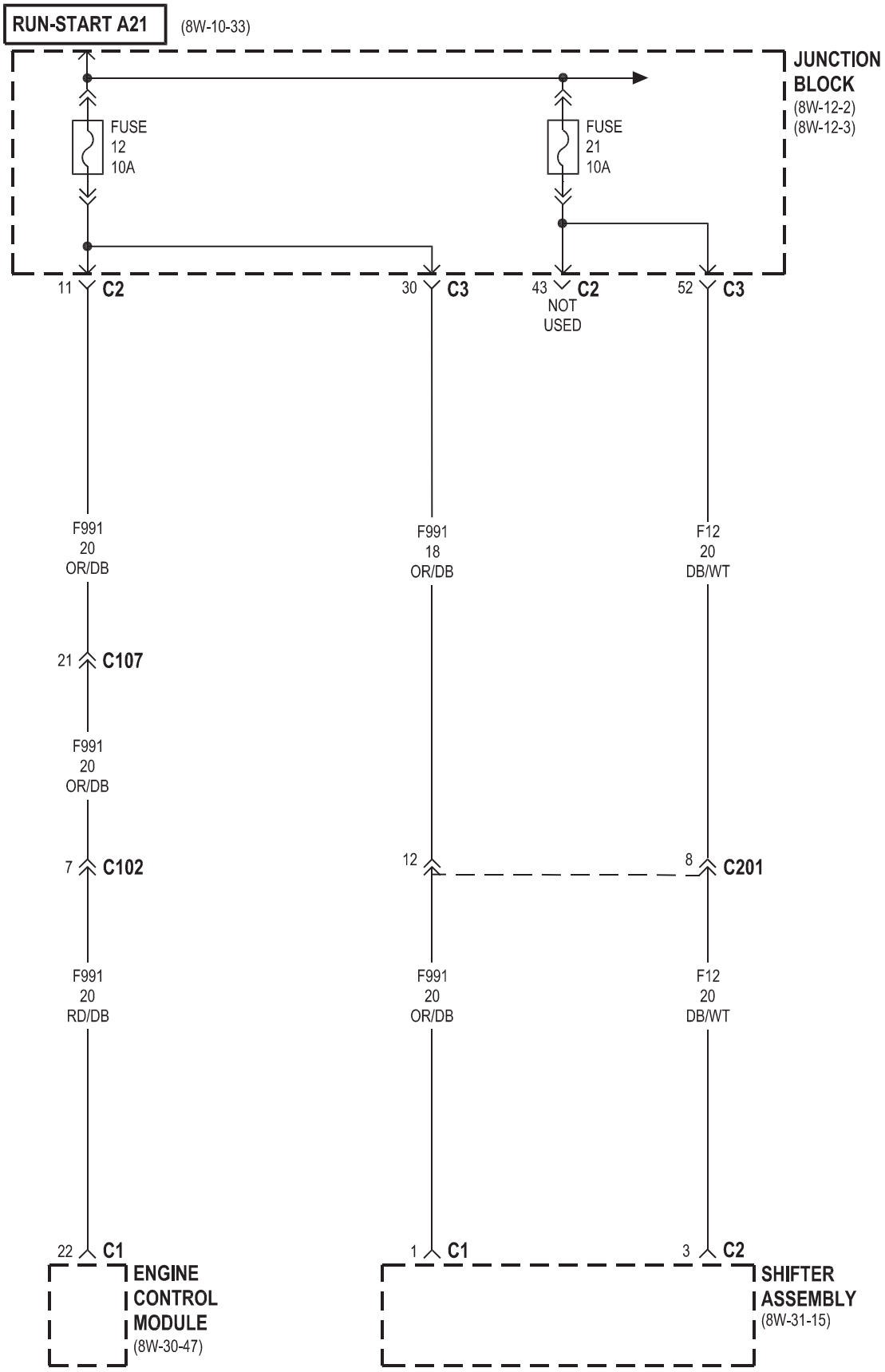

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 15 50A
(8W-10-34)
15
A148 10 PK/WT
GAS
DIESEL
K C106
K C107
A148 10 PK/WT
1 C4
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 7 10A
BODY CONTROL MODULE
(8W-45-2)
26 JB
32 C2
34 C3
35 C3
44 C3
M1 20 PK/RD
M1 20 PK
M1 20 PK
M1 20 PK
LHD
RHD
S366
1
SENTRY KEY IMMOBILIZER MODULE
(8W-39-9)
M1 20 PK/RD
M1 18 PK/RD
32 C107
11 C302
12 C2
AUTOMATIC ZONE CONTROL MODULE
(8W-42-6)
M1 18 PK
M1 18 PK
4
AUTOMATIC HEADLAMP LIGHT SENSOR/ VTSS LED
(8W-39-3)
3
SIREN (EXPORT)
(8W-49-7)
3
REMOTE KEYLESS MODULE (JAPAN)
(8W-39-11)

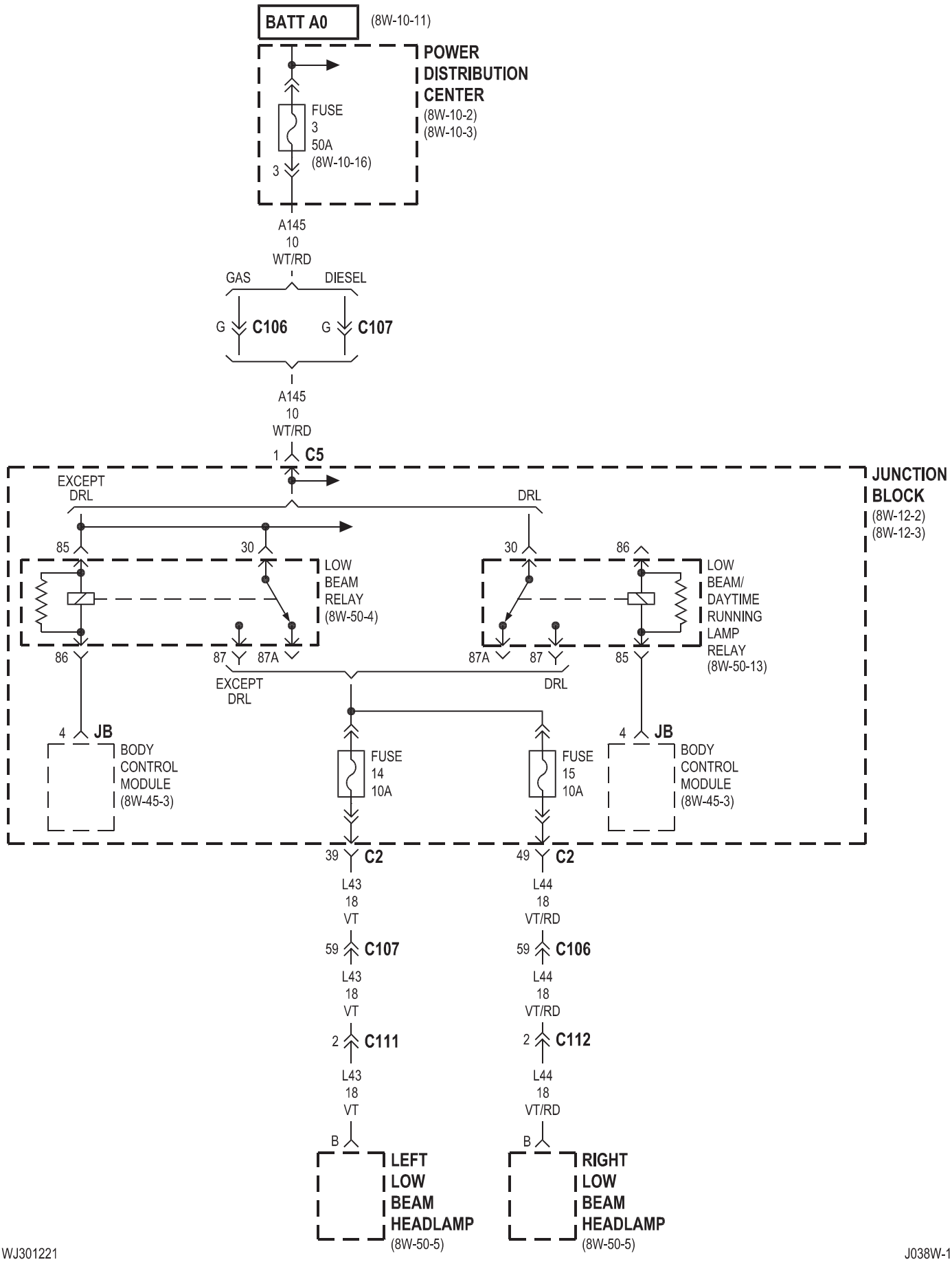

BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 8 15A
48 C3
38 C3
36 C1
LHD
RHD
F70 20 PK/BK
F70 20 PK/BK
F70 20 PK/BK
F70 18 PK
1
RIGHT COURTESY LAMP
(8W-44-8)
1
LEFT COURTESY LAMP
(8W-44-8)
LHD
RHD
E
F
TO S304
(8W-12-17)
TO C301
(8W-12-17)
S207
LHD
RHD
F70 20 PK/BK
F70 20 PK/BK
F70 20 PK/BK
1
LEFT COURTESY LAMP
(8W-44-8)
1
RIGHT COURTESY LAMP
(8W-44-8)
1
GLOVE BOX LAMP
(8W-44-8)

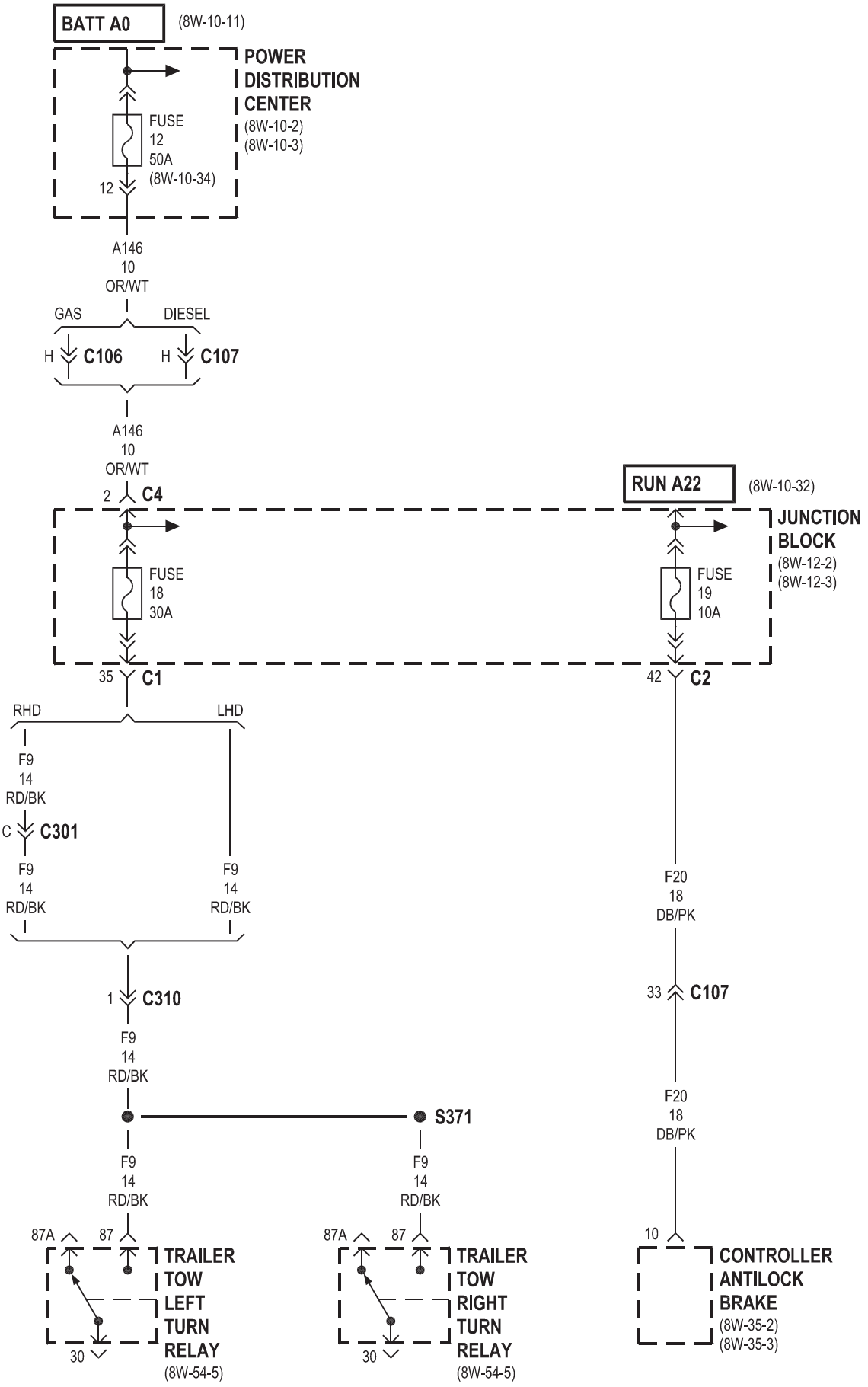

FROM JUNCTION BLOCK (8W-12-16)
E
F70 18 PK
FROM JUNCTION BLOCK (8W-12-16)
F
F70 18 PK
2 C301
LHD
RHD
F70 18 PK
S304
F70 18 PK
6 C308
F70 18 PK
S377
F70 18 PK
5
REAR WIPER MOTOR (8W-53-7)
4 C312
F70 18 PK
2
LIFTGATE FLIP-UP PUSH BUTTON SWITCH (8W-61-11)
1
P101 18 OR/PK
3 C312
P101 18 OR/PK
3
LIFTGATE POWER LOCK MOTOR (8W-61-11)
LHD
RHD
F70 20 PK
F70 18 PK
10 C309
F70 20 PK
S346
F70 20 PK
6 C317
F70 20 PK
6
INTRUSION TRANSCEIVER MODULE (EXPORT) (8W-49-7)
1
CARGO LAMP (8W-44-4)
1
OVERHEAD MAP/ COURTESY LAMP (8W-44-3)
1
LEFT VISOR/ VANITY LAMP (8W-44-2)
F70 20 PK
1
RIGHT VISOR/ VANITY LAMP (8W-44-2)
F70 20 PK
1
RIGHT DOOR HANDLE COURTESY LAMP (8W-44-3)
F70 20 PK
1
LEFT DOOR HANDLE COURTESY LAMP (8W-44-3)
F70 20 PK
3
VEHICLE INFORMATION CENTER (8W-49-2) (8W-49-3)

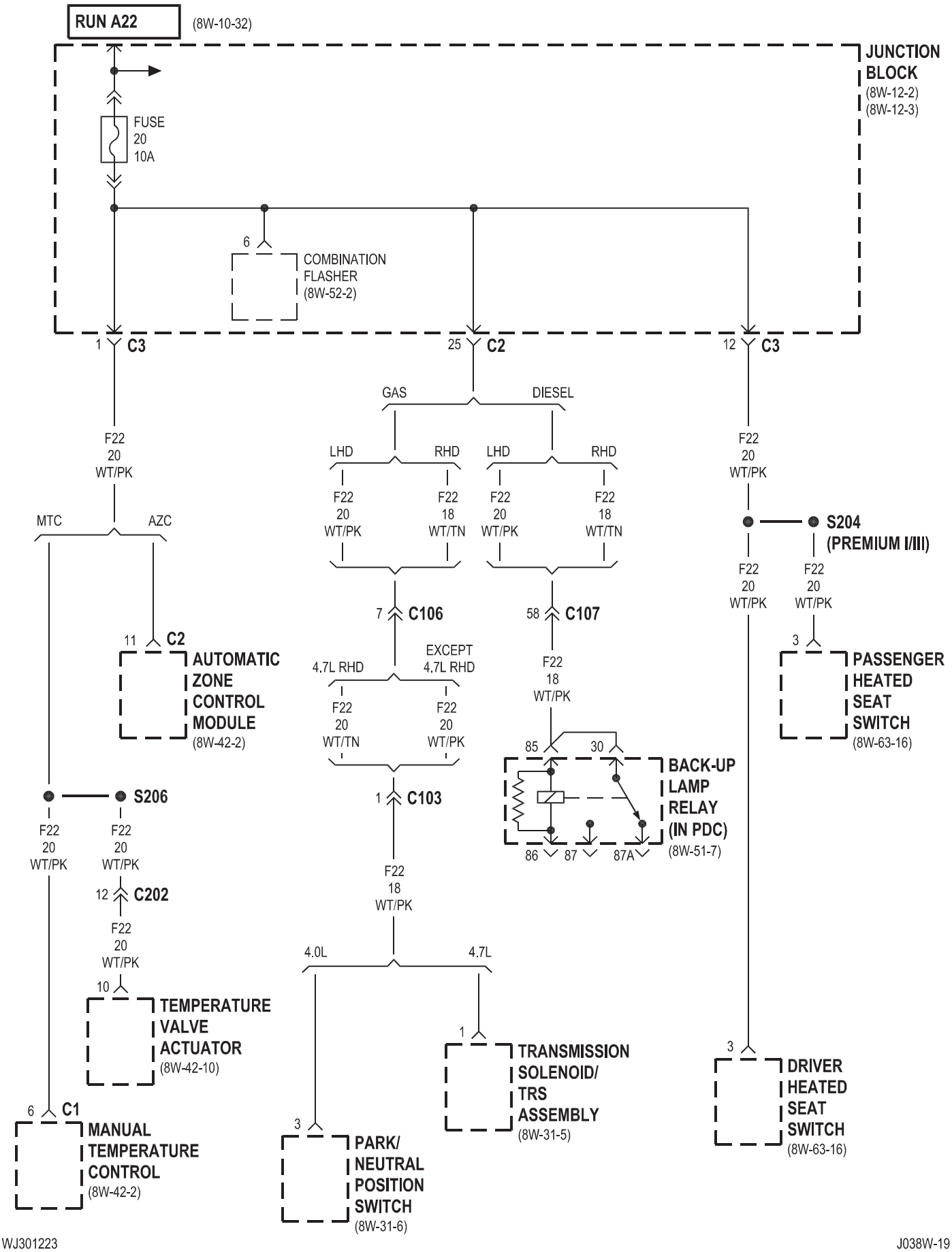

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 2 40A
(8W-10-15)
2
A149 12 RD/TN
GAS
DIESEL
A
C106
D
C107
A149 12 RD/TN
2
C5
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
85
30
REAR WINDOW DEFOGGER RELAY
(8W-48-2)
86
87
87A
30
CIGAR LIGHTER RELAY
(8W-41-4)
87
87A
11
JB
BODY CONTROL MODULE
(8W-45-9)
FUSE 11 10A
FUSE 26 15A
50
C1
15
C3
40
C3
41
C1
C15 12 BK/WT
C79 20 BK/WT
F30 16 RD
Y202 14 RD/TN
RHD
LHD
G
C301
MTC
AZC
C15 12 BK/WT
10
C308
S374
C15 12 BK/WT
4
C1
MANUAL TEMPERATURE CONTROL
(8W-42-10)
1
CIGAR LIGHTER
(8W-41-4)
EXCEPT EXPORT
EXPORT
4
C310
4
C310
NOT USED
Y202 14 RD/TN
B
REAR WINDOW DEFOGGER
(8W-48-2)
6
C1
AUTOMATIC ZONE CONTROL MODULE
(8W-42-5)
TRAILER TOW CIRCUIT BREAKER
(8W-54-3)

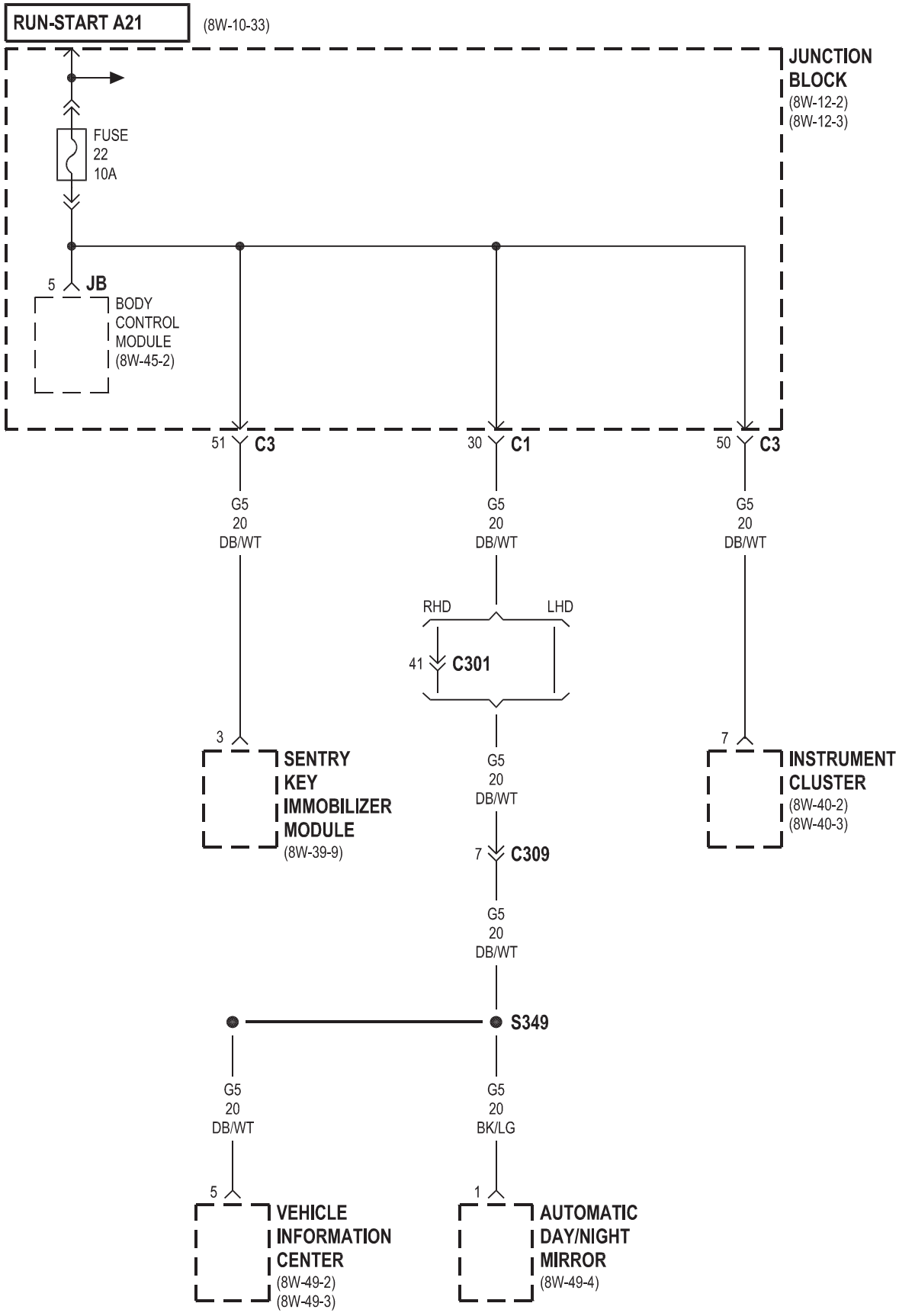

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 12 10A
FUSE 21 10A
11 C2
43 C2
52 C3
F991 20 OR/DB
F12 20 DB/WT
S316
44
8 C106
8 C107
F12 18 DB/WT
86
85
A/C COMPRESSOR CLUTCH RELAY (IN PDC)
(8W-42-3)
1
EVAP/ PURGE SOLENOID
(8W-30-4)
(8W-30-5)
5
SHIFTER ASSEMBLY
(8W-31-14)
F991 20OR/DB
FUEL PUMP RELAY (IN PDC)
(8W-30-9)
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-8)
EXCEPT 4.0L LHD
4.0L LHD
2 C102
2 C104
F991 18 OR/DB
4.0L
4.7L
S116
2 C1
POWERTRAIN CONTROL MODULE
(8W-30-8)
11
TRANSMISSION CONTROL MODULE
(8W-31-4)

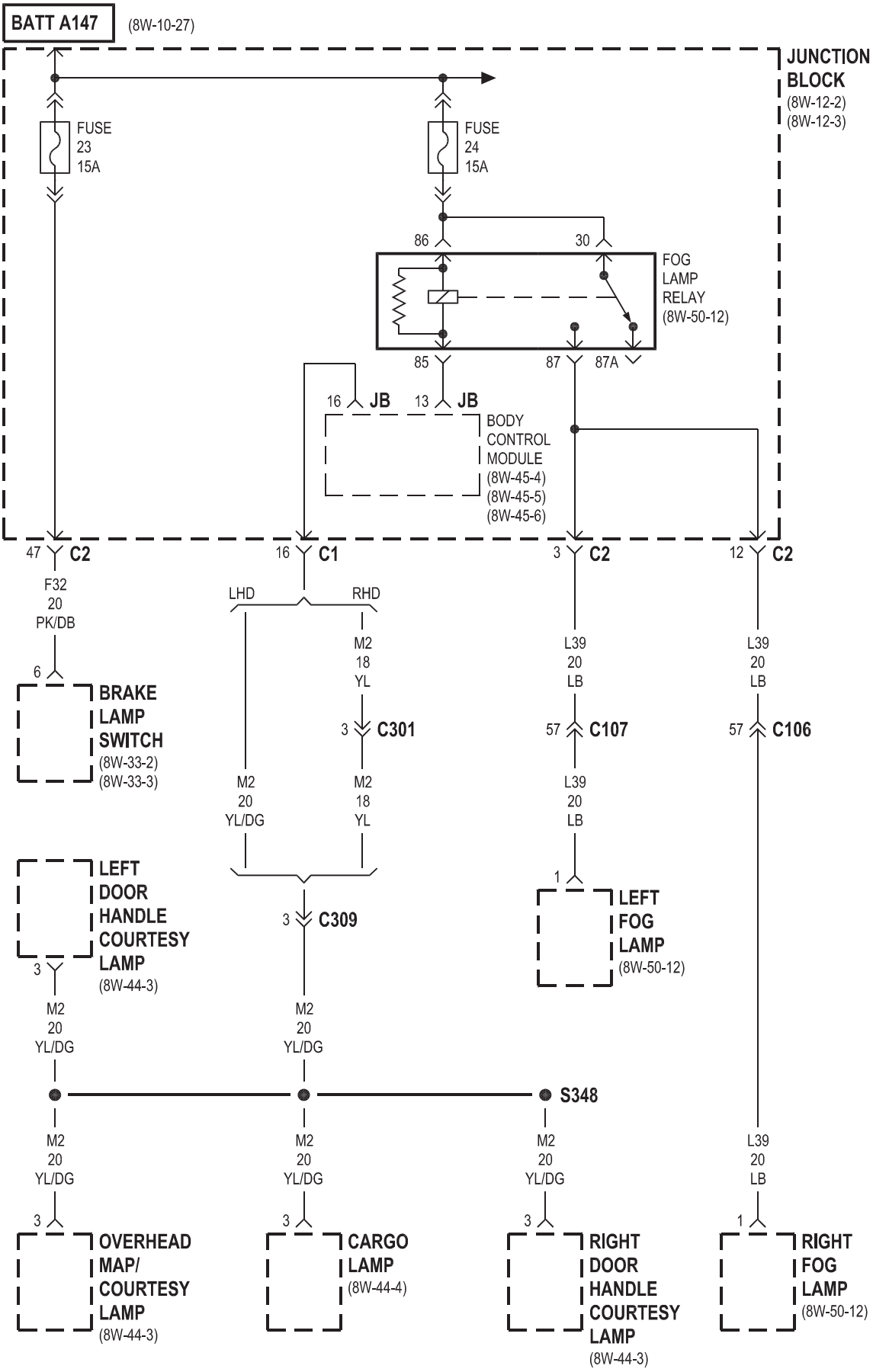

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 12 10A
FUSE 21 10A
11 C2
30 C3
43 C2
NOT USED
52 C3
F991 20 OR/DB
F991 18 OR/DB
F12 20 DB/WT
21 C107
F991 20 OR/DB
7 C102
12
8 C201
F991 20 RD/DB
F991 20 OR/DB
F12 20 DB/WT
22 C1
1 C1
3 C2
ENGINE CONTROL MODULE
(8W-30-47)
SHIFTER ASSEMBLY
(8W-31-15)

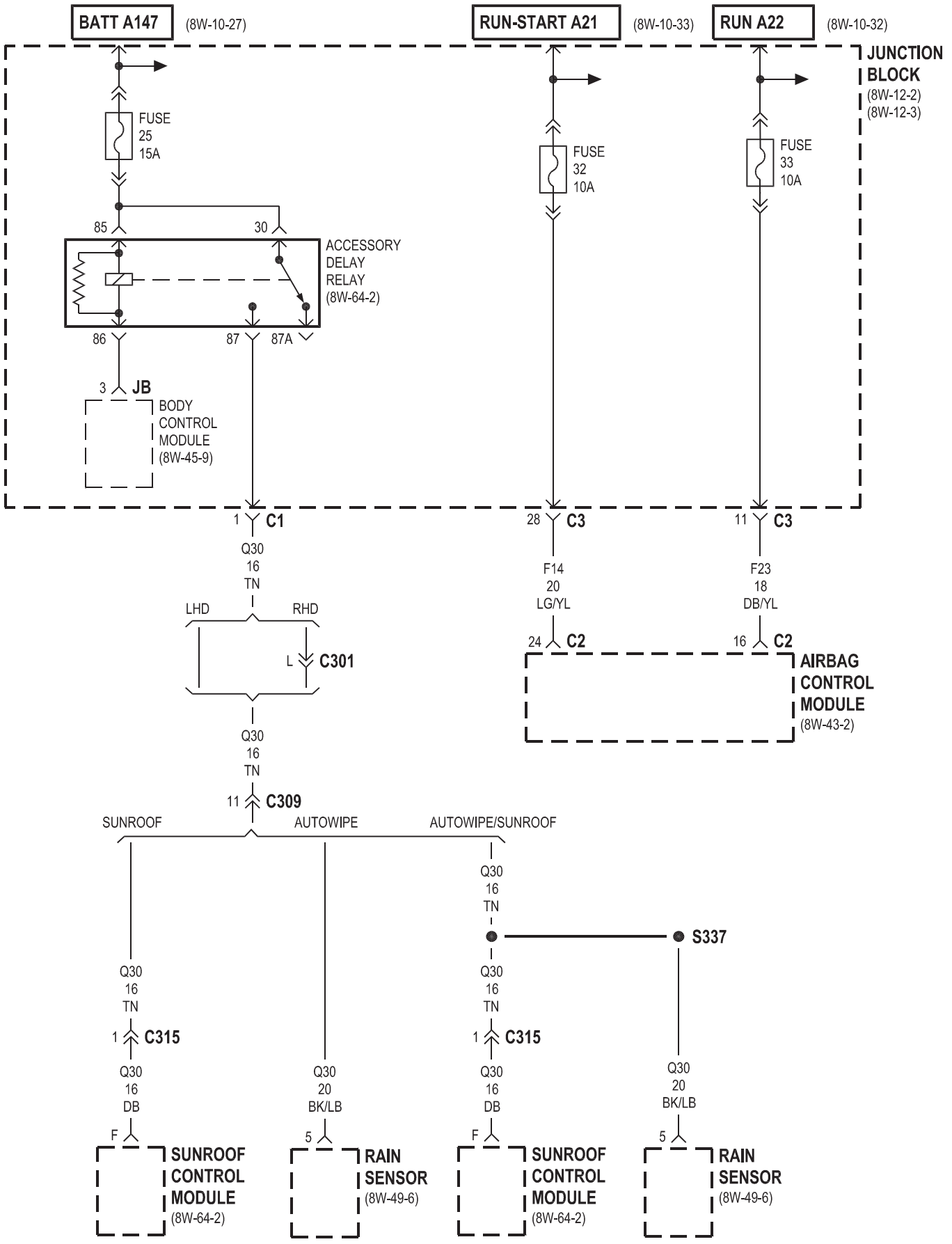

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 3 50A
(8W-10-16)
3
A145 10 WT/RD
GAS
DIESEL
G C106
G C107
A145 10 WT/RD
1 C5
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
EXCEPT DRL
DRL
85
30
30
86
LOW BEAM RELAY
(8W-50-4)
LOW BEAM/ DAYTIME RUNNING LAMP RELAY
(8W-50-13)
86
87
87A
87A
87
85
EXCEPT DRL
DRL
4 JB
BODY CONTROL MODULE
(8W-45-3)
FUSE 14 10A
FUSE 15 10A
4 JB
BODY CONTROL MODULE
(8W-45-3)
39 C2
49 C2
L43 18 VT
L44 18 VT/RD
59 C107
59 C106
L43 18 VT
L44 18 VT/RD
2 C111
2 C112
L43 18 VT
L44 18 VT/RD
B
B
LEFT LOW BEAM HEADLAMP
(8W-50-5)
RIGHT LOW BEAM HEADLAMP
(8W-50-5)

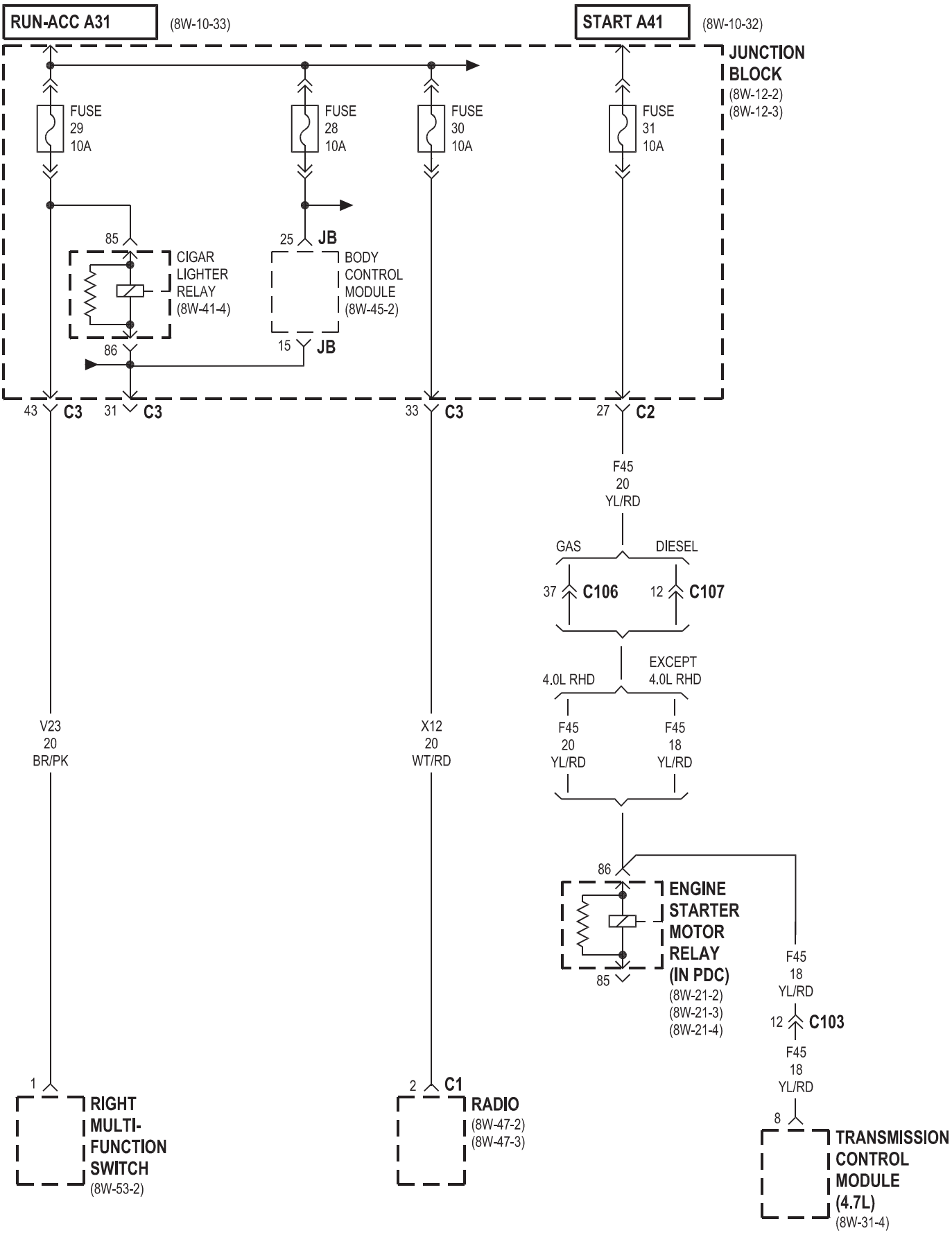

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 12 50A (8W-10-34)
12
A146 10 OR/WT
GAS
DIESEL
H C106
H C107
A146 10 OR/WT
2 C4
RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 18 30A
FUSE 19 10A
35 C1
42 C2
RHD
LHD
F9 14 RD/BK
C C301
F9 14 RD/BK
F9 14 RD/BK
F20 18 DB/PK
1 C310
33 C107
F9 14 RD/BK
F20 18 DB/PK
S371
F9 14 RD/BK
F9 14 RD/BK
87A
87
TRAILER TOW LEFT TURN RELAY
(8W-54-5)
30
87A
87
TRAILER TOW RIGHT TURN RELAY
(8W-54-5)
30
10
CONTROLLER ANTILOCK BRAKE
(8W-35-2)
(8W-35-3)

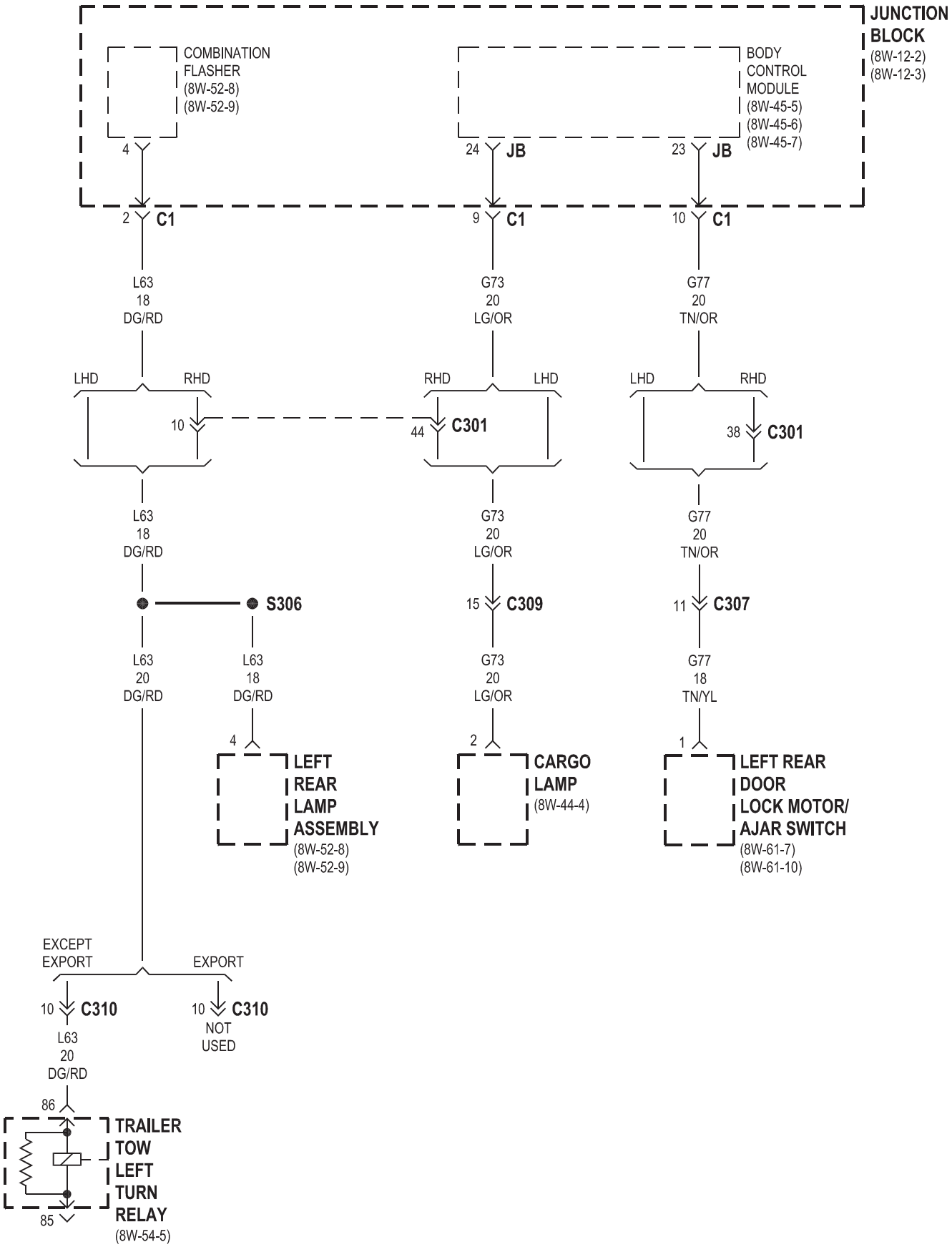

RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
20
10A
6
COMBINATION FLASHER
(8W-52-2)
1 C3
25 C2
12 C3
GAS
DIESEL
LHD
RHD
LHD
RHD
F22
20
WT/PK
F22
18
WT/TN
F22
20
WT/PK
F22
18
WT/TN
F22
20
WT/PK
MTC
AZC
7 C106
58 C107
11 C2
AUTOMATIC ZONE CONTROL MODULE
(8W-42-2)
EXCEPT 4.7L RHD
4.7L RHD
F22
20
WT/TN
F22
20
WT/PK
F22
18
WT/PK
1 C103
85
30
86
87
87A
BACK-UP LAMP RELAY (IN PDC)
(8W-51-7)
S204
(PREMIUM I/III)
F22
20
WT/PK
3
PASSENGER HEATED SEAT SWITCH
(8W-63-16)
S206
12 C202
10
TEMPERATURE VALVE ACTUATOR
(8W-42-10)
4.0L
4.7L
1
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-5)
6 C1
MANUAL TEMPERATURE CONTROL
(8W-42-2)
3
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
3
DRIVER HEATED SEAT SWITCH
(8W-63-16)

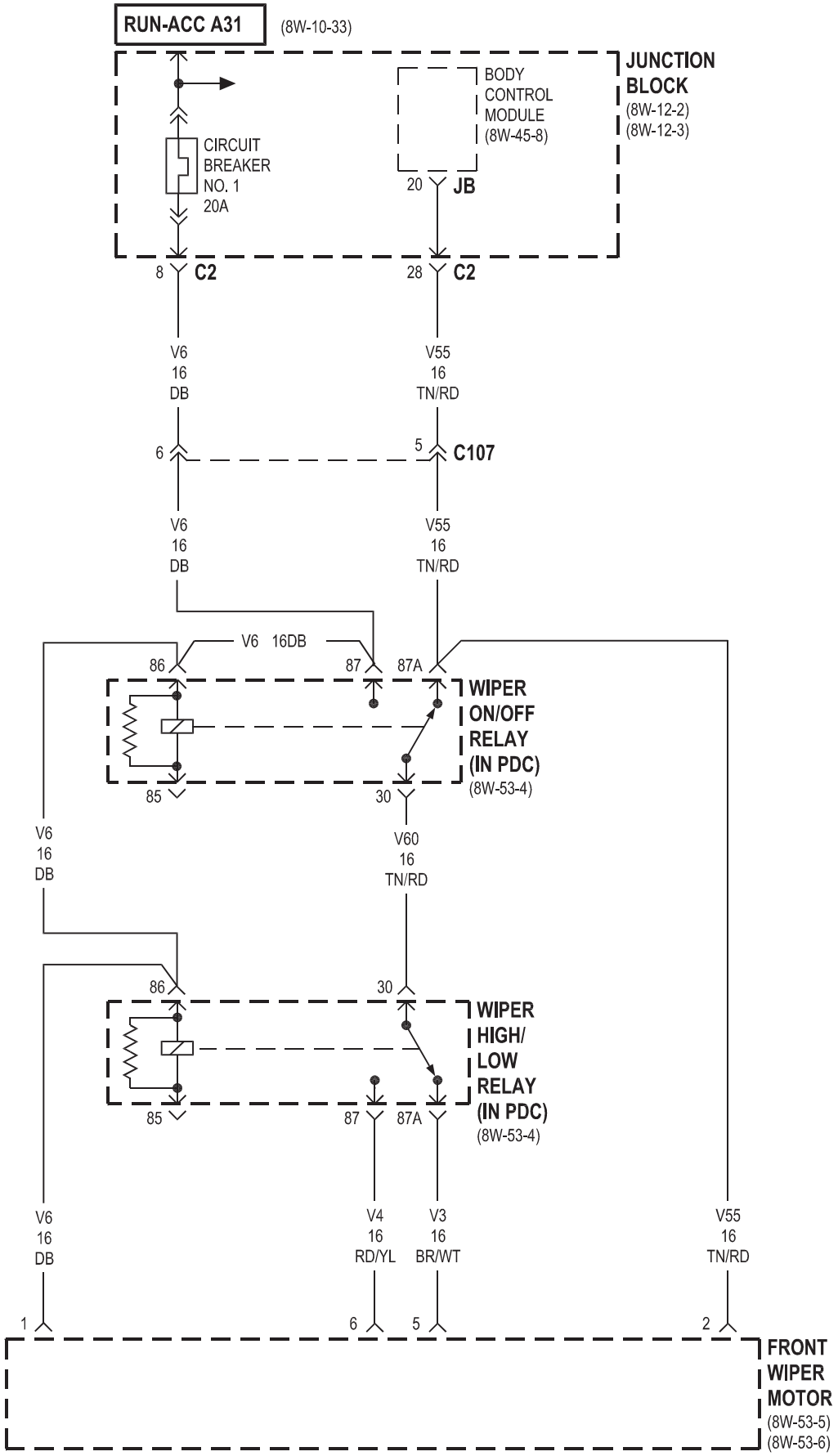

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
22
10A
5 JB
BODY CONTROL MODULE
(8W-45-2)
51 C3
30 C1
50 C3
G5
20
DB/WT
RHD
LHD
41 C301
3
SENTRY KEY IMMOBILIZER MODULE
(8W-39-9)
7
INSTRUMENT CLUSTER
(8W-40-2)
(8W-40-3)
7 C309
S349
G5
20
BK/LG
5
VEHICLE INFORMATION CENTER
(8W-49-2)
(8W-49-3)
1
AUTOMATIC DAY/NIGHT MIRROR
(8W-49-4)

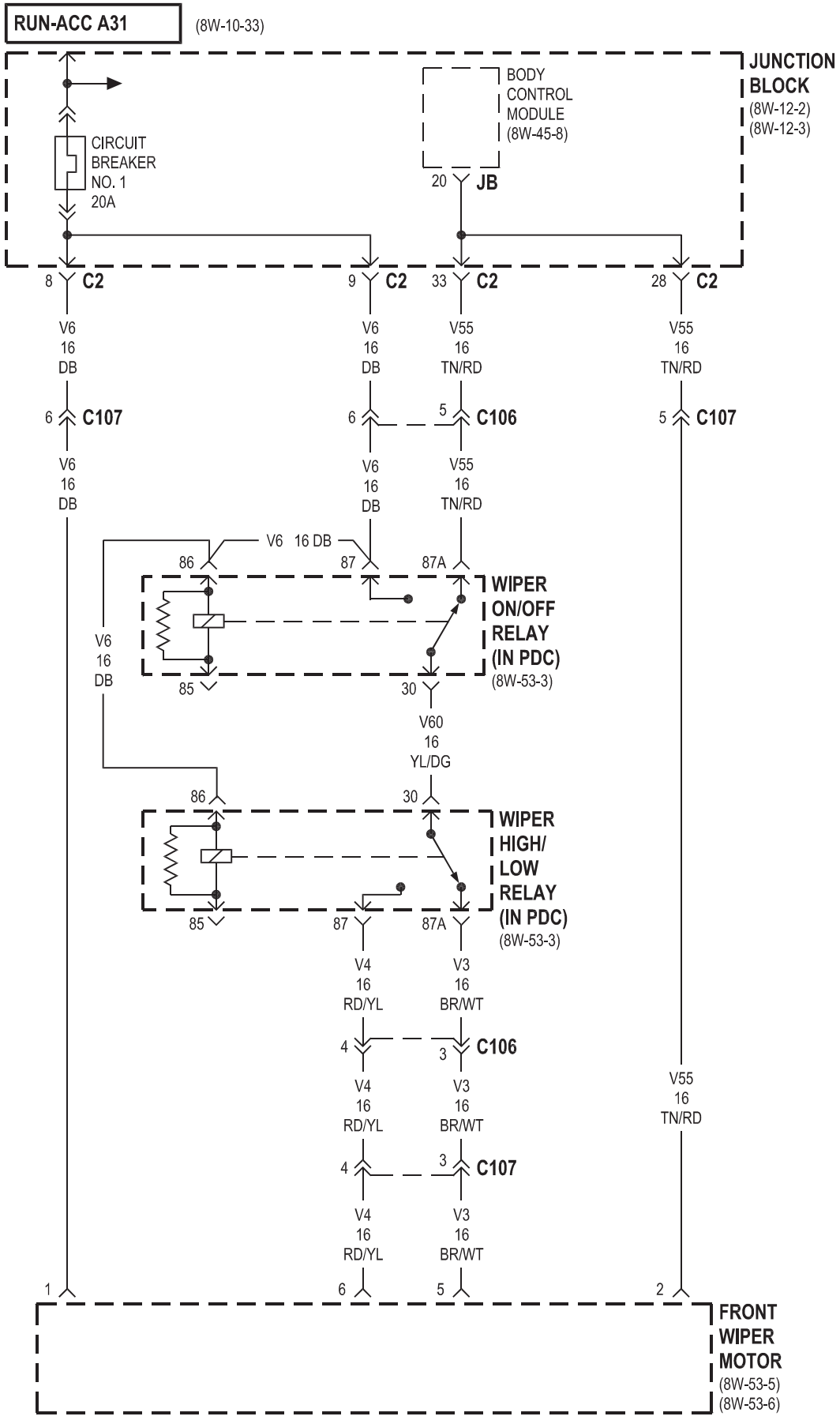

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 23 15A
FUSE 24 15A
86
30
FOG LAMP RELAY
(8W-50-12)
85
87
87A
16 JB
13 JB
BODY CONTROL MODULE
(8W-45-4)
(8W-45-5)
(8W-45-6)
47 C2
16 C1
3 C2
12 C2
F32 20 PK/DB
6
BRAKE LAMP SWITCH
(8W-33-2)
(8W-33-3)
LHD
RHD
M2 18 YL
3 C301
M2 20 YL/DG
M2 18 YL
3 C309
L39 20 LB
57 C107
L39 20 LB
1
LEFT FOG LAMP
(8W-50-12)
L39 20 LB
57 C106
LEFT DOOR HANDLE COURTESY LAMP
(8W-44-3)
3
M2 20 YL/DG
M2 20 YL/DG
S348
M2 20 YL/DG
M2 20 YL/DG
M2 20 YL/DG
L39 20 LB
3
OVERHEAD MAP/ COURTESY LAMP
(8W-44-3)
3
CARGO LAMP
(8W-44-4)
3
RIGHT DOOR HANDLE COURTESY LAMP
(8W-44-3)
1
RIGHT FOG LAMP
(8W-50-12)

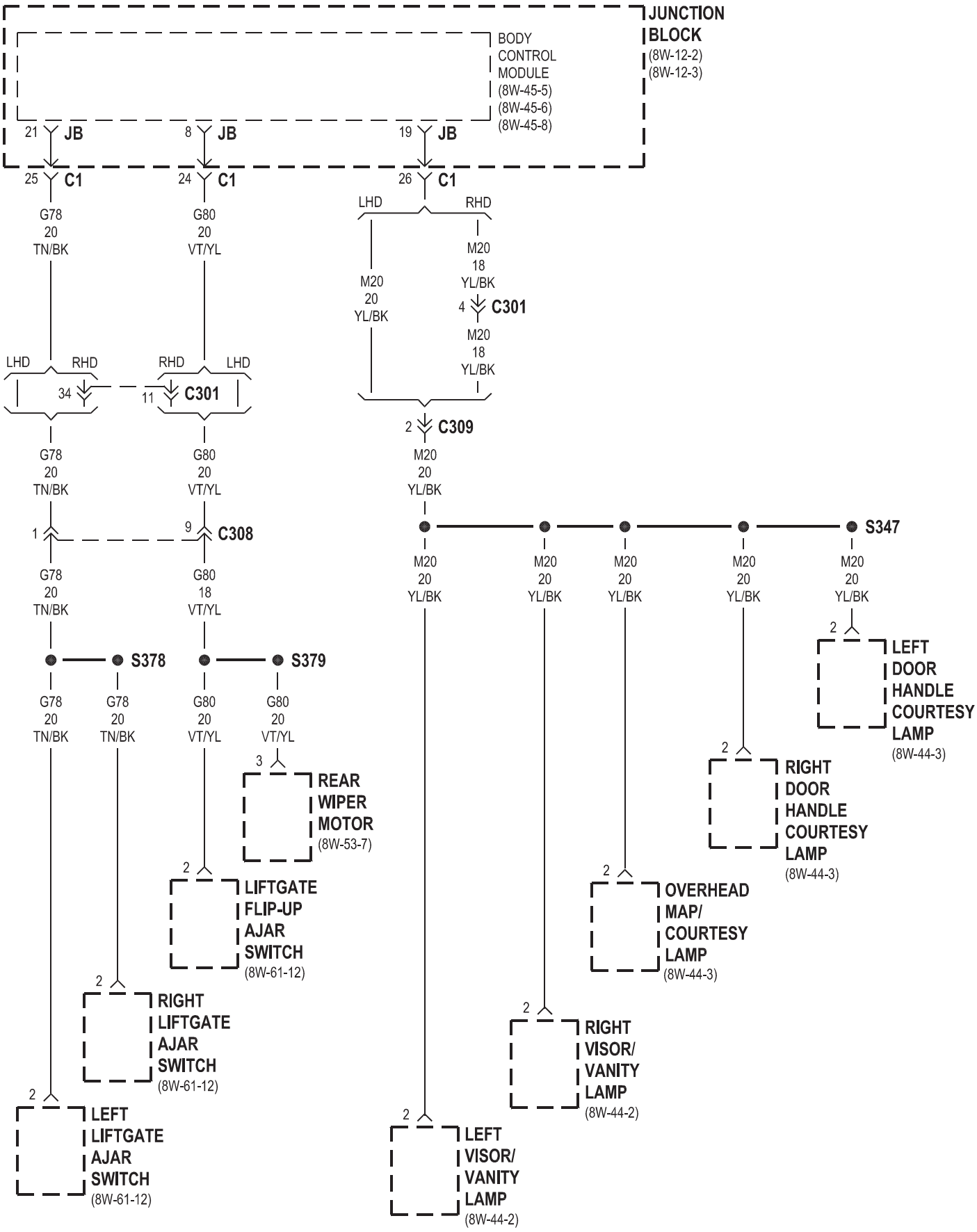

BATT A147
(8W-10-27)
RUN-START A21
(8W-10-33)
RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 25 15A
FUSE 32 10A
FUSE 33 10A
85
30
ACCESSORY DELAY RELAY
(8W-64-2)
86
87
87A
3 JB
BODY CONTROL MODULE
(8W-45-9)
1 C1
28 C3
11 C3
Q30 16 TN
F14 20 LG/YL
F23 18 DB/YL
LHD
RHD
L C301
24 C2
16 C2
AIRBAG CONTROL MODULE
(8W-43-2)
11 C309
SUNROOF
AUTOWIPE
AUTOWIPE/SUNROOF
S337
1 C315
Q30 16 DB
Q30 20 BK/LB
F
5
SUNROOF CONTROL MODULE
(8W-64-2)
RAIN SENSOR
(8W-49-6)

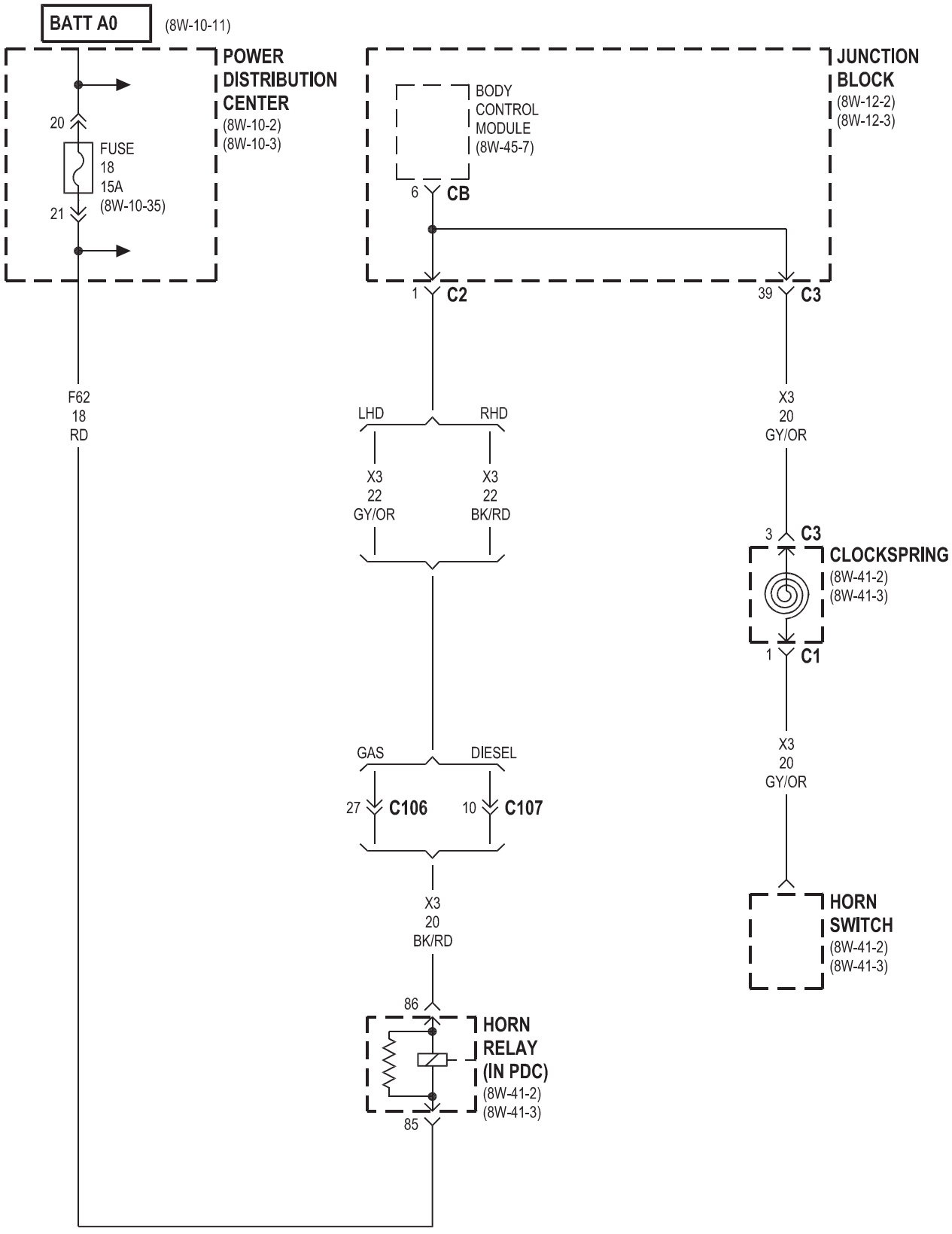

RUN-ACC A31
(8W-10-33)
START A41
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 29 10A
FUSE 28 10A
FUSE 30 10A
FUSE 31 10A
85
CIGAR LIGHTER RELAY
(8W-41-4)
25 JB
BODY CONTROL MODULE
(8W-45-2)
15 JB
86
43 C3
31 C3
33 C3
27 C2
F45 20 YL/RD
GAS
DIESEL
37 C106
12 C107
EXCEPT 4.0L RHD
4.0L RHD
F45 20 YL/RD
F45 18 YL/RD
V23 20 BR/PK
X12 20 WT/RD
86
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
(8W-21-3)
(8W-21-4)
85
F45 18 YL/RD
12 C103
F45 18 YL/RD
8
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-4)
1
RIGHT MULTI-FUNCTION SWITCH
(8W-53-2)
2 C1
RADIO
(8W-47-2)
(8W-47-3)

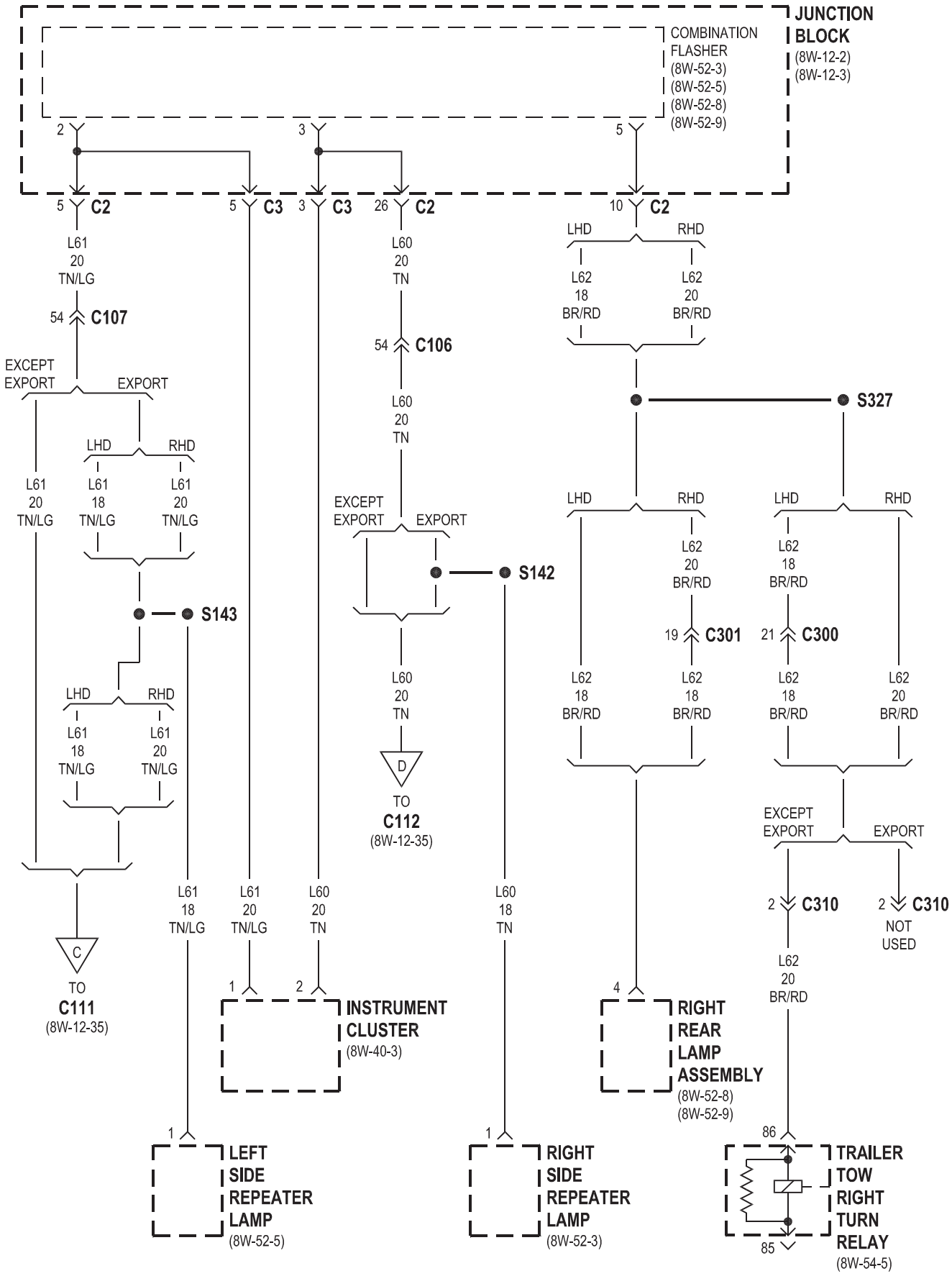

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
(8W-52-8)
(8W-52-9)
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
(8W-45-7)
4
24 JB
23 JB
2 C1
9 C1
10 C1
L63 18 DG/RD
G73 20 LG/OR
G77 20 TN/OR
LHD
RHD
10
44 C301
38 C301
S306
15 C309
11 C307
L63 20 DG/RD
L63 18 DG/RD
G73 20 LG/OR
G77 18 TN/YL
4
2
1
LEFT REAR LAMP ASSEMBLY
(8W-52-8)
(8W-52-9)
CARGO LAMP
(8W-44-4)
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-7)
(8W-61-10)
EXCEPT EXPORT
EXPORT
10 C310
10 C310
NOT USED
86
85
TRAILER TOW LEFT TURN RELAY
(8W-54-5)

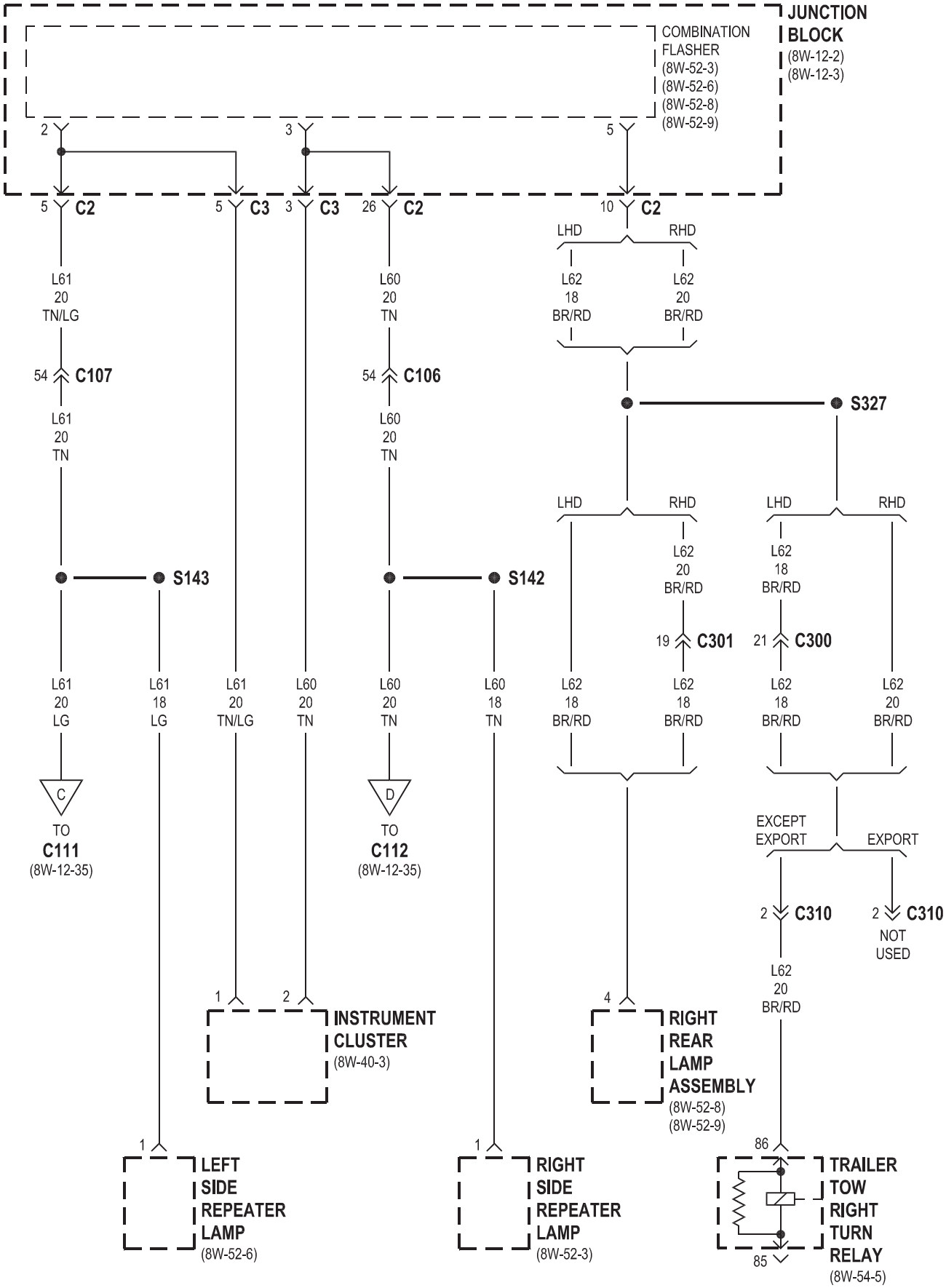

RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-8)
CIRCUIT BREAKER NO. 1 20A
20
JB
8
C2
28
C2
V6 16 DB
V55 16 TN/RD
6
5
C107
V6 16 DB
V55 16 TN/RD
V6 16DB
86
87
87A
WIPER ON/OFF RELAY (IN PDC)
(8W-53-4)
85
30
V6 16 DB
V60 16 TN/RD
86
30
WIPER HIGH/ LOW RELAY (IN PDC)
(8W-53-4)
85
87
87A
V6 16 DB
V4 16 RD/YL
V3 16 BR/WT
V55 16 TN/RD
1
6
5
2
FRONT WIPER MOTOR
(8W-53-5)
(8W-53-6)

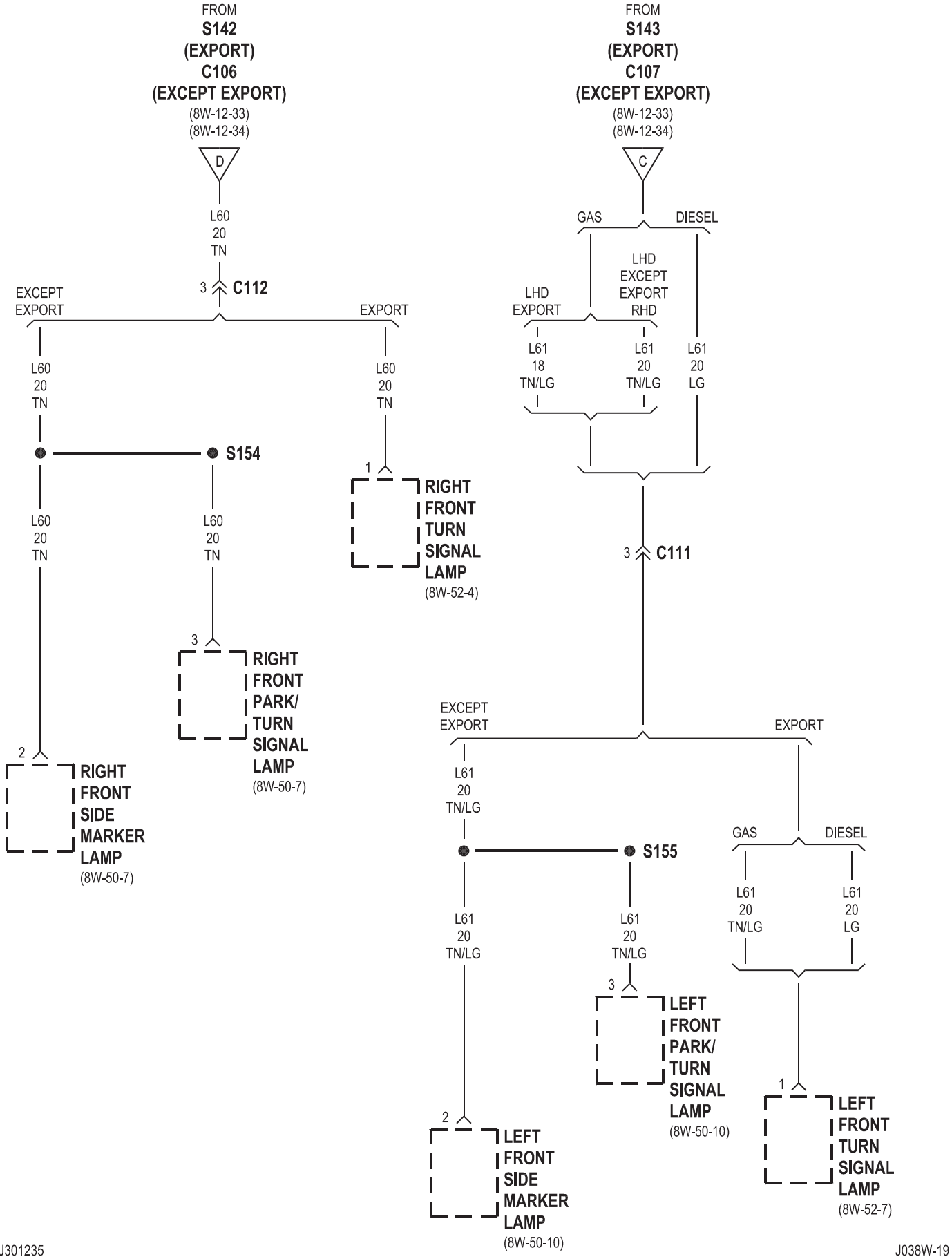

RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-8)
CIRCUIT BREAKER NO. 1 20A
20 JB
8 C2
9 C2
33 C2
28 C2
V6 16 DB
V55 16 TN/RD
6 C107
6 C106
5 C106
5 C107
86
87
87A
85
30
WIPER ON/OFF RELAY (IN PDC)
(8W-53-3)
V60 16 YL/DG
WIPER HIGH/ LOW RELAY (IN PDC)
(8W-53-3)
V4 16 RD/YL
V3 16 BR/WT
4 C106
3 C106
4 C107
3 C107
1
6
5
2
FRONT WIPER MOTOR
(8W-53-5)
(8W-53-6)

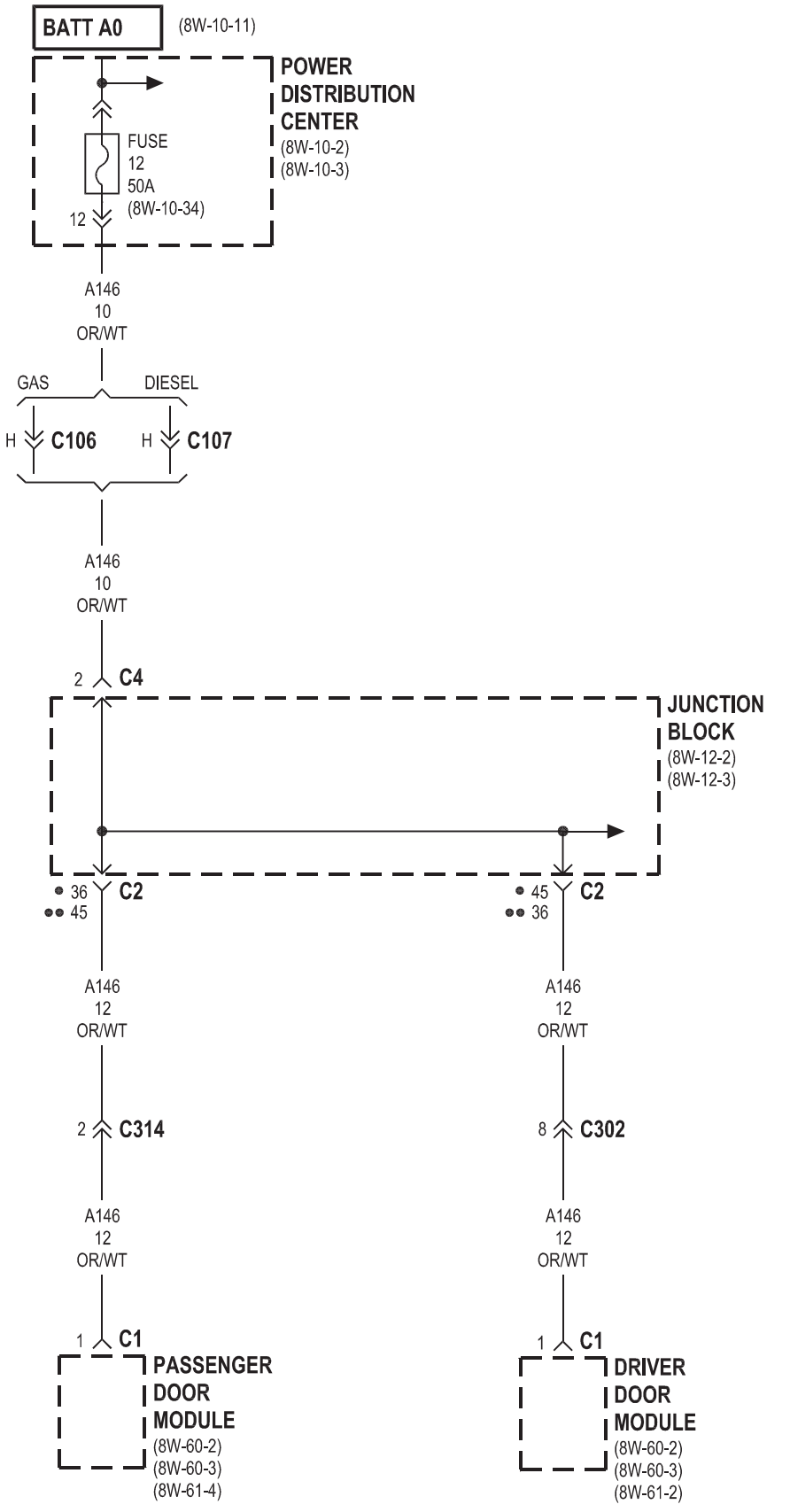

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
(8W-45-8)
21 JB
8 JB
19 JB
25 C1
24 C1
26 C1
G78 20 TN/BK
G80 20 VT/YL
LHD
RHD
M20 20 YL/BK
M20 18 YL/BK
4 C301
34
11 C301
2 C309
1 C308
9 C308
G78 18 TN/BK
G80 18 VT/YL
S378
S379
S347
G78 20 TN/BK
G80 20 VT/YL
M20 20 YL/BK
3 REAR WIPER MOTOR
(8W-53-7)
2 LIFTGATE FLIP-UP AJAR SWITCH
(8W-61-12)
2 RIGHT LIFTGATE AJAR SWITCH
(8W-61-12)
2 LEFT LIFTGATE AJAR SWITCH
(8W-61-12)
2 LEFT DOOR HANDLE COURTESY LAMP
(8W-44-3)
2 RIGHT DOOR HANDLE COURTESY LAMP
(8W-44-3)
2 OVERHEAD MAP/ COURTESY LAMP
(8W-44-3)
2 RIGHT VISOR/ VANITY LAMP
(8W-44-2)
2 LEFT VISOR/ VANITY LAMP
(8W-44-2)

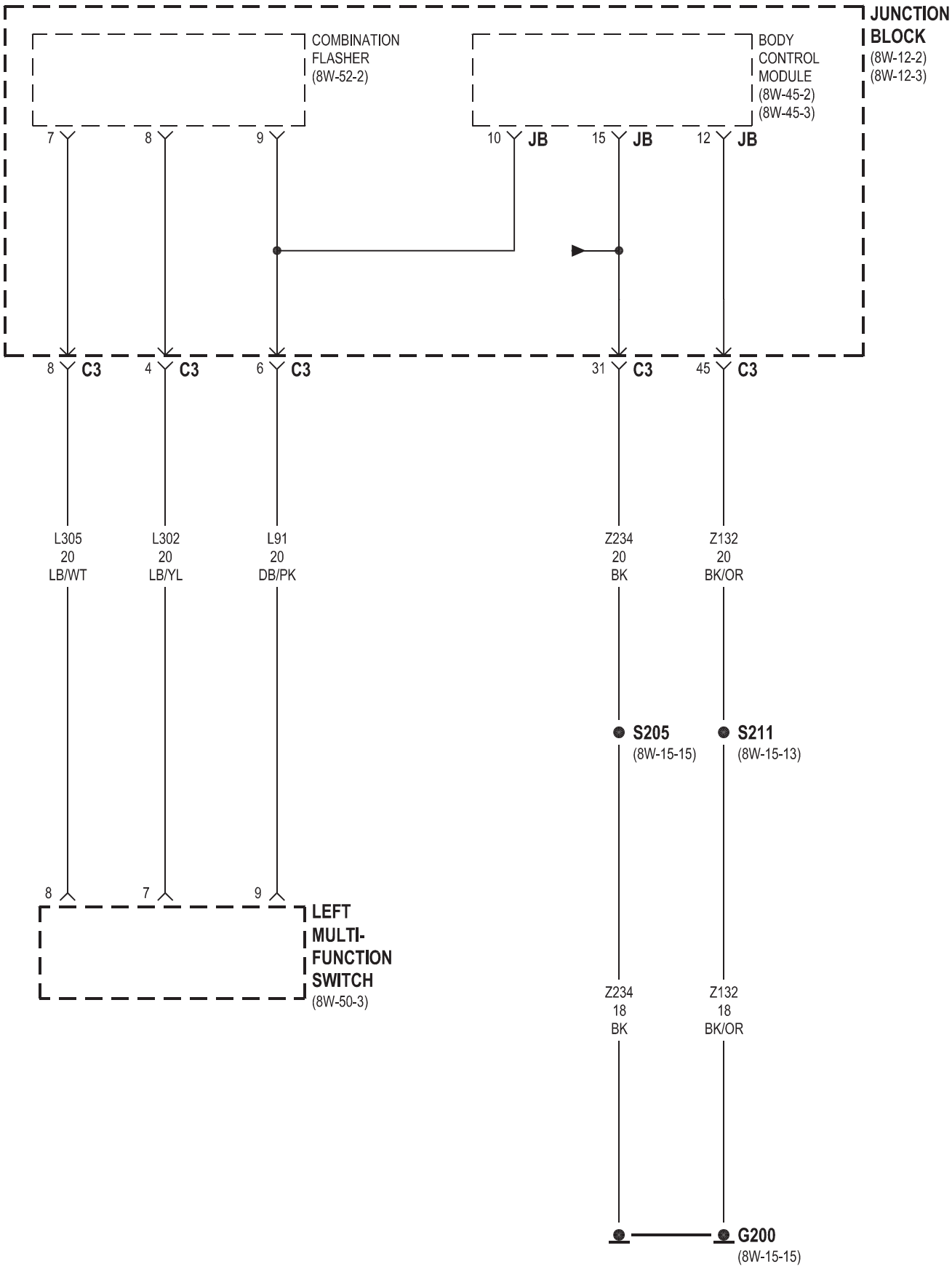

BATT A0
(8W-10-11)
POWER
DISTRIBUTION
CENTER
(8W-10-2)
(8W-10-3)
20
FUSE
18
15A
(8W-10-35)
21
F62
18
RD
JUNCTION
BLOCK
(8W-12-2)
(8W-12-3)
BODY
CONTROL
MODULE
(8W-45-7)
6
CB
1
C2
39
C3
X3
20
GY/OR
LHD
RHD
X3
22
GY/OR
X3
22
BK/RD
3
C3
CLOCKSPRING
(8W-41-2)
(8W-41-3)
1
C1
X3
20
GY/OR
HORN
SWITCH
(8W-41-2)
(8W-41-3)
GAS
DIESEL
27
C106
10
C107
X3
20
BK/RD
86
HORN
RELAY
(IN PDC)
(8W-41-2)
(8W-41-3)
85

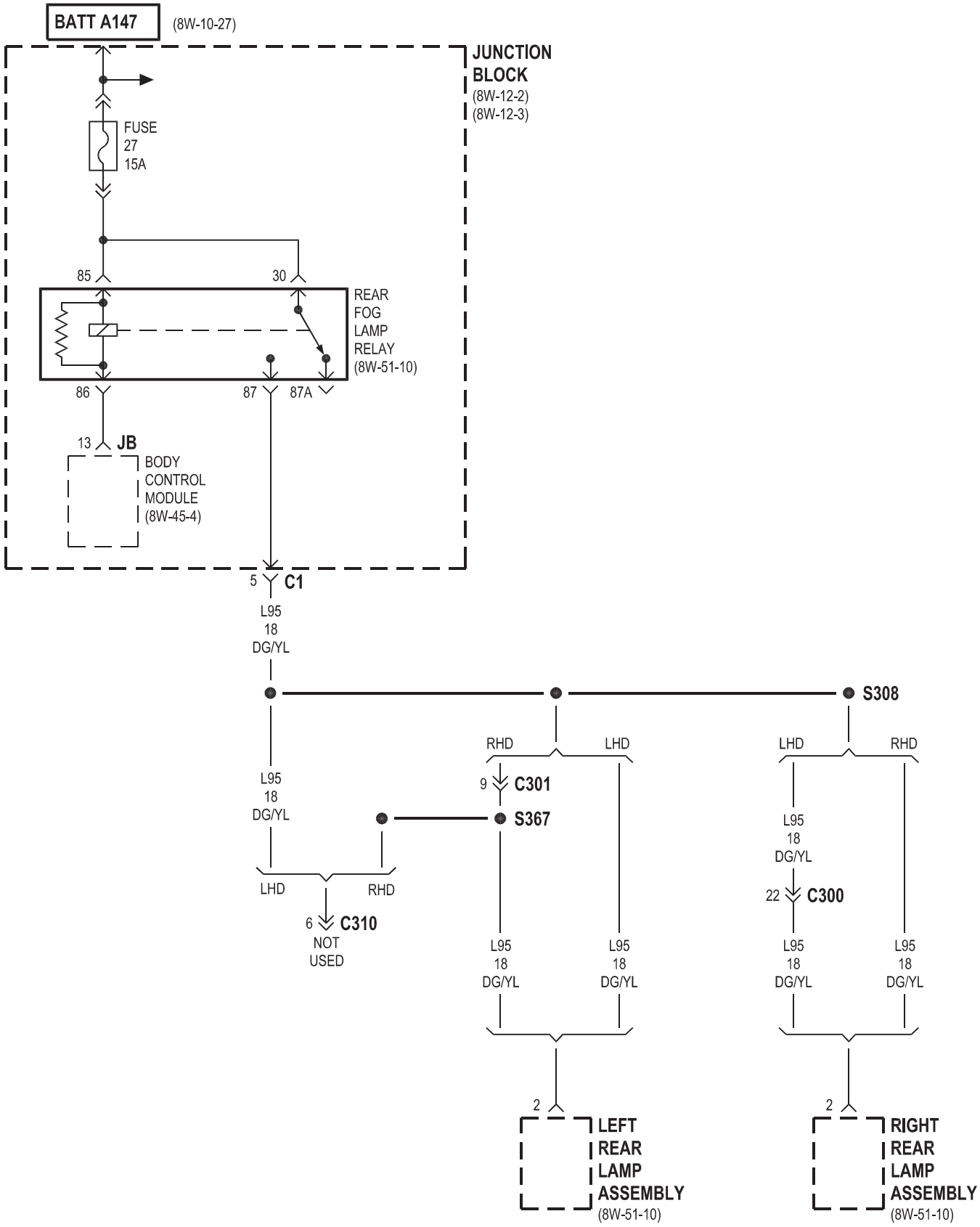

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
(8W-52-3)
(8W-52-5)
(8W-52-8)
(8W-52-9)
2
3
5
5 C2
5 C3
3 C3
26 C2
10 C2
L61 20 TN/LG
54 C107
EXCEPT EXPORT
EXPORT
LHD
RHD
L61 20 TN/LG
L61 18 TN/LG
L61 20 TN/LG
S143
LHD
RHD
L61 18 TN/LG
L61 20 TN/LG
C
TO C111
(8W-12-35)
L61 18 TN/LG
L61 20 TN/LG
L60 20 TN
L60 20 TN
54 C106
EXCEPT EXPORT
EXPORT
S142
L60 20 TN
D
TO C112
(8W-12-35)
L60 18 TN
LHD
RHD
L62 18 BR/RD
L62 20 BR/RD
S327
LHD
RHD
L62 20 BR/RD
19 C301
L62 18 BR/RD
L62 18 BR/RD
LHD
RHD
L62 18 BR/RD
21 C300
L62 18 BR/RD
L62 20 BR/RD
EXCEPT EXPORT
EXPORT
2 C310
2 C310
NOT USED
L62 20 BR/RD
1
2
INSTRUMENT CLUSTER
(8W-40-3)
4
RIGHT REAR LAMP ASSEMBLY
(8W-52-8)
(8W-52-9)
1
LEFT SIDE REPEATER LAMP
(8W-52-5)
1
RIGHT SIDE REPEATER LAMP
(8W-52-3)
86
85
TRAILER TOW RIGHT TURN RELAY
(8W-54-5)


JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
(8W-52-3)
(8W-52-6)
(8W-52-8)
(8W-52-9)
2
3
5
5 C2
5 C3
3 C3
26 C2
10 C2
LHD
RHD
L61 20 TN/LG
L60 20 TN
L62 18 BR/RD
L62 20 BR/RD
54 C107
54 C106
S327
L61 20 TN
L60 20 TN
S143
S142
L61 20 LG
L61 18 LG
L61 20 TN/LG
L60 20 TN
L60 18 TN
L62 18 BR/RD
L62 20 BR/RD
19 C301
21 C300
C
D
TO C111 (8W-12-35)
TO C112 (8W-12-35)
EXCEPT EXPORT
EXPORT
2 C310
NOT USED
1
2
4
INSTRUMENT CLUSTER
(8W-40-3)
RIGHT REAR LAMP ASSEMBLY
(8W-52-8)
(8W-52-9)
1
1
86
LEFT SIDE REPEATER LAMP
(8W-52-6)
RIGHT SIDE REPEATER LAMP
(8W-52-3)
TRAILER TOW RIGHT TURN RELAY
(8W-54-5)
85


FROM
S142
(EXPORT)
C106
(EXCEPT EXPORT)
(8W-12-33)
(8W-12-34)
D
L60
20
TN
3
C112
EXCEPT
EXPORT
EXPORT
L60
20
TN
L60
20
TN
S154
L60
20
TN
L60
20
TN
2
RIGHT
FRONT
SIDE
MARKER
LAMP
(8W-50-7)
3
RIGHT
FRONT
PARK/
TURN
SIGNAL
LAMP
(8W-50-7)
1
RIGHT
FRONT
TURN
SIGNAL
LAMP
(8W-52-4)
FROM
S143
(EXPORT)
C107
(EXCEPT EXPORT)
(8W-12-33)
(8W-12-34)
C
GAS
DIESEL
LHD
EXPORT
LHD
EXCEPT
EXPORT
RHD
L61
18
TN/LG
L61
20
TN/LG
L61
20
LG
3
C111
EXCEPT
EXPORT
EXPORT
L61
20
TN/LG
S155
L61
20
TN/LG
L61
20
TN/LG
2
LEFT
FRONT
SIDE
MARKER
LAMP
(8W-50-10)
3
LEFT
FRONT
PARK/
TURN
SIGNAL
LAMP
(8W-50-10)
GAS
DIESEL
L61
20
TN/LG
L61
20
LG
1
LEFT
FRONT
TURN
SIGNAL
LAMP
(8W-52-7)

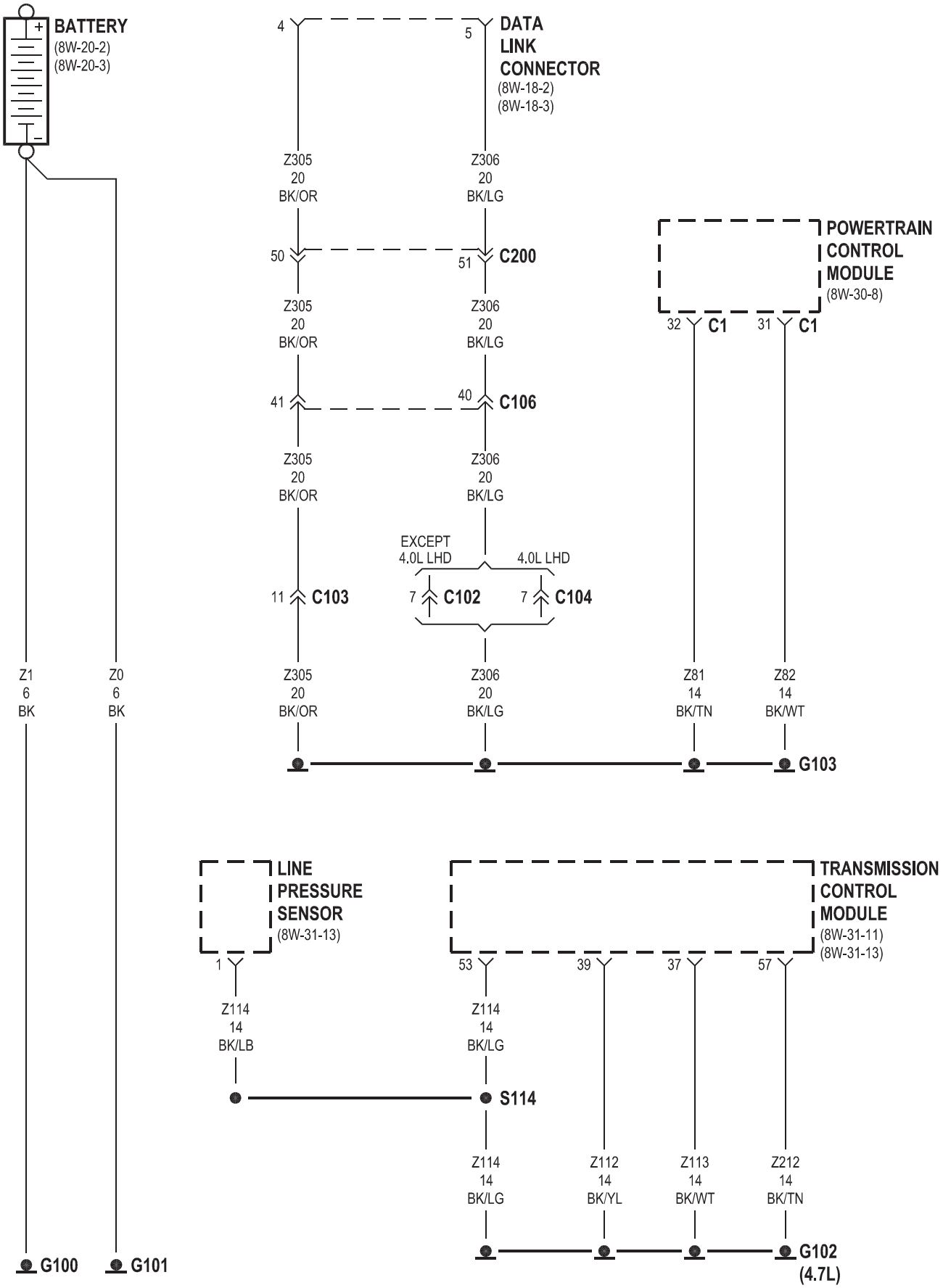

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE
12
50A
(8W-10-34)
12
A146
10
OR/WT
GAS
DIESEL
H C106
H C107
A146
10
OR/WT
2 C4
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
• 36
•• 45
C2
• 45
•• 36
C2
A146
12
OR/WT
A146
12
OR/WT
2 C314
8 C302
A146
12
OR/WT
A146
12
OR/WT
1 C1
PASSENGER DOOR MODULE
(8W-60-2)
(8W-60-3)
(8W-61-4)
1 C1
DRIVER DOOR MODULE
(8W-60-2)
(8W-60-3)
(8W-61-2)
• LHD
•• RHD

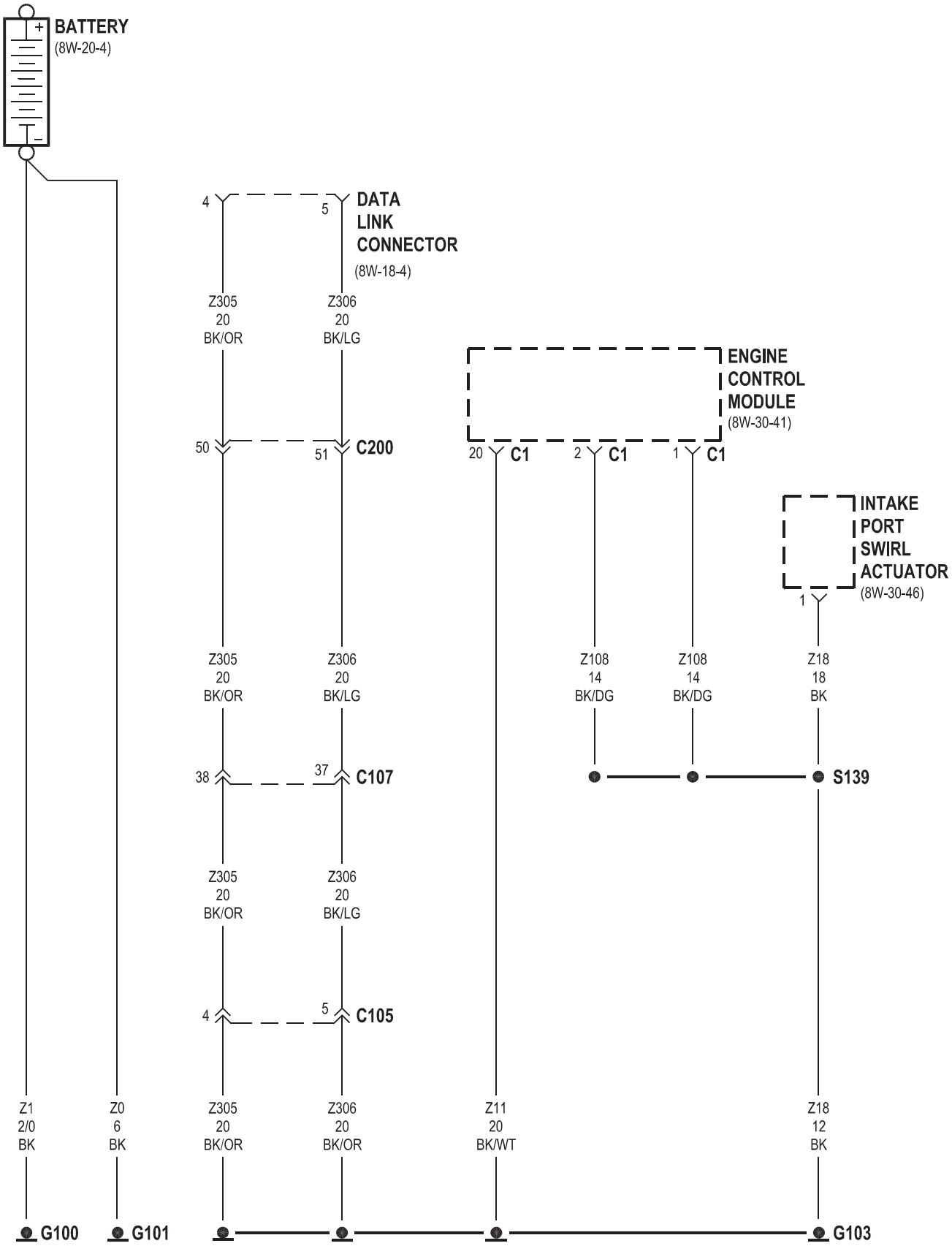

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
(8W-52-2)
BODY CONTROL MODULE
(8W-45-2)
(8W-45-3)
7
8
9
10 JB
15 JB
12 JB
8 C3
4 C3
6 C3
31 C3
45 C3
L305
20
LB/WT
L302
20
LB/YL
L91
20
DB/PK
Z234
20
BK
Z132
20
BK/OR
S205
(8W-15-15)
S211
(8W-15-13)
8
7
9
LEFT MULTI-FUNCTION SWITCH
(8W-50-3)
Z234
18
BK
Z132
18
BK/OR
G200
(8W-15-15)

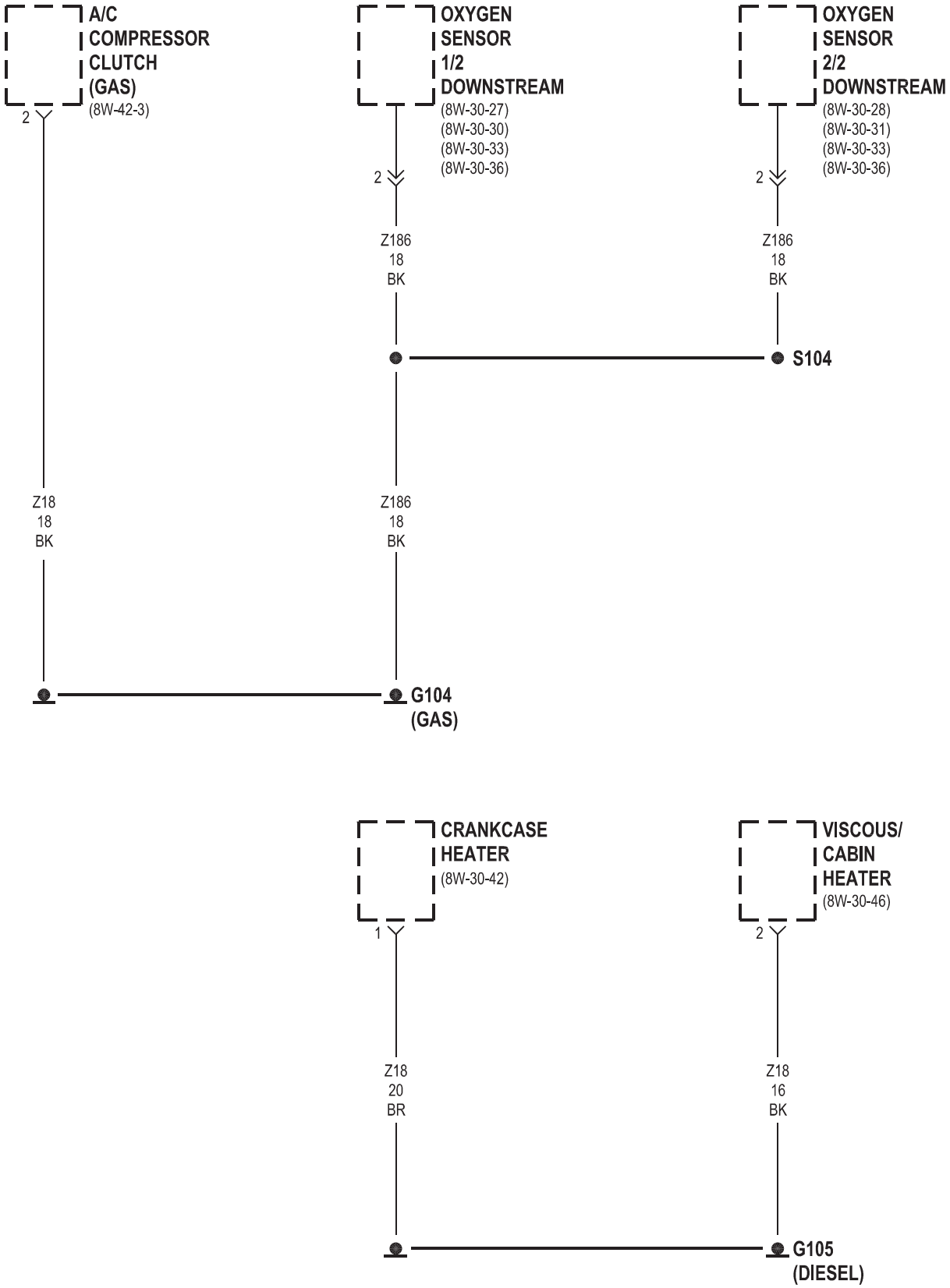

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
27
15A
85
30
REAR FOG LAMP RELAY
(8W-51-10)
86
87
87A
13
JB
BODY CONTROL MODULE
(8W-45-4)
5
C1
L95
18
DG/YL
S308
RHD
LHD
9
C301
S367
L95
18
DG/YL
LHD
RHD
6
C310
NOT USED
L95
18
DG/YL
L95
18
DG/YL
LHD
RHD
L95
18
DG/YL
22
C300
L95
18
DG/YL
L95
18
DG/YL
2
LEFT REAR LAMP ASSEMBLY
(8W-51-10)
2
RIGHT REAR LAMP ASSEMBLY
(8W-51-10)

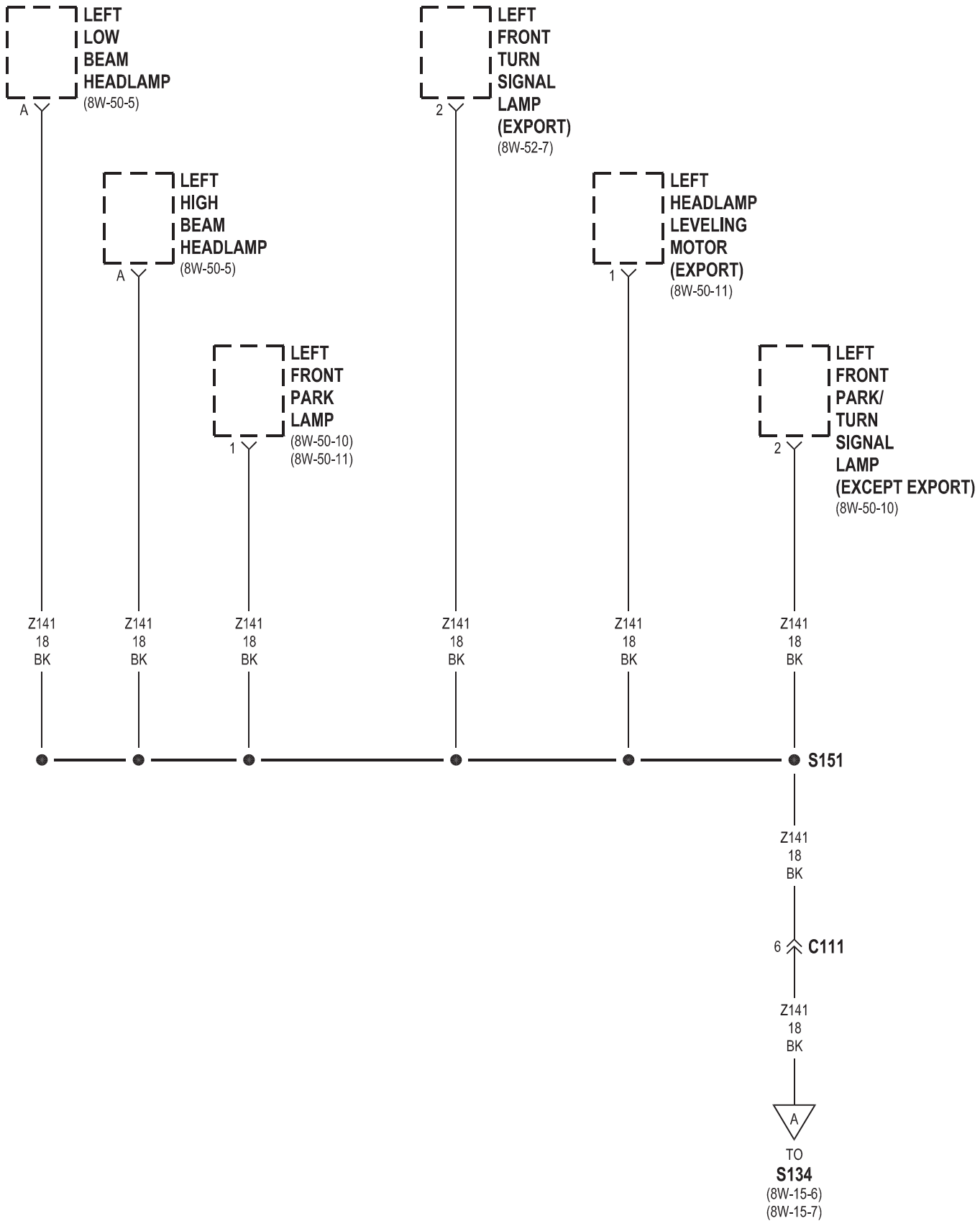
8W-15 GROUND DISTRIBUTION

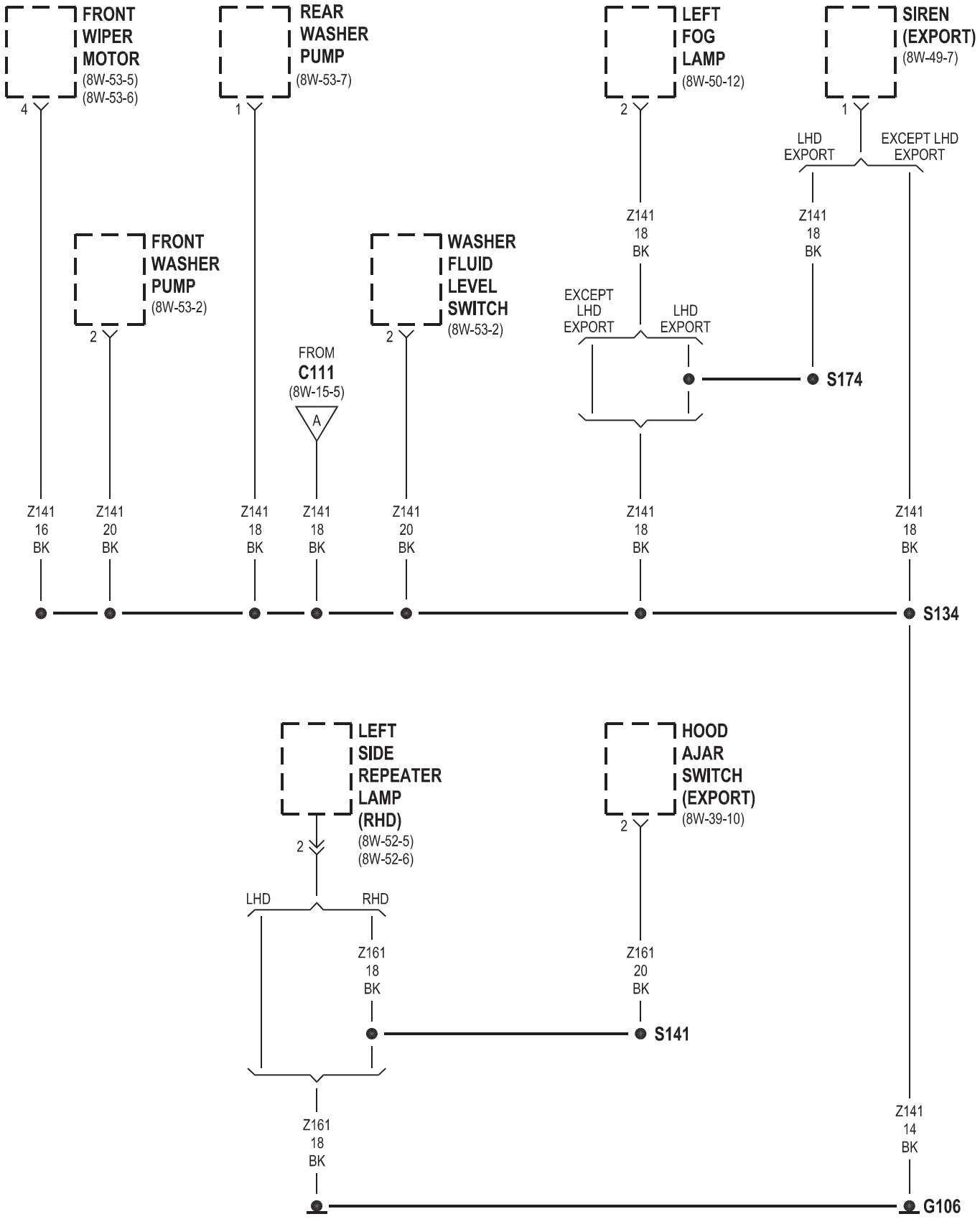
Component	Page
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Airbag Control Module	8W-15-16
Ash Receiver Lamp	8W-15-14
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Automatic Zone Control Module	8W-15-15
Battery	8W-15-2, 3
Blower Motor Controller	8W-15-15
Body Control Module	8W-15-12, 13, 15
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Center High Mounted Stop Lamp	8W-15-20
Cigar Lighter	8W-15-14
Cigar Lighter Relay	8W-15-12
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Crankcase Heater	8W-15-4
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Driver Door Lock Motor/Ajar Switch	8W-15-16
Driver Door Module	8W-15-16
Driver Heated Seat Switch	8W-15-14
Driver Lumbar Switch	8W-15-18, 21
Driver Power Seat Switch	8W-15-18, 21
Driver Rear Power Window Switch	8W-15-18, 21
Electronic Speed Control Servo	8W-15-9, 10
Engine Control Module	8W-15-3
Front Power Outlet	8W-15-14
Front Washer Pump	8W-15-6, 7
Front Wiper Motor	8W-15-6, 7
Fuel Pump Module	8W-15-19
Fuse 6	8W-15-12
Fuse 29	8W-15-12
G100	8W-15-2, 3
G101	8W-15-2, 3
G102	8W-15-2
G103	8W-15-2, 3
G104	8W-15-4
G105	8W-15-4
G106	8W-15-6, 7
G107	8W-15-12
G108	8W-15-9, 10, 11
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G201	8W-15-16
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G301	8W-15-19, 21, 22
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Hood Ajar Switch	8W-15-6, 7
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Horn No. 2	8W-15-9, 10, 11
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Left Front Park Lamp	8W-15-5
Left Front Park/Turn Signal Lamp	8W-15-5
Left Front Turn Signal Lamp	8W-15-5
Left Headlamp Leveling Motor	8W-15-5
Left High Beam Headlamp	8W-15-5
Left Liftgate Ajar Switch	8W-15-20
Left Low Beam Headlamp	8W-15-5
Left Multi-Function Switch	8W-15-15
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Left Rear Lamp Assembly	8W-15-19
Left Side Repeater Lamp	8W-15-6, 7
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License Lamp No. 2	8W-15-20
Liftgate Flip-Up Ajar Switch	8W-15-20
Liftgate Flip-Up Release Solenoid	8W-15-20
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Low Beam/Daytime Running Lamp Relay	8W-15-12
Manual Temperature Control	8W-15-13, 15
Oxygen Sensor 1/2 Downstream	8W-15-4
Oxygen Sensor 2/2 Downstream	8W-15-4
Park Lamp Relay	8W-15-12
Passenger Door Lock Motor/Ajar Switch	8W-15-16
Passenger Door Module	8W-15-16
Passenger Heated Seat Switch	8W-15-14
Passenger Lumbar Switch	8W-15-17, 22
Passenger Power Seat Switch	8W-15-17, 22
Passenger Rear Power Window Switch	8W-15-16, 22
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Radiator Fan Motor Relay	8W-15-9, 10
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Rain Sensor	8W-15-21, 22
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Rear Wiper Motor	8W-15-20
Remote Keyless Module	8W-15-16
Right Fog Lamp	8W-15-9, 10, 11
Right Front Park Lamp	8W-15-8
Right Front Park/Turn Signal Lamp	8W-15-8
Right Front Turn Signal Lamp	8W-15-8
Right Headlamp Leveling Motor	8W-15-8
Right High Beam Headlamp	8W-15-8
Right Low Beam Headlamp	8W-15-8
Right Rear Door Lock Motor/Ajar Switch	8W-15-16, 18
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Right Side Repeater Lamp	8W-15-9, 10, 11
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Siren	8W-15-6, 7
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Sunroof Motor	8W-15-19
Sunroof Switch	8W-15-19
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Transmission Control Relay	8W-15-9, 10
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Viscous/Cabin Heater	8W-15-4
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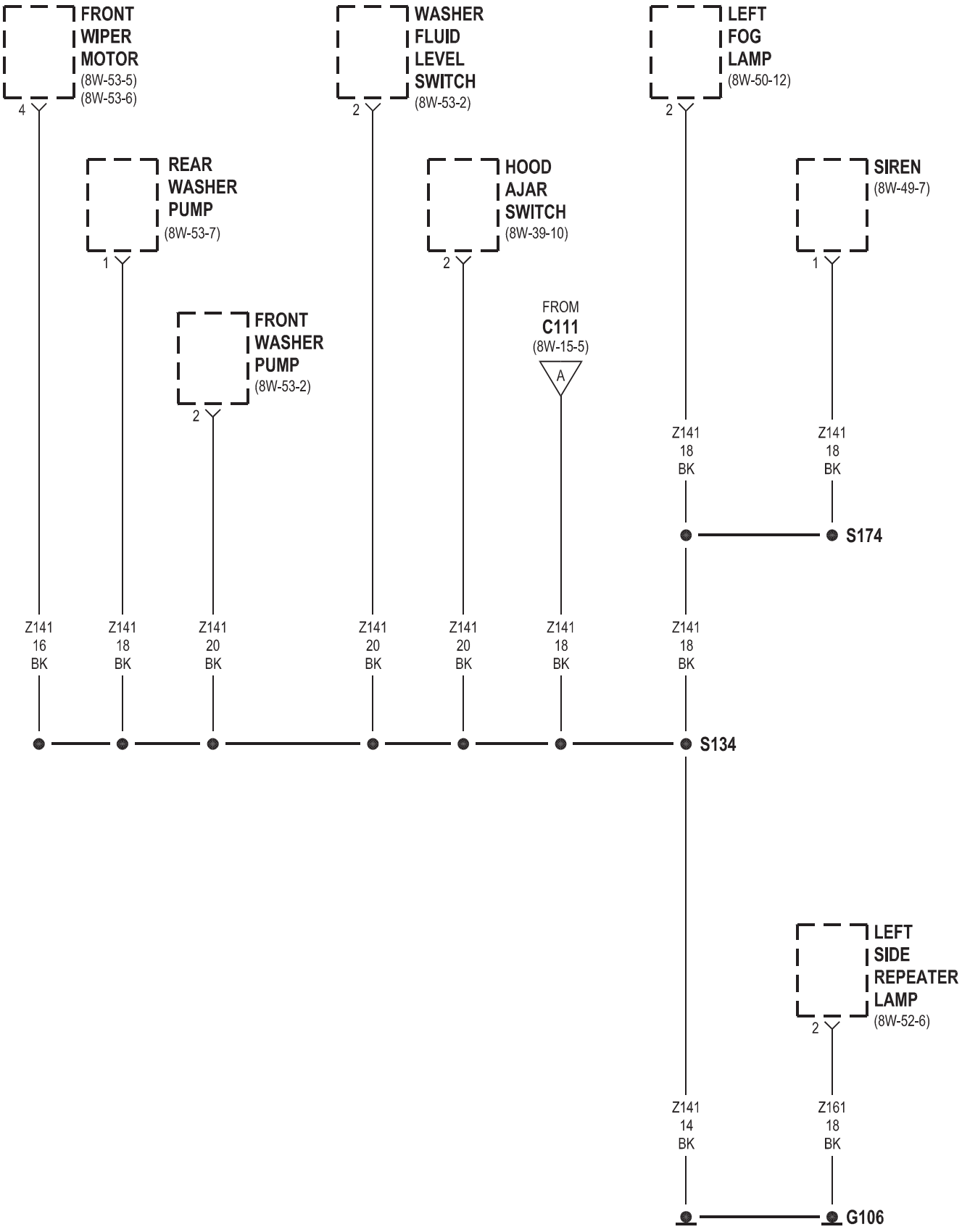

BATTERY
(8W-20-2)
(8W-20-3)
4
5
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
Z305 20 BK/OR
Z306 20 BK/LG
50
51
C200
Z305 20 BK/OR
Z306 20 BK/LG
41
40
C106
Z305 20 BK/OR
Z306 20 BK/LG
EXCEPT 4.0L LHD
4.0L LHD
11
C103
7
C102
7
C104
POWERTRAIN CONTROL MODULE
(8W-30-8)
32
C1
31
C1
Z1 6 BK
Z0 6 BK
Z305 20 BK/OR
Z306 20 BK/LG
Z81 14 BK/TN
Z82 14 BK/WT
G103
LINE PRESSURE SENSOR
(8W-31-13)
1
Z114 14 BK/LB
S114
TRANSMISSION CONTROL MODULE
(8W-31-11)
(8W-31-13)
53
39
37
57
Z114 14 BK/LG
Z114 14 BK/LG
Z112 14 BK/YL
Z113 14 BK/WT
Z212 14 BK/TN
G100
G101
G102
(4.7L)

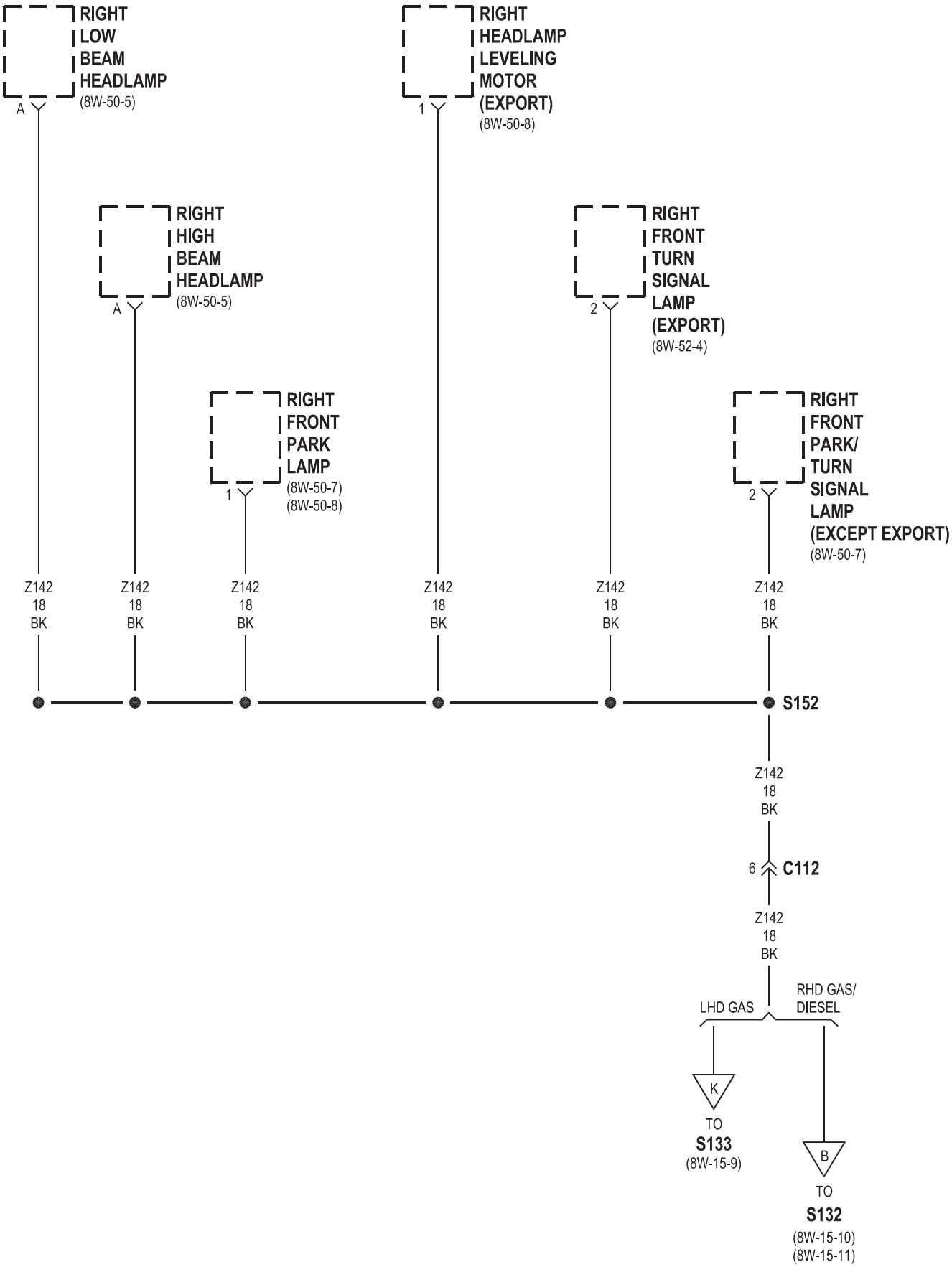

BATTERY
(8W-20-4)
DATA LINK CONNECTOR
(8W-18-4)
4
5
Z305 20 BK/OR
Z306 20 BK/LG
ENGINE CONTROL MODULE
(8W-30-41)
50
51
C200
20
C1
2
C1
1
C1
INTAKE PORT SWIRL ACTUATOR
(8W-30-46)
1
Z305 20 BK/OR
Z306 20 BK/LG
Z108 14 BK/DG
Z108 14 BK/DG
Z18 18 BK
38
37
C107
S139
Z305 20 BK/OR
Z306 20 BK/LG
4
5
C105
Z1 2/0 BK
Z0 6 BK
Z305 20 BK/OR
Z306 20 BK/OR
Z11 20 BK/WT
Z18 12 BK
G100
G101
G103

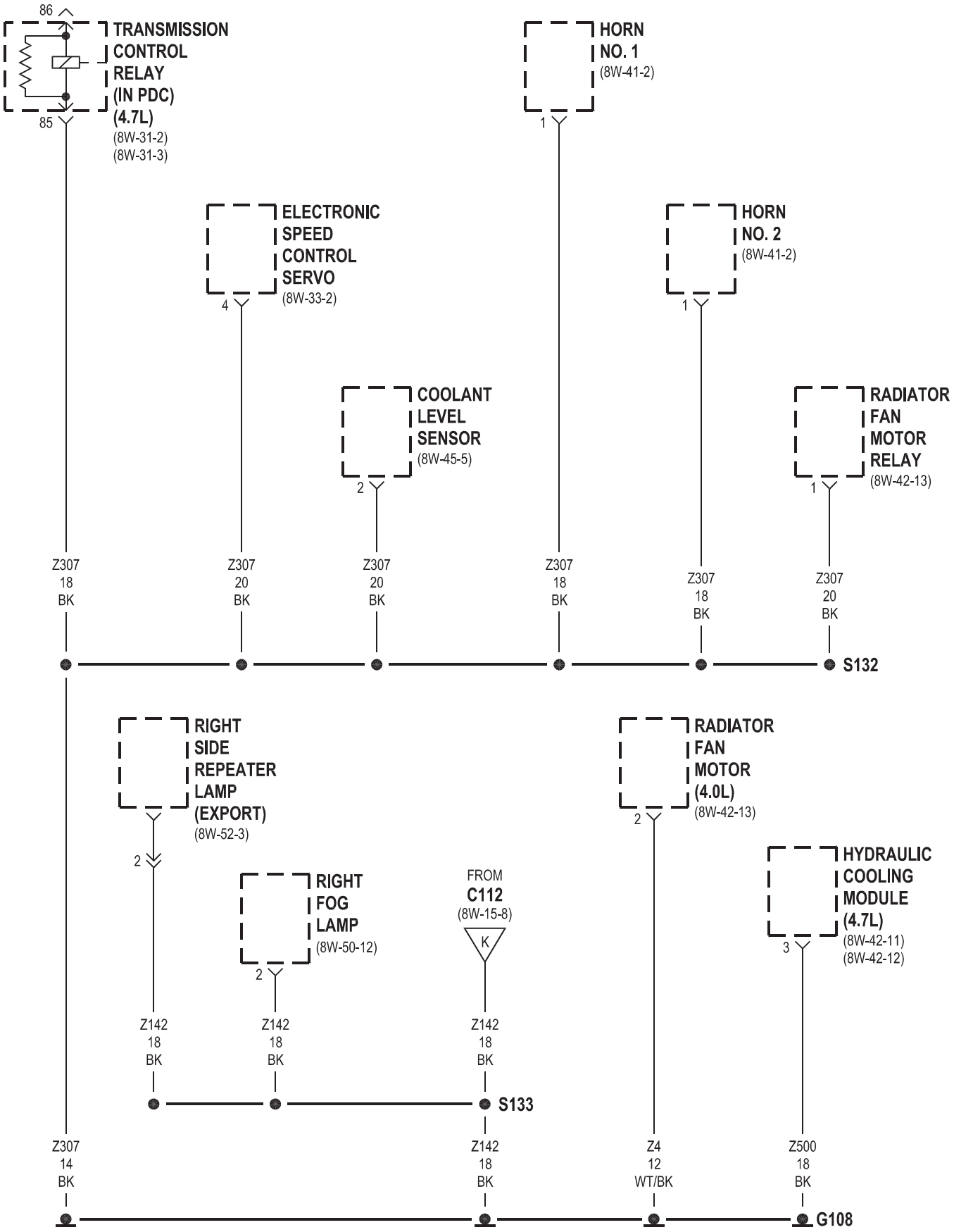

A/C
COMPRESSOR
CLUTCH
(GAS)
(8W-42-3)
2
OXYGEN
SENSOR
1/2
DOWNSTREAM
(8W-30-27)
(8W-30-30)
(8W-30-33)
(8W-30-36)
2
OXYGEN
SENSOR
2/2
DOWNSTREAM
(8W-30-28)
(8W-30-31)
(8W-30-33)
(8W-30-36)
2
Z186
18
BK
Z186
18
BK
S104
Z18
18
BK
Z186
18
BK
G104
(GAS)
CRANKCASE
HEATER
(8W-30-42)
1
VISCOUS/
CABIN
HEATER
(8W-30-46)
2
Z18
20
BR
Z18
16
BK
G105
(DIESEL)

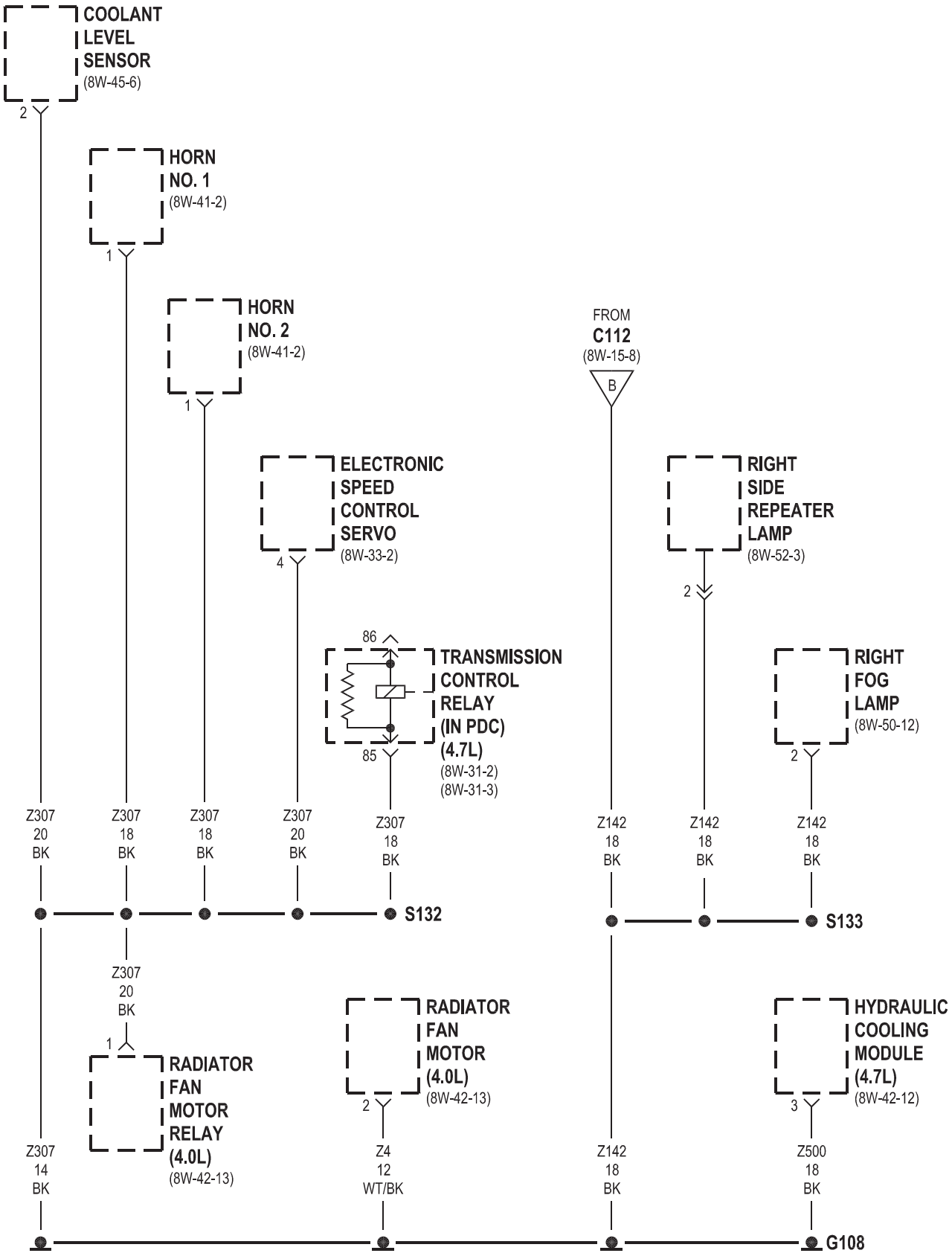

LEFT
LOW
BEAM
HEADLAMP
(8W-50-5)
A
LEFT
HIGH
BEAM
HEADLAMP
(8W-50-5)
A
LEFT
FRONT
PARK
LAMP
(8W-50-10)
(8W-50-11)
1
LEFT
FRONT
TURN
SIGNAL
LAMP
(EXPORT)
(8W-52-7)
2
LEFT
HEADLAMP
LEVELING
MOTOR
(EXPORT)
(8W-50-11)
1
LEFT
FRONT
PARK/
TURN
SIGNAL
LAMP
(EXCEPT EXPORT)
(8W-50-10)
2
Z141
18
BK
S151
6
C111
A
TO
S134
(8W-15-6)
(8W-15-7)

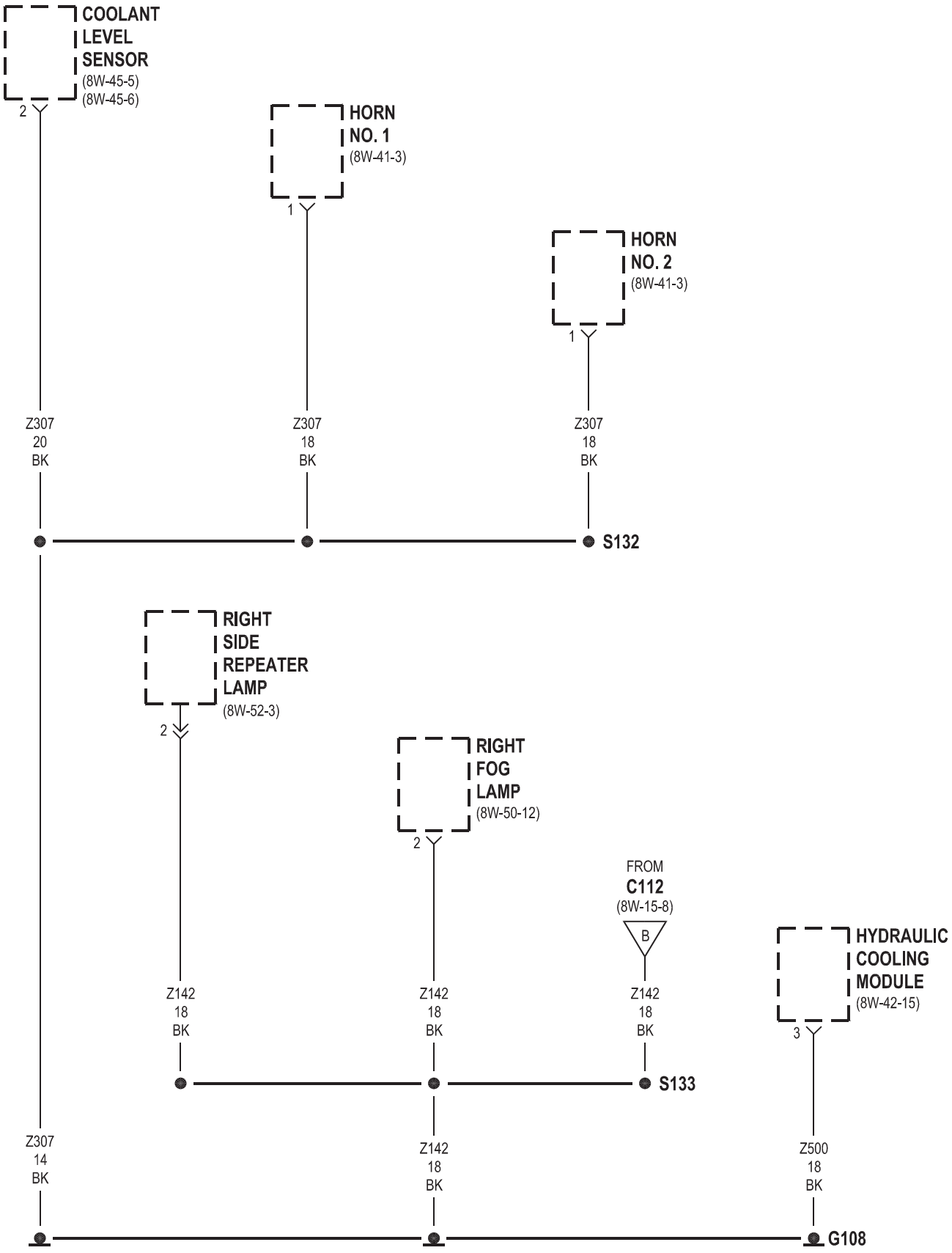

FRONT WIPER MOTOR
(8W-53-5)
(8W-53-6)
4
REAR WASHER PUMP
(8W-53-7)
1
LEFT FOG LAMP
(8W-50-12)
2
SIREN (EXPORT)
(8W-49-7)
1
LHD EXPORT
EXCEPT LHD EXPORT
FRONT WASHER PUMP
(8W-53-2)
2
WASHER FLUID LEVEL SWITCH
(8W-53-2)
2
FROM C111
(8W-15-5)
A
EXCEPT LHD EXPORT
LHD EXPORT
S174
Z141 18 BK
Z141 18 BK
Z141 16 BK
Z141 20 BK
Z141 18 BK
Z141 18 BK
Z141 20 BK
Z141 18 BK
Z141 18 BK
S134
LEFT SIDE REPEATER LAMP (RHD)
(8W-52-5)
(8W-52-6)
2
HOOD AJAR SWITCH (EXPORT)
(8W-39-10)
2
LHD
RHD
Z161 18 BK
Z161 20 BK
S141
Z161 18 BK
Z141 14 BK
G106

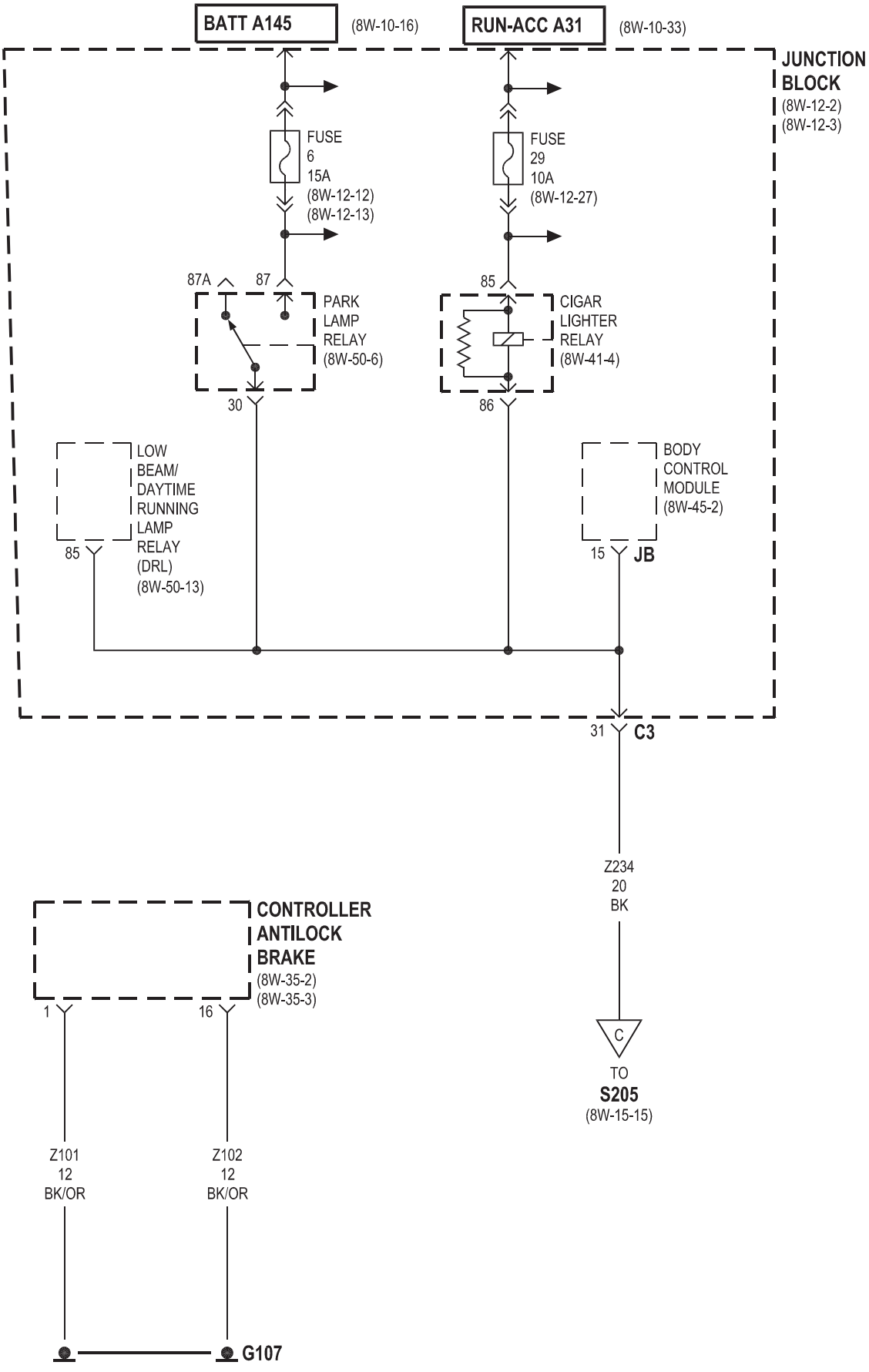

FRONT WIPER MOTOR
(8W-53-5)
(8W-53-6)
4
WASHER FLUID LEVEL SWITCH
(8W-53-2)
2
LEFT FOG LAMP
(8W-50-12)
2
REAR WASHER PUMP
(8W-53-7)
1
HOOD AJAR SWITCH
(8W-39-10)
2
SIREN
(8W-49-7)
1
FRONT WASHER PUMP
(8W-53-2)
2
FROM
C111
(8W-15-5)
A
Z141
18
BK
Z141
18
BK
S174
Z141
16
BK
Z141
18
BK
Z141
20
BK
Z141
20
BK
Z141
20
BK
Z141
18
BK
Z141
18
BK
S134
LEFT SIDE REPEATER LAMP
(8W-52-6)
2
Z141
14
BK
Z161
18
BK
G106

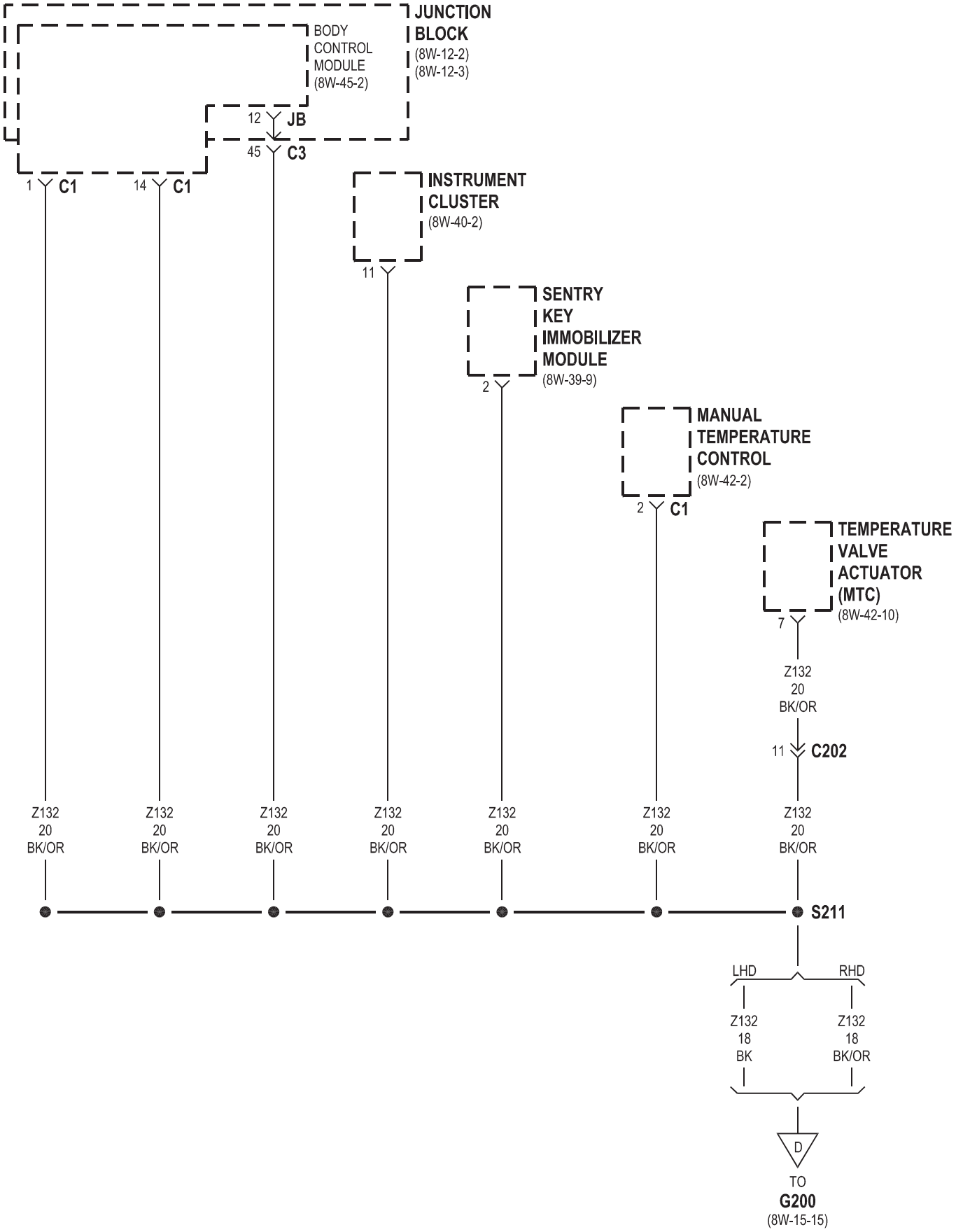

RIGHT LOW BEAM HEADLAMP
(8W-50-5)
A
RIGHT HEADLAMP LEVELING MOTOR (EXPORT)
(8W-50-8)
1
RIGHT HIGH BEAM HEADLAMP
(8W-50-5)
A
RIGHT FRONT TURN SIGNAL LAMP (EXPORT)
(8W-52-4)
2
RIGHT FRONT PARK LAMP
(8W-50-7)
(8W-50-8)
1
RIGHT FRONT PARK/ TURN SIGNAL LAMP (EXCEPT EXPORT)
(8W-50-7)
2
Z142
18
BK
S152
6
C112
LHD GAS
RHD GAS/ DIESEL
K
TO
S133
(8W-15-9)
B
TO
S132
(8W-15-10)
(8W-15-11)

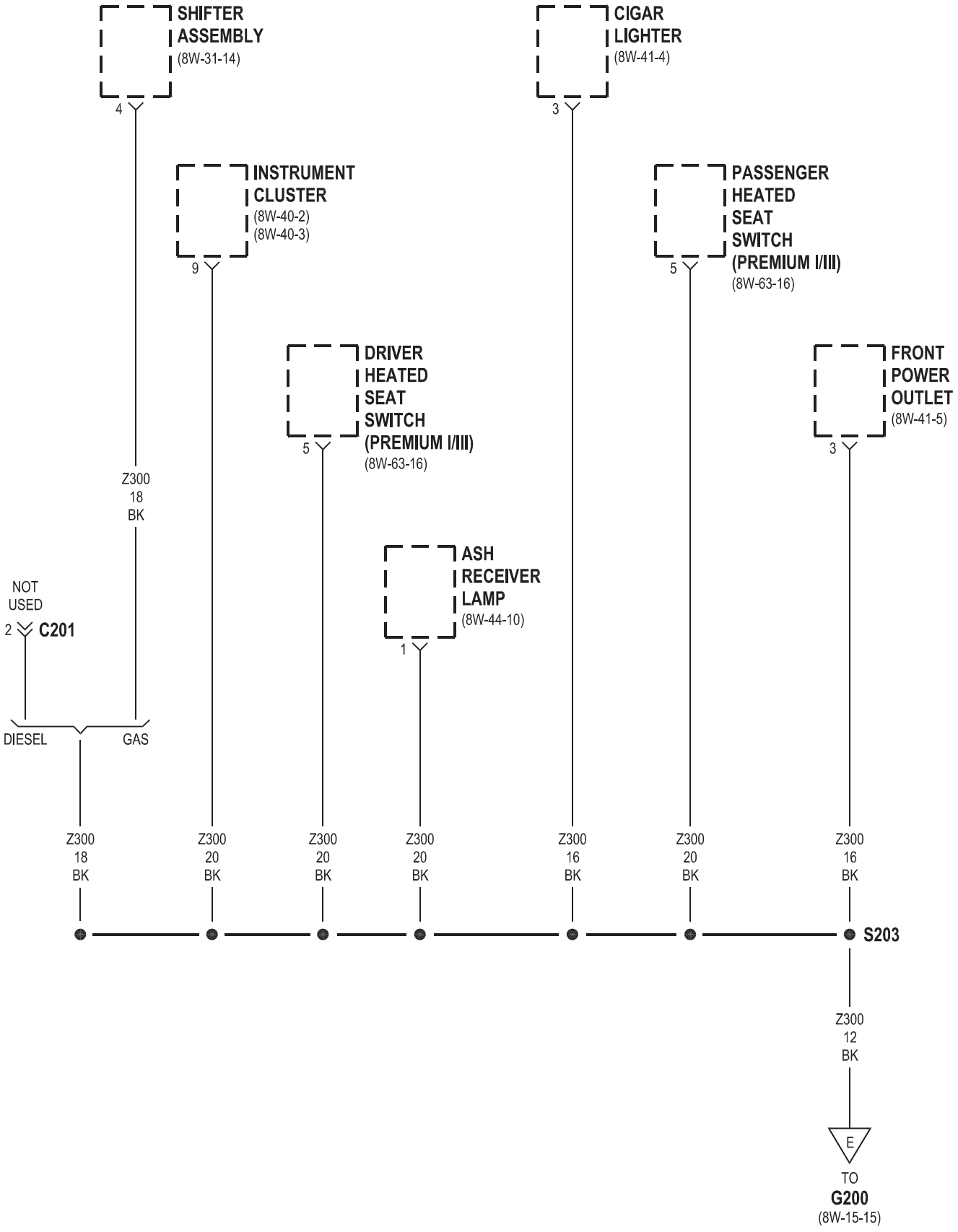

86
TRANSMISSION CONTROL RELAY (IN PDC) (4.7L)
(8W-31-2)
(8W-31-3)
85
HORN NO. 1
(8W-41-2)
1
ELECTRONIC SPEED CONTROL SERVO
(8W-33-2)
4
HORN NO. 2
(8W-41-2)
1
COOLANT LEVEL SENSOR
(8W-45-5)
2
RADIATOR FAN MOTOR RELAY
(8W-42-13)
1
Z307 18 BK
Z307 20 BK
Z307 20 BK
Z307 18 BK
Z307 18 BK
Z307 20 BK
S132
RIGHT SIDE REPEATER LAMP (EXPORT)
(8W-52-3)
2
RADIATOR FAN MOTOR (4.0L)
(8W-42-13)
2
HYDRAULIC COOLING MODULE (4.7L)
(8W-42-11)
(8W-42-12)
3
RIGHT FOG LAMP
(8W-50-12)
2
FROM C112
(8W-15-8)
K
Z142 18 BK
Z142 18 BK
Z142 18 BK
S133
Z307 14 BK
Z142 18 BK
Z4 12 WT/BK
Z500 18 BK
G108

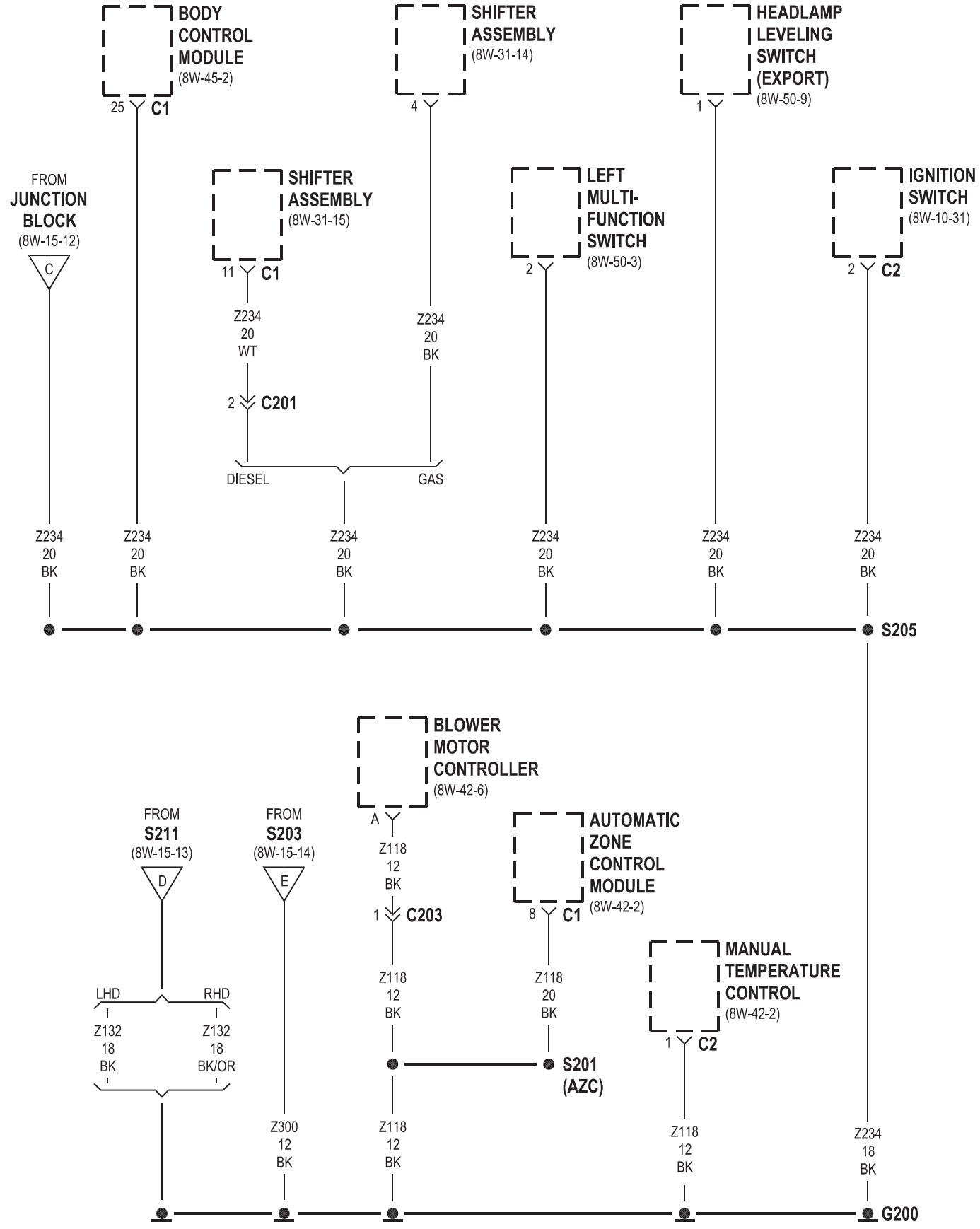

COOLANT LEVEL SENSOR (8W-45-6)
2
HORN NO. 1 (8W-41-2)
1
HORN NO. 2 (8W-41-2)
1
ELECTRONIC SPEED CONTROL SERVO (8W-33-2)
4
86
TRANSMISSION CONTROL RELAY (IN PDC) (4.7L) (8W-31-2) (8W-31-3)
85
FROM C112 (8W-15-8)
B
RIGHT SIDE REPEATER LAMP (8W-52-3)
2
RIGHT FOG LAMP (8W-50-12)
2
Z307 20 BK
Z307 18 BK
Z307 18 BK
Z307 20 BK
Z307 18 BK
Z142 18 BK
Z142 18 BK
Z142 18 BK
S132
S133
Z307 20 BK
1
RADIATOR FAN MOTOR RELAY (4.0L) (8W-42-13)
RADIATOR FAN MOTOR (4.0L) (8W-42-13)
2
HYDRAULIC COOLING MODULE (4.7L) (8W-42-12)
3
Z307 14 BK
Z4 12 WT/BK
Z142 18 BK
Z500 18 BK
G108

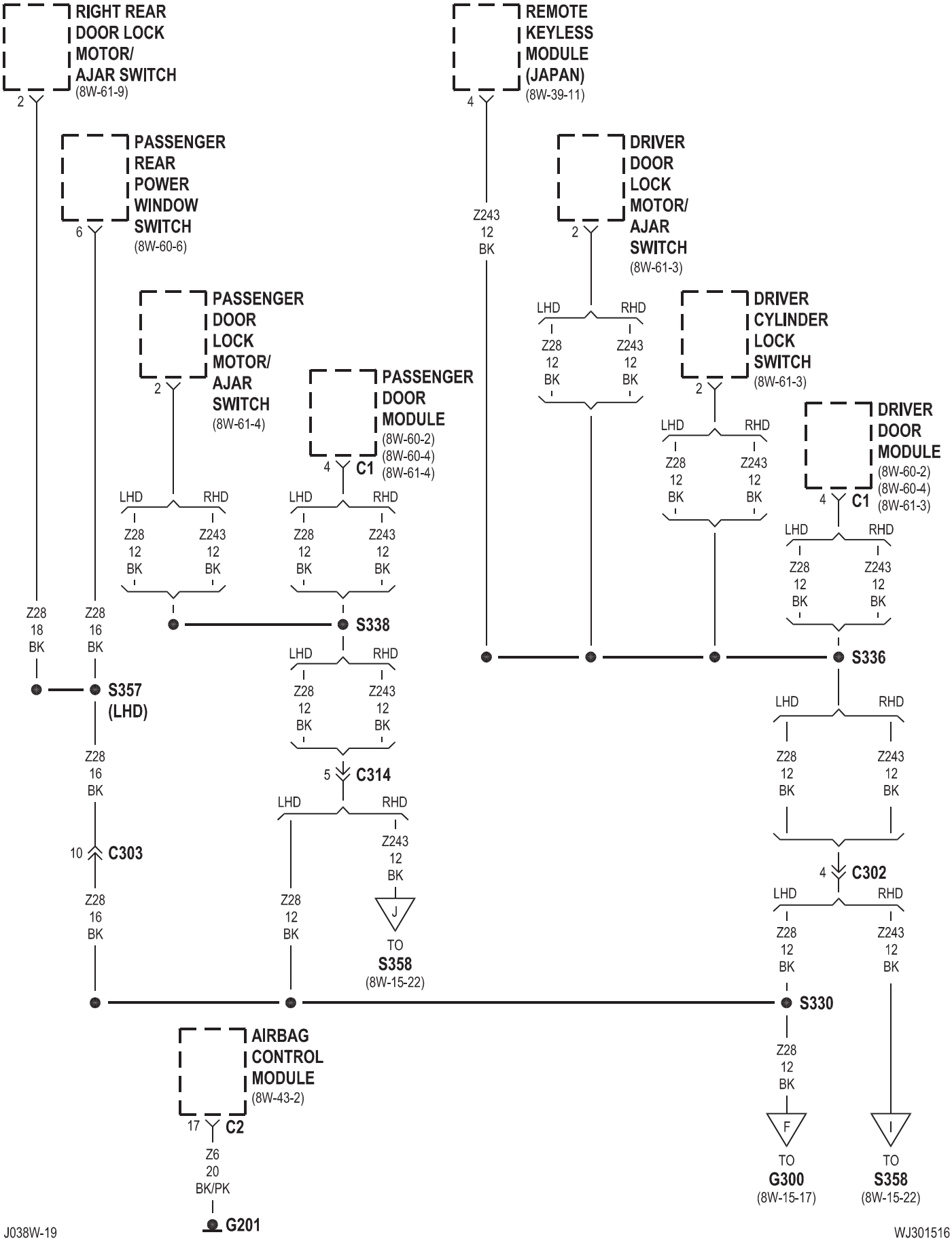

COOLANT LEVEL SENSOR
(8W-45-5)
(8W-45-6)
2
HORN NO. 1
(8W-41-3)
1
HORN NO. 2
(8W-41-3)
1
Z307
20
BK
Z307
18
BK
Z307
18
BK
S132
RIGHT SIDE REPEATER LAMP
(8W-52-3)
2
RIGHT FOG LAMP
(8W-50-12)
2
FROM
C112
(8W-15-8)
B
HYDRAULIC COOLING MODULE
(8W-42-15)
3
Z142
18
BK
Z142
18
BK
Z142
18
BK
S133
Z307
14
BK
Z142
18
BK
Z500
18
BK
G108

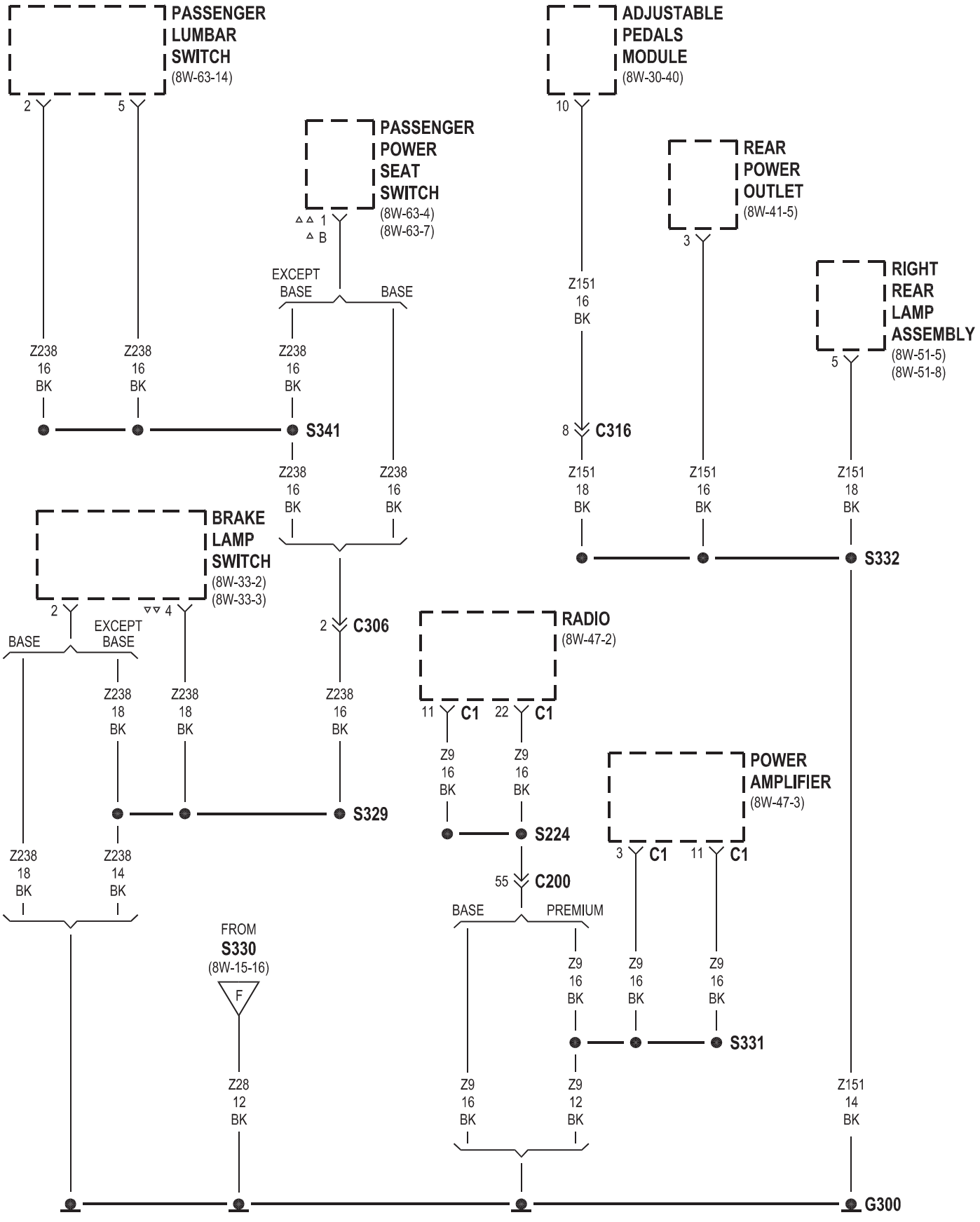

BATT A145
(8W-10-16)
RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 6 15A
(8W-12-12)
(8W-12-13)
FUSE 29 10A
(8W-12-27)
87A
87
85
PARK LAMP RELAY
(8W-50-6)
CIGAR LIGHTER RELAY
(8W-41-4)
30
86
LOW BEAM/ DAYTIME RUNNING LAMP RELAY (DRL)
(8W-50-13)
85
BODY CONTROL MODULE
(8W-45-2)
15
JB
31
C3
Z234
20
BK
C
TO
S205
(8W-15-15)
CONTROLLER ANTILOCK BRAKE
(8W-35-2)
(8W-35-3)
1
16
Z101
12
BK/OR
Z102
12
BK/OR
G107

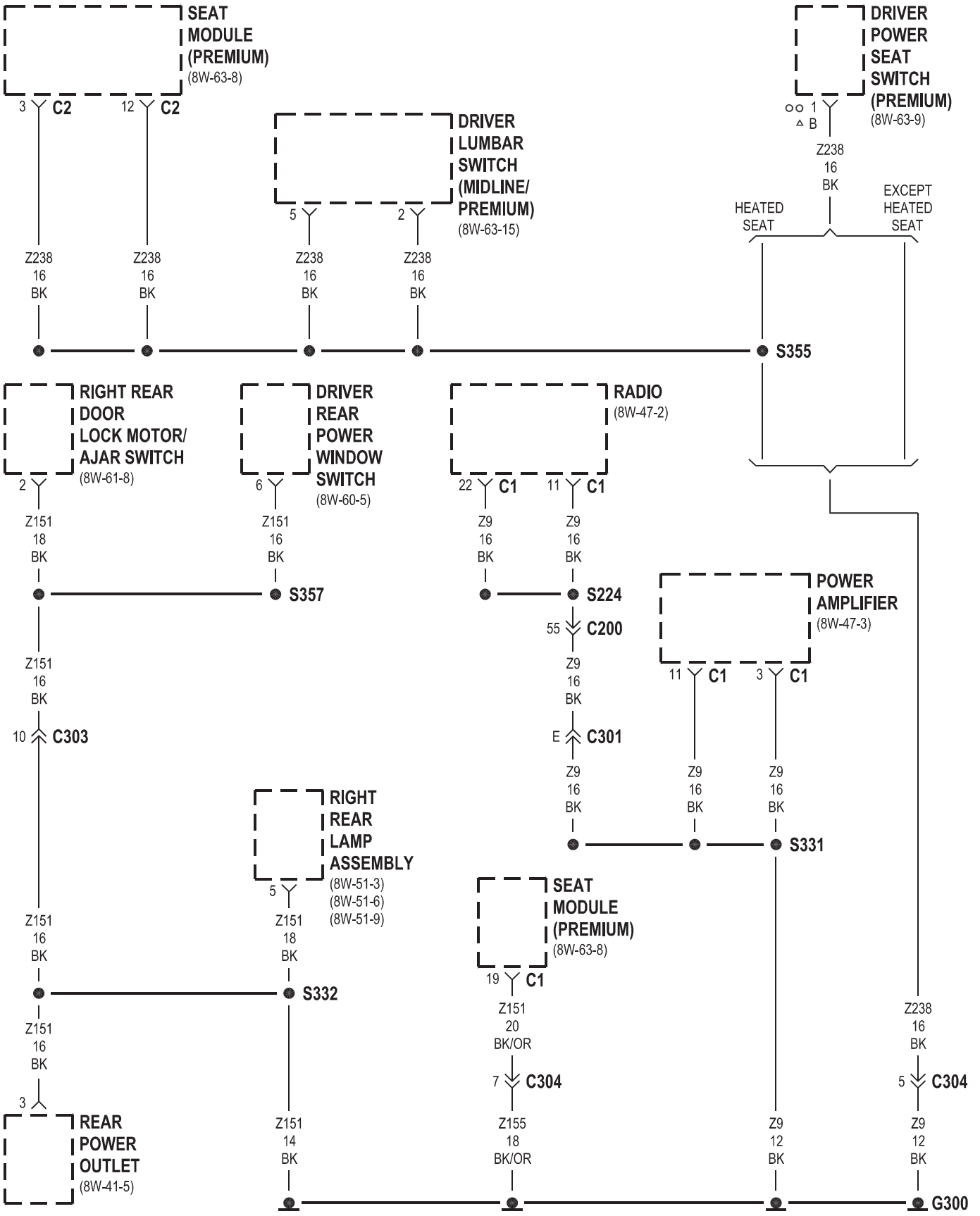

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-2)
12 JB
45 C3
1 C1
14 C1
INSTRUMENT CLUSTER
(8W-40-2)
11
SENTRY KEY IMMOBILIZER MODULE
(8W-39-9)
2
MANUAL TEMPERATURE CONTROL
(8W-42-2)
2 C1
TEMPERATURE VALVE ACTUATOR (MTC)
(8W-42-10)
7
Z132 20 BK/OR
11 C202
Z132 20 BK/OR
S211
LHD
RHD
Z132 18 BK
Z132 18 BK/OR
D
TO G200
(8W-15-15)

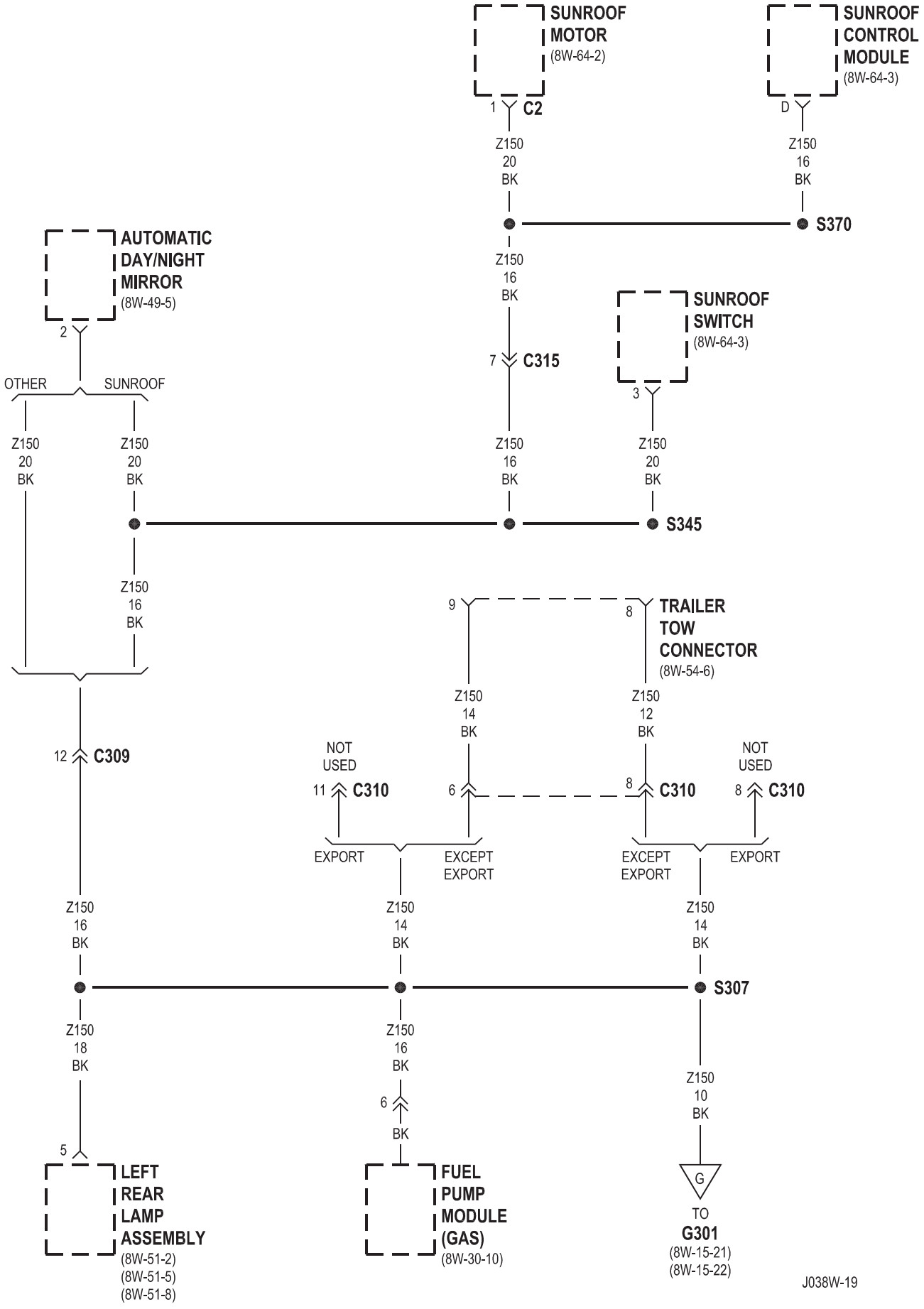

SHIFTER ASSEMBLY
(8W-31-14)
4
CIGAR LIGHTER
(8W-41-4)
3
INSTRUMENT CLUSTER
(8W-40-2)
(8W-40-3)
9
PASSENGER HEATED SEAT SWITCH (PREMIUM I/III)
(8W-63-16)
5
DRIVER HEATED SEAT SWITCH (PREMIUM I/III)
(8W-63-16)
5
FRONT POWER OUTLET
(8W-41-5)
3
Z300
18
BK
ASH RECEIVER LAMP
(8W-44-10)
1
NOT USED
2
C201
DIESEL
GAS
Z300 18 BK
Z300 20 BK
Z300 20 BK
Z300 20 BK
Z300 16 BK
Z300 20 BK
Z300 16 BK
S203
Z300
12
BK
E
TO
G200
(8W-15-15)

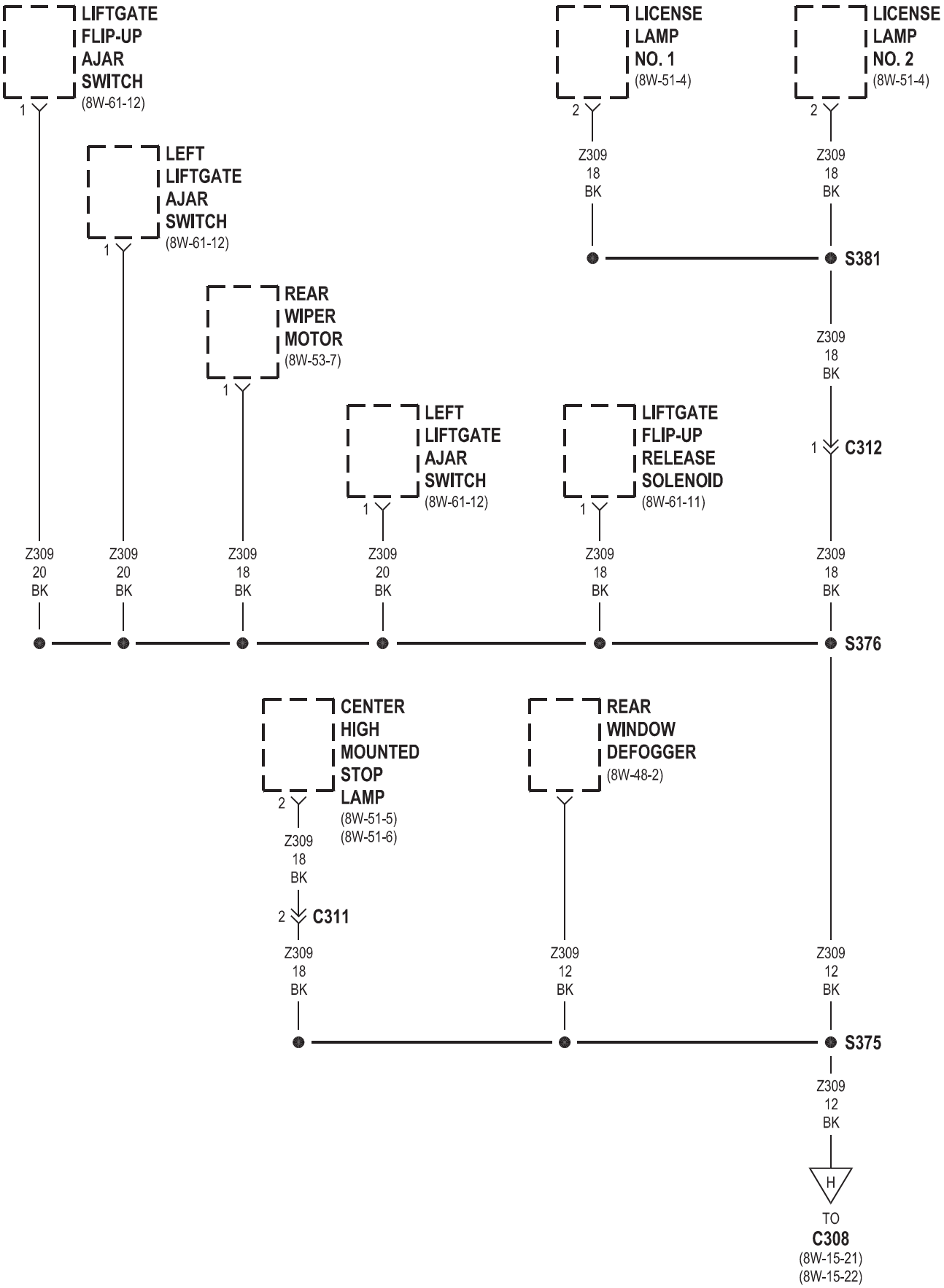

BODY CONTROL MODULE
(8W-45-2)
25 C1
SHIFTER ASSEMBLY
(8W-31-14)
4
HEADLAMP LEVELING SWITCH (EXPORT)
(8W-50-9)
1
FROM JUNCTION BLOCK
(8W-15-12)
C
SHIFTER ASSEMBLY
(8W-31-15)
11 C1
LEFT MULTI-FUNCTION SWITCH
(8W-50-3)
2
IGNITION SWITCH
(8W-10-31)
2 C2
Z234 20 WT
2 C201
Z234 20 BK
DIESEL
GAS
Z234 20 BK
Z234 20 BK
Z234 20 BK
Z234 20 BK
Z234 20 BK
Z234 20 BK
S205
BLOWER MOTOR CONTROLLER
(8W-42-6)
A
FROM S211
(8W-15-13)
D
FROM S203
(8W-15-14)
E
Z118 12 BK
1 C203
AUTOMATIC ZONE CONTROL MODULE
(8W-42-2)
8 C1
MANUAL TEMPERATURE CONTROL
(8W-42-2)
1 C2
LHD
RHD
Z132 18 BK
Z132 18 BK/OR
Z118 12 BK
Z118 20 BK
S201 (AZC)
Z300 12 BK
Z118 12 BK
Z118 12 BK
Z234 18 BK
G200

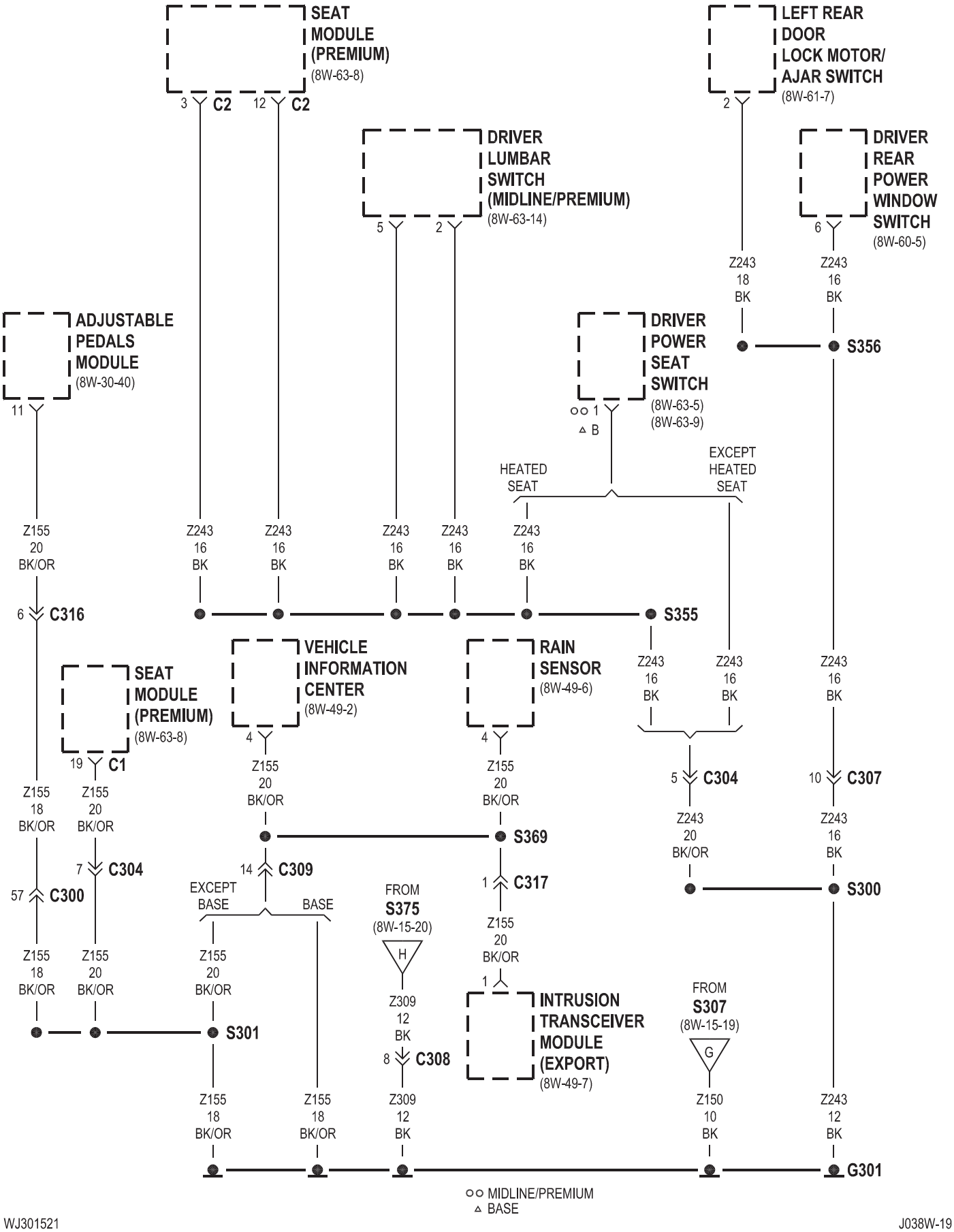

RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH (8W-61-9)
2
PASSENGER REAR POWER WINDOW SWITCH (8W-60-6)
6
PASSENGER DOOR LOCK MOTOR/ AJAR SWITCH (8W-61-4)
2
PASSENGER DOOR MODULE (8W-60-2) (8W-60-4) (8W-61-4)
4 C1
REMOTE KEYLESS MODULE (JAPAN) (8W-39-11)
4
DRIVER DOOR LOCK MOTOR/ AJAR SWITCH (8W-61-3)
2
DRIVER CYLINDER LOCK SWITCH (8W-61-3)
2
DRIVER DOOR MODULE (8W-60-2) (8W-60-4) (8W-61-3)
4 C1
Z243 12 BK
LHD RHD
Z28 12 BK
Z243 12 BK
Z28 18 BK
Z28 16 BK
S338
S336
S357 (LHD)
5 C314
10 C303
4 C302
S330
J
TO S358 (8W-15-22)
F
TO G300 (8W-15-17)
I
TO S358 (8W-15-22)
AIRBAG CONTROL MODULE (8W-43-2)
17 C2
Z6 20 BK/PK
G201

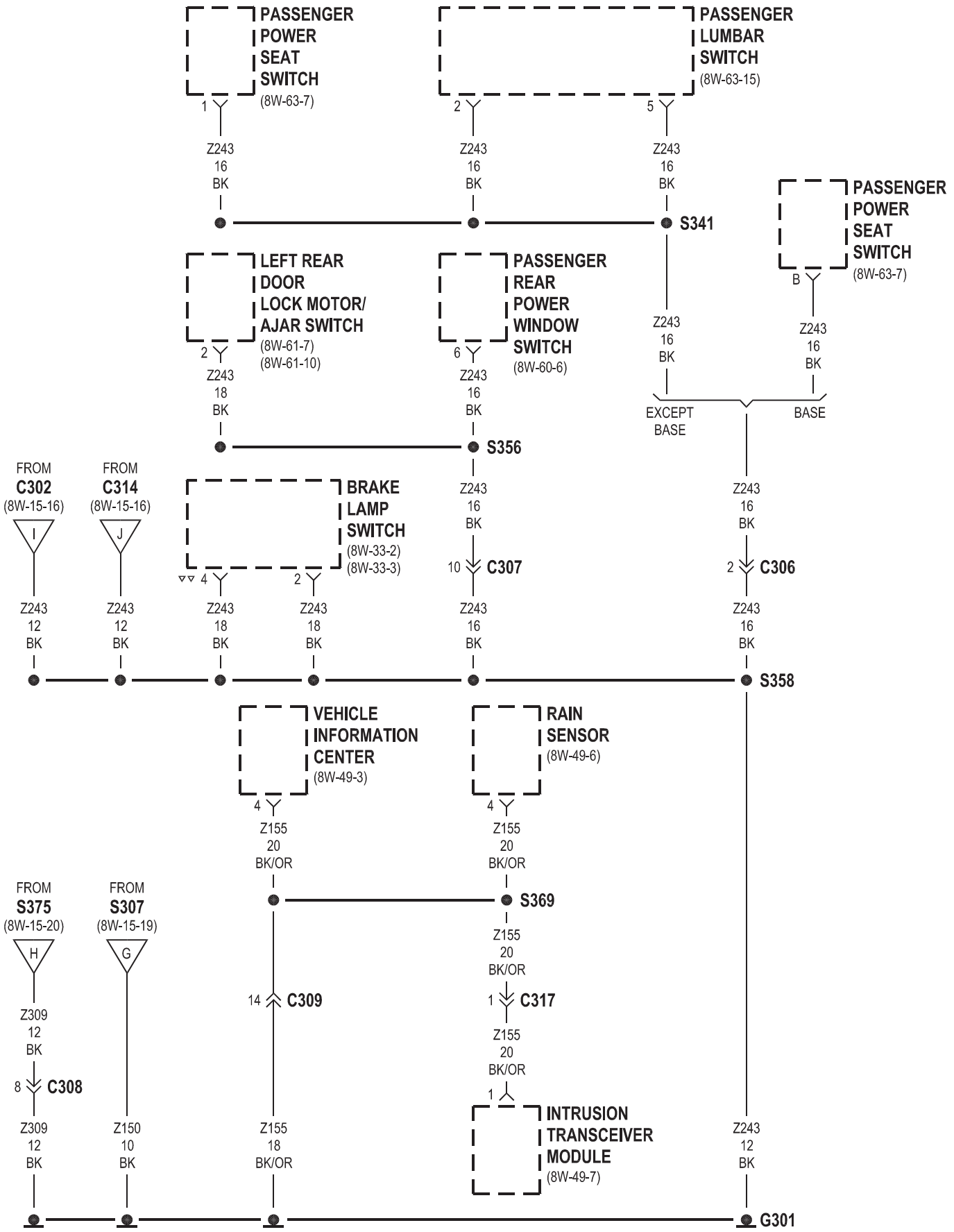

PASSENGER LUMBAR SWITCH (8W-63-14)
2
5
Z238 16 BK
Z238 16 BK
PASSENGER POWER SEAT SWITCH (8W-63-4) (8W-63-7)
△△ 1
△ B
EXCEPT BASE
BASE
Z238 16 BK
Z238 16 BK
S341
ADJUSTABLE PEDALS MODULE (8W-30-40)
10
Z151 16 BK
8 C316
Z151 18 BK
REAR POWER OUTLET (8W-41-5)
3
Z151 16 BK
RIGHT REAR LAMP ASSEMBLY (8W-51-5) (8W-51-8)
5
Z151 18 BK
S332
BRAKE LAMP SWITCH (8W-33-2) (8W-33-3)
2
▽▽ 4
BASE
EXCEPT BASE
Z238 18 BK
Z238 18 BK
2 C306
Z238 16 BK
S329
RADIO (8W-47-2)
11 C1
22 C1
Z9 16 BK
Z9 16 BK
S224
55 C200
BASE
PREMIUM
POWER AMPLIFIER (8W-47-3)
3 C1
11 C1
Z9 16 BK
Z9 16 BK
Z9 16 BK
S331
Z238 18 BK
Z238 14 BK
FROM S330 (8W-15-16)
F
Z28 12 BK
Z9 16 BK
Z9 12 BK
Z151 14 BK
G300
△ BASE
△△ EXCEPT BASE
○○ PREMIUM
▽▽ DIESEL


SEAT MODULE (PREMIUM) (8W-63-8)
3 C2
12 C2
DRIVER LUMBAR SWITCH (MIDLINE/ PREMIUM) (8W-63-15)
5
2
DRIVER POWER SEAT SWITCH (PREMIUM) (8W-63-9)
oo 1
△ B
Z238 16 BK
HEATED SEAT
EXCEPT HEATED SEAT
S355
RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH (8W-61-8)
DRIVER REAR POWER WINDOW SWITCH (8W-60-5)
RADIO (8W-47-2)
22 C1
11 C1
Z151 18 BK
Z151 16 BK
Z9 16 BK
S357
S224
55 C200
E C301
10 C303
POWER AMPLIFIER (8W-47-3)
11 C1
3 C1
RIGHT REAR LAMP ASSEMBLY (8W-51-3) (8W-51-6) (8W-51-9)
5
Z151 18 BK
S331
S332
SEAT MODULE (PREMIUM) (8W-63-8)
19 C1
Z151 20 BK/OR
7 C304
5 C304
3
REAR POWER OUTLET (8W-41-5)
Z151 14 BK
Z155 18 BK/OR
Z9 12 BK
G300
△ BASE
oo PREMIUM


SUNROOF MOTOR (8W-64-2)
SUNROOF CONTROL MODULE (8W-64-3)
1 C2
D
Z150 20 BK
Z150 16 BK
S370
AUTOMATIC DAY/NIGHT MIRROR (8W-49-5)
2
OTHER
SUNROOF
Z150 16 BK
7 C315
SUNROOF SWITCH (8W-64-3)
3
Z150 20 BK
Z150 16 BK
S345
9
8
TRAILER TOW CONNECTOR (8W-54-6)
Z150 14 BK
Z150 12 BK
12 C309
NOT USED
11 C310
6 C310
8 C310
8 C310
NOT USED
EXPORT
EXCEPT EXPORT
EXCEPT EXPORT
EXPORT
Z150 16 BK
Z150 14 BK
Z150 14 BK
S307
Z150 18 BK
Z150 16 BK
Z150 10 BK
6
BK
5
G
LEFT REAR LAMP ASSEMBLY (8W-51-2) (8W-51-5) (8W-51-8)
FUEL PUMP MODULE (GAS) (8W-30-10)
TO G301 (8W-15-21) (8W-15-22)

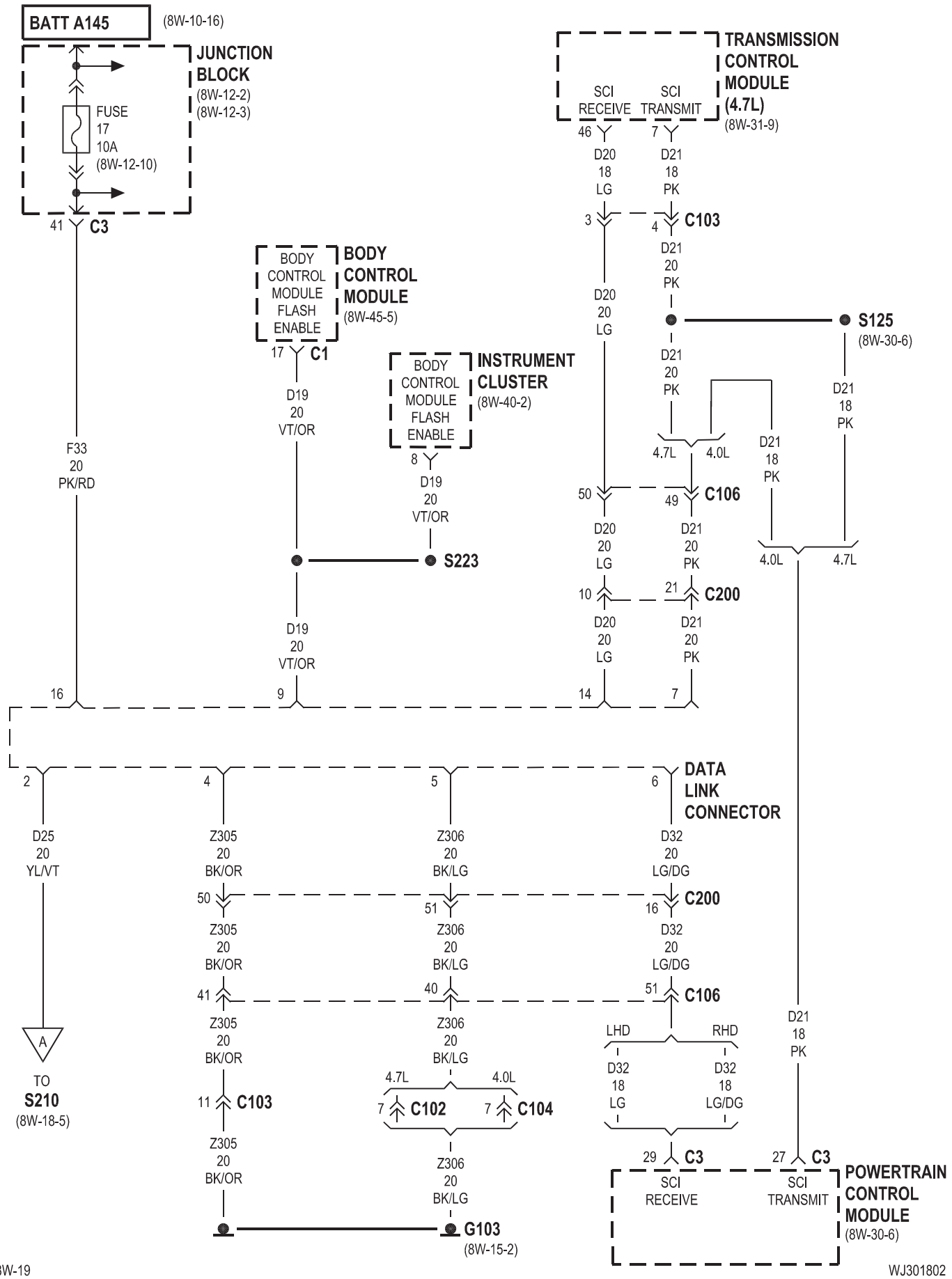

LIFTGATE FLIP-UP AJAR SWITCH (8W-61-12)
1
LEFT LIFTGATE AJAR SWITCH (8W-61-12)
1
REAR WIPER MOTOR (8W-53-7)
1
LEFT LIFTGATE AJAR SWITCH (8W-61-12)
1
LIFTGATE FLIP-UP RELEASE SOLENOID (8W-61-11)
1
LICENSE LAMP NO. 1 (8W-51-4)
2
LICENSE LAMP NO. 2 (8W-51-4)
2
Z309 18 BK
Z309 18 BK
S381
Z309 18 BK
1 C312
Z309 20 BK
Z309 20 BK
Z309 18 BK
Z309 20 BK
Z309 18 BK
Z309 18 BK
S376
CENTER HIGH MOUNTED STOP LAMP (8W-51-5) (8W-51-6)
2
REAR WINDOW DEFOGGER (8W-48-2)
Z309 18 BK
2 C311
Z309 18 BK
Z309 12 BK
Z309 12 BK
S375
Z309 12 BK
H
TO C308 (8W-15-21) (8W-15-22)

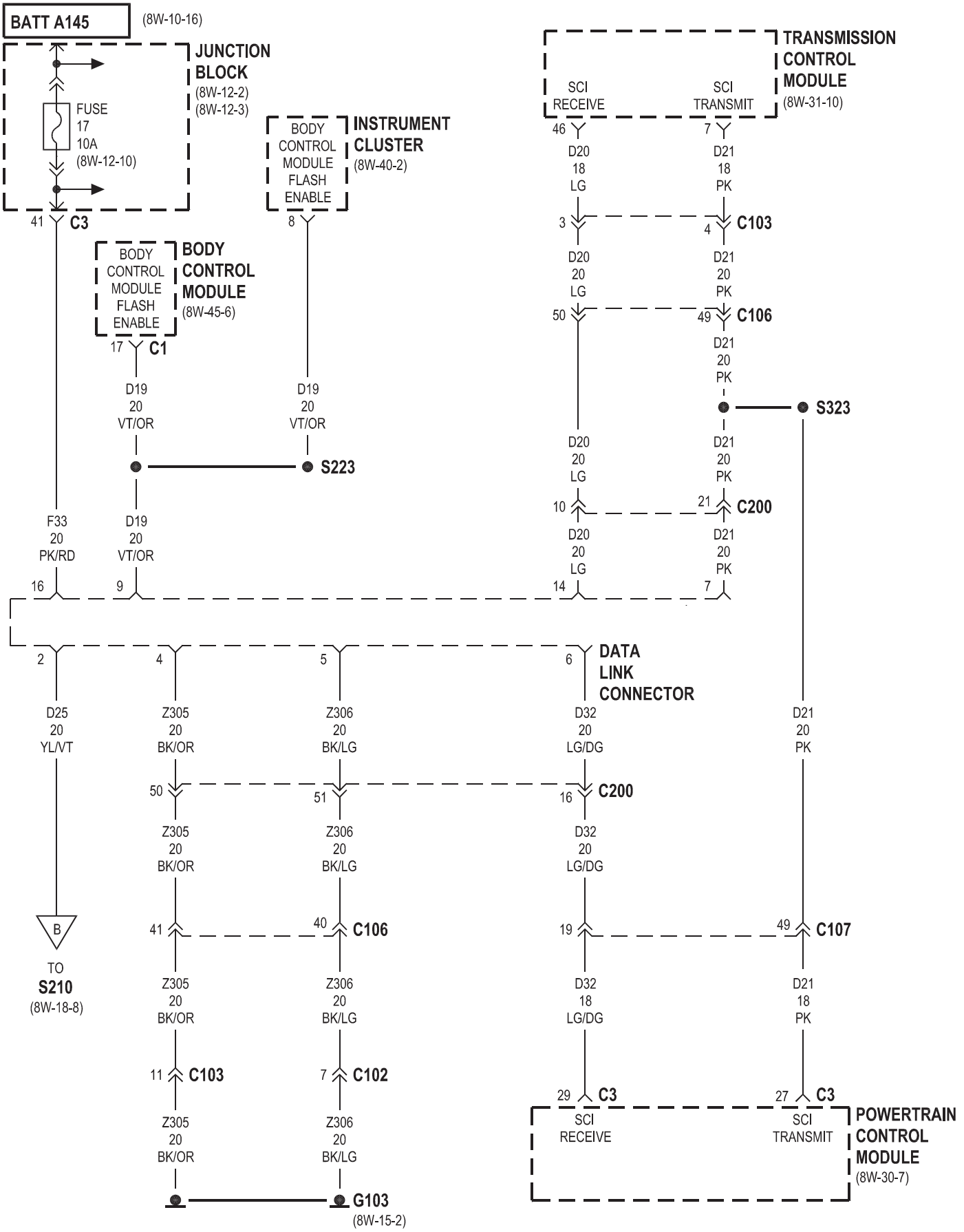

SEAT MODULE (PREMIUM) (8W-63-8)
3 C2
12 C2
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH (8W-61-7)
2
DRIVER LUMBAR SWITCH (MIDLINE/PREMIUM) (8W-63-14)
5
2
DRIVER REAR POWER WINDOW SWITCH (8W-60-5)
6
Z243 18 BK
Z243 16 BK
ADJUSTABLE PEDALS MODULE (8W-30-40)
11
DRIVER POWER SEAT SWITCH (8W-63-5) (8W-63-9)
1
B
S356
HEATED SEAT
EXCEPT HEATED SEAT
Z155 20 BK/OR
Z243 16 BK
6 C316
S355
VEHICLE INFORMATION CENTER (8W-49-2)
RAIN SENSOR (8W-49-6)
SEAT MODULE (PREMIUM) (8W-63-8)
19 C1
4
Z155 20 BK/OR
Z155 18 BK/OR
Z155 20 BK/OR
S369
5 C304
10 C307
Z243 20 BK/OR
7 C304
14 C309
1 C317
57 C300
S300
EXCEPT BASE
BASE
FROM S375 (8W-15-20)
H
Z309 12 BK
8 C308
INTRUSION TRANSCEIVER MODULE (EXPORT) (8W-49-7)
FROM S307 (8W-15-19)
G
Z150 10 BK
Z243 12 BK
S301
G301
MIDLINE/PREMIUM
BASE

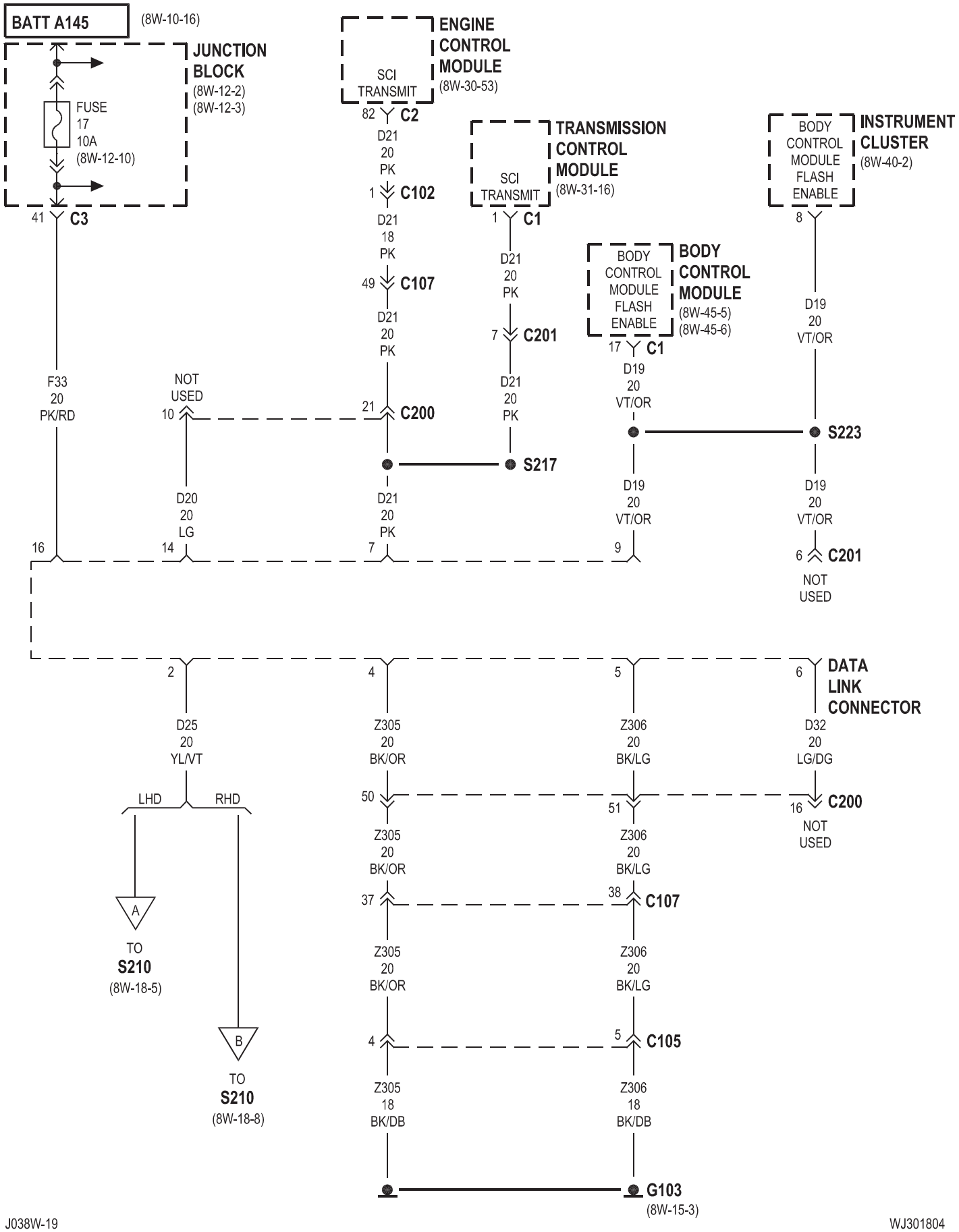

PASSENGER POWER SEAT SWITCH
(8W-63-7)
PASSENGER LUMBAR SWITCH
(8W-63-15)
1
2
5
Z243 16 BK
S341
PASSENGER POWER SEAT SWITCH
(8W-63-7)
B
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-7)
(8W-61-10)
PASSENGER REAR POWER WINDOW SWITCH
(8W-60-6)
2
6
Z243 18 BK
S356
EXCEPT BASE
BASE
FROM C302 (8W-15-16)
FROM C314 (8W-15-16)
I
J
BRAKE LAMP SWITCH
(8W-33-2)
(8W-33-3)
4
2
10
C307
2
C306
Z243 12 BK
Z243 18 BK
S358
VEHICLE INFORMATION CENTER
(8W-49-3)
RAIN SENSOR
(8W-49-6)
Z155 20 BK/OR
S369
FROM S375 (8W-15-20)
FROM S307 (8W-15-19)
H
G
Z309 12 BK
8
C308
14
C309
1
C317
INTRUSION TRANSCEIVER MODULE
(8W-49-7)
Z150 10 BK
Z155 18 BK/OR
G301
DIESEL

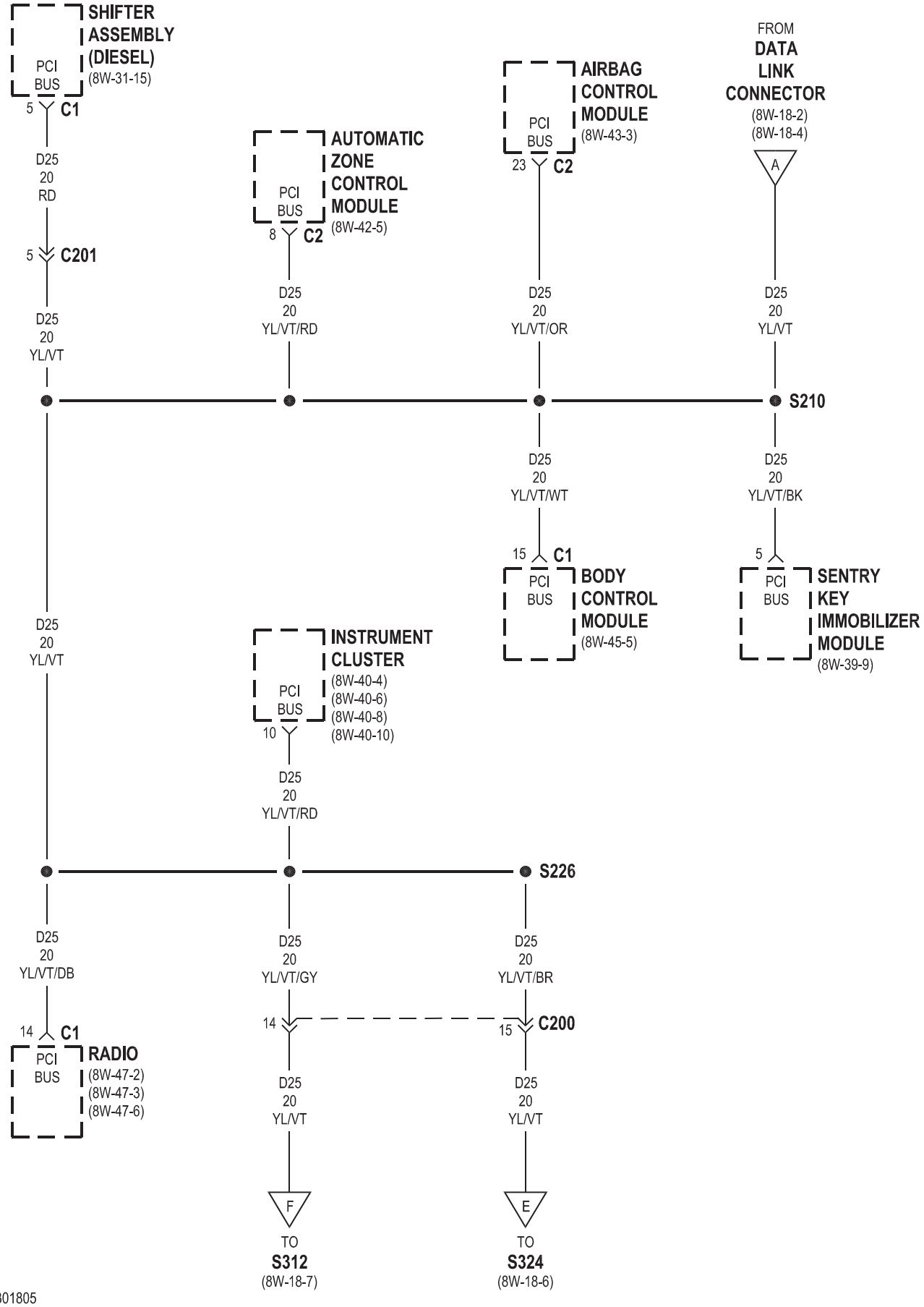
8W-18 BUS COMMUNICATIONS

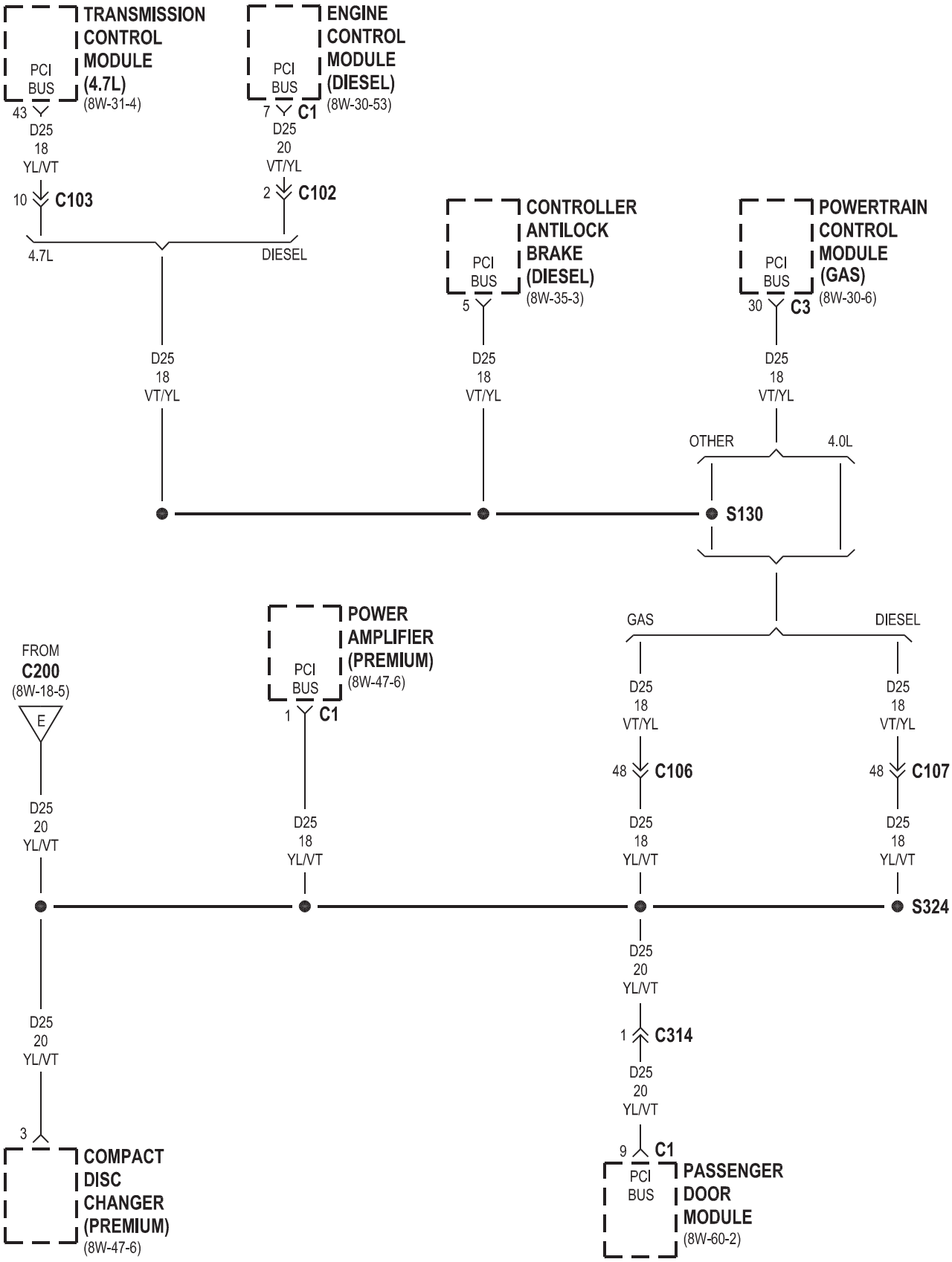
Component	Page
Adjustable Pedals Module	8W-18-7
Airbag Control Module	8W-18-5, 8
Automatic Zone Control Module	8W-18-5, 8
Body Control Module	8W-18-2, 3, 4, 5, 8
Compact Disc Changer	8W-18-6, 9
Controller Antilock Brake	8W-18-6, 7, 9
Data Link Connector	8W-18-2, 3, 4, 5, 8
Driver Door Module	8W-18-7, 9
Engine Control Module	8W-18-4, 6, 9
Fuse 17	8W-18-2, 3, 4
G103	8W-18-2, 3, 4
Instrument Cluster	8W-18-2, 3, 4, 5, 8
Intrusion Transceiver Module	8W-18-7, 10
Junction Block	8W-18-2, 3, 4
Passenger Door Module	8W-18-6, 10
Power Amplifier	8W-18-6, 9
Powertrain Control Module	8W-18-2, 3, 6, 9
Radio	8W-18-5, 8
Rain Sensor	8W-18-7, 10
Seat Module	8W-18-7, 9
Sentry Key Immobilizer Module	8W-18-5, 8
Shifter Assembly	8W-18-5, 8
Transmission Control Module	8W-18-2, 3, 4, 6, 10
Vehicle Information Center	8W-18-7, 10

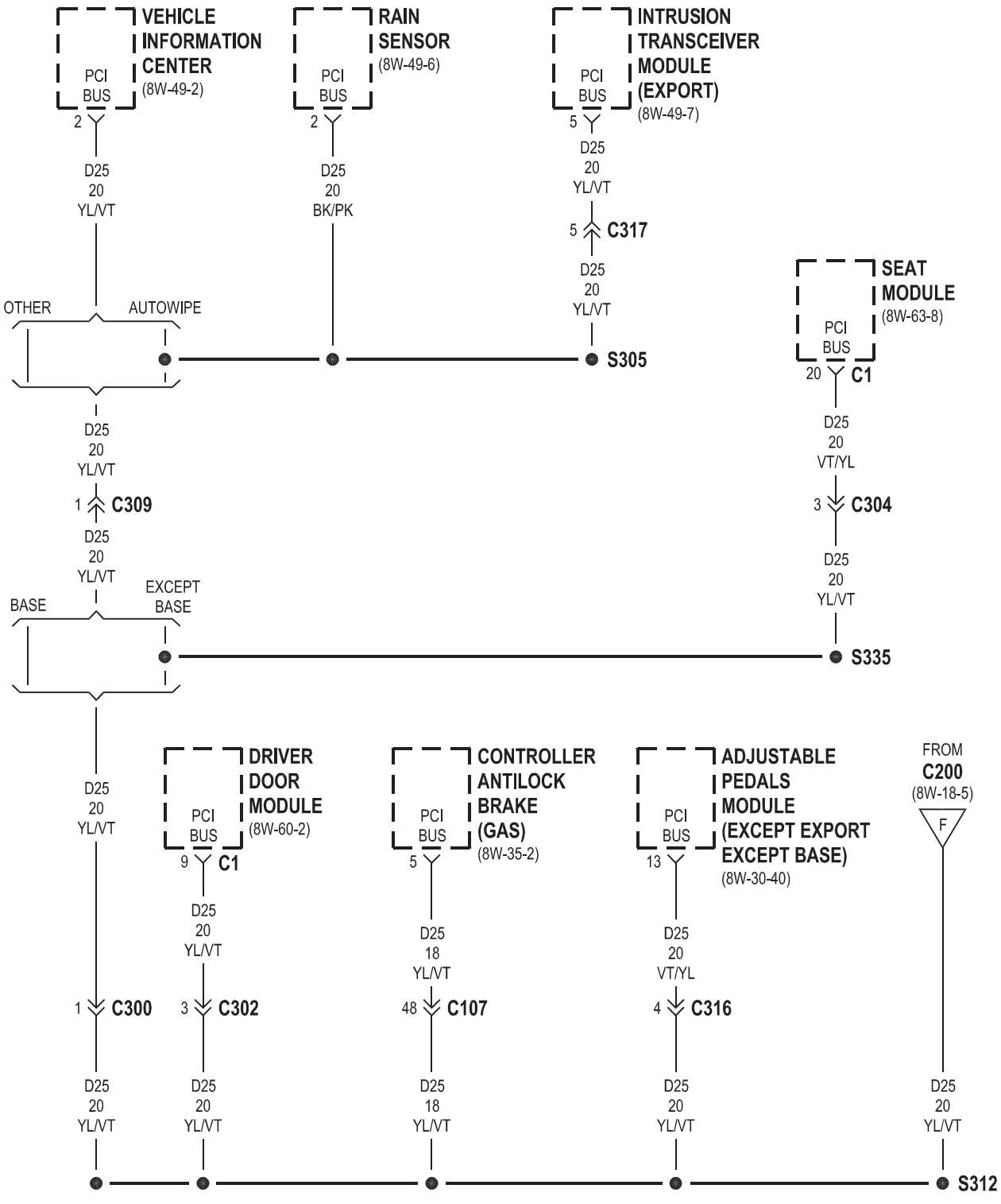

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 17 10A
(8W-12-10)
41 C3
F33 20 PK/RD
BODY CONTROL MODULE FLASH ENABLE
BODY CONTROL MODULE
(8W-45-5)
17 C1
D19 20 VT/OR
INSTRUMENT CLUSTER
(8W-40-2)
8
D19 20 VT/OR
S223
D19 20 VT/OR
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-9)
SCI RECEIVE
SCI TRANSMIT
46
7
D20 18 LG
D21 18 PK
3
4 C103
D21 20 PK
D20 20 LG
S125
(8W-30-6)
D21 20 PK
4.7L
4.0L
D21 18 PK
D21 18 PK
50
49 C106
D20 20 LG
D21 20 PK
10
21 C200
D20 20 LG
D21 20 PK
4.0L
4.7L
16
9
14
7
2
4
5
6
DATA LINK CONNECTOR
D25 20 YL/VT
Z305 20 BK/OR
Z306 20 BK/LG
D32 20 LG/DG
50
51
16 C200
Z305 20 BK/OR
Z306 20 BK/LG
D32 20 LG/DG
41
40
51 C106
Z305 20 BK/OR
Z306 20 BK/LG
LHD
RHD
D21 18 PK
A
TO S210
(8W-18-5)
11 C103
4.7L
4.0L
7 C102
7 C104
D32 18 LG
D32 18 LG/DG
Z305 20 BK/OR
Z306 20 BK/LG
29 C3
27 C3
SCI RECEIVE
SCI TRANSMIT
POWERTRAIN CONTROL MODULE
(8W-30-6)
G103
(8W-15-2)

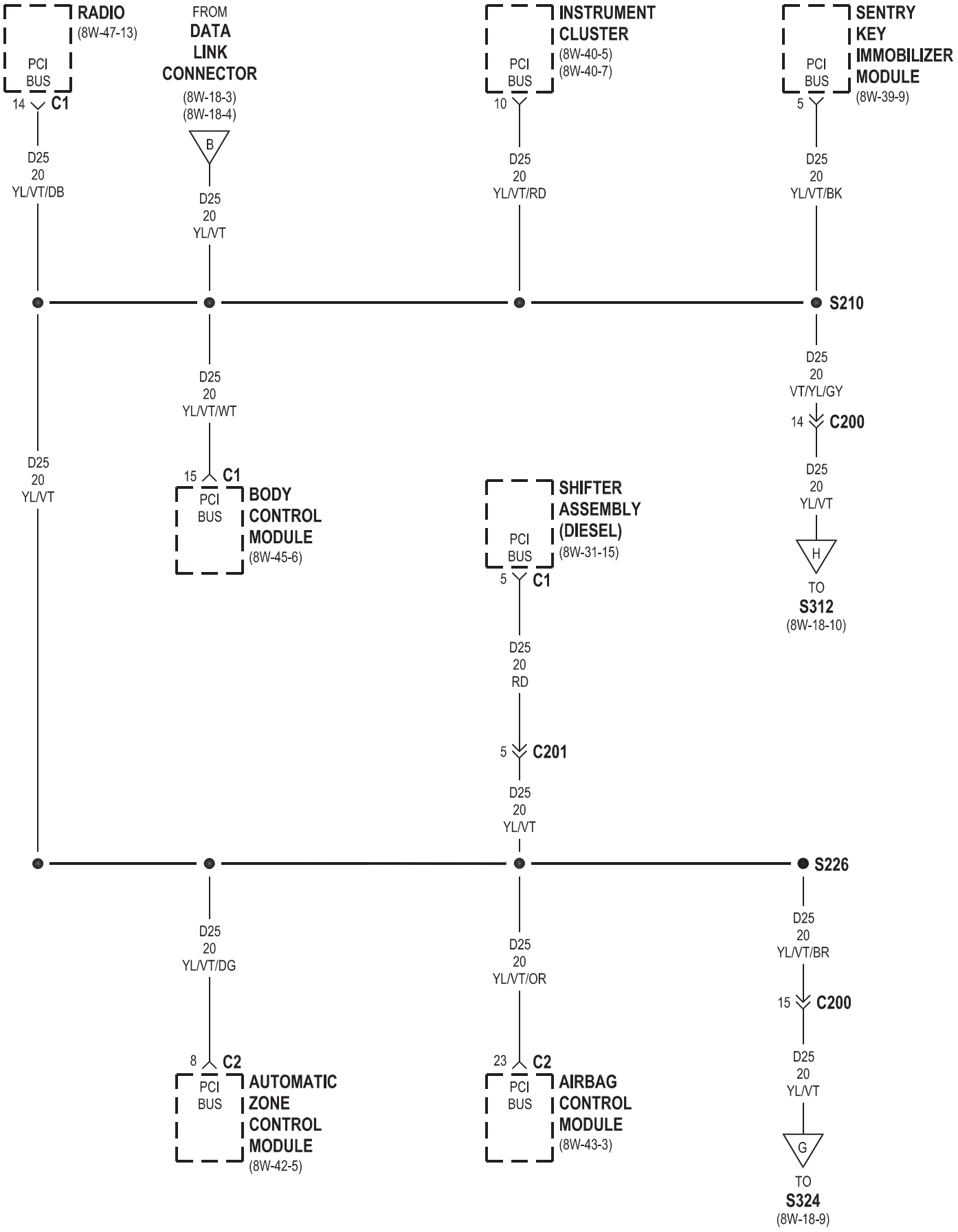

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 17 10A
(8W-12-10)
41 C3
BODY CONTROL MODULE FLASH ENABLE
INSTRUMENT CLUSTER
(8W-40-2)
8
BODY CONTROL MODULE FLASH ENABLE
BODY CONTROL MODULE
(8W-45-6)
17 C1
D19 20 VT/OR
D19 20 VT/OR
S223
F33 20 PK/RD
D19 20 VT/OR
16
9
TRANSMISSION CONTROL MODULE
(8W-31-10)
SCI RECEIVE
SCI TRANSMIT
46
7
D20 18 LG
D21 18 PK
3
4
C103
D20 20 LG
D21 20 PK
50
49
C106
D21 20 PK
S323
D20 20 LG
D21 20 PK
10
21
C200
D20 20 LG
D21 20 PK
14
7
2
4
5
6
DATA LINK CONNECTOR
D25 20 YL/VT
Z305 20 BK/OR
Z306 20 BK/LG
D32 20 LG/DG
D21 20 PK
50
51
16
C200
Z305 20 BK/OR
Z306 20 BK/LG
D32 20 LG/DG
B
41
40
C106
19
49
C107
TO S210
(8W-18-8)
Z305 20 BK/OR
Z306 20 BK/LG
D32 18 LG/DG
D21 18 PK
11
C103
7
C102
29
C3
27
C3
Z305 20 BK/OR
Z306 20 BK/LG
SCI RECEIVE
SCI TRANSMIT
POWERTRAIN CONTROL MODULE
(8W-30-7)
G103
(8W-15-2)

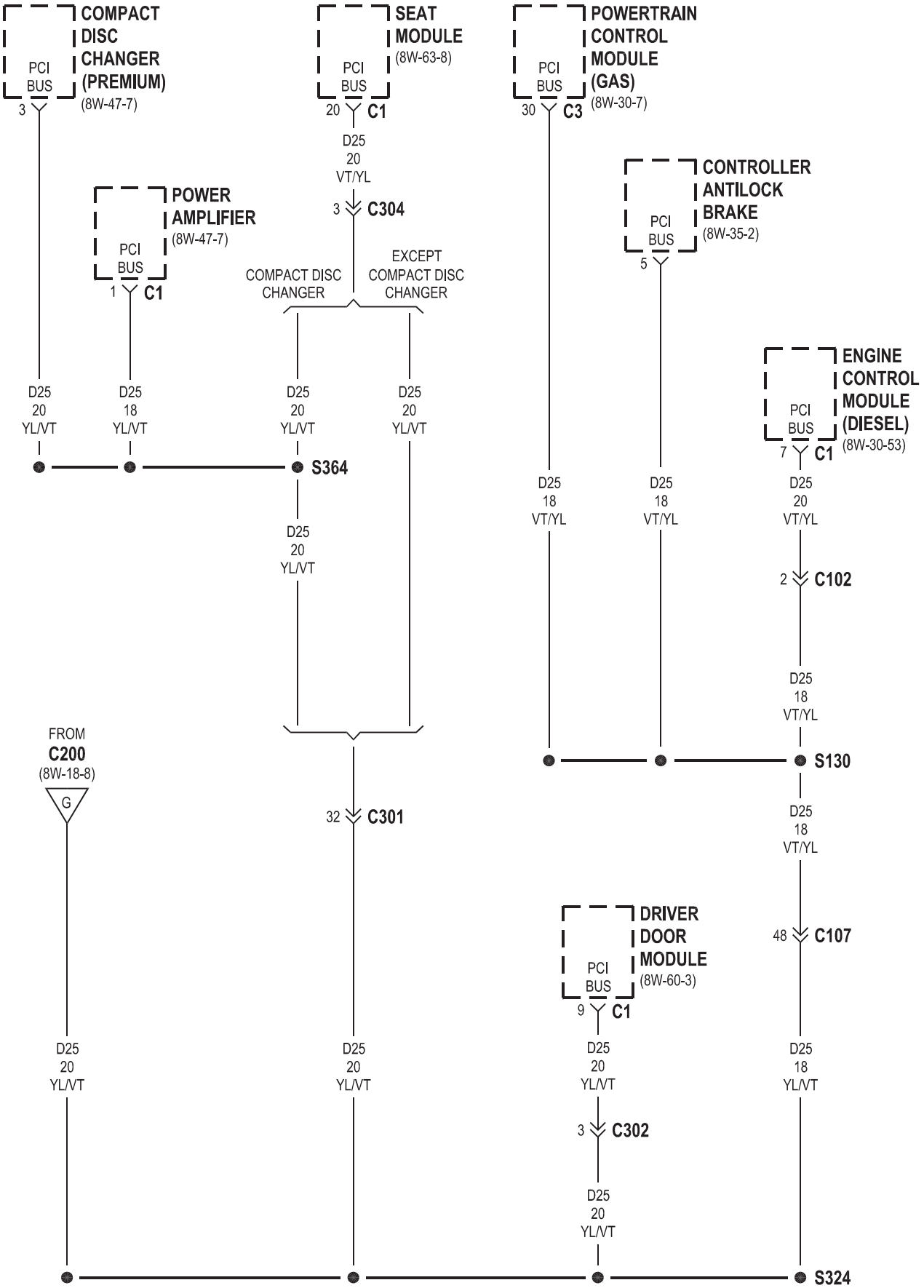

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 17 10A
(8W-12-10)
41 C3
F33 20 PK/RD
16
ENGINE CONTROL MODULE
(8W-30-53)
SCI TRANSMIT
82 C2
D21 20 PK
1 C102
D21 18 PK
49 C107
D21 20 PK
21 C200
D21 20 PK
7
NOT USED
10
D20 20 LG
14
TRANSMISSION CONTROL MODULE
(8W-31-16)
SCI TRANSMIT
1 C1
D21 20 PK
7 C201
D21 20 PK
S217
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
BODY CONTROL MODULE FLASH ENABLE
17 C1
D19 20 VT/OR
D19 20 VT/OR
9
INSTRUMENT CLUSTER
(8W-40-2)
BODY CONTROL MODULE FLASH ENABLE
8
D19 20 VT/OR
S223
D19 20 VT/OR
6 C201
NOT USED
DATA LINK CONNECTOR
2
D25 20 YL/VT
LHD
RHD
A
TO S210
(8W-18-5)
B
TO S210
(8W-18-8)
4
Z305 20 BK/OR
50
Z305 20 BK/OR
37
Z305 20 BK/OR
4
Z305 18 BK/DB
5
Z306 20 BK/LG
51
Z306 20 BK/LG
38 C107
Z306 20 BK/LG
5 C105
Z306 18 BK/DB
G103
(8W-15-3)
6
D32 20 LG/DG
16 C200
NOT USED

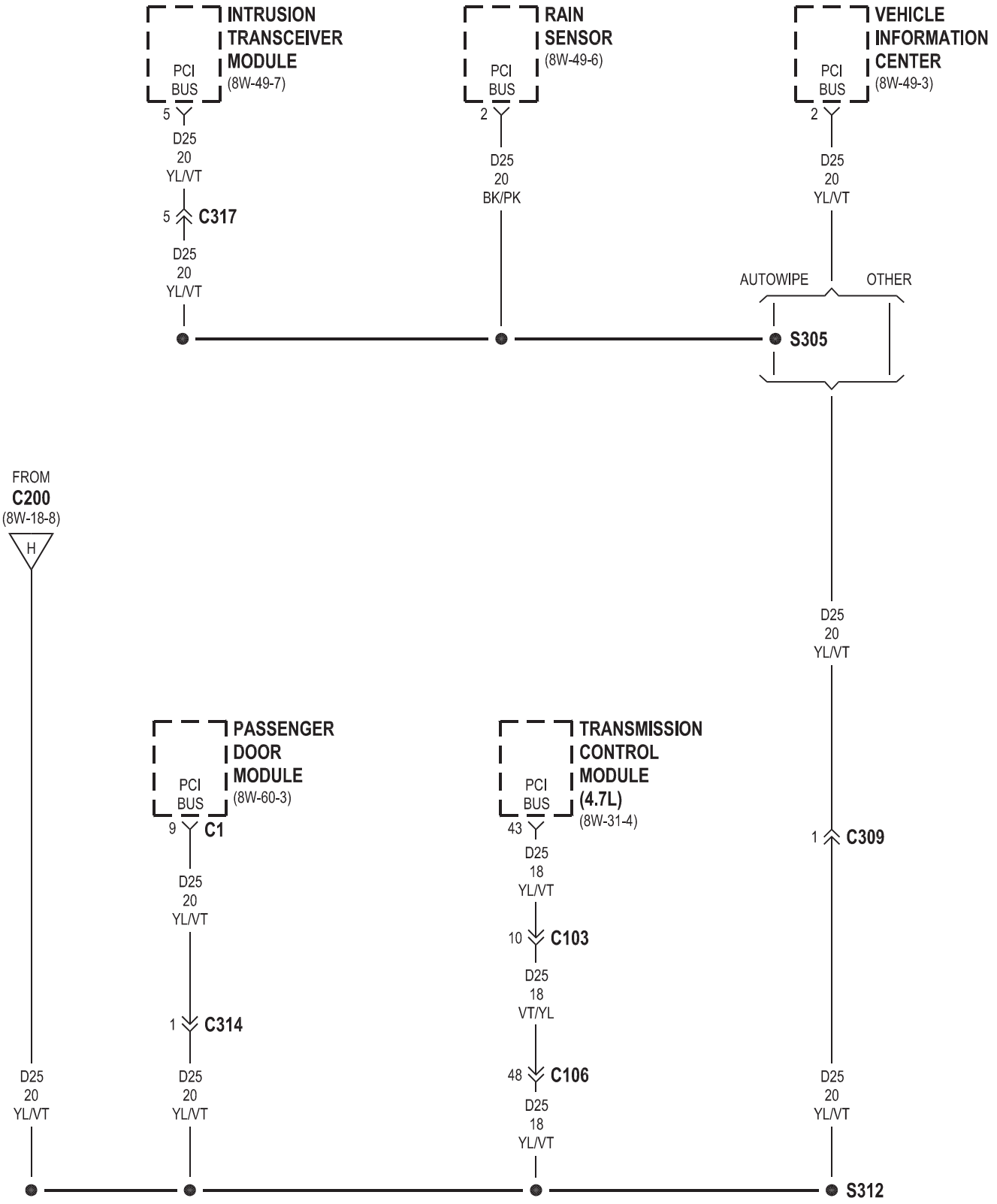

SHIFTER ASSEMBLY (DIESEL)
PCI BUS
(8W-31-15)
5 C1
D25 20 RD
5 C201
D25 20 YL/VT
AUTOMATIC ZONE CONTROL MODULE
PCI BUS
8 C2
(8W-42-5)
D25 20 YL/VT/RD
AIRBAG CONTROL MODULE
PCI BUS
23 C2
(8W-43-3)
D25 20 YL/VT/OR
FROM DATA LINK CONNECTOR
(8W-18-2)
(8W-18-4)
A
D25 20 YL/VT
S210
D25 20 YL/VT/WT
15 C1
BODY CONTROL MODULE
PCI BUS
(8W-45-5)
D25 20 YL/VT/BK
5
SENTRY KEY IMMOBILIZER MODULE
PCI BUS
(8W-39-9)
D25 20 YL/VT
INSTRUMENT CLUSTER
PCI BUS
10
(8W-40-4)
(8W-40-6)
(8W-40-8)
(8W-40-10)
D25 20 YL/VT/RD
S226
D25 20 YL/VT/DB
14 C1
RADIO
PCI BUS
(8W-47-2)
(8W-47-3)
(8W-47-6)
D25 20 YL/VT/GY
14
D25 20 YL/VT/BR
15 C200
D25 20 YL/VT
F
TO S312
(8W-18-7)
D25 20 YL/VT
E
TO S324
(8W-18-6)


TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-4)
PCI BUS
43
D25
18
YL/VT
10 C103
4.7L
ENGINE CONTROL MODULE (DIESEL)
(8W-30-53)
PCI BUS
7 C1
D25
20
VT/YL
2 C102
DIESEL
CONTROLLER ANTILOCK BRAKE (DIESEL)
(8W-35-3)
PCI BUS
5
D25
18
VT/YL
POWERTRAIN CONTROL MODULE (GAS)
(8W-30-6)
PCI BUS
30 C3
D25
18
VT/YL
OTHER
4.0L
S130
GAS
DIESEL
D25
18
VT/YL
48 C106
D25
18
YL/VT
D25
18
VT/YL
48 C107
D25
18
YL/VT
S324
FROM C200
(8W-18-5)
E
D25
20
YL/VT
POWER AMPLIFIER (PREMIUM)
(8W-47-6)
PCI BUS
1 C1
D25
18
YL/VT
D25
20
YL/VT
1 C314
D25
20
YL/VT
9 C1
PCI BUS
PASSENGER DOOR MODULE
(8W-60-2)
D25
20
YL/VT
3
COMPACT DISC CHANGER (PREMIUM)
(8W-47-6)


VEHICLE INFORMATION CENTER
(8W-49-2)
PCI BUS
2
D25 20 YL/VT
RAIN SENSOR
(8W-49-6)
PCI BUS
2
D25 20 BK/PK
INTRUSION TRANSCEIVER MODULE (EXPORT)
(8W-49-7)
PCI BUS
5
D25 20 YL/VT
5 C317
D25 20 YL/VT
SEAT MODULE
(8W-63-8)
PCI BUS
20 C1
D25 20 VT/YL
3 C304
D25 20 YL/VT
S335
OTHER
AUTOWIPE
D25 20 YL/VT
1 C309
D25 20 YL/VT
BASE
EXCEPT BASE
S305
D25 20 YL/VT
1 C300
D25 20 YL/VT
DRIVER DOOR MODULE
(8W-60-2)
PCI BUS
9 C1
D25 20 YL/VT
3 C302
D25 20 YL/VT
CONTROLLER ANTILOCK BRAKE (GAS)
(8W-35-2)
PCI BUS
5
D25 18 YL/VT
48 C107
D25 18 YL/VT
ADJUSTABLE PEDALS MODULE (EXCEPT EXPORT EXCEPT BASE)
(8W-30-40)
PCI BUS
13
D25 20 VT/YL
4 C316
D25 20 YL/VT
FROM C200
(8W-18-5)
F
D25 20 YL/VT
S312

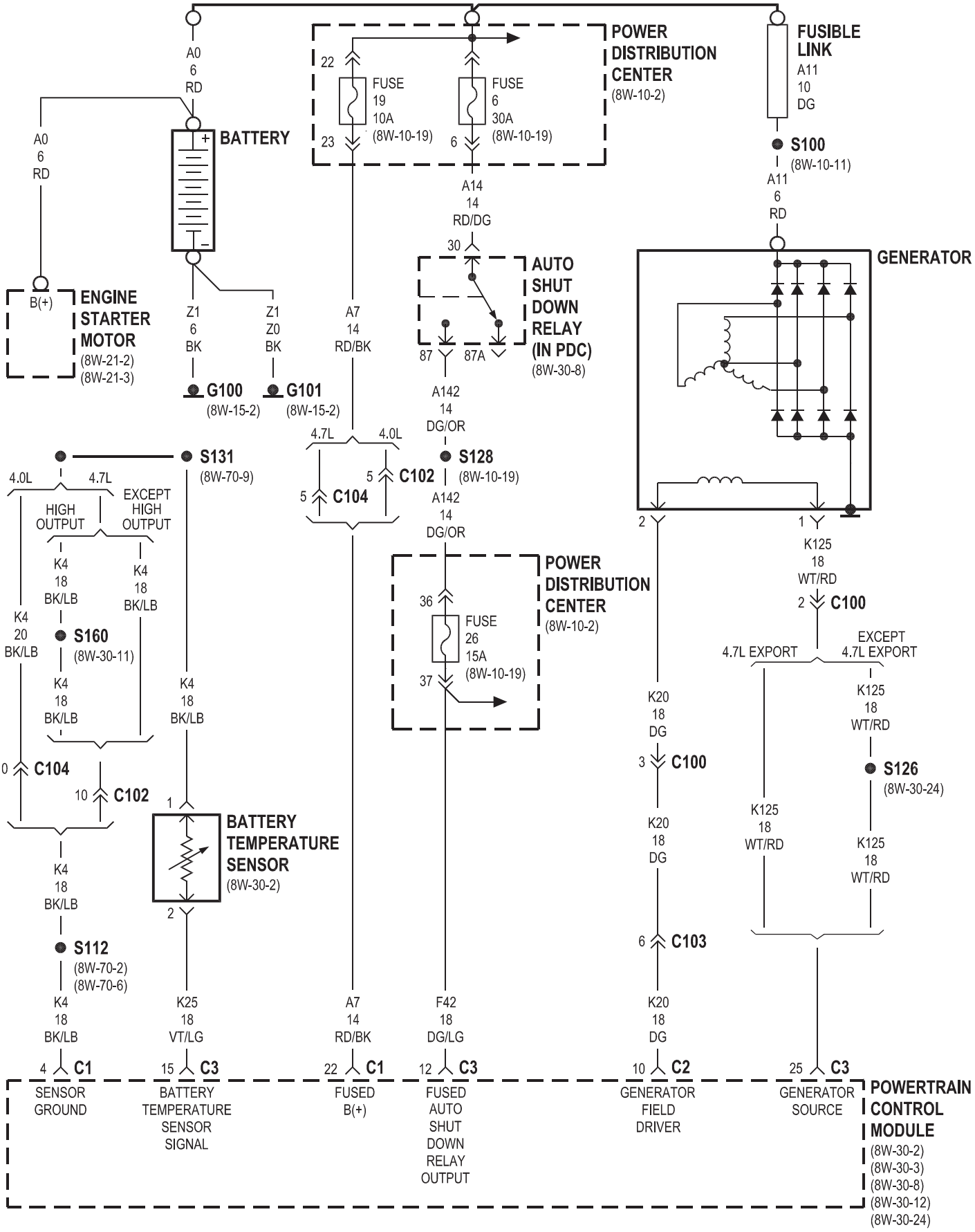

RADIO
(8W-47-13)
PCI BUS
14 C1
D25
20
YL/VT/DB
FROM
DATA LINK CONNECTOR
(8W-18-3)
(8W-18-4)
B
D25
20
YL/VT
INSTRUMENT CLUSTER
(8W-40-5)
(8W-40-7)
PCI BUS
10
D25
20
YL/VT/RD
SENTRY KEY IMMOBILIZER MODULE
(8W-39-9)
PCI BUS
5
D25
20
YL/VT/BK
S210
D25
20
VT/YL/GY
14 C200
D25
20
YL/VT
H
TO
S312
(8W-18-10)
D25
20
YL/VT
D25
20
YL/VT/WT
15 C1
PCI BUS
BODY CONTROL MODULE
(8W-45-6)
SHIFTER ASSEMBLY (DIESEL)
(8W-31-15)
PCI BUS
5 C1
D25
20
RD
5 C201
D25
20
YL/VT
S226
D25
20
YL/VT/DG
8 C2
PCI BUS
AUTOMATIC ZONE CONTROL MODULE
(8W-42-5)
D25
20
YL/VT/OR
23 C2
PCI BUS
AIRBAG CONTROL MODULE
(8W-43-3)
D25
20
YL/VT/BR
15 C200
D25
20
YL/VT
G
TO
S324
(8W-18-9)

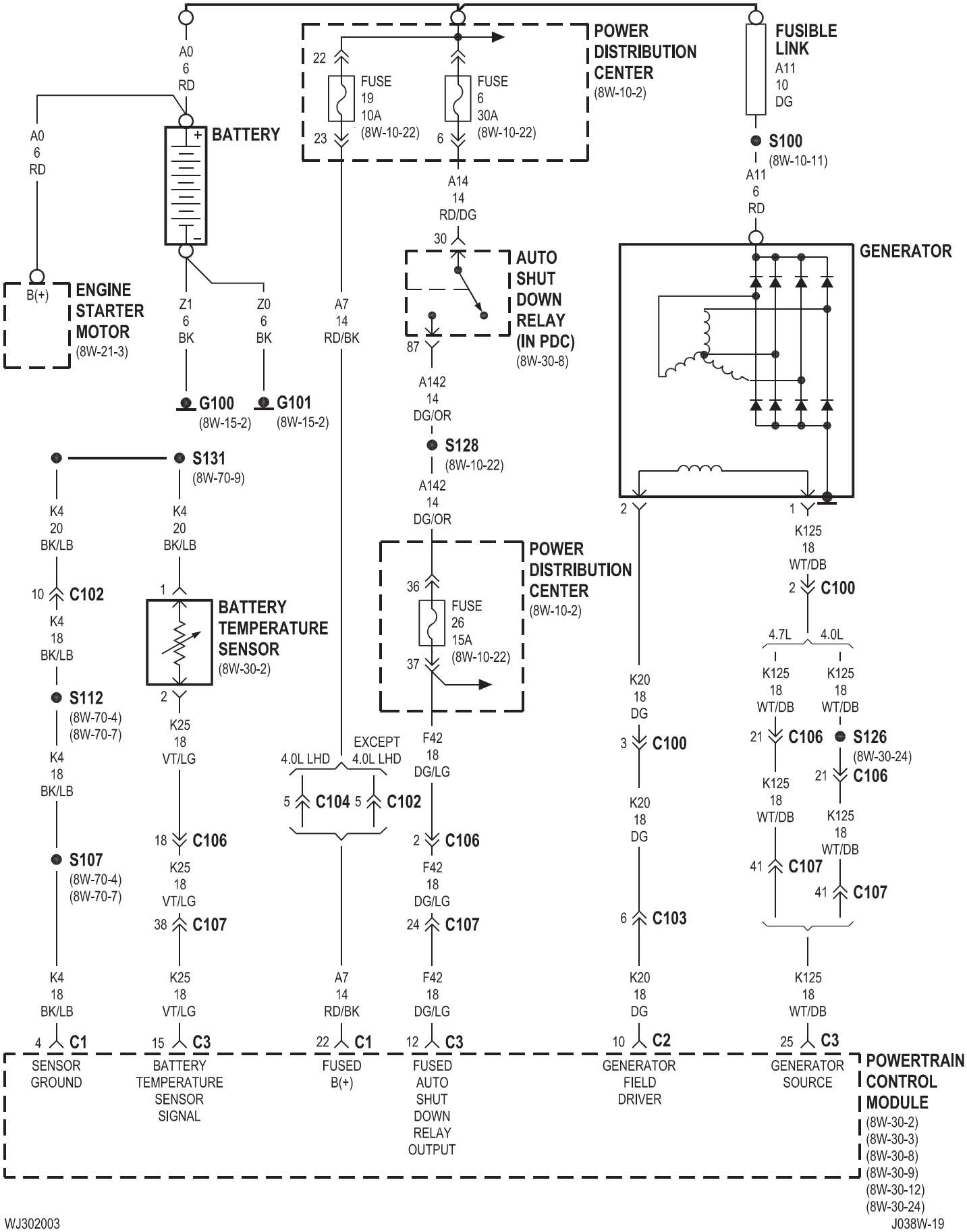

COMPACT DISC CHANGER (PREMIUM)
(8W-47-7)
PCI BUS
3
SEAT MODULE
(8W-63-8)
20 C1
D25 20 VT/YL
3 C304
POWERTRAIN CONTROL MODULE (GAS)
(8W-30-7)
30 C3
POWER AMPLIFIER
(8W-47-7)
1 C1
CONTROLLER ANTILOCK BRAKE
(8W-35-2)
5
COMPACT DISC CHANGER
EXCEPT COMPACT DISC CHANGER
ENGINE CONTROL MODULE (DIESEL)
(8W-30-53)
7 C1
D25 20 YL/VT
D25 18 YL/VT
D25 20 YL/VT
D25 20 YL/VT
D25 18 VT/YL
D25 18 VT/YL
D25 20 VT/YL
S364
D25 20 YL/VT
2 C102
D25 18 VT/YL
FROM C200 (8W-18-8)
G
32 C301
S130
D25 18 VT/YL
DRIVER DOOR MODULE
(8W-60-3)
9 C1
48 C107
D25 20 YL/VT
D25 20 YL/VT
D25 20 YL/VT
D25 18 YL/VT
3 C302
D25 20 YL/VT
S324

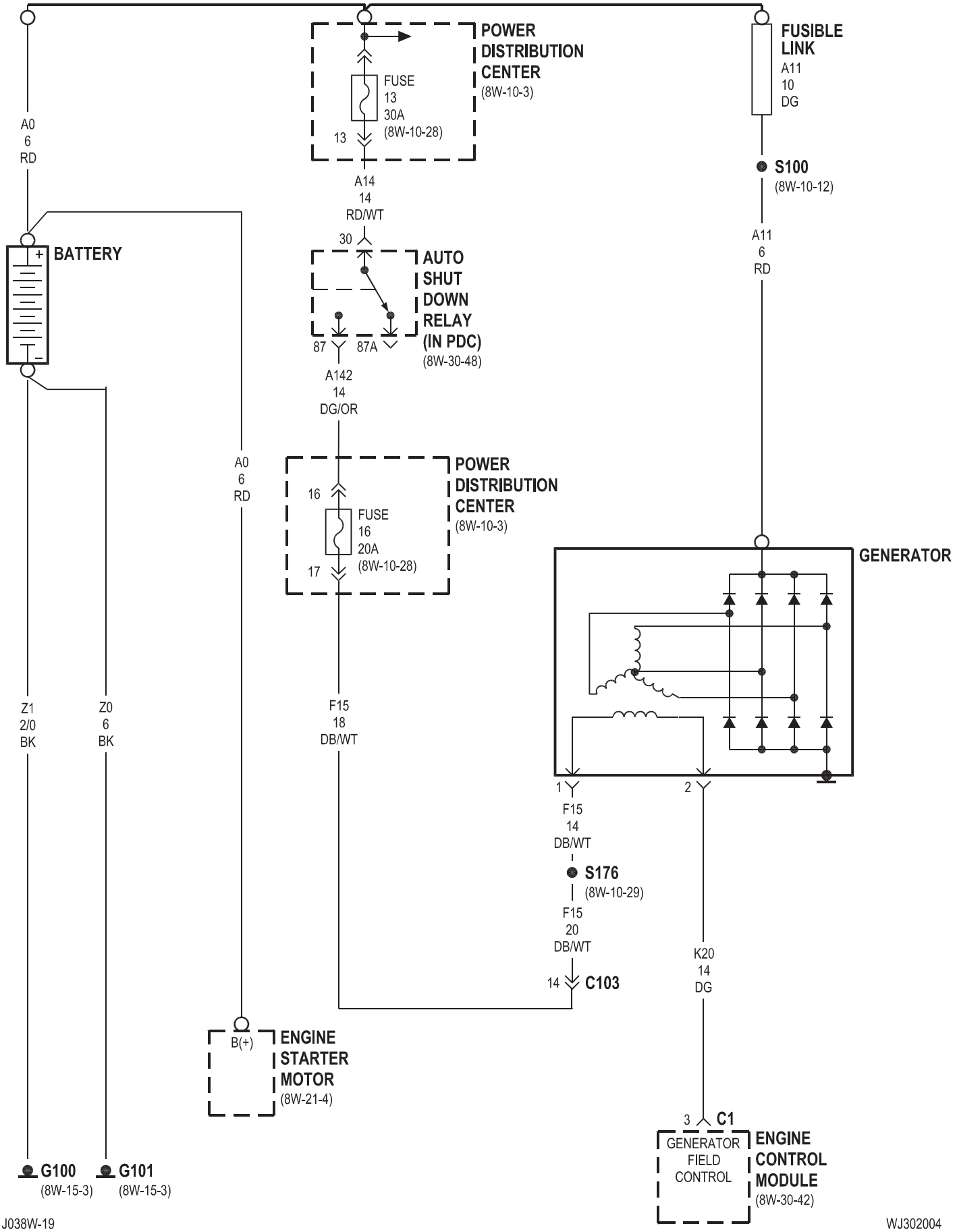

INTRUSION TRANSCEIVER MODULE
(8W-49-7)
PCI BUS
5
D25
20
YL/VT
5
C317
D25
20
YL/VT
RAIN SENSOR
(8W-49-6)
PCI BUS
2
D25
20
BK/PK
VEHICLE INFORMATION CENTER
(8W-49-3)
PCI BUS
2
D25
20
YL/VT
AUTOWIPE
OTHER
S305
FROM
C200
(8W-18-8)
H
D25
20
YL/VT
D25
20
YL/VT
PASSENGER DOOR MODULE
(8W-60-3)
PCI BUS
9
C1
D25
20
YL/VT
1
C314
D25
20
YL/VT
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-4)
PCI BUS
43
D25
18
YL/VT
10
C103
D25
18
VT/YL
48
C106
D25
18
YL/VT
D25
20
YL/VT
1
C309
D25
20
YL/VT
S312

8W-20 CHARGING SYSTEM

Component	Page
Auto Shut Down Relay	8W-20-2, 3, 4
Battery	8W-20-2, 3, 4
Battery Temperature Sensor	8W-20-2, 3
Engine Control Module	8W-20-4
Engine Starter Motor	8W-20-2, 3, 4
Fuse 6	8W-20-2, 3
Fuse 13	8W-20-4
Fuse 16	8W-20-4
Fuse 19	8W-20-2, 3
Fuse 26	8W-20-2, 3
Fusible Link	8W-20-2, 3, 4
G100	8W-20-2, 3, 4
G101	8W-20-2, 3, 4
Generator	8W-20-2, 3, 4
Power Distribution Center	8W-20-2, 3, 4
Powertrain Control Module	8W-20-2, 3

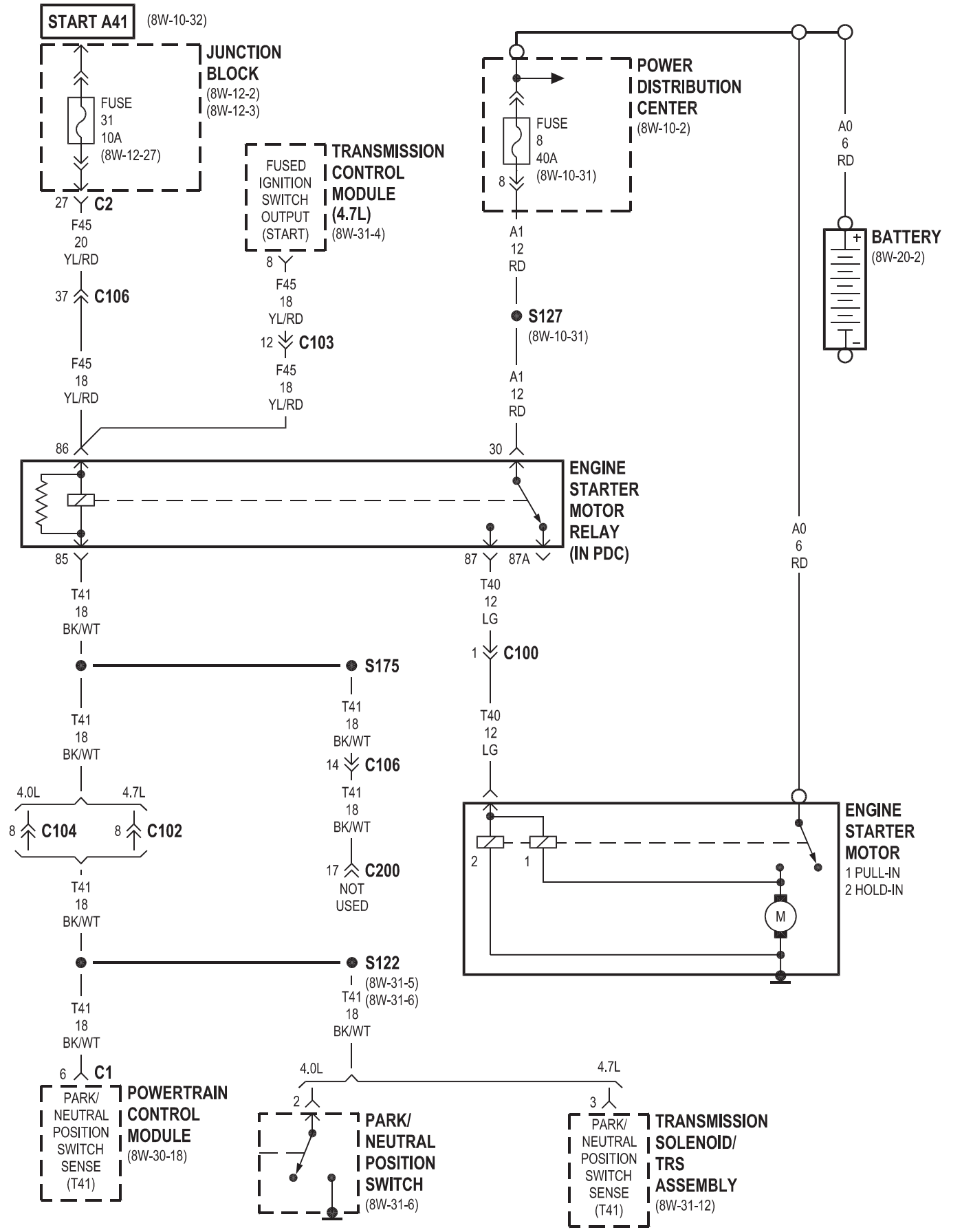

A0
6
RD
BATTERY
POWER
DISTRIBUTION
CENTER
(8W-10-2)
FUSE
19
10A
(8W-10-19)
FUSE
6
30A
(8W-10-19)
FUSIBLE
LINK
A11
10
DG
S100
(8W-10-11)
A11
6
RD
A14
14
RD/DG
GENERATOR
ENGINE
STARTER
MOTOR
(8W-21-2)
(8W-21-3)
B(+)
Z1
6
BK
Z1
Z0
BK
G100
(8W-15-2)
G101
(8W-15-2)
A7
14
RD/BK
AUTO
SHUT
DOWN
RELAY
(IN PDC)
(8W-30-8)
A142
14
DG/OR
S131
(8W-70-9)
S128
(8W-10-19)
C102
C104
4.0L
4.7L
EXCEPT
HIGH
OUTPUT
HIGH
OUTPUT
K4
18
BK/LB
K4
20
BK/LB
S160
(8W-30-11)
K125
18
WT/RD
C100
4.7L EXPORT
EXCEPT
4.7L EXPORT
K20
18
DG
C103
S126
(8W-30-24)
BATTERY
TEMPERATURE
SENSOR
(8W-30-2)
S112
(8W-70-2)
(8W-70-6)
K25
18
VT/LG
F42
18
DG/LG
C1
C2
C3
SENSOR
GROUND
BATTERY
TEMPERATURE
SENSOR
SIGNAL
FUSED
B(+)
FUSED
AUTO
SHUT
DOWN
RELAY
OUTPUT
GENERATOR
FIELD
DRIVER
GENERATOR
SOURCE
POWERTRAIN
CONTROL
MODULE
(8W-30-2)
(8W-30-3)
(8W-30-8)
(8W-30-12)
(8W-30-24)

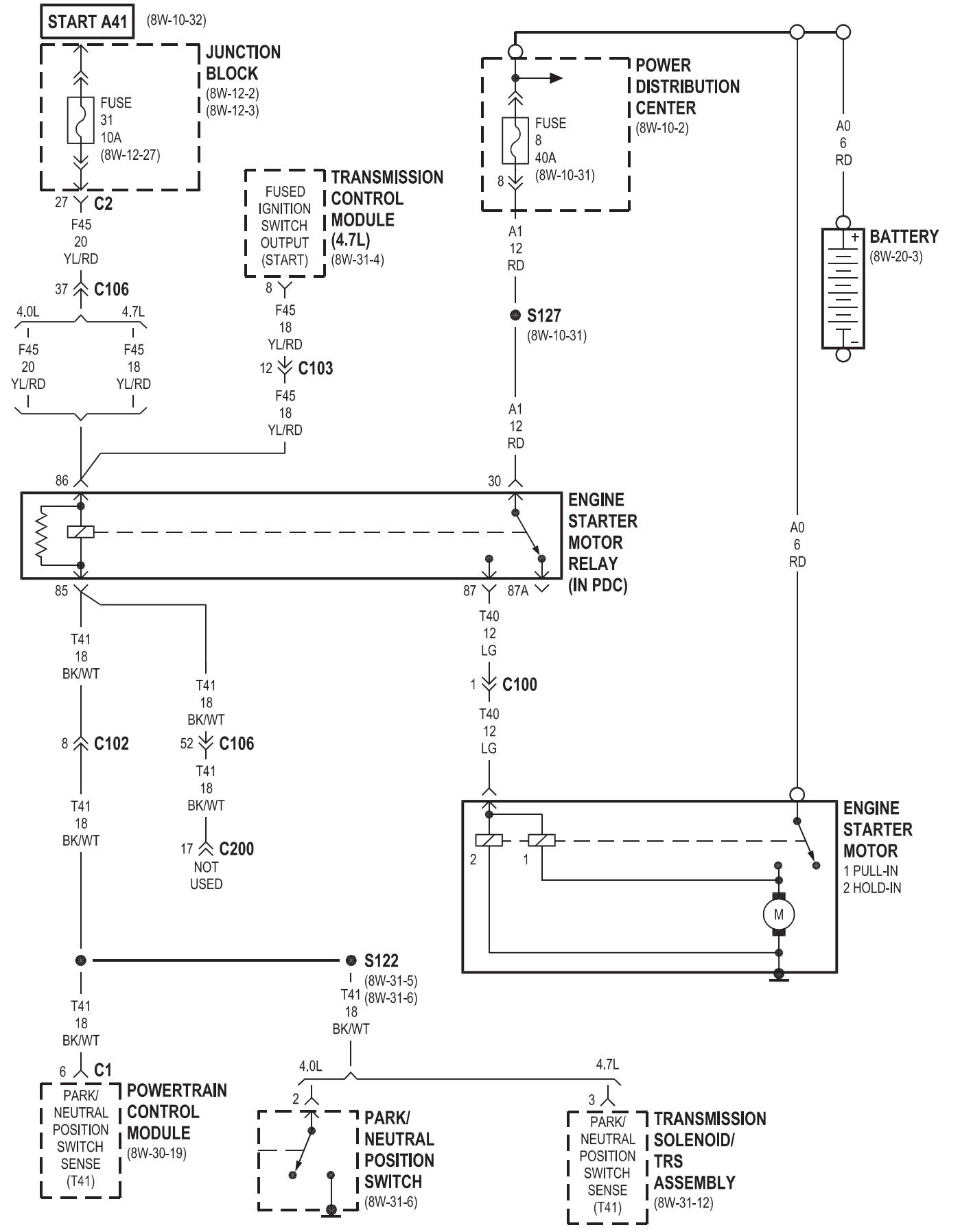

A0
6
RD
BATTERY
A0
6
RD
B(+)
ENGINE
STARTER
MOTOR
(8W-21-3)
Z1
6
BK
Z0
6
BK
G100
(8W-15-2)
G101
(8W-15-2)
22
FUSE
19
10A
(8W-10-22)
23
FUSE
6
30A
(8W-10-22)
6
POWER
DISTRIBUTION
CENTER
(8W-10-2)
FUSIBLE
LINK
A11
10
DG
S100
(8W-10-11)
A11
6
RD
A14
14
RD/DG
30
AUTO
SHUT
DOWN
RELAY
(IN PDC)
(8W-30-8)
87
A142
14
DG/OR
S128
(8W-10-22)
A142
14
DG/OR
A7
14
RD/BK
GENERATOR
2
1
K125
18
WT/DB
2
C100
4.7L
4.0L
S131
(8W-70-9)
K4
20
BK/LB
K4
20
BK/LB
10
C102
K4
18
BK/LB
S112
(8W-70-4)
(8W-70-7)
K4
18
BK/LB
S107
(8W-70-4)
(8W-70-7)
1
BATTERY
TEMPERATURE
SENSOR
(8W-30-2)
2
K25
18
VT/LG
18
C106
K25
18
VT/LG
38
C107
36
FUSE
26
15A
(8W-10-22)
37
POWER
DISTRIBUTION
CENTER
(8W-10-2)
4.0L LHD
EXCEPT
4.0L LHD
5
C104
5
C102
F42
18
DG/LG
2
C106
F42
18
DG/LG
24
C107
K20
18
DG
3
C100
K20
18
DG
6
C103
K125
18
WT/DB
21
C106
S126
(8W-30-24)
21
C106
K125
18
WT/DB
41
C107
41
C107
K4
18
BK/LB
4
C1
SENSOR
GROUND
K25
18
VT/LG
15
C3
BATTERY
TEMPERATURE
SENSOR
SIGNAL
A7
14
RD/BK
22
C1
FUSED
B(+)
F42
18
DG/LG
12
C3
FUSED
AUTO
SHUT
DOWN
RELAY
OUTPUT
K20
18
DG
10
C2
GENERATOR
FIELD
DRIVER
K125
18
WT/DB
25
C3
GENERATOR
SOURCE
POWERTRAIN
CONTROL
MODULE
(8W-30-2)
(8W-30-3)
(8W-30-8)
(8W-30-9)
(8W-30-12)
(8W-30-24)

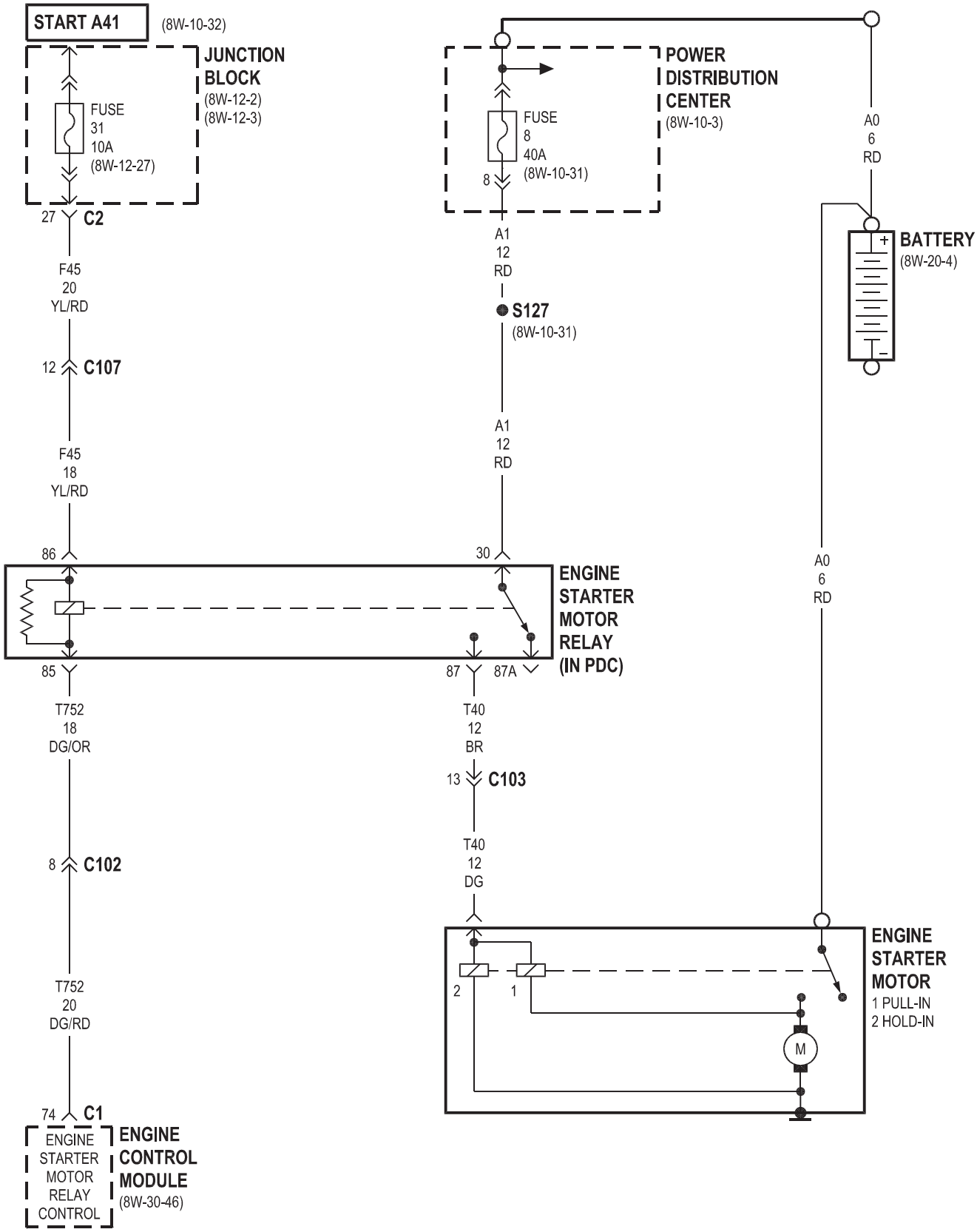

POWER DISTRIBUTION CENTER
(8W-10-3)
FUSE 13 30A
(8W-10-28)
13
A14 14 RD/WT
30
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-48)
87
87A
A142 14 DG/OR
FUSIBLE LINK A11 10 DG
S100
(8W-10-12)
A11 6 RD
BATTERY
A0 6 RD
POWER DISTRIBUTION CENTER
(8W-10-3)
16
FUSE 16 20A
(8W-10-28)
17
GENERATOR
A0 6 RD
Z1 2/0 BK
Z0 6 BK
F15 18 DB/WT
1
2
F15 14 DB/WT
S176
(8W-10-29)
F15 20 DB/WT
14
C103
K20 14 DG
B(+)
ENGINE STARTER MOTOR
(8W-21-4)
3
C1
GENERATOR FIELD CONTROL
ENGINE CONTROL MODULE
(8W-30-42)
G100
(8W-15-3)
G101
(8W-15-3)

8W-21 STARTING SYSTEM

Component	Page
Battery	8W-21-2, 3, 4
Engine Control Module	8W-21-4
Engine Starter Motor	8W-21-2, 3, 4
Engine Starter Motor Relay	8W-21-2, 3, 4
Fuse 8	8W-21-2, 3, 4
Fuse 31	8W-21-2, 3, 4
Junction Block	8W-21-2, 3, 4
Park/Neutral Position Switch	8W-21-2, 3
Power Distribution Center	8W-21-2, 3, 4
Powertrain Control Module	8W-21-2, 3
Transmission Control Module	8W-21-2, 3
Transmission Solenoid/Trs Assembly	8W-21-2, 3

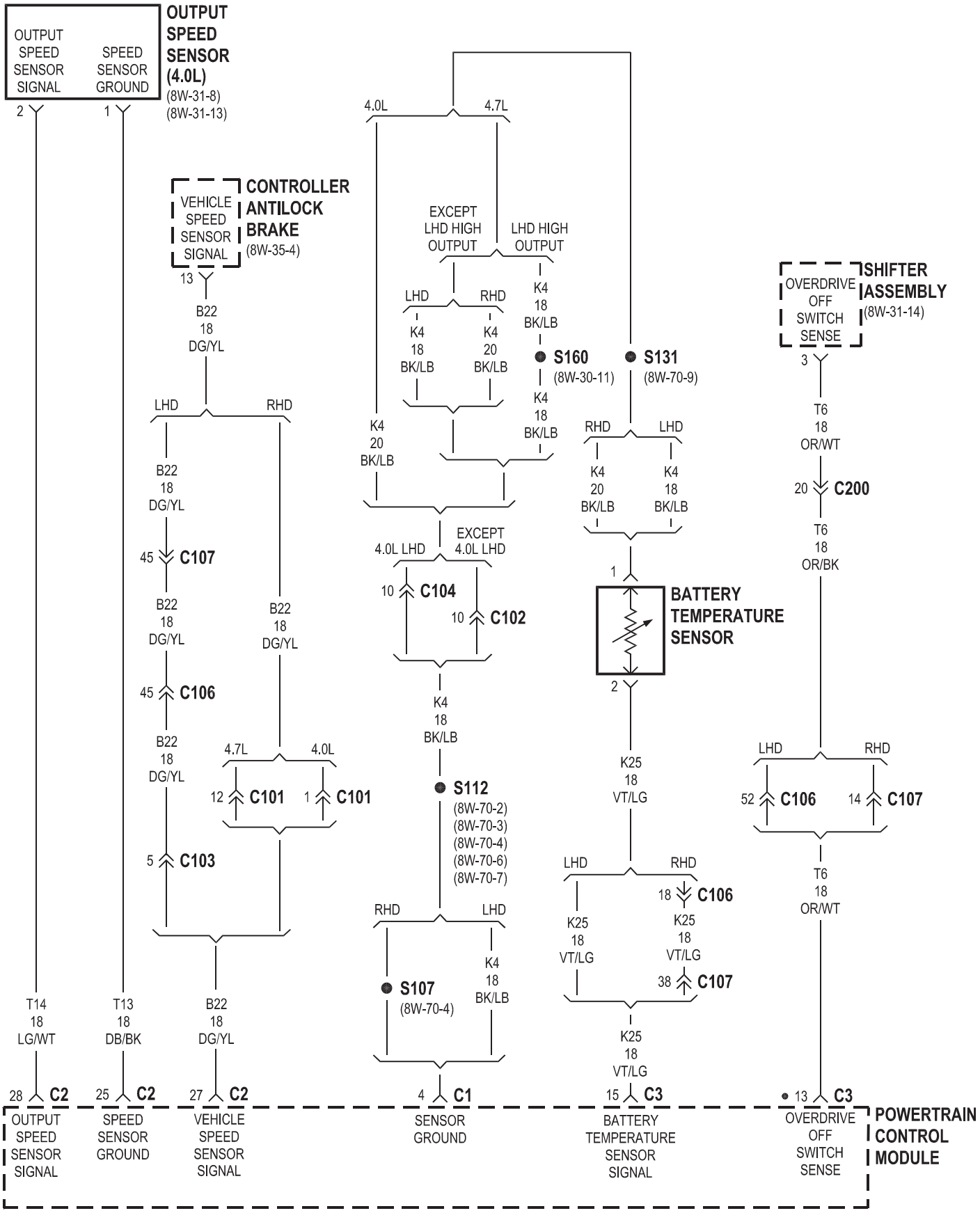

START A41
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 31 10A
(8W-12-27)
27 C2
F45 20 YL/RD
37 C106
F45 18 YL/RD
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-4)
FUSED IGNITION SWITCH OUTPUT (START)
8
F45 18 YL/RD
12 C103
F45 18 YL/RD
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE 8 40A
(8W-10-31)
8
A1 12 RD
S127
(8W-10-31)
A1 12 RD
30
A0 6 RD
BATTERY
(8W-20-2)
86
85
ENGINE STARTER MOTOR RELAY (IN PDC)
87
87A
A0 6 RD
T41 18 BK/WT
T40 12 LG
1 C100
S175
T41 18 BK/WT
14 C106
T41 18 BK/WT
17 C200
NOT USED
T40 12 LG
4.0L
4.7L
8 C104
8 C102
T41 18 BK/WT
ENGINE STARTER MOTOR
1 PULL-IN
2 HOLD-IN
2
1
M
S122
(8W-31-5)
T41 (8W-31-6)
18 BK/WT
T41 18 BK/WT
6 C1
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
POWERTRAIN CONTROL MODULE
(8W-30-18)
4.0L
4.7L
2
3
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-12)

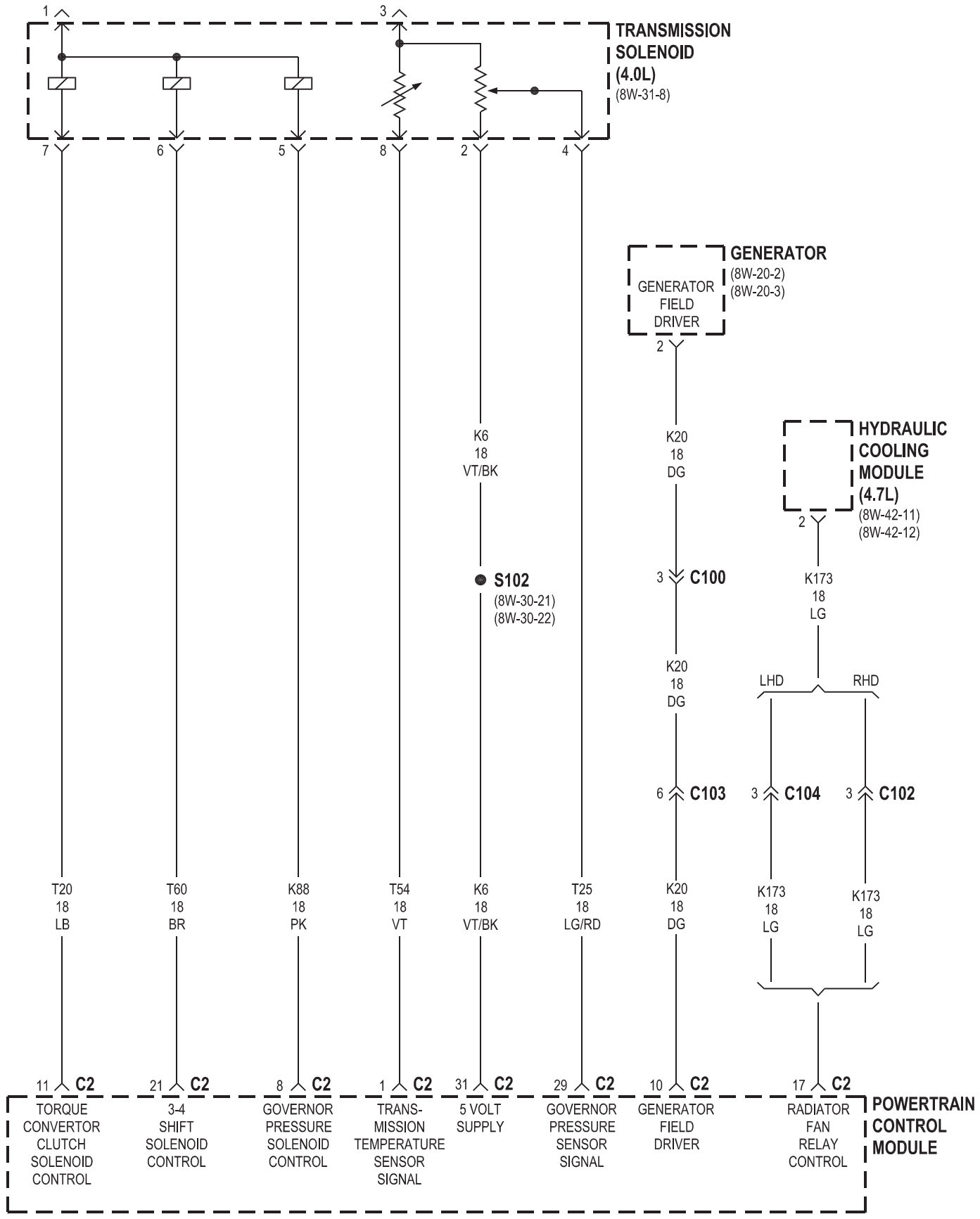

START A41
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 31 10A
(8W-12-27)
27 C2
F45 20 YL/RD
37 C106
4.0L
4.7L
F45 20 YL/RD
F45 18 YL/RD
FUSED IGNITION SWITCH OUTPUT (START)
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-4)
8
F45 18 YL/RD
12 C103
F45 18 YL/RD
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE 8 40A
(8W-10-31)
8
A1 12 RD
S127
(8W-10-31)
A1 12 RD
A0 6 RD
BATTERY
(8W-20-3)
86
30
85
87
87A
ENGINE STARTER MOTOR RELAY (IN PDC)
T41 18 BK/WT
8 C102
T41 18 BK/WT
T41 18 BK/WT
52 C106
T41 18 BK/WT
17 C200
NOT USED
T40 12 LG
1 C100
T40 12 LG
A0 6 RD
2
1
M
ENGINE STARTER MOTOR
1 PULL-IN
2 HOLD-IN
S122
(8W-31-5)
T41 (8W-31-6)
18 BK/WT
T41 18 BK/WT
6 C1
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
POWERTRAIN CONTROL MODULE
(8W-30-19)
4.0L
4.7L
2
3
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-12)

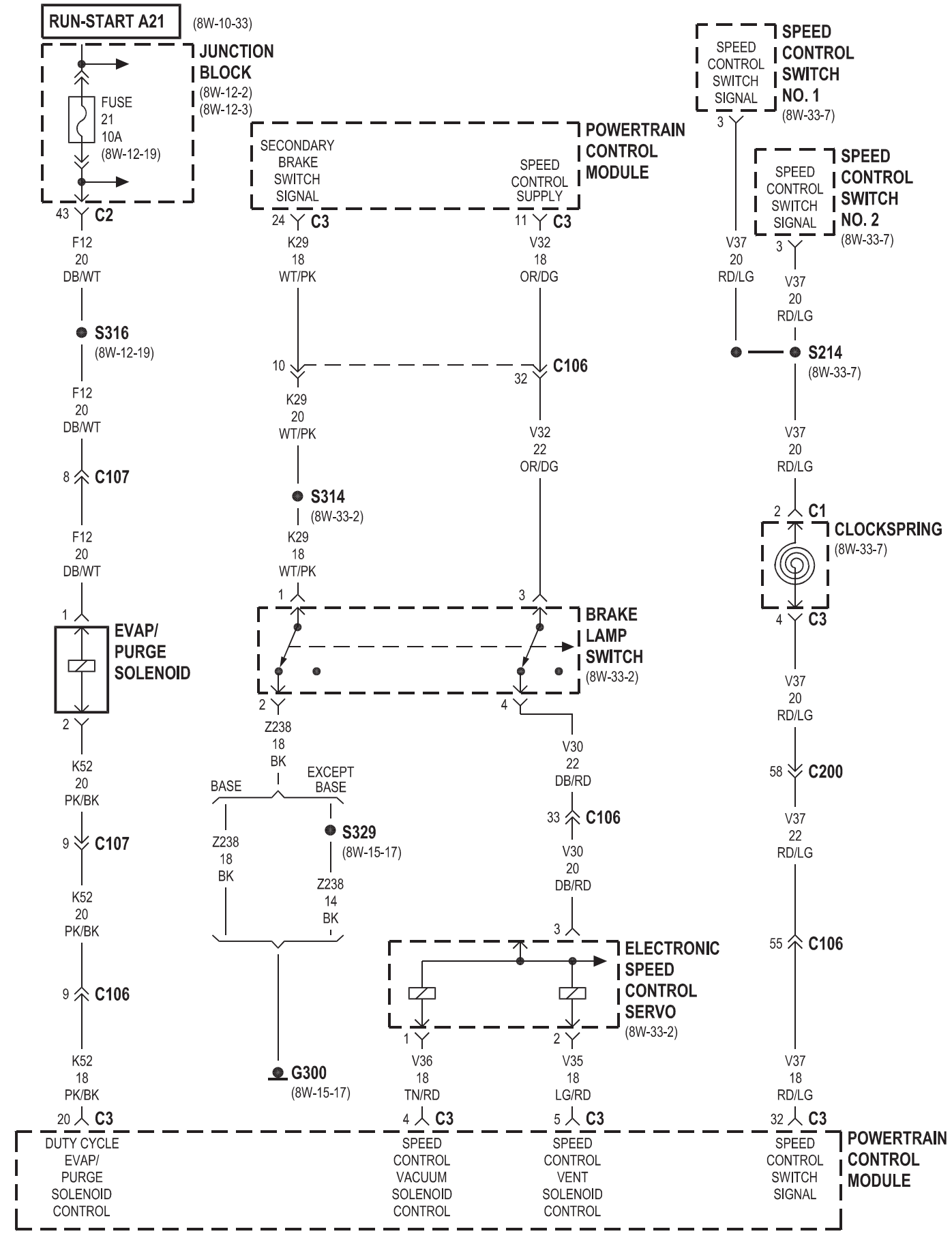

START A41
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 31 10A
(8W-12-27)
27
C2
F45 20 YL/RD
12
C107
F45 18 YL/RD
86
85
T752 18 DG/OR
8
C102
T752 20 DG/RD
74
C1
ENGINE STARTER MOTOR RELAY CONTROL
ENGINE CONTROL MODULE
(8W-30-46)
POWER DISTRIBUTION CENTER
(8W-10-3)
FUSE 8 40A
(8W-10-31)
8
A1 12 RD
S127
(8W-10-31)
A1 12 RD
30
87
87A
T40 12 BR
13
C103
T40 12 DG
ENGINE STARTER MOTOR RELAY (IN PDC)
A0 6 RD
BATTERY
(8W-20-4)
A0 6 RD
2
1
M
ENGINE STARTER MOTOR
1 PULL-IN
2 HOLD-IN

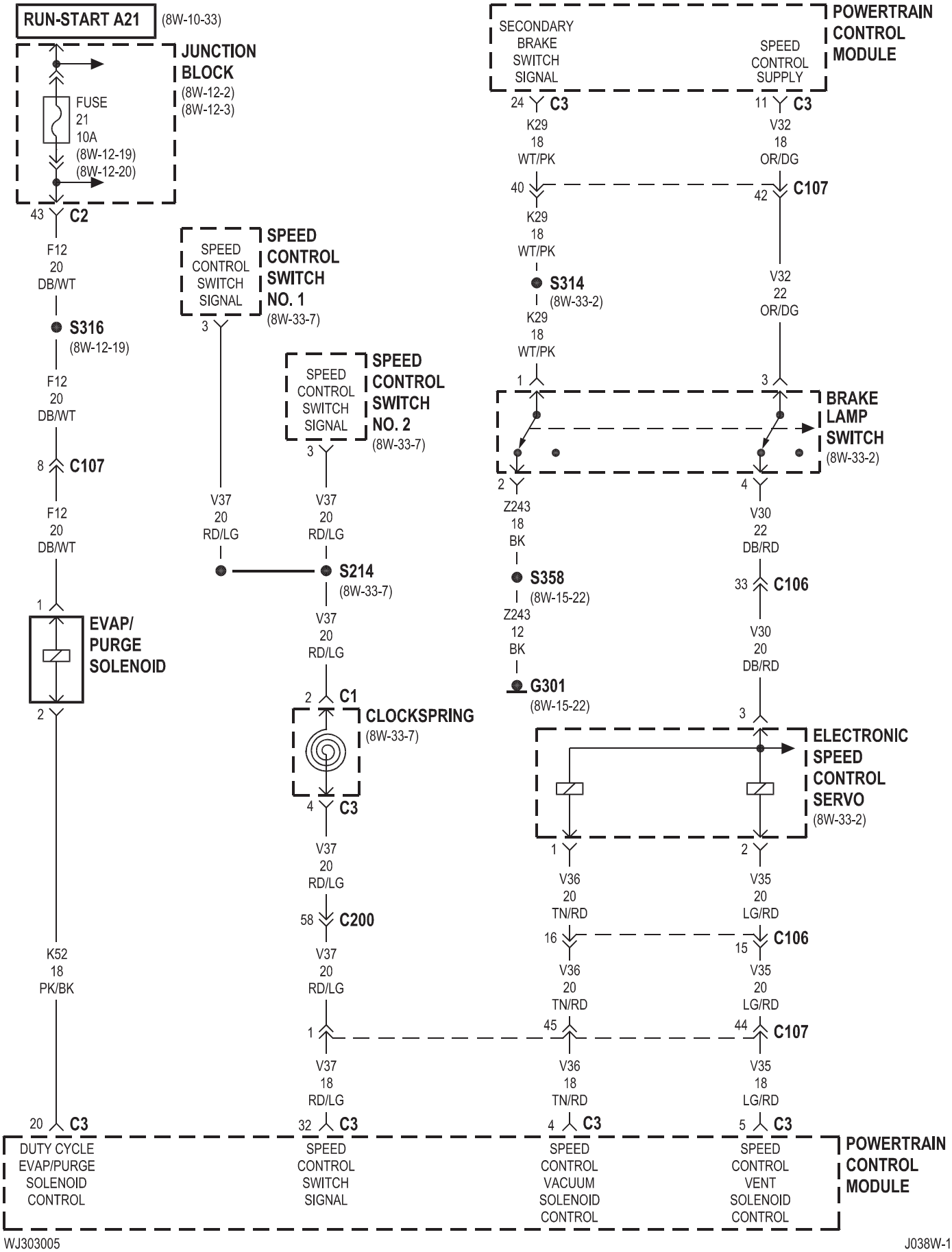
8W-30 FUEL/IGNITION SYSTEM

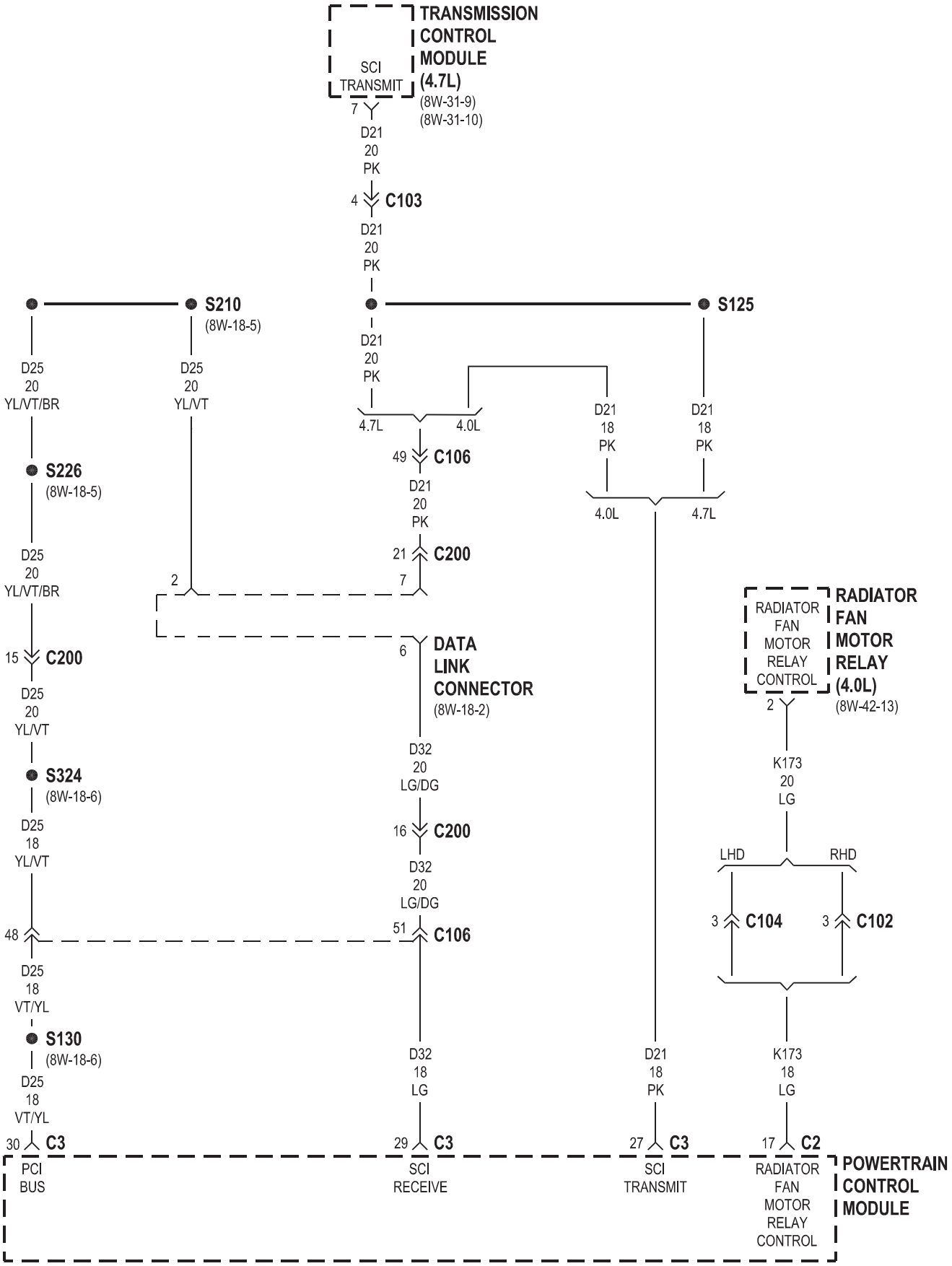
Component	Page
A/C Compressor Clutch Relay	8W-30-42, 46, 48
A/C Compressor Clutch Relay	8W-30-24, 49
A/C Pressure Transducer	8W-30-21, 22, 37, 38, 49, 52
Accelerator Pedal Position Sensor	8W-30-44, 55
Adjustable Pedals Module	8W-30-40
Adjustable Pedals Motor/Sensor Assembly	8W-30-40
Adjustable Pedals Switch	8W-30-40
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Body Control Module	8W-30-53
Boost Pressure Sensor	8W-30-52
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Capacitor No. 1	8W-30-16
Capacitor No. 2	8W-30-17
Clockspring	8W-30-4, 5, 45
Coil On Plug No. 1	8W-30-17
Coil On Plug No. 2	8W-30-16
Coil On Plug No. 3	8W-30-17
Coil On Plug No. 4	8W-30-16
Coil On Plug No. 5	8W-30-17
Coil On Plug No. 6	8W-30-16
Coil On Plug No. 7	8W-30-17
Coil On Plug No. 8	8W-30-16
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Crankshaft Position Sensor	8W-30-18, 19, 20, 56
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EGR Solenoid	8W-30-57
Electronic Speed Control Servo	8W-30-4, 5
Engine Control Module	8W-30-41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58
Engine Coolant Pressure Switch	8W-30-23
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Engine Oil Pressure Switch	8W-30-21, 22
Engine Starter Motor Relay	8W-30-18, 19, 46
EVAP/Purge Solenoid	8W-30-4, 5
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Fuel Injector No. 2	8W-30-13, 14, 51
Fuel Injector No. 3	8W-30-13, 15, 51
Fuel Injector No. 4	8W-30-13, 14, 51
Fuel Injector No. 5	8W-30-13, 15, 51
Fuel Injector No. 6	8W-30-13, 14
Fuel Injector No. 7	8W-30-15
Fuel Injector No. 8	8W-30-14
Fuel Injector No.1	8W-30-51
Fuel Pressure Sensor	8W-30-44
Fuel Pressure Solenoid	8W-30-54
Fuel Pump Module	8W-30-10
Fuel Pump Relay	8W-30-8, 9, 10
Fuel Tank Module	8W-30-52
Fuse 6	8W-30-8, 49
Fuse 10	8W-30-40
Fuse 11	8W-30-50
Fuse 12	8W-30-8, 9, 47
Fuse 13	8W-30-48
Fuse 16	8W-30-25, 29, 26, 34, 42, 44, 46, 48, 56
Fuse 19	8W-30-9
Fuse 21	8W-30-4, 5, 39
Fuse 22	8W-30-41
Fuse 23	8W-30-46
Fuse 24	8W-30-9
Fuse 26	8W-30-8, 12, 48, 54
Fuse 31	8W-30-46
G103	8W-30-8, 41, 46, 53
G104	8W-30-27, 28, 30, 31, 33, 36
G105	8W-30-42, 46
G108	8W-30-24
G123	8W-30-57
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Glow Plug No. 2	8W-30-50
Glow Plug No. 3	8W-30-49
Glow Plug No. 4	8W-30-50
Glow Plug No. 5	8W-30-49
Glow Plug Relay No. 1	8W-30-42, 49, 50
Glow Plug Relay No. 2	8W-30-42, 49, 50
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Junction Block	8W-30-4, 8, 9, 39, 40, 46, 47
Knock Sensor	8W-30-11
Leak Detection Pump	8W-30-24
Manifold Absolute Pressure Sensor	8W-30-20, 21, 22, 23
Mass Air Flow Sensor	8W-30-44
Output Speed Sensor	8W-30-2
Oxygen Sensor 1/1 Upstream	8W-30-25, 30, 27, 32, 35
Oxygen Sensor 1/2 Downstream	8W-30-25, 30, 27, 33, 36
Oxygen Sensor 2/1 Upstream	8W-30-31, 28, 32, 35
Oxygen Sensor 2/2 Downstream	8W-30-31, 28, 33, 36
Oxygen Sensor Downstream Relay	8W-30-29, 30, 31, 26, 34
Park/Neutral Position Switch	8W-30-40
Power Distribution Center	8W-30-8, 9, 12, 25, 29, 26, 34, 41, 42, 44, 46, 48, 49, 50, 54, 56
Powertrain Control Module	8W-30-2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39
Radiator Fan Motor Relay	8W-30-6
Shifter Assembly	8W-30-2, 39, 47
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Speed Control Switch No. 2	8W-30-4, 5, 45
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Transmission Control Relay	8W-30-24
Transmission Solenoid	8W-30-3, 21, 22
Transmission Solenoid/TRS Assembly	8W-30-40
Viscous/Cabin Heater	8W-30-46
Viscous/Cabin Heater Relay	8W-30-42, 46, 48, 49
Wastegate Solenoid	8W-30-42
Water In Fuel Sensor	8W-30-57

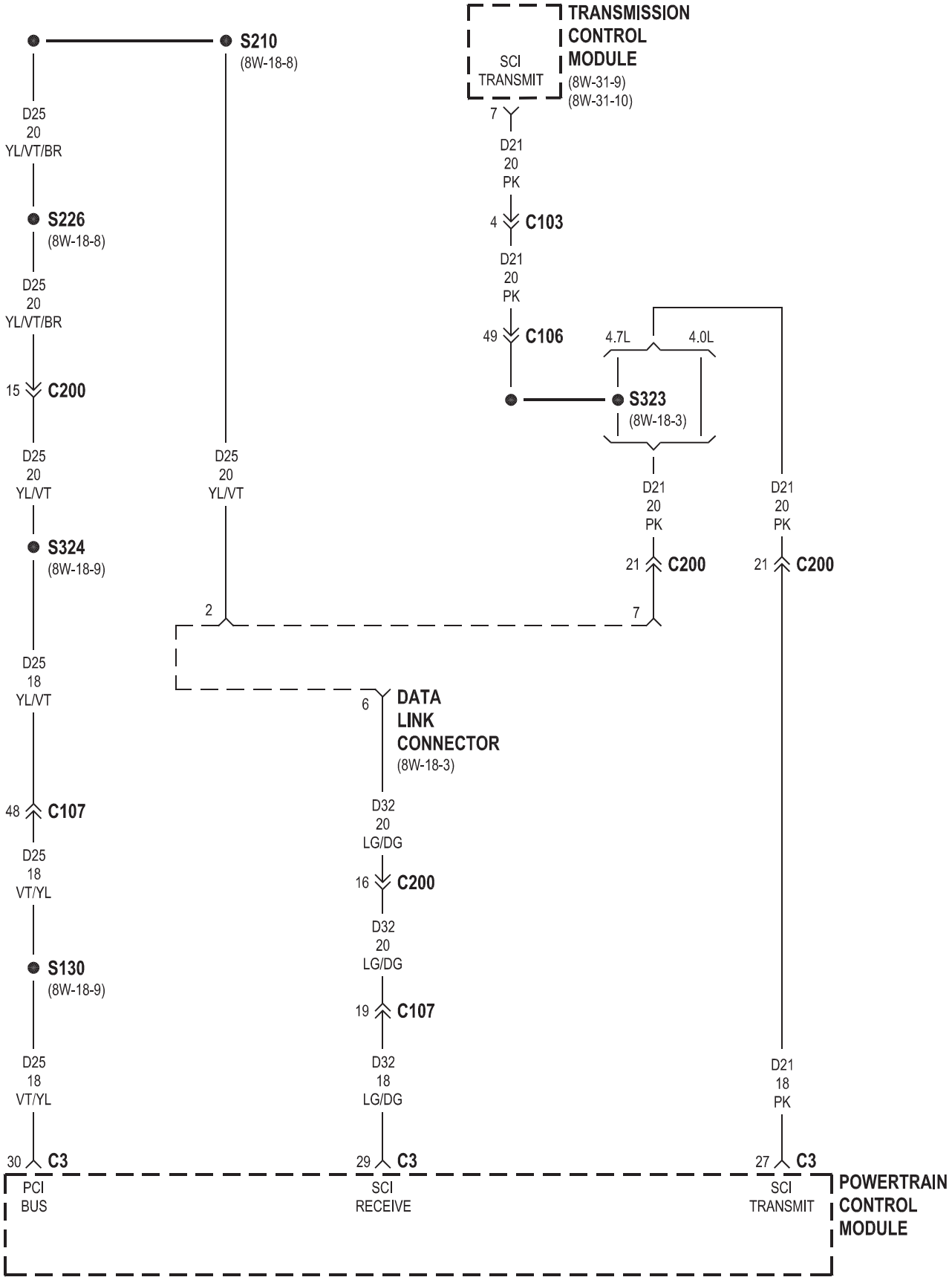

OUTPUT SPEED SENSOR SIGNAL
SPEED SENSOR GROUND
OUTPUT SPEED SENSOR (4.0L)
(8W-31-8)
(8W-31-13)
2
1
VEHICLE SPEED SENSOR SIGNAL
CONTROLLER ANTILOCK BRAKE
(8W-35-4)
13
B22 18 DG/YL
LHD
RHD
B22 18 DG/YL
45 C107
B22 18 DG/YL
45 C106
B22 18 DG/YL
5 C103
B22 18 DG/YL
4.7L
4.0L
12 C101
1 C101
4.0L
4.7L
EXCEPT LHD HIGH OUTPUT
LHD HIGH OUTPUT
LHD
RHD
K4 18 BK/LB
K4 18 BK/LB
K4 20 BK/LB
S160
(8W-30-11)
K4 18 BK/LB
K4 20 BK/LB
S131
(8W-70-9)
RHD
LHD
K4 20 BK/LB
K4 18 BK/LB
EXCEPT 4.0L LHD
4.0L LHD
10 C104
10 C102
K4 18 BK/LB
S112
(8W-70-2)
(8W-70-3)
(8W-70-4)
(8W-70-6)
(8W-70-7)
RHD
LHD
S107
(8W-70-4)
K4 18 BK/LB
1
BATTERY TEMPERATURE SENSOR
2
K25 18 VT/LG
LHD
RHD
18 C106
K25 18 VT/LG
K25 18 VT/LG
38 C107
K25 18 VT/LG
OVERDRIVE OFF SWITCH SENSE
SHIFTER ASSEMBLY
(8W-31-14)
3
T6 18 OR/WT
20 C200
T6 18 OR/BK
LHD
RHD
52 C106
14 C107
T6 18 OR/WT
T14 18 LG/WT
T13 18 DB/BK
B22 18 DG/YL
28 C2
25 C2
27 C2
4 C1
15 C3
13 C3
OUTPUT SPEED SENSOR SIGNAL
SPEED SENSOR GROUND
VEHICLE SPEED SENSOR SIGNAL
SENSOR GROUND
BATTERY TEMPERATURE SENSOR SIGNAL
OVERDRIVE OFF SWITCH SENSE
POWERTRAIN CONTROL MODULE
• 4.0L

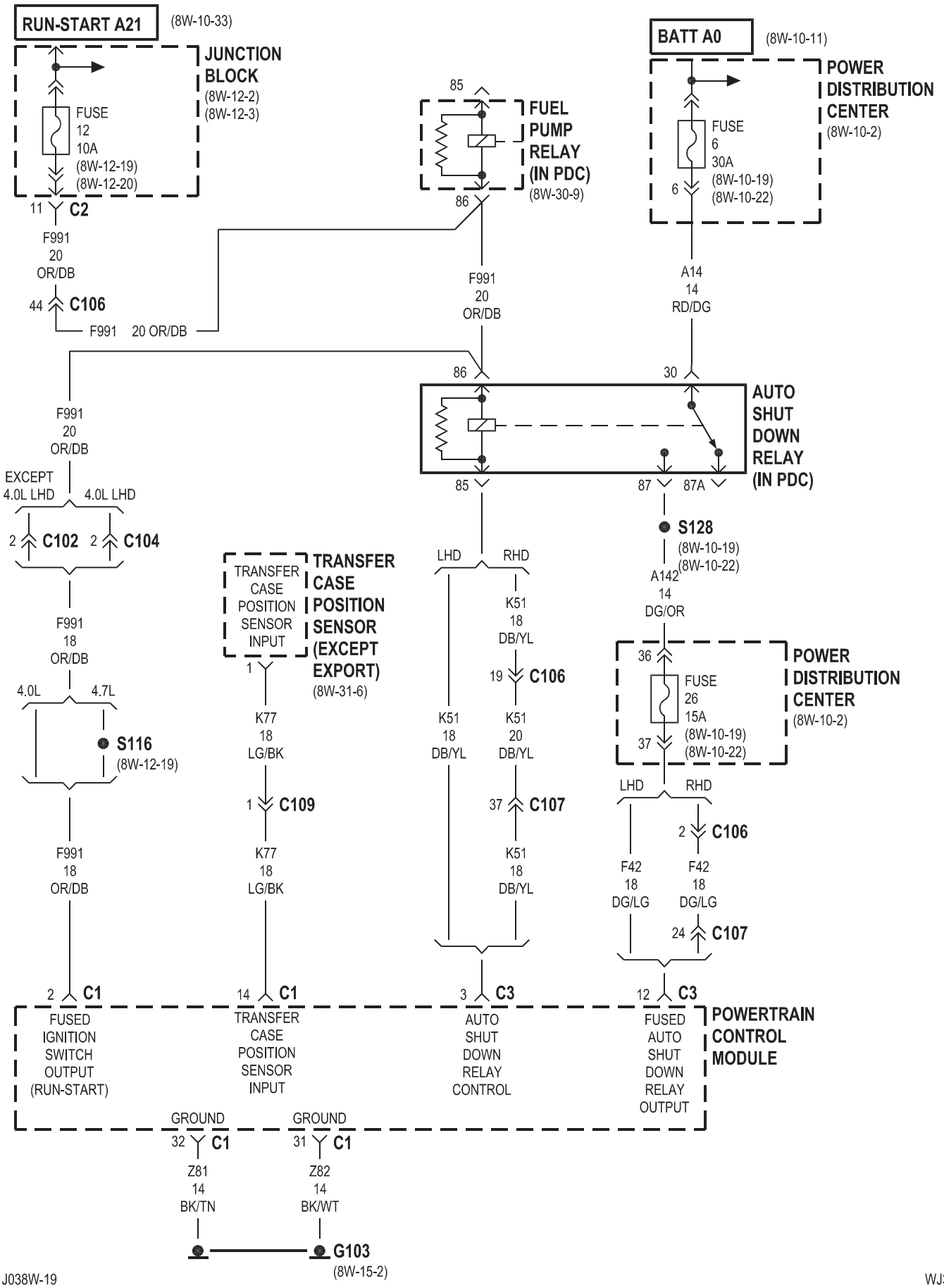

TRANSMISSION SOLENOID (4.0L)
(8W-31-8)
1
3
7
6
5
8
2
4
GENERATOR
(8W-20-2)
(8W-20-3)
GENERATOR FIELD DRIVER
2
K6 18 VT/BK
K20 18 DG
HYDRAULIC COOLING MODULE (4.7L)
(8W-42-11)
(8W-42-12)
2
S102
(8W-30-21)
(8W-30-22)
3 C100
K173 18 LG
K20 18 DG
LHD
RHD
6 C103
3 C104
3 C102
T20 18 LB
T60 18 BR
K88 18 PK
T54 18 VT
K6 18 VT/BK
T25 18 LG/RD
K20 18 DG
K173 18 LG
K173 18 LG
11 C2
21 C2
8 C2
1 C2
31 C2
29 C2
10 C2
17 C2
TORQUE CONVERTOR CLUTCH SOLENOID CONTROL
3-4 SHIFT SOLENOID CONTROL
GOVERNOR PRESSURE SOLENOID CONTROL
TRANS-MISSION TEMPERATURE SENSOR SIGNAL
5 VOLT SUPPLY
GOVERNOR PRESSURE SENSOR SIGNAL
GENERATOR FIELD DRIVER
RADIATOR FAN RELAY CONTROL
POWERTRAIN CONTROL MODULE

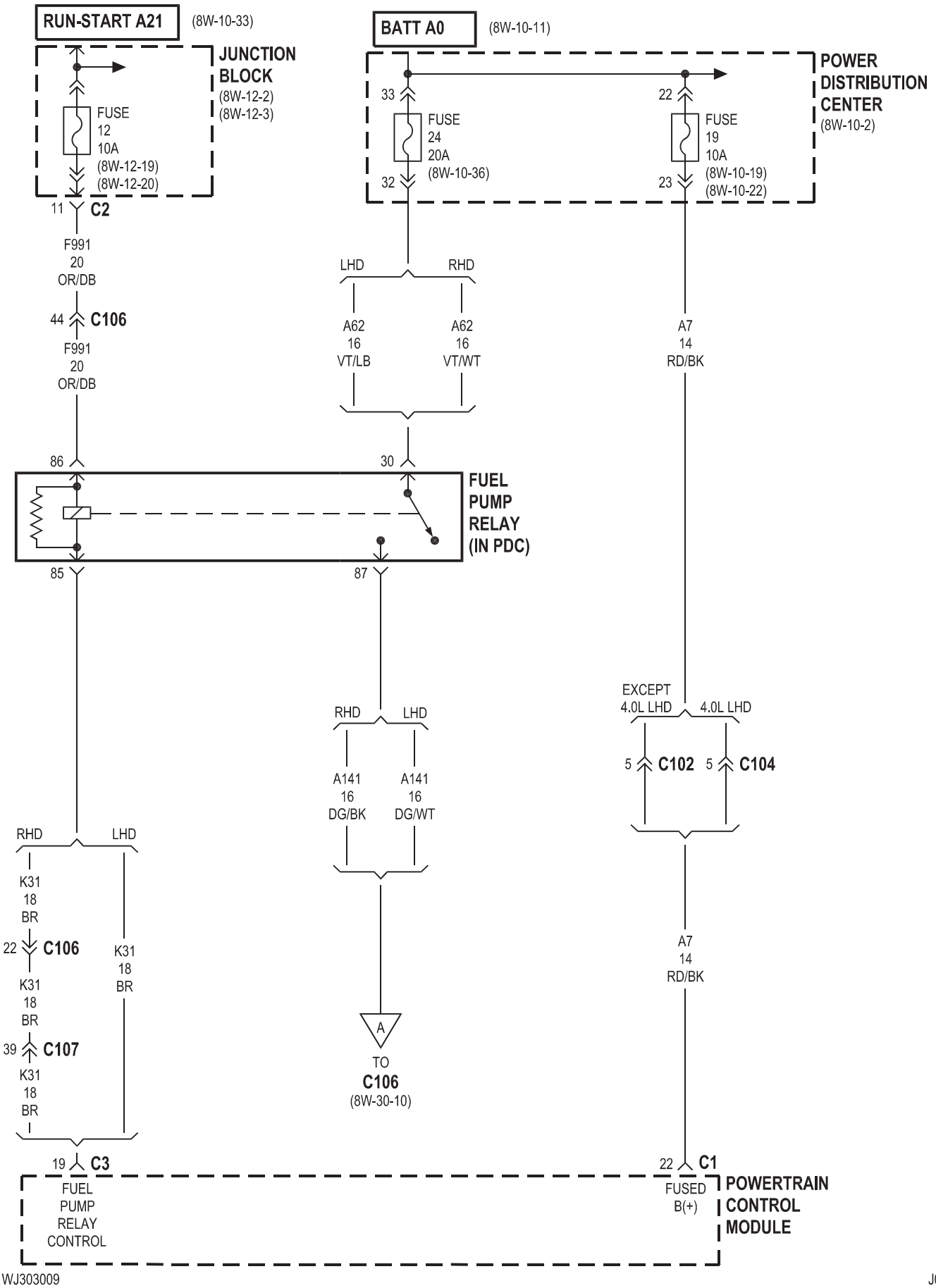

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 21 10A
(8W-12-19)
43 C2
F12 20 DB/WT
S316
(8W-12-19)
F12 20 DB/WT
8 C107
F12 20 DB/WT
1
EVAP/ PURGE SOLENOID
2
K52 20 PK/BK
9 C107
K52 20 PK/BK
9 C106
K52 18 PK/BK
20 C3
DUTY CYCLE EVAP/ PURGE SOLENOID CONTROL
POWERTRAIN CONTROL MODULE
SECONDARY BRAKE SWITCH SIGNAL
SPEED CONTROL SUPPLY
24 C3
11 C3
K29 18 WT/PK
V32 18 OR/DG
10
C106
32
K29 20 WT/PK
V32 22 OR/DG
S314
(8W-33-2)
K29 18 WT/PK
1
3
BRAKE LAMP SWITCH
(8W-33-2)
2
4
Z238 18 BK
V30 22 DB/RD
BASE
EXCEPT BASE
Z238 18 BK
S329
(8W-15-17)
Z238 14 BK
33 C106
V30 20 DB/RD
3
G300
(8W-15-17)
ELECTRONIC SPEED CONTROL SERVO
(8W-33-2)
1
2
V36 18 TN/RD
V35 18 LG/RD
4 C3
5 C3
SPEED CONTROL VACUUM SOLENOID CONTROL
SPEED CONTROL VENT SOLENOID CONTROL
SPEED CONTROL SWITCH SIGNAL
3
SPEED CONTROL SWITCH NO. 1
(8W-33-7)
SPEED CONTROL SWITCH SIGNAL
3
SPEED CONTROL SWITCH NO. 2
(8W-33-7)
V37 20 RD/LG
V37 20 RD/LG
S214
(8W-33-7)
V37 20 RD/LG
2 C1
CLOCKSPRING
(8W-33-7)
4 C3
V37 20 RD/LG
58 C200
V37 22 RD/LG
55 C106
V37 18 RD/LG
32 C3
SPEED CONTROL SWITCH SIGNAL
POWERTRAIN CONTROL MODULE

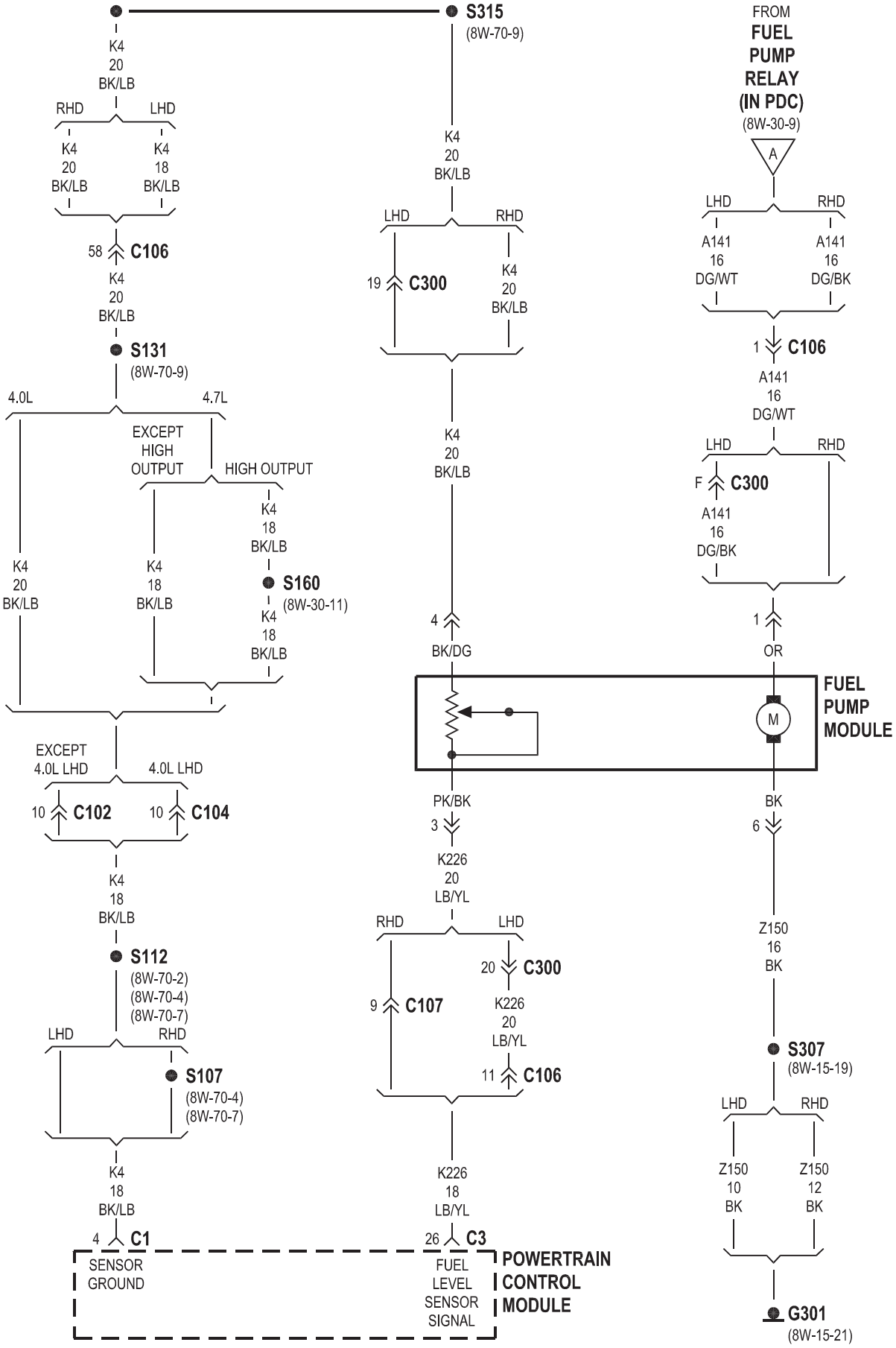

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 21 10A
(8W-12-19)
(8W-12-20)
43 C2
F12 20 DB/WT
S316
(8W-12-19)
F12 20 DB/WT
8 C107
F12 20 DB/WT
1
EVAP/ PURGE SOLENOID
2
K52 18 PK/BK
20 C3
DUTY CYCLE EVAP/PURGE SOLENOID CONTROL
SPEED CONTROL SWITCH SIGNAL
SPEED CONTROL SWITCH NO. 1
(8W-33-7)
3
V37 20 RD/LG
SPEED CONTROL SWITCH SIGNAL
SPEED CONTROL SWITCH NO. 2
(8W-33-7)
3
V37 20 RD/LG
S214
(8W-33-7)
V37 20 RD/LG
2 C1
CLOCKSPRING
(8W-33-7)
4 C3
V37 20 RD/LG
58 C200
V37 20 RD/LG
1
V37 18 RD/LG
32 C3
SPEED CONTROL SWITCH SIGNAL
SECONDARY BRAKE SWITCH SIGNAL
SPEED CONTROL SUPPLY
POWERTRAIN CONTROL MODULE
24 C3
11 C3
K29 18 WT/PK
V32 18 OR/DG
40
42 C107
K29 18 WT/PK
S314
(8W-33-2)
K29 18 WT/PK
V32 22 OR/DG
1
3
BRAKE LAMP SWITCH
(8W-33-2)
2
4
Z243 18 BK
V30 22 DB/RD
S358
(8W-15-22)
33 C106
Z243 12 BK
V30 20 DB/RD
G301
(8W-15-22)
3
ELECTRONIC SPEED CONTROL SERVO
(8W-33-2)
1
2
V36 20 TN/RD
V35 20 LG/RD
16
15 C106
V36 20 TN/RD
V35 20 LG/RD
45
44 C107
V36 18 TN/RD
V35 18 LG/RD
4 C3
5 C3
SPEED CONTROL VACUUM SOLENOID CONTROL
SPEED CONTROL VENT SOLENOID CONTROL
POWERTRAIN CONTROL MODULE

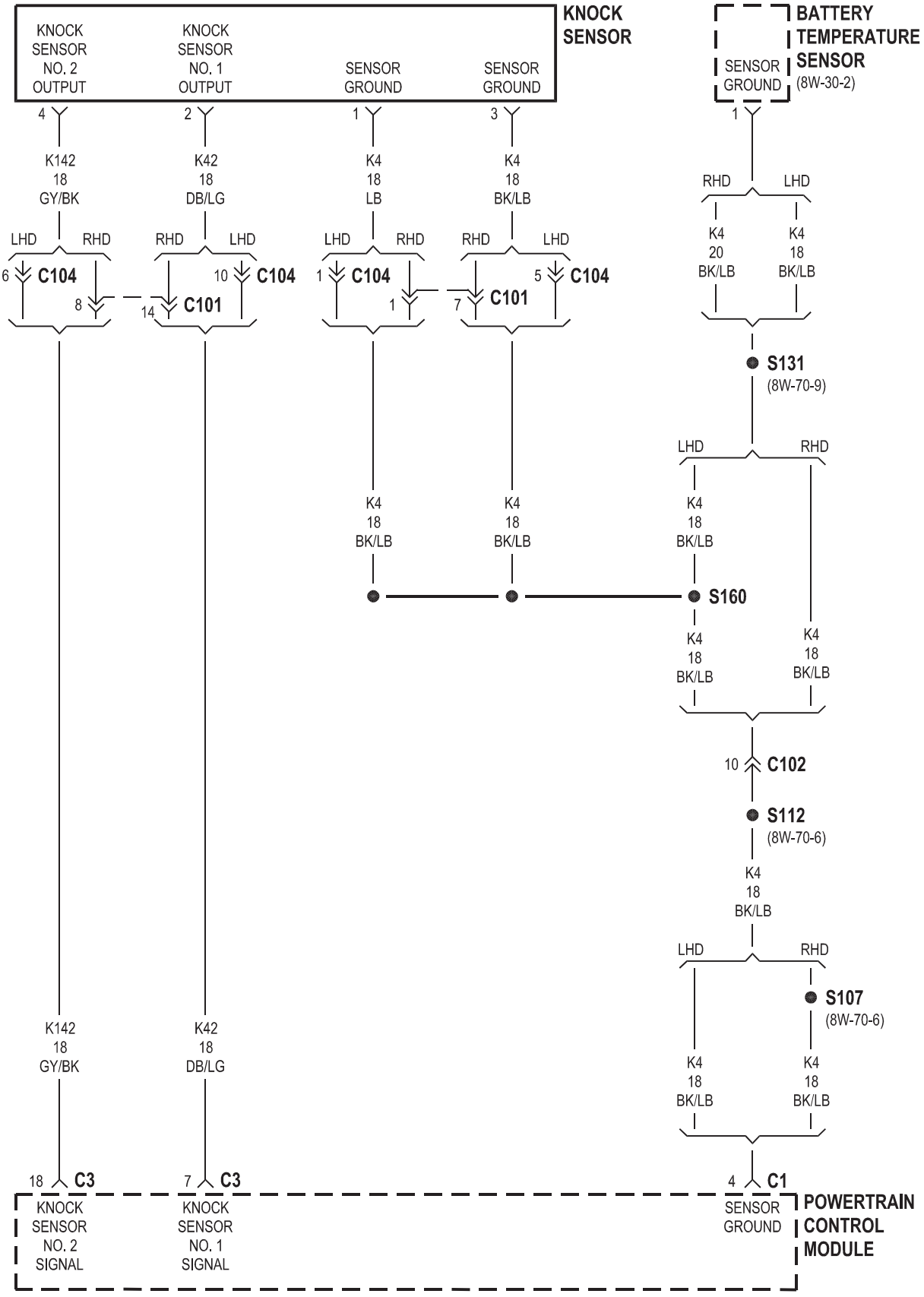

TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-9)
(8W-31-10)
SCI TRANSMIT
7
D21 20 PK
4
C103
D21 20 PK
S210
(8W-18-5)
S125
D25 20 YL/VT/BR
D25 20 YL/VT
D21 20 PK
4.7L
4.0L
D21 18 PK
D21 18 PK
49
C106
D21 20 PK
21
C200
7
2
S226
(8W-18-5)
D25 20 YL/VT/BR
15
C200
D25 20 YL/VT
6
DATA LINK CONNECTOR
(8W-18-2)
RADIATOR FAN MOTOR RELAY CONTROL
RADIATOR FAN MOTOR RELAY (4.0L)
(8W-42-13)
2
K173 20 LG
S324
(8W-18-6)
D25 18 YL/VT
D32 20 LG/DG
16
C200
LHD
RHD
D32 20 LG/DG
3
C104
3
C102
48
51
C106
D25 18 VT/YL
S130
(8W-18-6)
D25 18 VT/YL
D32 18 LG
D21 18 PK
K173 18 LG
30
C3
29
C3
27
C3
17
C2
PCI BUS
SCI RECEIVE
SCI TRANSMIT
RADIATOR FAN MOTOR RELAY CONTROL
POWERTRAIN CONTROL MODULE

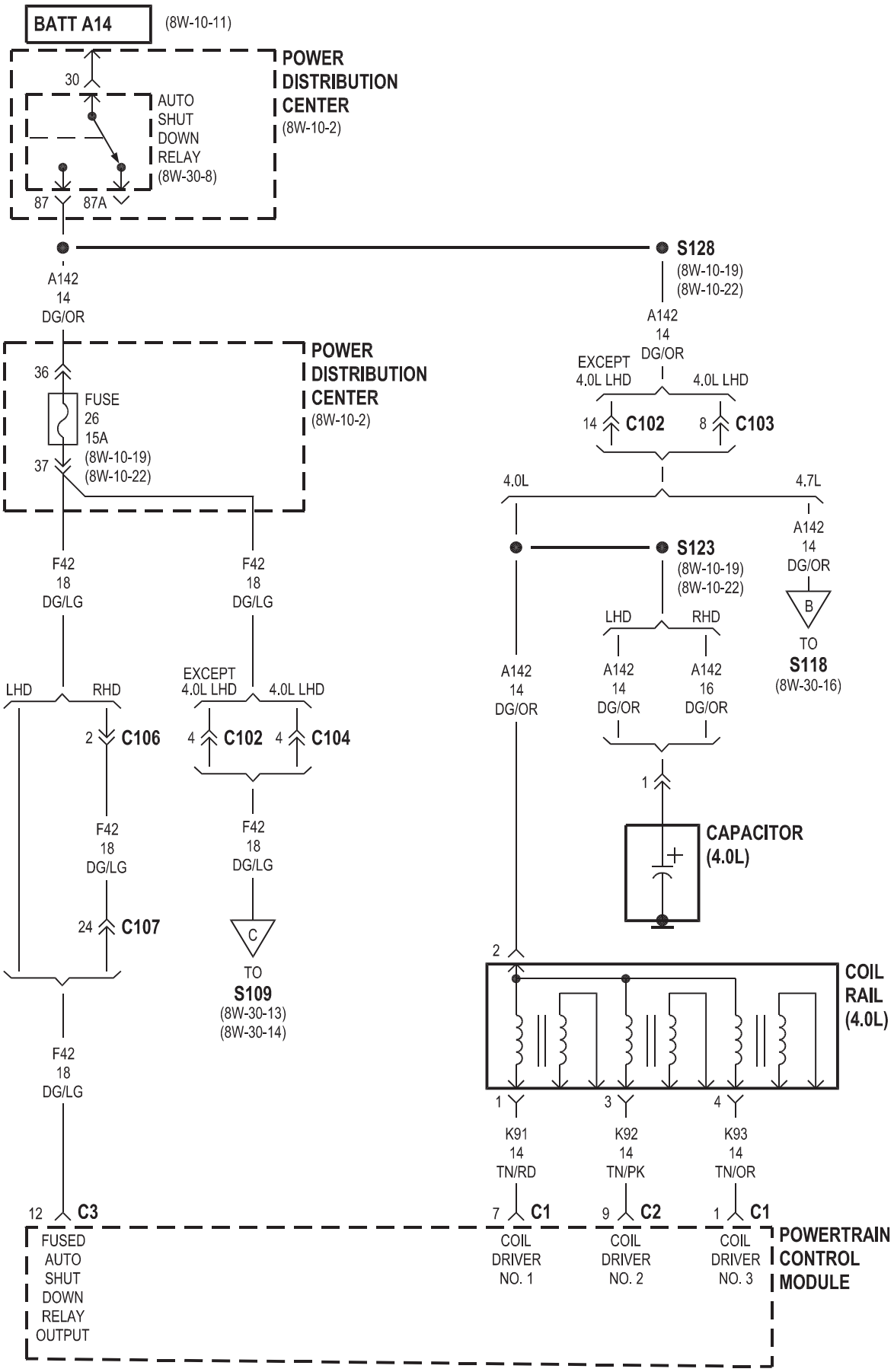

S210
(8W-18-8)
TRANSMISSION CONTROL MODULE
SCI TRANSMIT
(8W-31-9)
(8W-31-10)
7
D21
20
PK
4
C103
D21
20
PK
49
C106
4.7L
4.0L
S323
(8W-18-3)
D25
20
YL/VT/BR
S226
(8W-18-8)
D25
20
YL/VT/BR
15
C200
D25
20
YL/VT
S324
(8W-18-9)
D25
18
YL/VT
48
C107
D25
18
VT/YL
S130
(8W-18-9)
D25
18
VT/YL
30
C3
PCI BUS
D25
20
YL/VT
2
D21
20
PK
21
C200
7
D21
20
PK
21
C200
6
DATA LINK CONNECTOR
(8W-18-3)
D32
20
LG/DG
16
C200
D32
20
LG/DG
19
C107
D32
18
LG/DG
29
C3
SCI RECEIVE
D21
18
PK
27
C3
SCI TRANSMIT
POWERTRAIN CONTROL MODULE

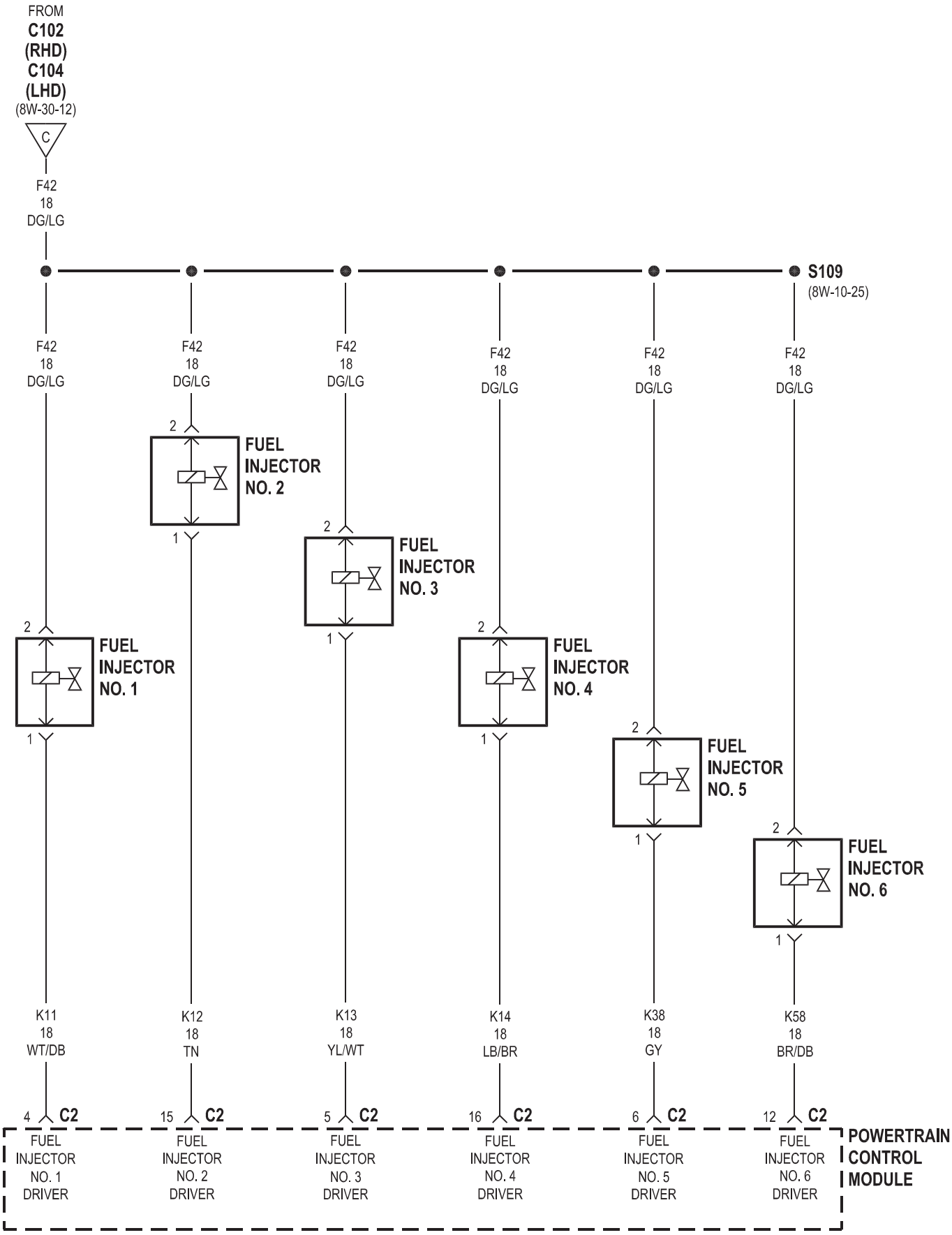

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 12 10A
(8W-12-19)
(8W-12-20)
11 C2
F991 20 OR/DB
44 C106
F991 20 OR/DB
85
FUEL PUMP RELAY (IN PDC)
(8W-30-9)
86
F991 20 OR/DB
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE 6 30A
(8W-10-19)
(8W-10-22)
6
A14 14 RD/DG
86
30
AUTO SHUT DOWN RELAY (IN PDC)
85
87
87A
F991 20 OR/DB
EXCEPT 4.0L LHD
4.0L LHD
2 C102
2 C104
F991 18 OR/DB
4.0L
4.7L
S116
(8W-12-19)
F991 18 OR/DB
2 C1
FUSED IGNITION SWITCH OUTPUT (RUN-START)
TRANSFER CASE POSITION SENSOR INPUT
TRANSFER CASE POSITION SENSOR (EXCEPT EXPORT)
(8W-31-6)
1
K77 18 LG/BK
1 C109
K77 18 LG/BK
14 C1
TRANSFER CASE POSITION SENSOR INPUT
LHD
RHD
K51 18 DB/YL
19 C106
K51 18 DB/YL
K51 20 DB/YL
37 C107
K51 18 DB/YL
3 C3
AUTO SHUT DOWN RELAY CONTROL
S128
(8W-10-19)
(8W-10-22)
A142 14 DG/OR
36
FUSE 26 15A
(8W-10-19)
(8W-10-22)
37
POWER DISTRIBUTION CENTER
(8W-10-2)
LHD
RHD
2 C106
F42 18 DG/LG
F42 18 DG/LG
24 C107
12 C3
FUSED AUTO SHUT DOWN RELAY OUTPUT
POWERTRAIN CONTROL MODULE
GROUND
32 C1
Z81 14 BK/TN
GROUND
31 C1
Z82 14 BK/WT
G103
(8W-15-2)

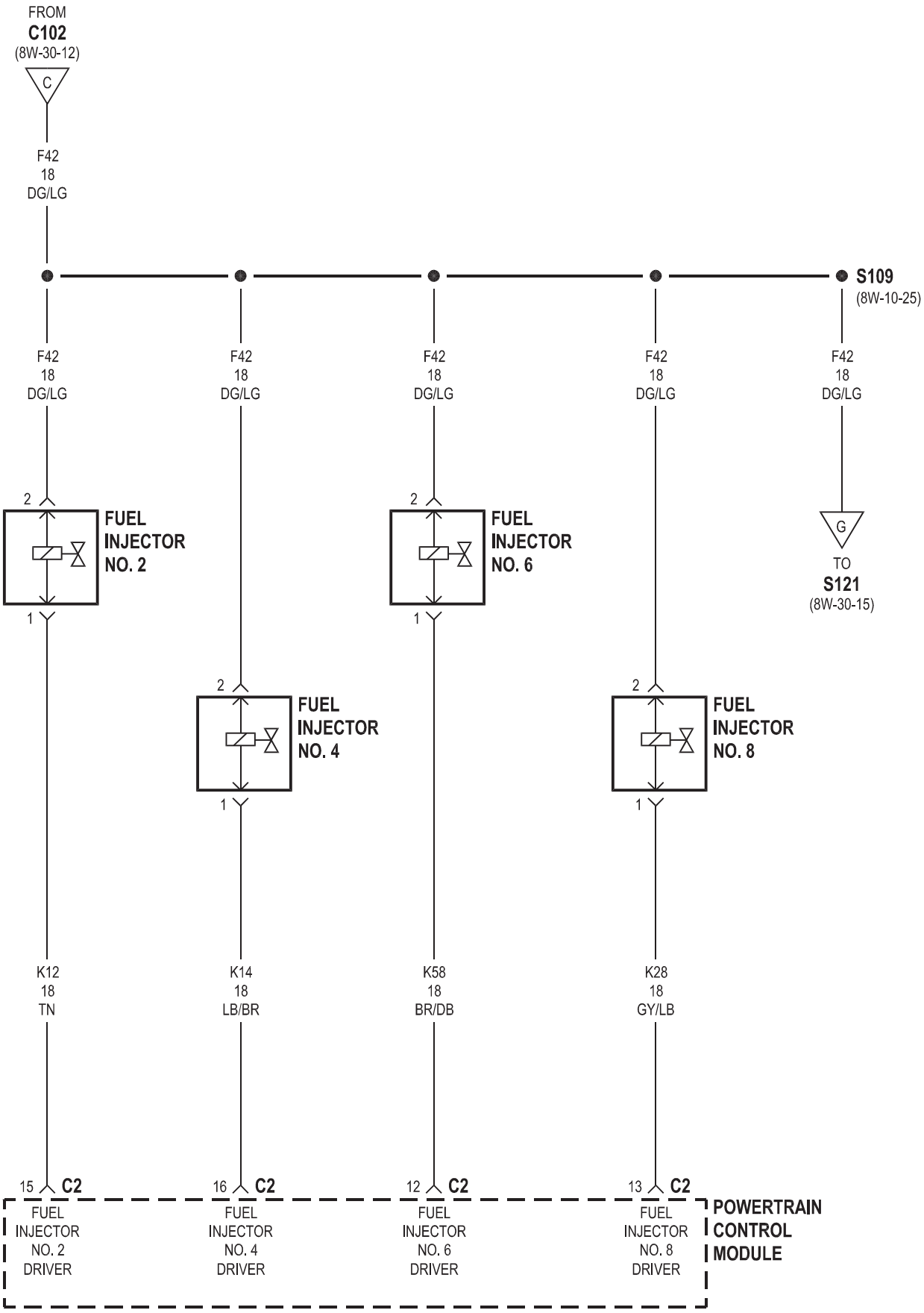

RUN-START A21
(8W-10-33)
BATT A0
(8W-10-11)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 12 10A
(8W-12-19)
(8W-12-20)
POWER DISTRIBUTION CENTER
(8W-10-2)
33
FUSE 24 20A
(8W-10-36)
32
22
FUSE 19 10A
(8W-10-19)
(8W-10-22)
23
11 C2
F991 20 OR/DB
44 C106
F991 20 OR/DB
LHD
RHD
A62 16 VT/LB
A62 16 VT/WT
A7 14 RD/BK
86
30
FUEL PUMP RELAY (IN PDC)
85
87
RHD
LHD
A141 16 DG/BK
A141 16 DG/WT
EXCEPT 4.0L LHD
4.0L LHD
5 C102
5 C104
RHD
LHD
K31 18 BR
22 C106
K31 18 BR
K31 18 BR
39 C107
K31 18 BR
K31 18 BR
A
TO C106
(8W-30-10)
A7 14 RD/BK
19 C3
22 C1
FUEL PUMP RELAY CONTROL
FUSED B(+)
POWERTRAIN CONTROL MODULE

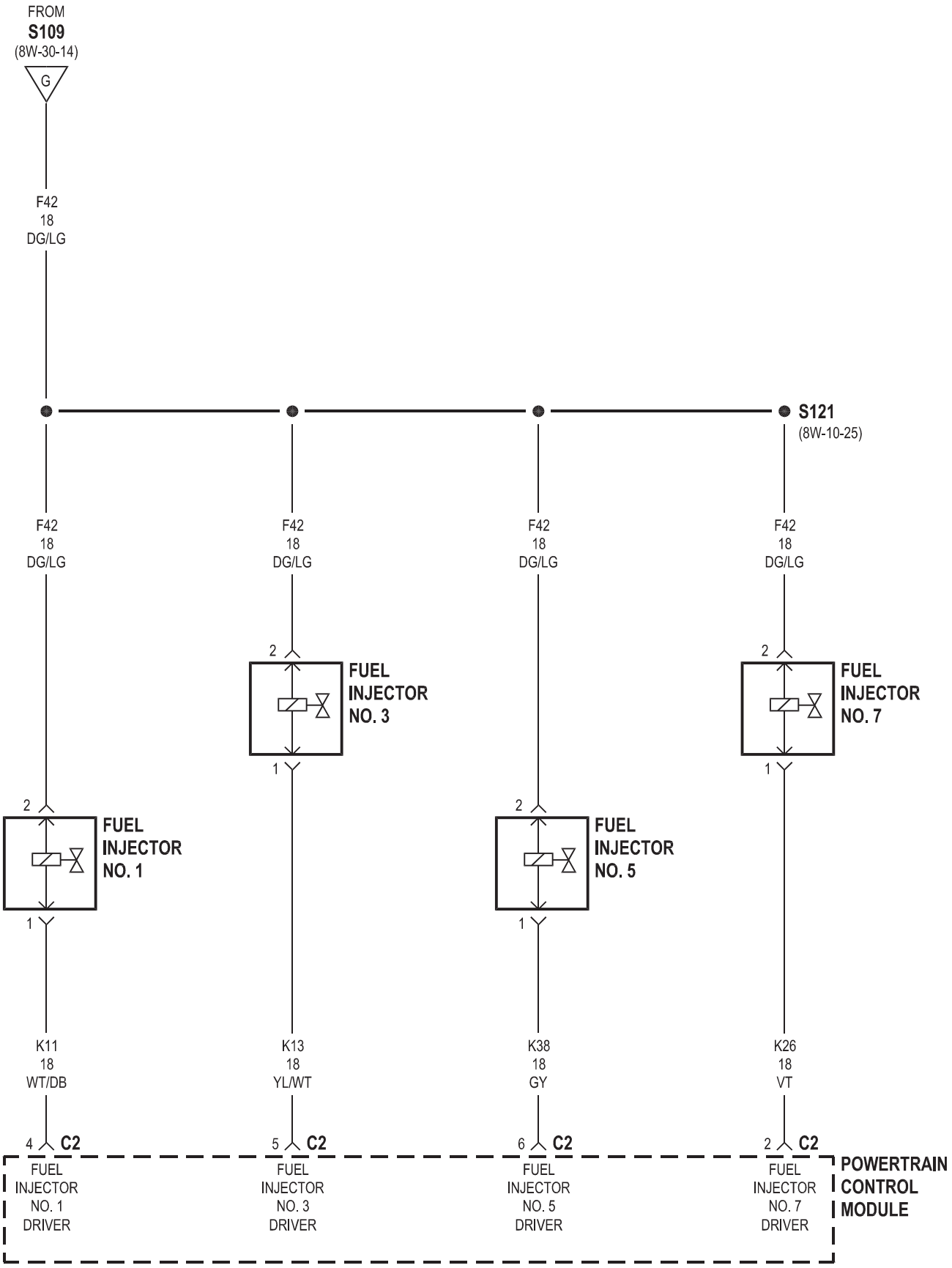

S315
(8W-70-9)
FROM
FUEL
PUMP
RELAY
(IN PDC)
(8W-30-9)
A
K4
20
BK/LB
RHD
LHD
K4
20
BK/LB
K4
18
BK/LB
58
C106
K4
20
BK/LB
S131
(8W-70-9)
4.0L
4.7L
EXCEPT
HIGH
OUTPUT
HIGH OUTPUT
K4
18
BK/LB
S160
(8W-30-11)
K4
18
BK/LB
EXCEPT
4.0L LHD
4.0L LHD
10
C102
10
C104
K4
18
BK/LB
S112
(8W-70-2)
(8W-70-4)
(8W-70-7)
S107
(8W-70-4)
(8W-70-7)
K4
18
BK/LB
4
C1
SENSOR
GROUND
LHD
RHD
19
C300
K4
20
BK/LB
K4
20
BK/LB
4
BK/DG
PK/BK
3
K226
20
LB/YL
20
C300
9
C107
K226
20
LB/YL
11
C106
K226
18
LB/YL
26
C3
FUEL
LEVEL
SENSOR
SIGNAL
POWERTRAIN
CONTROL
MODULE
A141
16
DG/WT
A141
16
DG/BK
1
C106
A141
16
DG/WT
F
C300
A141
16
DG/BK
1
OR
FUEL
PUMP
MODULE
M
BK
6
Z150
16
BK
S307
(8W-15-19)
Z150
10
BK
Z150
12
BK
G301
(8W-15-21)

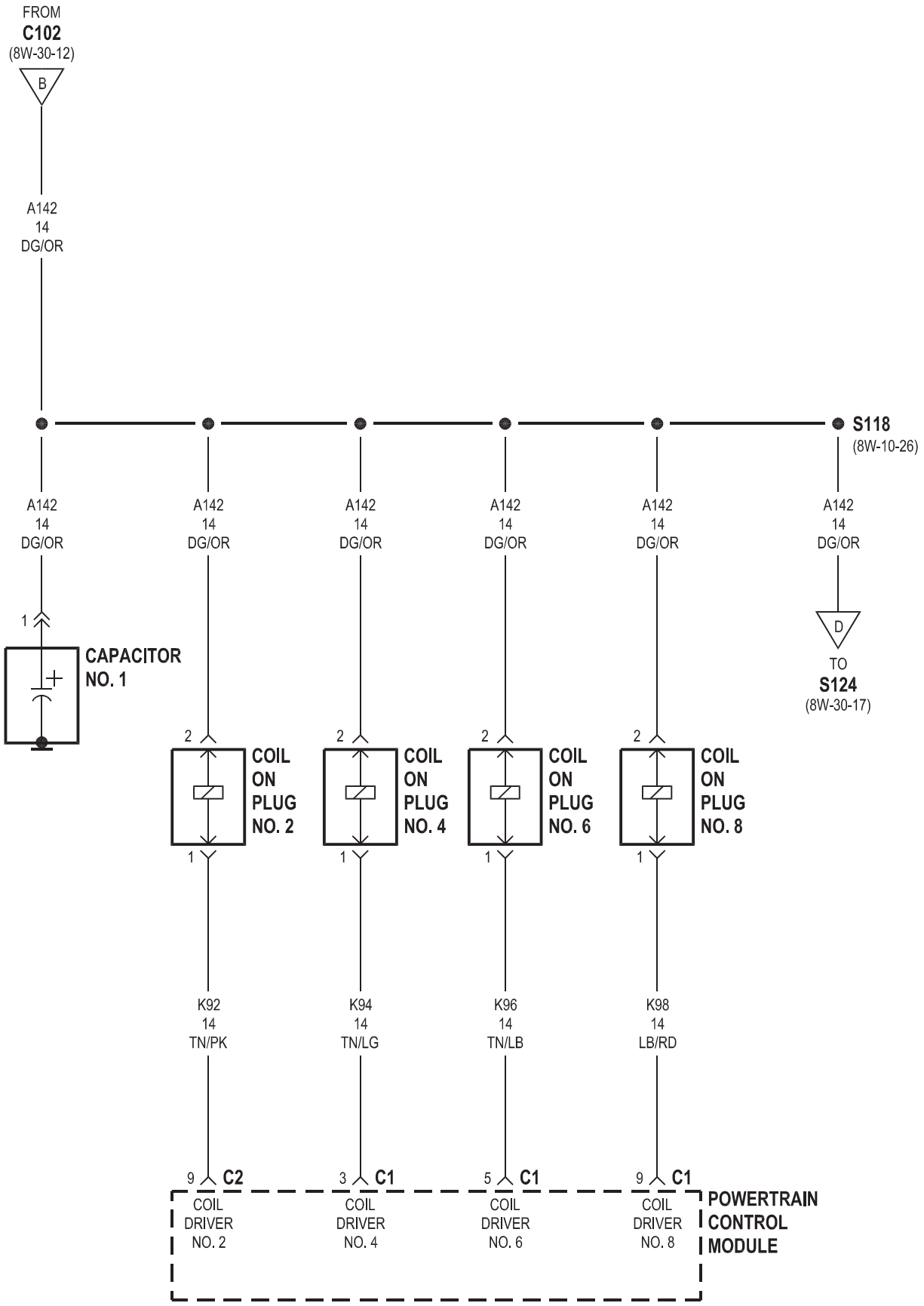

KNOCK SENSOR
KNOCK SENSOR NO. 2 OUTPUT
KNOCK SENSOR NO. 1 OUTPUT
SENSOR GROUND
SENSOR GROUND
4
2
1
3
K142 18 GY/BK
K42 18 DB/LG
K4 18 LB
K4 18 BK/LB
LHD RHD
RHD LHD
LHD RHD
RHD LHD
6 C104 8
10 C104 14 C101
1 C104 1
7 C101 5 C104
BATTERY TEMPERATURE SENSOR (8W-30-2)
SENSOR GROUND
1
RHD LHD
K4 20 BK/LB
K4 18 BK/LB
S131 (8W-70-9)
LHD RHD
K4 18 BK/LB
K4 18 BK/LB
K4 18 BK/LB
S160
K4 18 BK/LB
K4 18 BK/LB
10 C102
S112 (8W-70-6)
K4 18 BK/LB
LHD RHD
S107 (8W-70-6)
K4 18 BK/LB
K4 18 BK/LB
K142 18 GY/BK
K42 18 DB/LG
18 C3
7 C3
4 C1
KNOCK SENSOR NO. 2 SIGNAL
KNOCK SENSOR NO. 1 SIGNAL
SENSOR GROUND
POWERTRAIN CONTROL MODULE

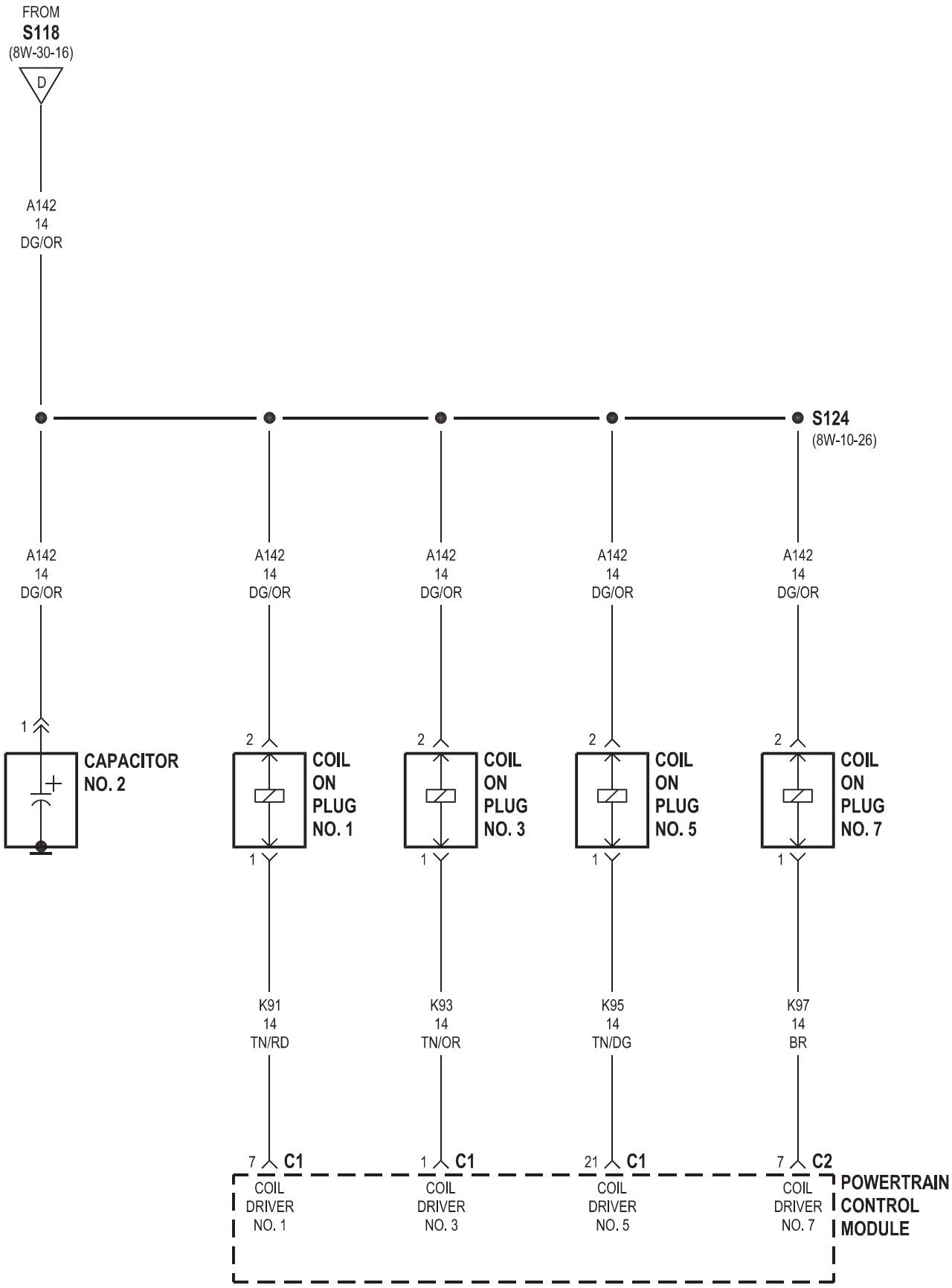

BATT A14
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
30
AUTO SHUT DOWN RELAY
(8W-30-8)
87
87A
A142
14
DG/OR
S128
(8W-10-19)
(8W-10-22)
POWER DISTRIBUTION CENTER
(8W-10-2)
36
FUSE
26
15A
37
(8W-10-19)
(8W-10-22)
EXCEPT 4.0L LHD
4.0L LHD
14 C102
8 C103
4.0L
4.7L
S123
(8W-10-19)
(8W-10-22)
LHD
RHD
B
TO
S118
(8W-30-16)
F42
18
DG/LG
EXCEPT 4.0L LHD
4.0L LHD
2 C106
4 C102
4 C104
24 C107
C
TO
S109
(8W-30-13)
(8W-30-14)
A142
16
DG/OR
1
CAPACITOR
(4.0L)
2
COIL RAIL
(4.0L)
K91
14
TN/RD
K92
14
TN/PK
K93
14
TN/OR
12 C3
7 C1
9 C2
1 C1
FUSED AUTO SHUT DOWN RELAY OUTPUT
COIL DRIVER NO. 1
COIL DRIVER NO. 2
COIL DRIVER NO. 3
POWERTRAIN CONTROL MODULE

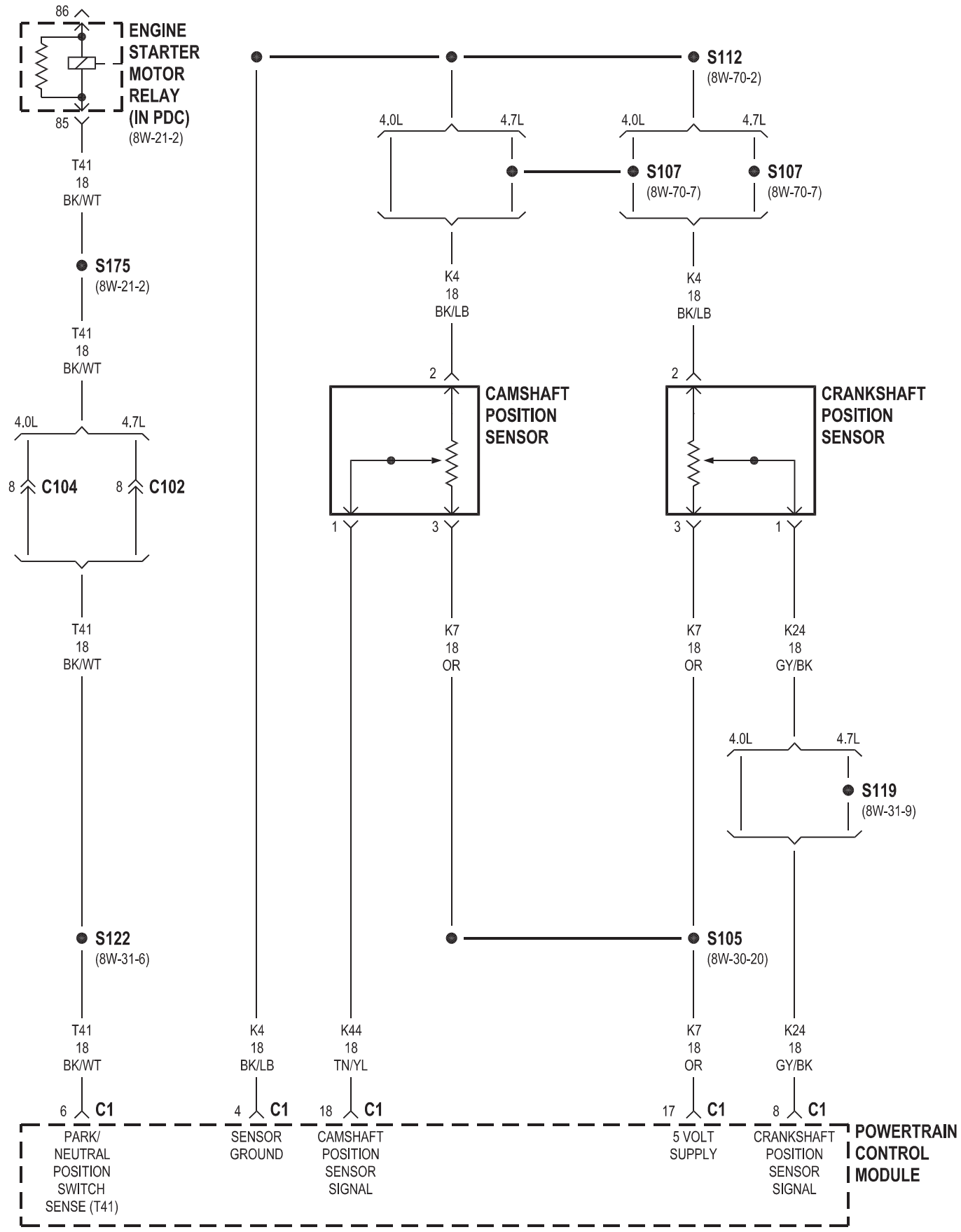

FROM
C102
(RHD)
C104
(LHD)
(8W-30-12)
C
F42
18
DG/LG
S109
(8W-10-25)
F42
18
DG/LG
FUEL
INJECTOR
NO. 1
FUEL
INJECTOR
NO. 2
FUEL
INJECTOR
NO. 3
FUEL
INJECTOR
NO. 4
FUEL
INJECTOR
NO. 5
FUEL
INJECTOR
NO. 6
K11
18
WT/DB
K12
18
TN
K13
18
YL/WT
K14
18
LB/BR
K38
18
GY
K58
18
BR/DB
4 C2
15 C2
5 C2
16 C2
6 C2
12 C2
FUEL
INJECTOR
NO. 1
DRIVER
FUEL
INJECTOR
NO. 2
DRIVER
FUEL
INJECTOR
NO. 3
DRIVER
FUEL
INJECTOR
NO. 4
DRIVER
FUEL
INJECTOR
NO. 5
DRIVER
FUEL
INJECTOR
NO. 6
DRIVER
POWERTRAIN
CONTROL
MODULE

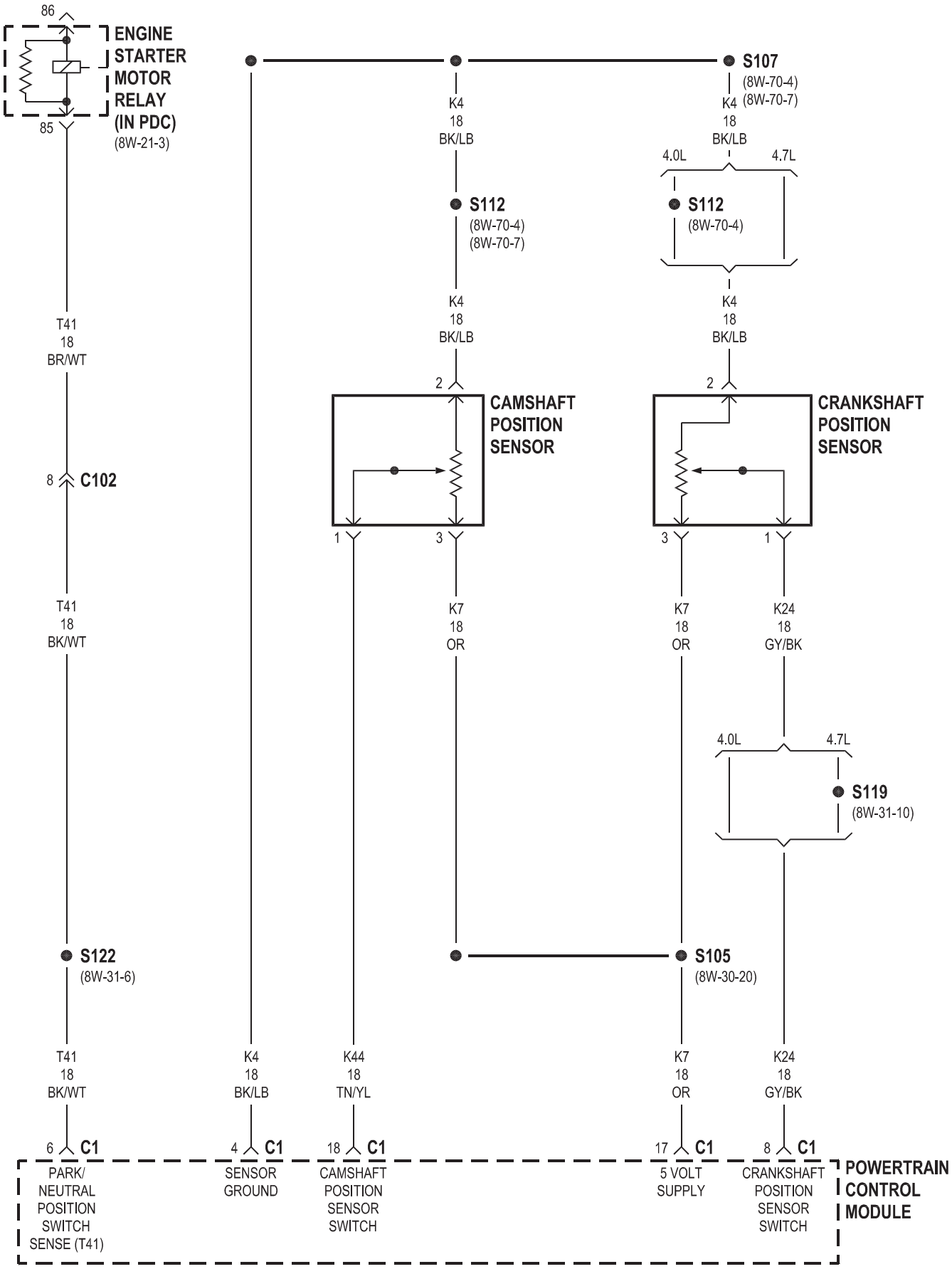

FROM
C102
(8W-30-12)
C
F42
18
DG/LG
S109
(8W-10-25)
F42
18
DG/LG
F42
18
DG/LG
F42
18
DG/LG
F42
18
DG/LG
F42
18
DG/LG
2
FUEL
INJECTOR
NO. 2
1
2
FUEL
INJECTOR
NO. 6
1
G
TO
S121
(8W-30-15)
2
FUEL
INJECTOR
NO. 4
1
2
FUEL
INJECTOR
NO. 8
1
K12
18
TN
K14
18
LB/BR
K58
18
BR/DB
K28
18
GY/LB
15 C2
16 C2
12 C2
13 C2
FUEL
INJECTOR
NO. 2
DRIVER
FUEL
INJECTOR
NO. 4
DRIVER
FUEL
INJECTOR
NO. 6
DRIVER
FUEL
INJECTOR
NO. 8
DRIVER
POWERTRAIN
CONTROL
MODULE

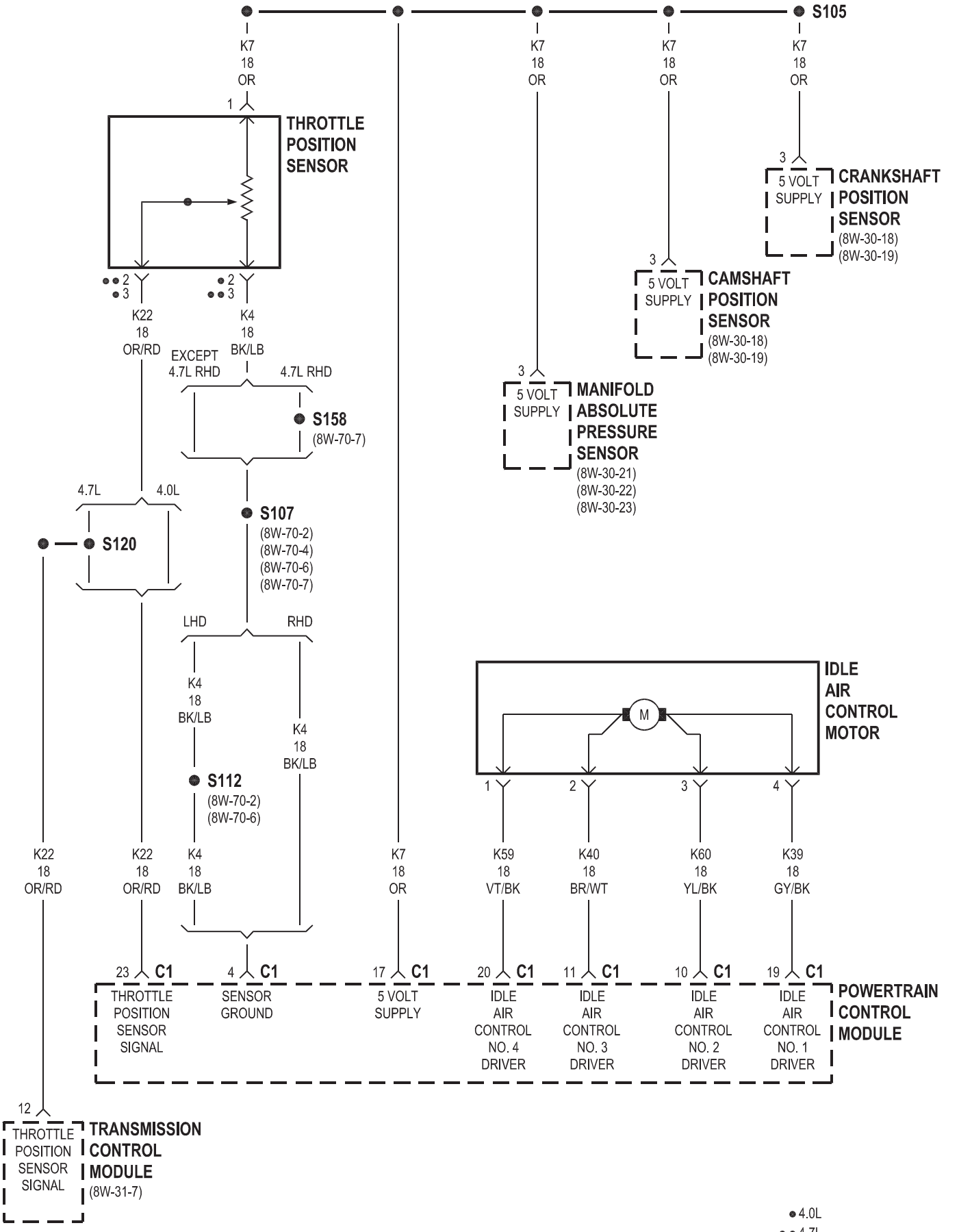

FROM
S109
(8W-30-14)
G
F42
18
DG/LG
S121
(8W-10-25)
F42
18
DG/LG
F42
18
DG/LG
F42
18
DG/LG
F42
18
DG/LG
2
FUEL
INJECTOR
NO. 3
1
2
FUEL
INJECTOR
NO. 7
1
2
FUEL
INJECTOR
NO. 1
1
2
FUEL
INJECTOR
NO. 5
1
K11
18
WT/DB
K13
18
YL/WT
K38
18
GY
K26
18
VT
4 C2
5 C2
6 C2
2 C2
FUEL
INJECTOR
NO. 1
DRIVER
FUEL
INJECTOR
NO. 3
DRIVER
FUEL
INJECTOR
NO. 5
DRIVER
FUEL
INJECTOR
NO. 7
DRIVER
POWERTRAIN
CONTROL
MODULE


FROM
C102
(8W-30-12)
B
A142
14
DG/OR
S118
(8W-10-26)
A142
14
DG/OR
1
CAPACITOR
NO. 1
D
TO
S124
(8W-30-17)
2
COIL
ON
PLUG
NO. 2
COIL
ON
PLUG
NO. 4
COIL
ON
PLUG
NO. 6
COIL
ON
PLUG
NO. 8
K92
14
TN/PK
K94
14
TN/LG
K96
14
TN/LB
K98
14
LB/RD
9 C2
3 C1
5 C1
9 C1
COIL
DRIVER
NO. 2
COIL
DRIVER
NO. 4
COIL
DRIVER
NO. 6
COIL
DRIVER
NO. 8
POWERTRAIN
CONTROL
MODULE


FROM
S118
(8W-30-16)
D
A142
14
DG/OR
S124
(8W-10-26)
A142
14
DG/OR
1
CAPACITOR
NO. 2
2
COIL
ON
PLUG
NO. 1
1
2
COIL
ON
PLUG
NO. 3
1
2
COIL
ON
PLUG
NO. 5
1
2
COIL
ON
PLUG
NO. 7
1
K91
14
TN/RD
K93
14
TN/OR
K95
14
TN/DG
K97
14
BR
7 C1
1 C1
21 C1
7 C2
COIL
DRIVER
NO. 1
COIL
DRIVER
NO. 3
COIL
DRIVER
NO. 5
COIL
DRIVER
NO. 7
POWERTRAIN
CONTROL
MODULE

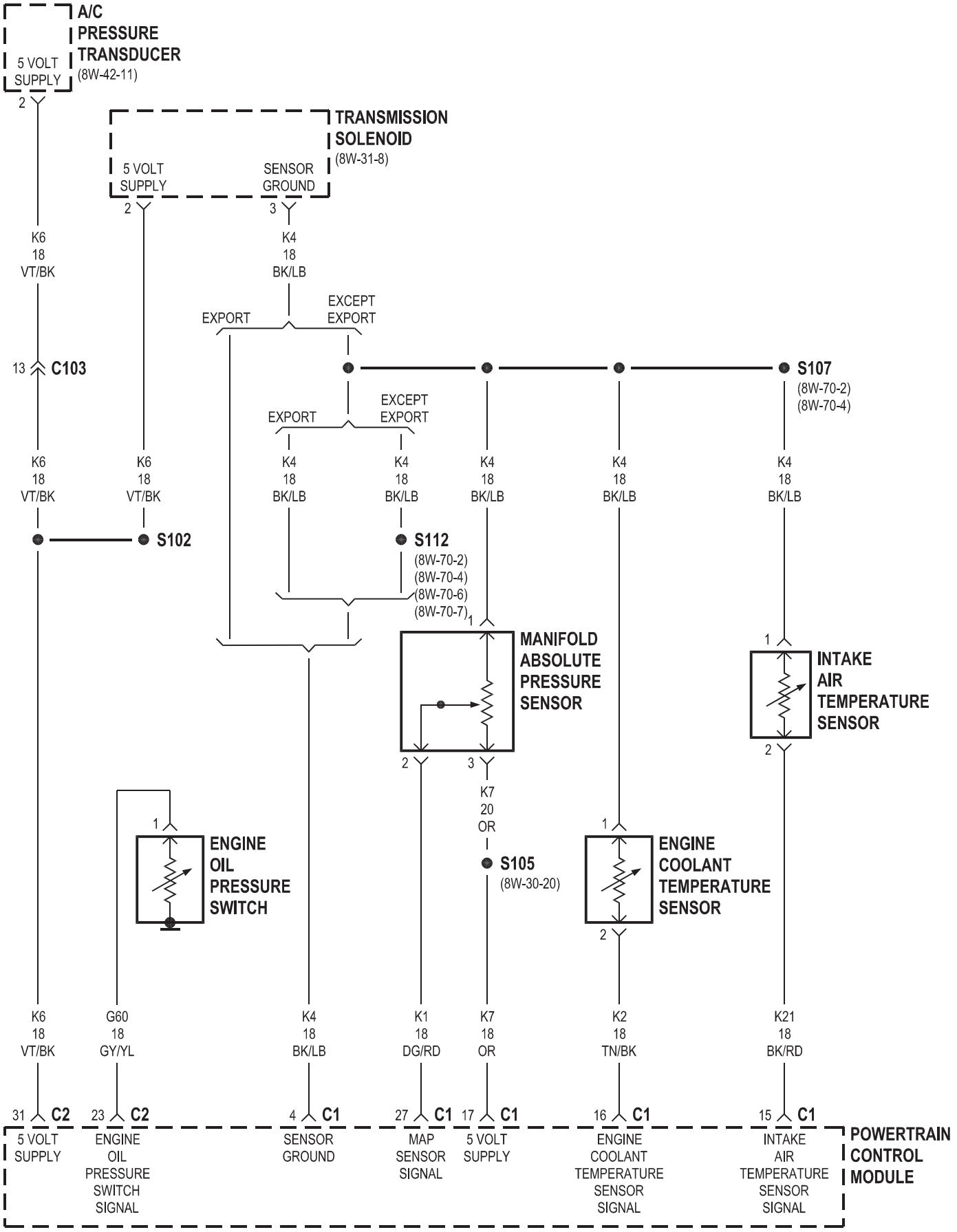

86
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
85
T41
18
BK/WT
S175
(8W-21-2)
T41
18
BK/WT
4.0L
4.7L
8 C104
8 C102
T41
18
BK/WT
S122
(8W-31-6)
T41
18
BK/WT
6 C1
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
S112
(8W-70-2)
4.0L
4.7L
S107
(8W-70-7)
4.0L
4.7L
S107
(8W-70-7)
K4
18
BK/LB
K4
18
BK/LB
2
CAMSHAFT POSITION SENSOR
1
3
2
CRANKSHAFT POSITION SENSOR
3
1
K7
18
OR
K7
18
OR
K24
18
GY/BK
4.0L
4.7L
S119
(8W-31-9)
S105
(8W-30-20)
K4
18
BK/LB
4 C1
SENSOR GROUND
K44
18
TN/YL
18 C1
CAMSHAFT POSITION SENSOR SIGNAL
K7
18
OR
17 C1
5 VOLT SUPPLY
K24
18
GY/BK
8 C1
CRANKSHAFT POSITION SENSOR SIGNAL
POWERTRAIN CONTROL MODULE

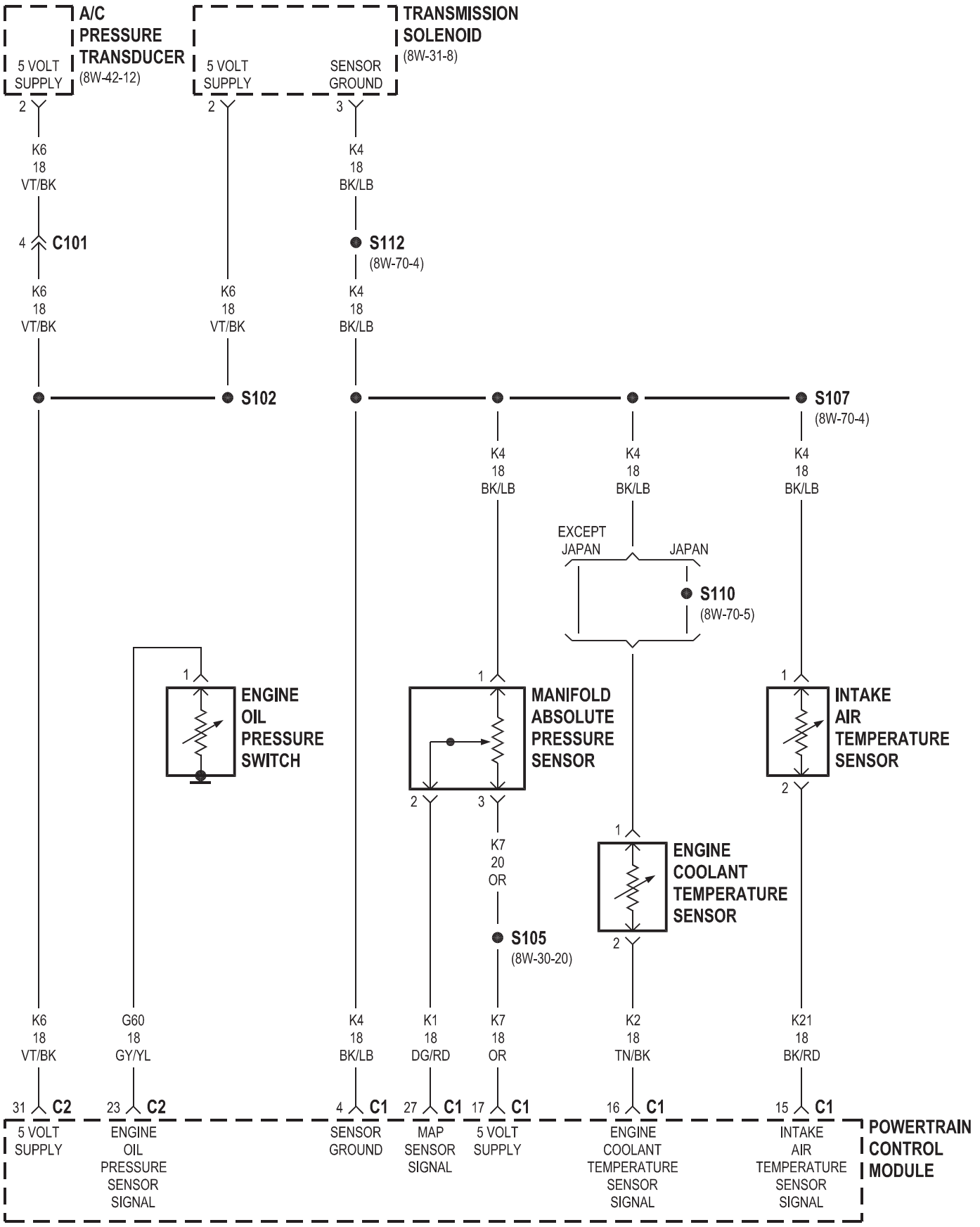

86
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-3)
85
T41
18
BR/WT
8
C102
T41
18
BK/WT
S122
(8W-31-6)
T41
18
BK/WT
6
C1
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
K4
18
BK/LB
4
C1
SENSOR GROUND
K4
18
BK/LB
S112
(8W-70-4)
(8W-70-7)
K4
18
BK/LB
2
CAMSHAFT POSITION SENSOR
1
3
K44
18
TN/YL
18
C1
CAMSHAFT POSITION SENSOR SWITCH
K7
18
OR
S107
(8W-70-4)
(8W-70-7)
K4
18
BK/LB
4.0L
4.7L
S112
(8W-70-4)
K4
18
BK/LB
2
CRANKSHAFT POSITION SENSOR
3
1
K7
18
OR
S105
(8W-30-20)
K7
18
OR
17
C1
5 VOLT SUPPLY
K24
18
GY/BK
4.0L
4.7L
S119
(8W-31-10)
K24
18
GY/BK
8
C1
CRANKSHAFT POSITION SENSOR SWITCH
POWERTRAIN CONTROL MODULE

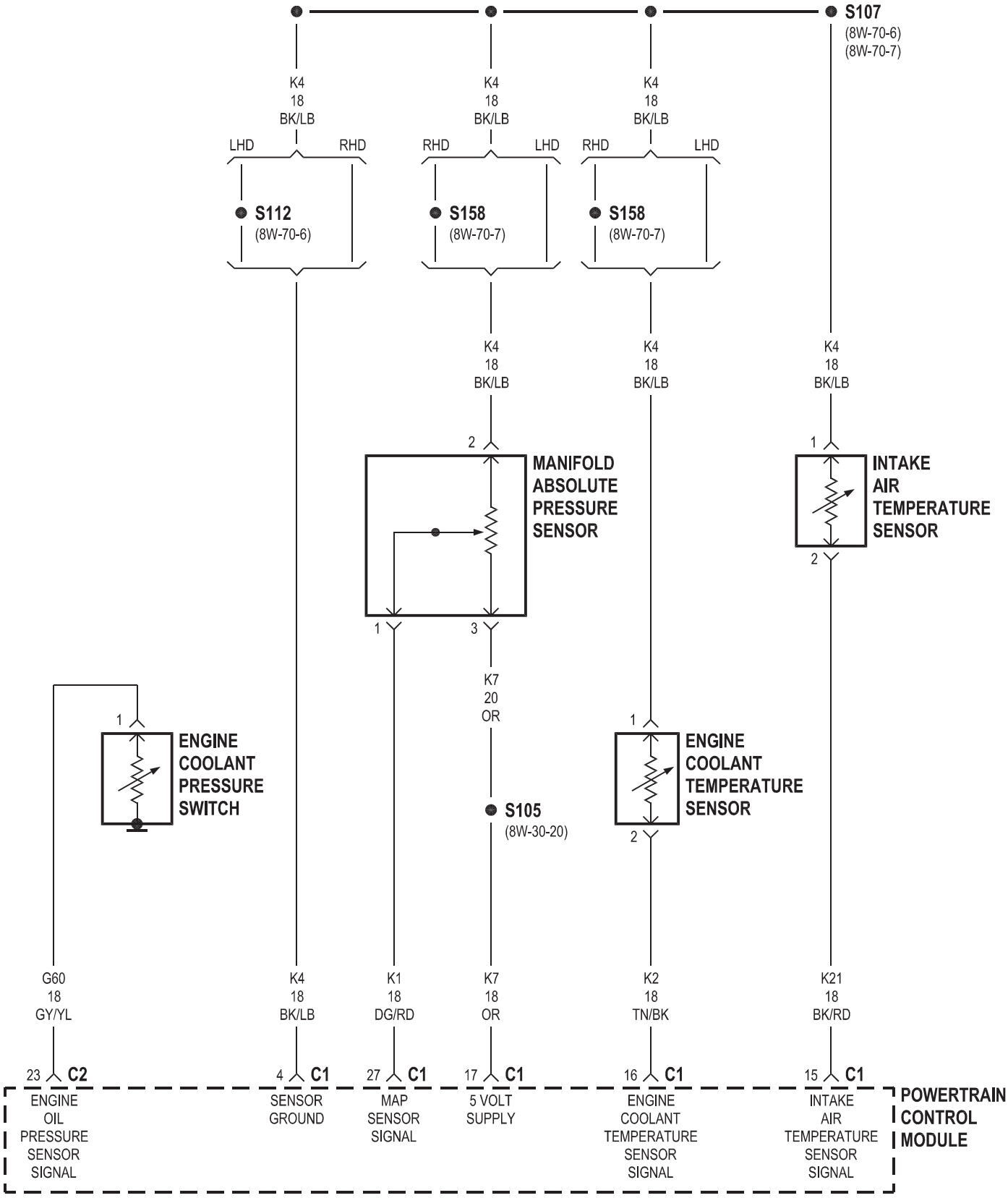


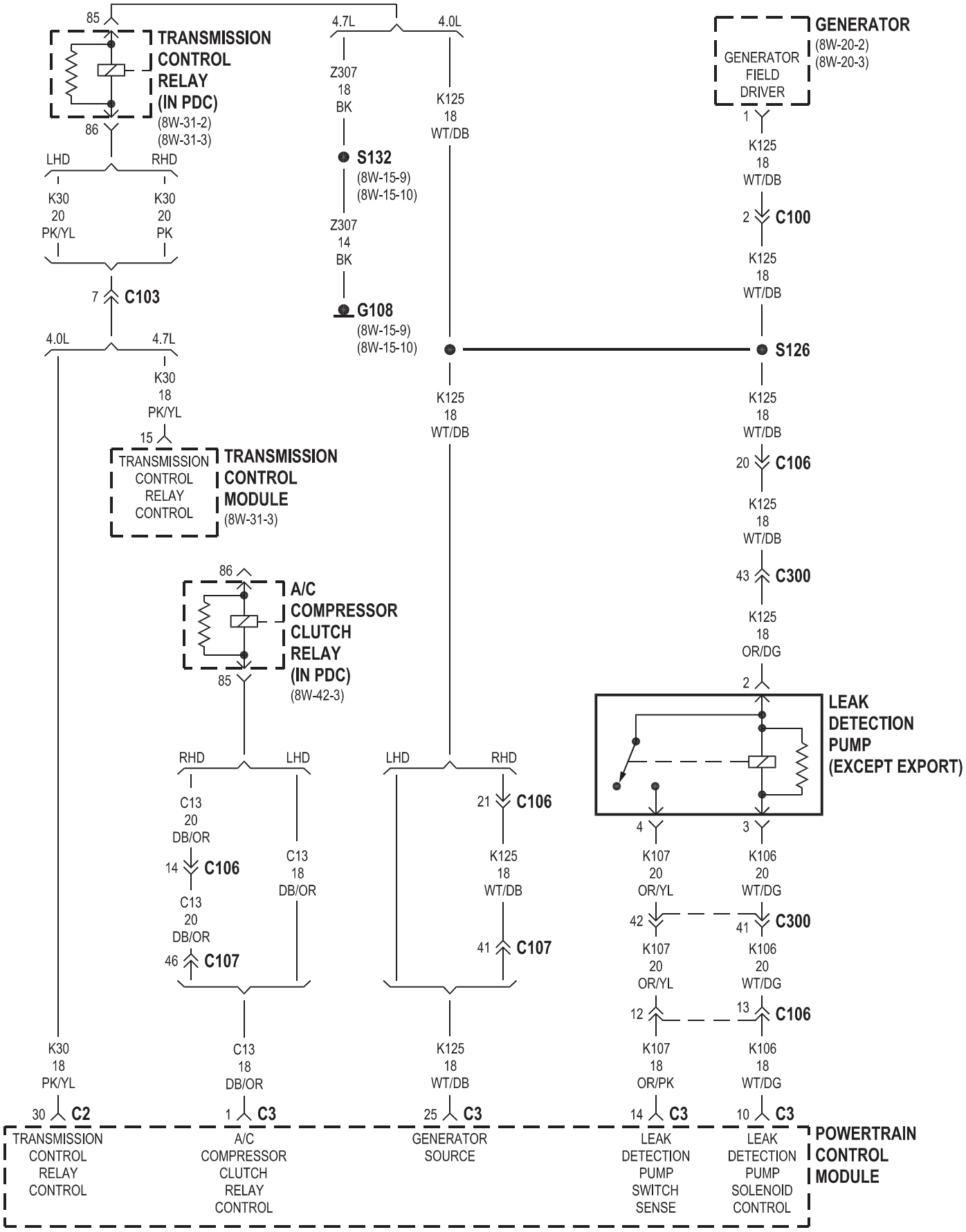
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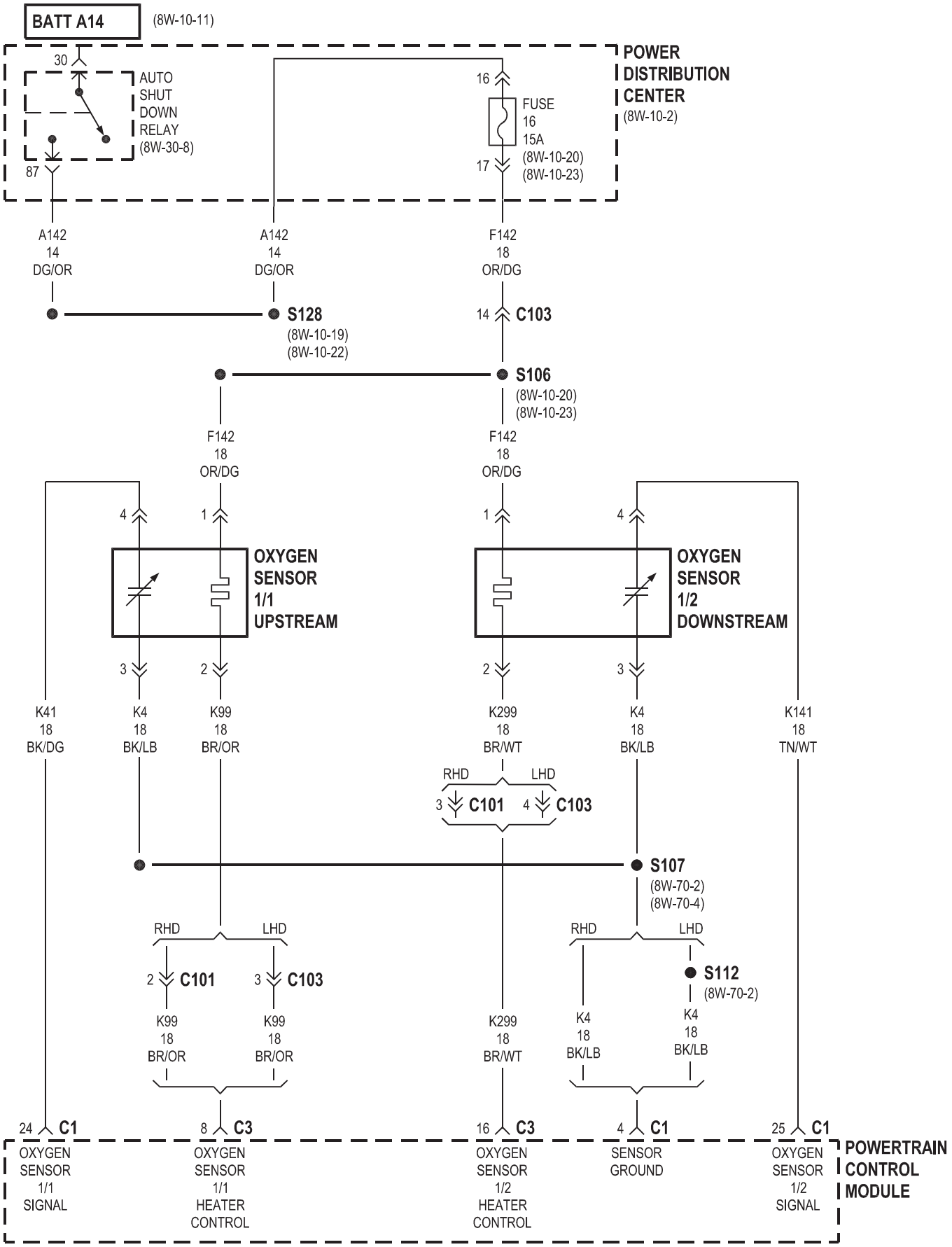
WJ303020


A/C PRESSURE TRANSDUCER
(8W-42-11)
5 VOLT SUPPLY
2
TRANSMISSION SOLENOID
(8W-31-8)
5 VOLT SUPPLY
2
SENSOR GROUND
3
K6 18 VT/BK
K4 18 BK/LB
EXPORT
EXCEPT EXPORT
13 C103
S107
(8W-70-2)
(8W-70-4)
EXPORT
EXCEPT EXPORT
K6 18 VT/BK
K6 18 VT/BK
K4 18 BK/LB
K4 18 BK/LB
K4 18 BK/LB
K4 18 BK/LB
K4 18 BK/LB
S102
S112
(8W-70-2)
(8W-70-4)
(8W-70-6)
(8W-70-7)
1
MANIFOLD ABSOLUTE PRESSURE SENSOR
1
INTAKE AIR TEMPERATURE SENSOR
2
3
K7 20 OR
S105
(8W-30-20)
1
ENGINE OIL PRESSURE SWITCH
1
ENGINE COOLANT TEMPERATURE SENSOR
2
K6 18 VT/BK
G60 18 GY/YL
K4 18 BK/LB
K1 18 DG/RD
K7 18 OR
K2 18 TN/BK
K21 18 BK/RD
31 C2
23 C2
4 C1
27 C1
17 C1
16 C1
15 C1
5 VOLT SUPPLY
ENGINE OIL PRESSURE SWITCH SIGNAL
SENSOR GROUND
MAP SENSOR SIGNAL
5 VOLT SUPPLY
ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
INTAKE AIR TEMPERATURE SENSOR SIGNAL
POWERTRAIN CONTROL MODULE

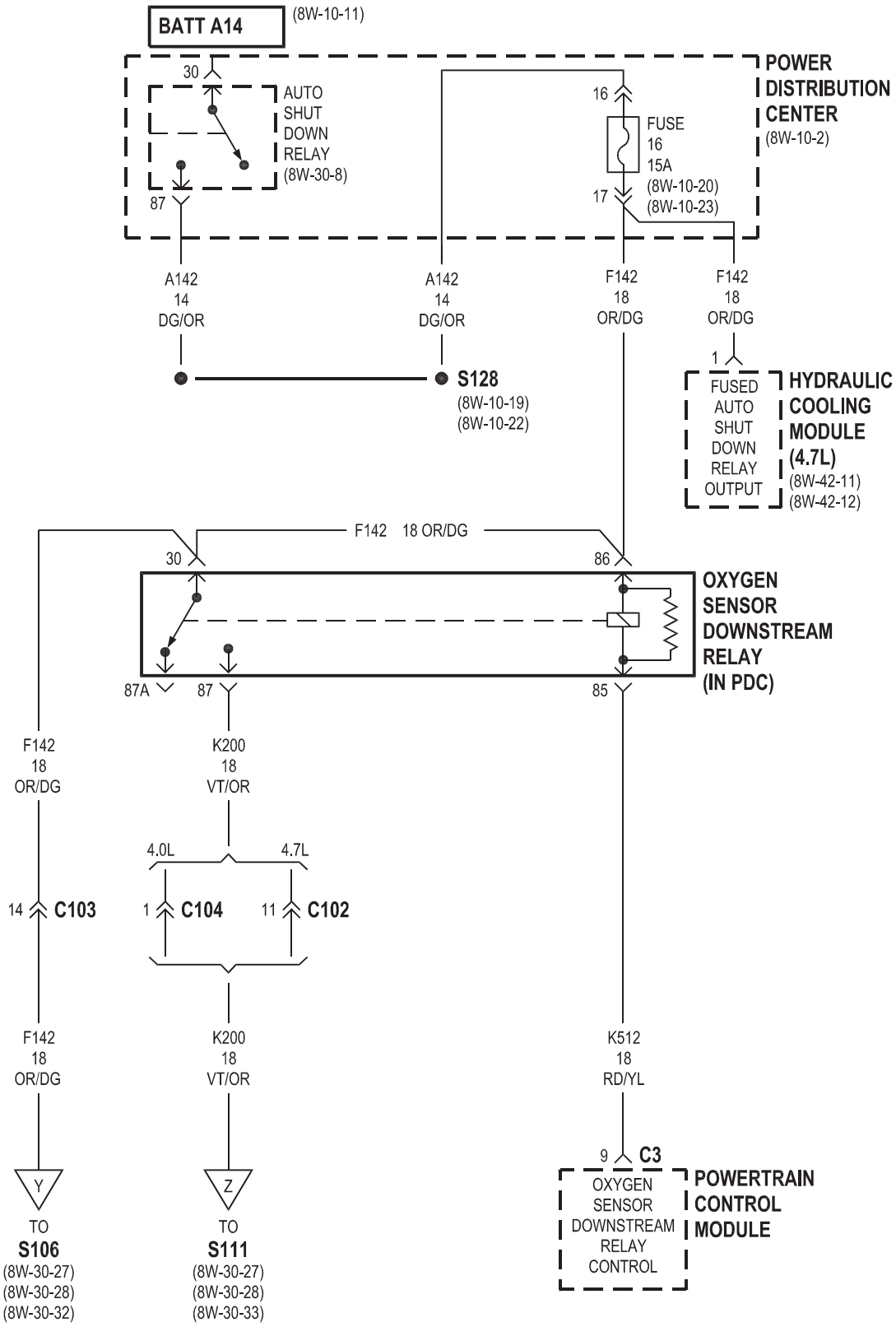

A/C PRESSURE TRANSDUCER
(8W-42-12)
5 VOLT SUPPLY
2
K6 18 VT/BK
4 C101
K6 18 VT/BK
TRANSMISSION SOLENOID
(8W-31-8)
5 VOLT SUPPLY
2
K6 18 VT/BK
SENSOR GROUND
3
K4 18 BK/LB
S112
(8W-70-4)
K4 18 BK/LB
S102
S107
(8W-70-4)
K4 18 BK/LB
K4 18 BK/LB
K4 18 BK/LB
EXCEPT JAPAN
JAPAN
S110
(8W-70-5)
1
ENGINE OIL PRESSURE SWITCH
1
MANIFOLD ABSOLUTE PRESSURE SENSOR
2
3
K7 20 OR
S105
(8W-30-20)
1
ENGINE COOLANT TEMPERATURE SENSOR
2
1
INTAKE AIR TEMPERATURE SENSOR
2
K6 18 VT/BK
G60 18 GY/YL
K4 18 BK/LB
K1 18 DG/RD
K7 18 OR
K2 18 TN/BK
K21 18 BK/RD
31 C2
23 C2
4 C1
27 C1
17 C1
16 C1
15 C1
5 VOLT SUPPLY
ENGINE OIL PRESSURE SENSOR SIGNAL
SENSOR GROUND
MAP SENSOR SIGNAL
5 VOLT SUPPLY
ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
INTAKE AIR TEMPERATURE SENSOR SIGNAL
POWERTRAIN CONTROL MODULE

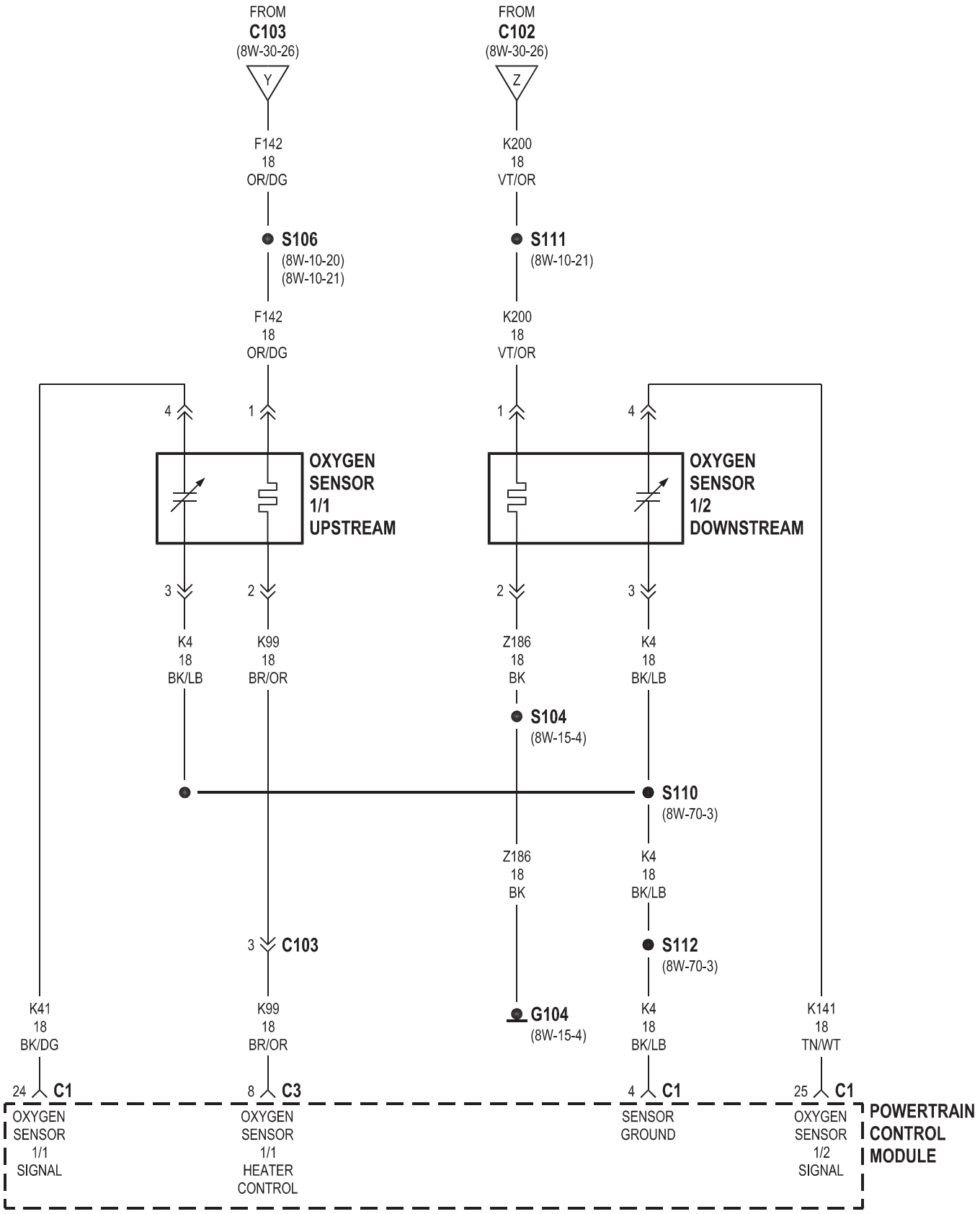

S107
(8W-70-6)
(8W-70-7)
K4
18
BK/LB
LHD
RHD
S112
(8W-70-6)
S158
(8W-70-7)
MANIFOLD
ABSOLUTE
PRESSURE
SENSOR
INTAKE
AIR
TEMPERATURE
SENSOR
K7
20
OR
S105
(8W-30-20)
ENGINE
COOLANT
PRESSURE
SWITCH
ENGINE
COOLANT
TEMPERATURE
SENSOR
G60
18
GY/YL
K1
18
DG/RD
K2
18
TN/BK
K21
18
BK/RD
C1
C2
ENGINE
OIL
PRESSURE
SENSOR
SIGNAL
SENSOR
GROUND
MAP
SENSOR
SIGNAL
5 VOLT
SUPPLY
ENGINE
COOLANT
TEMPERATURE
SENSOR
SIGNAL
INTAKE
AIR
TEMPERATURE
SENSOR
SIGNAL
POWERTRAIN
CONTROL
MODULE

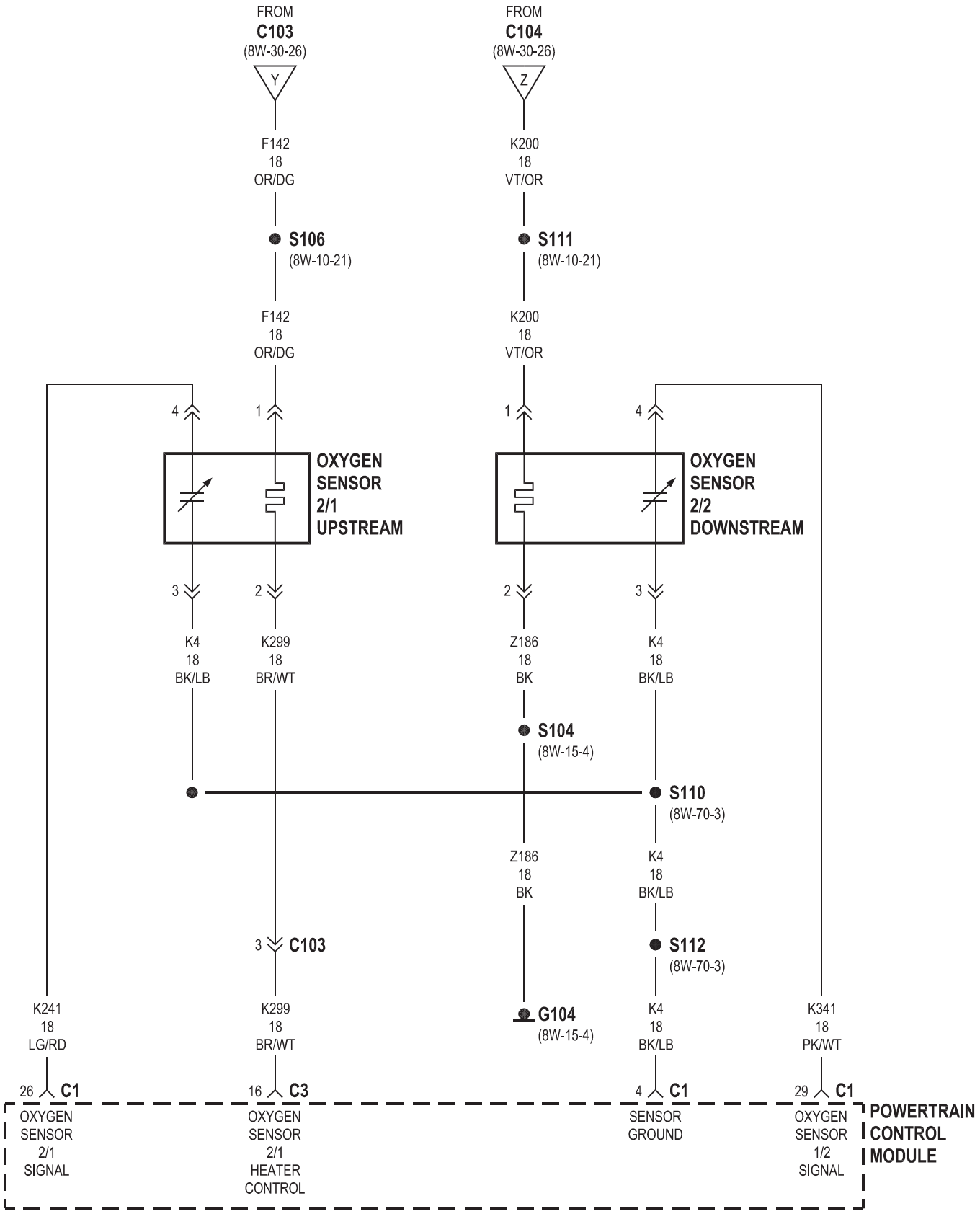

85
TRANSMISSION CONTROL RELAY (IN PDC)
(8W-31-2)
(8W-31-3)
86
LHD
RHD
K30 20 PK/YL
K30 20 PK
7 C103
4.0L
4.7L
K30 18 PK/YL
15
TRANSMISSION CONTROL RELAY CONTROL
TRANSMISSION CONTROL MODULE
(8W-31-3)
4.7L
4.0L
Z307 18 BK
S132
(8W-15-9)
(8W-15-10)
Z307 14 BK
G108
(8W-15-9)
(8W-15-10)
K125 18 WT/DB
GENERATOR
(8W-20-2)
(8W-20-3)
GENERATOR FIELD DRIVER
1
K125 18 WT/DB
2 C100
K125 18 WT/DB
S126
K125 18 WT/DB
20 C106
K125 18 WT/DB
43 C300
K125 18 OR/DG
2
LEAK DETECTION PUMP (EXCEPT EXPORT)
4
3
86
A/C COMPRESSOR CLUTCH RELAY (IN PDC)
(8W-42-3)
85
RHD
LHD
C13 20 DB/OR
14 C106
C13 20 DB/OR
46 C107
C13 18 DB/OR
LHD
RHD
21 C106
K125 18 WT/DB
41 C107
K107 20 OR/YL
K106 20 WT/DG
42 C300
41
K107 20 OR/YL
K106 20 WT/DG
12
13 C106
K30 18 PK/YL
C13 18 DB/OR
K125 18 WT/DB
K107 18 OR/PK
K106 18 WT/DG
30 C2
1 C3
25 C3
14 C3
10 C3
TRANSMISSION CONTROL RELAY CONTROL
A/C COMPRESSOR CLUTCH RELAY CONTROL
GENERATOR SOURCE
LEAK DETECTION PUMP SWITCH SENSE
LEAK DETECTION PUMP SOLENOID CONTROL
POWERTRAIN CONTROL MODULE

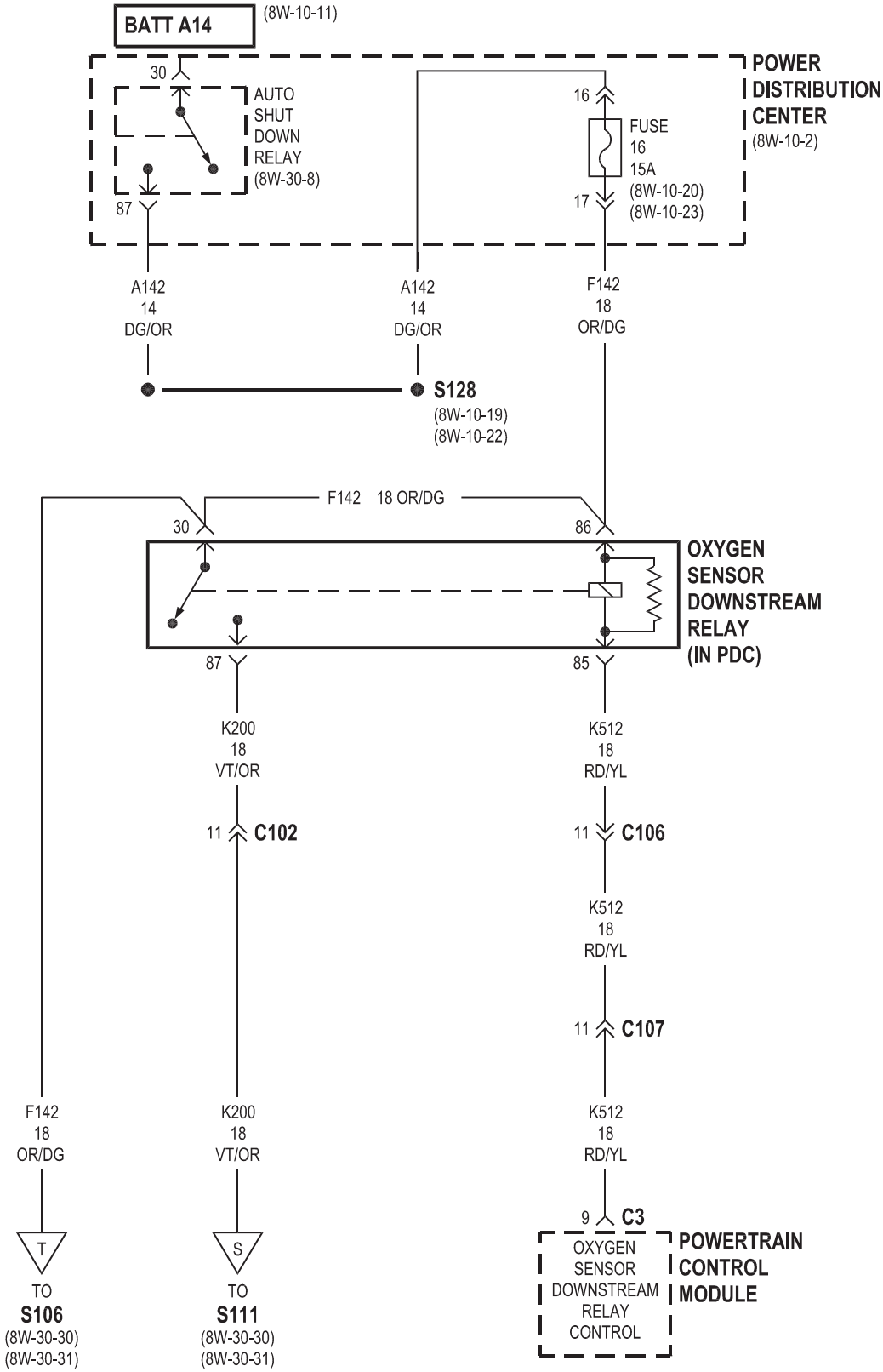

BATT A14
(8W-10-11)
30
AUTO SHUT DOWN RELAY
(8W-30-8)
87
16
FUSE 16 15A
(8W-10-20)
(8W-10-23)
17
POWER DISTRIBUTION CENTER
(8W-10-2)
A142 14 DG/OR
A142 14 DG/OR
F142 18 OR/DG
S128
(8W-10-19)
(8W-10-22)
14 C103
S106
(8W-10-20)
(8W-10-23)
F142 18 OR/DG
F142 18 OR/DG
OXYGEN SENSOR 1/1 UPSTREAM
OXYGEN SENSOR 1/2 DOWNSTREAM
K41 18 BK/DG
K4 18 BK/LB
K99 18 BR/OR
K299 18 BR/WT
K4 18 BK/LB
K141 18 TN/WT
RHD
LHD
3 C101
4 C103
S107
(8W-70-2)
(8W-70-4)
RHD
LHD
2 C101
3 C103
K99 18 BR/OR
K99 18 BR/OR
K299 18 BR/WT
RHD
LHD
S112
(8W-70-2)
K4 18 BK/LB
K4 18 BK/LB
24 C1
OXYGEN SENSOR 1/1 SIGNAL
8 C3
OXYGEN SENSOR 1/1 HEATER CONTROL
16 C3
OXYGEN SENSOR 1/2 HEATER CONTROL
4 C1
SENSOR GROUND
25 C1
OXYGEN SENSOR 1/2 SIGNAL
POWERTRAIN CONTROL MODULE

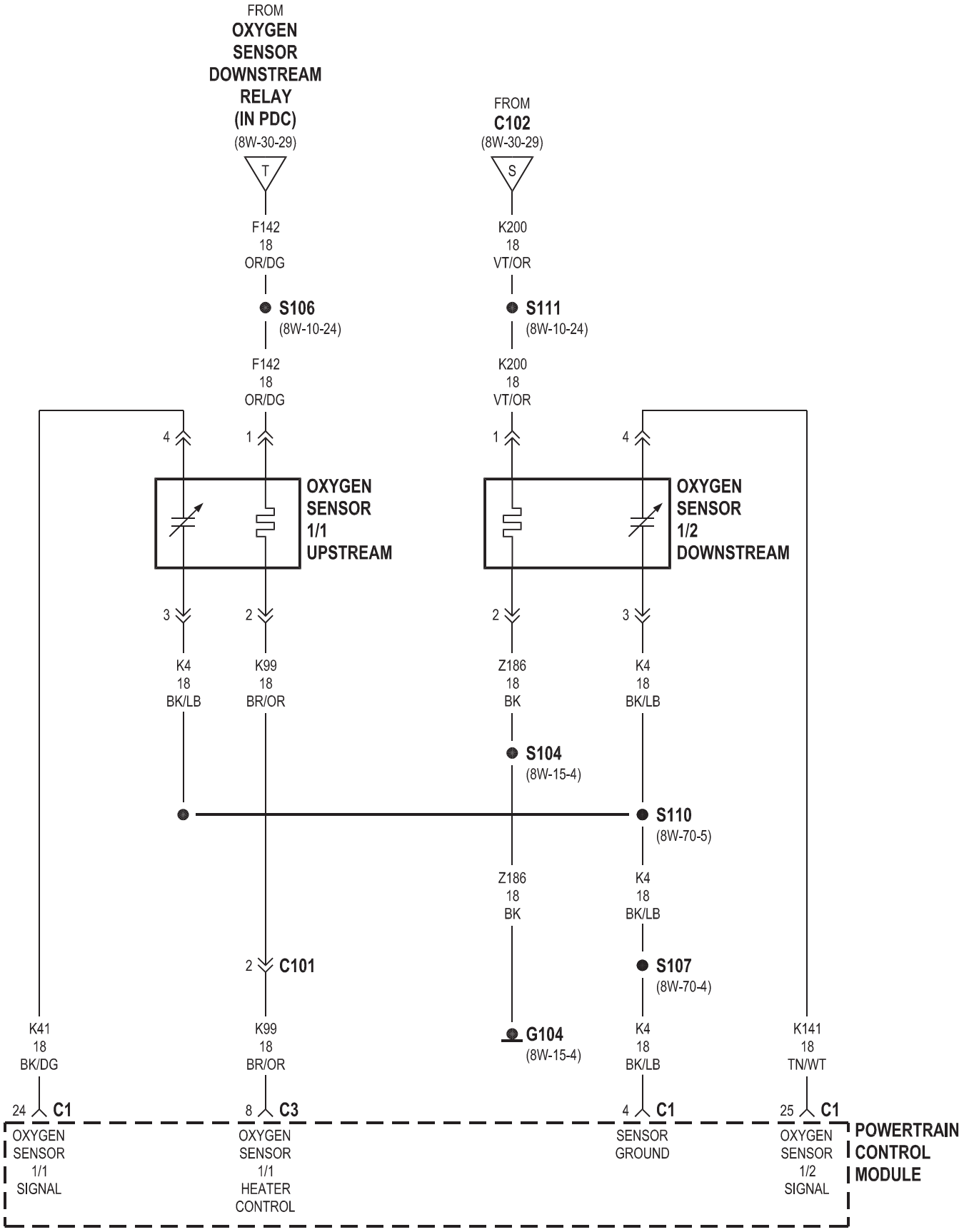
4.0L LHD EXCEPT EXPORT/4.7L LHD

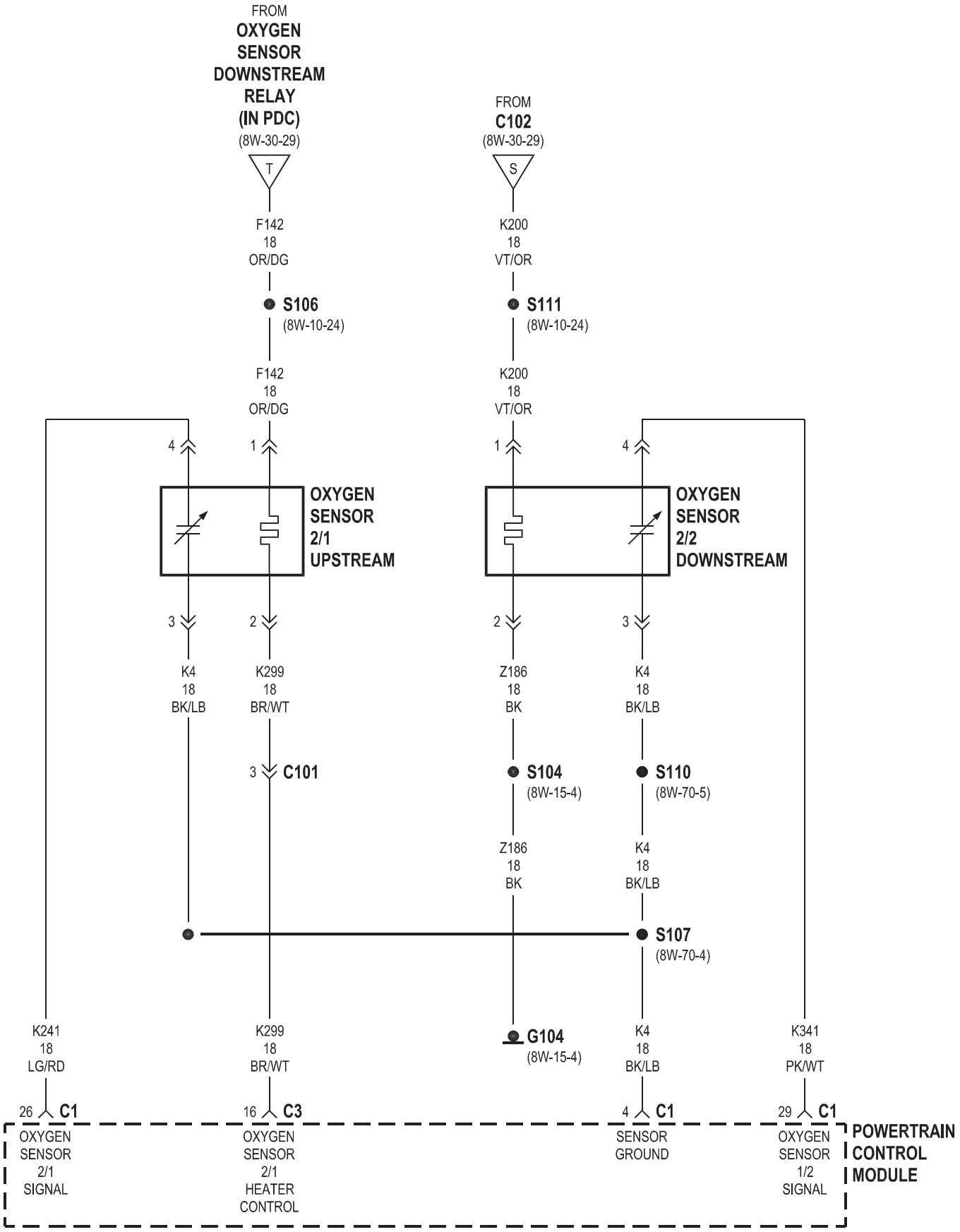


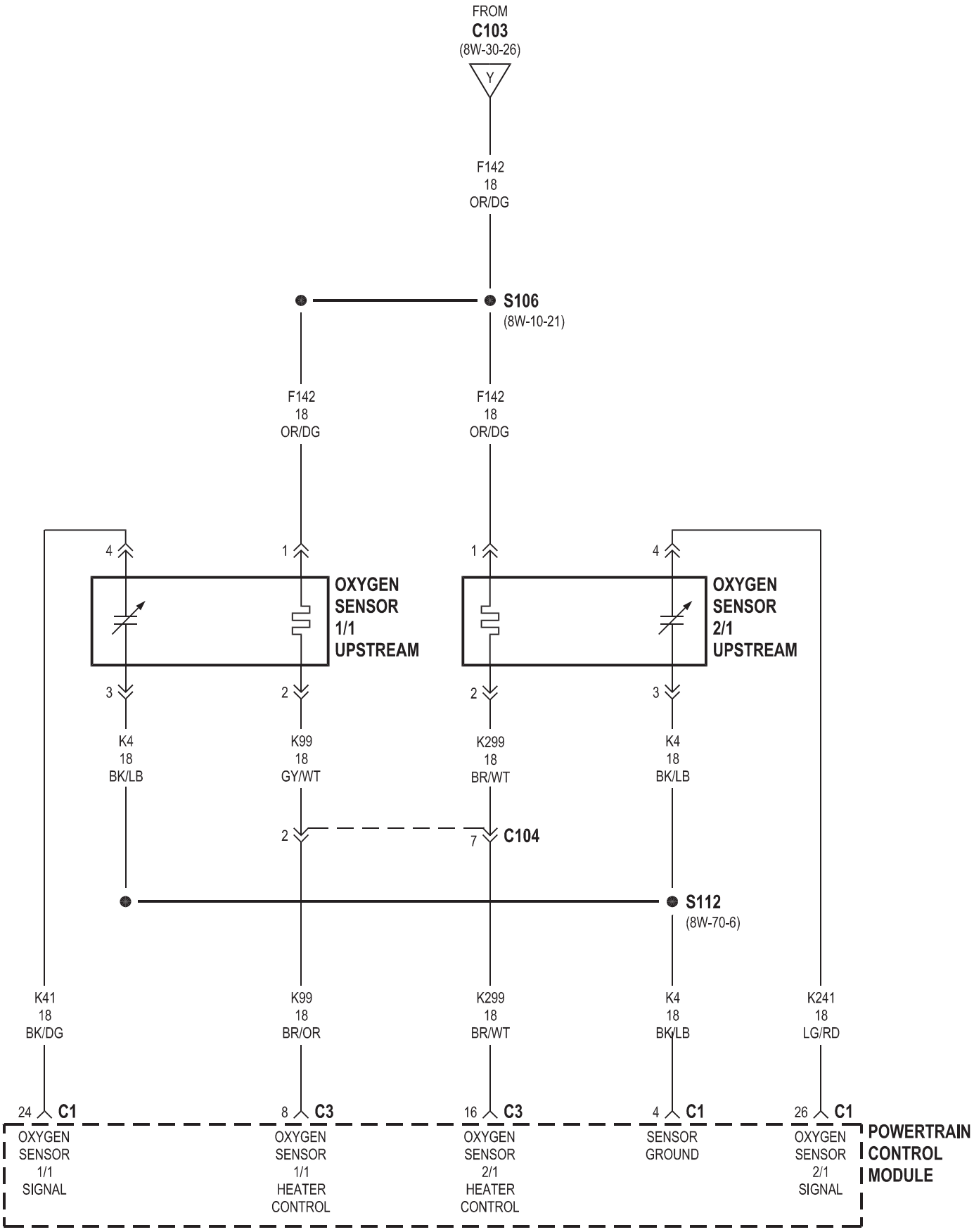

FROM
C103
(8W-30-26)
Y
F142
18
OR/DG
S106
(8W-10-20)
(8W-10-21)
F142
18
OR/DG
FROM
C102
(8W-30-26)
Z
K200
18
VT/OR
S111
(8W-10-21)
K200
18
VT/OR
4
1
1
4
OXYGEN
SENSOR
1/1
UPSTREAM
OXYGEN
SENSOR
1/2
DOWNSTREAM
3
2
2
3
K4
18
BK/LB
K99
18
BR/OR
Z186
18
BK
K4
18
BK/LB
S104
(8W-15-4)
S110
(8W-70-3)
Z186
18
BK
K4
18
BK/LB
3
C103
S112
(8W-70-3)
K41
18
BK/DG
K99
18
BR/OR
G104
(8W-15-4)
K4
18
BK/LB
K141
18
TN/WT
24
C1
8
C3
4
C1
25
C1
OXYGEN
SENSOR
1/1
SIGNAL
OXYGEN
SENSOR
1/1
HEATER
CONTROL
SENSOR
GROUND
OXYGEN
SENSOR
1/2
SIGNAL
POWERTRAIN
CONTROL
MODULE

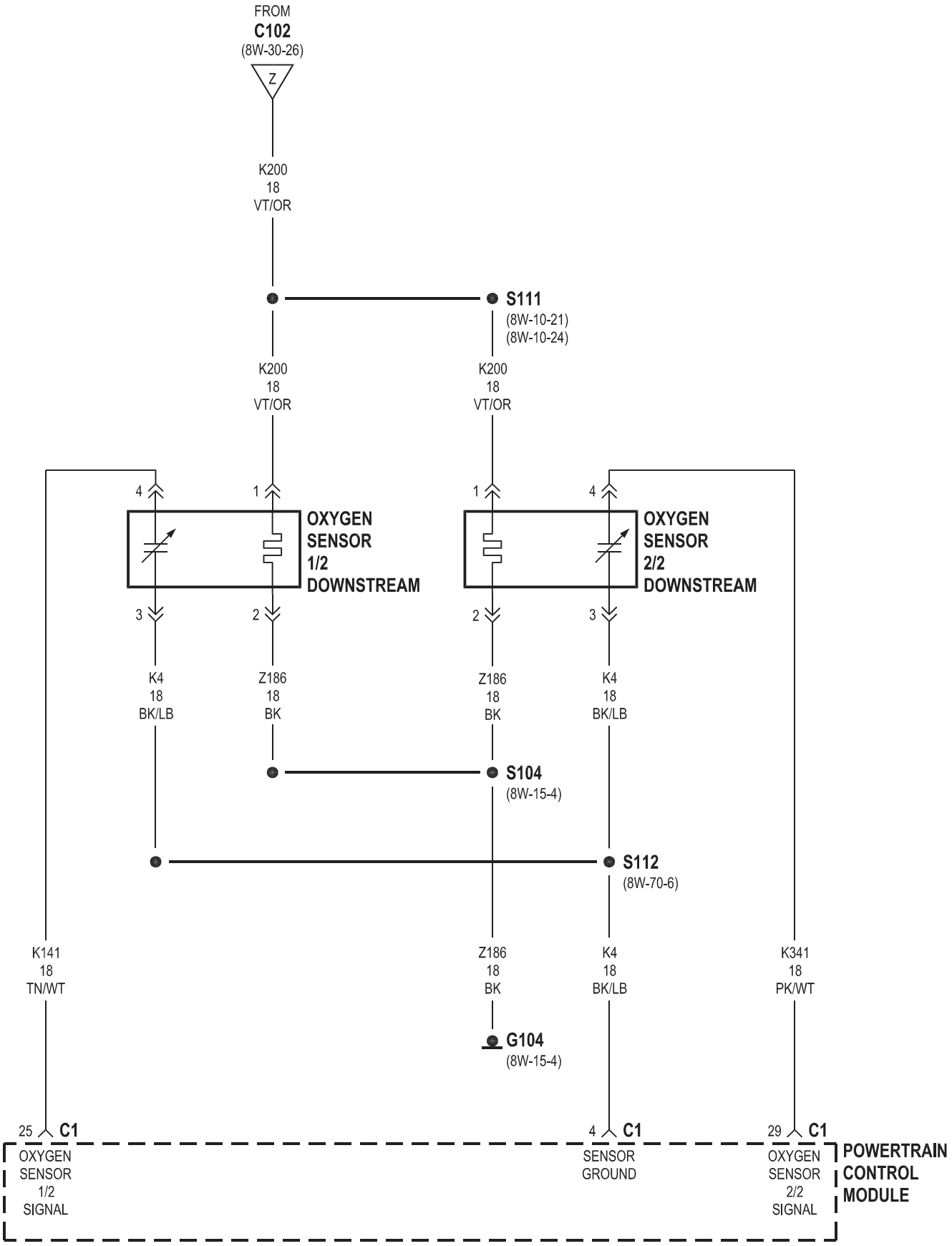

FROM
C103
(8W-30-26)
Y
FROM
C104
(8W-30-26)
Z
F142
18
OR/DG
K200
18
VT/OR
S106
(8W-10-21)
S111
(8W-10-21)
F142
18
OR/DG
K200
18
VT/OR
4
1
1
4
OXYGEN
SENSOR
2/1
UPSTREAM
OXYGEN
SENSOR
2/2
DOWNSTREAM
3
2
2
3
K4
18
BK/LB
K299
18
BR/WT
Z186
18
BK
K4
18
BK/LB
S104
(8W-15-4)
S110
(8W-70-3)
Z186
18
BK
K4
18
BK/LB
3
C103
S112
(8W-70-3)
K241
18
LG/RD
K299
18
BR/WT
G104
(8W-15-4)
K4
18
BK/LB
K341
18
PK/WT
26
C1
16
C3
4
C1
29
C1
OXYGEN
SENSOR
2/1
SIGNAL
OXYGEN
SENSOR
2/1
HEATER
CONTROL
SENSOR
GROUND
OXYGEN
SENSOR
1/2
SIGNAL
POWERTRAIN
CONTROL
MODULE

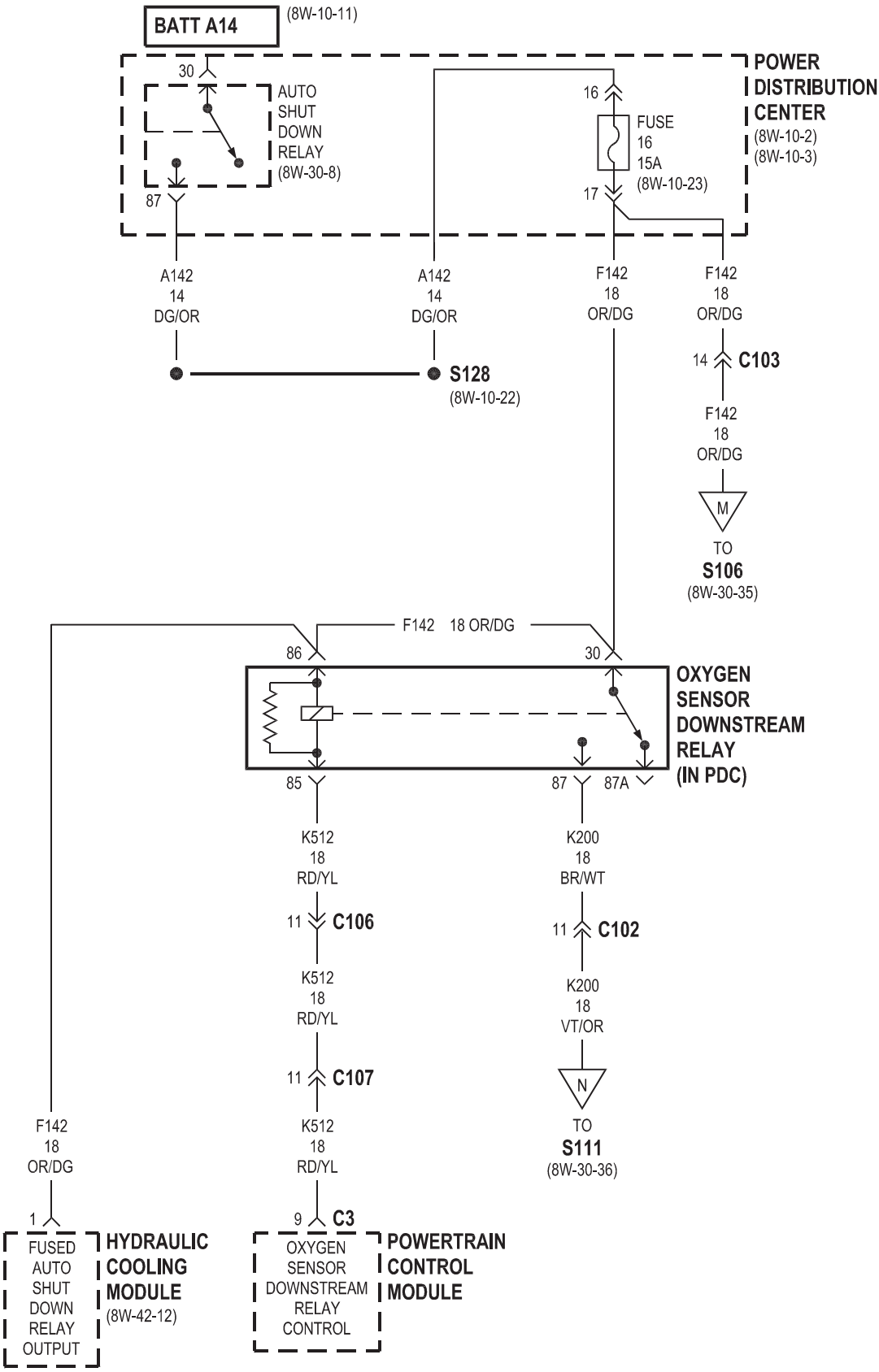

BATT A14
(8W-10-11)
30
AUTO SHUT DOWN RELAY (8W-30-8)
87
16
FUSE 16 15A
17
(8W-10-20)
(8W-10-23)
POWER DISTRIBUTION CENTER
(8W-10-2)
A142 14 DG/OR
A142 14 DG/OR
F142 18 OR/DG
S128
(8W-10-19)
(8W-10-22)
F142 18 OR/DG
30
86
87
85
OXYGEN SENSOR DOWNSTREAM RELAY (IN PDC)
K200 18 VT/OR
K512 18 RD/YL
11 C102
11 C106
K512 18 RD/YL
11 C107
F142 18 OR/DG
K200 18 VT/OR
K512 18 RD/YL
9 C3
T
S
TO S106
(8W-30-30)
(8W-30-31)
TO S111
(8W-30-30)
(8W-30-31)
OXYGEN SENSOR DOWNSTREAM RELAY CONTROL
POWERTRAIN CONTROL MODULE

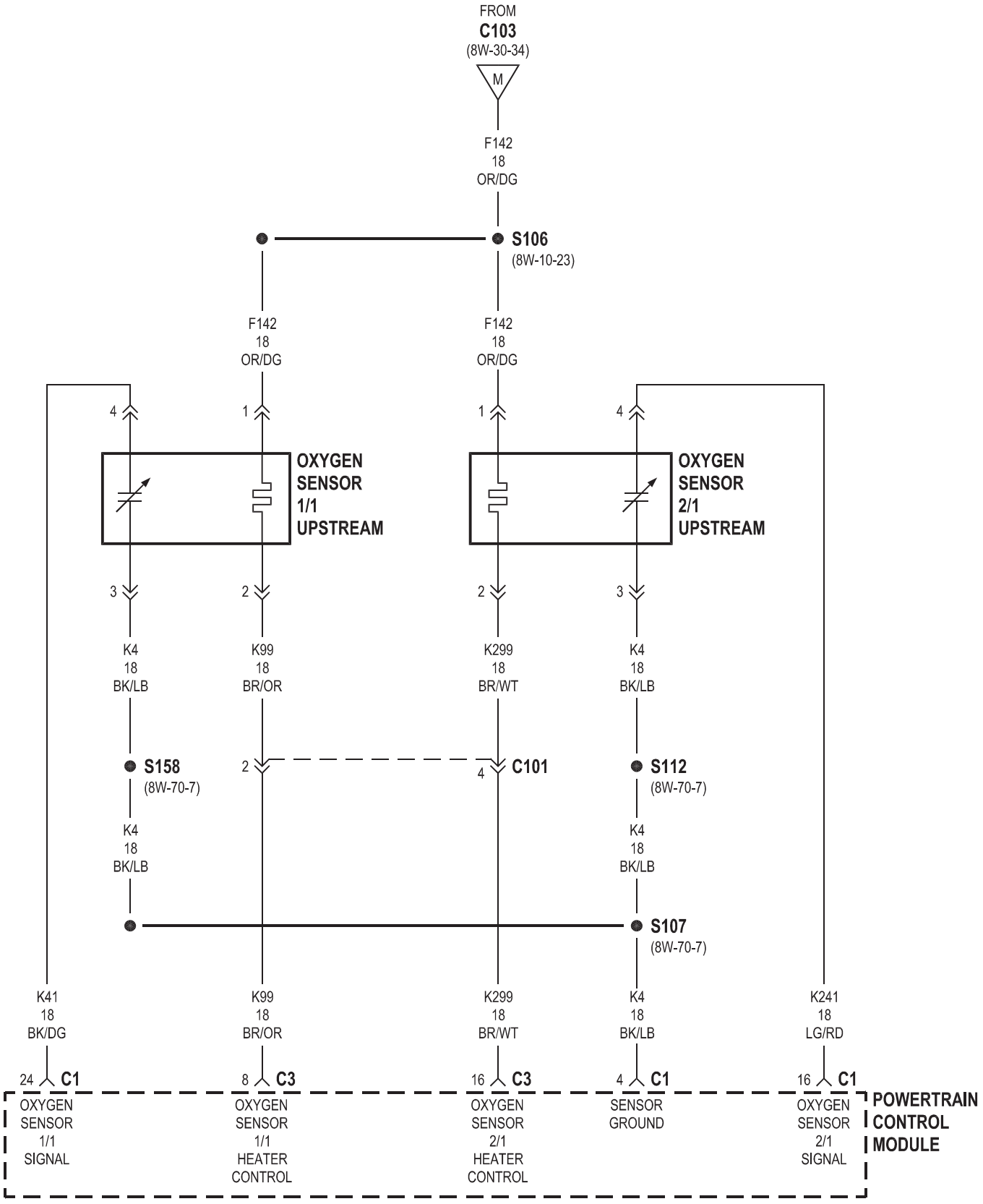

FROM
OXYGEN SENSOR DOWNSTREAM RELAY (IN PDC)
(8W-30-29)
T
F142
18
OR/DG
S106
(8W-10-24)
F142
18
OR/DG
FROM
C102
(8W-30-29)
S
K200
18
VT/OR
S111
(8W-10-24)
K200
18
VT/OR
4
1
1
4
OXYGEN SENSOR 1/1 UPSTREAM
OXYGEN SENSOR 1/2 DOWNSTREAM
3
2
2
3
K4
18
BK/LB
K99
18
BR/OR
Z186
18
BK
K4
18
BK/LB
S104
(8W-15-4)
S110
(8W-70-5)
Z186
18
BK
K4
18
BK/LB
2 C101
S107
(8W-70-4)
K41
18
BK/DG
K99
18
BR/OR
G104
(8W-15-4)
K4
18
BK/LB
K141
18
TN/WT
24 C1
8 C3
4 C1
25 C1
OXYGEN SENSOR 1/1 SIGNAL
OXYGEN SENSOR 1/1 HEATER CONTROL
SENSOR GROUND
OXYGEN SENSOR 1/2 SIGNAL
POWERTRAIN CONTROL MODULE

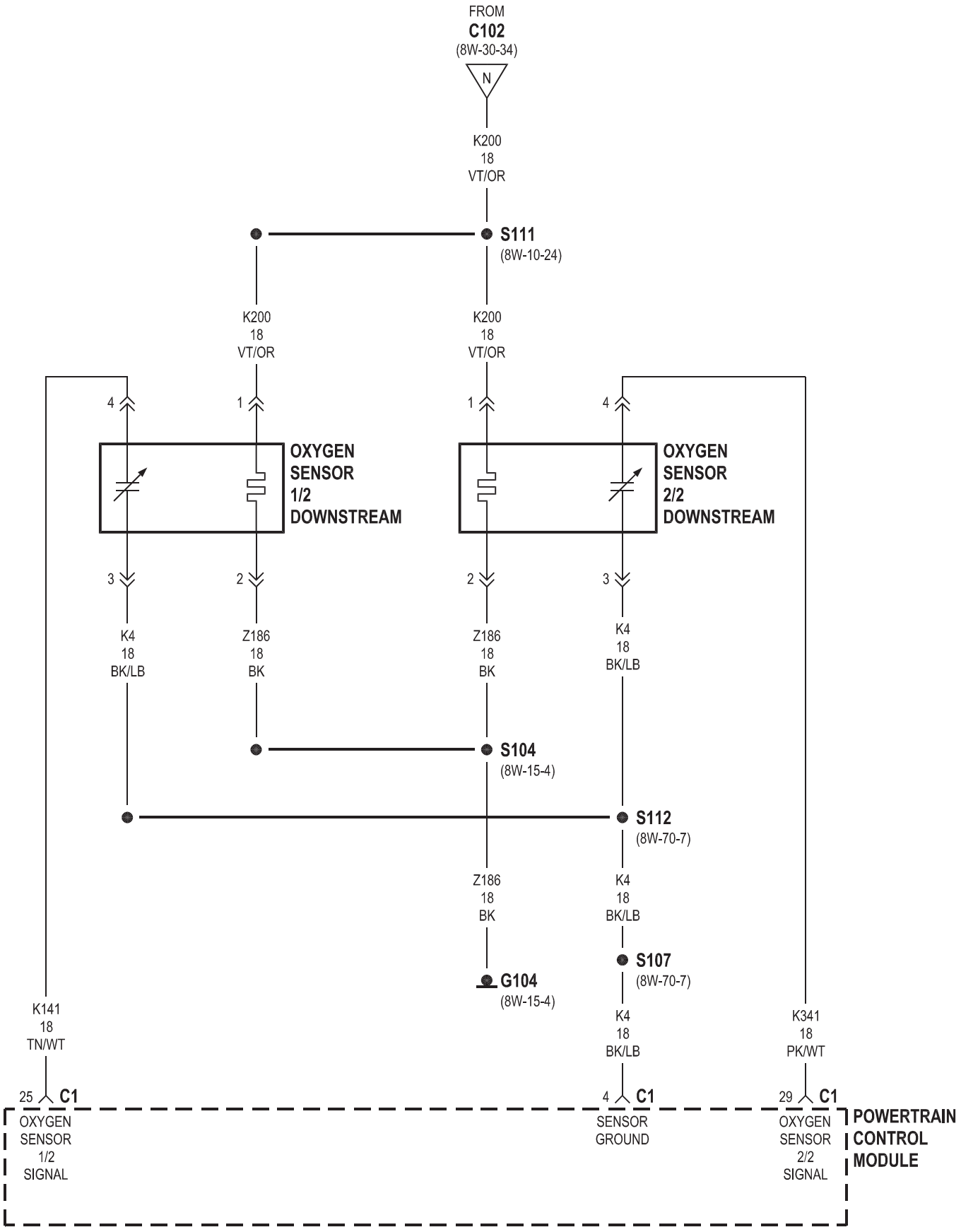

FROM
OXYGEN SENSOR DOWNSTREAM RELAY (IN PDC)
(8W-30-29)
T
F142
18
OR/DG
S106
(8W-10-24)
F142
18
OR/DG
FROM
C102
(8W-30-29)
S
K200
18
VT/OR
S111
(8W-10-24)
K200
18
VT/OR
4
1
OXYGEN SENSOR 2/1 UPSTREAM
1
4
OXYGEN SENSOR 2/2 DOWNSTREAM
3
2
K4
18
BK/LB
K299
18
BR/WT
3
C101
2
3
Z186
18
BK
S104
(8W-15-4)
K4
18
BK/LB
S110
(8W-70-5)
Z186
18
BK
K4
18
BK/LB
S107
(8W-70-4)
K241
18
LG/RD
K299
18
BR/WT
G104
(8W-15-4)
K4
18
BK/LB
K341
18
PK/WT
26
C1
16
C3
4
C1
29
C1
OXYGEN SENSOR 2/1 SIGNAL
OXYGEN SENSOR 2/1 HEATER CONTROL
SENSOR GROUND
OXYGEN SENSOR 1/2 SIGNAL
POWERTRAIN CONTROL MODULE

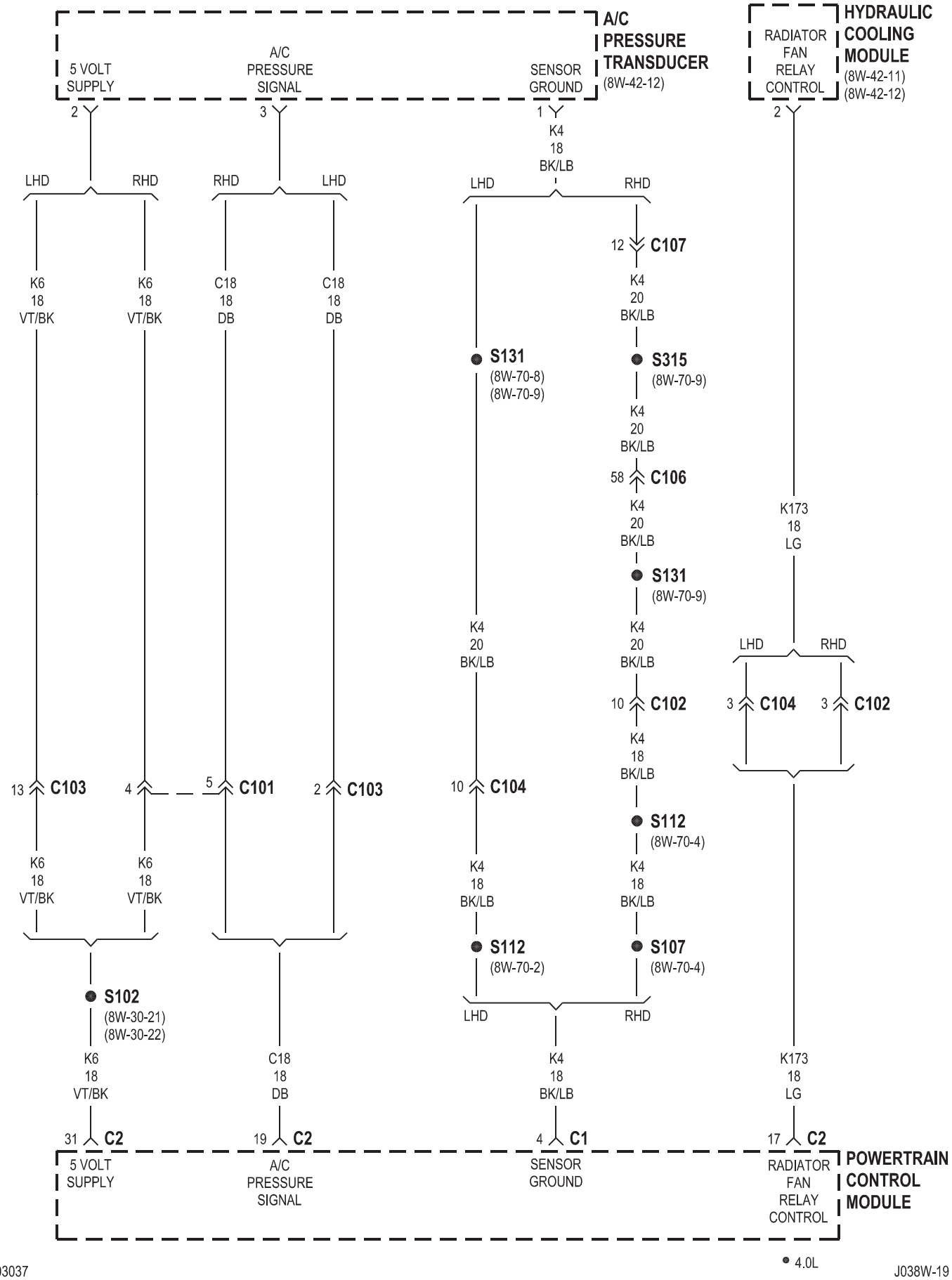

FROM
C103
(8W-30-26)
Y
F142
18
OR/DG
S106
(8W-10-21)
F142
18
OR/DG
F142
18
OR/DG
4
1
1
4
OXYGEN
SENSOR
1/1
UPSTREAM
OXYGEN
SENSOR
2/1
UPSTREAM
3
2
2
3
K4
18
BK/LB
K99
18
GY/WT
K299
18
BR/WT
K4
18
BK/LB
2
7
C104
S112
(8W-70-6)
K41
18
BK/DG
K99
18
BR/OR
K299
18
BR/WT
K4
18
BK/LB
K241
18
LG/RD
24
C1
8
C3
16
C3
4
C1
26
C1
OXYGEN
SENSOR
1/1
SIGNAL
OXYGEN
SENSOR
1/1
HEATER
CONTROL
OXYGEN
SENSOR
2/1
HEATER
CONTROL
SENSOR
GROUND
OXYGEN
SENSOR
2/1
SIGNAL
POWERTRAIN
CONTROL
MODULE

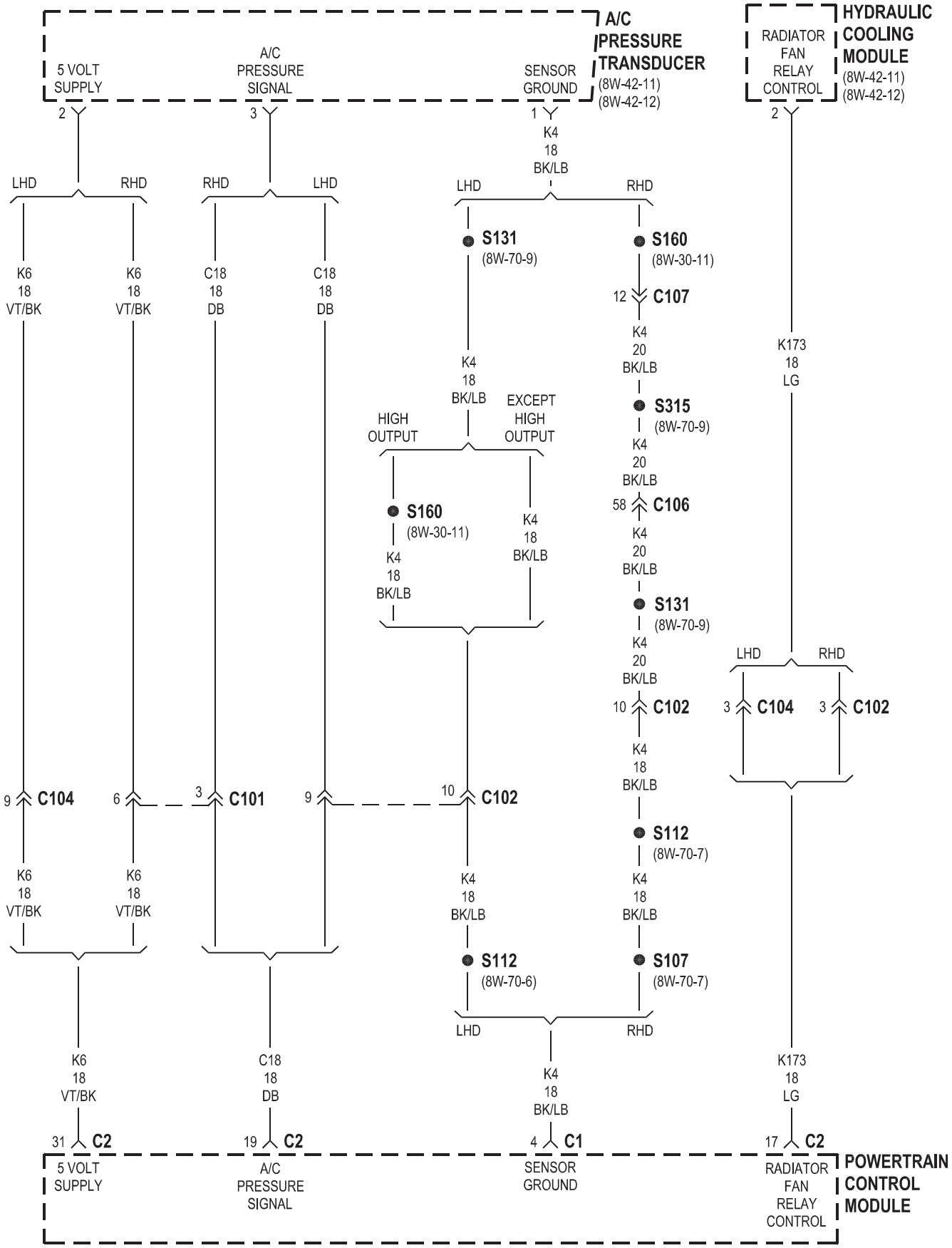

FROM
C102
(8W-30-26)
Z
K200
18
VT/OR
S111
(8W-10-21)
(8W-10-24)
K200
18
VT/OR
K200
18
VT/OR
4
1
1
4
OXYGEN
SENSOR
1/2
DOWNSTREAM
OXYGEN
SENSOR
2/2
DOWNSTREAM
3
2
2
3
K4
18
BK/LB
Z186
18
BK
Z186
18
BK
K4
18
BK/LB
S104
(8W-15-4)
S112
(8W-70-6)
K141
18
TN/WT
Z186
18
BK
K4
18
BK/LB
K341
18
PK/WT
G104
(8W-15-4)
25 C1
OXYGEN
SENSOR
1/2
SIGNAL
4 C1
SENSOR
GROUND
29 C1
OXYGEN
SENSOR
2/2
SIGNAL
POWERTRAIN
CONTROL
MODULE

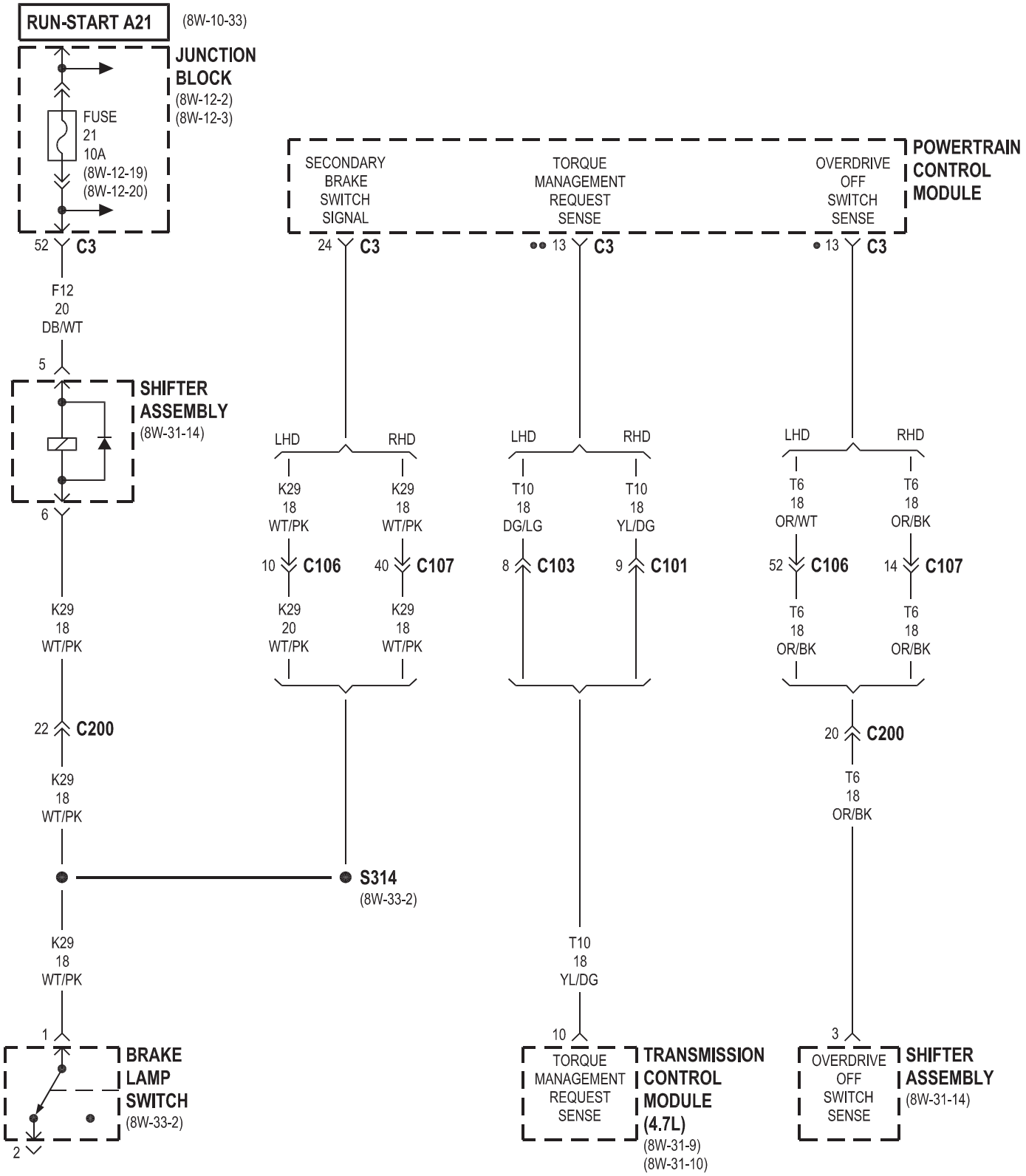

BATT A14
(8W-10-11)
30
AUTO SHUT DOWN RELAY
(8W-30-8)
87
16
FUSE 16 15A
(8W-10-23)
17
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
A142 14 DG/OR
A142 14 DG/OR
F142 18 OR/DG
F142 18 OR/DG
S128
(8W-10-22)
14 C103
F142 18 OR/DG
M
TO S106
(8W-30-35)
F142 18 OR/DG
86
30
OXYGEN SENSOR DOWNSTREAM RELAY (IN PDC)
85
87
87A
K512 18 RD/YL
11 C106
K512 18 RD/YL
11 C107
K512 18 RD/YL
9 C3
K200 18 BR/WT
11 C102
K200 18 VT/OR
N
TO S111
(8W-30-36)
F142 18 OR/DG
1
FUSED AUTO SHUT DOWN RELAY OUTPUT
HYDRAULIC COOLING MODULE
(8W-42-12)
OXYGEN SENSOR DOWNSTREAM RELAY CONTROL
POWERTRAIN CONTROL MODULE


FROM
C103
(8W-30-34)
M
F142
18
OR/DG
S106
(8W-10-23)
F142
18
OR/DG
F142
18
OR/DG
4
1
1
4
OXYGEN
SENSOR
1/1
UPSTREAM
OXYGEN
SENSOR
2/1
UPSTREAM
3
2
2
3
K4
18
BK/LB
K99
18
BR/OR
K299
18
BR/WT
K4
18
BK/LB
S158
(8W-70-7)
2
C101
4
S112
(8W-70-7)
K4
18
BK/LB
K4
18
BK/LB
S107
(8W-70-7)
K41
18
BK/DG
K99
18
BR/OR
K299
18
BR/WT
K4
18
BK/LB
K241
18
LG/RD
24 C1
8 C3
16 C3
4 C1
16 C1
OXYGEN
SENSOR
1/1
SIGNAL
OXYGEN
SENSOR
1/1
HEATER
CONTROL
OXYGEN
SENSOR
2/1
HEATER
CONTROL
SENSOR
GROUND
OXYGEN
SENSOR
2/1
SIGNAL
POWERTRAIN
CONTROL
MODULE

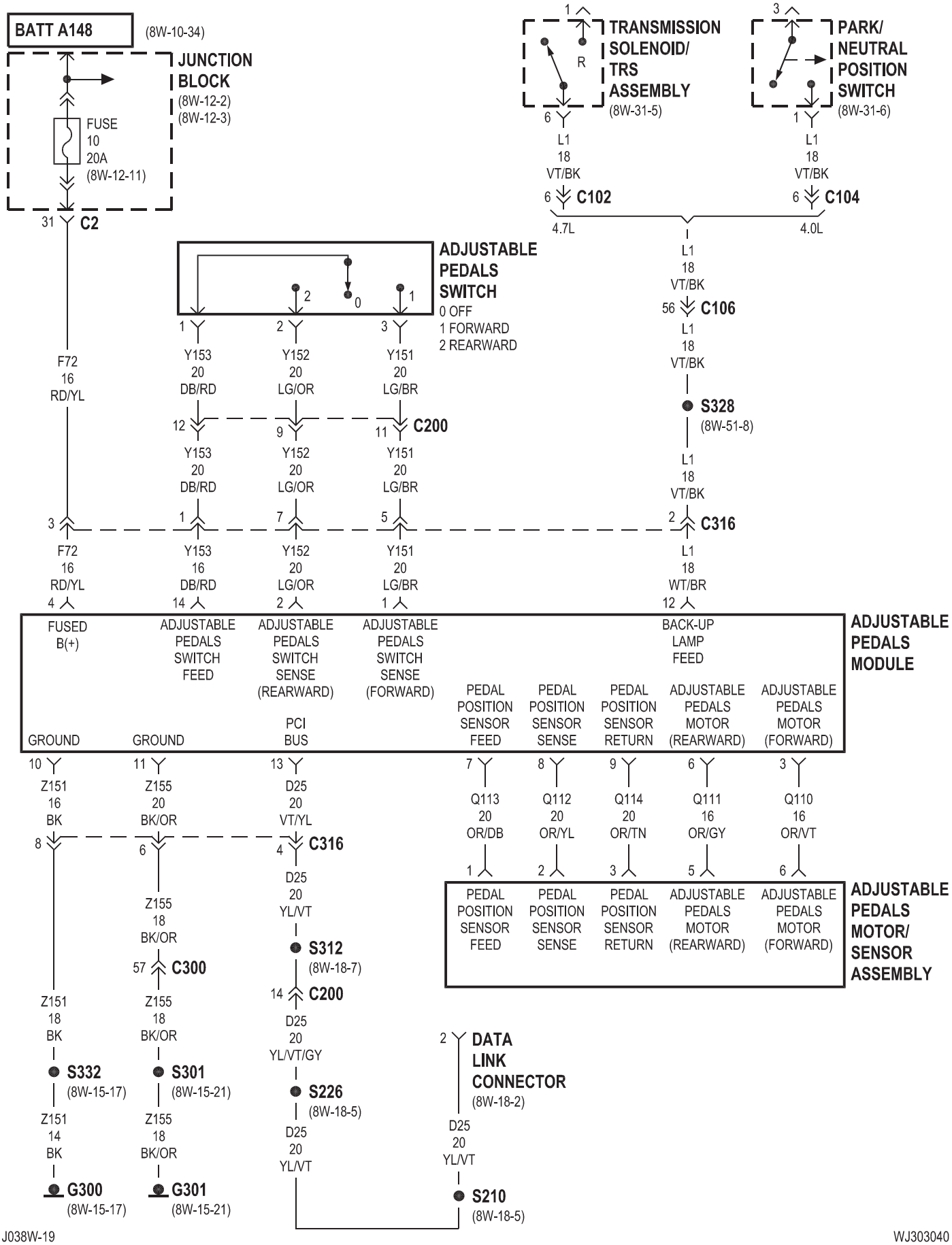

FROM
C102
(8W-30-34)
N
K200
18
VT/OR
S111
(8W-10-24)
K200
18
VT/OR
K200
18
VT/OR
4
1
1
4
OXYGEN
SENSOR
1/2
DOWNSTREAM
OXYGEN
SENSOR
2/2
DOWNSTREAM
3
2
2
3
K4
18
BK/LB
Z186
18
BK
Z186
18
BK
K4
18
BK/LB
S104
(8W-15-4)
S112
(8W-70-7)
Z186
18
BK
K4
18
BK/LB
S107
(8W-70-7)
G104
(8W-15-4)
K4
18
BK/LB
K141
18
TN/WT
K341
18
PK/WT
25 C1
4 C1
29 C1
OXYGEN
SENSOR
1/2
SIGNAL
SENSOR
GROUND
OXYGEN
SENSOR
2/2
SIGNAL
POWERTRAIN
CONTROL
MODULE

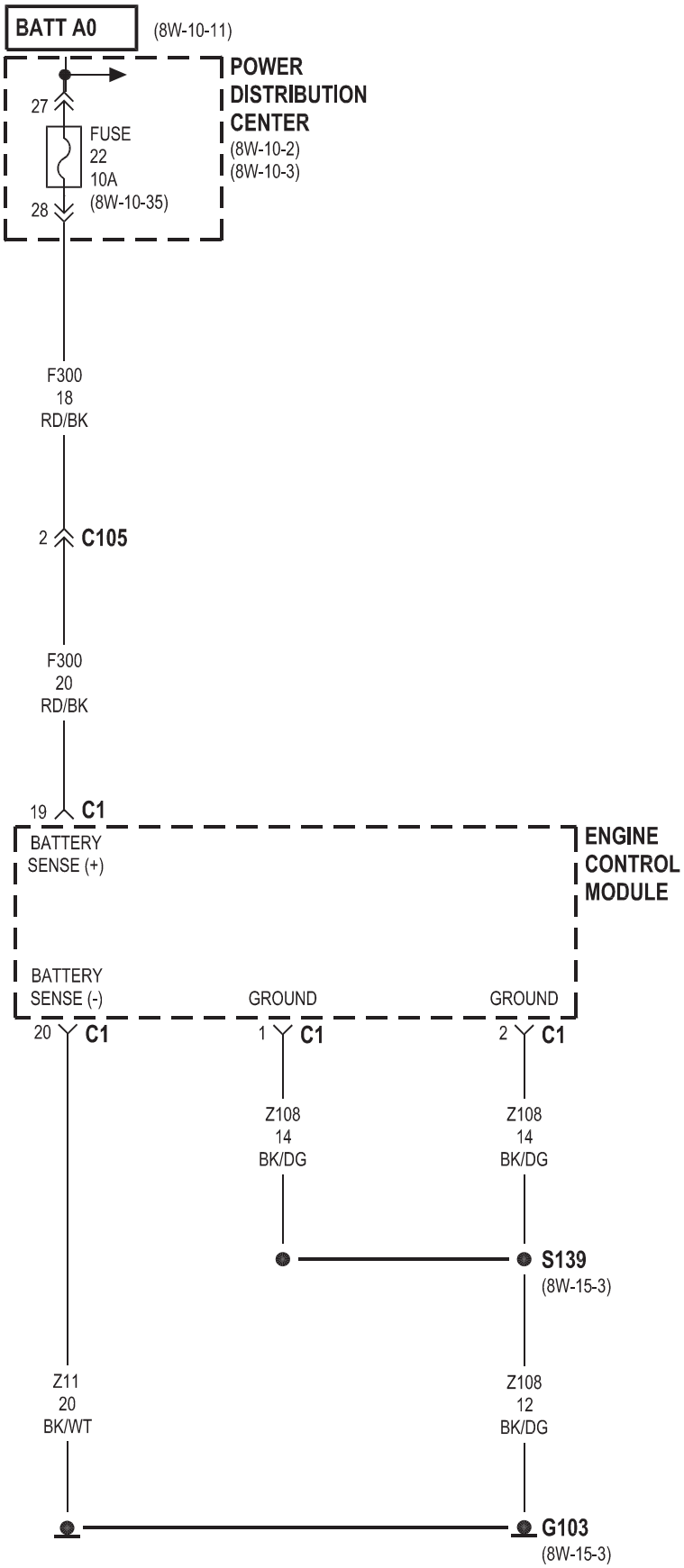

A/C PRESSURE TRANSDUCER (8W-42-12)
5 VOLT SUPPLY
A/C PRESSURE SIGNAL
SENSOR GROUND
HYDRAULIC COOLING MODULE (8W-42-11) (8W-42-12)
RADIATOR FAN RELAY CONTROL
2
3
1
2
K4 18 BK/LB
LHD
RHD
K6 18 VT/BK
C18 18 DB
12 C107
K4 20 BK/LB
S131 (8W-70-8) (8W-70-9)
S315 (8W-70-9)
58 C106
K173 18 LG
10 C102
3 C104
3 C102
13 C103
4
5 C101
2 C103
10 C104
K4 18 BK/LB
S112 (8W-70-4)
S107 (8W-70-4)
S112 (8W-70-2)
S102 (8W-30-21) (8W-30-22)
31 C2
19 C2
4 C1
17 C2
POWERTRAIN CONTROL MODULE
• 4.0L

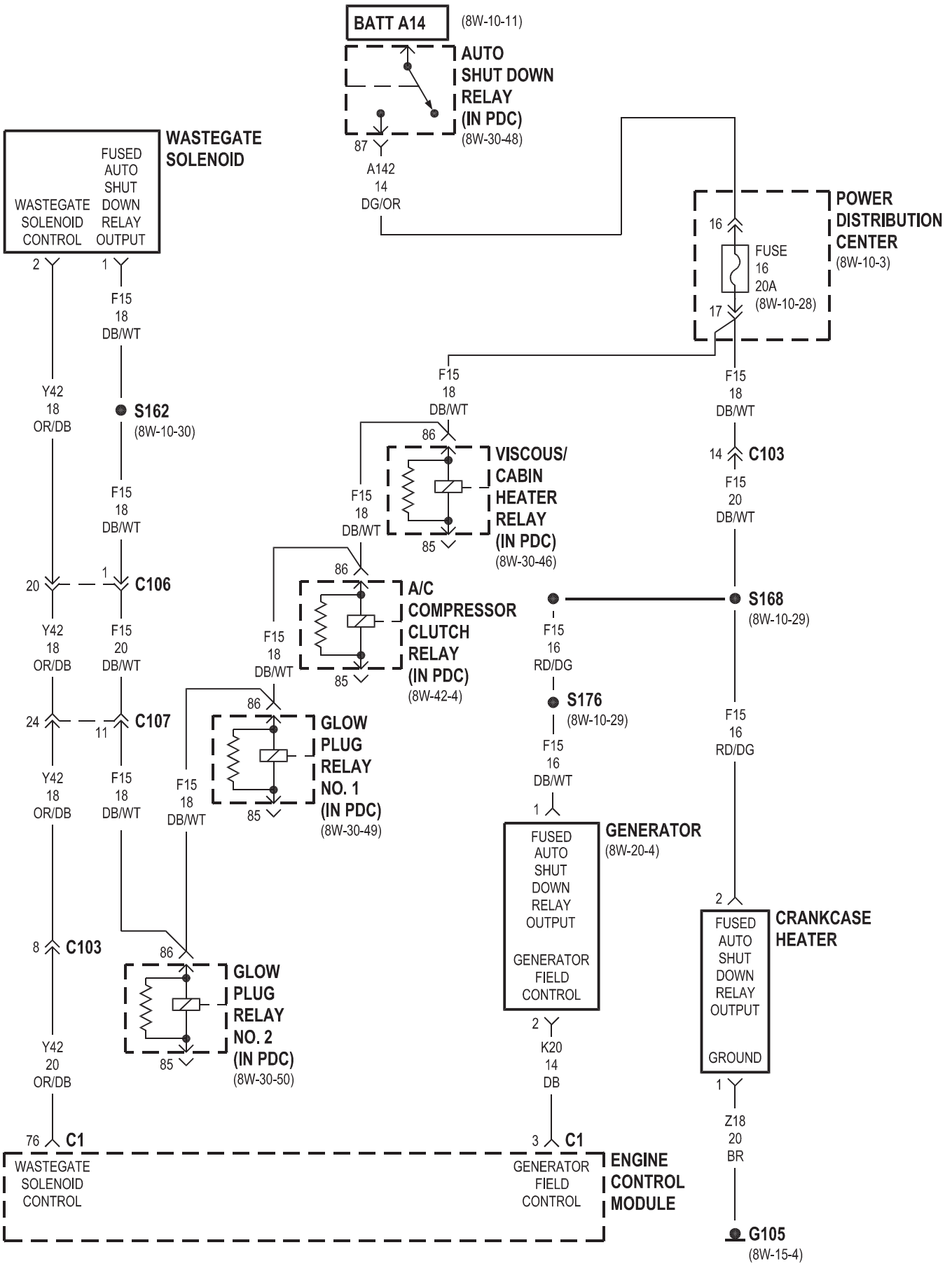

A/C PRESSURE TRANSDUCER
(8W-42-11)
(8W-42-12)
5 VOLT SUPPLY
2
A/C PRESSURE SIGNAL
3
SENSOR GROUND
1
K4 18 BK/LB
HYDRAULIC COOLING MODULE
(8W-42-11)
(8W-42-12)
RADIATOR FAN RELAY CONTROL
2
K173 18 LG
LHD
RHD
K6 18 VT/BK
C18 18 DB
S131
(8W-70-9)
S160
(8W-30-11)
12 C107
K4 20 BK/LB
S315
(8W-70-9)
58 C106
S131
(8W-70-9)
10 C102
S112
(8W-70-7)
S107
(8W-70-7)
HIGH OUTPUT
EXCEPT HIGH OUTPUT
K4 18 BK/LB
3 C104
3 C102
9 C104
6
3 C101
9
10 C102
S112
(8W-70-6)
31 C2
19 C2
4 C1
17 C2
POWERTRAIN CONTROL MODULE

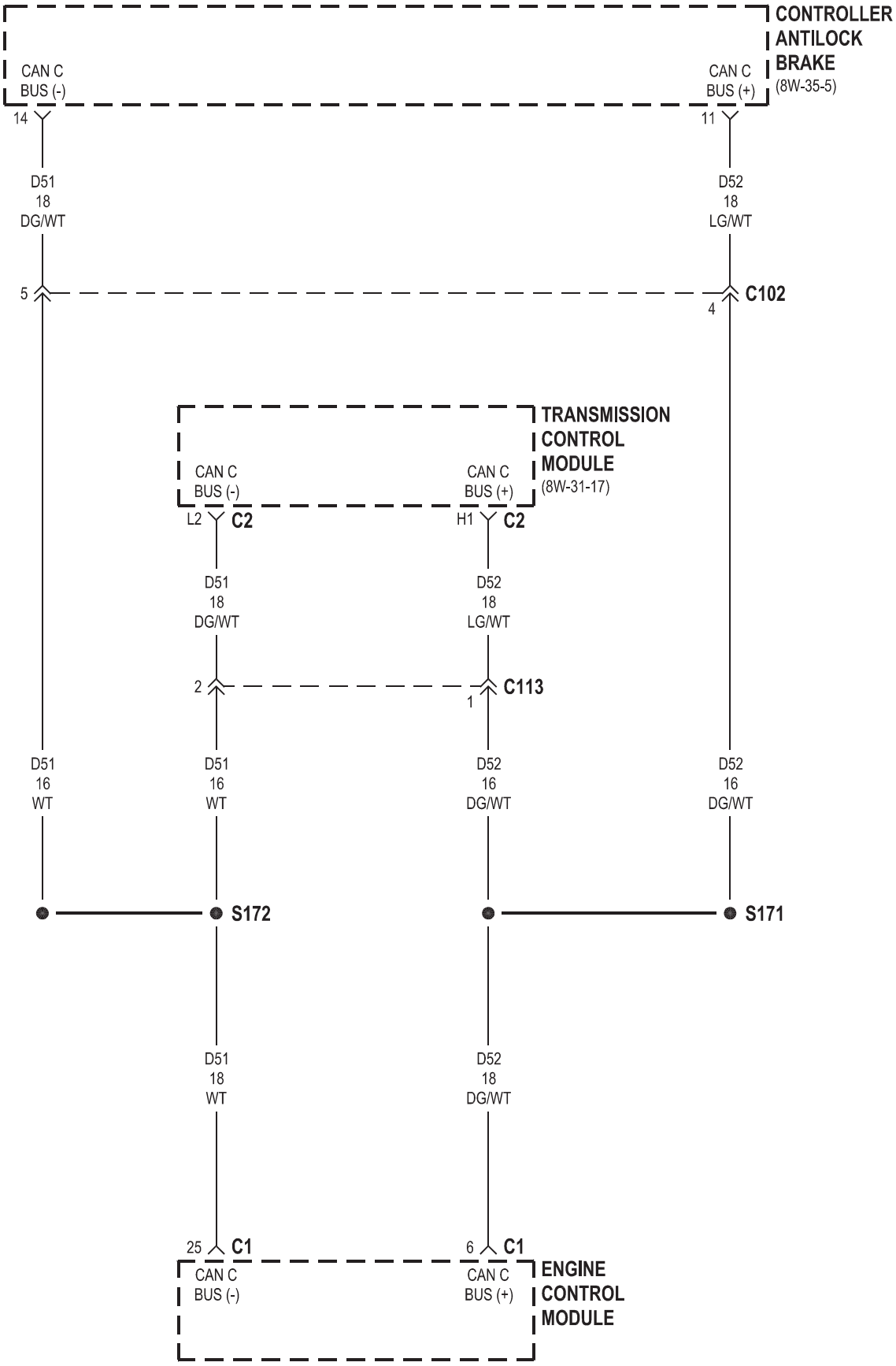

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
21
10A
(8W-12-19)
(8W-12-20)
52 C3
F12
20
DB/WT
5
SHIFTER ASSEMBLY
(8W-31-14)
6
K29
18
WT/PK
22 C200
K29
18
WT/PK
S314
(8W-33-2)
K29
18
WT/PK
1
BRAKE LAMP SWITCH
(8W-33-2)
2
POWERTRAIN CONTROL MODULE
SECONDARY BRAKE SWITCH SIGNAL
TORQUE MANAGEMENT REQUEST SENSE
OVERDRIVE OFF SWITCH SENSE
24 C3
13 C3
13 C3
LHD
RHD
K29
18
WT/PK
10 C106
K29
20
WT/PK
K29
18
WT/PK
40 C107
K29
18
WT/PK
T10
18
DG/LG
8 C103
T10
18
YL/DG
10
TORQUE MANAGEMENT REQUEST SENSE
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-9)
(8W-31-10)
T10
18
YL/DG
9 C101
T6
18
OR/WT
52 C106
T6
18
OR/BK
T6
18
OR/BK
T6
18
OR/BK
14 C107
T6
18
OR/BK
20 C200
T6
18
OR/BK
3
OVERDRIVE OFF SWITCH SENSE
SHIFTER ASSEMBLY
(8W-31-14)

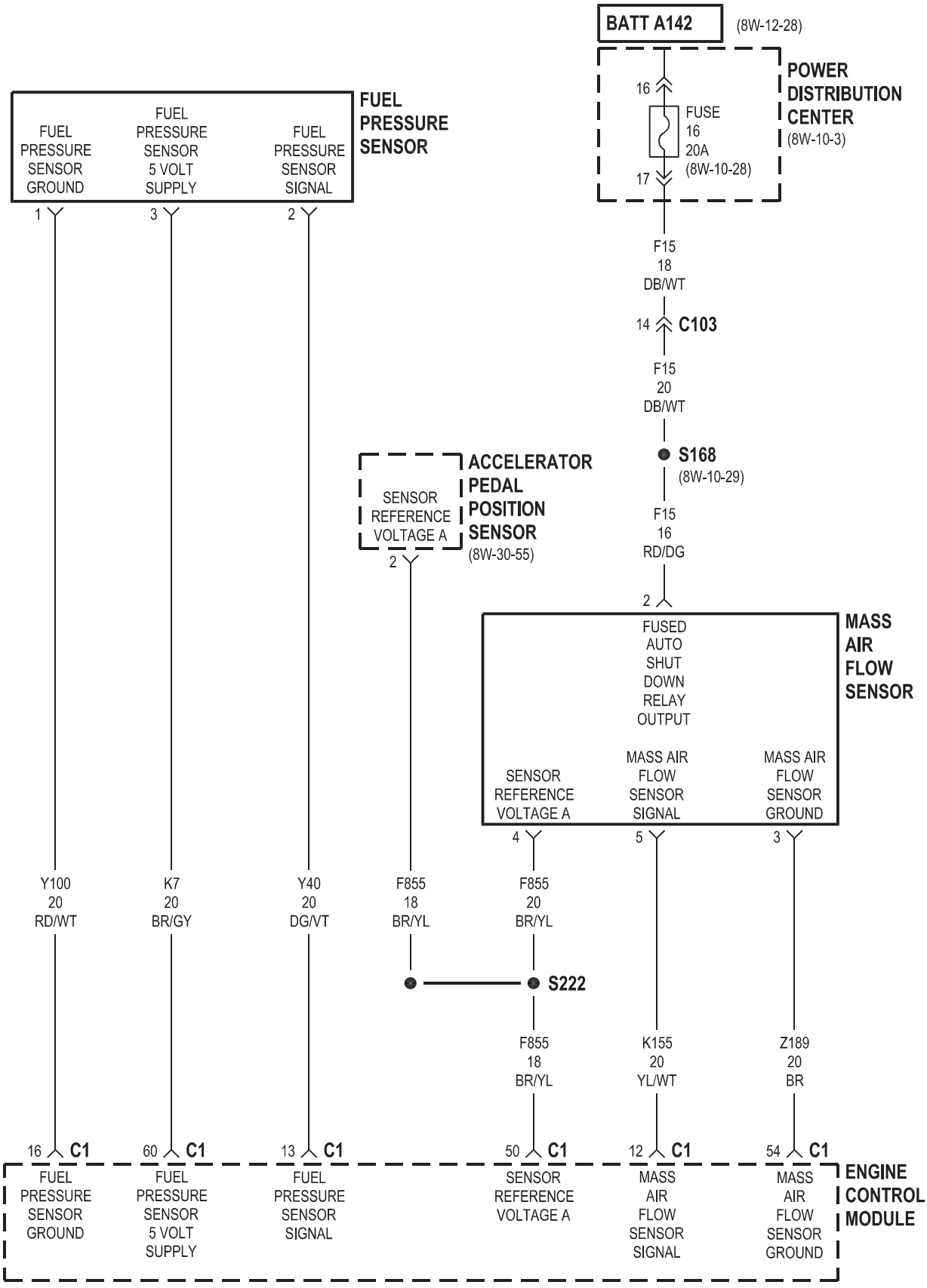
• 4.0L
•• 4.7L

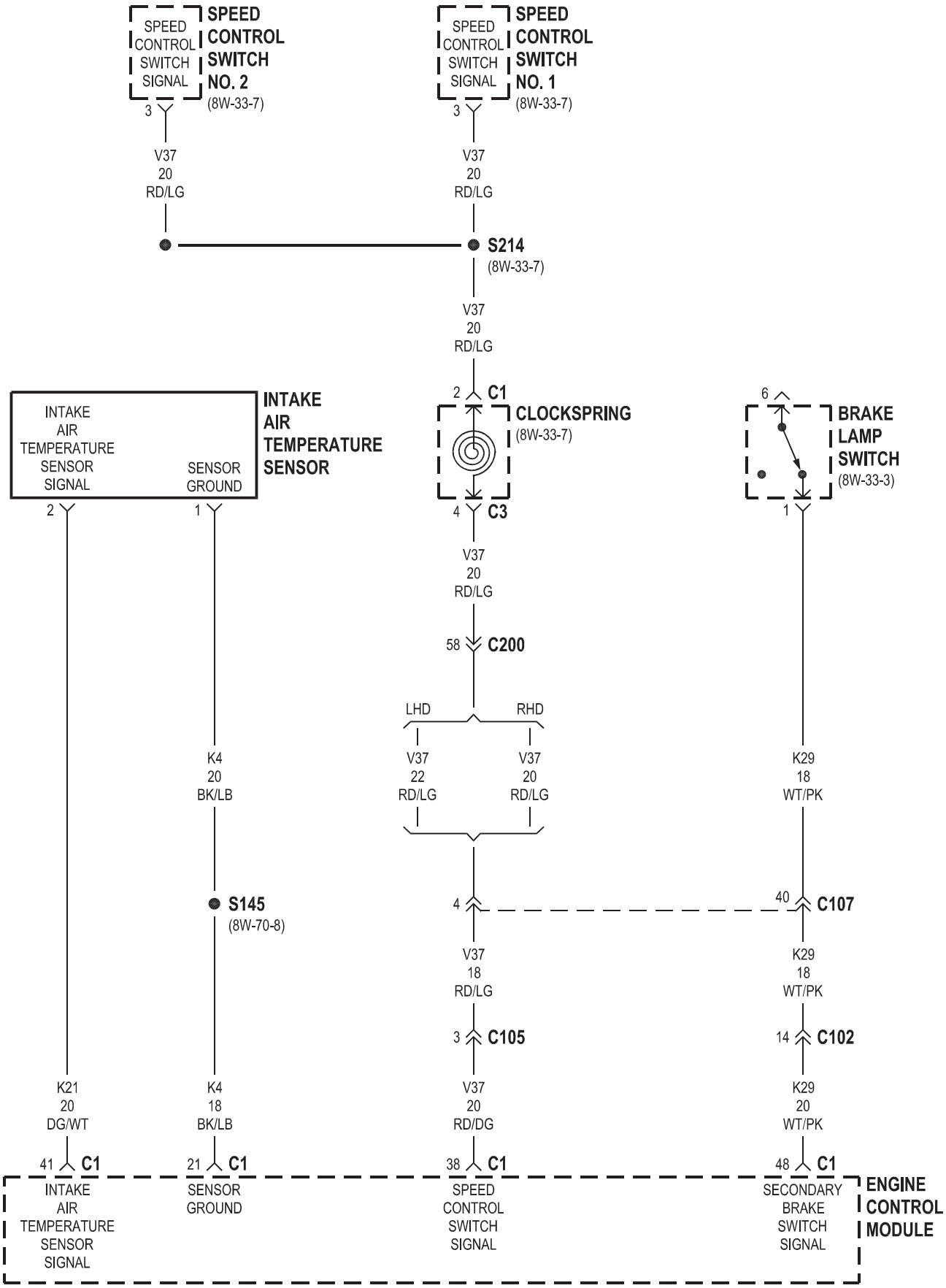

BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 10 20A
(8W-12-11)
31 C2
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-5)
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
L1 18 VT/BK
6 C102
4.7L
6 C104
4.0L
ADJUSTABLE PEDALS SWITCH
0 OFF
1 FORWARD
2 REARWARD
F72 16 RD/YL
Y153 20 DB/RD
Y152 20 LG/OR
Y151 20 LG/BR
C200
56 C106
S328
(8W-51-8)
C316
Y153 16 DB/RD
WT/BR
FUSED B(+)
ADJUSTABLE PEDALS SWITCH FEED
ADJUSTABLE PEDALS SWITCH SENSE (REARWARD)
ADJUSTABLE PEDALS SWITCH SENSE (FORWARD)
BACK-UP LAMP FEED
ADJUSTABLE PEDALS MODULE
GROUND
GROUND
PCI BUS
PEDAL POSITION SENSOR FEED
PEDAL POSITION SENSOR SENSE
PEDAL POSITION SENSOR RETURN
ADJUSTABLE PEDALS MOTOR (REARWARD)
ADJUSTABLE PEDALS MOTOR (FORWARD)
Z151 16 BK
Z155 20 BK/OR
D25 20 VT/YL
Q113 20 OR/DB
Q112 20 OR/YL
Q114 20 OR/TN
Q111 16 OR/GY
Q110 16 OR/VT
C300
Z151 18 BK
Z155 18 BK/OR
D25 20 YL/VT
S312
(8W-18-7)
C200
D25 20 YL/VT/GY
S226
(8W-18-5)
ADJUSTABLE PEDALS MOTOR/ SENSOR ASSEMBLY
DATA LINK CONNECTOR
(8W-18-2)
S210
(8W-18-5)
S332
(8W-15-17)
S301
(8W-15-21)
Z151 14 BK
Z155 18 BK/OR
G300
(8W-15-17)
G301
(8W-15-21)

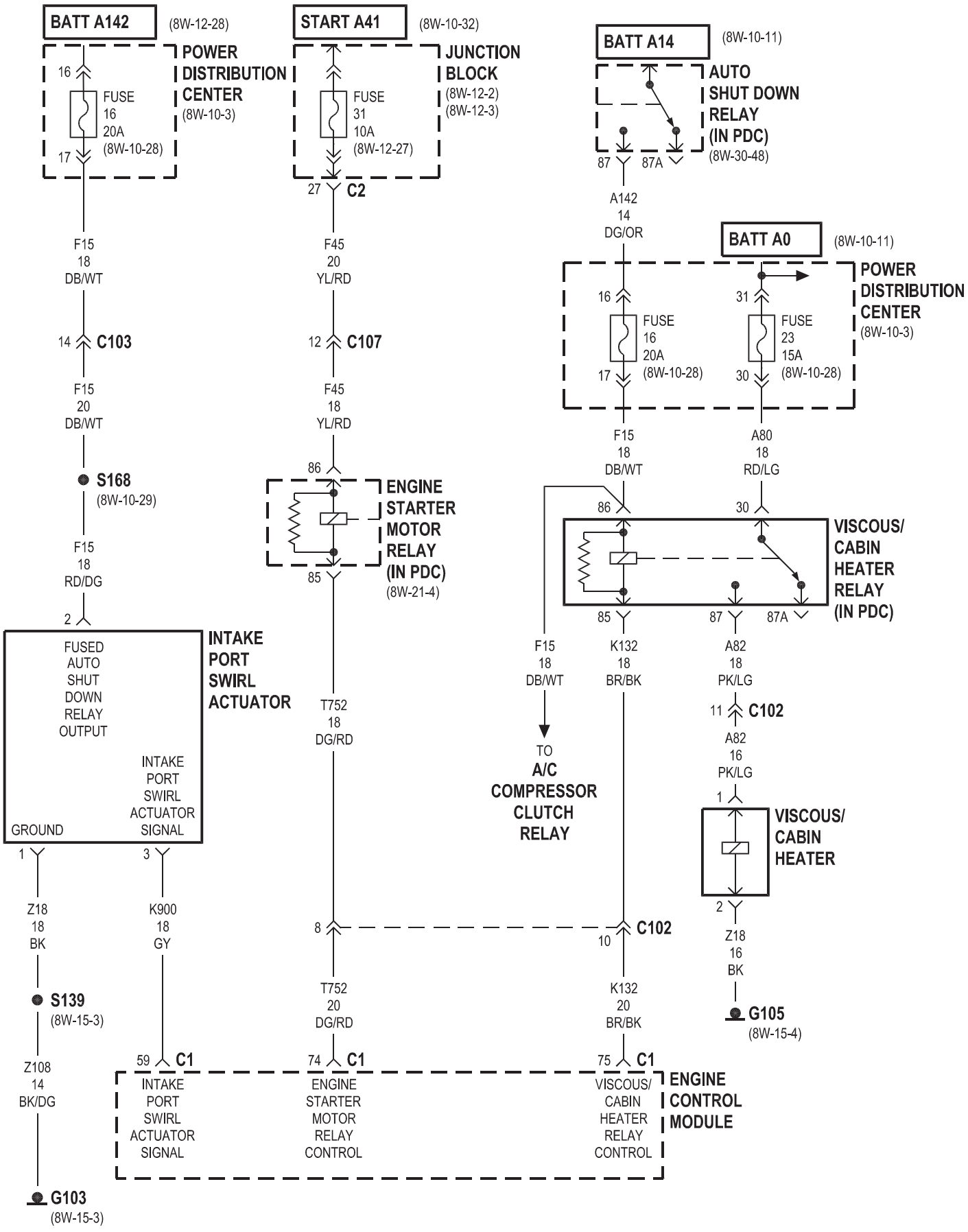

BATT A0
(8W-10-11)
POWER
DISTRIBUTION
CENTER
(8W-10-2)
(8W-10-3)
27
FUSE
22
10A
(8W-10-35)
28
F300
18
RD/BK
2 C105
F300
20
RD/BK
19 C1
BATTERY
SENSE (+)
ENGINE
CONTROL
MODULE
BATTERY
SENSE (-)
GROUND
GROUND
20 C1
1 C1
2 C1
Z108
14
BK/DG
Z108
14
BK/DG
S139
(8W-15-3)
Z11
20
BK/WT
Z108
12
BK/DG
G103
(8W-15-3)

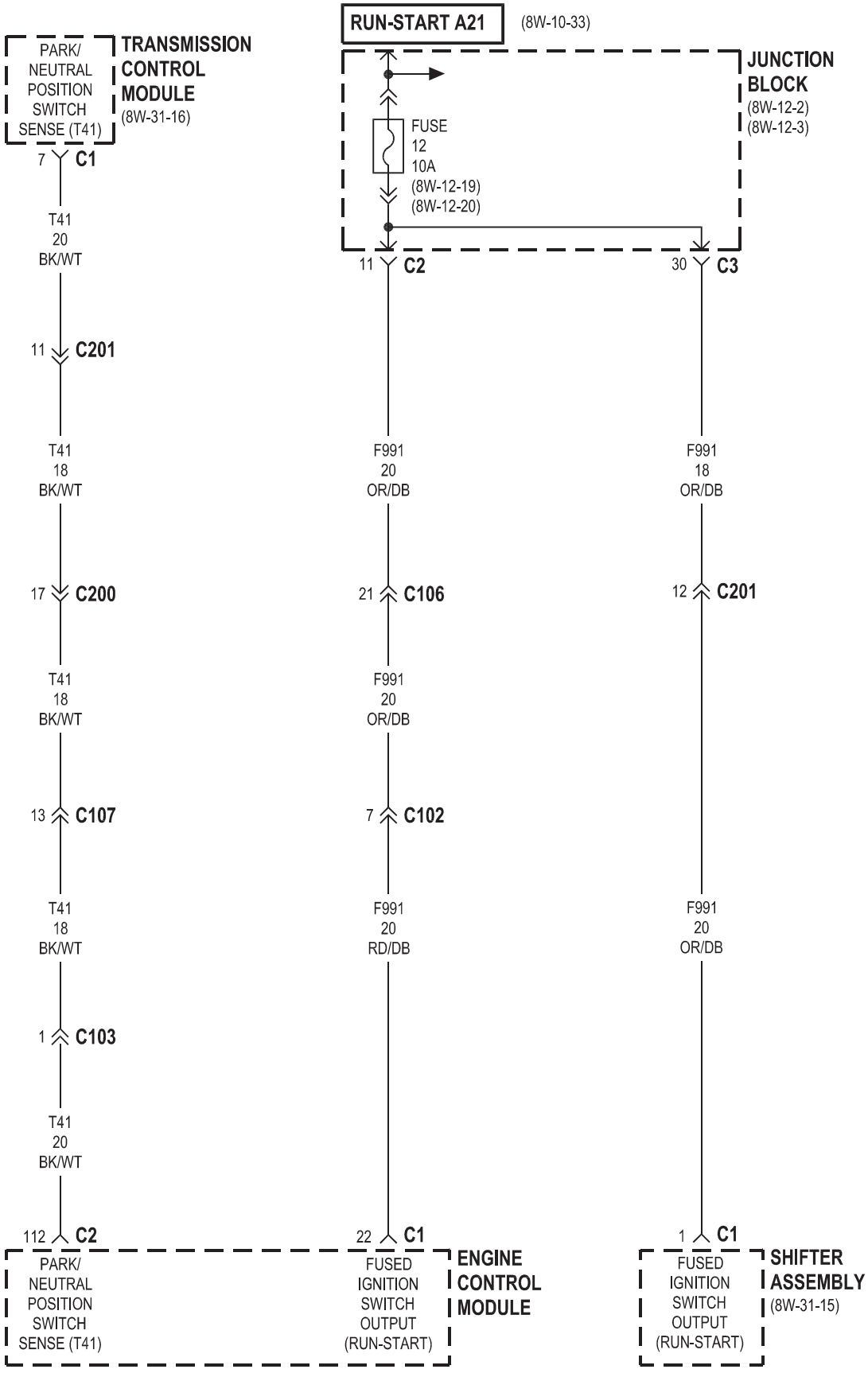

BATT A14
(8W-10-11)
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-48)
87
A142
14
DG/OR
WASTEGATE SOLENOID
WASTEGATE SOLENOID CONTROL
FUSED AUTO SHUT DOWN RELAY OUTPUT
2
1
F15
18
DB/WT
Y42
18
OR/DB
S162
(8W-10-30)
POWER DISTRIBUTION CENTER
(8W-10-3)
16
FUSE
16
20A
(8W-10-28)
17
F15
18
DB/WT
86
VISCOUS/ CABIN HEATER RELAY (IN PDC)
(8W-30-46)
85
14
C103
F15
20
DB/WT
20
1
C106
Y42
18
OR/DB
F15
20
DB/WT
A/C COMPRESSOR CLUTCH RELAY (IN PDC)
(8W-42-4)
S168
(8W-10-29)
F15
16
RD/DG
S176
(8W-10-29)
24
11
C107
GLOW PLUG RELAY NO. 1 (IN PDC)
(8W-30-49)
F15
16
DB/WT
1
GENERATOR
(8W-20-4)
FUSED AUTO SHUT DOWN RELAY OUTPUT
GENERATOR FIELD CONTROL
2
K20
14
DB
3
C1
8
C103
GLOW PLUG RELAY NO. 2 (IN PDC)
(8W-30-50)
Y42
20
OR/DB
76
C1
WASTEGATE SOLENOID CONTROL
ENGINE CONTROL MODULE
CRANKCASE HEATER
FUSED AUTO SHUT DOWN RELAY OUTPUT
GROUND
Z18
20
BR
G105
(8W-15-4)

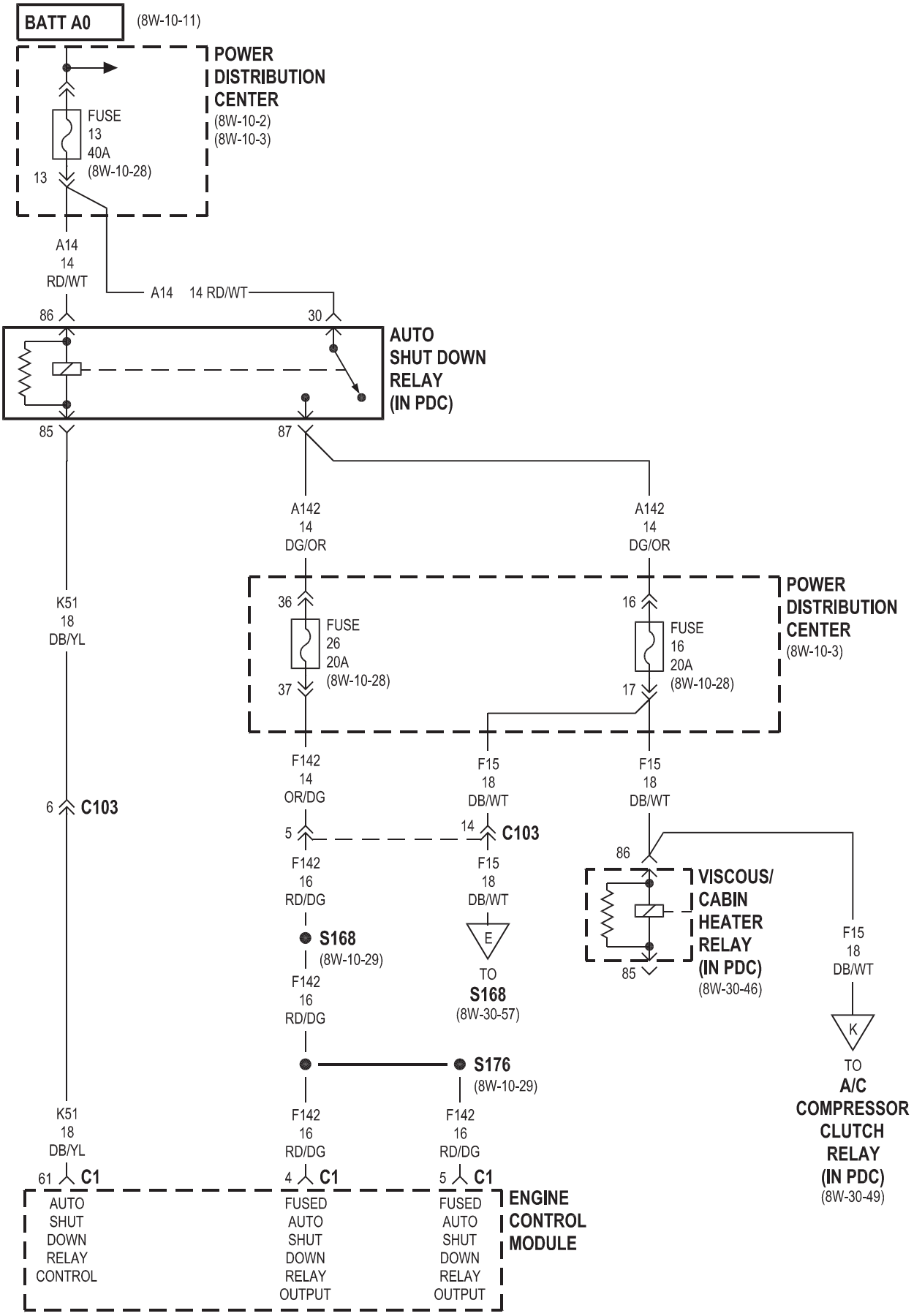

CONTROLLER ANTILOCK BRAKE
(8W-35-5)
CAN C BUS (-)
CAN C BUS (+)
14
11
D51 18 DG/WT
D52 18 LG/WT
5
4
C102
TRANSMISSION CONTROL MODULE
(8W-31-17)
CAN C BUS (-)
CAN C BUS (+)
L2
H1
C2
C2
D51 18 DG/WT
D52 18 LG/WT
2
1
C113
D51 16 WT
D51 16 WT
D52 16 DG/WT
D52 16 DG/WT
S172
S171
D51 18 WT
D52 18 DG/WT
25
6
C1
C1
CAN C BUS (-)
CAN C BUS (+)
ENGINE CONTROL MODULE

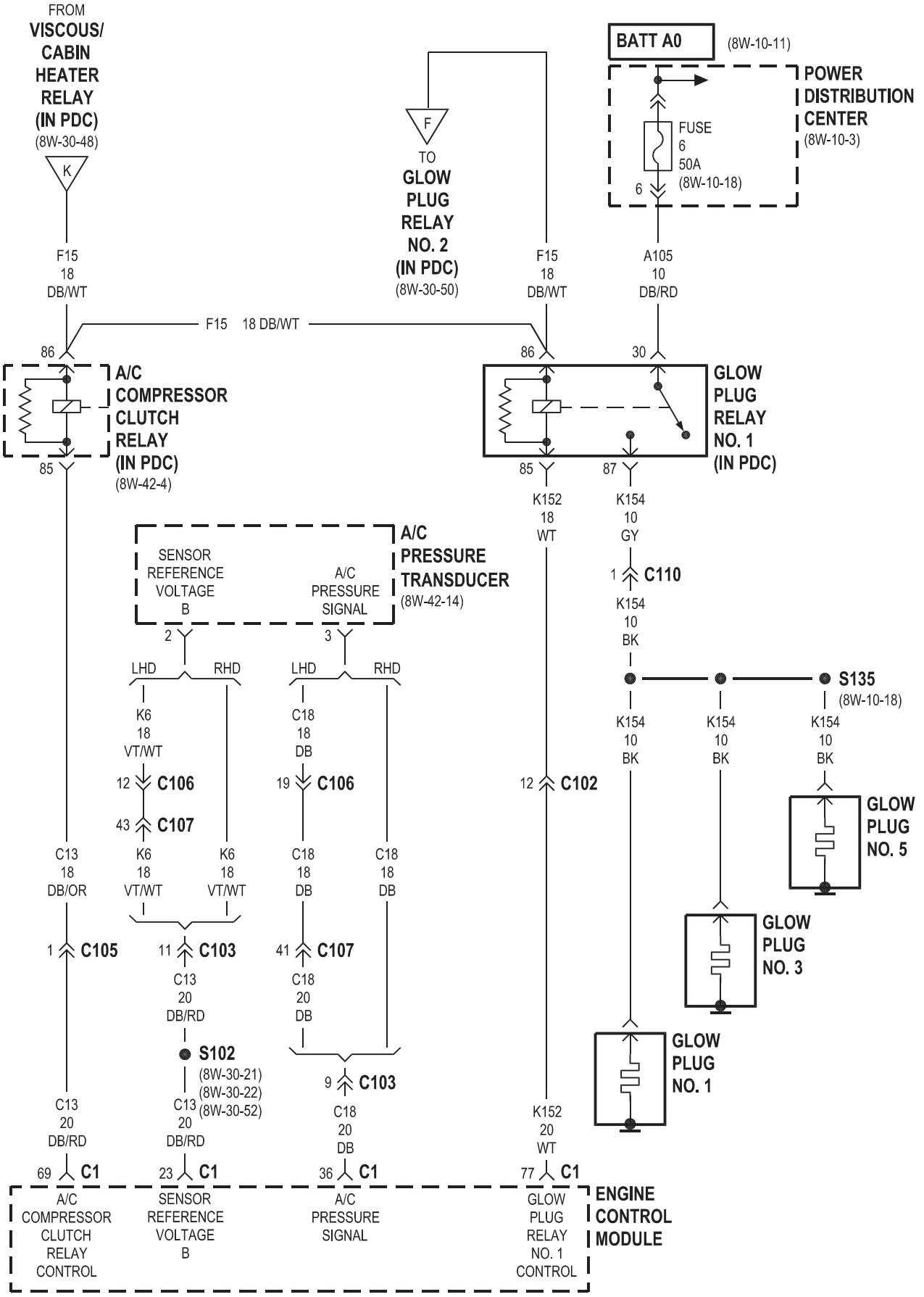

BATT A142
(8W-12-28)
POWER DISTRIBUTION CENTER
(8W-10-3)
16
FUSE 16 20A
(8W-10-28)
17
FUEL PRESSURE SENSOR
FUEL PRESSURE SENSOR GROUND
FUEL PRESSURE SENSOR 5 VOLT SUPPLY
FUEL PRESSURE SENSOR SIGNAL
1
3
2
F15 18 DB/WT
14 C103
F15 20 DB/WT
S168
(8W-10-29)
F15 16 RD/DG
2
ACCELERATOR PEDAL POSITION SENSOR
(8W-30-55)
SENSOR REFERENCE VOLTAGE A
2
MASS AIR FLOW SENSOR
FUSED AUTO SHUT DOWN RELAY OUTPUT
SENSOR REFERENCE VOLTAGE A
MASS AIR FLOW SENSOR SIGNAL
MASS AIR FLOW SENSOR GROUND
4
5
3
Y100 20 RD/WT
K7 20 BR/GY
Y40 20 DG/VT
F855 18 BR/YL
F855 20 BR/YL
S222
F855 18 BR/YL
K155 20 YL/WT
Z189 20 BR
16 C1
60 C1
13 C1
50 C1
12 C1
54 C1
ENGINE CONTROL MODULE
FUEL PRESSURE SENSOR GROUND
FUEL PRESSURE SENSOR 5 VOLT SUPPLY
FUEL PRESSURE SENSOR SIGNAL
SENSOR REFERENCE VOLTAGE A
MASS AIR FLOW SENSOR SIGNAL
MASS AIR FLOW SENSOR GROUND

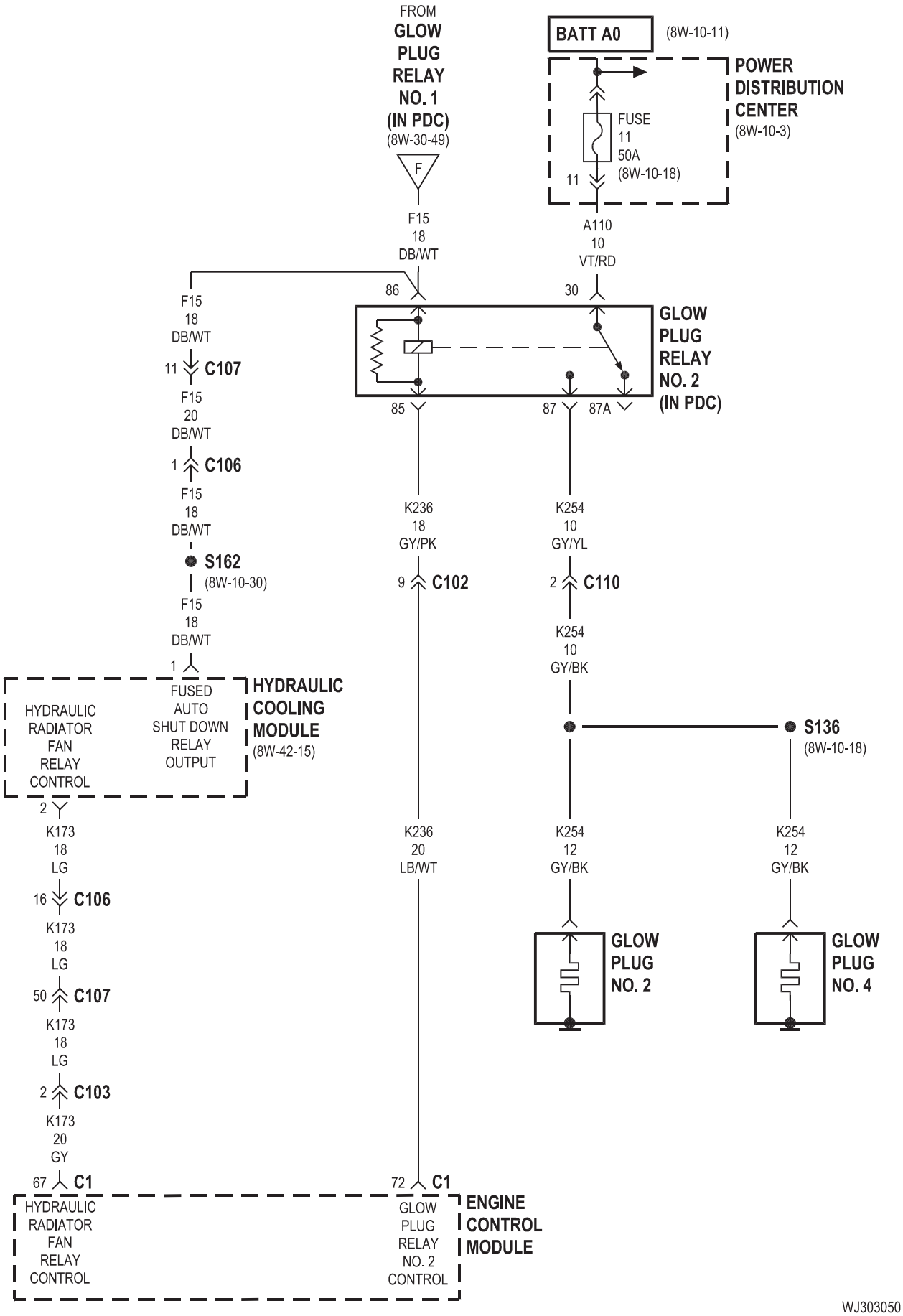

SPEED CONTROL SWITCH SIGNAL
SPEED CONTROL SWITCH NO. 2
(8W-33-7)
3
V37
20
RD/LG
SPEED CONTROL SWITCH SIGNAL
SPEED CONTROL SWITCH NO. 1
(8W-33-7)
3
V37
20
RD/LG
S214
(8W-33-7)
V37
20
RD/LG
2
C1
CLOCKSPRING
(8W-33-7)
4
C3
6
BRAKE LAMP SWITCH
(8W-33-3)
1
INTAKE AIR TEMPERATURE SENSOR SIGNAL
SENSOR GROUND
INTAKE AIR TEMPERATURE SENSOR
2
1
V37
20
RD/LG
58
C200
LHD
RHD
V37
22
RD/LG
V37
20
RD/LG
K4
20
BK/LB
K29
18
WT/PK
S145
(8W-70-8)
4
40
C107
V37
18
RD/LG
K29
18
WT/PK
3
C105
14
C102
K21
20
DG/WT
K4
18
BK/LB
V37
20
RD/DG
K29
20
WT/PK
41
C1
21
C1
38
C1
48
C1
INTAKE AIR TEMPERATURE SENSOR SIGNAL
SENSOR GROUND
SPEED CONTROL SWITCH SIGNAL
SECONDARY BRAKE SWITCH SIGNAL
ENGINE CONTROL MODULE

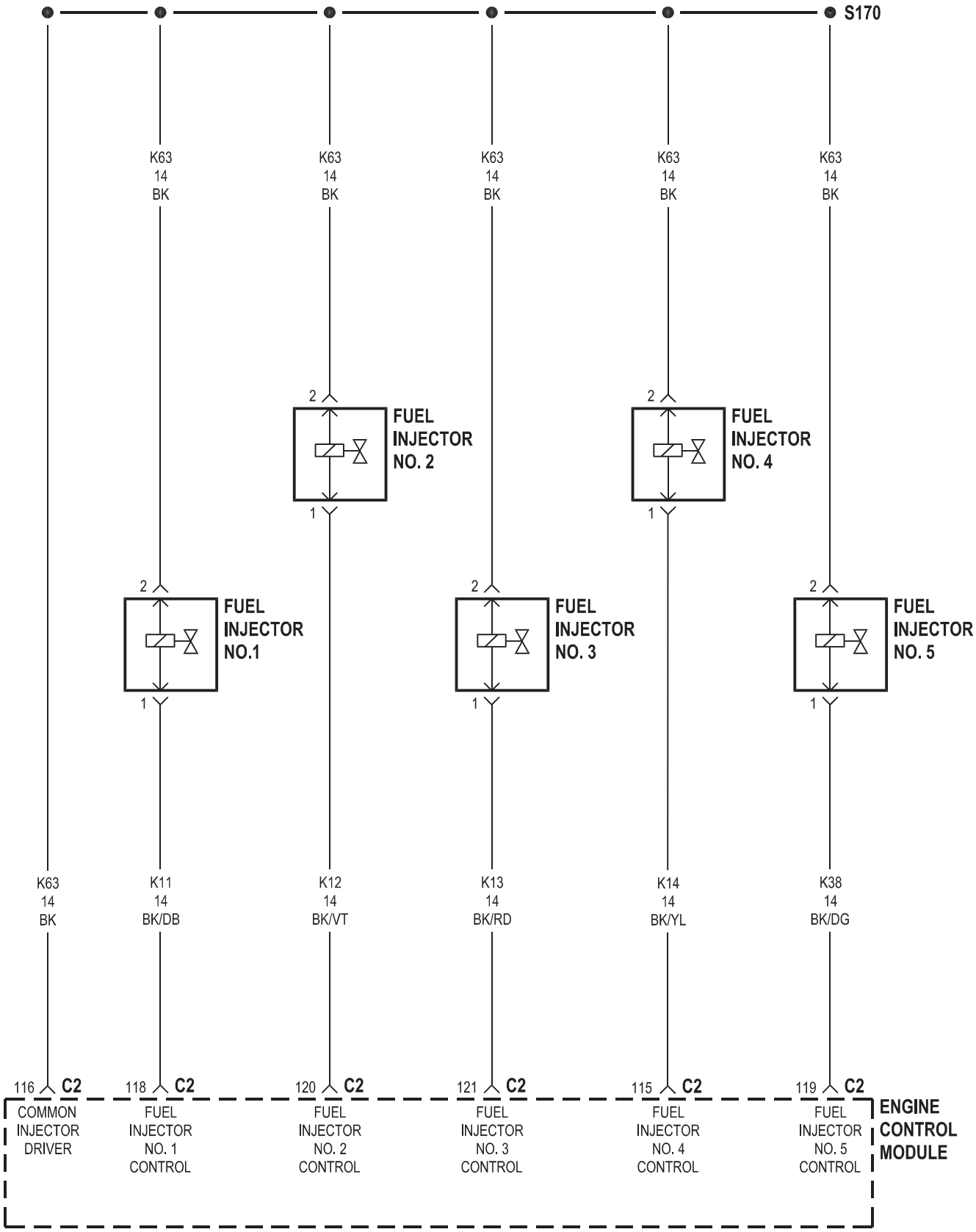

BATT A142
(8W-12-28)
START A41
(8W-10-32)
BATT A14
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-48)
FUSE 16 20A (8W-10-28)
FUSE 31 10A (8W-12-27)
16
17
27
C2
87
87A
A142 14 DG/OR
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
FUSE 16 20A (8W-10-28)
FUSE 23 15A (8W-10-28)
31
30
F15 18 DB/WT
F45 20 YL/RD
A80 18 RD/LG
14 C103
12 C107
F15 20 DB/WT
F45 18 YL/RD
S168
(8W-10-29)
86
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-4)
85
VISCOUS/ CABIN HEATER RELAY (IN PDC)
87
87A
F15 18 RD/DG
2
INTAKE PORT SWIRL ACTUATOR
FUSED AUTO SHUT DOWN RELAY OUTPUT
INTAKE PORT SWIRL ACTUATOR SIGNAL
GROUND
1
3
T752 18 DG/RD
F15 18 DB/WT
K132 18 BR/BK
A82 18 PK/LG
TO A/C COMPRESSOR CLUTCH RELAY
11 C102
A82 16 PK/LG
1
VISCOUS/ CABIN HEATER
2
Z18 18 BK
K900 18 GY
8
10 C102
Z18 16 BK
S139
(8W-15-3)
T752 20 DG/RD
K132 20 BR/BK
G105
(8W-15-4)
59 C1
74 C1
75 C1
ENGINE CONTROL MODULE
INTAKE PORT SWIRL ACTUATOR SIGNAL
ENGINE STARTER MOTOR RELAY CONTROL
VISCOUS/ CABIN HEATER RELAY CONTROL
Z108 14 BK/DG
G103
(8W-15-3)

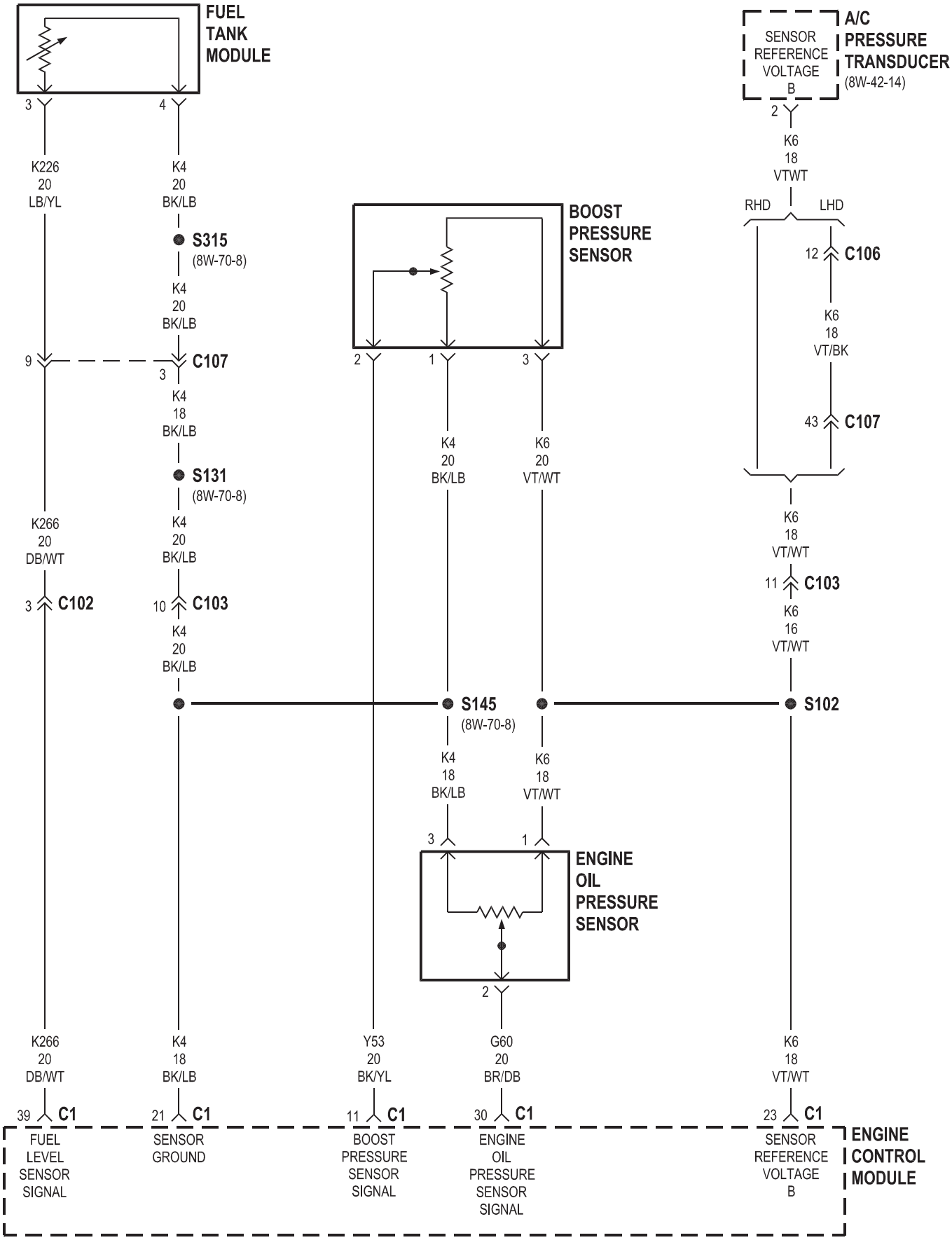

RUN-START A21
(8W-10-33)
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
TRANSMISSION CONTROL MODULE
(8W-31-16)
7 C1
T41 20 BK/WT
11 C201
T41 18 BK/WT
17 C200
T41 18 BK/WT
13 C107
T41 18 BK/WT
1 C103
T41 20 BK/WT
112 C2
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
FUSE 12 10A
(8W-12-19)
(8W-12-20)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
11 C2
30 C3
F991 20 OR/DB
21 C106
F991 20 OR/DB
7 C102
F991 20 RD/DB
22 C1
FUSED IGNITION SWITCH OUTPUT (RUN-START)
ENGINE CONTROL MODULE
F991 18 OR/DB
12 C201
F991 20 OR/DB
1 C1
FUSED IGNITION SWITCH OUTPUT (RUN-START)
SHIFTER ASSEMBLY
(8W-31-15)

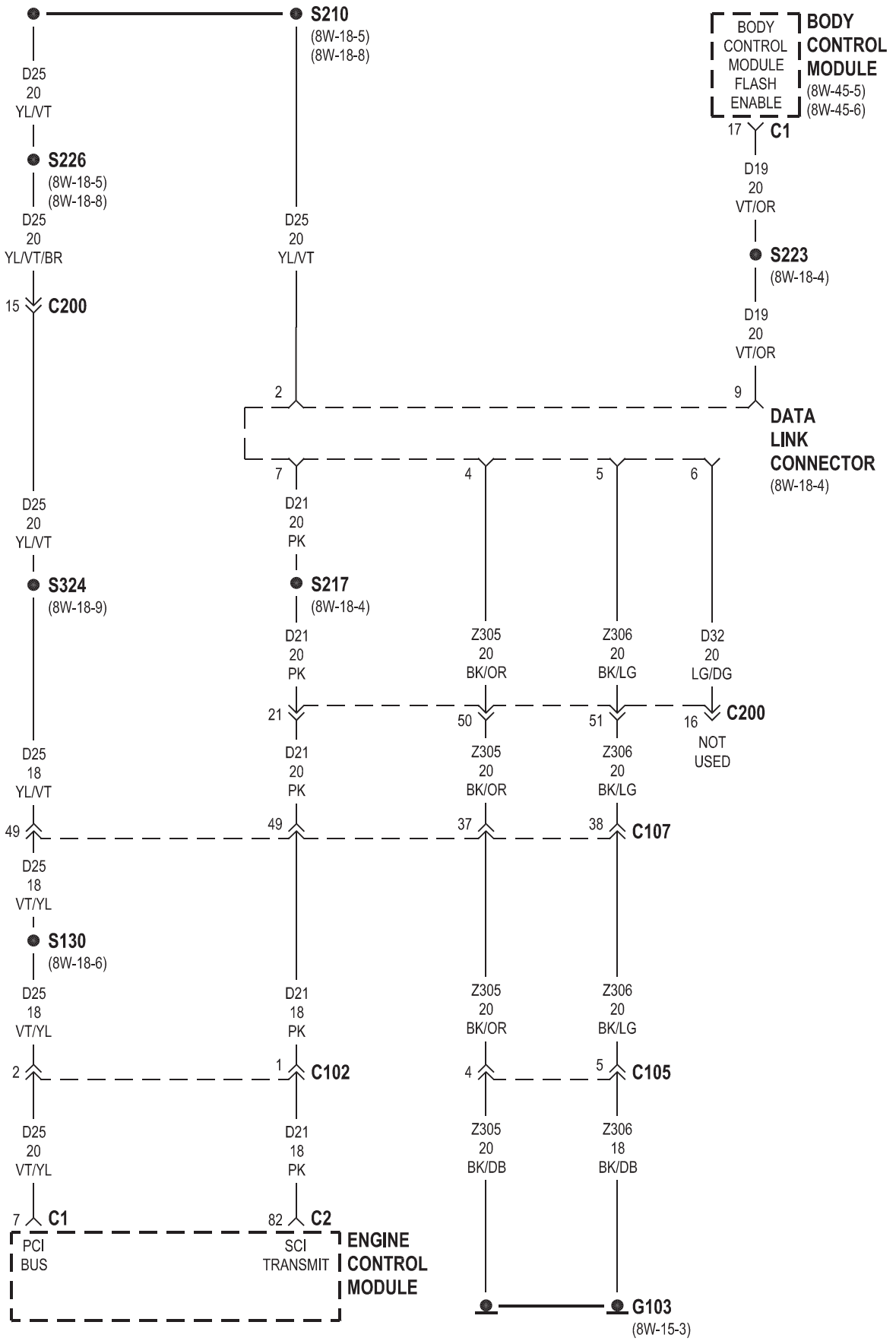

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 13 40A
(8W-10-28)
13
A14 14 RD/WT
A14 14 RD/WT
86
30
AUTO SHUT DOWN RELAY (IN PDC)
85
87
A142 14 DG/OR
A142 14 DG/OR
POWER DISTRIBUTION CENTER
(8W-10-3)
36
FUSE 26 20A
(8W-10-28)
37
16
FUSE 16 20A
(8W-10-28)
17
K51 18 DB/YL
6 C103
F142 14 OR/DG
5
F15 18 DB/WT
14 C103
F142 16 RD/DG
S168
(8W-10-29)
F142 16 RD/DG
F15 18 DB/WT
E
TO S168
(8W-30-57)
S176
(8W-10-29)
F142 16 RD/DG
F15 18 DB/WT
86
VISCOUS/ CABIN HEATER RELAY (IN PDC)
(8W-30-46)
85
F15 18 DB/WT
K
TO A/C COMPRESSOR CLUTCH RELAY (IN PDC)
(8W-30-49)
K51 18 DB/YL
61 C1
AUTO SHUT DOWN RELAY CONTROL
F142 16 RD/DG
4 C1
FUSED AUTO SHUT DOWN RELAY OUTPUT
F142 16 RD/DG
5 C1
FUSED AUTO SHUT DOWN RELAY OUTPUT
ENGINE CONTROL MODULE

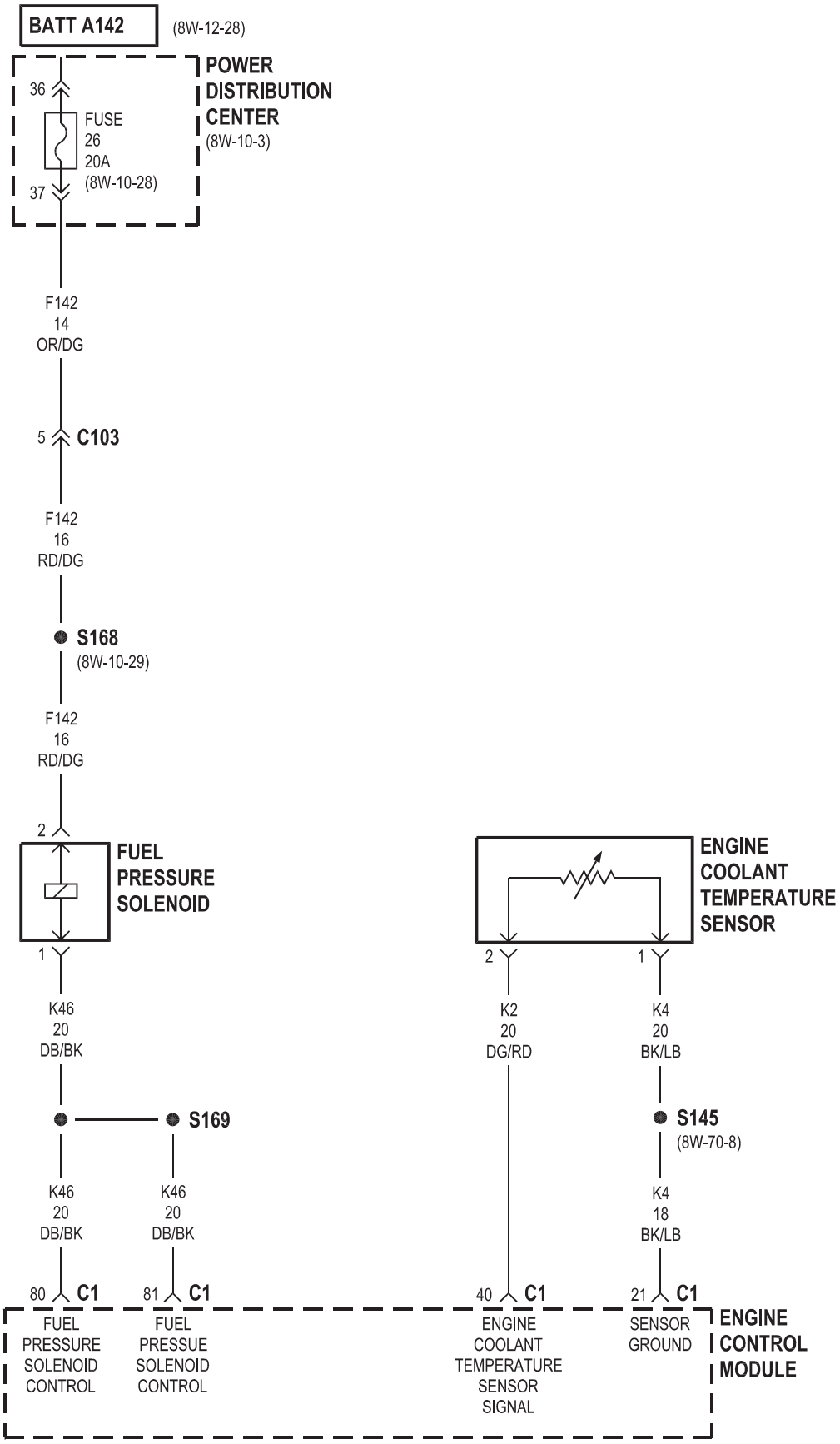

FROM
VISCOUS/
CABIN
HEATER
RELAY
(IN PDC)
(8W-30-48)
K
F15
18
DB/WT
F15 18 DB/WT
86
85
A/C
COMPRESSOR
CLUTCH
RELAY
(IN PDC)
(8W-42-4)
C13
18
DB/OR
1 C105
C13
20
DB/RD
69 C1
A/C
COMPRESSOR
CLUTCH
RELAY
CONTROL
F
TO
GLOW
PLUG
RELAY
NO. 2
(IN PDC)
(8W-30-50)
F15
18
DB/WT
BATT A0
(8W-10-11)
POWER
DISTRIBUTION
CENTER
(8W-10-3)
FUSE
6
50A
(8W-10-18)
6
A105
10
DB/RD
30
86
85
87
GLOW
PLUG
RELAY
NO. 1
(IN PDC)
K152
18
WT
K154
10
GY
1 C110
K154
10
BK
S135
(8W-10-18)
K154
10
BK
K154
10
BK
K154
10
BK
12 C102
K152
20
WT
77 C1
GLOW
PLUG
NO. 5
GLOW
PLUG
NO. 3
GLOW
PLUG
NO. 1
A/C
PRESSURE
TRANSDUCER
(8W-42-14)
SENSOR
REFERENCE
VOLTAGE
B
A/C
PRESSURE
SIGNAL
2
3
LHD
RHD
LHD
RHD
K6
18
VT/WT
12 C106
43 C107
K6
18
VT/WT
K6
18
VT/WT
11 C103
C13
20
DB/RD
S102
(8W-30-21)
(8W-30-22)
(8W-30-52)
C13
20
DB/RD
23 C1
SENSOR
REFERENCE
VOLTAGE
B
C18
18
DB
19 C106
C18
18
DB
C18
18
DB
41 C107
C18
20
DB
9 C103
C18
20
DB
36 C1
A/C
PRESSURE
SIGNAL
ENGINE
CONTROL
MODULE
GLOW
PLUG
RELAY
NO. 1
CONTROL

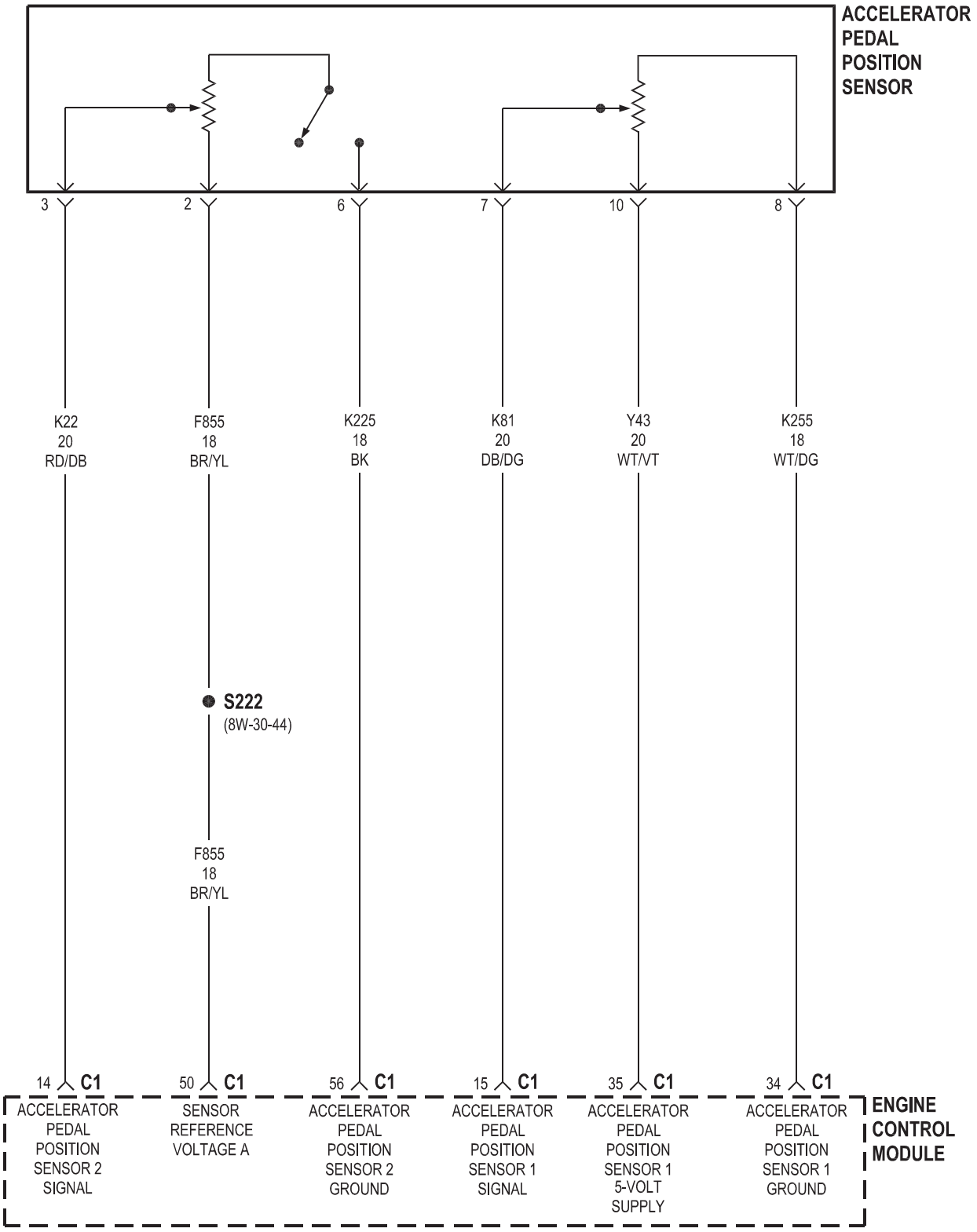

FROM GLOW PLUG RELAY NO. 1 (IN PDC) (8W-30-49)
F
F15 18 DB/WT
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
FUSE 11 50A
(8W-10-18)
11
A110 10 VT/RD
86
30
GLOW PLUG RELAY NO. 2 (IN PDC)
85
87
87A
F15 18 DB/WT
11 C107
F15 20 DB/WT
1 C106
F15 18 DB/WT
S162
(8W-10-30)
F15 18 DB/WT
1
K236 18 GY/PK
9 C102
K254 10 GY/YL
2 C110
K254 10 GY/BK
S136
(8W-10-18)
HYDRAULIC COOLING MODULE
(8W-42-15)
HYDRAULIC RADIATOR FAN RELAY CONTROL
FUSED AUTO SHUT DOWN RELAY OUTPUT
2
K173 18 LG
16 C106
K173 18 LG
50 C107
K173 18 LG
2 C103
K173 20 GY
67 C1
K236 20 LB/WT
K254 12 GY/BK
K254 12 GY/BK
GLOW PLUG NO. 2
GLOW PLUG NO. 4
72 C1
ENGINE CONTROL MODULE
HYDRAULIC RADIATOR FAN RELAY CONTROL
GLOW PLUG RELAY NO. 2 CONTROL

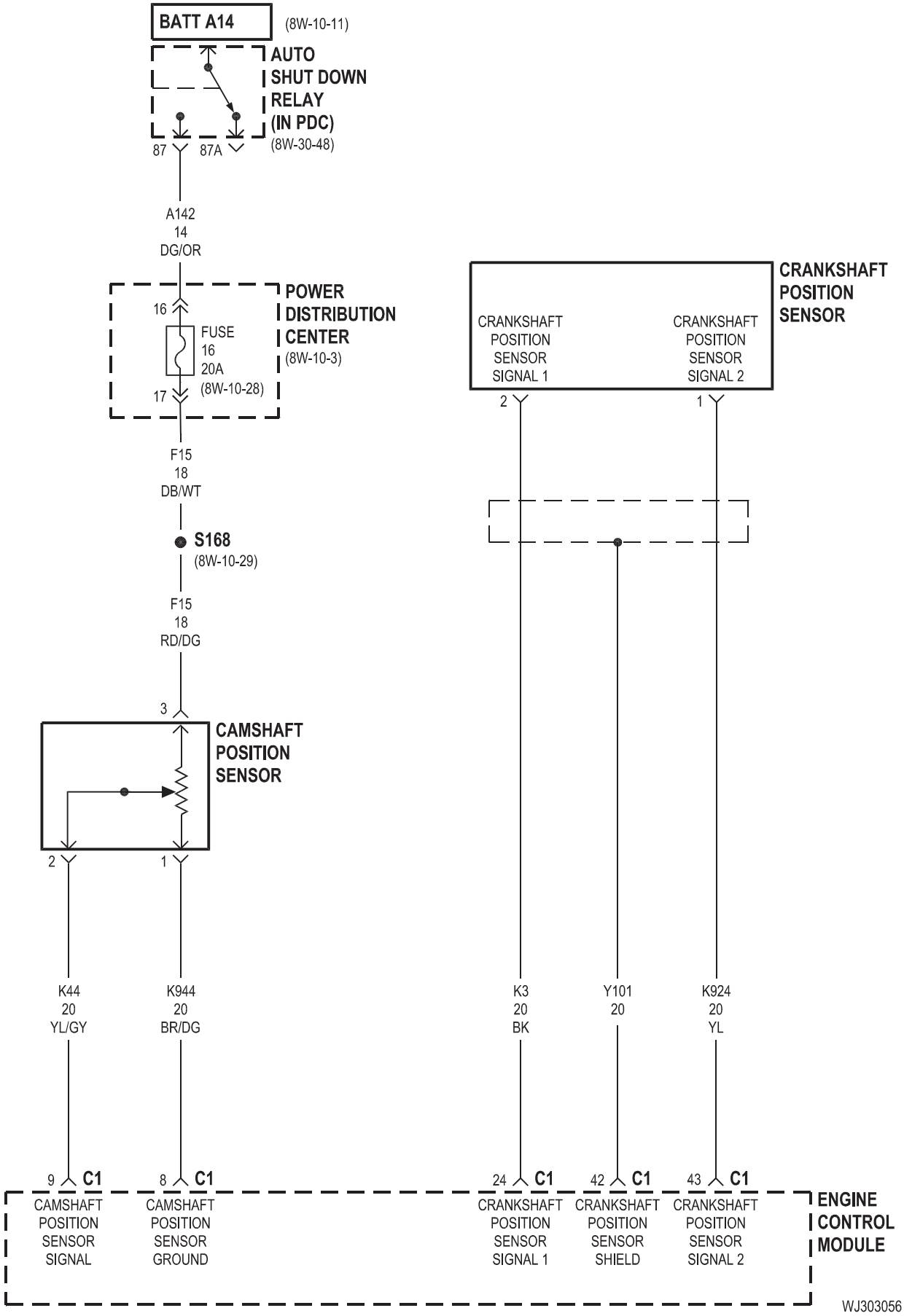

S170
K63
14
BK
K63
14
BK
K63
14
BK
K63
14
BK
K63
14
BK
2
FUEL
INJECTOR
NO. 2
1
2
FUEL
INJECTOR
NO. 4
1
2
FUEL
INJECTOR
NO.1
1
2
FUEL
INJECTOR
NO. 3
1
2
FUEL
INJECTOR
NO. 5
1
K63
14
BK
K11
14
BK/DB
K12
14
BK/VT
K13
14
BK/RD
K14
14
BK/YL
K38
14
BK/DG
116 C2
COMMON
INJECTOR
DRIVER
118 C2
FUEL
INJECTOR
NO. 1
CONTROL
120 C2
FUEL
INJECTOR
NO. 2
CONTROL
121 C2
FUEL
INJECTOR
NO. 3
CONTROL
115 C2
FUEL
INJECTOR
NO. 4
CONTROL
119 C2
FUEL
INJECTOR
NO. 5
CONTROL
ENGINE
CONTROL
MODULE

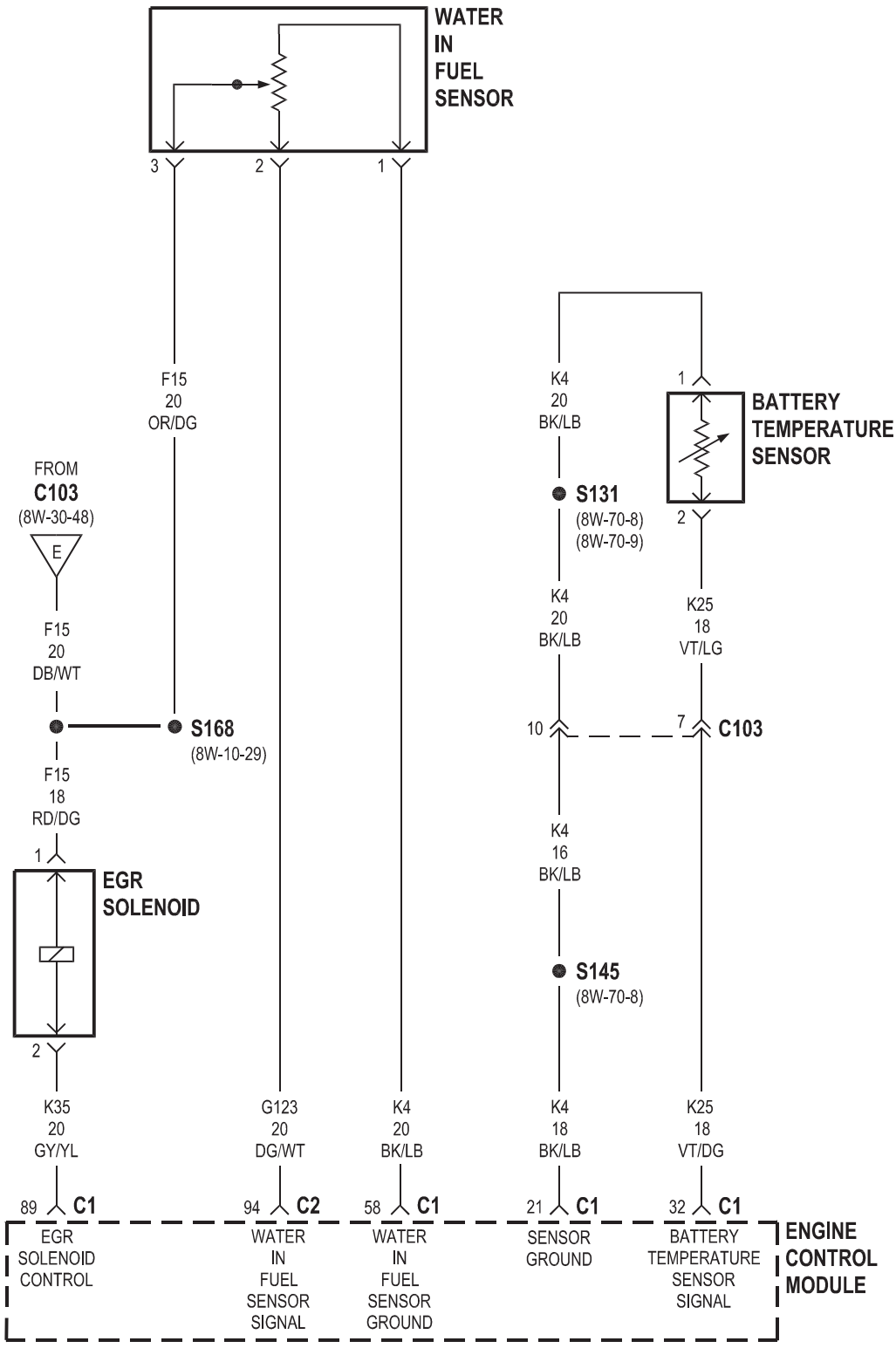

FUEL TANK MODULE
3
4
K226 20 LB/YL
K4 20 BK/LB
S315 (8W-70-8)
K4 20 BK/LB
9
C107
3
K4 18 BK/LB
S131 (8W-70-8)
K4 20 BK/LB
K266 20 DB/WT
3 C102
10 C103
K4 20 BK/LB
BOOST PRESSURE SENSOR
2
1
3
K4 20 BK/LB
K6 20 VT/WT
S145 (8W-70-8)
K4 18 BK/LB
K6 18 VT/WT
3
1
ENGINE OIL PRESSURE SENSOR
2
A/C PRESSURE TRANSDUCER (8W-42-14)
SENSOR REFERENCE VOLTAGE B
2
K6 18 VTWT
RHD
LHD
12 C106
K6 18 VT/BK
43 C107
K6 18 VT/WT
11 C103
K6 16 VT/WT
S102
K266 20 DB/WT
K4 18 BK/LB
Y53 20 BK/YL
G60 20 BR/DB
K6 18 VT/WT
39 C1
21 C1
11 C1
30 C1
23 C1
FUEL LEVEL SENSOR SIGNAL
SENSOR GROUND
BOOST PRESSURE SENSOR SIGNAL
ENGINE OIL PRESSURE SENSOR SIGNAL
SENSOR REFERENCE VOLTAGE B
ENGINE CONTROL MODULE

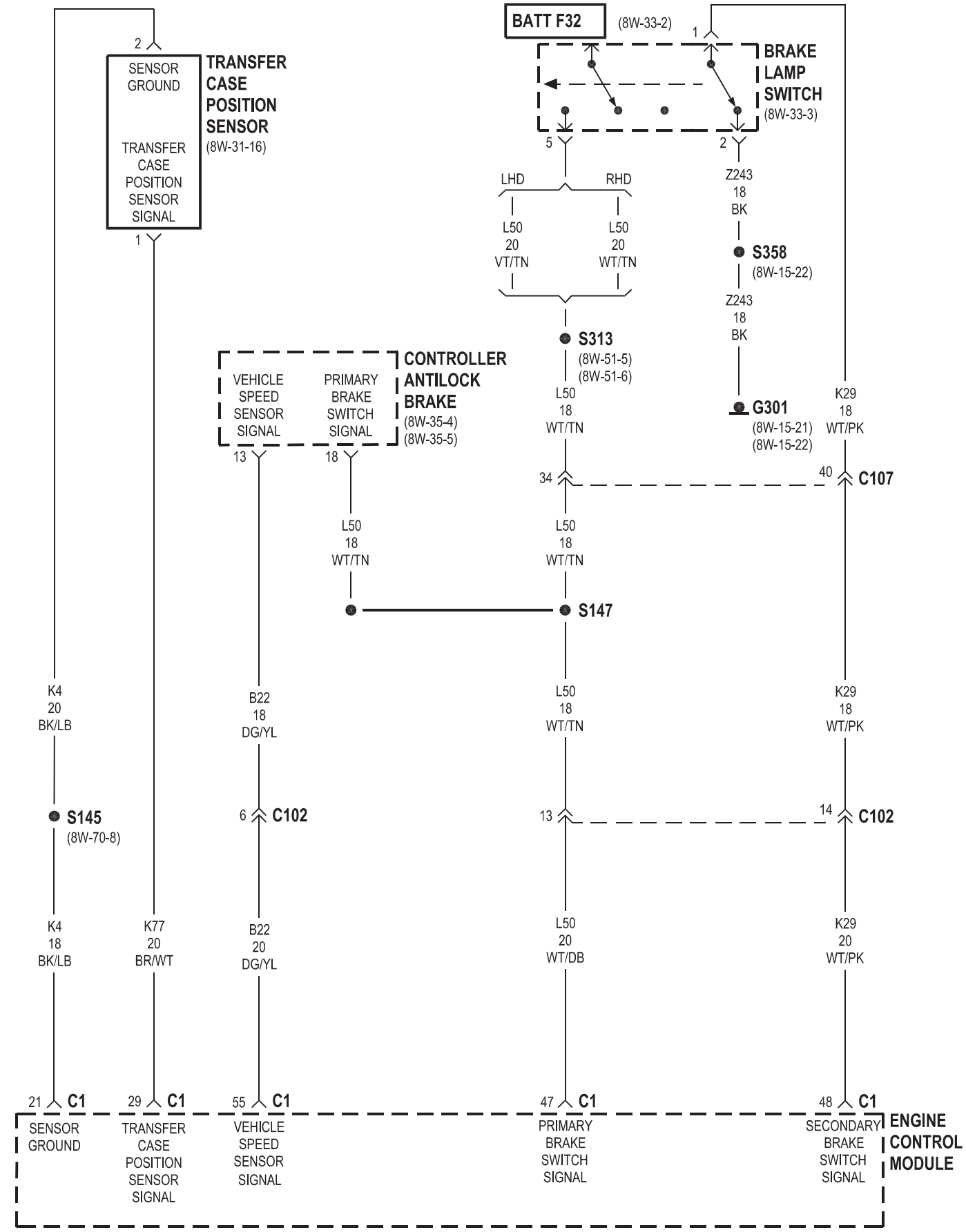

S210
(8W-18-5)
(8W-18-8)
BODY CONTROL MODULE FLASH ENABLE
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
17 C1
D25 20 YL/VT
S226
(8W-18-5)
(8W-18-8)
D25 20 YL/VT/BR
15 C200
D25 20 YL/VT
D19 20 VT/OR
S223
(8W-18-4)
D19 20 VT/OR
2
9
DATA LINK CONNECTOR
(8W-18-4)
7
4
5
6
D25 20 YL/VT
D21 20 PK
S324
(8W-18-9)
S217
(8W-18-4)
D21 20 PK
Z305 20 BK/OR
Z306 20 BK/LG
D32 20 LG/DG
21
50
51
16 C200
NOT USED
D25 18 YL/VT
D21 20 PK
Z305 20 BK/OR
Z306 20 BK/LG
49
49
37
38 C107
D25 18 VT/YL
S130
(8W-18-6)
D25 18 VT/YL
D21 18 PK
Z305 20 BK/OR
Z306 20 BK/LG
2
1 C102
4
5 C105
D25 20 VT/YL
D21 18 PK
Z305 20 BK/DB
Z306 18 BK/DB
7 C1
82 C2
PCI BUS
SCI TRANSMIT
ENGINE CONTROL MODULE
G103
(8W-15-3)


BATT A142
(8W-12-28)
POWER DISTRIBUTION CENTER
(8W-10-3)
36
FUSE 26 20A
(8W-10-28)
37
F142 14 OR/DG
5 C103
F142 16 RD/DG
S168
(8W-10-29)
F142 16 RD/DG
2
FUEL PRESSURE SOLENOID
1
K46 20 DB/BK
S169
K46 20 DB/BK
K46 20 DB/BK
80 C1
81 C1
FUEL PRESSURE SOLENOID CONTROL
FUEL PRESSUE SOLENOID CONTROL
ENGINE COOLANT TEMPERATURE SENSOR
2
1
K2 20 DG/RD
K4 20 BK/LB
S145
(8W-70-8)
K4 18 BK/LB
40 C1
21 C1
ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
SENSOR GROUND
ENGINE CONTROL MODULE


ACCELERATOR PEDAL POSITION SENSOR
3
2
6
7
10
8
K22
20
RD/DB
F855
18
BR/YL
K225
18
BK
K81
20
DB/DG
Y43
20
WT/VT
K255
18
WT/DG
S222
(8W-30-44)
F855
18
BR/YL
14 C1
50 C1
56 C1
15 C1
35 C1
34 C1
ACCELERATOR PEDAL POSITION SENSOR 2 SIGNAL
SENSOR REFERENCE VOLTAGE A
ACCELERATOR PEDAL POSITION SENSOR 2 GROUND
ACCELERATOR PEDAL POSITION SENSOR 1 SIGNAL
ACCELERATOR PEDAL POSITION SENSOR 1 5-VOLT SUPPLY
ACCELERATOR PEDAL POSITION SENSOR 1 GROUND
ENGINE CONTROL MODULE


BATT A14
(8W-10-11)
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-48)
87
87A
A142
14
DG/OR
POWER DISTRIBUTION CENTER
(8W-10-3)
16
FUSE 16 20A
(8W-10-28)
17
F15
18
DB/WT
S168
(8W-10-29)
F15
18
RD/DG
3
CAMSHAFT POSITION SENSOR
2
1
CRANKSHAFT POSITION SENSOR
CRANKSHAFT POSITION SENSOR SIGNAL 1
CRANKSHAFT POSITION SENSOR SIGNAL 2
2
1
K44
20
YL/GY
K944
20
BR/DG
K3
20
BK
Y101
20
K924
20
YL
9 C1
8 C1
24 C1
42 C1
43 C1
CAMSHAFT POSITION SENSOR SIGNAL
CAMSHAFT POSITION SENSOR GROUND
CRANKSHAFT POSITION SENSOR SIGNAL 1
CRANKSHAFT POSITION SENSOR SHIELD
CRANKSHAFT POSITION SENSOR SIGNAL 2
ENGINE CONTROL MODULE

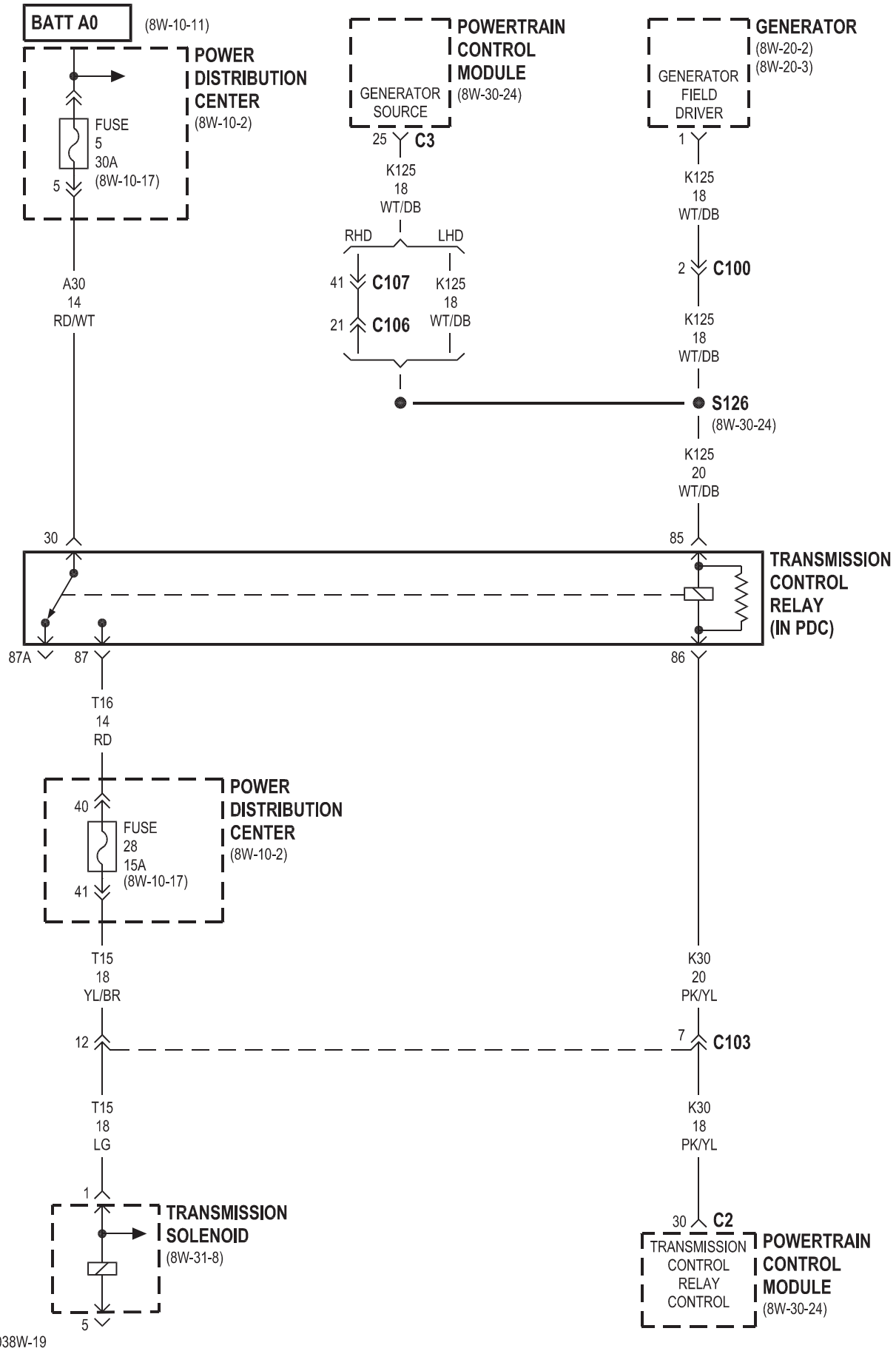

WATER IN FUEL SENSOR
3
2
1
F15
20
OR/DG
FROM
C103
(8W-30-48)
E
F15
20
DB/WT
S168
(8W-10-29)
F15
18
RD/DG
1
EGR SOLENOID
2
K35
20
GY/YL
89
C1
EGR SOLENOID CONTROL
G123
20
DG/WT
94
C2
WATER IN FUEL SENSOR SIGNAL
K4
20
BK/LB
58
C1
WATER IN FUEL SENSOR GROUND
K4
20
BK/LB
S131
(8W-70-8)
(8W-70-9)
K4
16
BK/LB
S145
(8W-70-8)
K4
18
BK/LB
21
C1
SENSOR GROUND
1
BATTERY TEMPERATURE SENSOR
2
K25
18
VT/LG
10
7
C103
K25
18
VT/DG
32
C1
BATTERY TEMPERATURE SENSOR SIGNAL
ENGINE CONTROL MODULE



J038W-19 WJ303058

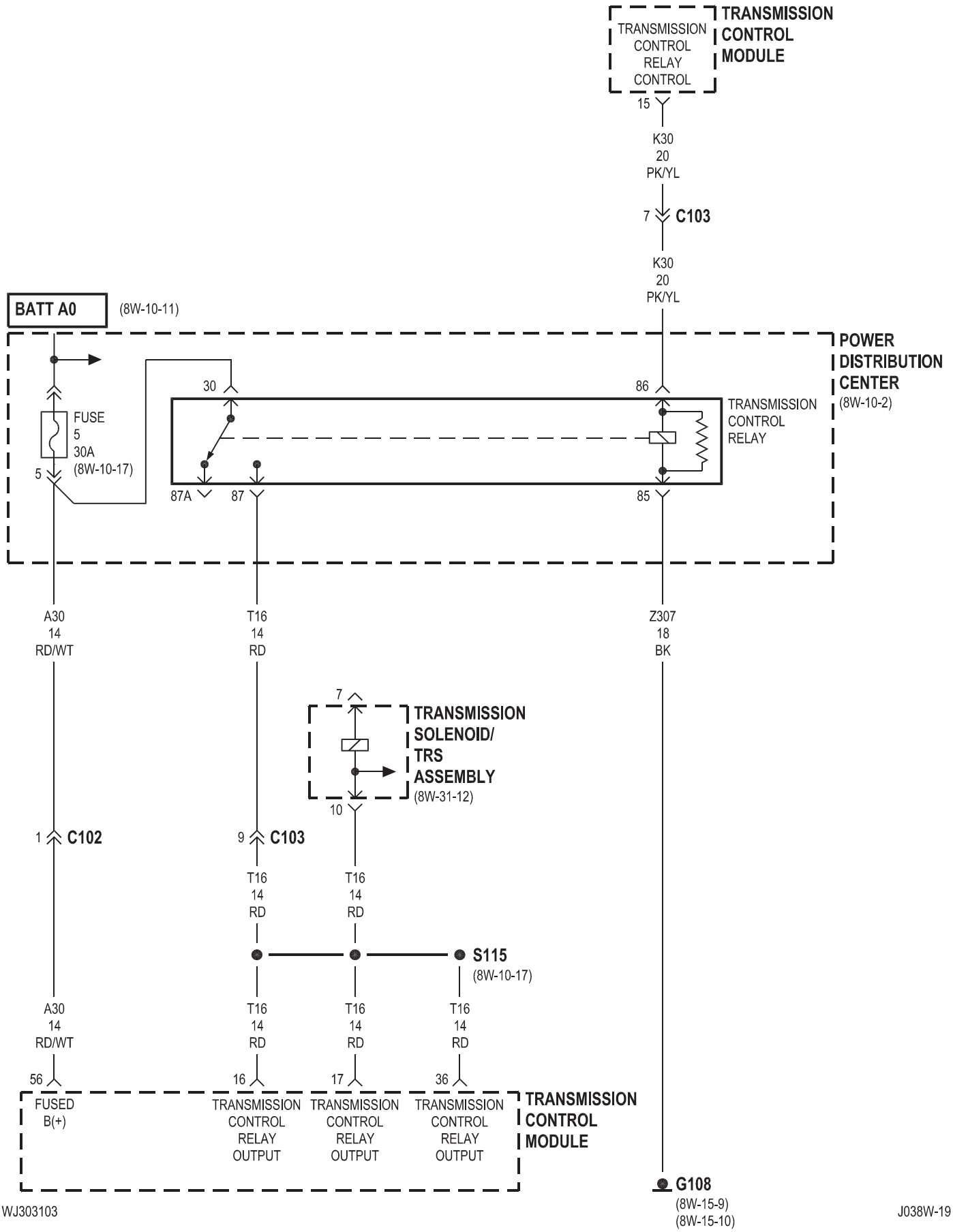
8W-31 TRANSMISSION CONTROL SYSTEM

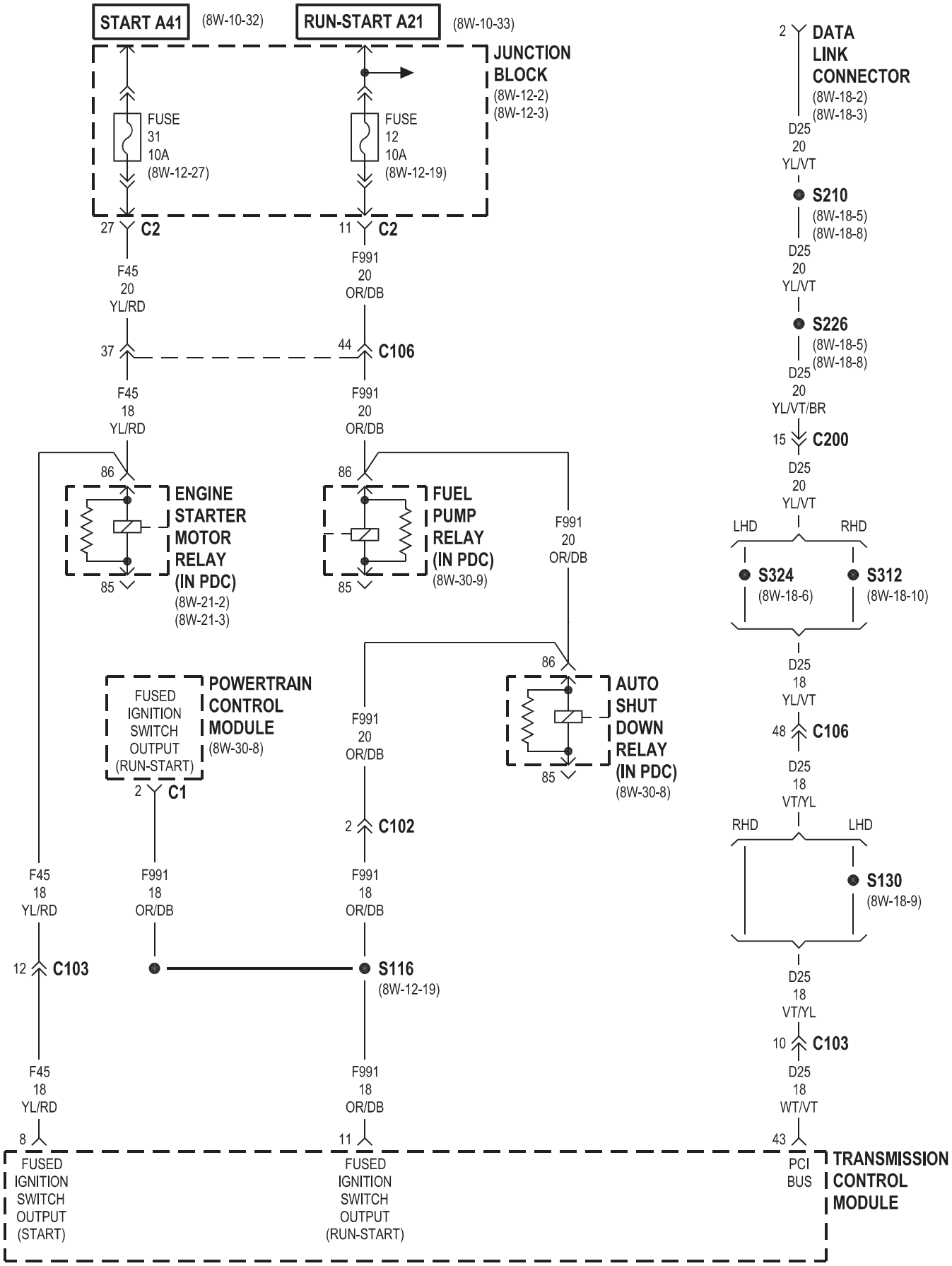
Component	Page
Auto Shut Down Relay	8W-31-4
Back-Up Lamp Relay	8W-31-15
Body Control Module	8W-31-14
Brake Lamp Switch	8W-31-14, 15
Controller Antilock Brake	8W-31-17
Crankshaft Position Sensor	8W-31-9, 10
Data Link Connector	8W-31-4, 9, 10, 15, 16
Engine Control Module	8W-31-16, 17
Engine Starter Motor Relay	8W-31-4, 5, 6, 12
Fuel Pump Relay	8W-31-4
Fuse 5	8W-31-2, 3
Fuse 12	8W-31-4, 15
Fuse 20	8W-31-5, 6
Fuse 21	8W-31-14, 15
Fuse 28	8W-31-2, 8
Fuse 31	8W-31-4
G102	8W-31-11, 13
G108	8W-31-3
G200	8W-31-14, 15
Generator	8W-31-2
Input Speed Sensor	8W-31-13
Junction Block	8W-31-4, 5, 6, 14, 15
Left Rear Lamp Assembly	8W-31-5, 6
Line Pressure Sensor	8W-31-13
Output Speed Sensor	8W-31-8, 13
Park/Neutral Position Switch	8W-31-6
Power Distribution Center	8W-31-2, 3, 8
Powertrain Control Module	8W-31-2, 4, 5, 6, 7, 8, 9, 10, 14
Right Rear Lamp Assembly	8W-31-5, 6
Shifter Assembly	8W-31-14, 15, 16
Throttle Position Sensor	8W-31-7
Transfer Case Position Sensor	8W-31-6, 16
Transmission Control Module	8W-31-3, 4, 7, 9, 10, 11, 12, 13, 14, 16, 17, 18
Transmission Control Relay	8W-31-2, 3, 8, 11, 12
Transmission Solenoid	8W-31-2, 8
Transmission Solenoid Assembly	8W-31-18
Transmission Solenoid/TRS Assembly	8W-31-3, 5, 11, 12, 13

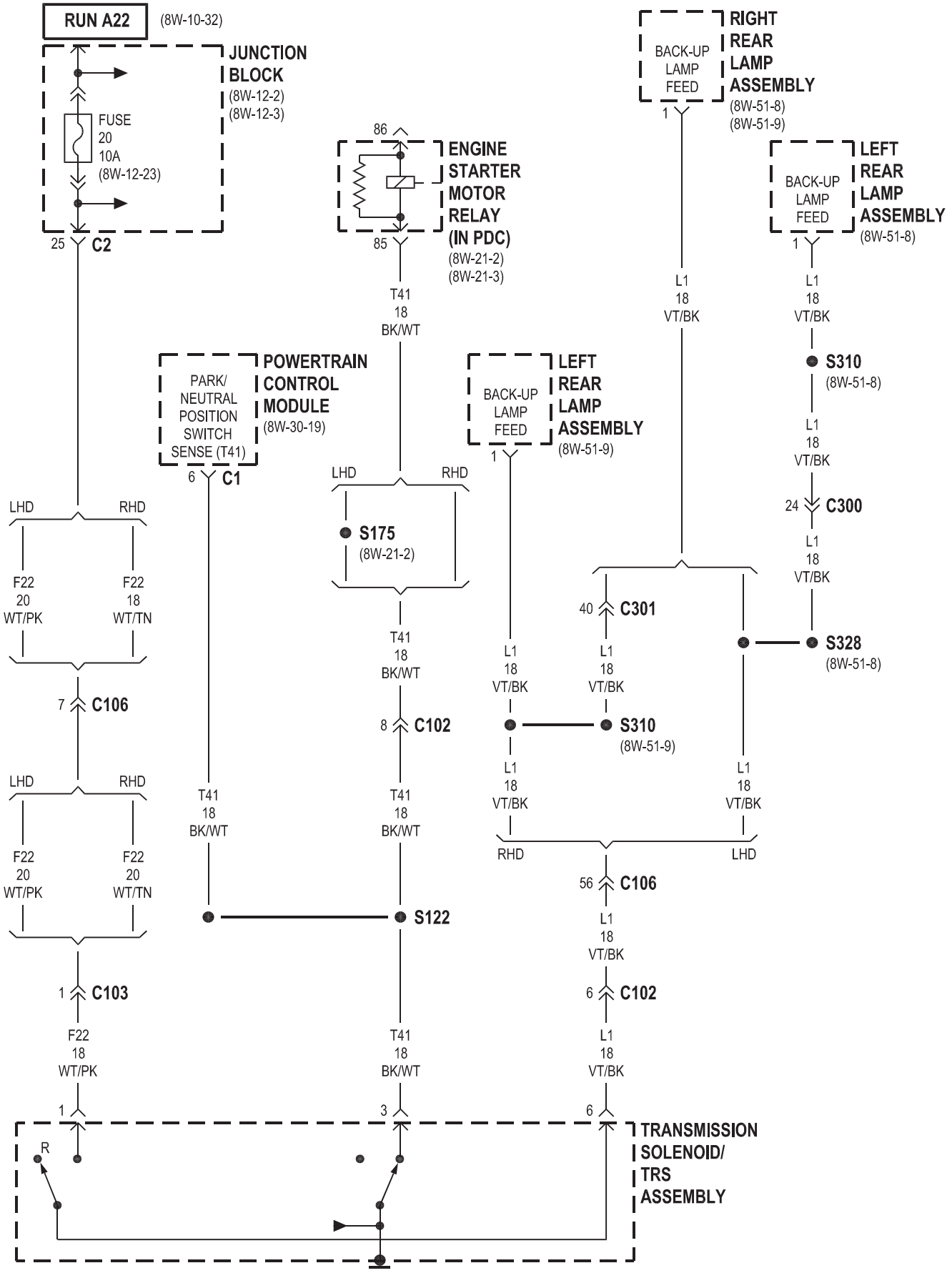


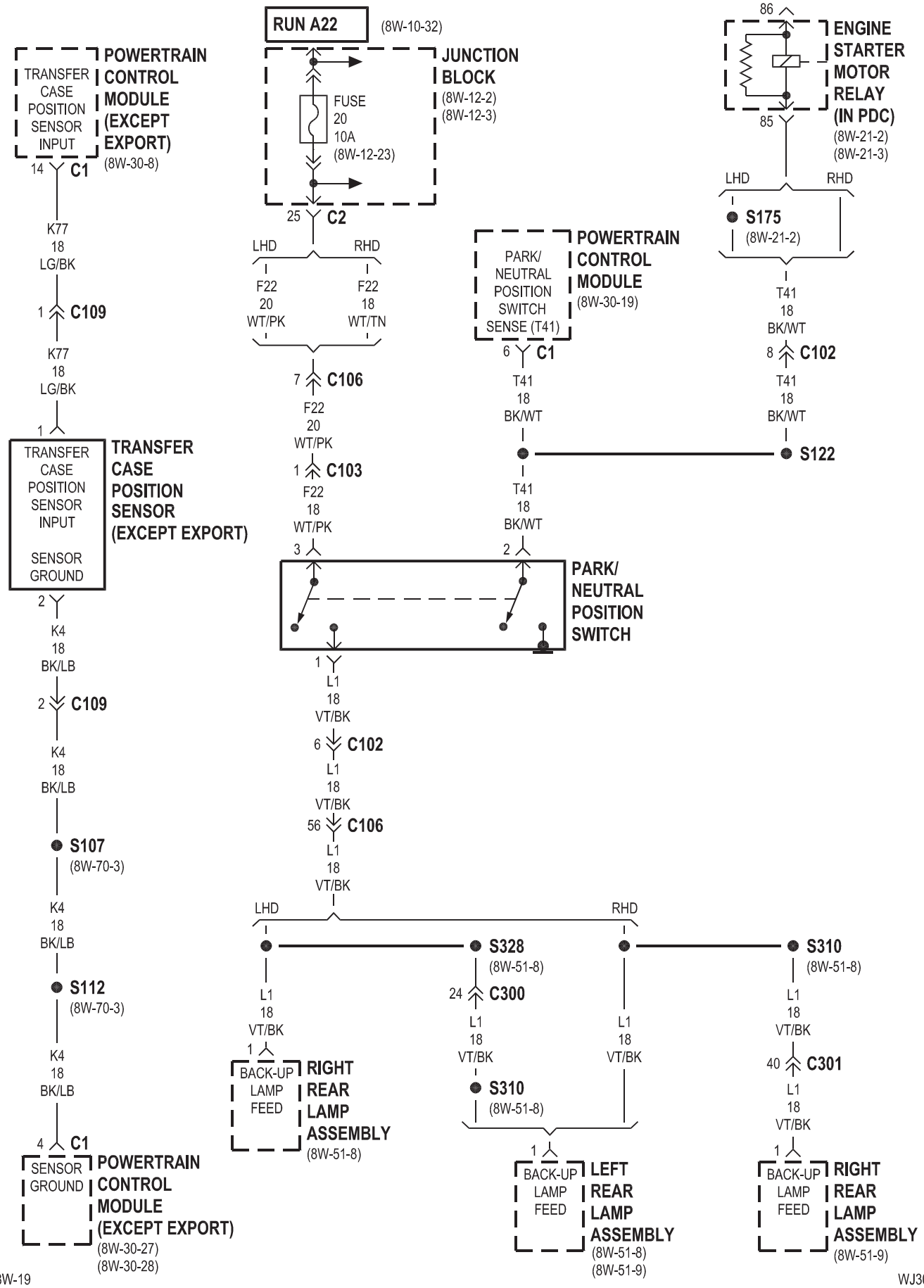
J038W-19

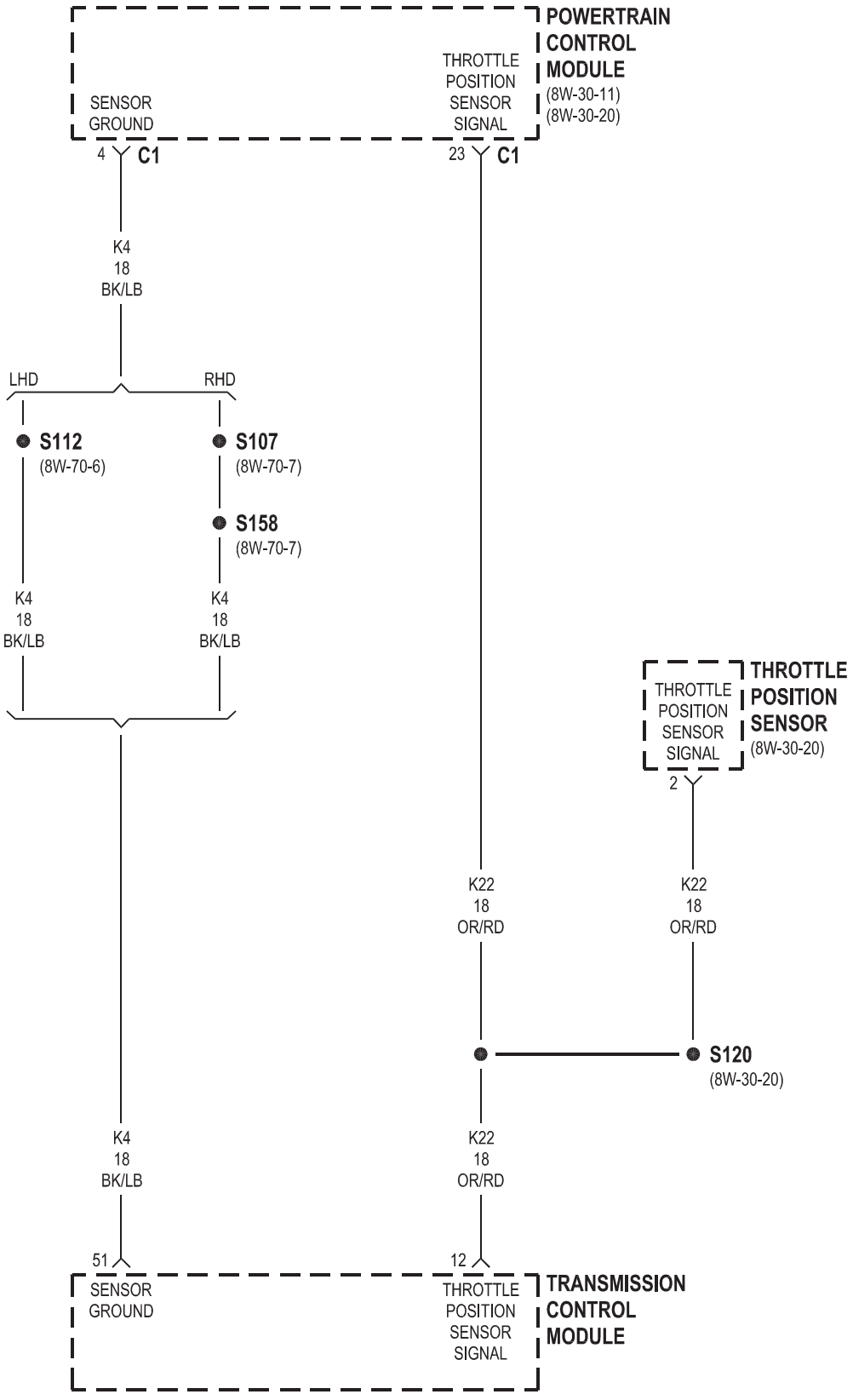
WJ303102

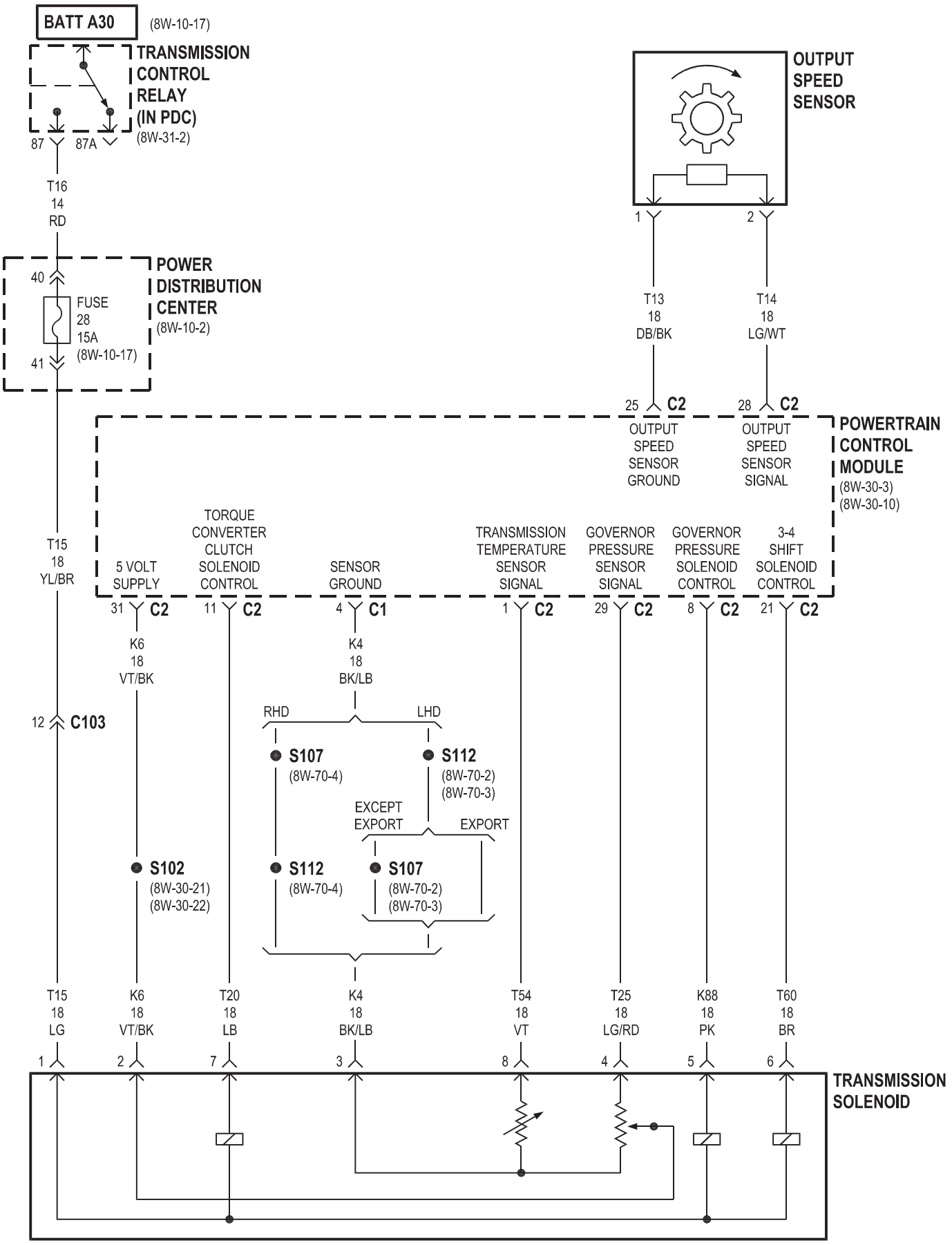

TRANSMISSION CONTROL RELAY CONTROL
TRANSMISSION CONTROL MODULE
15
K30
20
PK/YL
7
C103
K30
20
PK/YL
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
FUSE
5
30A
(8W-10-17)
5
30
86
TRANSMISSION CONTROL RELAY
87A
87
85
A30
14
RD/WT
T16
14
RD
Z307
18
BK
7
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-12)
10
1
C102
9
C103
T16
14
RD
T16
14
RD
S115
(8W-10-17)
A30
14
RD/WT
T16
14
RD
T16
14
RD
T16
14
RD
56
16
17
36
FUSED
B(+)
TRANSMISSION CONTROL RELAY OUTPUT
TRANSMISSION CONTROL RELAY OUTPUT
TRANSMISSION CONTROL RELAY OUTPUT
TRANSMISSION CONTROL MODULE
G108
(8W-15-9)
(8W-15-10)

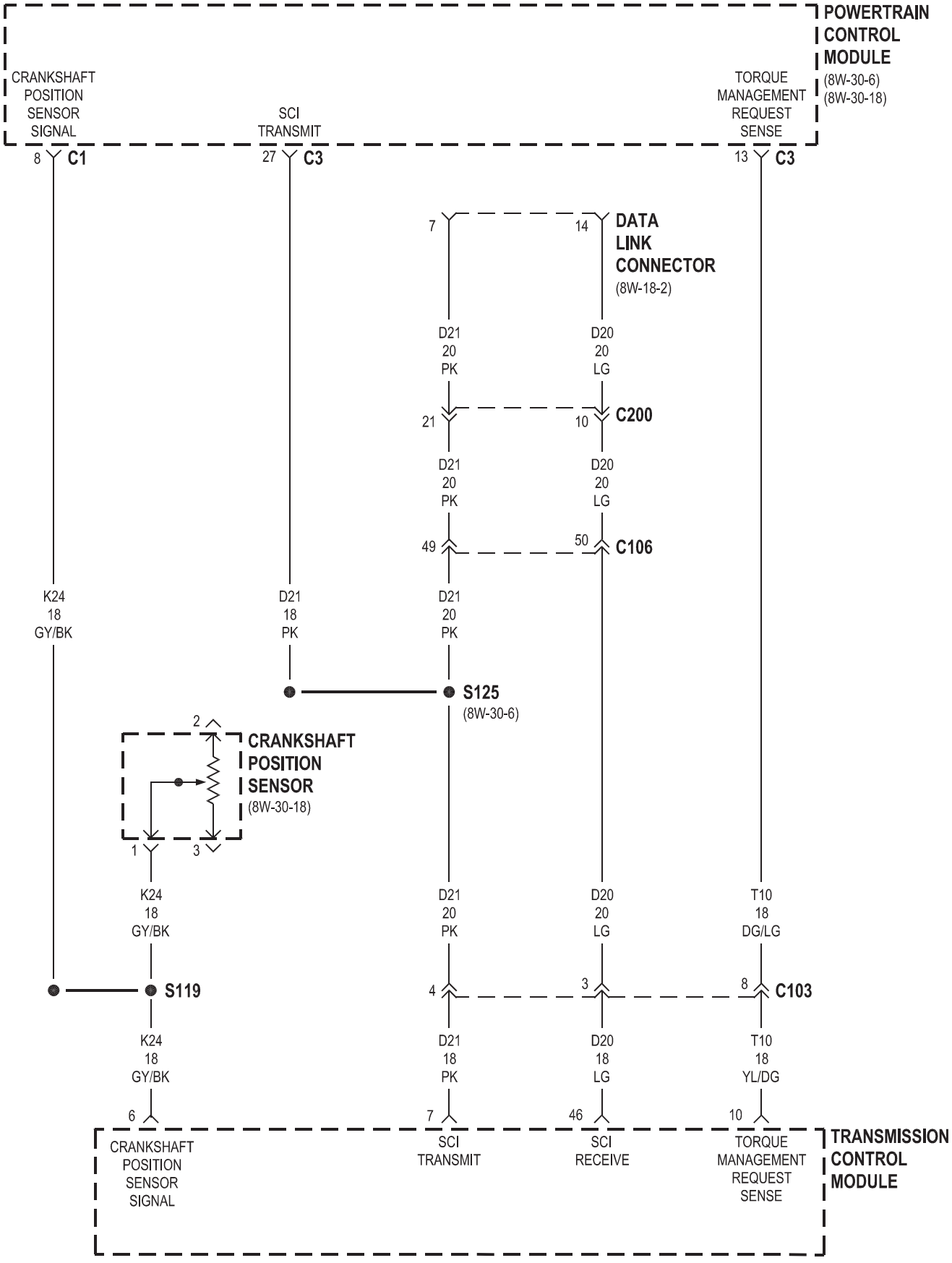

START A41
(8W-10-32)
RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 31 10A (8W-12-27)
FUSE 12 10A (8W-12-19)
27 C2
11 C2
F45 20 YL/RD
F991 20 OR/DB
37
44 C106
F45 18 YL/RD
F991 20 OR/DB
86
85
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
(8W-21-3)
FUEL PUMP RELAY (IN PDC)
(8W-30-9)
F991 20 OR/DB
POWERTRAIN CONTROL MODULE
(8W-30-8)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
2 C1
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-8)
2 C102
F45 18 YL/RD
F991 18 OR/DB
12 C103
S116
(8W-12-19)
F45 18 YL/RD
F991 18 OR/DB
8
11
FUSED IGNITION SWITCH OUTPUT (START)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
D25 20 YL/VT
S210
(8W-18-5)
(8W-18-8)
D25 20 YL/VT
S226
(8W-18-5)
(8W-18-8)
D25 20 YL/VT/BR
15 C200
D25 20 YL/VT
LHD
RHD
S324
(8W-18-6)
S312
(8W-18-10)
D25 18 YL/VT
48 C106
D25 18 VT/YL
RHD
LHD
S130
(8W-18-9)
D25 18 VT/YL
10 C103
D25 18 WT/VT
43
PCI BUS
TRANSMISSION CONTROL MODULE

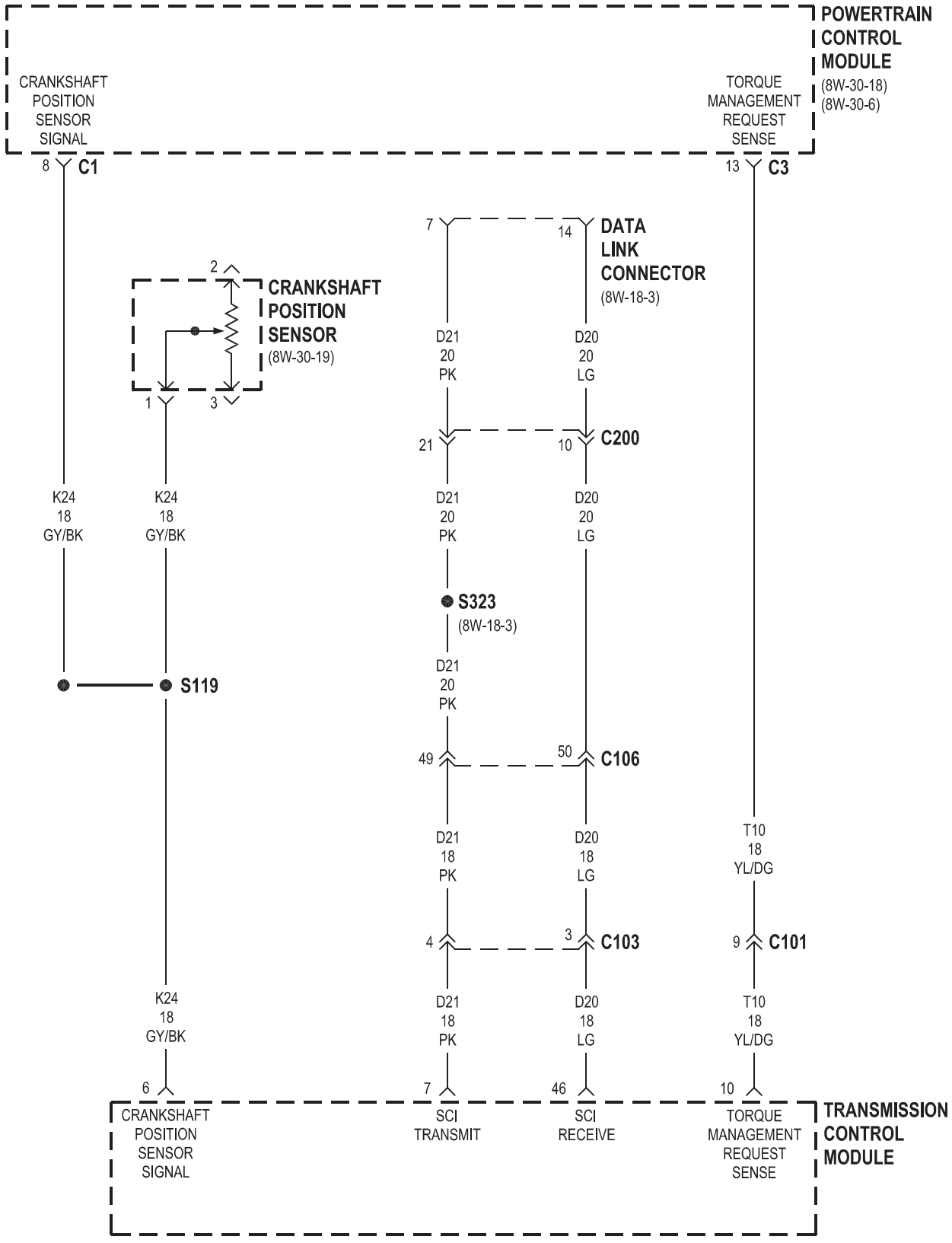

RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 20 10A
(8W-12-23)
25 C2
86
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
(8W-21-3)
85
T41 18 BK/WT
BACK-UP LAMP FEED
RIGHT REAR LAMP ASSEMBLY
(8W-51-8)
(8W-51-9)
1
L1 18 VT/BK
BACK-UP LAMP FEED
LEFT REAR LAMP ASSEMBLY
(8W-51-8)
1
L1 18 VT/BK
S310
(8W-51-8)
L1 18 VT/BK
24 C300
L1 18 VT/BK
S328
(8W-51-8)
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
POWERTRAIN CONTROL MODULE
(8W-30-19)
6 C1
BACK-UP LAMP FEED
LEFT REAR LAMP ASSEMBLY
(8W-51-9)
1
LHD
RHD
S175
(8W-21-2)
T41 18 BK/WT
40 C301
L1 18 VT/BK
L1 18 VT/BK
S310
(8W-51-9)
L1 18 VT/BK
L1 18 VT/BK
RHD
LHD
56 C106
L1 18 VT/BK
6 C102
L1 18 VT/BK
LHD
RHD
F22 20 WT/PK
F22 18 WT/TN
7 C106
LHD
RHD
F22 20 WT/PK
F22 20 WT/TN
1 C103
F22 18 WT/PK
1
T41 18 BK/WT
8 C102
T41 18 BK/WT
S122
T41 18 BK/WT
3
T41 18 BK/WT
6
TRANSMISSION SOLENOID/ TRS ASSEMBLY
R

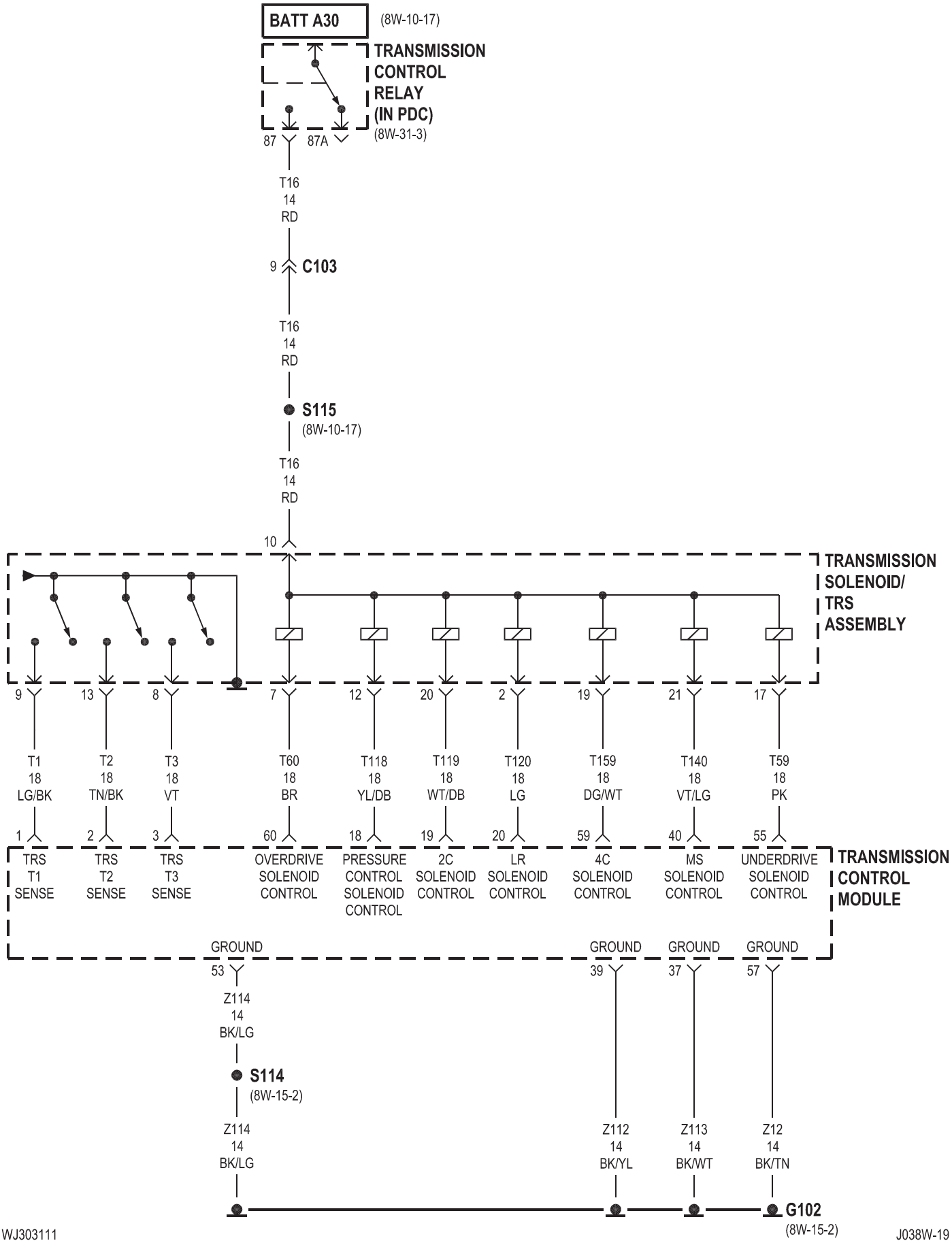

RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
20
10A
(8W-12-23)
25 C2
LHD
RHD
F22
20
WT/PK
F22
18
WT/TN
7 C106
F22
20
WT/PK
1 C103
F22
18
WT/PK
3
1
L1
18
VT/BK
6 C102
L1
18
VT/BK
56 C106
L1
18
VT/BK
LHD
RHD
S328
(8W-51-8)
24 C300
L1
18
VT/BK
S310
(8W-51-8)
L1
18
VT/BK
1
BACK-UP LAMP FEED
RIGHT REAR LAMP ASSEMBLY
(8W-51-8)
1
BACK-UP LAMP FEED
LEFT REAR LAMP ASSEMBLY
(8W-51-8)
(8W-51-9)
S310
(8W-51-8)
L1
18
VT/BK
40 C301
L1
18
VT/BK
1
BACK-UP LAMP FEED
RIGHT REAR LAMP ASSEMBLY
(8W-51-9)
TRANSFER CASE POSITION SENSOR INPUT
14 C1
POWERTRAIN CONTROL MODULE (EXCEPT EXPORT)
(8W-30-8)
K77
18
LG/BK
1 C109
K77
18
LG/BK
1
TRANSFER CASE POSITION SENSOR INPUT
SENSOR GROUND
TRANSFER CASE POSITION SENSOR (EXCEPT EXPORT)
2
K4
18
BK/LB
2 C109
K4
18
BK/LB
S107
(8W-70-3)
K4
18
BK/LB
S112
(8W-70-3)
K4
18
BK/LB
4 C1
SENSOR GROUND
POWERTRAIN CONTROL MODULE (EXCEPT EXPORT)
(8W-30-27)
(8W-30-28)
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
6 C1
POWERTRAIN CONTROL MODULE
(8W-30-19)
T41
18
BK/WT
T41
18
BK/WT
2
PARK/ NEUTRAL POSITION SWITCH
86
85
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
(8W-21-3)
LHD
RHD
S175
(8W-21-2)
T41
18
BK/WT
8 C102
T41
18
BK/WT
S122

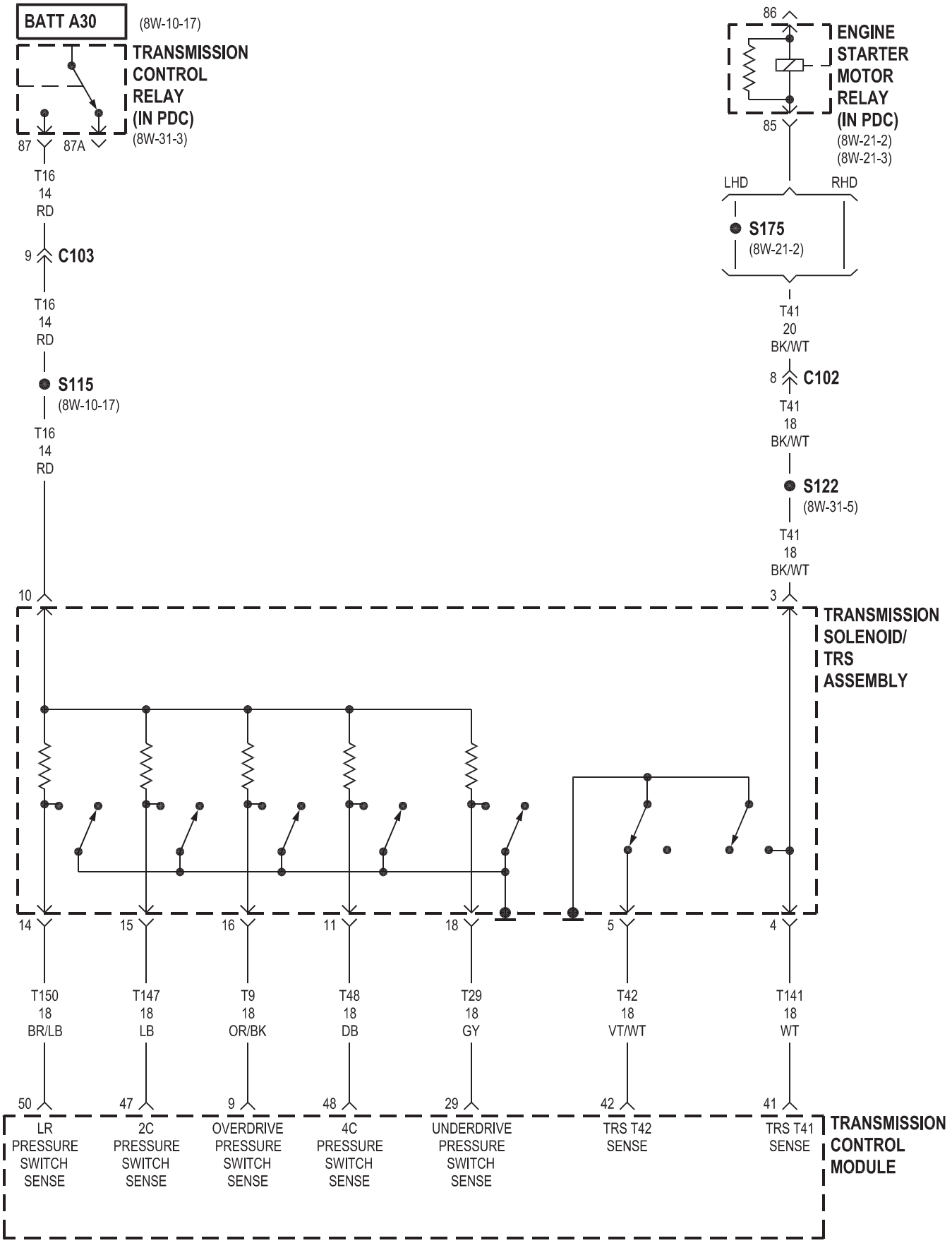

POWERTRAIN CONTROL MODULE
(8W-30-11)
(8W-30-20)
SENSOR GROUND
4
C1
THROTTLE POSITION SENSOR SIGNAL
23
C1
K4
18
BK/LB
LHD
RHD
S112
(8W-70-6)
S107
(8W-70-7)
S158
(8W-70-7)
K4
18
BK/LB
K4
18
BK/LB
THROTTLE POSITION SENSOR SIGNAL
2
THROTTLE POSITION SENSOR
(8W-30-20)
K22
18
OR/RD
K22
18
OR/RD
S120
(8W-30-20)
K4
18
BK/LB
K22
18
OR/RD
51
12
SENSOR GROUND
THROTTLE POSITION SENSOR SIGNAL
TRANSMISSION CONTROL MODULE

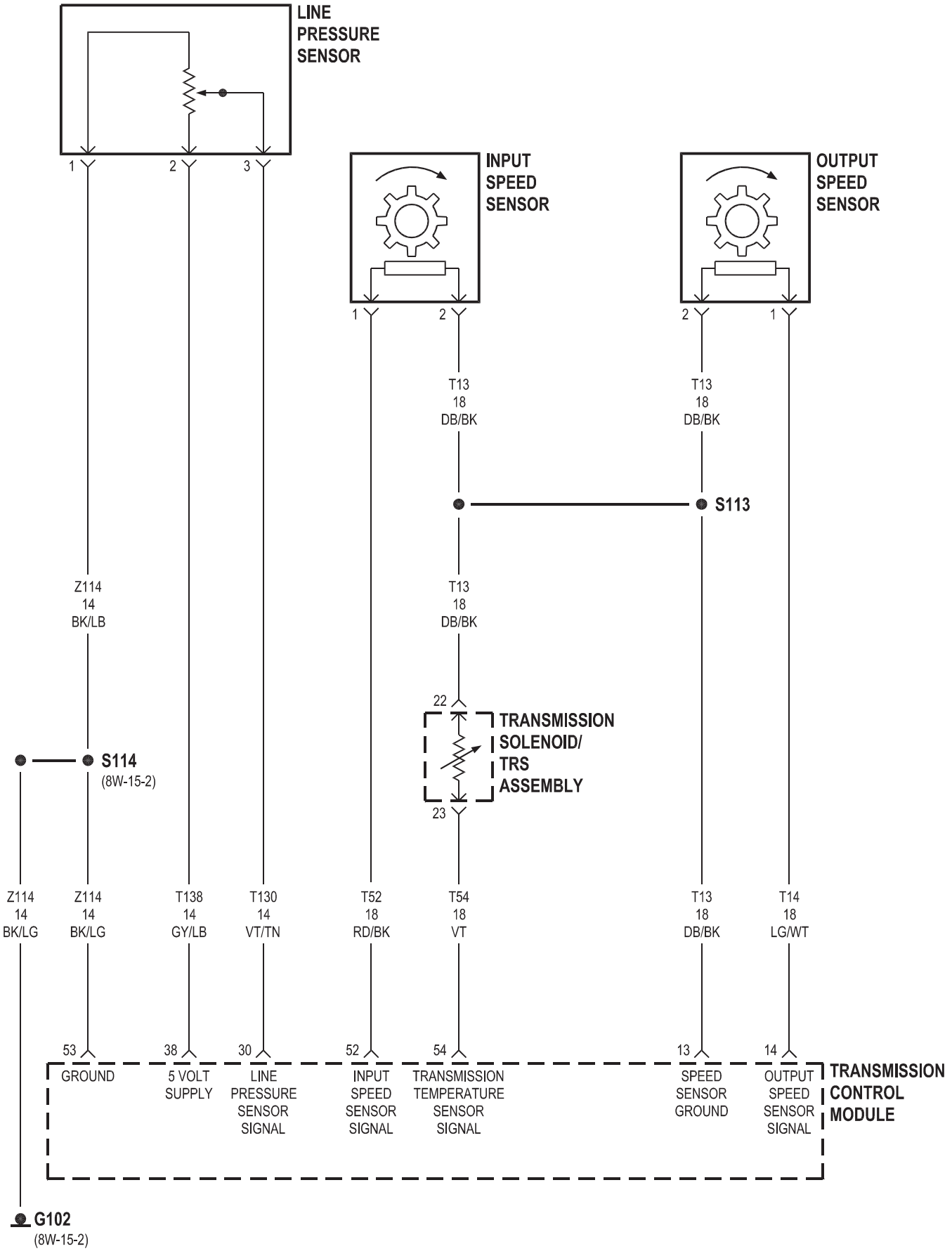

BATT A30
(8W-10-17)
TRANSMISSION CONTROL RELAY (IN PDC)
(8W-31-2)
87
87A
T16
14
RD
POWER DISTRIBUTION CENTER
(8W-10-2)
40
FUSE
28
15A
(8W-10-17)
41
OUTPUT SPEED SENSOR
1
2
T13
18
DB/BK
T14
18
LG/WT
25 C2
28 C2
OUTPUT SPEED SENSOR GROUND
OUTPUT SPEED SENSOR SIGNAL
POWERTRAIN CONTROL MODULE
(8W-30-3)
(8W-30-10)
T15
18
YL/BR
5 VOLT SUPPLY
TORQUE CONVERTER CLUTCH SOLENOID CONTROL
SENSOR GROUND
TRANSMISSION TEMPERATURE SENSOR SIGNAL
GOVERNOR PRESSURE SENSOR SIGNAL
GOVERNOR PRESSURE SOLENOID CONTROL
3-4 SHIFT SOLENOID CONTROL
31 C2
11 C2
4 C1
1 C2
29 C2
8 C2
21 C2
K6
18
VT/BK
K4
18
BK/LB
12 C103
RHD
LHD
S107
(8W-70-4)
S112
(8W-70-2)
(8W-70-3)
EXCEPT EXPORT
EXPORT
S102
(8W-30-21)
(8W-30-22)
S112
(8W-70-4)
S107
(8W-70-2)
(8W-70-3)
T15
18
LG
K6
18
VT/BK
T20
18
LB
K4
18
BK/LB
T54
18
VT
T25
18
LG/RD
K88
18
PK
T60
18
BR
1
2
7
3
8
4
5
6
TRANSMISSION SOLENOID

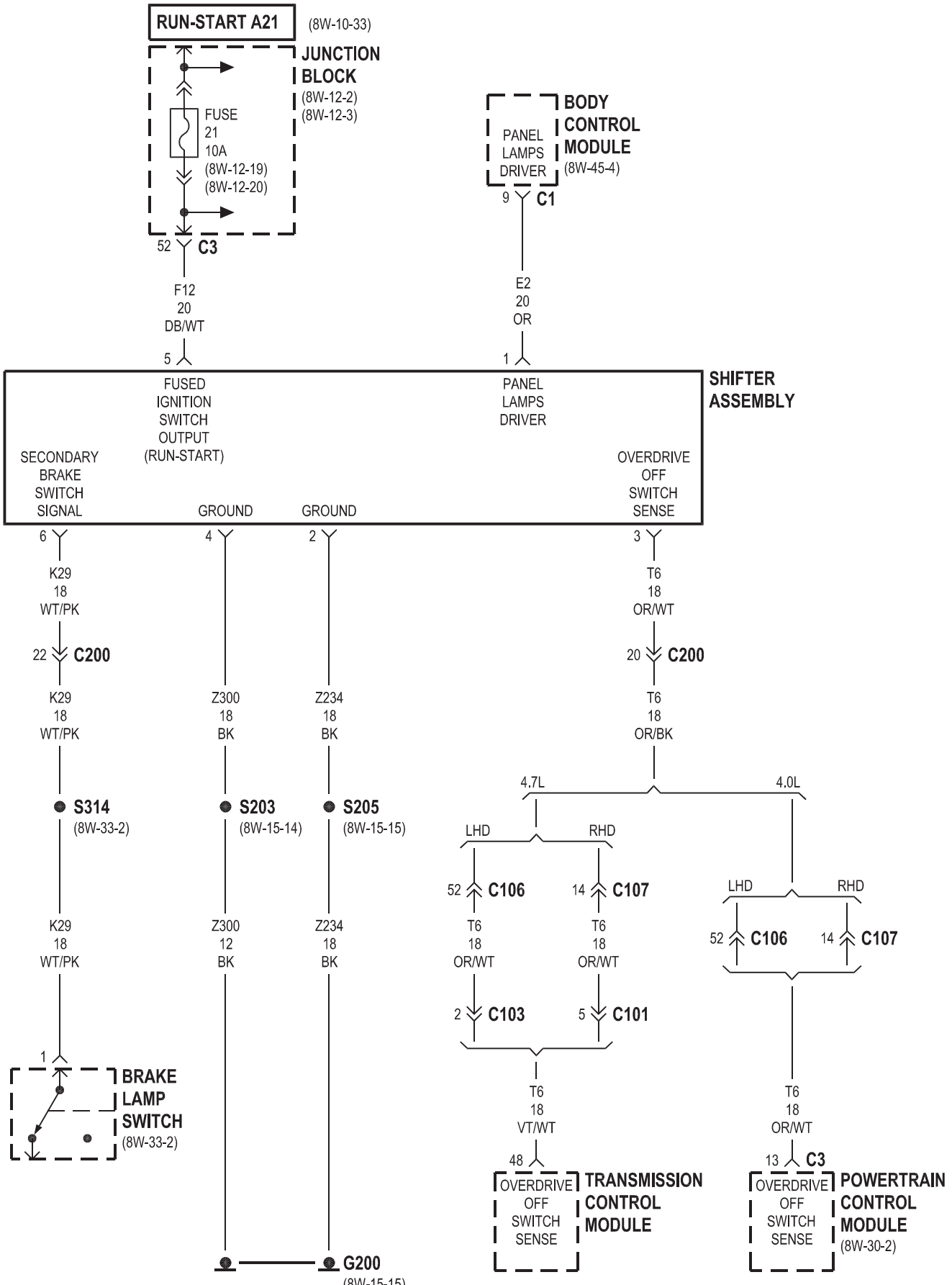

POWERTRAIN CONTROL MODULE
(8W-30-6)
(8W-30-18)
CRANKSHAFT POSITION SENSOR SIGNAL
8 C1
SCI TRANSMIT
27 C3
TORQUE MANAGEMENT REQUEST SENSE
13 C3
7
14
DATA LINK CONNECTOR
(8W-18-2)
D21 20 PK
D20 20 LG
21
10 C200
D21 20 PK
D20 20 LG
49
50 C106
K24 18 GY/BK
D21 18 PK
D21 20 PK
S125
(8W-30-6)
2
CRANKSHAFT POSITION SENSOR
(8W-30-18)
1
3
K24 18 GY/BK
D21 20 PK
D20 20 LG
T10 18 DG/LG
S119
4
3
8 C103
K24 18 GY/BK
D21 18 PK
D20 18 LG
T10 18 YL/DG
6
7
46
10
CRANKSHAFT POSITION SENSOR SIGNAL
SCI TRANSMIT
SCI RECEIVE
TORQUE MANAGEMENT REQUEST SENSE
TRANSMISSION CONTROL MODULE

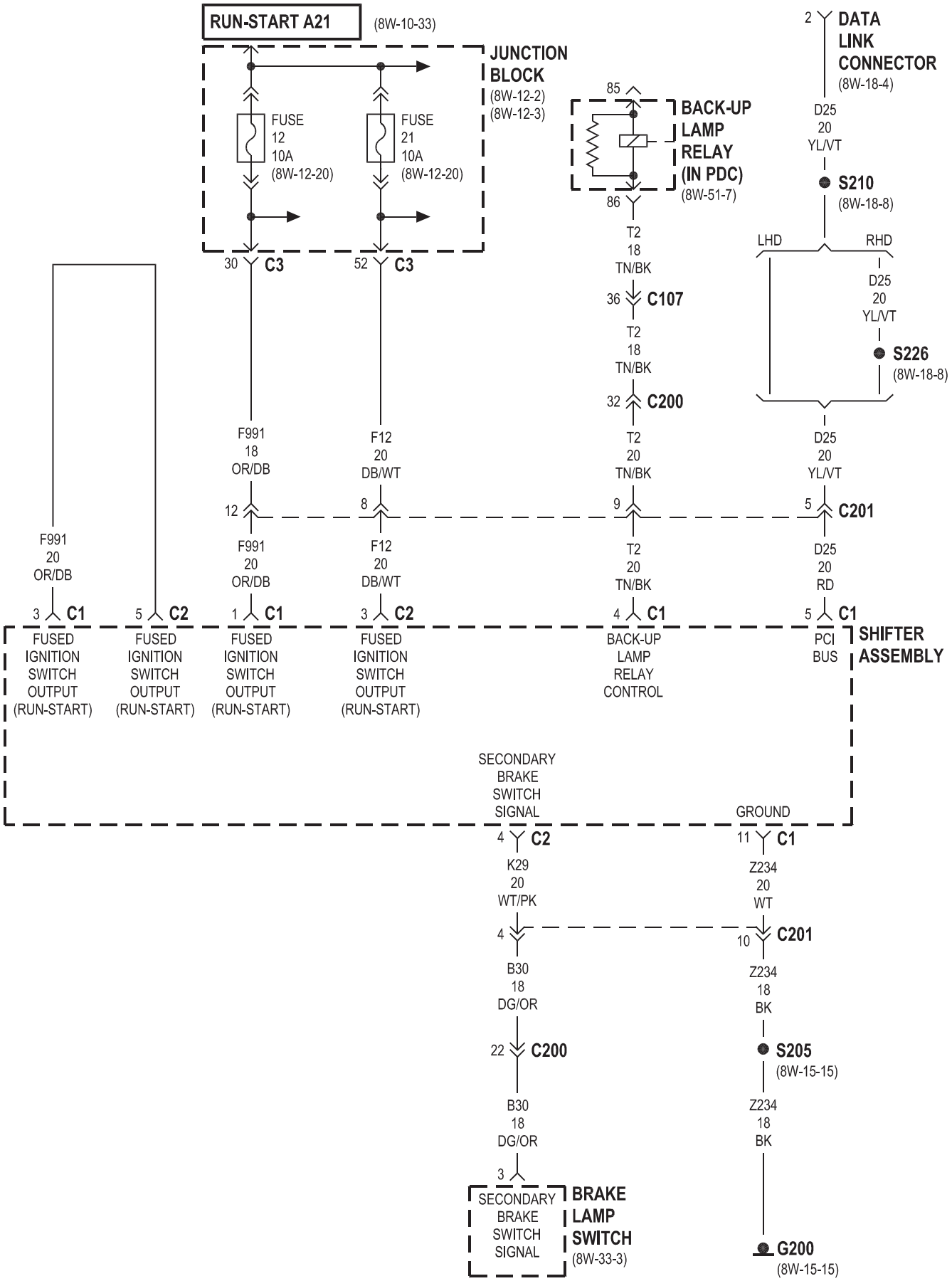

POWERTRAIN CONTROL MODULE
(8W-30-18)
(8W-30-6)
CRANKSHAFT POSITION SENSOR SIGNAL
8
C1
TORQUE MANAGEMENT REQUEST SENSE
13
C3
7
14
DATA LINK CONNECTOR
(8W-18-3)
2
CRANKSHAFT POSITION SENSOR
(8W-30-19)
1
3
D21 20 PK
D20 20 LG
21
10
C200
K24 18 GY/BK
K24 18 GY/BK
D21 20 PK
D20 20 LG
S323
(8W-18-3)
S119
D21 20 PK
49
50
C106
D21 18 PK
D20 18 LG
T10 18 YL/DG
4
3
C103
9
C101
K24 18 GY/BK
D21 18 PK
D20 18 LG
T10 18 YL/DG
6
7
46
10
CRANKSHAFT POSITION SENSOR SIGNAL
SCI TRANSMIT
SCI RECEIVE
TORQUE MANAGEMENT REQUEST SENSE
TRANSMISSION CONTROL MODULE

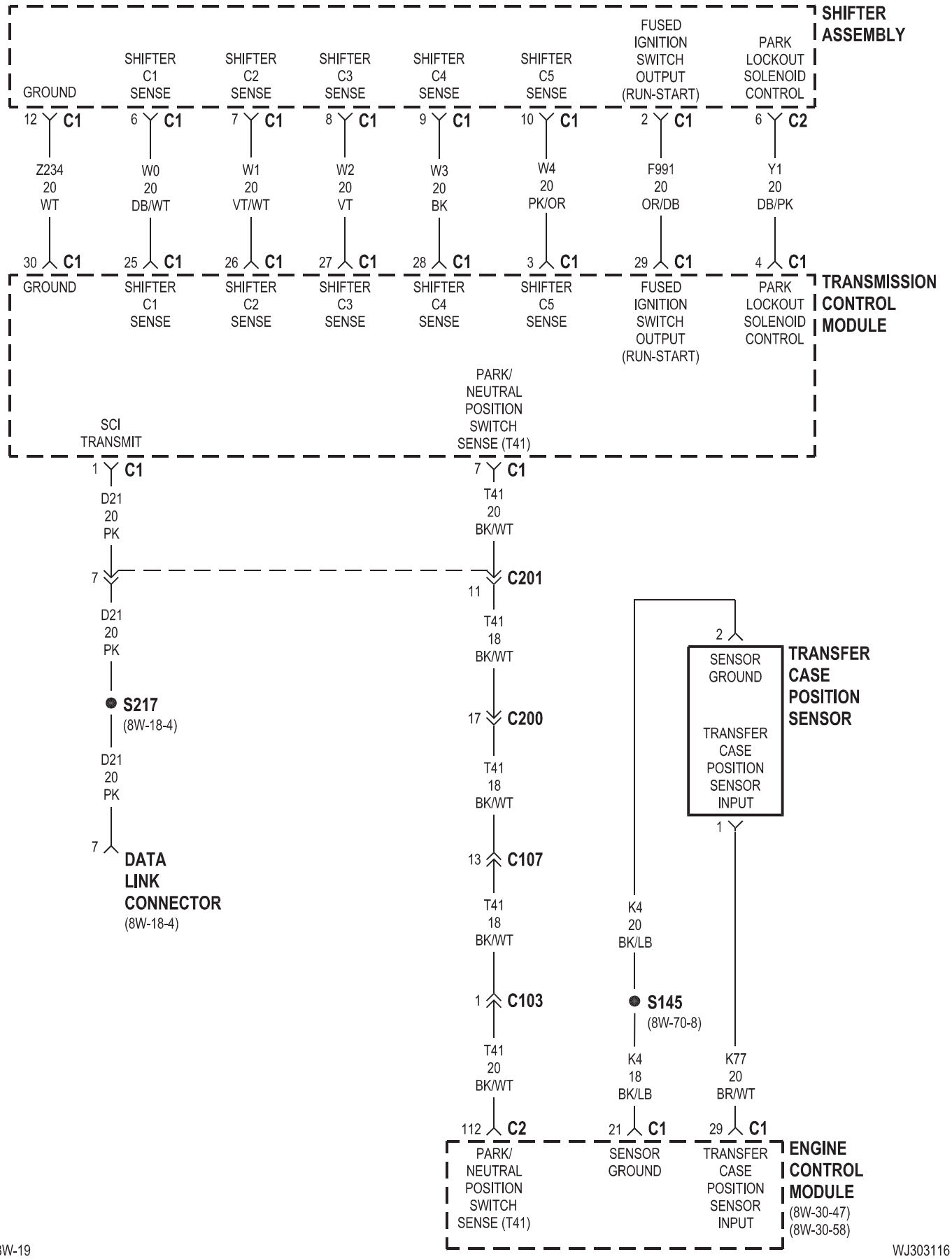

BATT A30
(8W-10-17)
TRANSMISSION CONTROL RELAY (IN PDC)
(8W-31-3)
87
87A
T16 14 RD
9
C103
T16 14 RD
S115
(8W-10-17)
T16 14 RD
10
TRANSMISSION SOLENOID/ TRS ASSEMBLY
9
13
8
7
12
20
2
19
21
17
T1 18 LG/BK
T2 18 TN/BK
T3 18 VT
T60 18 BR
T118 18 YL/DB
T119 18 WT/DB
T120 18 LG
T159 18 DG/WT
T140 18 VT/LG
T59 18 PK
1
2
3
60
18
19
20
59
40
55
TRS T1 SENSE
TRS T2 SENSE
TRS T3 SENSE
OVERDRIVE SOLENOID CONTROL
PRESSURE CONTROL SOLENOID CONTROL
2C SOLENOID CONTROL
LR SOLENOID CONTROL
4C SOLENOID CONTROL
MS SOLENOID CONTROL
UNDERDRIVE SOLENOID CONTROL
TRANSMISSION CONTROL MODULE
GROUND
GROUND
GROUND
GROUND
53
39
37
57
Z114 14 BK/LG
S114
(8W-15-2)
Z114 14 BK/LG
Z112 14 BK/YL
Z113 14 BK/WT
Z12 14 BK/TN
G102
(8W-15-2)

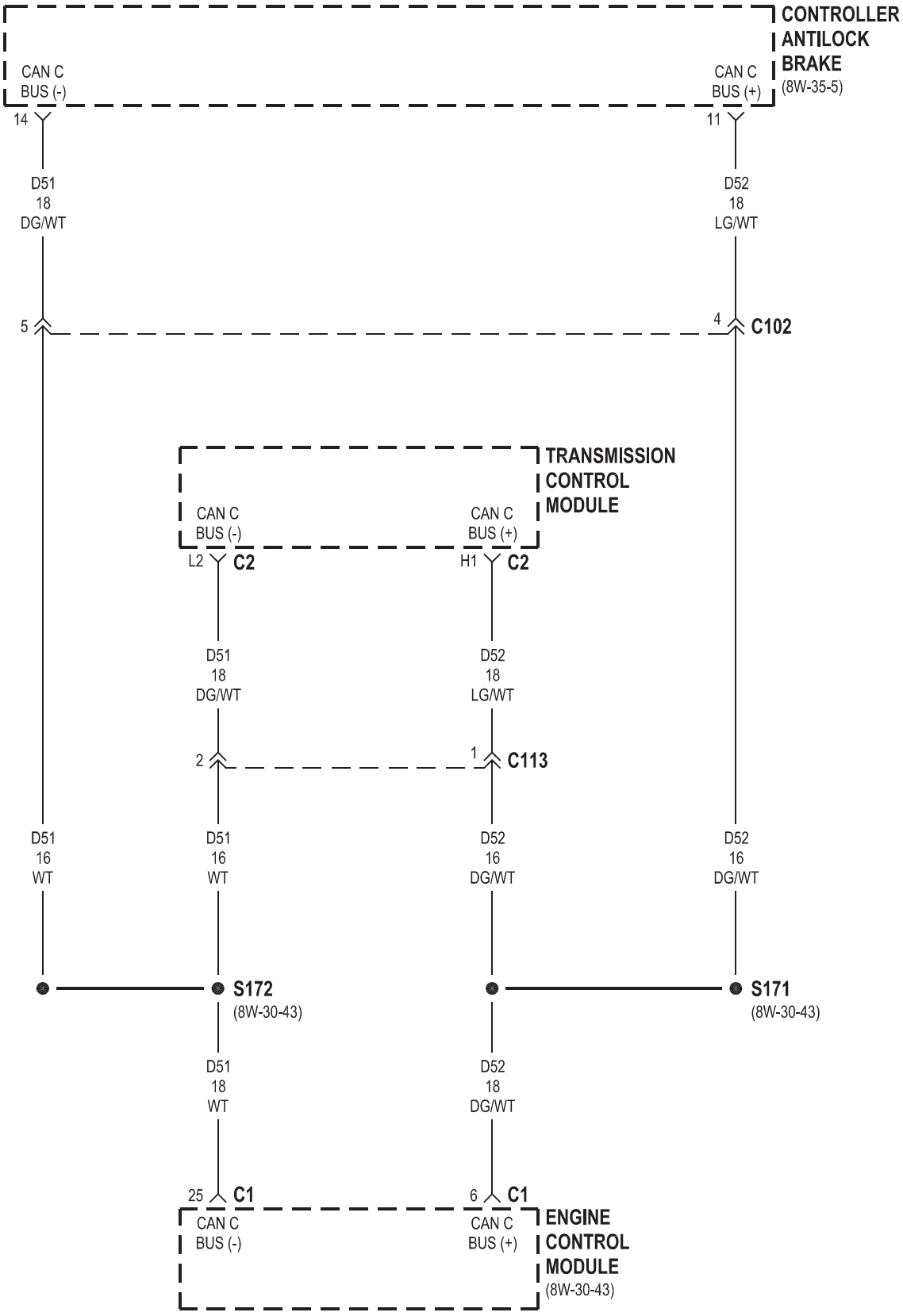

BATT A30
(8W-10-17)
TRANSMISSION CONTROL RELAY (IN PDC)
(8W-31-3)
87
87A
T16
14
RD
9
C103
T16
14
RD
S115
(8W-10-17)
T16
14
RD
10
86
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
(8W-21-3)
85
LHD
RHD
S175
(8W-21-2)
T41
20
BK/WT
8
C102
T41
18
BK/WT
S122
(8W-31-5)
T41
18
BK/WT
3
TRANSMISSION SOLENOID/ TRS ASSEMBLY
14
15
16
11
18
5
4
T150
18
BR/LB
T147
18
LB
T9
18
OR/BK
T48
18
DB
T29
18
GY
T42
18
VT/WT
T141
18
WT
50
47
9
48
29
42
41
LR PRESSURE SWITCH SENSE
2C PRESSURE SWITCH SENSE
OVERDRIVE PRESSURE SWITCH SENSE
4C PRESSURE SWITCH SENSE
UNDERDRIVE PRESSURE SWITCH SENSE
TRS T42 SENSE
TRS T41 SENSE
TRANSMISSION CONTROL MODULE

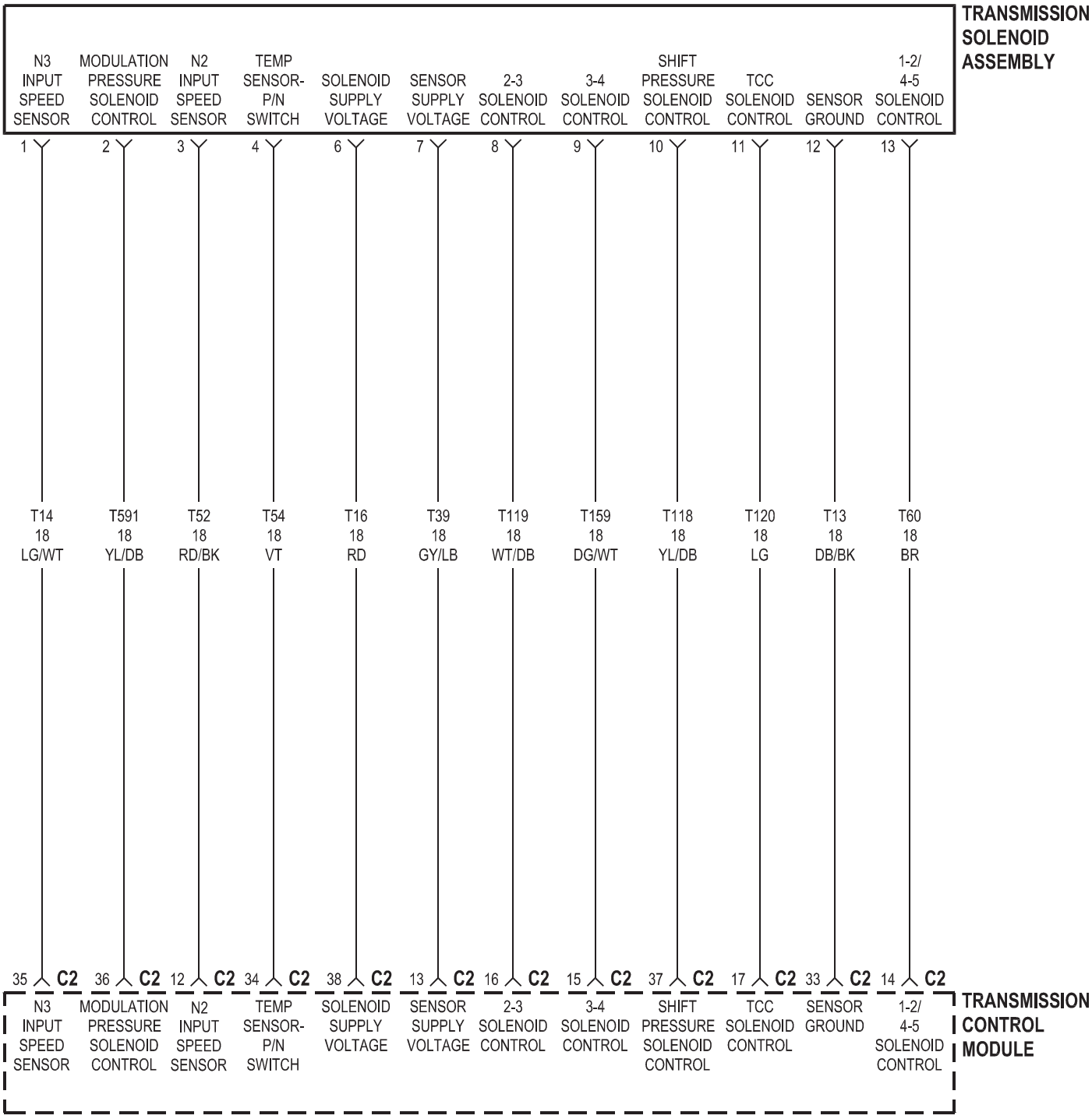

LINE PRESSURE SENSOR
1
2
3
INPUT SPEED SENSOR
1
2
OUTPUT SPEED SENSOR
2
1
T13
18
DB/BK
T13
18
DB/BK
S113
Z114
14
BK/LB
T13
18
DB/BK
22
TRANSMISSION SOLENOID/ TRS ASSEMBLY
23
S114
(8W-15-2)
Z114
14
BK/LG
Z114
14
BK/LG
T138
14
GY/LB
T130
14
VT/TN
T52
18
RD/BK
T54
18
VT
T13
18
DB/BK
T14
18
LG/WT
53
38
30
52
54
13
14
GROUND
5 VOLT SUPPLY
LINE PRESSURE SENSOR SIGNAL
INPUT SPEED SENSOR SIGNAL
TRANSMISSION TEMPERATURE SENSOR SIGNAL
SPEED SENSOR GROUND
OUTPUT SPEED SENSOR SIGNAL
TRANSMISSION CONTROL MODULE
G102
(8W-15-2)


RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 21 10A
(8W-12-19)
(8W-12-20)
52 C3
F12 20 DB/WT
5
FUSED IGNITION SWITCH OUTPUT (RUN-START)
BODY CONTROL MODULE
(8W-45-4)
PANEL LAMPS DRIVER
9 C1
E2 20 OR
1
PANEL LAMPS DRIVER
SHIFTER ASSEMBLY
SECONDARY BRAKE SWITCH SIGNAL
GROUND
GROUND
OVERDRIVE OFF SWITCH SENSE
6
4
2
3
K29 18 WT/PK
22 C200
K29 18 WT/PK
Z300 18 BK
Z234 18 BK
T6 18 OR/WT
20 C200
T6 18 OR/BK
S314
(8W-33-2)
S203
(8W-15-14)
S205
(8W-15-15)
4.7L
4.0L
LHD
RHD
52 C106
14 C107
T6 18 OR/WT
T6 18 OR/WT
2 C103
5 C101
K29 18 WT/PK
Z300 12 BK
Z234 18 BK
1
BRAKE LAMP SWITCH
(8W-33-2)
T6 18 VT/WT
48
OVERDRIVE OFF SWITCH SENSE
TRANSMISSION CONTROL MODULE
LHD
RHD
52 C106
14 C107
T6 18 OR/WT
13 C3
OVERDRIVE OFF SWITCH SENSE
POWERTRAIN CONTROL MODULE
(8W-30-2)
G200
(8W-15-15)


RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 12 10A (8W-12-20)
FUSE 21 10A (8W-12-20)
30 C3
52 C3
85
BACK-UP LAMP RELAY (IN PDC)
(8W-51-7)
86
2 DATA LINK CONNECTOR
(8W-18-4)
D25 20 YL/VT
S210
(8W-18-8)
LHD
RHD
D25 20 YL/VT
S226
(8W-18-8)
T2 18 TN/BK
36 C107
T2 18 TN/BK
32 C200
T2 20 TN/BK
D25 20 YL/VT
5 C201
F991 18 OR/DB
12
F12 20 DB/WT
8
9
F991 20 OR/DB
3 C1
5 C2
F991 20 OR/DB
1 C1
F12 20 DB/WT
3 C2
T2 20 TN/BK
4 C1
D25 20 RD
5 C1
FUSED IGNITION SWITCH OUTPUT (RUN-START)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
BACK-UP LAMP RELAY CONTROL
PCI BUS
SHIFTER ASSEMBLY
SECONDARY BRAKE SWITCH SIGNAL
4 C2
GROUND
11 C1
K29 20 WT/PK
Z234 20 WT
4
10 C201
B30 18 DG/OR
Z234 18 BK
22 C200
S205
(8W-15-15)
B30 18 DG/OR
Z234 18 BK
3
SECONDARY BRAKE SWITCH SIGNAL
BRAKE LAMP SWITCH
(8W-33-3)
G200
(8W-15-15)

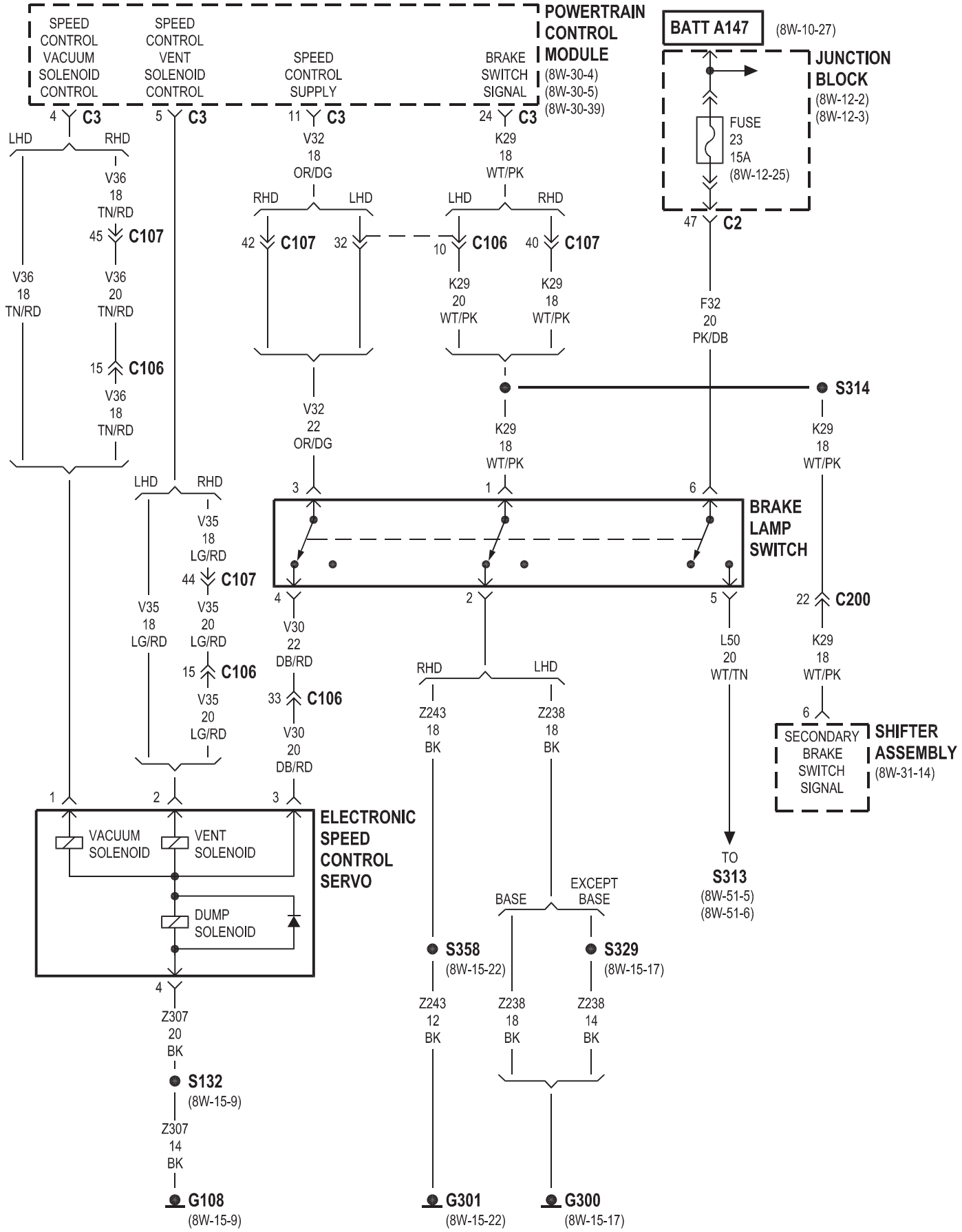

SHIFTER ASSEMBLY
GROUND
SHIFTER C1 SENSE
SHIFTER C2 SENSE
SHIFTER C3 SENSE
SHIFTER C4 SENSE
SHIFTER C5 SENSE
FUSED IGNITION SWITCH OUTPUT (RUN-START)
PARK LOCKOUT SOLENOID CONTROL
12 C1
6 C1
7 C1
8 C1
9 C1
10 C1
2 C1
6 C2
Z234 20 WT
W0 20 DB/WT
W1 20 VT/WT
W2 20 VT
W3 20 BK
W4 20 PK/OR
F991 20 OR/DB
Y1 20 DB/PK
30 C1
25 C1
26 C1
27 C1
28 C1
3 C1
29 C1
4 C1
GROUND
SHIFTER C1 SENSE
SHIFTER C2 SENSE
SHIFTER C3 SENSE
SHIFTER C4 SENSE
SHIFTER C5 SENSE
FUSED IGNITION SWITCH OUTPUT (RUN-START)
PARK LOCKOUT SOLENOID CONTROL
TRANSMISSION CONTROL MODULE
SCI TRANSMIT
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
1 C1
7 C1
D21 20 PK
T41 20 BK/WT
7
C201
11
D21 20 PK
T41 18 BK/WT
S217
(8W-18-4)
17 C200
T41 18 BK/WT
D21 20 PK
13 C107
7
DATA LINK CONNECTOR
(8W-18-4)
T41 18 BK/WT
1 C103
T41 20 BK/WT
112 C2
PARK/ NEUTRAL POSITION SWITCH SENSE (T41)
2
SENSOR GROUND
TRANSFER CASE POSITION SENSOR
TRANSFER CASE POSITION SENSOR INPUT
1
K4 20 BK/LB
S145
(8W-70-8)
K4 18 BK/LB
K77 20 BR/WT
21 C1
29 C1
SENSOR GROUND
TRANSFER CASE POSITION SENSOR INPUT
ENGINE CONTROL MODULE
(8W-30-47)
(8W-30-58)

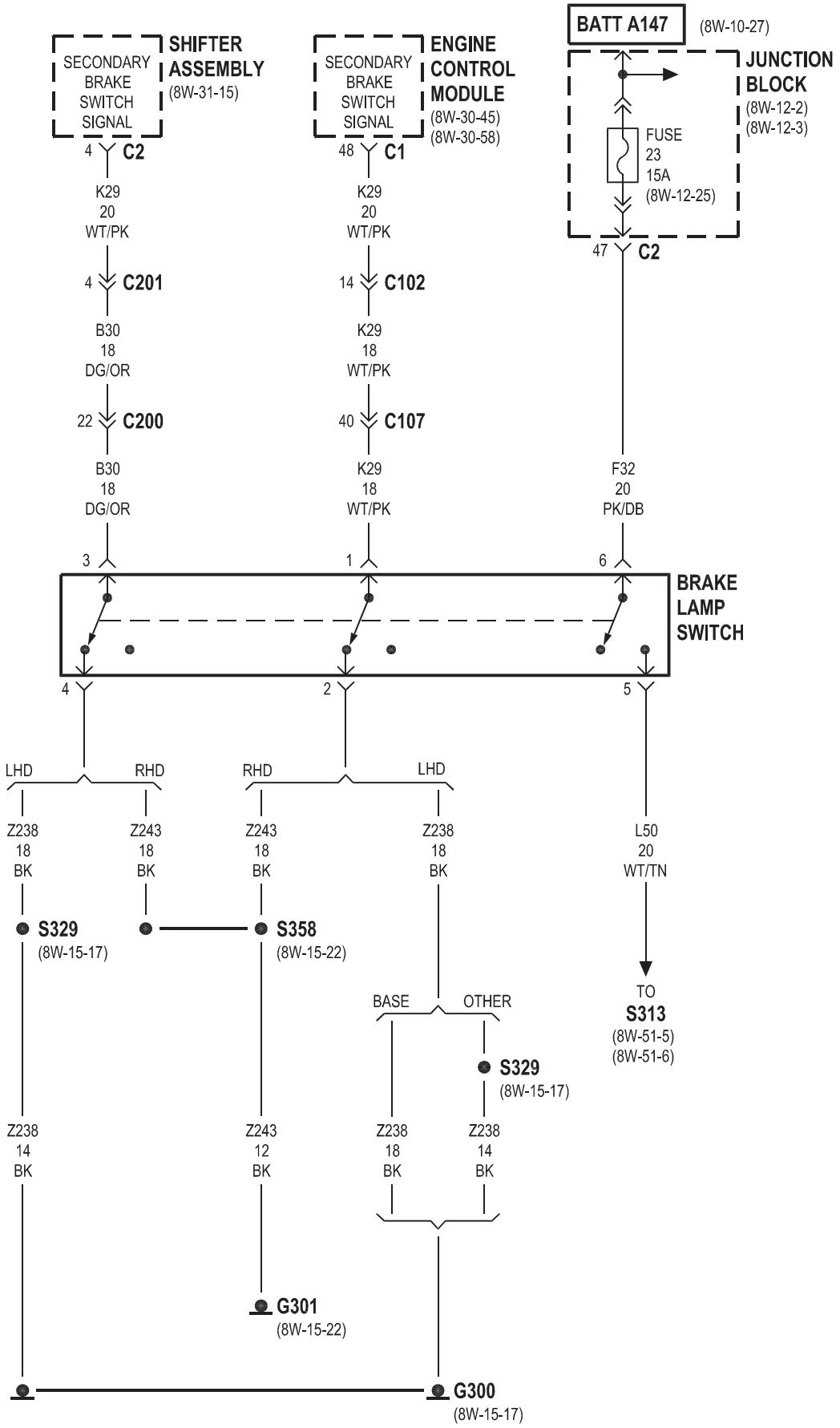

CONTROLLER ANTILOCK BRAKE
(8W-35-5)
CAN C BUS (-)
CAN C BUS (+)
14
11
D51 18 DG/WT
D52 18 LG/WT
5
4
C102
TRANSMISSION CONTROL MODULE
CAN C BUS (-)
CAN C BUS (+)
L2
C2
H1
C2
D51 18 DG/WT
D52 18 LG/WT
2
1
C113
D51 16 WT
D51 16 WT
D52 16 DG/WT
D52 16 DG/WT
S172
(8W-30-43)
S171
(8W-30-43)
D51 18 WT
D52 18 DG/WT
25
C1
6
C1
CAN C BUS (-)
CAN C BUS (+)
ENGINE CONTROL MODULE
(8W-30-43)

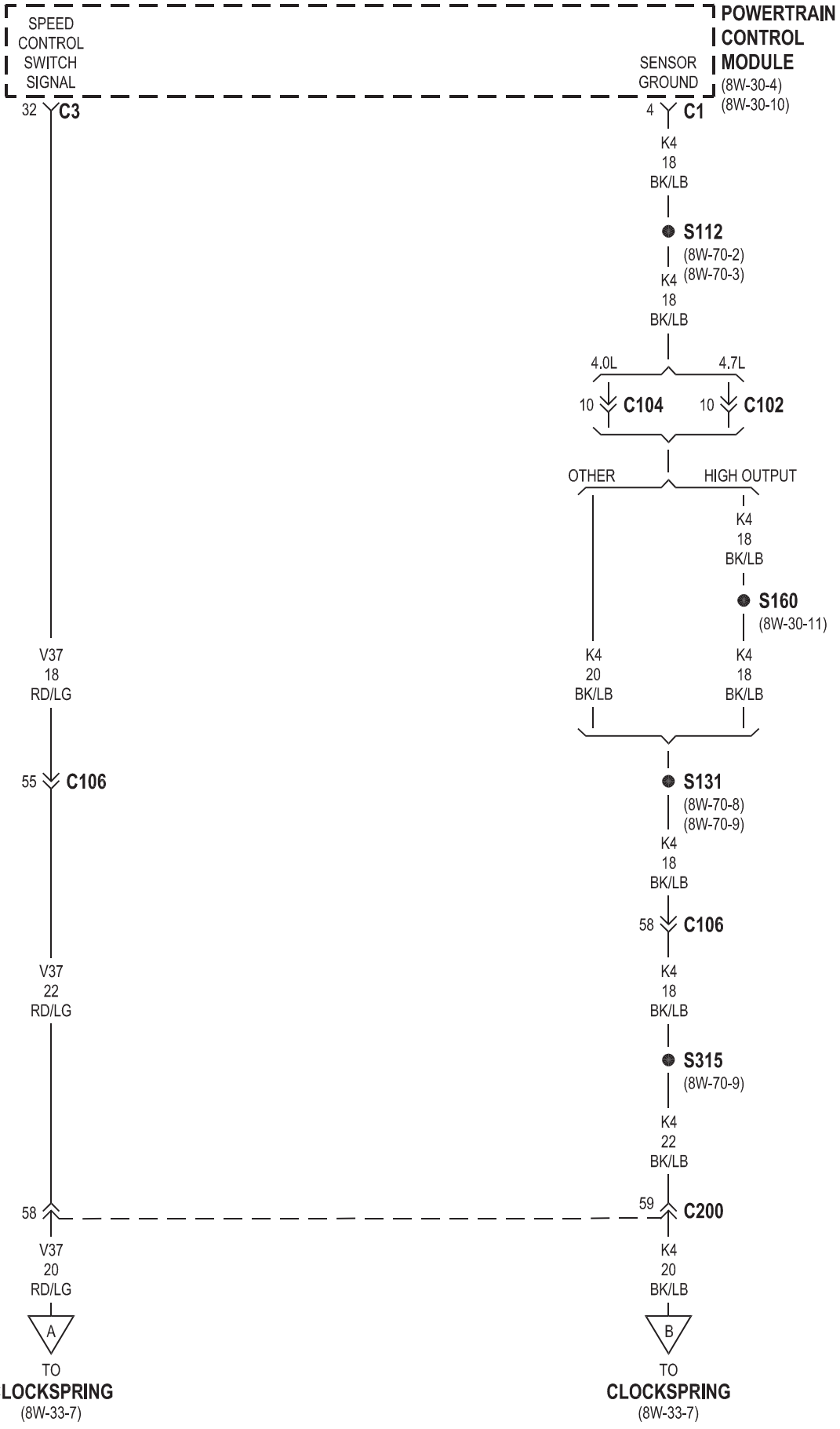

TRANSMISSION SOLENOID ASSEMBLY
N3 INPUT SPEED SENSOR
MODULATION PRESSURE SOLENOID CONTROL
N2 INPUT SPEED SENSOR
TEMP SENSOR-P/N SWITCH
SOLENOID SUPPLY VOLTAGE
SENSOR SUPPLY VOLTAGE
2-3 SOLENOID CONTROL
3-4 SOLENOID CONTROL
SHIFT PRESSURE SOLENOID CONTROL
TCC SOLENOID CONTROL
SENSOR GROUND
1-2/ 4-5 SOLENOID CONTROL
1 2 3 4 6 7 8 9 10 11 12 13
T14 18 LG/WT
T591 18 YL/DB
T52 18 RD/BK
T54 18 VT
T16 18 RD
T39 18 GY/LB
T119 18 WT/DB
T159 18 DG/WT
T118 18 YL/DB
T120 18 LG
T13 18 DB/BK
T60 18 BR
35 C2 36 C2 12 C2 34 C2 38 C2 13 C2 16 C2 15 C2 37 C2 17 C2 33 C2 14 C2
N3 INPUT SPEED SENSOR
MODULATION PRESSURE SOLENOID CONTROL
N2 INPUT SPEED SENSOR
TEMP SENSOR-P/N SWITCH
SOLENOID SUPPLY VOLTAGE
SENSOR SUPPLY VOLTAGE
2-3 SOLENOID CONTROL
3-4 SOLENOID CONTROL
SHIFT PRESSURE SOLENOID CONTROL
TCC SOLENOID CONTROL
SENSOR GROUND
1-2/ 4-5 SOLENOID CONTROL
TRANSMISSION CONTROL MODULE

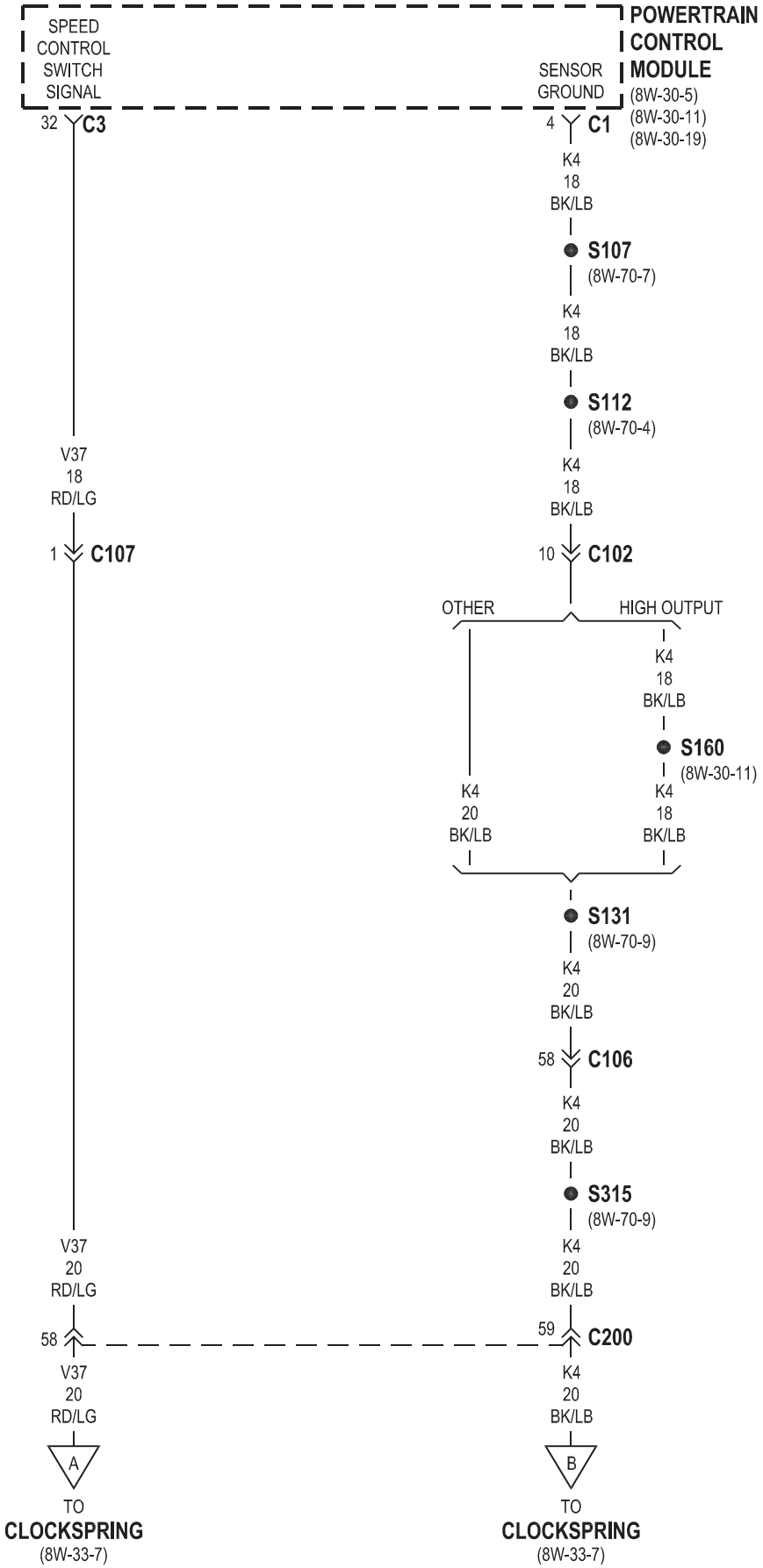
8W-33 VEHICLE SPEED CONTROL

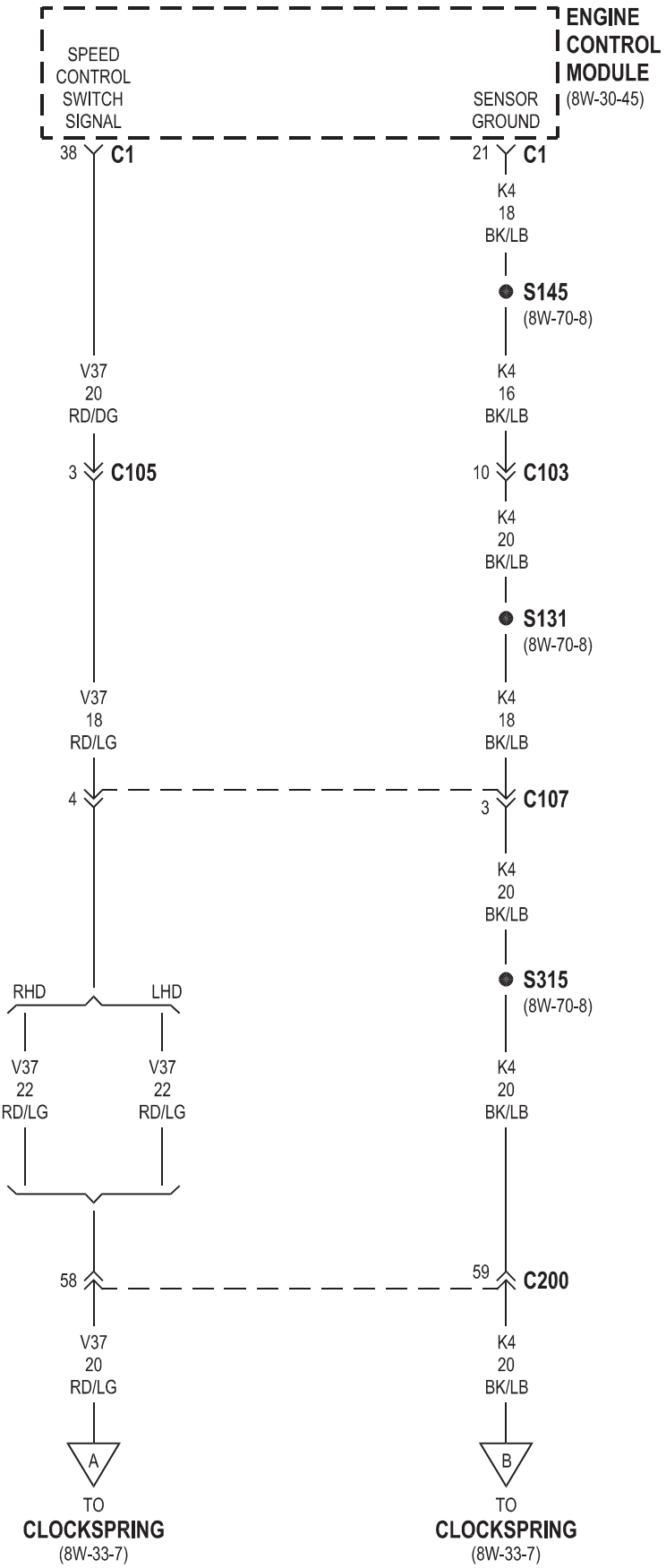
Component	Page
Brake Lamp Switch	8W-33-2, 3
Clockspring	8W-33-4, 5, 6, 7
Electronic Speed Control Servo	8W-33-2
Engine Control Module	8W-33-3, 6
Fuse 23	8W-33-2, 3
G108	8W-33-2
G300	8W-33-2, 3
G301	8W-33-2, 3
Junction Block	8W-33-2, 3
Powertrain Control Module	8W-33-2, 4, 5
Shifter Assembly	8W-33-2, 3
Speed Control Switch No. 1	8W-33-7
Speed Control Switch No. 2	8W-33-7

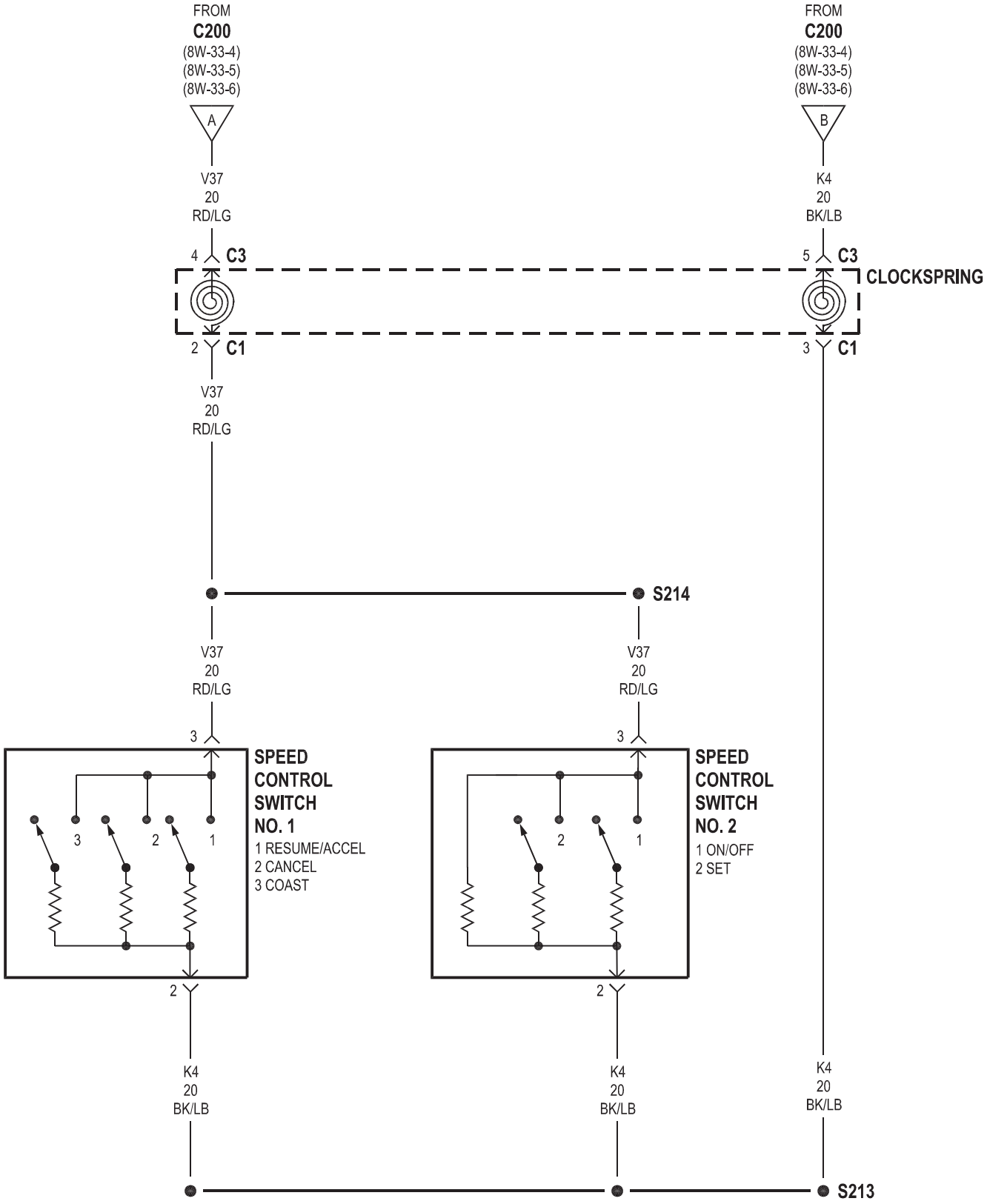

POWERTRAIN CONTROL MODULE
(8W-30-4)
(8W-30-5)
(8W-30-39)
SPEED CONTROL VACUUM SOLENOID CONTROL
SPEED CONTROL VENT SOLENOID CONTROL
SPEED CONTROL SUPPLY
BRAKE SWITCH SIGNAL
4 C3
5 C3
11 C3
24 C3
BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 23 15A
(8W-12-25)
47 C2
LHD
RHD
V36 18 TN/RD
45 C107
V36 18 TN/RD
V36 20 TN/RD
15 C106
V36 18 TN/RD
V32 18 OR/DG
RHD
LHD
42 C107
32
V32 22 OR/DG
LHD
RHD
10 C106
40 C107
K29 20 WT/PK
K29 18 WT/PK
K29 18 WT/PK
F32 20 PK/DB
S314
K29 18 WT/PK
K29 18 WT/PK
22 C200
K29 18 WT/PK
6
SECONDARY BRAKE SWITCH SIGNAL
SHIFTER ASSEMBLY
(8W-31-14)
3
1
6
BRAKE LAMP SWITCH
4
2
5
L50 20 WT/TN
TO S313
(8W-51-5)
(8W-51-6)
LHD
RHD
V35 18 LG/RD
44 C107
V35 18 LG/RD
V35 20 LG/RD
15 C106
V35 20 LG/RD
V30 22 DB/RD
33 C106
V30 20 DB/RD
RHD
LHD
Z243 18 BK
Z238 18 BK
1
2
3
ELECTRONIC SPEED CONTROL SERVO
VACUUM SOLENOID
VENT SOLENOID
DUMP SOLENOID
4
Z307 20 BK
S132
(8W-15-9)
Z307 14 BK
G108
(8W-15-9)
BASE
EXCEPT BASE
S358
(8W-15-22)
S329
(8W-15-17)
Z243 12 BK
Z238 18 BK
Z238 14 BK
G301
(8W-15-22)
G300
(8W-15-17)


BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 23 15A
(8W-12-25)
47 C2
SECONDARY BRAKE SWITCH SIGNAL
SHIFTER ASSEMBLY
(8W-31-15)
4 C2
K29 20 WT/PK
4 C201
B30 18 DG/OR
22 C200
B30 18 DG/OR
3
SECONDARY BRAKE SWITCH SIGNAL
ENGINE CONTROL MODULE
(8W-30-45)
(8W-30-58)
48 C1
K29 20 WT/PK
14 C102
K29 18 WT/PK
40 C107
K29 18 WT/PK
1
F32 20 PK/DB
6
BRAKE LAMP SWITCH
4
2
5
LHD
RHD
RHD
LHD
Z238 18 BK
Z243 18 BK
Z243 18 BK
Z238 18 BK
L50 20 WT/TN
S329
(8W-15-17)
S358
(8W-15-22)
TO S313
(8W-51-5)
(8W-51-6)
BASE
OTHER
S329
(8W-15-17)
Z238 14 BK
Z243 12 BK
Z238 18 BK
Z238 14 BK
G301
(8W-15-22)
G300
(8W-15-17)


POWERTRAIN CONTROL MODULE
(8W-30-4)
(8W-30-10)
SPEED CONTROL SWITCH SIGNAL
SENSOR GROUND
32 C3
4 C1
K4 18 BK/LB
S112
(8W-70-2)
(8W-70-3)
4.0L
4.7L
10 C104
10 C102
OTHER
HIGH OUTPUT
S160
(8W-30-11)
V37 18 RD/LG
K4 20 BK/LB
K4 18 BK/LB
55 C106
S131
(8W-70-8)
(8W-70-9)
58 C106
V37 22 RD/LG
K4 18 BK/LB
S315
(8W-70-9)
K4 22 BK/LB
58
59 C200
V37 20 RD/LG
K4 20 BK/LB
A
B
TO CLOCKSPRING
(8W-33-7)
TO CLOCKSPRING
(8W-33-7)

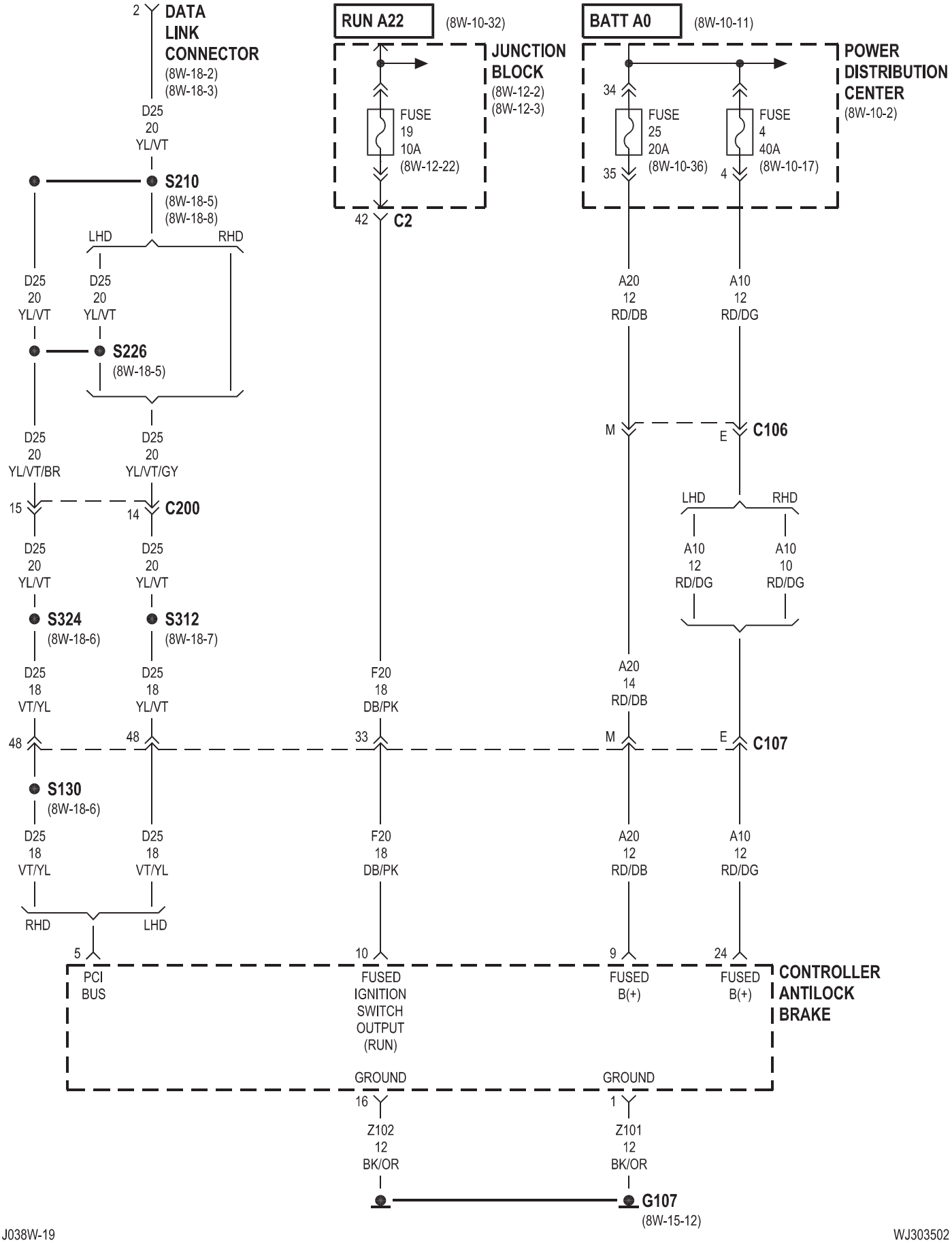

SPEED CONTROL SWITCH SIGNAL
32 C3
POWERTRAIN CONTROL MODULE
(8W-30-5)
(8W-30-11)
(8W-30-19)
SENSOR GROUND
4 C1
K4 18 BK/LB
S107
(8W-70-7)
K4 18 BK/LB
S112
(8W-70-4)
K4 18 BK/LB
V37 18 RD/LG
1 C107
10 C102
OTHER
HIGH OUTPUT
K4 18 BK/LB
S160
(8W-30-11)
K4 20 BK/LB
K4 18 BK/LB
S131
(8W-70-9)
K4 20 BK/LB
58 C106
K4 20 BK/LB
S315
(8W-70-9)
K4 20 BK/LB
V37 20 RD/LG
58
59 C200
V37 20 RD/LG
K4 20 BK/LB
A
B
TO CLOCKSPRING
(8W-33-7)
TO CLOCKSPRING
(8W-33-7)

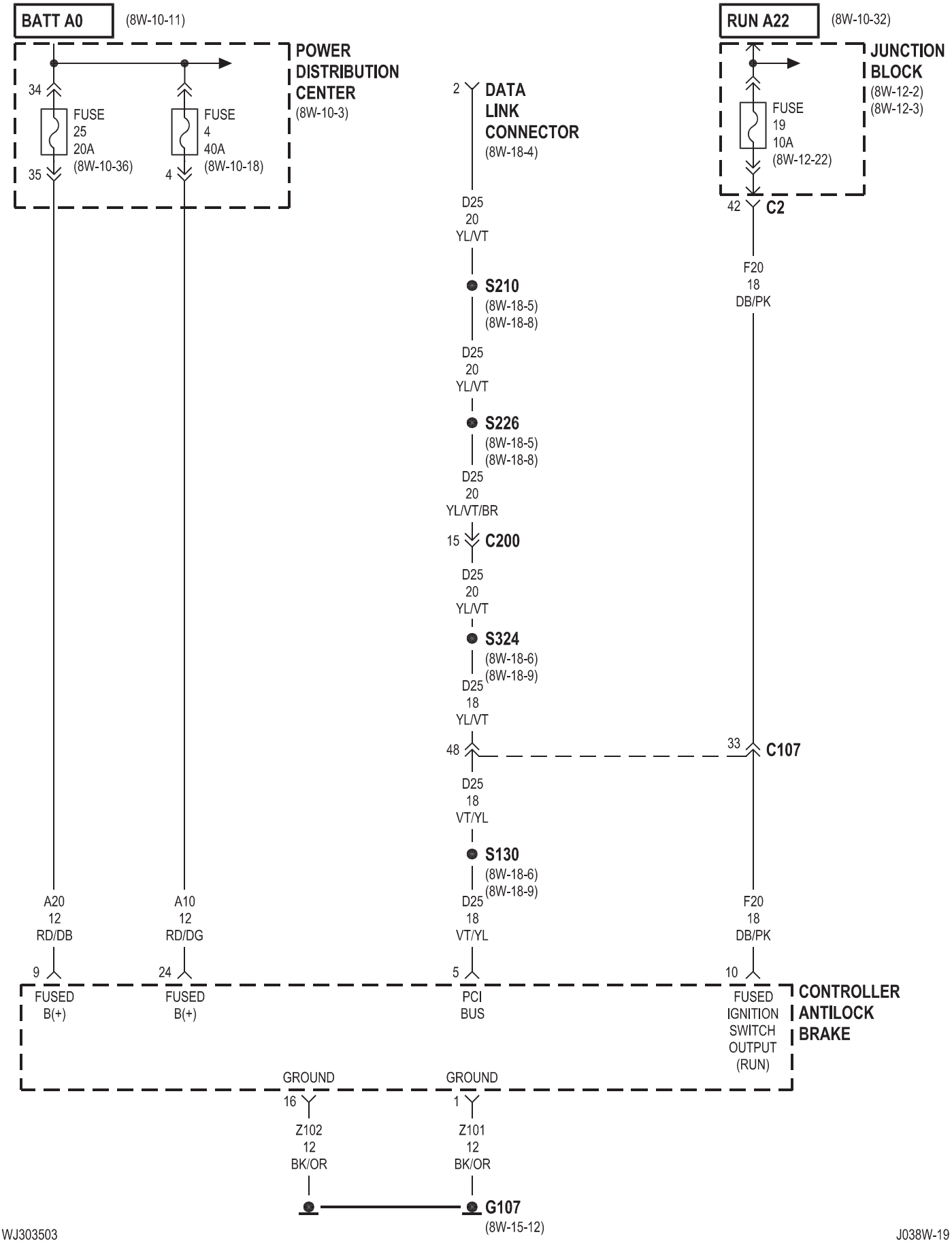

ENGINE CONTROL MODULE
(8W-30-45)
SPEED CONTROL SWITCH SIGNAL
SENSOR GROUND
38 C1
21 C1
K4 18 BK/LB
S145
(8W-70-8)
V37 20 RD/DG
K4 16 BK/LB
3 C105
10 C103
K4 20 BK/LB
S131
(8W-70-8)
V37 18 RD/LG
K4 18 BK/LB
4
3 C107
K4 20 BK/LB
S315
(8W-70-8)
RHD
LHD
V37 22 RD/LG
V37 22 RD/LG
K4 20 BK/LB
58
59 C200
V37 20 RD/LG
K4 20 BK/LB
A
B
TO CLOCKSPRING
(8W-33-7)
TO CLOCKSPRING
(8W-33-7)

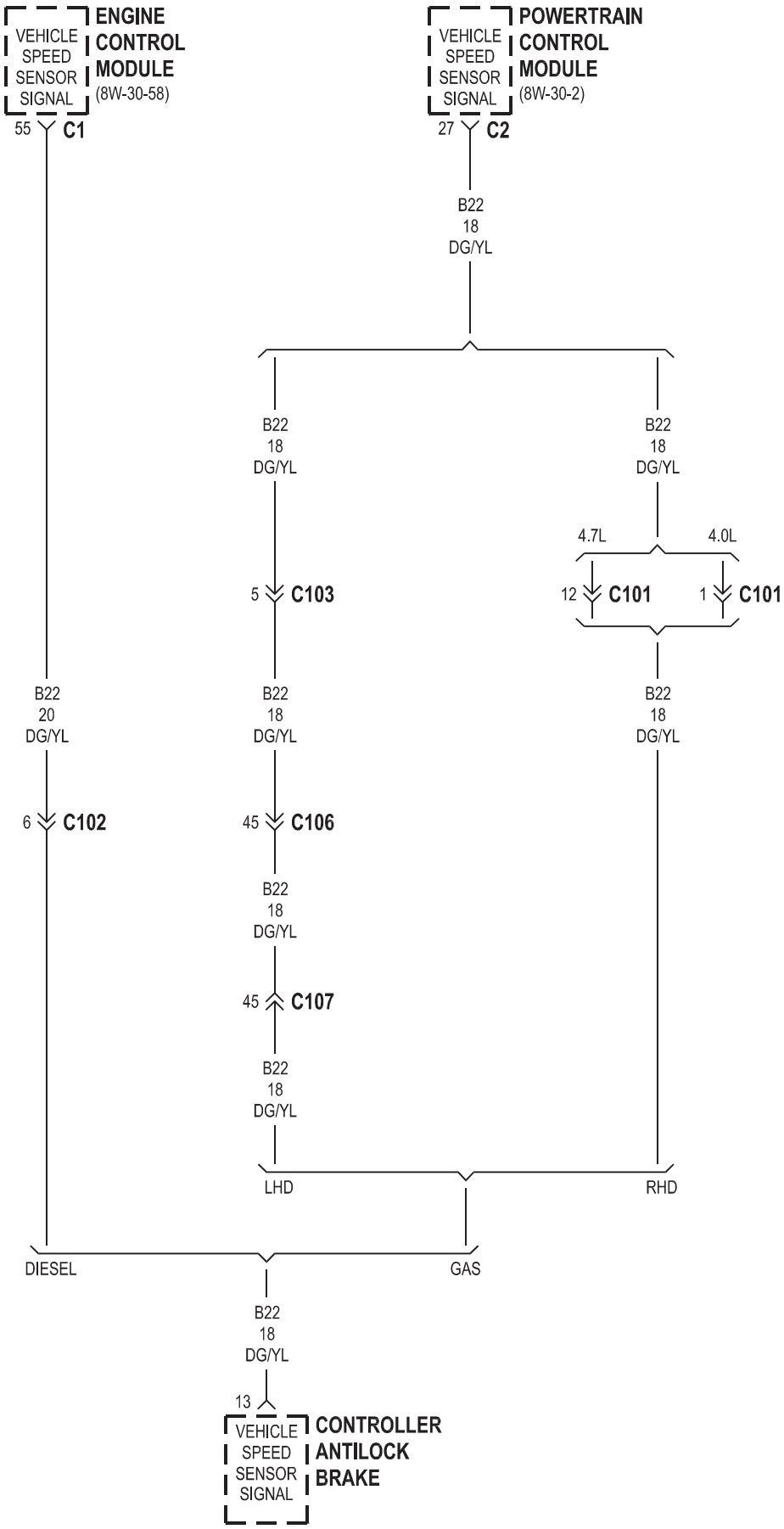

FROM
C200
(8W-33-4)
(8W-33-5)
(8W-33-6)
A
V37
20
RD/LG
4
C3
2
C1
V37
20
RD/LG
FROM
C200
(8W-33-4)
(8W-33-5)
(8W-33-6)
B
K4
20
BK/LB
5
C3
3
C1
CLOCKSPRING
S214
V37
20
RD/LG
3
SPEED
CONTROL
SWITCH
NO. 1
1 RESUME/ACCEL
2 CANCEL
3 COAST
3
2
1
2
K4
20
BK/LB
V37
20
RD/LG
3
SPEED
CONTROL
SWITCH
NO. 2
1 ON/OFF
2 SET
2
1
2
K4
20
BK/LB
K4
20
BK/LB
S213

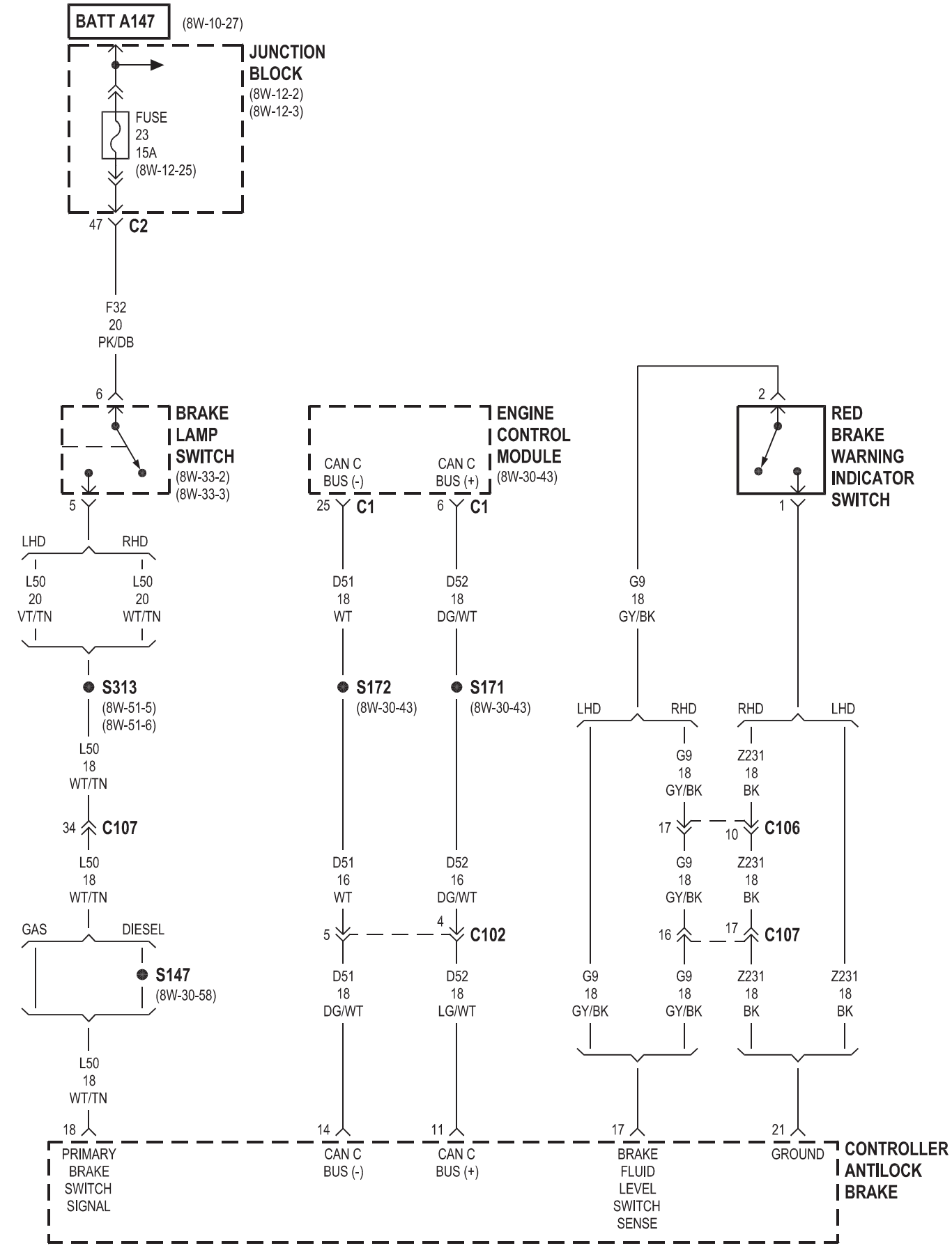
8W-35 ANTILOCK BRAKES

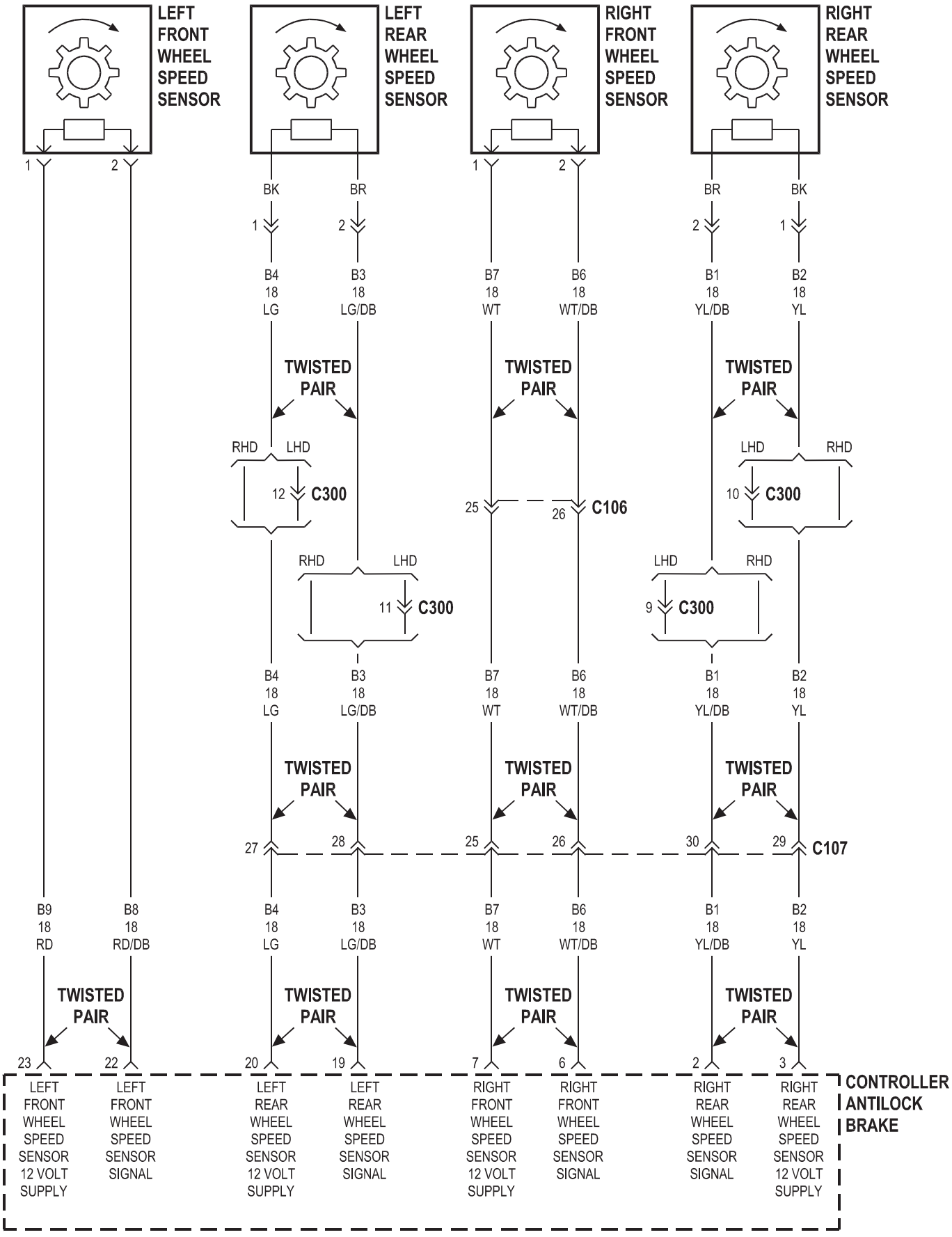
Component	Page
Brake Lamp Switch	8W-35-5
Controller Antilock Brake	8W-35-2, 3, 4, 5, 6
Data Link Connector	8W-35-2, 3
Engine Control Module	8W-35-4, 5
Fuse 4	8W-35-2, 3
Fuse 19	8W-35-2, 3
Fuse 23	8W-35-5
Fuse 25	8W-35-2, 3
G107	8W-35-2, 3
Junction Block	8W-35-2, 3, 5
Left Front Wheel Speed Sensor	8W-35-6
Left Rear Wheel Speed Sensor	8W-35-6
Power Distribution Center	8W-35-2, 3
Powertrain Control Module	8W-35-4
Red Brake Warning Indicator Switch	8W-35-5
Right Front Wheel Speed Sensor	8W-35-6
Right Rear Wheel Speed Sensor	8W-35-6


2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
D25
20
YL/VT
S210
(8W-18-5)
(8W-18-8)
LHD
RHD
D25
20
YL/VT
D25
20
YL/VT
S226
(8W-18-5)
D25
20
YL/VT/BR
D25
20
YL/VT/GY
15
14
C200
D25
20
YL/VT
D25
20
YL/VT
S324
(8W-18-6)
S312
(8W-18-7)
D25
18
VT/YL
D25
18
YL/VT
48
48
S130
(8W-18-6)
D25
18
VT/YL
D25
18
VT/YL
RHD
LHD
5
PCI BUS
RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
19
10A
(8W-12-22)
42
C2
F20
18
DB/PK
33
F20
18
DB/PK
10
FUSED IGNITION SWITCH OUTPUT (RUN)
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
34
FUSE
25
20A
(8W-10-36)
35
FUSE
4
40A
(8W-10-17)
4
A20
12
RD/DB
A10
12
RD/DG
M
E
C106
LHD
RHD
A10
12
RD/DG
A10
10
RD/DG
A20
14
RD/DB
M
E
C107
A20
12
RD/DB
A10
12
RD/DG
9
24
FUSED B(+)
FUSED B(+)
CONTROLLER ANTILOCK BRAKE
GROUND
16
Z102
12
BK/OR
GROUND
1
Z101
12
BK/OR
G107
(8W-15-12)


BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
34
FUSE 25 20A
(8W-10-36)
35
FUSE 4 40A
(8W-10-18)
4
RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 19 10A
(8W-12-22)
42
C2
F20 18 DB/PK
2
DATA LINK CONNECTOR
(8W-18-4)
D25 20 YL/VT
S210
(8W-18-5)
(8W-18-8)
D25 20 YL/VT
S226
(8W-18-5)
(8W-18-8)
D25 20 YL/VT/BR
15
C200
D25 20 YL/VT
S324
(8W-18-6)
(8W-18-9)
D25 18 YL/VT
48
33
C107
D25 18 VT/YL
S130
(8W-18-6)
(8W-18-9)
A20 12 RD/DB
A10 12 RD/DG
D25 18 VT/YL
F20 18 DB/PK
9
24
5
10
FUSED B(+)
FUSED B(+)
PCI BUS
FUSED IGNITION SWITCH OUTPUT (RUN)
CONTROLLER ANTILOCK BRAKE
GROUND
GROUND
16
1
Z102 12 BK/OR
Z101 12 BK/OR
G107
(8W-15-12)

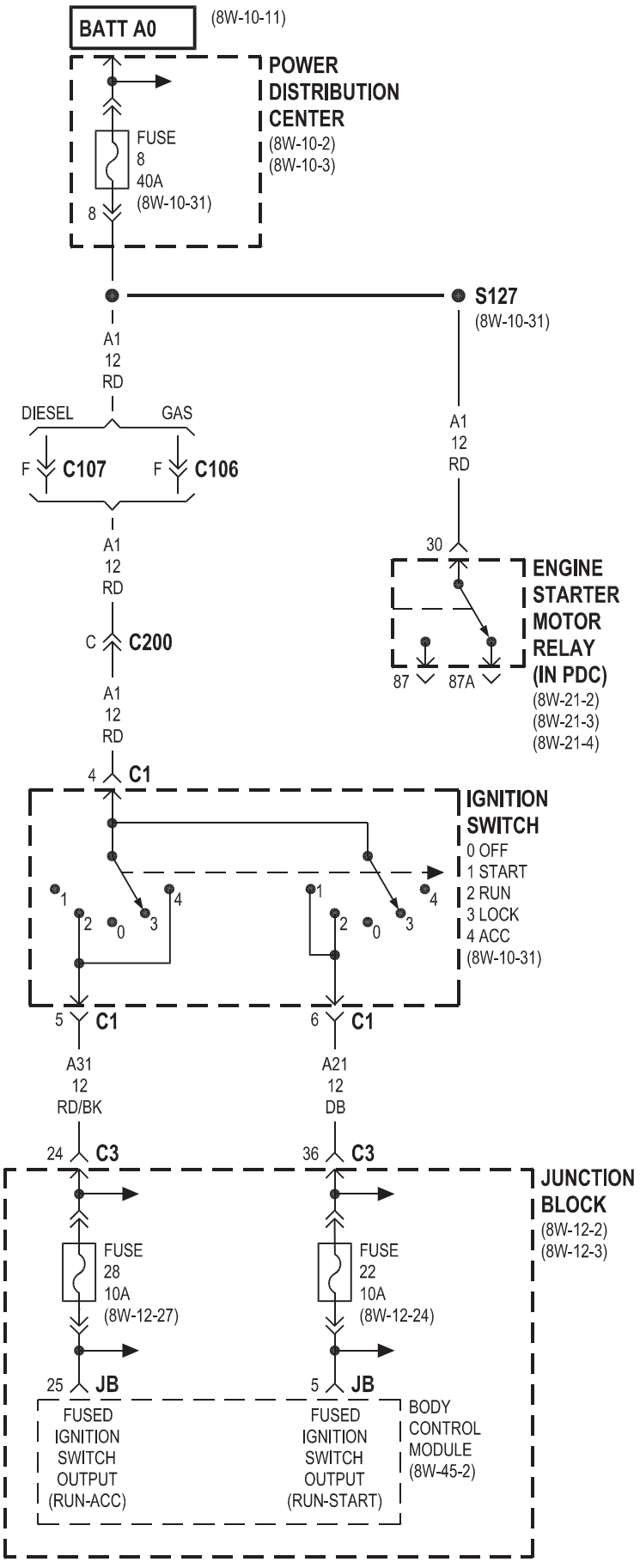

VEHICLE SPEED SENSOR SIGNAL
ENGINE CONTROL MODULE
(8W-30-58)
55 C1
VEHICLE SPEED SENSOR SIGNAL
POWERTRAIN CONTROL MODULE
(8W-30-2)
27 C2
B22 18 DG/YL
B22 18 DG/YL
B22 18 DG/YL
4.7L
4.0L
5 C103
12 C101
1 C101
B22 20 DG/YL
B22 18 DG/YL
B22 18 DG/YL
6 C102
45 C106
B22 18 DG/YL
45 C107
B22 18 DG/YL
LHD
RHD
DIESEL
GAS
B22 18 DG/YL
13
VEHICLE SPEED SENSOR SIGNAL
CONTROLLER ANTILOCK BRAKE

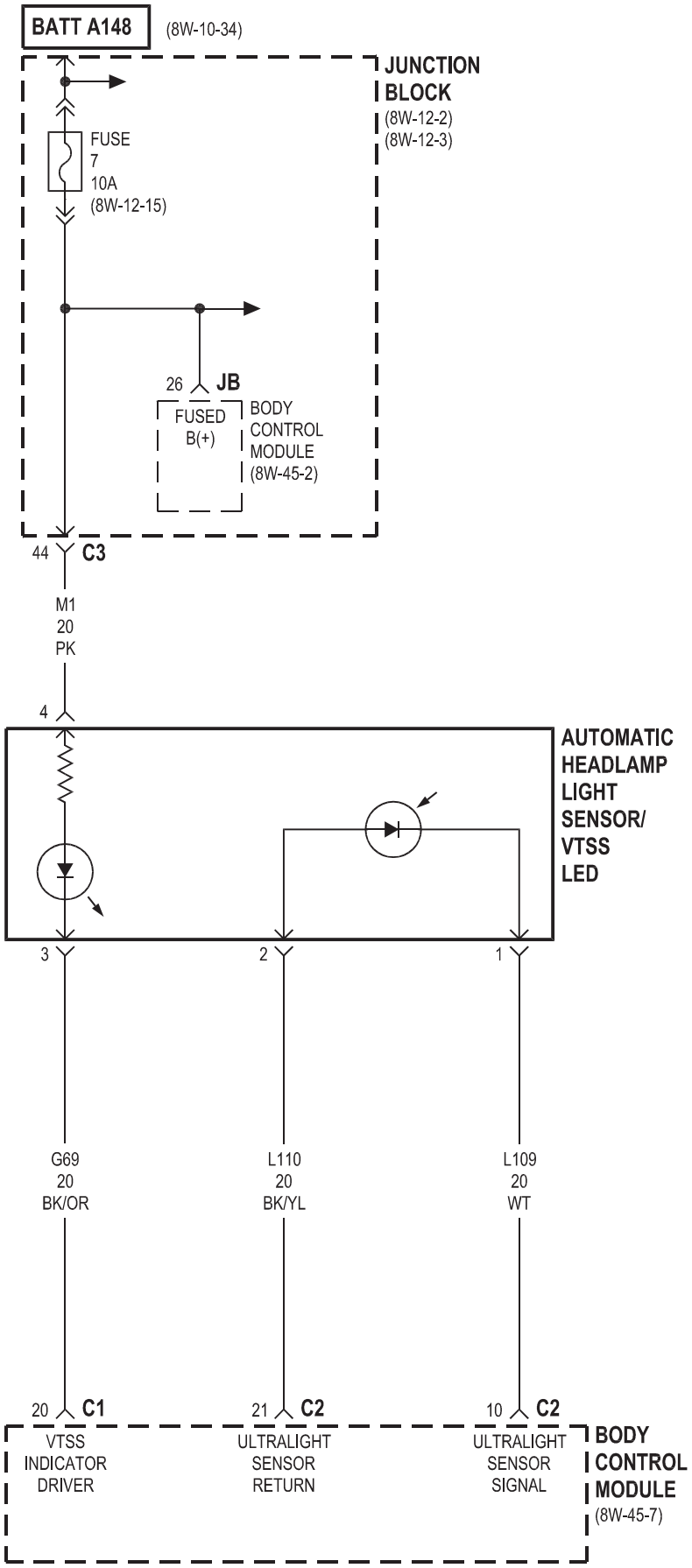

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 23 15A
(8W-12-25)
47 C2
F32 20 PK/DB
6
BRAKE LAMP SWITCH
(8W-33-2)
(8W-33-3)
5
LHD
RHD
L50 20 VT/TN
L50 20 WT/TN
S313
(8W-51-5)
(8W-51-6)
L50 18 WT/TN
34 C107
L50 18 WT/TN
GAS
DIESEL
S147
(8W-30-58)
L50 18 WT/TN
18
ENGINE CONTROL MODULE
(8W-30-43)
CAN C BUS (-)
CAN C BUS (+)
25 C1
6 C1
D51 18 WT
D52 18 DG/WT
S172
(8W-30-43)
S171
(8W-30-43)
D51 16 WT
D52 16 DG/WT
5
4 C102
D51 18 DG/WT
D52 18 LG/WT
14
11
2
RED BRAKE WARNING INDICATOR SWITCH
1
G9 18 GY/BK
LHD
RHD
RHD
LHD
G9 18 GY/BK
Z231 18 BK
17
10 C106
G9 18 GY/BK
Z231 18 BK
16
17 C107
G9 18 GY/BK
G9 18 GY/BK
Z231 18 BK
Z231 18 BK
17
21
PRIMARY BRAKE SWITCH SIGNAL
CAN C BUS (-)
CAN C BUS (+)
BRAKE FLUID LEVEL SWITCH SENSE
GROUND
CONTROLLER ANTILOCK BRAKE

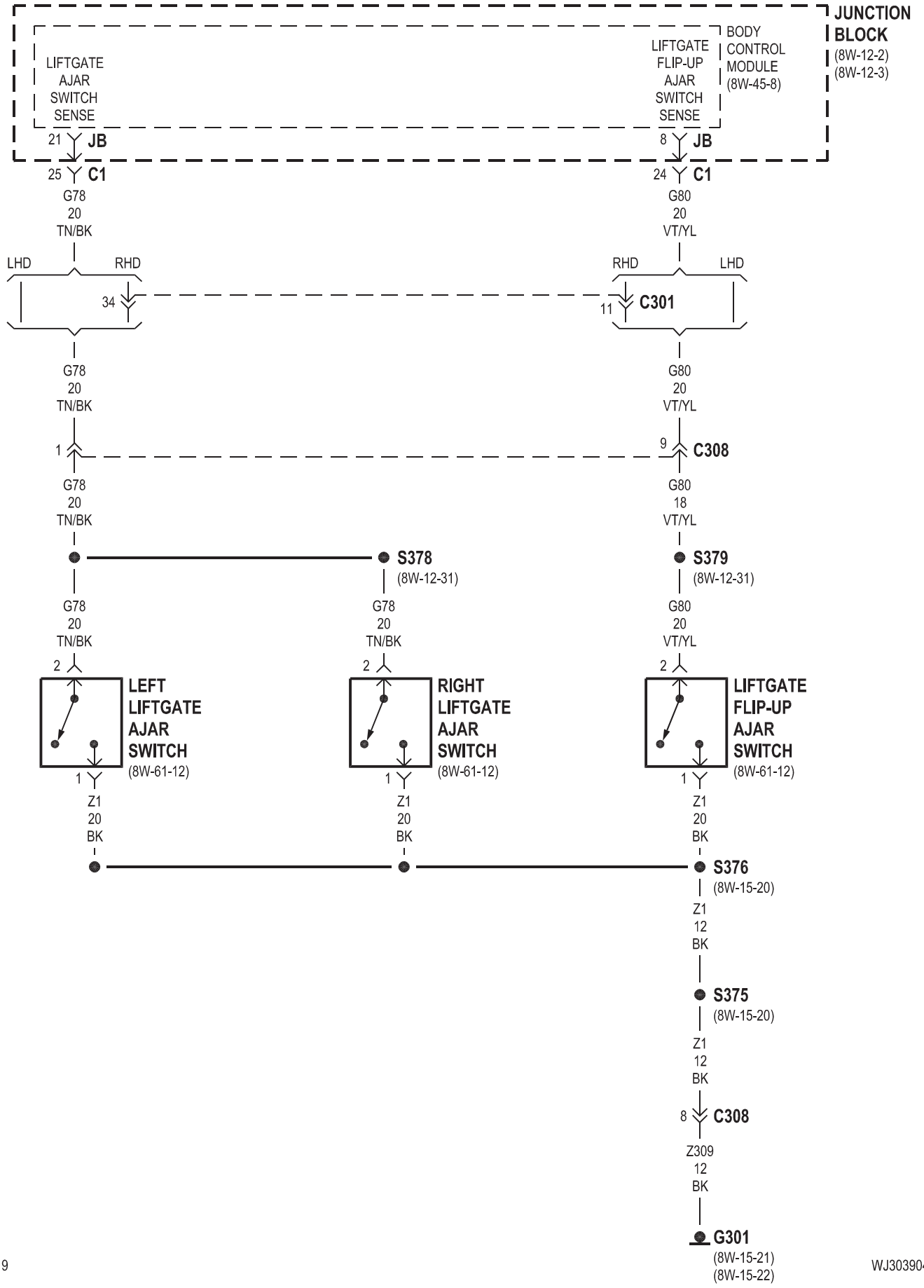

LEFT FRONT WHEEL SPEED SENSOR
LEFT REAR WHEEL SPEED SENSOR
RIGHT FRONT WHEEL SPEED SENSOR
RIGHT REAR WHEEL SPEED SENSOR
TWISTED PAIR
RHD
LHD
C300
C106
C107
CONTROLLER ANTILOCK BRAKE
LEFT FRONT WHEEL SPEED SENSOR 12 VOLT SUPPLY
LEFT FRONT WHEEL SPEED SENSOR SIGNAL
LEFT REAR WHEEL SPEED SENSOR 12 VOLT SUPPLY
LEFT REAR WHEEL SPEED SENSOR SIGNAL
RIGHT FRONT WHEEL SPEED SENSOR 12 VOLT SUPPLY
RIGHT FRONT WHEEL SPEED SENSOR SIGNAL
RIGHT REAR WHEEL SPEED SENSOR SIGNAL
RIGHT REAR WHEEL SPEED SENSOR 12 VOLT SUPPLY

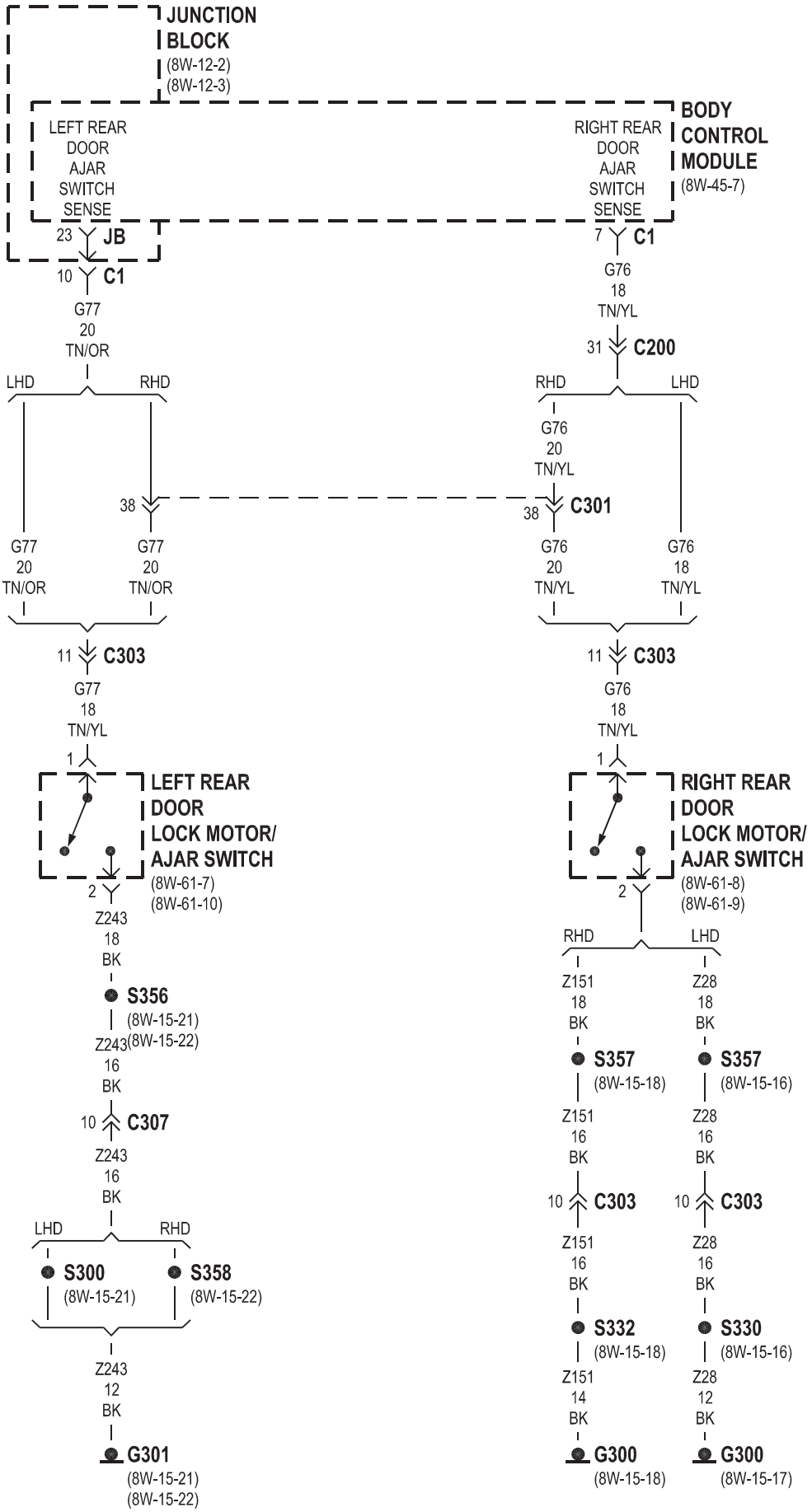
8W-39 VEHICLE THEFT SECURITY SYSTEM

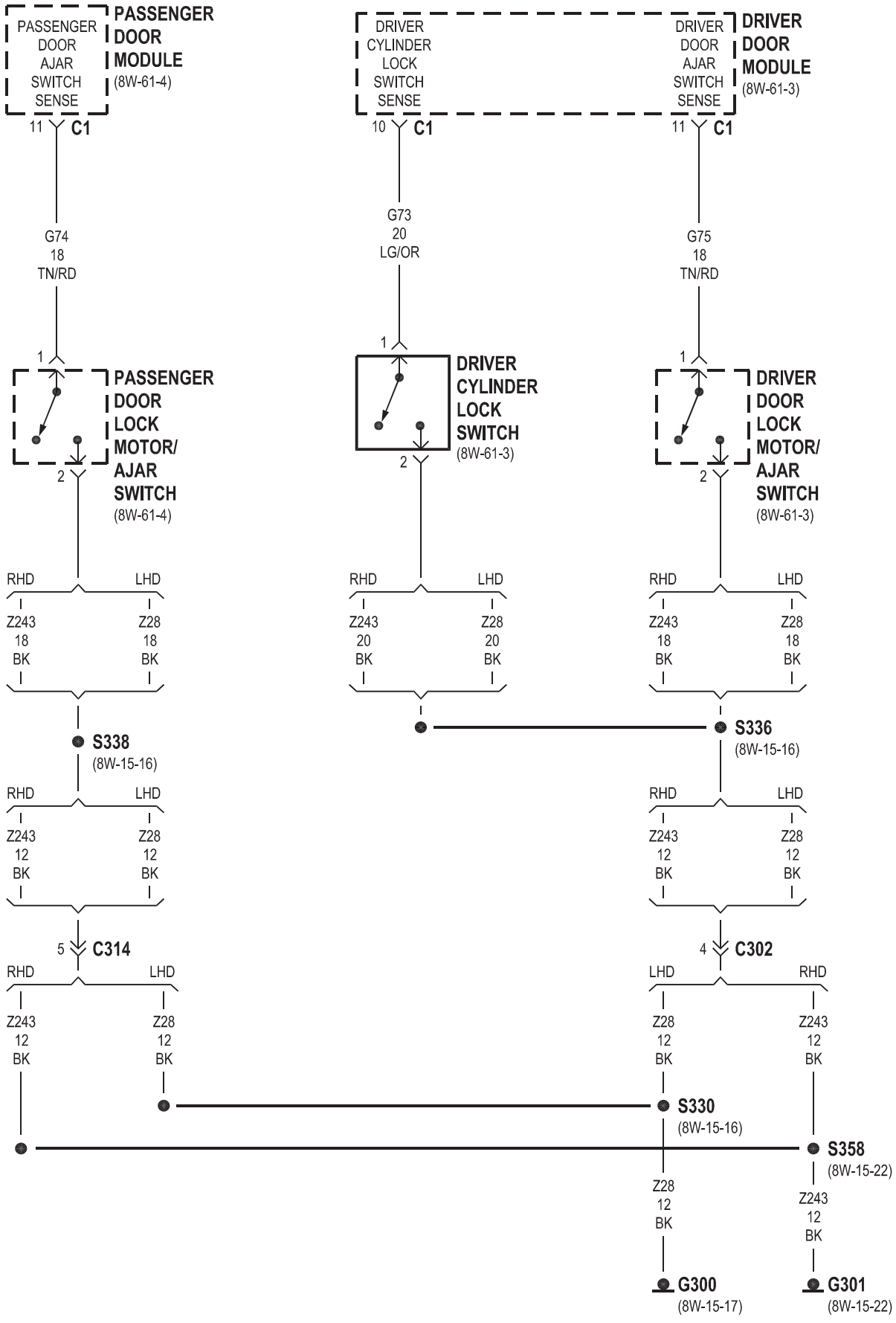
Component	Page
Automatic Headlamp Light Sensor/VTSS Led	8W-39-3
Body Control Module	8W-39-2, 3, 4, 5, 7, 8, 9, 10
Clockspring	8W-39-7, 8
Data Link Connector	8W-39-9
Driver Cylinder Lock Switch	8W-39-6
Driver Door Lock Motor/Ajar Switch	8W-39-6
Driver Door Module	8W-39-6, 11
Engine Starter Motor Relay	8W-39-2
Fuse 7	8W-39-3, 9, 11
Fuse 8	8W-39-2
Fuse 18	8W-39-7, 8
Fuse 22	8W-39-2, 9
Fuse 28	8W-39-2
G106	8W-39-10
G108	8W-39-7, 8
G200	8W-39-9
G300	8W-39-5, 6
G301	8W-39-4, 5, 6, 11
Hood Ajar Switch	8W-39-10
Horn No. 1	8W-39-7, 8
Horn No. 2	8W-39-7, 8
Horn Relay	8W-39-7, 8
Horn Switch	8W-39-7, 8
Ignition Switch	8W-39-2
Junction Block	8W-39-2, 3, 4, 5, 7, 8, 9, 11
Left Liftgate Ajar Switch	8W-39-4
Left Rear Door Lock Motor/Ajar Switch	8W-39-5
Liftgate Flip-Up Ajar Switch	8W-39-4
Passenger Door Lock Motor/Ajar Switch	8W-39-6
Passenger Door Module	8W-39-6
Power Distribution Center	8W-39-2, 7, 8
Remote Keyless Module	8W-39-11
Right Liftgate Ajar Switch	8W-39-4
Right Rear Door Lock Motor/Ajar Switch	8W-39-5
Sentry Key Immobilizer Module	8W-39-9

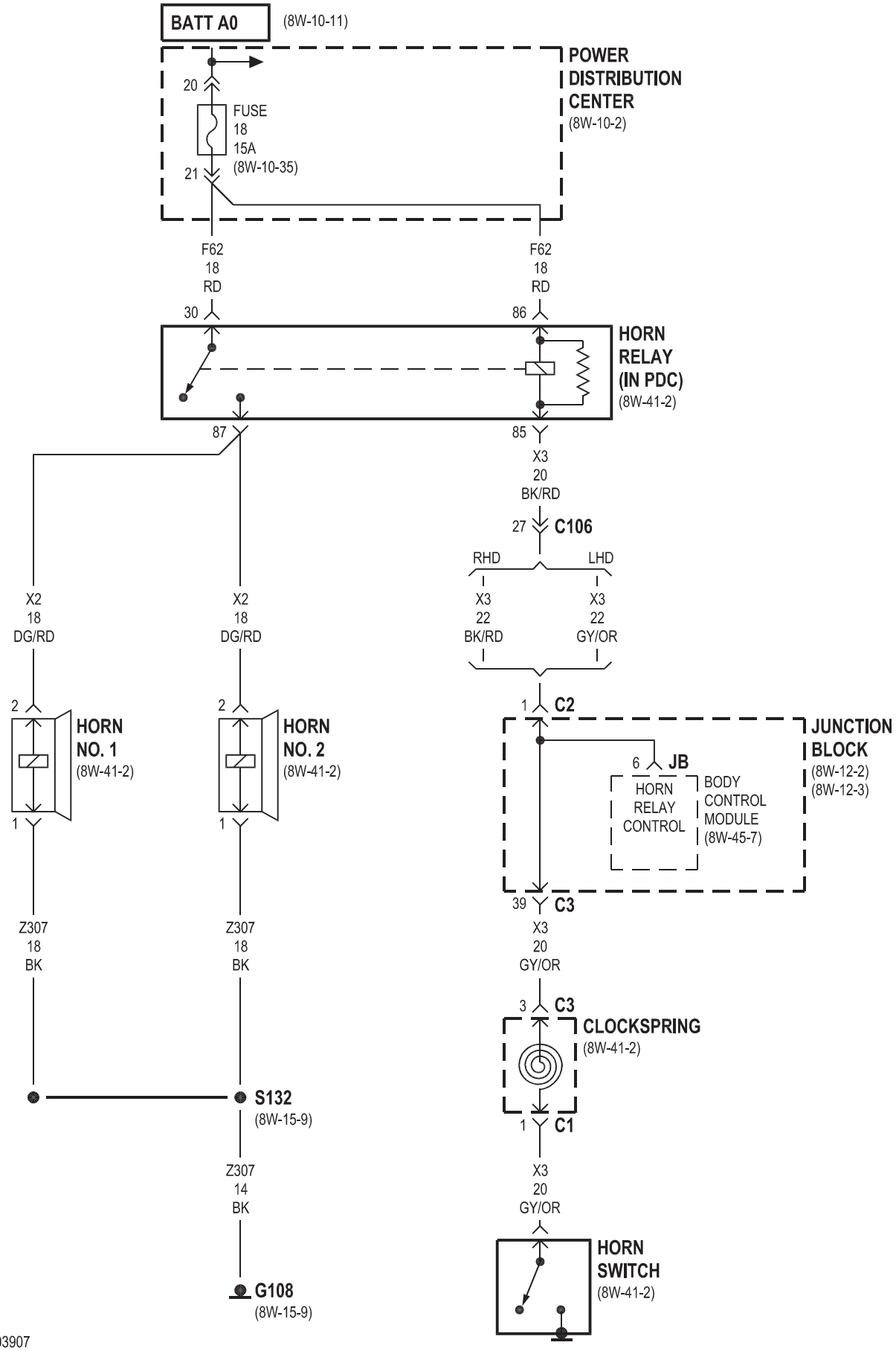

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 8 40A
(8W-10-31)
8
S127
(8W-10-31)
A1 12 RD
DIESEL
GAS
F C107
F C106
A1 12 RD
30
ENGINE STARTER MOTOR RELAY (IN PDC)
(8W-21-2)
(8W-21-3)
(8W-21-4)
87
87A
A1 12 RD
C C200
A1 12 RD
4 C1
IGNITION SWITCH
0 OFF
1 START
2 RUN
3 LOCK
4 ACC
(8W-10-31)
5 C1
6 C1
A31 12 RD/BK
A21 12 DB
24 C3
36 C3
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 28 10A
(8W-12-27)
FUSE 22 10A
(8W-12-24)
25 JB
5 JB
FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
BODY CONTROL MODULE
(8W-45-2)

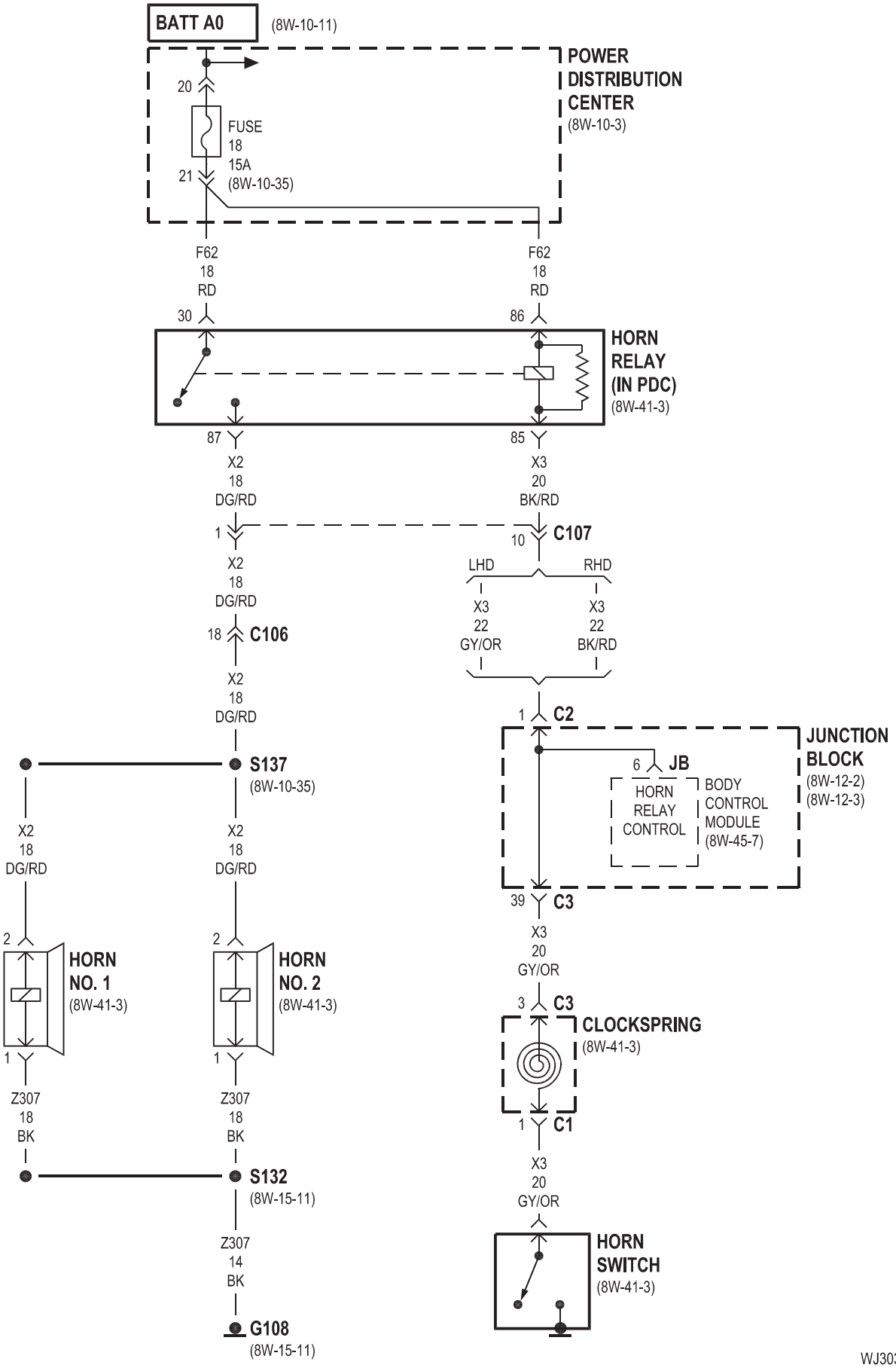

BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
7
10A
(8W-12-15)
26 JB
FUSED B(+)
BODY CONTROL MODULE
(8W-45-2)
44 C3
M1
20
PK
4
AUTOMATIC HEADLAMP LIGHT SENSOR/ VTSS LED
3
2
1
G69
20
BK/OR
L110
20
BK/YL
L109
20
WT
20 C1
21 C2
10 C2
VTSS INDICATOR DRIVER
ULTRALIGHT SENSOR RETURN
ULTRALIGHT SENSOR SIGNAL
BODY CONTROL MODULE
(8W-45-7)

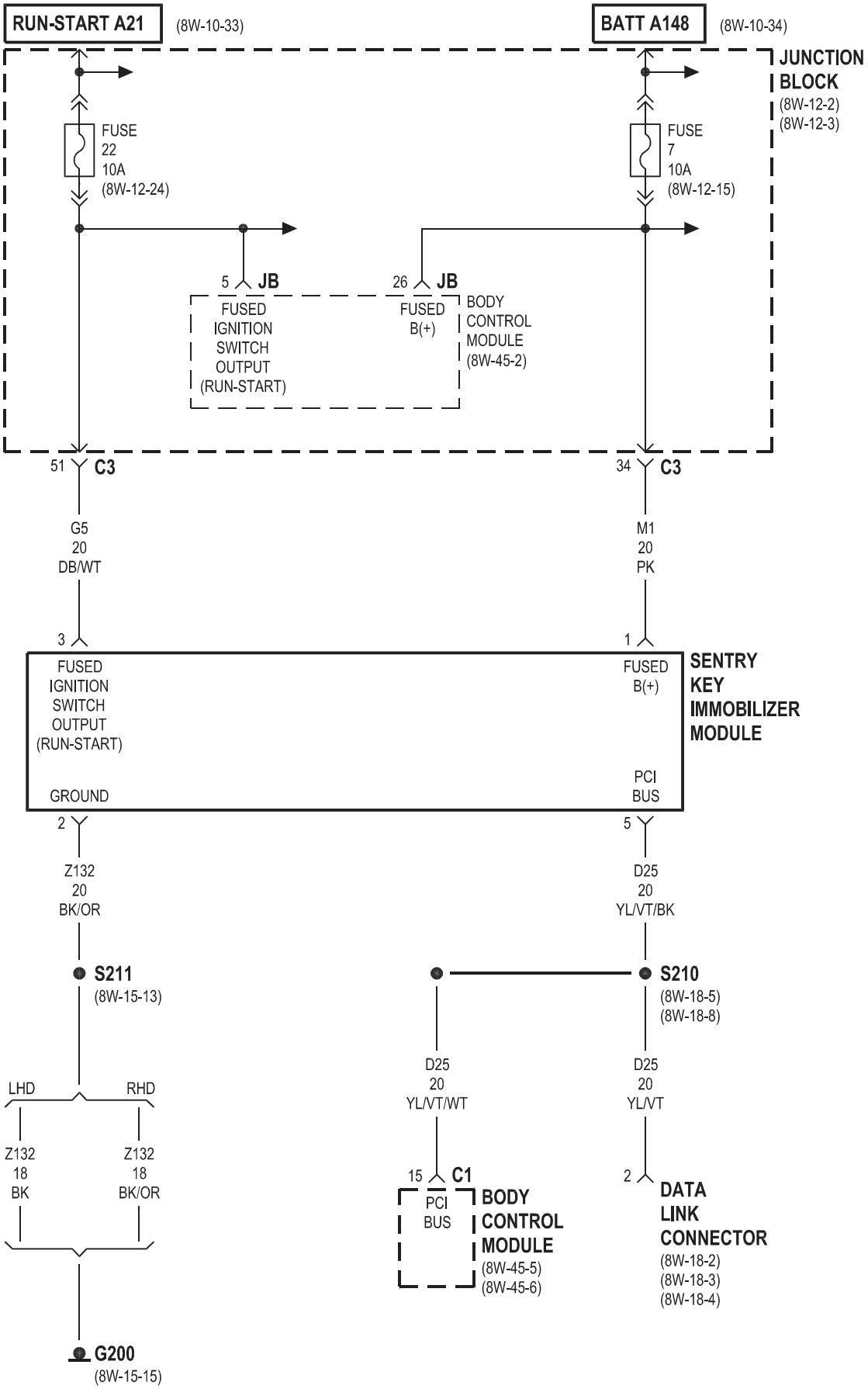

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-8)
LIFTGATE AJAR SWITCH SENSE
LIFTGATE FLIP-UP AJAR SWITCH SENSE
21 JB
8 JB
25 C1
24 C1
G78 20 TN/BK
G80 20 VT/YL
LHD
RHD
34
11 C301
1
9 C308
G78 20 TN/BK
G80 18 VT/YL
S378
(8W-12-31)
S379
(8W-12-31)
G78 20 TN/BK
G80 20 VT/YL
2
LEFT LIFTGATE AJAR SWITCH
(8W-61-12)
RIGHT LIFTGATE AJAR SWITCH
(8W-61-12)
LIFTGATE FLIP-UP AJAR SWITCH
(8W-61-12)
1
Z1 20 BK
S376
(8W-15-20)
Z1 12 BK
S375
(8W-15-20)
Z1 12 BK
8 C308
Z309 12 BK
G301
(8W-15-21)
(8W-15-22)

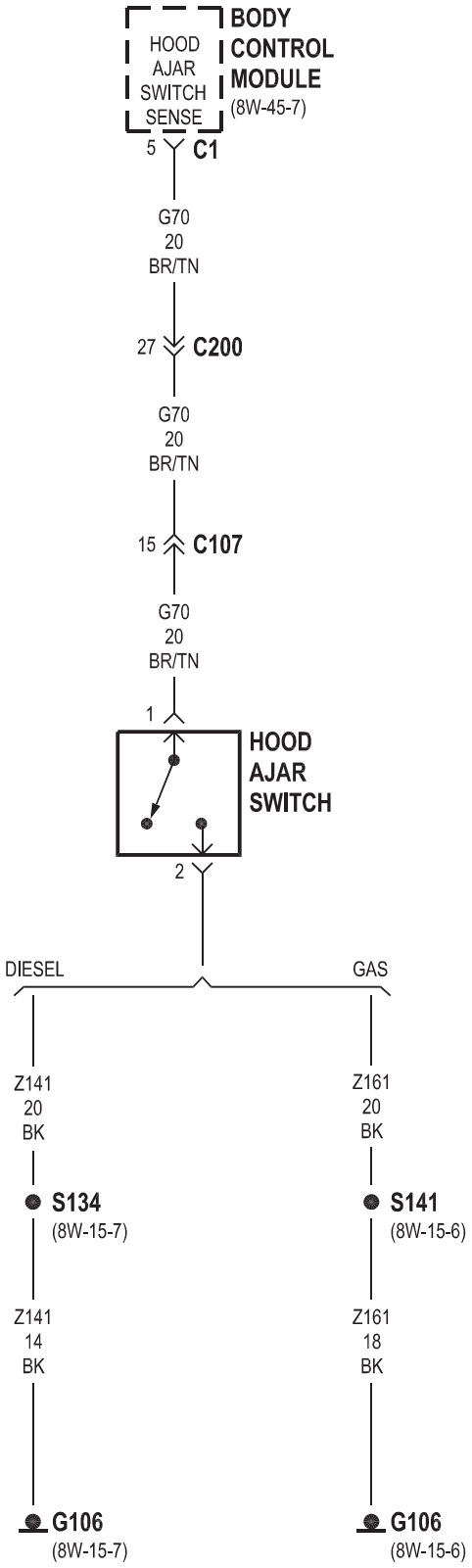

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
LEFT REAR DOOR AJAR SWITCH SENSE
RIGHT REAR DOOR AJAR SWITCH SENSE
BODY CONTROL MODULE
(8W-45-7)
23 JB
10 C1
7 C1
G77 20 TN/OR
G76 18 TN/YL
31 C200
LHD
RHD
G76 20 TN/YL
38
38 C301
G77 20 TN/OR
G77 20 TN/OR
G76 20 TN/YL
G76 18 TN/YL
11 C303
11 C303
G77 18 TN/YL
G76 18 TN/YL
1
1
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-7)
(8W-61-10)
RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-8)
(8W-61-9)
2
2
Z243 18 BK
S356
(8W-15-21)
Z243 16 BK (8W-15-22)
10 C307
Z243 16 BK
Z151 18 BK
Z28 18 BK
S357
(8W-15-18)
S357
(8W-15-16)
Z151 16 BK
Z28 16 BK
10 C303
10 C303
Z151 16 BK
Z28 16 BK
S300
(8W-15-21)
S358
(8W-15-22)
S332
(8W-15-18)
S330
(8W-15-16)
Z243 12 BK
Z151 14 BK
Z28 12 BK
G301
(8W-15-21)
(8W-15-22)
G300
(8W-15-18)
G300
(8W-15-17)

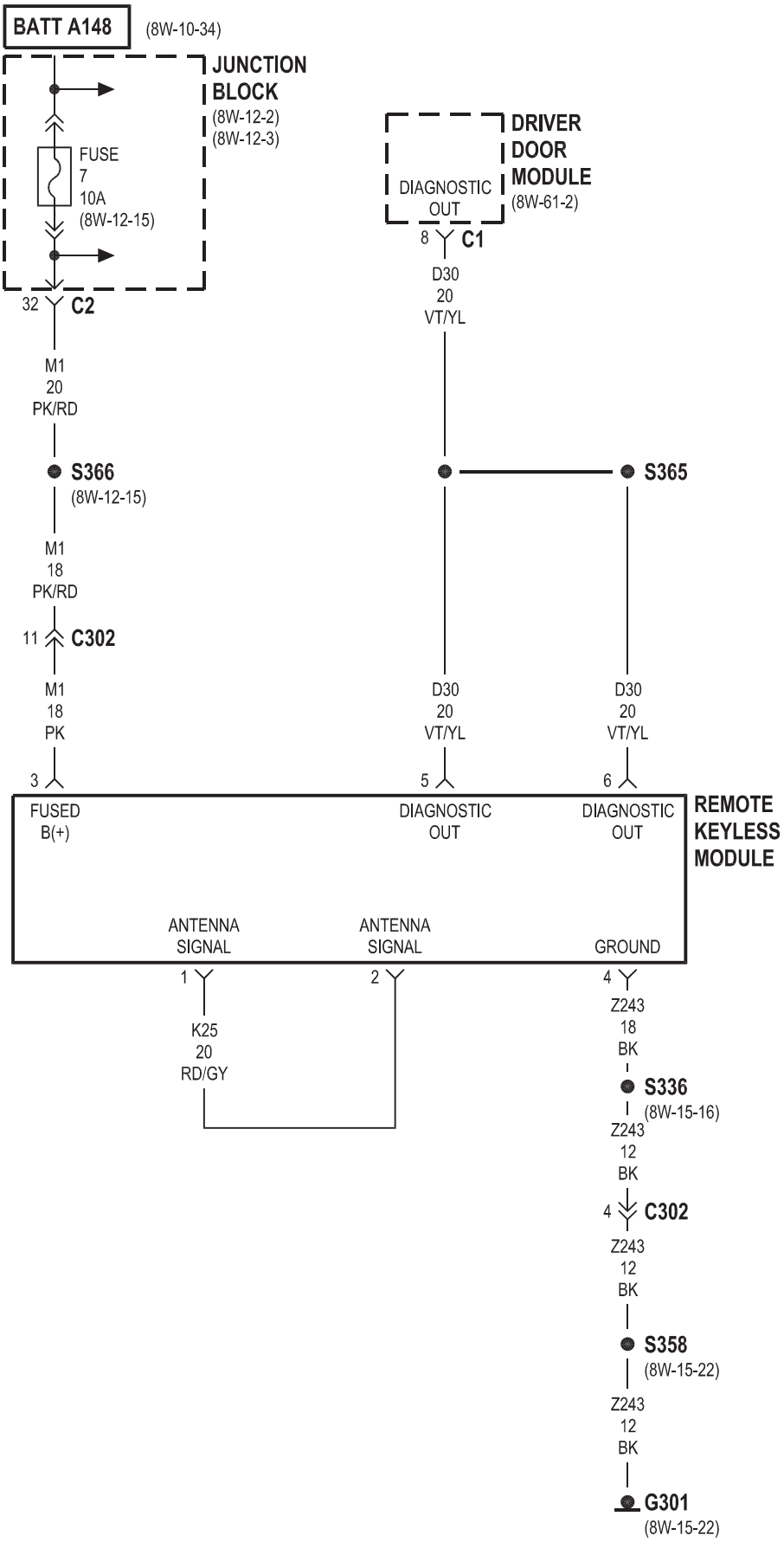

PASSENGER DOOR AJAR SWITCH SENSE
PASSENGER DOOR MODULE
(8W-61-4)
11 C1
G74
18
TN/RD
1
PASSENGER DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-4)
2
RHD LHD
Z243 18 BK
Z28 18 BK
S338
(8W-15-16)
RHD LHD
Z243 12 BK
Z28 12 BK
5 C314
RHD LHD
Z243 12 BK
Z28 12 BK
DRIVER CYLINDER LOCK SWITCH SENSE
10 C1
G73
20
LG/OR
1
DRIVER CYLINDER LOCK SWITCH
(8W-61-3)
2
RHD LHD
Z243 20 BK
Z28 20 BK
DRIVER DOOR AJAR SWITCH SENSE
DRIVER DOOR MODULE
(8W-61-3)
11 C1
G75
18
TN/RD
1
DRIVER DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-3)
2
RHD LHD
Z243 18 BK
Z28 18 BK
S336
(8W-15-16)
RHD LHD
Z243 12 BK
Z28 12 BK
4 C302
LHD RHD
Z28 12 BK
Z243 12 BK
S330
(8W-15-16)
S358
(8W-15-22)
Z28 12 BK
Z243 12 BK
G300
(8W-15-17)
G301
(8W-15-22)


BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
20
FUSE 18 15A
(8W-10-35)
21
F62 18 RD
30
F62 18 RD
86
HORN RELAY (IN PDC)
(8W-41-2)
87
85
X3 20 BK/RD
27 C106
RHD
LHD
X3 22 BK/RD
X3 22 GY/OR
X2 18 DG/RD
X2 18 DG/RD
2
HORN NO. 1
(8W-41-2)
1
2
HORN NO. 2
(8W-41-2)
1
1 C2
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
6 JB
HORN RELAY CONTROL
BODY CONTROL MODULE
(8W-45-7)
39 C3
X3 20 GY/OR
Z307 18 BK
Z307 18 BK
3 C3
CLOCKSPRING
(8W-41-2)
1 C1
S132
(8W-15-9)
Z307 14 BK
X3 20 GY/OR
HORN SWITCH
(8W-41-2)
G108
(8W-15-9)


BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
20
FUSE 18 15A
21
(8W-10-35)
F62 18 RD
30
F62 18 RD
86
HORN RELAY (IN PDC)
(8W-41-3)
87
85
X2 18 DG/RD
X3 20 BK/RD
1
10
C107
LHD
RHD
X3 22 GY/OR
X3 22 BK/RD
X2 18 DG/RD
18
C106
X2 18 DG/RD
1
C2
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
6
JB
HORN RELAY CONTROL
BODY CONTROL MODULE
(8W-45-7)
S137
(8W-10-35)
X2 18 DG/RD
X2 18 DG/RD
39
C3
X3 20 GY/OR
2
2
HORN NO. 1
(8W-41-3)
HORN NO. 2
(8W-41-3)
3
C3
CLOCKSPRING
(8W-41-3)
1
1
1
C1
Z307 18 BK
Z307 18 BK
X3 20 GY/OR
S132
(8W-15-11)
HORN SWITCH
(8W-41-3)
Z307 14 BK
G108
(8W-15-11)

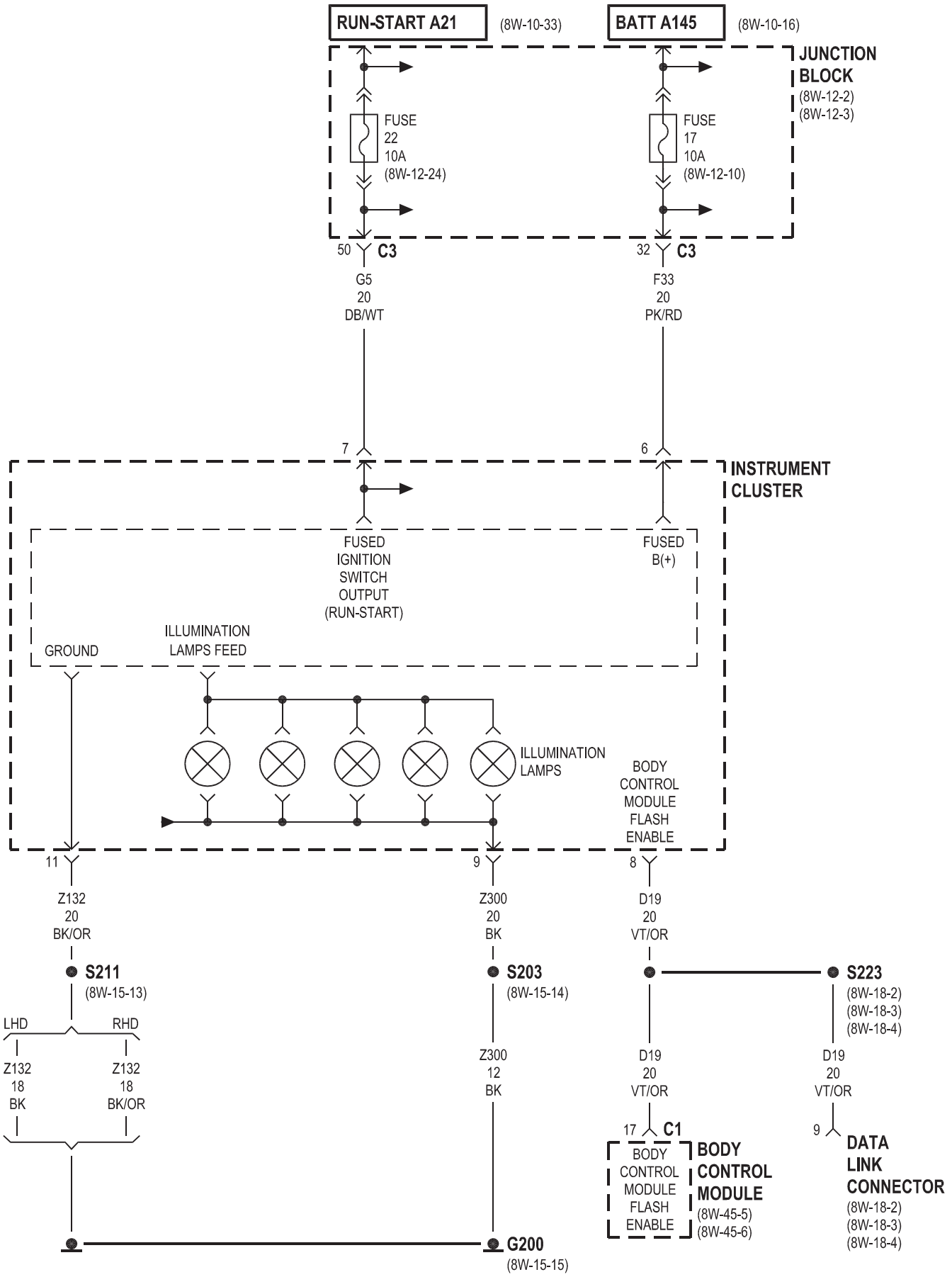

RUN-START A21
(8W-10-33)
BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 22 10A (8W-12-24)
FUSE 7 10A (8W-12-15)
5 JB
FUSED IGNITION SWITCH OUTPUT (RUN-START)
26 JB
FUSED B(+)
BODY CONTROL MODULE (8W-45-2)
51 C3
34 C3
G5 20 DB/WT
M1 20 PK
3
1
FUSED IGNITION SWITCH OUTPUT (RUN-START)
FUSED B(+)
SENTRY KEY IMMOBILIZER MODULE
GROUND
PCI BUS
2
5
Z132 20 BK/OR
D25 20 YL/VT/BK
S211
(8W-15-13)
S210
(8W-18-5)
(8W-18-8)
LHD
RHD
D25 20 YL/VT/WT
D25 20 YL/VT
Z132 18 BK
Z132 18 BK/OR
15 C1
PCI BUS
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
G200
(8W-15-15)

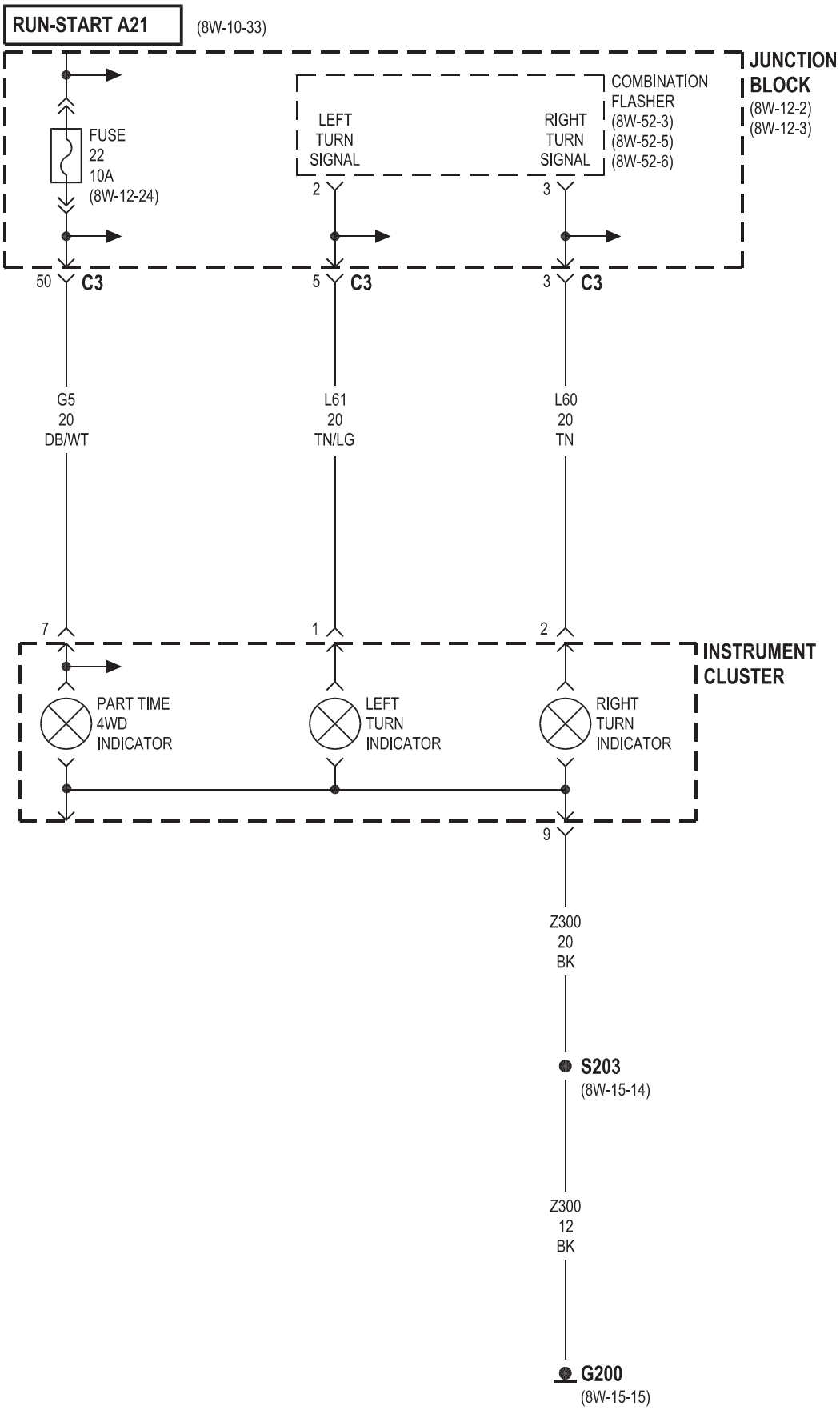

BODY CONTROL MODULE
(8W-45-7)
HOOD AJAR SWITCH SENSE
5
C1
G70
20
BR/TN
27
C200
G70
20
BR/TN
15
C107
G70
20
BR/TN
1
HOOD AJAR SWITCH
2
DIESEL
GAS
Z141
20
BK
Z161
20
BK
S134
(8W-15-7)
S141
(8W-15-6)
Z141
14
BK
Z161
18
BK
G106
(8W-15-7)
G106
(8W-15-6)


BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
7
10A
(8W-12-15)
32
C2
M1
20
PK/RD
S366
(8W-12-15)
M1
18
PK/RD
11
C302
M1
18
PK
3
FUSED B(+)
DRIVER DOOR MODULE
(8W-61-2)
DIAGNOSTIC OUT
8
C1
D30
20
VT/YL
S365
D30
20
VT/YL
5
DIAGNOSTIC OUT
D30
20
VT/YL
6
DIAGNOSTIC OUT
REMOTE KEYLESS MODULE
ANTENNA SIGNAL
1
K25
20
RD/GY
ANTENNA SIGNAL
2
GROUND
4
Z243
18
BK
S336
(8W-15-16)
Z243
12
BK
4
C302
Z243
12
BK
S358
(8W-15-22)
Z243
12
BK
G301
(8W-15-22)

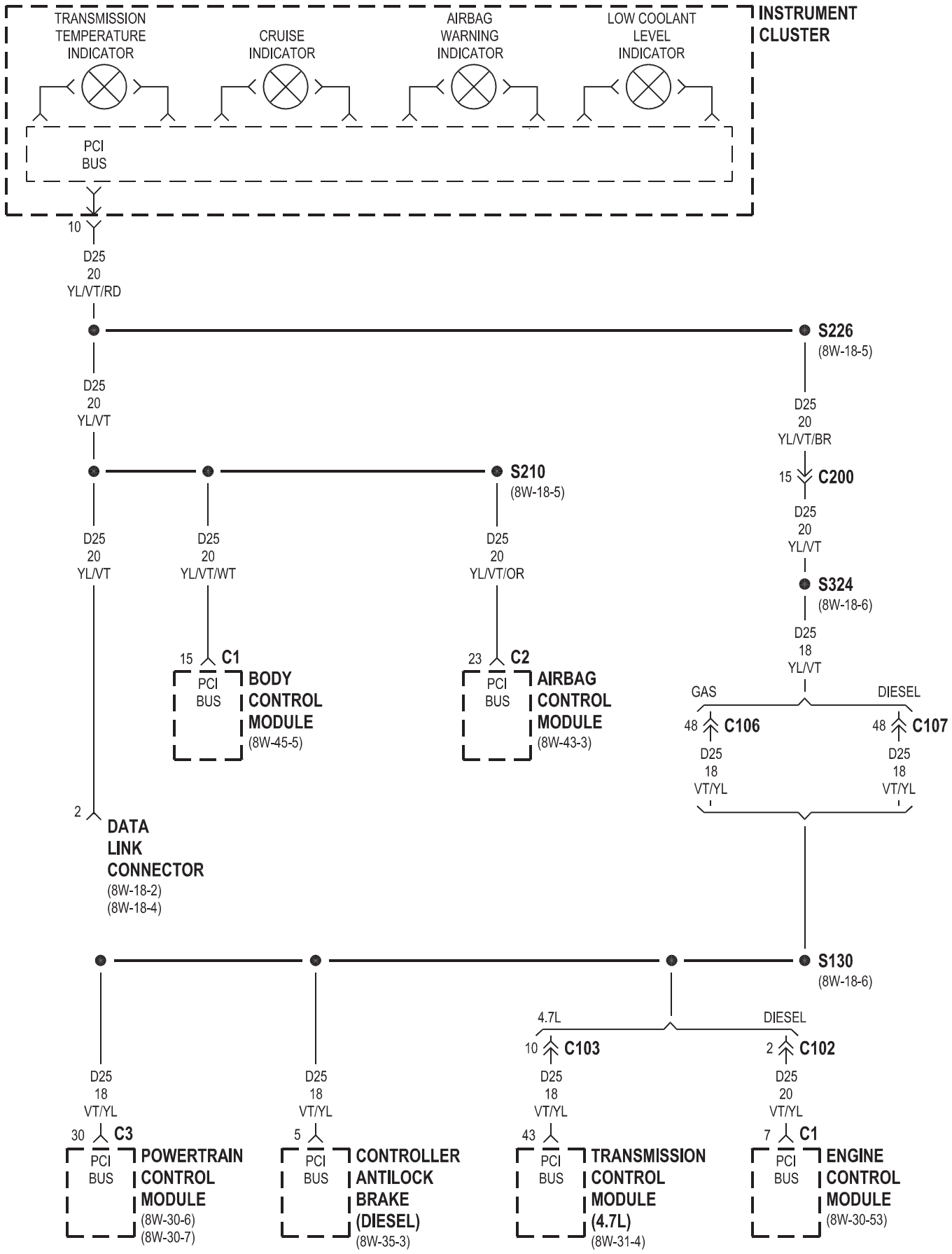
8W-40 INSTRUMENT CLUSTER

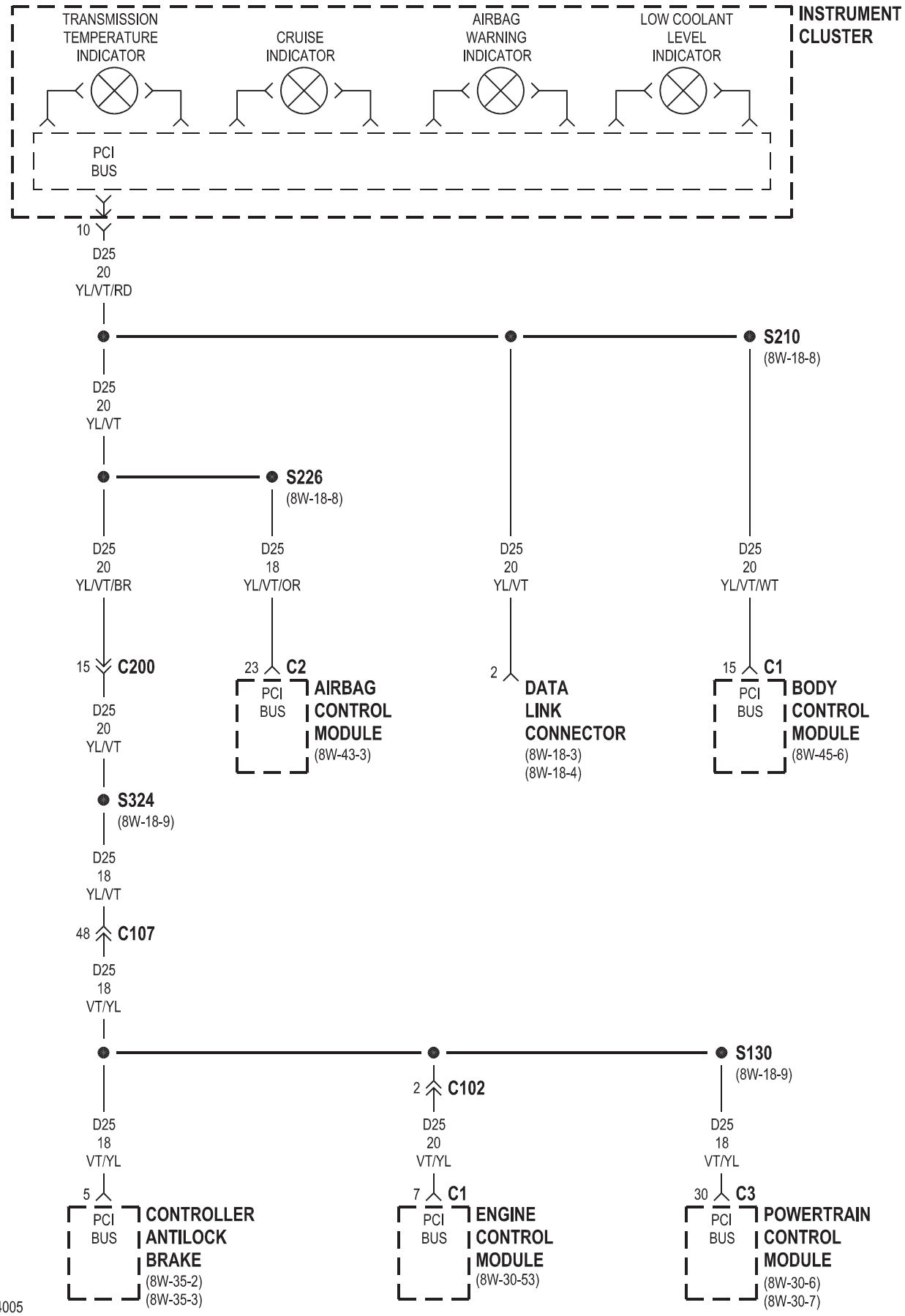
Component	Page
Airbag Control Module	8W-40-4, 5
Body Control Module	8W-40-2, 4, 5, 6, 7, 10
Combination Flasher	8W-40-3
Controller Antilock Brake	8W-40-4, 5, 6, 7, 9
Data Link Connector	8W-40-2, 4, 5
Engine Control Module	8W-40-4, 5, 9, 10
Fuse 17	8W-40-2
Fuse 22	8W-40-2, 3
G200	8W-40-2, 3
Instrument Cluster	8W-40-2, 3, 4, 5, 6, 7, 8, 9, 10
Junction Block	8W-40-2, 3
Park Brake Switch	8W-40-6, 7
Powertrain Control Module	8W-40-4, 5, 6, 7, 8, 10
Transmission Control Module	8W-40-4
Vehicle Information Center	8W-40-7


RUN-START A21
(8W-10-33)
BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 22 10A
(8W-12-24)
FUSE 17 10A
(8W-12-10)
50 C3
32 C3
G5 20 DB/WT
F33 20 PK/RD
7
6
INSTRUMENT CLUSTER
FUSED IGNITION SWITCH OUTPUT (RUN-START)
FUSED B(+)
GROUND
ILLUMINATION LAMPS FEED
ILLUMINATION LAMPS
BODY CONTROL MODULE FLASH ENABLE
11
9
8
Z132 20 BK/OR
Z300 20 BK
D19 20 VT/OR
S211
(8W-15-13)
S203
(8W-15-14)
S223
(8W-18-2)
(8W-18-3)
(8W-18-4)
LHD
RHD
Z132 18 BK
Z132 18 BK/OR
Z300 12 BK
D19 20 VT/OR
D19 20 VT/OR
17 C1
9
BODY CONTROL MODULE FLASH ENABLE
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
G200
(8W-15-15)


RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
(8W-52-3)
(8W-52-5)
(8W-52-6)
FUSE
22
10A
(8W-12-24)
LEFT TURN SIGNAL
RIGHT TURN SIGNAL
2
3
50 C3
5 C3
3 C3
G5
20
DB/WT
L61
20
TN/LG
L60
20
TN
7
1
2
INSTRUMENT CLUSTER
PART TIME 4WD INDICATOR
LEFT TURN INDICATOR
RIGHT TURN INDICATOR
9
Z300
20
BK
S203
(8W-15-14)
Z300
12
BK
G200
(8W-15-15)

LHD

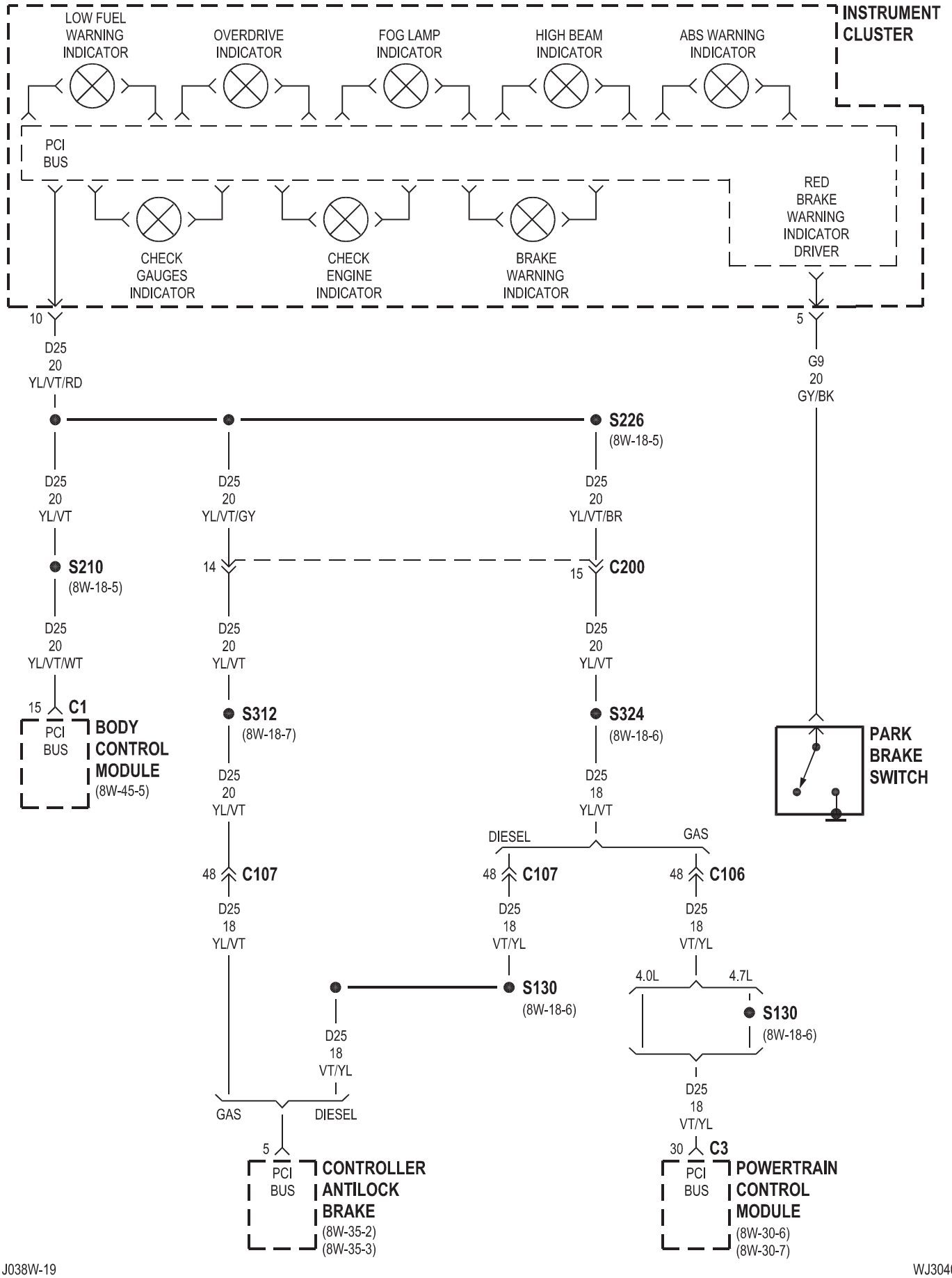

TRANSMISSION TEMPERATURE INDICATOR
CRUISE INDICATOR
AIRBAG WARNING INDICATOR
LOW COOLANT LEVEL INDICATOR
INSTRUMENT CLUSTER
PCI BUS
10
D25 20 YL/VT/RD
S226
(8W-18-5)
D25 20 YL/VT
D25 20 YL/VT/BR
15 C200
D25 20 YL/VT
S324
(8W-18-6)
D25 18 YL/VT
S210
(8W-18-5)
D25 20 YL/VT
D25 20 YL/VT/WT
D25 20 YL/VT/OR
15 C1
PCI BUS
BODY CONTROL MODULE
(8W-45-5)
23 C2
PCI BUS
AIRBAG CONTROL MODULE
(8W-43-3)
GAS
DIESEL
48 C106
48 C107
D25 18 VT/YL
D25 18 VT/YL
2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-4)
S130
(8W-18-6)
4.7L
DIESEL
10 C103
2 C102
D25 18 VT/YL
D25 18 VT/YL
D25 18 VT/YL
D25 20 VT/YL
30 C3
PCI BUS
POWERTRAIN CONTROL MODULE
(8W-30-6)
(8W-30-7)
5
PCI BUS
CONTROLLER ANTILOCK BRAKE (DIESEL)
(8W-35-3)
43
PCI BUS
TRANSMISSION CONTROL MODULE (4.7L)
(8W-31-4)
7 C1
PCI BUS
ENGINE CONTROL MODULE
(8W-30-53)



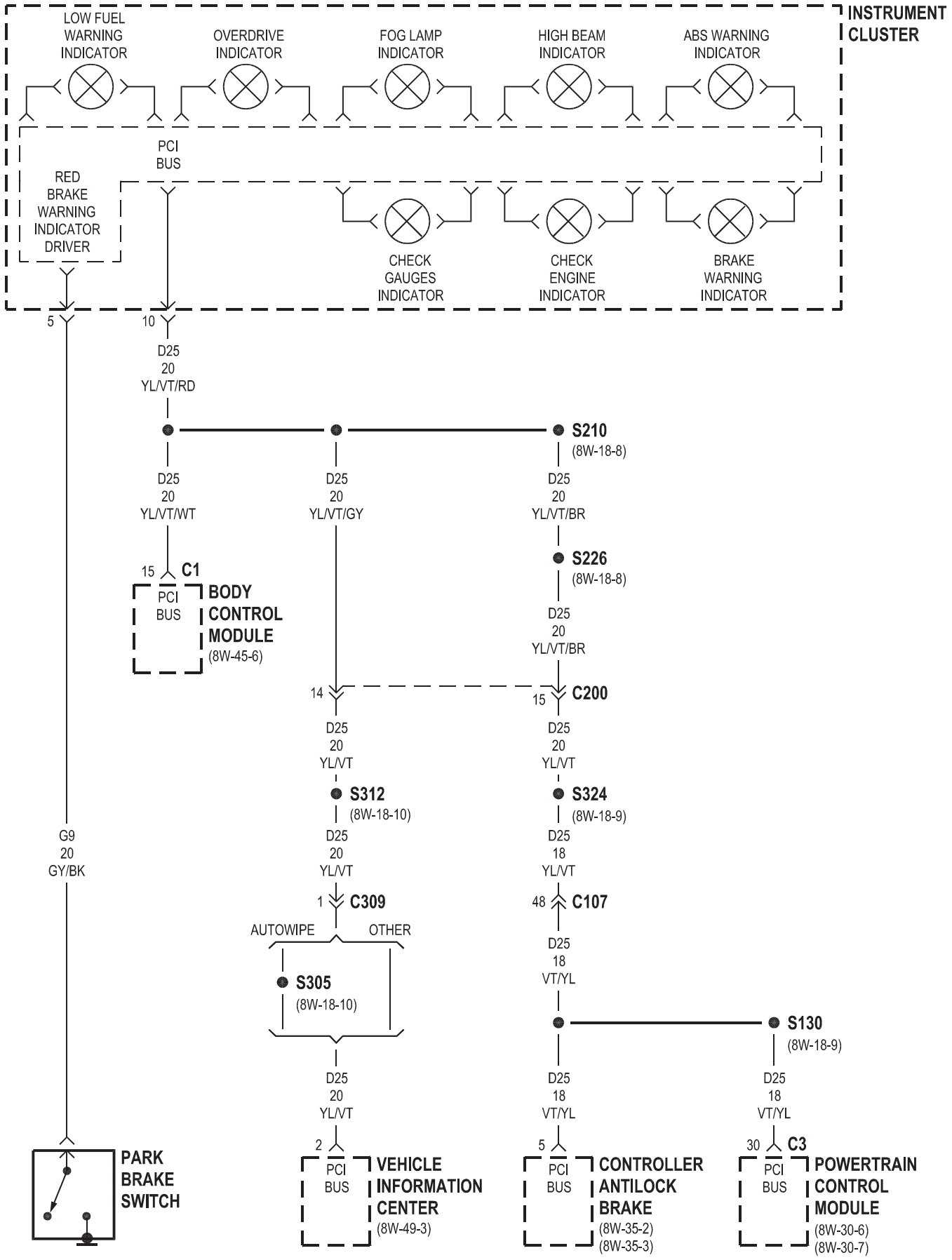
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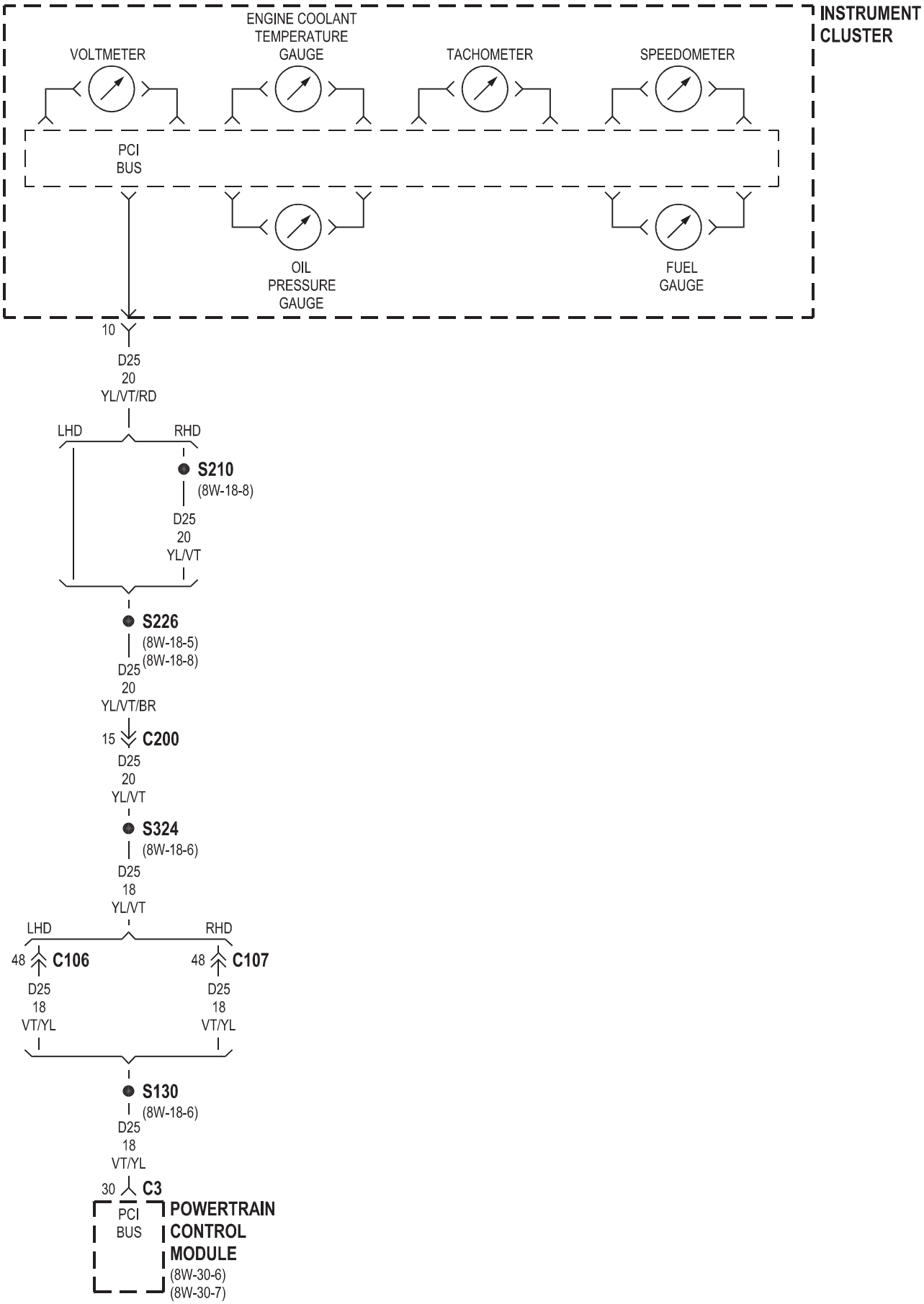
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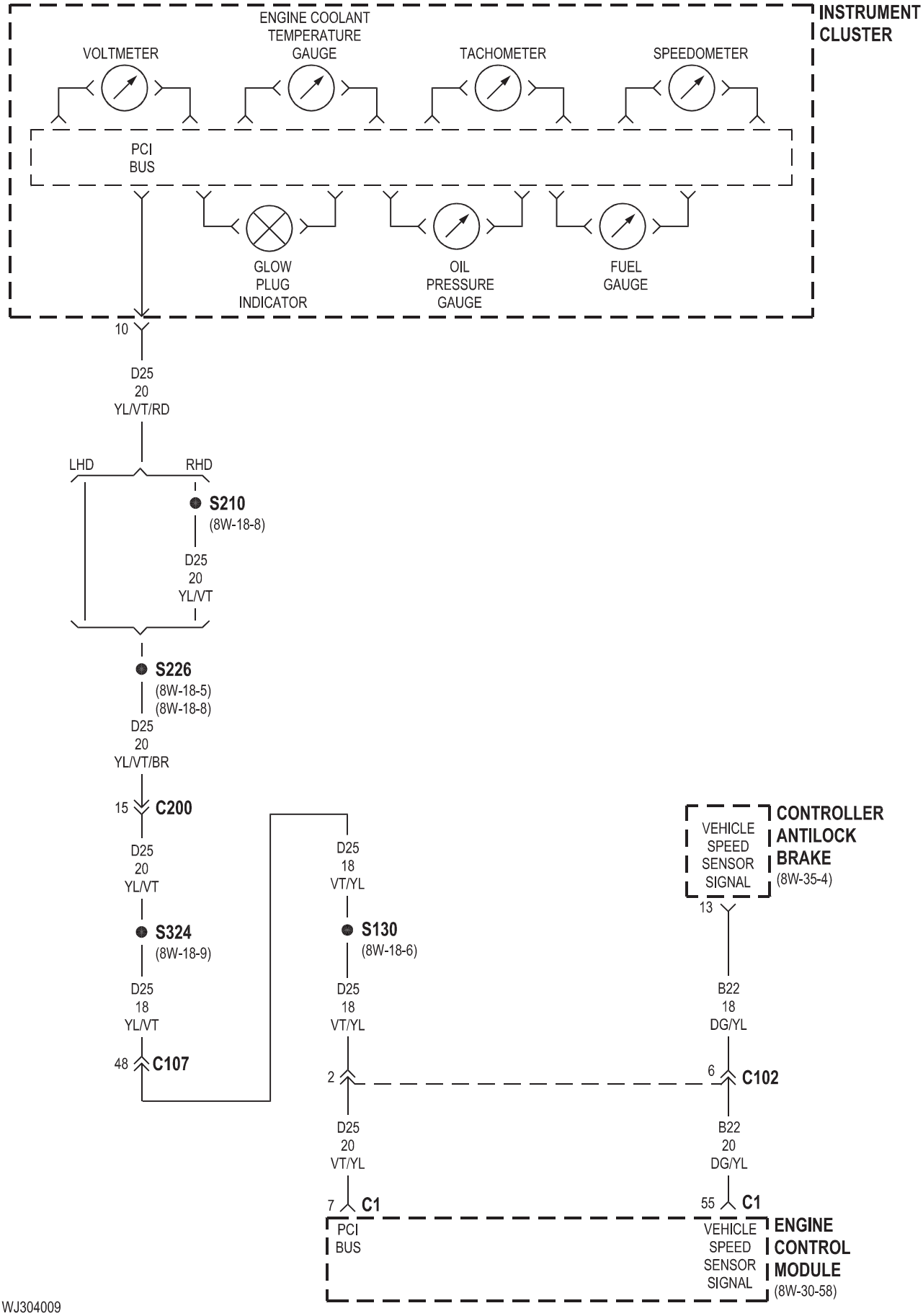
LHD

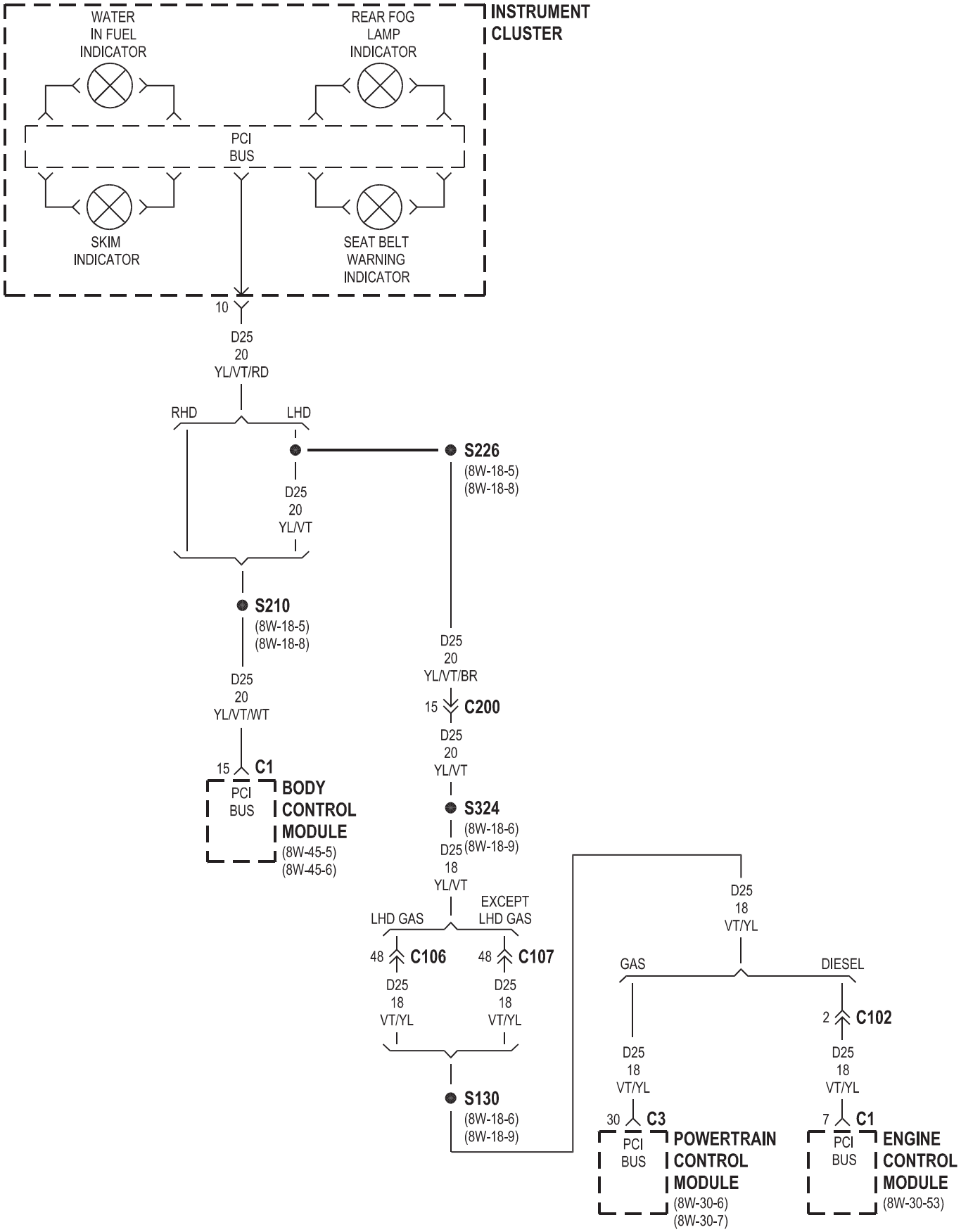

INSTRUMENT CLUSTER
LOW FUEL WARNING INDICATOR
OVERDRIVE INDICATOR
FOG LAMP INDICATOR
HIGH BEAM INDICATOR
ABS WARNING INDICATOR
PCI BUS
CHECK GAUGES INDICATOR
CHECK ENGINE INDICATOR
BRAKE WARNING INDICATOR
RED BRAKE WARNING INDICATOR DRIVER
10
D25 20 YL/VT/RD
5
G9 20 GY/BK
S226 (8W-18-5)
D25 20 YL/VT
D25 20 YL/VT/GY
D25 20 YL/VT/BR
S210 (8W-18-5)
14
15
C200
D25 20 YL/VT/WT
D25 20 YL/VT
D25 20 YL/VT
15
C1
PCI BUS
BODY CONTROL MODULE (8W-45-5)
S312 (8W-18-7)
S324 (8W-18-6)
PARK BRAKE SWITCH
D25 20 YL/VT
D25 18 YL/VT
DIESEL
GAS
48
C107
48
C107
48
C106
D25 18 YL/VT
D25 18 VT/YL
D25 18 VT/YL
4.0L
4.7L
S130 (8W-18-6)
S130 (8W-18-6)
D25 18 VT/YL
D25 18 VT/YL
GAS
DIESEL
5
PCI BUS
CONTROLLER ANTILOCK BRAKE (8W-35-2) (8W-35-3)
30
C3
PCI BUS
POWERTRAIN CONTROL MODULE (8W-30-6) (8W-30-7)

RHD


INSTRUMENT CLUSTER
LOW FUEL WARNING INDICATOR
OVERDRIVE INDICATOR
FOG LAMP INDICATOR
HIGH BEAM INDICATOR
ABS WARNING INDICATOR
PCI BUS
RED BRAKE WARNING INDICATOR DRIVER
CHECK GAUGES INDICATOR
CHECK ENGINE INDICATOR
BRAKE WARNING INDICATOR
5
10
D25 20 YL/VT/RD
S210 (8W-18-8)
D25 20 YL/VT/WT
D25 20 YL/VT/GY
D25 20 YL/VT/BR
S226 (8W-18-8)
15 C1
PCI BUS
BODY CONTROL MODULE (8W-45-6)
D25 20 YL/VT/BR
14
15 C200
D25 20 YL/VT
D25 20 YL/VT
S312 (8W-18-10)
S324 (8W-18-9)
G9 20 GY/BK
D25 20 YL/VT
D25 18 YL/VT
1 C309
48 C107
AUTOWIPE
OTHER
S305 (8W-18-10)
D25 18 VT/YL
S130 (8W-18-9)
D25 20 YL/VT
D25 18 VT/YL
D25 18 VT/YL
2
5
30 C3
PCI BUS
VEHICLE INFORMATION CENTER (8W-49-3)
CONTROLLER ANTILOCK BRAKE (8W-35-2) (8W-35-3)
POWERTRAIN CONTROL MODULE (8W-30-6) (8W-30-7)
PARK BRAKE SWITCH

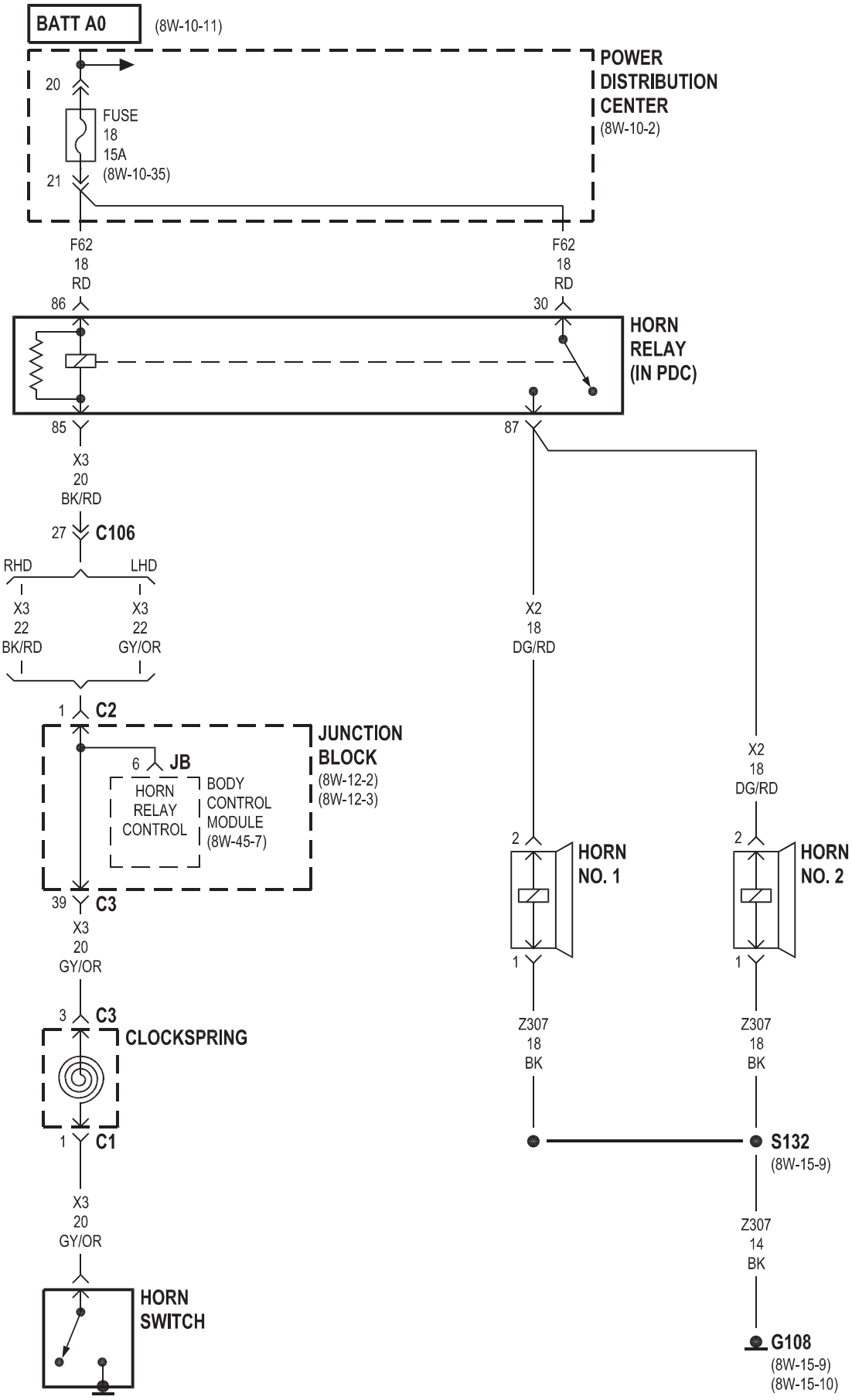

INSTRUMENT CLUSTER
VOLTMETER
ENGINE COOLANT TEMPERATURE GAUGE
TACHOMETER
SPEEDOMETER
PCI BUS
OIL PRESSURE GAUGE
FUEL GAUGE
10
D25
20
YL/VT/RD
LHD
RHD
S210
(8W-18-8)
D25
20
YL/VT
S226
(8W-18-5)
(8W-18-8)
D25
20
YL/VT/BR
15
C200
D25
20
YL/VT
S324
(8W-18-6)
D25
18
YL/VT
LHD
RHD
48
C106
48
C107
D25
18
VT/YL
D25
18
VT/YL
S130
(8W-18-6)
D25
18
VT/YL
30
C3
PCI BUS
POWERTRAIN CONTROL MODULE
(8W-30-6)
(8W-30-7)

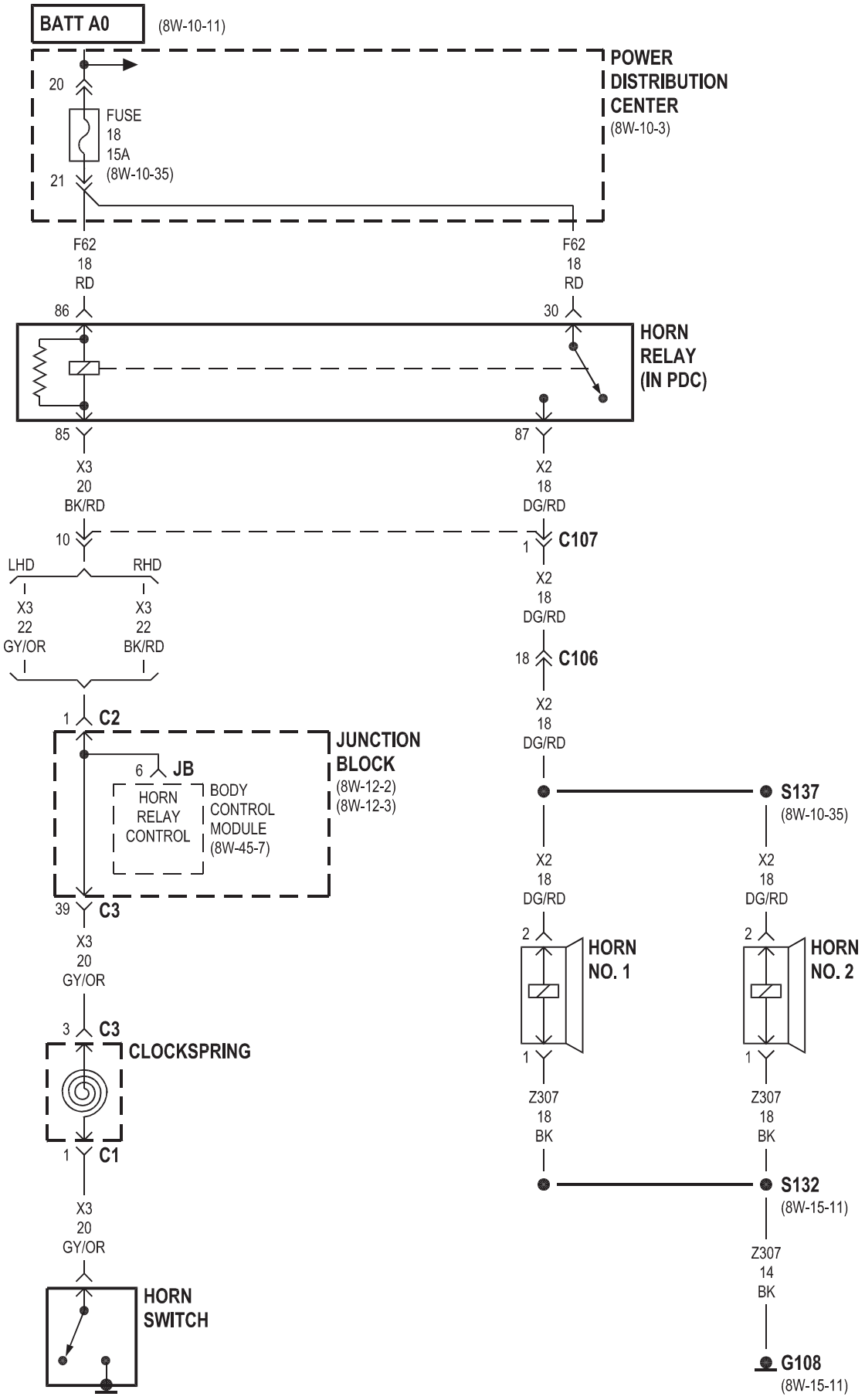

INSTRUMENT CLUSTER
VOLTMETER
ENGINE COOLANT TEMPERATURE GAUGE
TACHOMETER
SPEEDOMETER
PCI BUS
GLOW PLUG INDICATOR
OIL PRESSURE GAUGE
FUEL GAUGE
10
D25
20
YL/VT/RD
LHD
RHD
S210
(8W-18-8)
D25
20
YL/VT
S226
(8W-18-5)
(8W-18-8)
D25
20
YL/VT/BR
15 C200
D25
20
YL/VT
S324
(8W-18-9)
D25
18
YL/VT
48 C107
D25
18
VT/YL
S130
(8W-18-6)
D25
18
VT/YL
2
D25
20
VT/YL
7 C1
PCI BUS
VEHICLE SPEED SENSOR SIGNAL
CONTROLLER ANTILOCK BRAKE
(8W-35-4)
13
B22
18
DG/YL
6 C102
B22
20
DG/YL
55 C1
VEHICLE SPEED SENSOR SIGNAL
ENGINE CONTROL MODULE
(8W-30-58)

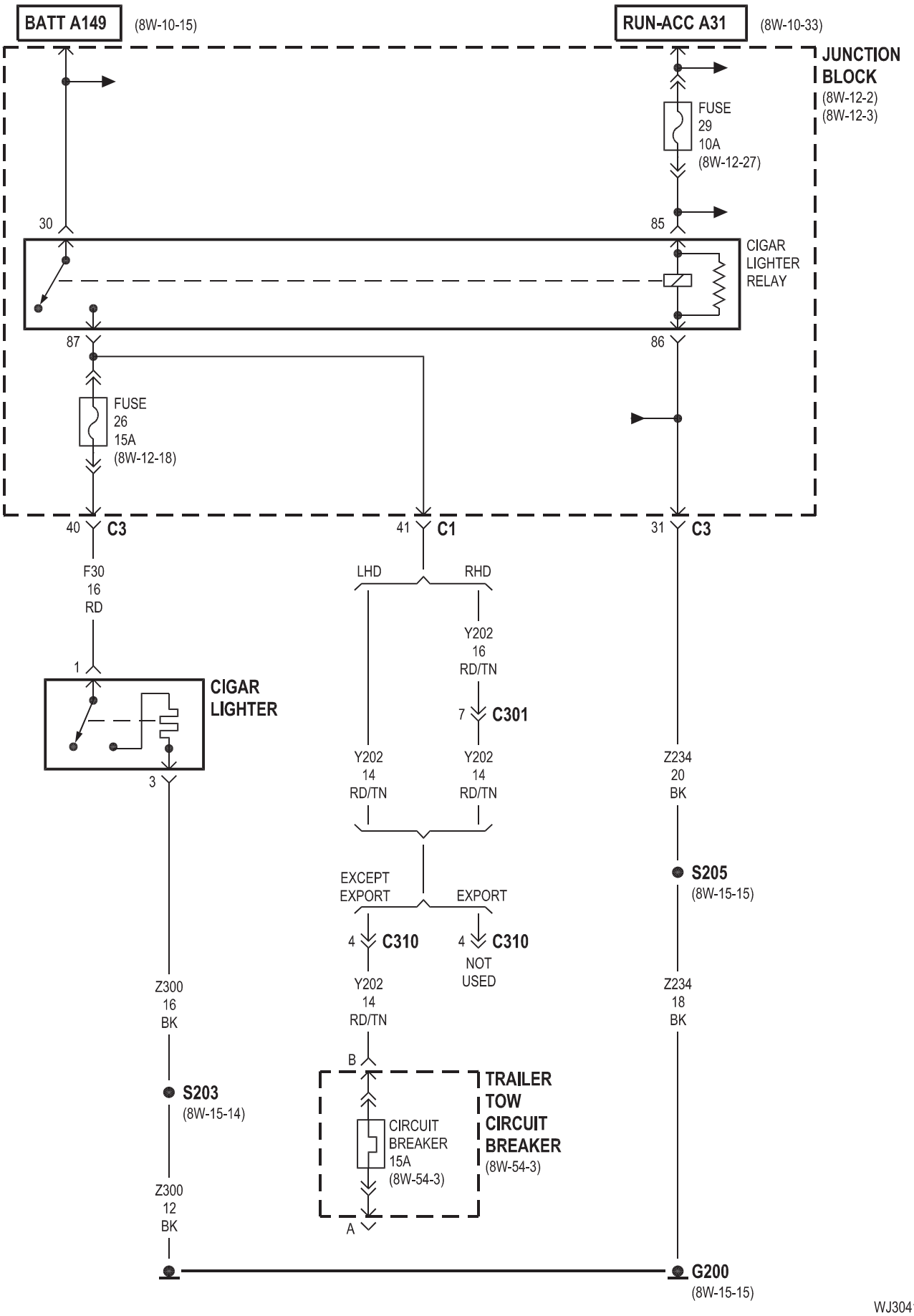

INSTRUMENT CLUSTER
WATER IN FUEL INDICATOR
REAR FOG LAMP INDICATOR
PCI BUS
SKIM INDICATOR
SEAT BELT WARNING INDICATOR
10
D25 20 YL/VT/RD
RHD
LHD
S226
(8W-18-5)
(8W-18-8)
D25 20 YL/VT
S210
(8W-18-5)
(8W-18-8)
D25 20 YL/VT/WT
15 C1
PCI BUS
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
D25 20 YL/VT/BR
15 C200
D25 20 YL/VT
S324
(8W-18-6)
(8W-18-9)
D25 18 YL/VT
LHD GAS
EXCEPT LHD GAS
48 C106
48 C107
D25 18 VT/YL
D25 18 VT/YL
S130
(8W-18-6)
(8W-18-9)
D25 18 VT/YL
GAS
DIESEL
D25 18 VT/YL
30 C3
PCI BUS
POWERTRAIN CONTROL MODULE
(8W-30-6)
(8W-30-7)
2 C102
D25 18 VT/YL
7 C1
PCI BUS
ENGINE CONTROL MODULE
(8W-30-53)

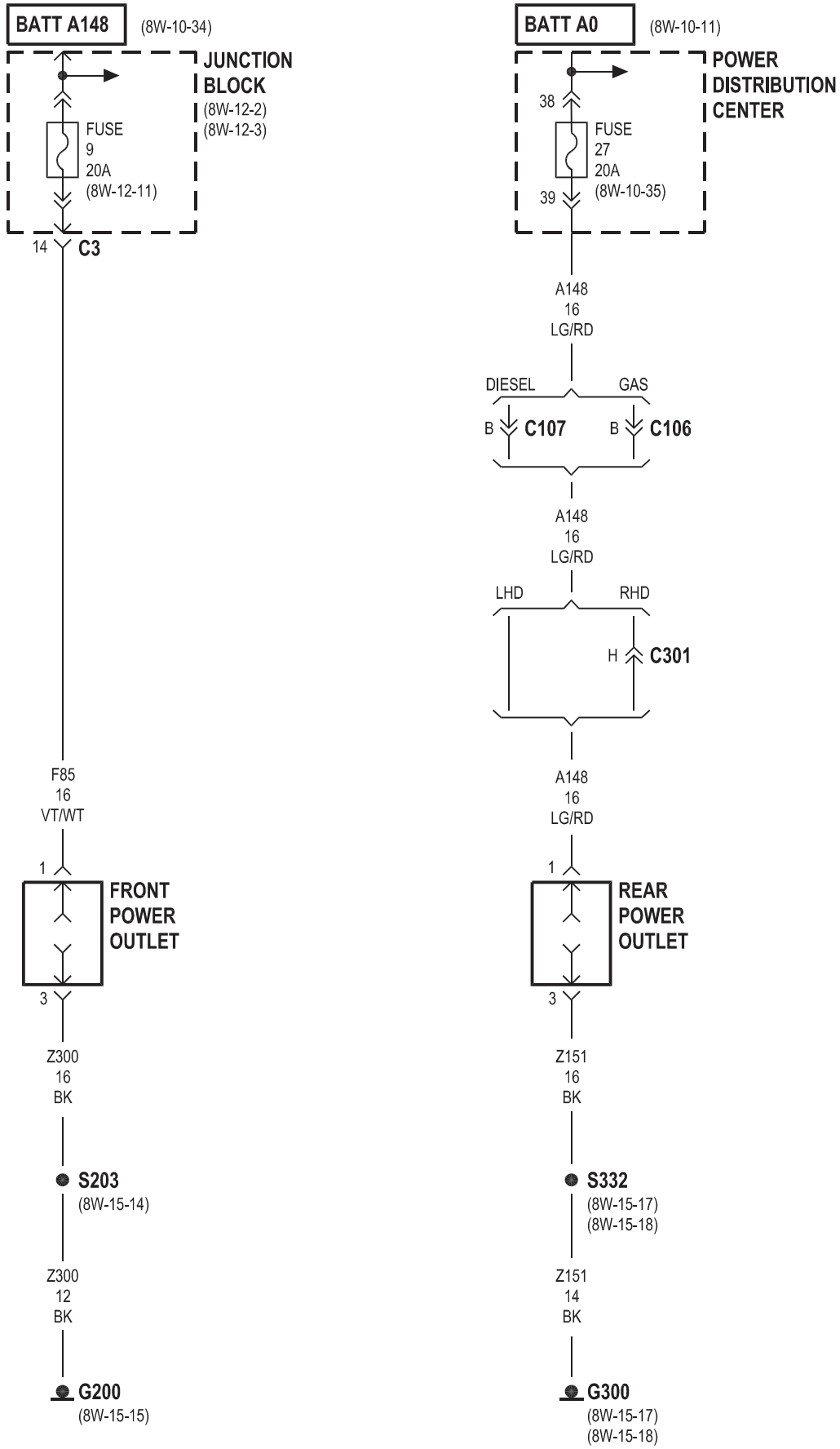
8W-41 HORN/CIGAR LIGHTER/POWER OUTLET

Component	Page
Body Control Module	8W-41-2, 3
Cigar Lighter	8W-41-4
Cigar Lighter Relay	8W-41-4
Clockspring	8W-41-2, 3
Front Power Outlet	8W-41-5
Fuse 9	8W-41-5
Fuse 18	8W-41-2, 3
Fuse 26	8W-41-4
Fuse 27	8W-41-5
Fuse 29	8W-41-4
G108	8W-41-2, 3
G200	8W-41-4, 5
G300	8W-41-5
Horn No. 1	8W-41-2, 3
Horn No. 2	8W-41-2, 3
Horn Relay	8W-41-2, 3
Horn Switch	8W-41-2, 3
Junction Block	8W-41-2, 3, 4, 5
Power Distribution Center	8W-41-2, 3, 5
Rear Power Outlet	8W-41-5
Trailer Tow Circuit Breaker	8W-41-4


BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
20
FUSE 18 15A
(8W-10-35)
21
F62 18 RD
86
F62 18 RD
30
HORN RELAY (IN PDC)
85
87
X3 20 BK/RD
27 C106
RHD
LHD
X3 22 BK/RD
X3 22 GY/OR
X2 18 DG/RD
1 C2
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
6 JB
HORN RELAY CONTROL
BODY CONTROL MODULE
(8W-45-7)
39 C3
X3 20 GY/OR
3 C3
CLOCKSPRING
1 C1
X3 20 GY/OR
HORN SWITCH
X2 18 DG/RD
2
HORN NO. 1
1
X2 18 DG/RD
2
HORN NO. 2
1
Z307 18 BK
Z307 18 BK
S132
(8W-15-9)
Z307 14 BK
G108
(8W-15-9)
(8W-15-10)

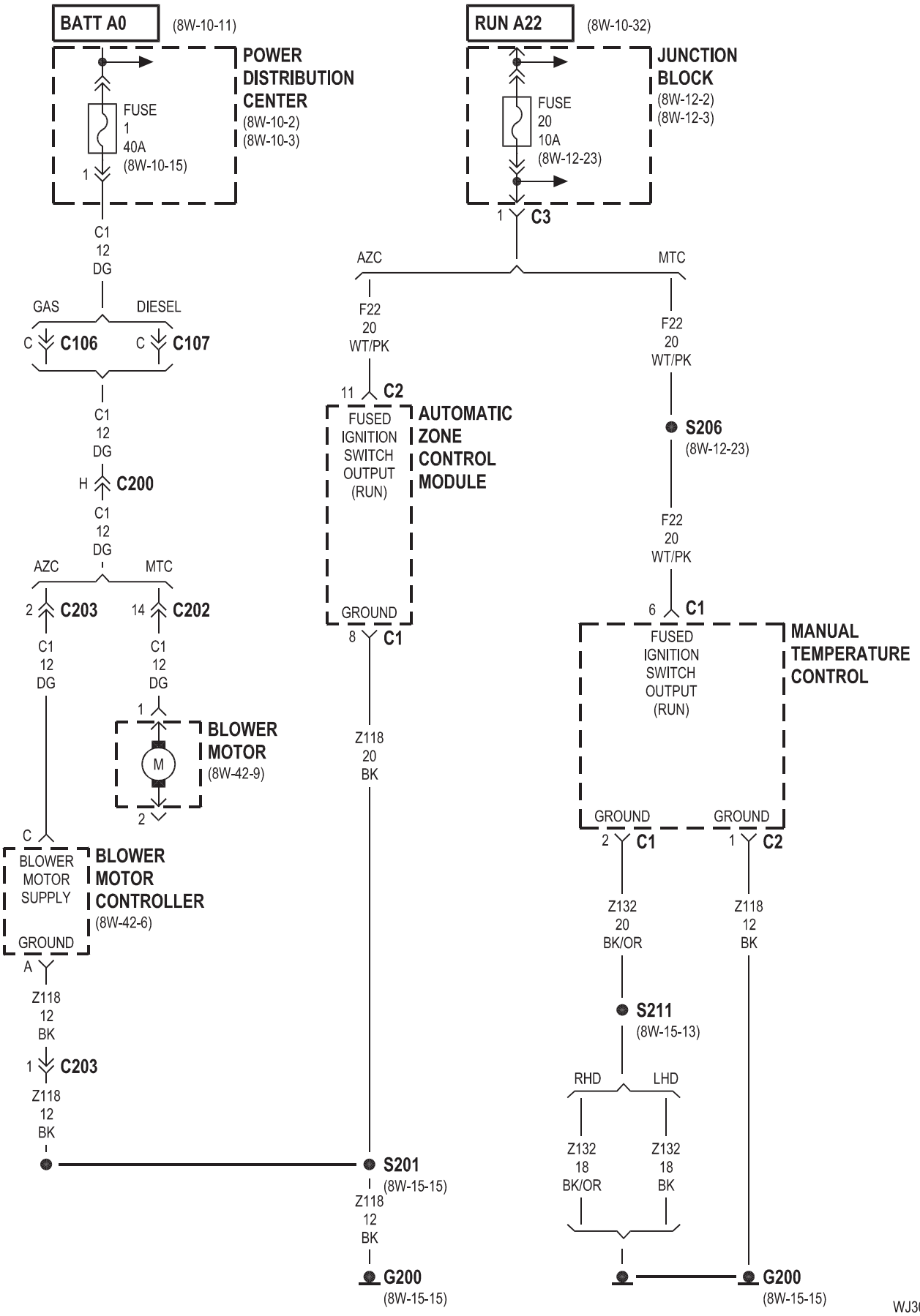

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
20
FUSE 18 15A
(8W-10-35)
21
F62 18 RD
F62 18 RD
86
30
HORN RELAY (IN PDC)
85
87
X3 20 BK/RD
X2 18 DG/RD
10
1
C107
LHD
RHD
X3 22 GY/OR
X3 22 BK/RD
X2 18 DG/RD
18
C106
X2 18 DG/RD
1
C2
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
6
JB
HORN RELAY CONTROL
BODY CONTROL MODULE
(8W-45-7)
S137
(8W-10-35)
39
C3
X2 18 DG/RD
X2 18 DG/RD
X3 20 GY/OR
2
2
HORN NO. 1
HORN NO. 2
3
C3
CLOCKSPRING
1
1
Z307 18 BK
Z307 18 BK
1
C1
S132
(8W-15-11)
X3 20 GY/OR
Z307 14 BK
HORN SWITCH
G108
(8W-15-11)

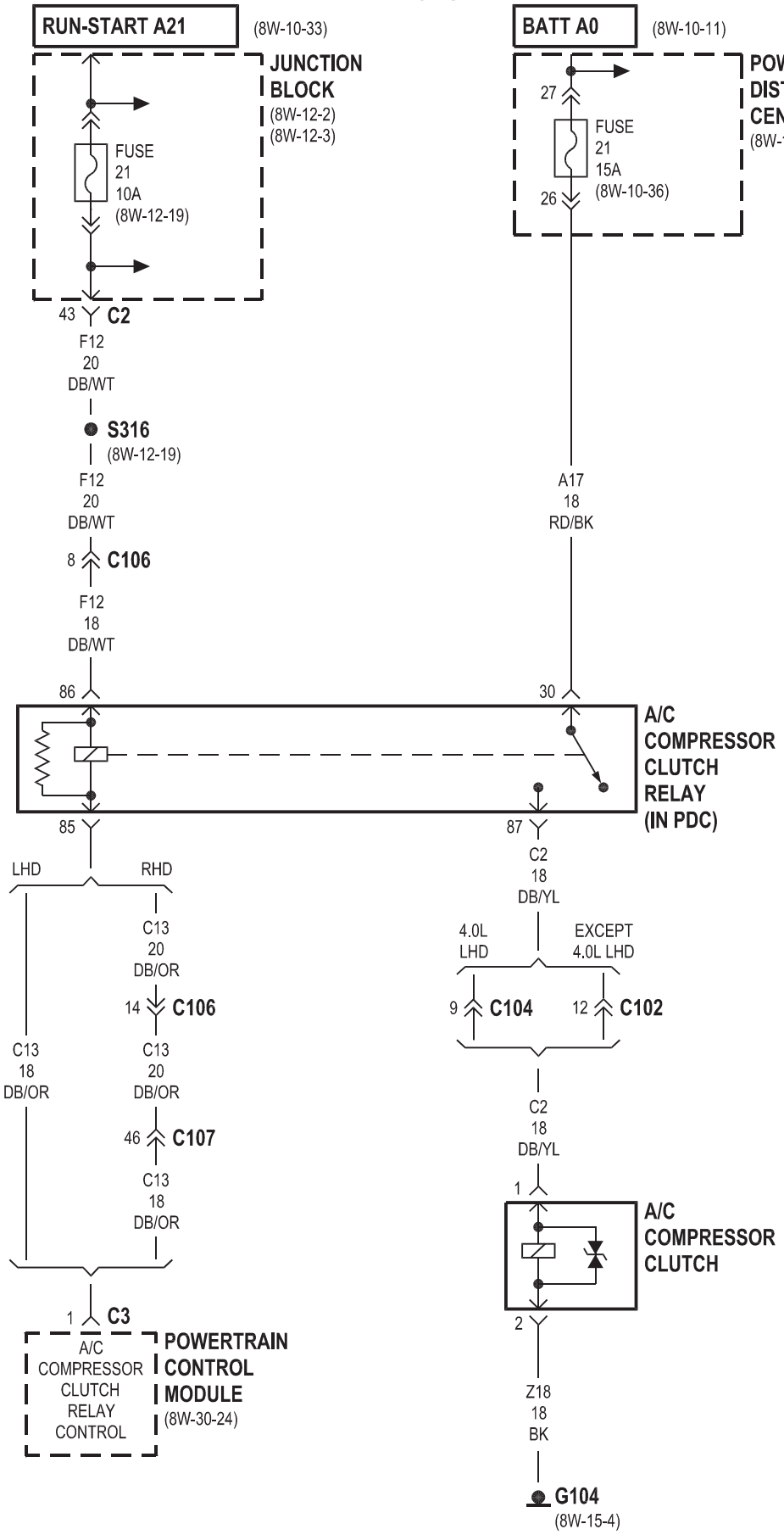

BATT A149
(8W-10-15)
RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 29 10A (8W-12-27)
30
85
CIGAR LIGHTER RELAY
87
86
FUSE 26 15A (8W-12-18)
40 C3
41 C1
31 C3
F30 16 RD
LHD
RHD
Y202 16 RD/TN
1
CIGAR LIGHTER
7 C301
Y202 14 RD/TN
Y202 14 RD/TN
Z234 20 BK
3
EXCEPT EXPORT
EXPORT
S205
(8W-15-15)
4 C310
4 C310
NOT USED
Z300 16 BK
Y202 14 RD/TN
Z234 18 BK
B
S203
(8W-15-14)
TRAILER TOW CIRCUIT BREAKER
(8W-54-3)
CIRCUIT BREAKER 15A (8W-54-3)
Z300 12 BK
A
G200
(8W-15-15)

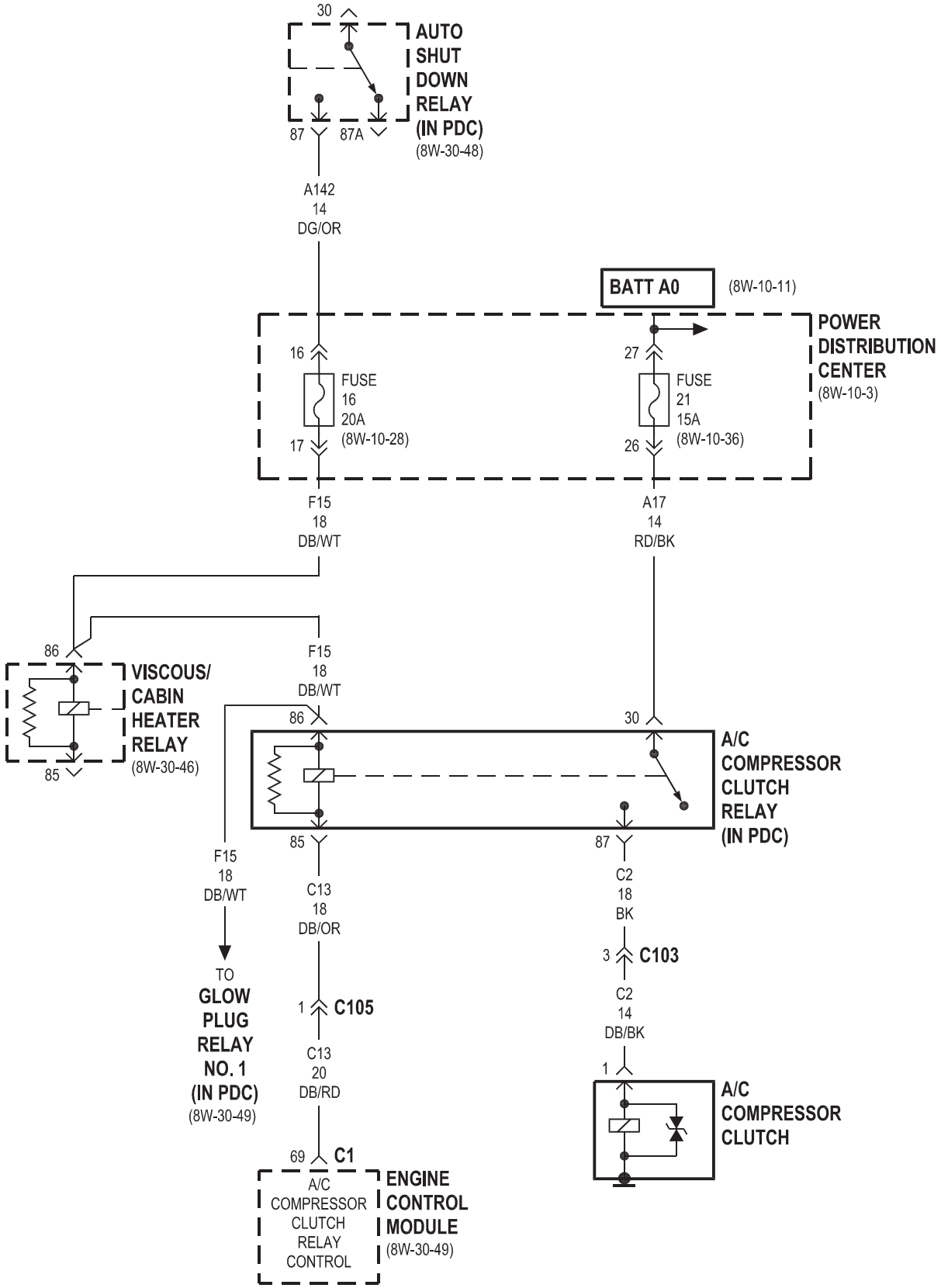

BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
9
20A
(8W-12-11)
14
C3
F85
16
VT/WT
1
FRONT POWER OUTLET
3
Z300
16
BK
S203
(8W-15-14)
Z300
12
BK
G200
(8W-15-15)
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
38
FUSE
27
20A
(8W-10-35)
39
A148
16
LG/RD
DIESEL
GAS
B
C107
B
C106
A148
16
LG/RD
LHD
RHD
H
C301
A148
16
LG/RD
1
REAR POWER OUTLET
3
Z151
16
BK
S332
(8W-15-17)
(8W-15-18)
Z151
14
BK
G300
(8W-15-17)
(8W-15-18)

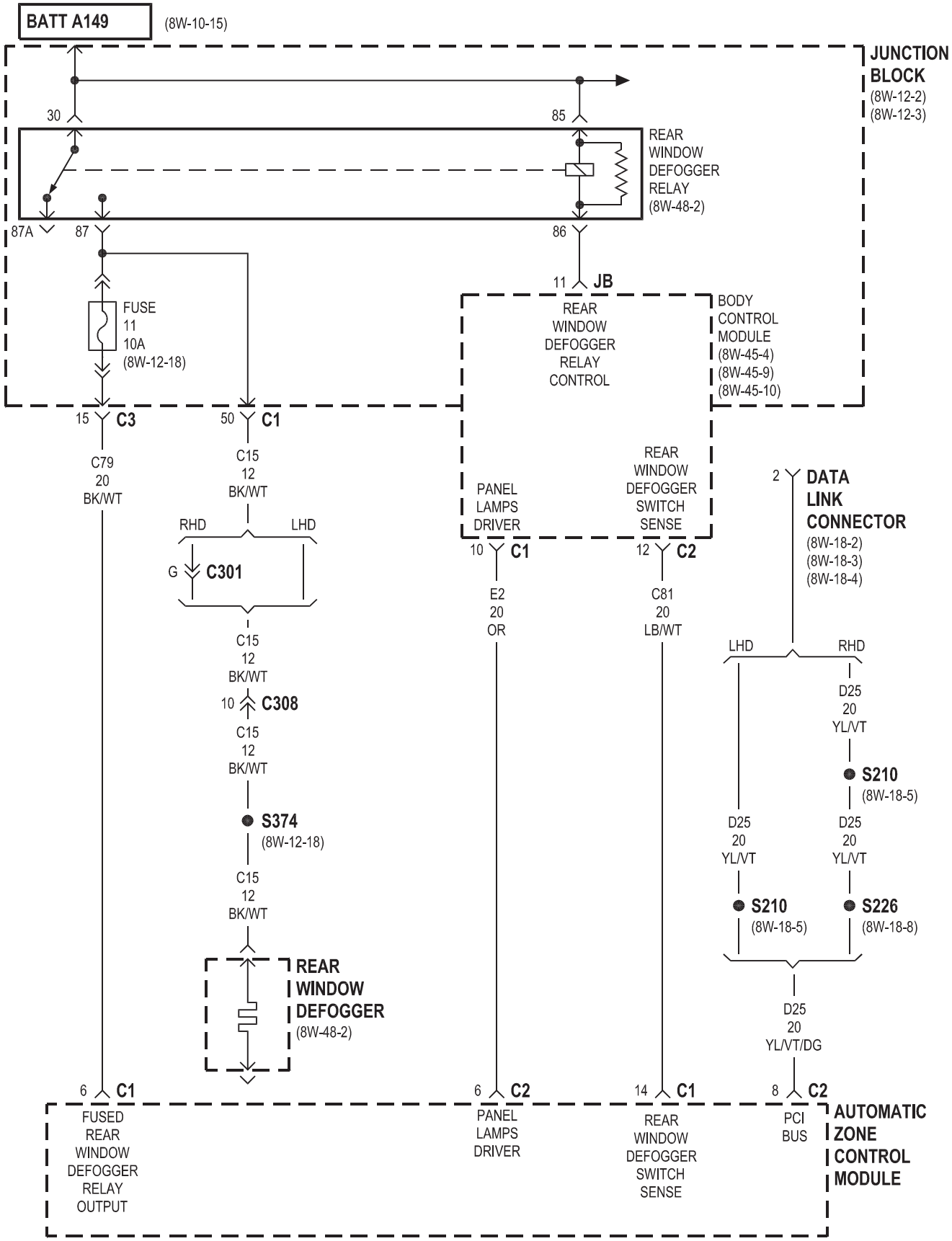
8W-42 AIR CONDITIONING-HEATER

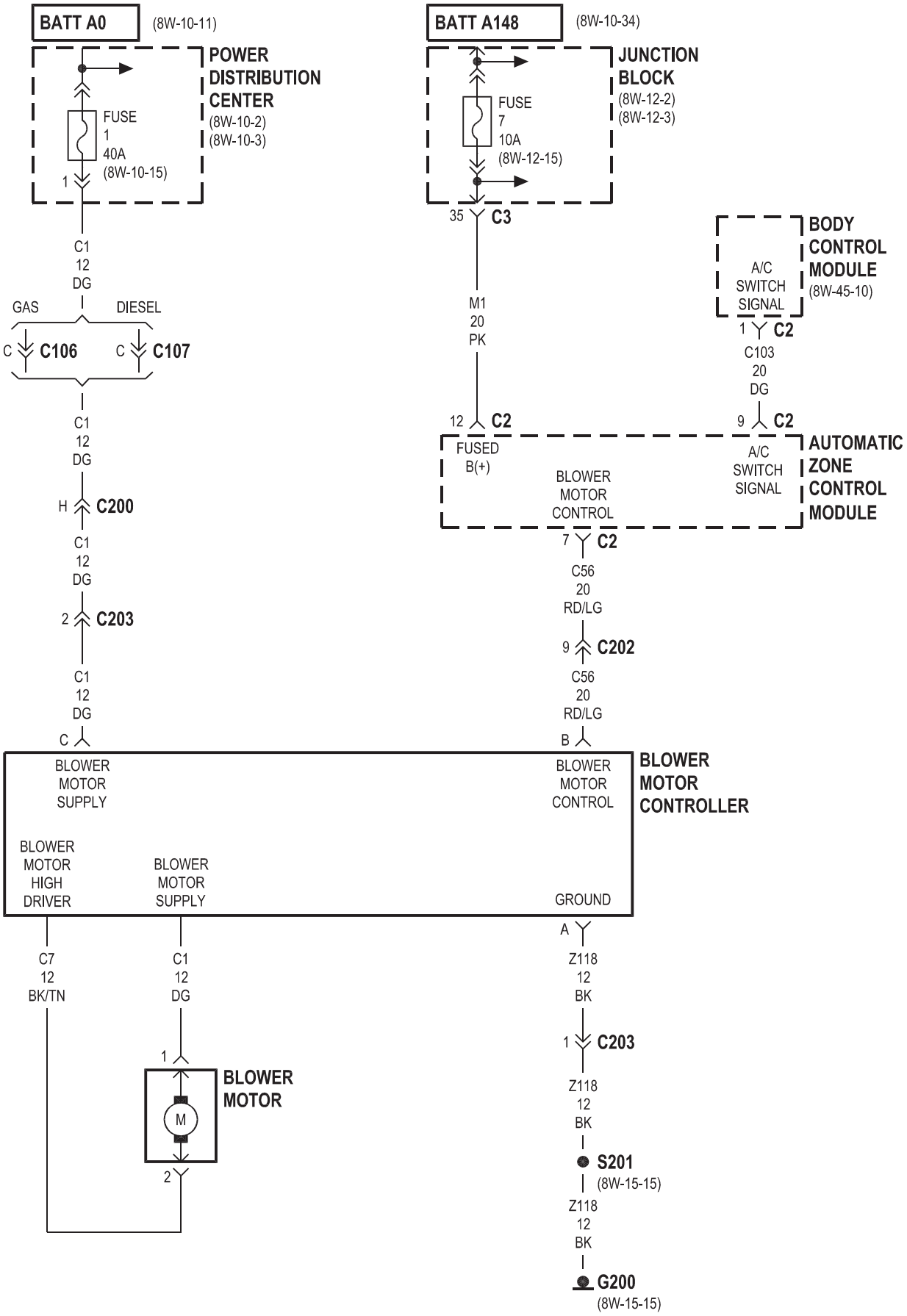
Component	Page
A/C Compressor Clutch	8W-42-3, 4
A/C Compressor Clutch Relay	8W-42-3, 4
A/C Pressure Transducer	8W-42-11, 12, 14
Auto Shut Down Relay	8W-42-4, 11, 12
Automatic Zone Control Module	8W-42-2, 5, 6, 7, 8
Blower Motor	8W-42-2, 6, 9
Blower Motor Controller	8W-42-2, 6
Blower Motor Resistor Block	8W-42-9
Body Control Module	8W-42-5, 6, 9, 10
Data Link Connector	8W-42-5
Driver Blend Door Motor/Actuator	8W-42-7, 8
Engine Control Module	8W-42-4, 14, 15
Fuse 1	8W-42-2, 6, 9
Fuse 10	8W-42-13
Fuse 11	8W-42-5, 10
Fuse 16	8W-42-4, 11, 12
Fuse 20	8W-42-2, 10
Fuse 21	8W-42-3, 4
Fuse 7	8W-42-6
G104	8W-42-3
G108	8W-42-11, 12, 13, 15
G200	8W-42-2, 6, 10
Glow Plug Relay No. 1	8W-42-4, 15
Glow Plug Relay No. 2	8W-42-15
Hydraulic Cooling Module	8W-42-11, 12, 15
Junction Block	8W-42-2, 3, 5, 6, 10
Manual Temperature Control	8W-42-2, 9, 10
Mode Door Motor/Actuator	8W-42-7, 8
Oxygen Sensor Downstream Relay	8W-42-12
Passenger Blend Door Motor/Actuator	8W-42-7, 8
Power Distribution Center	8W-42-2, 3, 4, 6, 9, 11, 12, 13
Powertrain Control Module	8W-42-3, 11, 12, 13
Radiator Fan Motor	8W-42-13
Radiator Fan Motor Relay	8W-42-13
Rear Window Defogger	8W-42-5, 10
Rear Window Defogger Relay	8W-42-5, 10
Recirculation Door Motor/Actuator	8W-42-7, 8
Temperature Valve Actuator	8W-42-10
Viscous/Cabin Heater Relay	8W-42-4

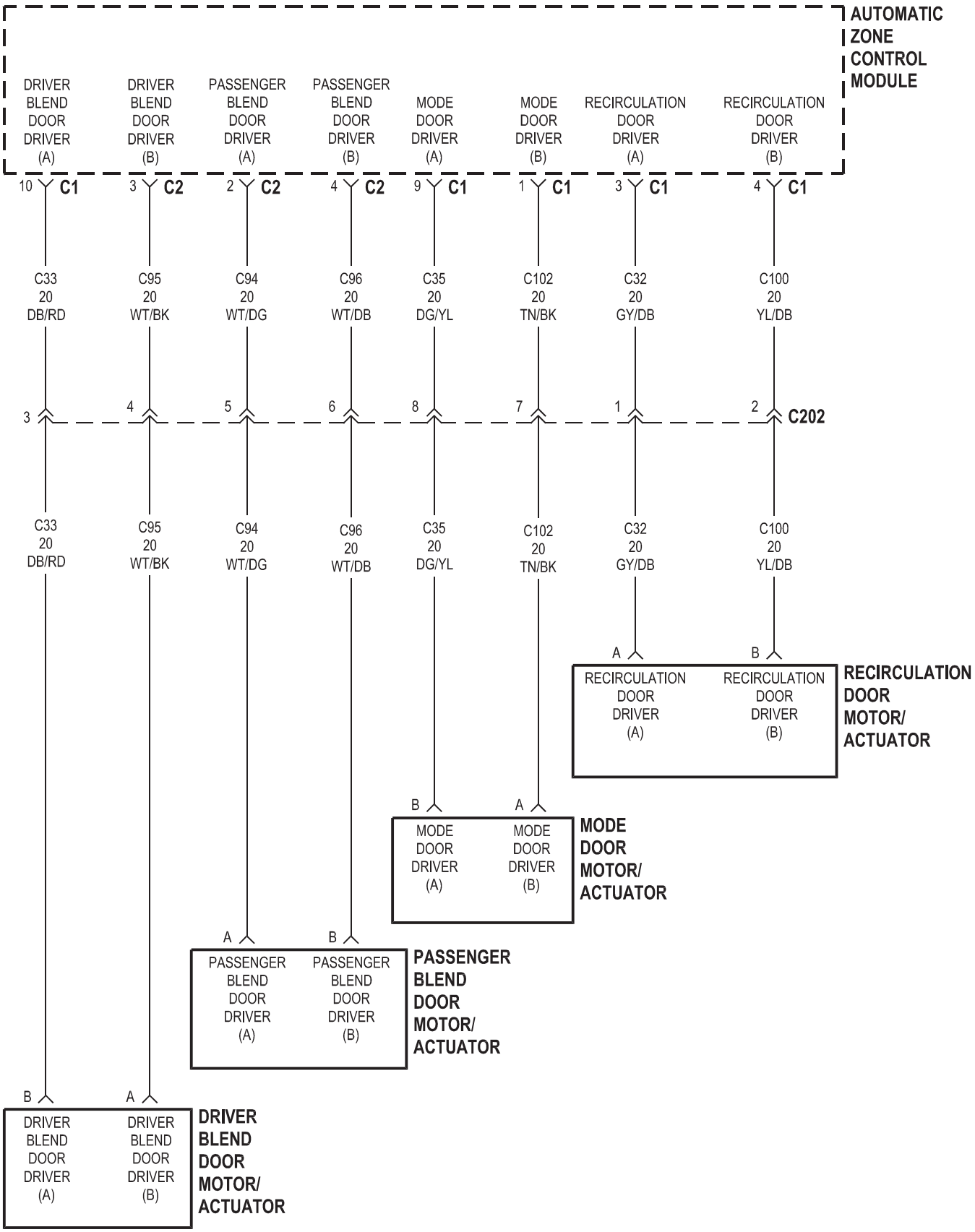

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 1 40A (8W-10-15)
1
C1 12 DG
GAS
DIESEL
C C106
C C107
C1 12 DG
H C200
C1 12 DG
AZC
MTC
2 C203
14 C202
C1 12 DG
C1 12 DG
1
M
BLOWER MOTOR (8W-42-9)
2
C
BLOWER MOTOR SUPPLY
BLOWER MOTOR CONTROLLER
(8W-42-6)
GROUND
A
Z118 12 BK
1 C203
Z118 12 BK
S201
(8W-15-15)
Z118 12 BK
G200
(8W-15-15)
RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 20 10A (8W-12-23)
1 C3
AZC
MTC
F22 20 WT/PK
11 C2
FUSED IGNITION SWITCH OUTPUT (RUN)
AUTOMATIC ZONE CONTROL MODULE
GROUND
8 C1
Z118 20 BK
F22 20 WT/PK
S206
(8W-12-23)
F22 20 WT/PK
6 C1
FUSED IGNITION SWITCH OUTPUT (RUN)
MANUAL TEMPERATURE CONTROL
GROUND
2 C1
GROUND
1 C2
Z132 20 BK/OR
Z118 12 BK
S211
(8W-15-13)
RHD
LHD
Z132 18 BK/OR
Z132 18 BK
G200
(8W-15-15)

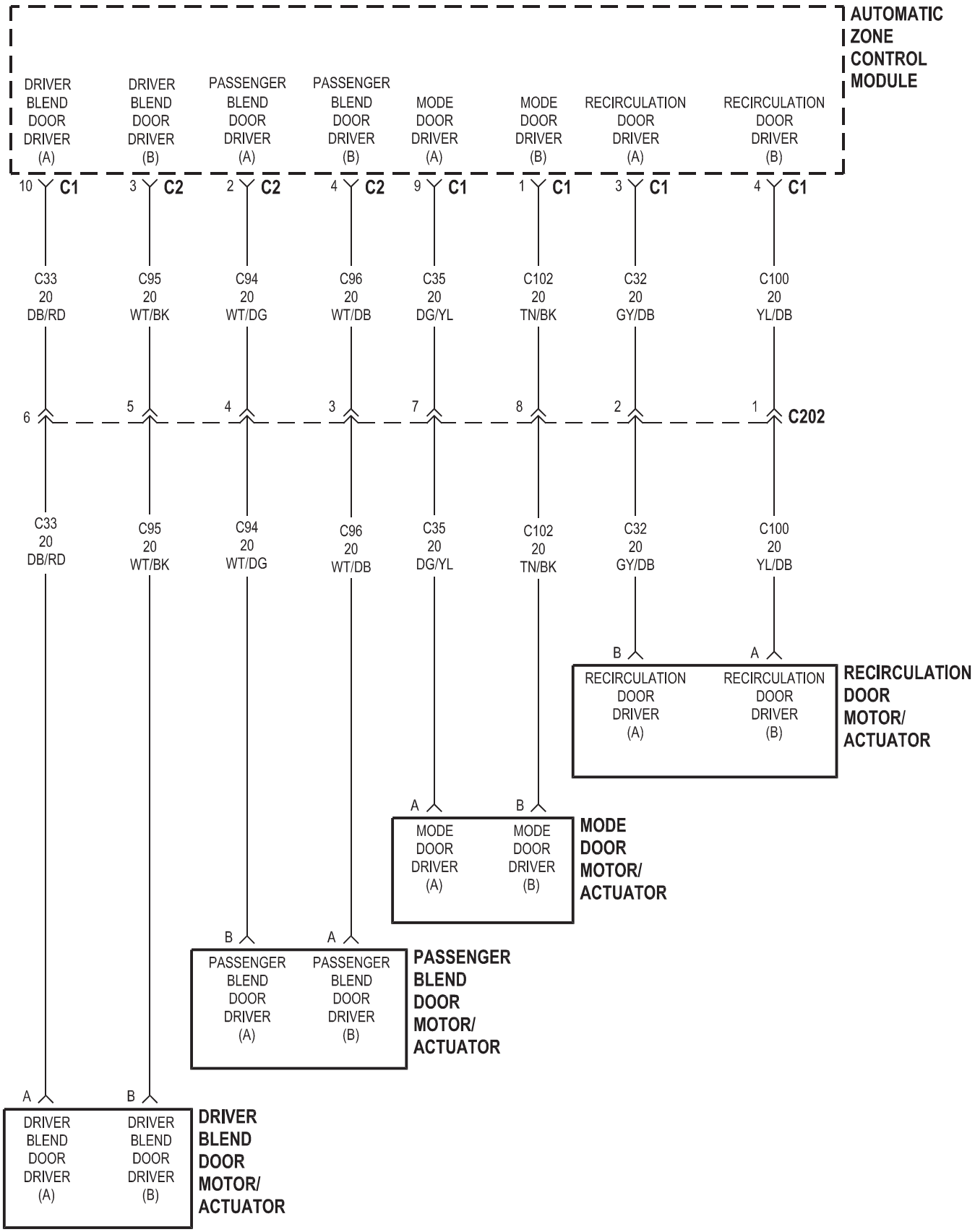

RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
21
10A
(8W-12-19)
43
C2
F12
20
DB/WT
S316
(8W-12-19)
F12
20
DB/WT
8
C106
F12
18
DB/WT
86
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
27
FUSE
21
15A
(8W-10-36)
26
A17
18
RD/BK
30
A/C COMPRESSOR CLUTCH RELAY (IN PDC)
85
87
LHD
RHD
C13
20
DB/OR
14
C106
C13
18
DB/OR
C13
20
DB/OR
46
C107
C13
18
DB/OR
1
C3
A/C COMPRESSOR CLUTCH RELAY CONTROL
POWERTRAIN CONTROL MODULE
(8W-30-24)
C2
18
DB/YL
4.0L LHD
EXCEPT 4.0L LHD
9
C104
12
C102
C2
18
DB/YL
1
A/C COMPRESSOR CLUTCH
2
Z18
18
BK
G104
(8W-15-4)

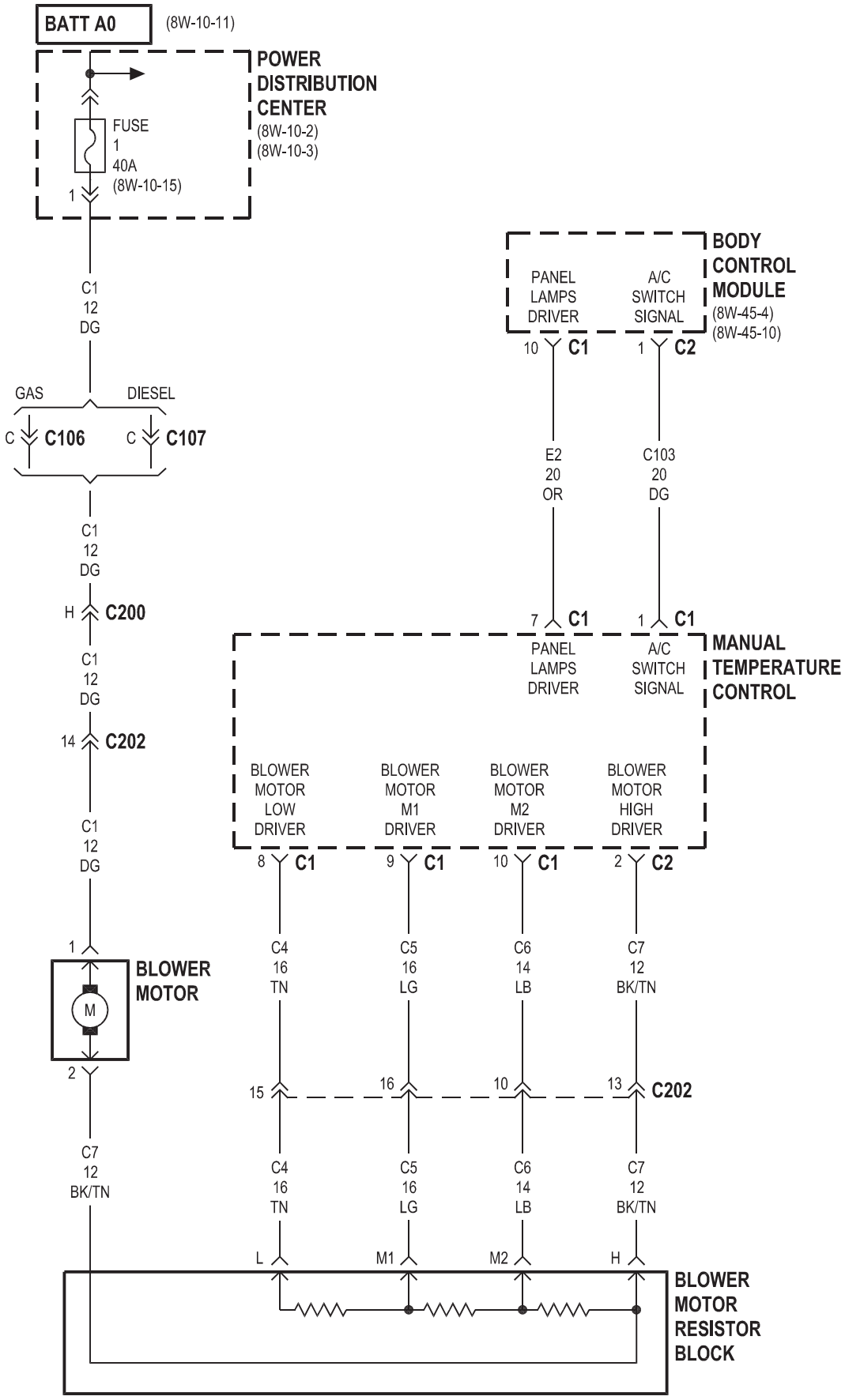

30
AUTO SHUT DOWN RELAY (IN PDC)
(8W-30-48)
87
87A
A142
14
DG/OR
BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-3)
16
FUSE 16 20A
(8W-10-28)
17
27
FUSE 21 15A
(8W-10-36)
26
F15
18
DB/WT
A17
14
RD/BK
86
VISCOUS/ CABIN HEATER RELAY
(8W-30-46)
85
F15
18
DB/WT
86
30
A/C COMPRESSOR CLUTCH RELAY (IN PDC)
85
87
F15
18
DB/WT
TO GLOW PLUG RELAY NO. 1 (IN PDC)
(8W-30-49)
C13
18
DB/OR
1
C105
C13
20
DB/RD
69
C1
A/C COMPRESSOR CLUTCH RELAY CONTROL
ENGINE CONTROL MODULE
(8W-30-49)
C2
18
BK
3
C103
C2
14
DB/BK
1
A/C COMPRESSOR CLUTCH

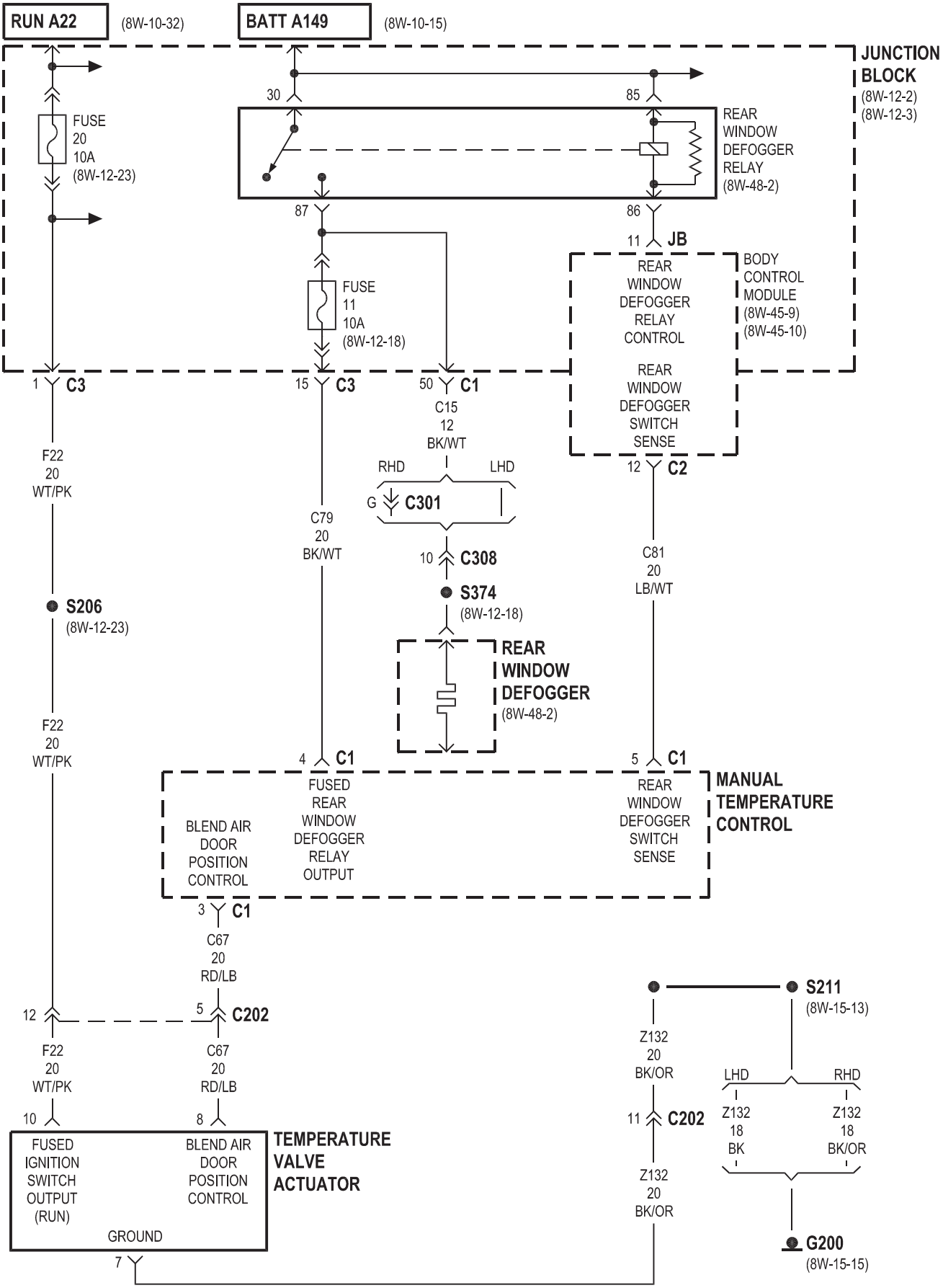

BATT A149
(8W-10-15)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
30
85
REAR WINDOW DEFOGGER RELAY
(8W-48-2)
87A
87
86
11 JB
FUSE
11
10A
(8W-12-18)
REAR WINDOW DEFOGGER RELAY CONTROL
BODY CONTROL MODULE
(8W-45-4)
(8W-45-9)
(8W-45-10)
15 C3
50 C1
C79
20
BK/WT
C15
12
BK/WT
RHD
LHD
G C301
C15
12
BK/WT
10 C308
C15
12
BK/WT
S374
(8W-12-18)
C15
12
BK/WT
REAR WINDOW DEFOGGER
(8W-48-2)
PANEL LAMPS DRIVER
10 C1
E2
20
OR
REAR WINDOW DEFOGGER SWITCH SENSE
12 C2
C81
20
LB/WT
2 DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
LHD
RHD
D25
20
YL/VT
S210
(8W-18-5)
D25
20
YL/VT
S210
(8W-18-5)
D25
20
YL/VT
S226
(8W-18-8)
D25
20
YL/VT/DG
6 C1
FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
6 C2
PANEL LAMPS DRIVER
14 C1
REAR WINDOW DEFOGGER SWITCH SENSE
8 C2
PCI BUS
AUTOMATIC ZONE CONTROL MODULE

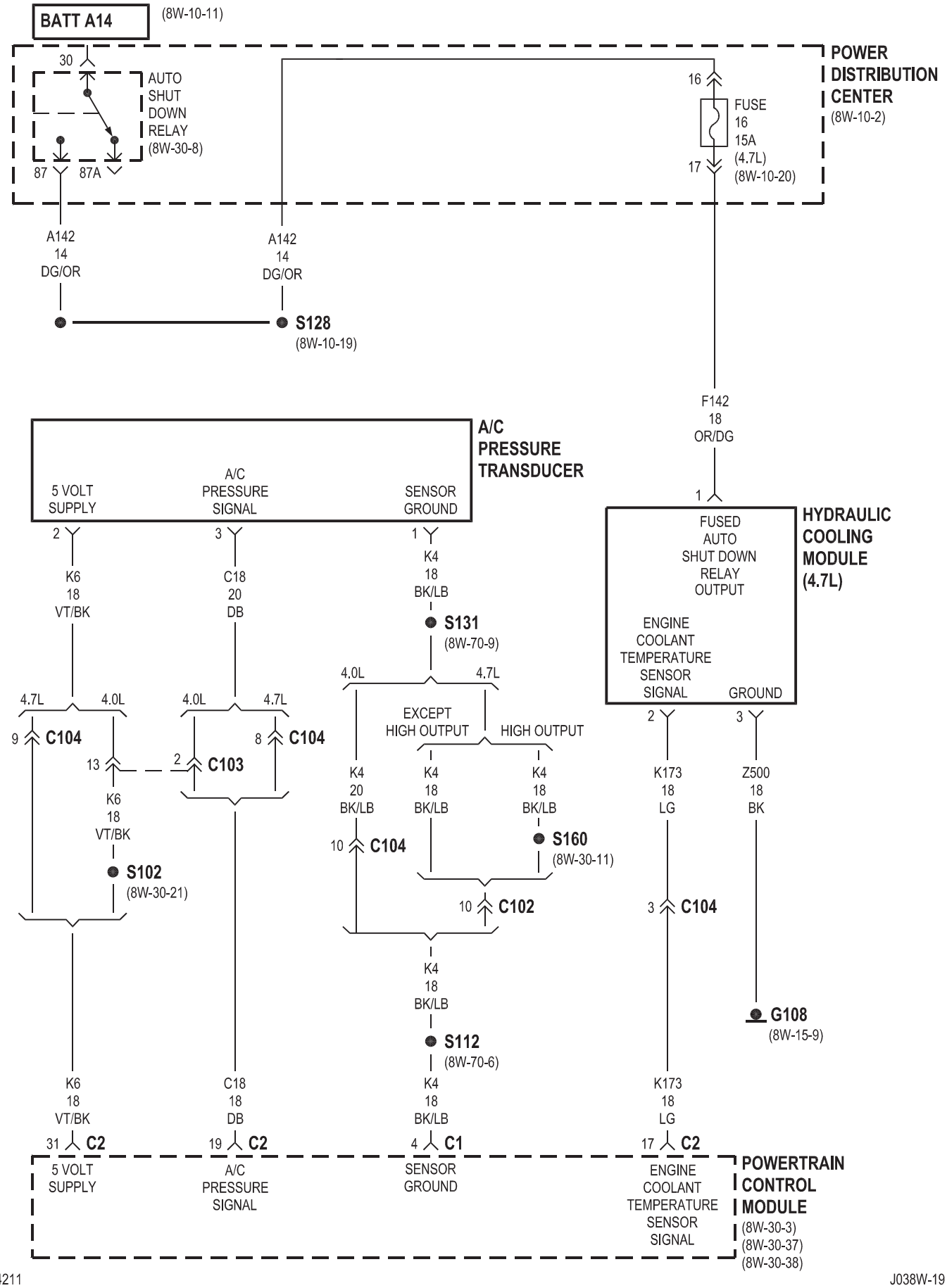

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 1 40A
(8W-10-15)
1
C1 12 DG
GAS
DIESEL
C C106
C C107
C1 12 DG
H C200
C1 12 DG
2 C203
C1 12 DG
C
BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 7 10A
(8W-12-15)
35 C3
M1 20 PK
12 C2
FUSED B(+)
BODY CONTROL MODULE
(8W-45-10)
A/C SWITCH SIGNAL
1 C2
C103 20 DG
9 C2
AUTOMATIC ZONE CONTROL MODULE
A/C SWITCH SIGNAL
BLOWER MOTOR CONTROL
7 C2
C56 20 RD/LG
9 C202
C56 20 RD/LG
B
BLOWER MOTOR CONTROLLER
BLOWER MOTOR SUPPLY
BLOWER MOTOR CONTROL
BLOWER MOTOR HIGH DRIVER
BLOWER MOTOR SUPPLY
GROUND
A
C7 12 BK/TN
C1 12 DG
Z118 12 BK
1 C203
Z118 12 BK
S201
(8W-15-15)
Z118 12 BK
G200
(8W-15-15)
1
BLOWER MOTOR
M
2

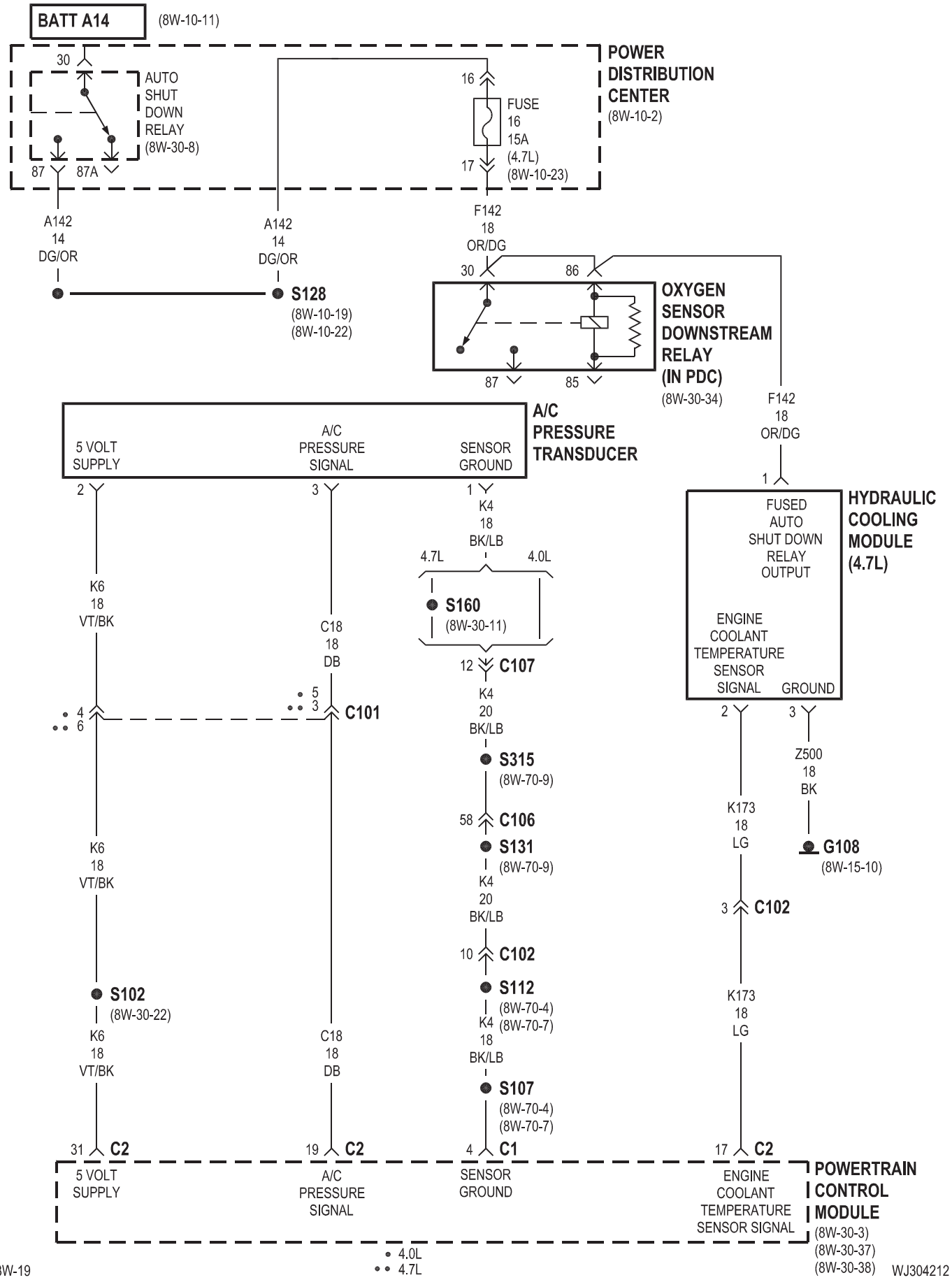

AUTOMATIC ZONE CONTROL MODULE
DRIVER BLEND DOOR DRIVER (A)
DRIVER BLEND DOOR DRIVER (B)
PASSENGER BLEND DOOR DRIVER (A)
PASSENGER BLEND DOOR DRIVER (B)
MODE DOOR DRIVER (A)
MODE DOOR DRIVER (B)
RECIRCULATION DOOR DRIVER (A)
RECIRCULATION DOOR DRIVER (B)
10 C1
3 C2
2 C2
4 C2
9 C1
1 C1
3 C1
4 C1
C33 20 DB/RD
C95 20 WT/BK
C94 20 WT/DG
C96 20 WT/DB
C35 20 DG/YL
C102 20 TN/BK
C32 20 GY/DB
C100 20 YL/DB
3
4
5
6
8
7
1
2
C202
C33 20 DB/RD
C95 20 WT/BK
C94 20 WT/DG
C96 20 WT/DB
C35 20 DG/YL
C102 20 TN/BK
C32 20 GY/DB
C100 20 YL/DB
A
B
RECIRCULATION DOOR DRIVER (A)
RECIRCULATION DOOR DRIVER (B)
RECIRCULATION DOOR MOTOR/ ACTUATOR
B
A
MODE DOOR DRIVER (A)
MODE DOOR DRIVER (B)
MODE DOOR MOTOR/ ACTUATOR
A
B
PASSENGER BLEND DOOR DRIVER (A)
PASSENGER BLEND DOOR DRIVER (B)
PASSENGER BLEND DOOR MOTOR/ ACTUATOR
B
A
DRIVER BLEND DOOR DRIVER (A)
DRIVER BLEND DOOR DRIVER (B)
DRIVER BLEND DOOR MOTOR/ ACTUATOR

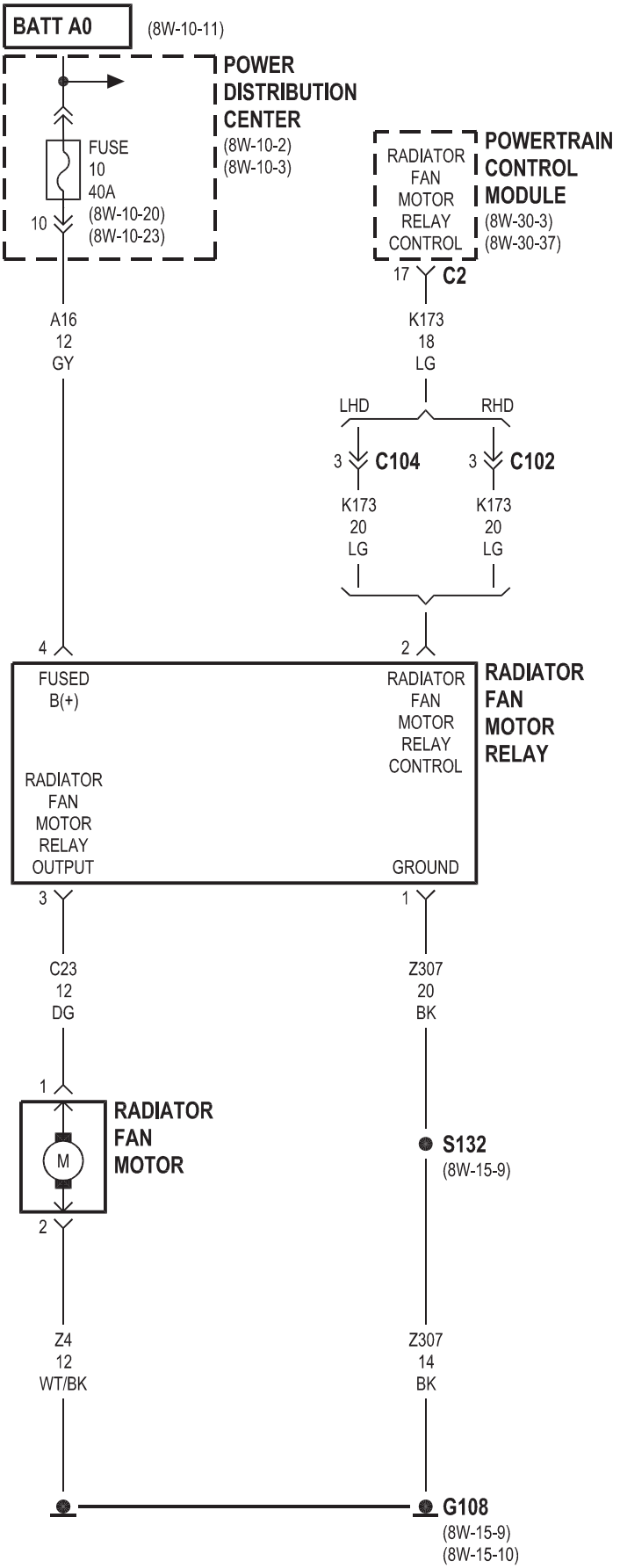

AUTOMATIC ZONE CONTROL MODULE
DRIVER BLEND DOOR DRIVER (A)
DRIVER BLEND DOOR DRIVER (B)
PASSENGER BLEND DOOR DRIVER (A)
PASSENGER BLEND DOOR DRIVER (B)
MODE DOOR DRIVER (A)
MODE DOOR DRIVER (B)
RECIRCULATION DOOR DRIVER (A)
RECIRCULATION DOOR DRIVER (B)
10 C1
3 C2
2 C2
4 C2
9 C1
1 C1
3 C1
4 C1
C33 20 DB/RD
C95 20 WT/BK
C94 20 WT/DG
C96 20 WT/DB
C35 20 DG/YL
C102 20 TN/BK
C32 20 GY/DB
C100 20 YL/DB
6
5
4
3
7
8
2
1
C202
RECIRCULATION DOOR MOTOR/ ACTUATOR
MODE DOOR MOTOR/ ACTUATOR
PASSENGER BLEND DOOR MOTOR/ ACTUATOR
DRIVER BLEND DOOR MOTOR/ ACTUATOR

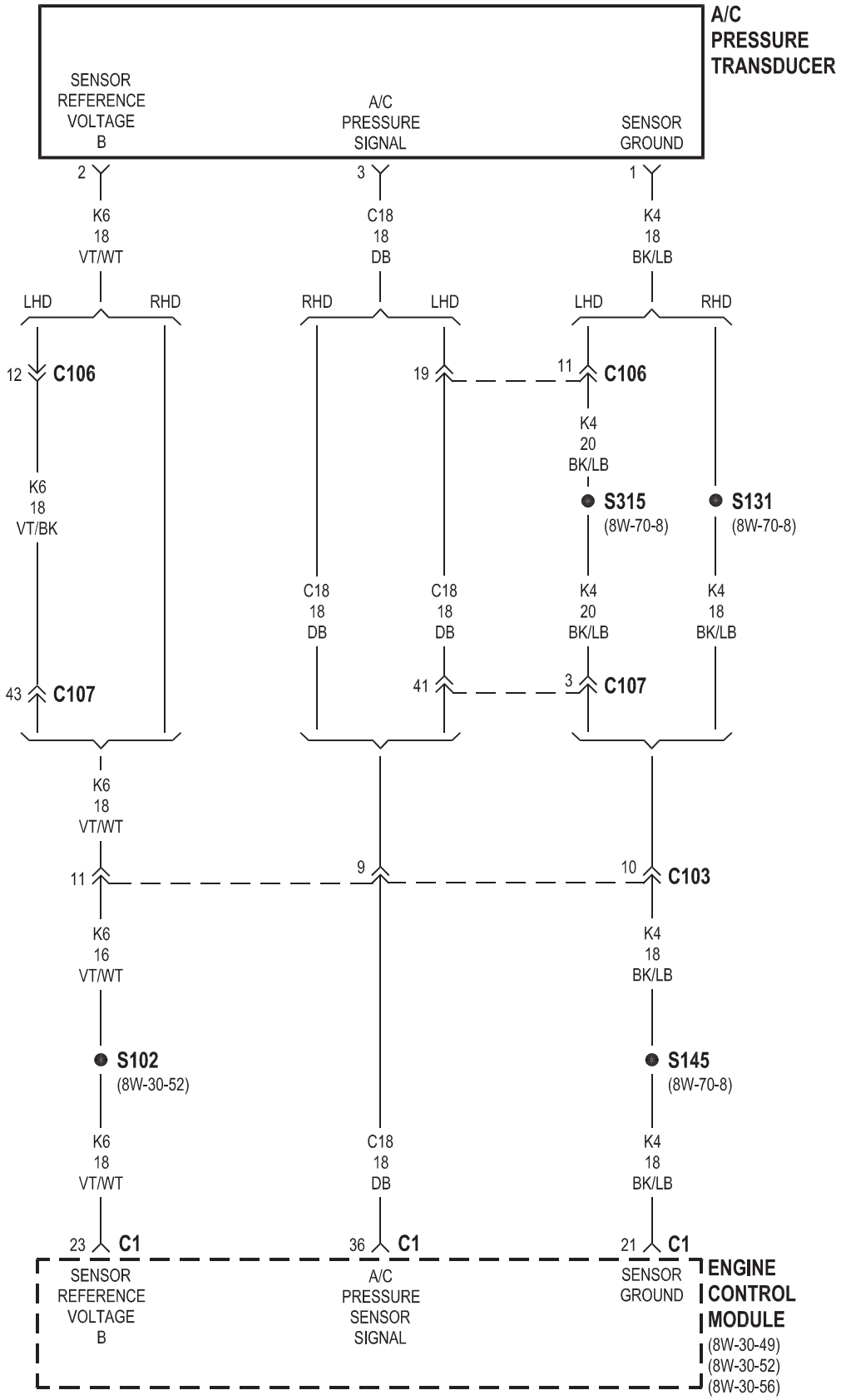

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 1 40A
(8W-10-15)
1
C1 12 DG
GAS
DIESEL
C C106
C C107
C1 12 DG
H C200
C1 12 DG
14 C202
C1 12 DG
1
BLOWER MOTOR
M
2
C7 12 BK/TN
BODY CONTROL MODULE
(8W-45-4)
(8W-45-10)
PANEL LAMPS DRIVER
A/C SWITCH SIGNAL
10 C1
1 C2
E2 20 OR
C103 20 DG
7 C1
1 C1
PANEL LAMPS DRIVER
A/C SWITCH SIGNAL
MANUAL TEMPERATURE CONTROL
BLOWER MOTOR LOW DRIVER
BLOWER MOTOR M1 DRIVER
BLOWER MOTOR M2 DRIVER
BLOWER MOTOR HIGH DRIVER
8 C1
9 C1
10 C1
2 C2
C4 16 TN
C5 16 LG
C6 14 LB
C7 12 BK/TN
15
16
10
13 C202
C4 16 TN
C5 16 LG
C6 14 LB
C7 12 BK/TN
L
M1
M2
H
BLOWER MOTOR RESISTOR BLOCK

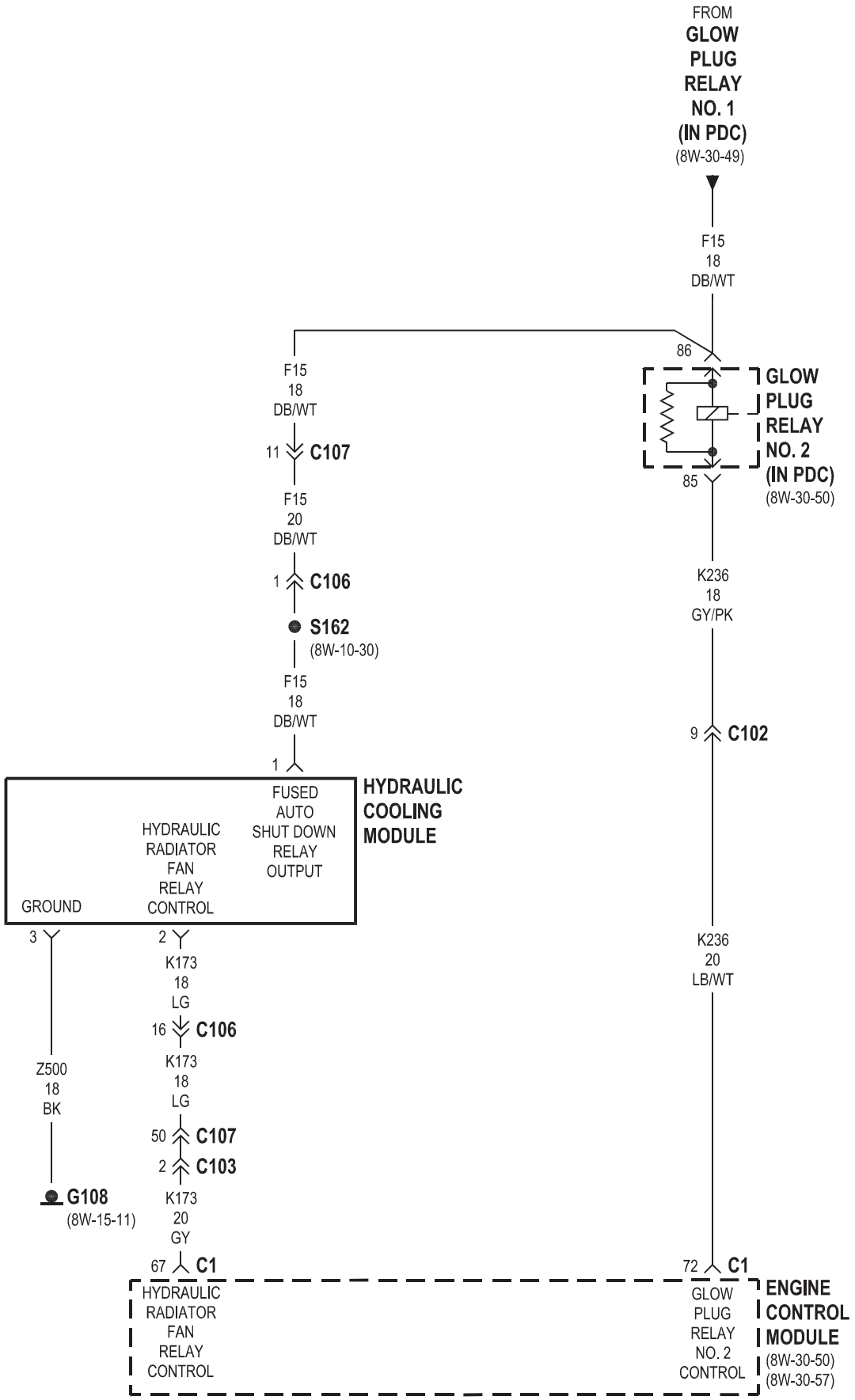

RUN A22
(8W-10-32)
BATT A149
(8W-10-15)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 20 10A (8W-12-23)
30
85
REAR WINDOW DEFOGGER RELAY (8W-48-2)
87
86
11 JB
FUSE 11 10A (8W-12-18)
REAR WINDOW DEFOGGER RELAY CONTROL
BODY CONTROL MODULE (8W-45-9) (8W-45-10)
REAR WINDOW DEFOGGER SWITCH SENSE
1 C3
15 C3
50 C1
C15 12 BK/WT
12 C2
RHD
LHD
G C301
F22 20 WT/PK
C79 20 BK/WT
10 C308
C81 20 LB/WT
S374
(8W-12-18)
S206
(8W-12-23)
REAR WINDOW DEFOGGER
(8W-48-2)
F22 20 WT/PK
4 C1
5 C1
MANUAL TEMPERATURE CONTROL
BLEND AIR DOOR POSITION CONTROL
FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
REAR WINDOW DEFOGGER SWITCH SENSE
3 C1
C67 20 RD/LB
S211
(8W-15-13)
12
5 C202
Z132 20 BK/OR
F22 20 WT/PK
C67 20 RD/LB
LHD
RHD
Z132 18 BK
Z132 18 BK/OR
10
8
11 C202
FUSED IGNITION SWITCH OUTPUT (RUN)
BLEND AIR DOOR POSITION CONTROL
TEMPERATURE VALVE ACTUATOR
GROUND
Z132 20 BK/OR
G200
(8W-15-15)
7


BATT A14
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
30
AUTO SHUT DOWN RELAY
(8W-30-8)
87
87A
16
FUSE 16 15A (4.7L)
(8W-10-20)
17
A142 14 DG/OR
A142 14 DG/OR
S128
(8W-10-19)
F142 18 OR/DG
A/C PRESSURE TRANSDUCER
5 VOLT SUPPLY
A/C PRESSURE SIGNAL
SENSOR GROUND
HYDRAULIC COOLING MODULE (4.7L)
FUSED AUTO SHUT DOWN RELAY OUTPUT
ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
GROUND
K6 18 VT/BK
C18 20 DB
K4 18 BK/LB
S131
(8W-70-9)
4.7L
4.0L
C104
C103
EXCEPT HIGH OUTPUT
HIGH OUTPUT
K4 20 BK/LB
K4 18 BK/LB
S160
(8W-30-11)
S102
(8W-30-21)
C102
K173 18 LG
Z500 18 BK
G108
(8W-15-9)
S112
(8W-70-6)
POWERTRAIN CONTROL MODULE
(8W-30-3)
(8W-30-37)
(8W-30-38)


BATT A14
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
30
AUTO SHUT DOWN RELAY
(8W-30-8)
87
87A
16
FUSE 16 15A (4.7L)
(8W-10-23)
17
A142 14 DG/OR
A142 14 DG/OR
S128
(8W-10-19)
(8W-10-22)
F142 18 OR/DG
30
86
OXYGEN SENSOR DOWNSTREAM RELAY (IN PDC)
(8W-30-34)
87
85
F142 18 OR/DG
A/C PRESSURE TRANSDUCER
5 VOLT SUPPLY
A/C PRESSURE SIGNAL
SENSOR GROUND
2
3
1
K4 18 BK/LB
4.7L
4.0L
S160
(8W-30-11)
12
C107
K4 20 BK/LB
S315
(8W-70-9)
58
C106
S131
(8W-70-9)
K4 20 BK/LB
10
C102
S112
(8W-70-4)
(8W-70-7)
K4 18 BK/LB
S107
(8W-70-4)
(8W-70-7)
4
C1
SENSOR GROUND
K6 18 VT/BK
C18 18 DB
5
3
C101
4
6
K6 18 VT/BK
S102
(8W-30-22)
K6 18 VT/BK
31
C2
5 VOLT SUPPLY
C18 18 DB
19
C2
A/C PRESSURE SIGNAL
1
HYDRAULIC COOLING MODULE (4.7L)
FUSED AUTO SHUT DOWN RELAY OUTPUT
ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
GROUND
2
3
Z500 18 BK
G108
(8W-15-10)
K173 18 LG
3
C102
K173 18 LG
17
C2
ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
POWERTRAIN CONTROL MODULE
(8W-30-3)
(8W-30-37)
(8W-30-38)
• 4.0L
•• 4.7L

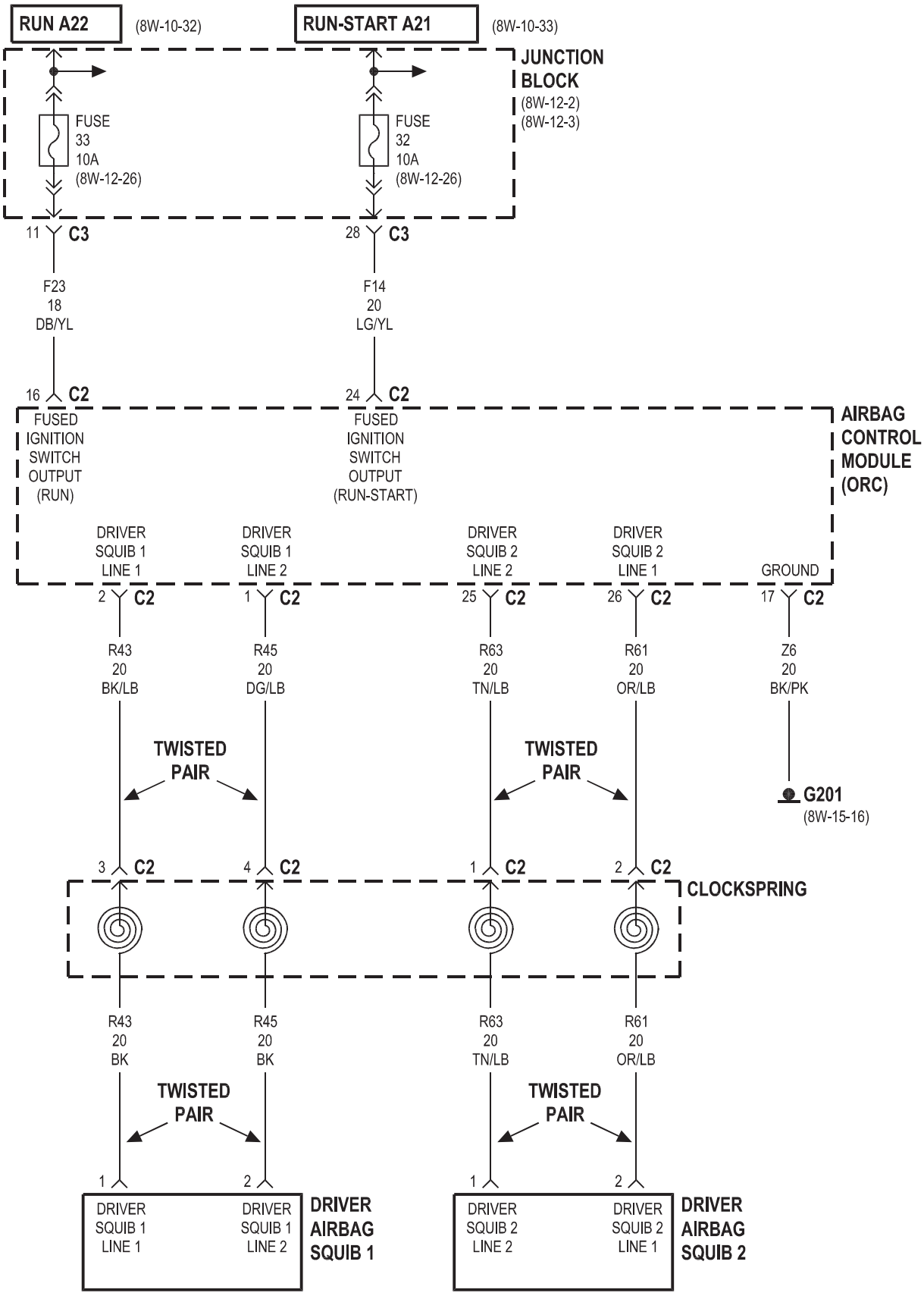

BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE
10
40A
10
(8W-10-20)
(8W-10-23)
RADIATOR FAN MOTOR RELAY CONTROL
POWERTRAIN CONTROL MODULE
(8W-30-3)
(8W-30-37)
17
C2
A16
12
GY
K173
18
LG
LHD
RHD
3
C104
3
C102
K173
20
LG
K173
20
LG
4
2
FUSED B(+)
RADIATOR FAN MOTOR RELAY CONTROL
RADIATOR FAN MOTOR RELAY
RADIATOR FAN MOTOR RELAY OUTPUT
GROUND
3
1
C23
12
DG
Z307
20
BK
1
M
RADIATOR FAN MOTOR
S132
(8W-15-9)
2
Z4
12
WT/BK
Z307
14
BK
G108
(8W-15-9)
(8W-15-10)

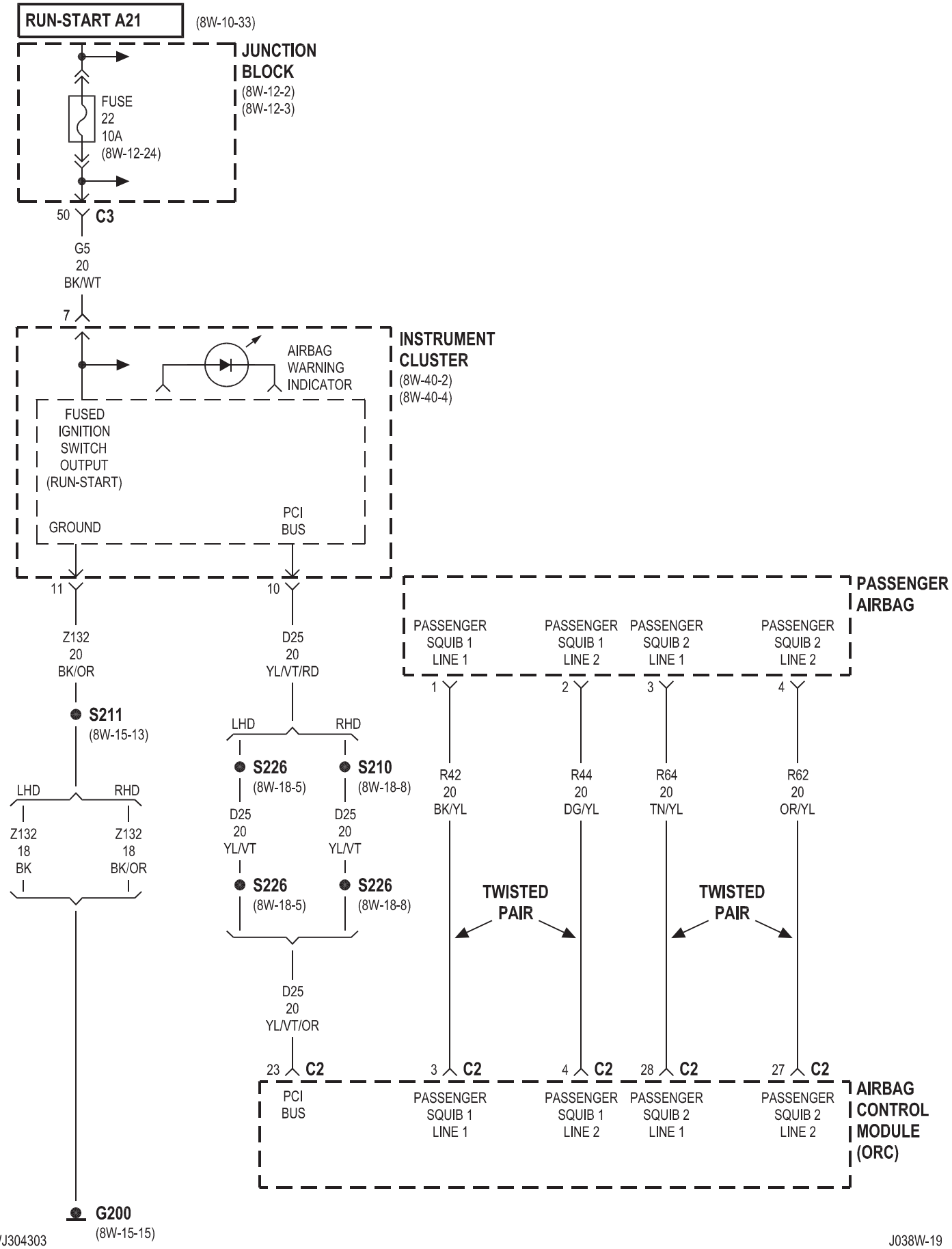

A/C PRESSURE TRANSDUCER
SENSOR REFERENCE VOLTAGE B
A/C PRESSURE SIGNAL
SENSOR GROUND
2
3
1
K6 18 VT/WT
C18 18 DB
K4 18 BK/LB
LHD
RHD
12 C106
19
11 C106
K4 20 BK/LB
K6 18 VT/BK
S315 (8W-70-8)
S131 (8W-70-8)
C18 18 DB
K4 20 BK/LB
K4 18 BK/LB
43 C107
41
3 C107
K6 18 VT/WT
11
9
10 C103
K6 16 VT/WT
K4 18 BK/LB
S102 (8W-30-52)
S145 (8W-70-8)
23 C1
36 C1
21 C1
SENSOR REFERENCE VOLTAGE B
A/C PRESSURE SENSOR SIGNAL
SENSOR GROUND
ENGINE CONTROL MODULE
(8W-30-49)
(8W-30-52)
(8W-30-56)


FROM
GLOW PLUG RELAY NO. 1 (IN PDC)
(8W-30-49)
F15
18
DB/WT
86
GLOW PLUG RELAY NO. 2 (IN PDC)
(8W-30-50)
85
F15
18
DB/WT
11
C107
F15
20
DB/WT
1
C106
S162
(8W-10-30)
F15
18
DB/WT
1
HYDRAULIC COOLING MODULE
FUSED AUTO SHUT DOWN RELAY OUTPUT
HYDRAULIC RADIATOR FAN RELAY CONTROL
GROUND
3
2
K173
18
LG
16
C106
K173
18
LG
50
C107
2
C103
K173
20
GY
67
C1
Z500
18
BK
G108
(8W-15-11)
K236
18
GY/PK
9
C102
K236
20
LB/WT
72
C1
HYDRAULIC RADIATOR FAN RELAY CONTROL
GLOW PLUG RELAY NO. 2 CONTROL
ENGINE CONTROL MODULE
(8W-30-50)
(8W-30-57)

8W-43 AIRBAG SYSTEM

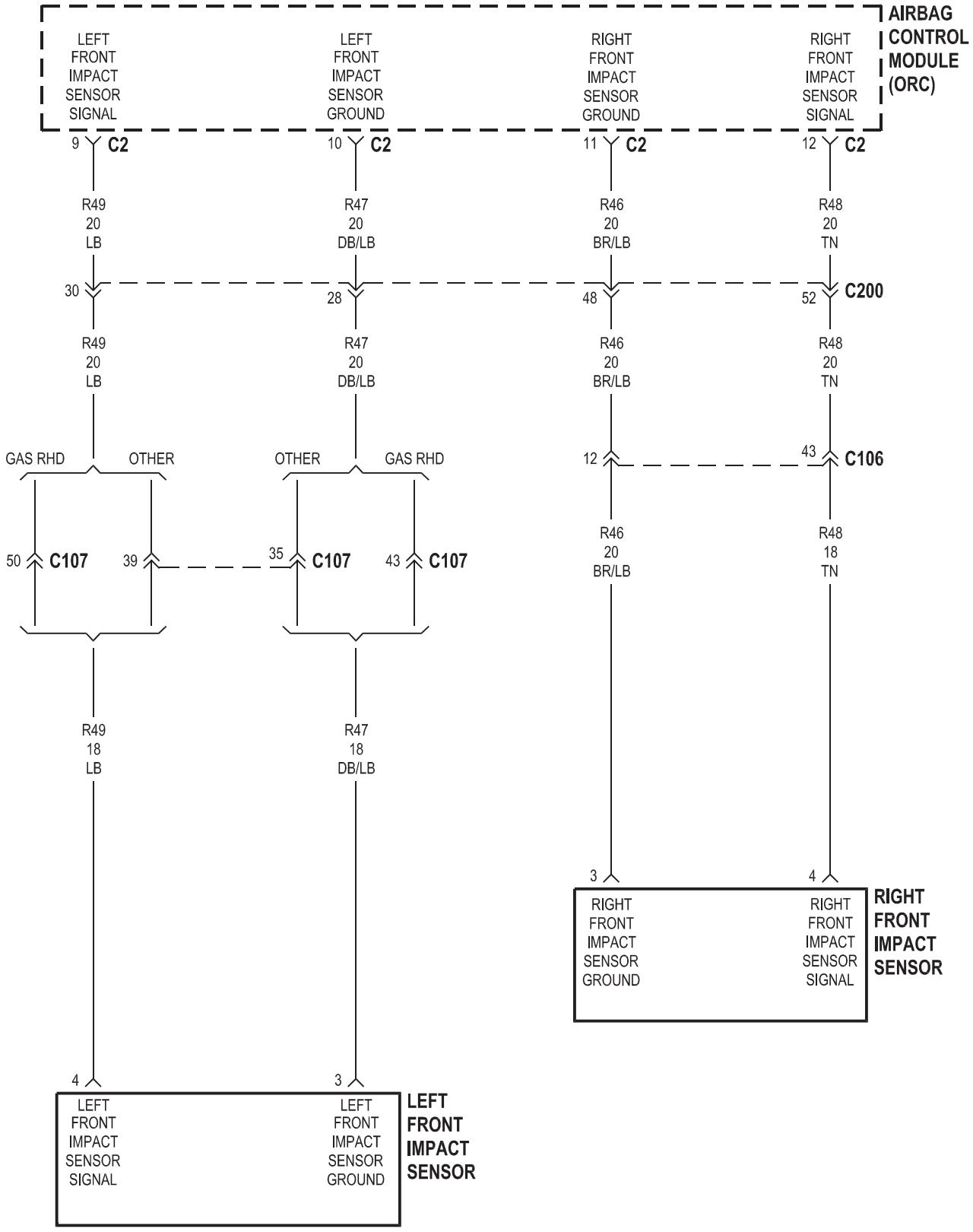
Component	Page
Airbag Control Module	8W-43-2, 3, 4, 5
Clockspring	8W-43-2
Driver Airbag Squib 1	8W-43-2
Driver Airbag Squib 2	8W-43-2
Driver Curtain Airbag Squib	8W-43-5
Driver Seat Belt Switch	8W-43-5
Driver Side Impact Sensor	8W-43-5
Fuse 22	8W-43-3
Fuse 32	8W-43-2
Fuse 33	8W-43-2
G200	8W-43-3
G201	8W-43-2
Instrument Cluster	8W-43-3
Junction Block	8W-43-2, 3
Left Front Impact Sensor	8W-43-4
Passenger Airbag	8W-43-3
Passenger Curtain Airbag Squib	8W-43-5
Passenger Seat Belt Switch	8W-43-5
Passenger Side Impact Sensor	8W-43-5
Right Front Impact Sensor	8W-43-4

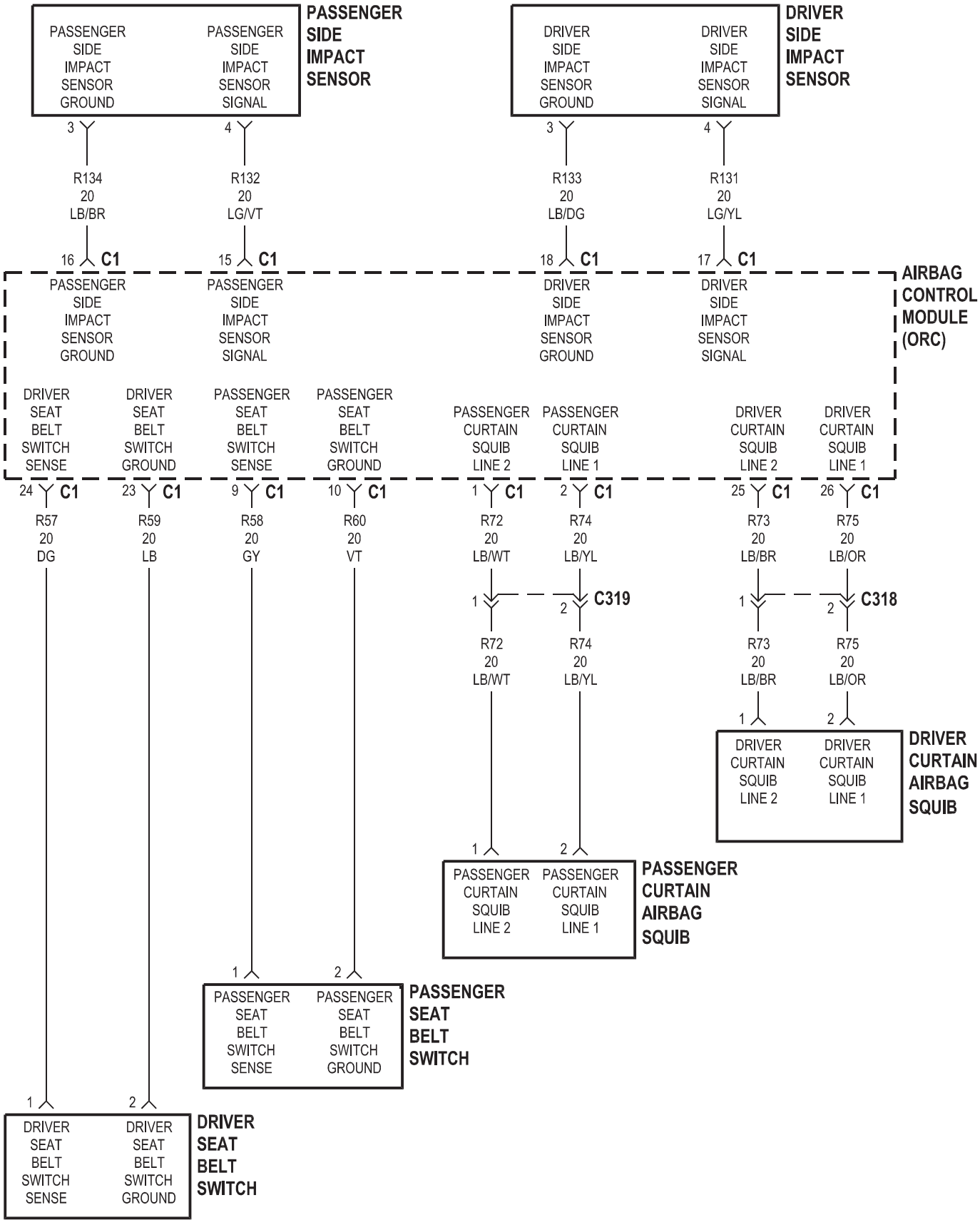

RUN A22
(8W-10-32)
RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 33 10A (8W-12-26)
FUSE 32 10A (8W-12-26)
11 C3
28 C3
F23 18 DB/YL
F14 20 LG/YL
16 C2
24 C2
FUSED IGNITION SWITCH OUTPUT (RUN)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
AIRBAG CONTROL MODULE (ORC)
DRIVER SQUIB 1 LINE 1
DRIVER SQUIB 1 LINE 2
DRIVER SQUIB 2 LINE 2
DRIVER SQUIB 2 LINE 1
GROUND
2 C2
1 C2
25 C2
26 C2
17 C2
R43 20 BK/LB
R45 20 DG/LB
R63 20 TN/LB
R61 20 OR/LB
Z6 20 BK/PK
TWISTED PAIR
TWISTED PAIR
G201
(8W-15-16)
3 C2
4 C2
1 C2
2 C2
CLOCKSPRING
R43 20 BK
R45 20 BK
R63 20 TN/LB
R61 20 OR/LB
TWISTED PAIR
TWISTED PAIR
1
2
1
2
DRIVER SQUIB 1 LINE 1
DRIVER SQUIB 1 LINE 2
DRIVER AIRBAG SQUIB 1
DRIVER SQUIB 2 LINE 2
DRIVER SQUIB 2 LINE 1
DRIVER AIRBAG SQUIB 2



WJ304303

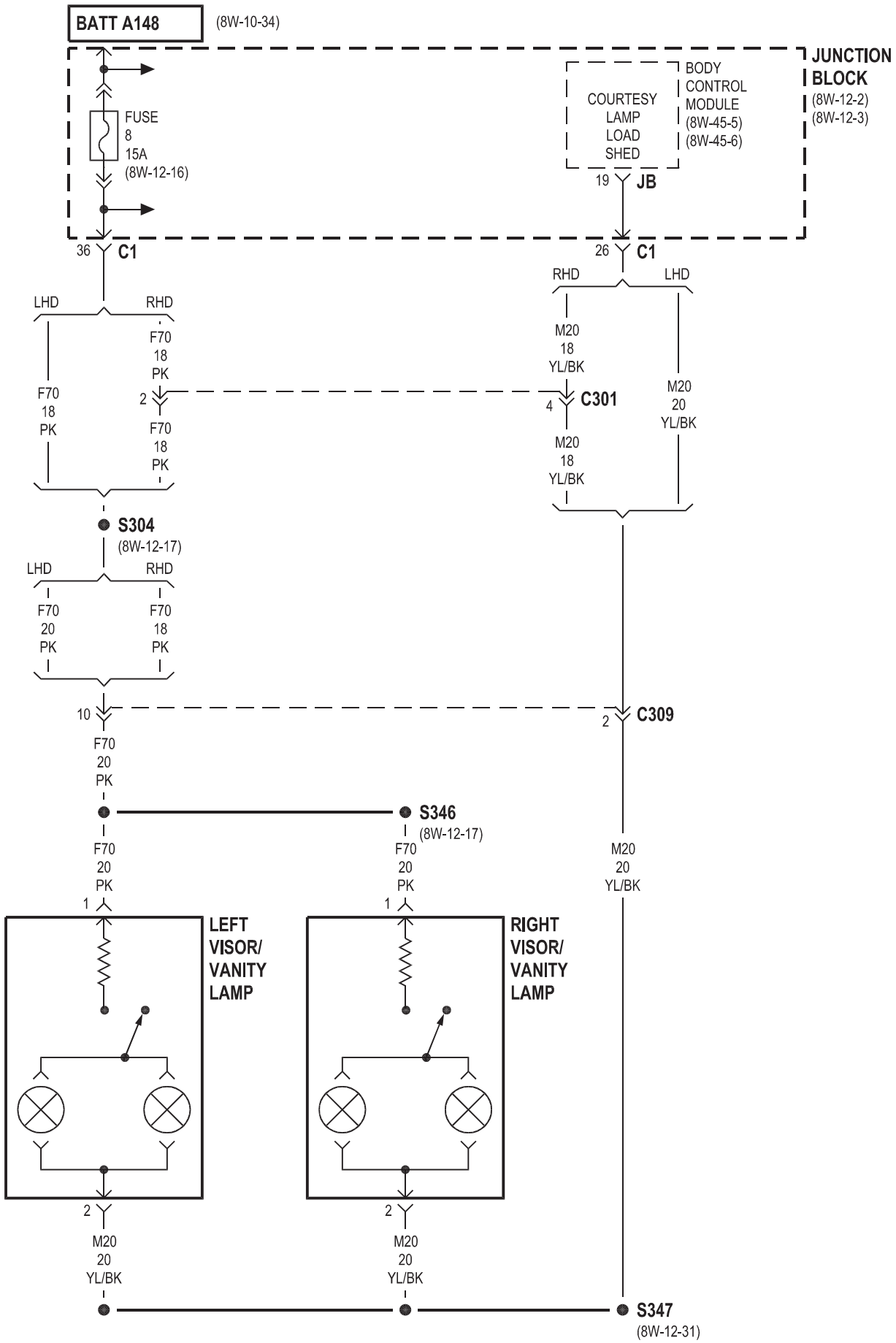
J038W-19

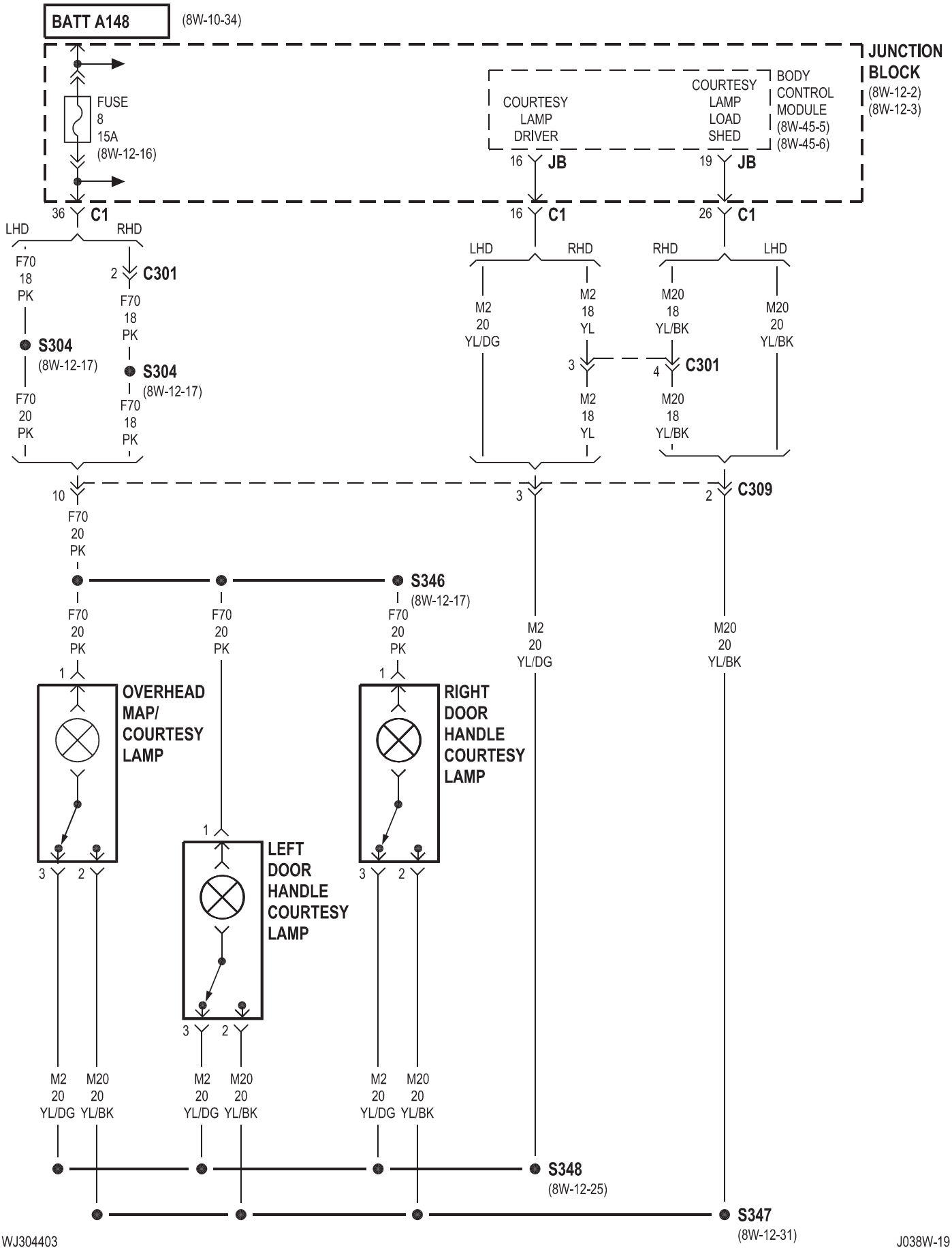

AIRBAG CONTROL MODULE (ORC)
LEFT FRONT IMPACT SENSOR SIGNAL
LEFT FRONT IMPACT SENSOR GROUND
RIGHT FRONT IMPACT SENSOR GROUND
RIGHT FRONT IMPACT SENSOR SIGNAL
9 C2
10 C2
11 C2
12 C2
R49 20 LB
R47 20 DB/LB
R46 20 BR/LB
R48 20 TN
30
28
48
52 C200
R49 20 LB
R47 20 DB/LB
R46 20 BR/LB
R48 20 TN
GAS RHD
OTHER
OTHER
GAS RHD
12
43 C106
50 C107
39
35 C107
43 C107
R46 20 BR/LB
R48 18 TN
R49 18 LB
R47 18 DB/LB
3
4
RIGHT FRONT IMPACT SENSOR GROUND
RIGHT FRONT IMPACT SENSOR SIGNAL
RIGHT FRONT IMPACT SENSOR
4
3
LEFT FRONT IMPACT SENSOR SIGNAL
LEFT FRONT IMPACT SENSOR GROUND
LEFT FRONT IMPACT SENSOR

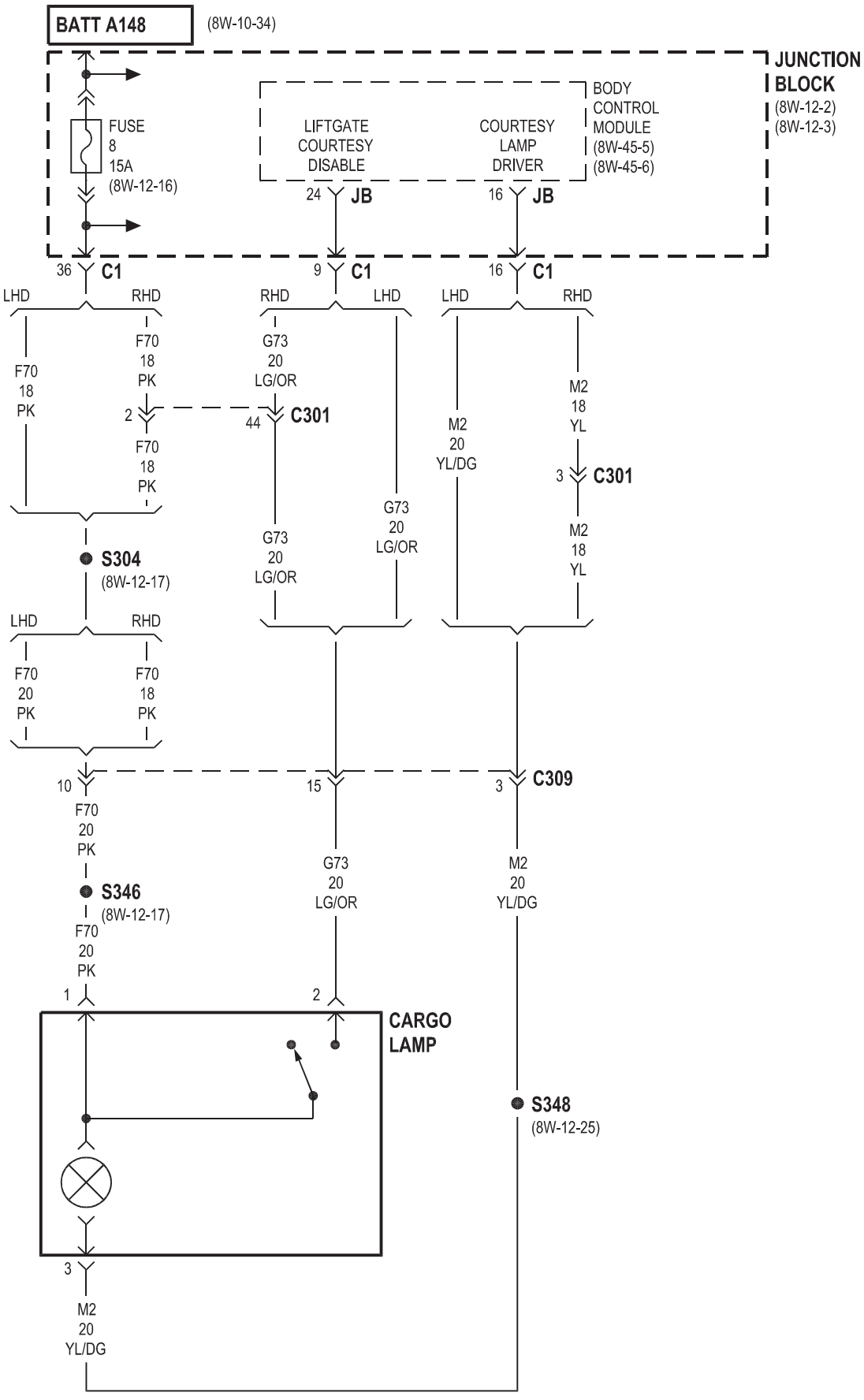

PASSENGER SIDE IMPACT SENSOR
PASSENGER SIDE IMPACT SENSOR GROUND
PASSENGER SIDE IMPACT SENSOR SIGNAL
DRIVER SIDE IMPACT SENSOR
DRIVER SIDE IMPACT SENSOR GROUND
DRIVER SIDE IMPACT SENSOR SIGNAL
R134 20 LB/BR
R132 20 LG/VT
R133 20 LB/DG
R131 20 LG/YL
AIRBAG CONTROL MODULE (ORC)
DRIVER SEAT BELT SWITCH SENSE
DRIVER SEAT BELT SWITCH GROUND
PASSENGER SEAT BELT SWITCH SENSE
PASSENGER SEAT BELT SWITCH GROUND
PASSENGER CURTAIN SQUIB LINE 2
PASSENGER CURTAIN SQUIB LINE 1
DRIVER CURTAIN SQUIB LINE 2
DRIVER CURTAIN SQUIB LINE 1
R57 20 DG
R59 20 LB
R58 20 GY
R60 20 VT
R72 20 LB/WT
R74 20 LB/YL
R73 20 LB/BR
R75 20 LB/OR
C319
C318
DRIVER SEAT BELT SWITCH
DRIVER CURTAIN AIRBAG SQUIB
PASSENGER CURTAIN AIRBAG SQUIB
PASSENGER SEAT BELT SWITCH

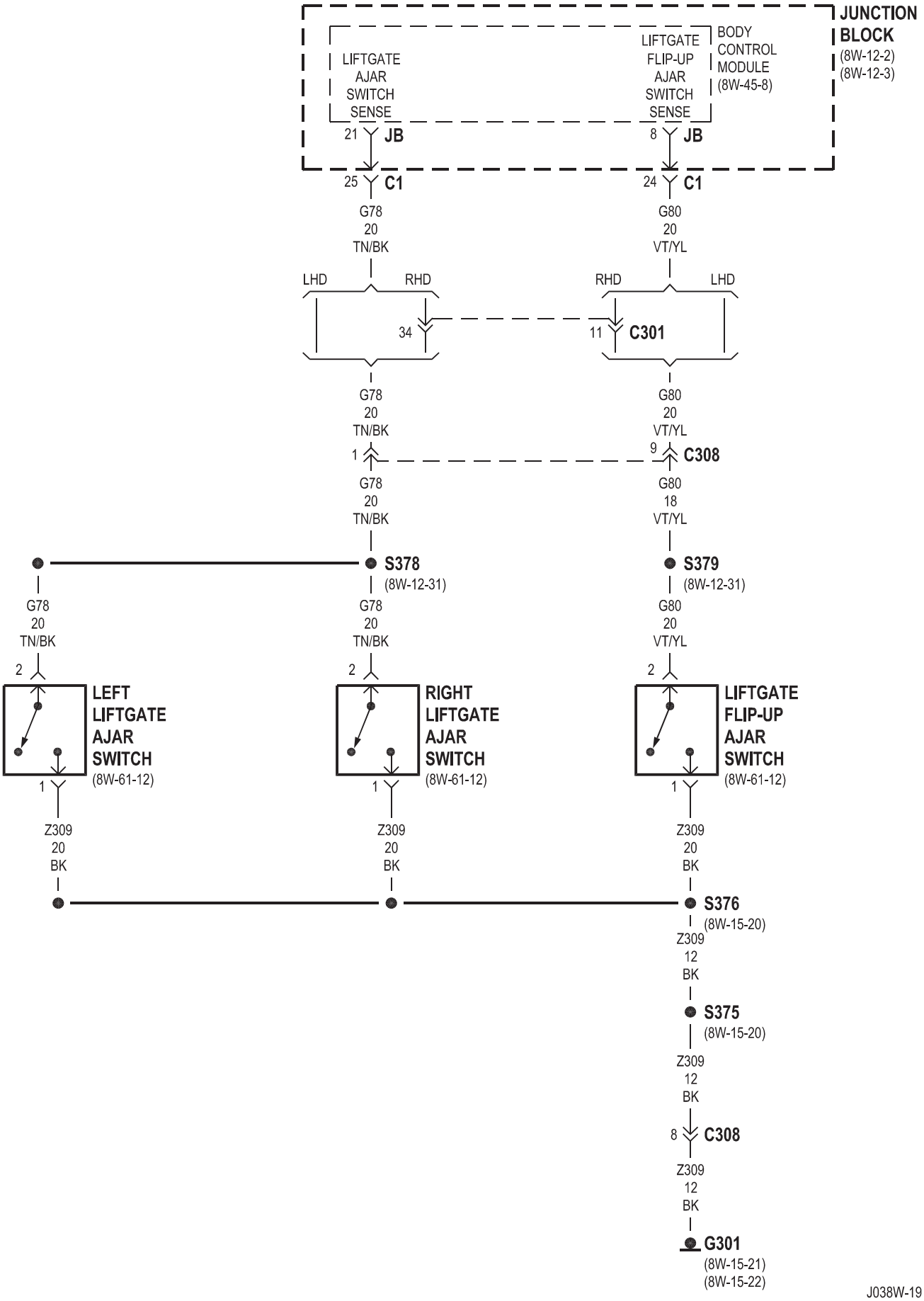
8W-44 INTERIOR LIGHTING

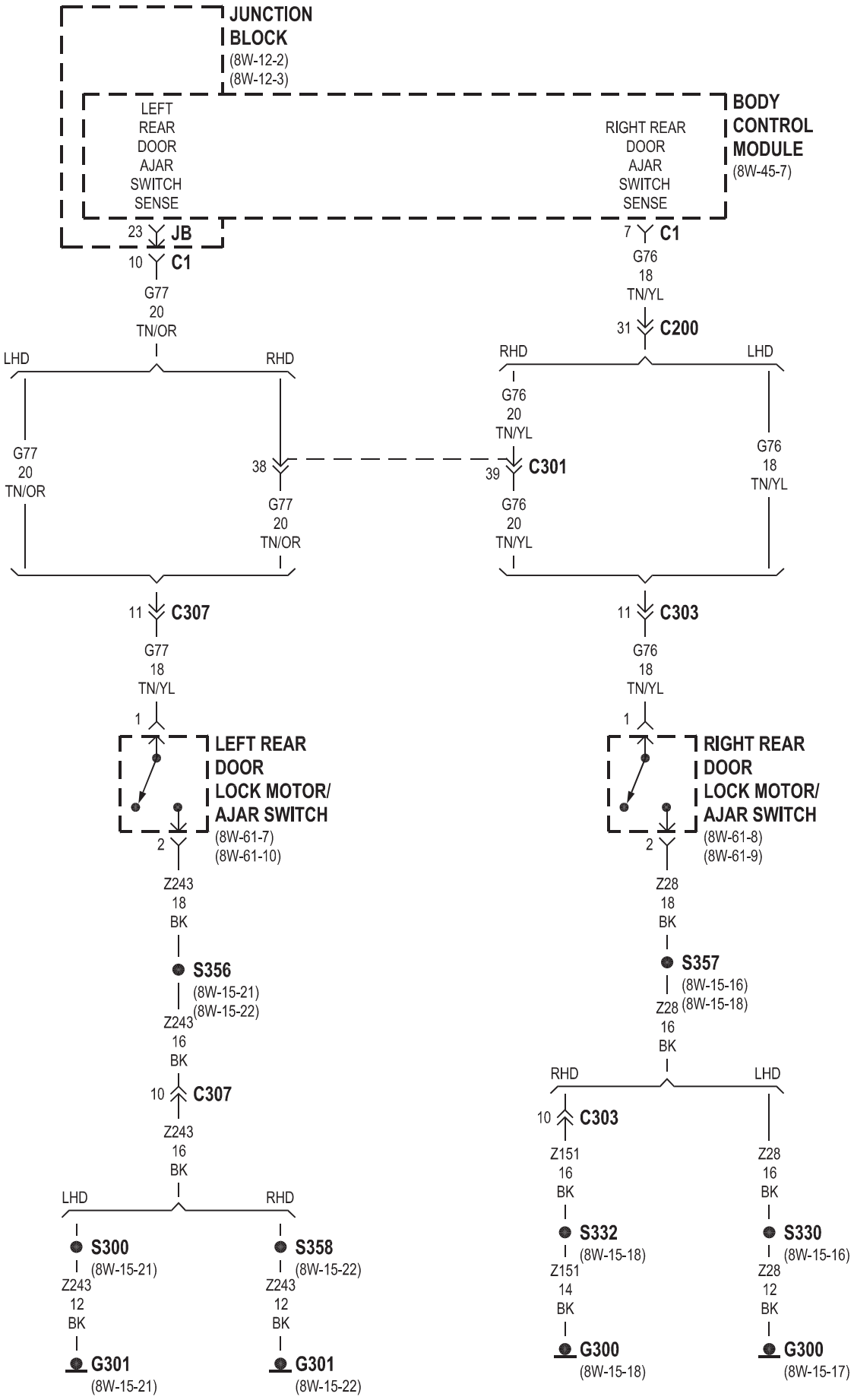
Component	Page
Ash Receiver Lamp	8W-44-10
Automatic Zone Control Module	8W-44-10
Body Control Module	8W-44-2, 3, 4, 5, 6, 8, 10
Cargo Lamp	8W-44-4
Driver Door Lock Motor/Ajar Switch	8W-44-7
Driver Door Module	8W-44-7, 9
Driver Front Door Courtesy Lamp	8W-44-9
Driver Heated Seat Switch	8W-44-10
Fuse 8	8W-44-2, 3, 4, 8
G200	8W-44-10
G300	8W-44-6, 7
G301	8W-44-5, 6, 7
Glove Box Lamp	8W-44-8
Junction Block	8W-44-2, 3, 4, 5, 6, 8
Left Courtesy Lamp	8W-44-8
Left Door Handle Courtesy Lamp	8W-44-3
Left Liftgate Ajar Switch	8W-44-5
Left Multi-Function Switch	8W-44-10
Left Rear Door Lock Motor/Ajar Switch	8W-44-6
Left Visor/Vanity Lamp	8W-44-2
Liftgate Flip-Up Ajar Switch	8W-44-5
Manual Temperature Control	8W-44-10
Overhead Map/Courtesy Lamp	8W-44-3
Passenger Door Lock Motor/Ajar Switch	8W-44-7
Passenger Door Module	8W-44-7, 9
Passenger Front Door Courtesy Lamp	8W-44-9
Passenger Heated Seat Switch	8W-44-10
Radio	8W-44-10
Right Courtesy Lamp	8W-44-8
Right Door Handle Courtesy Lamp	8W-44-3
Right Liftgate Ajar Switch	8W-44-5
Right Rear Door Lock Motor/Ajar Switch	8W-44-6
Right Visor/Vanity Lamp	8W-44-2
Shifter Assembly	8W-44-10


BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 8 15A
(8W-12-16)
COURTESY LAMP LOAD SHED
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
19 JB
36 C1
26 C1
LHD
RHD
F70 18 PK
M20 18 YL/BK
M20 20 YL/BK
2
4 C301
S304
(8W-12-17)
F70 20 PK
10
2 C309
S346
(8W-12-17)
M20 20 YL/BK
1
LEFT VISOR/ VANITY LAMP
RIGHT VISOR/ VANITY LAMP
S347
(8W-12-31)


BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 8 15A
(8W-12-16)
COURTESY LAMP DRIVER
COURTESY LAMP LOAD SHED
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
16 JB
19 JB
36 C1
16 C1
26 C1
LHD
RHD
F70 18 PK
2 C301
S304
(8W-12-17)
F70 20 PK
M2 20 YL/DG
M2 18 YL
M20 18 YL/BK
M20 20 YL/BK
3
4 C301
10
3
2 C309
S346
(8W-12-17)
1
OVERHEAD MAP/ COURTESY LAMP
LEFT DOOR HANDLE COURTESY LAMP
RIGHT DOOR HANDLE COURTESY LAMP
3 2
S348
(8W-12-25)
S347
(8W-12-31)

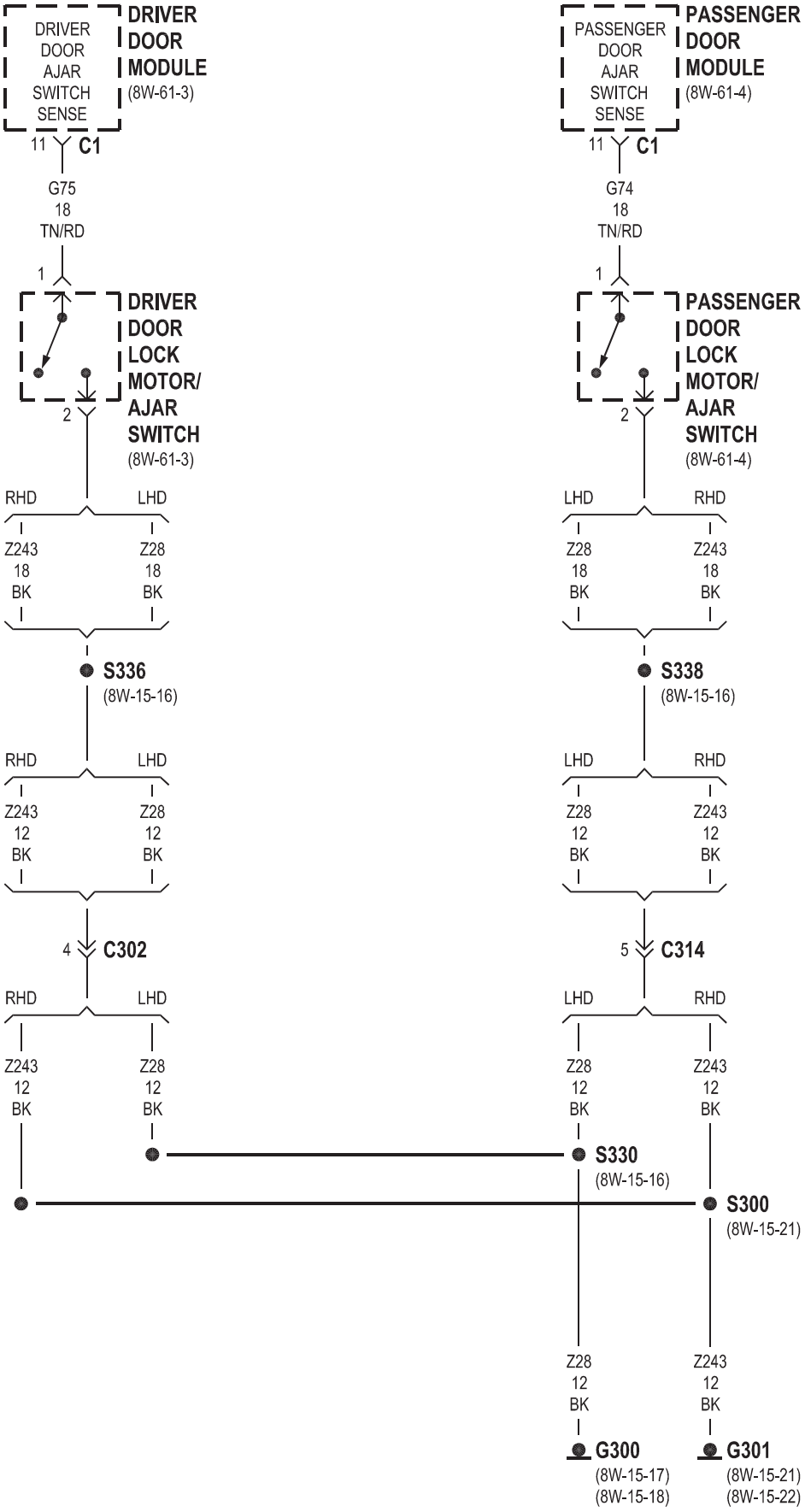

BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)
FUSE 8 15A
(8W-12-16)
LIFTGATE COURTESY DISABLE
COURTESY LAMP DRIVER
24 JB
16 JB
36 C1
9 C1
16 C1
LHD
RHD
F70 18 PK
G73 20 LG/OR
M2 20 YL/DG
M2 18 YL
2
44 C301
3 C301
S304
(8W-12-17)
F70 20 PK
10
15
3 C309
S346
(8W-12-17)
1
2
CARGO LAMP
S348
(8W-12-25)
3

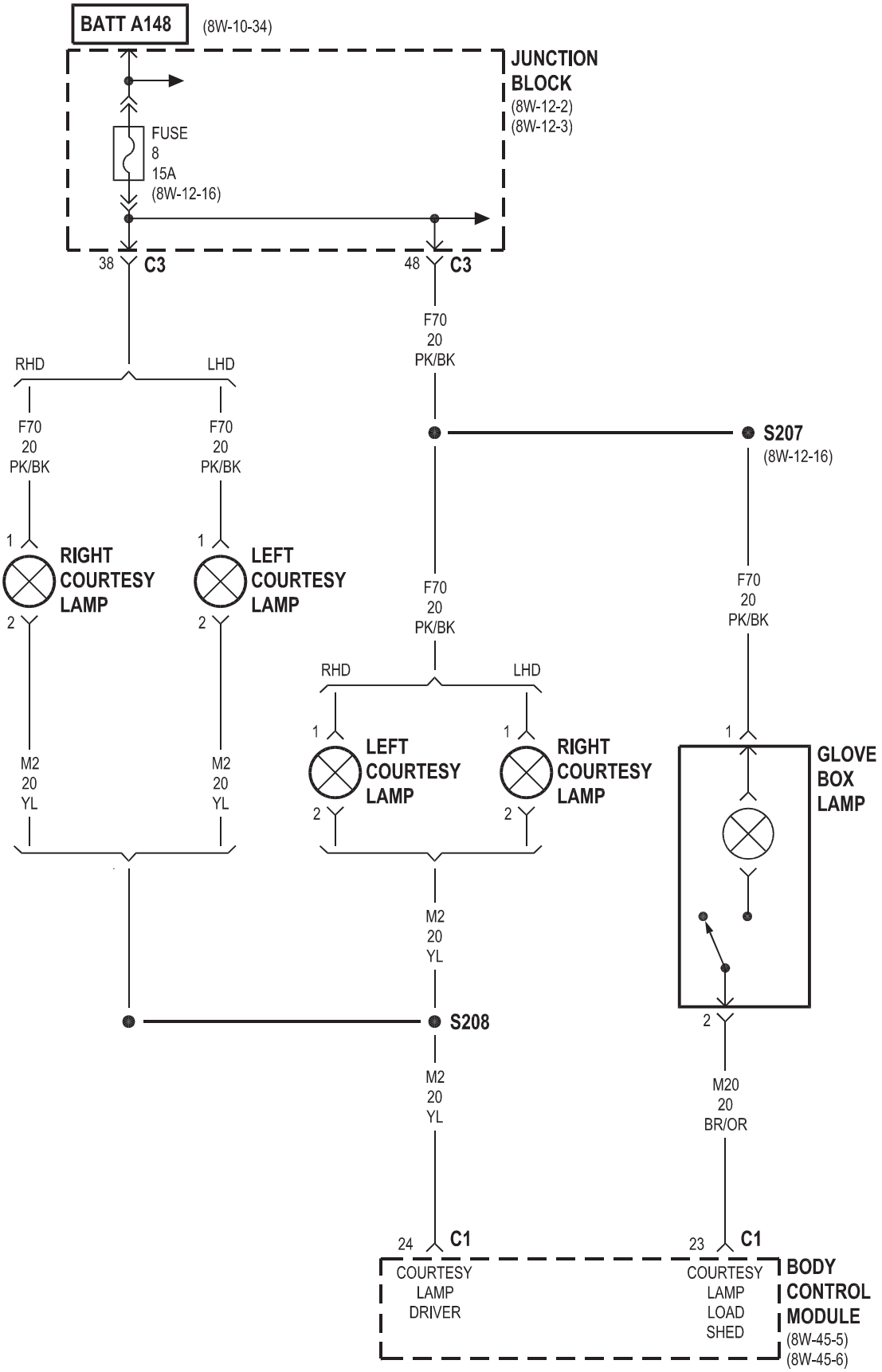

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-8)
LIFTGATE AJAR SWITCH SENSE
LIFTGATE FLIP-UP AJAR SWITCH SENSE
21 JB
8 JB
25 C1
24 C1
G78 20 TN/BK
G80 20 VT/YL
LHD
RHD
RHD
LHD
34
11 C301
G78 20 TN/BK
G80 20 VT/YL
1
9 C308
G78 20 TN/BK
G80 18 VT/YL
S378
(8W-12-31)
S379
(8W-12-31)
G78 20 TN/BK
G78 20 TN/BK
G80 20 VT/YL
2
2
2
LEFT LIFTGATE AJAR SWITCH
(8W-61-12)
RIGHT LIFTGATE AJAR SWITCH
(8W-61-12)
LIFTGATE FLIP-UP AJAR SWITCH
(8W-61-12)
1
1
1
Z309 20 BK
Z309 20 BK
Z309 20 BK
S376
(8W-15-20)
Z309 12 BK
S375
(8W-15-20)
Z309 12 BK
8 C308
Z309 12 BK
G301
(8W-15-21)
(8W-15-22)

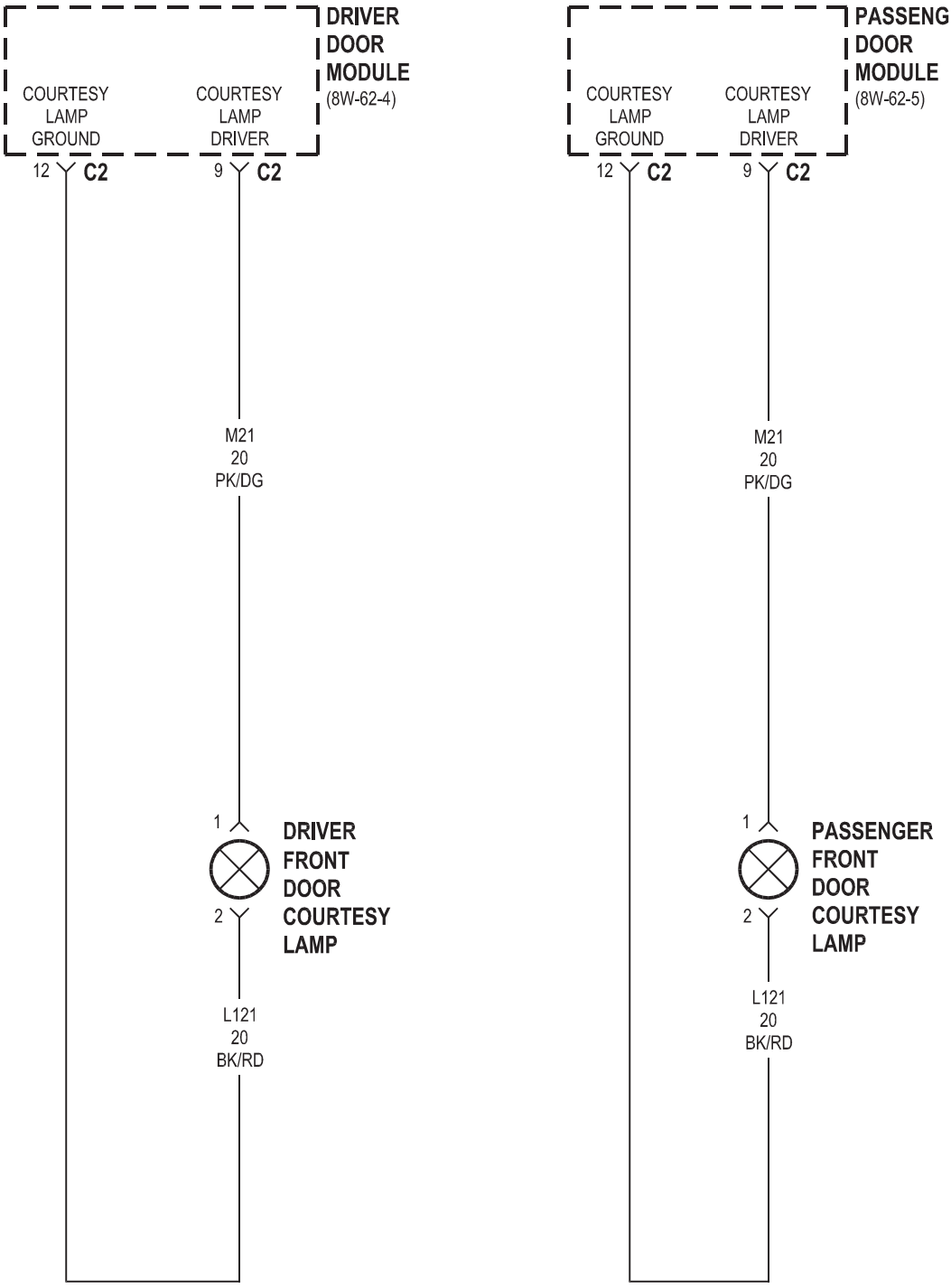


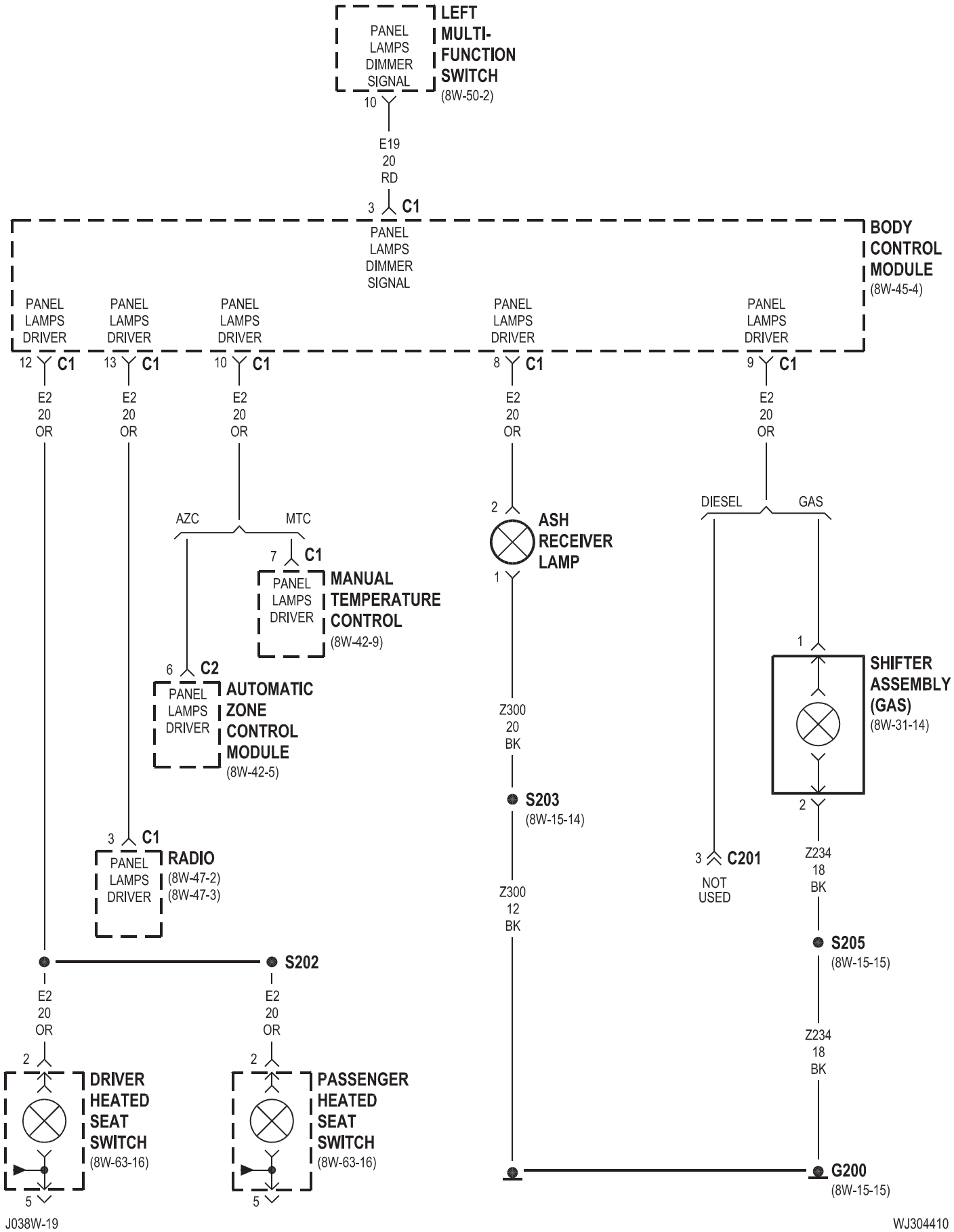
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DRIVER DOOR AJAR SWITCH SENSE
DRIVER DOOR MODULE
(8W-61-3)
11
C1
G75
18
TN/RD
1
DRIVER DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-3)
2
RHD
LHD
Z243
18
BK
Z28
18
BK
S336
(8W-15-16)
RHD
LHD
Z243
12
BK
Z28
12
BK
4
C302
RHD
LHD
Z243
12
BK
Z28
12
BK
PASSENGER DOOR AJAR SWITCH SENSE
PASSENGER DOOR MODULE
(8W-61-4)
11
C1
G74
18
TN/RD
1
PASSENGER DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-4)
2
LHD
RHD
Z28
18
BK
Z243
18
BK
S338
(8W-15-16)
LHD
RHD
Z28
12
BK
Z243
12
BK
5
C314
LHD
RHD
Z28
12
BK
Z243
12
BK
S330
(8W-15-16)
S300
(8W-15-21)
Z28
12
BK
Z243
12
BK
G300
(8W-15-17)
(8W-15-18)
G301
(8W-15-21)
(8W-15-22)


BATT A148
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 8 15A
(8W-12-16)
38 C3
48 C3
F70 20 PK/BK
RHD
LHD
F70 20 PK/BK
F70 20 PK/BK
S207
(8W-12-16)
1
RIGHT COURTESY LAMP
2
1
LEFT COURTESY LAMP
2
F70 20 PK/BK
F70 20 PK/BK
RHD
LHD
1
LEFT COURTESY LAMP
2
1
RIGHT COURTESY LAMP
2
1
GLOVE BOX LAMP
2
M2 20 YL
M2 20 YL
M2 20 YL
S208
M2 20 YL
M20 20 BR/OR
24 C1
23 C1
COURTESY LAMP DRIVER
COURTESY LAMP LOAD SHED
BODY CONTROL MODULE
(8W-45-5)
(8W-45-6)


DRIVER DOOR MODULE
(8W-62-4)
COURTESY LAMP GROUND
COURTESY LAMP DRIVER
12 C2
9 C2
M21
20
PK/DG
1
2
DRIVER FRONT DOOR COURTESY LAMP
L121
20
BK/RD
PASSENGER DOOR MODULE
(8W-62-5)
COURTESY LAMP GROUND
COURTESY LAMP DRIVER
12 C2
9 C2
M21
20
PK/DG
1
2
PASSENGER FRONT DOOR COURTESY LAMP
L121
20
BK/RD

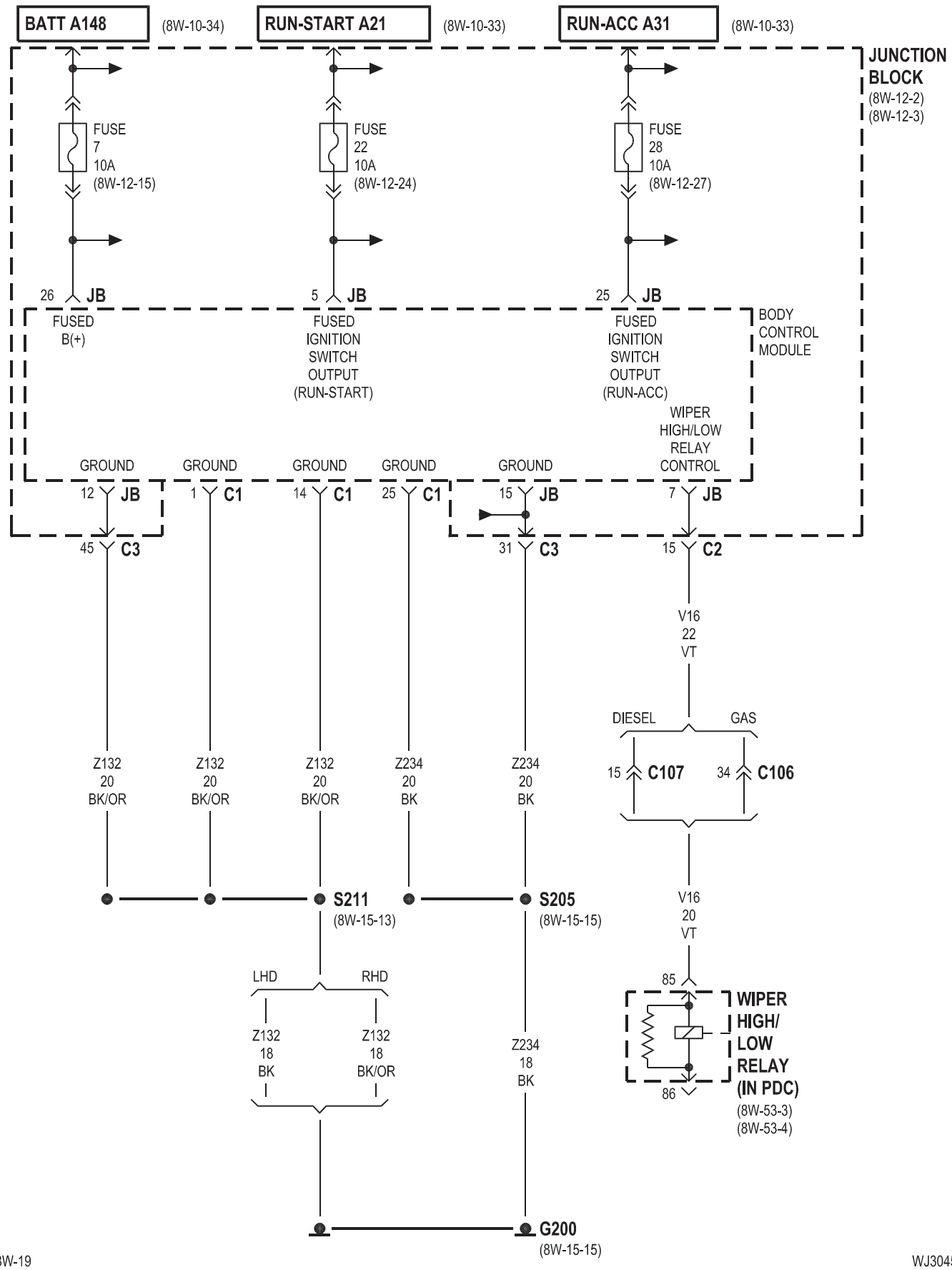


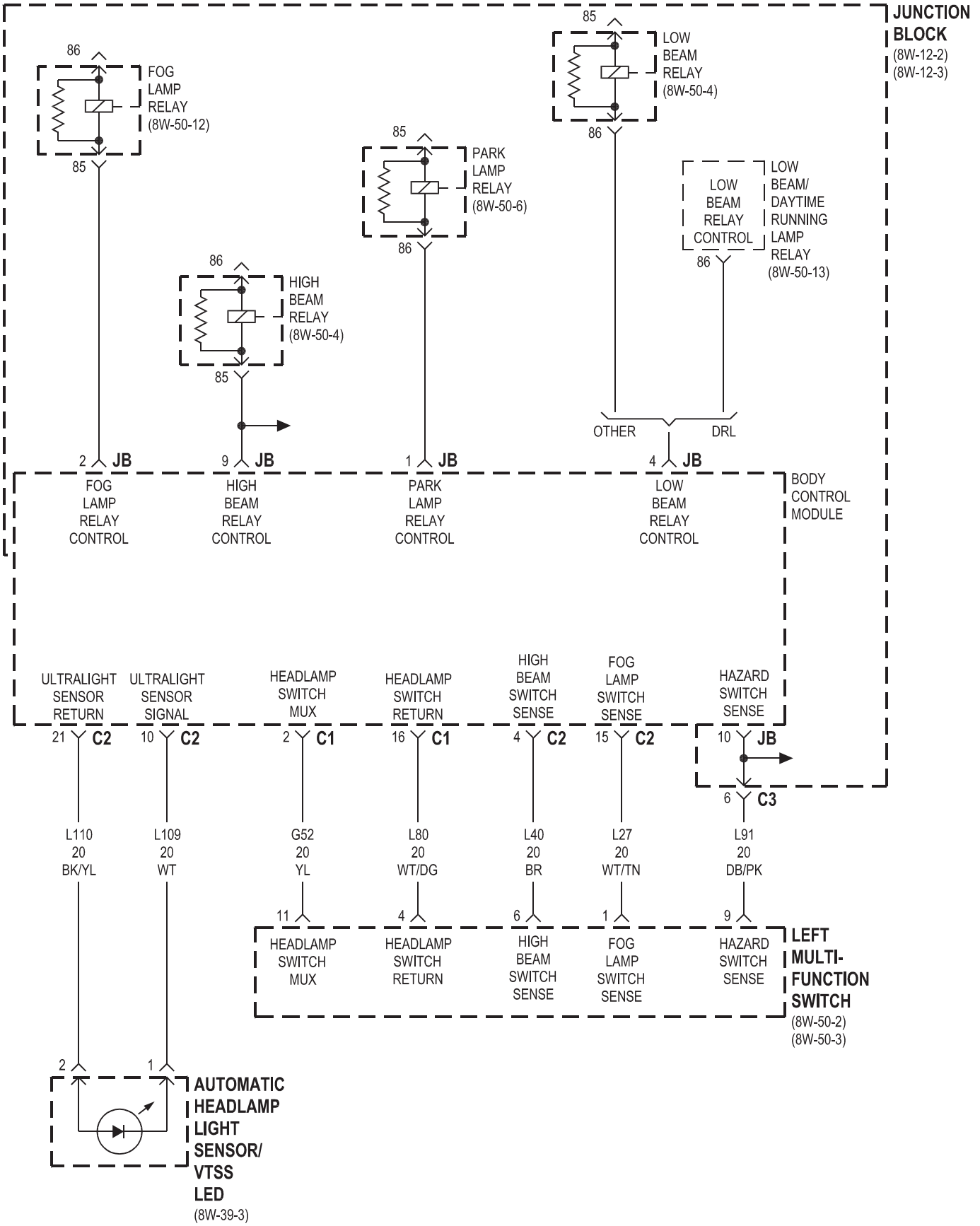
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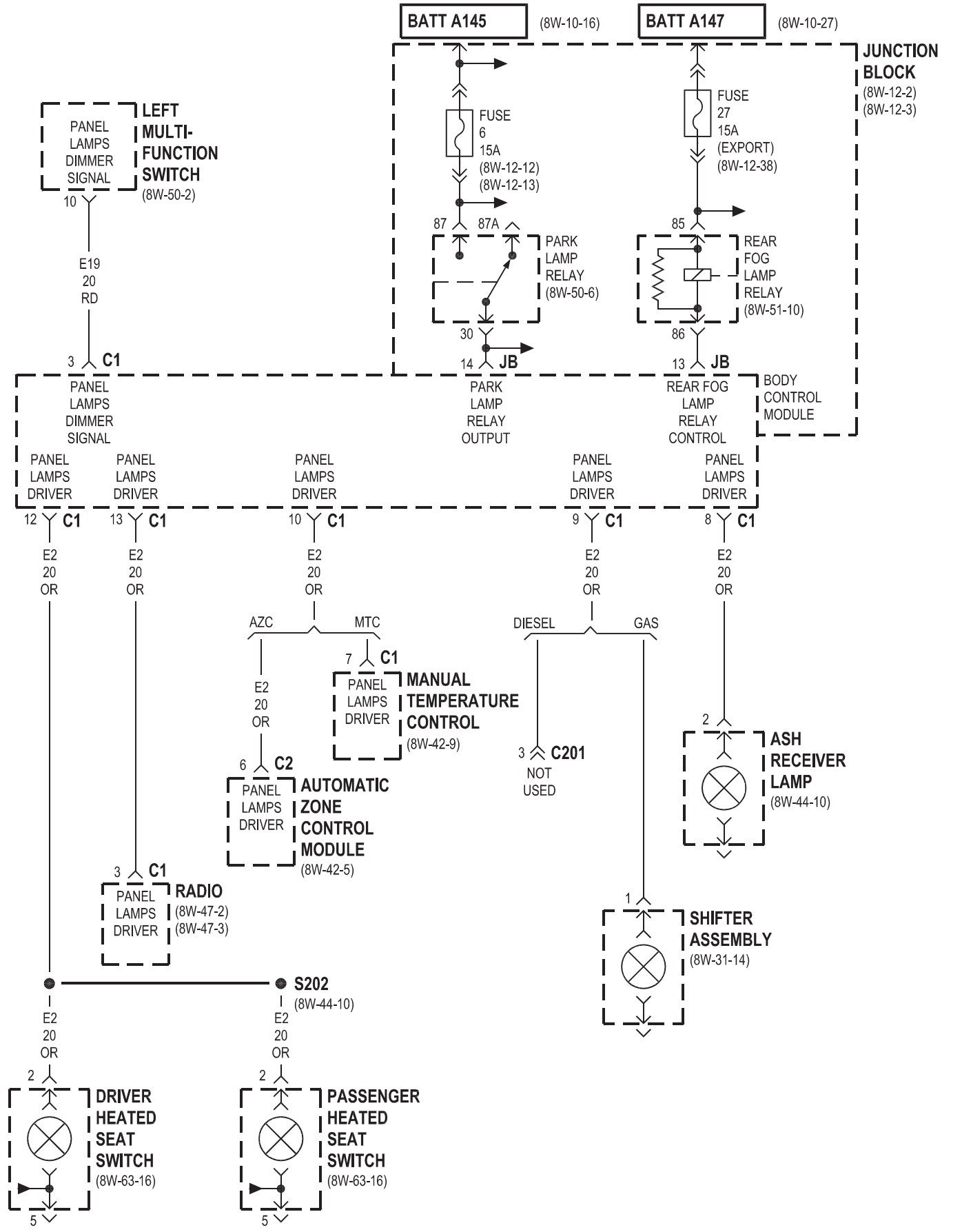
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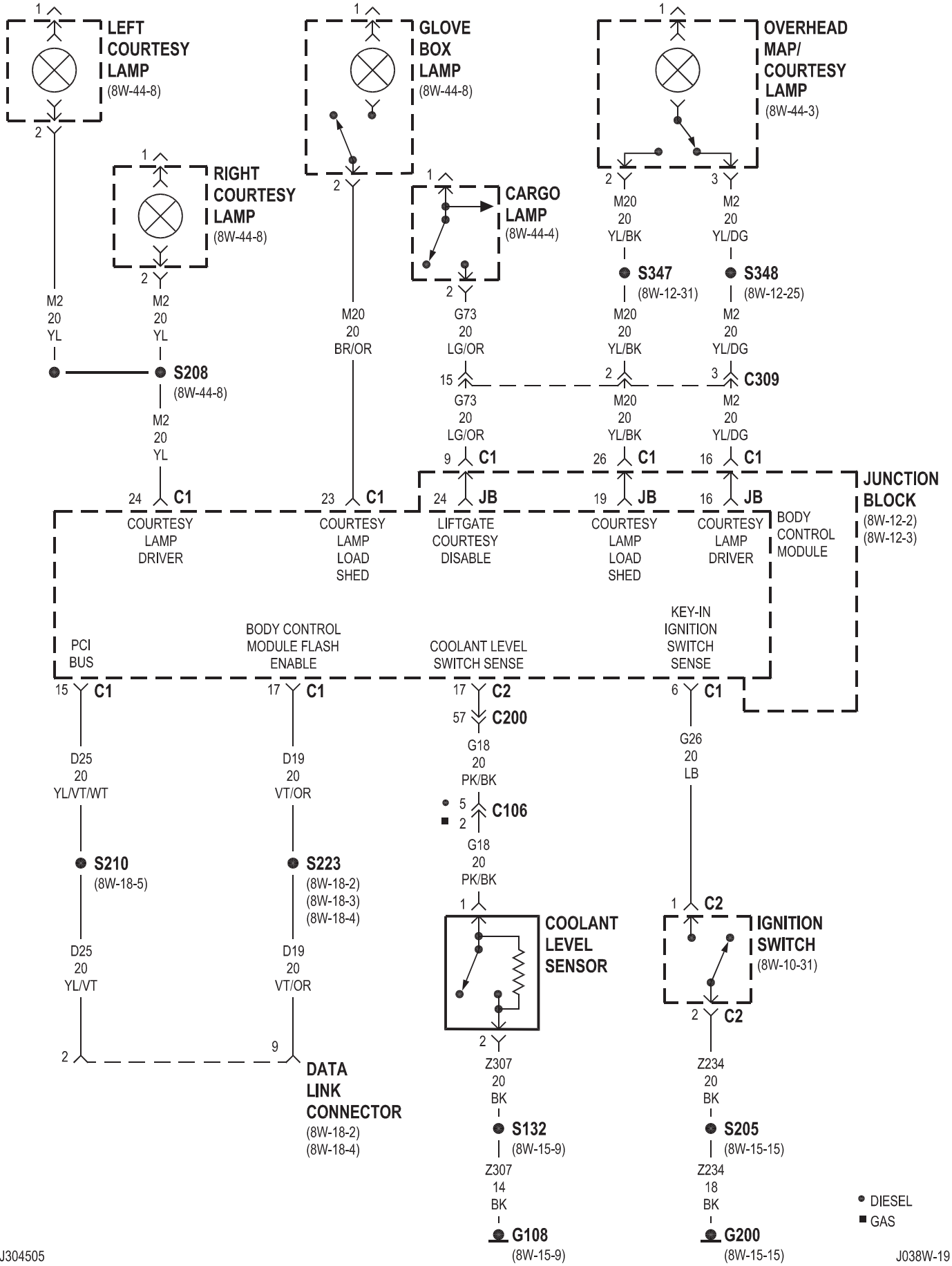
8W-45 BODY CONTROL MODULE

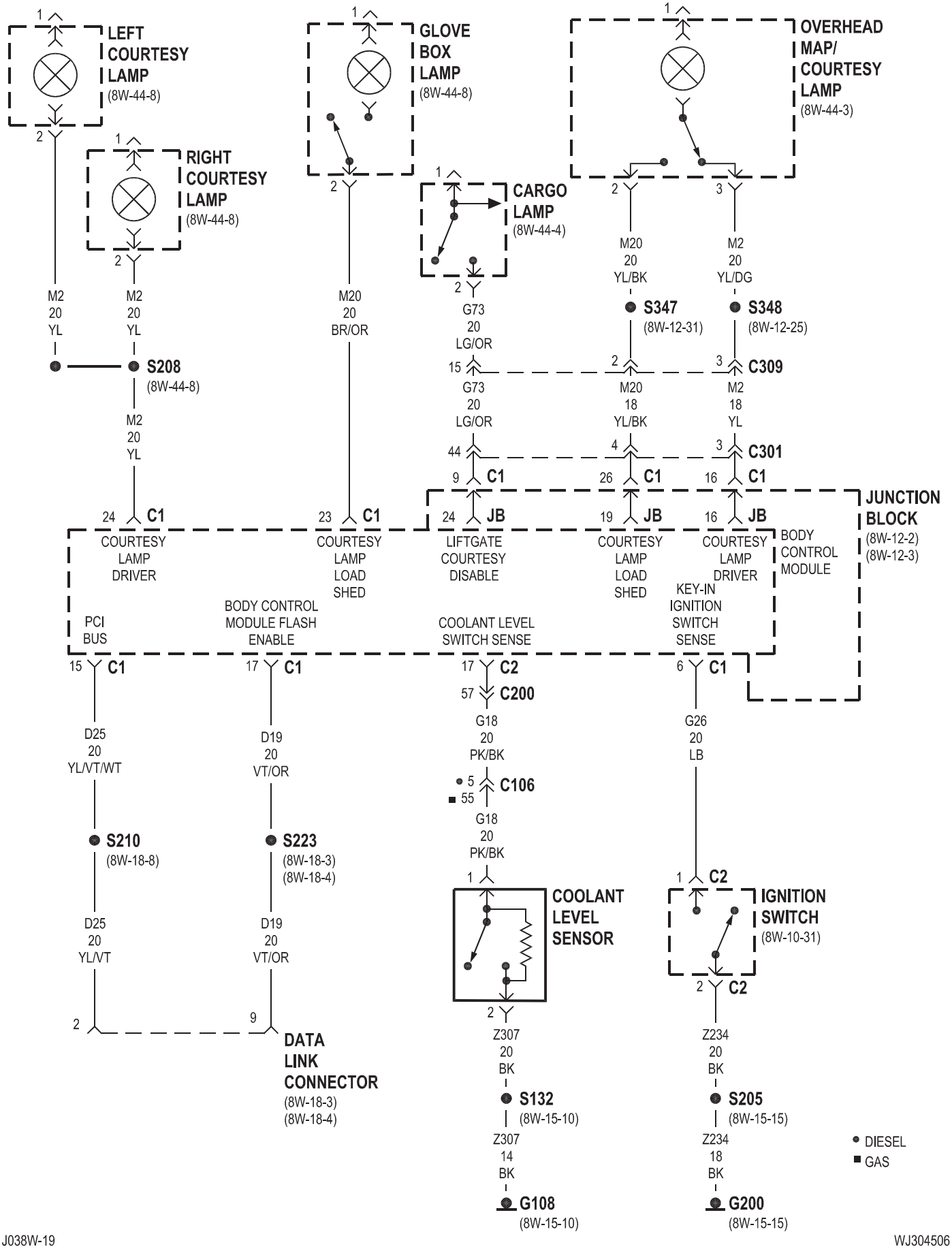
Component	Page
Accessory Delay Relay	8W-45-9
Ambient Temperature Sensor	8W-45-7
Ash Receiver Lamp	8W-45-4
Automatic Headlamp Light Sensor/VTSS Led	8W-45-3, 7
Automatic Zone Control Module	8W-45-4, 10
Body Control Module	8W-45-2, 3, 4, 5, 6, 7, 8, 9, 10
Cargo Lamp	8W-45-5, 6
Clockspring	8W-45-9
Coolant Level Sensor	8W-45-5, 6
Data Link Connector	8W-45-5, 6
Driver Heated Seat Switch	8W-45-4, 10
Fog Lamp Relay	8W-45-3
Front Washer Pump	8W-45-8
Front Wiper Motor	8W-45-8
Fuse 6	8W-45-4
Fuse 7	8W-45-2
Fuse 22	8W-45-2
Fuse 25	8W-45-9
Fuse 27	8W-45-4
Fuse 28	8W-45-2
G108	8W-45-5, 6
G200	8W-45-2, 5, 6
Glove Box Lamp	8W-45-5, 6
High Beam Relay	8W-45-3
Hood Ajar Switch	8W-45-7
Horn Relay	8W-45-7
Ignition Switch	8W-45-5, 6
Junction Block	8W-45-2, 3, 4, 5, 6, 7, 8, 9
Left Courtesy Lamp	8W-45-5, 6
Left Liftgate Ajar Switch	8W-45-8
Left Multi-Function Switch	8W-45-3, 4
Left Rear Door Lock Motor/Ajar Switch	8W-45-7
Left Remote Radio Switch	8W-45-9
Liftgate Flip-Up Ajar Switch	8W-45-8
Low Beam Relay	8W-45-3
Low Beam/Daytime Running Lamp Relay	8W-45-3
Manual Temperature Control	8W-45-4, 10
Overhead Map/Courtesy Lamp	8W-45-5, 6
Park Lamp Relay	8W-45-3, 4
Passenger Heated Seat Switch	8W-45-4, 10
Radio	8W-45-4
Rear Fog Lamp Relay	8W-45-4
Rear Window Defogger Relay	8W-45-9
Rear Wiper Motor	8W-45-8
Right Courtesy Lamp	8W-45-5, 6
Right Liftgate Ajar Switch	8W-45-8
Right Multi-Function Switch	8W-45-8
Right Rear Door Lock Motor/Ajar Switch	8W-45-7
Right Remote Radio Switch	8W-45-9
Shifter Assembly	8W-45-4
Washer Fluid Level Switch	8W-45-8
Wiper High/Low Relay	8W-45-2
Wiper On/Off Relay	8W-45-8

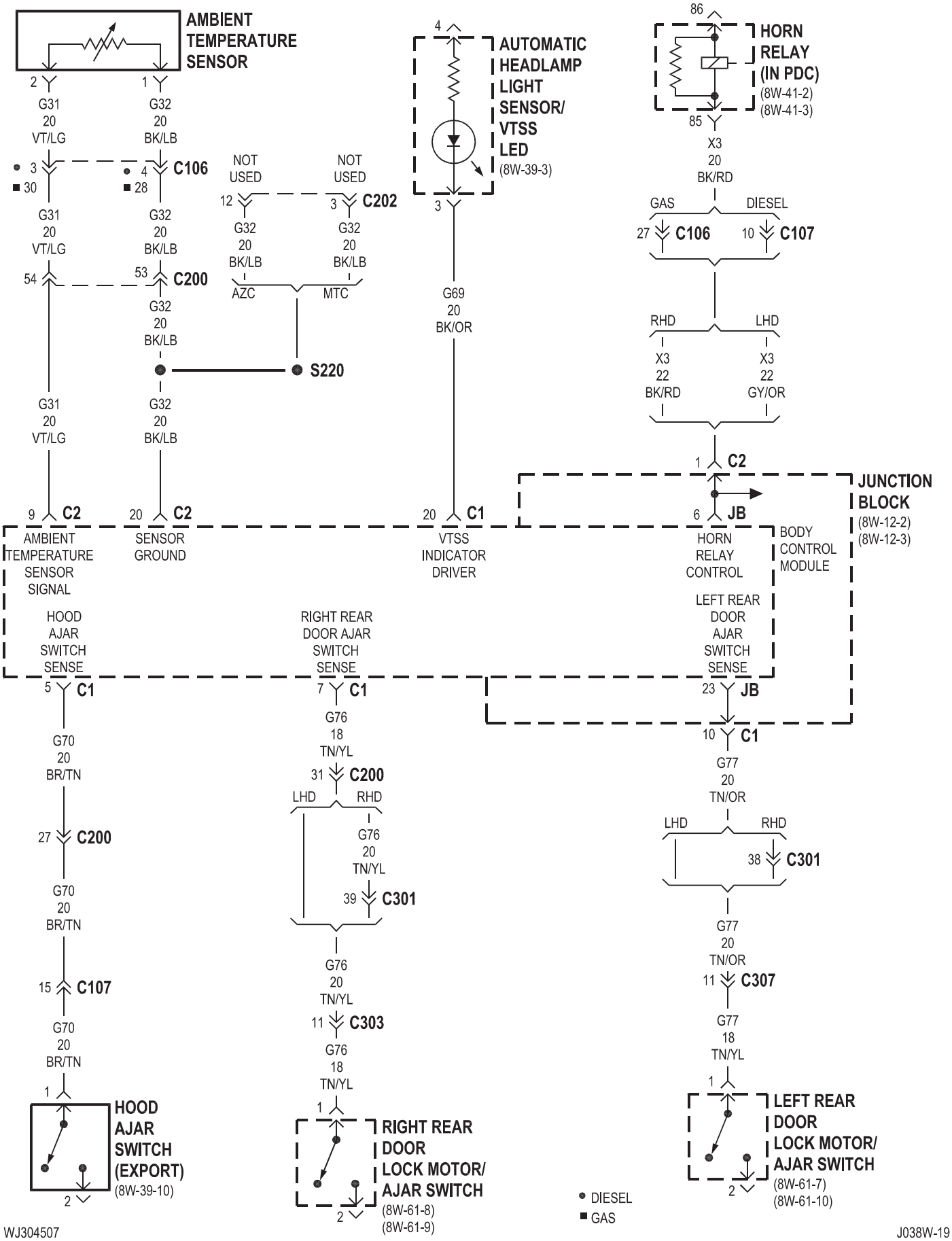

BATT A148
(8W-10-34)
RUN-START A21
(8W-10-33)
RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 7 10A (8W-12-15)
FUSE 22 10A (8W-12-24)
FUSE 28 10A (8W-12-27)
26 JB
5 JB
25 JB
FUSED B(+)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
BODY CONTROL MODULE
WIPER HIGH/LOW RELAY CONTROL
GROUND
12 JB
1 C1
14 C1
25 C1
15 JB
7 JB
45 C3
31 C3
15 C2
V16 22 VT
Z132 20 BK/OR
Z132 20 BK/OR
Z132 20 BK/OR
Z234 20 BK
Z234 20 BK
DIESEL
GAS
15 C107
34 C106
S211
(8W-15-13)
S205
(8W-15-15)
V16 20 VT
LHD
RHD
Z132 18 BK
Z132 18 BK/OR
Z234 18 BK
85
86
WIPER HIGH/ LOW RELAY (IN PDC)
(8W-53-3)
(8W-53-4)
G200
(8W-15-15)

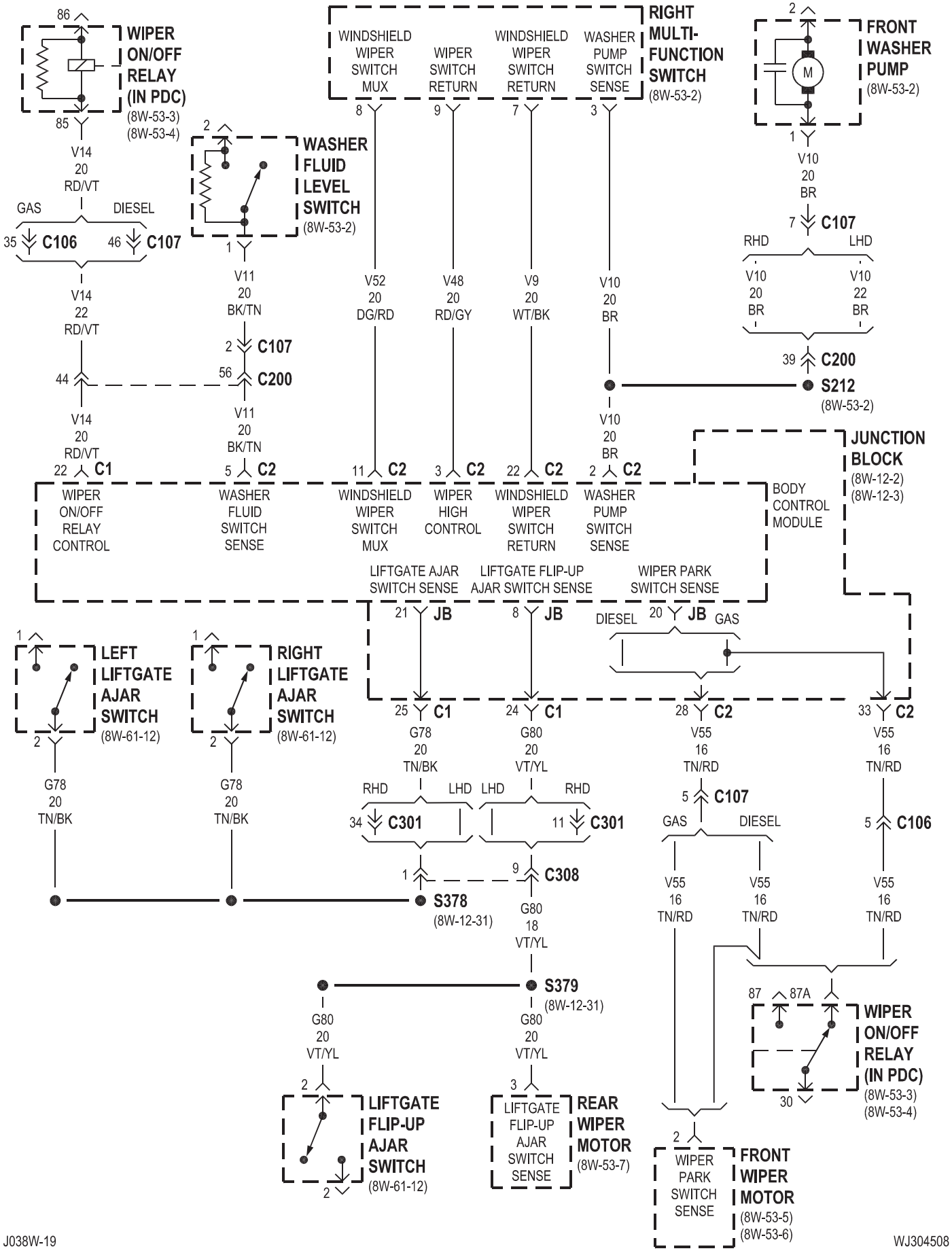

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
86
FOG LAMP RELAY
(8W-50-12)
85
85
LOW BEAM RELAY
(8W-50-4)
86
85
PARK LAMP RELAY
(8W-50-6)
86
LOW BEAM RELAY CONTROL
LOW BEAM/ DAYTIME RUNNING LAMP RELAY
(8W-50-13)
86
86
HIGH BEAM RELAY
(8W-50-4)
85
OTHER
DRL
2 JB
9 JB
1 JB
4 JB
FOG LAMP RELAY CONTROL
HIGH BEAM RELAY CONTROL
PARK LAMP RELAY CONTROL
LOW BEAM RELAY CONTROL
BODY CONTROL MODULE
ULTRALIGHT SENSOR RETURN
ULTRALIGHT SENSOR SIGNAL
HEADLAMP SWITCH MUX
HEADLAMP SWITCH RETURN
HIGH BEAM SWITCH SENSE
FOG LAMP SWITCH SENSE
HAZARD SWITCH SENSE
21 C2
10 C2
2 C1
16 C1
4 C2
15 C2
10 JB
6 C3
L110 20 BK/YL
L109 20 WT
G52 20 YL
L80 20 WT/DG
L40 20 BR
L27 20 WT/TN
L91 20 DB/PK
11
4
6
1
9
HEADLAMP SWITCH MUX
HEADLAMP SWITCH RETURN
HIGH BEAM SWITCH SENSE
FOG LAMP SWITCH SENSE
HAZARD SWITCH SENSE
LEFT MULTI-FUNCTION SWITCH
(8W-50-2)
(8W-50-3)
2
1
AUTOMATIC HEADLAMP LIGHT SENSOR/ VTSS LED
(8W-39-3)

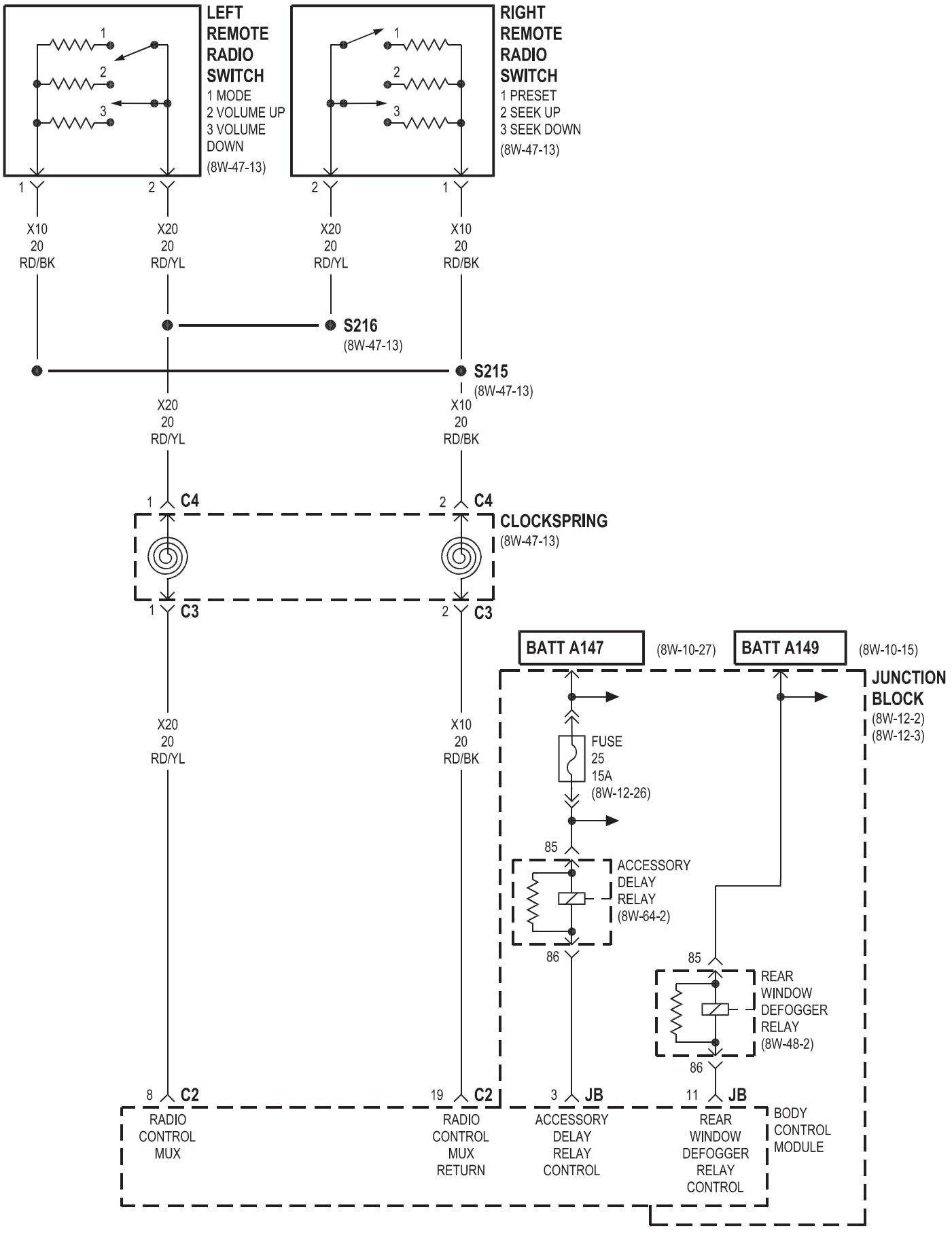

BATT A145
(8W-10-16)
BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 6 15A
(8W-12-12)
(8W-12-13)
FUSE 27 15A
(EXPORT)
(8W-12-38)
LEFT MULTI-FUNCTION SWITCH
(8W-50-2)
PANEL LAMPS DIMMER SIGNAL
10
E19
20
RD
3 C1
PARK LAMP RELAY
(8W-50-6)
87
87A
30
14 JB
PARK LAMP RELAY OUTPUT
REAR FOG LAMP RELAY
(8W-51-10)
85
86
13 JB
REAR FOG LAMP RELAY CONTROL
BODY CONTROL MODULE
PANEL LAMPS DRIVER
12 C1
13 C1
10 C1
9 C1
8 C1
E2
20
OR
AZC
MTC
7 C1
MANUAL TEMPERATURE CONTROL
(8W-42-9)
6 C2
AUTOMATIC ZONE CONTROL MODULE
(8W-42-5)
DIESEL
GAS
3 C201
NOT USED
2
ASH RECEIVER LAMP
(8W-44-10)
3 C1
RADIO
(8W-47-2)
(8W-47-3)
1
SHIFTER ASSEMBLY
(8W-31-14)
S202
(8W-44-10)
2
DRIVER HEATED SEAT SWITCH
(8W-63-16)
5
PASSENGER HEATED SEAT SWITCH
(8W-63-16)

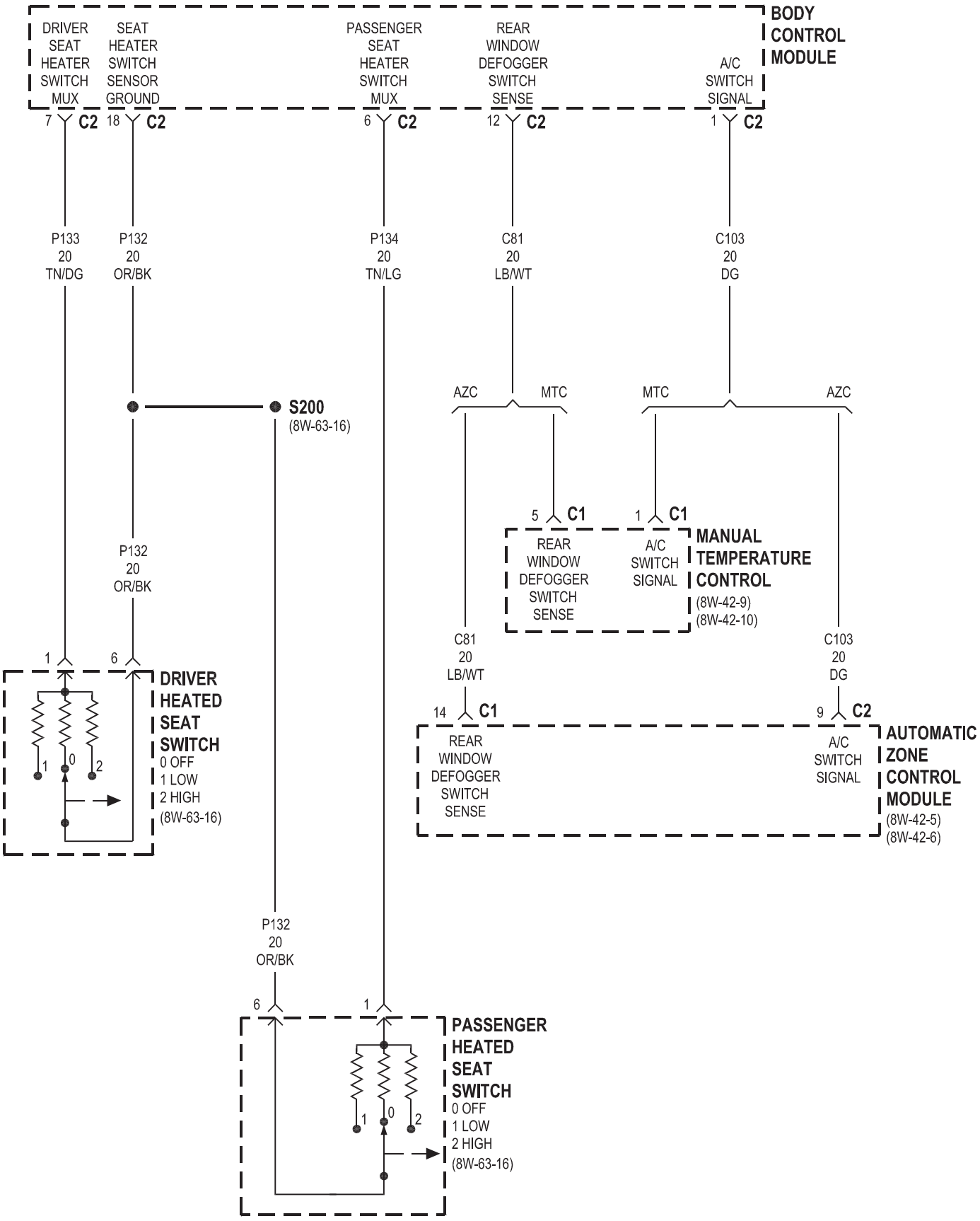

LEFT COURTESY LAMP (8W-44-8)
RIGHT COURTESY LAMP (8W-44-8)
GLOVE BOX LAMP (8W-44-8)
CARGO LAMP (8W-44-4)
OVERHEAD MAP/ COURTESY LAMP (8W-44-3)
M2 20 YL
M2 20 YL
S208 (8W-44-8)
M2 20 YL
M20 20 BR/OR
G73 20 LG/OR
M20 20 YL/BK
M2 20 YL/DG
S347 (8W-12-31)
S348 (8W-12-25)
C309
JUNCTION BLOCK (8W-12-2) (8W-12-3)
C1 COURTESY LAMP DRIVER
C1 COURTESY LAMP LOAD SHED
JB LIFTGATE COURTESY DISABLE
JB COURTESY LAMP LOAD SHED
JB COURTESY LAMP DRIVER
BODY CONTROL MODULE
PCI BUS
BODY CONTROL MODULE FLASH ENABLE
COOLANT LEVEL SWITCH SENSE
KEY-IN IGNITION SWITCH SENSE
D25 20 YL/VT/WT
D19 20 VT/OR
G18 20 PK/BK
G26 20 LB
S210 (8W-18-5)
S223 (8W-18-2) (8W-18-3) (8W-18-4)
C106
D25 20 YL/VT
D19 20 VT/OR
COOLANT LEVEL SENSOR
IGNITION SWITCH (8W-10-31)
DATA LINK CONNECTOR (8W-18-2) (8W-18-4)
Z307 20 BK
Z234 20 BK
S132 (8W-15-9)
S205 (8W-15-15)
Z307 14 BK
Z234 18 BK
G108 (8W-15-9)
G200 (8W-15-15)
DIESEL
GAS


LEFT COURTESY LAMP (8W-44-8)
RIGHT COURTESY LAMP (8W-44-8)
GLOVE BOX LAMP (8W-44-8)
CARGO LAMP (8W-44-4)
OVERHEAD MAP/ COURTESY LAMP (8W-44-3)
M2 20 YL
M2 20 YL
S208 (8W-44-8)
M2 20 YL
M20 20 BR/OR
G73 20 LG/OR
M20 20 YL/BK
M2 20 YL/DG
S347 (8W-12-31)
S348 (8W-12-25)
C309
G73 20 LG/OR
M20 18 YL/BK
M2 18 YL
C301
JUNCTION BLOCK (8W-12-2) (8W-12-3)
C1
C1
JB
JB
JB
COURTESY LAMP DRIVER
COURTESY LAMP LOAD SHED
LIFTGATE COURTESY DISABLE
COURTESY LAMP LOAD SHED
COURTESY LAMP DRIVER
BODY CONTROL MODULE
PCI BUS
BODY CONTROL MODULE FLASH ENABLE
COOLANT LEVEL SWITCH SENSE
KEY-IN IGNITION SWITCH SENSE
C1
C1
C2
C200
C1
D25 20 YL/VT/WT
D19 20 VT/OR
G18 20 PK/BK
G26 20 LB
S210 (8W-18-8)
S223 (8W-18-3) (8W-18-4)
C106
G18 20 PK/BK
C2
D25 20 YL/VT
D19 20 VT/OR
COOLANT LEVEL SENSOR
IGNITION SWITCH (8W-10-31)
DATA LINK CONNECTOR (8W-18-3) (8W-18-4)
Z307 20 BK
Z234 20 BK
S132 (8W-15-10)
S205 (8W-15-15)
Z307 14 BK
Z234 18 BK
G108 (8W-15-10)
G200 (8W-15-15)
DIESEL
GAS


AMBIENT TEMPERATURE SENSOR
2
1
G31
20
VT/LG
G32
20
BK/LB
3
30
4
28
C106
G31
20
VT/LG
G32
20
BK/LB
54
53
C200
G32
20
BK/LB
NOT USED
NOT USED
12
3
C202
G32
20
BK/LB
G32
20
BK/LB
AZC
MTC
S220
G31
20
VT/LG
G32
20
BK/LB
4
AUTOMATIC HEADLAMP LIGHT SENSOR/ VTSS LED
(8W-39-3)
3
G69
20
BK/OR
86
HORN RELAY (IN PDC)
(8W-41-2)
(8W-41-3)
85
X3
20
BK/RD
GAS
DIESEL
27
C106
10
C107
RHD
LHD
X3
22
BK/RD
X3
22
GY/OR
1
C2
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
9
C2
20
C2
20
C1
6
JB
AMBIENT TEMPERATURE SENSOR SIGNAL
SENSOR GROUND
VTSS INDICATOR DRIVER
HORN RELAY CONTROL
BODY CONTROL MODULE
HOOD AJAR SWITCH SENSE
RIGHT REAR DOOR AJAR SWITCH SENSE
LEFT REAR DOOR AJAR SWITCH SENSE
5
C1
7
C1
23
JB
G70
20
BR/TN
G76
18
TN/YL
10
C1
G77
20
TN/OR
27
C200
31
C200
LHD
RHD
LHD
RHD
G76
20
TN/YL
38
C301
G70
20
BR/TN
39
C301
G77
20
TN/OR
15
C107
G76
20
TN/YL
11
C307
G70
20
BR/TN
11
C303
G77
18
TN/YL
G76
18
TN/YL
1
1
1
HOOD AJAR SWITCH (EXPORT)
(8W-39-10)
2
RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-8)
(8W-61-9)
2
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-7)
(8W-61-10)
2
DIESEL
GAS

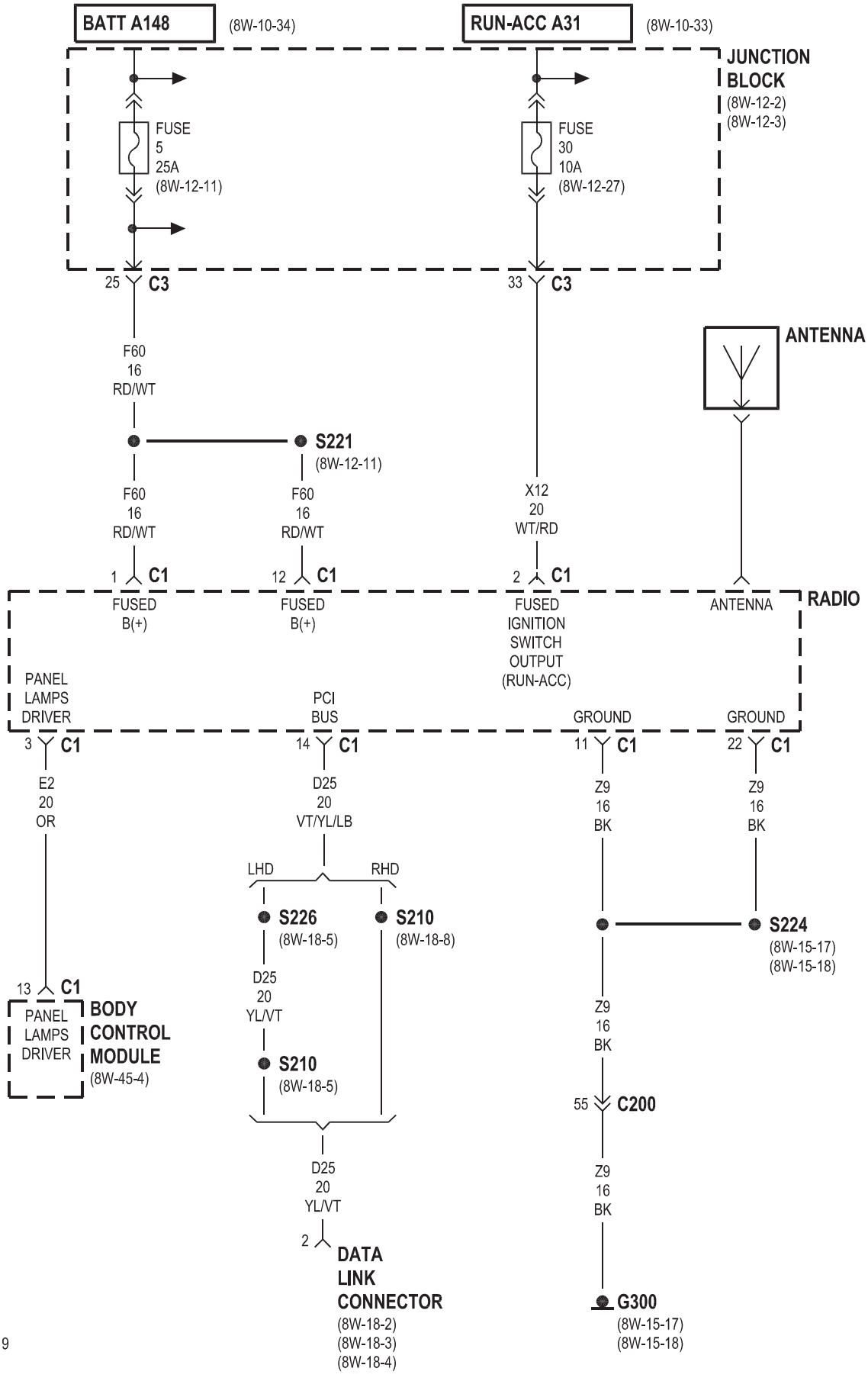

WIPER ON/OFF RELAY (IN PDC) (8W-53-3) (8W-53-4)
WASHER FLUID LEVEL SWITCH (8W-53-2)
RIGHT MULTI-FUNCTION SWITCH (8W-53-2)
WINDSHIELD WIPER SWITCH MUX
WIPER SWITCH RETURN
WINDSHIELD WIPER SWITCH RETURN
WASHER PUMP SWITCH SENSE
FRONT WASHER PUMP (8W-53-2)
GAS
DIESEL
C106
C107
C200
S212 (8W-53-2)
RHD
LHD
JUNCTION BLOCK (8W-12-2) (8W-12-3)
BODY CONTROL MODULE
WIPER ON/OFF RELAY CONTROL
WASHER FLUID SWITCH SENSE
WINDSHIELD WIPER SWITCH MUX
WIPER HIGH CONTROL
WINDSHIELD WIPER SWITCH RETURN
WASHER PUMP SWITCH SENSE
LIFTGATE AJAR SWITCH SENSE
LIFTGATE FLIP-UP AJAR SWITCH SENSE
WIPER PARK SWITCH SENSE
JB
LEFT LIFTGATE AJAR SWITCH (8W-61-12)
RIGHT LIFTGATE AJAR SWITCH (8W-61-12)
C301
C308
S378 (8W-12-31)
S379 (8W-12-31)
LIFTGATE FLIP-UP AJAR SWITCH (8W-61-12)
REAR WIPER MOTOR (8W-53-7)
FRONT WIPER MOTOR (8W-53-5) (8W-53-6)
WIPER ON/OFF RELAY (IN PDC) (8W-53-3) (8W-53-4)


LEFT REMOTE RADIO SWITCH
1 MODE
2 VOLUME UP
3 VOLUME DOWN
(8W-47-13)
RIGHT REMOTE RADIO SWITCH
1 PRESET
2 SEEK UP
3 SEEK DOWN
(8W-47-13)
X10 20 RD/BK
X20 20 RD/YL
S216
(8W-47-13)
S215
(8W-47-13)
C4
CLOCKSPRING
(8W-47-13)
C3
BATT A147
(8W-10-27)
BATT A149
(8W-10-15)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 25 15A
(8W-12-26)
ACCESSORY DELAY RELAY
(8W-64-2)
REAR WINDOW DEFOGGER RELAY
(8W-48-2)
C2
JB
RADIO CONTROL MUX
RADIO CONTROL MUX RETURN
ACCESSORY DELAY RELAY CONTROL
REAR WINDOW DEFOGGER RELAY CONTROL
BODY CONTROL MODULE

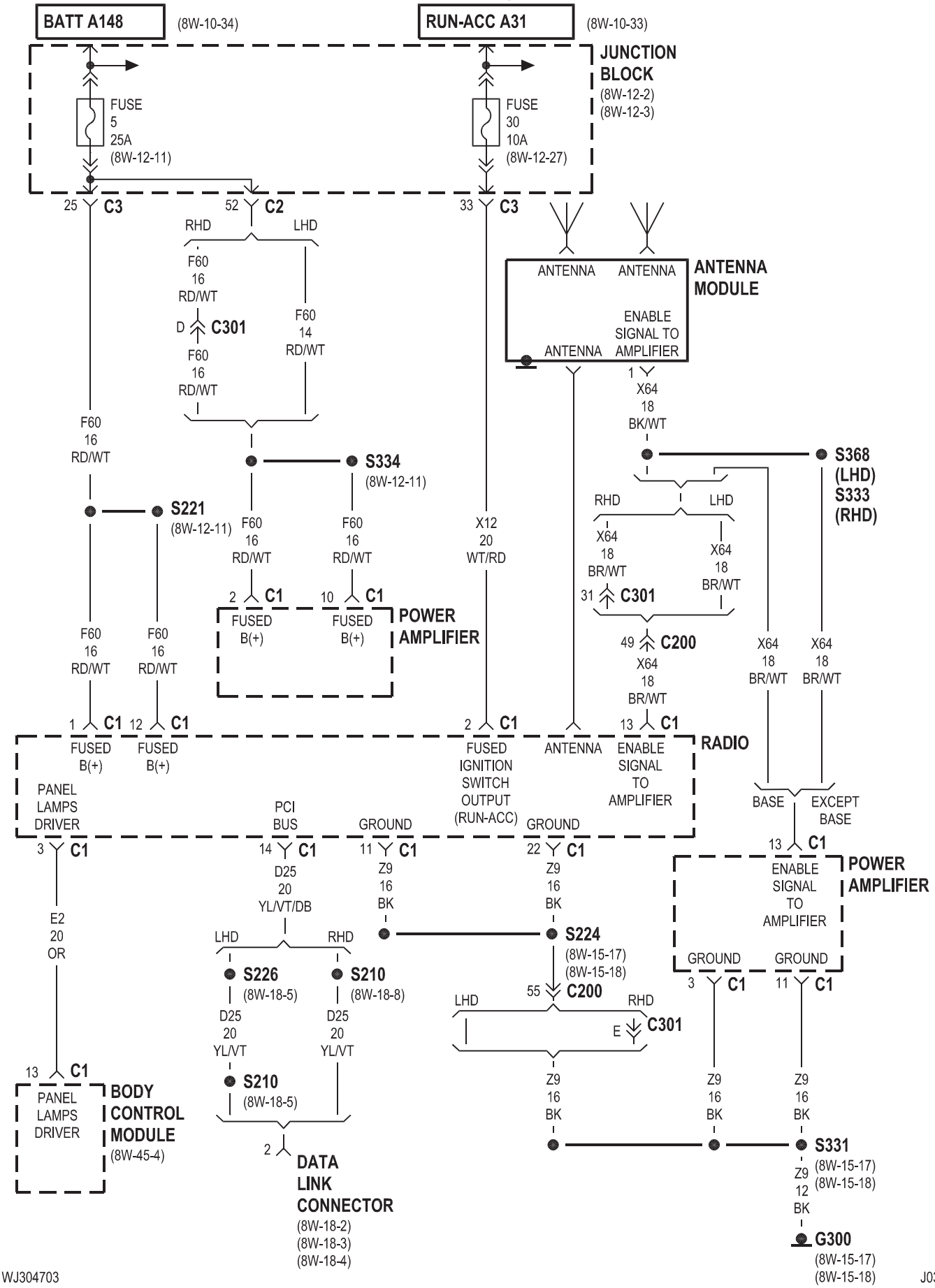

BODY CONTROL MODULE
DRIVER SEAT HEATER SWITCH MUX
SEAT HEATER SWITCH SENSOR GROUND
PASSENGER SEAT HEATER SWITCH MUX
REAR WINDOW DEFOGGER SWITCH SENSE
A/C SWITCH SIGNAL
7 C2
18 C2
6 C2
12 C2
1 C2
P133 20 TN/DG
P132 20 OR/BK
P134 20 TN/LG
C81 20 LB/WT
C103 20 DG
S200 (8W-63-16)
AZC
MTC
MTC
AZC
5 C1
1 C1
REAR WINDOW DEFOGGER SWITCH SENSE
A/C SWITCH SIGNAL
MANUAL TEMPERATURE CONTROL
(8W-42-9)
(8W-42-10)
P132 20 OR/BK
C81 20 LB/WT
C103 20 DG
1
6
DRIVER HEATED SEAT SWITCH
0 OFF
1 LOW
2 HIGH
(8W-63-16)
14 C1
9 C2
REAR WINDOW DEFOGGER SWITCH SENSE
A/C SWITCH SIGNAL
AUTOMATIC ZONE CONTROL MODULE
(8W-42-5)
(8W-42-6)
P132 20 OR/BK
6
1
PASSENGER HEATED SEAT SWITCH
0 OFF
1 LOW
2 HIGH
(8W-63-16)

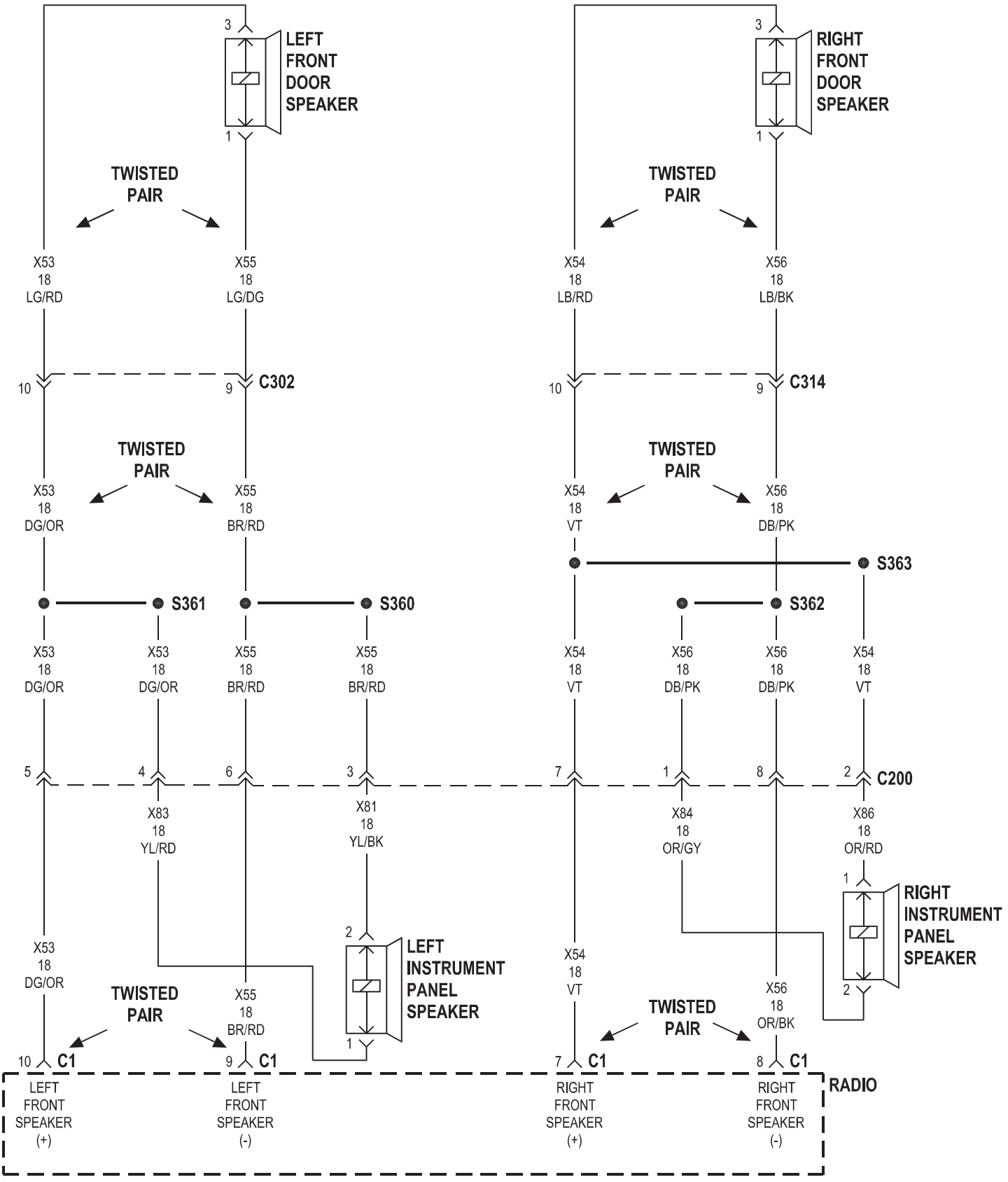
8W-47 AUDIO SYSTEM

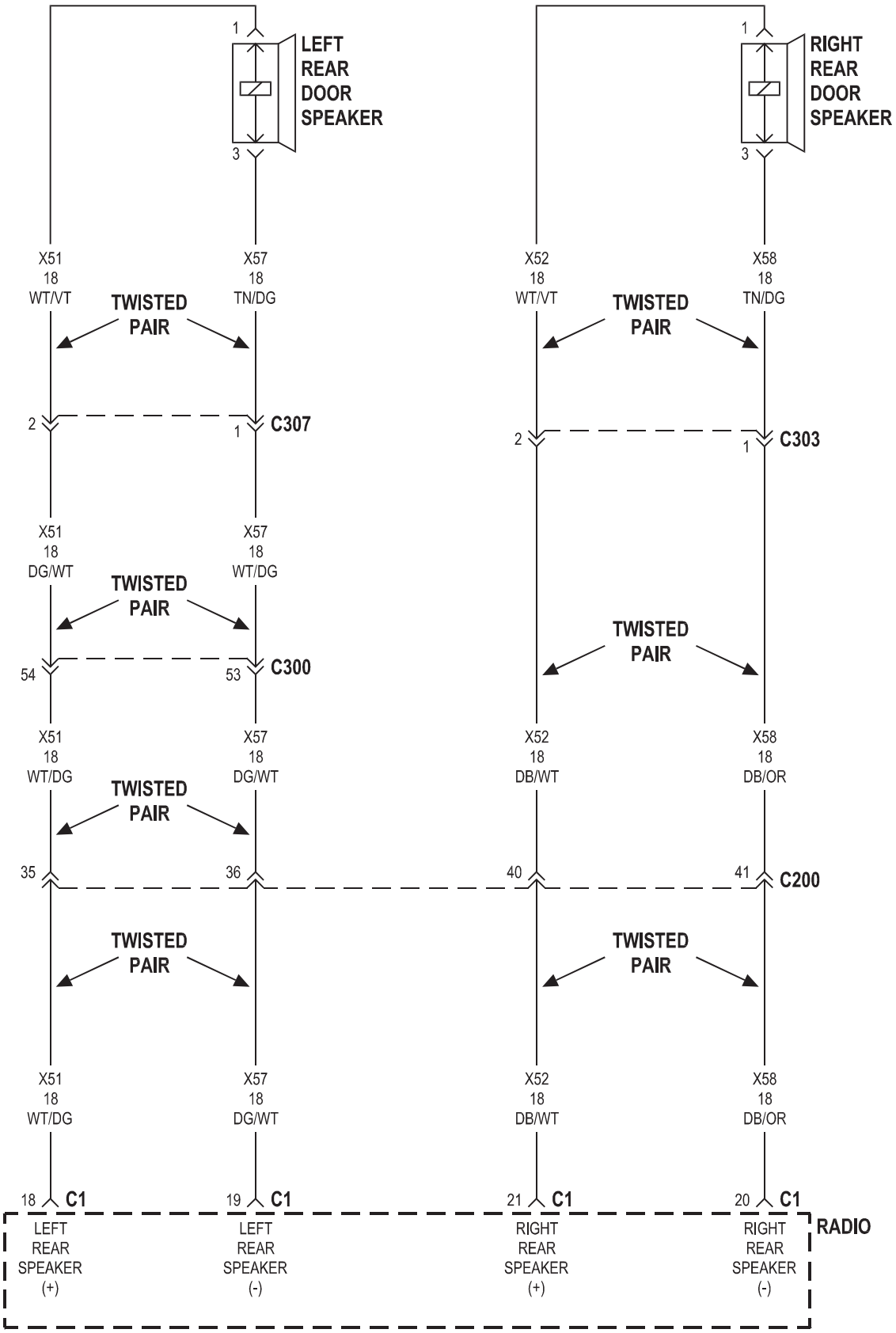
Component	Page
Antenna	8W-47-2
Antenna Module	8W-47-3
Body Control Module	8W-47-2, 3, 13
Clockspring	8W-47-13
Compact Disc Changer	8W-47-6, 7
Data Link Connector	8W-47-2, 3, 6, 7
Fuse 5	8W-47-2, 3
Fuse 30	8W-47-2, 3
G300	8W-47-2, 3
Junction Block	8W-47-2, 3
Left Front Door Speaker	8W-47-4, 10, 11
Left Instrument Panel Speaker	8W-47-4, 12
Left Rear Door Speaker	8W-47-5, 10, 11
Left Remote Radio Switch	8W-47-13
Power Amplifier	8W-47-3, 6, 7, 8, 9, 10, 11, 12
Radio	8W-47-2, 3, 4, 5, 6, 7, 8, 9, 13
Right Front Door Speaker	8W-47-4, 10, 11
Right Instrument Panel Speaker	8W-47-4, 12
Right Rear Door Speaker	8W-47-5, 10, 11
Right Remote Radio Switch	8W-47-13

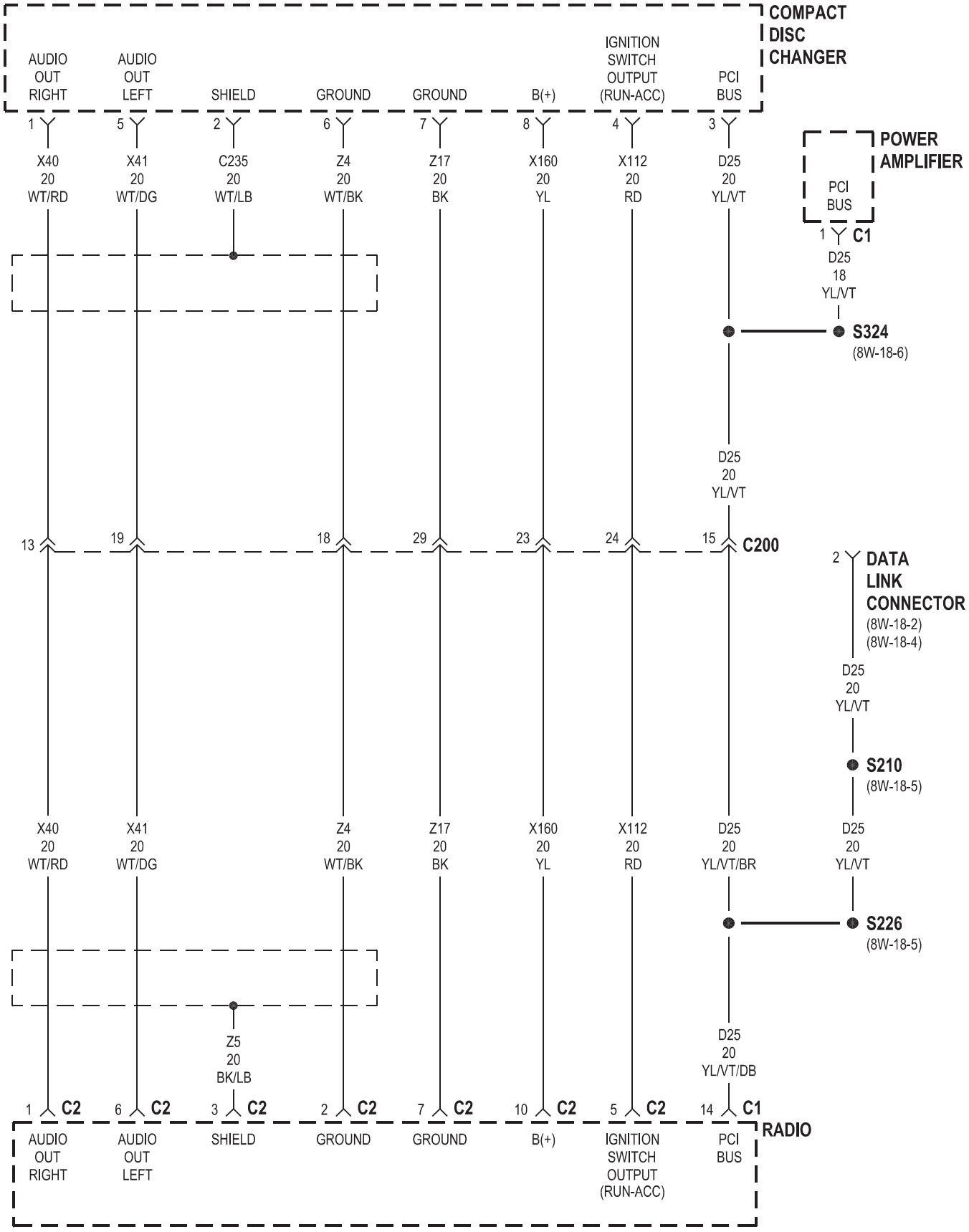

BATT A148
(8W-10-34)
RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 5 25A (8W-12-11)
FUSE 30 10A (8W-12-27)
25 C3
33 C3
F60 16 RD/WT
S221
(8W-12-11)
F60 16 RD/WT
F60 16 RD/WT
X12 20 WT/RD
ANTENNA
1 C1
12 C1
2 C1
FUSED B(+)
FUSED B(+)
FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
ANTENNA
RADIO
PANEL LAMPS DRIVER
PCI BUS
GROUND
GROUND
3 C1
14 C1
11 C1
22 C1
E2 20 OR
D25 20 VT/YL/LB
Z9 16 BK
Z9 16 BK
LHD
RHD
S226
(8W-18-5)
S210
(8W-18-8)
S224
(8W-15-17)
(8W-15-18)
13 C1
PANEL LAMPS DRIVER
BODY CONTROL MODULE
(8W-45-4)
D25 20 YL/VT
S210
(8W-18-5)
Z9 16 BK
55 C200
Z9 16 BK
D25 20 YL/VT
2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
G300
(8W-15-17)
(8W-15-18)

PREMIUM

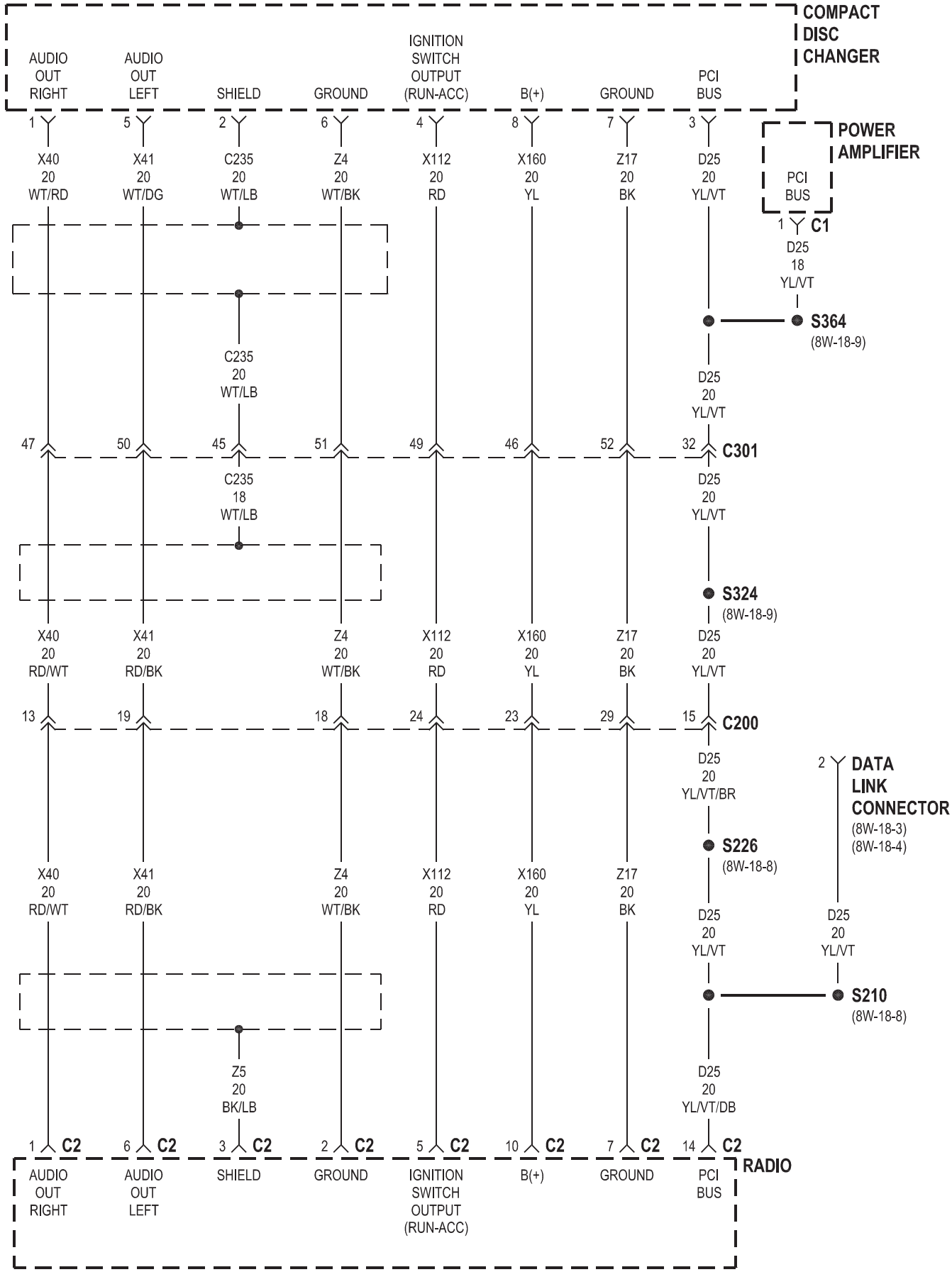

BATT A148
(8W-10-34)
RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 5 25A (8W-12-11)
FUSE 30 10A (8W-12-27)
25 C3
52 C2
33 C3
RHD
LHD
F60 16 RD/WT
D C301
F60 14 RD/WT
ANTENNA
ANTENNA
ANTENNA MODULE
ENABLE SIGNAL TO AMPLIFIER
ANTENNA
1 X64 18 BK/WT
S334
(8W-12-11)
S368 (LHD) S333 (RHD)
S221
(8W-12-11)
X12 20 WT/RD
X64 18 BR/WT
31 C301
49 C200
2 C1
10 C1
FUSED B(+)
POWER AMPLIFIER
1 C1
12 C1
2 C1
13 C1
FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
ENABLE SIGNAL TO AMPLIFIER
RADIO
BASE
EXCEPT BASE
PANEL LAMPS DRIVER
PCI BUS
GROUND
GROUND
3 C1
14 C1
11 C1
22 C1
13 C1
ENABLE SIGNAL TO AMPLIFIER
POWER AMPLIFIER
D25 20 YL/VT/DB
Z9 16 BK
S224
(8W-15-17)
(8W-15-18)
E2 20 OR
LHD
RHD
S226
(8W-18-5)
S210
(8W-18-8)
55 C200
E C301
D25 20 YL/VT
S210
(8W-18-5)
13 C1
PANEL LAMPS DRIVER
BODY CONTROL MODULE
(8W-45-4)
2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
S331
(8W-15-17)
(8W-15-18)
Z9 12 BK
G300
(8W-15-17)
(8W-15-18)

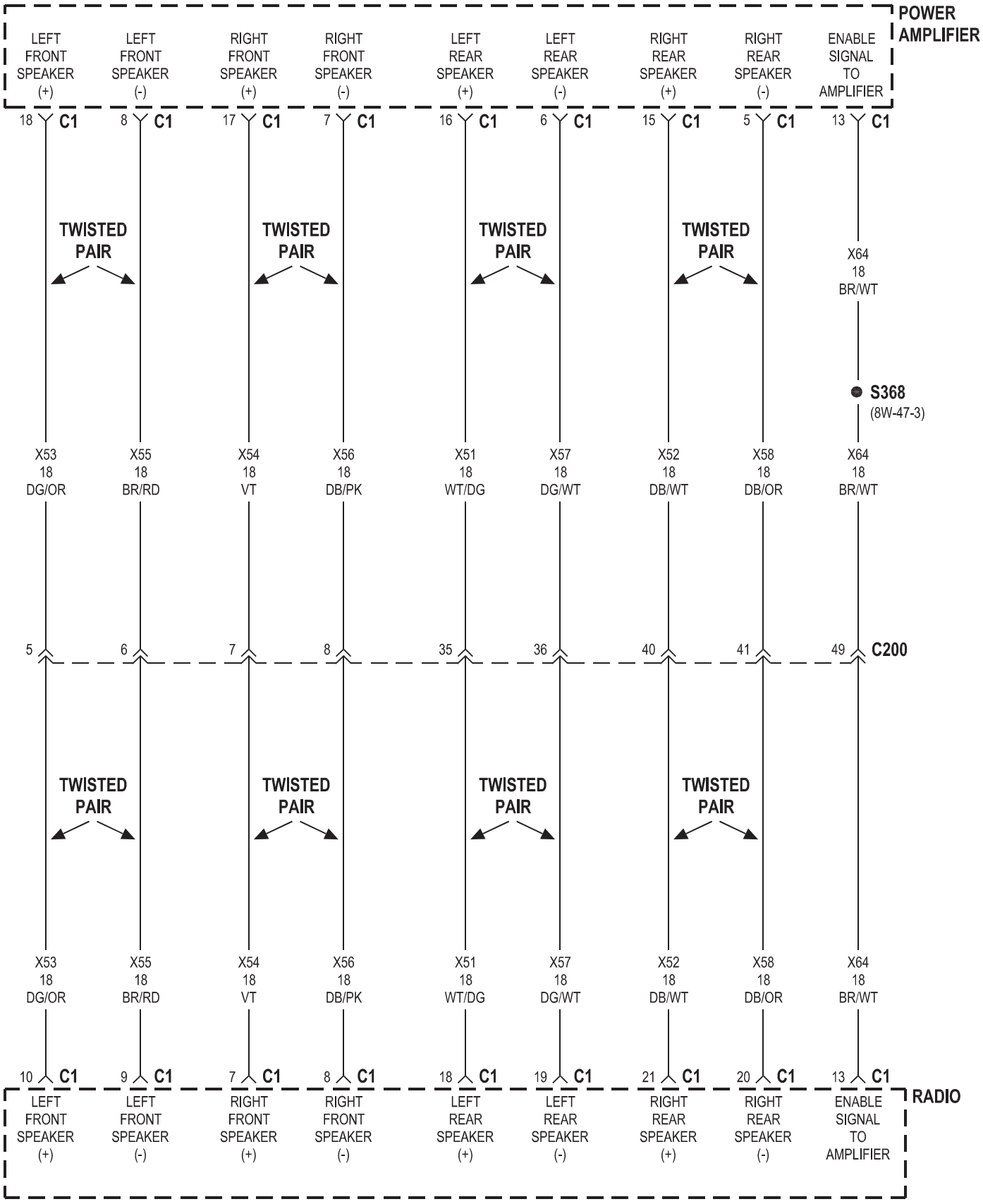

LEFT FRONT DOOR SPEAKER
RIGHT FRONT DOOR SPEAKER
TWISTED PAIR
X53 18 LG/RD
X55 18 LG/DG
X54 18 LB/RD
X56 18 LB/BK
C302
C314
X53 18 DG/OR
X55 18 BR/RD
X54 18 VT
X56 18 DB/PK
S361
S360
S363
S362
X53 18 DG/OR
X53 18 DG/OR
X55 18 BR/RD
X55 18 BR/RD
X54 18 VT
X56 18 DB/PK
X56 18 DB/PK
X54 18 VT
C200
X83 18 YL/RD
X81 18 YL/BK
X84 18 OR/GY
X86 18 OR/RD
RIGHT INSTRUMENT PANEL SPEAKER
LEFT INSTRUMENT PANEL SPEAKER
X53 18 DG/OR
X55 18 BR/RD
X54 18 VT
X56 18 OR/BK
C1
RADIO
LEFT FRONT SPEAKER (+)
LEFT FRONT SPEAKER (-)
RIGHT FRONT SPEAKER (+)
RIGHT FRONT SPEAKER (-)

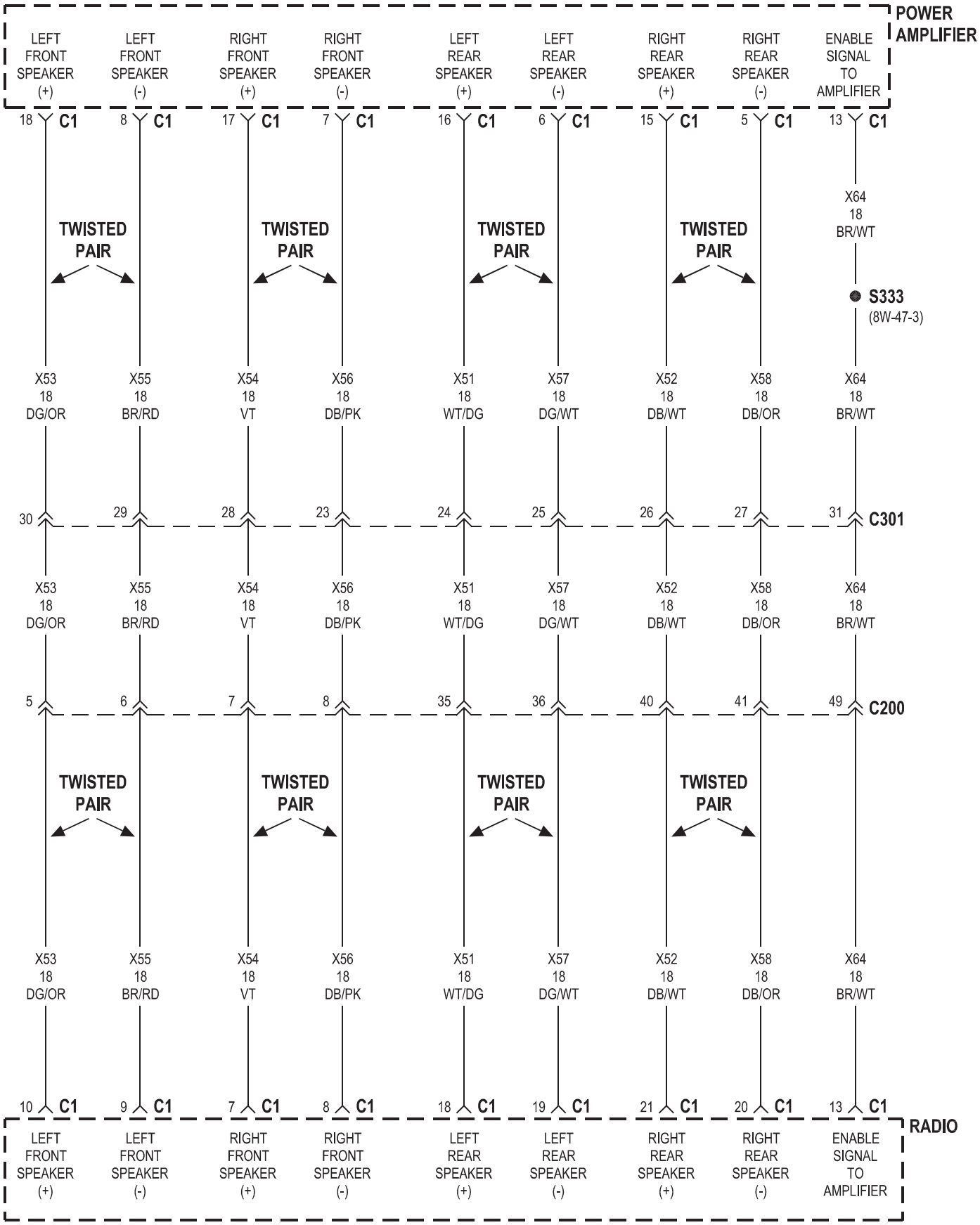

1
LEFT
REAR
DOOR
SPEAKER
3
1
RIGHT
REAR
DOOR
SPEAKER
3
X51
18
WT/VT
X57
18
TN/DG
X52
18
WT/VT
X58
18
TN/DG
TWISTED
PAIR
2
C307
1
2
C303
1
X51
18
DG/WT
X57
18
WT/DG
TWISTED
PAIR
TWISTED
PAIR
54
C300
53
X51
18
WT/DG
X57
18
DG/WT
X52
18
DB/WT
X58
18
DB/OR
TWISTED
PAIR
35
36
40
41
C200
TWISTED
PAIR
TWISTED
PAIR
X51
18
WT/DG
X57
18
DG/WT
X52
18
DB/WT
X58
18
DB/OR
18
C1
19
C1
21
C1
20
C1
RADIO
LEFT
REAR
SPEAKER
(+)
LEFT
REAR
SPEAKER
(-)
RIGHT
REAR
SPEAKER
(+)
RIGHT
REAR
SPEAKER
(-)

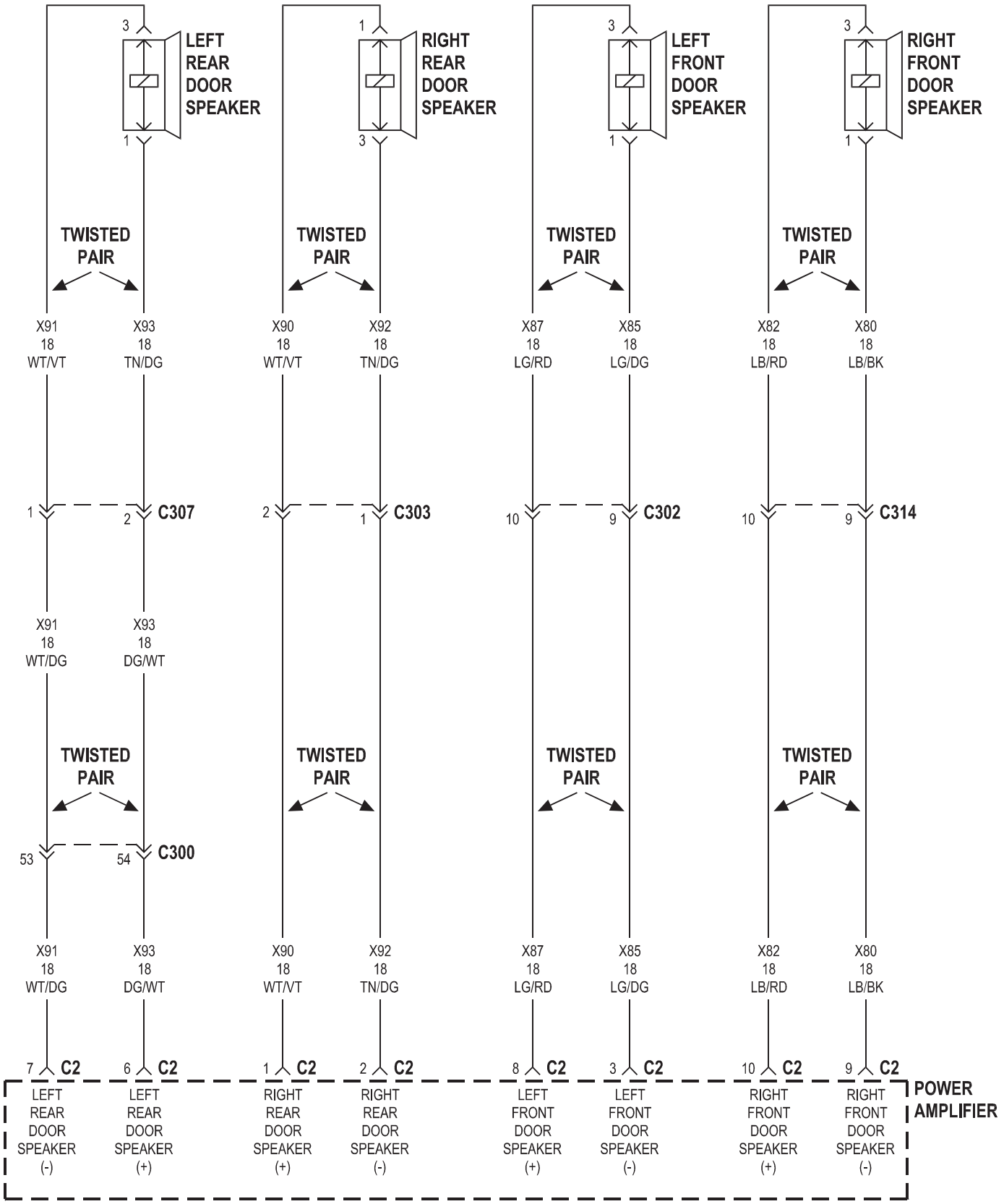

COMPACT DISC CHANGER
AUDIO OUT RIGHT
AUDIO OUT LEFT
SHIELD
GROUND
GROUND
B(+)
IGNITION SWITCH OUTPUT (RUN-ACC)
PCI BUS
1
5
2
6
7
8
4
3
X40 20 WT/RD
X41 20 WT/DG
C235 20 WT/LB
Z4 20 WT/BK
Z17 20 BK
X160 20 YL
X112 20 RD
D25 20 YL/VT
POWER AMPLIFIER
PCI BUS
1 C1
D25 18 YL/VT
S324
(8W-18-6)
D25 20 YL/VT
13
19
18
29
23
24
15
C200
2 DATA LINK CONNECTOR
(8W-18-2)
(8W-18-4)
D25 20 YL/VT
S210
(8W-18-5)
X40 20 WT/RD
X41 20 WT/DG
Z4 20 WT/BK
Z17 20 BK
X160 20 YL
X112 20 RD
D25 20 YL/VT/BR
D25 20 YL/VT
S226
(8W-18-5)
Z5 20 BK/LB
D25 20 YL/VT/DB
1 C2
6 C2
3 C2
2 C2
7 C2
10 C2
5 C2
14 C1
RADIO
AUDIO OUT RIGHT
AUDIO OUT LEFT
SHIELD
GROUND
GROUND
B(+)
IGNITION SWITCH OUTPUT (RUN-ACC)
PCI BUS

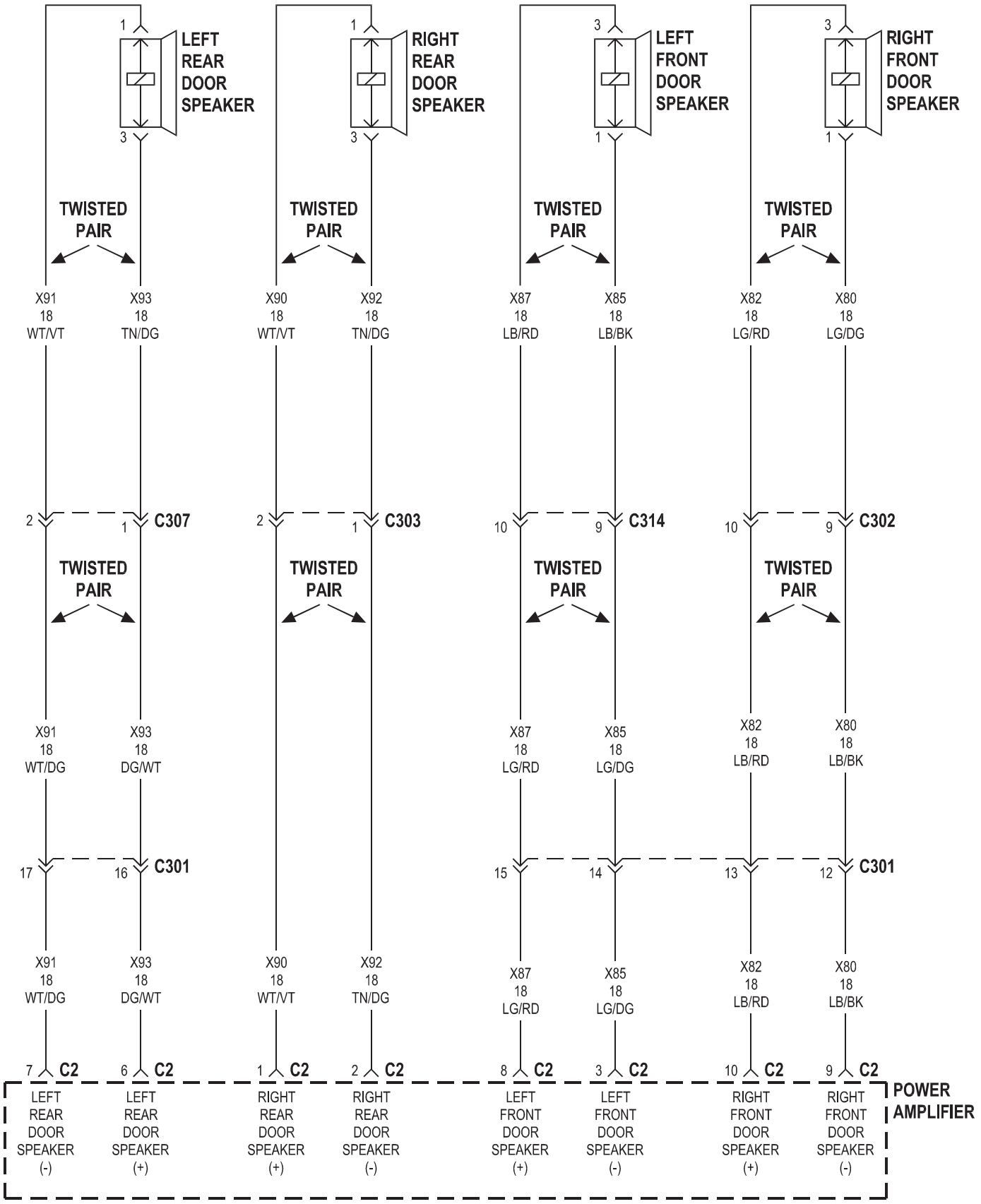
RHD PREMIUM

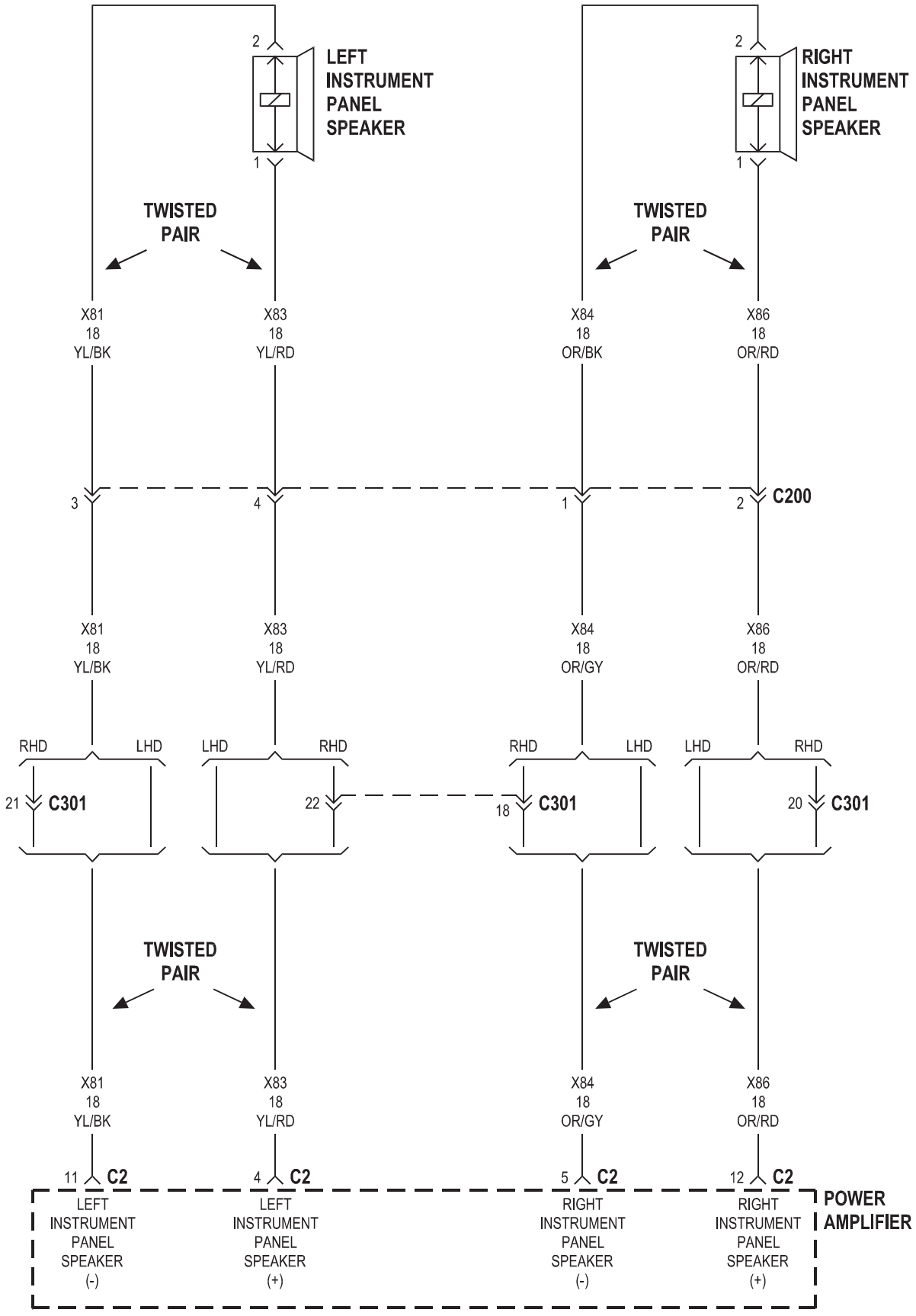

COMPACT DISC CHANGER
AUDIO OUT RIGHT
AUDIO OUT LEFT
SHIELD
GROUND
IGNITION SWITCH OUTPUT (RUN-ACC)
B(+)
GROUND
PCI BUS
1
5
2
6
4
8
7
3
X40 20 WT/RD
X41 20 WT/DG
C235 20 WT/LB
Z4 20 WT/BK
X112 20 RD
X160 20 YL
Z17 20 BK
D25 20 YL/VT
POWER AMPLIFIER
PCI BUS
1 C1
D25 18 YL/VT
S364
(8W-18-9)
C235 20 WT/LB
D25 20 YL/VT
47
50
45
51
49
46
52
32 C301
C235 18 WT/LB
D25 20 YL/VT
S324
(8W-18-9)
X40 20 RD/WT
X41 20 RD/BK
Z4 20 WT/BK
X112 20 RD
X160 20 YL
Z17 20 BK
D25 20 YL/VT
13
19
18
24
23
29
15 C200
D25 20 YL/VT/BR
2 DATA LINK CONNECTOR
(8W-18-3)
(8W-18-4)
S226
(8W-18-8)
X40 20 RD/WT
X41 20 RD/BK
Z4 20 WT/BK
X112 20 RD
X160 20 YL
Z17 20 BK
D25 20 YL/VT
D25 20 YL/VT
S210
(8W-18-8)
Z5 20 BK/LB
D25 20 YL/VT/DB
1 C2
6 C2
3 C2
2 C2
5 C2
10 C2
7 C2
14 C2
RADIO
AUDIO OUT RIGHT
AUDIO OUT LEFT
SHIELD
GROUND
IGNITION SWITCH OUTPUT (RUN-ACC)
B(+)
GROUND
PCI BUS

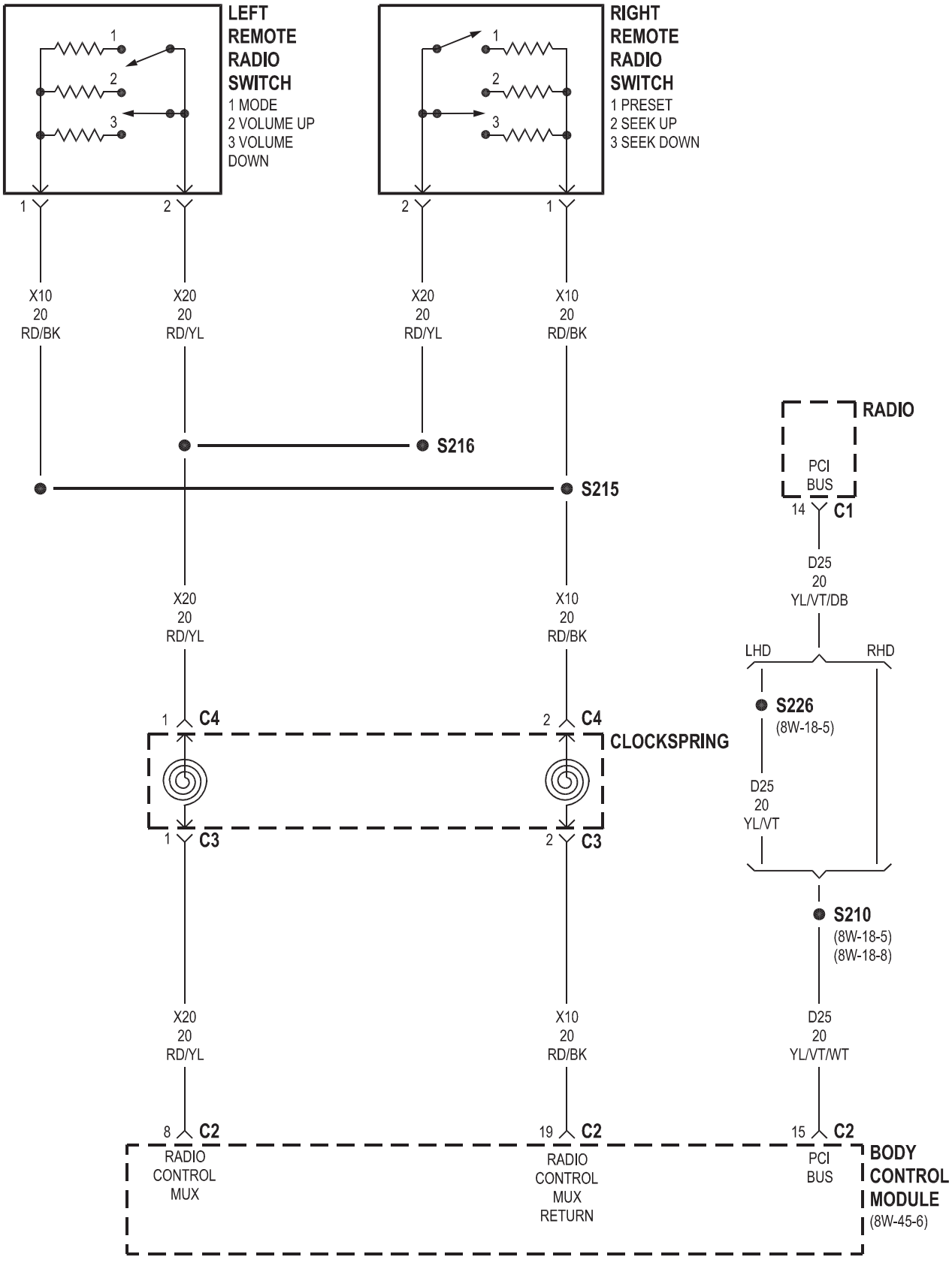

POWER AMPLIFIER
LEFT FRONT SPEAKER (+)
LEFT FRONT SPEAKER (-)
RIGHT FRONT SPEAKER (+)
RIGHT FRONT SPEAKER (-)
LEFT REAR SPEAKER (+)
LEFT REAR SPEAKER (-)
RIGHT REAR SPEAKER (+)
RIGHT REAR SPEAKER (-)
ENABLE SIGNAL TO AMPLIFIER
18 C1
8 C1
17 C1
7 C1
16 C1
6 C1
15 C1
5 C1
13 C1
TWISTED PAIR
X64 18 BR/WT
S368 (8W-47-3)
X53 18 DG/OR
X55 18 BR/RD
X54 18 VT
X56 18 DB/PK
X51 18 WT/DG
X57 18 DG/WT
X52 18 DB/WT
X58 18 DB/OR
X64 18 BR/WT
5
6
7
8
35
36
40
41
49 C200
10 C1
9 C1
7 C1
8 C1
18 C1
19 C1
21 C1
20 C1
13 C1
RADIO


POWER AMPLIFIER
LEFT FRONT SPEAKER (+)
LEFT FRONT SPEAKER (-)
RIGHT FRONT SPEAKER (+)
RIGHT FRONT SPEAKER (-)
LEFT REAR SPEAKER (+)
LEFT REAR SPEAKER (-)
RIGHT REAR SPEAKER (+)
RIGHT REAR SPEAKER (-)
ENABLE SIGNAL TO AMPLIFIER
18 C1
8 C1
17 C1
7 C1
16 C1
6 C1
15 C1
5 C1
13 C1
TWISTED PAIR
X64 18 BR/WT
S333 (8W-47-3)
X53 18 DG/OR
X55 18 BR/RD
X54 18 VT
X56 18 DB/PK
X51 18 WT/DG
X57 18 DG/WT
X52 18 DB/WT
X58 18 DB/OR
X64 18 BR/WT
30
29
28
23
24
25
26
27
31
C301
5
6
7
8
35
36
40
41
49
C200
10 C1
9 C1
7 C1
8 C1
18 C1
19 C1
21 C1
20 C1
13 C1
RADIO


LEFT REAR DOOR SPEAKER
RIGHT REAR DOOR SPEAKER
LEFT FRONT DOOR SPEAKER
RIGHT FRONT DOOR SPEAKER
TWISTED PAIR
X91 18 WT/VT
X93 18 TN/DG
X90 18 WT/VT
X92 18 TN/DG
X87 18 LG/RD
X85 18 LG/DG
X82 18 LB/RD
X80 18 LB/BK
C307
C303
C302
C314
X91 18 WT/DG
X93 18 DG/WT
C300
7 C2
6 C2
1 C2
2 C2
8 C2
3 C2
10 C2
9 C2
LEFT REAR DOOR SPEAKER (-)
LEFT REAR DOOR SPEAKER (+)
RIGHT REAR DOOR SPEAKER (+)
RIGHT REAR DOOR SPEAKER (-)
LEFT FRONT DOOR SPEAKER (+)
LEFT FRONT DOOR SPEAKER (-)
RIGHT FRONT DOOR SPEAKER (+)
RIGHT FRONT DOOR SPEAKER (-)
POWER AMPLIFIER

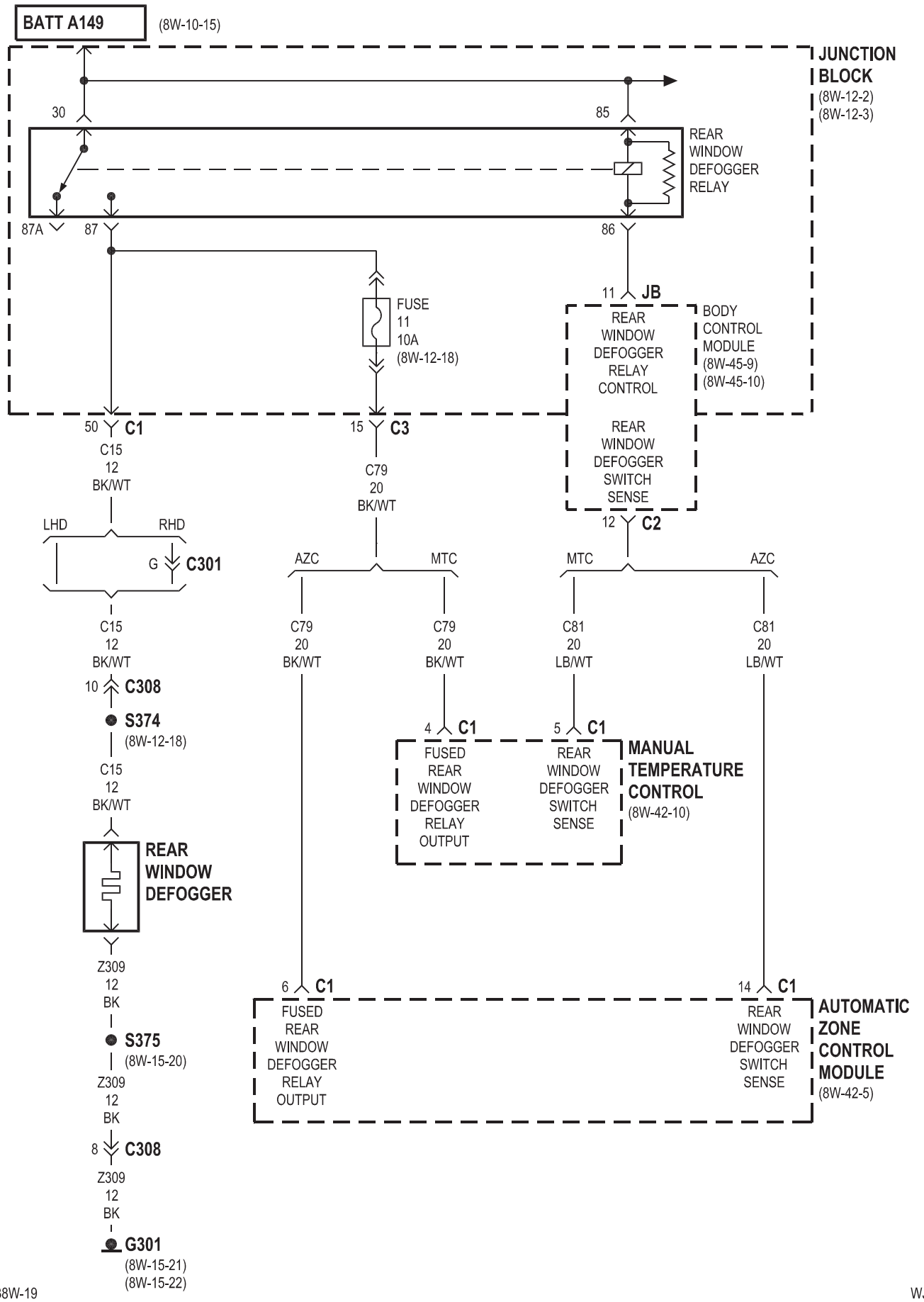

LEFT REAR DOOR SPEAKER
RIGHT REAR DOOR SPEAKER
LEFT FRONT DOOR SPEAKER
RIGHT FRONT DOOR SPEAKER
TWISTED PAIR
X91 18 WT/VT
X93 18 TN/DG
X90 18 WT/VT
X92 18 TN/DG
X87 18 LB/RD
X85 18 LB/BK
X82 18 LG/RD
X80 18 LG/DG
C307
C303
C314
C302
X91 18 WT/DG
X93 18 DG/WT
X87 18 LG/RD
X85 18 LG/DG
X82 18 LB/RD
X80 18 LB/BK
C301
X91 18 WT/DG
X93 18 DG/WT
X90 18 WT/VT
X92 18 TN/DG
X87 18 LG/RD
X85 18 LG/DG
X82 18 LB/RD
X80 18 LB/BK
C2
LEFT REAR DOOR SPEAKER (-)
LEFT REAR DOOR SPEAKER (+)
RIGHT REAR DOOR SPEAKER (+)
RIGHT REAR DOOR SPEAKER (-)
LEFT FRONT DOOR SPEAKER (+)
LEFT FRONT DOOR SPEAKER (-)
RIGHT FRONT DOOR SPEAKER (+)
RIGHT FRONT DOOR SPEAKER (-)
POWER AMPLIFIER


2
LEFT INSTRUMENT PANEL SPEAKER
1
2
RIGHT INSTRUMENT PANEL SPEAKER
1
TWISTED PAIR
TWISTED PAIR
X81 18 YL/BK
X83 18 YL/RD
X84 18 OR/BK
X86 18 OR/RD
3
4
1
2
C200
X81 18 YL/BK
X83 18 YL/RD
X84 18 OR/GY
X86 18 OR/RD
RHD
LHD
LHD
RHD
RHD
LHD
LHD
RHD
21
C301
22
18
C301
20
C301
TWISTED PAIR
TWISTED PAIR
X81 18 YL/BK
X83 18 YL/RD
X84 18 OR/GY
X86 18 OR/RD
11
C2
4
C2
5
C2
12
C2
LEFT INSTRUMENT PANEL SPEAKER (-)
LEFT INSTRUMENT PANEL SPEAKER (+)
RIGHT INSTRUMENT PANEL SPEAKER (-)
RIGHT INSTRUMENT PANEL SPEAKER (+)
POWER AMPLIFIER


LEFT
REMOTE
RADIO
SWITCH
1 MODE
2 VOLUME UP
3 VOLUME
DOWN
RIGHT
REMOTE
RADIO
SWITCH
1 PRESET
2 SEEK UP
3 SEEK DOWN
X10
20
RD/BK
X20
20
RD/YL
S216
S215
RADIO
PCI
BUS
C1
D25
20
YL/VT/DB
LHD
RHD
S226
(8W-18-5)
C4
CLOCKSPRING
C3
S210
(8W-18-5)
(8W-18-8)
YL/VT
YL/VT/WT
C2
RADIO
CONTROL
MUX
RADIO
CONTROL
MUX
RETURN
BODY
CONTROL
MODULE
(8W-45-6)

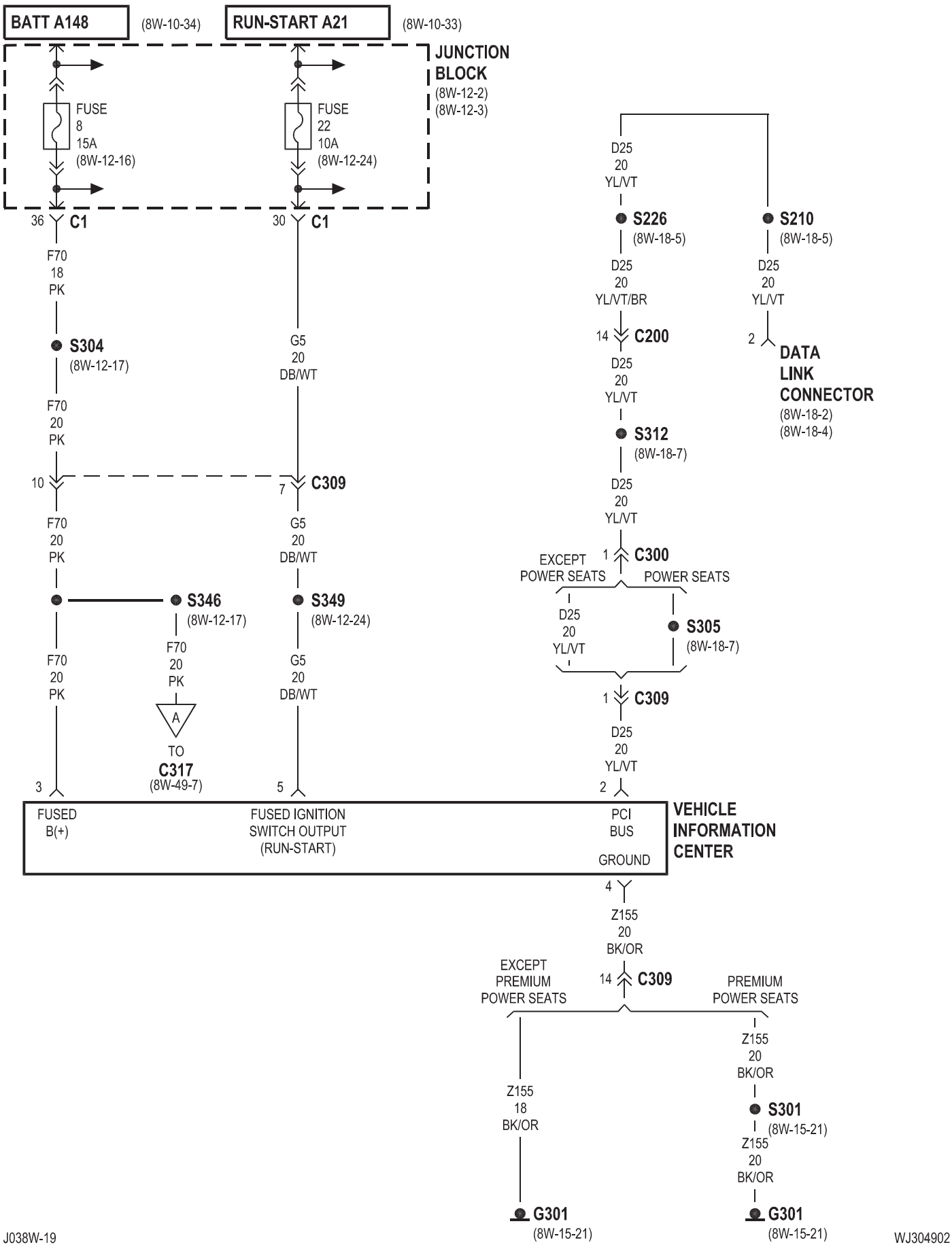
8W-48 REAR WINDOW DEFOGGER

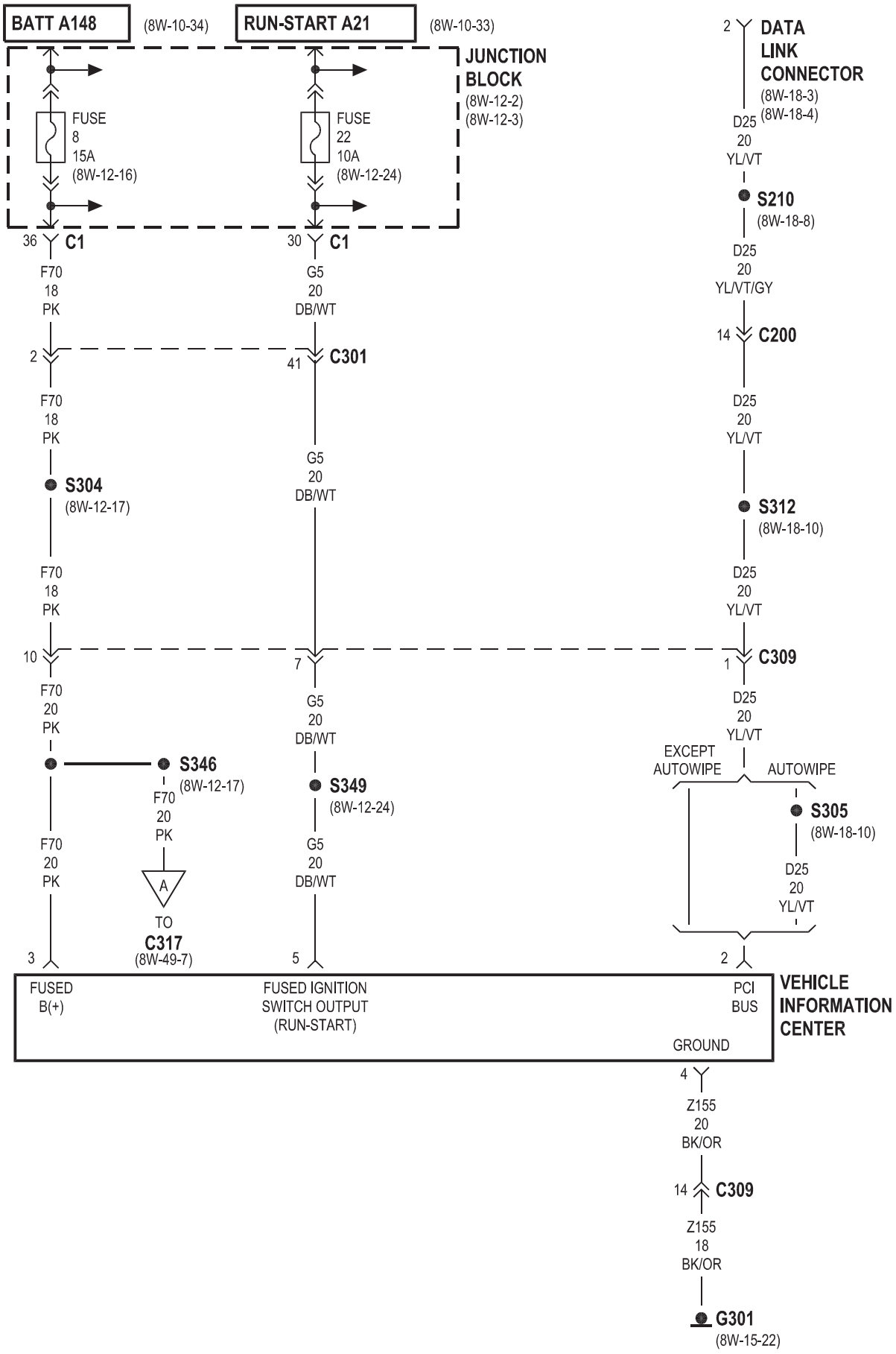
Component	Page
Automatic Zone Control Module	8W-48-2
Body Control Module	8W-48-2
Fuse 11	8W-48-2
G301	8W-48-2
Junction Block	8W-48-2
Manual Temperature Control	8W-48-2
Rear Window Defogger	8W-48-2
Rear Window Defogger Relay	8W-48-2

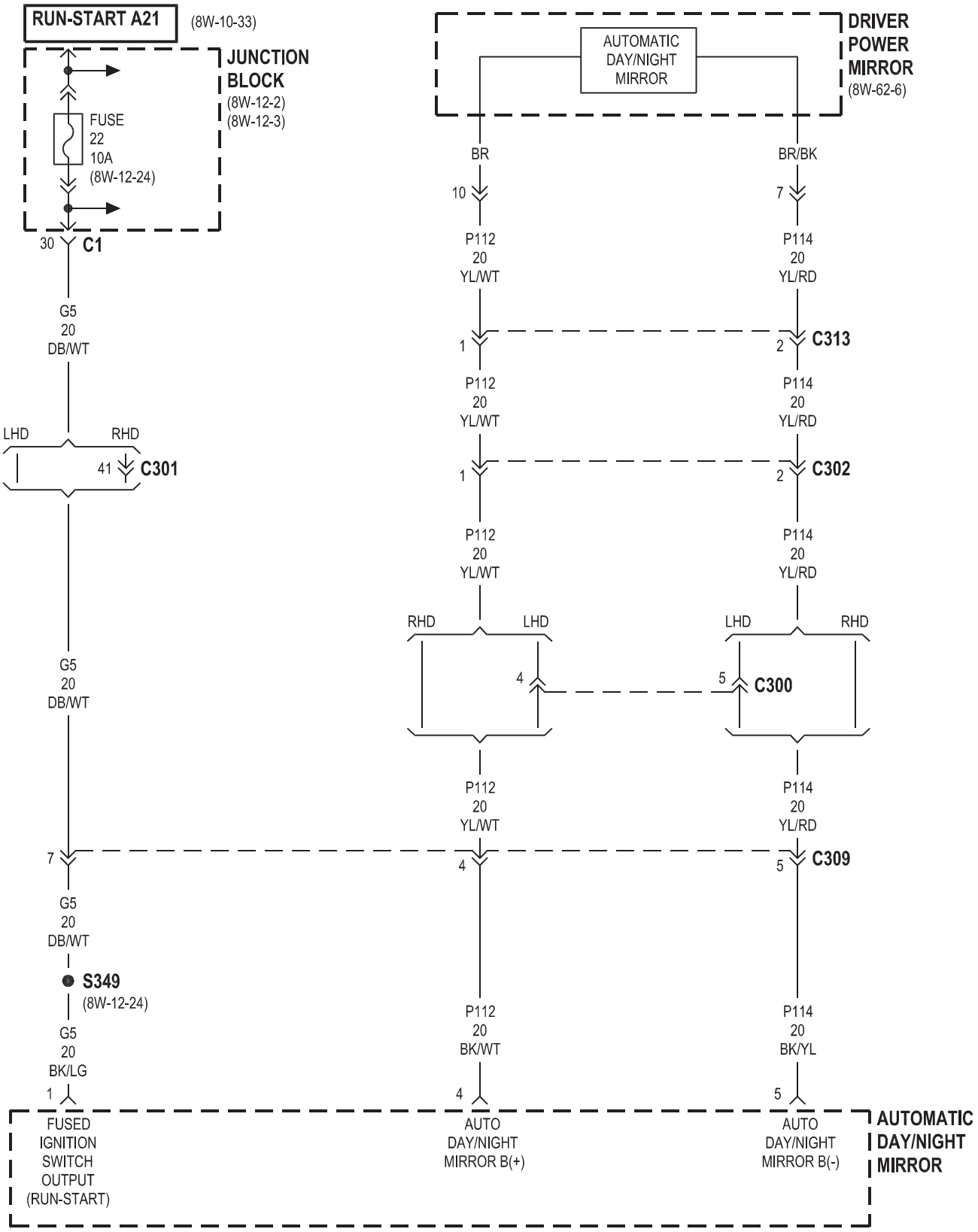

BATT A149
(8W-10-15)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
30
85
REAR WINDOW DEFOGGER RELAY
87A
87
86
FUSE 11 10A
(8W-12-18)
11 JB
REAR WINDOW DEFOGGER RELAY CONTROL
BODY CONTROL MODULE
(8W-45-9)
(8W-45-10)
REAR WINDOW DEFOGGER SWITCH SENSE
50 C1
C15 12 BK/WT
15 C3
C79 20 BK/WT
12 C2
LHD
RHD
G C301
AZC
MTC
MTC
AZC
C15 12 BK/WT
C79 20 BK/WT
C79 20 BK/WT
C81 20 LB/WT
C81 20 LB/WT
10 C308
S374
(8W-12-18)
4 C1
5 C1
FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
REAR WINDOW DEFOGGER SWITCH SENSE
MANUAL TEMPERATURE CONTROL
(8W-42-10)
C15 12 BK/WT
REAR WINDOW DEFOGGER
Z309 12 BK
6 C1
14 C1
FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
REAR WINDOW DEFOGGER SWITCH SENSE
AUTOMATIC ZONE CONTROL MODULE
(8W-42-5)
S375
(8W-15-20)
Z309 12 BK
8 C308
Z309 12 BK
G301
(8W-15-21)
(8W-15-22)

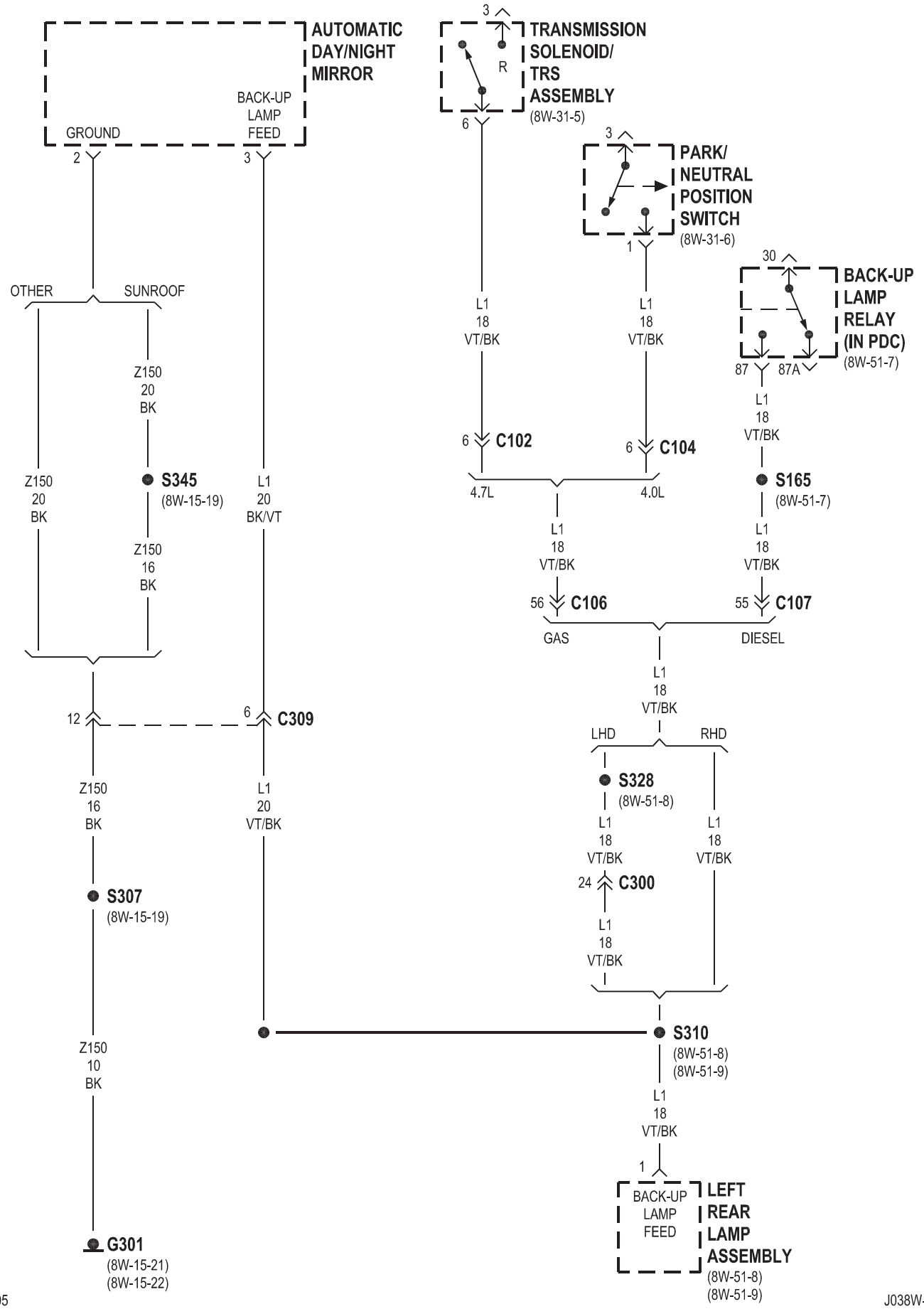
8W-49 OVERHEAD CONSOLE

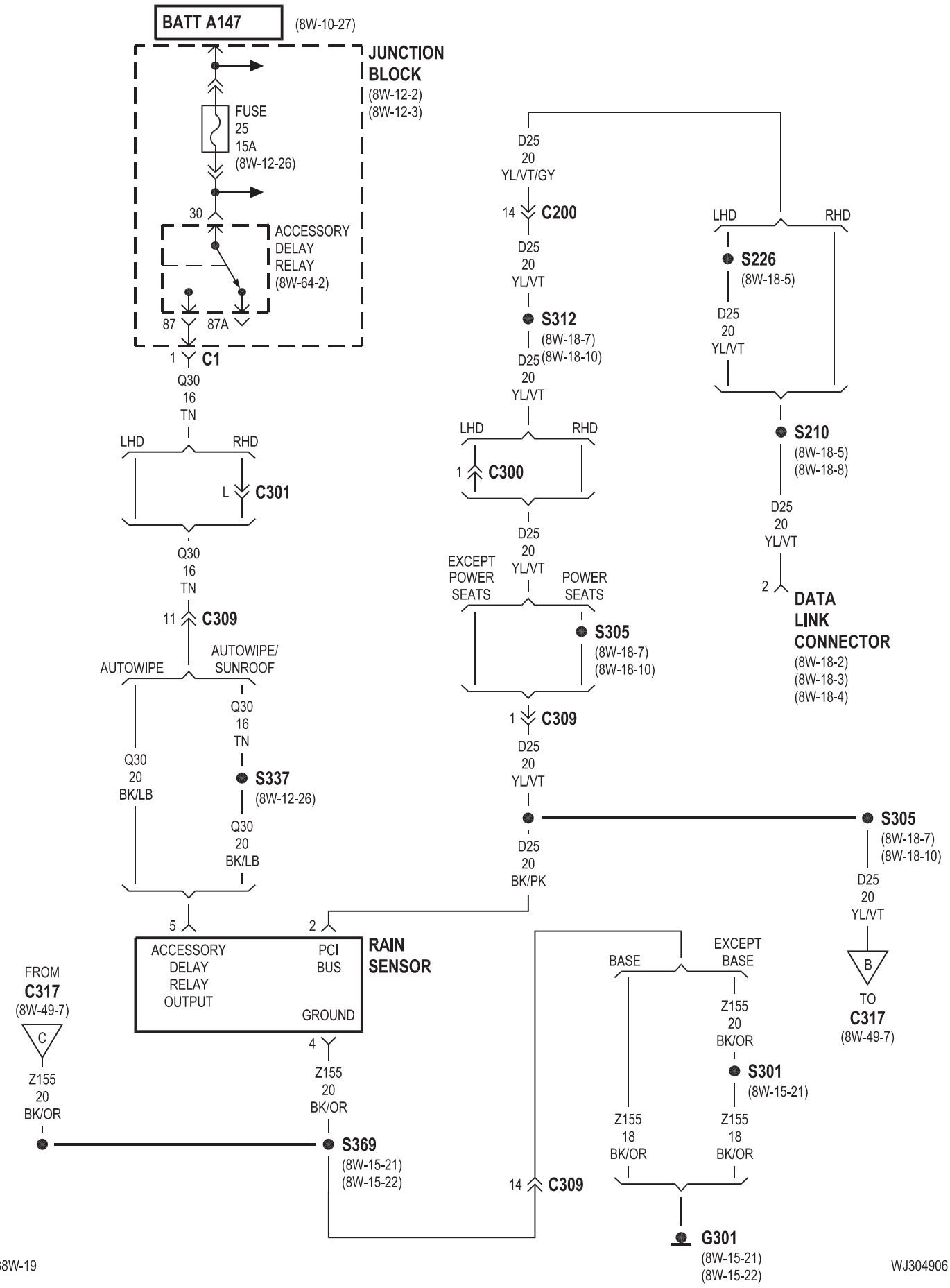
Component	Page
Accessory Delay Relay	8W-49-6
Automatic Day/Night Mirror	8W-49-4, 5
Back-Up Lamp Relay	8W-49-5
Data Link Connector	8W-49-2, 3, 6
Driver Power Mirror	8W-49-4
Fuse 7	8W-49-7
Fuse 8	8W-49-2, 3
Fuse 22	8W-49-2, 3, 4
Fuse 25	8W-49-6
G106	8W-49-7
G301	8W-49-2, 3, 5, 6
Intrusion Transceiver Module	8W-49-7
Junction Block	8W-49-2, 3, 4, 6, 7
Left Rear Lamp Assembly	8W-49-5
Park/Neutral Position Switch	8W-49-5
Rain Sensor	8W-49-6
Siren	8W-49-7
Transmission Solenoid/TRS Assembly	8W-49-5
Vehicle Information Center	8W-49-2, 3

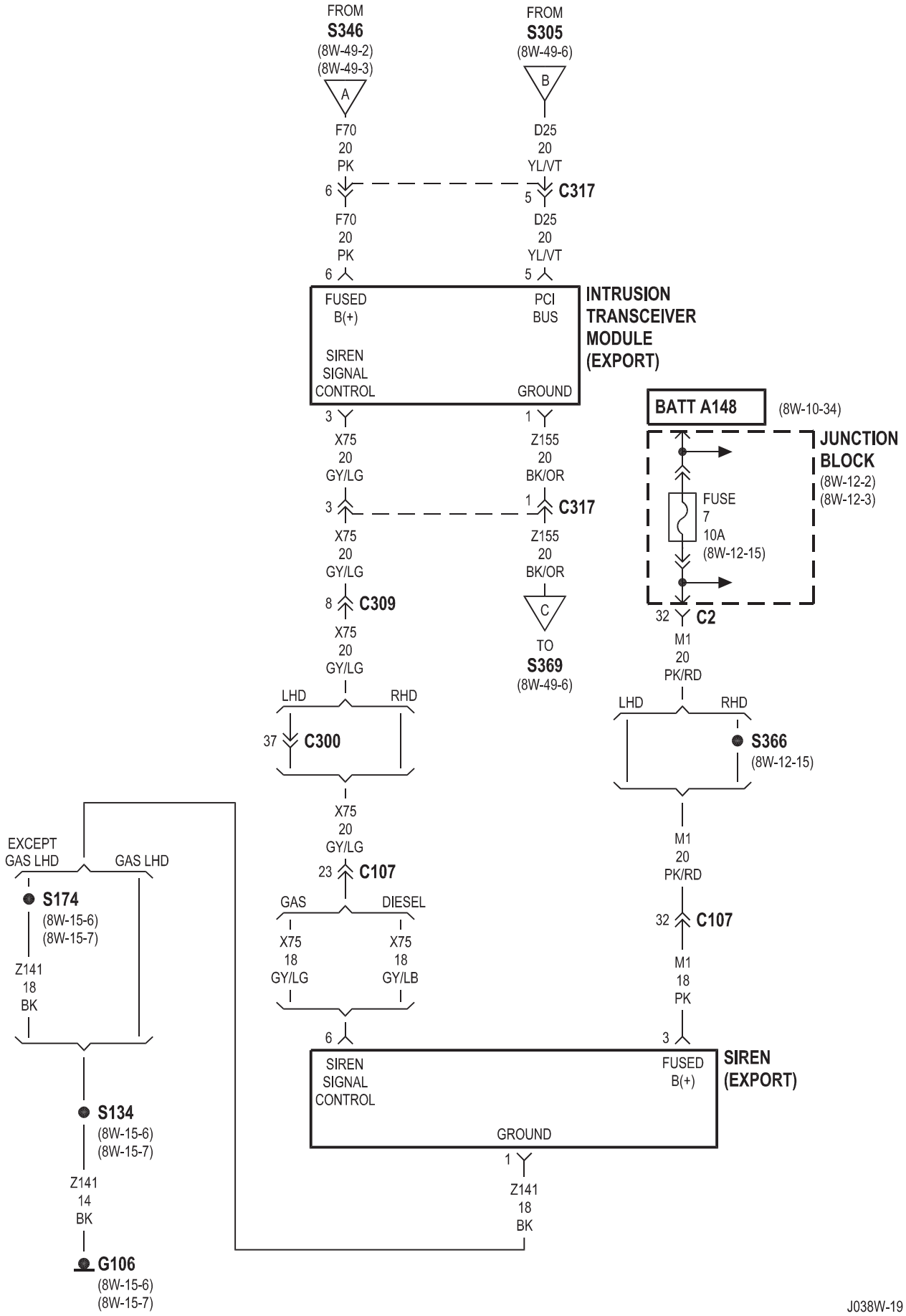

BATT A148
(8W-10-34)
RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 8 15A (8W-12-16)
FUSE 22 10A (8W-12-24)
36 C1
30 C1
F70 18 PK
S304
(8W-12-17)
F70 20 PK
10
7 C309
F70 20 PK
G5 20 DB/WT
S346
(8W-12-17)
S349
(8W-12-24)
F70 20 PK
F70 20 PK
A
TO C317
(8W-49-7)
G5 20 DB/WT
3
5
FUSED B(+)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
PCI BUS
GROUND
VEHICLE INFORMATION CENTER
D25 20 YL/VT
S226
(8W-18-5)
S210
(8W-18-5)
D25 20 YL/VT/BR
D25 20 YL/VT
14 C200
2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-4)
D25 20 YL/VT
S312
(8W-18-7)
D25 20 YL/VT
1 C300
EXCEPT POWER SEATS
POWER SEATS
D25 20 YL/VT
S305
(8W-18-7)
1 C309
D25 20 YL/VT
2
4
Z155 20 BK/OR
EXCEPT PREMIUM POWER SEATS
14 C309
PREMIUM POWER SEATS
Z155 18 BK/OR
Z155 20 BK/OR
S301
(8W-15-21)
Z155 20 BK/OR
G301
(8W-15-21)
G301
(8W-15-21)


BATT A148
(8W-10-34)
RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 8 15A (8W-12-16)
FUSE 22 10A (8W-12-24)
36 C1
30 C1
F70 18 PK
G5 20 DB/WT
2 C301
41 C301
S304
(8W-12-17)
S346
(8W-12-17)
S349
(8W-12-24)
F70 20 PK
TO C317
(8W-49-7)
10 C309
7 C309
1 C309
3
5
2
FUSED B(+)
FUSED IGNITION SWITCH OUTPUT (RUN-START)
PCI BUS
VEHICLE INFORMATION CENTER
2 DATA LINK CONNECTOR
(8W-18-3)
(8W-18-4)
D25 20 YL/VT
S210
(8W-18-8)
D25 20 YL/VT/GY
14 C200
S312
(8W-18-10)
EXCEPT AUTOWIPE
AUTOWIPE
S305
(8W-18-10)
GROUND
4
Z155 20 BK/OR
14 C309
Z155 18 BK/OR
G301
(8W-15-22)


RUN-START A21
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
22
10A
(8W-12-24)
30
C1
G5
20
DB/WT
LHD
RHD
41
C301
G5
20
DB/WT
7
G5
20
DB/WT
S349
(8W-12-24)
G5
20
BK/LG
1
FUSED IGNITION SWITCH OUTPUT (RUN-START)
AUTOMATIC DAY/NIGHT MIRROR
DRIVER POWER MIRROR
(8W-62-6)
BR
10
P112
20
YL/WT
1
P112
20
YL/WT
1
P112
20
YL/WT
RHD
LHD
4
P112
20
YL/WT
7
P112
20
YL/WT
4
P112
20
BK/WT
4
AUTO DAY/NIGHT MIRROR B(+)
BR/BK
7
P114
20
YL/RD
2
C313
P114
20
YL/RD
2
C302
P114
20
YL/RD
LHD
RHD
5
C300
P114
20
YL/RD
5
C309
P114
20
BK/YL
5
AUTO DAY/NIGHT MIRROR B(-)
AUTOMATIC DAY/NIGHT MIRROR


AUTOMATIC DAY/NIGHT MIRROR
GROUND
2
BACK-UP LAMP FEED
3
OTHER
SUNROOF
Z150 20 BK
Z150 20 BK
S345
(8W-15-19)
Z150 16 BK
L1 20 BK/VT
12
6
C309
Z150 16 BK
L1 20 VT/BK
S307
(8W-15-19)
Z150 10 BK
G301
(8W-15-21)
(8W-15-22)
3
R
6
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-5)
3
1
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
30
87
87A
BACK-UP LAMP RELAY (IN PDC)
(8W-51-7)
L1 18 VT/BK
L1 18 VT/BK
L1 18 VT/BK
6
C102
6
C104
4.7L
4.0L
L1 18 VT/BK
L1 18 VT/BK
S165
(8W-51-7)
56
C106
55
C107
GAS
DIESEL
L1 18 VT/BK
LHD
RHD
S328
(8W-51-8)
L1 18 VT/BK
L1 18 VT/BK
24
C300
L1 18 VT/BK
S310
(8W-51-8)
(8W-51-9)
L1 18 VT/BK
1
BACK-UP LAMP FEED
LEFT REAR LAMP ASSEMBLY
(8W-51-8)
(8W-51-9)


BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 25 15A
(8W-12-26)
30
ACCESSORY DELAY RELAY
(8W-64-2)
87
87A
1 C1
Q30 16 TN
LHD
RHD
L C301
Q30 16 TN
11 C309
AUTOWIPE
AUTOWIPE/ SUNROOF
Q30 20 BK/LB
Q30 16 TN
S337
(8W-12-26)
Q30 20 BK/LB
5
2
ACCESSORY DELAY RELAY OUTPUT
PCI BUS
GROUND
RAIN SENSOR
4
Z155 20 BK/OR
FROM C317
(8W-49-7)
C
Z155 20 BK/OR
S369
(8W-15-21)
(8W-15-22)
D25 20 YL/VT/GY
14 C200
D25 20 YL/VT
S312
(8W-18-7)
(8W-18-10)
D25 20 YL/VT
LHD
RHD
1 C300
D25 20 YL/VT
EXCEPT POWER SEATS
POWER SEATS
S305
(8W-18-7)
(8W-18-10)
1 C309
D25 20 YL/VT
D25 20 BK/PK
14 C309
LHD
RHD
S226
(8W-18-5)
D25 20 YL/VT
S210
(8W-18-5)
(8W-18-8)
D25 20 YL/VT
2
DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
S305
(8W-18-7)
(8W-18-10)
D25 20 YL/VT
B
TO C317
(8W-49-7)
BASE
EXCEPT BASE
Z155 20 BK/OR
S301
(8W-15-21)
Z155 18 BK/OR
Z155 18 BK/OR
G301
(8W-15-21)
(8W-15-22)

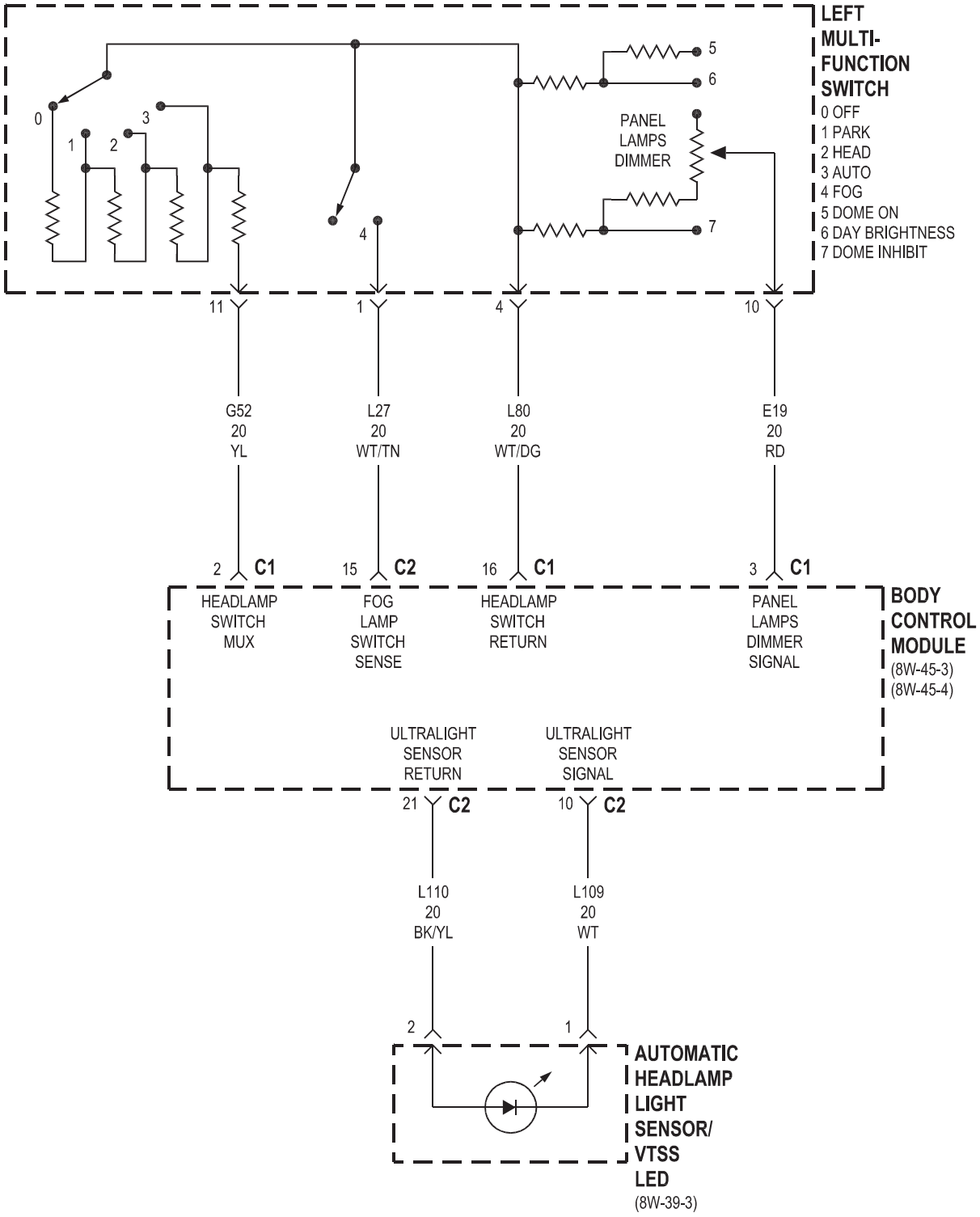


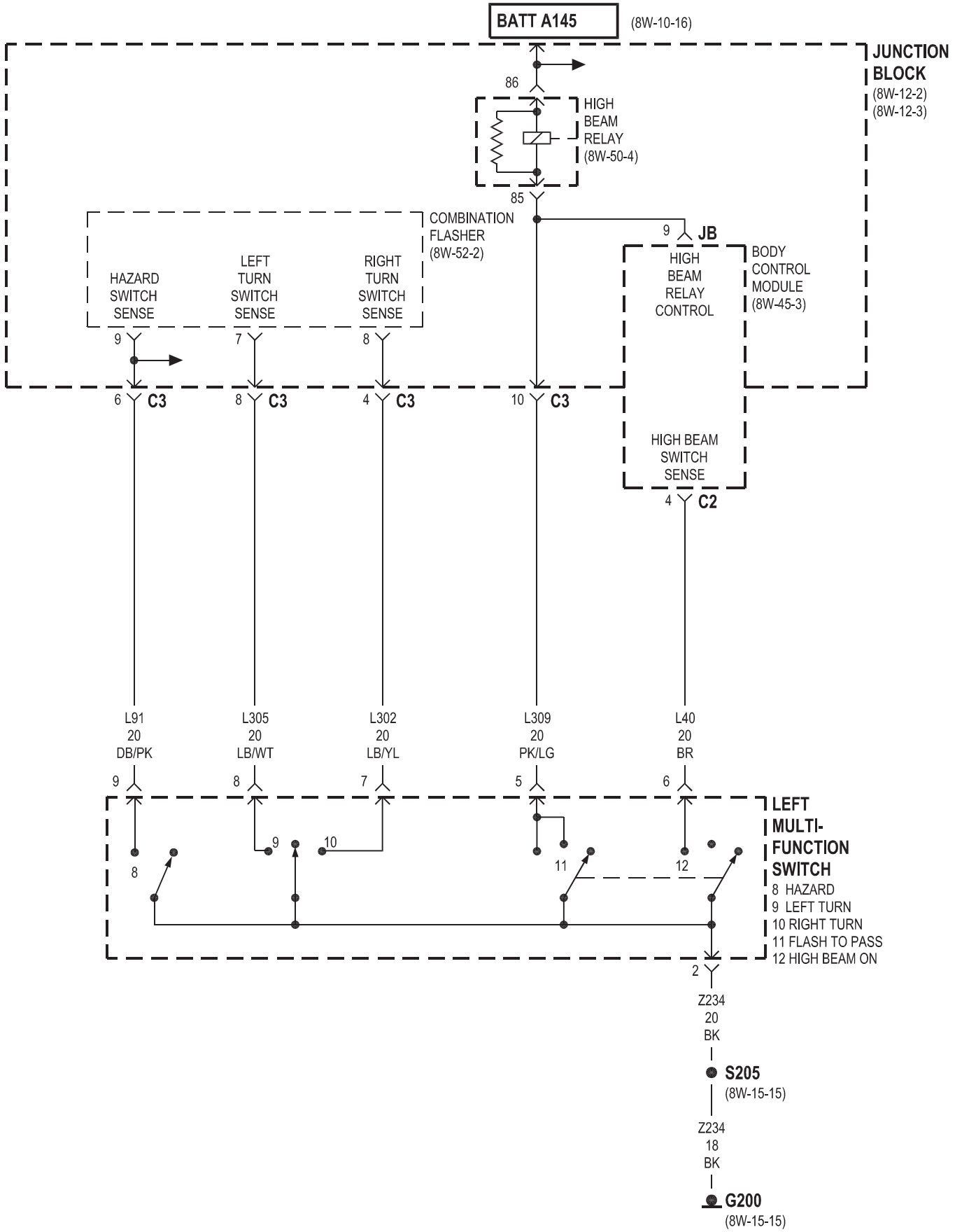
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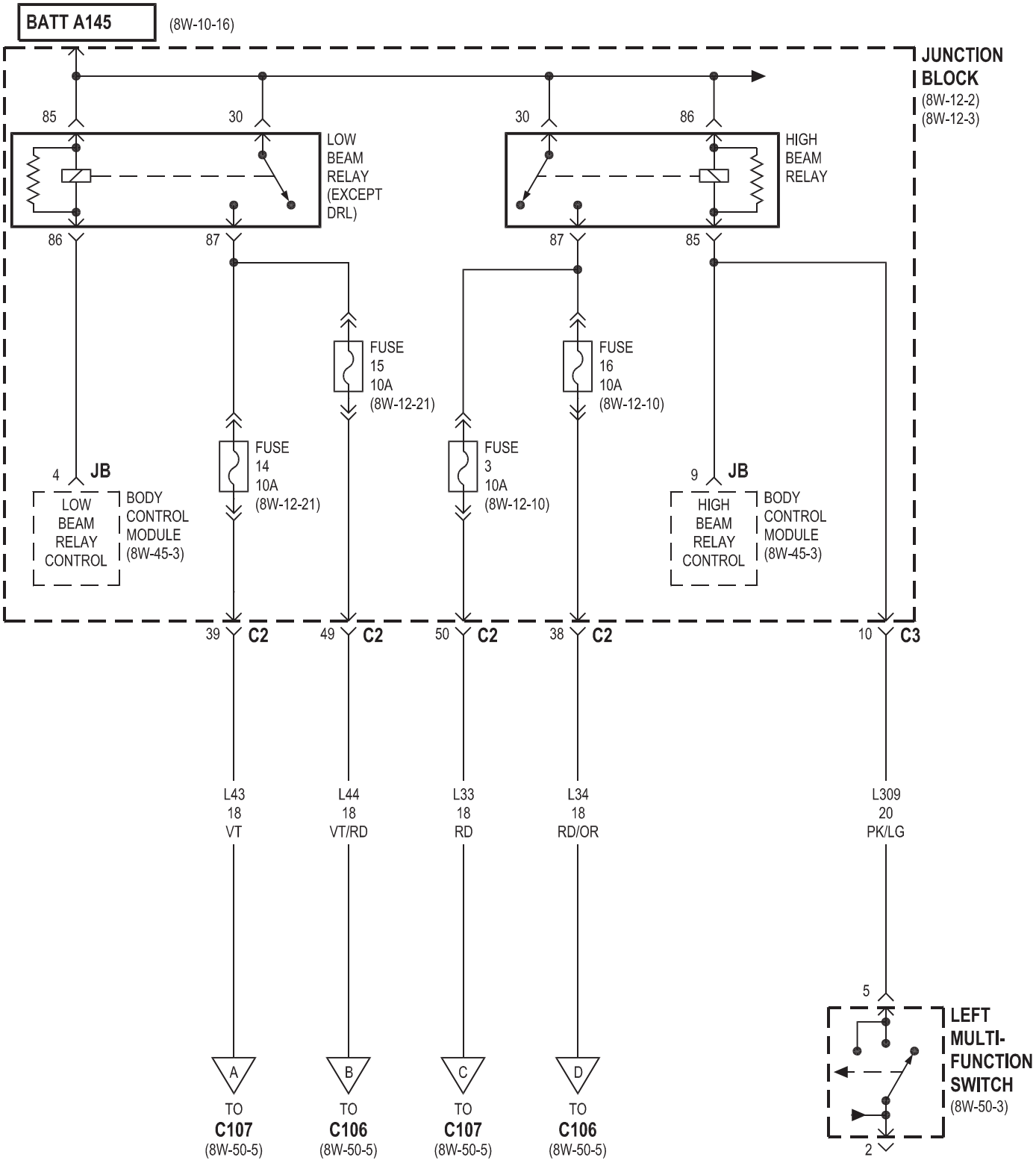
J038W-19

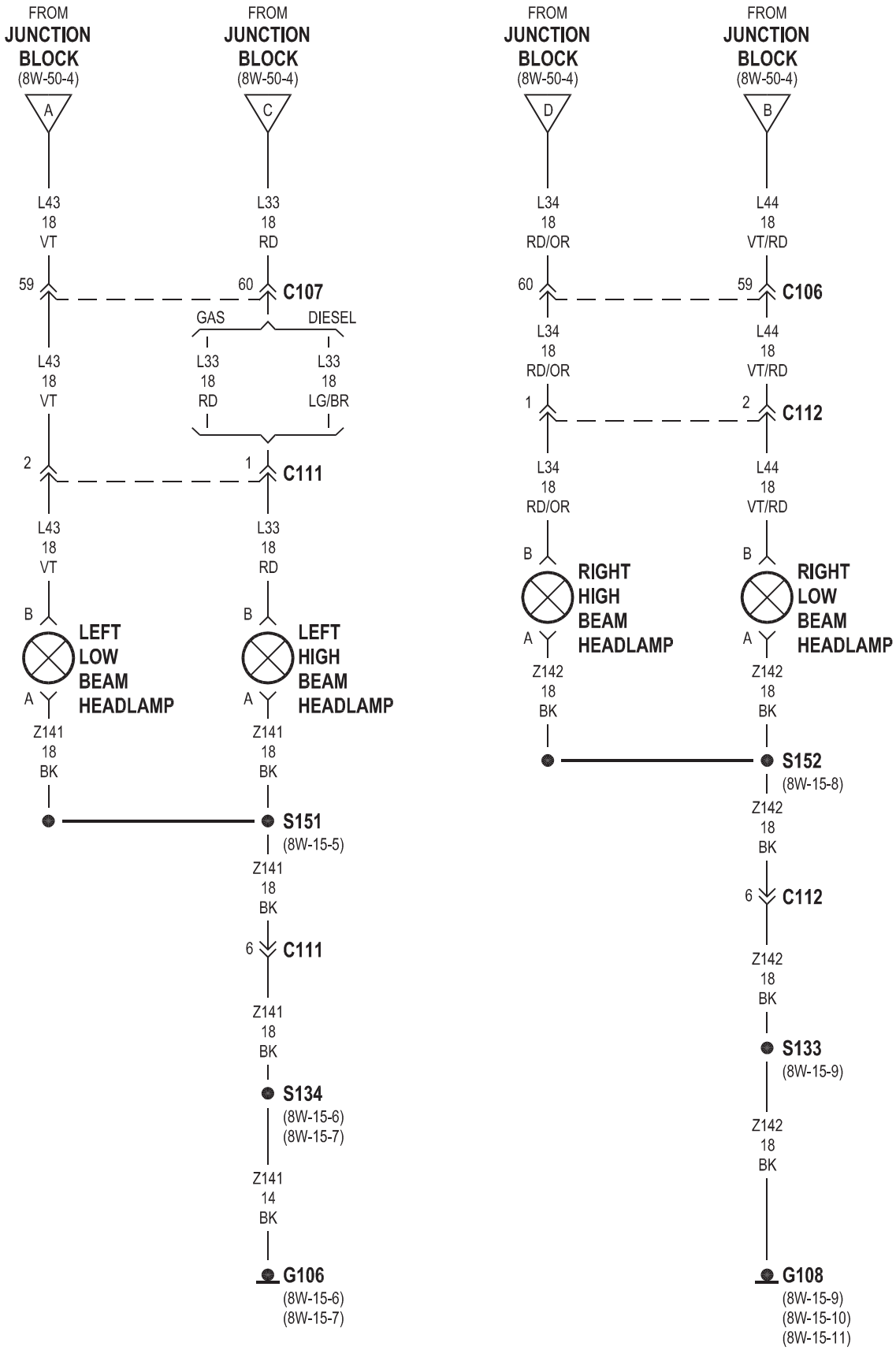
8W-50 FRONT LIGHTING

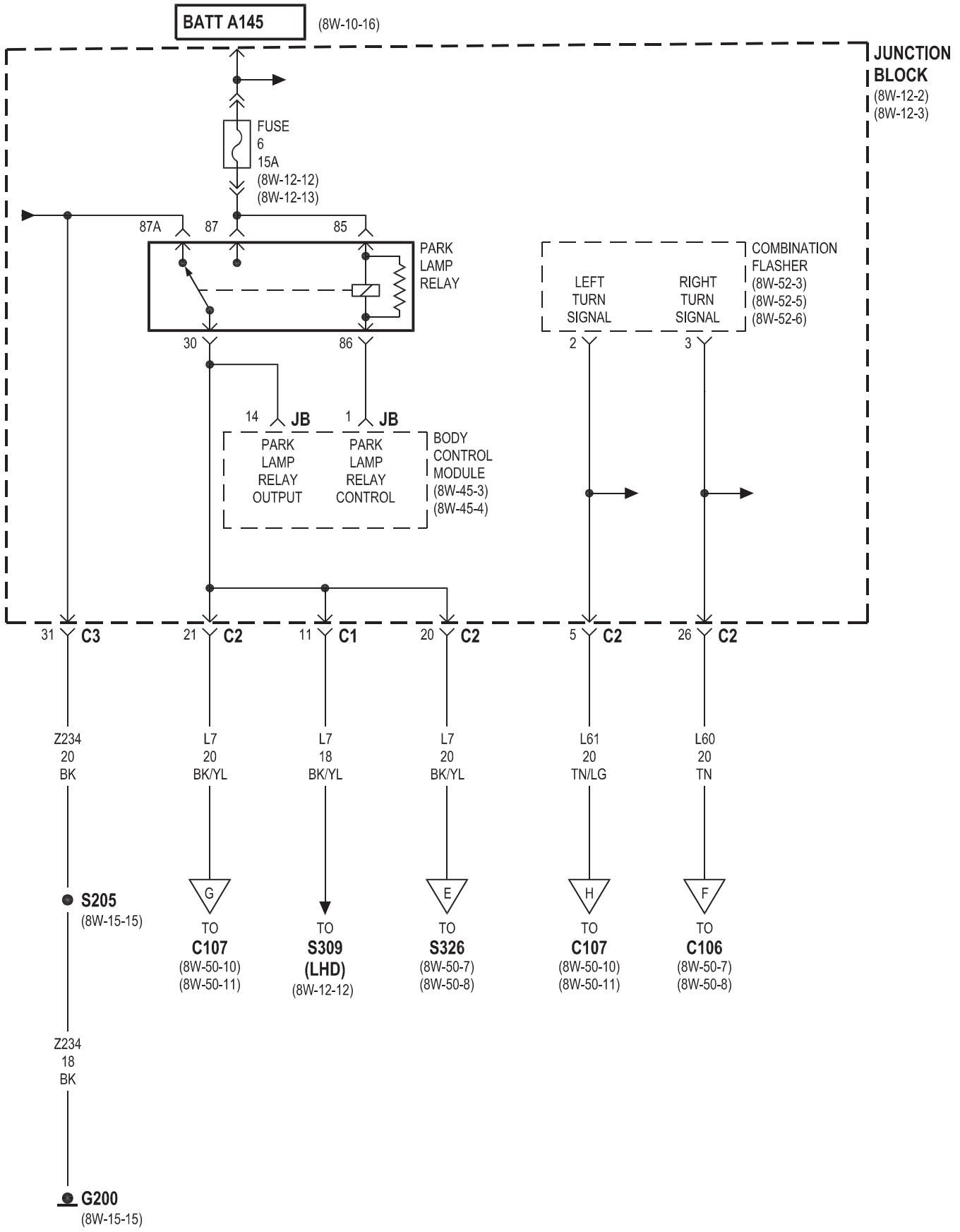
Component	Page
Automatic Headlamp Light Sensor/VTSS Led	8W-50-2
Body Control Module	8W-50-2, 3, 4, 6, 12, 13
Combination Flasher	8W-50-3, 6
Fog Lamp Relay	8W-50-12
Fuse 3	8W-50-4
Fuse 6	8W-50-6
Fuse 14	8W-50-4, 13
Fuse 15	8W-50-4, 13
Fuse 16	8W-50-4
Fuse 24	8W-50-12
G106	8W-50-5, 10, 11, 12, 13
G108	8W-50-5, 7, 8, 12, 13
G200	8W-50-3, 6, 9, 13
Headlamp Leveling Switch	8W-50-9
High Beam Relay	8W-50-3, 4
Junction Block	8W-50-3, 4, 5, 6, 7, 8, 10, 11, 12, 13
Left Fog Lamp	8W-50-12
Left Front Park Lamp	8W-50-10, 11
Left Front Park/Turn Signal Lamp	8W-50-10
Left Front Side Marker Lamp	8W-50-10
Left Front Turn Signal Lamp	8W-50-11
Left Headlamp Leveling Motor	8W-50-11
Left High Beam Headlamp	8W-50-5
Left Low Beam Headlamp	8W-50-5, 13
Left Multi-Function Switch	8W-50-2, 3, 4
Left Side Repeater Lamp	8W-50-11
Low Beam Relay	8W-50-4
Low Beam/Daytime Running Lamp Relay	8W-50-13
Park Lamp Relay	8W-50-6
Right Fog Lamp	8W-50-12
Right Front Park Lamp	8W-50-7, 8
Right Front Park/Turn Signal Lamp	8W-50-7
Right Front Side Marker Lamp	8W-50-7
Right Front Turn Signal Lamp	8W-50-8
Right Headlamp Leveling Motor	8W-50-8
Right High Beam Headlamp	8W-50-5
Right Low Beam Headlamp	8W-50-5, 13
Right Rear Lamp Assembly	8W-50-7, 8
Right Side Repeater Lamp	8W-50-8


LEFT
MULTI-
FUNCTION
SWITCH
0 OFF
1 PARK
2 HEAD
3 AUTO
4 FOG
5 DOME ON
6 DAY BRIGHTNESS
7 DOME INHIBIT
PANEL
LAMPS
DIMMER
0
1
2
3
4
5
6
7
11
1
4
10
G52
20
YL
L27
20
WT/TN
L80
20
WT/DG
E19
20
RD
2 C1
15 C2
16 C1
3 C1
HEADLAMP
SWITCH
MUX
FOG
LAMP
SWITCH
SENSE
HEADLAMP
SWITCH
RETURN
PANEL
LAMPS
DIMMER
SIGNAL
BODY
CONTROL
MODULE
(8W-45-3)
(8W-45-4)
ULTRALIGHT
SENSOR
RETURN
ULTRALIGHT
SENSOR
SIGNAL
21 C2
10 C2
L110
20
BK/YL
L109
20
WT
2
1
AUTOMATIC
HEADLAMP
LIGHT
SENSOR/
VTSS
LED
(8W-39-3)

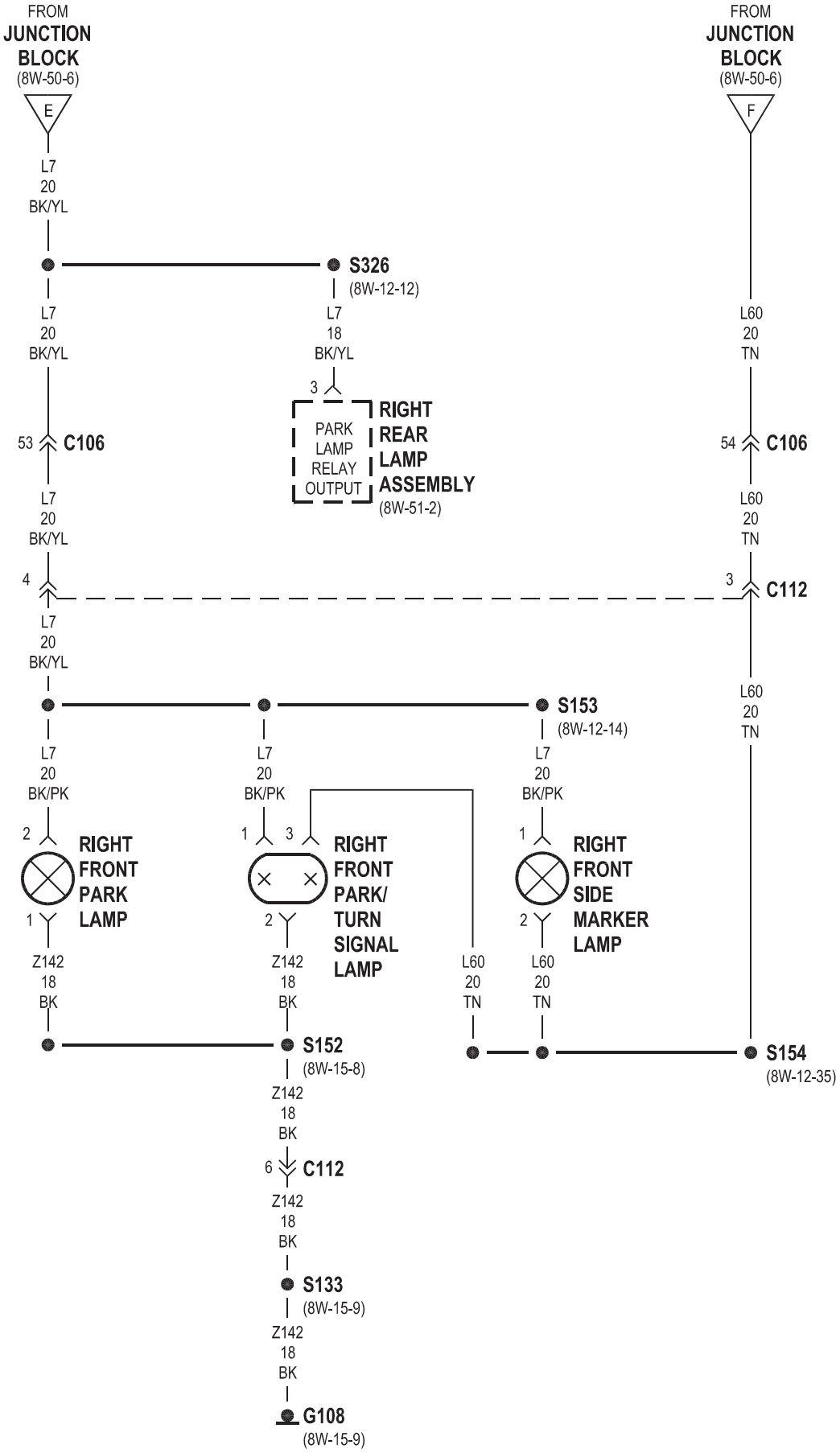

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
86
HIGH BEAM RELAY
(8W-50-4)
85
COMBINATION FLASHER
(8W-52-2)
HAZARD SWITCH SENSE
LEFT TURN SWITCH SENSE
RIGHT TURN SWITCH SENSE
9
7
8
6 C3
8 C3
4 C3
10 C3
9 JB
HIGH BEAM RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
HIGH BEAM SWITCH SENSE
4 C2
L91 20 DB/PK
L305 20 LB/WT
L302 20 LB/YL
L309 20 PK/LG
L40 20 BR
9
8
7
5
6
LEFT MULTI-FUNCTION SWITCH
8 HAZARD
9 LEFT TURN
10 RIGHT TURN
11 FLASH TO PASS
12 HIGH BEAM ON
2
Z234 20 BK
S205
(8W-15-15)
Z234 18 BK
G200
(8W-15-15)

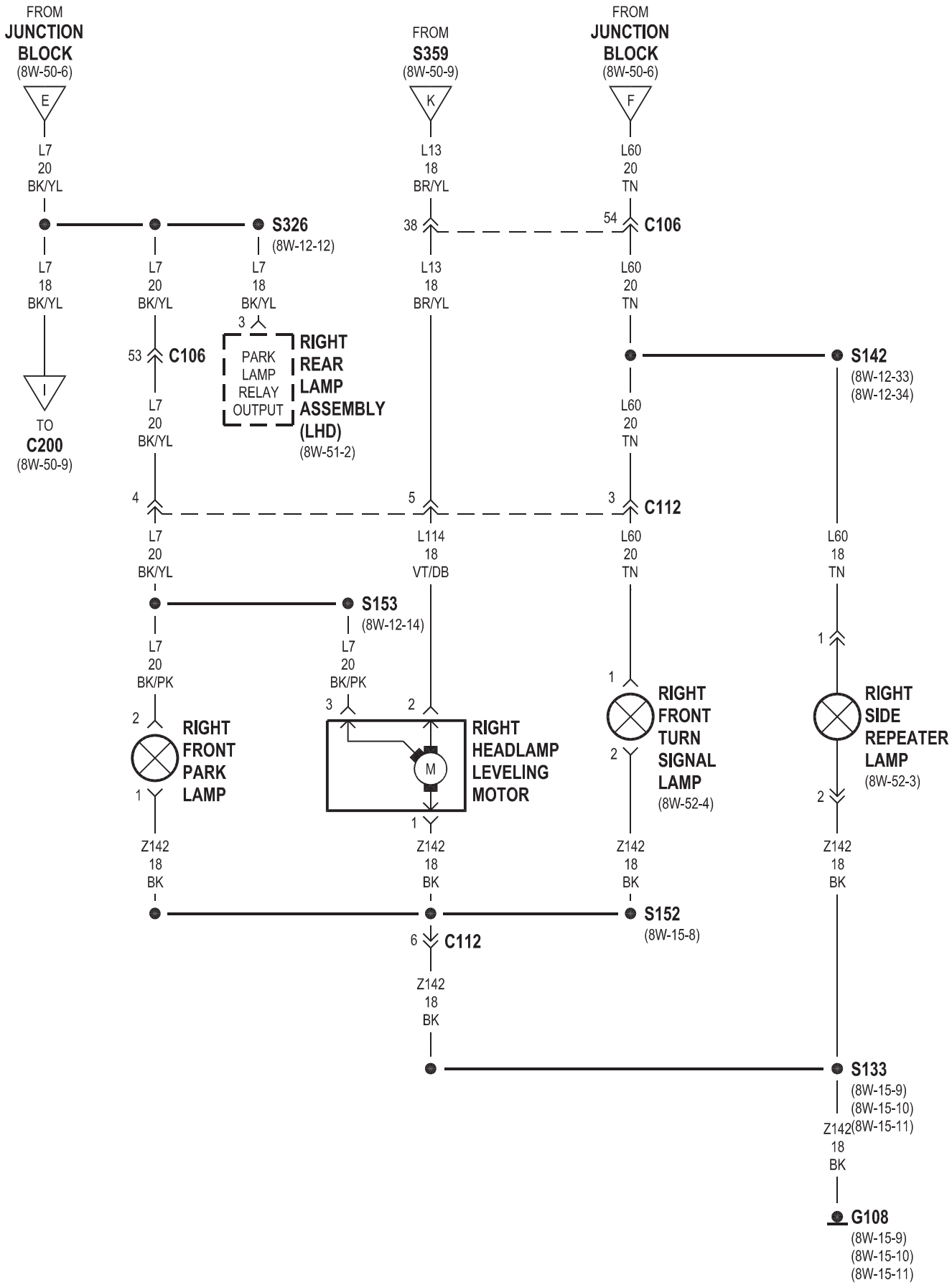

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
85
30
LOW BEAM RELAY (EXCEPT DRL)
86
87
30
86
HIGH BEAM RELAY
87
85
FUSE 15 10A (8W-12-21)
FUSE 16 10A (8W-12-10)
FUSE 14 10A (8W-12-21)
FUSE 3 10A (8W-12-10)
4 JB
LOW BEAM RELAY CONTROL
BODY CONTROL MODULE (8W-45-3)
9 JB
HIGH BEAM RELAY CONTROL
BODY CONTROL MODULE (8W-45-3)
39 C2
49 C2
50 C2
38 C2
10 C3
L43 18 VT
L44 18 VT/RD
L33 18 RD
L34 18 RD/OR
L309 20 PK/LG
5
LEFT MULTI-FUNCTION SWITCH
(8W-50-3)
2
A
B
C
D
TO C107 (8W-50-5)
TO C106 (8W-50-5)
TO C107 (8W-50-5)
TO C106 (8W-50-5)

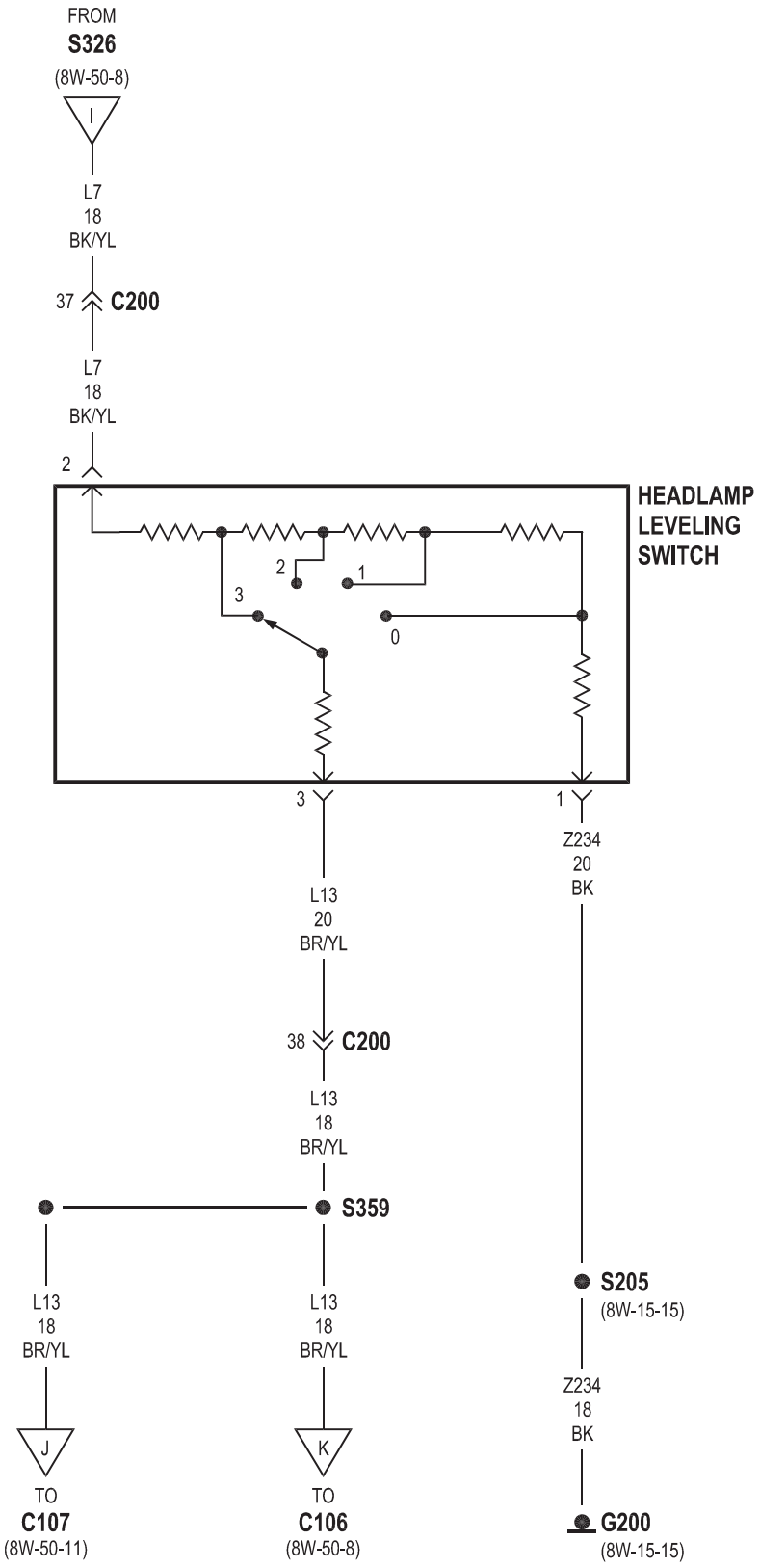

FROM JUNCTION BLOCK (8W-50-4)
A
L43 18 VT
59
C107
60
C
L33 18 RD
GAS
DIESEL
L33 18 RD
L33 18 LG/BR
L43 18 VT
2
C111
1
L43 18 VT
L33 18 RD
B
LEFT LOW BEAM HEADLAMP
LEFT HIGH BEAM HEADLAMP
A
Z141 18 BK
S151
(8W-15-5)
Z141 18 BK
6
C111
Z141 18 BK
S134
(8W-15-6)
(8W-15-7)
Z141 14 BK
G106
(8W-15-6)
(8W-15-7)
D
L34 18 RD/OR
B
L44 18 VT/RD
60
C106
59
L34 18 RD/OR
L44 18 VT/RD
1
C112
2
L34 18 RD/OR
L44 18 VT/RD
RIGHT HIGH BEAM HEADLAMP
RIGHT LOW BEAM HEADLAMP
Z142 18 BK
S152
(8W-15-8)
Z142 18 BK
6
C112
Z142 18 BK
S133
(8W-15-9)
Z142 18 BK
G108
(8W-15-9)
(8W-15-10)
(8W-15-11)


BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
(8W-12-12)
(8W-12-13)
87A
87
85
PARK LAMP RELAY
30
86
14
JB
1
JB
PARK LAMP RELAY OUTPUT
PARK LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
(8W-45-4)
LEFT TURN SIGNAL
RIGHT TURN SIGNAL
COMBINATION FLASHER
(8W-52-3)
(8W-52-5)
(8W-52-6)
2
3
31 C3
21 C2
11 C1
20 C2
5 C2
26 C2
Z234 20 BK
L7 20 BK/YL
L7 18 BK/YL
L7 20 BK/YL
L61 20 TN/LG
L60 20 TN
S205
(8W-15-15)
G
E
H
F
TO C107
(8W-50-10)
(8W-50-11)
TO S309 (LHD)
(8W-12-12)
TO S326
(8W-50-7)
(8W-50-8)
TO C107
(8W-50-10)
(8W-50-11)
TO C106
(8W-50-7)
(8W-50-8)
Z234 18 BK
G200
(8W-15-15)

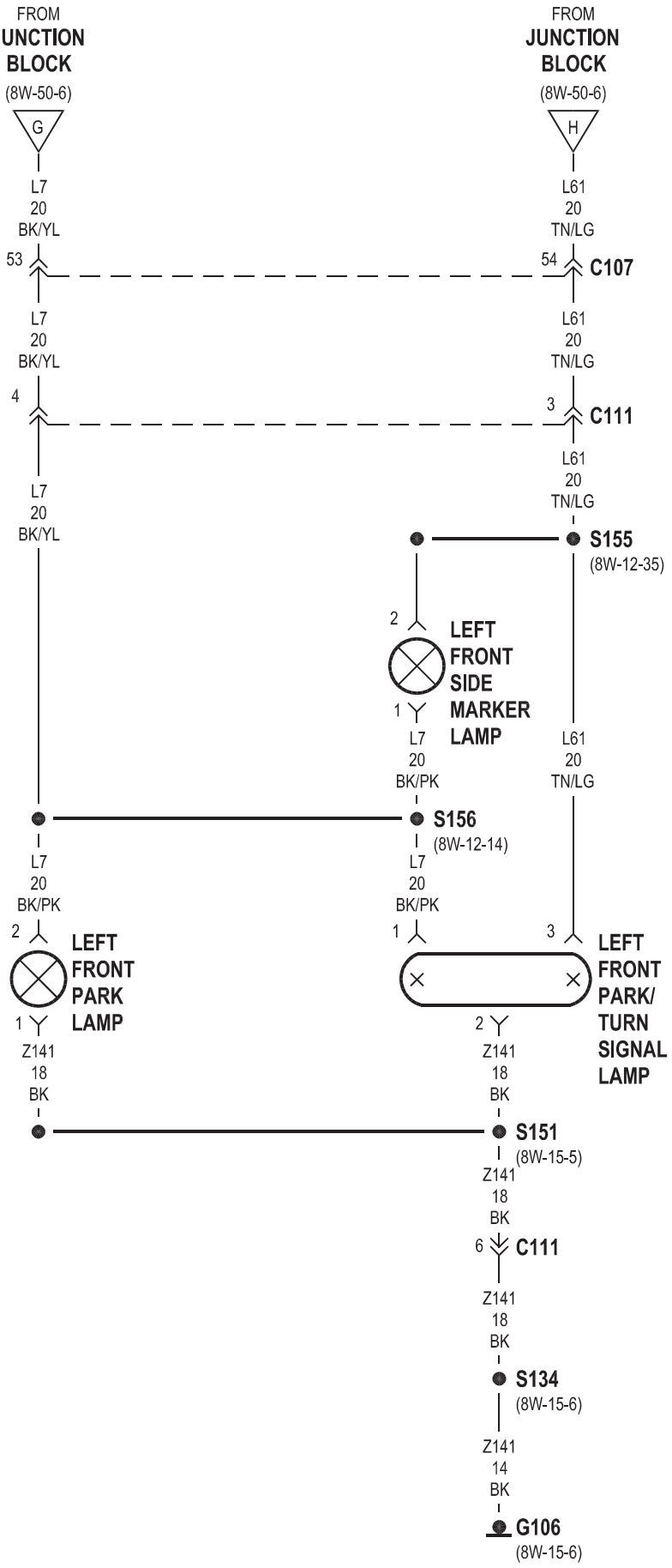
EXCEPT EXPORT

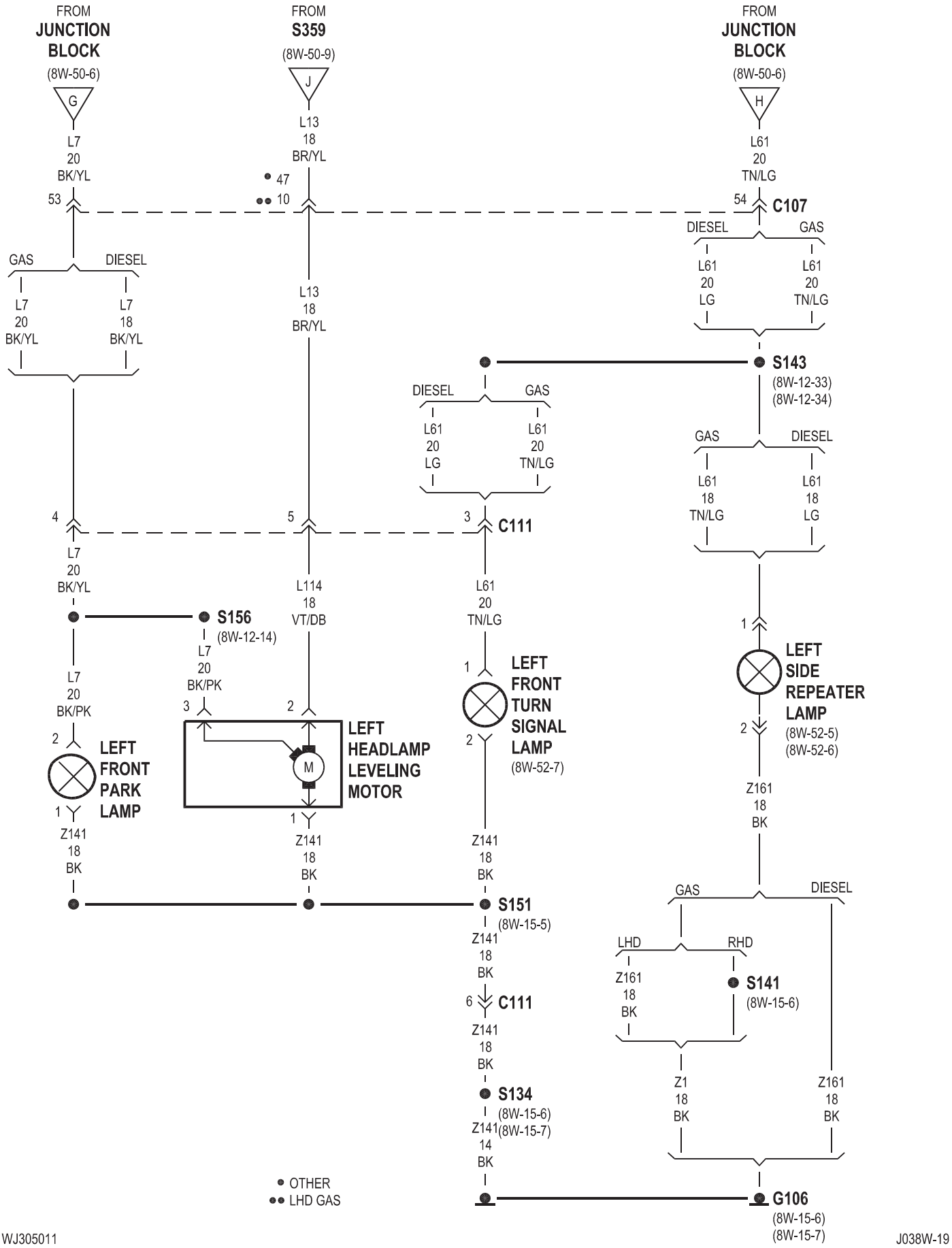


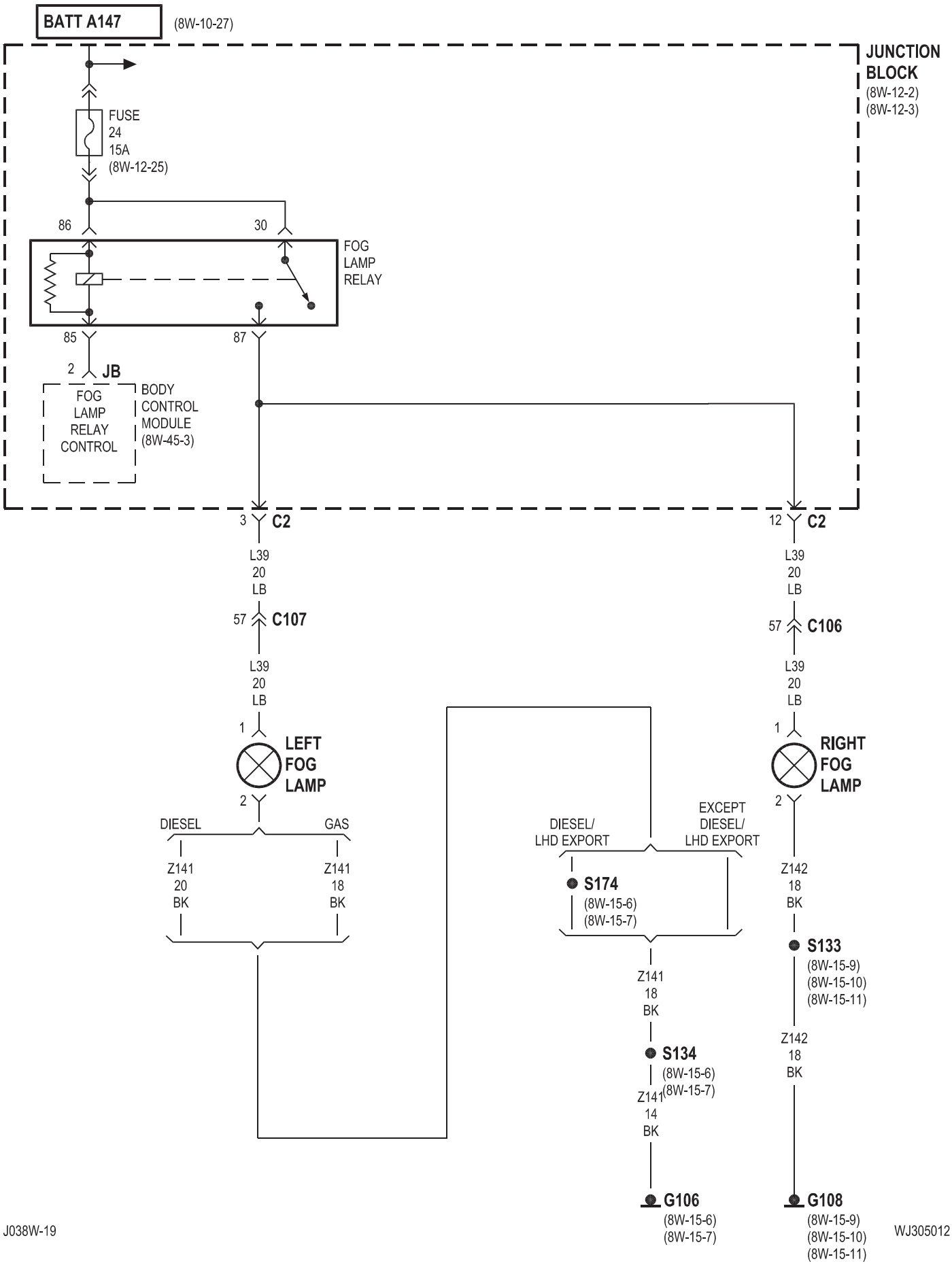

FROM JUNCTION BLOCK (8W-50-6)
E
L7 20 BK/YL
L7 18 BK/YL
I
TO C200 (8W-50-9)
S326 (8W-12-12)
L7 20 BK/YL
L7 18 BK/YL
3
53 C106
PARK LAMP RELAY OUTPUT
RIGHT REAR LAMP ASSEMBLY (LHD) (8W-51-2)
L7 20 BK/YL
4
L7 20 BK/YL
S153 (8W-12-14)
L7 20 BK/PK
2
RIGHT FRONT PARK LAMP
1
Z142 18 BK
FROM S359 (8W-50-9)
K
L13 18 BR/YL
38
L13 18 BR/YL
5
L114 18 VT/DB
L7 20 BK/PK
3
2
RIGHT HEADLAMP LEVELING MOTOR
M
1
Z142 18 BK
6 C112
Z142 18 BK
FROM JUNCTION BLOCK (8W-50-6)
F
L60 20 TN
54 C106
L60 20 TN
S142 (8W-12-33) (8W-12-34)
L60 20 TN
3 C112
L60 20 TN
1
RIGHT FRONT TURN SIGNAL LAMP (8W-52-4)
2
Z142 18 BK
S152 (8W-15-8)
L60 18 TN
1
RIGHT SIDE REPEATER LAMP (8W-52-3)
2
Z142 18 BK
S133 (8W-15-9) (8W-15-10) (8W-15-11)
Z142 18 BK
G108 (8W-15-9) (8W-15-10) (8W-15-11)

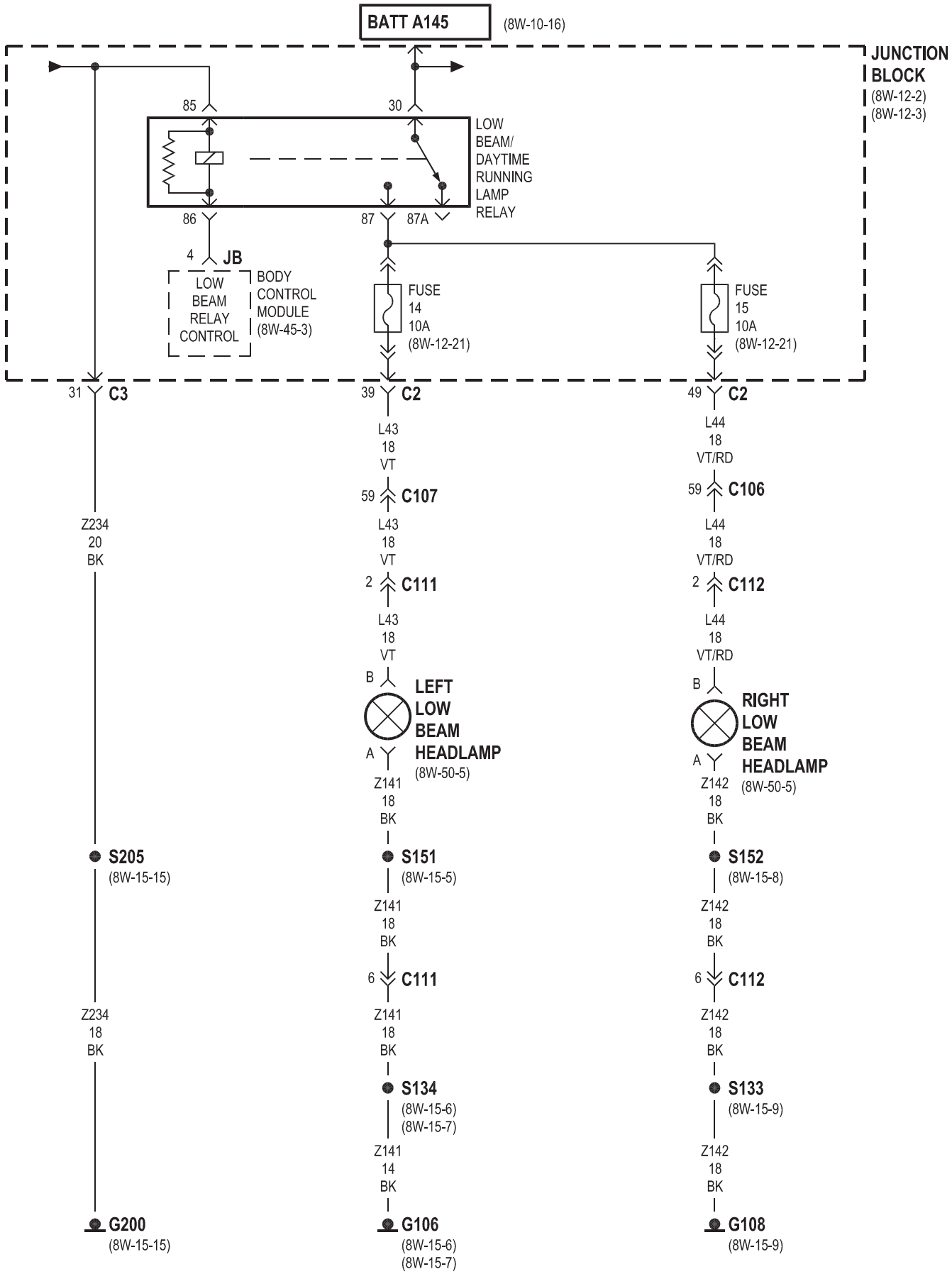

FROM
S326
(8W-50-8)
I
L7
18
BK/YL
37
C200
L7
18
BK/YL
2
HEADLAMP
LEVELING
SWITCH
2
1
3
0
3
1
Z234
20
BK
L13
20
BR/YL
38
C200
L13
18
BR/YL
S359
L13
18
BR/YL
L13
18
BR/YL
S205
(8W-15-15)
Z234
18
BK
J
K
TO
C107
(8W-50-11)
TO
C106
(8W-50-8)
G200
(8W-15-15)

EXCEPT EXPORT



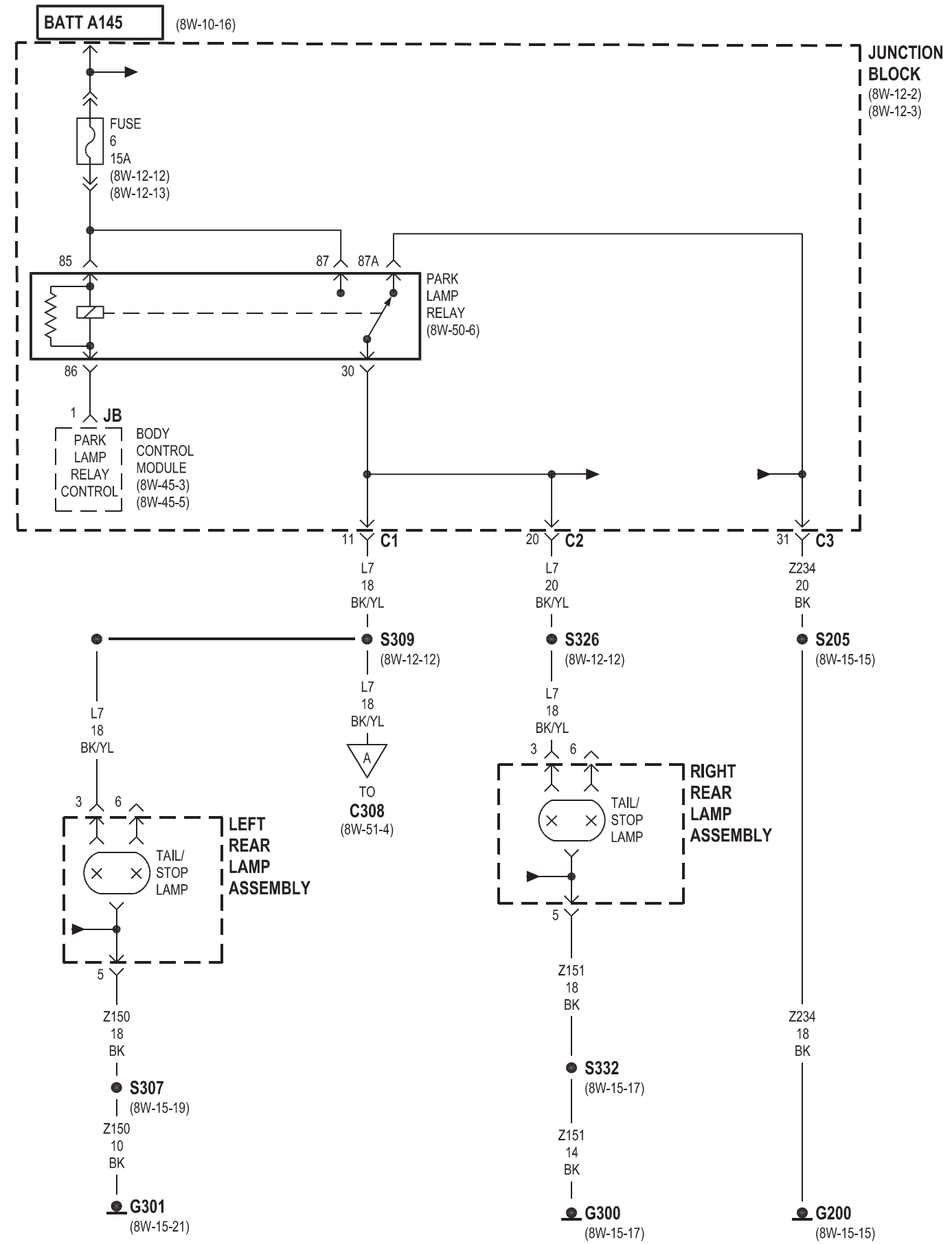

FROM JUNCTION BLOCK (8W-50-6)
G
L7 20 BK/YL
53
FROM S359 (8W-50-9)
J
L13 18 BR/YL
• 47
•• 10
FROM JUNCTION BLOCK (8W-50-6)
H
L61 20 TN/LG
54
C107
DIESEL
GAS
L61 20 LG
L61 20 TN/LG
S143
(8W-12-33)
(8W-12-34)
GAS
DIESEL
L7 20 BK/YL
L7 18 BK/YL
L13 18 BR/YL
L61 18 TN/LG
L61 18 LG
4
5
3
C111
L7 20 BK/YL
L114 18 VT/DB
L61 20 TN/LG
S156
(8W-12-14)
L7 20 BK/PK
1
LEFT SIDE REPEATER LAMP
(8W-52-5)
(8W-52-6)
2
Z161 18 BK
LEFT FRONT PARK LAMP
LEFT HEADLAMP LEVELING MOTOR
M
LEFT FRONT TURN SIGNAL LAMP
(8W-52-7)
Z141 18 BK
S151
(8W-15-5)
LHD
RHD
Z161 18 BK
S141
(8W-15-6)
6
C111
Z141 18 BK
S134
(8W-15-6)
(8W-15-7)
Z141 14 BK
Z1 18 BK
• OTHER
•• LHD GAS
G106
(8W-15-6)
(8W-15-7)

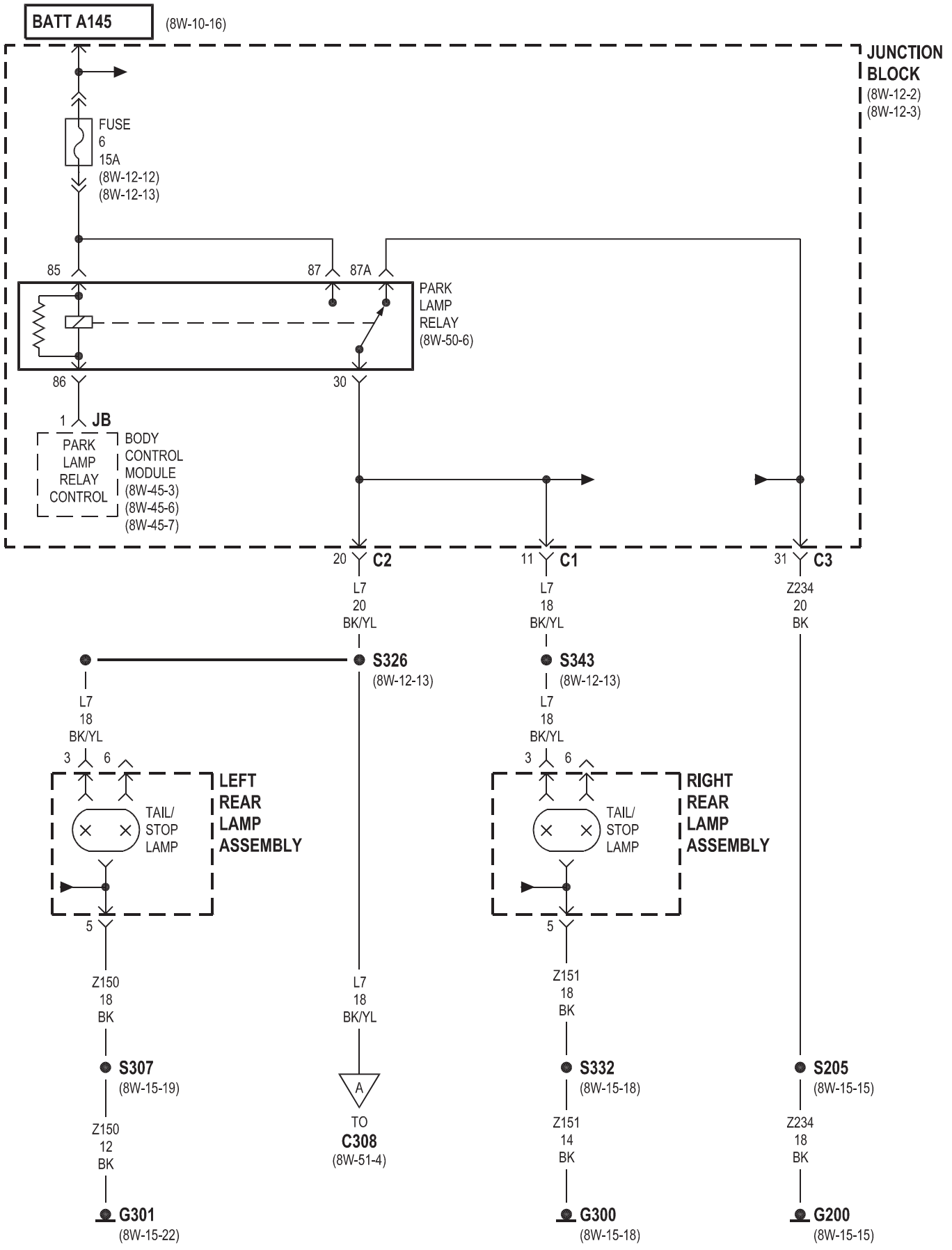

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
24
15A
(8W-12-25)
86
30
FOG LAMP RELAY
85
87
2
JB
FOG LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
3
C2
12
C2
L39
20
LB
57
C107
C106
1
LEFT FOG LAMP
RIGHT FOG LAMP
2
DIESEL
GAS
Z141
20
BK
Z141
18
BK
DIESEL/
LHD EXPORT
EXCEPT
DIESEL/
LHD EXPORT
S174
(8W-15-6)
(8W-15-7)
Z141
18
BK
S134
(8W-15-6)
(8W-15-7)
Z141
14
BK
G106
(8W-15-6)
(8W-15-7)
Z142
18
BK
S133
(8W-15-9)
(8W-15-10)
(8W-15-11)
G108
(8W-15-9)
(8W-15-10)
(8W-15-11)

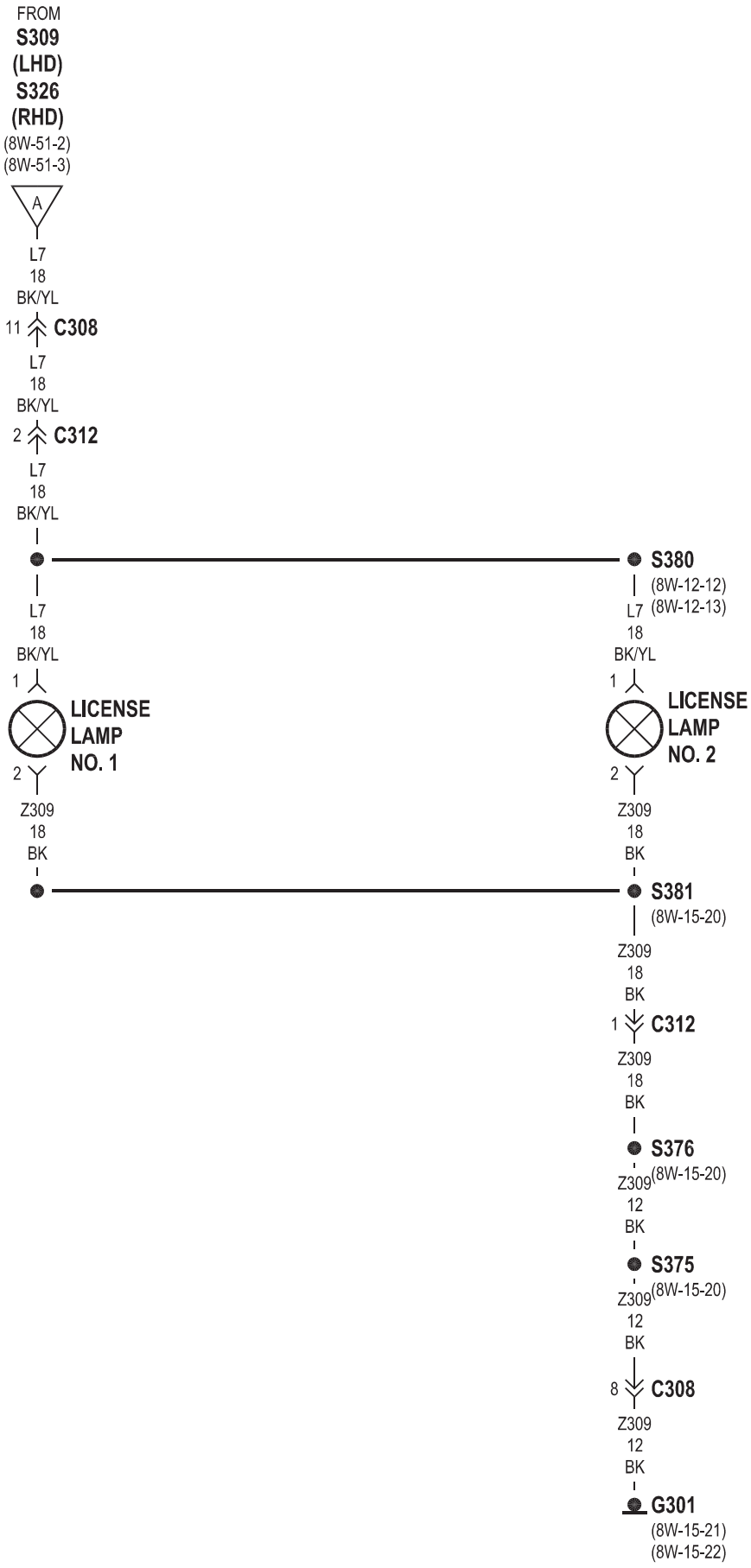

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
85
30
LOW BEAM/ DAYTIME RUNNING LAMP RELAY
86
87
87A
4
JB
LOW BEAM RELAY CONTROL
BODY CONTROL MODULE (8W-45-3)
FUSE 14 10A (8W-12-21)
FUSE 15 10A (8W-12-21)
31
C3
39
C2
49
C2
L43 18 VT
59
C107
L44 18 VT/RD
59
C106
Z234 20 BK
L43 18 VT
2
C111
L44 18 VT/RD
2
C112
L43 18 VT
B
LEFT LOW BEAM HEADLAMP
(8W-50-5)
A
Z141 18 BK
S151
(8W-15-5)
L44 18 VT/RD
B
RIGHT LOW BEAM HEADLAMP
(8W-50-5)
A
Z142 18 BK
S152
(8W-15-8)
S205
(8W-15-15)
Z141 18 BK
6
C111
Z142 18 BK
6
C112
Z234 18 BK
Z141 18 BK
Z142 18 BK
S134
(8W-15-6)
(8W-15-7)
S133
(8W-15-9)
Z141 14 BK
Z142 18 BK
G200
(8W-15-15)
G106
(8W-15-6)
(8W-15-7)
G108
(8W-15-9)

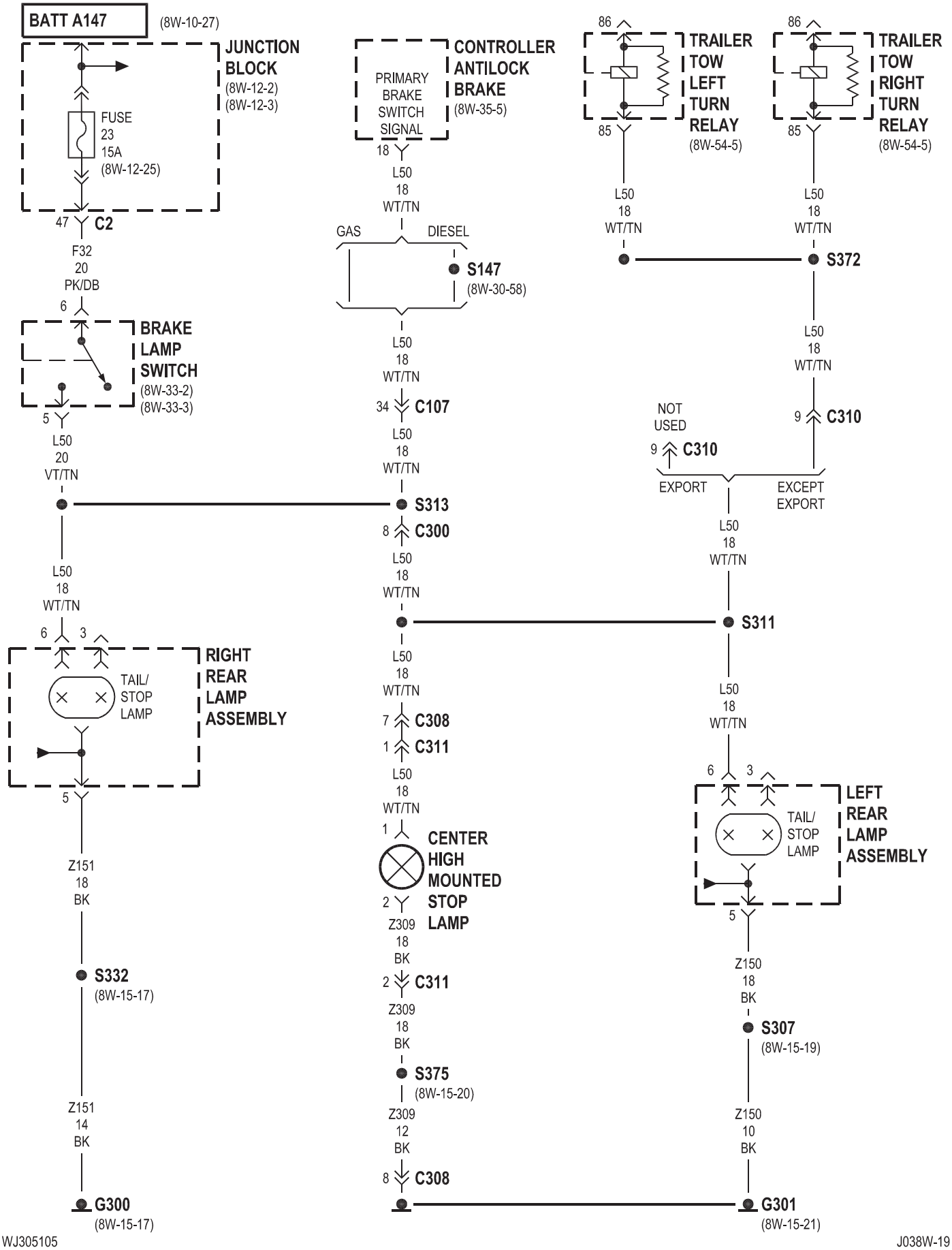
8W-51 REAR LIGHTING

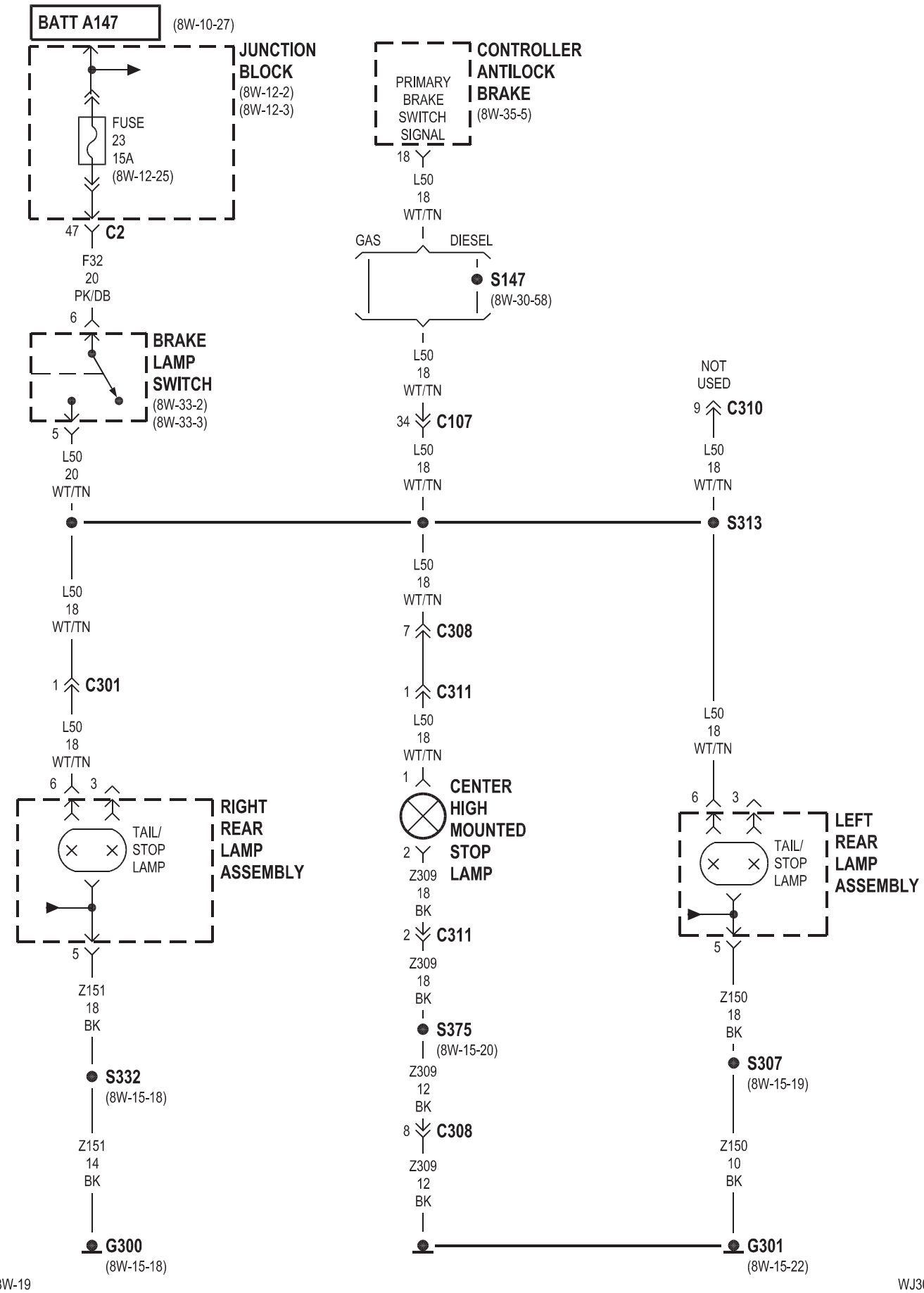
Component	Page
Adjustable Pedals Module	8W-51-8
Automatic Day/Night Mirror	8W-51-8, 9
Back-Up Lamp Relay	8W-51-7
Body Control Module	8W-51-2, 3, 10
Brake Lamp Switch	8W-51-5, 6
Center High Mounted Stop Lamp	8W-51-5, 6
Controller Antilock Brake	8W-51-5, 6
Fuse 6	8W-51-2, 3
Fuse 20	8W-51-7
Fuse 23	8W-51-5, 6
Fuse 27	8W-51-10
G200	8W-51-2, 3
G300	8W-51-2, 3, 5, 6, 8, 9, 10
G301	8W-51-2, 3, 4, 5, 6, 8, 9, 10
Junction Block	8W-51-2, 3, 5, 6, 7, 10
Left Rear Lamp Assembly	8W-51-2, 3, 5, 6, 8, 9, 10
License Lamp No. 1	8W-51-4
License Lamp No. 2	8W-51-4
Park Lamp Relay	8W-51-2, 3
Park/Neutral Position Switch	8W-51-8, 9
Rear Fog Lamp Relay	8W-51-10
Right Rear Lamp Assembly	8W-51-2, 3, 5, 6, 8, 9, 10
Shifter Assembly	8W-51-7
Trailer Tow Connector	8W-51-8
Trailer Tow Left Turn Relay	8W-51-5
Trailer Tow Right Turn Relay	8W-51-5
Transmission Solenoid/TRS Assembly	8W-51-8, 9

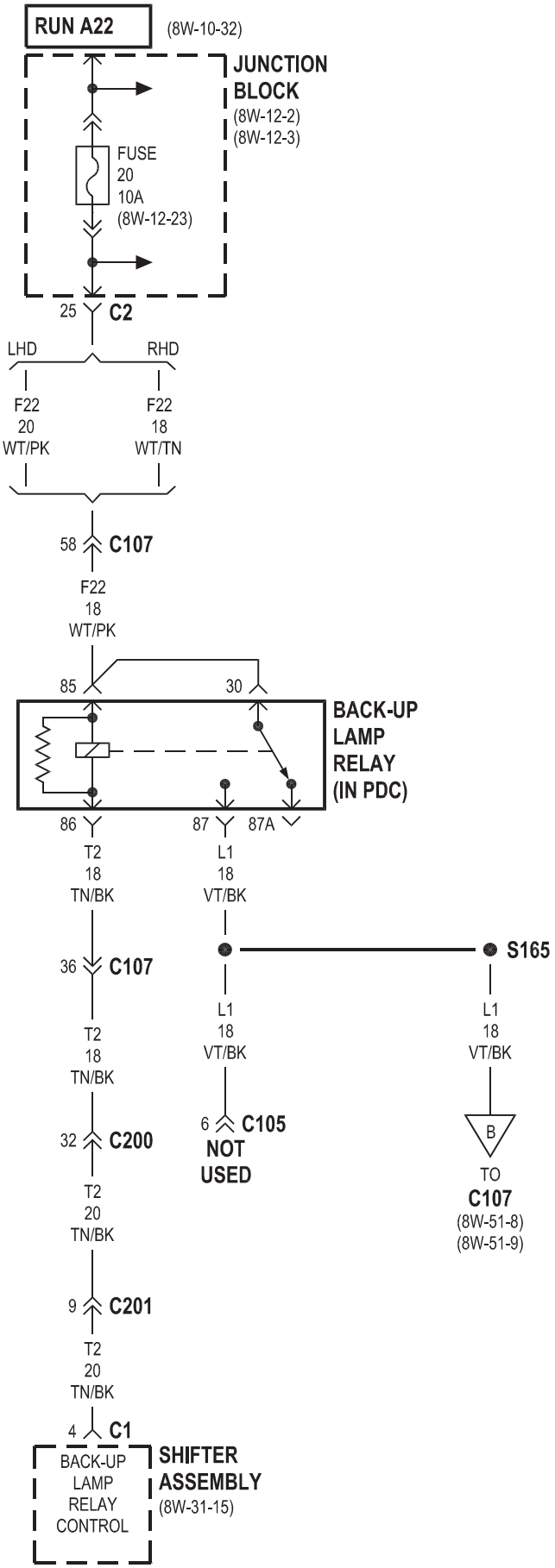

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
(8W-12-12)
(8W-12-13)
85
87
87A
PARK LAMP RELAY
(8W-50-6)
86
30
1
JB
PARK LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
(8W-45-5)
11
C1
20
C2
31
C3
L7
18
BK/YL
L7
20
BK/YL
Z234
20
BK
S309
(8W-12-12)
S326
(8W-12-12)
S205
(8W-15-15)
L7
18
BK/YL
A
TO
C308
(8W-51-4)
L7
18
BK/YL
3
6
TAIL/ STOP LAMP
LEFT REAR LAMP ASSEMBLY
5
Z150
18
BK
S307
(8W-15-19)
Z150
10
BK
G301
(8W-15-21)
L7
18
BK/YL
3
6
TAIL/ STOP LAMP
RIGHT REAR LAMP ASSEMBLY
5
Z151
18
BK
S332
(8W-15-17)
Z151
14
BK
G300
(8W-15-17)
Z234
18
BK
G200
(8W-15-15)

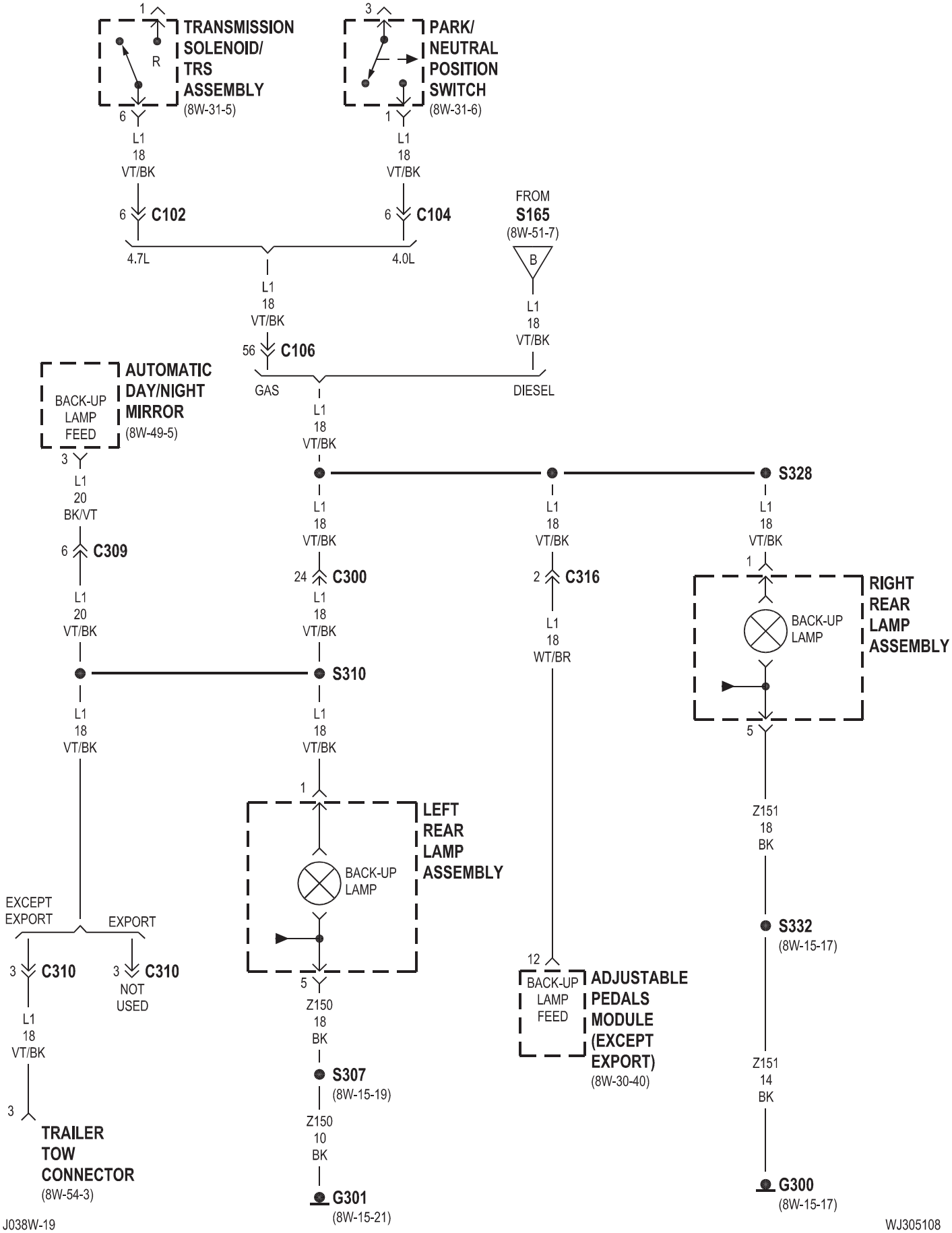

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
(8W-12-12)
(8W-12-13)
85
87
87A
PARK LAMP RELAY
(8W-50-6)
86
30
1
JB
PARK LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
(8W-45-6)
(8W-45-7)
20
C2
11
C1
31
C3
L7
20
BK/YL
L7
18
BK/YL
Z234
20
BK
S326
(8W-12-13)
S343
(8W-12-13)
L7
18
BK/YL
3
6
LEFT REAR LAMP ASSEMBLY
TAIL/ STOP LAMP
RIGHT REAR LAMP ASSEMBLY
TAIL/ STOP LAMP
5
Z150
18
BK
L7
18
BK/YL
Z151
18
BK
S307
(8W-15-19)
A
TO
C308
(8W-51-4)
S332
(8W-15-18)
S205
(8W-15-15)
Z150
12
BK
Z151
14
BK
Z234
18
BK
G301
(8W-15-22)
G300
(8W-15-18)
G200
(8W-15-15)

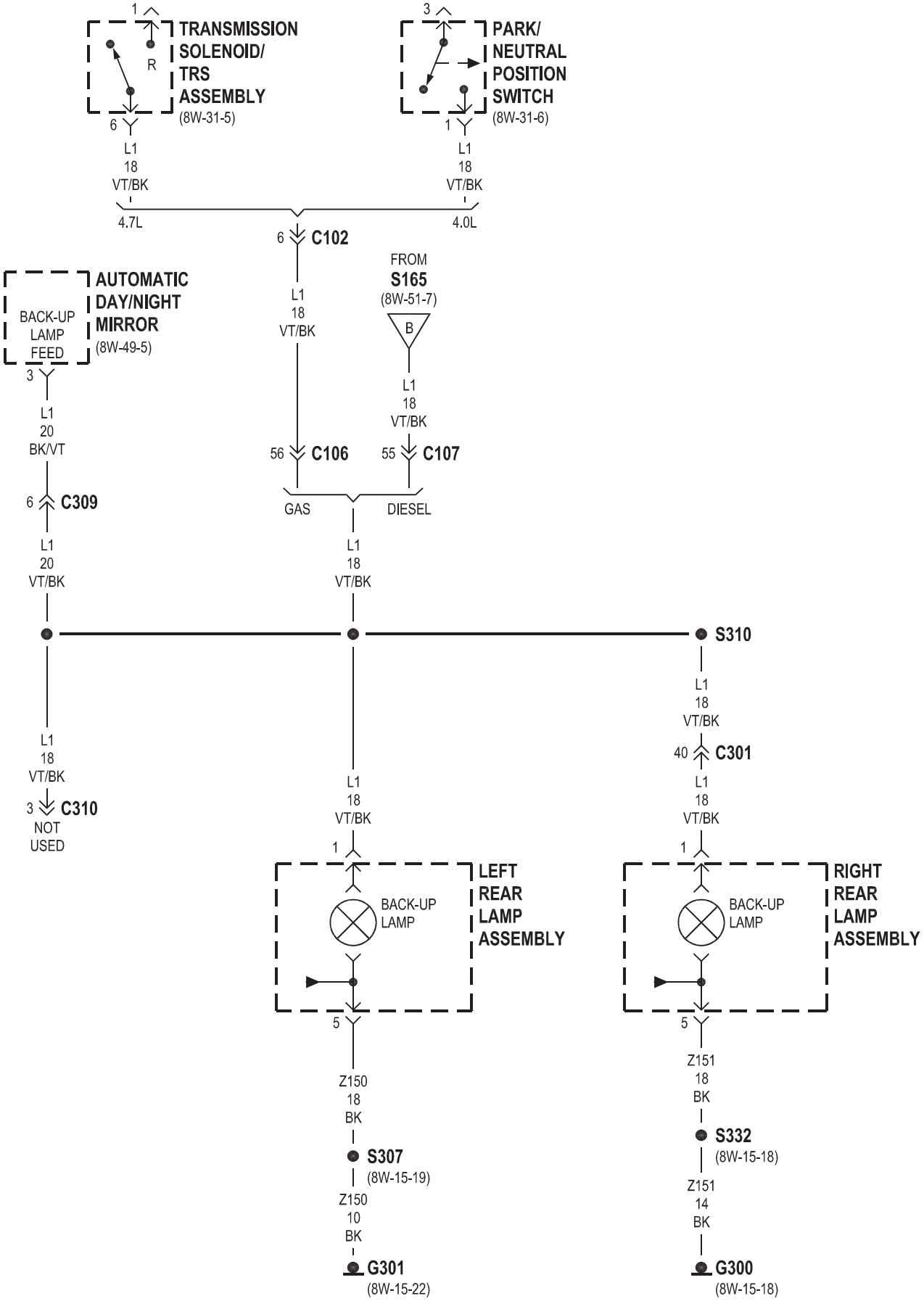

FROM
S309
(LHD)
S326
(RHD)
(8W-51-2)
(8W-51-3)
A
L7
18
BK/YL
11
C308
L7
18
BK/YL
2
C312
L7
18
BK/YL
S380
(8W-12-12)
(8W-12-13)
L7
18
BK/YL
1
LICENSE
LAMP
NO. 1
2
Z309
18
BK
1
LICENSE
LAMP
NO. 2
2
Z309
18
BK
S381
(8W-15-20)
Z309
18
BK
1
C312
Z309
18
BK
S376
Z309
12
BK
(8W-15-20)
S375
Z309
12
BK
(8W-15-20)
8
C308
Z309
12
BK
G301
(8W-15-21)
(8W-15-22)

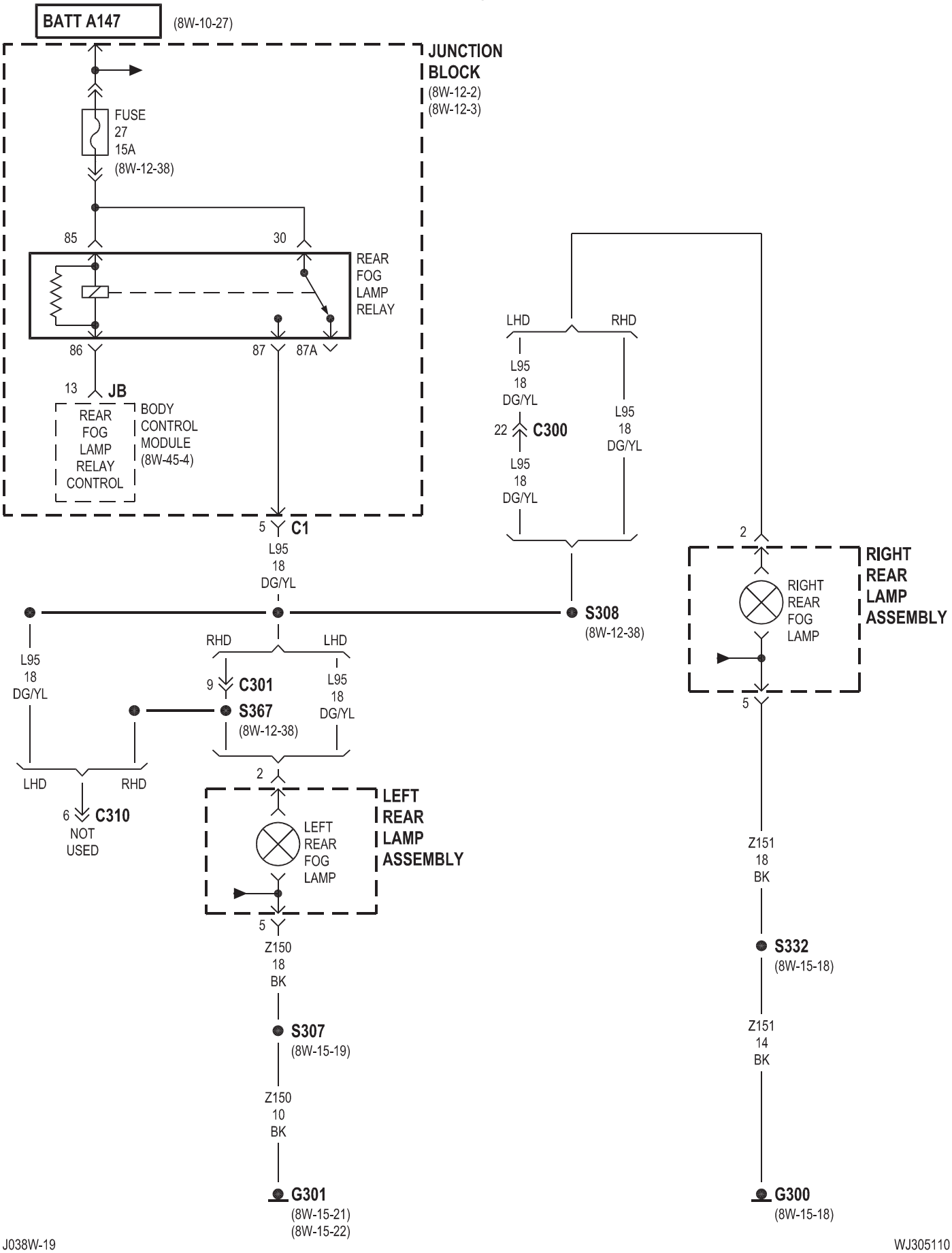

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 23 15A
(8W-12-25)
47 C2
F32 20 PK/DB
6
BRAKE LAMP SWITCH
(8W-33-2)
(8W-33-3)
5
L50 20 VT/TN
L50 18 WT/TN
6 3
RIGHT REAR LAMP ASSEMBLY
TAIL/ STOP LAMP
5
Z151 18 BK
S332
(8W-15-17)
Z151 14 BK
G300
(8W-15-17)
CONTROLLER ANTILOCK BRAKE
(8W-35-5)
PRIMARY BRAKE SWITCH SIGNAL
18
L50 18 WT/TN
GAS
DIESEL
S147
(8W-30-58)
L50 18 WT/TN
34 C107
L50 18 WT/TN
S313
8 C300
L50 18 WT/TN
L50 18 WT/TN
7 C308
1 C311
L50 18 WT/TN
1
CENTER HIGH MOUNTED STOP LAMP
2
Z309 18 BK
2 C311
Z309 18 BK
S375
(8W-15-20)
Z309 12 BK
8 C308
G301
(8W-15-21)
86
TRAILER TOW LEFT TURN RELAY
(8W-54-5)
85
L50 18 WT/TN
86
TRAILER TOW RIGHT TURN RELAY
(8W-54-5)
85
L50 18 WT/TN
S372
L50 18 WT/TN
9 C310
NOT USED
9 C310
EXPORT
EXCEPT EXPORT
L50 18 WT/TN
S311
L50 18 WT/TN
6 3
LEFT REAR LAMP ASSEMBLY
TAIL/ STOP LAMP
5
Z150 18 BK
S307
(8W-15-19)
Z150 10 BK


BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 23 15A
(8W-12-25)
47 C2
F32 20 PK/DB
6
BRAKE LAMP SWITCH
(8W-33-2)
(8W-33-3)
5
L50 20 WT/TN
CONTROLLER ANTILOCK BRAKE
(8W-35-5)
PRIMARY BRAKE SWITCH SIGNAL
18
L50 18 WT/TN
GAS
DIESEL
S147
(8W-30-58)
L50 18 WT/TN
34 C107
L50 18 WT/TN
NOT USED
9 C310
L50 18 WT/TN
S313
L50 18 WT/TN
7 C308
1 C311
L50 18 WT/TN
1
CENTER HIGH MOUNTED STOP LAMP
2
Z309 18 BK
2 C311
Z309 18 BK
S375
(8W-15-20)
Z309 12 BK
8 C308
Z309 12 BK
L50 18 WT/TN
1 C301
L50 18 WT/TN
6 3
RIGHT REAR LAMP ASSEMBLY
TAIL/ STOP LAMP
5
Z151 18 BK
S332
(8W-15-18)
Z151 14 BK
G300
(8W-15-18)
L50 18 WT/TN
6 3
LEFT REAR LAMP ASSEMBLY
TAIL/ STOP LAMP
5
Z150 18 BK
S307
(8W-15-19)
Z150 10 BK
G301
(8W-15-22)


RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
20
10A
(8W-12-23)
25 C2
LHD
RHD
F22
20
WT/PK
F22
18
WT/TN
58 C107
F22
18
WT/PK
85
30
BACK-UP LAMP RELAY (IN PDC)
86
87
87A
T2
18
TN/BK
L1
18
VT/BK
36 C107
T2
18
TN/BK
S165
L1
18
VT/BK
L1
18
VT/BK
6 C105
NOT USED
B
TO
C107
(8W-51-8)
(8W-51-9)
32 C200
T2
20
TN/BK
9 C201
T2
20
TN/BK
4 C1
BACK-UP LAMP RELAY CONTROL
SHIFTER ASSEMBLY
(8W-31-15)

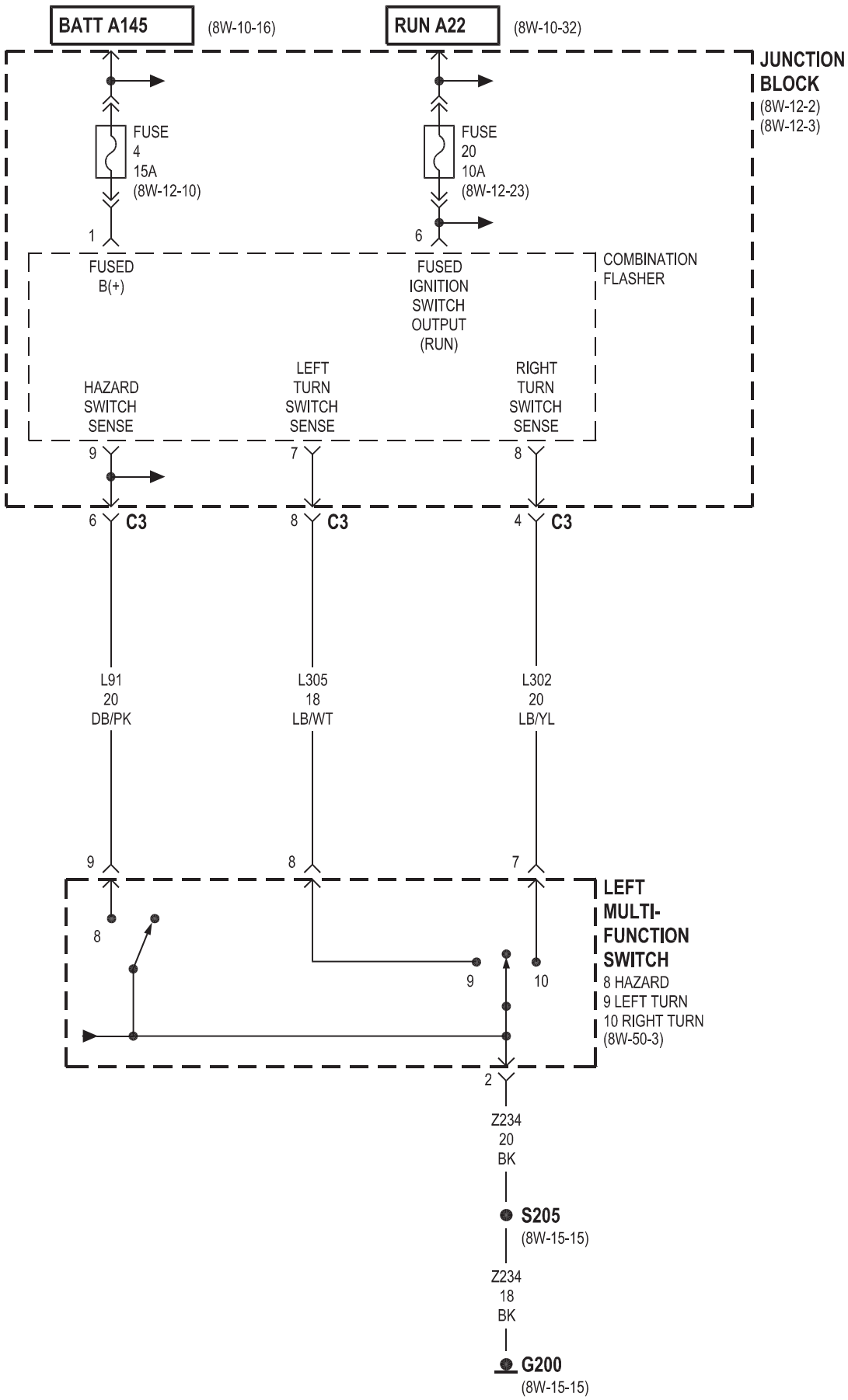

1
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-5)
R
6
3
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
1
L1 18 VT/BK
6 C102
6 C104
4.7L
4.0L
L1 18 VT/BK
56 C106
GAS
FROM S165
(8W-51-7)
B
L1 18 VT/BK
DIESEL
AUTOMATIC DAY/NIGHT MIRROR
(8W-49-5)
BACK-UP LAMP FEED
3
L1 20 BK/VT
6 C309
L1 20 VT/BK
L1 18 VT/BK
24 C300
L1 18 VT/BK
S328
L1 18 VT/BK
2 C316
L1 18 WT/BR
L1 18 VT/BK
1
RIGHT REAR LAMP ASSEMBLY
BACK-UP LAMP
5
S310
L1 18 VT/BK
1
LEFT REAR LAMP ASSEMBLY
BACK-UP LAMP
5
Z150 18 BK
S307
(8W-15-19)
Z150 10 BK
G301
(8W-15-21)
EXCEPT EXPORT
EXPORT
3 C310
3 C310
NOT USED
L1 18 VT/BK
3
TRAILER TOW CONNECTOR
(8W-54-3)
12
BACK-UP LAMP FEED
ADJUSTABLE PEDALS MODULE (EXCEPT EXPORT)
(8W-30-40)
Z151 18 BK
S332
(8W-15-17)
Z151 14 BK
G300
(8W-15-17)

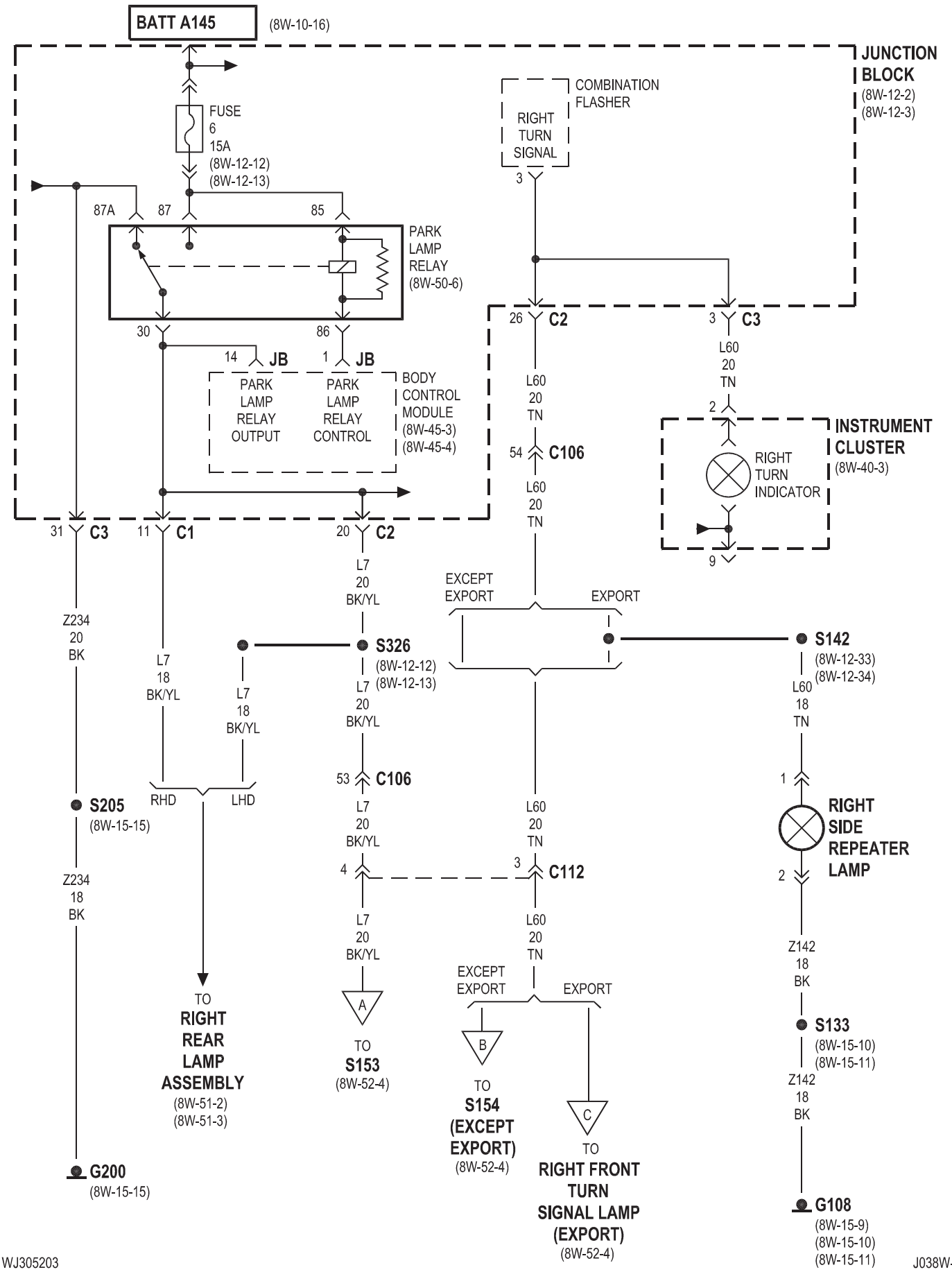

1
R
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-5)
6
L1
18
VT/BK
4.7L
3
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
1
L1
18
VT/BK
4.0L
6 C102
L1
18
VT/BK
FROM
S165
(8W-51-7)
B
L1
18
VT/BK
56 C106
55 C107
GAS
DIESEL
AUTOMATIC DAY/NIGHT MIRROR
(8W-49-5)
BACK-UP LAMP FEED
3
L1
20
BK/VT
6 C309
L1
20
VT/BK
L1
18
VT/BK
3 C310
NOT USED
S310
L1
18
VT/BK
40 C301
L1
18
VT/BK
1
BACK-UP LAMP
LEFT REAR LAMP ASSEMBLY
5
Z150
18
BK
S307
(8W-15-19)
Z150
10
BK
G301
(8W-15-22)
1
BACK-UP LAMP
RIGHT REAR LAMP ASSEMBLY
5
Z151
18
BK
S332
(8W-15-18)
Z151
14
BK
G300
(8W-15-18)

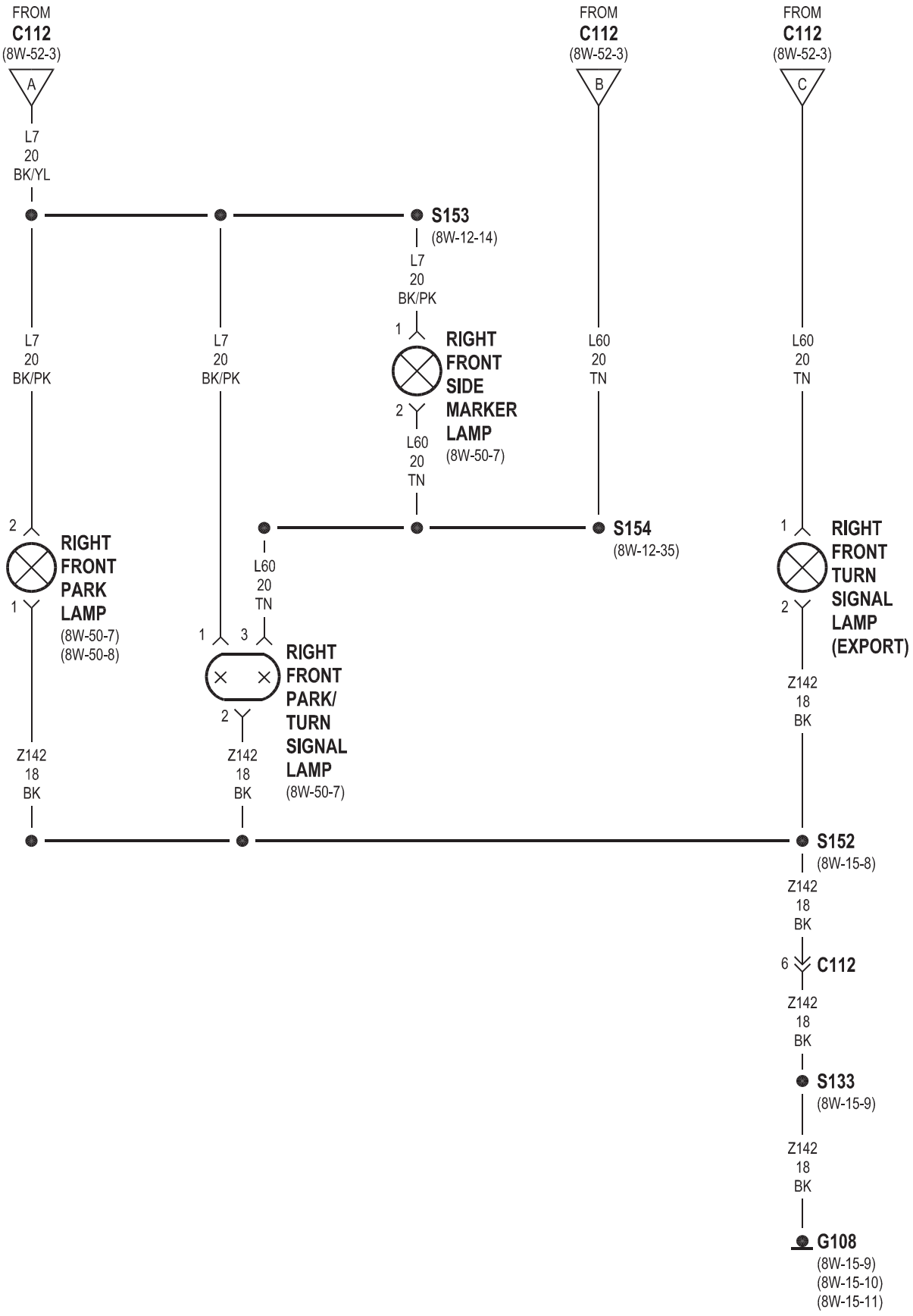

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 27 15A
(8W-12-38)
85
30
REAR FOG LAMP RELAY
86
87
87A
13
JB
REAR FOG LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-4)
5
C1
L95 18 DG/YL
LHD
RHD
L95 18 DG/YL
22
C300
L95 18 DG/YL
L95 18 DG/YL
S308
(8W-12-38)
2
RIGHT REAR LAMP ASSEMBLY
RIGHT REAR FOG LAMP
5
L95 18 DG/YL
RHD
LHD
9
C301
L95 18 DG/YL
S367
(8W-12-38)
LHD
RHD
6
C310
NOT USED
2
LEFT REAR LAMP ASSEMBLY
LEFT REAR FOG LAMP
5
Z150 18 BK
S307
(8W-15-19)
Z150 10 BK
G301
(8W-15-21)
(8W-15-22)
Z151 18 BK
S332
(8W-15-18)
Z151 14 BK
G300
(8W-15-18)

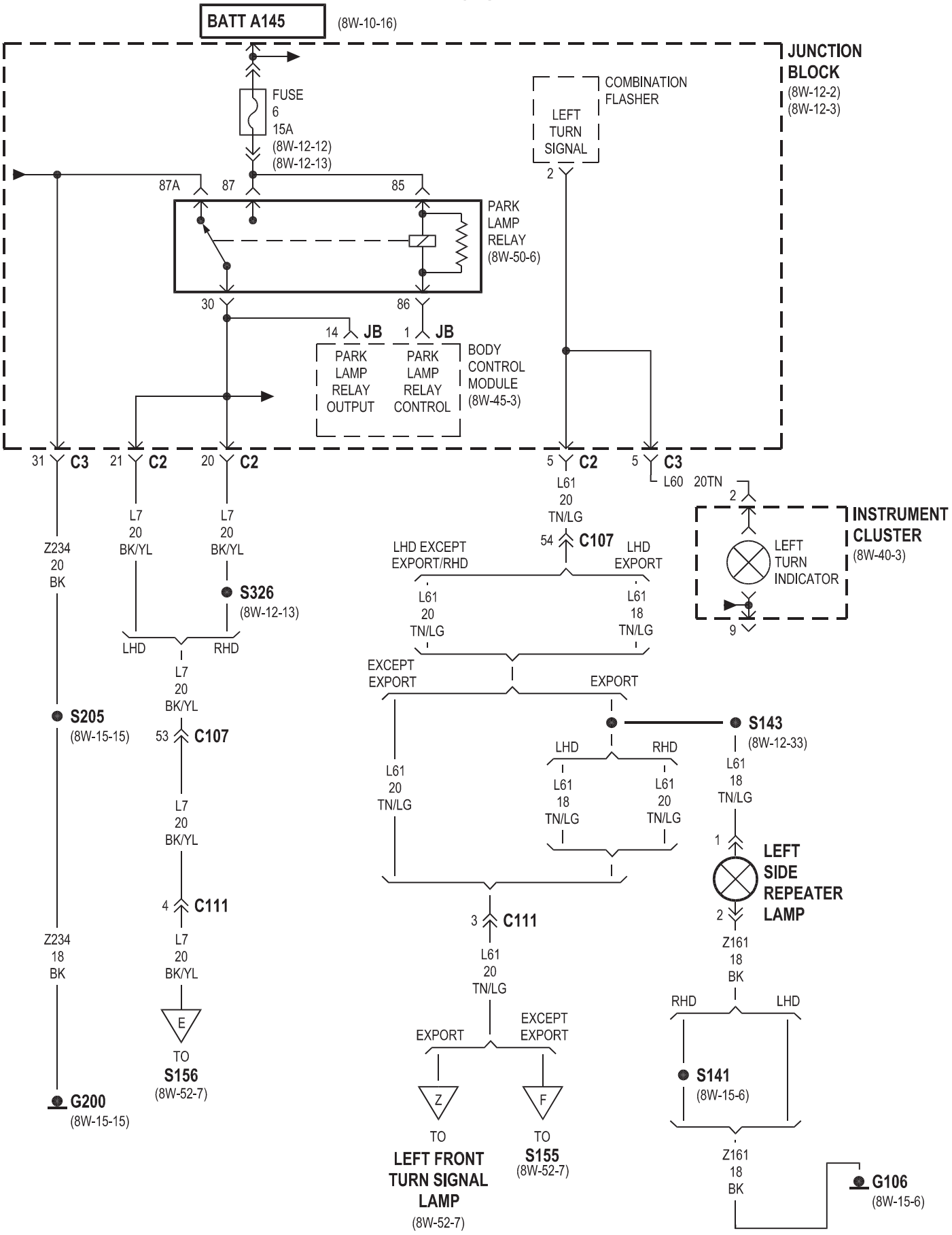
8W-52 TURN SIGNALS

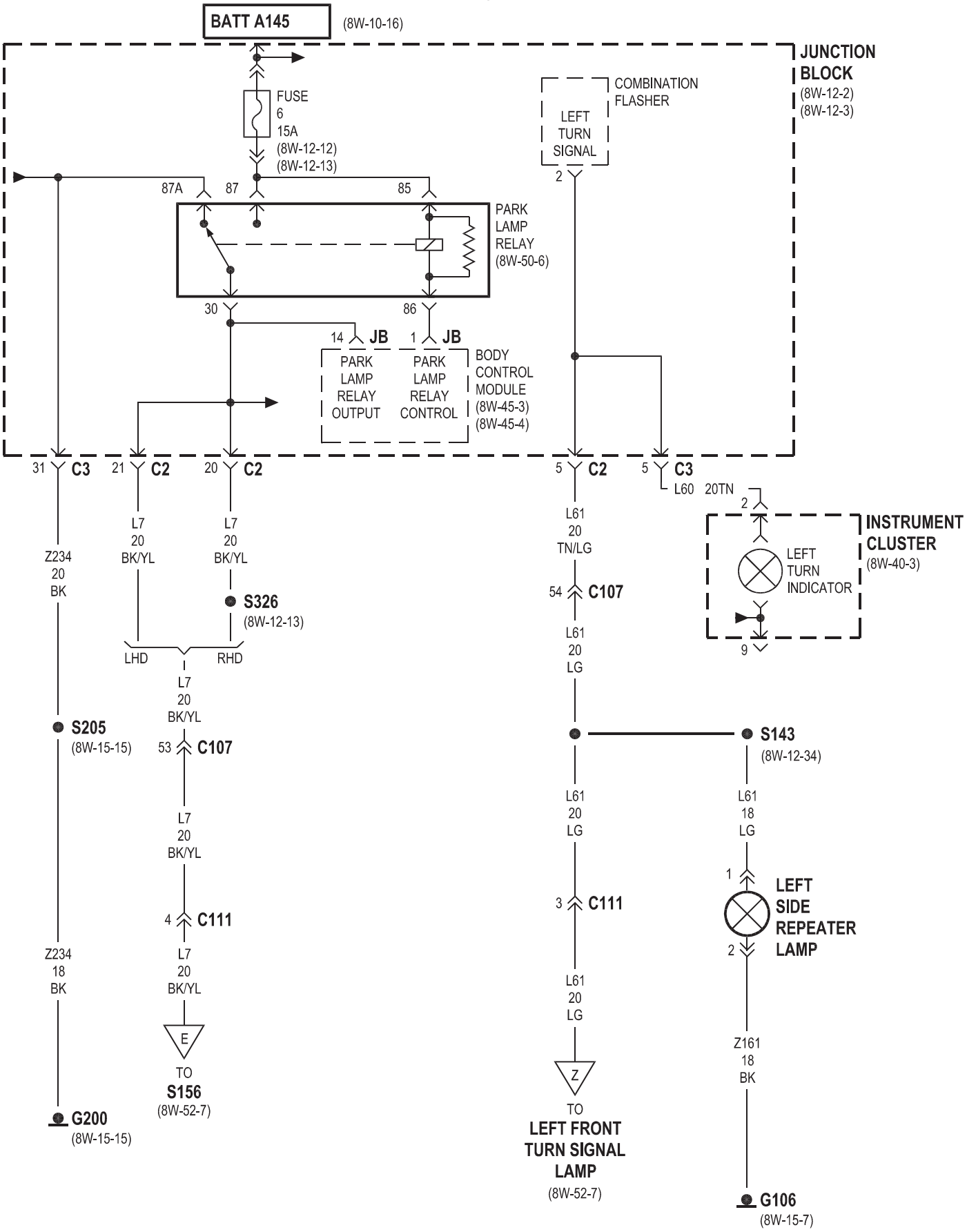
Component	Page
Body Control Module	8W-52-3, 5, 6
Combination Flasher	8W-52-2, 3, 5, 6, 8, 9
Fuse 4	8W-52-2
Fuse 6	8W-52-3, 5, 6
Fuse 20	8W-52-2
G106	8W-52-5, 6, 7
G108	8W-52-3, 4
G200	8W-52-2, 3, 5, 6
G300	8W-52-8, 9
G301	8W-52-8, 9
Instrument Cluster	8W-52-3, 5, 6
Junction Block	8W-52-2, 3, 5, 6, 8, 9
Left Front Park Lamp	8W-52-7
Left Front Park/Turn Signal Lamp	8W-52-7
Left Front Side Marker Lamp	8W-52-7
Left Front Turn Signal Lamp	8W-52-5, 6, 7
Left Multi-Function Switch	8W-52-2
Left Rear Lamp Assembly	8W-52-8, 9
Left Side Repeater Lamp	8W-52-5, 6
Park Lamp Relay	8W-52-3, 5, 6
Right Front Park Lamp	8W-52-4
Right Front Park/Turn Signal Lamp	8W-52-4
Right Front Side Marker Lamp	8W-52-4
Right Front Turn Signal Lamp	8W-52-3, 4
Right Rear Lamp Assembly	8W-52-3, 8, 9
Right Side Repeater Lamp	8W-52-3
Trailer Tow Left Turn Relay	8W-52-8
Trailer Tow Right Turn Relay	8W-52-8

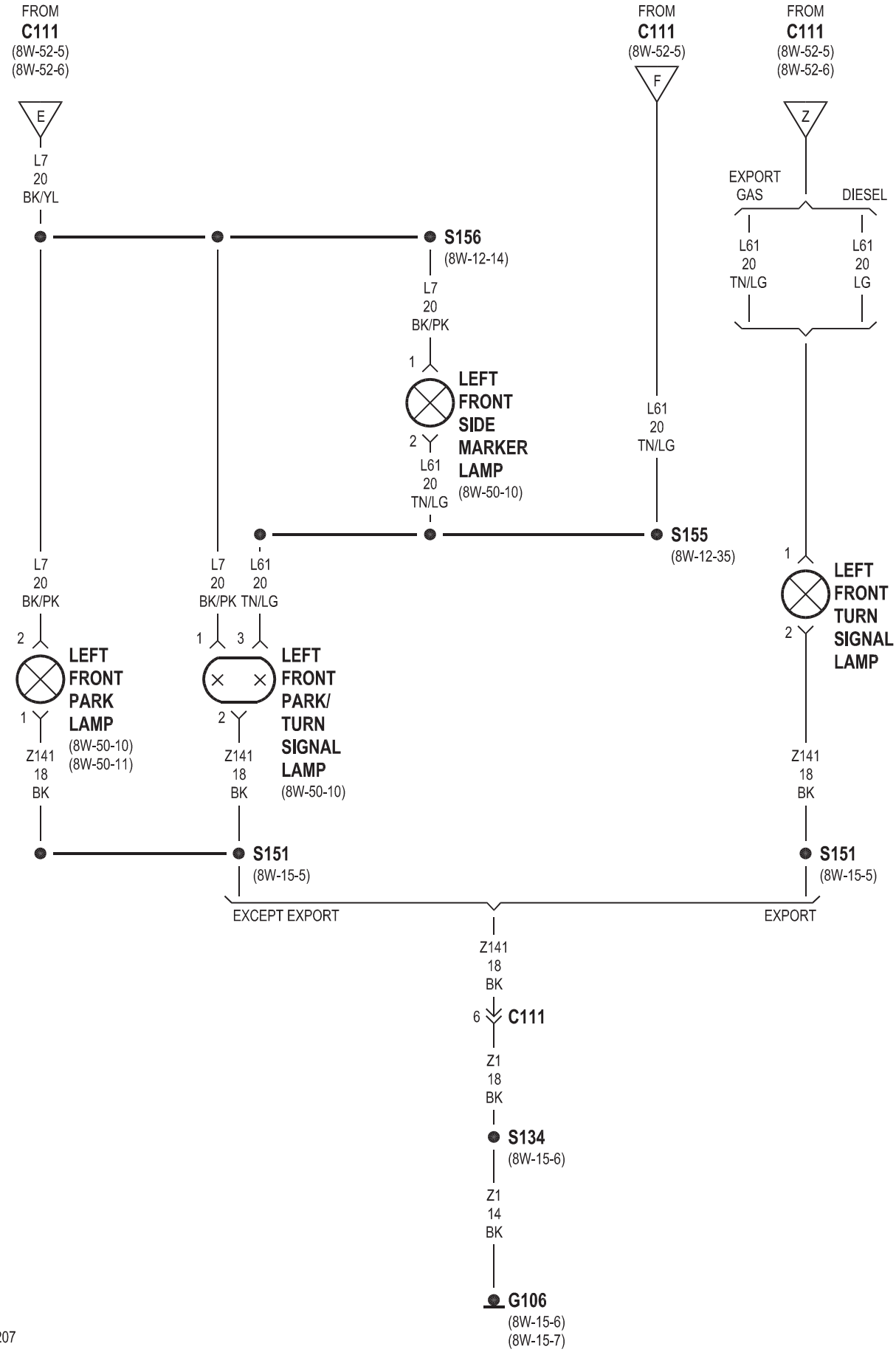

BATT A145
(8W-10-16)
RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 4 15A (8W-12-10)
FUSE 20 10A (8W-12-23)
1
6
FUSED B(+)
FUSED IGNITION SWITCH OUTPUT (RUN)
COMBINATION FLASHER
HAZARD SWITCH SENSE
LEFT TURN SWITCH SENSE
RIGHT TURN SWITCH SENSE
9
7
8
6 C3
8 C3
4 C3
L91 20 DB/PK
L305 18 LB/WT
L302 20 LB/YL
9
8
7
8
9
10
LEFT MULTI-FUNCTION SWITCH
8 HAZARD
9 LEFT TURN
10 RIGHT TURN
(8W-50-3)
2
Z234 20 BK
S205
(8W-15-15)
Z234 18 BK
G200
(8W-15-15)

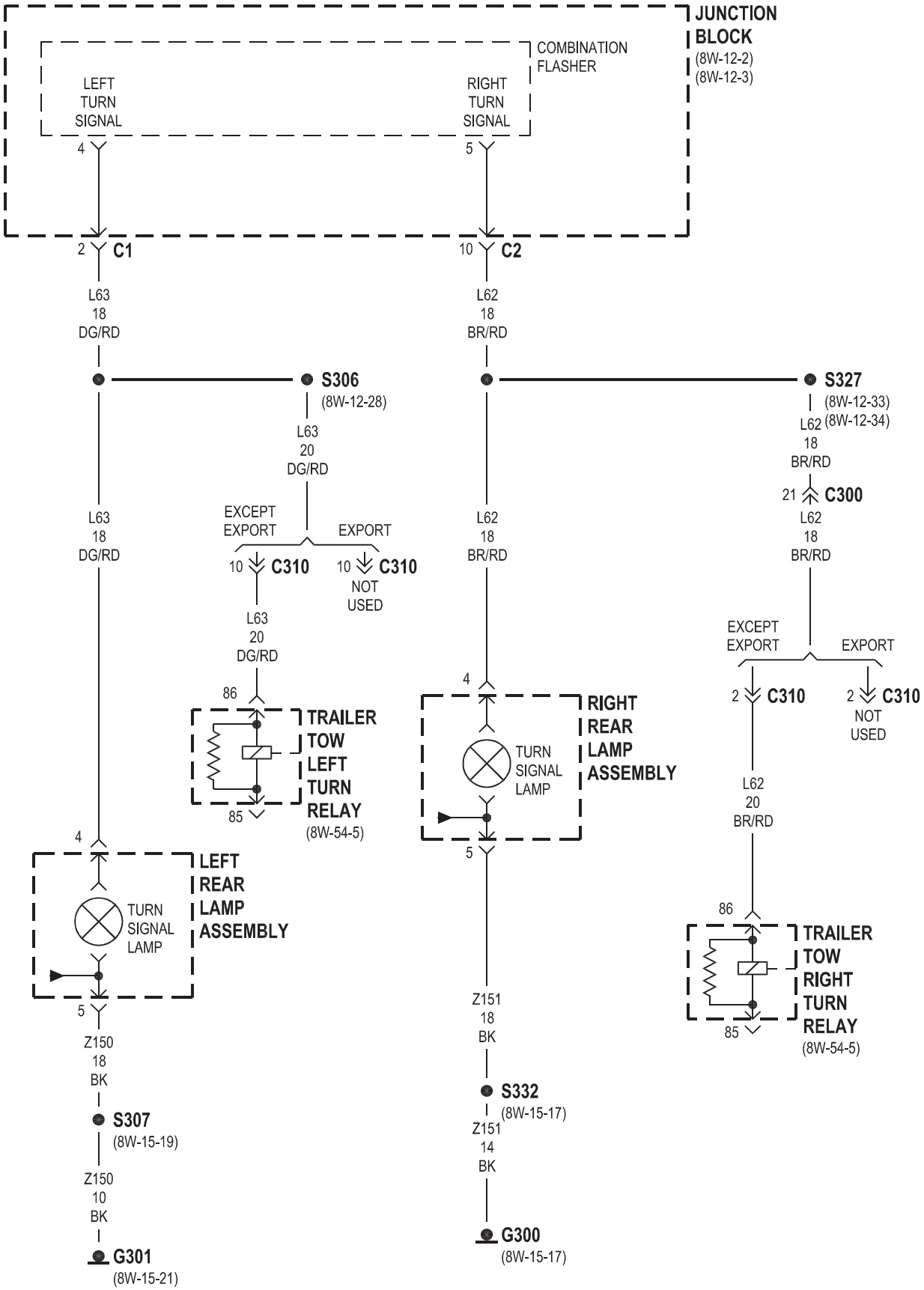

BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
(8W-12-12)
(8W-12-13)
COMBINATION FLASHER
RIGHT TURN SIGNAL
3
87A
87
85
PARK LAMP RELAY
(8W-50-6)
30
86
14 JB
1 JB
PARK LAMP RELAY OUTPUT
PARK LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
(8W-45-4)
26 C2
3 C3
L60 20 TN
54 C106
2
INSTRUMENT CLUSTER
(8W-40-3)
RIGHT TURN INDICATOR
9
31 C3
11 C1
20 C2
L7 20 BK/YL
EXCEPT EXPORT
EXPORT
Z234 20 BK
L7 18 BK/YL
S326
(8W-12-12)
(8W-12-13)
S142
(8W-12-33)
(8W-12-34)
L60 18 TN
53 C106
1
RIGHT SIDE REPEATER LAMP
S205
(8W-15-15)
RHD
LHD
4
3 C112
2
Z234 18 BK
Z142 18 BK
TO RIGHT REAR LAMP ASSEMBLY
(8W-51-2)
(8W-51-3)
A
TO S153
(8W-52-4)
B
TO S154 (EXCEPT EXPORT)
(8W-52-4)
C
TO RIGHT FRONT TURN SIGNAL LAMP (EXPORT)
(8W-52-4)
S133
(8W-15-10)
(8W-15-11)
G200
(8W-15-15)
G108
(8W-15-9)
(8W-15-10)
(8W-15-11)

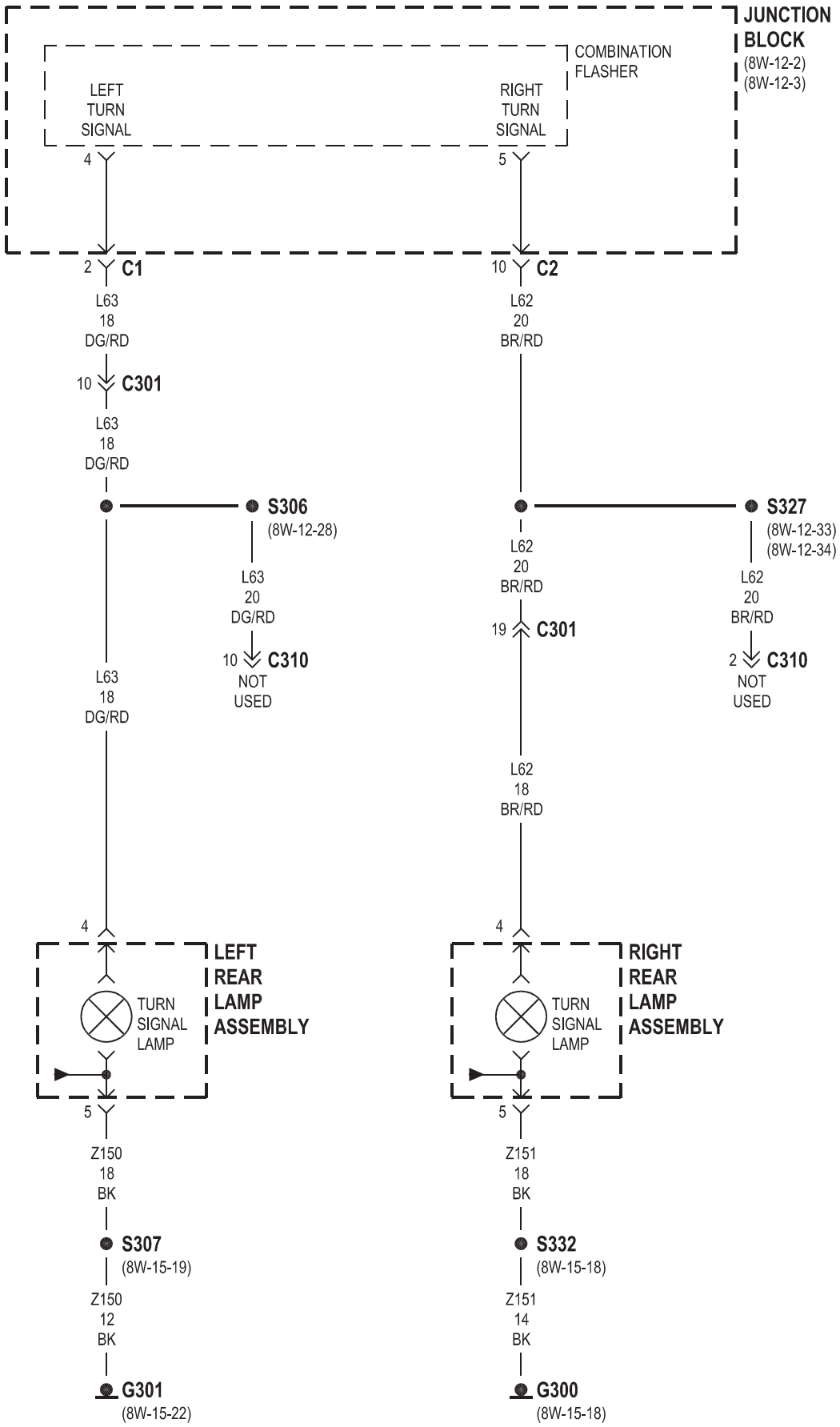

FROM
C112
(8W-52-3)
A
L7
20
BK/YL
FROM
C112
(8W-52-3)
B
FROM
C112
(8W-52-3)
C
S153
(8W-12-14)
L7
20
BK/PK
1
RIGHT
FRONT
SIDE
MARKER
LAMP
(8W-50-7)
2
L60
20
TN
L7
20
BK/PK
L7
20
BK/PK
L60
20
TN
L60
20
TN
2
RIGHT
FRONT
PARK
LAMP
(8W-50-7)
(8W-50-8)
1
L60
20
TN
S154
(8W-12-35)
1
3
RIGHT
FRONT
PARK/
TURN
SIGNAL
LAMP
(8W-50-7)
2
1
RIGHT
FRONT
TURN
SIGNAL
LAMP
(EXPORT)
2
Z142
18
BK
Z142
18
BK
Z142
18
BK
S152
(8W-15-8)
Z142
18
BK
6
C112
Z142
18
BK
S133
(8W-15-9)
Z142
18
BK
G108
(8W-15-9)
(8W-15-10)
(8W-15-11)


BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
(8W-12-12)
(8W-12-13)
COMBINATION FLASHER
LEFT TURN SIGNAL
87A
87
85
PARK LAMP RELAY
(8W-50-6)
30
86
14 JB
1 JB
PARK LAMP RELAY OUTPUT
PARK LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
31 C3
21 C2
20 C2
5 C2
5 C3
L60
20TN
INSTRUMENT CLUSTER
(8W-40-3)
LEFT TURN INDICATOR
Z234
20
BK
L7
20
BK/YL
S326
(8W-12-13)
LHD
RHD
S205
(8W-15-15)
53 C107
L61
20
TN/LG
54 C107
LHD EXCEPT EXPORT/RHD
LHD EXPORT
L61
18
TN/LG
EXCEPT EXPORT
EXPORT
S143
(8W-12-33)
4 C111
3 C111
Z234
18
BK
E
TO
S156
(8W-52-7)
G200
(8W-15-15)
Z
F
TO
LEFT FRONT TURN SIGNAL LAMP
(8W-52-7)
TO
S155
(8W-52-7)
LEFT SIDE REPEATER LAMP
Z161
18
BK
S141
(8W-15-6)
G106
(8W-15-6)


BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
(8W-12-12)
(8W-12-13)
COMBINATION FLASHER
LEFT TURN SIGNAL
87A
87
85
PARK LAMP RELAY
(8W-50-6)
30
86
14 JB
1 JB
PARK LAMP RELAY OUTPUT
PARK LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
(8W-45-4)
31 C3
21 C2
20 C2
5 C2
5 C3
L60 20TN
Z234 20 BK
L7 20 BK/YL
L7 20 BK/YL
L61 20 TN/LG
INSTRUMENT CLUSTER
(8W-40-3)
LEFT TURN INDICATOR
S326
(8W-12-13)
54 C107
L61 20 LG
LHD
RHD
L7 20 BK/YL
S205
(8W-15-15)
53 C107
S143
(8W-12-34)
L61 20 LG
L61 18 LG
L7 20 BK/YL
4 C111
3 C111
LEFT SIDE REPEATER LAMP
Z234 18 BK
L7 20 BK/YL
L61 20 LG
E
Z
TO S156
(8W-52-7)
TO LEFT FRONT TURN SIGNAL LAMP
(8W-52-7)
Z161 18 BK
G200
(8W-15-15)
G106
(8W-15-7)

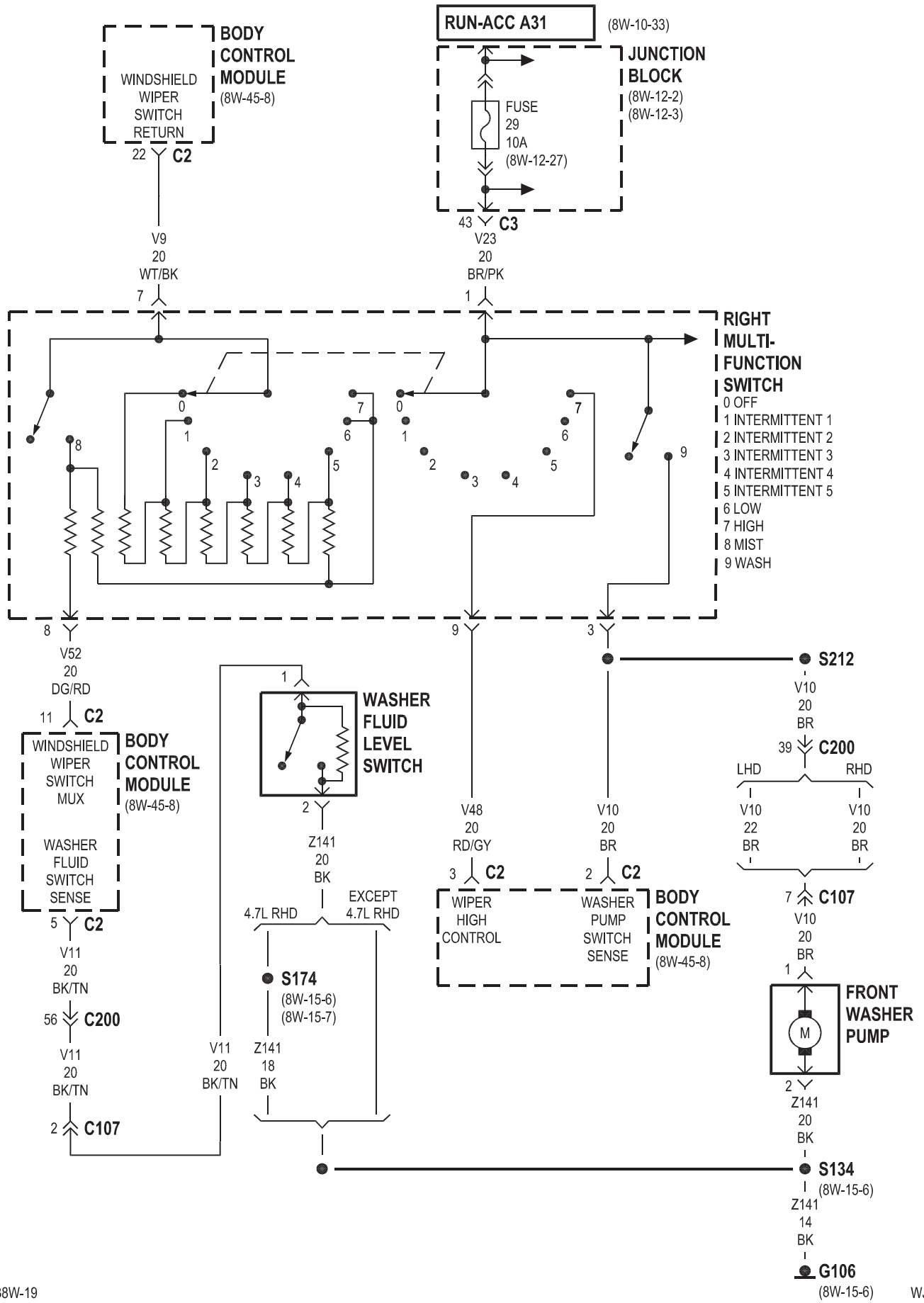

FROM
C111
(8W-52-5)
(8W-52-6)
E
L7
20
BK/YL
S156
(8W-12-14)
L7
20
BK/PK
1
LEFT
FRONT
SIDE
MARKER
LAMP
2
L61
20
TN/LG
(8W-50-10)
FROM
C111
(8W-52-5)
F
L61
20
TN/LG
S155
(8W-12-35)
FROM
C111
(8W-52-5)
(8W-52-6)
Z
EXPORT
GAS
DIESEL
L61
20
TN/LG
L61
20
LG
1
LEFT
FRONT
TURN
SIGNAL
LAMP
2
L7
20
BK/PK
2
LEFT
FRONT
PARK
LAMP
1
(8W-50-10)
(8W-50-11)
L7
20
BK/PK
L61
20
TN/LG
1
3
LEFT
FRONT
PARK/
TURN
SIGNAL
LAMP
2
(8W-50-10)
Z141
18
BK
Z141
18
BK
Z141
18
BK
S151
(8W-15-5)
S151
(8W-15-5)
EXCEPT EXPORT
EXPORT
Z141
18
BK
6
C111
Z1
18
BK
S134
(8W-15-6)
Z1
14
BK
G106
(8W-15-6)
(8W-15-7)

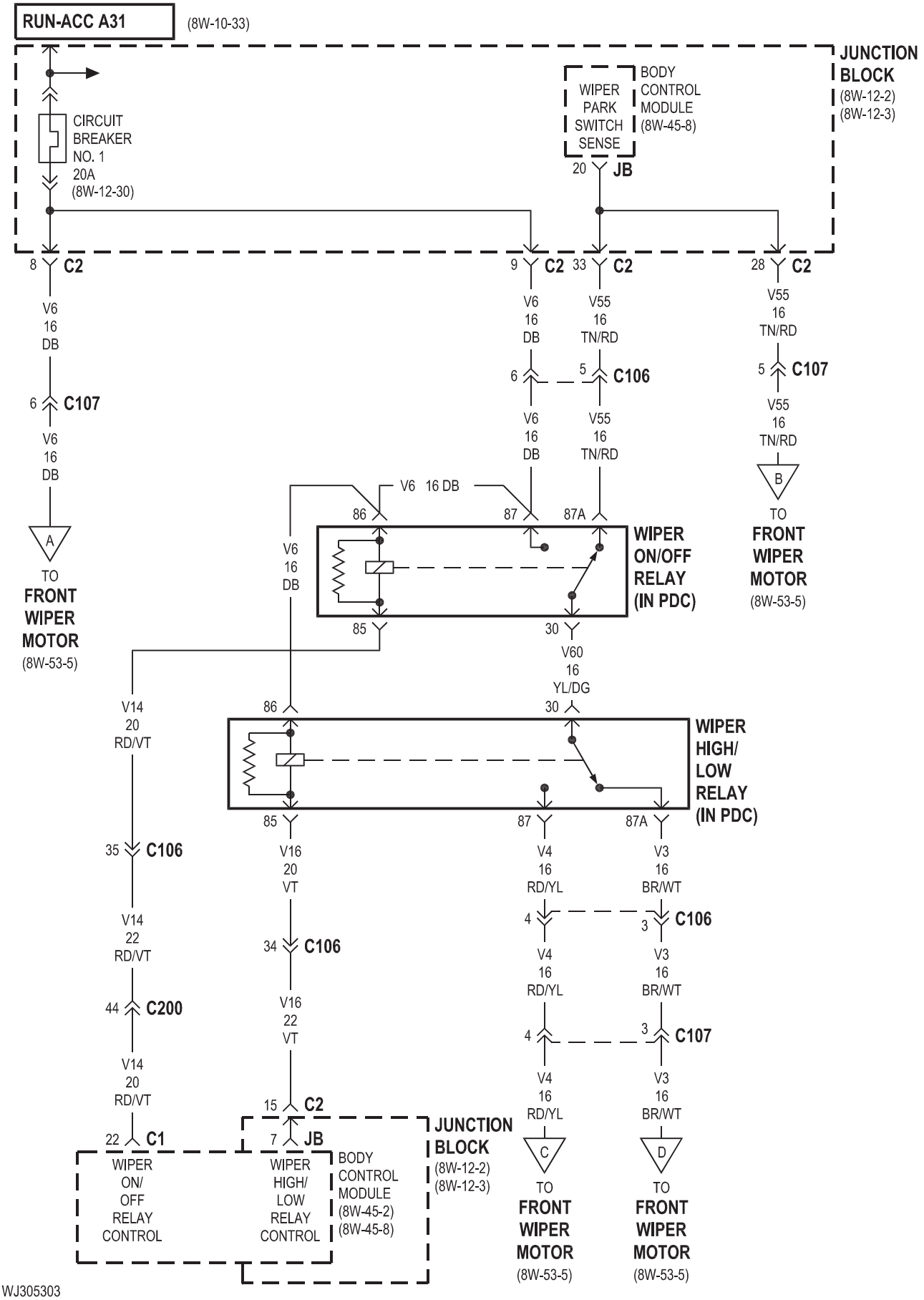

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
LEFT TURN SIGNAL
RIGHT TURN SIGNAL
4
5
2 C1
10 C2
L63 18 DG/RD
L62 18 BR/RD
S306
(8W-12-28)
S327
(8W-12-33)
(8W-12-34)
L63 20 DG/RD
L62 18 BR/RD
21 C300
EXCEPT EXPORT
EXPORT
10 C310
10 C310 NOT USED
2 C310
2 C310 NOT USED
L62 20 BR/RD
86
85
TRAILER TOW LEFT TURN RELAY
(8W-54-5)
TRAILER TOW RIGHT TURN RELAY
(8W-54-5)
TURN SIGNAL LAMP
LEFT REAR LAMP ASSEMBLY
RIGHT REAR LAMP ASSEMBLY
Z150 18 BK
Z150 10 BK
Z151 18 BK
Z151 14 BK
S307
(8W-15-19)
S332
(8W-15-17)
G301
(8W-15-21)
G300
(8W-15-17)

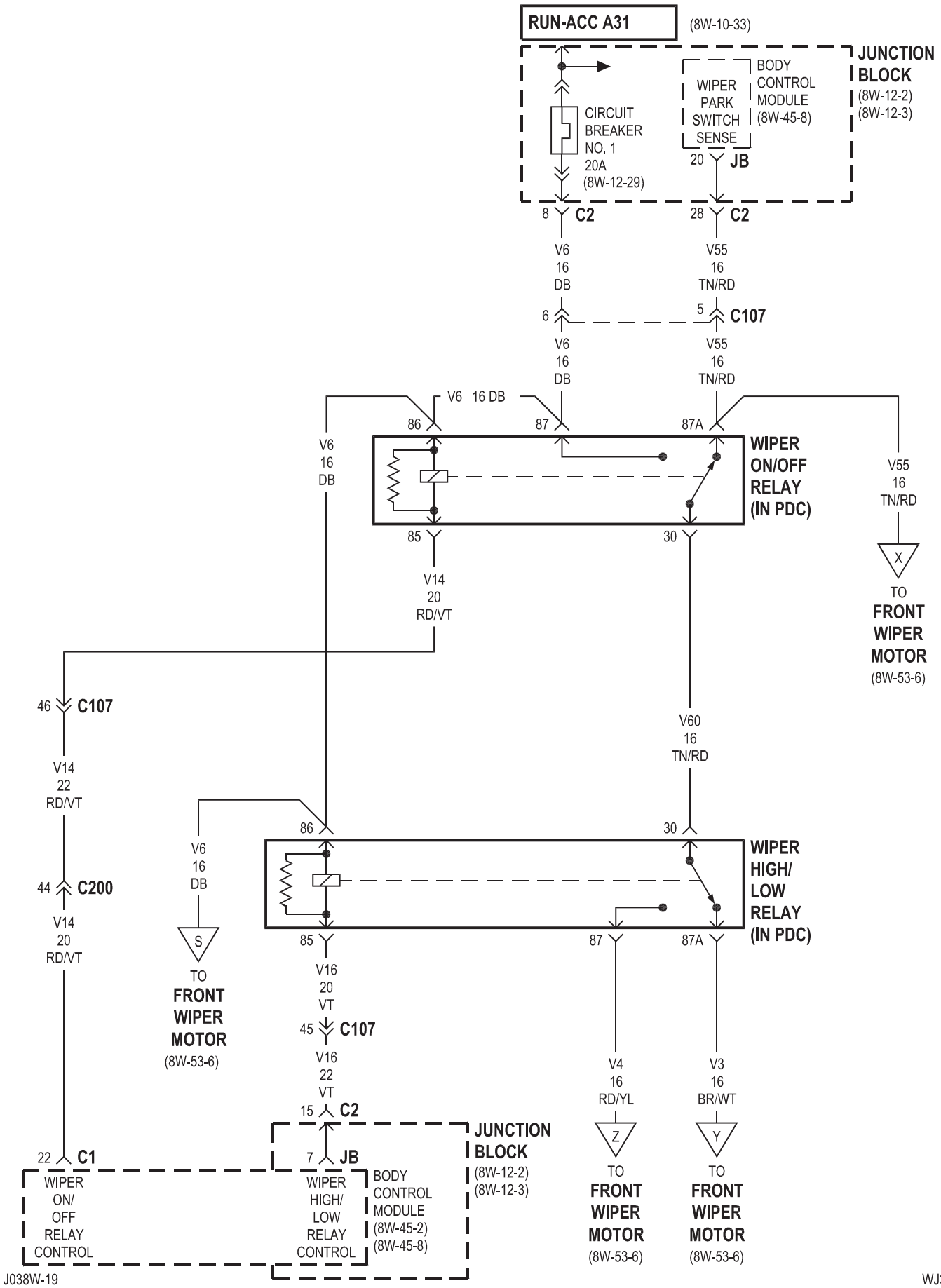

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
LEFT TURN SIGNAL
RIGHT TURN SIGNAL
4
5
2 C1
10 C2
L63 18 DG/RD
L62 20 BR/RD
10 C301
L63 18 DG/RD
S306
(8W-12-28)
L63 20 DG/RD
10 C310
NOT USED
S327
(8W-12-33)
(8W-12-34)
L62 20 BR/RD
2 C310
NOT USED
L62 20 BR/RD
19 C301
L63 18 DG/RD
L62 18 BR/RD
4
4
LEFT REAR LAMP ASSEMBLY
RIGHT REAR LAMP ASSEMBLY
TURN SIGNAL LAMP
TURN SIGNAL LAMP
5
5
Z150 18 BK
Z151 18 BK
S307
(8W-15-19)
S332
(8W-15-18)
Z150 12 BK
Z151 14 BK
G301
(8W-15-22)
G300
(8W-15-18)

8W-53 WIPERS

Component	Page
Accessory Delay Relay	8W-53-5, 6
Body Control Module	8W-53-2, 3, 4, 7
Circuit Breaker No. 1	8W-53-4
Data Link Connector	8W-53-5, 6
Front Washer Pump	8W-53-2
Front Wiper Motor	8W-53-3, 4, 5, 6
Fuse 8	8W-53-7
Fuse 25	8W-53-5, 6
Fuse 29	8W-53-2
G106	8W-53-2, 5, 6, 7
G301	8W-53-5, 6, 7
Junction Block	8W-53-2, 3, 4, 5, 6, 7
Liftgate Flip-Up Ajar Switch	8W-53-7
Rain Sensor	8W-53-5, 6
Rear Washer Pump	8W-53-7
Rear Wiper Motor	8W-53-7
Right Multi-Function Switch	8W-53-2, 7
Washer Fluid Level Switch	8W-53-2
Wiper High/Low Relay	8W-53-3, 4, 6
Wiper On/Off Relay	8W-53-3, 4, 6

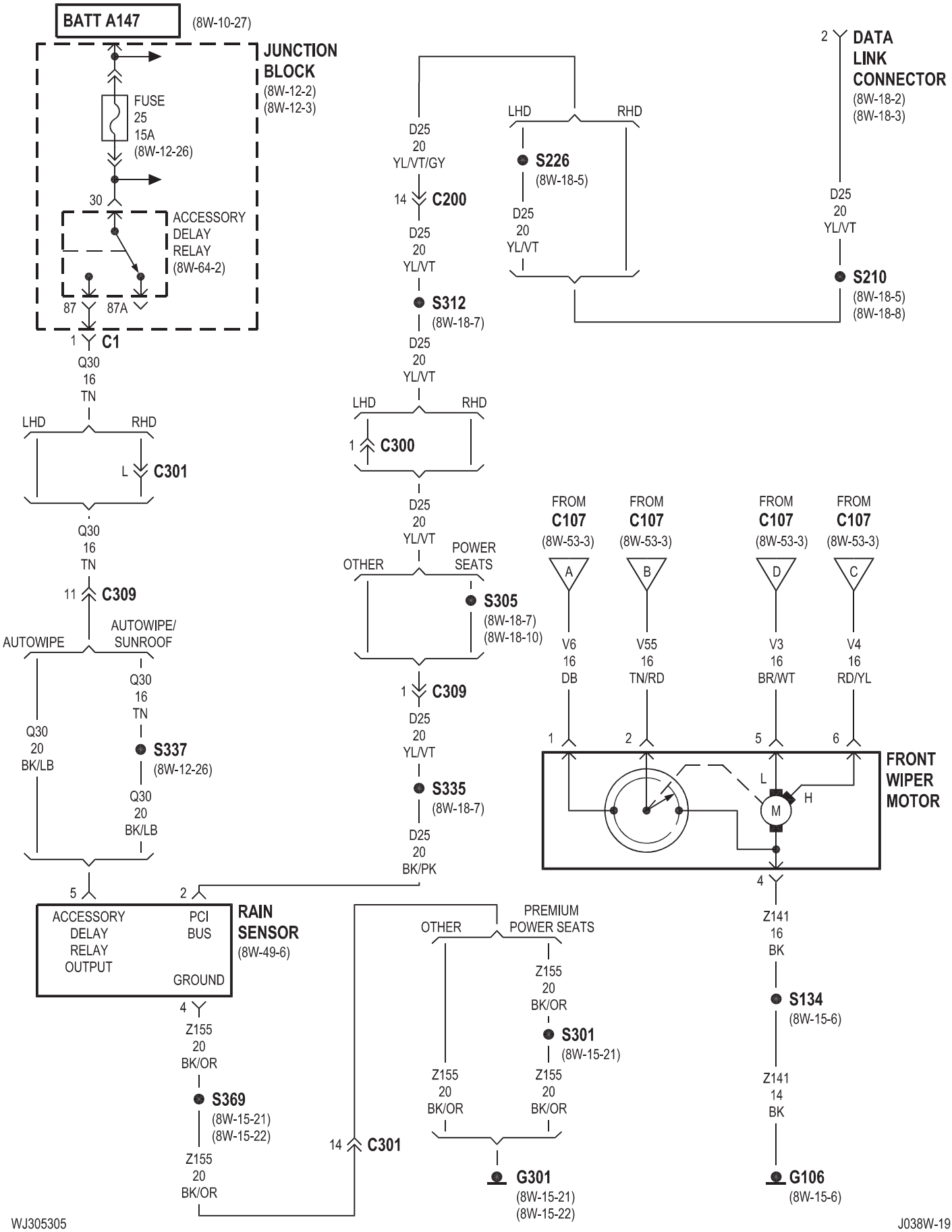

RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 29 10A
(8W-12-27)
43 C3
V23 20 BR/PK
1
BODY CONTROL MODULE
(8W-45-8)
WINDSHIELD WIPER SWITCH RETURN
22 C2
V9 20 WT/BK
7
RIGHT MULTI-FUNCTION SWITCH
0 OFF
1 INTERMITTENT 1
2 INTERMITTENT 2
3 INTERMITTENT 3
4 INTERMITTENT 4
5 INTERMITTENT 5
6 LOW
7 HIGH
8 MIST
9 WASH
8
V52 20 DG/RD
11 C2
BODY CONTROL MODULE
(8W-45-8)
WINDSHIELD WIPER SWITCH MUX
WASHER FLUID SWITCH SENSE
5 C2
V11 20 BK/TN
56 C200
V11 20 BK/TN
2 C107
1
WASHER FLUID LEVEL SWITCH
2
Z141 20 BK
4.7L RHD
EXCEPT 4.7L RHD
S174
(8W-15-6)
(8W-15-7)
V11 20 BK/TN
Z141 18 BK
9
V48 20 RD/GY
3 C2
3
V10 20 BR
2 C2
BODY CONTROL MODULE
(8W-45-8)
WIPER HIGH CONTROL
WASHER PUMP SWITCH SENSE
S212
V10 20 BR
39 C200
LHD
RHD
V10 22 BR
V10 20 BR
7 C107
V10 20 BR
1
FRONT WASHER PUMP
M
2
Z141 20 BK
S134
(8W-15-6)
Z141 14 BK
G106
(8W-15-6)

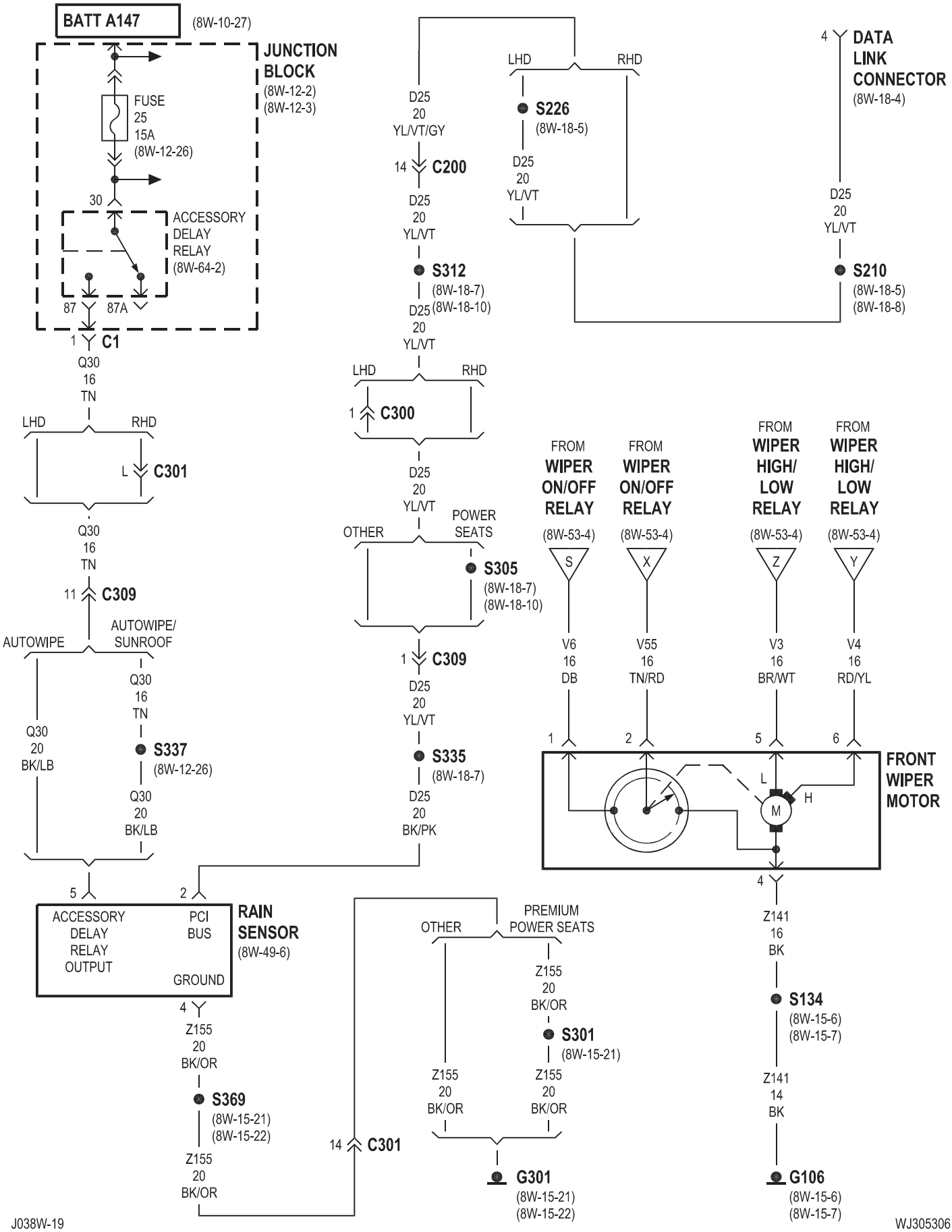

RUN-ACC A31
(8W-10-33)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 1 20A
(8W-12-30)
WIPER PARK SWITCH SENSE
BODY CONTROL MODULE
(8W-45-8)
20 JB
8 C2
9 C2
33 C2
28 C2
V6 16 DB
V55 16 TN/RD
6 C107
6 C106
5 C106
5 C107
A
TO FRONT WIPER MOTOR
(8W-53-5)
B
TO FRONT WIPER MOTOR
(8W-53-5)
86
87
87A
85
30
WIPER ON/OFF RELAY (IN PDC)
V60 16 YL/DG
WIPER HIGH/ LOW RELAY (IN PDC)
V14 20 RD/VT
V14 22 RD/VT
V16 20 VT
V16 22 VT
V4 16 RD/YL
V3 16 BR/WT
35 C106
34 C106
4 C106
3 C106
44 C200
4 C107
3 C107
15 C2
22 C1
7 JB
WIPER ON/ OFF RELAY CONTROL
WIPER HIGH/ LOW RELAY CONTROL
BODY CONTROL MODULE
(8W-45-2)
(8W-45-8)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
C
TO FRONT WIPER MOTOR
(8W-53-5)
D
TO FRONT WIPER MOTOR
(8W-53-5)

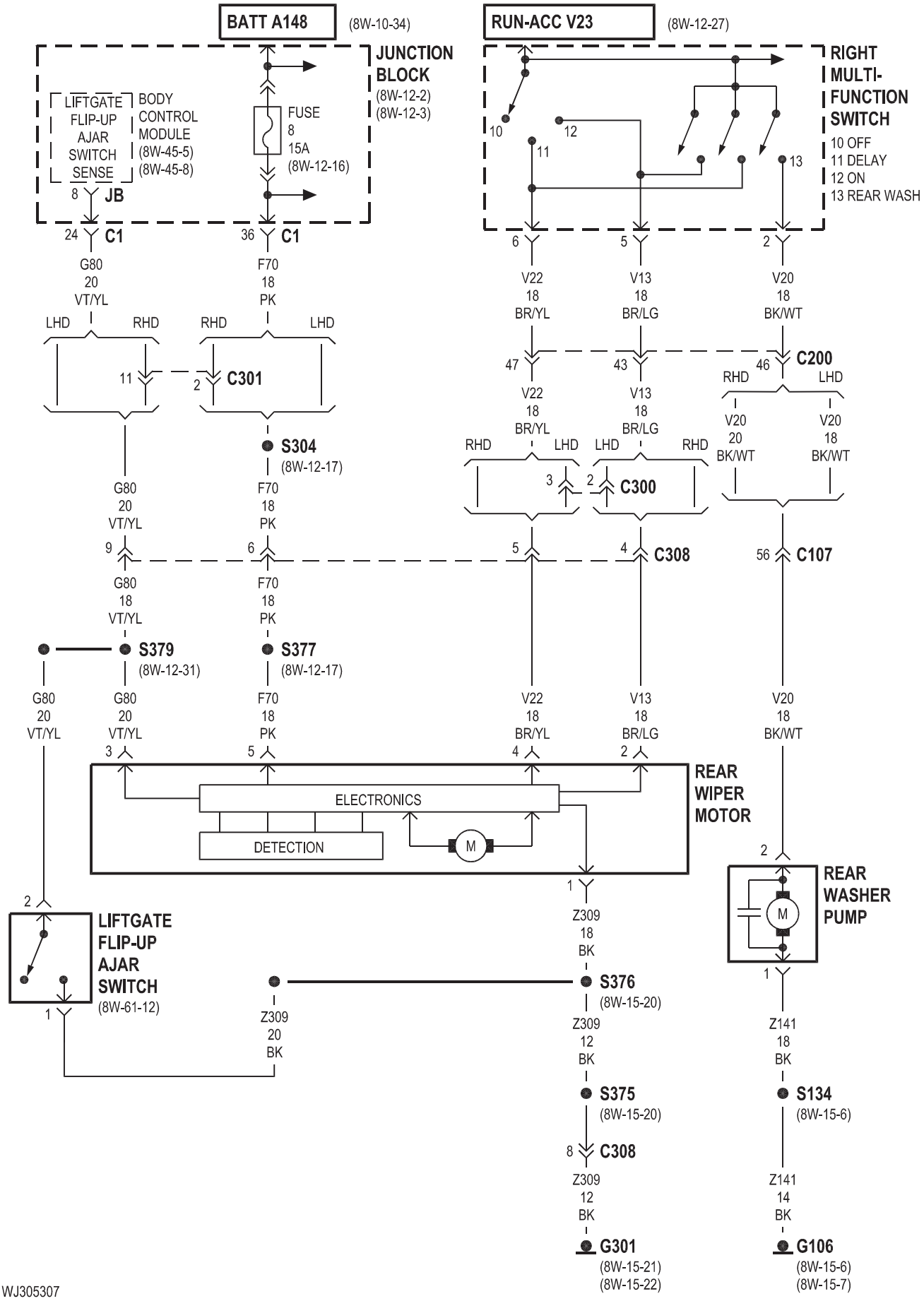


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WJ305304

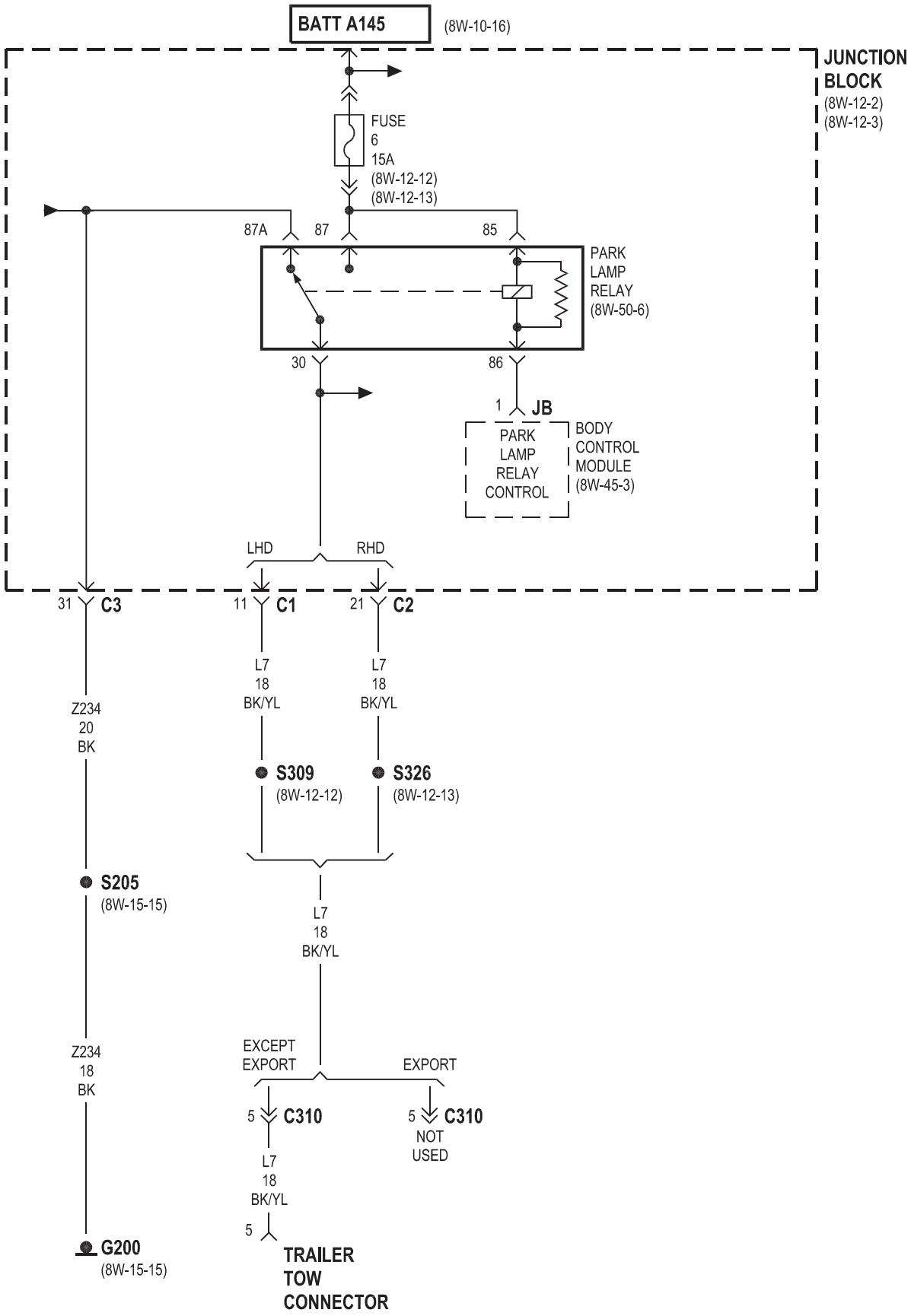

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 25 15A
(8W-12-26)
30
ACCESSORY DELAY RELAY
(8W-64-2)
87
87A
1 C1
Q30 16 TN
LHD
RHD
L C301
Q30 16 TN
11 C309
AUTOWIPE
AUTOWIPE/ SUNROOF
Q30 20 BK/LB
Q30 16 TN
S337
(8W-12-26)
Q30 20 BK/LB
5
2
ACCESSORY DELAY RELAY OUTPUT
PCI BUS
GROUND
RAIN SENSOR
(8W-49-6)
4
Z155 20 BK/OR
S369
(8W-15-21)
(8W-15-22)
Z155 20 BK/OR
D25 20 YL/VT/GY
14 C200
D25 20 YL/VT
S312
(8W-18-7)
D25 20 YL/VT
LHD
RHD
1 C300
D25 20 YL/VT
OTHER
POWER SEATS
S305
(8W-18-7)
(8W-18-10)
1 C309
D25 20 YL/VT
S335
(8W-18-7)
D25 20 BK/PK
14 C301
LHD
RHD
S226
(8W-18-5)
D25 20 YL/VT
2 DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
D25 20 YL/VT
S210
(8W-18-5)
(8W-18-8)
FROM C107 (8W-53-3)
A
V6 16 DB
FROM C107 (8W-53-3)
B
V55 16 TN/RD
FROM C107 (8W-53-3)
D
V3 16 BR/WT
FROM C107 (8W-53-3)
C
V4 16 RD/YL
1
2
5
6
L
H
M
FRONT WIPER MOTOR
4
Z141 16 BK
S134
(8W-15-6)
Z141 14 BK
G106
(8W-15-6)
OTHER
PREMIUM POWER SEATS
Z155 20 BK/OR
S301
(8W-15-21)
Z155 20 BK/OR
Z155 20 BK/OR
G301
(8W-15-21)
(8W-15-22)

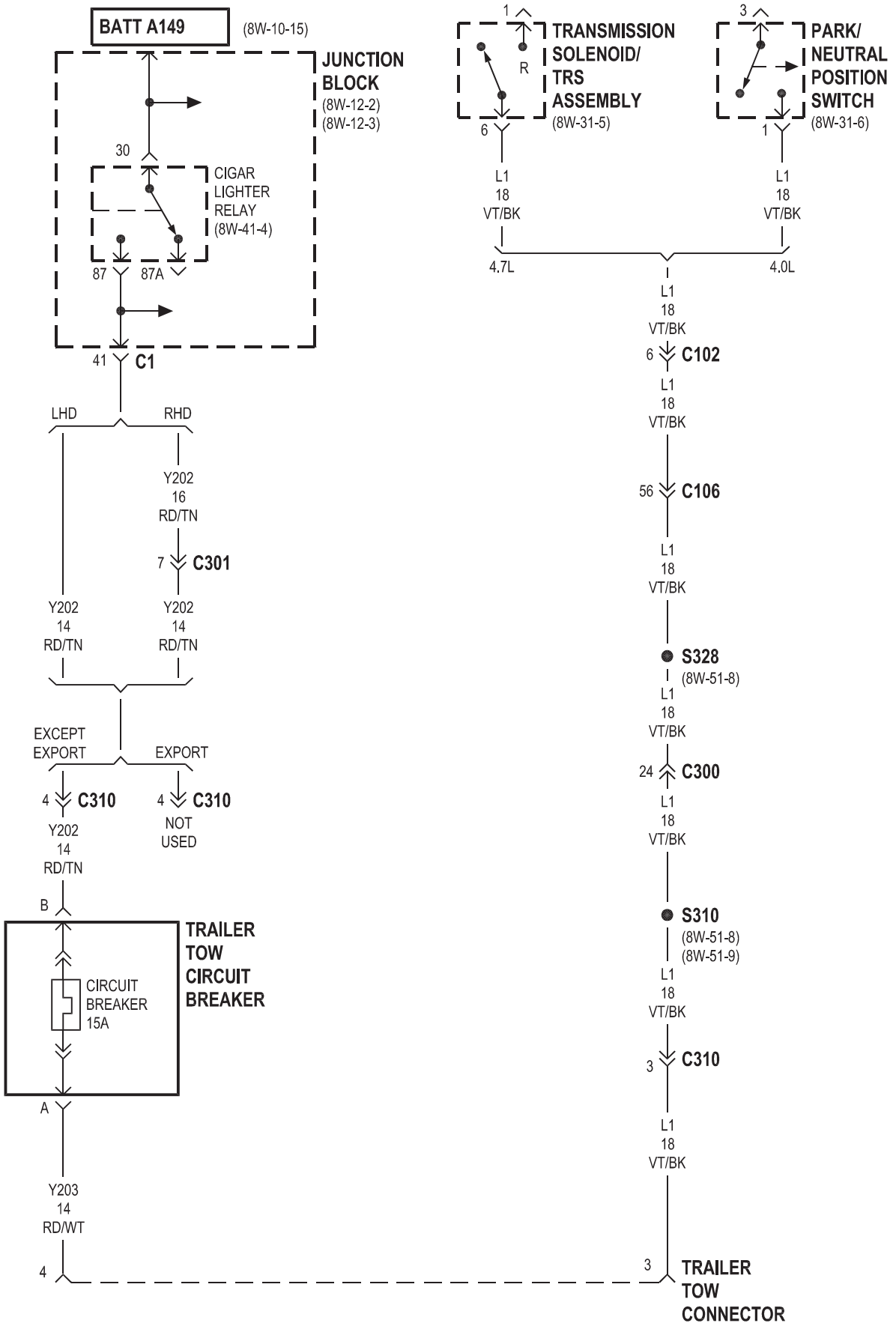

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 25 15A
(8W-12-26)
30
ACCESSORY DELAY RELAY
(8W-64-2)
87
87A
1 C1
Q30 16 TN
LHD
RHD
L C301
Q30 16 TN
11 C309
AUTOWIPE
AUTOWIPE/ SUNROOF
Q30 20 BK/LB
Q30 16 TN
S337
(8W-12-26)
Q30 20 BK/LB
5
2
ACCESSORY DELAY RELAY OUTPUT
PCI BUS
GROUND
RAIN SENSOR
(8W-49-6)
4
Z155 20 BK/OR
S369
(8W-15-21)
(8W-15-22)
Z155 20 BK/OR
14 C301
D25 20 YL/VT/GY
14 C200
D25 20 YL/VT
S312
(8W-18-7)
(8W-18-10)
D25 20 YL/VT
LHD
RHD
1 C300
D25 20 YL/VT
OTHER
POWER SEATS
S305
(8W-18-7)
(8W-18-10)
1 C309
D25 20 YL/VT
S335
(8W-18-7)
D25 20 BK/PK
LHD
RHD
S226
(8W-18-5)
D25 20 YL/VT
4 DATA LINK CONNECTOR
(8W-18-4)
D25 20 YL/VT
S210
(8W-18-5)
(8W-18-8)
FROM WIPER ON/OFF RELAY
(8W-53-4)
S
V6 16 DB
FROM WIPER ON/OFF RELAY
(8W-53-4)
X
V55 16 TN/RD
FROM WIPER HIGH/ LOW RELAY
(8W-53-4)
Z
V3 16 BR/WT
FROM WIPER HIGH/ LOW RELAY
(8W-53-4)
Y
V4 16 RD/YL
1
2
5
6
L
H
M
FRONT WIPER MOTOR
4
Z141 16 BK
S134
(8W-15-6)
(8W-15-7)
Z141 14 BK
G106
(8W-15-6)
(8W-15-7)
OTHER
PREMIUM POWER SEATS
Z155 20 BK/OR
S301
(8W-15-21)
Z155 20 BK/OR
Z155 20 BK/OR
G301
(8W-15-21)
(8W-15-22)

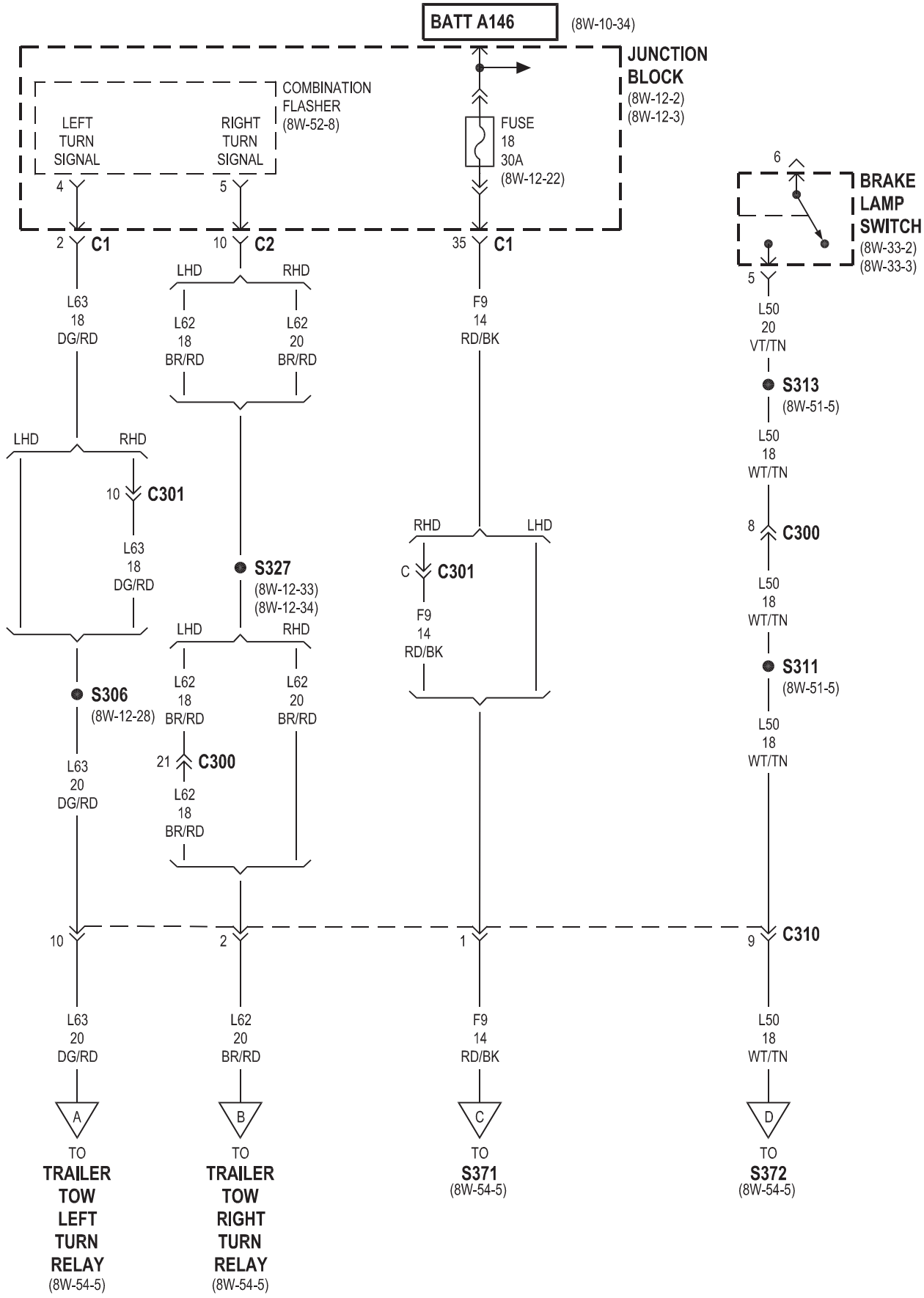

BATT A148
(8W-10-34)
RUN-ACC V23
(8W-12-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
LIFTGATE FLIP-UP AJAR SWITCH SENSE
BODY CONTROL MODULE
(8W-45-5)
(8W-45-8)
FUSE 8 15A
(8W-12-16)
8 JB
24 C1
36 C1
RIGHT MULTI-FUNCTION SWITCH
10 OFF
11 DELAY
12 ON
13 REAR WASH
10
11
12
13
6
5
2
G80 20 VT/YL
F70 18 PK
V22 18 BR/YL
V13 18 BR/LG
V20 18 BK/WT
LHD
RHD
11
2 C301
47
43
46 C200
S304
(8W-12-17)
3
2 C300
9
6
5
4 C308
56 C107
G80 18 VT/YL
F70 18 PK
S379
(8W-12-31)
S377
(8W-12-17)
3
5
4
2
REAR WIPER MOTOR
ELECTRONICS
DETECTION
M
1
Z309 18 BK
2
LIFTGATE FLIP-UP AJAR SWITCH
(8W-61-12)
1
Z309 20 BK
S376
(8W-15-20)
Z309 12 BK
S375
(8W-15-20)
8 C308
Z309 12 BK
G301
(8W-15-21)
(8W-15-22)
2
REAR WASHER PUMP
M
1
Z141 18 BK
S134
(8W-15-6)
Z141 14 BK
G106
(8W-15-6)
(8W-15-7)

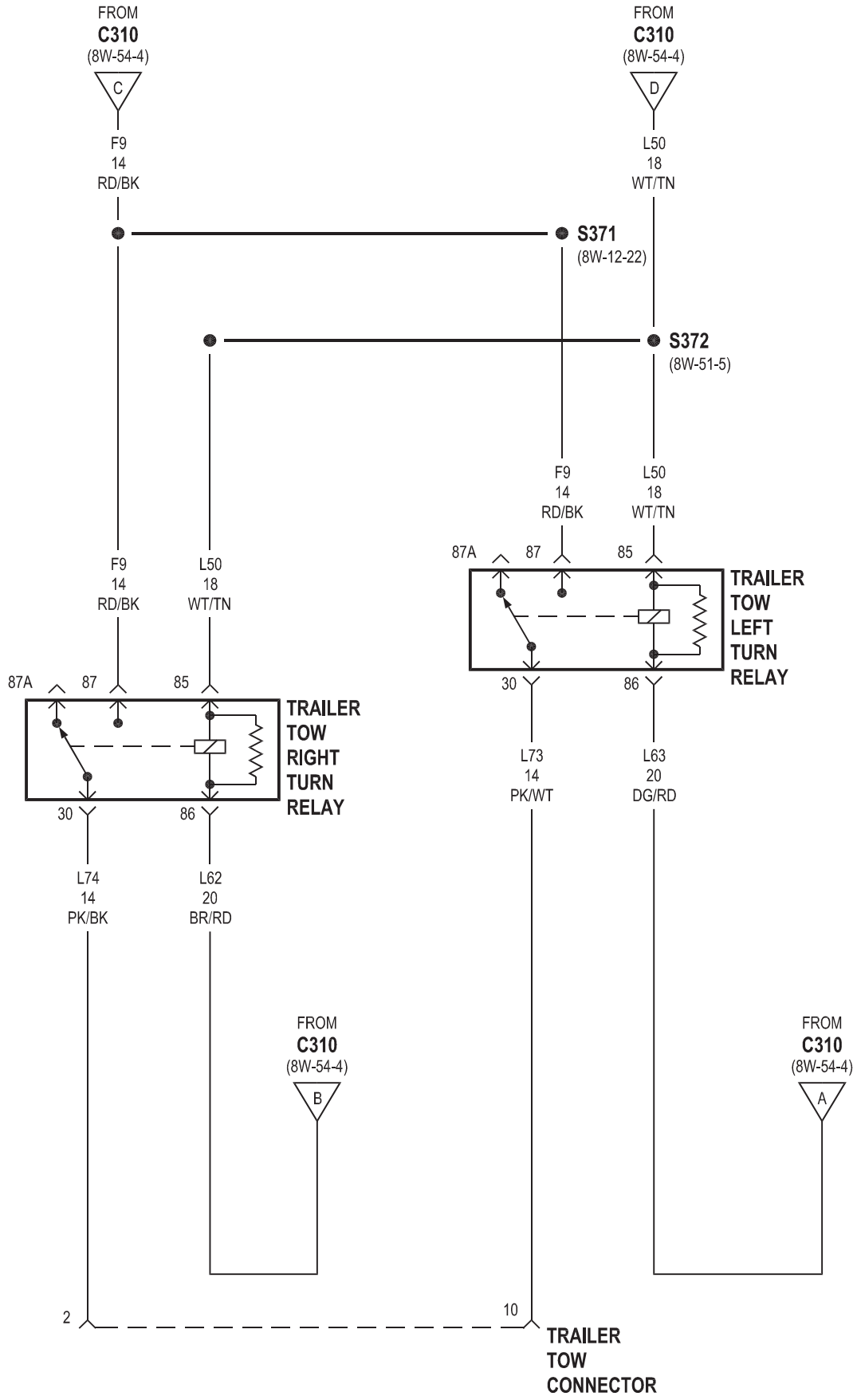
8W-54 TRAILER TOW

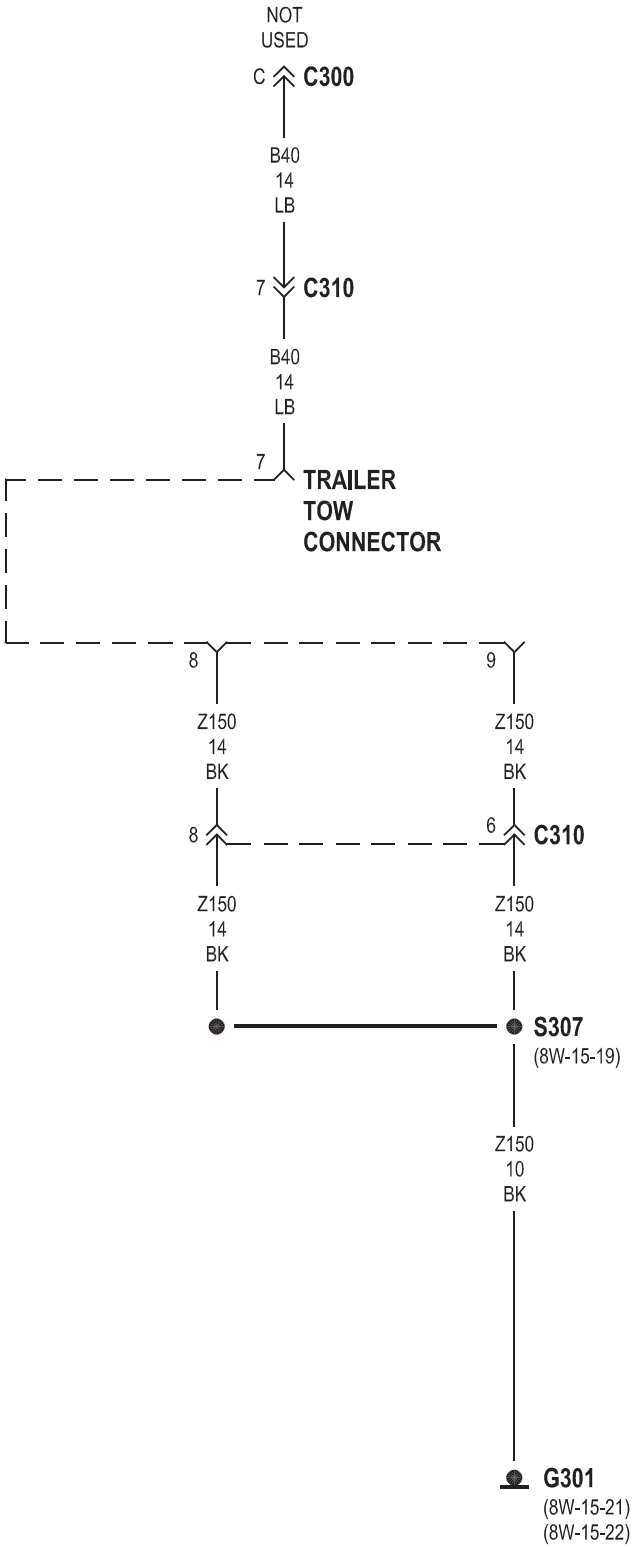
Component	Page
Body Control Module	8W-54-2
Brake Lamp Switch	8W-54-4
Cigar Lighter Relay	8W-54-3
Combination Flasher	8W-54-4
Fuse 6	8W-54-2
Fuse 18	8W-54-4
G200	8W-54-2
G301	8W-54-6
Junction Block	8W-54-2, 3, 4
Park Lamp Relay	8W-54-2
Park/Neutral Position Switch	8W-54-3
Trailer Tow Circuit Breaker	8W-54-3
Trailer Tow Connector	8W-54-2, 3, 5, 6
Trailer Tow Left Turn Relay	8W-54-4, 5
Trailer Tow Right Turn Relay	8W-54-4, 5
Transmission Solenoid/TRS Assembly	8W-54-3


BATT A145
(8W-10-16)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
6
15A
(8W-12-12)
(8W-12-13)
87A
87
85
PARK LAMP RELAY
(8W-50-6)
30
86
1
JB
PARK LAMP RELAY CONTROL
BODY CONTROL MODULE
(8W-45-3)
LHD
RHD
31
C3
11
C1
21
C2
L7
18
BK/YL
L7
18
BK/YL
Z234
20
BK
S309
(8W-12-12)
S326
(8W-12-13)
S205
(8W-15-15)
L7
18
BK/YL
Z234
18
BK
EXCEPT EXPORT
EXPORT
5
C310
5
C310
NOT USED
L7
18
BK/YL
5
G200
(8W-15-15)
TRAILER TOW CONNECTOR


BATT A149
(8W-10-15)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
30
CIGAR LIGHTER RELAY
(8W-41-4)
87
87A
41
C1
LHD
RHD
Y202
16
RD/TN
7
C301
Y202
14
RD/TN
Y202
14
RD/TN
EXCEPT EXPORT
EXPORT
4
C310
4
C310
NOT USED
Y202
14
RD/TN
B
CIRCUIT BREAKER
15A
TRAILER TOW CIRCUIT BREAKER
A
Y203
14
RD/WT
4
1
R
6
TRANSMISSION SOLENOID/ TRS ASSEMBLY
(8W-31-5)
3
1
PARK/ NEUTRAL POSITION SWITCH
(8W-31-6)
L1
18
VT/BK
4.7L
L1
18
VT/BK
4.0L
L1
18
VT/BK
6
C102
L1
18
VT/BK
56
C106
L1
18
VT/BK
S328
(8W-51-8)
L1
18
VT/BK
24
C300
L1
18
VT/BK
S310
(8W-51-8)
(8W-51-9)
L1
18
VT/BK
3
C310
L1
18
VT/BK
3
TRAILER TOW CONNECTOR

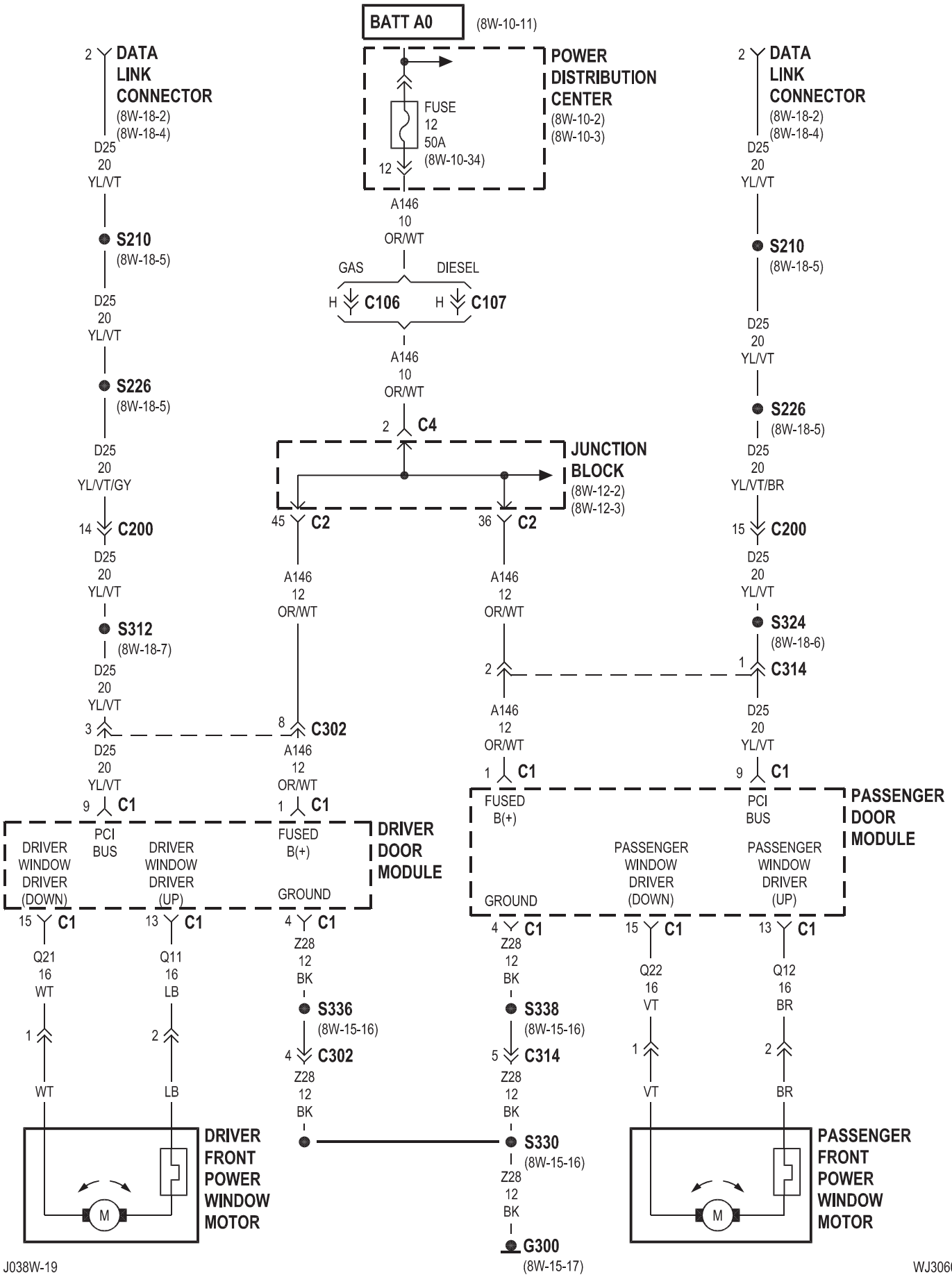

BATT A146
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
COMBINATION FLASHER
(8W-52-8)
LEFT TURN SIGNAL
RIGHT TURN SIGNAL
FUSE 18 30A
(8W-12-22)
4
5
2 C1
10 C2
35 C1
6
BRAKE LAMP SWITCH
(8W-33-2)
(8W-33-3)
5
L63 18 DG/RD
LHD
RHD
L62 18 BR/RD
L62 20 BR/RD
F9 14 RD/BK
L50 20 VT/TN
S313
(8W-51-5)
L50 18 WT/TN
10 C301
8 C300
L63 18 DG/RD
S327
(8W-12-33)
(8W-12-34)
C C301
F9 14 RD/BK
S311
(8W-51-5)
S306
(8W-12-28)
21 C300
L63 20 DG/RD
L62 18 BR/RD
10
2
1
9 C310
L63 20 DG/RD
L62 20 BR/RD
F9 14 RD/BK
L50 18 WT/TN
A
B
C
D
TO TRAILER TOW LEFT TURN RELAY
(8W-54-5)
TO TRAILER TOW RIGHT TURN RELAY
(8W-54-5)
TO S371
(8W-54-5)
TO S372
(8W-54-5)


FROM
C310
(8W-54-4)
C
F9
14
RD/BK
FROM
C310
(8W-54-4)
D
L50
18
WT/TN
S371
(8W-12-22)
S372
(8W-51-5)
F9
14
RD/BK
L50
18
WT/TN
87A
87
85
TRAILER
TOW
LEFT
TURN
RELAY
30
86
L73
14
PK/WT
L63
20
DG/RD
F9
14
RD/BK
L50
18
WT/TN
87A
87
85
TRAILER
TOW
RIGHT
TURN
RELAY
30
86
L74
14
PK/BK
L62
20
BR/RD
FROM
C310
(8W-54-4)
B
FROM
C310
(8W-54-4)
A
2
10
TRAILER
TOW
CONNECTOR


NOT
USED
C
C300
B40
14
LB
7
C310
B40
14
LB
7
TRAILER
TOW
CONNECTOR
8
9
Z150
14
BK
Z150
14
BK
8
6
C310
Z150
14
BK
Z150
14
BK
S307
(8W-15-19)
Z150
10
BK
G301
(8W-15-21)
(8W-15-22)

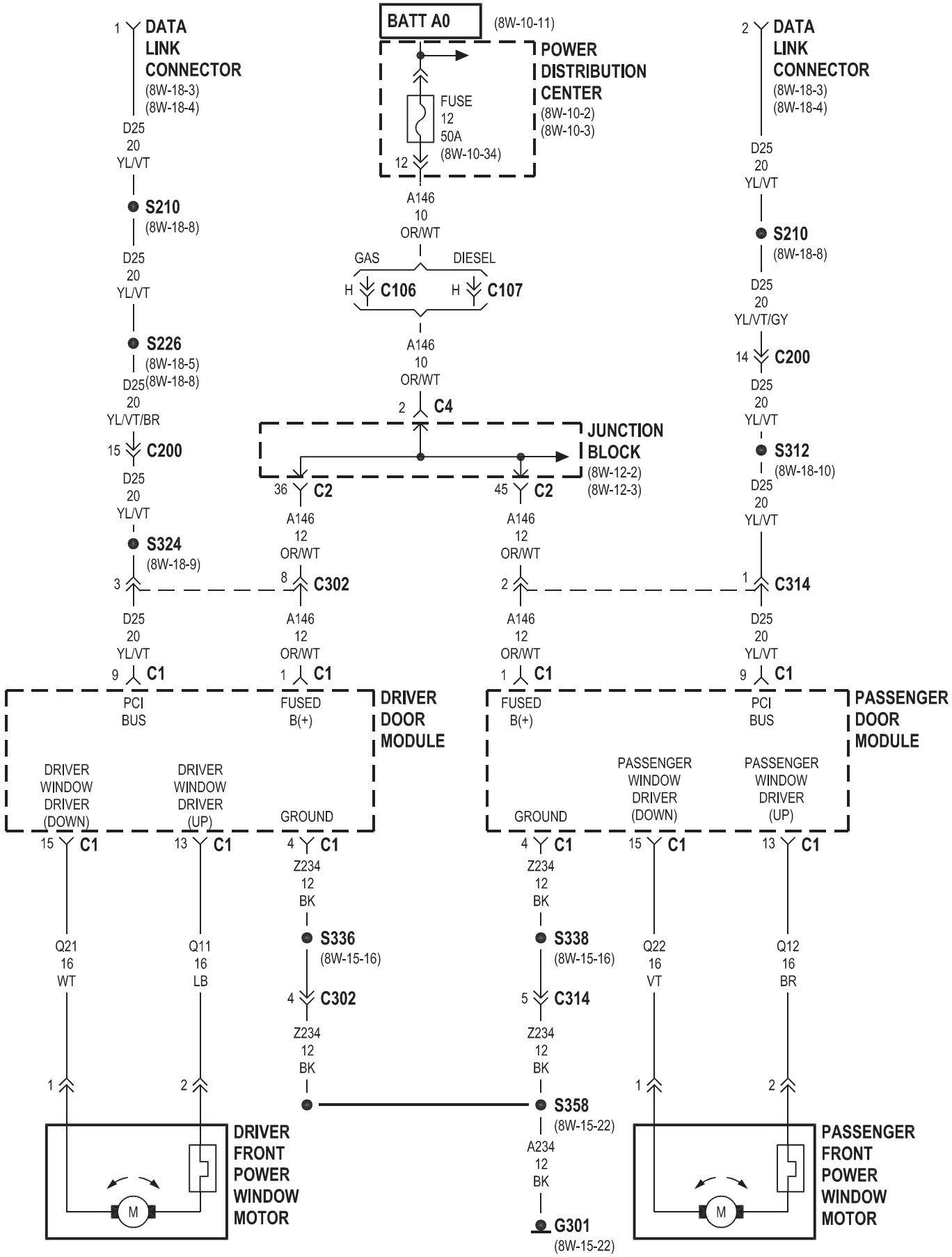
8W-60 POWER WINDOWS

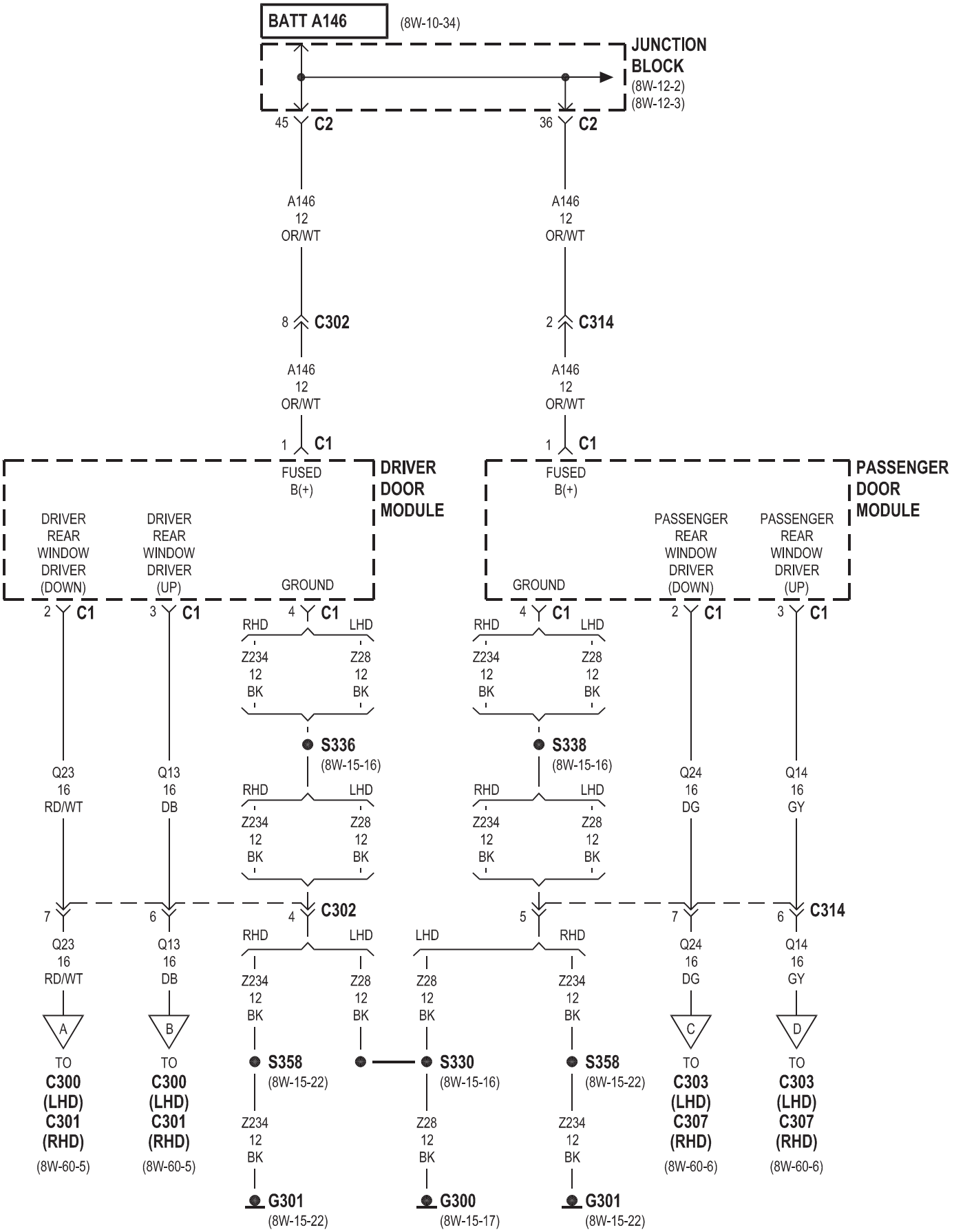
Component	Page
Data Link Connector	8W-60-2, 3
Driver Door Module	8W-60-2
Driver Door Module	8W-60-3, 4, 5
Driver Front Power Window Motor	8W-60-2, 3
Driver Rear Power Window Motor	8W-60-5
Driver Rear Power Window Switch	8W-60-5
Fuse 12	8W-60-2, 3
G300	8W-60-2, 4, 5, 6
G301	8W-60-3, 4, 5, 6
Junction Block	8W-60-2, 3, 4
Passenger Door Module	8W-60-2, 3, 4, 6
Passenger Front Power Window Motor	8W-60-2, 3
Passenger Rear Power Window Motor	8W-60-6
Passenger Rear Power Window Switch	8W-60-6
Power Distribution Center	8W-60-2, 3

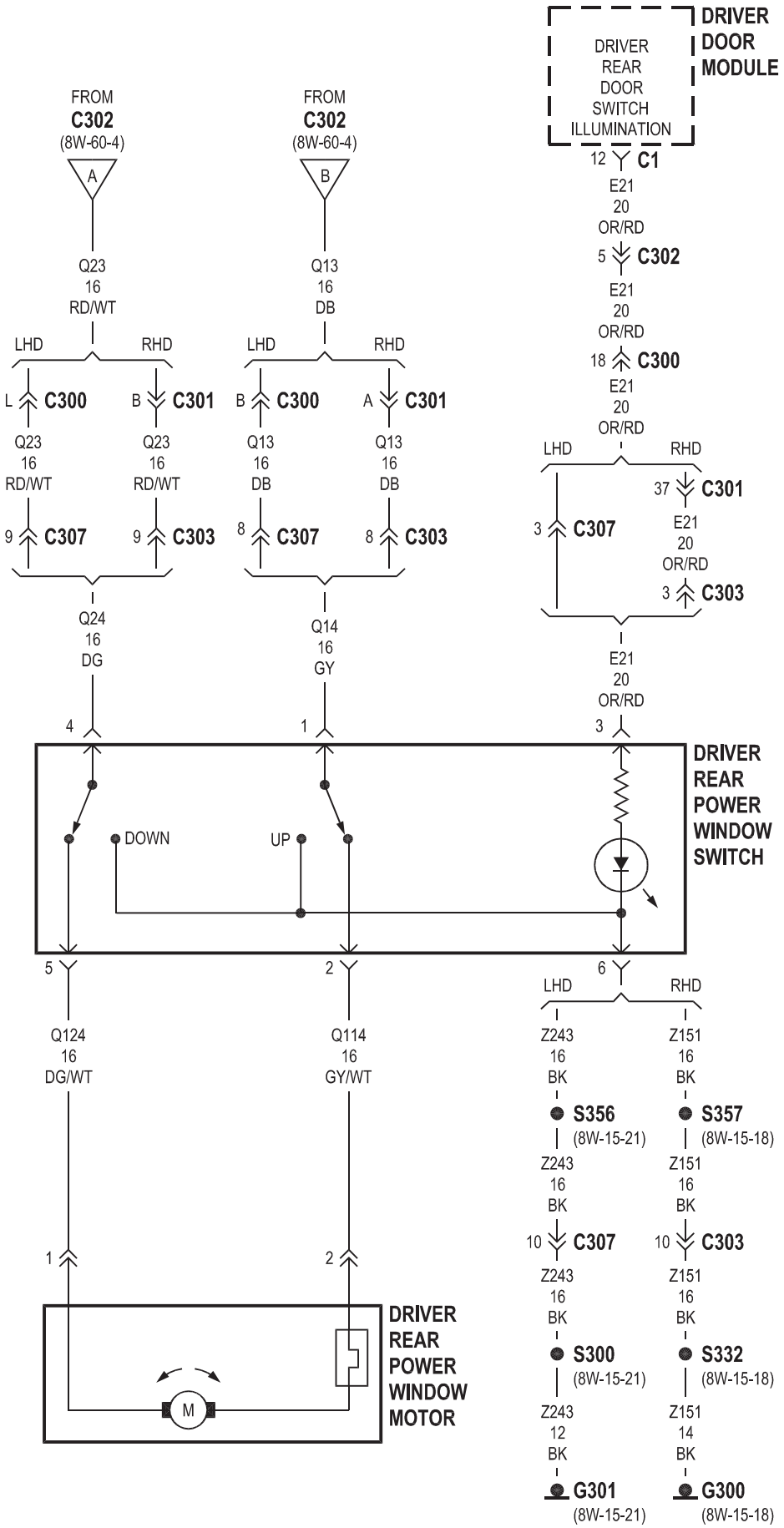


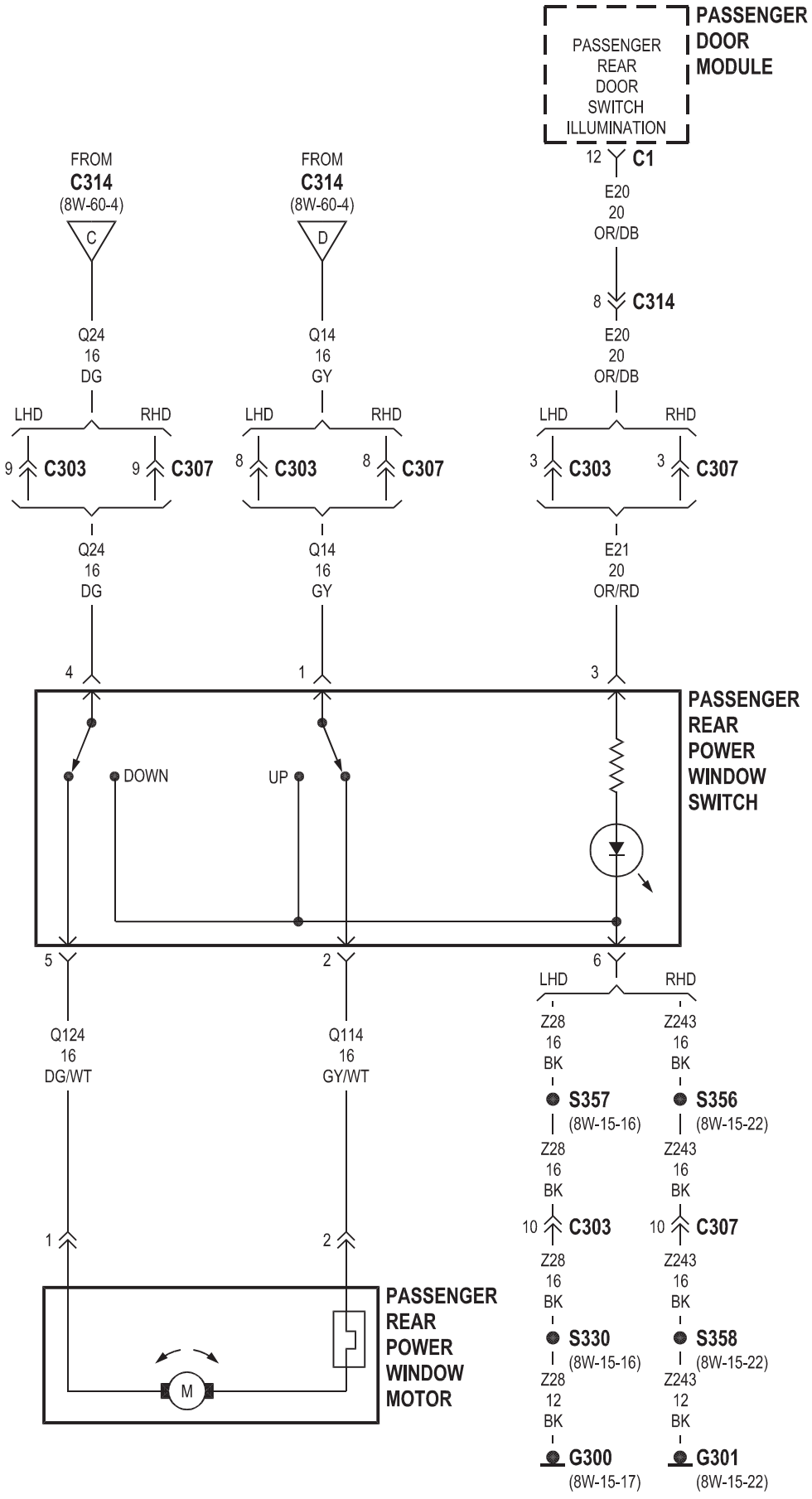
J038W-19

WJ306002


BATT A0
(8W-10-11)
POWER DISTRIBUTION CENTER
(8W-10-2)
(8W-10-3)
FUSE 12 50A
(8W-10-34)
12
A146 10 OR/WT
GAS
DIESEL
H C106
H C107
A146 10 OR/WT
2 C4
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
36 C2
45 C2
1 DATA LINK CONNECTOR
(8W-18-3)
(8W-18-4)
D25 20 YL/VT
S210
(8W-18-8)
D25 20 YL/VT
S226
(8W-18-5)
(8W-18-8)
D25 20 YL/VT/BR
15 C200
D25 20 YL/VT
S324
(8W-18-9)
3
D25 20 YL/VT
9 C1
PCI BUS
A146 12 OR/WT
8 C302
A146 12 OR/WT
1 C1
FUSED B(+)
2 DATA LINK CONNECTOR
(8W-18-3)
(8W-18-4)
D25 20 YL/VT
S210
(8W-18-8)
D25 20 YL/VT/GY
14 C200
D25 20 YL/VT
S312
(8W-18-10)
D25 20 YL/VT
1 C314
D25 20 YL/VT
9 C1
PCI BUS
A146 12 OR/WT
2
A146 12 OR/WT
1 C1
FUSED B(+)
DRIVER DOOR MODULE
DRIVER WINDOW DRIVER (DOWN)
DRIVER WINDOW DRIVER (UP)
GROUND
15 C1
13 C1
4 C1
Q21 16 WT
Q11 16 LB
Z234 12 BK
S336
(8W-15-16)
4 C302
Z234 12 BK
1
2
DRIVER FRONT POWER WINDOW MOTOR
M
PASSENGER DOOR MODULE
GROUND
PASSENGER WINDOW DRIVER (DOWN)
PASSENGER WINDOW DRIVER (UP)
4 C1
15 C1
13 C1
Z234 12 BK
S338
(8W-15-16)
5 C314
Z234 12 BK
Q22 16 VT
Q12 16 BR
1
2
PASSENGER FRONT POWER WINDOW MOTOR
M
S358
(8W-15-22)
A234 12 BK
G301
(8W-15-22)

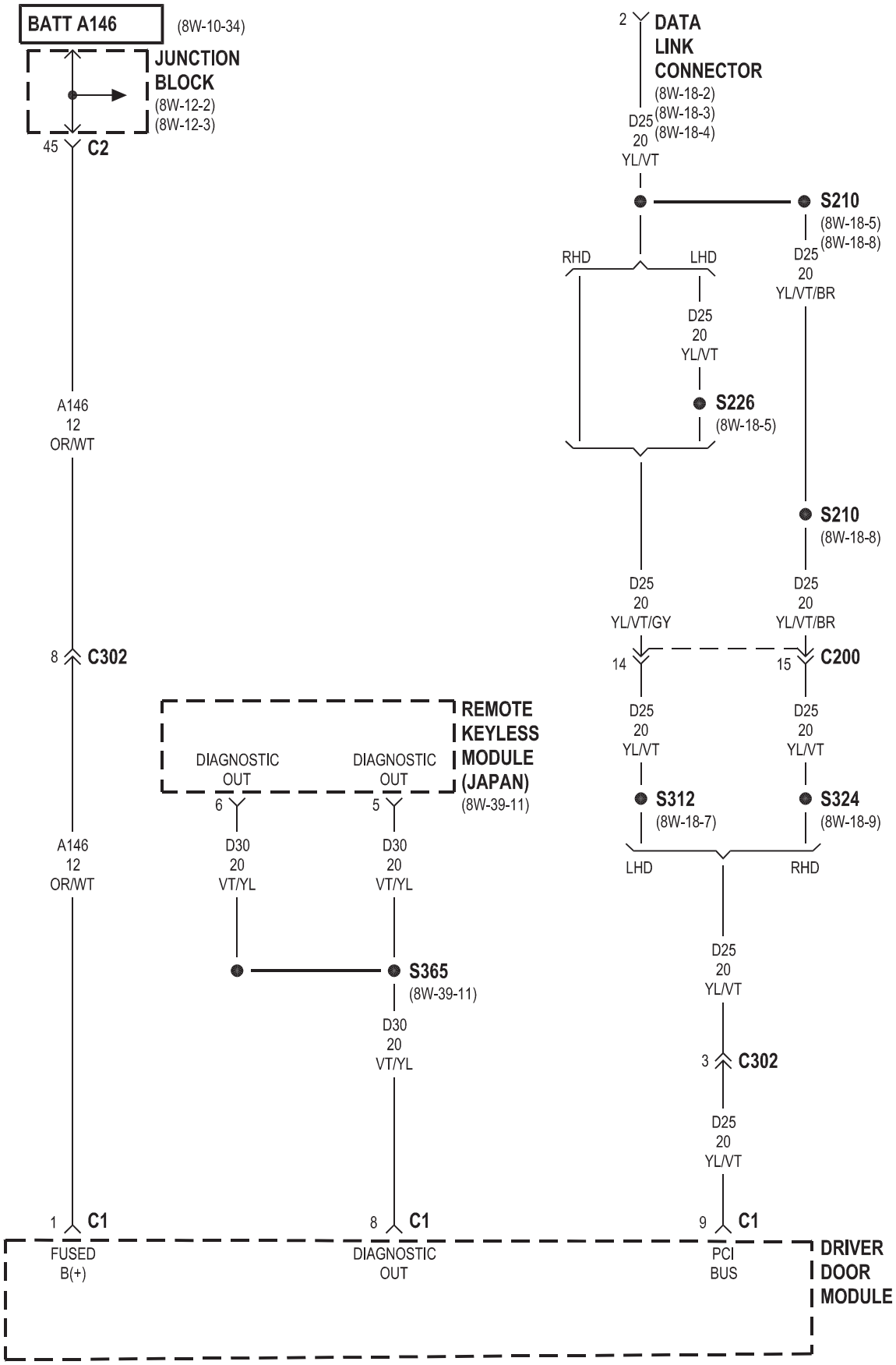

BATT A146
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
45 C2
36 C2
A146 12 OR/WT
A146 12 OR/WT
8 C302
2 C314
A146 12 OR/WT
A146 12 OR/WT
1 C1
1 C1
FUSED B(+)
FUSED B(+)
DRIVER DOOR MODULE
PASSENGER DOOR MODULE
DRIVER REAR WINDOW DRIVER (DOWN)
DRIVER REAR WINDOW DRIVER (UP)
GROUND
GROUND
PASSENGER REAR WINDOW DRIVER (DOWN)
PASSENGER REAR WINDOW DRIVER (UP)
2 C1
3 C1
4 C1
4 C1
2 C1
3 C1
RHD
LHD
Z234 12 BK
Z28 12 BK
S336
(8W-15-16)
S338
(8W-15-16)
Q23 16 RD/WT
Q13 16 DB
Q24 16 DG
Q14 16 GY
7
6
4 C302
5
7
6 C314
A
B
C
D
S358
(8W-15-22)
S330
(8W-15-16)
S358
(8W-15-22)
TO C300 (LHD) C301 (RHD)
(8W-60-5)
TO C300 (LHD) C301 (RHD)
(8W-60-5)
TO C303 (LHD) C307 (RHD)
(8W-60-6)
TO C303 (LHD) C307 (RHD)
(8W-60-6)
G301
(8W-15-22)
G300
(8W-15-17)
G301
(8W-15-22)

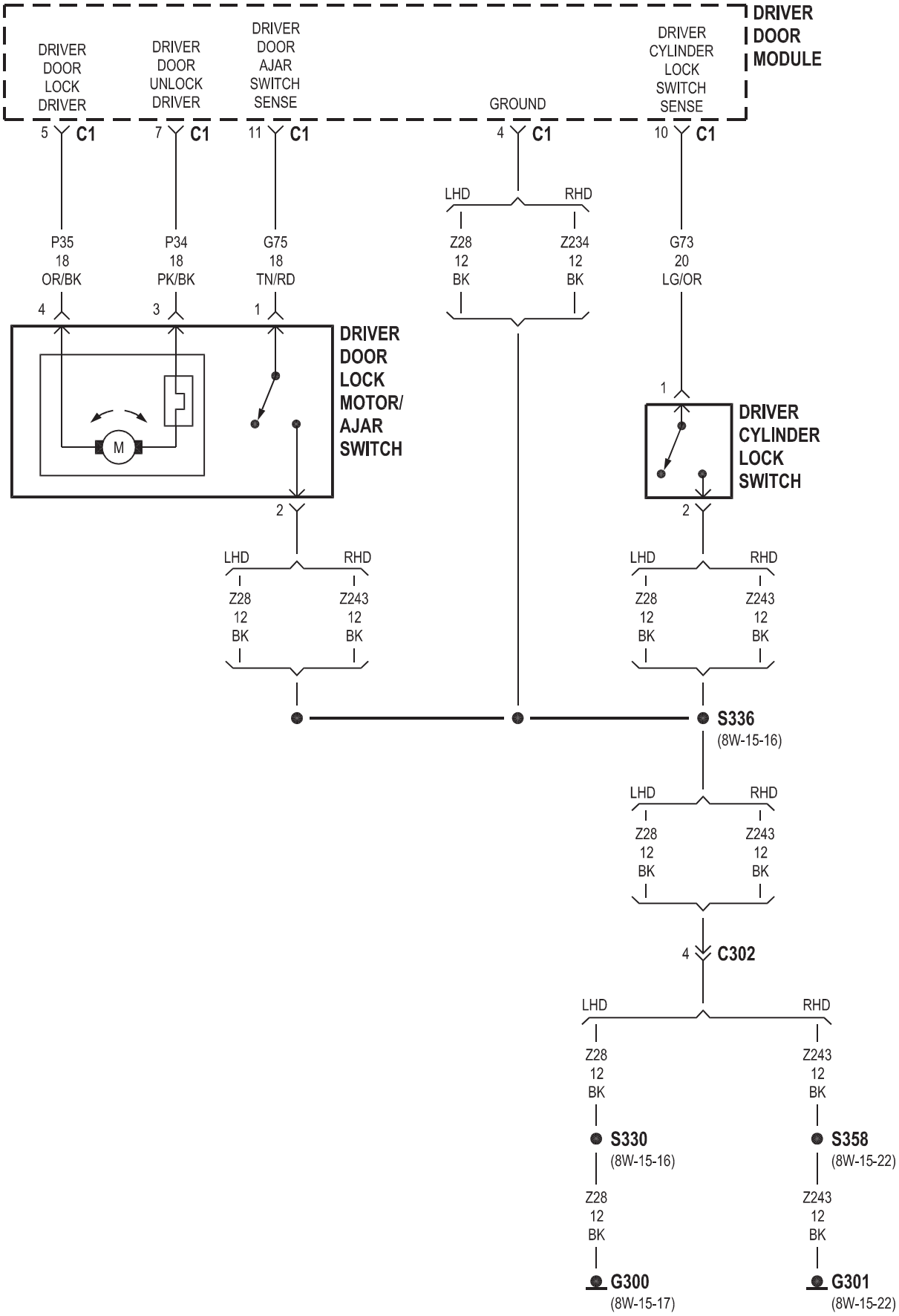

DRIVER DOOR MODULE
DRIVER REAR DOOR SWITCH ILLUMINATION
12 C1
E21
20
OR/RD
5 C302
E21
20
OR/RD
18 C300
E21
20
OR/RD
LHD
RHD
37 C301
3 C307
E21
20
OR/RD
3 C303
E21
20
OR/RD
3
FROM C302 (8W-60-4)
A
Q23
16
RD/WT
LHD
RHD
L C300
B C301
Q23
16
RD/WT
Q23
16
RD/WT
9 C307
9 C303
Q24
16
DG
4
FROM C302 (8W-60-4)
B
Q13
16
DB
LHD
RHD
B C300
A C301
Q13
16
DB
Q13
16
DB
8 C307
8 C303
Q14
16
GY
1
DRIVER REAR POWER WINDOW SWITCH
DOWN
UP
5
2
6
Q124
16
DG/WT
Q114
16
GY/WT
LHD
RHD
Z243
16
BK
Z151
16
BK
S356 (8W-15-21)
S357 (8W-15-18)
Z243
16
BK
Z151
16
BK
10 C307
10 C303
Z243
16
BK
Z151
16
BK
S300 (8W-15-21)
S332 (8W-15-18)
Z243
12
BK
Z151
14
BK
G301 (8W-15-21)
G300 (8W-15-18)
1
2
M
DRIVER REAR POWER WINDOW MOTOR

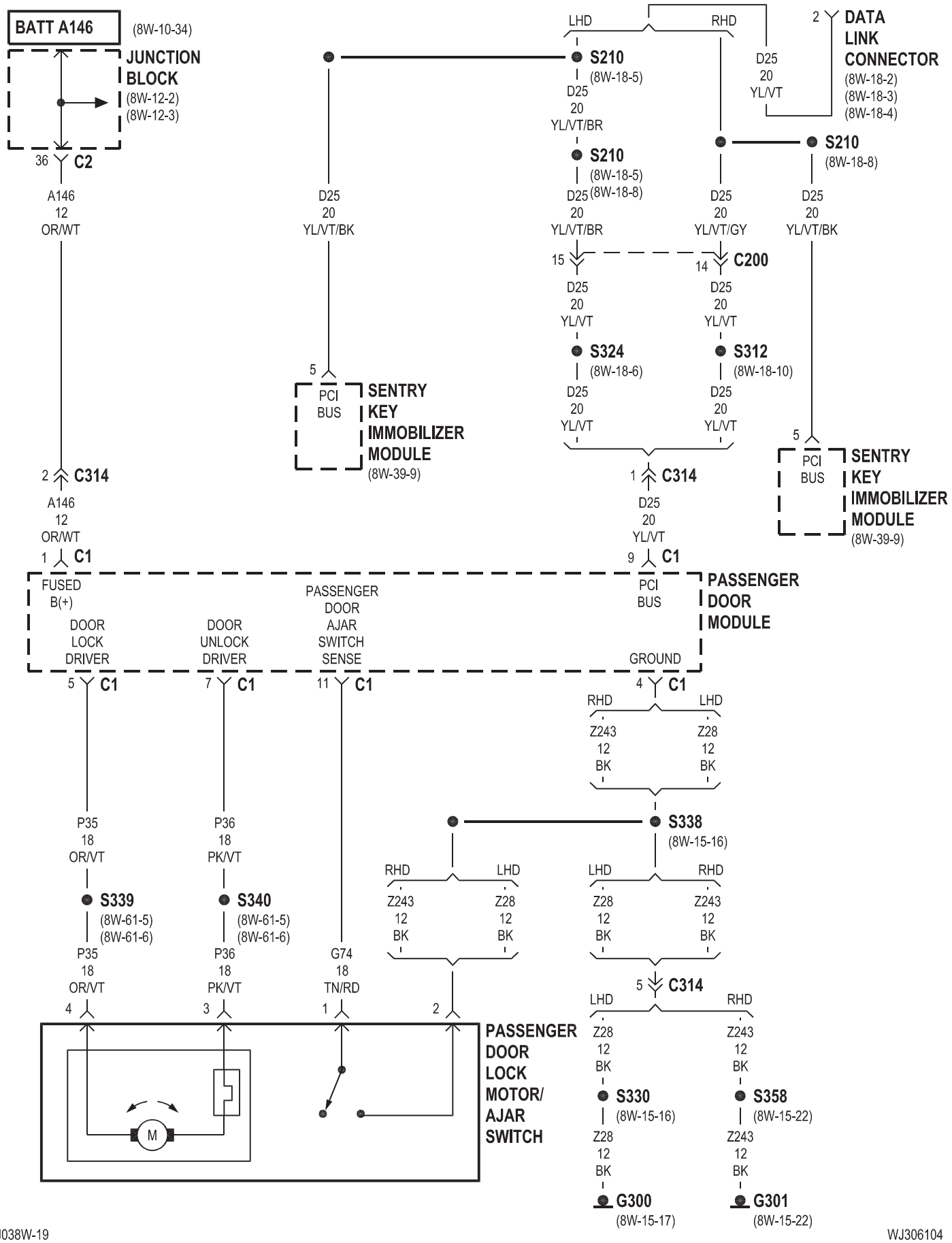

PASSENGER DOOR MODULE
PASSENGER REAR DOOR SWITCH ILLUMINATION
12 C1
E20
20
OR/DB
8 C314
FROM C314 (8W-60-4)
C
D
Q24
16
DG
Q14
16
GY
E20
20
OR/DB
LHD
RHD
9 C303
9 C307
8 C303
8 C307
3 C303
3 C307
Q24
16
DG
Q14
16
GY
E21
20
OR/RD
4
1
3
PASSENGER REAR POWER WINDOW SWITCH
DOWN
UP
5
2
6
Q124
16
DG/WT
Q114
16
GY/WT
Z28
16
BK
Z243
16
BK
S357 (8W-15-16)
S356 (8W-15-22)
10 C303
10 C307
S330 (8W-15-16)
S358 (8W-15-22)
Z28
12
BK
Z243
12
BK
G300 (8W-15-17)
G301 (8W-15-22)
1
2
PASSENGER REAR POWER WINDOW MOTOR
M

8W-61 POWER DOOR LOCKS

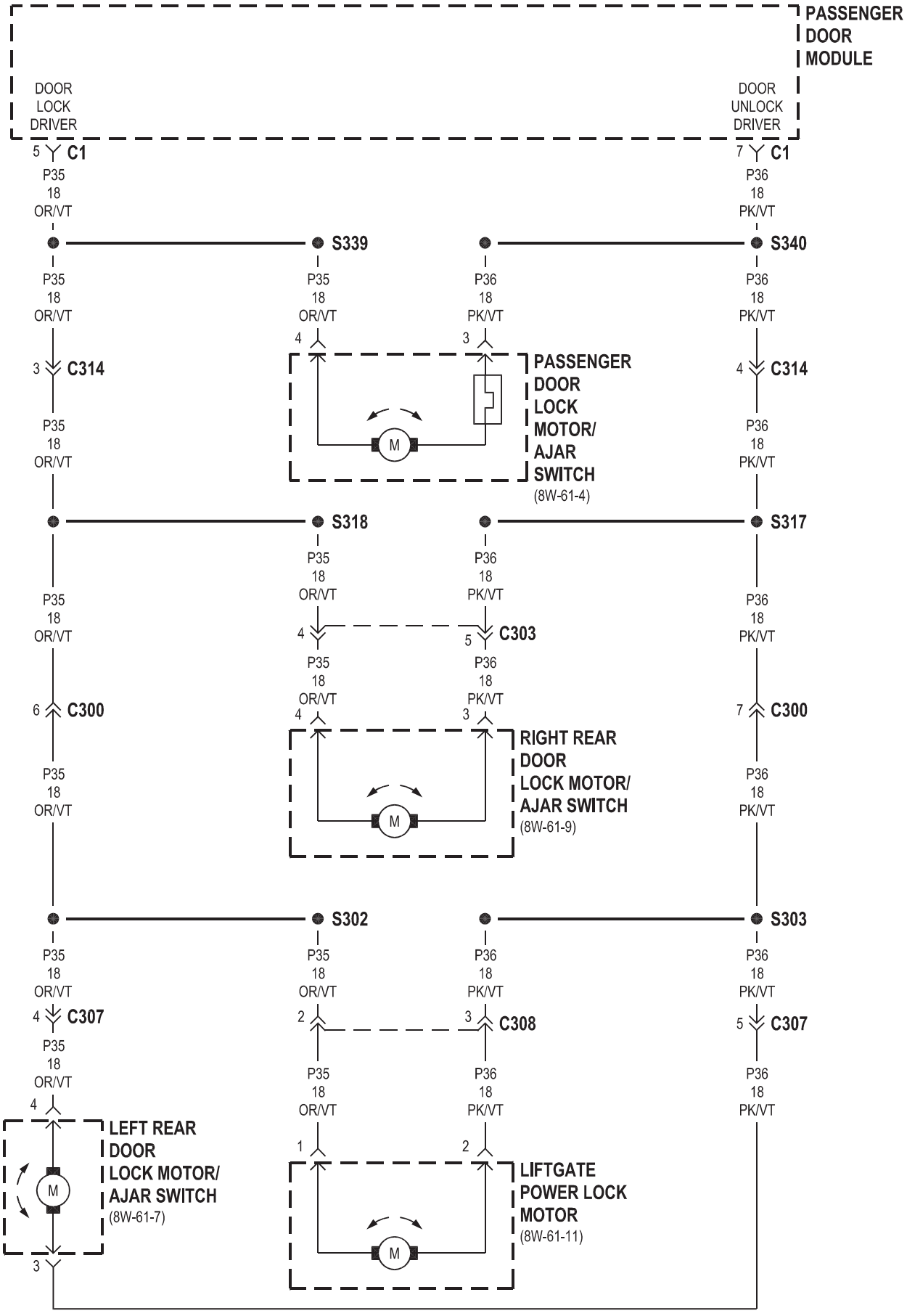
Component	Page
Body Control Module	8W-61-7, 8, 9, 10, 12
Data Link Connector	8W-61-2, 4
Driver Cylinder Lock Switch	8W-61-3
Driver Door Lock Motor/Ajar Switch	8W-61-3
Driver Door Module	8W-61-2, 3
Fuse 8	8W-61-11
G300	8W-61-3, 4, 8, 9
G301	8W-61-3, 4, 7, 10, 11, 12
Junction Block	8W-61-2, 4, 7, 10, 11, 12,
Left Liftgate Ajar Switch	8W-61-12
Left Rear Door Lock Motor/Ajar Switch	8W-61-5, 6, 7, 10
Liftgate Flip-Up Ajar Switch	8W-61-12
Liftgate Flip-Up Push Button Switch	8W-61-11
Liftgate Flip-Up Release Solenoid	8W-61-11
Liftgate Power Lock Motor	8W-61-5, 6, 11
Passenger Door Lock Motor/Ajar Switch	8W-61-4, 5, 6
Passenger Door Module	8W-61-4, 5, 6, 7, 8, 9, 10, 11
Rear Wiper Motor	8W-61-12
Remote Keyless Module	8W-61-2
Right Liftgate Ajar Switch	8W-61-12
Right Rear Door Lock Motor/Ajar Switch	8W-61-5, 6, 8, 9
Sentry Key Immobilizer Module	8W-61-4

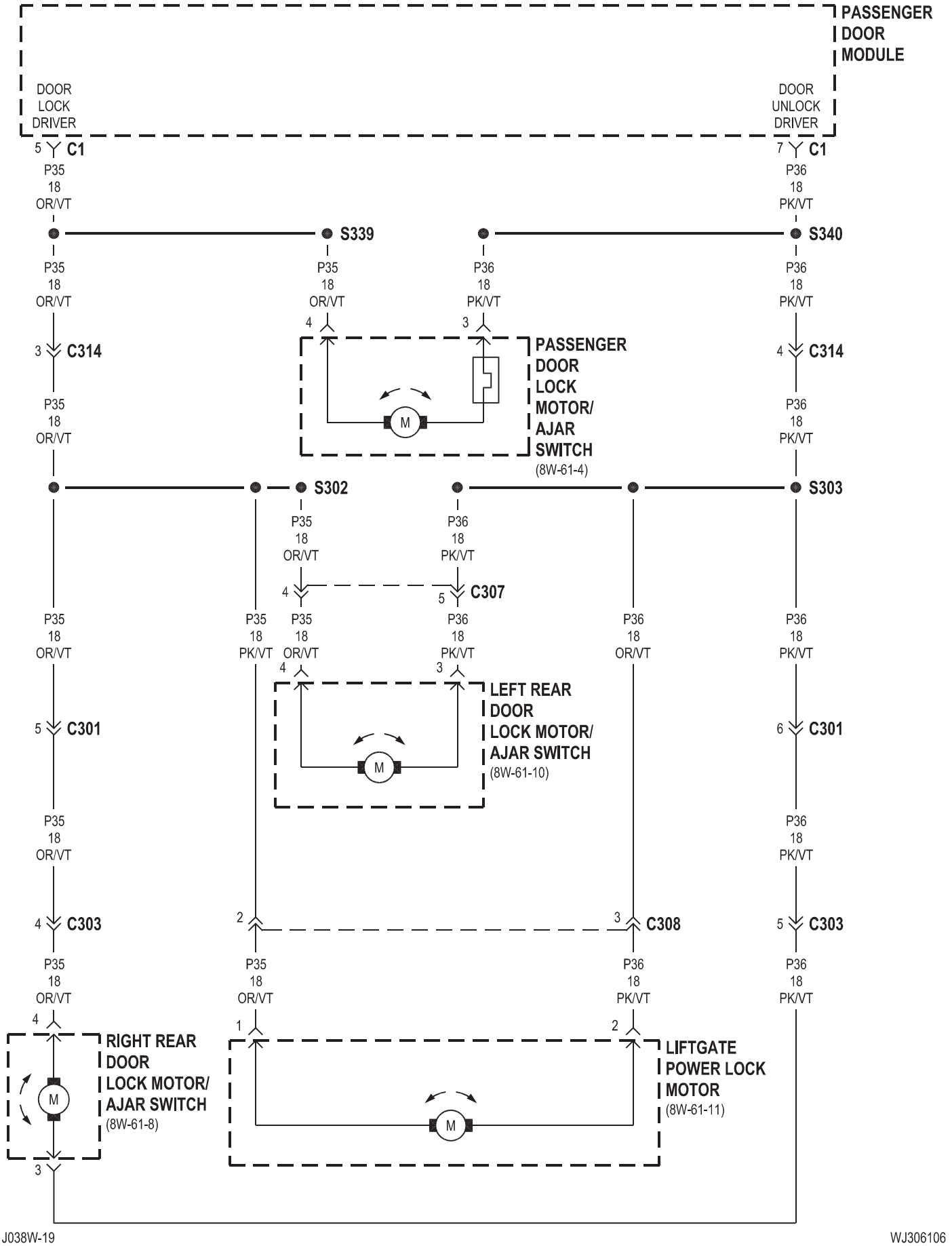

BATT A146
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
45 C2
A146
12
OR/WT
8 C302
A146
12
OR/WT
1 C1
FUSED B(+)
REMOTE KEYLESS MODULE (JAPAN)
(8W-39-11)
DIAGNOSTIC OUT
6
DIAGNOSTIC OUT
5
D30
20
VT/YL
D30
20
VT/YL
S365
(8W-39-11)
D30
20
VT/YL
8 C1
DIAGNOSTIC OUT
2 DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
D25
20
YL/VT
S210
(8W-18-5)
(8W-18-8)
RHD
LHD
D25
20
YL/VT
S226
(8W-18-5)
D25
20
YL/VT/BR
S210
(8W-18-8)
D25
20
YL/VT/GY
D25
20
YL/VT/BR
14 C200
15
D25
20
YL/VT
D25
20
YL/VT
S312
(8W-18-7)
S324
(8W-18-9)
LHD
RHD
D25
20
YL/VT
3 C302
D25
20
YL/VT
9 C1
PCI BUS
DRIVER DOOR MODULE

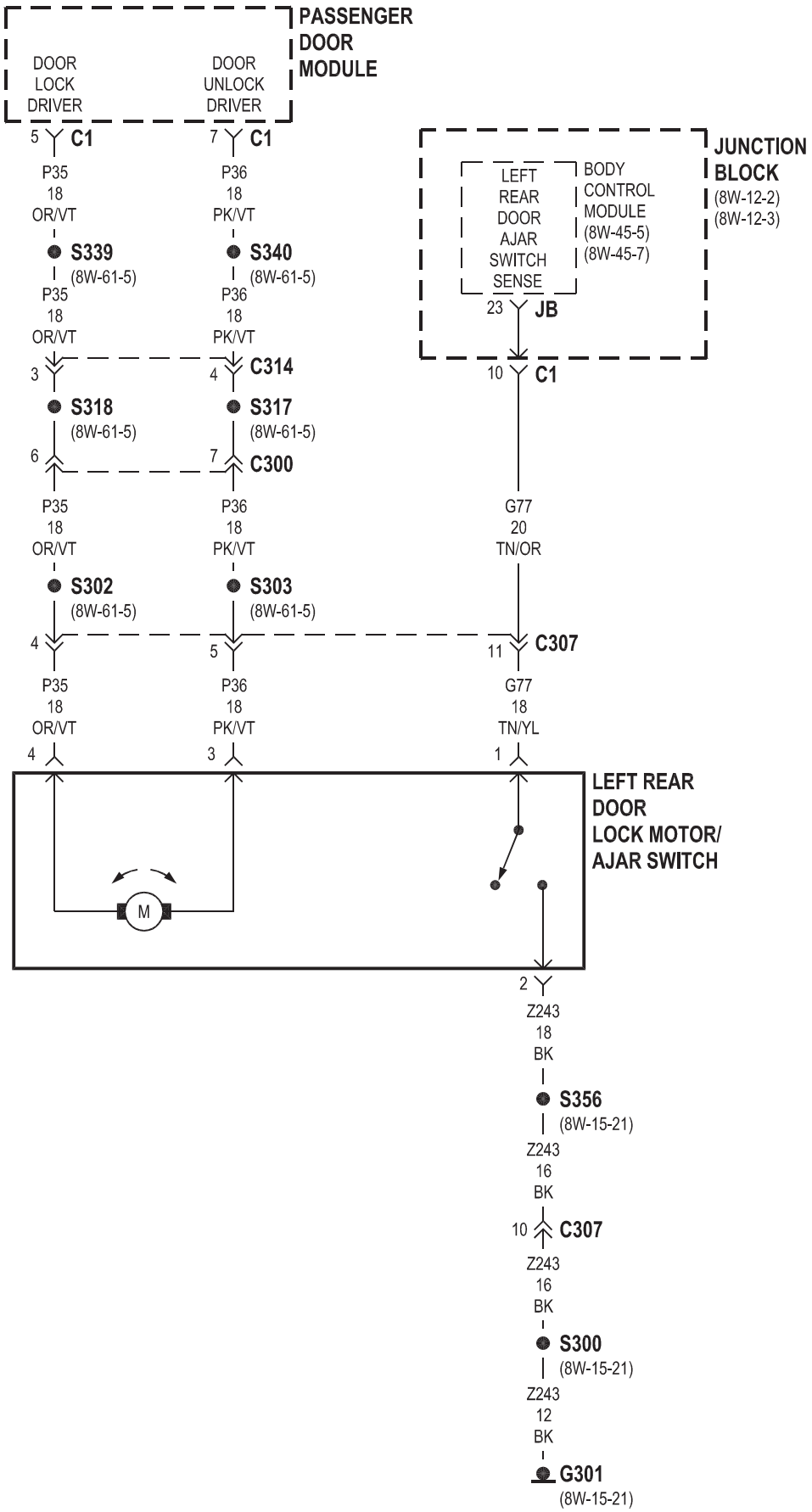

DRIVER DOOR MODULE
DRIVER DOOR LOCK DRIVER
DRIVER DOOR UNLOCK DRIVER
DRIVER DOOR AJAR SWITCH SENSE
GROUND
DRIVER CYLINDER LOCK SWITCH SENSE
5 C1
7 C1
11 C1
4 C1
10 C1
LHD
RHD
P35 18 OR/BK
P34 18 PK/BK
G75 18 TN/RD
Z28 12 BK
Z234 12 BK
G73 20 LG/OR
4
3
1
M
DRIVER DOOR LOCK MOTOR/ AJAR SWITCH
DRIVER CYLINDER LOCK SWITCH
2
Z28 12 BK
Z243 12 BK
S336
(8W-15-16)
4 C302
S330
(8W-15-16)
S358
(8W-15-22)
G300
(8W-15-17)
G301
(8W-15-22)

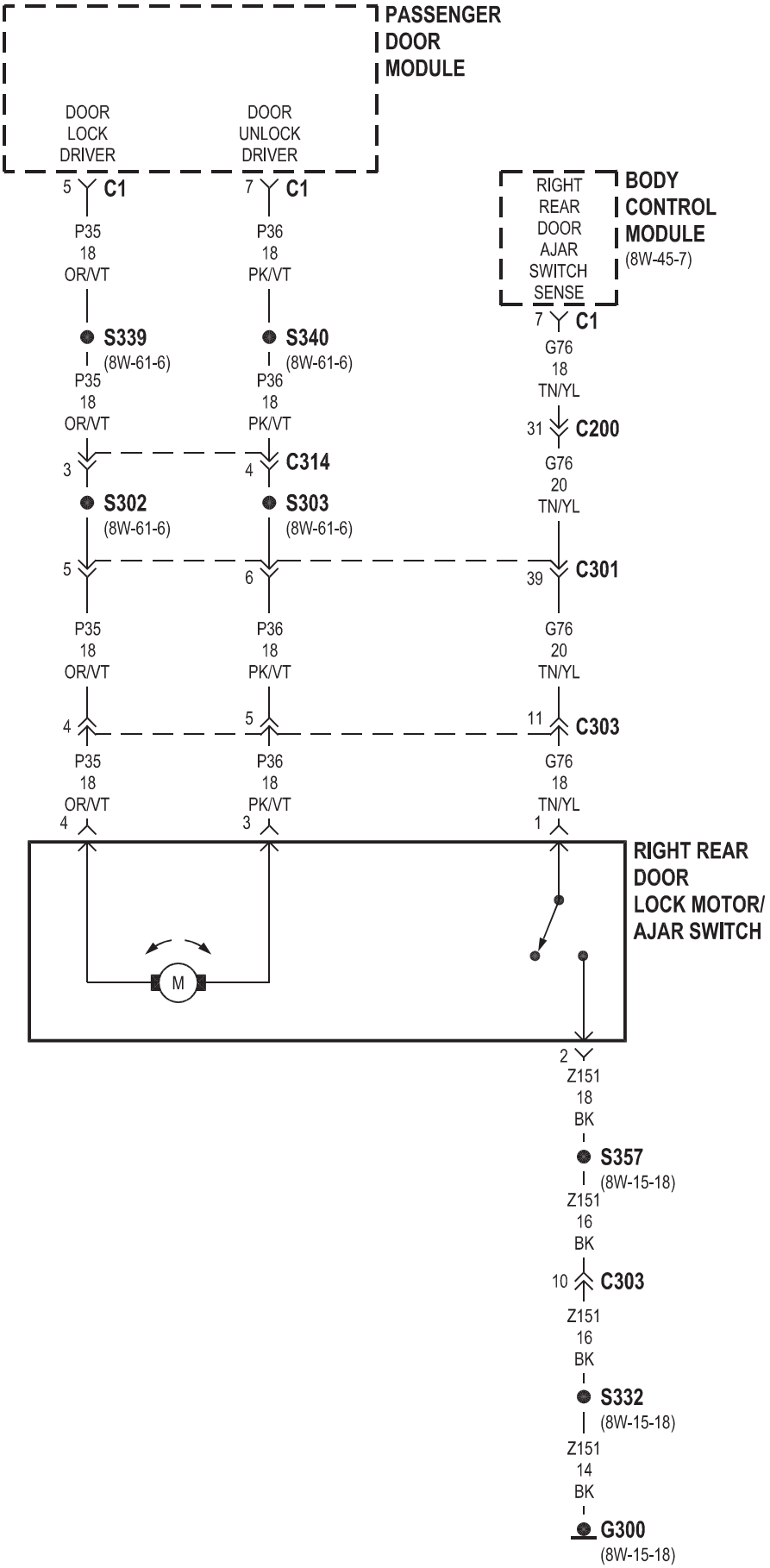

BATT A146
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
36 C2
A146
12
OR/WT
2 C314
A146
12
OR/WT
1 C1
D25
20
YL/VT/BK
5
PCI BUS
SENTRY KEY IMMOBILIZER MODULE
(8W-39-9)
LHD
RHD
S210
(8W-18-5)
D25
20
YL/VT/BR
S210
(8W-18-5)
(8W-18-8)
D25
20
YL/VT/BR
D25
20
YL/VT/GY
D25
20
YL/VT/BK
15 C200
14
D25
20
YL/VT
D25
20
YL/VT
S324
(8W-18-6)
S312
(8W-18-10)
D25
20
YL/VT
D25
20
YL/VT
1 C314
D25
20
YL/VT
9 C1
D25
20
YL/VT
2 DATA LINK CONNECTOR
(8W-18-2)
(8W-18-3)
(8W-18-4)
S210
(8W-18-8)
5
PCI BUS
SENTRY KEY IMMOBILIZER MODULE
(8W-39-9)
FUSED B(+)
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
PASSENGER DOOR AJAR SWITCH SENSE
PCI BUS
GROUND
PASSENGER DOOR MODULE
5 C1
7 C1
11 C1
4 C1
RHD
LHD
Z243
12
BK
Z28
12
BK
S338
(8W-15-16)
P35
18
OR/VT
P36
18
PK/VT
RHD
LHD
LHD
RHD
Z243
12
BK
Z28
12
BK
Z28
12
BK
Z243
12
BK
S339
(8W-61-5)
(8W-61-6)
S340
(8W-61-5)
(8W-61-6)
P35
18
OR/VT
P36
18
PK/VT
G74
18
TN/RD
5 C314
LHD
RHD
4
3
1
2
Z28
12
BK
Z243
12
BK
S330
(8W-15-16)
S358
(8W-15-22)
Z28
12
BK
Z243
12
BK
G300
(8W-15-17)
G301
(8W-15-22)
M
PASSENGER DOOR LOCK MOTOR/ AJAR SWITCH

LHD

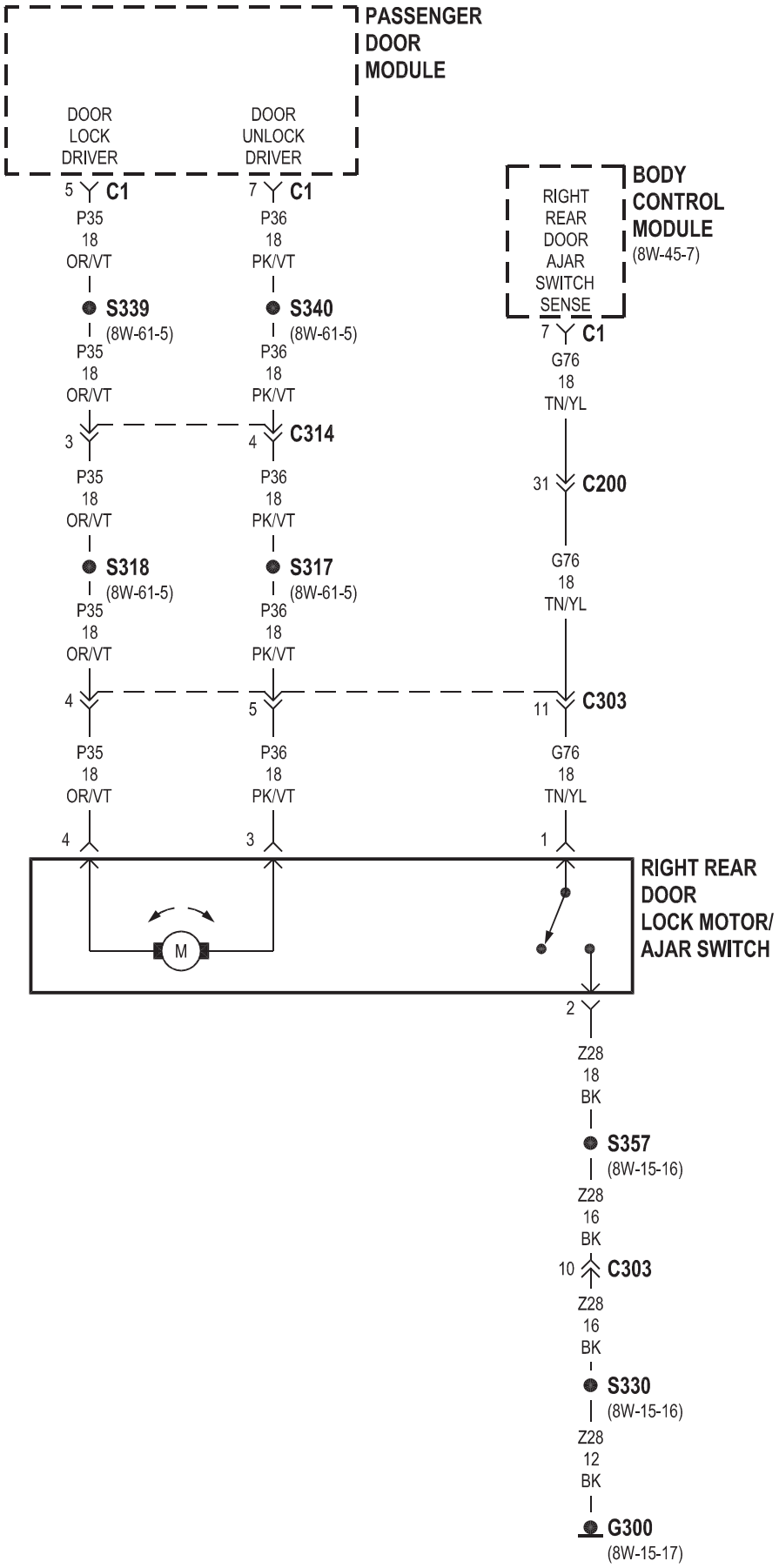

PASSENGER DOOR MODULE
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
5 C1
7 C1
P35 18 OR/VT
P36 18 PK/VT
S339
S340
P35 18 OR/VT
P36 18 PK/VT
4
3
3 C314
4 C314
PASSENGER DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-4)
M
S318
S317
6 C300
7 C300
C303
5
RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-9)
S302
S303
4 C307
5 C307
2
3 C308
1
2
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-7)
LIFTGATE POWER LOCK MOTOR
(8W-61-11)

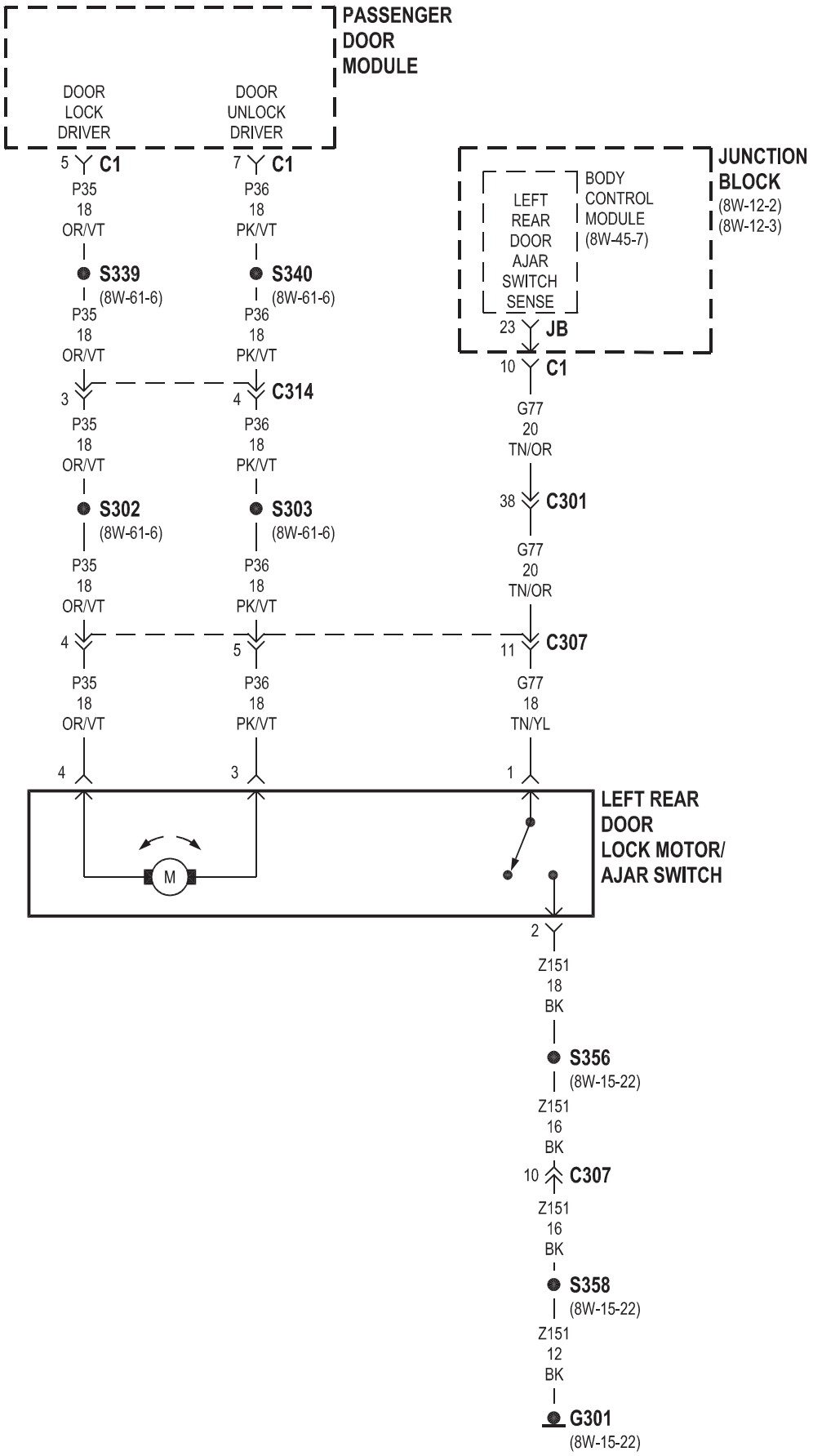

PASSENGER DOOR MODULE
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
5 C1
P35 18 OR/VT
7 C1
P36 18 PK/VT
S339
S340
P35 18 OR/VT
P36 18 PK/VT
3 C314
4 C314
4
3
M
PASSENGER DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-4)
S302
S303
P35 18 PK/VT
4 C307
5 C307
5 C301
6 C301
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-10)
4 C303
5 C303
2
3 C308
RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH
(8W-61-8)
1
2
LIFTGATE POWER LOCK MOTOR
(8W-61-11)

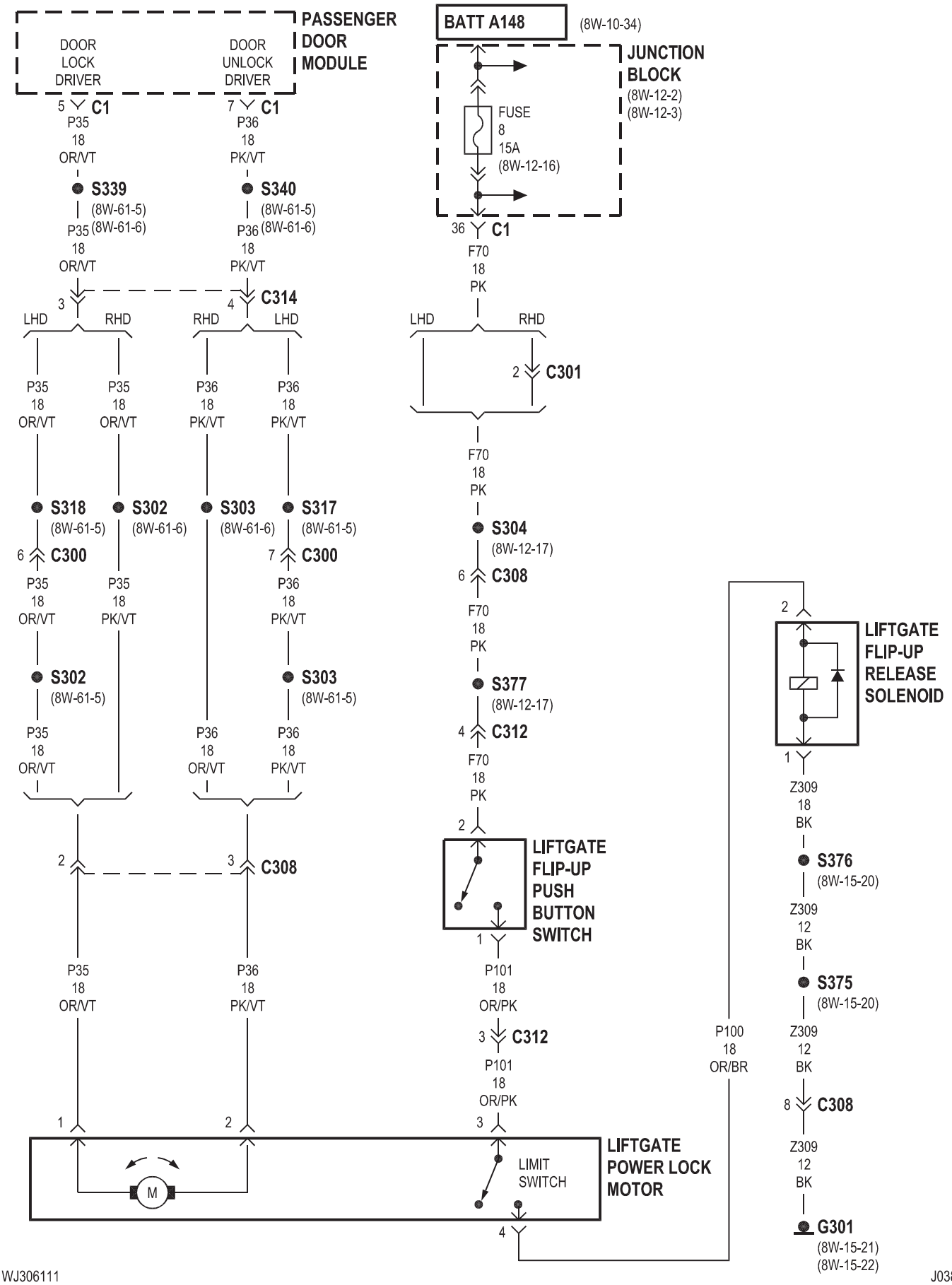

PASSENGER DOOR MODULE
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
5 C1
7 C1
P35 18 OR/VT
P36 18 PK/VT
S339 (8W-61-5)
S340 (8W-61-5)
P35 18 OR/VT
P36 18 PK/VT
3
4 C314
S318 (8W-61-5)
S317 (8W-61-5)
6
7 C300
P35 18 OR/VT
P36 18 PK/VT
S302 (8W-61-5)
S303 (8W-61-5)
4
5
11 C307
P35 18 OR/VT
P36 18 PK/VT
G77 18 TN/YL
4
3
1
M
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
2
Z243 18 BK
S356 (8W-15-21)
Z243 16 BK
10 C307
Z243 16 BK
S300 (8W-15-21)
Z243 12 BK
G301 (8W-15-21)
JUNCTION BLOCK (8W-12-2) (8W-12-3)
LEFT REAR DOOR AJAR SWITCH SENSE
BODY CONTROL MODULE (8W-45-5) (8W-45-7)
23 JB
10 C1
G77 20 TN/OR

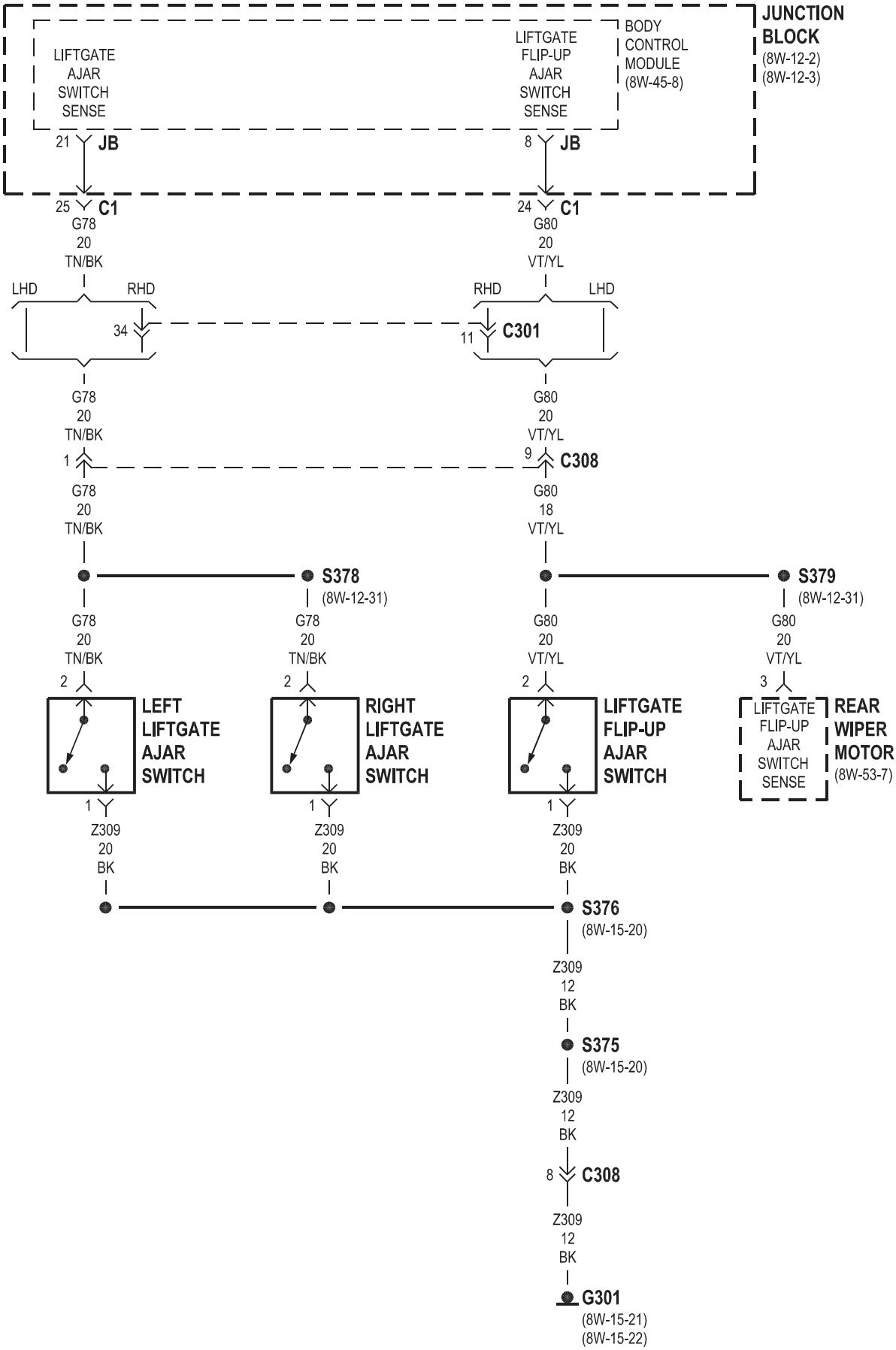

PASSENGER DOOR MODULE
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
5 C1
7 C1
P35 18 OR/VT
P36 18 PK/VT
S339 (8W-61-6)
S340 (8W-61-6)
P35 18 OR/VT
P36 18 PK/VT
3 C314 4
S302 (8W-61-6)
S303 (8W-61-6)
5 6
P35 18 OR/VT
P36 18 PK/VT
4 5
P35 18 OR/VT
P36 18 PK/VT
4 3
RIGHT REAR DOOR AJAR SWITCH SENSE
7 C1
G76 18 TN/YL
31 C200
G76 20 TN/YL
39 C301
G76 20 TN/YL
11 C303
G76 18 TN/YL
1
BODY CONTROL MODULE (8W-45-7)
RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH
M
2
Z151 18 BK
S357 (8W-15-18)
Z151 16 BK
10 C303
Z151 16 BK
S332 (8W-15-18)
Z151 14 BK
G300 (8W-15-18)

LHD


PASSENGER DOOR MODULE
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
5 C1
7 C1
P35 18 OR/VT
P36 18 PK/VT
S339
(8W-61-5)
S340
(8W-61-5)
3 C314
4 C314
S318
(8W-61-5)
S317
(8W-61-5)
4 C303
5 C303
4
3
M
RIGHT REAR DOOR AJAR SWITCH SENSE
BODY CONTROL MODULE
(8W-45-7)
7 C1
G76 18 TN/YL
31 C200
11 C303
1
RIGHT REAR DOOR LOCK MOTOR/ AJAR SWITCH
2
Z28 18 BK
S357
(8W-15-16)
Z28 16 BK
10 C303
Z28 16 BK
S330
(8W-15-16)
Z28 12 BK
G300
(8W-15-17)

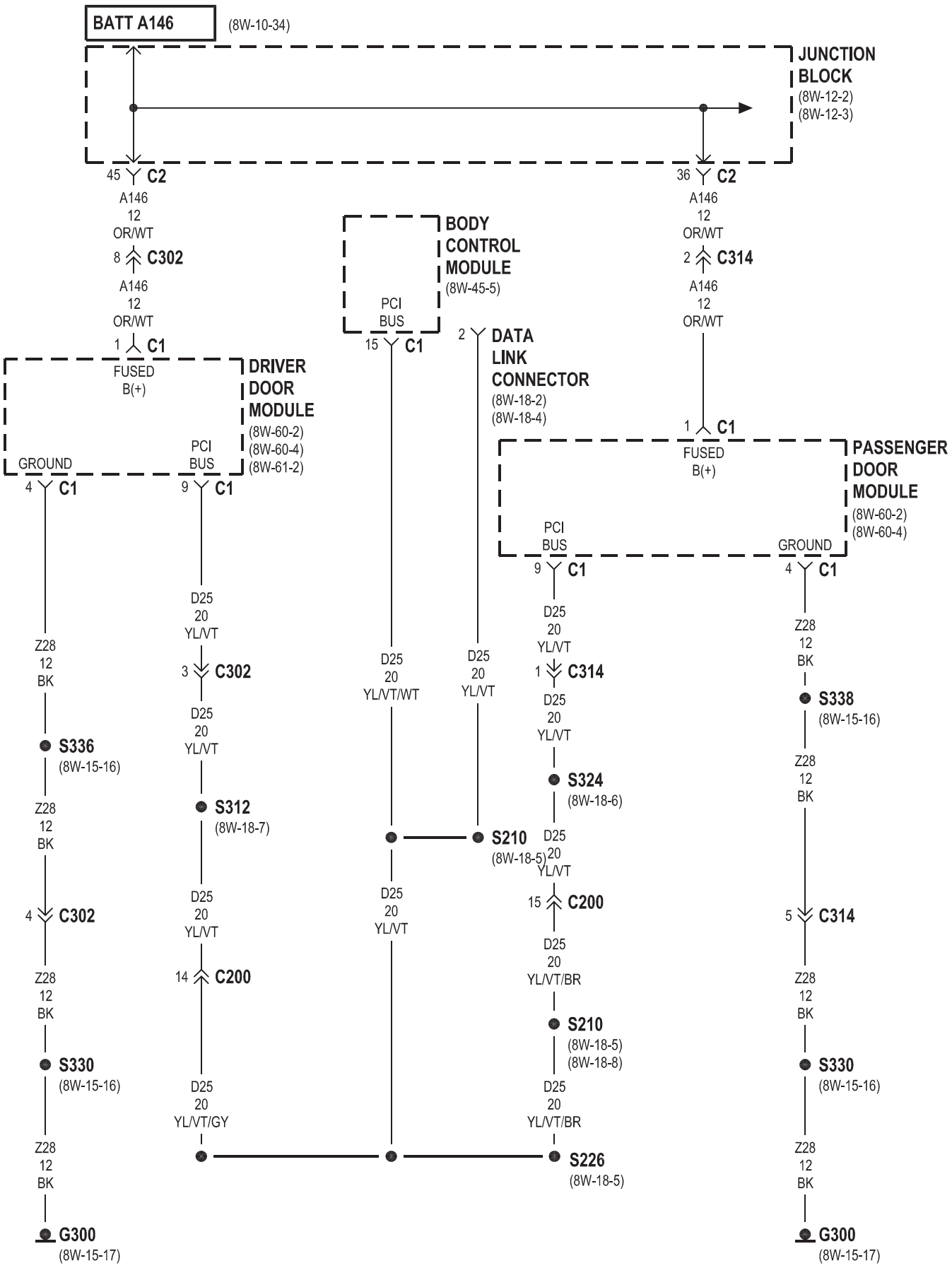

PASSENGER DOOR MODULE
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
5 C1
7 C1
P35 18 OR/VT
P36 18 PK/VT
S339
S340
(8W-61-6)
3 C314
4 C314
S302
S303
4 C307
5 C307
G77 20 TN/OR
G77 18 TN/YL
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
LEFT REAR DOOR AJAR SWITCH SENSE
BODY CONTROL MODULE
(8W-45-7)
23 JB
10 C1
38 C301
11 C307
LEFT REAR DOOR LOCK MOTOR/ AJAR SWITCH
M
Z151 18 BK
Z151 16 BK
Z151 12 BK
S356
S358
10 C307
G301

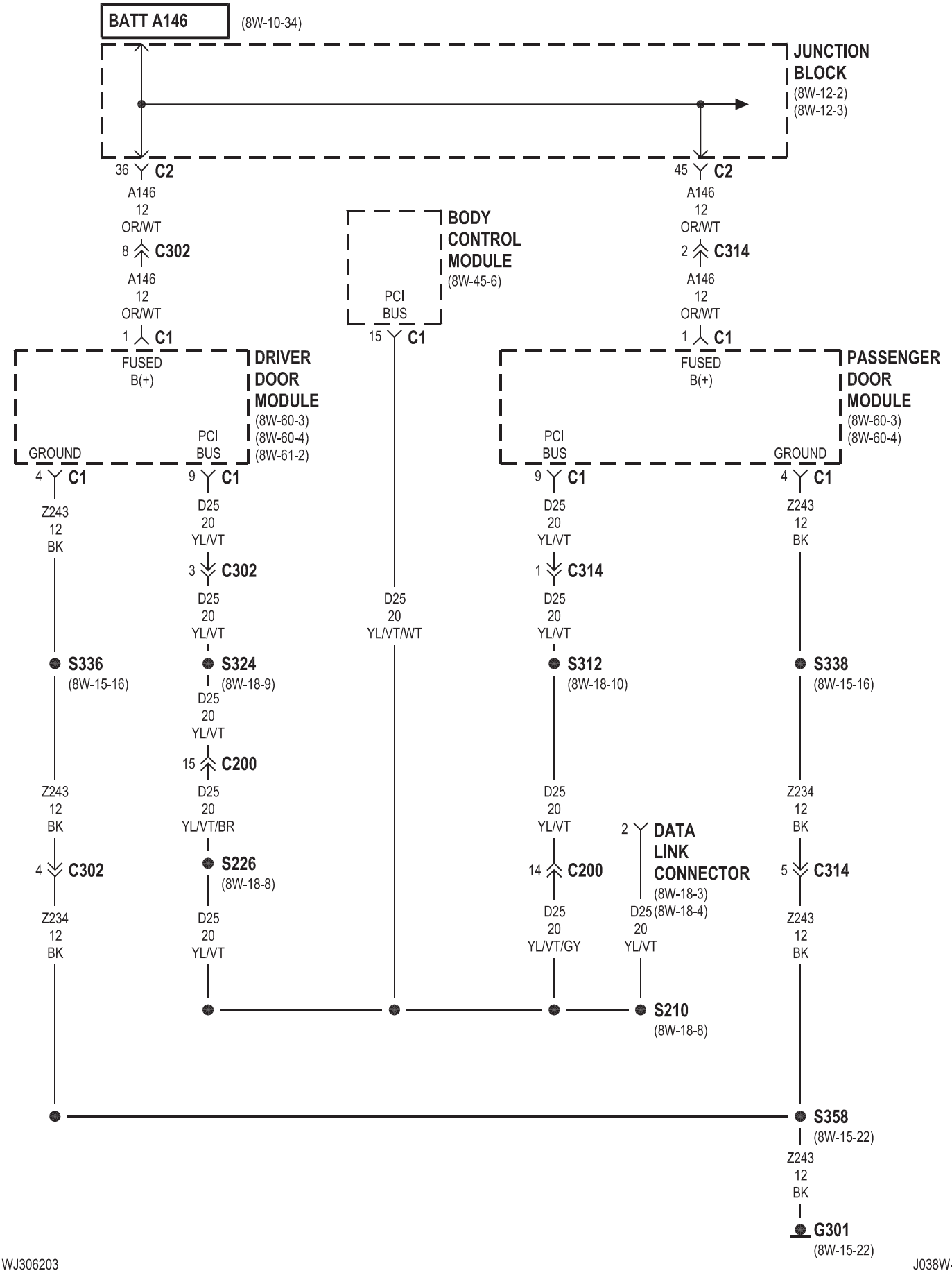

PASSENGER DOOR MODULE
DOOR LOCK DRIVER
DOOR UNLOCK DRIVER
5 C1
7 C1
P35 18 OR/VT
P36 18 PK/VT
S339 (8W-61-5) (8W-61-6)
S340 (8W-61-5) (8W-61-6)
3 C314 4
LHD RHD
RHD LHD
S318 (8W-61-5)
S302 (8W-61-6)
S303 (8W-61-6)
S317 (8W-61-5)
6 C300
7 C300
S302 (8W-61-5)
S303 (8W-61-5)
2 C308 3
BATT A148 (8W-10-34)
JUNCTION BLOCK (8W-12-2) (8W-12-3)
FUSE 8 15A (8W-12-16)
36 C1
F70 18 PK
2 C301
S304 (8W-12-17)
6 C308
S377 (8W-12-17)
4 C312
LIFTGATE FLIP-UP PUSH BUTTON SWITCH
P101 18 OR/PK
3 C312
1
2
3
4
M
LIMIT SWITCH
LIFTGATE POWER LOCK MOTOR
P100 18 OR/BR
LIFTGATE FLIP-UP RELEASE SOLENOID
Z309 18 BK
S376 (8W-15-20)
Z309 12 BK
S375 (8W-15-20)
8 C308
G301 (8W-15-21) (8W-15-22)

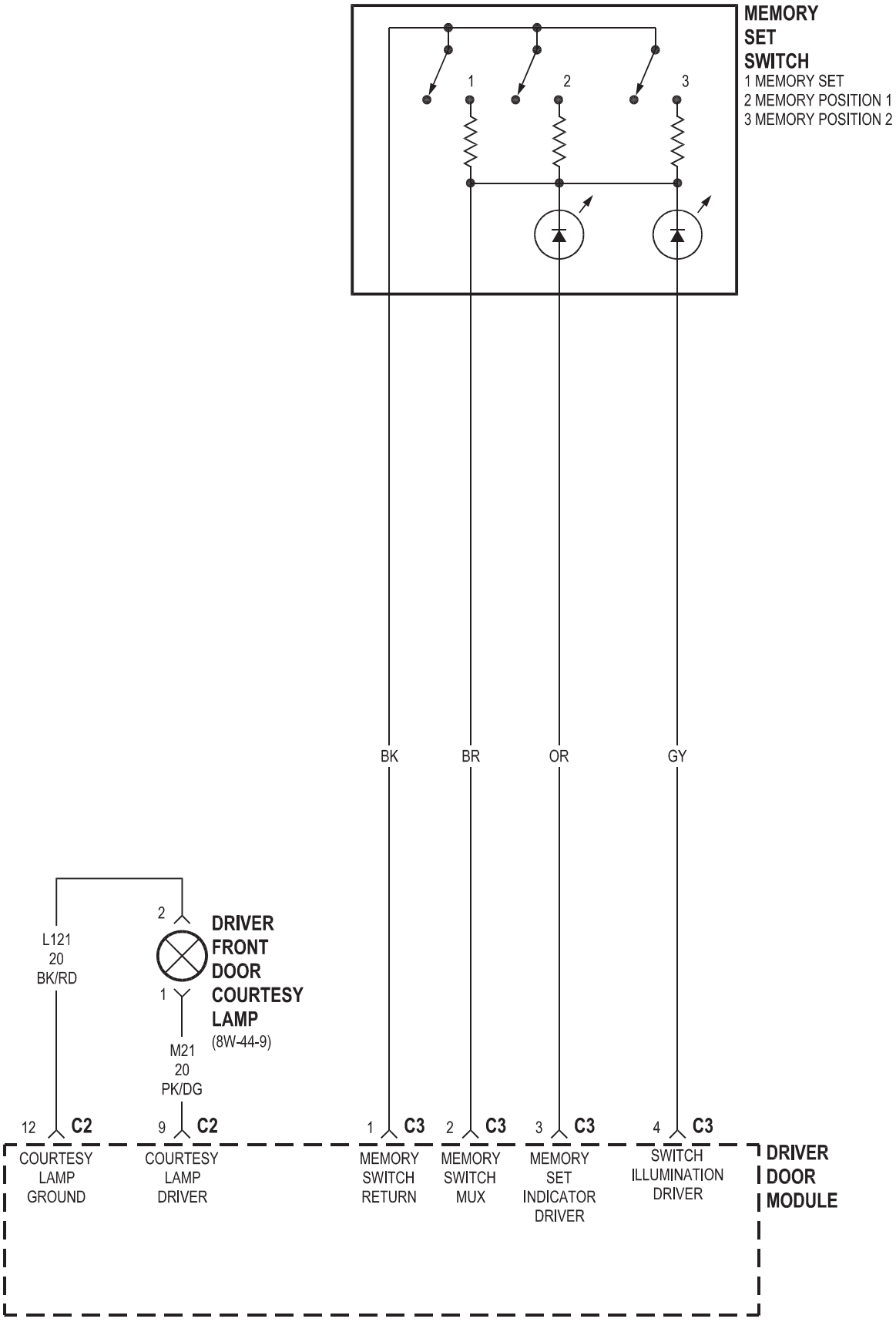

JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
BODY CONTROL MODULE
(8W-45-8)
LIFTGATE AJAR SWITCH SENSE
LIFTGATE FLIP-UP AJAR SWITCH SENSE
21 JB
8 JB
25 C1
24 C1
G78 20 TN/BK
G80 20 VT/YL
LHD
RHD
34
11 C301
1
9 C308
G78 18 VT/YL
S378
(8W-12-31)
S379
(8W-12-31)
2
3
LEFT LIFTGATE AJAR SWITCH
RIGHT LIFTGATE AJAR SWITCH
LIFTGATE FLIP-UP AJAR SWITCH
REAR WIPER MOTOR
(8W-53-7)
Z309 20 BK
S376
(8W-15-20)
Z309 12 BK
S375
(8W-15-20)
8 C308
G301
(8W-15-21)
(8W-15-22)

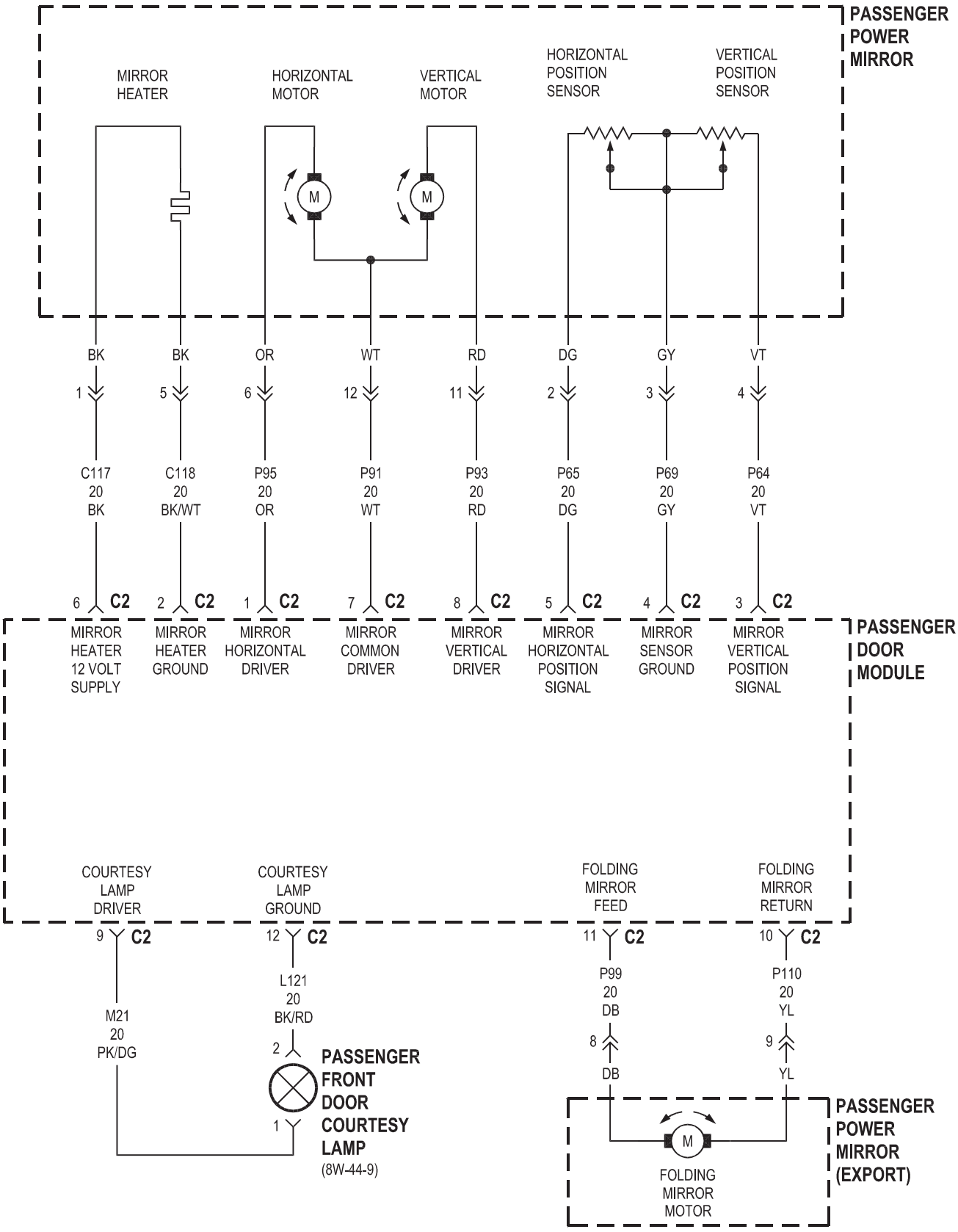
8W-62 POWER MIRRORS

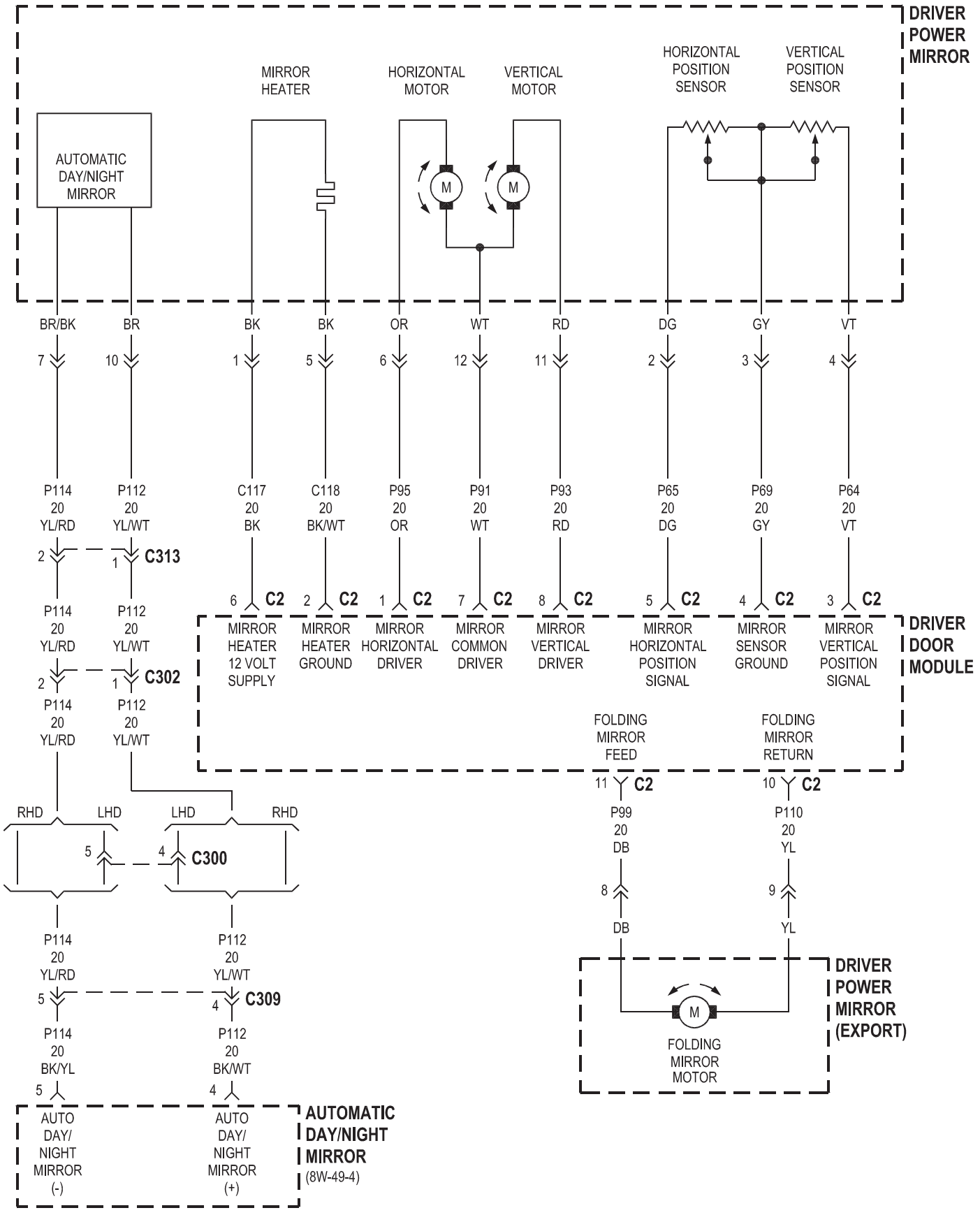
Component	Page
Automatic Day/Night Mirror	8W-62-6
Body Control Module	8W-62-2, 3
Data Link Connector	8W-62-2, 3
Driver Door Module	8W-62-2
Driver Door Module	8W-62-3, 4, 6
Driver Front Door Courtesy Lamp	8W-62-4
Driver Power Mirror	8W-62-6
G300	8W-62-2
G301	8W-62-3
Junction Block	8W-62-2, 3
Memory Set Switch	8W-62-4
Passenger Door Module	8W-62-2
Passenger Door Module	8W-62-3, 5
Passenger Front Door Courtesy Lamp	8W-62-5
Passenger Power Mirror	8W-62-5


BATT A146
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
45 C2
A146
12
OR/WT
8 C302
A146
12
OR/WT
1 C1
FUSED
B(+)
DRIVER DOOR MODULE
(8W-60-2)
(8W-60-4)
(8W-61-2)
GROUND
4 C1
PCI BUS
9 C1
BODY CONTROL MODULE
(8W-45-5)
PCI BUS
15 C1
2 DATA LINK CONNECTOR
(8W-18-2)
(8W-18-4)
36 C2
A146
12
OR/WT
2 C314
A146
12
OR/WT
1 C1
FUSED
B(+)
PASSENGER DOOR MODULE
(8W-60-2)
(8W-60-4)
PCI BUS
9 C1
GROUND
4 C1
Z28
12
BK
S336
(8W-15-16)
Z28
12
BK
4 C302
Z28
12
BK
S330
(8W-15-16)
Z28
12
BK
G300
(8W-15-17)
D25
20
YL/VT
3 C302
D25
20
YL/VT
S312
(8W-18-7)
D25
20
YL/VT
14 C200
D25
20
YL/VT/GY
D25
20
YL/VT/WT
D25
20
YL/VT
S210
(8W-18-5)
D25
20
YL/VT
S226
(8W-18-5)
D25
20
YL/VT
1 C314
D25
20
YL/VT
S324
(8W-18-6)
D25
20
YL/VT
15 C200
D25
20
YL/VT/BR
S210
(8W-18-5)
(8W-18-8)
D25
20
YL/VT/BR
Z28
12
BK
S338
(8W-15-16)
Z28
12
BK
5 C314
Z28
12
BK
S330
(8W-15-16)
Z28
12
BK
G300
(8W-15-17)


BATT A146
(8W-10-34)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
36 C2
A146
12
OR/WT
8 C302
A146
12
OR/WT
1 C1
FUSED
B(+)
45 C2
A146
12
OR/WT
2 C314
A146
12
OR/WT
1 C1
FUSED
B(+)
BODY CONTROL MODULE
(8W-45-6)
PCI BUS
15 C1
DRIVER DOOR MODULE
(8W-60-3)
(8W-60-4)
(8W-61-2)
GROUND
4 C1
Z243
12
BK
PCI BUS
9 C1
D25
20
YL/VT
3 C302
D25
20
YL/VT
S324
(8W-18-9)
D25
20
YL/VT
15 C200
D25
20
YL/VT/BR
S226
(8W-18-8)
D25
20
YL/VT
S336
(8W-15-16)
Z243
12
BK
4 C302
Z234
12
BK
D25
20
YL/VT
S210
(8W-18-8)
PCI BUS
9 C1
D25
20
YL/VT
1 C314
D25
20
YL/VT
S312
(8W-18-10)
D25
20
YL/VT
14 C200
D25
20
YL/VT/GY
2 DATA LINK CONNECTOR
(8W-18-3)
D25 (8W-18-4)
20
YL/VT
PASSENGER DOOR MODULE
(8W-60-3)
(8W-60-4)
GROUND
4 C1
Z243
12
BK
S338
(8W-15-16)
Z234
12
BK
5 C314
Z243
12
BK
S358
(8W-15-22)
Z243
12
BK
G301
(8W-15-22)

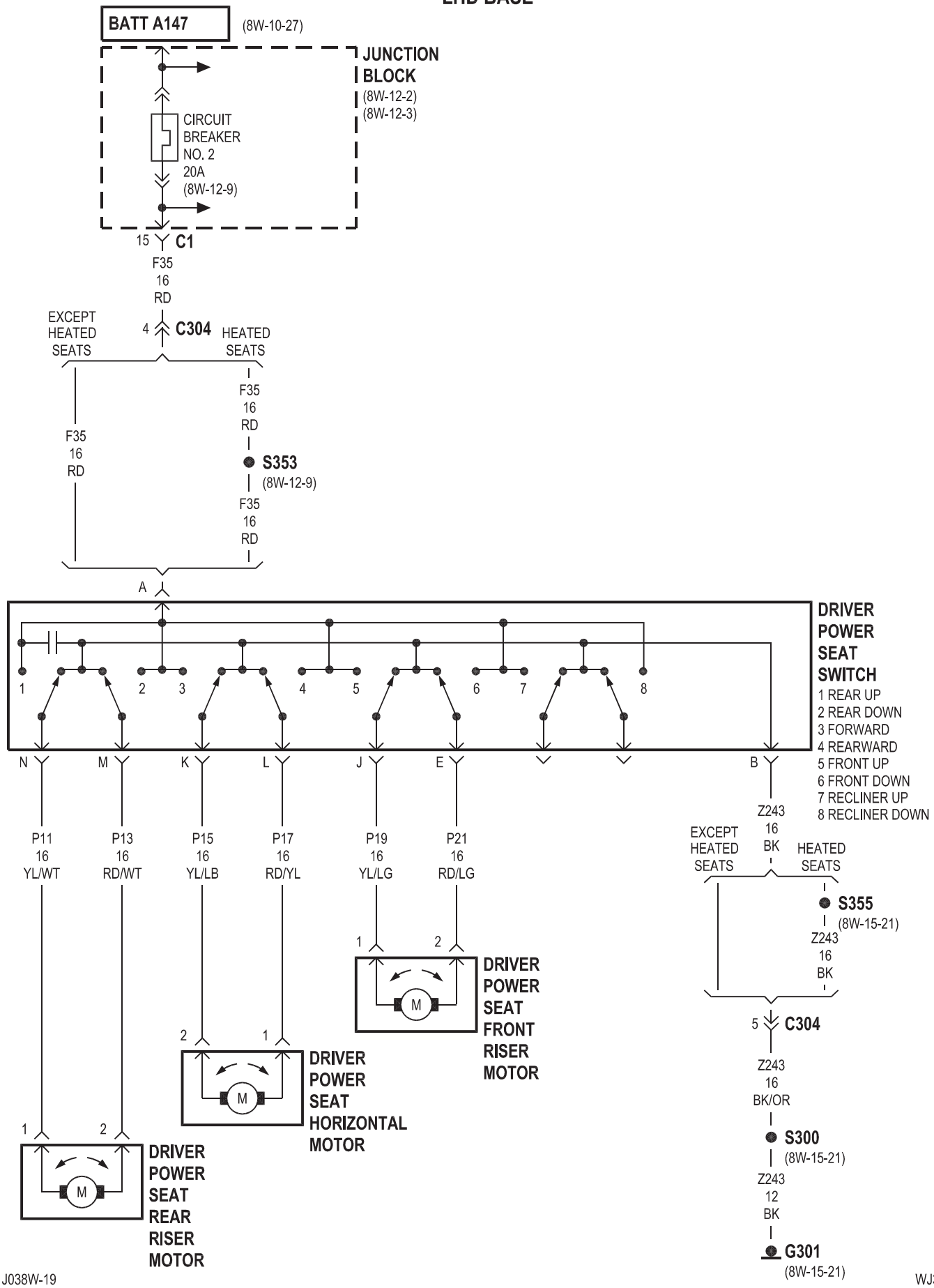

MEMORY
SET
SWITCH
1 MEMORY SET
2 MEMORY POSITION 1
3 MEMORY POSITION 2
1
2
3
BK
BR
OR
GY
L121
20
BK/RD
2
DRIVER
FRONT
DOOR
COURTESY
LAMP
(8W-44-9)
1
M21
20
PK/DG
12 C2
9 C2
1 C3
2 C3
3 C3
4 C3
COURTESY
LAMP
GROUND
COURTESY
LAMP
DRIVER
MEMORY
SWITCH
RETURN
MEMORY
SWITCH
MUX
MEMORY
SET
INDICATOR
DRIVER
SWITCH
ILLUMINATION
DRIVER
DRIVER
DOOR
MODULE


PASSENGER POWER MIRROR
MIRROR HEATER
HORIZONTAL MOTOR
VERTICAL MOTOR
HORIZONTAL POSITION SENSOR
VERTICAL POSITION SENSOR
M
M
BK
BK
OR
WT
RD
DG
GY
VT
1
5
6
12
11
2
3
4
C117 20 BK
C118 20 BK/WT
P95 20 OR
P91 20 WT
P93 20 RD
P65 20 DG
P69 20 GY
P64 20 VT
6 C2
2 C2
1 C2
7 C2
8 C2
5 C2
4 C2
3 C2
MIRROR HEATER 12 VOLT SUPPLY
MIRROR HEATER GROUND
MIRROR HORIZONTAL DRIVER
MIRROR COMMON DRIVER
MIRROR VERTICAL DRIVER
MIRROR HORIZONTAL POSITION SIGNAL
MIRROR SENSOR GROUND
MIRROR VERTICAL POSITION SIGNAL
PASSENGER DOOR MODULE
COURTESY LAMP DRIVER
COURTESY LAMP GROUND
FOLDING MIRROR FEED
FOLDING MIRROR RETURN
9 C2
12 C2
11 C2
10 C2
M21 20 PK/DG
L121 20 BK/RD
P99 20 DB
P110 20 YL
2
1
8
9
DB
YL
PASSENGER FRONT DOOR COURTESY LAMP
(8W-44-9)
M
FOLDING MIRROR MOTOR
PASSENGER POWER MIRROR (EXPORT)

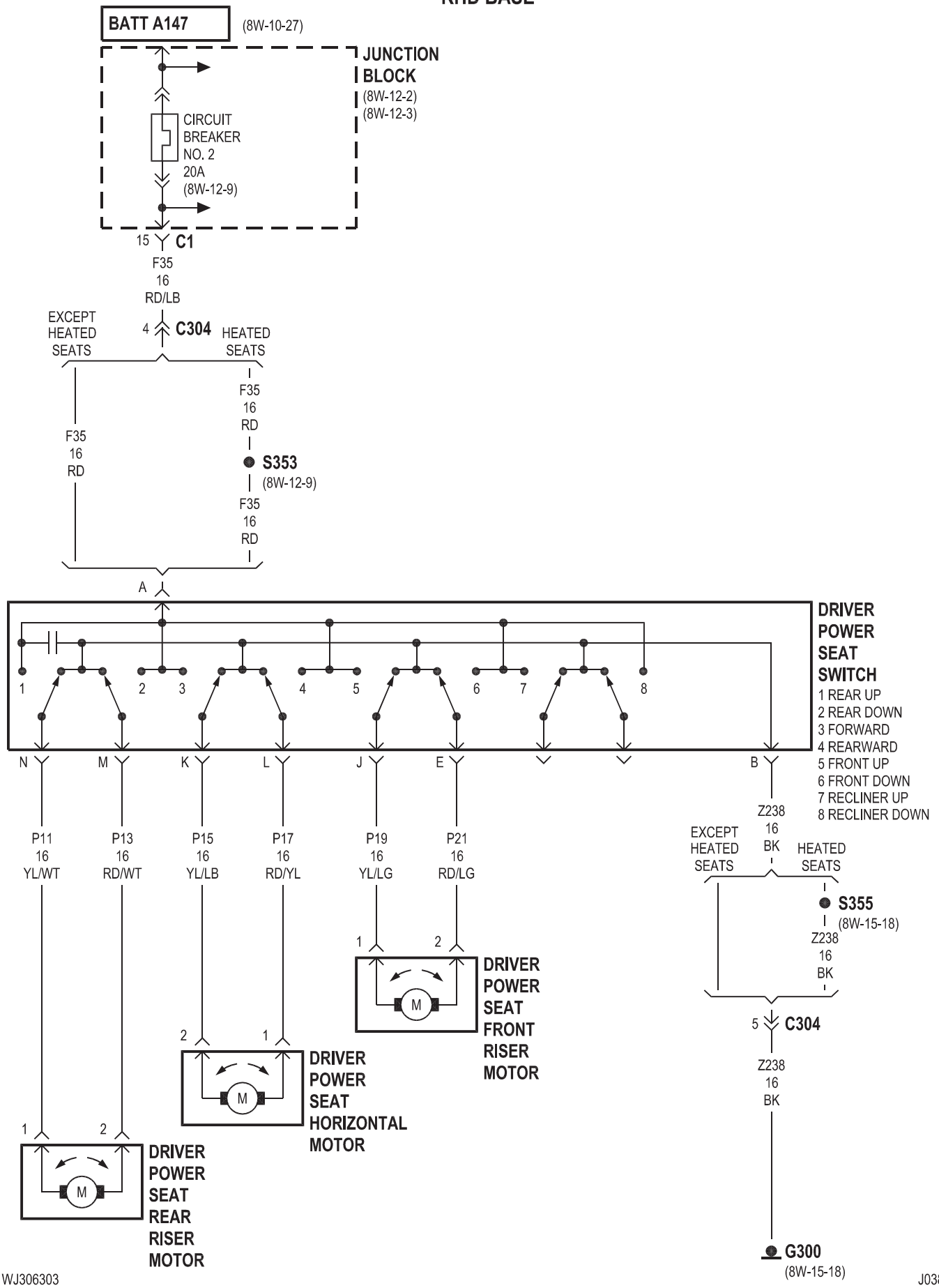

DRIVER POWER MIRROR
MIRROR HEATER
HORIZONTAL MOTOR
VERTICAL MOTOR
HORIZONTAL POSITION SENSOR
VERTICAL POSITION SENSOR
AUTOMATIC DAY/NIGHT MIRROR
M
M
BR/BK
BR
BK
BK
OR
WT
RD
DG
GY
VT
7
10
1
5
6
12
11
2
3
4
P114 20 YL/RD
P112 20 YL/WT
C117 20 BK
C118 20 BK/WT
P95 20 OR
P91 20 WT
P93 20 RD
P65 20 DG
P69 20 GY
P64 20 VT
C313
C302
C300
C309
C2
MIRROR HEATER 12 VOLT SUPPLY
MIRROR HEATER GROUND
MIRROR HORIZONTAL DRIVER
MIRROR COMMON DRIVER
MIRROR VERTICAL DRIVER
MIRROR HORIZONTAL POSITION SIGNAL
MIRROR SENSOR GROUND
MIRROR VERTICAL POSITION SIGNAL
DRIVER DOOR MODULE
FOLDING MIRROR FEED
FOLDING MIRROR RETURN
P99 20 DB
P110 20 YL
DB
YL
RHD
LHD
LHD
RHD
P114 20 BK/YL
P112 20 BK/WT
AUTO DAY/ NIGHT MIRROR (-)
AUTO DAY/ NIGHT MIRROR (+)
AUTOMATIC DAY/NIGHT MIRROR
(8W-49-4)
DRIVER POWER MIRROR (EXPORT)
FOLDING MIRROR MOTOR

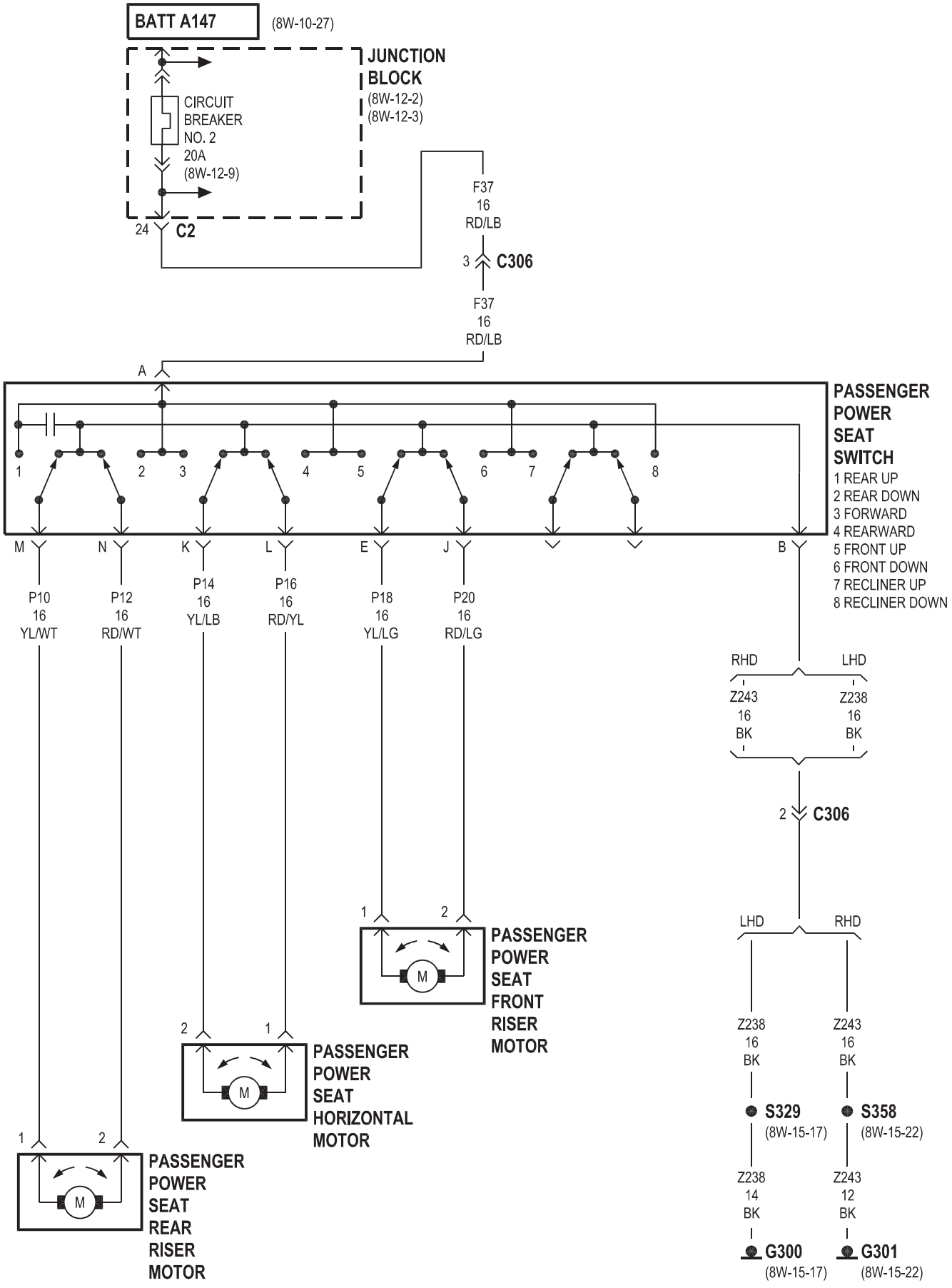
8W-63 POWER SEATS

Component	Page
Body Control Module	8W-63-16
Circuit Breaker No. 2	8W-63-2, 3, 4, 5, 6, 7, 8, 14, 15
Driver Door Module	8W-63-8
Driver Heated Seat Back	8W-63-10, 11
Driver Heated Seat Cushion	8W-63-10, 11
Driver Heated Seat Switch	8W-63-16
Driver Lumbar Motor	8W-63-14, 15
Driver Lumbar Switch	8W-63-14, 15
Driver Power Seat Front Riser Motor	8W-63-2, 3, 5, 6, 9
Driver Power Seat Front Riser Motor Sensor	8W-63-12
Driver Power Seat Horizontal Motor	8W-63-2, 3, 5, 6, 9
Driver Power Seat Horizontal Motor Sensor	8W-63-12, 13
Driver Power Seat Rear Riser Motor	8W-63-2, 3, 5, 6, 9
Driver Power Seat Rear Riser Motor Sensor	8W-63-12
Driver Power Seat Recliner Motor	8W-63-9
Driver Power Seat Recliner Motor Sensor	8W-63-12, 13
Driver Power Seat Switch	8W-63-2
Driver Power Seat Switch	8W-63-3, 5, 6, 9
Fuse 20	8W-63-16
G200	8W-63-16
G300	8W-63-3, 4, 6, 7, 8, 9, 14, 15
G301	8W-63-2, 4, 5, 7, 8, 9, 14, 15
Junction Block	8W-63-2, 3, 4, 5, 6, 7, 8, 14, 15, 16
Memory Set Switch	8W-63-8
Passenger Heated Seat Back	8W-63-10, 11
Passenger Heated Seat Cushion	8W-63-10, 11
Passenger Heated Seat Switch	8W-63-16
Passenger Lumbar Motor	8W-63-14, 15
Passenger Lumbar Switch	8W-63-14, 15
Passenger Power Seat Front Riser Motor	8W-63-4, 7
Passenger Power Seat Horizontal Motor	8W-63-4, 7
Passenger Power Seat Rear Riser Motor	8W-63-4, 7
Passenger Power Seat Recliner Motor	8W-63-7
Passenger Power Seat Switch	8W-63-4, 7
Seat Module	8W-63-8, 9, 10, 11, 12, 13

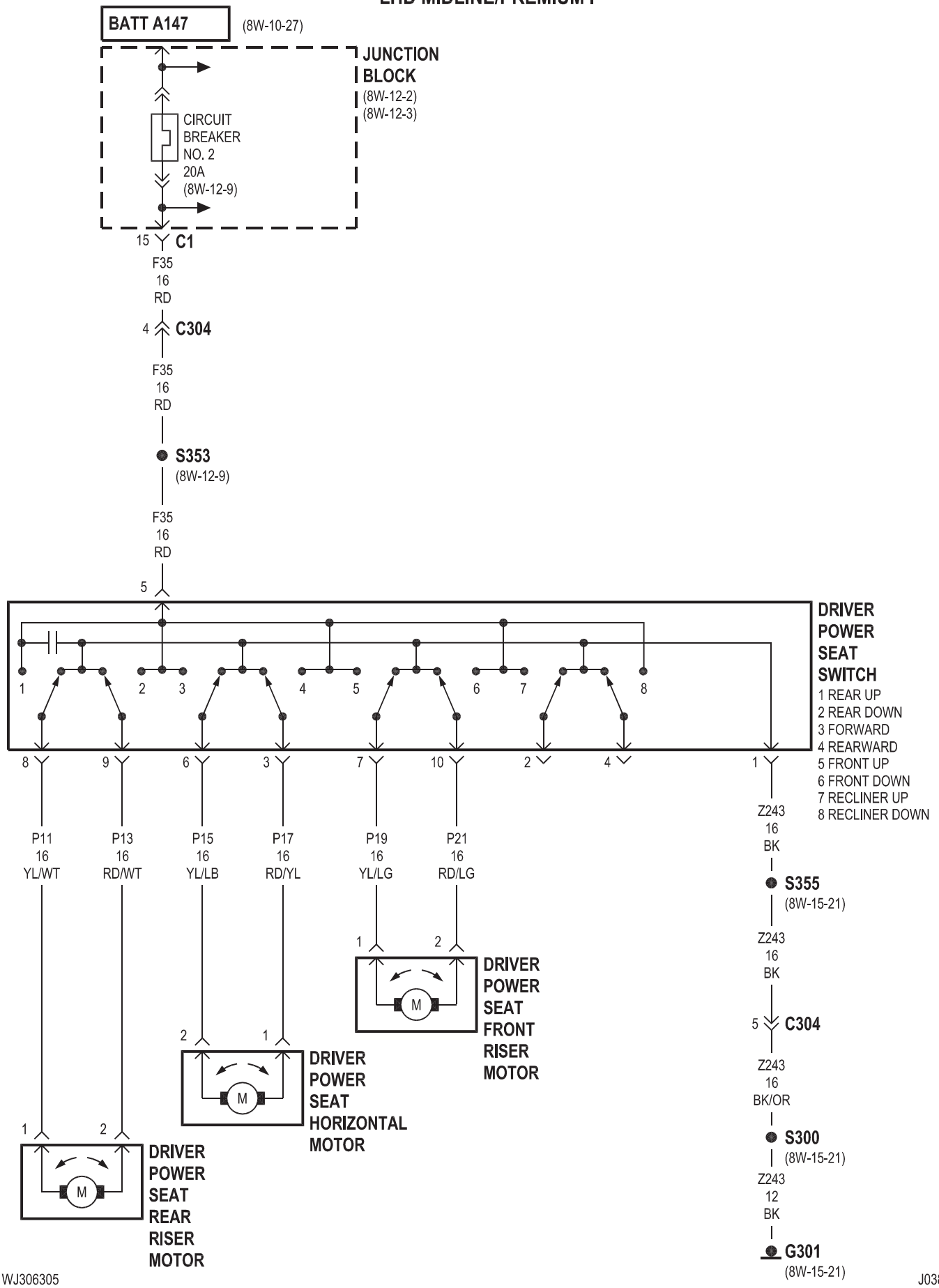

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
(8W-12-9)
15 C1
F35 16 RD
EXCEPT HEATED SEATS
4 C304
HEATED SEATS
F35 16 RD
S353
(8W-12-9)
F35 16 RD
A
DRIVER POWER SEAT SWITCH
1 REAR UP
2 REAR DOWN
3 FORWARD
4 REARWARD
5 FRONT UP
6 FRONT DOWN
7 RECLINER UP
8 RECLINER DOWN
N
M
K
L
J
E
B
P11 16 YL/WT
P13 16 RD/WT
P15 16 YL/LB
P17 16 RD/YL
P19 16 YL/LG
P21 16 RD/LG
Z243 16 BK
EXCEPT HEATED SEATS
HEATED SEATS
S355
(8W-15-21)
Z243 16 BK
5 C304
Z243 16 BK/OR
S300
(8W-15-21)
Z243 12 BK
G301
(8W-15-21)
DRIVER POWER SEAT FRONT RISER MOTOR
DRIVER POWER SEAT HORIZONTAL MOTOR
DRIVER POWER SEAT REAR RISER MOTOR
M

RHD BASE

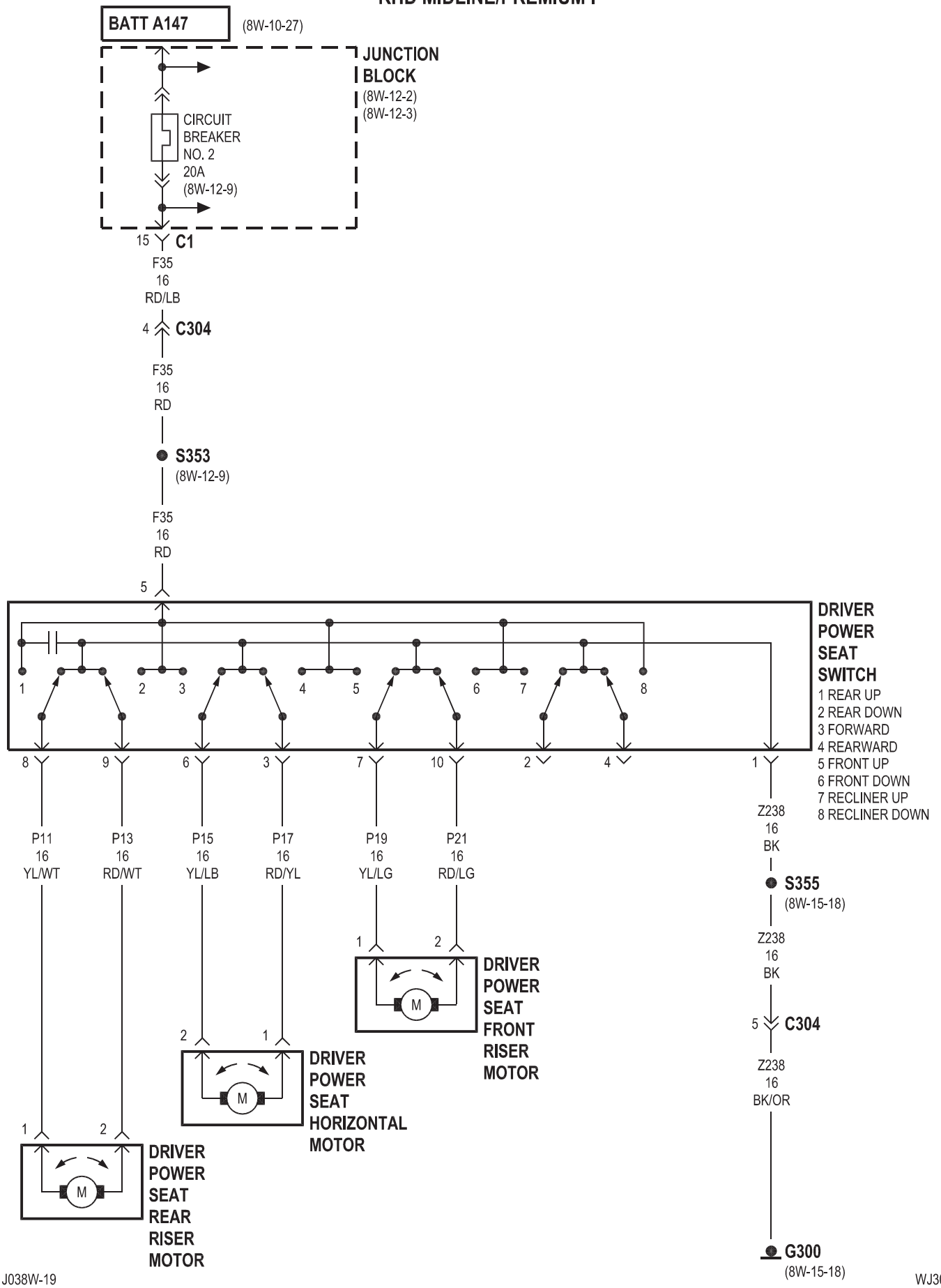

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
(8W-12-9)
15 C1
F35 16 RD/LB
4 C304
EXCEPT HEATED SEATS
HEATED SEATS
F35 16 RD
S353
(8W-12-9)
F35 16 RD
A
DRIVER POWER SEAT SWITCH
1 REAR UP
2 REAR DOWN
3 FORWARD
4 REARWARD
5 FRONT UP
6 FRONT DOWN
7 RECLINER UP
8 RECLINER DOWN
N
M
K
L
J
E
B
P11 16 YL/WT
P13 16 RD/WT
P15 16 YL/LB
P17 16 RD/YL
P19 16 YL/LG
P21 16 RD/LG
Z238 16 BK
EXCEPT HEATED SEATS
HEATED SEATS
S355
(8W-15-18)
Z238 16 BK
5 C304
Z238 16 BK
G300
(8W-15-18)
DRIVER POWER SEAT FRONT RISER MOTOR
DRIVER POWER SEAT HORIZONTAL MOTOR
DRIVER POWER SEAT REAR RISER MOTOR
M


BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
(8W-12-9)
24
C2
F37
16
RD/LB
3
C306
F37
16
RD/LB
A
1
2
3
4
5
6
7
8
M
N
K
L
E
J
B
PASSENGER POWER SEAT SWITCH
1 REAR UP
2 REAR DOWN
3 FORWARD
4 REARWARD
5 FRONT UP
6 FRONT DOWN
7 RECLINER UP
8 RECLINER DOWN
P10
16
YL/WT
P12
16
RD/WT
P14
16
YL/LB
P16
16
RD/YL
P18
16
YL/LG
P20
16
RD/LG
RHD
LHD
Z243
16
BK
Z238
16
BK
2
C306
LHD
RHD
Z238
16
BK
Z243
16
BK
S329
(8W-15-17)
S358
(8W-15-22)
Z238
14
BK
Z243
12
BK
G300
(8W-15-17)
G301
(8W-15-22)
1
2
M
PASSENGER POWER SEAT FRONT RISER MOTOR
2
1
M
PASSENGER POWER SEAT HORIZONTAL MOTOR
1
2
M
PASSENGER POWER SEAT REAR RISER MOTOR

LHD MIDLINE/PREMIUM I

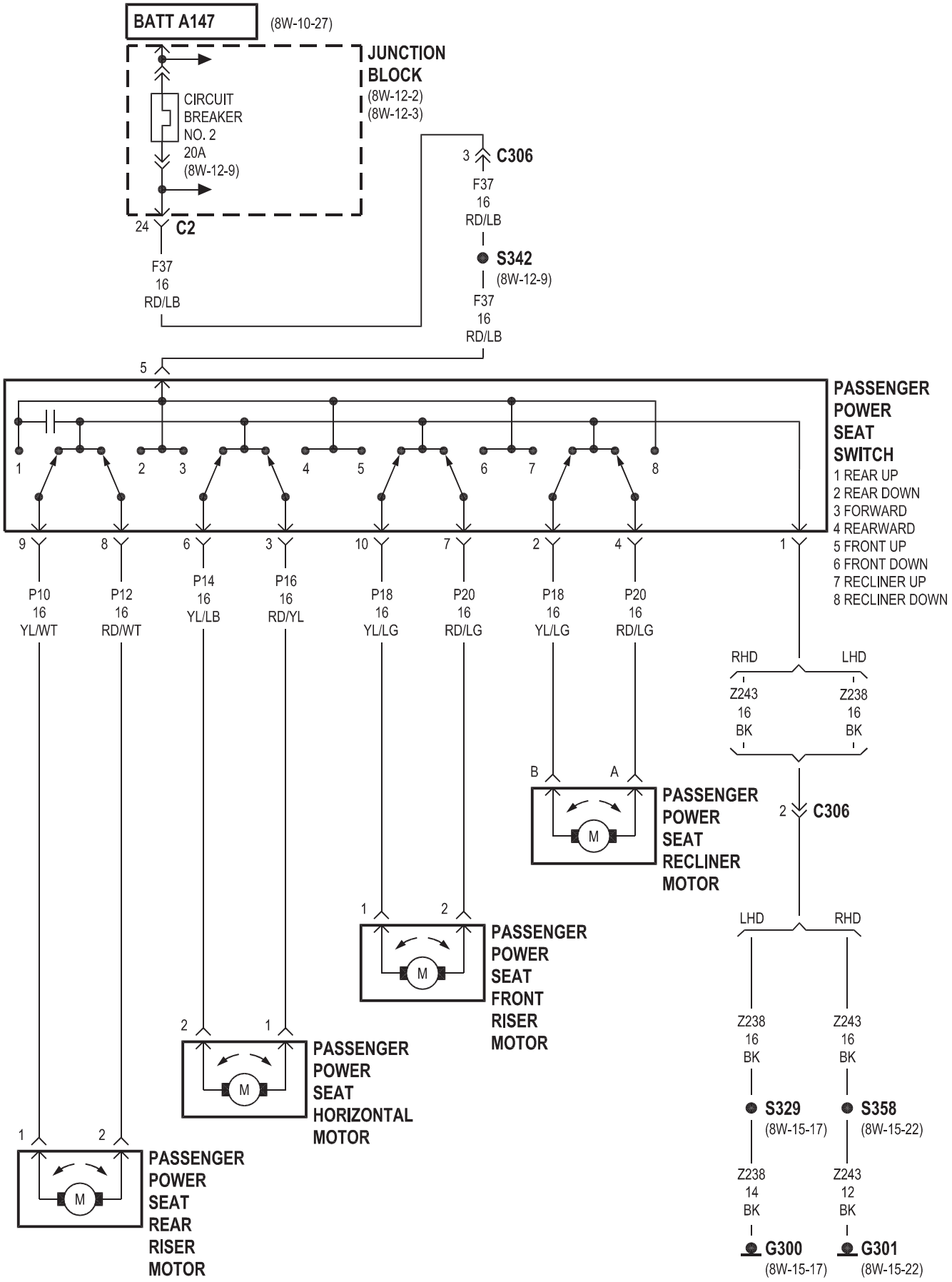


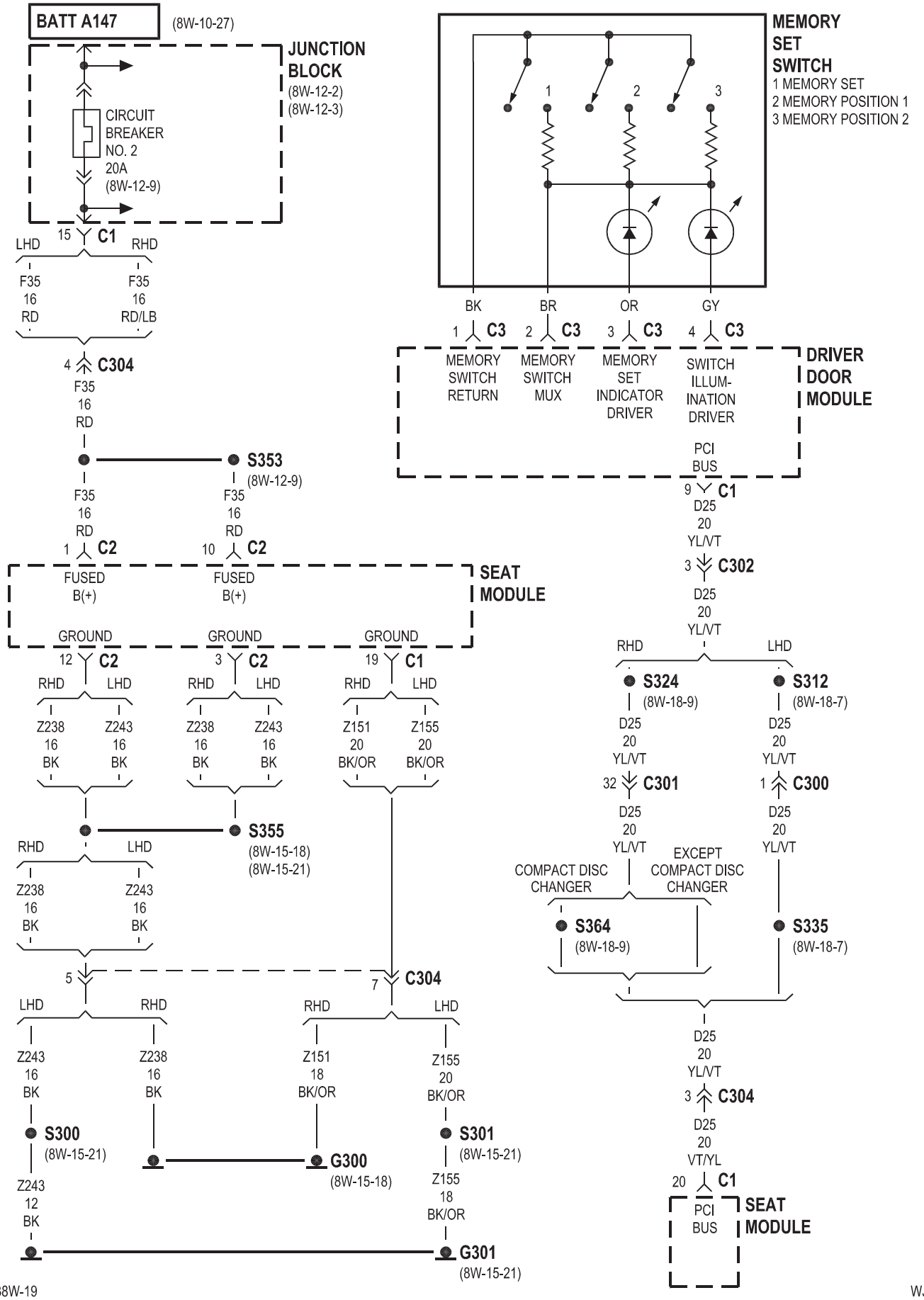
RHD MIDLINE/PREMIUM I

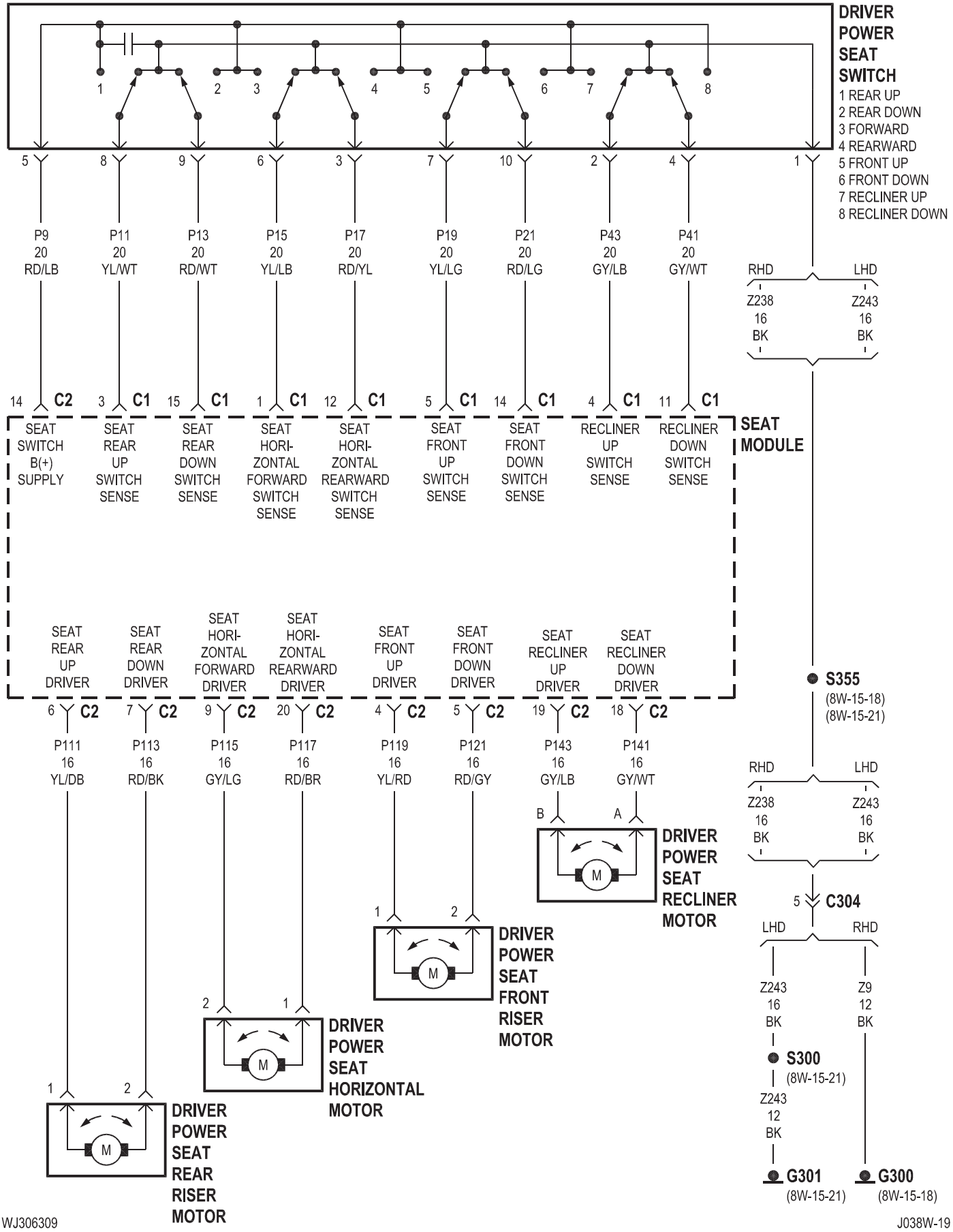


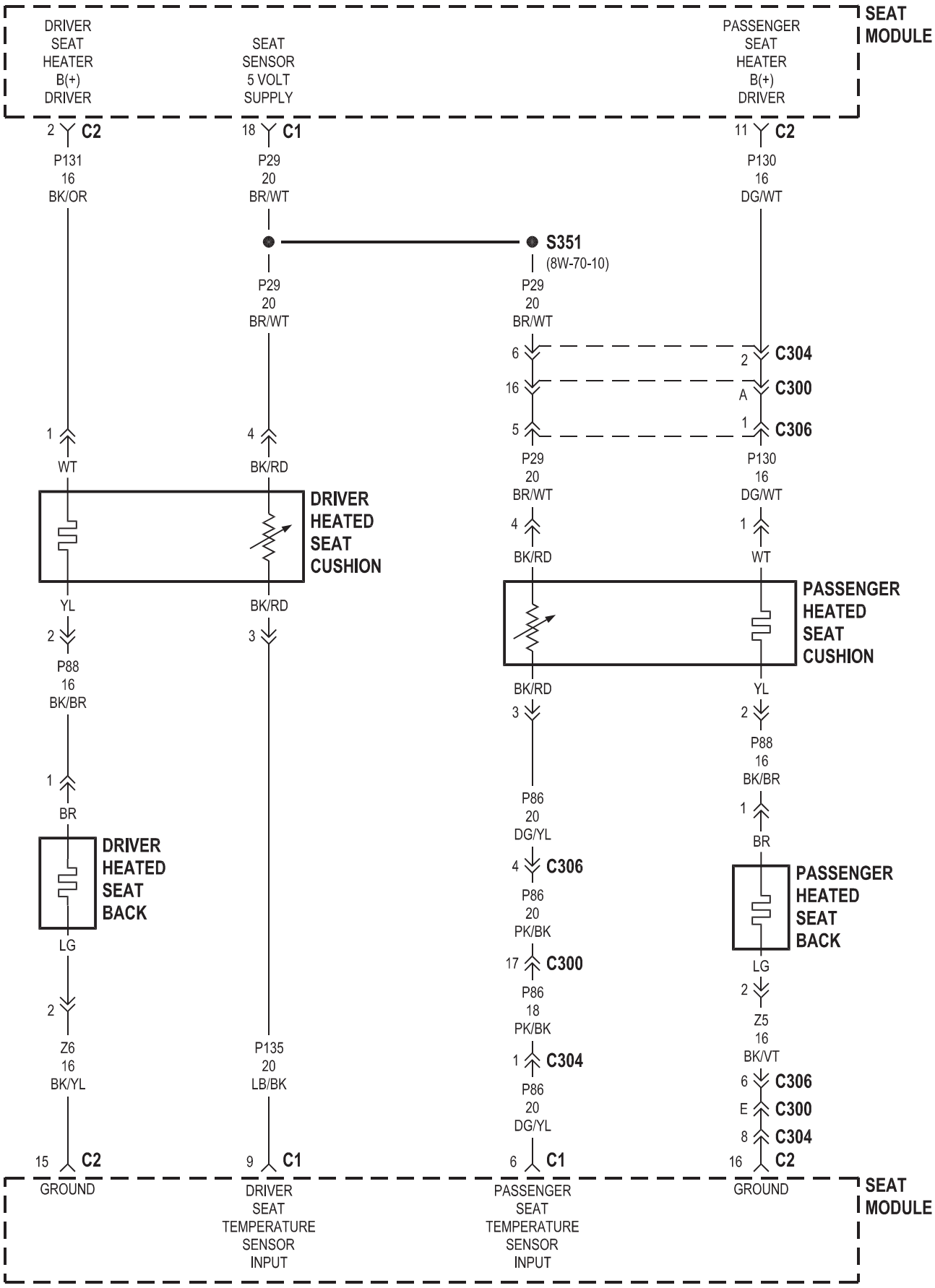
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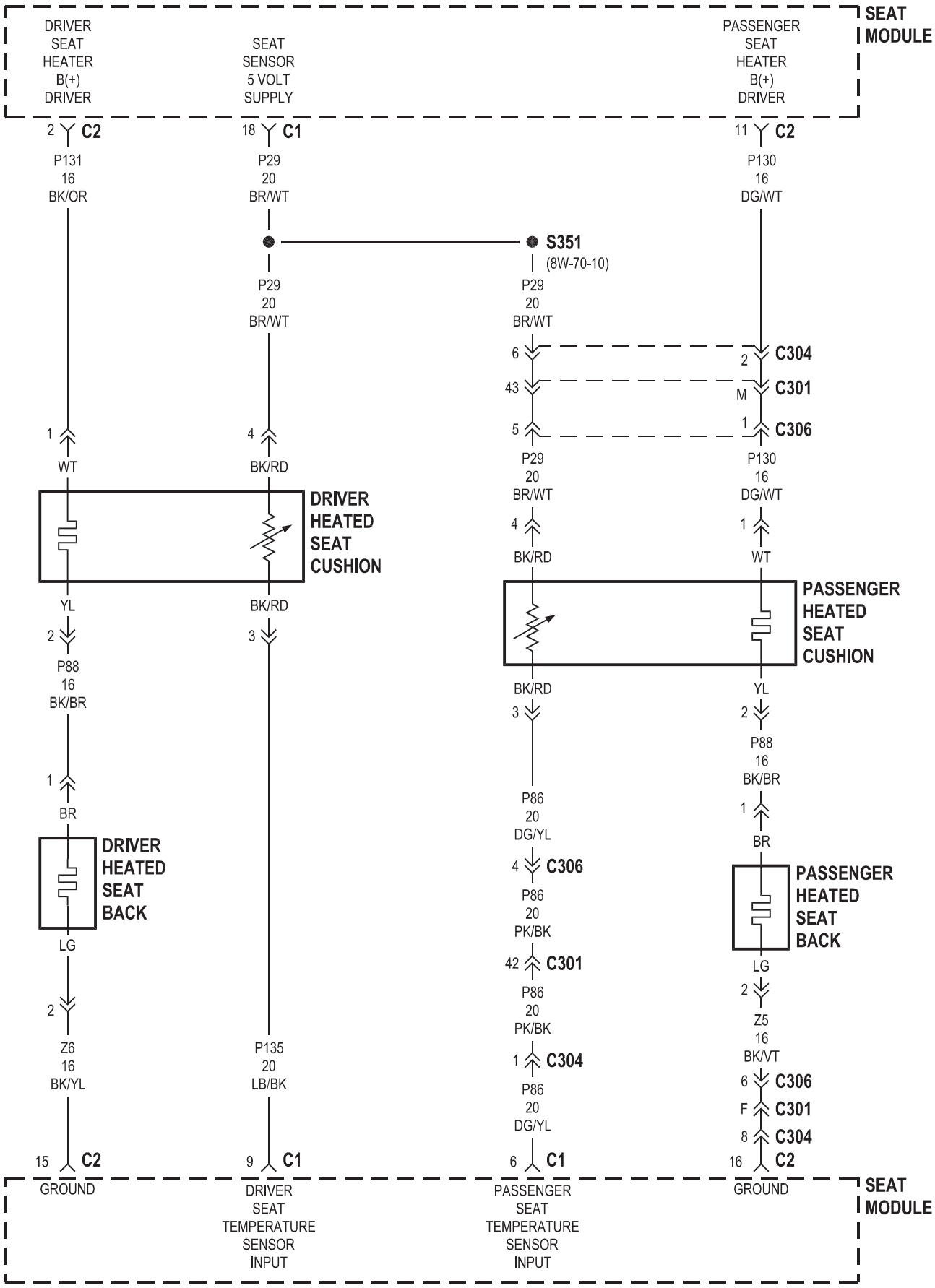
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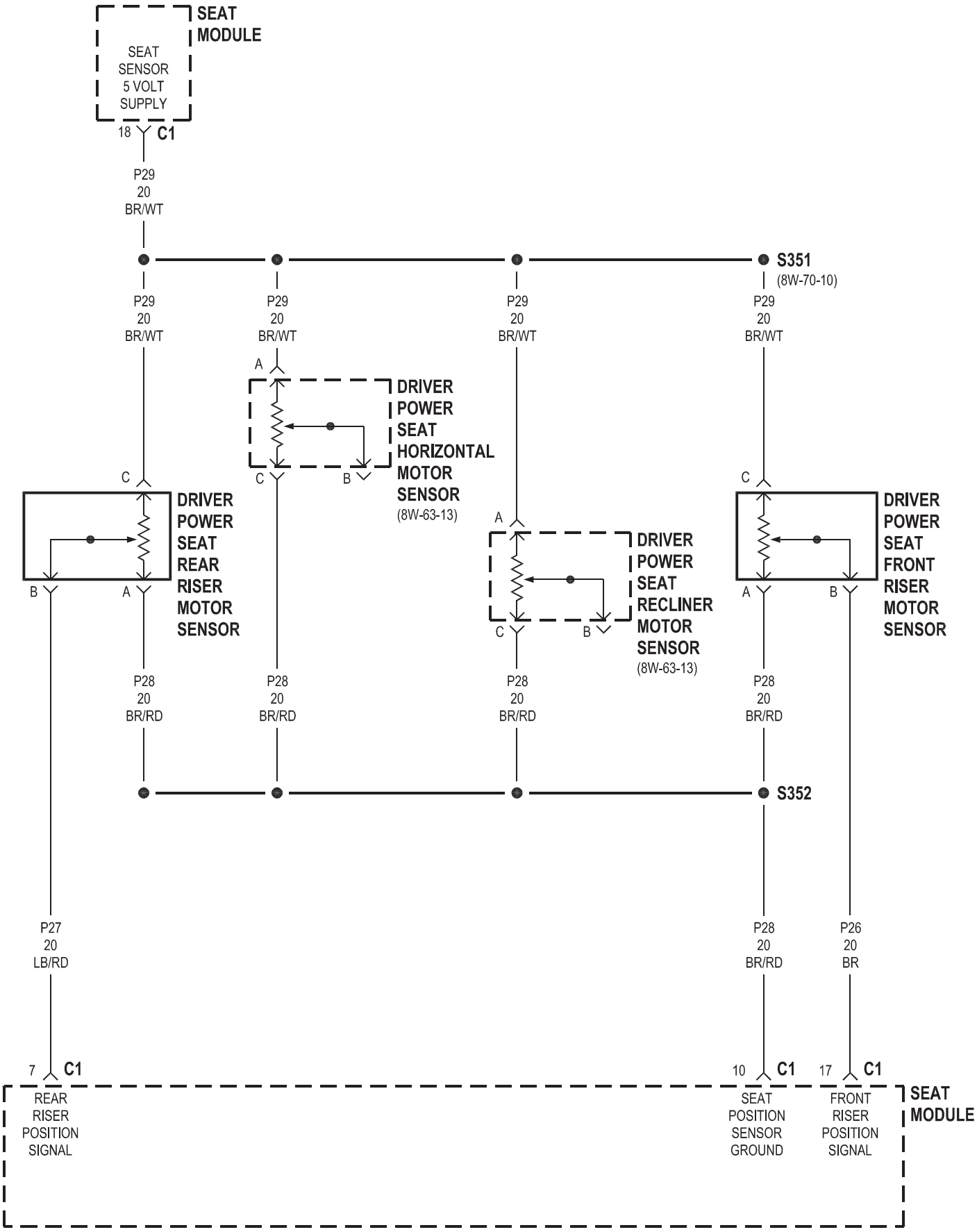

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
(8W-12-9)
24 C2
F37 16 RD/LB
3 C306
F37 16 RD/LB
S342
(8W-12-9)
F37 16 RD/LB
5
PASSENGER POWER SEAT SWITCH
1 REAR UP
2 REAR DOWN
3 FORWARD
4 REARWARD
5 FRONT UP
6 FRONT DOWN
7 RECLINER UP
8 RECLINER DOWN
9 P10 16 YL/WT
8 P12 16 RD/WT
6 P14 16 YL/LB
3 P16 16 RD/YL
10 P18 16 YL/LG
7 P20 16 RD/LG
2 P18 16 YL/LG
4 P20 16 RD/LG
1
RHD Z243 16 BK
LHD Z238 16 BK
2 C306
B A
PASSENGER POWER SEAT RECLINER MOTOR
1 2
PASSENGER POWER SEAT FRONT RISER MOTOR
2 1
PASSENGER POWER SEAT HORIZONTAL MOTOR
1 2
PASSENGER POWER SEAT REAR RISER MOTOR
LHD Z238 16 BK
RHD Z243 16 BK
S329
(8W-15-17)
S358
(8W-15-22)
Z238 14 BK
Z243 12 BK
G300
(8W-15-17)
G301
(8W-15-22)

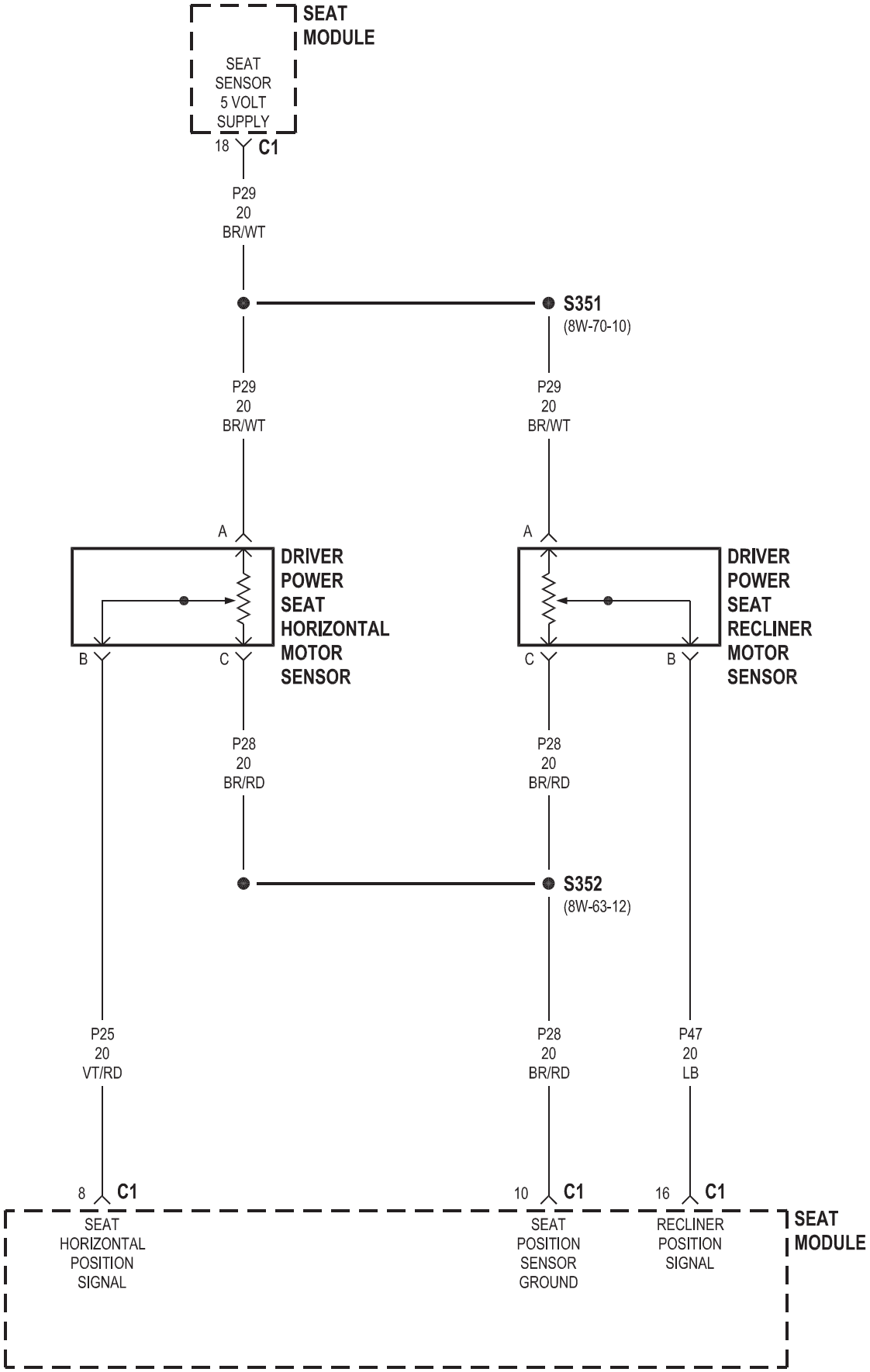

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
(8W-12-9)
15 C1
LHD
RHD
F35 16 RD
F35 16 RD/LB
4 C304
F35 16 RD
S353
(8W-12-9)
F35 16 RD
F35 16 RD
1 C2
10 C2
FUSED B(+)
FUSED B(+)
SEAT MODULE
GROUND
GROUND
GROUND
12 C2
3 C2
19 C1
RHD
LHD
Z238 16 BK
Z243 16 BK
Z238 16 BK
Z243 16 BK
Z151 20 BK/OR
Z155 20 BK/OR
S355
(8W-15-18)
(8W-15-21)
Z238 16 BK
Z243 16 BK
5 C304
7 C304
Z243 16 BK
Z238 16 BK
Z151 18 BK/OR
Z155 20 BK/OR
S300
(8W-15-21)
S301
(8W-15-21)
G300
(8W-15-18)
Z243 12 BK
Z155 18 BK/OR
G301
(8W-15-21)
MEMORY SET SWITCH
1 MEMORY SET
2 MEMORY POSITION 1
3 MEMORY POSITION 2
1
2
3
BK
BR
OR
GY
1 C3
2 C3
3 C3
4 C3
MEMORY SWITCH RETURN
MEMORY SWITCH MUX
MEMORY SET INDICATOR DRIVER
SWITCH ILLUM-INATION DRIVER
DRIVER DOOR MODULE
PCI BUS
9 C1
D25 20 YL/VT
3 C302
D25 20 YL/VT
RHD
LHD
S324
(8W-18-9)
S312
(8W-18-7)
D25 20 YL/VT
D25 20 YL/VT
32 C301
1 C300
D25 20 YL/VT
D25 20 YL/VT
COMPACT DISC CHANGER
EXCEPT COMPACT DISC CHANGER
S364
(8W-18-9)
S335
(8W-18-7)
D25 20 YL/VT
3 C304
D25 20 VT/YL
20 C1
PCI BUS
SEAT MODULE

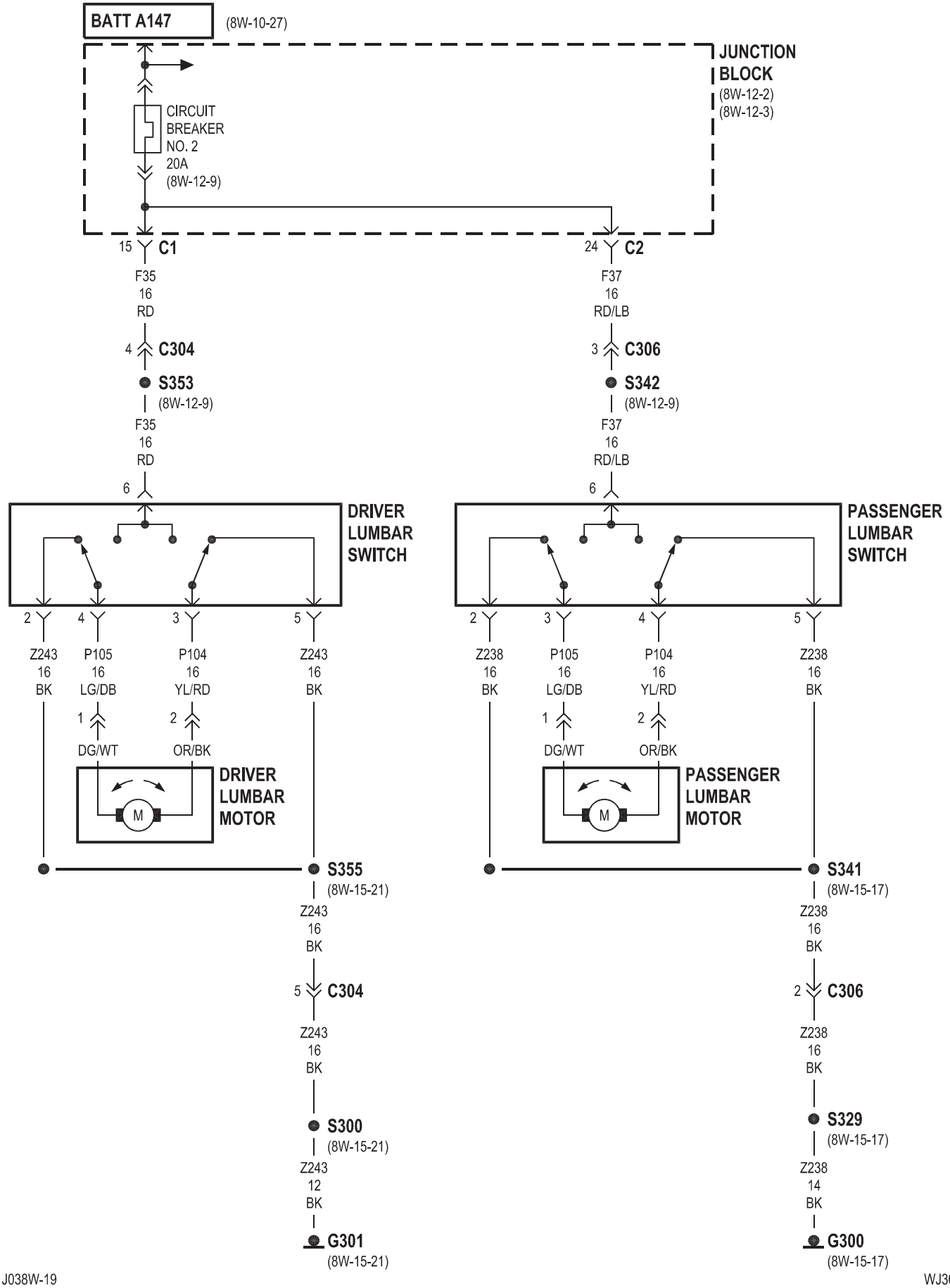

DRIVER POWER SEAT SWITCH
1 REAR UP
2 REAR DOWN
3 FORWARD
4 REARWARD
5 FRONT UP
6 FRONT DOWN
7 RECLINER UP
8 RECLINER DOWN
P9 20 RD/LB
P11 20 YL/WT
P13 20 RD/WT
P15 20 YL/LB
P17 20 RD/YL
P19 20 YL/LG
P21 20 RD/LG
P43 20 GY/LB
P41 20 GY/WT
RHD
LHD
Z238 16 BK
Z243 16 BK
SEAT SWITCH B(+) SUPPLY
SEAT REAR UP SWITCH SENSE
SEAT REAR DOWN SWITCH SENSE
SEAT HORI-ZONTAL FORWARD SWITCH SENSE
SEAT HORI-ZONTAL REARWARD SWITCH SENSE
SEAT FRONT UP SWITCH SENSE
SEAT FRONT DOWN SWITCH SENSE
RECLINER UP SWITCH SENSE
RECLINER DOWN SWITCH SENSE
SEAT MODULE
SEAT REAR UP DRIVER
SEAT REAR DOWN DRIVER
SEAT HORI-ZONTAL FORWARD DRIVER
SEAT HORI-ZONTAL REARWARD DRIVER
SEAT FRONT UP DRIVER
SEAT FRONT DOWN DRIVER
SEAT RECLINER UP DRIVER
SEAT RECLINER DOWN DRIVER
P111 16 YL/DB
P113 16 RD/BK
P115 16 GY/LG
P117 16 RD/BR
P119 16 YL/RD
P121 16 RD/GY
P143 16 GY/LB
P141 16 GY/WT
DRIVER POWER SEAT REAR RISER MOTOR
DRIVER POWER SEAT HORIZONTAL MOTOR
DRIVER POWER SEAT FRONT RISER MOTOR
DRIVER POWER SEAT RECLINER MOTOR
S355 (8W-15-18) (8W-15-21)
C304
Z243 16 BK
Z9 12 BK
Z243 12 BK
S300 (8W-15-21)
G301 (8W-15-21)
G300 (8W-15-18)

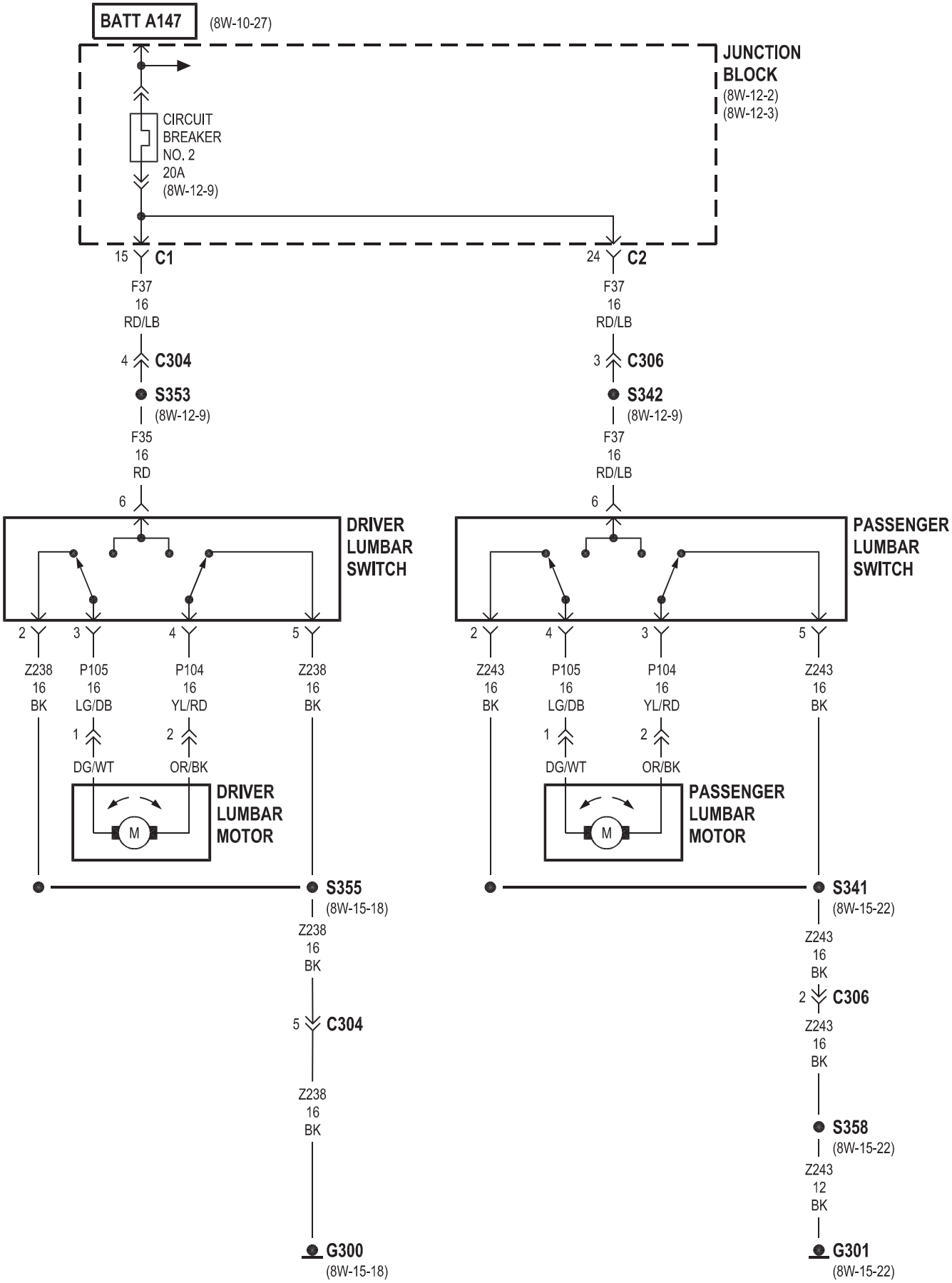

SEAT MODULE
DRIVER SEAT HEATER B(+) DRIVER
SEAT SENSOR 5 VOLT SUPPLY
PASSENGER SEAT HEATER B(+) DRIVER
2 C2
18 C1
11 C2
P131 16 BK/OR
P29 20 BR/WT
P130 16 DG/WT
S351
(8W-70-10)
P29 20 BR/WT
6
16
5
2 C304
A C300
1 C306
P130 16 DG/WT
1 WT
4 BK/RD
DRIVER HEATED SEAT CUSHION
YL
BK/RD
2
3
P88 16 BK/BR
1 BR
DRIVER HEATED SEAT BACK
LG
2
Z6 16 BK/YL
15 C2
GROUND
P135 20 LB/BK
9 C1
DRIVER SEAT TEMPERATURE SENSOR INPUT
P29 20 BR/WT
4 BK/RD
BK/RD
3
P86 20 DG/YL
4 C306
P86 20 PK/BK
17 C300
P86 18 PK/BK
1 C304
P86 20 DG/YL
6 C1
PASSENGER SEAT TEMPERATURE SENSOR INPUT
1 WT
PASSENGER HEATED SEAT CUSHION
YL
2
P88 16 BK/BR
1 BR
PASSENGER HEATED SEAT BACK
LG
2
Z5 16 BK/VT
6 C306
E C300
8 C304
16 C2
GROUND
SEAT MODULE

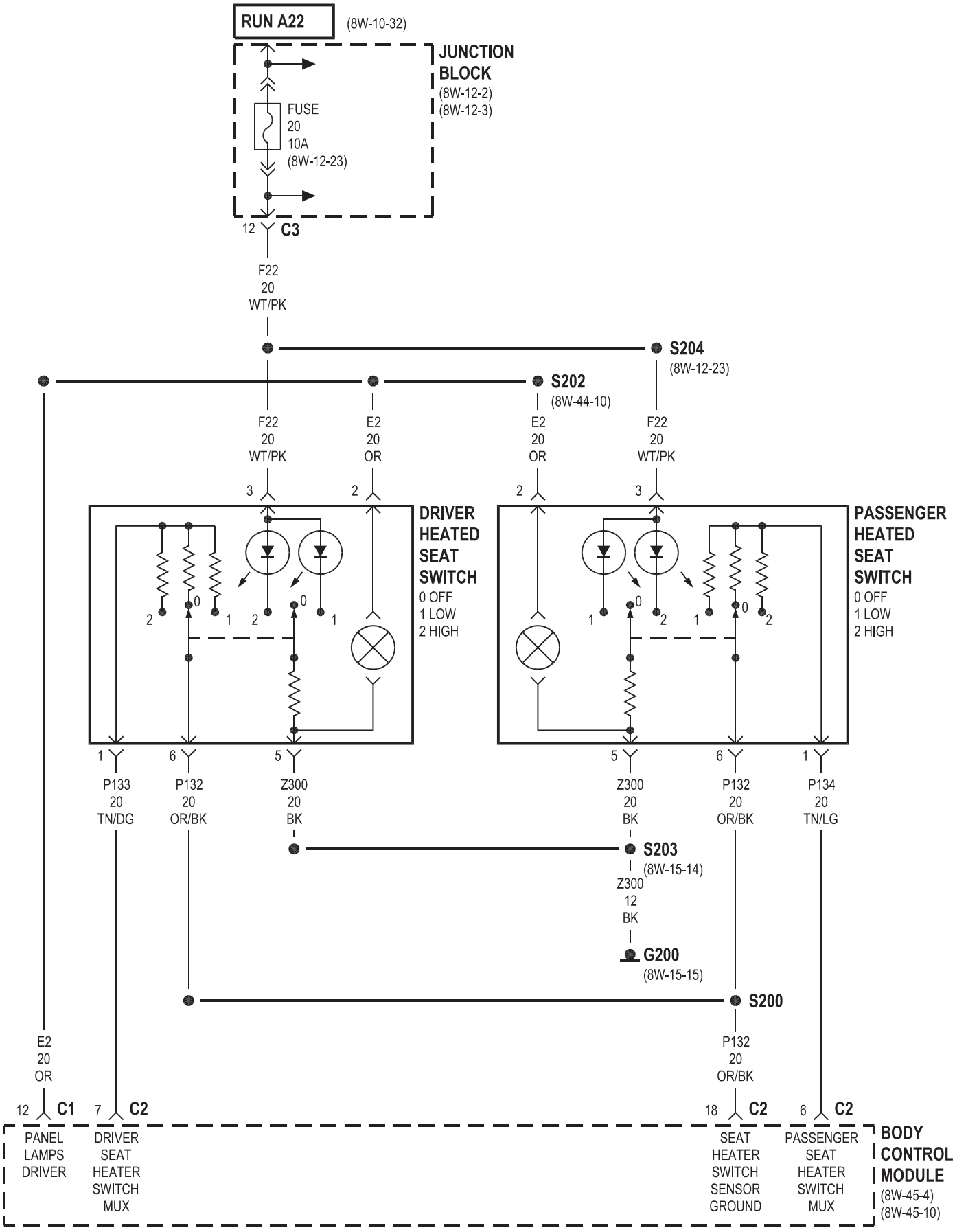

SEAT MODULE
DRIVER SEAT HEATER B(+) DRIVER
SEAT SENSOR 5 VOLT SUPPLY
PASSENGER SEAT HEATER B(+) DRIVER
2 C2
18 C1
11 C2
P131 16 BK/OR
P29 20 BR/WT
P130 16 DG/WT
S351
(8W-70-10)
P29 20 BR/WT
6
43
5
2 C304
M C301
1 C306
P130 16 DG/WT
1
4
WT
BK/RD
DRIVER HEATED SEAT CUSHION
YL
BK/RD
2
3
P88 16 BK/BR
1
BR
DRIVER HEATED SEAT BACK
LG
2
Z6 16 BK/YL
15 C2
GROUND
P135 20 LB/BK
9 C1
DRIVER SEAT TEMPERATURE SENSOR INPUT
P29 20 BR/WT
4
BK/RD
BK/RD
3
P86 20 DG/YL
4 C306
P86 20 PK/BK
42 C301
P86 20 PK/BK
1 C304
P86 20 DG/YL
6 C1
PASSENGER SEAT TEMPERATURE SENSOR INPUT
PASSENGER HEATED SEAT CUSHION
YL
2
P88 16 BK/BR
1
BR
PASSENGER HEATED SEAT BACK
LG
2
Z5 16 BK/VT
6 C306
F C301
8 C304
16 C2
GROUND
SEAT MODULE


SEAT MODULE
SEAT SENSOR 5 VOLT SUPPLY
18 C1
P29 20 BR/WT
S351
(8W-70-10)
P29 20 BR/WT
A
DRIVER POWER SEAT HORIZONTAL MOTOR SENSOR
(8W-63-13)
C
B
DRIVER POWER SEAT REAR RISER MOTOR SENSOR
DRIVER POWER SEAT RECLINER MOTOR SENSOR
(8W-63-13)
DRIVER POWER SEAT FRONT RISER MOTOR SENSOR
P28 20 BR/RD
S352
P27 20 LB/RD
P26 20 BR
7 C1
10 C1
17 C1
REAR RISER POSITION SIGNAL
SEAT POSITION SENSOR GROUND
FRONT RISER POSITION SIGNAL
SEAT MODULE


SEAT MODULE
SEAT SENSOR 5 VOLT SUPPLY
18
C1
P29
20
BR/WT
S351
(8W-70-10)
P29
20
BR/WT
P29
20
BR/WT
A
A
DRIVER POWER SEAT HORIZONTAL MOTOR SENSOR
DRIVER POWER SEAT RECLINER MOTOR SENSOR
B
C
C
B
P28
20
BR/RD
P28
20
BR/RD
S352
(8W-63-12)
P25
20
VT/RD
P28
20
BR/RD
P47
20
LB
8
C1
10
C1
16
C1
SEAT HORIZONTAL POSITION SIGNAL
SEAT POSITION SENSOR GROUND
RECLINER POSITION SIGNAL
SEAT MODULE

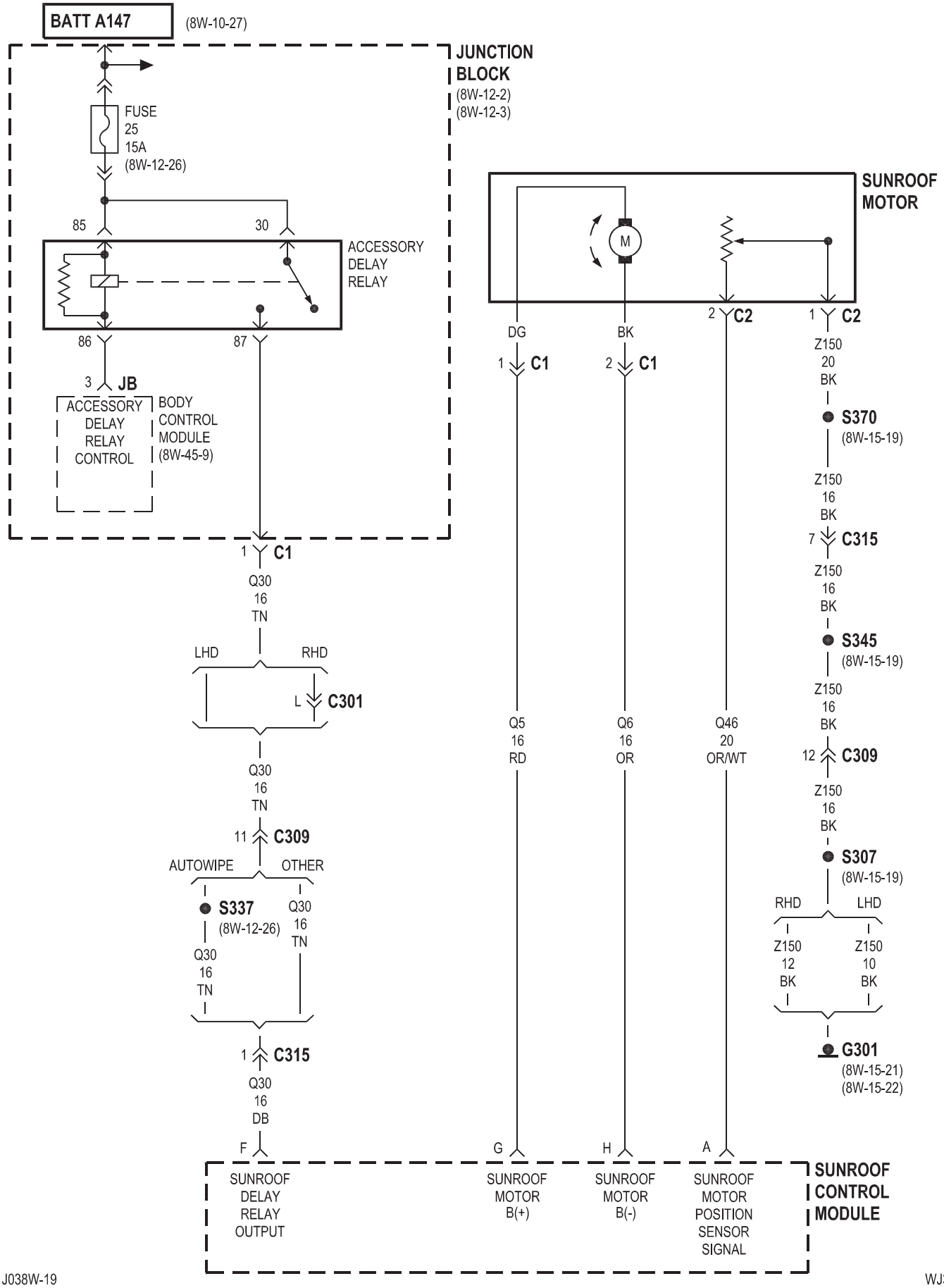

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2
20A
(8W-12-9)
15 C1
24 C2
F35 16 RD
F37 16 RD/LB
4 C304
3 C306
S353
(8W-12-9)
S342
(8W-12-9)
F35 16 RD
F37 16 RD/LB
6
6
DRIVER LUMBAR SWITCH
PASSENGER LUMBAR SWITCH
2 4 3 5
2 3 4 5
Z243 16 BK
P105 16 LG/DB
P104 16 YL/RD
Z243 16 BK
Z238 16 BK
P105 16 LG/DB
P104 16 YL/RD
Z238 16 BK
1 2
1 2
DG/WT
OR/BK
DG/WT
OR/BK
M
DRIVER LUMBAR MOTOR
M
PASSENGER LUMBAR MOTOR
S355
(8W-15-21)
S341
(8W-15-17)
Z243 16 BK
Z238 16 BK
5 C304
2 C306
Z243 16 BK
Z238 16 BK
S300
(8W-15-21)
S329
(8W-15-17)
Z243 12 BK
Z238 14 BK
G301
(8W-15-21)
G300
(8W-15-17)

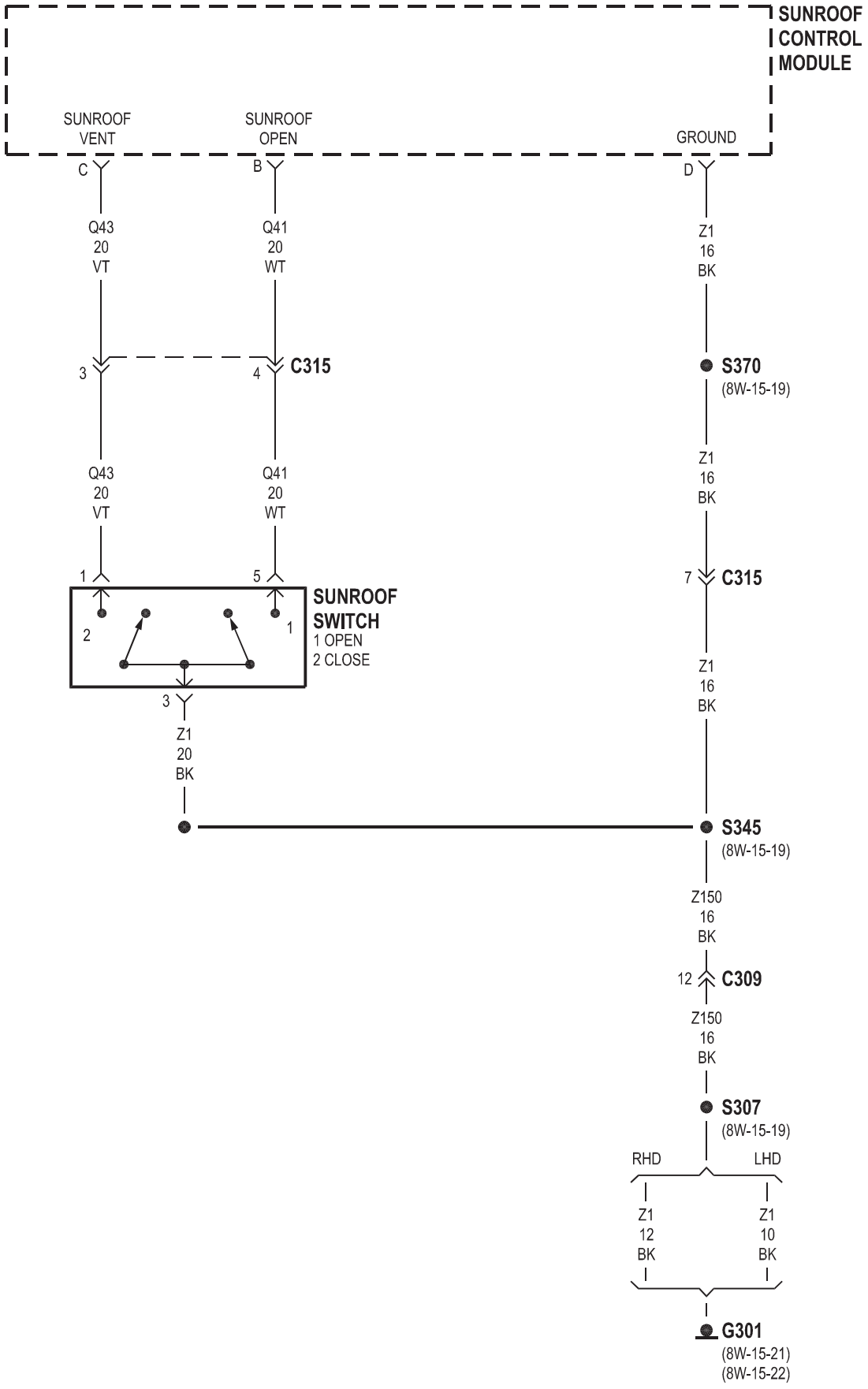

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
CIRCUIT BREAKER NO. 2 20A
(8W-12-9)
15 C1
24 C2
F37 16 RD/LB
4 C304
S353
(8W-12-9)
F35 16 RD
6
F37 16 RD/LB
3 C306
S342
(8W-12-9)
F37 16 RD/LB
6
DRIVER LUMBAR SWITCH
PASSENGER LUMBAR SWITCH
2 3 4 5
Z238 16 BK
P105 16 LG/DB
P104 16 YL/RD
Z238 16 BK
Z243 16 BK
P105 16 LG/DB
P104 16 YL/RD
Z243 16 BK
1 2
DG/WT
OR/BK
M
DRIVER LUMBAR MOTOR
PASSENGER LUMBAR MOTOR
S355
(8W-15-18)
Z238 16 BK
5 C304
Z238 16 BK
G300
(8W-15-18)
S341
(8W-15-22)
Z243 16 BK
2 C306
Z243 16 BK
S358
(8W-15-22)
Z243 12 BK
G301
(8W-15-22)


RUN A22
(8W-10-32)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE 20 10A
(8W-12-23)
12 C3
F22 20 WT/PK
S204
(8W-12-23)
S202
(8W-44-10)
F22 20 WT/PK
E2 20 OR
E2 20 OR
F22 20 WT/PK
3
2
2
3
DRIVER HEATED SEAT SWITCH
0 OFF
1 LOW
2 HIGH
PASSENGER HEATED SEAT SWITCH
0 OFF
1 LOW
2 HIGH
1 P133 20 TN/DG
6 P132 20 OR/BK
5 Z300 20 BK
5 Z300 20 BK
6 P132 20 OR/BK
1 P134 20 TN/LG
S203
(8W-15-14)
Z300 12 BK
G200
(8W-15-15)
S200
E2 20 OR
P132 20 OR/BK
12 C1
7 C2
18 C2
6 C2
PANEL LAMPS DRIVER
DRIVER SEAT HEATER SWITCH MUX
SEAT HEATER SWITCH SENSOR GROUND
PASSENGER SEAT HEATER SWITCH MUX
BODY CONTROL MODULE
(8W-45-4)
(8W-45-10)

8W-64 POWER SUNROOF

Component	Page
Accessory Delay Relay	8W-64-2
Body Control Module	8W-64-2
Fuse 25	8W-64-2
G301	8W-64-2, 3
Junction Block	8W-64-2
Sunroof Control Module	8W-64-2, 3
Sunroof Motor	8W-64-2
Sunroof Switch	8W-64-3

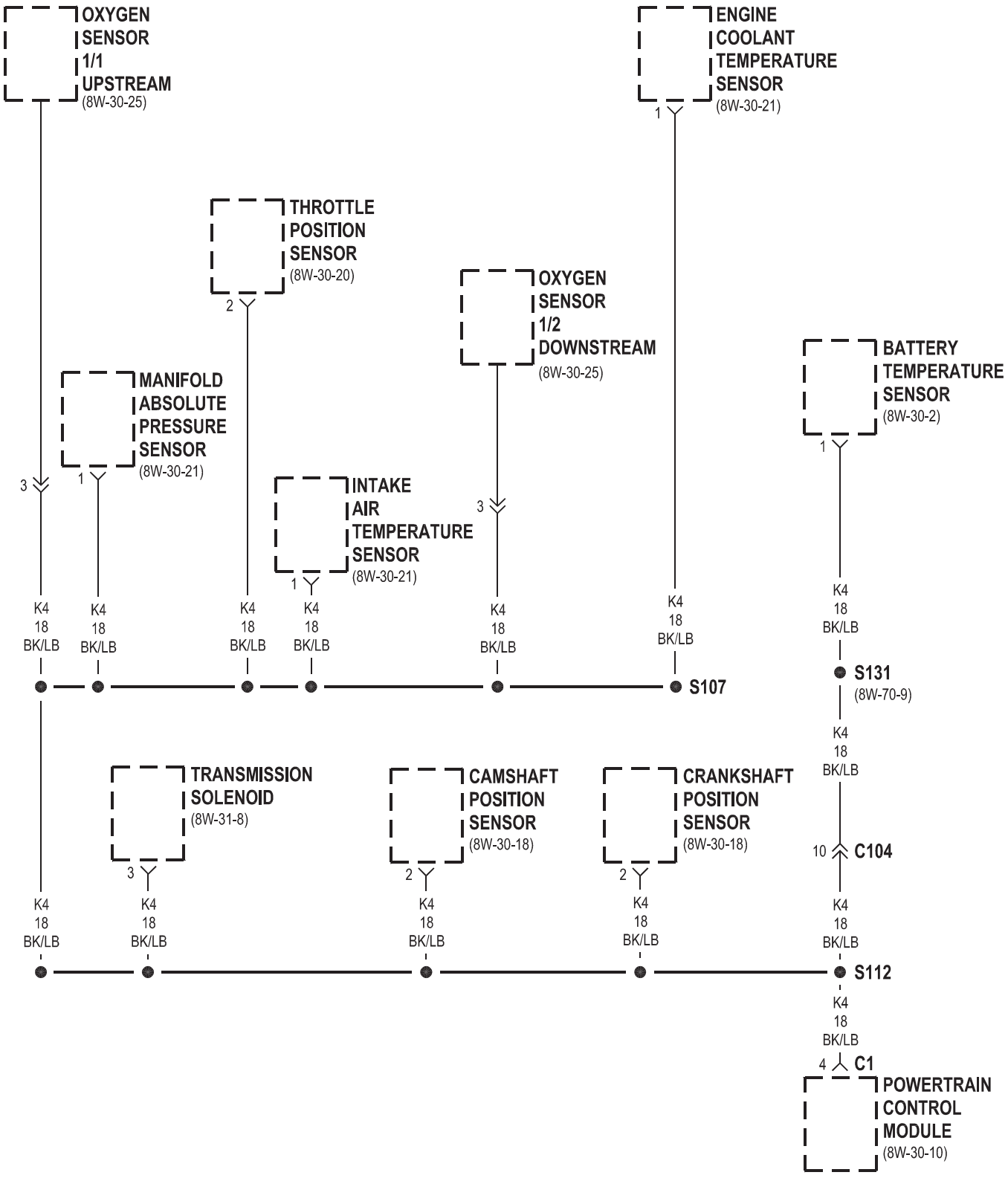

BATT A147
(8W-10-27)
JUNCTION BLOCK
(8W-12-2)
(8W-12-3)
FUSE
25
15A
(8W-12-26)
85
30
ACCESSORY DELAY RELAY
86
87
3 JB
ACCESSORY DELAY RELAY CONTROL
BODY CONTROL MODULE
(8W-45-9)
1 C1
Q30
16
TN
LHD
RHD
L C301
Q30
16
TN
11 C309
AUTOWIPE
OTHER
S337
(8W-12-26)
Q30
16
TN
Q30
16
TN
1 C315
Q30
16
DB
F
SUNROOF DELAY RELAY OUTPUT
SUNROOF MOTOR
M
DG
BK
1 C1
2 C1
2 C2
1 C2
Z150
20
BK
S370
(8W-15-19)
Z150
16
BK
7 C315
Z150
16
BK
S345
(8W-15-19)
Z150
16
BK
12 C309
Z150
16
BK
S307
(8W-15-19)
RHD
LHD
Z150
12
BK
Z150
10
BK
G301
(8W-15-21)
(8W-15-22)
Q5
16
RD
Q6
16
OR
Q46
20
OR/WT
G
H
A
SUNROOF MOTOR B(+)
SUNROOF MOTOR B(-)
SUNROOF MOTOR POSITION SENSOR SIGNAL
SUNROOF CONTROL MODULE


SUNROOF CONTROL MODULE
SUNROOF VENT
SUNROOF OPEN
GROUND
C
B
D
Q43 20 VT
Q41 20 WT
Z1 16 BK
3
4
C315
S370
(8W-15-19)
Q43 20 VT
Q41 20 WT
Z1 16 BK
1
5
7
C315
SUNROOF SWITCH
1 OPEN
2 CLOSE
2
1
3
Z1 16 BK
Z1 20 BK
S345
(8W-15-19)
Z150 16 BK
12
C309
Z150 16 BK
S307
(8W-15-19)
RHD
LHD
Z1 12 BK
Z1 10 BK
G301
(8W-15-21)
(8W-15-22)

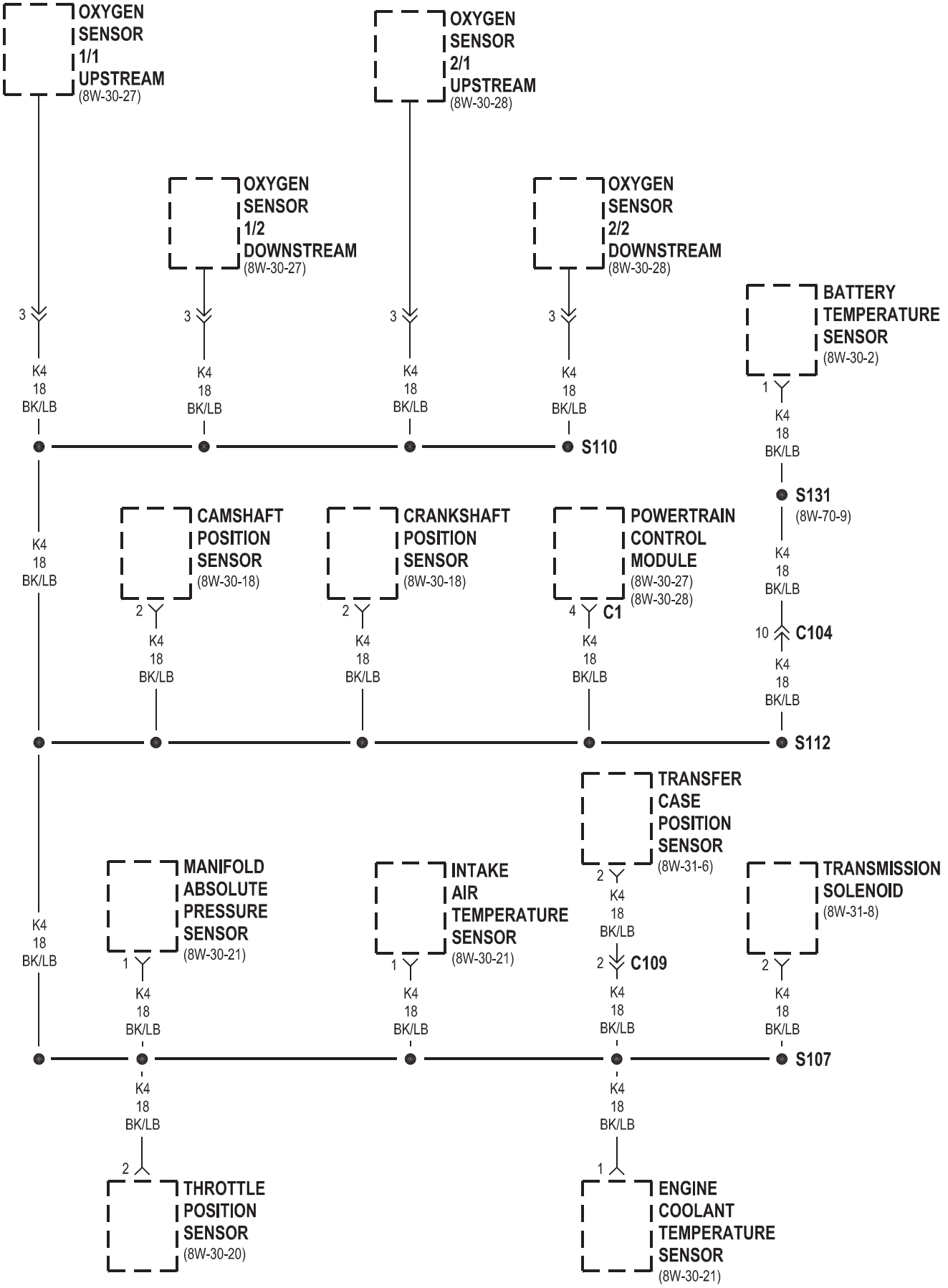
8W-70 SPLICE INFORMATION

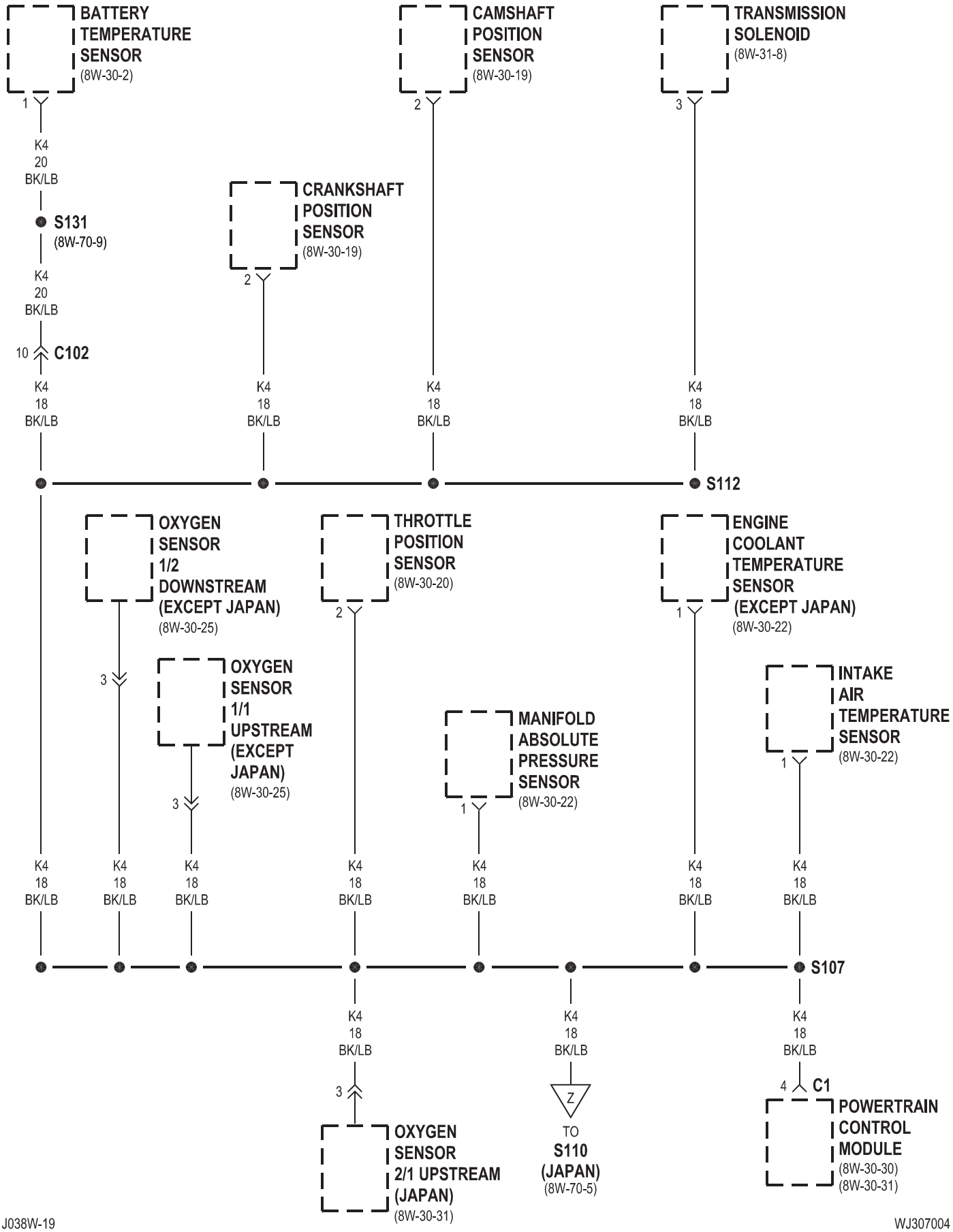
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S153	8W-12-14
S154	8W-12-35
S155	8W-12-35
S156	8W-12-14
S158	8W-70-7
S160	8W-30-11
S162	8W-10-30
S165	8W-51-7
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S169	8W-30-54
S170	8W-30-51
S171	8W-30-43
S172	8W-30-43
S174	8W-15-6, 7
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S201	8W-15-15
S202	8W-44-10
S203	8W-15-14
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S217	8W-18-4
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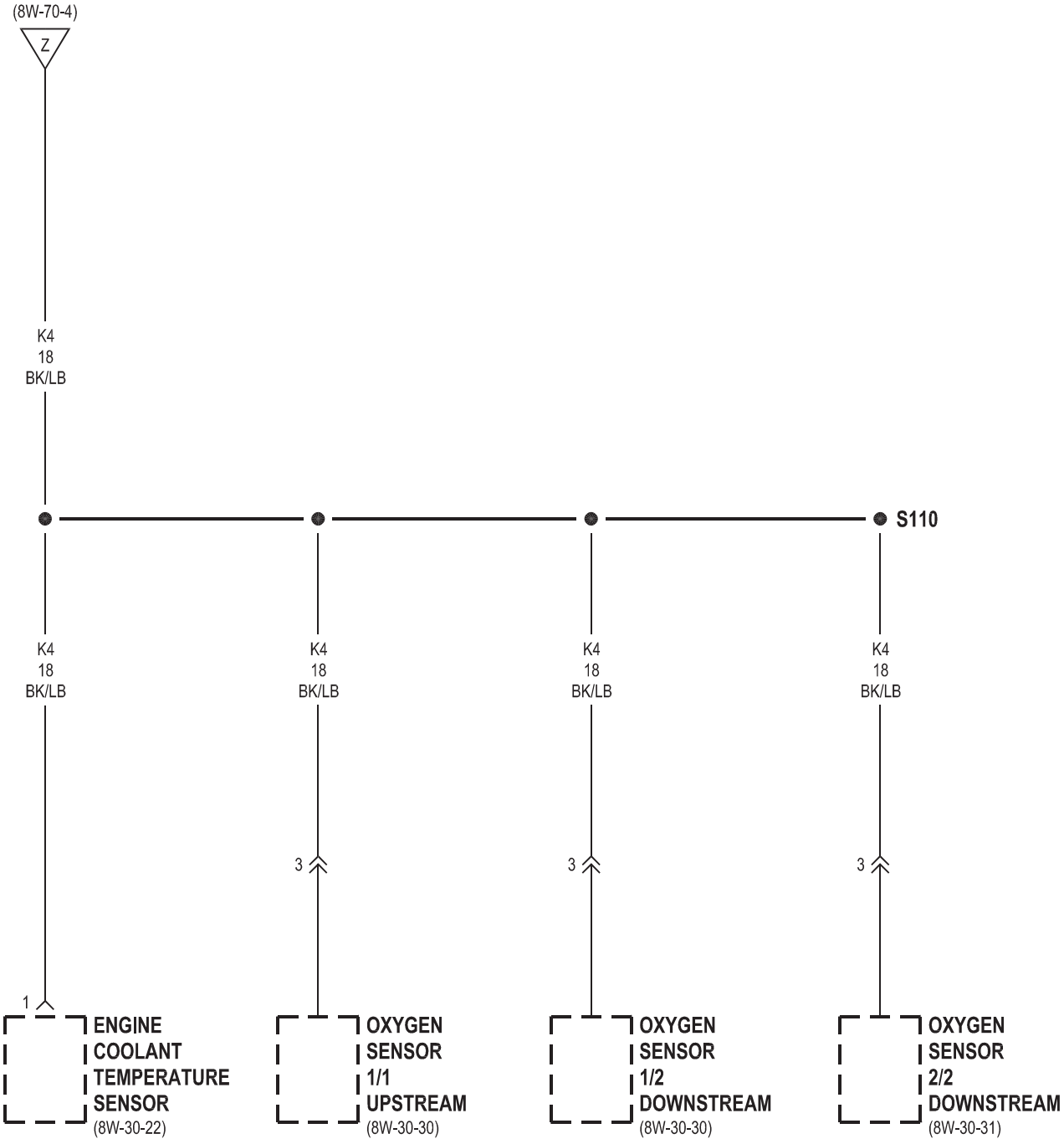
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S348	8W-12-25
S349	8W-12-24
S351	8W-70-10
S352	8W-63-12
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S356	8W-15-21, 22
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S358	8W-15-22
S359	8W-50-9
S360	8W-47-4
S361	8W-47-4
S362	8W-47-4
S363	8W-47-4
S364	8W-18-9
S365	8W-39-11
S366	8W-12-15
S367	8W-12-38
S368	8W-47-3
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S370	8W-15-19
S371	8W-12-22
S372	8W-51-5
S374	8W-12-18
S375	8W-15-20
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S381	8W-15-20

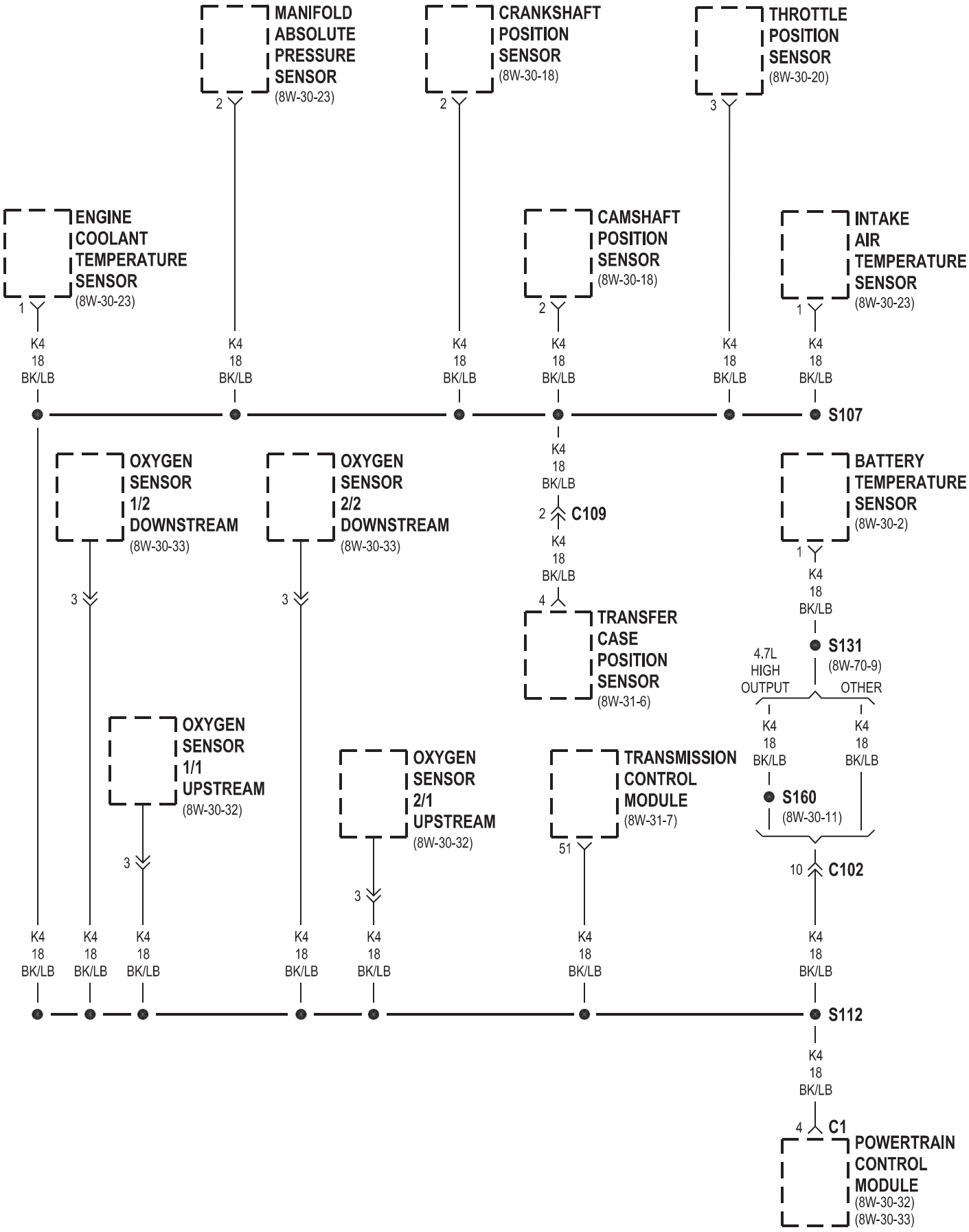

OXYGEN SENSOR 1/1 UPSTREAM (8W-30-25)
ENGINE COOLANT TEMPERATURE SENSOR (8W-30-21)
THROTTLE POSITION SENSOR (8W-30-20)
OXYGEN SENSOR 1/2 DOWNSTREAM (8W-30-25)
BATTERY TEMPERATURE SENSOR (8W-30-2)
MANIFOLD ABSOLUTE PRESSURE SENSOR (8W-30-21)
INTAKE AIR TEMPERATURE SENSOR (8W-30-21)
K4 18 BK/LB
S107
S131 (8W-70-9)
C104
S112
C1
TRANSMISSION SOLENOID (8W-31-8)
CAMSHAFT POSITION SENSOR (8W-30-18)
CRANKSHAFT POSITION SENSOR (8W-30-18)
POWERTRAIN CONTROL MODULE (8W-30-10)

4.0L LHD EXCEPT EXPORT

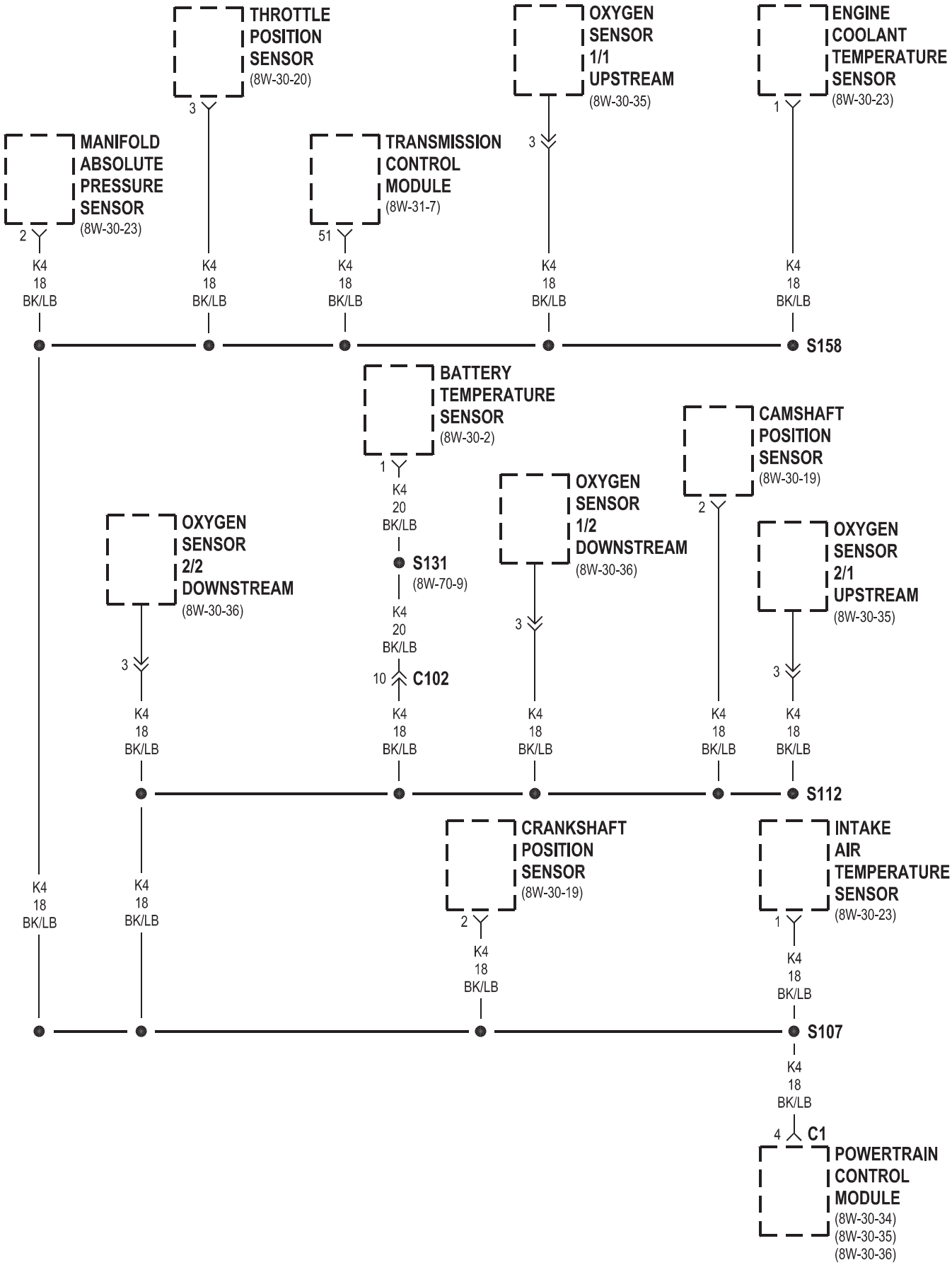


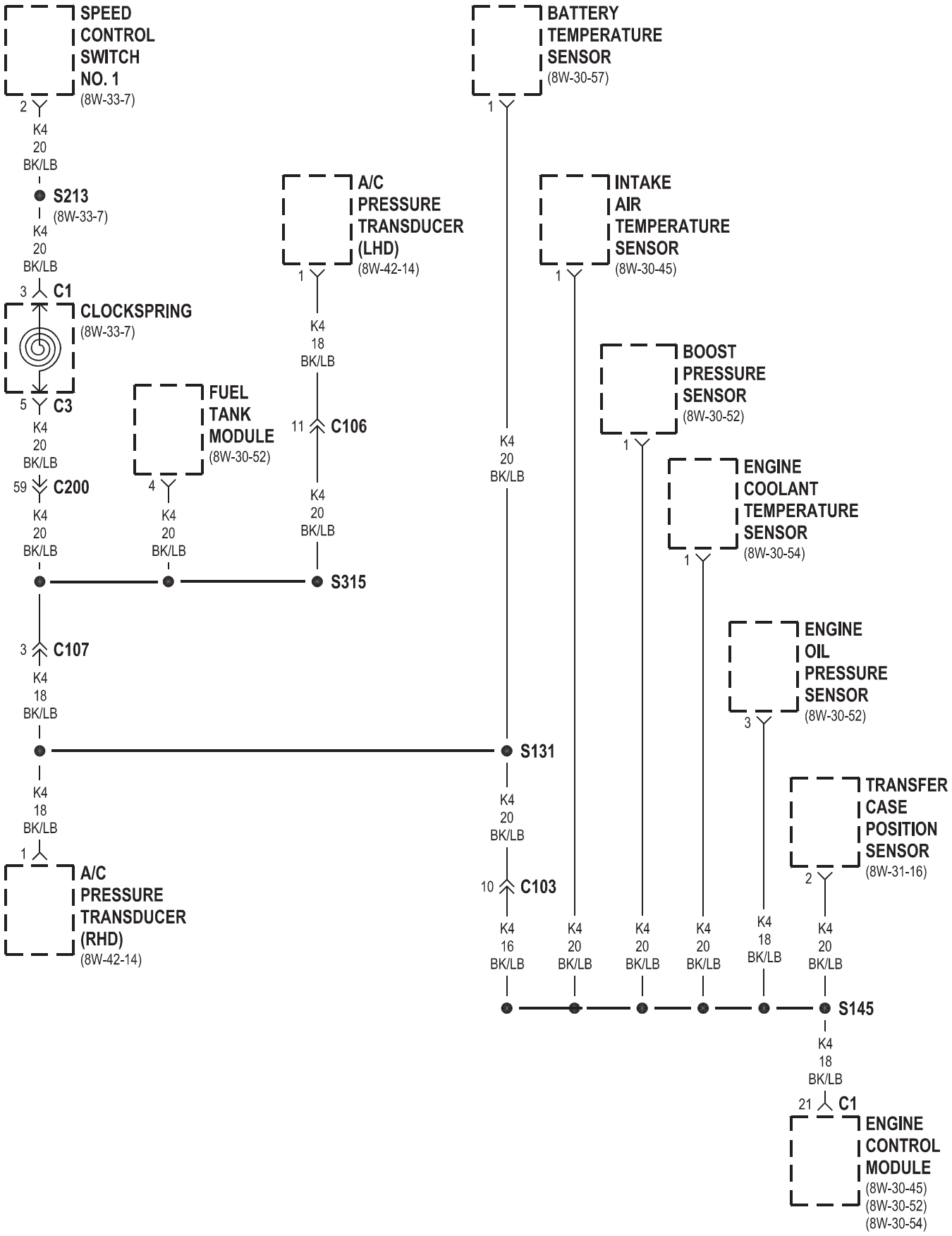

BATTERY TEMPERATURE SENSOR (8W-30-2)
1
K4 20 BK/LB
S131 (8W-70-9)
K4 20 BK/LB
10 C102
K4 18 BK/LB
CRANKSHAFT POSITION SENSOR (8W-30-19)
2
K4 18 BK/LB
CAMSHAFT POSITION SENSOR (8W-30-19)
2
K4 18 BK/LB
TRANSMISSION SOLENOID (8W-31-8)
3
K4 18 BK/LB
S112
OXYGEN SENSOR 1/2 DOWNSTREAM (EXCEPT JAPAN) (8W-30-25)
3
K4 18 BK/LB
OXYGEN SENSOR 1/1 UPSTREAM (EXCEPT JAPAN) (8W-30-25)
3
K4 18 BK/LB
THROTTLE POSITION SENSOR (8W-30-20)
2
K4 18 BK/LB
MANIFOLD ABSOLUTE PRESSURE SENSOR (8W-30-22)
1
K4 18 BK/LB
ENGINE COOLANT TEMPERATURE SENSOR (EXCEPT JAPAN) (8W-30-22)
1
K4 18 BK/LB
INTAKE AIR TEMPERATURE SENSOR (8W-30-22)
1
K4 18 BK/LB
S107
K4 18 BK/LB
3
OXYGEN SENSOR 2/1 UPSTREAM (JAPAN) (8W-30-31)
K4 18 BK/LB
Z
TO S110 (JAPAN) (8W-70-5)
K4 18 BK/LB
4 C1
POWERTRAIN CONTROL MODULE (8W-30-30) (8W-30-31)

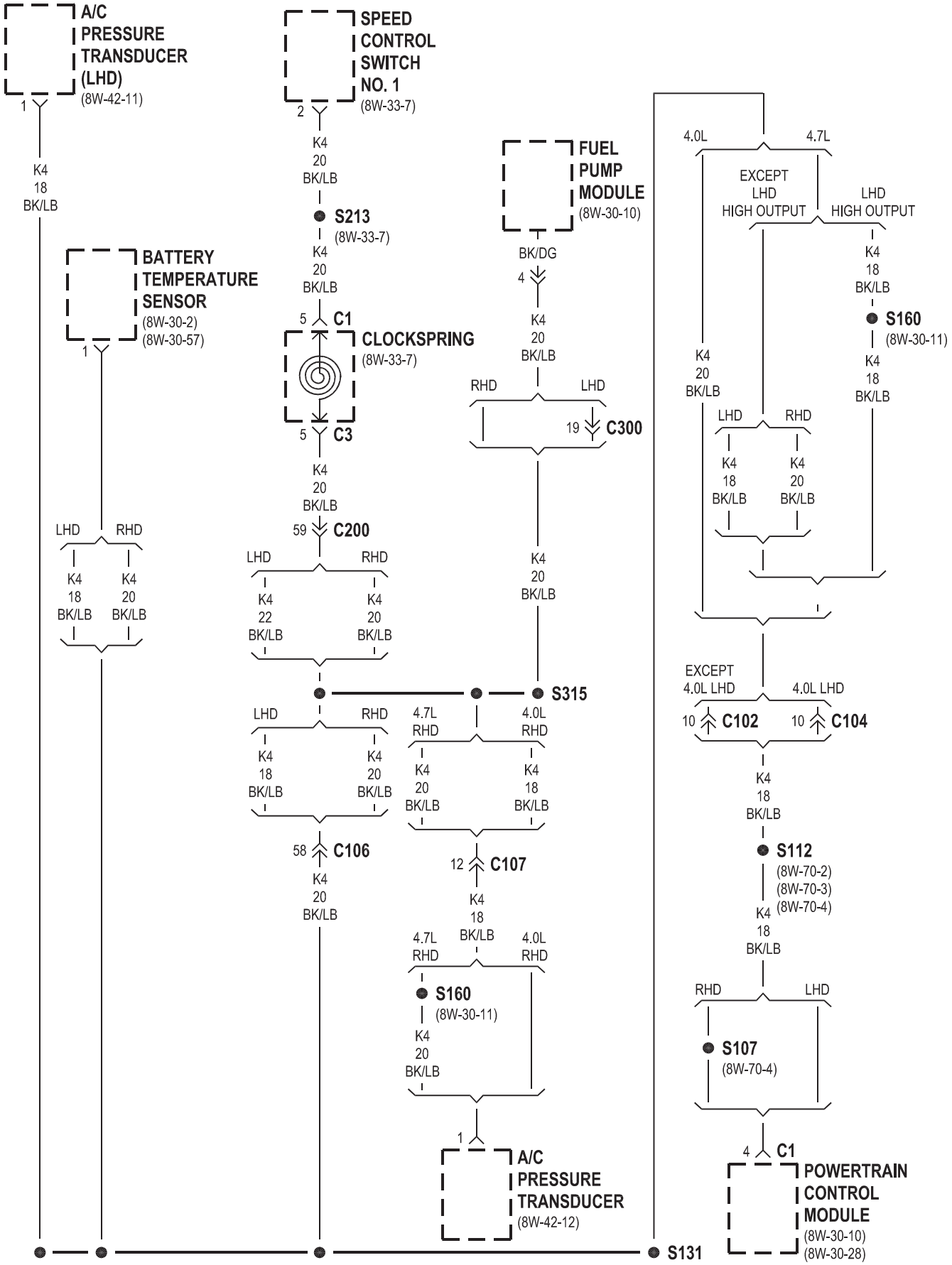

(8W-70-4)
Z
K4
18
BK/LB
S110
K4
18
BK/LB
K4
18
BK/LB
K4
18
BK/LB
K4
18
BK/LB
3
3
3
1
ENGINE
COOLANT
TEMPERATURE
SENSOR
(8W-30-22)
OXYGEN
SENSOR
1/1
UPSTREAM
(8W-30-30)
OXYGEN
SENSOR
1/2
DOWNSTREAM
(8W-30-30)
OXYGEN
SENSOR
2/2
DOWNSTREAM
(8W-30-31)

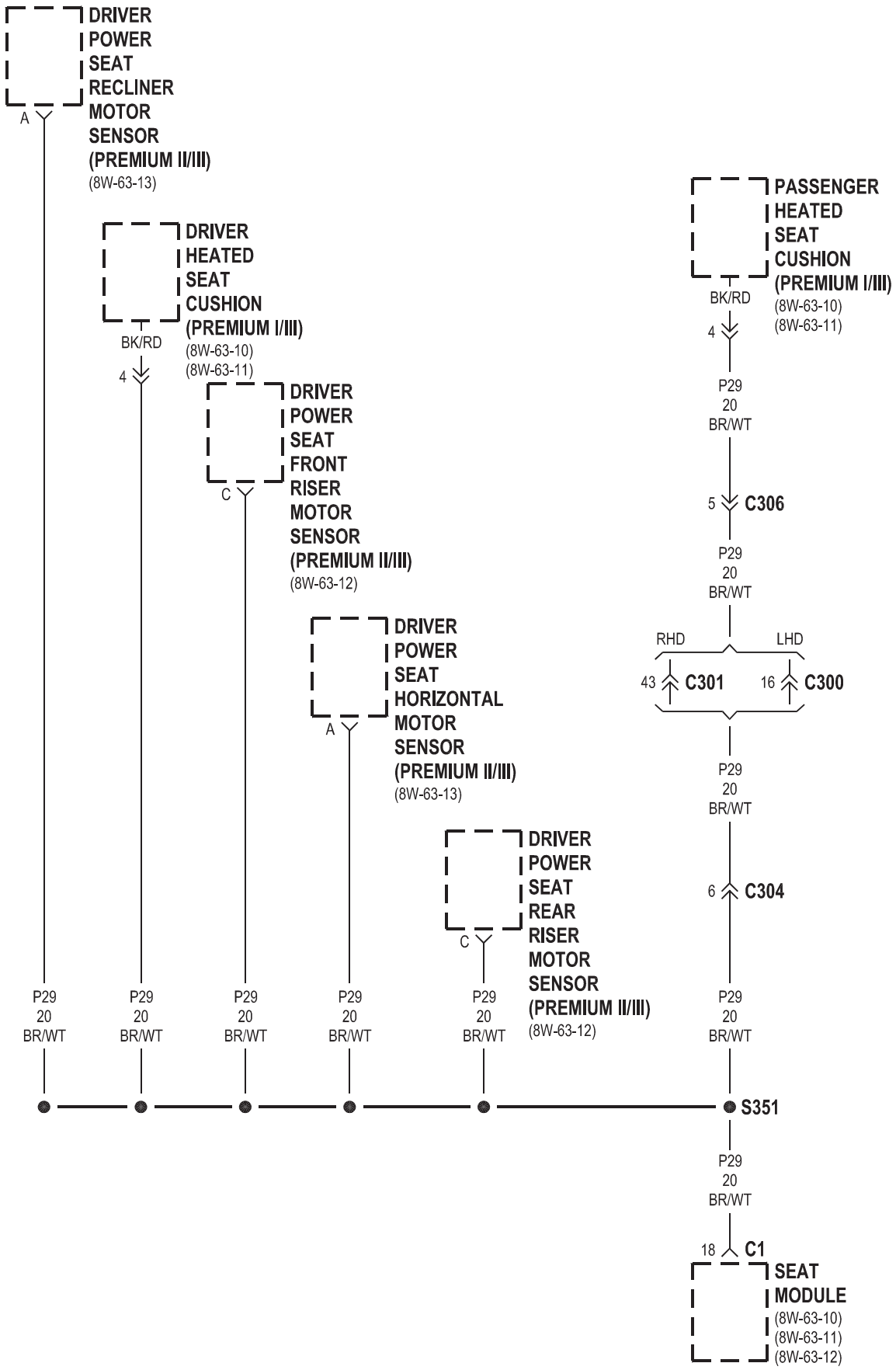

MANIFOLD ABSOLUTE PRESSURE SENSOR (8W-30-23)
CRANKSHAFT POSITION SENSOR (8W-30-18)
THROTTLE POSITION SENSOR (8W-30-20)
ENGINE COOLANT TEMPERATURE SENSOR (8W-30-23)
CAMSHAFT POSITION SENSOR (8W-30-18)
INTAKE AIR TEMPERATURE SENSOR (8W-30-23)
K4 18 BK/LB
S107
OXYGEN SENSOR 1/2 DOWNSTREAM (8W-30-33)
OXYGEN SENSOR 2/2 DOWNSTREAM (8W-30-33)
C109
BATTERY TEMPERATURE SENSOR (8W-30-2)
TRANSFER CASE POSITION SENSOR (8W-31-6)
S131 (8W-70-9)
4.7L HIGH OUTPUT
OTHER
OXYGEN SENSOR 1/1 UPSTREAM (8W-30-32)
OXYGEN SENSOR 2/1 UPSTREAM (8W-30-32)
TRANSMISSION CONTROL MODULE (8W-31-7)
S160 (8W-30-11)
C102
S112
C1
POWERTRAIN CONTROL MODULE (8W-30-32) (8W-30-33)

4.7L RHD


THROTTLE POSITION SENSOR (8W-30-20)
OXYGEN SENSOR 1/1 UPSTREAM (8W-30-35)
ENGINE COOLANT TEMPERATURE SENSOR (8W-30-23)
MANIFOLD ABSOLUTE PRESSURE SENSOR (8W-30-23)
TRANSMISSION CONTROL MODULE (8W-31-7)
3
3
1
2
51
K4 18 BK/LB
S158
BATTERY TEMPERATURE SENSOR (8W-30-2)
CAMSHAFT POSITION SENSOR (8W-30-19)
OXYGEN SENSOR 1/2 DOWNSTREAM (8W-30-36)
OXYGEN SENSOR 2/2 DOWNSTREAM (8W-30-36)
OXYGEN SENSOR 2/1 UPSTREAM (8W-30-35)
1
2
3
3
3
K4 20 BK/LB
S131 (8W-70-9)
10
C102
S112
CRANKSHAFT POSITION SENSOR (8W-30-19)
INTAKE AIR TEMPERATURE SENSOR (8W-30-23)
S107
4
C1
POWERTRAIN CONTROL MODULE
(8W-30-34)
(8W-30-35)
(8W-30-36)


SPEED CONTROL SWITCH NO. 1
(8W-33-7)
2
K4
20
BK/LB
S213
(8W-33-7)
K4
20
BK/LB
3
C1
CLOCKSPRING
(8W-33-7)
5
C3
K4
20
BK/LB
59
C200
K4
20
BK/LB
A/C PRESSURE TRANSDUCER (LHD)
(8W-42-14)
1
K4
18
BK/LB
11
C106
K4
20
BK/LB
S315
FUEL TANK MODULE
(8W-30-52)
4
K4
20
BK/LB
3
C107
K4
18
BK/LB
S131
K4
18
BK/LB
1
A/C PRESSURE TRANSDUCER (RHD)
(8W-42-14)
BATTERY TEMPERATURE SENSOR
(8W-30-57)
1
K4
20
BK/LB
INTAKE AIR TEMPERATURE SENSOR
(8W-30-45)
1
BOOST PRESSURE SENSOR
(8W-30-52)
1
ENGINE COOLANT TEMPERATURE SENSOR
(8W-30-54)
1
ENGINE OIL PRESSURE SENSOR
(8W-30-52)
3
TRANSFER CASE POSITION SENSOR
(8W-31-16)
2
K4
20
BK/LB
10
C103
K4
16
BK/LB
K4
20
BK/LB
K4
20
BK/LB
K4
20
BK/LB
K4
18
BK/LB
K4
20
BK/LB
S145
K4
18
BK/LB
21
C1
ENGINE CONTROL MODULE
(8W-30-45)
(8W-30-52)
(8W-30-54)


A/C PRESSURE TRANSDUCER (LHD) (8W-42-11)
1
K4 18 BK/LB
SPEED CONTROL SWITCH NO. 1 (8W-33-7)
2
K4 20 BK/LB
S213 (8W-33-7)
K4 20 BK/LB
5 C1
CLOCKSPRING (8W-33-7)
5 C3
K4 20 BK/LB
FUEL PUMP MODULE (8W-30-10)
BK/DG
4
K4 20 BK/LB
RHD LHD
19 C300
BATTERY TEMPERATURE SENSOR (8W-30-2) (8W-30-57)
1
LHD RHD
K4 18 BK/LB
K4 20 BK/LB
59 C200
LHD RHD
K4 22 BK/LB
K4 20 BK/LB
S315
LHD RHD
K4 18 BK/LB
K4 20 BK/LB
58 C106
4.7L RHD
4.0L RHD
K4 20 BK/LB
K4 18 BK/LB
12 C107
K4 18 BK/LB
4.7L RHD
4.0L RHD
S160 (8W-30-11)
K4 20 BK/LB
1
A/C PRESSURE TRANSDUCER (8W-42-12)
S131
4.0L
4.7L
EXCEPT LHD HIGH OUTPUT
LHD HIGH OUTPUT
K4 18 BK/LB
S160 (8W-30-11)
K4 18 BK/LB
K4 20 BK/LB
LHD RHD
K4 18 BK/LB
K4 20 BK/LB
EXCEPT 4.0L LHD
4.0L LHD
10 C102
10 C104
K4 18 BK/LB
S112 (8W-70-2) (8W-70-3) (8W-70-4)
K4 18 BK/LB
RHD LHD
S107 (8W-70-4)
4 C1
POWERTRAIN CONTROL MODULE (8W-30-10) (8W-30-28)


DRIVER POWER SEAT RECLINER MOTOR SENSOR (PREMIUM II/III)
(8W-63-13)
A
DRIVER HEATED SEAT CUSHION (PREMIUM I/III)
(8W-63-10)
(8W-63-11)
BK/RD
4
DRIVER POWER SEAT FRONT RISER MOTOR SENSOR (PREMIUM II/III)
(8W-63-12)
C
DRIVER POWER SEAT HORIZONTAL MOTOR SENSOR (PREMIUM II/III)
(8W-63-13)
A
DRIVER POWER SEAT REAR RISER MOTOR SENSOR (PREMIUM II/III)
(8W-63-12)
C
PASSENGER HEATED SEAT CUSHION (PREMIUM I/III)
(8W-63-10)
(8W-63-11)
BK/RD
4
P29
20
BR/WT
5 C306
RHD
LHD
43 C301
16 C300
6 C304
S351
18 C1
SEAT MODULE
(8W-63-10)
(8W-63-11)
(8W-63-12)

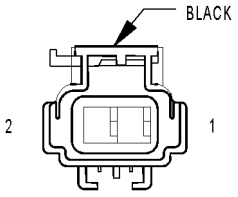
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C105 (Diesel)	8W-80-19
C106 (Diesel)	8W-80-19
C106 (Diesel)	8W-80-21
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C109	8W-80-33
C110 (Diesel)	8W-80-34
C110 (Diesel)	8W-80-34
C111	8W-80-34
C111	8W-80-34
C112	8W-80-35
C112	8W-80-35
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C113 (Diesel)	8W-80-35
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C306	8W-80-52
C307	8W-80-52
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C308	8W-80-53
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Liftgate Flip-Up Release Solenoid	8W-80-101
Liftgate Power Lock Motor	8W-80-102
Line Pressure Sensor (4.7L)	8W-80-102
Manifold Absolute Pressure Sensor (4.0L)	8W-80-102
Manifold Absolute Pressure Sensor (4.7L)	8W-80-102
Manual Temperature Control C1 (MTC)	8W-80-103
Manual Temperature Control C2 (MTC)	8W-80-103
Mass Air Flow Sensor (Diesel)	8W-80-103
Mode Door Motor/Actuator (AZC)	8W-80-103
Output Speed Sensor (4.0L)	8W-80-104
Output Speed Sensor (4.7L)	8W-80-104
Overhead Map/Courtesy Lamp	8W-80-104
Oxygen Sensor 1/1 Upstream	8W-80-104
Oxygen Sensor 1/2 Downstream	8W-80-105
Oxygen Sensor 2/1 Upstream	8W-80-105
Oxygen Sensor 2/2 Downstream	8W-80-105
Park/Neutral Position Switch (4.0L)	8W-80-105
Passenger Airbag	8W-80-106
Passenger Blend Door Motor/Actuator (LHD AZC)	8W-80-106
Passenger Blend Door Motor/Actuator (RHD AZC)	8W-80-106
Passenger Curtain Airbag Squib	8W-80-106
Passenger Door Lock Motor/Ajar Switch	8W-80-107
Passenger Door Module C1	8W-80-107
Passenger Door Module C2	8W-80-107
Passenger Front Door Courtesy Lamp	8W-80-108
Passenger Front Power Window Motor	8W-80-108
Passenger Heated Seat Back (Premium I/III)	8W-80-108
Passenger Heated Seat Cushion (Premium I/III)	8W-80-108
Passenger Heated Seat Switch	8W-80-109
Passenger Lumbar Motor (Midline/ Premium)	8W-80-109
Passenger Lumbar Switch (Midline/ Premium)	8W-80-109
Passenger Power Mirror	8W-80-109
Passenger Power Seat Front Riser Motor	8W-80-110
Passenger Power Seat Horizontal Motor	8W-80-110

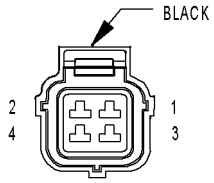
Component	Page
Passenger Power Seat Rear Riser Motor	8W-80-110
Passenger Power Seat Recliner Motor (Midline/Premium)	8W-80-110
Passenger Power Seat Switch (Except Midline/Premium)	8W-80-111
Passenger Power Seat Switch (Midline/Premium)	8W-80-111
Passenger Rear Power Window Motor	8W-80-111
Passenger Rear Power Window Switch	8W-80-112
Passenger Side Impact Sensor	8W-80-112
Power Amplifier C1 (Premium Radio)	8W-80-112
Power Amplifier C2 (Premium Radio)	8W-80-113
Powertrain Control Module C1 (Gas)	8W-80-113
Powertrain Control Module C2 (Gas)	8W-80-114
Powertrain Control Module C3 (Gas)	8W-80-115
Radiator Fan Motor (4.0L)	8W-80-116
Radiator Fan Motor Relay (4.0L)	8W-80-116
Radio C1	8W-80-116
Radio C2	8W-80-117
Rain Sensor (Autowipe)	8W-80-117
Rear Power Outlet	8W-80-117
Rear Washer Pump	8W-80-117
Rear Wiper Motor	8W-80-118
Recirculation Door Motor/Actuator (AZC)	8W-80-118
Red Brake Warning Indicator Switch	8W-80-118
Remote Keyless Module (Japan)	8W-80-118
Right Courtesy Lamp	8W-80-119
Right Door Handle Courtesy Lamp	8W-80-119
Right Fog Lamp	8W-80-119
Right Front Door Speaker	8W-80-119
Right Front Impact Sensor	8W-80-120
Right Front Park Lamp	8W-80-120
Right Front Park/Turn Signal Lamp (Except Export)	8W-80-120
Right Front Side Marker Lamp (Except Export)	8W-80-120
Right Front Turn Signal Lamp (Export)	8W-80-121
Right Front Wheel Speed Sensor	8W-80-121
Right Headlamp Leveling Motor (Export)	8W-80-121
Right High Beam Headlamp	8W-80-121
Right Instrument Panel Speaker	8W-80-122
Right Liftgate Ajar Switch	8W-80-122
Right Low Beam Headlamp	8W-80-122
Right Multi-Function Switch	8W-80-122
Right Rear Door Lock Motor/Ajar Switch	8W-80-123
Right Rear Door Speaker	8W-80-123
Right Rear Lamp Assembly	8W-80-123
Right Rear Wheel Speed Sensor	8W-80-123
Right Remote Radio Switch	8W-80-124
Right Side Repeater Lamp (Export)	8W-80-124
Right Visor/Vanity Lamp	8W-80-124
Seat Module C1 (Premium/Heated Seats)	8W-80-124
Seat Module C2 (Premium/Heated Seats)	8W-80-125
Sentry Key Immobilizer Module	8W-80-125
Shifter Assembly (Gas)	8W-80-125
Shifter Assembly C1 (Diesel)	8W-80-126
Shifter Assembly C2 (Diesel)	8W-80-126
Siren (Export)	8W-80-126
Speed Control Switch No. 1	8W-80-126
Speed Control Switch No. 2	8W-80-127
Sunroof Control Module	8W-80-127
Sunroof Motor C1	8W-80-127
Sunroof Motor C2	8W-80-127
Sunroof Switch	8W-80-128
Temperature Valve Actuator (MTC)	8W-80-128
Throttle Position Sensor (4.0L)	8W-80-128
Throttle Position Sensor (4.7L)	8W-80-128
Trailer Tow Circuit Breaker	8W-80-129
Trailer Tow Connector	8W-80-129
Trailer Tow Left Turn Relay	8W-80-129
Trailer Tow Right Turn Relay	8W-80-129
Transfer Case Position Sensor	8W-80-130
Transmission Control Module (4.7L)	8W-80-130
Transmission Control Module C1 (Diesel)	8W-80-131
Transmission Control Module C2 (Diesel)	8W-80-132
Transmission Solenoid (4.0L)	8W-80-132
Transmission Solenoid Assembly (Diesel)	8W-80-132
Transmission Solenoid/TRS Assembly (4.7L)	8W-80-133
Underhood Lamp	8W-80-133
Vehicle Information Center	8W-80-133
Viscous/Cabin Heater (Diesel)	8W-80-134
Washer Fluid Level Switch	8W-80-134
Wastegate Solenoid (Diesel)	8W-80-134
Water In Fuel Sensor (Diesel)	8W-80-134



A/C COMPRESSOR CLUTCH

A/C COMPRESSOR CLUTCH - BLACK 2 WAY

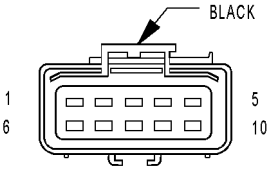
CAV	CIRCUIT	FUNCTION
1	C2 18DB/YL	A/C CLUTCH RELAY OUTPUT
2	Z18 18BK	GROUND



A/C PRESSURE TRANSDUCER

A/C PRESSURE TRANSDUCER - BLACK 4 WAY

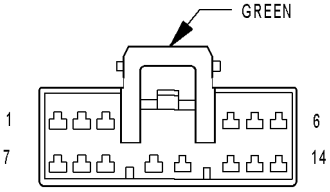
CAV	CIRCUIT	FUNCTION
1	K4 18BK/LB	SENSOR GROUND
2	K6 18VT/BK (GAS)	5 VOLT SUPPLY
2	K6 18VT/WT (DIESEL)	SENSOR REFERENCE VOLTAGE B
3	C18 18DB	A/C PRESSURE SIGNAL
4	-	-



ACCELERATOR PEDAL POSITION SENSOR (DIESEL)

ACCELERATOR PEDAL POSITION SENSOR (DIESEL) - BLACK 10 WAY

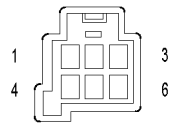
CAV	CIRCUIT	FUNCTION
1	-	-
2	F855 18BR/YL	SENSOR REFERENCE VOLTAGE A
3	K22 14RD/DB	ACCELERATOR PEDAL POSITION SENSOR 2 SIGNAL
4	-	-
5	-	-
6	K225 18BK	ACCELERATOR PEDAL POSITION SENSOR 2 GROUND
7	K81 20DB/DG	ACCELERATOR PEDAL POSITION SENSOR 1 SIGNAL
8	K255 20WT/DG	ACCELERATOR PEDAL POSITION SENSOR 1 GROUND
9	-	-
10	Y43 20WT/VT	ACCELERATOR PEDAL POSITION SENSOR 1 5-VOLT SUPPLY



ADJUSTABLE PEDALS MODULE (EXCEPT EXPORT)

ADJUSTABLE PEDALS MODULE (EXCEPT EXPORT) - GREEN 14 WAY

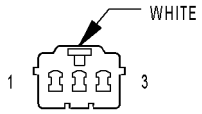
CAV	CIRCUIT	FUNCTION
1	Y151 20LG/BR	ADJUSTABLE PEDALS SWITCH SENSE (FORWARD)
2	Y152 20LG/OR	ADJUSTABLE PEDALS SWITCH SENSE (REARWARD)
3	Q110 16OR/VT	ADJUSTABLE PEDALS MOTOR (FORWARD)
4	F72 16RD/YL	FUSED B(+)
5	-	-
6	Q111 16OR/GY	ADJUSTABLE PEDALS MOTOR (REARWARD)
7	Q113 20OR/DB (MEMORY)	PEDAL POSITION SENSOR FEED
8	Q112 20OR/YL (MEMORY)	PEDAL POSITION SENSOR SENSE
9	Q114 20OR/TN (MEMORY)	PEDAL POSITION SENSOR RETURN
10	Z151 16BK	GROUND
11	Z155 20BK/OR	GROUND
12	L1 18WT/BR	BACK-UP LAMP FEED
13	D25 20VT/YL	PCI BUS
14	Y153 16DB/RD	ADJUSTABLE PEDALS SWITCH FEED



ADJUSTABLE PEDALS MOTOR/SENSOR ASSEMBLY (EXCEPT EXPORT)

ADJUSTABLE PEDALS MOTOR/SENSOR ASSEMBLY (EXCEPT EXPORT) - 6 WAY

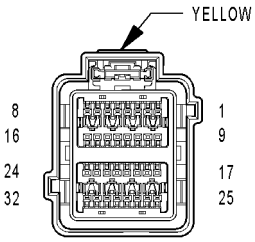
CAV	CIRCUIT	FUNCTION
1	Q113 20OR/DB	PEDAL POSITION SENSOR FEED
2	Q112 20OR/YL	PEDAL POSITION SENSOR SENSE
3	Q114 20OR/TN	PEDAL POSITION SENSOR RETURN
4	-	-
5	Q111 16OR/GY	ADJUSTABLE PEDALS MOTOR (REARWARD)
6	Q110 16OR/VT	ADJUSTABLE PEDALS MOTOR (FORWARD)



ADJUSTABLE PEDALS SWITCH (EXCEPT EXPORT)

ADJUSTABLE PEDALS SWITCH (EXCEPT EXPORT) - WHITE 3 WAY

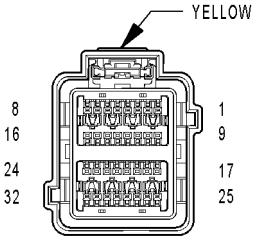
CAV	CIRCUIT	FUNCTION
1	Y153 20BD/RD	ADJUSTABLE PEDALS SWITCH FEED
2	Y152 20LG/OR	ADJUSTABLE PEDALS SWITCH SENSE (REARWARD)
3	Y151 20LG/BR	ADJUSTABLE PEDALS SWITCH SENSE (FORWARD)



AIRBAG CONTROL MODULE C1 (ORC C1)

AIRBAG CONTROL MODULE C1 (ORC C1) - YELLOW 32 WAY

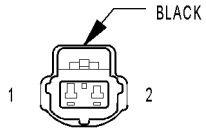
CAV	CIRCUIT	FUNCTION
1	R72 20LB/WT (SIDE AIRBAGS)	PASSENGER CURTAIN SQUIB 1 LINE 2
2	R74 20LB/YL (SIDE AIRBAGS)	PASSENGER CURTAIN SQUIB 1 LINE 1
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	R132 20LG/VT (SIDE AIRBAGS)	PASSENGER SIDE IMPACT SENSOR SIGNAL
16	R134 20LB/BR (SIDE AIRBAGS)	PASSENGER SIDE IMPACT SENSOR GROUND
17	R131 20LG/YL (SIDE AIRBAGS)	DRIVER SIDE IMPACT SENSOR SIGNAL
18	R133 20LB/DG (SIDE AIRBAGS)	DRIVER SIDE IMPACT SENSOR GROUND
19	-	-
20	-	-
21	-	-
22	-	-
23	R59 20LB	DRIVER SEAT BELT SWITCH GROUND
24	R57 20DG	DRIVER SEAT BELT SWITCH SENSE
25	R73 20LB/BR (SIDE AIRBAGS)	DRIVER CURTAIN SQUIB 1 LINE 2
26	R75 20LB/OR (SIDE AIRBAGS)	DRIVER CURTAIN SQUIB 1 LINE 1
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-



AIRBAG CONTROL MODULE C2 (ORC C2)

AIRBAG CONTROL MODULE C2 (ORC C2) - YELLOW 32 WAY

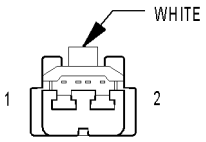
CAV	CIRCUIT	FUNCTION
1	R45 20DG/LB	DRIVER SQUIB 1 LINE 2
2	R43 20BK/LB	DRIVER SQUIB 1 LINE 1
3	R42 20BK/YL	PASSENGER SQUIB 1 LINE 1
4	R44 20DG/YL	PASSENGER SQUIB 1 LINE 2
5	-	-
6	-	-
7	-	-
8	-	-
9	R49 20LB	LEFT FRONT IMPACT SENSOR SIGNAL
10	R47 20DB/LB	LEFT FRONT IMPACT SENSOR GROUND
11	R46 20BR/LB	RIGHT FRONT IMPACT SENSOR GROUND
12	R48 20TN	RIGHT FRONT IMPACT SENSOR SIGNAL
13	-	-
14	-	-
15	-	-
16	F23 18DB/YL	FUSED IGNITION SWITCH OUTPUT (RUN)
17	Z6 20BK/PK	GROUND
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	D25 20YL/VT/OR	PCI BUS
24	F14 20LG/YL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
25	R63 20TN/LB	DRIVER SQUIB 2 LINE 2
26	R61 20OR/LB	DRIVER SQUIB 2 LINE 1
27	R62 20OR/YL	PASSENGER SQUIB 2 LINE 2
28	R64 20TN/YL	PASSENGER SQUIB 2 LINE 1
29	-	-
30	-	-
31	-	-
32	-	-



AMBIENT TEMPERATURE SENSOR

AMBIENT TEMPERATURE SENSOR - BLACK 2 WAY

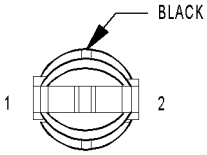
CAV	CIRCUIT	FUNCTION
1	G32 20BK/LB	SENSOR GROUND
2	G31 20VT/LG	AMBIENT TEMPERATURE SENSOR SIGNAL



ANTENNA MODULE (EXPORT)

ANTENNA MODULE (EXPORT) - WHITE 2 WAY

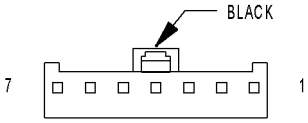
CAV	CIRCUIT	FUNCTION
1	X64 18BK/WT	ENABLE SIGNAL TO AMPLIFIER
2	-	-



ASH RECEIVER LAMP

ASH RECEIVER LAMP - BLACK 2 WAY

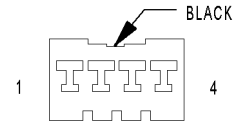
CAV	CIRCUIT	FUNCTION
1	Z300 20BK	GROUND
2	E2 20OR	PANEL LAMPS DRIVER



AUTOMATIC DAY/ NIGHT MIRROR

AUTOMATIC DAY/NIGHT MIRROR - BLACK 7 WAY

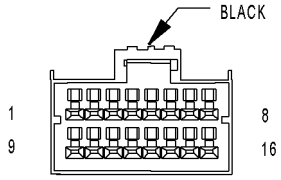
CAV	CIRCUIT	FUNCTION
1	G5 20BK/LG	FUSED IGNITION SWITCH OUTPUT (RUN-START)
2	Z150 20BK	GROUND
3	L1 20BK/VT	BACK-UP LAMP FEED
4	P112 20BK/WT	AUTO DAY/NIGHT MIRROR (+)
5	P114 20BK/YL	AUTO DAY/NIGHT MIRROR (-)
6	-	-
7	-	-



AUTOMATIC HEADLAMP LIGHT SENSOR/VTSS LED

AUTOMATIC HEADLAMP LIGHT SENSOR/VTSS LED - BLACK 4 WAY

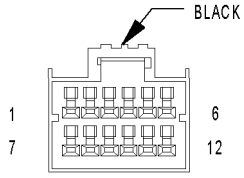
CAV	CIRCUIT	FUNCTION
1	L109 20WT	ULTRALIGHT SENSOR SIGNAL
2	L110 20BK/YL	ULTRALIGHT SENSOR RETURN
3	G69 20BK/OR	VTSS INDICATOR DRIVER
4	M1 20PK	FUSED B(+)



AUTOMATIC ZONE CONTROL MODULE C1 (AZC)

AUTOMATIC ZONE CONTROL MODULE C1 (AZC) - BLACK 16 WAY

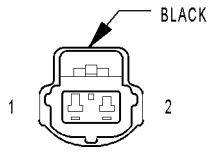
CAV	CIRCUIT	FUNCTION
1	C102 20TN/BK	MODE DOOR DRIVER (B)
2	-	-
3	C32 20GY/DB	RECIRCULATION DOOR DRIVER (A)
4	C100 20YL/DB	RECIRCULATION DOOR DRIVER (B)
5	-	-
6	C79 20BK/WT	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
7	-	-
8	Z118 20BK	GROUND
9	C35 20DG/YL	MODE DOOR DRIVER (A)
10	C33 20DB/RD	DRIVER BLEND DOOR DRIVER (A)
11	-	-
12	-	-
13	-	-
14	C81 20LB/WT	REAR WINDOW DEFOGGER SWITCH SENSE
15	-	-
16	-	-



AUTOMATIC ZONE CONTROL MODULE C2 (AZC)

AUTOMATIC ZONE CONTROL MODULE C2 (AZC) - BLACK 12 WAY

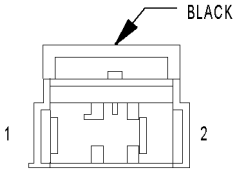
CAV	CIRCUIT	FUNCTION
1	-	-
2	C94 20WT/DG	PASSENGER BLEND DOOR DRIVER (A)
3	C95 20WT/BK	DRIVER BLEND DOOR DRIVER (B)
4	C96 20WT/DB	PASSENGER BLEND DOOR DRIVER (B)
5	-	-
6	E2 20OR	PANEL LAMPS DRIVER
7	C56 20RD/LG	BLOWER MOTOR CONTROL
8	D25 20YL/VT/DG	PCI BUS
9	C103 20DG	A/C SWITCH SIGNAL
10	-	-
11	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
12	M1 20PK	FUSED B(+)



BATTERY TEMPERATURE SENSOR

BATTERY TEMPERATURE SENSOR - BLACK 2 WAY

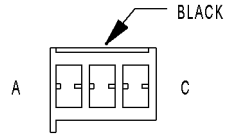
CAV	CIRCUIT	FUNCTION
1	K4 20BK/LB (DIESEL/RHD)	SENSOR GROUND
1	K4 18BK/LB (GAS LHD)	SENSOR GROUND
2	K25 18VT/LG	BATTERY TEMPERATURE SENSOR SIGNAL



BLOWER MOTOR

BLOWER MOTOR - BLACK 2 WAY

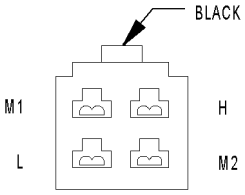
CAV	CIRCUIT	FUNCTION
1	C1 12DG	BLOWER MOTOR SUPPLY
2	C7 12BK/TN	BLOWER MOTOR HIGH DRIVER



BLOWER MOTOR CONTROLLER (AZC)

BLOWER MOTOR CONTROLLER (AZC) - BLACK 3 WAY

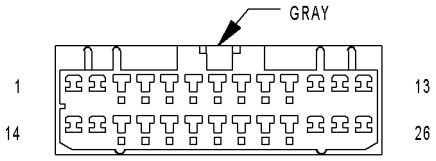
CAV	CIRCUIT	FUNCTION
A	Z118 12BK	GROUND
B	C56 20RD/LG	BLOWER MOTOR CONTROL
C	C1 12DG	BLOWER MOTOR SUPPLY



BLOWER MOTOR RESISTOR BLOCK (MTC)

BLOWER MOTOR RESISTOR BLOCK (MTC) - BLACK 4 WAY

CAV	CIRCUIT	FUNCTION
L	C4 16TN	BLOWER MOTOR LOW DRIVER
H	C7 12BK/TN	BLOWER MOTOR HIGH DRIVER
M1	C5 16LG	BLOWER MOTOR M1 DRIVER
M2	C6 14LB	BLOWER MOTOR M2 DRIVER



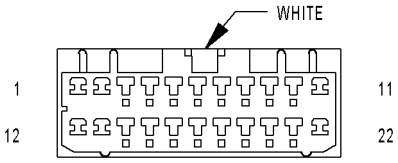
BODY CONTROL MODULE C1

BODY CONTROL MODULE C1 - GRAY 26 WAY

CAV	CIRCUIT	FUNCTION
1	Z132 20BK/OR	GROUND
2	G52 20YL	HEADLAMP SWITCH MUX
3	E19 20RD	PANEL LAMPS DIMMER SIGNAL
4	-	-
5	G70 20BR/TN (EXPORT)	HOOD AJAR SWITCH SENSE
6	G26 20LB	KEY-IN IGNITION SWITCH SENSE
7	G76 18TN/YL	RIGHT REAR DOOR AJAR SWITCH SENSE
8	E2 20OR	PANEL LAMPS DRIVER
9	E2 20OR	PANEL LAMPS DRIVER
10	E2 20OR	PANEL LAMPS DRIVER
11	-	-
12	E2 20OR	PANEL LAMPS DRIVER
13	E2 20OR	PANEL LAMPS DRIVER
14	Z132 20BK/OR	GROUND
15	D25 20YL/VT/WT	PCI BUS
16	L80 20WT/DG	HEADLAMP SWITCH RETURN
17	D19 20VT/OR	BODY CONTROL MODULE FLASH ENABLE
18	-	-
19	-	-

BODY CONTROL MODULE C1 - GRAY 26 WAY

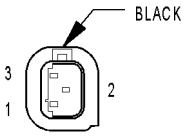
CAV	CIRCUIT	FUNCTION
20	G69 20BK/OR	VTSS INDICATOR DRIVER
21	-	-
22	V14 20RD/VT	WIPER ON/OFF RELAY CONTROL
23	M20 20BR/OR	COURTESY LAMP LOAD SHED
24	M2 20YL	COURTESY LAMP DRIVER
25	Z234 20BK	GROUND
26	-	-



BODY CONTROL MODULE C2

BODY CONTROL MODULE C2 - WHITE 22 WAY

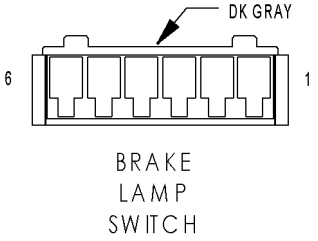
CAV	CIRCUIT	FUNCTION
1	C103 20DG	A/C SWITCH SIGNAL
2	V10 20BR	WASHER PUMP SWITCH SENSE
3	V48 20RD/GY	WIPER HIGH CONTROL
4	L40 20BR	HIGH BEAM SWITCH SENSE
5	V11 20BK/TN	WASHER FLUID SWITCH SENSE
6	P134 20TN/LG	PASSENGER SEAT HEATER SWITCH MUX
7	P133 20TN/DG	DRIVER SEAT HEATER SWITCH MUX
8	X20 20RD/YL	RADIO CONTROL MUX
9	G31 20VT/LG	AMBIENT TEMPERATURE SENSOR SIGNAL
10	L109 20WT	ULTRALIGHT SENSOR SIGNAL
11	V52 20DG/RD	WINDSHIELD WIPER SWITCH MUX
12	C81 20LB/WT	REAR WINDOW DEFOGGER SWITCH SENSE
13	-	-
14	-	-
15	L27 20WT/TN	FOG LAMP SWITCH SENSE
16	C201 20LB/YL	EVAPORATOR TEMPERATURE SENSOR SIGNAL
17	G18 20PK/BK	COOLANT LEVEL SWITCH SENSE
18	P132 20OR/BK	SEAT HEATER SWITCH SENSOR GROUND
19	X10 20RD/BK	RADIO CONTROL MUX RETURN
20	G32 20BK/LB	SENSOR GROUND
21	L110 20BK/YL	ULTRALIGHT SENSOR RETURN
22	V9 20WT/BK	WINDSHIELD WIPER SWITCH RETURN



BOOST PRESSURE SENSOR (DIESEL)

BOOST PRESSURE SENSOR (DIESEL) - BLACK 3 WAY

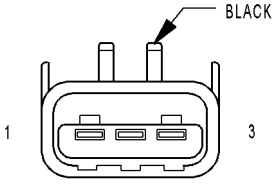
CAV	CIRCUIT	FUNCTION
1	K4 20BK/LB	SENSOR GROUND
2	Y53 20BK/YL	BOOST PRESSURE SENSOR SIGNAL
3	K6 20VT/WT	SENSOR REFERENCE VOLTAGE B



BRAKE
LAMP
SWITCH

BRAKE LAMP SWITCH - DK GRAY 6 WAY

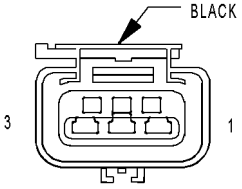
CAV	CIRCUIT	FUNCTION
1	K29 18WT/PK (GAS)	BRAKE SWITCH SENSE
1	K29 18WT/PK (DIESEL)	SECONDARY BRAKE SWITCH SIGNAL
2	Z243 18BK (RHD)	GROUND
2	Z238 18BK (LHD)	GROUND
3	V32 22OR/DG (GAS)	SPEED CONTROL POWER SUPPLY
3	B30 18DG/OR (DIESEL)	SPEED CONTROL POWER SUPPLY
4	Z238 18BK (DIESEL)	
4	V30 22DB/RD (GAS)	SPEED CONTROL BRAKE SWITCH OUTPUT
5	L50 20WT/TN (GAS)	BRAKE LAMP SWITCH OUTPUT
5	L50 20WT/TN (DIESEL)	PRIMARY BRAKE SWITCH SIGNAL
6	F32 20PK/DB	FUSED B(+)



C100

C100 - BLACK (BATTERY SIDE)

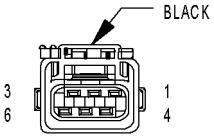
CAV	CIRCUIT
1	T40 12LG
2	K125 18WT/DB
3	K20 18DG



C100

C100 - BLACK (RIGHT HEADLAMP AND DASH SIDE)

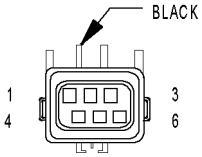
CAV	CIRCUIT
1	T40 12LG
2	K125 18WT/DB
3	K20 18DG



C101
(4.0L RHD)

C101 (4.0L RHD) - BLACK (ENGINE SIDE)

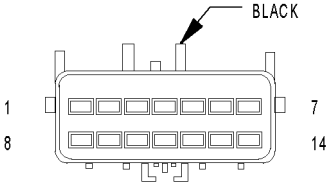
CAV	CIRCUIT
1	B22 18DG/YL
2	K99 18BR/OR
3	K299 18BR/WT
4	K6 18VT/BK
5	C18 18DB
6	-



C101
(4.0L RHD)

C101 (4.0L RHD) - BLACK (HEADLAMP AND DASH SIDE)

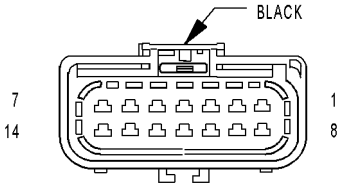
CAV	CIRCUIT
1	B22 18DG/YL
2	K99 18LB/OR
3	K299 18BR/WT
4	K6 18VT/BK
5	C18 18DB
6	-



C101
(4.7L RHD)

C101 (4.7L RHD) - BLACK (ENGINE SIDE)

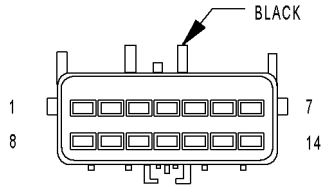
CAV	CIRCUIT
1	K4 18BK/LB (HIGH OUTPUT)
2	K99 18BR/OR
3	C18 18DB
4	K299 18BR/WT
5	T6 18VT/WT
6	K6 18VT/BK
7	K4 18BK/LB (HIGH OUTPUT)
8	K142 18GY/BK (HIGH OUTPUT)
9	T10 18YL/DG
10	-
11	-
12	B22 18DG/YL
13	-
14	K42 18DB/LG (HIGH OUTPUT)



C101
(4.7L RHD)

C101 (4.7L RHD) - BLACK (LEFT HEADLAMP AND DASH SIDE)

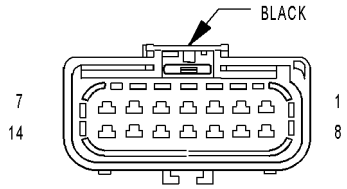
CAV	CIRCUIT
1	K4 18BK/LB
2	K99 18BR/OR
3	C18 18DB
4	K299 18BR/WT
5	T6 18OR/WT
6	K6 18VT/BK
7	K4 18BK/LB
8	K142 18GY/BK
9	T10 18YL/DG
10	-
11	-
12	B22 18DG/YL
13	-
14	K42 18DB/LG



C102
(DIESEL)

C102 (DIESEL) - BLACK (ENGINE SIDE)

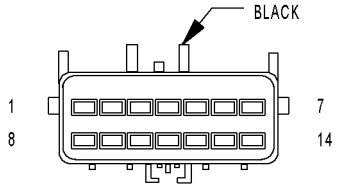
CAV	CIRCUIT
1	D21 20PK
2	D25 20VT/YL
3	K226 20DB/WT
4	D52 16DG/WT
5	D51 16WT
6	B22 20DG/YL
7	F991 20RD/DB
8	T752 20DG/RD
9	K236 20GY/PK
10	K132 20BR/BK
11	A82 16PK/DG
12	K152 20WT
13	L50 20WT/DB
14	K29 20WT/PK



C102
(DIESEL)

C102 (DIESEL) - BLACK (LEFT HEADLAMP AND DASH SIDE)

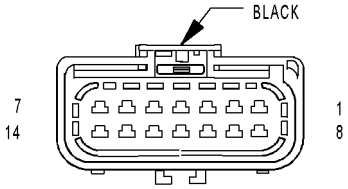
CAV	CIRCUIT
1	D21 18PK
2	D25 18VT/YL
3	K226 18DB/WT
4	D52 18LG/WT
5	D51 18DG/WT
6	B22 18DG/YL
7	F991 20OR/DB
8	T752 18DG/OR
9	K236 18GY/PK
10	K132 18BR/BK
11	A82 18PK/LG
12	K152 18WT
13	L50 18WT/TN
14	K29 18WT/PK



C102
(GAS EXCEPT 4.0L LHD)

C102 (GAS EXCEPT 4.0L LHD) - BLACK (ENGINE SIDE)

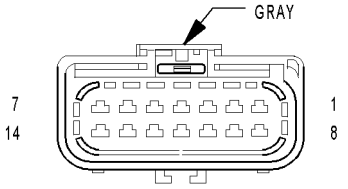
CAV	CIRCUIT
1	A30 14RD/WT (4.7L)
2	F991 18OR/DB
3	K173 18LG
4	F42 18DG/LG
5	A7 14RD/BK
6	L1 18VT/BK
7	Z306 20BK/LG
8	T41 18BK/WT
9	-
10	K4 18BK/LB
11	K200 18VT/OR
12	C2 18DB/YL
13	-
14	A142 14DG/OR



C102
(GAS EXCEPT 4.0L LHD)

C102 (GAS EXCEPT 4.0L LHD) - BLACK (RIGHT HEADLAMP AND DASH SIDE)

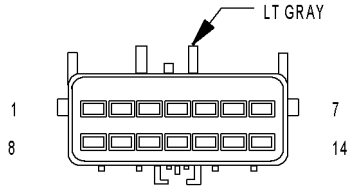
CAV	CIRCUIT
1	A30 14RD/WT (4.7L)
2	F991 20OR/DB
3	K173 18LG (4.7L)
3	K173 20LG (4.0L)
4	F42 18DG/LG
5	A7 14RD/BK
6	L1 18VT/BK
7	Z306 20BK/LG
8	T41 18BK/WT
9	-
10	K4 18BK/LB (4.7L H.O.)
10	K4 20BK/LB (EXCEPT 4.7L H.O.)
11	K200 18VT/OR (4.0L/4.7L H.O.)
11	K200 18BR/WT (4.7L EXCEPT H.O.)
12	C2 18DB/YL
13	-
14	A142 14DG/OR



C103
(DIESEL)

C103 (DIESEL) - GRAY (LEFT HEADLAMP AND DASH SIDE)

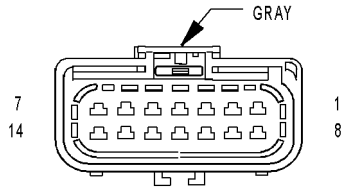
CAV	CIRCUIT
1	T41 18BK/WT
2	K173 18LG
3	C2 18DB/BK
4	-
5	F142 14OR/DG
6	K51 18DB/YL
7	K25 18VT/LG
8	Y42 18OR/DB
9	C18 18DB
10	K4 20BK/LB
11	K6 18VT/WT
12	-
13	T40 12BR
14	F15 18DB/WT



C103
(DIESEL)

C103 (DIESEL) - LT GRAY (ENGINE SIDE)

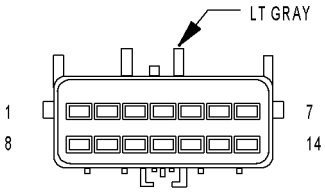
CAV	CIRCUIT
1	T41 20BK/WT
2	K173 20GY
3	C3 14DB/BK
4	-
5	F142 16RD/DG
6	K51 20DB/YL
7	K25 20VT/DG
8	Y42 20RD/DB
9	C18 20DB
10	K4 16BK/LB
11	K6 16VT/WT
12	-
13	T40 12DG
14	F15 20DB/WT



C103
(GAS)

C103 (GAS) - GRAY (RIGHT HEADLAMP AND DASH SIDE)

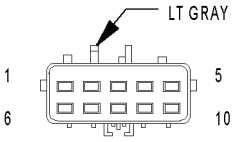
CAV	CIRCUIT
1	F22 20WT/PK (EXCEPT 4.7L RHD)
1	F22 20WT/TN (4.7L RHD)
2	C18 18DB (4.0L EXCEPT EXPORT)
2	T6 18OR/WT (4.7L LHD)
2	C18 18DB (4.0L LHD EXPORT)
3	D20 18LG (4.7L RHD)
3	D20 20LG (4.7L LHD)
3	K99 18BR/OR (4.0L LHD)
4	D21 18PK (4.7L RHD)
4	D21 20PK (4.7L LHD)
4	K299 18BR/WT (4.0L LHD)
5	B22 18DG/YL (LHD)
6	K20 18DG
7	K30 20PK/YL (LHD)
7	K30 18PK/YL (4.7L RHD)
7	K30 20PK (4.0L RHD)
8	A142 14DG/OR (4.0L LHD)
8	T10 18DG/LG (4.7L LHD)
9	T16 14RD (4.7L)
10	D25 18VT/YL (4.7L)
11	Z305 20BK/OR
12	T15 18YL/BR (4.0L)
12	F45 18YL/RD (4.7L)
13	K6 18VT/BK (4.0L LHD)
14	F142 18OR/DG



C103
(GAS)

C103 (GAS) - LT GRAY (ENGINE SIDE)

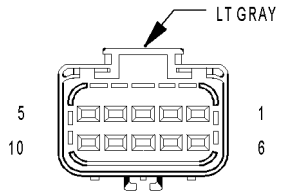
CAV	CIRCUIT
1	F22 18WT/PK
2	C18 18DB (4.0L LHD)
2	T6 18VT/WT (4.7L LHD)
3	D20 18LG (4.7L)
3	K99 18BR/OR (4.0L LHD)
4	K299 18BR/WT (4.0L LHD EXCEPT EXPORT)
4	D21 18PK (4.7L)
5	B22 18DG/YL (LHD)
6	K20 18DG
7	K30 18PK/YL
8	A142 14DG/OR (4.0L LHD)
8	T10 18YL/DG (4.7L LHD)
9	T16 14RD (4.7L)
10	D25 18YL/VT (4.7L)
11	Z305 20BK/OR
12	T15 18LG (4.0L)
12	F45 18YL/RD (4.7L)
13	K6 18VT/BK (4.0L LHD)
14	F142 18OR/DG



C104
(LHD)

C104 (LHD) - LT GRAY (ENGINE SIDE)

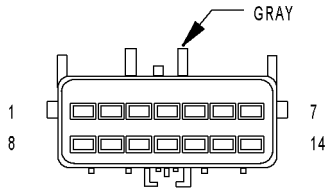
CAV	CIRCUIT
1	K200 18VT/OR (4.0L EXCEPT EXPORT)
1	K4 18BK/LB (4.7L HIGH OUTPUT)
2	K99 18BR/OR (4.7L)
2	F991 18OR/DB (4.0L)
3	K173 18LG (4.0L)
4	F42 18DG/LG (4.0L)
5	A7 14RD/BK (4.0L)
5	K4 18BK/LB (4.7L HIGH OUTPUT)
6	K142 18GY/BK (4.7L HIGH OUTPUT)
6	L1 18VT/BK (4.0L)
7	Z306 20BK/LG (4.0L)
7	K299 18BR/WT (4.7L)
8	C18 18DB (4.7L)
8	T41 18BK/WT (4.0L)
9	C2 18DB/YL (4.0L)
9	K6 18VT/BK (4.7L)
10	K42 18DB/YL (4.7L HIGH OUTPUT)
10	K4 18BK/LB (4.0L)



C104
(LHD)

C104 (LHD) - LT GRAY (RIGHT HEADLAMP AND DASH SIDE)

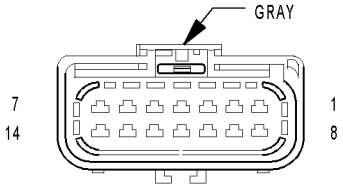
CAV	CIRCUIT
1	K4 18BK/LB (4.7L HIGH OUTPUT)
1	K200 18VT/OR (4.0L EXCEPT EXPORT)
2	K99 18BR/OR (4.7L)
2	F991 20OR/DB (4.0L)
3	K173 20LG (4.0L)
4	F42 18DG/LG (4.0L)
5	K4 18BK/LB (4.7L HIGH OUTPUT)
5	A7 14RD/BK (4.0L)
6	L1 18VT/BK (4.0L)
6	K142 18GY/BK (4.7L HIGH OUTPUT)
7	K299 18BR/WT (4.7L)
7	Z306 20BK/LG (4.0L)
8	T41 18BK/WT (4.0L)
8	C18 18DB (4.7L)
9	C2 18DB/YL (4.0L)
9	K6 18VT/BK (4.7L)
10	K42 18DB/LG (4.7L HIGH OUTPUT)
10	K4 18BK/LB (4.0L)



C105
(DIESEL)

C105 (DIESEL) - GRAY (ENGINE SIDE)

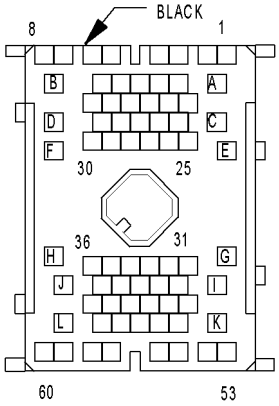
CAV	CIRCUIT
1	C13 20DB/RD
2	F300 20RD/BK
3	V37 20RD/DG
4	Z305 18BK/DB
5	Z306 18BK/DB
6	-
7	-
8	-
9	-
10	-
11	-
12	-
13	-
14	-



C105
(DIESEL)

C105 (DIESEL) - GRAY (LEFT HEADLAMP AND DASH SIDE)

CAV	CIRCUIT
1	C13 18DB/OR
2	F300 18RD/BK
3	V37 18RD/LG
4	Z305 20BK/OR
5	Z306 20BK/LG
6	L1 18VT/BK
7	-
8	-
9	-
10	-
11	-
12	-
13	-
14	-



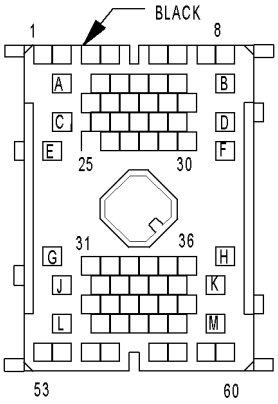
C106
(LHD)
(DIESEL)

C106 (DIESEL) - BLACK (BODY SIDE)

CAV	CIRCUIT
A	-
B	-
C	-
D	-
E	-
F	-
G	-
H	-
J	-
K	-
L	-
M	-
1	F15 20DB/WT
2	-
3	G31 20VT/LG
4	G32 20DB/OR (RHD)
4	G32 20BK/LB (LHD)
5	G18 20PK/BK
6	-
7	-
8	
9	-
10	Z231 18BK (RHD)
11	G9 18GY/BL (RHD)
11	K4 20BK/LB (LHD)
12	K6 18VT/WT (LHD)
13	-
14	-
15	-
16	K173 18LG
17	-
18	X2 18DG/RD
19	C18 18DB (LHD)
20	Y42 18OR/DB
21	-
22	-

C106 (DIESEL) - BLACK (BODY SIDE)

CAV	CIRCUIT
23	-
24	-
25	B7 18WT
26	B6 18WT/DB
27	-
28	-
29	-
30	-
31	-
32	-
33	-
34	-
35	-
36	-
37	-
38	L13 18BR/YL
39	-
40	-
41	-
42	R46 20BR/LB
43	R48 20TN
44	-
45	-
46	-
47	-
48	-
49	-
50	-
51	-
52	-
53	L7 20BK/YL
54	L60 20TN
55	-
56	-
57	L39 20LB
58	-
59	L44 18VT/RD
60	L34 18RD/OR



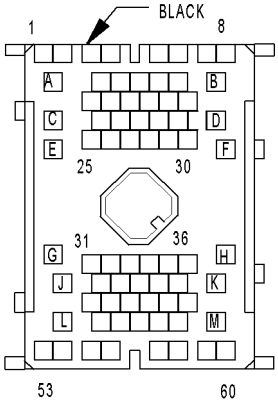
C106
(DIESEL)

C106 (DIESEL) - BLACK (RIGHT HEADLAMP AND DASH SIDE)

CAV	CIRCUIT
A	-
B	-
C	-
D	-
E	-
F	-
G	-
H	-
J	-
K	-
L	-
M	-
1	F15 18DB/WT
2	-
3	G31 20VT/LG
4	G32 20BK/LB
5	G18 20PK/BK
6	-
7	-
8	-
9	-
10	Z231 18BK (RHD)
11	G9 18GY/BK (RHD)
11	K4 18BK/LB (LHD)
12	K6 18VT/WT (LHD)
12	-
13	-
14	-
15	-
16	K173 18LG
17	-
18	X2 18DG/RD
19	C18 18DB (LHD)
20	Y42 18OR/DB
21	-
22	-
23	-
24	-
25	B7 18WT
26	B6 18WT/DG
27	-
28	-
29	-
30	-
31	-
32	-
33	-
34	-
35	-
36	-
37	-
38	L13 18BR/YL
39	-
40	-

C106 (DIESEL) - BLACK (RIGHT HEADLAMP AND DASH SIDE)

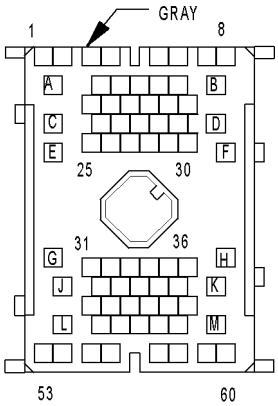
CAV	CIRCUIT
41	-
42	R46 18BR/LB
43	R48 18TN
44	-
45	-
46	-
47	-
48	-
49	-
50	-
51	-
52	-
53	L7 20BK/YL
54	L60 20TN
55	-
56	-
57	L39 20LB
58	-
59	L44 18VT/RD
60	L34 18RD/OR



C106
(LHD GAS)

C106 (GAS) - GRAY/RHD BLACK/LHD (RIGHT HEADLAMP AND DASH SIDE)

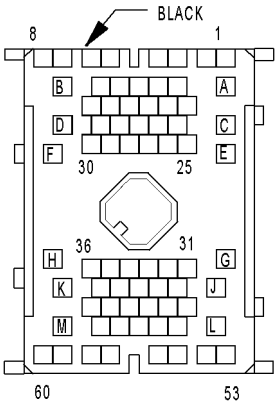
CAV	CIRCUIT
A	A149 12RD/TN
B	Y180 16LG/RD
C	C1 12DG
D	
E	A10 12RD/DG
F	A1 12RD
G	A145 10WT/RD
H	A146 10OR/WT
J	A147 10RD/GY
K	A148 10PK/WT
L	A2 12PK/BK
M	A20 12RD/DG
1	A141 16DG/WT (LHD)
1	A141 16DG/BK (RHD)
2	F42 18DG/LG (RHD)
2	G18 18PK/BK (LHD)
3	V3 16BR/WT
4	V4 16RD/YL
5	V55 16TN/RD
6	V6 16DB
7	F22 20WT/TN (RHD)
7	F22 20WT/PK (LHD)
8	F12 18DB/WT
9	K52 18PK/BK (LHD)
10	Z231 18BK (RHD)
10	K29 18WT/PK (LHD)
11	K226 18LB/YL (LHD)
11	K512 18RD/YL (RHD)
12	K107 18OR/PK (EXCEPT EXPORT)



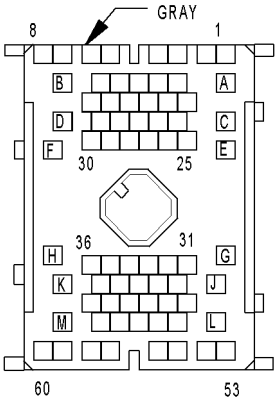
C106
(RHD GAS)

C106 (GAS) - GRAY/RHD BLACK/LHD (RIGHT HEADLAMP AND DASH SIDE)

CAV	CIRCUIT
13	K106 18WT/DG (EXCEPT EXPORT)
14	C13 18DB/OR (RHD)
14	T41 18BK/WT (LHD)
15	V35 20LG/RD (RHD)
16	V36 20TN/RD (RHD)
17	G9 18GY/BK (RHD)
18	K25 18VT/LG (RHD)
19	K51 18DB/YL (RHD)
20	K125 18WT/DB (EXCEPT EXPORT)
21	K125 18WT/DB (RHD)
22	K31 18BR (RHD)
23	-
24	-
25	B7 18WT
26	B6 18WT/DB
27	X3 20BK/RD
28	G32 20BK/LB
29	-
30	G31 20VT/LG
31	-
32	-
33	V30 20DB/RD
34	V16 20VT
35	V14 20RD/VT
36	-
37	F45 18YL/RD (4.7L RHD)
37	F45 20YL/RD (4.0L RHD)
38	L13 18BR/YL
39	-
40	Z306 20BK/LG
41	Z305 20BK/OR
42	R46 18BR/LB
43	R48 18TN
44	F991 20OR/DB
45	B22 18DG/YL (LHD)
46	-
47	-
48	D25 18VT/YL (EXCEPT 4.0L RHD)
49	D21 18PK (4.0L LHD/4.7L RHD)
49	D21 20PK (4.7L LHD)
50	D20 20LG (4.7L LHD)
50	D20 18LG (4.7L RHD)
51	D32 18LG (LHD)
52	T6 18OR/WT (LHD)
52	T41 18BK/WT (RHD)
53	L7 20BK/YL
54	L60 20TN
55	G18 20PK/BK (RHD)
55	V37 18RD/LG (LHD)
56	L1 18VT/BK
57	L39 20LB
58	K4 20BK/LB (RHD)
58	K4 18BK/LB (LHD)
59	L44 18VT/RD
60	L34 18RD/OR



C106
(LHD GAS)



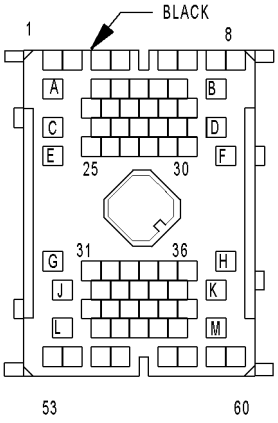
C106
(RHD GAS)

C106 (GAS) - GRAY/RHD BLACK/LHD (BODY SIDE)

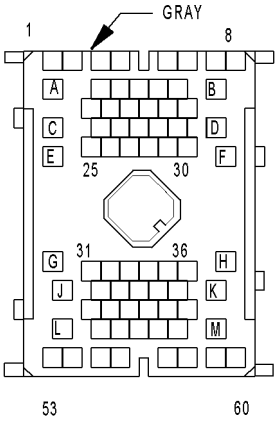
CAV	CIRCUIT
A	A149 12RD/TN
B	Y180 16LG/RD
C	C1 12DG
D	-
E	A10 12RD/DG (LHD)
F	A1 12RD
G	A145 10WT/RD
H	A146 10OR/WT
J	A147 10RD/GY
K	A148 10PK/WT
L	A2 12PK/BK
M	A20 14RD/DB
E	A10 10RD/DG (RHD)
1	A141 16DG/BK
2	G18 20PK/BK (LHD)
2	F42 18DG/LG (RHD)
3	V3 16BR/WT
4	V4 16RD/YL
5	V55 16TN/RD
6	V6 16DB
7	F22 20WT/PK (LHD)
7	F22 18WT/TN (RHD)
8	F12 20DB/WT
9	K52 20PK/BK (LHD)
10	K29 20WT/PK (LHD)
10	Z231 18BK (RHD)
11	K512 18LB (RHD)
11	K226 20LB/YL (LHD)
12	K107 20OR/YL (EXCEPT EXPORT)
13	K106 20WT/DG (EXCEPT EXPORT)
14	T41 18BK/WT (LHD)
14	C13 20DB/OR (RHD)
15	V35 20LG/RD (RHD)
16	V36 20TN/RD (RHD)
17	G9 18GY/BK (RHD)
18	K25 18VT/LG (RHD)
19	K51 20DB/YL (RHD)
20	K125 18WT/DB (EXCEPT EXPORT)
21	K125 18WT/DB (RHD)
22	K31 18BR (RHD)
23	-
24	-
25	B7 18WT
26	B6 18WT/DB
27	X3 22BK/RD (RHD)
27	X3 22GY/OR (LHD)
28	G32 20DB/OR (RHD)
28	G32 20BK/LB (LHD)
29	-
30	G31 20VT/LG
31	-
32	V32 22OR/DG (LHD)
33	V30 22DB/RD

C106 (GAS) - GRAY/RHD BLACK/LHD (BODY SIDE)

CAV	CIRCUIT
34	V16 22VT
35	V14 22RD/VT
36	-
37	F45 20YL/RD
38	L13 18BR/YL (EXPORT)
39	-
40	Z306 20BK/LG
41	Z305 20BK/OR
42	R46 20BR/LB
43	R48 20TN
44	F991 20OR/DB
45	B22 18DG/YL (LHD)
46	-
47	-
48	D25 18YL/VT
49	D21 20PK
50	D20 20LG
51	D32 20LG/DG (LHD)
52	T41 18BK/WT (RHD)
52	T6 18OR/BK (LHD)
53	L7 20BK/YL
54	L60 20TN
55	V37 22RD/LG (LHD)
55	G18 20PK/BK (RHD)
56	L1 18VT/BK
57	L39 20LB
58	K4 18BK/LB (LHD)
58	K4 20BK/LB (RHD)
59	L44 18VT/RD
60	L34 18RD/OR



C107
(DIESEL LHD)



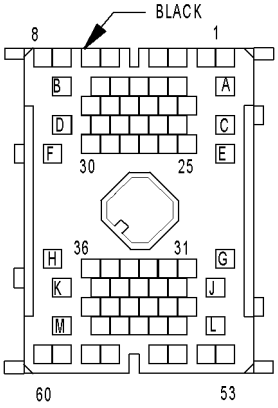
C107
(DIESEL RHD)

C107 (DIESEL) - GRAY/RHD BLACK/LHD (LEFT HEAD LAMP AND DASH SIDE)

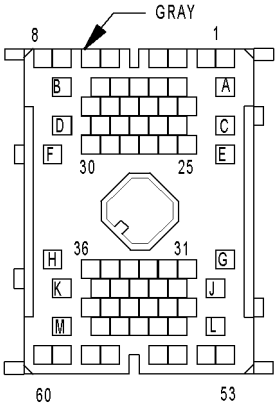
CAV	CIRCUIT
A	-
B	Y180 16LG/RD
C	C1 12DG
D	A149 12RD/TN
E	-
F	A1 12RD
G	A145 10WT/RD
H	A146 10OR/WT
J	A147 10RD/GY
K	A148 10PK/WT
L	A2 12PK/BK
M	-
1	X2 18DG/RD
2	V11 20BK/TN
3	K4 18BK/LB
4	V37 18RD/LG
5	V55 16TN/RD
6	V6 16DB
7	V10 20BR
8	-
9	K226 18DB/WT
10	X3 20BK/RD
11	F15 18DB/WT
12	F45 18YL/RD
13	T41 18BK/WT
14	-
15	G70 20BR/TN
16	G9 18GY/BK (RHD)
17	Z231 18BK (RHD)
18	-
19	-
20	-
21	F991 20OR/DB
22	-
23	X75 18GY/LB
24	Y42 18OR/DB
25	B7 18WT

C107 (DIESEL) - GRAY/RHD BLACK/LHD (LEFT HEAD LAMP AND DASH SIDE)

CAV	CIRCUIT
26	B6 18WT/DB
27	B4 18LG
28	B3 18LG/DB
29	B2 18YL
30	B1 18YL/DB
31	-
32	M1 18PK
33	F20 18DB/PK
34	L50 18WT/TN
35	R47 18DB/LB
36	T2 18TN/BK
37	Z305 20BK/OR
38	Z306 20BK/LG
39	R49 18LB
40	K29 18WT/PK
41	C18 18DB (LHD)
42	-
43	K6 18VT/WT (LHD)
44	-
45	V16 20WT
46	V14 20RD/VT
47	L13 18BR/YL
48	D25 18VT/YL
49	D21 18PK
50	K173 18LG
51	-
52	-
53	L7 18BK/YL
54	L61 20LG
55	L1 18VT/BK
56	V20 18BK/WT
57	L39 20LB
58	F22 18WT/PK
59	L43 18VT
60	L33 18LG/BR



C107
(DIESEL LHD)



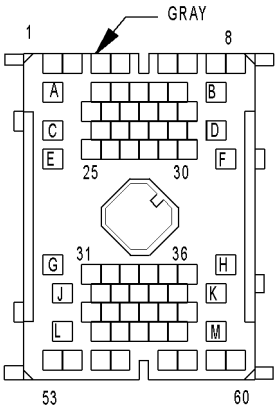
C107
(DIESEL RHD)

C107 (DIESEL) - GRAY/RHD BLACK/LHD (BODY SIDE)

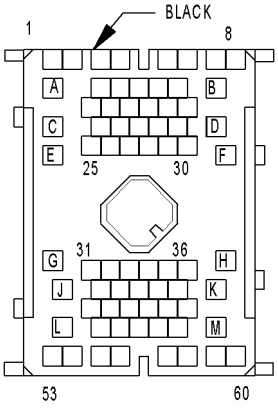
CAV	CIRCUIT
A	-
B	Y180 16LG/RD
C	C1 12DG
D	A149 12RD/TN
E	-
F	A1 12RD
G	A145 10WT/RD
H	A146 10OR/WT
J	A147 10RD/GY
K	A148 10PK/WT
L	A2 12PK/BK
M	-
1	X2 18DG/RD
2	V11 20BK/TN
3	K4 20BK/LB
4	V37 22RD/LG (LHD)
4	V37 20RD/LG (RHD)
5	V55 16TN/RD
6	V6 16DB
7	V10 22BR (LHD)
7	V10 20BR (RHD)
8	-
9	K226 20LB/YL (RHD)
9	K226 18LB/YL (LHD)
10	X3 22GY/OR (LHD)
10	X3 22BK/RD (RHD)
11	F15 20DB/WT
12	F45 20YL/RD
13	T41 18BK/WT
14	-
15	G70 20BR/TN
16	G9 18GY/BK (RHD)
17	Z231 18BK (RHD)
18	-
19	-
20	-
21	F991 20OR/DB
22	-
23	X75 20GY/LG

C107 (DIESEL) - GRAY/RHD BLACK/LHD (BODY SIDE)

CAV	CIRCUIT
24	Y42 18OR/DB
25	B7 18WT
26	B6 18WT/DB
27	B4 18LG
28	B3 18LG/DB
29	B2 18YL
30	B1 18YL/DB
31	-
32	M1 20PK/RD
33	F20 18DB/PK
34	L50 18WT/TN (RHD)
34	L50 18VT/TN (LHD)
35	R47 20DB/LB
36	T2 18TN/BK
37	Z305 20BK/OR
38	Z306 20BK/LG
39	R49 20LB
40	K29 18WT/PK
41	C18 20DB (LHD)
42	-
43	K6 18VT/WT (LHD)
44	-
45	V16 22VT
46	V14 22RD/VT
47	L13 18BR/YL
48	D25 18YL/VT
49	D21 20PK
50	K173 18LG
51	-
52	-
53	L7 20BK/YL
54	L61 20TN/LG
55	L1 18VT/BK
56	V20 18BK/WT (LHD)
56	V20 20BK/WT (RHD)
57	L39 20LB
58	F22 20WT/PK (LHD)
58	F22 18WT/TN (RHD)
59	L43 18VT
60	L33 18RD



C107
(RHD)
(GAS)



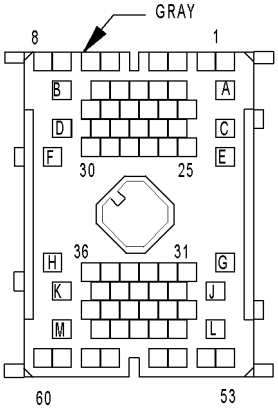
C107
(LHD)
(GAS)

C107 (GAS) - GRAY/RHD BLACK/LHD (LEFT HEADLAMP AND DASH)

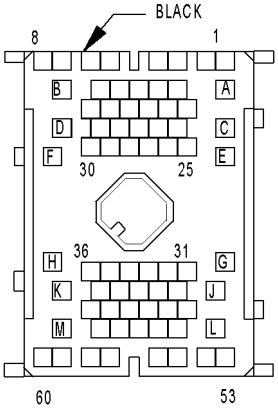
CAV	CIRCUIT
A	-
B	-
C	-
D	-
E	A10 12RD/DG
F	-
G	-
H	-
J	-
K	-
L	-
M	A20 12RD/DB
1	V37 18RD/LG (RHD)
2	V11 20BK/TN
3	V3 16BR/WT
4	V4 16RD/YL
5	V55 16TN/RD
6	V6 16DB
7	V10 20BR
8	F12 20DB/WT
9	K52 20PK/BK (LHD)
9	K226 18LB/YL (RHD)
10	L13 18BR/YL (EXPORT)
11	K512 18RD/YL (RHD)
12	K4 18BK/LB (RHD)
13	-
14	T6 18OR/WT (RHD)
15	G70 20BR/TN (EXPORT)
16	G9 18GY/BK (RHD)
17	Z231 18BK (RHD)
18	-
19	D32 18LG/BK (RHD)
20	-
21	-
22	-
23	X75 18GY/LG (EXPORT)
24	F42 18DG/LG (RHD)
25	B7 18WT
26	B6 18WT/DB
27	B4 18LG
28	B3 18LG/DB
29	B2 18YL

C107 (GAS) - GRAY/RHD BLACK/LHD (LEFT HEADLAMP AND DASH)

CAV	CIRCUIT
30	B1 18YL/DB
31	-
32	M1 18PK
33	F20 18DB/PK
34	L50 18WT/TN
35	R47 18DB/LB (LHD)
36	-
37	K51 18DB/YL (RHD)
38	K25 18VT/LG (RHD)
39	R49 18LB (LHD)
39	K31 18BR (RHD)
40	K29 18WT/PK (RHD)
41	K125 18WT/DB (RHD)
42	V32 18OR/DG (RHD)
43	R47 18DB/LB (RHD)
44	V35 18LG/RD (RHD)
45	B22 18DG/YL (LHD)
45	V36 18TN/RD (RHD)
46	C13 18DB/OR (RHD)
47	L13 18BR/YL (RHD)
48	D25 18DG/YL (LHD)
48	D25 18VT/YL (RHD)
49	D21 18PK (RHD)
50	R49 18LB (RHD)
51	-
52	-
53	L7 20BK/YL
54	L61 18TN/LG (LHD)
54	L61 20TN/LG (RHD)
55	-
56	V20 18BK/WT
57	L39 20LB
58	-
59	L43 18VT
60	L33 18RD



C107
(RHD)
(GAS)



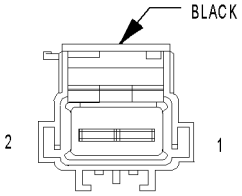
C107
(LHD)
(GAS)

C107 (GAS) - GRAY/RHD BLACK/LHD (BODY SIDE)

CAV	CIRCUIT
A	-
B	-
C	-
D	-
E	A10 12RD/LG (LHD)
F	-
G	-
H	-
J	-
K	-
L	-
M	A20 14RD/DB
E	A10 10RD/DG (RHD)
1	V37 20RD/LG (RHD)
2	V11 20BK/TN
3	V3 16BR/WT
4	V4 16RD/YL
5	V55 16TN/RD
6	V6 16DB
7	V10 22BR (LHD)
7	V1020BR (RHD)
8	F12 20DB/WT
9	K52 20PK/BK (LHD)
9	K226 20LB/YL (RHD)
10	L13 18BR/YL (EXPORT)
11	K512 18LB (RHD)
12	K4 20BK/LB (RHD)
13	-
14	T6 18OR/BK (RHD)
15	G70 20BR/TN (EXPORT)
16	G9 18GY/BK (RHD)
17	Z231 18BK (RHD)
18	-
19	D32 20LG/DG (RHD)
20	-
21	-
22	-
23	X75 20GY/LG (EXPORT)
24	F42 18DG/LG (RHD)
25	B7 18WT
26	B6 18WT/DB
27	B4 18LG
28	B3 18LG/DB
29	B2 18YL
30	B1 18YL/DB
31	-
32	M1 20PK/RD
33	F20 18DB/PK
34	L50 18WT/TN (RHD)
34	L50 18VT/TN (LHD)
35	R47 20DB/LB (LHD)
36	-
37	K51 18BR (RHD)
38	K25 18VT/LG (RHD)

C107 (GAS) - GRAY/RHD BLACK/LHD (BODY SIDE)

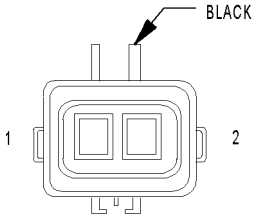
CAV	CIRCUIT
39	K31 18BR (RHD)
39	R49 20DB (LHD)
40	K29 18WT/PK (RHD)
41	K125 18WT/DB (RHD)
42	V32 22OR/DG (RHD)
43	R47 20DB/LB (RHD)
44	V35 20LG/RD (RHD)
45	V36 20TN/RD (RHD)
45	B22 18DG/YL (LHD)
46	C13 20DB/OR (RHD)
47	L13 18BR/YL (RHD)
48	D25 18YL/VT
49	D21 20PK (RHD)
50	R49 20LB (RHD)
51	-
52	-
53	L7 20BK/YL
54	L61 20TN/LG
55	-
56	V20 18BK/WT (LHD)
56	V20 20BK/WT (RHD)
57	L39 20LB
58	-
59	L43 18VT
60	L33 18RD



C109

C109 - BLACK (ENGINE SIDE)

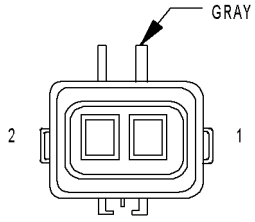
CAV	CIRCUIT
1	K77 18LG/BK
2	K4 18BK/LB



C109

C109 - BLACK (TRANSFER CASE JUMPER SIDE)

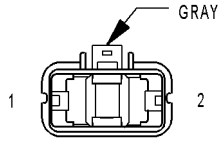
CAV	CIRCUIT
1	K77 18LG/BK
2	K4 18BK/LB



C110
(DIESEL)

C110 (DIESEL) - GRAY (GLOW PLUG SIDE)

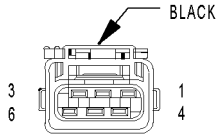
CAV	CIRCUIT
1	K154 10GY
2	K254 10GY/YL



C110
(DIESEL)

C110 (DIESEL) - GRAY (LEFT HEADLAMP AND DASH SIDE)

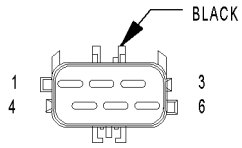
CAV	CIRCUIT
1	K154 10GY
2	K254 10GY/YL



C111

C111 - BLACK (LEFT FRONT LIGHTING MODULE SIDE)

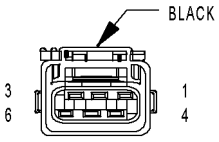
CAV	CIRCUIT
1	L33 18RD
2	L43 18VT
3	L61 20TN/LG
4	L7 20BK/YL
5	L114 18BR/YL (EXPORT)
6	Z141 18BK



C111

C111 - BLACK (LEFT HEADLAMP AND DASH SIDE)

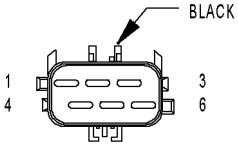
CAV	CIRCUIT
1	L33 18RD (GAS)
1	L33 18LG/BR (DIESEL)
2	L43 18VT
3	L61 20TN/LG (GAS)
3	L61 20LG (DIESEL)
4	L7 20BK/YL (GAS)
4	L7 18BK/YL (DIESEL)
5	L114 18BR/YL (EXPORT)
6	Z141 18BK



C112

C112 - BLACK (RIGHT FRONT LIGHTING MODULE SIDE)

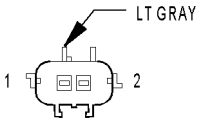
CAV	CIRCUIT
1	L34 18RD/OR
2	L44 18VT/RD
3	L60 20TN
4	L7 20BK/YL
5	L13 18BR/YL (EXPORT)
6	Z142 18BK



C112

C112 - BLACK (RIGHT HEADLAMP AND DASH SIDE)

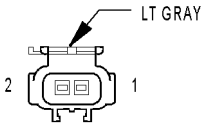
CAV	CIRCUIT
1	L34 18RD/OR
2	L44 18VT/RD
3	L60 20TN
4	L7 20BK/YL
5	L13 18BR/YL (EXPORT)
6	Z142 18BK



C113
(DIESEL)

C113 (DIESEL) - LT GRAY (ENGINE SIDE)

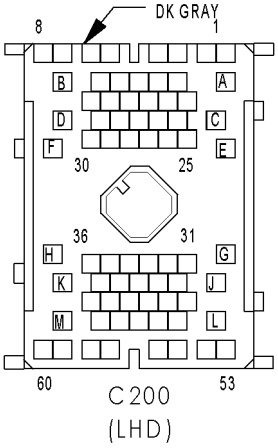
CAV	CIRCUIT
1	D52 16DG/WT
2	D51 16WT



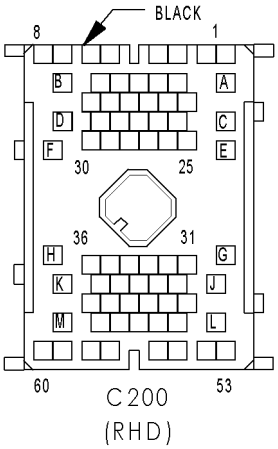
C113
(DIESEL)

C113 (DIESEL) - LT GRAY (TRANSMISSION SIDE)

CAV	CIRCUIT
1	D52 18LG/WT
2	D51 18DG/WT



C200
(LHD)



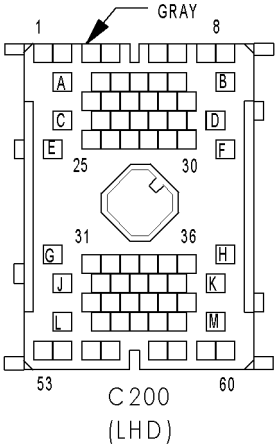
C200
(RHD)

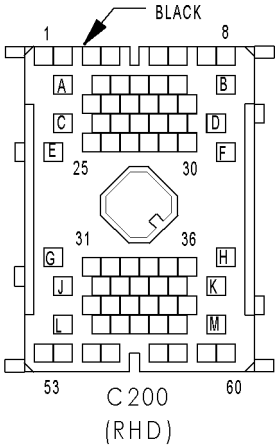
C200 - DK GRAY/LHD BLACK/RHD (BODY SIDE)

CAV	CIRCUIT
A	-
B	-
C	A1 12RD
D	-
E	-
F	-
G	A2 12PK/BK
H	C1 12DG
J	-
K	-
L	-
M	-
1	X56 18DB/PK (BASE)
1	X84 18OR/GY (EXCEPT BASE)
2	X86 18OR/RD (EXCEPT BASE)
2	X54 18VT (BASE)
3	X55 18BR/RD (BASE)
3	X81 18YL/BK (EXCEPT BASE)
4	X83 18YL/RD (EXCEPT BASE)
4	X53 18DG/OR (BASE)
5	X53 18DG/OR
6	X55 18BR/RD
7	X54 18VT
8	X56 18DB/PK
9	Y152 20LG/OR (EXCEPT BASE)
10	D20 20LG (GAS)
11	Y151 20LG/BR (EXCEPT EXPORT)
12	Y153 20DB/RD (EXCEPT EXPORT)
13	X40 20WT/RD (CD)
14	D25 20YL/VT
15	D25 20YL/VT
16	D32 20LG/BK (GAS)
17	T41 20WT/DG
18	Z4 20WT/BK (CD)
19	Z41 20WT/DG (CD)
20	T6 18OR/BK (GAS)
21	D21 20PK
22	K29 18DG/OR (GAS)
22	B30 18DG/OR (DIESEL)
23	X160 20YL (CD)
24	X112 20RD (CD)
25	-
26	-
27	G70 20BR/TN (EXPORT)

C200 - DK GRAY/LHD BLACK/RHD (BODY SIDE)

CAV	CIRCUIT
28	R47 20DB/LB
29	Z17 20BK (CD)
30	R49 20LB
31	G76 18TN/YL (LHD)
31	G76 20TN/YL (RHD)
32	T2 18TN/BK (DIESEL)
33	-
34	-
35	X51 18WT/DG
36	X57 18DG/WT
37	L7 18BK/YL (EXPORT)
38	L13 18BR/YL (EXPORT)
39	V10 22BR (LHD)
39	V10 20BR (RHD)
40	X52 18DB/WT
41	X58 18DB/OR
42	-
43	V13 18BR/LG
44	V14 22RD/VT
45	-
46	V20 18BK/WT (LHD)
46	V20 20BK/WT (RHD)
47	V22 18BR/YL
48	R46 20BR/LB
49	X64 18BR/WT
50	Z305 20BK/OR
51	Z306 20BK/LG
52	R48 20TN
53	G32 20DB/OR (RHD)
53	G32 20BK/LB (LHD)
54	G31 20VT/LG
55	Z9 16BK
56	V11 20BK/TN
57	G18 20PK/BK
58	V37 22RD/LG (LHD)
58	V37 20RD/LG (RHD)
59	K4 20BK/LB
60	-



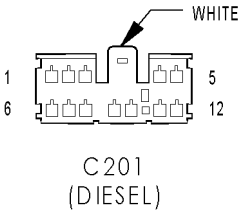


C200 - GRAY/LHD BLACK/RHD (INSTRUMENT PANEL SIDE HARNESS)

CAV	CIRCUIT
A	-
B	-
C	A1 12RD
D	-
E	-
F	-
G	A2 12PK/BK (RHD)
H	C1 12DG
J	-
K	-
L	-
M	-
1	X84 18OR/BK
2	X86 18OR/RD
3	X81 18YL/BK
4	X83 18YL/RD
5	X53 18DG/OR
6	X55 18BR/RD
7	X54 18VT
8	X56 18DB/PK
9	Y152 20LG/OR (EXCEPT EXPORT)
10	D20 20LG
11	Y151 20LG/BR (EXCEPT EXPORT)
12	Y153 20DB/RD (EXCEPT EXPORT)
13	X40 20WT/RD (PREMIUM RADIO)
14	D25 20YL/VT/GY
15	D25 20YL/VT/BR
16	D32 20LG/DG
17	T41 18BK/WT (DIESEL)
18	Z4 20WT/BK (PREMIUM RADIO)
19	X41 20WT/DG (PREMIUM RADIO)
20	T6 18OR/WT (GAS)
21	D21 20PK (GAS)
22	K29 18WT/PK (GAS)
22	B30 18DG/OR (DIESEL)
23	X160 20YL (PREMIUM RADIO)
24	X112 20RD (PREMIUM RADIO)
25	-
26	-
27	G70 20BR/TN (EXPORT)
28	R47 20DB/LB
29	Z17 20BK (PREMIUM RADIO)
30	R49 20LB
31	G76 18TN/YL
32	T2 20TN/BK (DIESEL)
33	-
34	-
35	X51 18WT/DG
36	X57 18DG/WT
37	L7 18BK/YL (EXPORT)
38	L13 20BR/YL (EXPORT)
39	V10 20BR
40	X52 18DB/WT

C200 - GRAY/LHD BLACK/RHD (INSTRUMENT PANEL SIDE HARNESS)

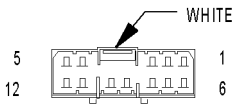
CAV	CIRCUIT
41	X58 18DB/OR
42	-
43	V13 18BR/LG
44	V14 20RD/VT
45	-
46	V20 18BK/WT
47	V22 18BR/YL
48	R46 20BR/LB
49	X64 18BR/WT
50	Z305 20BK/OR
51	Z306 20BK/LG
52	R48 20TN
53	G32 20BK/LB
54	G31 20VT/LG
55	Z9 16BK
56	V11 20BK/TN
57	G18 20PK/BK
58	V37 20RD/LG
59	K4 20BK/LB
60	-



C201
(DIESEL)

C201 (DIESEL) - WHITE (INSTRUMENT PANEL SIDE)

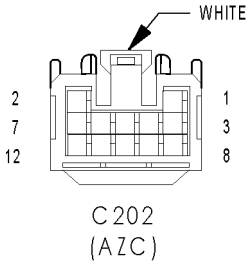
CAV	CIRCUIT
1	-
2	Z300 18BK
3	E2 20OR
4	B30 18DG/OR
5	D25 20YL/VT
6	D19 20VT/OR
7	D21 20PK
8	F12 20DB/WT
9	T2 20TN/BK
10	Z234 18BK
11	T41 18BK/WT
12	F991 18OR/DB



C201
(DIESEL)

C201 (DIESEL) - WHITE (SHIFTER ASSEMBLY SIDE)

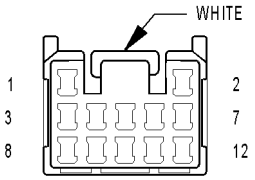
CAV	CIRCUIT
1	-
2	Z300 20WT/DB
3	-
4	K2 20WT/PK
5	D25 20RD
6	-
7	D21 20PK
8	F12 20DB/WT
9	T2 20TN/BK
10	Z234 20WT
11	T41 20BK/WT
12	F991 20OR/DB



C202
(AZC)

C202 (AZC) - WHITE (A/C SIDE)

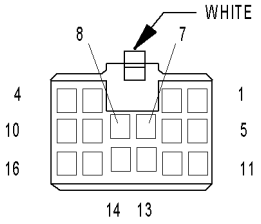
CAV	CIRCUIT
1	C32 20GY/DB (LHD)
1	C100 20YL/DB (RHD)
2	C32 20GY/DB (RHD)
2	C100 20YL/DB (LHD)
3	C33 20DB/RD (LHD)
3	C96 20WT/DB (RHD)
4	C94 20WT/DG (RHD)
4	C95 20WT/BK (LHD)
5	C94 20WT/DG (LHD)
5	C95 20WT/BK (RHD)
6	C33 20DB/RD (RHD)
6	C96 20WT/DB (LHD)
7	C102 20TN/BK (LHD)
7	C35 20DG/YL (RHD)
8	C102 20TN/BK (RHD)
8	C35 20DG/YL (LHD)
9	C56 20RD/LG
10	-
11	C201 20LB/YL
12	G32 20BK/LB



C202
(AZC)

C202 (AZC) - WHITE (INSTRUMENT PANEL SIDE)

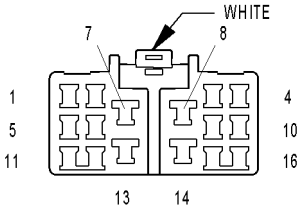
CAV	CIRCUIT
1	C32 20GY/DB (LHD)
1	C100 20YL/DB (RHD)
2	C32 20GY/DB (RHD)
2	C100 20YL/DB (LHD)
3	C33 20DB/RD (LHD)
3	C96 20WT/DB (RHD)
4	C94 20WT/DG (RHD)
4	C95 20WT/BK (LHD)
5	C94 20WT/DG (LHD)
5	C95 20WT/BK (RHD)
6	C33 20DB/RD (RHD)
6	C96 20WT/DB (LHD)
7	C102 20TN/BK (LHD)
7	C35 20DG/YL (RHD)
8	C102 20TN/BK (RHD)
8	C35 20DG/YL (LHD)
9	C56 20RD/LG
10	-
11	C201 20LB/YL
12	G32 20BK/LB



C202
(MTC)

C202 (MTC) - WHITE (A/C SIDE)

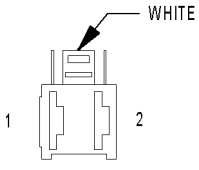
CAV	CIRCUIT
1	-
2	C101 20LB/YL
3	G32 20BK/LB
4	-
5	C67 20RD/LB
6	-
7	-
8	-
9	-
10	C6 14LB
11	Z132 20BK/OR
12	F22 20WT/PK
13	C7 12BK/TN
14	C1 12DG
15	C4 16TN
16	C5 16LG



C202
(MTC)

C202 (MTC) - WHITE (INSTRUMENT PANEL SIDE)

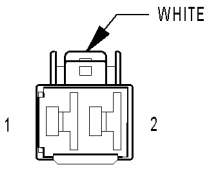
CAV	CIRCUIT
1	-
2	C201 20LB/YL
3	G32 20BK/LB
4	-
5	C67 20RD/LB
6	-
7	-
8	-
9	-
10	C6 14LB
11	Z132 20BK/OR
12	F22 20WT/PK
13	C7 12BK/TN
14	C1 12DG
15	C4 16TN
16	C5 16LG



C203
(AZC)

C203 (AZC) - WHITE (A/C SIDE)

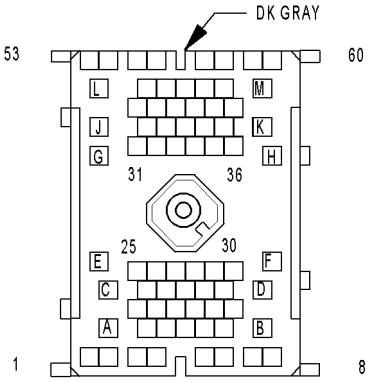
CAV	CIRCUIT
1	Z118 12BK
2	C1 12DG



C203
(AZC)

C203 (AZC) - WHITE (INSTRUMENT PANEL SIDE)

CAV	CIRCUIT
1	Z118 12BK
2	C1 12DG



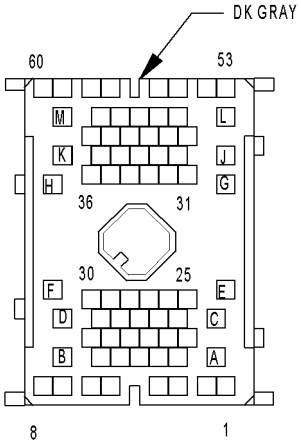
C300
(LHD)

C300 - DK GRAY (RIGHT SIDE BODY)

CAV	CIRCUIT
A	P130 16DG/WT (EXCEPT BASE)
B	Q13 16DB
C	B40 12LB
D	
E	P144 16BK/LG (EXCEPT BASE)
F	A141 16DG/BK (GAS)
G	-
H	-
J	-
K	-
L	Q23 16RD/WT
M	-
1	D25 20YL/VT
2	V13 18BR/LG
3	V22 18BR/YL
4	P112 20YL/WT
5	P114 20YL/RD
6	P35 18OR/VT
7	P36 18PK/VT
8	L50 18WT/TN
9	B1 18YL/DB
10	B2 18YL
11	B3 18LG/DB
12	B4 18LG
13	-
14	-
15	-
16	P29 20BR/WT (EXCEPT BASE)
17	P86 20PK/BK (EXCEPT BASE)
18	E21 20OR/RD
19	K4 20BK/LB
20	K226 20LB/YL (GAS)
20	K226 18LB/YL (DIESEL)
21	L62 18BR/RD
22	L95 18DG/YL (EXPORT)

C300 - DK GRAY (RIGHT SIDE BODY)

CAV	CIRCUIT
23	-
24	L1 18VT/BK
25	-
26	-
27	-
28	-
29	-
30	-
31	-
32	-
33	-
34	-
35	-
36	-
37	X75 20GY/LG (EXPORT)
38	-
39	-
40	-
41	K106 20WT/DG (EXCEPT EXPORT)
42	K107 20OR/YL (EXCEPT EXPORT)
43	K125 18WT/DB (EXCEPT EXPORT)
44	-
45	-
46	-
47	-
48	-
49	-
50	-
51	-
52	-
53	X57 18DG/WT (BASE)
53	X91 18WT/DG (EXCEPT BASE)
54	X93 18DG/WT (EXCEPT BASE)
54	X51 18WT/DG (BASE)
55	-
56	-
57	Z155 18BK/OR
58	-
59	-
60	-



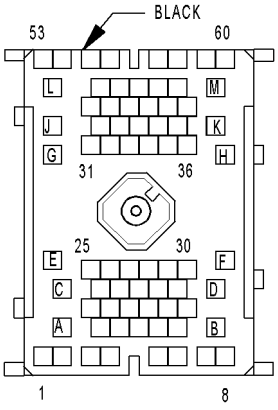
C300
(LHD)

C300 - GRAY (LEFT BODY SIDE)

CAV	CIRCUIT
A	P130 16DG/WT (HEATED SEATS)
B	Q13 16DB
C	B40 14LB
D	
E	P144 16BK/VT (HEATED SEATS)
F	A141 16DG/BK (GAS)
G	-
H	-
J	-
K	-
L	Q23 16RD/WT
M	-
1	D25 20YL/VT
2	V13 18BR/LG
3	V22 18BR/YL
4	P112 20YL/WT
5	P114 20YL/RD
6	P35 18OR/VT
7	P36 18PK/VT
8	L50 18WT/TN
9	B1 18YL/DB
10	B2 18YL
11	B3 18LG/DB
12	B4 18LG
13	-
14	-
15	-
16	P29 20BR/WT (HEATED SEATS)
17	P86 18PK/BK (HEATED SEATS)
18	E21 20OR/RD
19	K4 20BK/LB
20	K226 20LB/YL
21	L62 18BR/RD
22	L95 18DG/YL (EXPORT)
23	-
24	L1 18VT/BK
25	-
26	-
27	-

C300 - GRAY (LEFT BODY SIDE)

CAV	CIRCUIT
28	-
29	-
30	-
31	-
32	-
33	-
34	-
35	-
36	-
37	X75 20GY/LG (EXPORT)
38	-
39	-
40	-
41	K106 20WT/DG (EXCEPT EXPORT)
42	K107 20OR/YL (EXCEPT EXPORT)
43	K125 18OR/DG (EXCEPT EXPORT)
44	-
45	-
46	-
47	-
48	-
49	-
50	-
51	-
52	-
53	X91 18WT/DG (PREMIUM)
53	X57 18WT/DG (PREMIUM)
54	X51 18DG/WT (BASE)
55	-
56	-
57	Z155 18BK/OR (EXCEPT BASE)
58	-
59	-
60	-
74	X93 18DG/WT (PREMIUM)



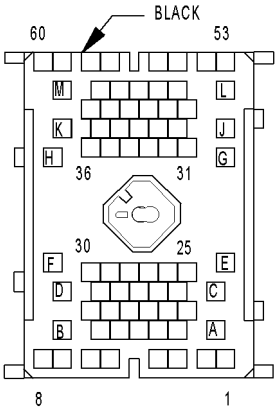
C301
(RHD)

C301 (RHD) - BLACK (LEFT BODY SIDE)

CAV	CIRCUIT
A	Q13 16DB
B	Q23 16RD/WT
C	F9 14RD/BK
D	F60 16RD/WT
E	Z9 16BK
F	Z5 16BK/VT
G	C15 12BK/WT
H	A148 16LG/RD
J	-
K	Y202 14RD/TN
L	Q30 16TN
M	P130 16DG/WT
1	L50 18WT/TN
2	F70 18PK
3	M2 18YL
4	M20 18YL/BK
5	P35 18OR/VT
6	P36 18PK/VT
7	-
8	L7 18BK/YL
9	L95 18DG/YL
10	L63 18DG/RD
11	G80 20VT/YL
12	X80 18LB/BK
13	X82 18LB/RD
14	X85 18LG/DG
15	X87 18LG/RD
16	X93 18DG/WT
17	X91 18WT/DG
18	X84 18OR/GY
19	L62 20BR/RD
20	X86 18OR/RD
21	X81 18YL/BK
22	X83 18YL/RD
23	X56 18DB/PK
24	X51 18WT/DG
25	X57 18DG/WT
26	X52 18DB/WT
27	X58 18DB/OR
28	X54 18VT
29	X55 18BR/RD
30	X53 18DG/OR

C301 (RHD) - BLACK (LEFT BODY SIDE)

CAV	CIRCUIT
31	X64 18BR/WT
32	D25 20YL/VT
33	
34	G78 20TN/BK
35	-
36	-
37	E21 20OR/RD
38	G77 20TN/OR
39	G76 20TN/YL
40	L1 18VT/BK
41	G5 20DB/WT
42	P86 20PK/BK
43	P29 20BR/WT
44	G73 20LG/OR
45	C235 18WT/LB (CD)
46	X160 20YL (CD)
47	X40 20RD/WT (CD)
48	-
49	X112 20RD (CD)
50	X41 20RD/BK (CD)
51	Z4 20WT/BK (CD)
52	Z17 20BK (CD)
53	-
54	-
55	-
56	-
57	-
58	-
59	-
60	-



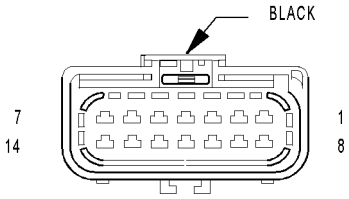
C301
(RHD)

C301 (RHD) - BLACK (RIGHT BODY SIDE)

CAV	CIRCUIT
A	Q13 16DB
B	Q23 16RD/WT
C	F9 14RD/BK
D	F60 16RD/WT
E	Z9 16BK
F	Z5 16BK/VT
G	C15 12BK/WT
H	A148 16LG/RD
J	-
K	Y202 14RD/TN
L	Q30 16TN
M	P130 16DG/WT
1	L50 18WT/TN
2	F70 18PK
3	M2 18YL
4	M20 18YL/BK
5	P35 18OR/VT
6	P36 18PK/VT
7	-
8	L7 18BK/YL
9	L95 18DG/YL
10	L63 18DG/RD
11	G80 20VT/YL
12	X80 18LB/BK
13	X82 18LB/RD
14	X85 18LG/DG
15	X87 18LG/RD
16	X93 18DG/WT
17	X91 18WT/DG
18	X84 18OR/GY
19	L62 18BR/RD
20	X86 18OR/RD
21	X81 18YL/BK
22	X83 18YL/RD
23	X56 18DB/BK
24	X51 18WT/DG
25	X57 18DG/WT
26	X52 18DB/WT
27	X58 18DB/OR
28	X54 18VT
29	X55 18BR/RD
30	X53 18DG/OR
31	X64 18BR/WT
32	D25 20YL/VT
33	F22 20WT/PK
34	G78 20TN/BK
35	M1 18PK/RD
36	-
37	E21 20OR/RD
38	G77 20TN/OR
39	G76 20TN/YL
40	L1 18VT/BK
41	G5 20DB/WT
42	P86 20PK/BK
43	P29 20BR/WT

C301 (RHD) - BLACK (RIGHT BODY SIDE)

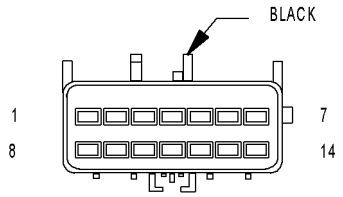
CAV	CIRCUIT
44	G73 20LG/OR
45	C235 20WT/LB (CD)
46	X160 20YL (CD)
47	X40 20WT/RD (CD)
48	-
49	X112 20RD (CD)
50	X41 20WT/DG (CD)
51	Z4 20WT/BK (CD)
52	Z17 20BK (CD)
53	-
54	-
55	-
56	-
57	-
58	-
59	-
60	-



C302

C302 - BLACK (BODY SIDE)

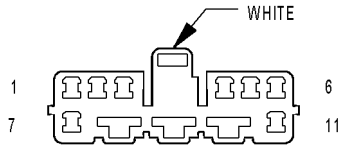
CAV	CIRCUIT
1	P112 20YL/WT
2	P114 20YL/RD
3	D25 20YL/VT
4	Z243 12BK (RHD)
4	Z28 12BK (LHD)
5	E21 20OR/RD
6	Q13 16DB
7	Q23 16RD/WT
8	A146 12OR/WT
9	X80 18LB/BK (RHD PREMIUM)
9	X85 18LG/DG (LHD PREMIUM)
9	X55 18BR/RD (BASE)
10	X87 18LG/RD (LHD PREMIUM)
10	X53 18DG/OR (BASE)
10	X82 18LB/RD (RHD PREMIUM)
11	M1 18PK/RD (JAPAN)
12	-
13	-
14	-



C302

C302 - BLACK (FRONT DRIVER DOOR SIDE)

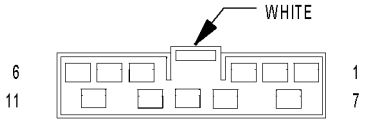
CAV	CIRCUIT
1	P112 20YL/WT
2	P114 20YL/RD
3	D25 20YL/VT
4	Z28 12BK (LHD)
4	Z243 12BK (RHD)
5	E21 20OR/RD
6	Q13 16DB
7	Q23 16RD/WT
8	A146 12OR/WT
9	X85 18LG/DG (LHD PREMIUM)
9	X80 18LG/DG (RHD PREMIUM)
9	X55 18LG/DG (BASE)
10	X53 18LG/RD (BASE)
10	X82 18LG/RD (RHD PREMIUM)
10	X87 18LG/RD (LHD PREMIUM)
11	M1 18PK (JAPAN)
12	-
13	-
14	-



C303

C303 - WHITE (BODY SIDE)

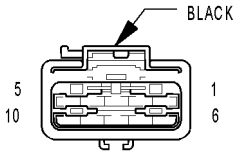
CAV	CIRCUIT
1	X92 18TN/DG (PREMIUM)
1	X58 18DB/OR (BASE)
2	X52 18DB/WT (BASE)
2	X90 18WT/VT (PREMIUM)
3	E20 20OR/DB (LHD)
3	E21 20OR/RD (RHD)
4	P35 18OR/VT
5	P36 18PK/VT
6	-
7	-
8	Q14 16GY (LHD)
8	Q13 16DB (RHD)
9	Q23 16RD/WT (RHD)
9	Q24 16DG (LHD)
10	Z28 16BK (LHD)
10	Z151 16BK (RHD)
11	G76 20TN/YL (RHD)
11	G76 18TN/YL (LHD)



C303

C303 - WHITE (REAR DOOR SIDE)

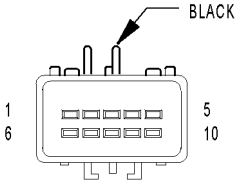
CAV	CIRCUIT
1	X92 18TN/DG (PREMIUM)
1	X58 18TN/DG (BASE)
2	X52 18WT/VT (BASE)
2	X90 18WT/VT (PREMIUM)
3	E21 20OR/RD
4	P35 18OR/VT
5	P36 18PK/VT
6	-
7	-
8	Q14 16GY
9	Q24 16DG
10	Z28 16BK
11	G76 18TN/YL



C304

C304 - BLACK (BODY SIDE)

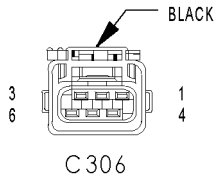
CAV	CIRCUIT
1	P86 18PK/BK (LHD)
1	P86 20PK/BK (RHD)
2	P130 16DG/WT
3	D25 20YL/VT
4	F37 16RD (LHD)
4	F37 16RD/LB (RHD)
5	Z238 16BK (RHD)
5	Z243 16BK (LHD)
6	P29 20BR/WT
7	Z155 20BK/OR (LHD)
7	Z155 18BK/OR (RHD)
8	Z5 16BK/VT (RHD)
8	P144 16BK/VT (LHD)
9	-
10	-



C304

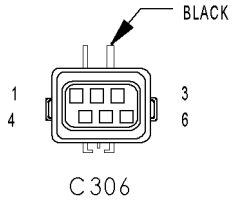
C304 - BLACK (POWER SEAT SIDE)

CAV	CIRCUIT
1	P86 20DG/YL (HEATED SEATS)
2	P130 16DG/WT (HEATED SEATS)
3	D25 20VT/YL (PREMIUM POWER SEATS)
4	F35 16RD
5	Z1 16BK
6	P29 20BR/WT (HEATED SEATS)
7	Z2 20BK/OR (PREMIUM POWER SEATS)
8	Z5 16BK/VT (HEATED SEATS)
9	-
10	-



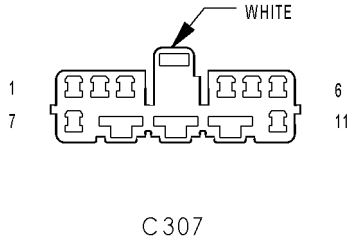
C306 - BLACK (BODY SIDE)

CAV	CIRCUIT
1	P130 16DG/WT
2	Z238 16BK
3	F37 16RD/LB
4	P86 20PK/BK
5	P29 20BR/WT
6	Z5 16BK/VT



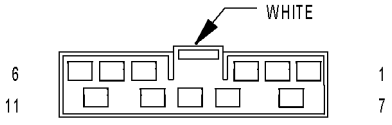
C306 - BLACK (POWER SEAT SIDE)

CAV	CIRCUIT
1	P130 16DG/WT (HEATED SEATS)
2	Z238 16BK (LHD)
2	Z243 16BK (RHD)
3	F37 16RD/LB
4	P86 20DG/YL (HEATED SEATS)
5	P29 20BR/WT (HEATED SEATS)
6	Z5 16BK/VT (HEATED SEATS)



C307 - WHITE (BODY SIDE)

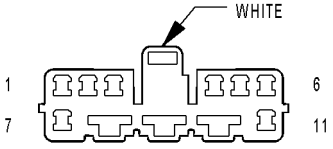
CAV	CIRCUIT
1	X93 18DG/WT (RHD)
1	X91 18WT/DG (LHD)
2	X93 18DG/WT (LHD)
2	X91 18WT/DG (RHD)
3	E20 20OR/DB (RHD)
3	E21 20OR/RD (LHD)
4	P35 18OR/VT
5	P36 18PK/VT
6	-
7	-
8	Q13 16DB (LHD)
8	Q14 16GY (RHD)
9	Q24 16DG (RHD)
9	Q23 16RD/WT (LHD)
10	Z243 16BK
11	G77 20TN/OR



C307

C307 - WHITE (REAR DOOR SIDE)

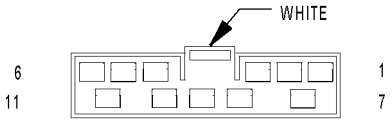
CAV	CIRCUIT
1	X93 18TN/DG (PREMIUM)
1	X57 18TN/DG (BASE)
2	X51 18WT/VT (BASE)
2	X91 18WT/VT (PREMIUM)
3	E21 20OR/RD
4	P35 18OR/VT
5	P36 18PK/VT
6	-
7	-
8	Q14 16GY
9	Q24 16DG
10	Z1 16BK
11	G76 18TN/YL



C308

C308 - WHITE (LEFT BODY SIDE)

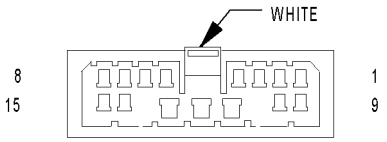
CAV	CIRCUIT
1	G78 20TN/BK
2	P35 18OR/VT
3	P36 18PK/VT
4	V13 18BR/LG
5	V22 18BR/YL
6	F70 18PK
7	L50 18WT/TN
8	Z309 12BK
9	G80 20VT/YL
10	C15 12BK/WT
11	L7 18BK/YL



C308

C308 - WHITE (LIFTGATE SIDE)

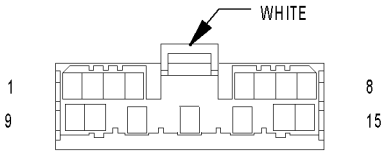
CAV	CIRCUIT
1	G78 20TN/BK
2	P35 18OR/VT
3	P36 18PK/VT
4	V13 18BR/LG
5	V22 18BR/YL
6	F70 18PK
7	L50 18WT/TN
8	Z1 12BK
9	G80 18VT/YL
10	C15 12BK/WT
11	L7 18BK/YL



C309

C309 - WHITE (LEFT BODY SIDE)

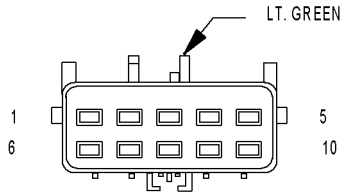
CAV	CIRCUIT
1	D25 20YL/VT
2	M20 20YL/BK (LHD)
2	M20 18YL/BK (RHD)
3	M2 18YL (RHD)
3	M2 20YL/DG (LHD)
4	P112 20YL/WT
5	P114 20YL/RD
6	L1 20VT/BK
7	G5 20DB/WT
8	X75 20GY/LG (EXPORT)
9	-
10	F70 20PK (LHD)
10	F70 18PK (RHD)
11	Q30 16TN
12	Z150 16BK
13	-
14	Z155 20BK/OR (EXCEPT LHD BASE)
14	Z155 18BK/OR (RHD/LHD BASE)
15	G73 20LG/OR



C309

C309 - WHITE (OVERHEAD SIDE)

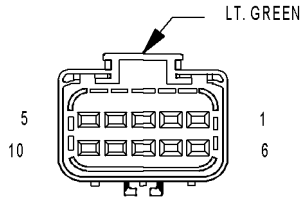
CAV	CIRCUIT
1	D25 20YL/VT
2	M20 20YL/BK
3	M2 20YL/DG
4	P112 20BK/WT
5	P114 20BK/YL
6	L1 20BK/VT
7	G5 20DB/WT
8	X75 20GY/LG (EXPORT)
9	-
10	F70 20PK
11	Q30 16TN (SUNROOF)
11	Q30 20BK/LB (AUTOWIPE)
12	Z150 20BK (EXCEPT SUNROOF)
12	Z150 16BK (SUNROOF)
13	-
14	Z155 20BK/OR
15	G73 20LG/OR



C310
(EXCEPT EXPORT)

C310 (EXCEPT EXPORT) - LT GREEN (LEFT BODY SIDE)

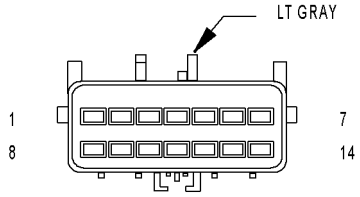
CAV	CIRCUIT
1	F9 14RD/BK
2	L62 18BR/RD
3	L1 18VT/BK
4	Y202 14RD/TN
5	L7 18BK/YL
6	Z150 14BK
7	B40 14LB
8	Z150 14BK
9	L50 18WT/TN
10	L63 20DG/RD



C310
(EXCEPT EXPORT)

C310 (EXCEPT EXPORT) - LT GREEN (TRAILER TOW SIDE)

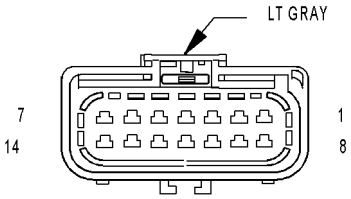
CAV	CIRCUIT
1	F9 14RD/BK
2	L62 20BR/RD
3	L1 18VT/BK
4	Y202 14RD/TN
5	L7 18BK/YL
6	Z150 14BK
7	B40 14LB
8	Z150 14BK
9	L50 18WT/TN
10	L63 20DG/RD



C310
(EXPORT)

C310 (EXPORT) - LT GRAY (BODY SIDE)

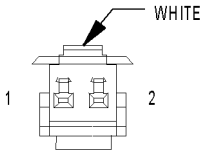
CAV	CIRCUIT
1	F9 14RD/BK
2	L62 18BR/RD (LHD)
2	L62 20BR/RD (RHD)
3	L1 18VT/BK
4	F30 14RD/TN
5	L7 18BK/YL
6	L95 18DG/YL
7	B40 14LB
8	Z150 14BK
9	L50 16WT/TN (RHD)
9	L50 18WT/TN (LHD)
10	L63 20DG/RD
11	Z150 14BK
12	-
13	-
14	-



C310
(EXPORT)

C310 (EXPORT) - LT GRAY (TRAILER TOW SIDE)

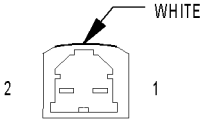
CAV	CIRCUIT
1	F9 14RD/BK
2	L62 20BR/RD
3	L1 18VT/BK
4	F30 14RD/TN
5	L7 18BK/YL
6	Z150 14RD/BK
7	B40 14LB
8	Z150 14BK
9	L50 18WT/TN
10	L63 20DG/RD
11	Z1 14BK
12	-
13	-
14	-



C311

C311 - WHITE (CHMSL SIDE)

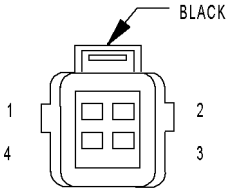
CAV	CIRCUIT
1	L50 18WT/TN
2	Z1 18BK



C311

C311 - WHITE (LIFTGATE SIDE)

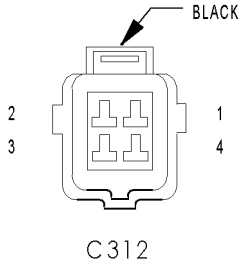
CAV	CIRCUIT
1	L50 18WT/TN
2	Z1 18BK



C312

C312 - BLACK (LICENSE PLATE LAMP SIDE)

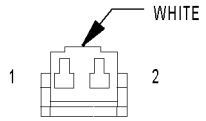
CAV	CIRCUIT
1	Z1 18BK
2	L7 18BK/YL
3	P101 18OR/PK
4	F70 18PK



C312

C312 - BLACK (LIFTGATE SIDE)

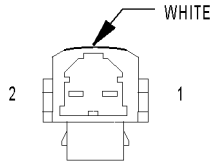
CAV	CIRCUIT
1	Z1 18BK
2	L7 18BK/YL
3	P101 18OR/PK
4	F70 18PK



C313

C313 - WHITE (FRONT DRIVER DOOR SIDE)

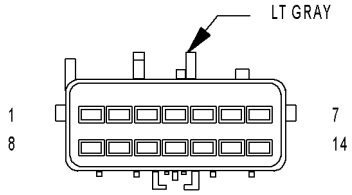
CAV	CIRCUIT
1	P112 20YL/WT
2	P114 20YL/RD



C313

C313 - WHITE (MUX JUMPER SIDE)

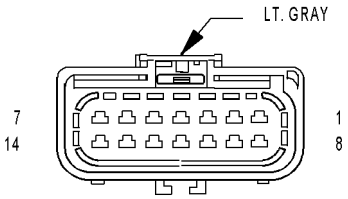
CAV	CIRCUIT
1	P112 20YL/WT
2	P114 20YL/RD



C314

C314 - LT GRAY (FRONT PASSENGER DOOR SIDE)

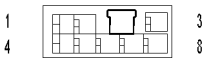
CAV	CIRCUIT
1	D25 20YL/VT
2	A146 12OR/WT
3	P35 18OR/VT
4	P36 18PK/VT
5	Z28 12BK (LHD)
5	Z234 12BK (RHD)
6	Q14 16GY
7	Q24 16DG
8	E20 20OR/DB
9	X80 18LB/BK (LHD PREMIUM)
9	X85 18LB/BK (RHD PREMIUM)
9	X56 18LB/BK (BASE)
10	X54 18LB/RD (BASE)
10	X87 18LB/RD (RHD PREMIUM)
10	X82 18LB/RD (LHD PREMIUM)
11	-
12	-
13	-
14	-



C314

C314 - LT GRAY (BODY SIDE)

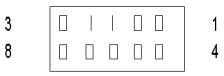
CAV	CIRCUIT
1	D25 20YL/VT
2	A146 12OR/WT
3	P35 18OR/VT
4	P36 18PK/VT
5	Z28 12BK (LHD)
5	Z243 12BK (RHD)
6	Q14 16GY
7	Q24 16DG
8	E20 20OR/DB
9	X85 18LG/DG (RHD)
9	X80 18LB/BK (PREMIUM LHD)
9	X56 18DB/PK (BASE LHD)
10	X82 18LB/RD (PREMIUM)
10	X54 18VT (BASE)
10	X87 18LG/RD (RHD)
11	-
12	-
13	-
14	-



C315

C315 - (OVERHEAD SIDE)

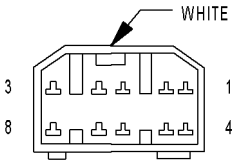
CAV	CIRCUIT
1	Q30 16TN
2	-
3	Q43 20VT
4	Q41 20WT
5	-
6	-
7	Z150 16BK
8	-



C315

C315 - (SUN ROOF MODULE SIDE)

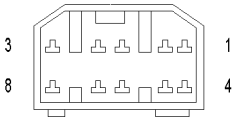
CAV	CIRCUIT
1	Q30 16DB
2	-
3	Q43 20VT
4	Q41 20WT
5	-
6	-
7	Z150 16BK
8	-



C316
(EXCEPT BUILT-
UP-EXPORT)

C316 (EXCEPT BUILT-UP-EXPORT) - WHITE
(BODY SIDE)

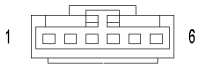
CAV	CIRCUIT
1	Y153 20DB/RD
2	L1 18VT/BK
3	F72 16RD/YL
4	D25 20YL/VT
5	Y151 20LG/BR
6	Z155 18BK/OR
7	Y152 20LG/OR
8	Z151 18BK



C316
(EXCEPT EXPORT)

C316 (EXCEPT EXPORT) - (PEDAL SIDE)

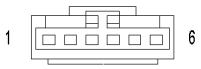
CAV	CIRCUIT
1	Y153 16DB/RD
2	L1 18WT/BR
3	F72 16RD/YL
4	D25 20VT/YL
5	Y151 20LG/BR
6	Z155 20BK/OR
7	Y152 20LG/OR
8	Z151 16BK



C317

C317 - (INTRUSION TRANSCEIVER MODULE
SIDE)

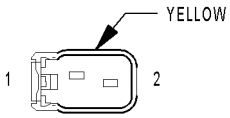
CAV	CIRCUIT
1	Z155 20BK
2	-
3	X75 20GY/LG
4	-
5	D25 20YL/VT
6	F70 20PK



C317

C317 - (OVERHEAD SIDE)

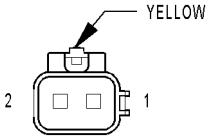
CAV	CIRCUIT
1	Z155 20BK/OR
2	-
3	X75 20GY/LG
4	-
5	D25 20YL/VT
6	F70 20PK



C318

C318 - (DRIVER OVERLAY SIDE)

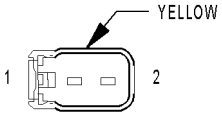
CAV	CIRCUIT
1	R73 20LB/BR
2	R75 20LB/OR



C318

C318 - YELLOW (PASSENGER BODY SIDE)

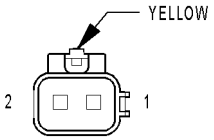
CAV	CIRCUIT
1	R73 20LB/BR
2	R75 20LB/OR



C319

C319 - (PASSENGER OVERLAY SIDE)

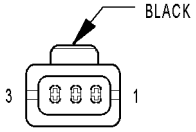
CAV	CIRCUIT
1	R72 20LB/WT
2	R74 20LB/YL



C319

C319 - YELLOW (DRIVER BODY SIDE)

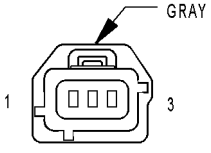
CAV	CIRCUIT
1	R72 20LB/WT
2	R74 20LB/YL



CAMSHAFT POSITION SENSOR (DIESEL)

CAMSHAFT POSITION SENSOR (DIESEL) - BLACK 3 WAY

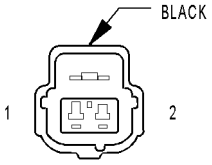
CAV	CIRCUIT	FUNCTION
1	K944 20BR/DG	CAMSHAFT POSITION SENSOR GROUND
2	K44 20YL/GY	CAMSHAFT POSITION SENSOR SIGNAL
3	F15 18RD/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT



CAMSHAFT POSITION SENSOR (GAS)

CAMSHAFT POSITION SENSOR (GAS) - GRAY 3 WAY

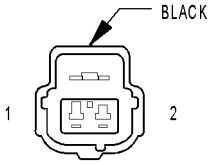
CAV	CIRCUIT	FUNCTION
1	K44 18TN/YL	CAMSHAFT POSITION SENSOR SIGNAL
2	K4 18BK/LB	SENSOR GROUND
3	K7 18OR	5 VOLT SUPPLY



CAPACITOR
(4.0L)

CAPACITOR (4.0L) - BLACK 2 WAY

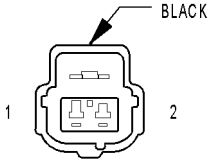
CAV	CIRCUIT	FUNCTION
1	A142 14DG/OR (LHD)	AUTO SHUT DOWN RELAY OUTPUT
1	A142 16DG/OR (RHD)	AUTO SHUT DOWN RELAY OUTPUT
2	-	-



CAPACITOR
NO. 1
(4.7L)

CAPACITOR NO. 1 (4.7L) - BLACK 2 WAY

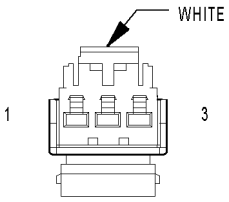
CAV	CIRCUIT	FUNCTION
1	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
2	-	-



CAPACITOR
NO. 2
(4.7L)

CAPACITOR NO. 2 (4.7L) - BLACK 2 WAY

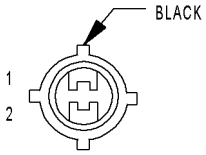
CAV	CIRCUIT	FUNCTION
1	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
2	-	-



CARGO
LAMP

CARGO LAMP - WHITE 3 WAY

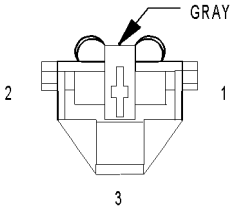
CAV	CIRCUIT	FUNCTION
1	F70 20PK	FUSED B(+)
2	G73 20LG/OR	LIFTGATE COURTESY DISABLE
3	M2 20YL/DG	COURTESY LAMP DRIVER



CENTER HIGH
MOUNTED STOP
LAMP

CENTER HIGH MOUNTED STOP LAMP - BLACK 2 WAY

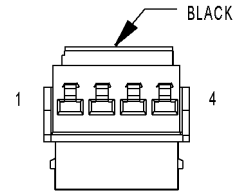
CAV	CIRCUIT	FUNCTION
1	L50 18WT/TN	PRIMARY BRAKE SWITCH SIGNAL
2	Z309 18BK	GROUND



CIGAR LIGHTER

CIGAR LIGHTER - GRAY 3 WAY

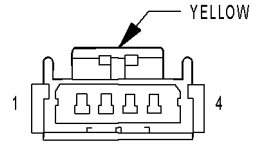
CAV	CIRCUIT	FUNCTION
1	F30 16RD	FUSED CIGAR LIGHTER RELAY OUTPUT
2	-	-
3	Z300 16BK	GROUND



CLOCKSPRING C1

CLOCKSPRING C1 - BLACK 4 WAY

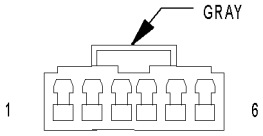
CAV	CIRCUIT	FUNCTION
1	X3 20GY/OR	HORN RELAY CONTROL
2	V37 20RD/LG	SPEED CONTROL SWITCH SIGNAL
3	K4 20BK/LB	SENSOR GROUND
4	-	-



CLOCKSPRING C2

CLOCKSPRING C2 - YELLOW 4 WAY

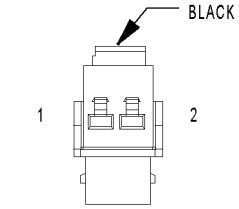
CAV	CIRCUIT	FUNCTION
1	R63 20TN/LB	DRIVER SQUIB 2 LINE 2
2	R61 20OR/LB	DRIVER SQUIB 2 LINE 1
3	R43 20BK/LB	DRIVER SQUIB 1 LINE 1
4	R45 20DG/LB	DRIVER SQUIB 1 LINE 2



CLOCKSPRING C3

CLOCKSPRING C3 - GRAY 6 WAY

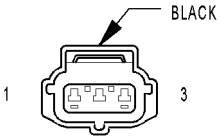
CAV	CIRCUIT	FUNCTION
1	X20 20RD/YL	RADIO CONTROL MUX
2	X10 20RD/BK	RADIO CONTROL MUX RETURN
3	X3 20GY/OR	HORN RELAY CONTROL
4	V37 20RD/LG	SPEED CONTROL SWITCH SIGNAL
5	K4 20BK/LB	SENSOR GROUND
6	-	-



CLOCKSPRING C4

CLOCKSPRING C4 - BLACK 2 WAY

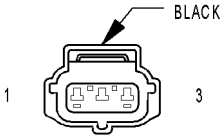
CAV	CIRCUIT	FUNCTION
1	X20 20RD/YL	RADIO CONTROL MUX
2	X10 20RD/BK	RADIO CONTROL MUX RETURN



COIL ON PLUG NO. 1 (4.7L)

COIL ON PLUG NO. 1 (4.7L) - BLACK 3 WAY

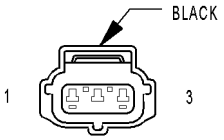
CAV	CIRCUIT	FUNCTION
1	K91 14TN/RD	COIL DRIVER NO. 1
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL ON PLUG NO. 2 (4.7L)

COIL ON PLUG NO. 2 (4.7L) - BLACK 3 WAY

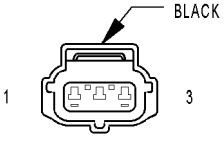
CAV	CIRCUIT	FUNCTION
1	K92 14TN/PK	COIL DRIVER NO. 2
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL ON PLUG NO. 3 (4.7L)

COIL ON PLUG NO. 3 (4.7L) - BLACK 3 WAY

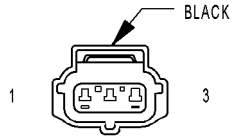
CAV	CIRCUIT	FUNCTION
1	K93 14TN/OR	COIL DRIVER NO. 3
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL ON PLUG NO. 4 (4.7L)

COIL ON PLUG NO. 4 (4.7L) - BLACK 3 WAY

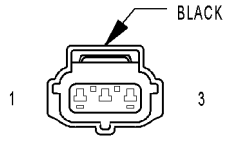
CAV	CIRCUIT	FUNCTION
1	K94 14TN/LG	COIL DRIVER NO. 4
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL ON
PLUG NO. 5
(4.7L)

COIL ON PLUG NO. 5 (4.7L) - BLACK 3 WAY

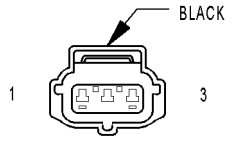
CAV	CIRCUIT	FUNCTION
1	K95 14TN/DG	COIL DRIVER NO. 5
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL ON
PLUG NO. 6
(4.7L)

COIL ON PLUG NO. 6 (4.7L) - BLACK 3 WAY

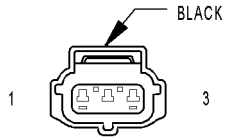
CAV	CIRCUIT	FUNCTION
1	K96 14TN/LB	COIL DRIVER NO. 6
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL ON
PLUG NO. 7
(4.7L)

COIL ON PLUG NO. 7 (4.7L) - BLACK 3 WAY

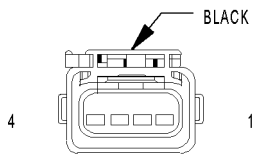
CAV	CIRCUIT	FUNCTION
1	K97 14BR	COIL DRIVER NO. 7
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL ON
PLUG NO. 8
(4.7L)

COIL ON PLUG NO. 8 (4.7L) - BLACK 3 WAY

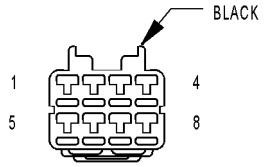
CAV	CIRCUIT	FUNCTION
1	K98 14LB/RD	COIL DRIVER NO. 8
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	-	-



COIL
RAIL
(4.0L)

COIL RAIL (4.0L) - BLACK 4 WAY

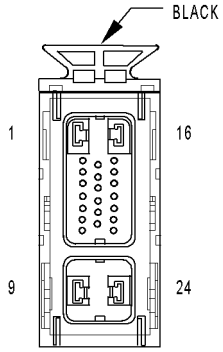
CAV	CIRCUIT	FUNCTION
1	K91 14TN/RD	COIL DRIVER NO. 1
2	A142 14DG/OR	AUTO SHUT DOWN RELAY OUTPUT
3	K92 14TN/PK	COIL DRIVER NO. 2
4	K93 14TN/OR	COIL DRIVER NO. 3



COMPACT DISC CHANGER (PREMIUM RADIO)

COMPACT DISC CHANGER (PREMIUM RADIO) - BLACK 8 WAY

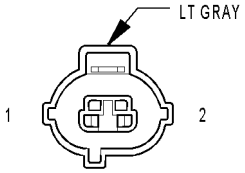
CAV	CIRCUIT	FUNCTION
1	X40 20WT/RD	AUDIO OUT RIGHT
2	C235 20WT/LB	SHIELD
3	D25 20YL/VT	PCI BUS
4	X112 20RD	IGNITION SWITCH OUTPUT (RUN-ACC)
5	X41 20WT/DG	AUDIO OUT LEFT
6	Z4 20WT/BK	GROUND
7	Z17 20BK	GROUND
8	X160 20YL	FUSED B(+)



CONTROLLER ANTILOCK BRAKE

CONTROLLER ANTILOCK BRAKE - BLACK 25 WAY

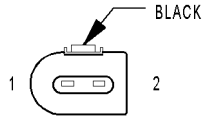
CAV	CIRCUIT	FUNCTION
1	Z101 12BK/OR	GROUND
2	B1 18YL/DB	RIGHT REAR WHEEL SPEED SENSOR SIGNAL
3	B2 18YL	RIGHT REAR WHEEL SPEED SENSOR 12 VOLT SUPPLY
4	-	-
5	D25 18VT/YL	PCI BUS
6	B6 18WT/DB	RIGHT FRONT WHEEL SPEED SENSOR SIGNAL
7	B7 18WT	RIGHT FRONT WHEEL SPEED SENSOR 12 VOLT SUPPLY
8	-	-
9	A20 12RD/DB	FUSED B(+)
10	F20 18DB/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
11	D52 18LG/WT (DIESEL)	CAN C BUS(+)
12	-	-
13	B22 18DG/YL	VEHICLE SPEED SIGNAL
14	D51 18DG/WT (DIESEL)	CAN C BUS(-)
15	-	-
16	Z102 12BK/OR	GROUND
17	G9 18GY/BK	RED BRAKE WARNING INDICATOR SWITCH SENSE
18	L50 18WT/TN	BRAKE LAMP SWITCH OUTPUT
19	B3 18LG/DB	LEFT REAR WHEEL SPEED SENSOR SIGNAL
20	B4 18LG	LEFT REAR WHEEL SPEED SENSOR 12 VOLT SUPPLY
21	Z231 18BK	GROUND
22	B8 18RD/DB	LEFT FRONT WHEEL SPEED SENSOR SIGNAL
23	B9 18RD	LEFT FRONT WHEEL SPEED SENSOR 12 VOLT SUPPLY
24	A10 12RD/DG	FUSED B(+)



COOLANT LEVEL SENSOR

COOLANT LEVEL SENSOR - LT GRAY 2 WAY

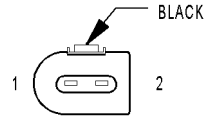
CAV	CIRCUIT	FUNCTION
1	G18 18PK/BK (LHD GAS)	COOLANT LEVEL SWITCH SENSE
1	G18 20PK/BK (EXCEPT LHD GAS)	COOLANT LEVEL SWITCH SENSE
2	Z307 20BK	GROUND



CRANKCASE HEATER (DIESEL)

CRANKCASE HEATER (DIESEL) - BLACK 2 WAY

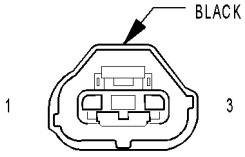
CAV	CIRCUIT	FUNCTION
1	Z18 20BR	GROUND
2	F15 20RD/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT



CRANKSHAFT POSITION SENSOR (DIESEL)

CRANKSHAFT POSITION SENSOR (DIESEL) - BLACK 2 WAY

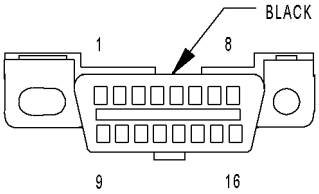
CAV	CIRCUIT	FUNCTION
1	K924 20YL	CRANKSHAFT POSITION SENSOR SIGNAL 2
2	K3 20BK	CRANKSHAFT POSITION SENSOR SIGNAL 1



CRANKSHAFT POSITION SENSOR (GAS)

CRANKSHAFT POSITION SENSOR (GAS) - BLACK 3 WAY

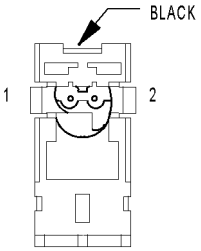
CAV	CIRCUIT	FUNCTION
1	K24 18GY/BK	CRANKSHAFT POSITION SENSOR SIGNAL
2	K4 18BK/LB	SENSOR GROUND
3	K7 18OR	5 VOLT SUPPLY



DATA LINK CONNECTOR

DATA LINK CONNECTOR - BLACK 16 WAY

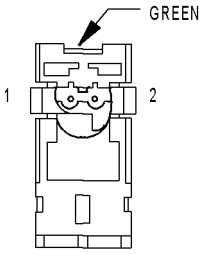
CAV	CIRCUIT	FUNCTION
1	-	-
2	D25 20YL/VT	PCI BUS
3	-	-
4	Z305 20BK/OR	GROUND
5	Z306 20BK/LG	GROUND
6	D32 20LG/DG	SCI RECEIVE
7	D21 20PK	SCI TRANSMIT
8	-	-
9	D19 20VT/OR	BODY CONTROL MODULE FLASH ENABLE
10	-	-
11	-	-
12	-	-
13	-	-
14	D20 20LG	SCI RECEIVE
15	-	-
16	F33 20PK/RD	FUSED B(+)



DRIVER AIRBAG SQUIB 1

DRIVER AIRBAG SQUIB 1 - BLACK 2 WAY

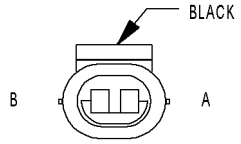
CAV	CIRCUIT	FUNCTION
1	R43 20BK	DRIVER SQUIB 1 LINE 1
2	R45 20BK	DRIVER SQUIB 1 LINE 2



DRIVER AIRBAG SQUIB 2

DRIVER AIRBAG SQUIB 2 - GREEN 2 WAY

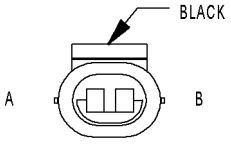
CAV	CIRCUIT	FUNCTION
1	R63 20TN/LB	DRIVER SQUIB 2 LINE 2
2	R61 20OR/LB	DRIVER SQUIB 2 LINE 1



DRIVER
BLEND DOOR
MOTOR/ACTUATOR
(LHD AZC)

DRIVER BLEND DOOR MOTOR/ACTUATOR (LHD AZC) - BLACK 2 WAY

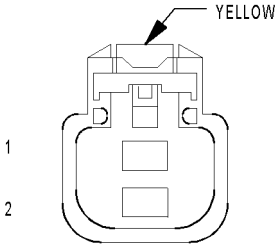
CAV	CIRCUIT	FUNCTION
A	C95 20WT/BK	DRIVER BLEND DOOR DRIVER (B)
B	C33 20DB/RD	DRIVER BLEND DOOR DRIVER (A)



DRIVER
BLEND DOOR MOTOR/
ACTUATOR
(RHD AZC)

DRIVER BLEND DOOR MOTOR/ACTUATOR (RHD AZC) - BLACK 2 WAY

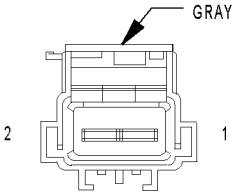
CAV	CIRCUIT	FUNCTION
B	C95 20WT/BK	DRIVER BLEND DOOR DRIVER (B)
A	C33 20DB/RD	DRIVER BLEND DOOR DRIVER (A)



DRIVER
CURTAIN
AIRBAG
SQUIB

DRIVER CURTAIN AIRBAG SQUIB - YELLOW 2 WAY

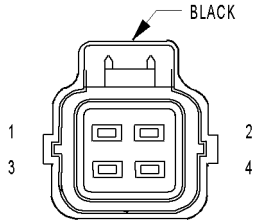
CAV	CIRCUIT	FUNCTION
1	R73 20LB/BR	DRIVER CURTAIN SQUIB 1 LINE 2
2	R75 20LB/OR	DRIVER CURTAIN SQUIB 1 LINE 1



DRIVER
CYLINDER
LOCK SWITCH

DRIVER CYLINDER LOCK SWITCH - GRAY 2 WAY

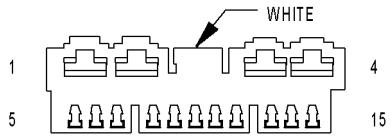
CAV	CIRCUIT	FUNCTION
1	G73 20LG/OR	DRIVER CYLINDER LOCK SWITCH SENSE
2	Z28 12BK (LHD)	GROUND
2	Z243 12BK (RHD)	GROUND



DRIVER DOOR LOCK MOTOR/ AJAR SWITCH

DRIVER DOOR LOCK MOTOR/AJAR SWITCH - BLACK 4 WAY

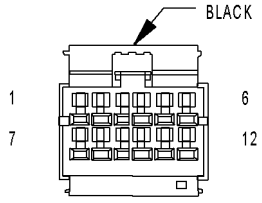
CAV	CIRCUIT	FUNCTION
1	G75 18TN/RD	DRIVER DOOR AJAR SWITCH SENSE
2	Z28 12BK (LHD)	GROUND
2	Z243 12BK (RHD)	GROUND
3	P34 18PK/BK	DRIVER DOOR UNLOCK DRIVER
4	P35 18OR/BK	DRIVER DOOR LOCK DRIVER



DRIVER DOOR MODULE C1

DRIVER DOOR MODULE C1 - WHITE 15 WAY

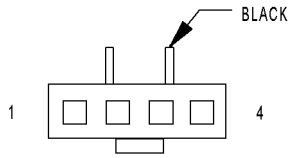
CAV	CIRCUIT	FUNCTION
1	A146 12OR/WT	FUSED B(+)
2	Q23 16RD/WT	DRIVER REAR WINDOW DRIVER (DOWN)
3	Q13 16DB	DRIVER REAR WINDOW DRIVER (UP)
4	Z28 12BK (LHD)	GROUND
4	Z234 12BK (RHD)	GROUND
5	P35 18OR/BK	DRIVER DOOR LOCK DRIVER
6	-	-
7	P34 18PK/BK	DRIVER DOOR UNLOCK DRIVER
8	D30 20VT/YL (JAPAN)	DIAGNOSTIC OUT
9	D25 20YL/VT	PCI BUS
10	G73 20LG/OR	DRIVER CYLINDER LOCK SWITCH SENSE
11	G75 18TN/RD	DRIVER DOOR AJAR SWITCH SENSE
12	E21 20OR/RD	DRIVER REAR DOOR SWITCH ILLUMINATION
13	Q11 16LB	DRIVER WINDOW DRIVER (UP)
14	-	-
15	Q21 16WT	DRIVER WINDOW DRIVER (DOWN)



DRIVER DOOR MODULE C2

DRIVER DOOR MODULE C2 - BLACK 12 WAY

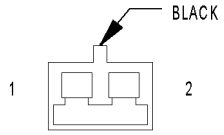
CAV	CIRCUIT	FUNCTION
1	P95 20OR	MIRROR HORIZONTAL DRIVER
2	C118 20BK/WT	MIRROR HEATER GROUND
3	P64 20VT	MIRROR VERTICAL POSITION SIGNAL
4	P69 20GY	MIRROR SENSOR GROUND
5	P65 20DG	MIRROR HORIZONTAL POSITION SIGNAL
6	C117 20BK	MIRROR HEATER 12 VOLT SUPPLY
7	P91 20WT	MIRROR COMMON DRIVER
8	P93 20RD	MIRROR VERTICAL DRIVER
9	M21 20PK/DG	COURTESY LAMP DRIVER
10	P110 20YL (EXPORT)	FOLDING MIRROR RETURN
11	P99 20DB (EXPORT)	FOLDING MIRROR FEED
12	L121 20BK/RD	COURTESY LAMP GROUND



DRIVER DOOR MODULE C3

DRIVER DOOR MODULE C3 - BLACK 4 WAY

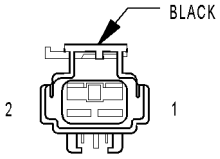
CAV	CIRCUIT	FUNCTION
1	BK	MEMORY SWITCH RETURN
2	BR	MEMORY SWITCH MUX
3	OR	MEMORY SET INDICATOR DRIVER
4	GY	SWITCH ILLUMINATION DRIVER



DRIVER FRONT DOOR COURTESY LAMP

DRIVER FRONT DOOR COURTESY LAMP - BLACK 2 WAY

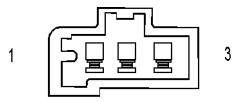
CAV	CIRCUIT	FUNCTION
1	M21 20PK/DG	COURTESY LAMP DRIVER
2	L121 20BK/RD	COURTESY LAMP GROUND



DRIVER FRONT POWER WINDOW MOTOR

DRIVER FRONT POWER WINDOW MOTOR - BLACK 2 WAY

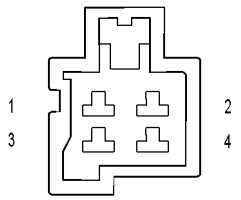
CAV	CIRCUIT	FUNCTION
1	Q21 16WT	DRIVER WINDOW DRIVER (DOWN)
2	Q11 16LB	DRIVER WINDOW DRIVER (UP)



DRIVER HEATED SEAT BACK (HEATED SEAT/ PREMIUM I/III)

DRIVER HEATED SEAT BACK (HEATED SEAT/PREMIUM I/III) - 3 WAY

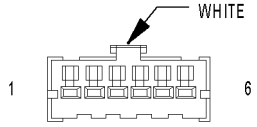
CAV	CIRCUIT	FUNCTION
1	P88 16BK/BR	HEATED SEAT DRIVER
2	Z6 16BK/YL	GROUND
3	-	-



DRIVER HEATED SEAT CUSHION (PREMIUM I/III)

DRIVER HEATED SEAT CUSHION - 4 WAY

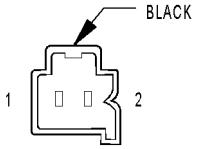
CAV	CIRCUIT	FUNCTION
1	P131 16BK/OR	DRIVER SEAT HEATER B(+) DRIVER
2	P88 16BK/BR	HEATED SEAT DRIVER
3	P135 20LB/BK	DRIVER SEAT TEMPERATURE SENSOR INPUT
4	P29 20BR/WT	SEAT SENSOR 5 VOLT SUPPLY



DRIVER HEATED SEAT SWITCH

DRIVER HEATED SEAT SWITCH - WHITE 6 WAY

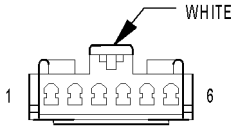
CAV	CIRCUIT	FUNCTION
1	P133 20TN/DG	DRIVER SEAT HEATER SWITCH MUX
2	E2 20OR	PANEL LAMPS DRIVER
3	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
4	-	-
5	Z300 20BK	GROUND
6	P132 20OR/BK	SEAT HEATER SWITCH SENSOR GROUND



DRIVER LUMBAR MOTOR (MIDLINE/PREMIUM)

DRIVER LUMBAR MOTOR (MIDLINE/PREMIUM) - BLACK 2 WAY

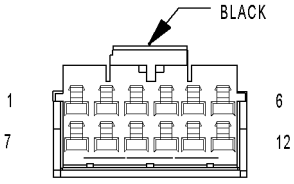
CAV	CIRCUIT	FUNCTION
1	P105 16LG/DB	LUMBAR FORWARD SWITCH SENSE
2	P104 16YL/RD	LUMBAR REARWARD SWITCH SENSE



DRIVER LUMBAR SWITCH (MIDLINE/PREMIUM)

DRIVER LUMBAR SWITCH (MIDLINE/PREMIUM) - WHITE 6 WAY

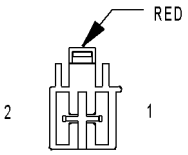
CAV	CIRCUIT	FUNCTION
1	-	-
2	Z243 16BK (LHD)	GROUND
2	Z238 16BK (RHD)	GROUND
3	P104 16YL/RD (LHD)	LUMBAR REARWARD SWITCH SENSE
3	P105 16LG/DB (RHD)	LUMBAR FORWARD SWITCH SENSE
4	P104 16YL/RD (RHD)	LUMBAR REARWARD SWITCH SENSE
4	P105 16LG/DB (LHD)	LUMBAR FORWARD SWITCH SENSE
5	Z243 16BK (LHD)	GROUND
5	Z238 16BK (RHD)	GROUND
6	F35 16RD	FUSED B(+)



DRIVER POWER MIRROR

DRIVER POWER MIRROR - BLACK 12 WAY

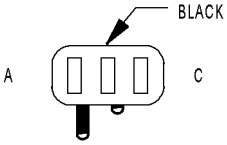
CAV	CIRCUIT	FUNCTION
1	C117 20BK	MIRROR HEATER 12 VOLT SUPPLY
2	P65 20DG	MIRROR HORIZONTAL POSITION SIGNAL
3	P69 20GY	MIRROR SENSOR GROUND
4	P64 20VT	MIRROR VERTICAL POSITION SIGNAL
5	C118 20BK/WT	MIRROR HEATER GROUND
6	P95 20OR	MIRROR HORIZONTAL DRIVER
7	P114 20YL/RD	AUTO DAY/NIGHT MIRROR (-)
8	P99 20DB (EXPORT)	FOLDING MIRROR FEED
9	P110 20YL (EXPORT)	FOLDING MIRROR RETURN
10	P112 20YL/WT	AUTO DAY/NIGHT MIRROR (+)
11	P93 20RD	MIRROR VERTICAL DRIVER
12	P91 20WT	MIRROR COMMON DRIVER



DRIVER POWER SEAT FRONT RISER MOTOR

DRIVER POWER SEAT FRONT RISER MOTOR - RED 2 WAY

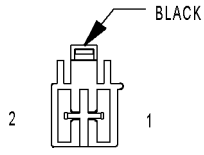
CAV	CIRCUIT	FUNCTION
1	P19 16YL/LG (EXCEPT PREMIUM II/III)	DRIVER SEAT FRONT UP DRIVER
1	P119 16YL/RD (PREMIUM II/III)	SEAT FRONT UP DRIVER
2	P21 16RD/LG (EXCEPT PREMIUM II/III)	DRIVER SEAT FRONT DOWN DRIVER
2	P121 16RD/GY (PREMIUM II/III)	SEAT FRONT DOWN DRIVER



DRIVER POWER SEAT FRONT RISER MOTOR SENSOR (PREMIUM II/III)

DRIVER POWER SEAT FRONT RISER MOTOR SENSOR (PREMIUM II/III) - BLACK 3 WAY

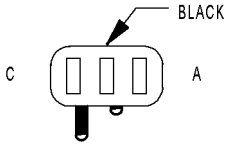
CAV	CIRCUIT	FUNCTION
A	P28 20BR/RD	SEAT POSITION SENSOR GROUND
B	P26 20BR	FRONT RISER POSITION SIGNAL
C	P29 20BR/WT	SEAT SENSOR 5 VOLT SUPPLY



DRIVER POWER SEAT HORIZONTAL MOTOR

DRIVER POWER SEAT HORIZONTAL MOTOR - BLACK 2 WAY

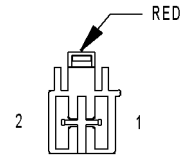
CAV	CIRCUIT	FUNCTION
1	P117 16RD/BR (PREMIUM II/III)	SEAT HORIZONTAL REARWARD DRIVER
1	P17 16RD/YL (EXCEPT PREMIUM II/III)	DRIVER SEAT HORIZONTAL REARWARD DRIVER
2	P115 16GY/LG (PREMIUM II/III)	SEAT HORIZONTAL FORWARD DRIVER
2	P15 16YL/LB (EXCEPT PREMIUM II/III)	DRIVER SEAT HORIZONTAL FORWARD DRIVER



DRIVER POWER SEAT HORIZONTAL MOTOR SENSOR (PREMIUM II/III)

DRIVER POWER SEAT HORIZONTAL MOTOR SENSOR (PREMIUM II/III) - BLACK 3 WAY

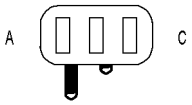
CAV	CIRCUIT	FUNCTION
A	P29 20BR/WT	SEAT SENSOR 5 VOLT SUPPLY
B	P25 20VT/RD	SEAT HORIZONTAL POSITION SIGNAL
C	P28 20BR/RD	SEAT POSITION SENSOR GROUND



DRIVER POWER SEAT REAR RISER MOTOR

DRIVER POWER SEAT REAR RISER MOTOR - RED 2 WAY

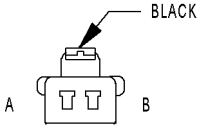
CAV	CIRCUIT	FUNCTION
1	P111 16YL/DB (PREMIUM II/III)	SEAT REAR UP DRIVER
1	P11 16YL/WT (EXCEPT PREMIUM II/III)	DRIVER SEAT REAR UP DRIVER
2	P113 16RD/BK (PREMIUM II/III)	SEAT REAR DOWN DRIVER
2	P13 16RD/WT (EXCEPT PREMIUM II/III)	DRIVER SEAT REAR DOWN DRIVER



DRIVER POWER SEAT REAR RISER MOTOR SENSOR (PREMIUM II/III)

DRIVER POWER SEAT REAR RISER MOTOR SENSOR (PREMIUM II/III) - 3 WAY

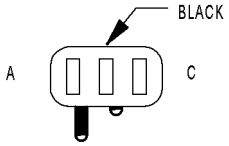
CAV	CIRCUIT	FUNCTION
A	P28 20BR/RD	SEAT POSITION SENSOR GROUND
B	P27 20LB/RD	REAR RISER POSITION SIGNAL
C	P29 20BR/WT	SEAT SENSOR 5 VOLT SUPPLY



DRIVER POWER SEAT RECLINER MOTOR

DRIVER POWER SEAT RECLINER MOTOR - BLACK 2 WAY

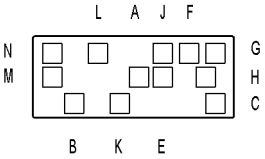
CAV	CIRCUIT	FUNCTION
A	P141 16GY/WT (PREMIUM II/III)	SEAT RECLINER DOWN DRIVER
A	P41 16GY/WT (EXCEPT PREMIUM II/III)	DRIVER SEAT RECLINER DOWN DRIVER
B	P143 16GY/LB (PREMIUM II/III)	SEAT RECLINER UP DRIVER
B	P43 16GY/LB (MIDLINE/PREMIUM I)	DRIVER SEAT RECLINER UP DRIVER



DRIVER POWER SEAT RECLINER MOTOR SENSOR (PREMIUM II/III)

DRIVER POWER SEAT RECLINER MOTOR SENSOR (PREMIUM II/III) - BLACK 3 WAY

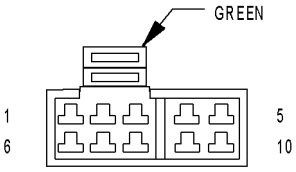
CAV	CIRCUIT	FUNCTION
A	P29 20BR/WT	SEAT SENSOR 5 VOLT SUPPLY
B	P47 20LB	RECLINER POSITION SIGNAL
C	P28 20BR/RD	SEAT POSITION SENSOR GROUND



DRIVER POWER SEAT SWITCH (EXCEPT MIDLINE/PREMIUM)

DRIVER POWER SEAT SWITCH (EXCEPT MIDLINE/PREMIUM) - 12 WAY

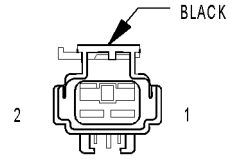
CAV	CIRCUIT	FUNCTION
A	F35 16RD	FUSED B(+)
B	Z243 16BK (LHD)	GROUND
C	-	-
E	P21 16RD/LG (LHD)	DRIVER SEAT FRONT DOWN DRIVER
F	-	-
G	-	-
H	-	-
J	P19 16YL/LG (LHD)	DRIVER SEAT FRONT UP DRIVER
K	P15 16YL/LB	DRIVER SEAT HORIZONTAL FORWARD DRIVER
L	P17 16RD/YL	DRIVER SEAT HORIZONTAL REARWARD DRIVER
M	P13 16RD/WT (LHD)	DRIVER SEAT REAR DOWN DRIVER
N	P11 16YL/WT (LHD)	DRIVER SEAT REAR UP DRIVER
J	P21 16RD/LG (RHD)	DRIVER SEAT FRONT DOWN DRIVER
E	P19 16YL/LG (RHD)	DRIVER SEAT FRONT UP DRIVER
M	P11 16YL/WT (RHD)	DRIVER SEAT REAR UP DRIVER
N	P13 16RD/WT (RHD)	DRIVER SEAT REAR DOWN DRIVER
B	Z238 16BK (RHD)	GROUND



DRIVER POWER SEAT SWITCH (MIDLINE/PREMIUM)

DRIVER POWER SEAT SWITCH (MIDLINE/PREMIUM) - GREEN 10 WAY

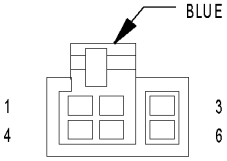
CAV	CIRCUIT	FUNCTION
1	Z238 16BK (RHD)	GROUND
1	Z243 16BK (LHD)	GROUND
2	P43 16GY/LB (MIDLINE/PREMIUM I)	DRIVER SEAT RECLINER UP DRIVER
2	P43 20GY/LB (PREMIUM II/III)	RECLINER UP SWITCH SENSE
3	P17 16RD/YL (MIDLINE/PREMIUM I)	DRIVER SEAT HORIZONTAL REARWARD DRIVER
3	P17 20RD/YL (PREMIUM II/III)	DRIVER SEAT HORIZONTAL REARWARD SWITCH SENSE
4	P41 16GY/WT (MIDLINE/PREMIUM I)	DRIVER SEAT RECLINER DOWN DRIVER
4	P41 20GY/WT (PREMIUM II/III)	RECLINER DOWN SWITCH SENSE
5	F35 16RD (MIDLINE/PREMIUM I)	FUSED B(+)
5	P9 20RD/LB (PREMIUM II/III)	SEAT SWITCH B(+) SUPPLY
6	P15 20YL/LB (PREMIUM II/III)	DRIVER SEAT HORIZONTAL FORWARD SWITCH SENSE
6	P15 16YL/LB (MIDLINE/PREMIUM I)	DRIVER SEAT HORIZONTAL FORWARD DRIVER
7	P19 20YL/LG (PREMIUM II/III)	SEAT FRONT UP SWITCH SENSE
7	P19 16YL/LG (MIDLINE/PREMIUM I)	SEAT FRONT UP SWITCH SENSE
7	P21 20RD/LG (RHD PREMIUM II/III)	SEAT FRONT DOWN SWITCH SENSE
8	P13 20RD/WT (RHD PREMIUM II/III)	SEAT REAR DOWN SWITCH SENSE
8	P11 20YL/WT (PREMIUM II/III)	SEAT REAR UP SWITCH SENSE
8	P11 16YL/WT (MIDLINE/PREMIUM I)	DRIVER SEAT REAR UP DRIVER
9	P13 20RD/WT (PREMIUM II/III)	SEAT REAR DOWN SWITCH SENSE
9	P13 16RD/WT (MIDLINE/PREMIUM I)	DRIVER SEAT REAR DOWN DRIVER
9	P11 20YL/WT (RHD PREMIUM II/III)	SEAT REAR UP SWITCH SENSE
10	P21 16RD/LG (MIDLINE/PREMIUM I)	SEAT FRONT DOWN SWITCH SENSE
10	P21 20RD/LG (PREMIUM II/III)	SEAT FRONT DOWN SWITCH SENSE
10	P19 20YL/LG (RHD PREMIUM II/III)	SEAT FRONT UP SWITCH SENSE



DRIVER REAR POWER WINDOW MOTOR

DRIVER REAR POWER WINDOW MOTOR - BLACK 2 WAY

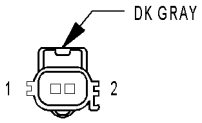
CAV	CIRCUIT	FUNCTION
1	Q124 16DG/WT	WINDOW DRIVER (DOWN)
2	Q114 16GY/WT	WINDOW DRIVER (UP)



DRIVER REAR POWER WINDOW SWITCH

DRIVER REAR POWER WINDOW SWITCH - BLUE 6 WAY

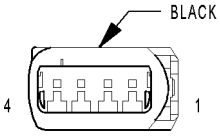
CAV	CIRCUIT	FUNCTION
1	Q14 16GY	DRIVER REAR WINDOW DRIVER (UP)
2	Q114 16GY/WT	WINDOW DRIVER (UP)
3	E21 20OR/RD	DRIVER REAR DOOR SWITCH ILLUMINATION
4	Q24 16DG	DRIVER REAR WINDOW DRIVER (DOWN)
5	Q124 16DG/WT	WINDOW DRIVER (DOWN)
6	Z1 16BK	GROUND



DRIVER SEAT BELT SWITCH

DRIVER SEAT BELT SWITCH - DK GRAY 2 WAY

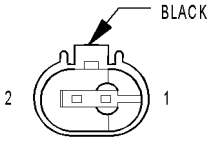
CAV	CIRCUIT	FUNCTION
1	R57 20DG	DRIVER SEAT BELT SWITCH SENSE
2	R59 20LB	DRIVER SEAT BELT SWITCH GROUND



DRIVER SIDE IMPACT SENSOR

DRIVER SIDE IMPACT SENSOR - BLACK 4 WAY

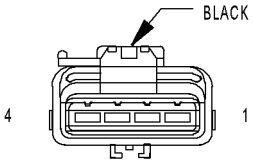
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	R133 20LB/DG	DRIVER SIDE IMPACT SENSOR GROUND
4	R131 20LG/YL	DRIVER SIDE IMPACT SENSOR SIGNAL



EGR SOLENOID (DIESEL)

EGR SOLENOID (DIESEL) - BLACK 2 WAY

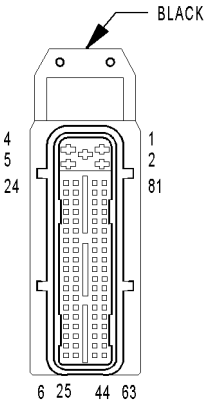
CAV	CIRCUIT	FUNCTION
1	F15 18RD/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
2	K35 20GY/YL	EGR SOLENOID CONTROL



ELECTRONIC SPEED CONTROL SERVO

ELECTRONIC SPEED CONTROL SERVO - BLACK 4 WAY

CAV	CIRCUIT	FUNCTION
1	V36 18TN/RD (LHD GAS)	SPEED CONTROL VACUUM SOLENOID CONTROL
1	V36 20TN/RD (RHD/GAS)	SPEED CONTROL VACUUM SOLENOID CONTROL
2	V35 18LG/RD (LHD GAS)	SPEED CONTROL VENT SOLENOID CONTROL
2	V35 20LG/RD (RHD/GAS)	SPEED CONTROL VENT SOLENOID CONTROL
3	V30 20DB/RD	SPEED CONTROL BRAKE SWITCH OUTPUT
4	Z307 20BK	GROUND



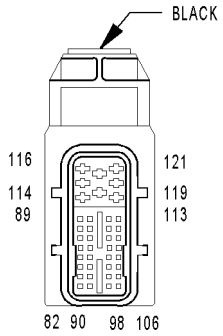
ENGINE CONTROL MODULE C1 (DIESEL)

ENGINE CONTROL MODULE C1 (DIESEL) - BLACK 81 WAY

CAV	CIRCUIT	FUNCTION
1	Z108 14BK/DG	GROUND
2	Z108 14BK/DG	GROUND
3	K20 14DB	GENERATOR FIELD CONTROL
4	F142 14RD/DG	FUSED AUTO SHUTDOWN RELAY OUTPUT
5	F142 14RD/DG	FUSED AUTO SHUTDOWN RELAY OUTPUT
6	D52 18DG/WT	CAN C BUS(+)
7	D25 20VT/YL	PCI BUS
8	K944 20 BR/DG	CAMSHAFT POSITION SENSOR GROUND
9	K44 20YL/GY	CAMSHAFT POSITION SENSOR SIGNAL
10	-	-
11	Y53 20BK/YL	BOOST PRESSURE SENSOR SIGNAL
12	K155 20YL/WT	MASS AIR FLOW SENSOR SIGNAL
13	Y40 20DG/VT	FUEL PRESSURE SENSOR SIGNAL
14	K22 20RD/DB	ACCELERATOR PEDAL POSITION SENSOR 2 SIGNAL
15	K81 20DB/DG	ACCELERATOR PEDAL POSITION SENSOR 1 SIGNAL
16	Y100 20BR/GY	FUEL PRESSURE SENSOR GROUND
17	-	-
18	-	-
19	F300 20RD/BK	FUSED B(+)
20	Z11 20BK/WT	BATTERY SENSE (-)
21	K4 18BK/LB	SENSOR GROUND
22	F991 20RD/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
23	K6 18VT/WT	SENSOR REFERENCE VOLTAGE B
24	K3 20BK	CRANKSHAFT POSITION SENSOR SIGNAL 1
25	D51 18WT	CAN C BUS(-)
26	-	-
27	-	-
28	-	-
29	K77 20BR/WT	TRANSFER CASE POSITION SENSOR SIGNAL
30	G60 20BR/DB	ENGINE OIL PRESSURE SENSOR SIGNAL
31	-	-
32	K25 20VT/DG	BATTERY TEMPERATURE SENSOR SIGNAL
33	-	-
34	K255 20WT/DG	ACCELERATOR PEDAL POSITION SENSOR 1 GROUND
35	Y43 20WT/VT	ACCELERATOR PEDAL POSITION SENSOR 1 5-VOLT SUPPLY
36	C18 20DB	A/C PRESSURE SIGNAL
37	-	-
38	V37 20RD/DG	SPEED CONTROL SWITCH SIGNAL
39	K226 20DB/WT	FUEL LEVEL SENSOR SIGNAL
40	K2 20DG/RD	ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
41	K21 20DG/WT	INTAKE AIR TEMPERATURE SENSOR SIGNAL
42	Y101 20BK	CRANKSHAFT POSITION SENSOR SHIELD

ENGINE CONTROL MODULE C1 (DIESEL) - BLACK 81 WAY

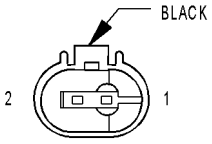
CAV	CIRCUIT	FUNCTION
43	K924 20YL	CRANKSHAFT POSITION SENSOR SIGNAL 2
44	-	-
45	-	-
46	-	-
47	L50 20WT/DB	PRIMARY BRAKE SWITCH SIGNAL
48	K29 20WT/PK	SECONDARY BRAKE SWITCH SIGNAL
49	-	-
50	F855 18BR/YL	SENSOR REFERENCE VOLTAGE A
51	-	-
52	-	-
53	-	-
54	Z189 20BR	MASS AIR FLOW SENSOR GROUND
55	B22 20DG/YL	VEHICLE SPEED SENSOR SIGNAL
56	K225 18BK	ACCELERATOR PEDAL POSITION SENSOR 2 GROUND
57	-	-
58	K4 20BK/LB	WATER IN FUEL SENSOR GROUND
59	K900 18GY	INTAKE PORT SWIRL ACTUATOR SIGNAL
60	K7 20RD/WT	FUEL PRESSURE SENSOR 5 VOLT SUPPLY
61	K51 20DB/YL	AUTO SHUT DOWN RELAY CONTROL
62	-	-
63	-	-
64	-	-
65	-	-
66	-	-
67	K173 20GY	HYDRAULIC RADIATOR FAN SOLENOID CONTROL
68	-	-
69	C13 20DB/RD	A/C COMPRESSOR CLUTCH RELAY CONTROL
70	-	-
71	-	-
72	K236 20GY/PK	GLOW PLUG RELAY NO. 2 CONTROL
73	-	-
74	T752 20DG/RD	ENGINE STARTER MOTOR RELAY CONTROL
75	K132 20BR/BK	VISCOUS/CABIN HEATER RELAY CONTROL
76	Y42 20RD/BL	WASTEGATE SOLENOID CONTROL
77	K152 20WT	GLOW PLUG RELAY NO. 1 CONTROL
78	-	-
79	-	-
80	K46 20DB/BK	FUEL PRESSURE SOLENOID CONTROL
81	K46 20DB/BK	FUEL PRESSURE SOLENOID CONTROL



ENGINE CONTROL MODULE C2 (DIESEL)

ENGINE CONTROL MODULE C2 (DIESEL) - BLACK 40 WAY

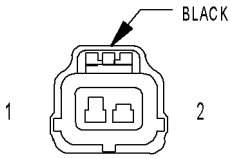
CAV	CIRCUIT	FUNCTION
100	-	-
101	-	-
102	-	-
103	-	-
104	-	-
105	-	-
106	-	-
107	-	-
108	-	-
109	-	-
110	-	-
111	-	-
112	T41 20BK/WT	PARK/NEUTRAL POSITION SWITCH SENSE (T41)
113	-	-
114	-	-
115	K14 14BK/YL	FUEL INJECTOR NO. 4 CONTROL
116	K63 14BK	COMMON INJECTOR DRIVER
117	-	-
118	K11 14BK/DB	FUEL INJECTOR NO. 1 CONTROL
119	K38 14BK/DG	FUEL INJECTOR NO. 5 CONTROL
120	K12 14BK/VT	FUEL INJECTOR NO. 2 CONTROL
121	K13 14BK/RD	FUEL INJECTOR NO. 3 CONTROL
82	D21 20PK	SCI TRANSMIT
83	-	-
84	-	-
85	-	-
86	-	-
87	-	-
88	-	-
89	K35 20GY/YL	EGR SOLENOID CONTROL
90	-	-
91	-	-
92	-	-
93	-	-
94	G123 20DG/WT	WATER IN FUEL SENSOR SIGNAL
95	-	-
96	-	-
97	-	-
98	-	-
99	-	-



ENGINE COOLANT TEMPERATURE SENSOR (DIESEL)

ENGINE COOLANT TEMPERATURE SENSOR (DIESEL) - BLACK 2 WAY

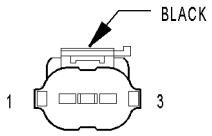
CAV	CIRCUIT	FUNCTION
1	K4 20BK/LB	SENSOR GROUND
2	K2 20DG/RD	ENGINE COOLANT TEMPERATURE SENSOR SIGNAL



ENGINE COOLANT TEMPERATURE SENSOR (GAS)

ENGINE COOLANT TEMPERATURE SENSOR (GAS) - BLACK 2 WAY

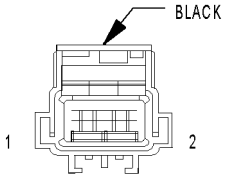
CAV	CIRCUIT	FUNCTION
1	K4 18BK/LB	SENSOR GROUND
2	K2 18TN/BK	ENGINE COOLANT TEMPERATURE SENSOR SIGNAL



ENGINE OIL PRESSURE SENSOR (DIESEL)

ENGINE OIL PRESSURE SENSOR (DIESEL) - BLACK 3 WAY

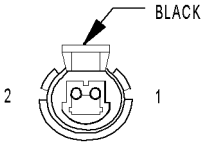
CAV	CIRCUIT	FUNCTION
1	K6 18VT/WT	SENSOR REFERENCE VOLTAGE B
2	G60 20BR/DB	ENGINE OIL PRESSURE SENSOR SIGNAL
3	K4 18BK/LB	SENSOR GROUND



ENGINE OIL PRESSURE SWITCH (GAS)

ENGINE OIL PRESSURE SWITCH (GAS) - BLACK 2 WAY

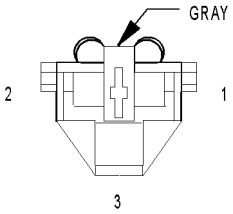
CAV	CIRCUIT	FUNCTION
1	G60 18GY/YL	ENGINE OIL PRESSURE SWITCH SIGNAL
2	-	-



EVAP/PURGE SOLENOID (GAS)

EVAP/PURGE SOLENOID (GAS) - BLACK 2 WAY

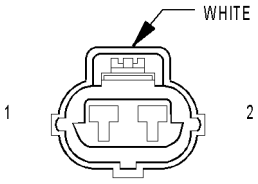
CAV	CIRCUIT	FUNCTION
1	F12 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
2	K52 20PK/BK (LHD)	DUTY CYCLE EVAP/PURGE SOLENOID CONTROL
2	K52 18PK/BK (RHD)	DUTY CYCLE EVAP/PURGE SOLENOID CONTROL



FRONT POWER OUTLET

FRONT POWER OUTLET - GRAY 3 WAY

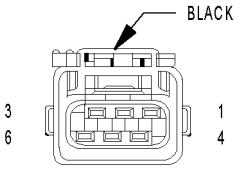
CAV	CIRCUIT	FUNCTION
1	F85 16VT/WT	FUSED B(+)
2	-	-
3	Z300 16BK	GROUND



FRONT WASHER PUMP

FRONT WASHER PUMP - WHITE 2 WAY

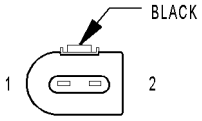
CAV	CIRCUIT	FUNCTION
1	V10 20BR	WASHER PUMP SWITCH SENSE
2	Z141 20BK	GROUND



FRONT WIPER MOTOR

FRONT WIPER MOTOR - BLACK 6 WAY

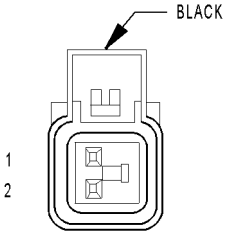
CAV	CIRCUIT	FUNCTION
1	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
2	V55 16TN/RD	WIPER PARK SWITCH SENSE
3	-	-
4	Z141 16BK	GROUND
5	V3 16BR/WT	WIPER HIGH/LOW RELAY LOW SPEED OUTPUT
6	V4 16RD/YL	WIPER HIGH/LOW RELAY HIGH SPEED OUTPUT



FUEL INJECTOR NO. 1 (DIESEL)

FUEL INJECTOR NO. 1 (DIESEL) - BLACK 2 WAY

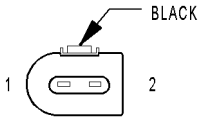
CAV	CIRCUIT	FUNCTION
1	K11 14BK/DB	FUEL INJECTOR NO. 1 CONTROL
2	K63 14BK	COMMON INJECTOR DRIVER



FUEL INJECTOR NO. 1 (GAS)

FUEL INJECTOR NO. 1 (GAS) - BLACK 2 WAY

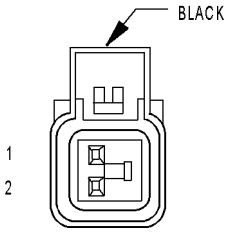
CAV	CIRCUIT	FUNCTION
1	K11 18WT/DB	FUEL INJECTOR NO. 1 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL INJECTOR NO. 2 (DIESEL)

FUEL INJECTOR NO. 2 (DIESEL) - BLACK 2 WAY

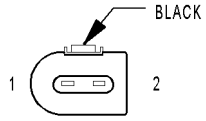
CAV	CIRCUIT	FUNCTION
1	K12 14BK/VT	FUEL INJECTOR NO. 2 CONTROL
2	K63 14BK	COMMON INJECTOR DRIVER



FUEL INJECTOR NO. 2 (GAS)

FUEL INJECTOR NO. 2 (GAS) - BLACK 2 WAY

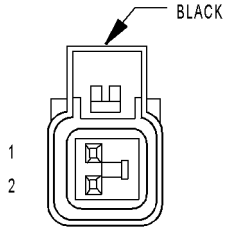
CAV	CIRCUIT	FUNCTION
1	K12 18TN	FUEL INJECTOR NO. 2 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL INJECTOR NO. 3 (DIESEL)

FUEL INJECTOR NO. 3 (DIESEL) - BLACK 2 WAY

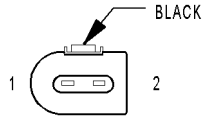
CAV	CIRCUIT	FUNCTION
1	K13 14BK/RD	FUEL INJECTOR NO. 3 CONTROL
2	K63 14BK	COMMON INJECTOR DRIVER



FUEL INJECTOR NO. 3 (GAS)

FUEL INJECTOR NO. 3 (GAS) - BLACK 2 WAY

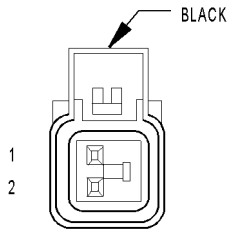
CAV	CIRCUIT	FUNCTION
1	K13 18YL/WT	FUEL INJECTOR NO. 3 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL INJECTOR NO. 4 (DIESEL)

FUEL INJECTOR NO. 4 (DIESEL) - BLACK 2 WAY

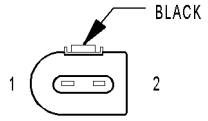
CAV	CIRCUIT	FUNCTION
1	K14 14BK/YL	FUEL INJECTOR NO. 4 CONTROL
2	K63 14BK	COMMON INJECTOR DRIVER



FUEL INJECTOR NO. 4 (GAS)

FUEL INJECTOR NO. 4 (GAS) - BLACK 2 WAY

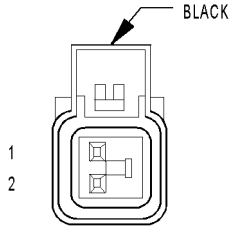
CAV	CIRCUIT	FUNCTION
1	K14 18LB/BR	FUEL INJECTOR NO. 4 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL INJECTOR NO. 5 (DIESEL)

FUEL INJECTOR NO. 5 (DIESEL) - BLACK 2 WAY

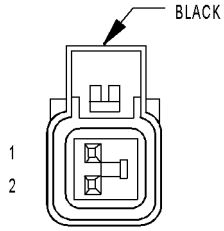
CAV	CIRCUIT	FUNCTION
1	K38 14BK/DG	FUEL INJECTOR NO. 5 CONTROL
2	K63 14BK	COMMON INJECTOR DRIVER



FUEL INJECTOR NO. 5 (GAS)

FUEL INJECTOR NO. 5 (GAS) - BLACK 2 WAY

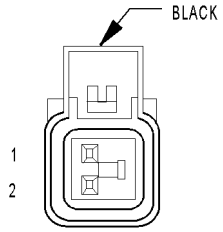
CAV	CIRCUIT	FUNCTION
1	K38 18GY	FUEL INJECTOR NO. 5 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL INJECTOR NO. 6 (GAS)

FUEL INJECTOR NO. 6 (GAS) - BLACK 2 WAY

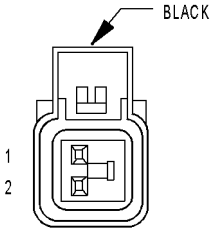
CAV	CIRCUIT	FUNCTION
1	K58 18BR/DB	FUEL INJECTOR NO. 6 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL INJECTOR NO. 7 (4.7L)

FUEL INJECTOR NO. 7 (4.7L) - BLACK 2 WAY

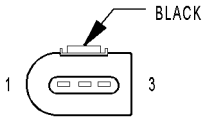
CAV	CIRCUIT	FUNCTION
1	K26 18VT	FUEL INJECTOR NO. 7 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL INJECTOR NO.8 (4.7L)

FUEL INJECTOR NO. 8 (4.7L) - BLACK 2 WAY

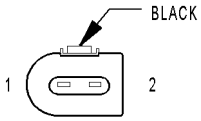
CAV	CIRCUIT	FUNCTION
1	K28 18GY/LB	FUEL INJECTOR NO. 8 DRIVER
2	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL PRESSURE SENSOR (DIESEL)

FUEL PRESSURE SENSOR (DIESEL) - BLACK 3 WAY

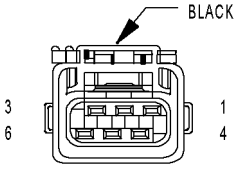
CAV	CIRCUIT	FUNCTION
1	Y100 20BR/GY	FUEL PRESSURE SENSOR GROUND
2	Y40 20DG/VT	FUEL PRESSURE SENSOR SIGNAL
3	K7 20RD/WT	FUEL PRESSURE SENSOR 5 VOLT SUPPLY



FUEL PRESSURE SOLENOID (DIESEL)

FUEL PRESSURE SOLENOID (DIESEL) - BLACK 2 WAY

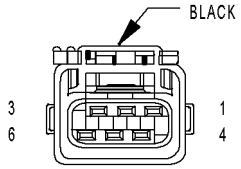
CAV	CIRCUIT	FUNCTION
1	K46 20DB/BK	FUEL PRESSURE SOLENOID CONTROL
2	F142 16RD/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT



FUEL PUMP MODULE (GAS)

FUEL PUMP MODULE (GAS) - BLACK 6 WAY

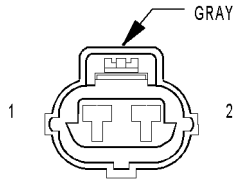
CAV	CIRCUIT	FUNCTION
1	A141 16DG/BK	FUEL PUMP RELAY OUTPUT
2	-	-
3	K226 20LB/YL	FUEL LEVEL SENSOR SIGNAL
4	K4 20BK/LB	SENSOR GROUND
5	-	-
6	Z150 16BK	GROUND



FUEL TANK MODULE (DIESEL)

FUEL TANK MODULE (DIESEL) - BLACK 6 WAY

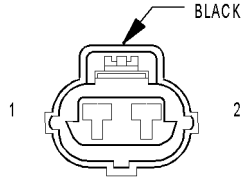
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	K226 20LB/YL	FUEL LEVEL SENSOR SIGNAL
4	K4 20BK/LB	SENSOR GROUND
5	-	-
6	-	-



GENERATOR (DIESEL)

GENERATOR (DIESEL) - GRAY 2 WAY

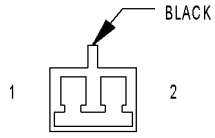
CAV	CIRCUIT	FUNCTION
1	F15 14DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
2	K20 14DB	GENERATOR FIELD CONTROL



GENERATOR (GAS)

GENERATOR (GAS) - BLACK 2 WAY

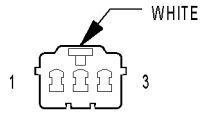
CAV	CIRCUIT	FUNCTION
1	K125 18WT/DB	GENERATOR SOURCE
2	K20 18DG	GENERATOR FIELD DRIVER



GLOVE BOX LAMP

GLOVE BOX LAMP - BLACK 2 WAY

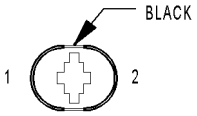
CAV	CIRCUIT	FUNCTION
1	F70 20PK/BK	FUSED B(+)
2	M20 20BR/OR	COURTESY LAMP LOAD SHED



HEADLAMP LEVELING SWITCH (EXPORT)

HEADLAMP LEVELING SWITCH (EXPORT) - WHITE 3 WAY

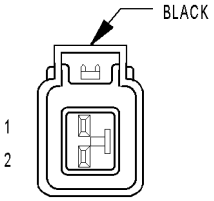
CAV	CIRCUIT	FUNCTION
1	Z234 20BK	GROUND
2	L7 18BK/YL	PARK LAMP RELAY OUTPUT
3	L13 20BR/YL	HEADLAMP ADJUST SIGNAL



HOOD AJAR SWITCH (EXPORT)

HOOD AJAR SWITCH (EXPORT) - BLACK 2 WAY

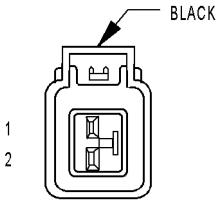
CAV	CIRCUIT	FUNCTION
1	G70 20BR/TN	HOOD AJAR SWITCH SENSE
2	Z161 20BK (GAS)	GROUND
2	Z141 20BK (DIESEL)	GROUND



HORN NO. 1

HORN NO. 1 - BLACK 2 WAY

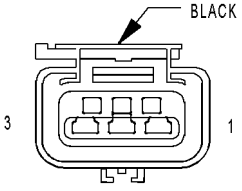
CAV	CIRCUIT	FUNCTION
1	Z307 18BK	GROUND
2	X2 18DG/RD	HORN RELAY OUTPUT



HORN NO. 2

HORN NO. 2 - BLACK 2 WAY

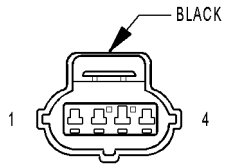
CAV	CIRCUIT	FUNCTION
1	Z307 18BK	GROUND
2	X2 18DG/RD	HORN RELAY OUTPUT



HYDRAULIC COOLING MODULE

HYDRAULIC COOLING MODULE - BLACK 3 WAY

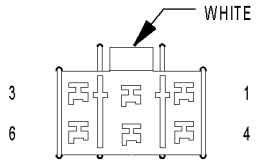
CAV	CIRCUIT	FUNCTION
1	F142 18OR/DG (GAS)	FUSED AUTO SHUT DOWN RELAY OUTPUT
1	F15 18DB/WT (DIESEL)	FUSED AUTO SHUT DOWN RELAY OUTPUT
2	K173 18LG (GAS)	RADIATOR FAN RELAY CONTROL
2	K173 18LG (DIESEL)	HYDRAULIC RADIATOR FAN SOLENOID CONTROL
3	Z500 18BK	GROUND



IDLE
AIR CONTROL
MOTOR

IDLE AIR CONTROL MOTOR - BLACK 4 WAY

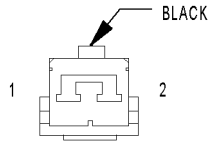
CAV	CIRCUIT	FUNCTION
1	K59 18VT/BK	IDLE AIR CONTROL NO. 4 DRIVER
2	K40 18BR/WT	IDLE AIR CONTROL NO. 3 DRIVER
3	K60 18YL/BK	IDLE AIR CONTROL NO. 2 DRIVER
4	K39 18GY/BK	IDLE AIR CONTROL NO. 1 DRIVER



IGNITION
SWITCH C1

IGNITION SWITCH C1 - WHITE 6 WAY

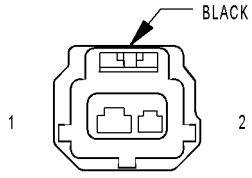
CAV	CIRCUIT	FUNCTION
1	A41 12YL	IGNITION SWITCH OUTPUT (START)
2	A2 12PK/BK	FUSED B(+)
3	A22 12BK/OR	IGNITION SWITCH OUTPUT (RUN)
4	A1 12RD	FUSED B(+)
5	A31 12RD/BK	IGNITION SWITCH OUTPUT (RUN-ACC)
6	A21 12DB	IGNITION SWITCH OUTPUT (RUN-START)



IGNITION
SWITCH C2

IGNITION SWITCH C2 - BLACK 2 WAY

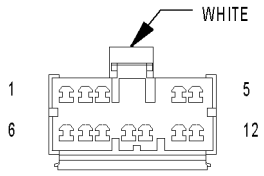
CAV	CIRCUIT	FUNCTION
1	G26 20LB	KEY-IN IGNITION SWITCH SENSE
2	Z234 20BK	GROUND



INPUT
SPEED
SENSOR
(4.7L)

INPUT SPEED SENSOR (4.7L) - BLACK 2 WAY

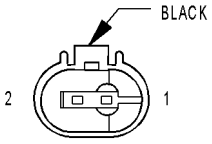
CAV	CIRCUIT	FUNCTION
1	T52 18RD/BK	INPUT SPEED SENSOR SIGNAL
2	T13 18DB/BK	SPEED SENSOR GROUND



INSTRUMENT
CLUSTER

INSTRUMENT CLUSTER - WHITE 12 WAY

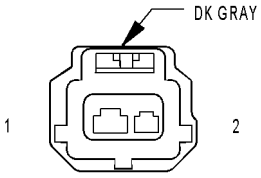
CAV	CIRCUIT	FUNCTION
1	L61 20TN/LG	LEFT TURN SIGNAL
2	L60 20TN	RIGHT TURN SIGNAL
3	-	-
4	-	-
5	G9 20GY/BK	RED BRAKE WARNING INDICATOR DRIVER
6	F33 20PK/RD	FUSED B(+)
7	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
8	D19 20VT/OR	BODY CONTROL MODULE FLASH ENABLE
9	Z300 20BK	GROUND
10	D25 20YL/VT/RD	PCI BUS
11	Z132 20BK/OR	GROUND
12	-	-



INTAKE AIR TEMPERATURE SENSOR (DIESEL)

INTAKE AIR TEMPERATURE SENSOR (DIESEL) - BLACK 2 WAY

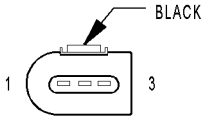
CAV	CIRCUIT	FUNCTION
1	K4 20BK/LB	SENSOR GROUND
2	K21 20DG/WT	INTAKE AIR TEMPERATURE SENSOR SIGNAL



INTAKE AIR TEMPERATURE SENSOR (GAS)

INTAKE AIR TEMPERATURE SENSOR (GAS) - DK GRAY 2 WAY

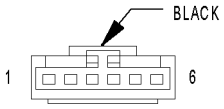
CAV	CIRCUIT	FUNCTION
1	K4 18BK/LB	SENSOR GROUND
2	K21 18BK/RD	INTAKE AIR TEMPERATURE SENSOR SIGNAL



INTAKE PORT SWIRL ACTUATOR (DIESEL)

INTAKE PORT SWIRL ACTUATOR (DIESEL) - BLACK 3 WAY

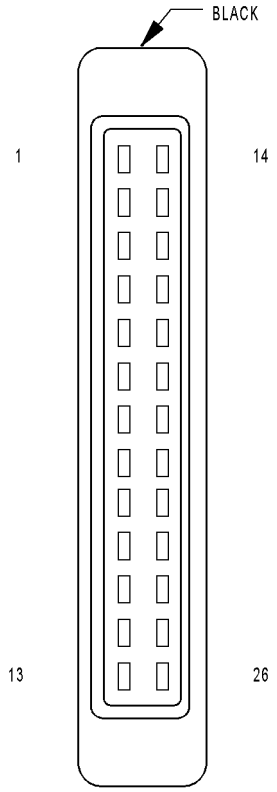
CAV	CIRCUIT	FUNCTION
1	Z18 18BK	GROUND
2	F15 18RD/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
3	K900 18GY	INTAKE PORT SWIRL ACTUATOR CONTROL



INTRUSION TRANSCEIVER MODULE (EXPORT)

INTRUSION TRANSCEIVER MODULE (EXPORT) - BLACK 6 WAY

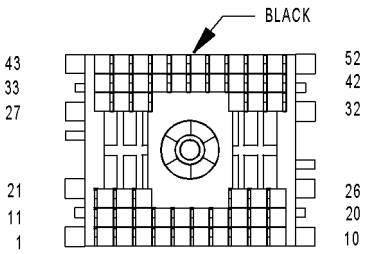
CAV	CIRCUIT	FUNCTION
1	Z155 20BK	GROUND
2	-	-
3	X75 20GY/LG	SIREN SIGNAL CONTROL
4	-	-
5	D25 20YL/VT	PCI BUS
6	F70 20PK	FUSED B(+)



JUNCTION BLOCK BODY CONTROL MODULE

JUNCTION BLOCK BODY CONTROL MODULE - BLACK 26 WAY

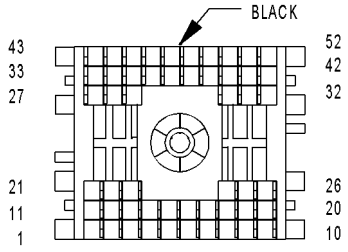
CAV	CIRCUIT	FUNCTION
1	L308	PARK LAMP RELAY CONTROL
2	L26	FOG LAMP RELAY CONTROL
3	Q29	ACCESSORY DELAY RELAY CONTROL
4	L307	LOW BEAM RELAY CONTROL
5	G5	FUSED IGNITION SWITCH OUTPUT (RUN-START)
6	X3	HORN RELAY CONTROL
7	V16	WIPER HIGH/LOW RELAY CONTROL
8	G80	LIFTGATE FLIP-UP AJAR SWITCH SENSE
9	L11	HIGH BEAM RELAY CONTROL
10	L91	HAZARD SWITCH SENSE
11	C80	REAR WINDOW DEFOGGER RELAY CONTROL
12	Z2	GROUND
13	L96 (EXPORT)	REAR FOG LAMP RELAY CONTROL
14	L7	PARK LAMP RELAY OUTPUT
15	Z1	GROUND
16	M2	COURTESY LAMP DRIVER
17	-	-
18	-	-
19	M20	COURTESY LAMP LOAD SHED
20	V55	WIPER PARK SWITCH SENSE
21	G78	LIFTGATE AJAR SWITCH SENSE
22	-	-
23	G77	LEFT REAR DOOR AJAR SWITCH SENSE
24	G73	LIFTGATE COURTESY DISABLE
25	V23	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
26	M1	FUSED B(+)



JUNCTION
BLOCK C1

JUNCTION BLOCK C1 - BLACK 52 WAY

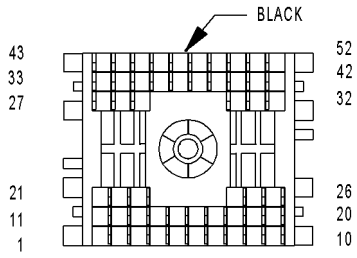
CAV	CIRCUIT	FUNCTION
1	Q30 16TN	ACCESSORY DELAY RELAY OUTPUT
2	L63 18DG/RD	LEFT TURN SIGNAL
3	-	-
4	-	-
5	L95 18DG/YL (EXPORT)	REAR FOG LAMP RELAY CONTROL
6	-	-
7	-	-
8	-	-
9	G73 20LG/OR	LIFTGATE COURTESY DISABLE
10	G77 20TN/OR	LEFT REAR DOOR AJAR SWITCH SENSE
11	L7 18BK/YL	PARK LAMP RELAY OUTPUT
12	-	-
13	-	-
14	-	-
15	F35 16RD (LHD)	FUSED B(+)
15	F35 16RD/LB (RHD)	FUSED B(+)
16	M2 20YL/DG (LHD)	COURTESY LAMP DRIVER
16	M2 18YL (RHD)	COURTESY LAMP DRIVER
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	F22 20WT/PK (RHD)	FUSED IGNITION SWITCH OUTPUT (RUN)
23	-	-
24	G80 20VT/YL	LIFTGATE FLIP-UP AJAR SWITCH SENSE
25	G78 20TN/BK	LIFTGATE AJAR SWITCH SENSE
26	M20 20YL/BK (LHD)	COURTESY LAMP LOAD SHED
26	M20 18YL/BK (RHD)	COURTESY LAMP LOAD SHED
27	-	-
28	-	-
29	-	-
30	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
31	-	-
32	M1 18PK/RD (RHD)	FUSED B(+)
33	-	-
34	-	-
35	F9 14RD/BK	FUSED B(+)
36	F70 18PK	FUSED B(+)
37	-	-
38	-	-
39	-	-
40	-	-
41	Y202 14RD/TN	CIGAR LIGHTER RELAY OUTPUT
42	-	-
43	-	-
44	-	-
45	-	-
46	-	-
47	-	-
48	-	-
49	-	-
50	C15 12BK/WT	REAR WINDOW DEFOGGER RELAY OUTPUT
51	-	-
52	-	-



JUNCTION BLOCK C2 (LHD)

JUNCTION BLOCK C2 (LHD) - BLACK 52 WAY

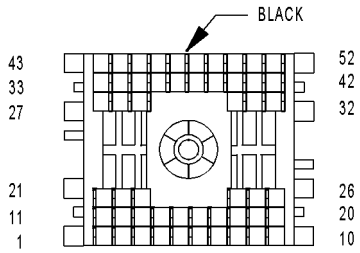
CAV	CIRCUIT	FUNCTION
1	X3 22GY/OR	HORN RELAY CONTROL
2	-	-
3	L39 20LB	FOG LAMP RELAY OUTPUT
4	-	-
5	L61 20TN/LG	LEFT TURN SIGNAL
6	-	-
7	-	-
8	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
9	V6 16DB (GAS)	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
10	L62 18BR/RD	RIGHT TURN SIGNAL
11	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
12	L39 20LB	FOG LAMP RELAY OUTPUT
13	-	-
14	-	-
15	V16 22VT	WIPER HIGH/LOW RELAY CONTROL
16	-	-
17	-	-
18	-	-
19	-	-
20	L7 20BK/YL	PARK LAMP RELAY OUTPUT
21	L7 20BK/YL	PARK LAMP RELAY OUTPUT
22	-	-
23	-	-
24	F37 16RD/LB (EXCEPT BASE)	FUSED B(+)
25	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
26	L60 20TN	RIGHT TURN SIGNAL
27	F45 20YL/RD	FUSED IGNITION SWITCH OUTPUT (START)
28	V55 16TN/RD	WIPER PARK SWITCH SENSE
29	-	-
30	-	-
31	F72 16RD/YL	FUSED B(+)
32	M1 20PK/RD	FUSED B(+)
33	V55 16TN/RD (GAS)	WIPER PARK SWITCH SENSE
34	-	-
35	-	-
36	A146 12OR/WT	FUSED B(+)
37	-	-
38	L34 18RD/OR	FUSED RIGHT HIGH BEAM OUTPUT
39	L43 18VT	FUSED LEFT LOW BEAM OUTPUT
40	-	-
41	-	-
42	F20 18DB/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
43	F12 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
44	-	-
45	A146 12OR/WT	FUSED B(+)
46	-	-
47	F32 20PK/DB	FUSED B(+)
48	-	-
49	L44 18VT/RD	FUSED RIGHT LOW BEAM OUTPUT
50	L33 18RD	FUSED LEFT HIGH BEAM OUTPUT
51	-	-
52	F60 14RD/WT (EXCEPT BASE)	FUSED B(+)



JUNCTION
BLOCK C2
(RHD)

JUNCTION BLOCK C2 (RHD) - BLACK 52 WAY

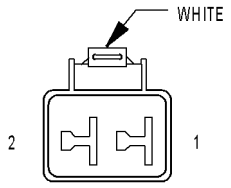
CAV	CIRCUIT	FUNCTION
1	X3 22BK/RD	HORN RELAY CONTROL
2	-	-
3	L39 20LB	FOG LAMP RELAY OUTPUT
4	-	-
5	L61 20TN/LG	LEFT TURN SIGNAL
6	-	-
7	-	-
8	V6 16DB	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
9	V6 16DB (GAS)	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
10	L62 20BR/RD	RIGHT TURN SIGNAL
11	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
12	L39 20LB	FOG LAMP RELAY OUTPUT
13	-	-
14	-	-
15	V16 22VT	WIPER HIGH/LOW RELAY CONTROL
16	-	-
17	-	-
18	-	-
19	-	-
20	L7 20BK/YL	PARK LAMP RELAY OUTPUT
21	L7 18BK/YL	PARK LAMP RELAY OUTPUT
22	-	-
23	-	-
24	F37 16RD/LB	FUSED B(+)
25	F22 18WT/TN	FUSED IGNITION SWITCH OUTPUT (RUN)
26	L60 20TN	RIGHT TURN SIGNAL
27	F45 20YL/RD	FUSED IGNITION SWITCH OUTPUT (START)
28	V55 16TN/RD	WIPER PARK SWITCH SENSE
29	-	-
30	-	-
31	-	-
32	M1 20PK/RD	FUSED B(+)
33	V55 16TN/RD (GAS)	WIPER PARK SWITCH SENSE
34	-	-
35	-	-
36	A146 12OR/WT	FUSED B(+)
37	-	-
38	L34 18RD/OR	FUSED RIGHT HIGH BEAM DRIVER OUTPUT
39	L43 18VT	FUSED LEFT LOW BEAM DRIVER OUTPUT
40	-	-
41	-	-
42	F20 18DB/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
43	F12 20DB/WT (GAS)	FUSED IGNITION SWITCH OUTPUT (RUN-START)
44	-	-
45	A146 12OR/WT	FUSED B(+)
46	-	-
47	F32 20PK/DB	FUSED B(+)
48	-	-
49	L44 18VT/RD	FUSED RIGHT LOW BEAM OUTPUT
50	L33 18RD	FUSED LEFT HIGH BEAM OUTPUT
51	-	-
52	F60 16RD/WT	FUSED B(+)



JUNCTION
BLOCK C3

JUNCTION BLOCK C3 - BLACK 52 WAY

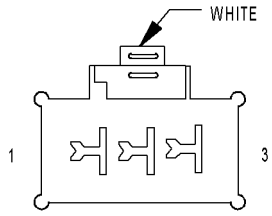
CAV	CIRCUIT	FUNCTION
1	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
2	-	-
3	L60 20TN	RIGHT TURN SIGNAL
4	L302 20LB/YL	RIGHT TURN SWITCH SENSE
5	L61 20TN/LG	LEFT TURN SIGNAL
6	L91 20DB/PK	HAZARD SWITCH SENSE
7	-	-
8	L305 20LB/WT	LEFT TURN SWITCH SENSE
9	-	-
10	L309 20PK/LG	HIGH BEAM RELAY CONTROL
11	F23 18DB/YL	FUSED IGNITION SWITCH OUTPUT (RUN)
12	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
13	-	-
14	F85 16VT/WT	FUSED B(+)
15	C79 20BK/WT	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	A31 12RD/BK	IGNITION SWITCH OUTPUT (RUN-ACC)
25	F60 16RD/WT	FUSED B(+)
26	-	-
27	A41 12YL	IGNITION SWITCH OUTPUT (START)
28	F14 20LG/YL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
29	A22 12BK/OR	IGNITION SWITCH OUTPUT (RUN)
30	F991 18OR/DB (DIESEL)	FUSED IGNITION SWITCH OUTPUT (RUN-START)
31	Z234 20BK	GROUND
32	F33 20PK/RD	FUSED B(+)
33	X12 20WT/RD	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
34	M1 20PK	FUSED B(+)
35	M1 20PK (AZC)	FUSED B(+)
36	A21 12DB	IGNITION SWITCH OUTPUT (RUN-START)
37	-	-
38	F70 20PK/BK	FUSED B(+)
39	X3 20GY/OR	HORN RELAY CONTROL
40	F30 16RD	FUSED CIGAR LIGHTER RELAY OUTPUT
41	F33 20PK/RD	FUSED B(+)
42	-	-
43	V23 20BR/PK	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
44	M1 20PK	FUSED B(+)
45	Z132 20BK/OR	GROUND
46	-	-
47	-	-
48	F70 20PK/BK	FUSED B(+)
49	-	-
50	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
51	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
52	F12 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)



JUNCTION BLOCK C4

JUNCTION BLOCK C4 - WHITE 2 WAY

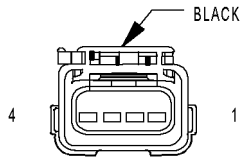
CAV	CIRCUIT	FUNCTION
1	A148 10PK/WT	FUSED B(+)
2	A148 10OR/WT	FUSED B(+)



JUNCTION BLOCK C5

JUNCTION BLOCK C5 - WHITE 3 WAY

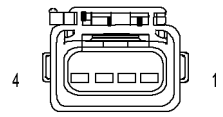
CAV	CIRCUIT	FUNCTION
1	A145 10WT/RD	FUSED B(+)
2	A149 12RD/TN	FUSED B(+)
3	A147 10RD/GY	FUSED B(+)



KNOCK SENSOR

KNOCK SENSOR - BLACK 4 WAY

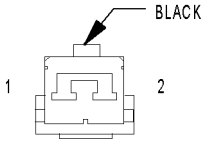
CAV	CIRCUIT	FUNCTION
1	K4 18BK/LB	SENSOR GROUND
2	K42 18DB/LG	KNOCK SENSOR NO. 1 SIGNAL
3	K4 18BK/LB	SENSOR GROUND
4	K142 18GY/BK	KNOCK SENSOR NO. 2 SIGNAL



LEAK DETECTION PUMP (EXCEPT EXPORT)

LEAK DETECTION PUMP (EXCEPT EXPORT) - 4 WAY

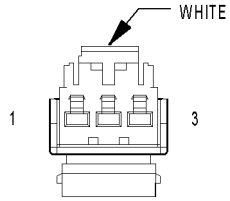
CAV	CIRCUIT	FUNCTION
1	-	-
2	K125 18OR/DG	GENERATOR SOURCE
3	K106 20WT/DG	LEAK DETECTION PUMP SOLENOID CONTROL
4	K107 20OR/YL	LEAK DETECTION PUMP SWITCH SENSE



LEFT
COURTESY
LAMP

LEFT COURTESY LAMP - BLACK 2 WAY

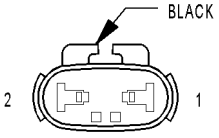
CAV	CIRCUIT	FUNCTION
1	F70 20PK/BK	FUSED B(+)
2	M2 20YL	COURTESY LAMP DRIVER



LEFT DOOR
HANDLE
COURTESY LAMP

LEFT DOOR HANDLE COURTESY LAMP - WHITE 3 WAY

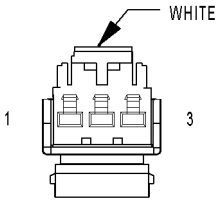
CAV	CIRCUIT	FUNCTION
1	F70 20PK/BK	FUSED B(+)
2	M20 20YL/BK	COURTESY LAMP LOAD SHED
3	M2 20YL/DG	COURTESY LAMP DRIVER



LEFT
FOG LAMP

LEFT FOG LAMP - BLACK 2 WAY

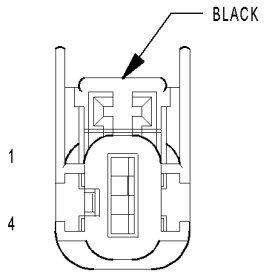
CAV	CIRCUIT	FUNCTION
1	L39 20LB	FOG LAMP RELAY OUTPUT
2	Z141 18BK (EXCEPT DIESEL/4.7L RHD)	GROUND
2	Z141 20BK (DIESEL/4.7L RHD)	GROUND



LEFT FRONT
DOOR
SPEAKER

LEFT FRONT DOOR SPEAKER - WHITE 3 WAY

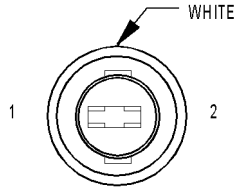
CAV	CIRCUIT	FUNCTION
1	X85 18LG/DG (LHD PREMIUM)	LEFT FRONT DOOR SPEAKER (-)
1	X85 18LB/BK (RHD PREMIUM)	LEFT FRONT DOOR SPEAKER (-)
1	X55 18LG/DG (BASE)	LEFT FRONT DOOR SPEAKER (-)
2	-	-
3	X87 18LG/RD (LHD PREMIUM)	LEFT FRONT DOOR SPEAKER (+)
3	X87 18LB/RD (RHD PREMIUM)	LEFT FRONT DOOR SPEAKER (+)
3	X53 18LG/RD (BASE)	LEFT FRONT DOOR SPEAKER (+)



LEFT FRONT IMPACT SENSOR

LEFT FRONT IMPACT SENSOR - BLACK 4 WAY

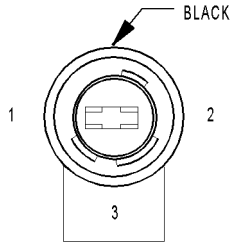
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	R47 18DB/LB	LEFT FRONT IMPACT SENSOR GROUND
4	R49 18LB	LEFT FRONT IMPACT SENSOR SIGNAL



LEFT FRONT PARK LAMP

LEFT FRONT PARK LAMP - WHITE 2 WAY

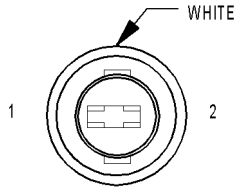
CAV	CIRCUIT	FUNCTION
1	Z141 18BK	GROUND
2	L7 20BK/PK	PARK LAMP RELAY OUTPUT



LEFT FRONT PARK/TURN SIGNAL LAMP (EXCEPT EXPORT)

LEFT FRONT PARK/TURN SIGNAL LAMP (EXCEPT EXPORT) - BLACK 3 WAY

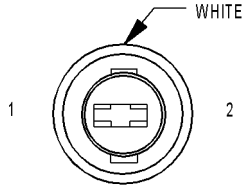
CAV	CIRCUIT	FUNCTION
1	L7 20BK/PK	PARK LAMP RELAY CONTROL
2	Z141 18BK	GROUND
3	L61 20TN/LG	LEFT TURN SIGNAL



LEFT FRONT SIDE MARKER LAMP (EXCEPT EXPORT)

LEFT FRONT SIDE MARKER LAMP (EXCEPT EXPORT) - WHITE 2 WAY

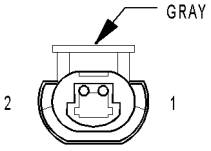
CAV	CIRCUIT	FUNCTION
1	L7 20BK/PK	PARK LAMP RELAY OUTPUT
2	L61 20TN/LG	LEFT TURN SIGNAL



LEFT FRONT TURN SIGNAL LAMP (EXPORT)

LEFT FRONT TURN SIGNAL LAMP (EXPORT) - WHITE 2 WAY

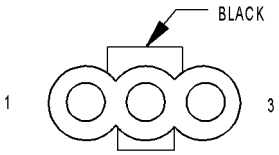
CAV	CIRCUIT	FUNCTION
1	L61 20TN/LG	LEFT TURN SIGNAL
2	Z141 18BK	GROUND



LEFT FRONT WHEEL SPEED SENSOR

LEFT FRONT WHEEL SPEED SENSOR - GRAY 2 WAY

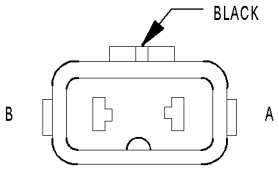
CAV	CIRCUIT	FUNCTION
1	B9 18RD	LEFT FRONT WHEEL SPEED SENSOR 12 VOLT SUPPLY
2	B8 18RD/DB	LEFT FRONT WHEEL SPEED SENSOR SIGNAL



LEFT HEADLAMP LEVELING MOTOR (EXPORT)

LEFT HEADLAMP LEVELING MOTOR (EXPORT) - BLACK 3 WAY

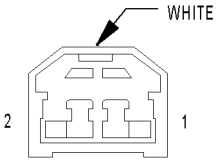
CAV	CIRCUIT	FUNCTION
1	Z141 18BK	GROUND
2	L114 18VT/DB	HEADLAMP ADJUST SIGNAL
3	L7 20BK/PK	PARK LAMP RELAY OUTPUT



LEFT HIGH BEAM HEADLAMP

LEFT HIGH BEAM HEADLAMP - BLACK 2 WAY

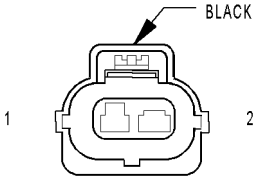
CAV	CIRCUIT	FUNCTION
A	Z141 18BK	GROUND
B	L33 18RD	FUSED LEFT HIGH BEAM OUTPUT



LEFT INSTRUMENT PANEL SPEAKER

LEFT INSTRUMENT PANEL SPEAKER - WHITE 2 WAY

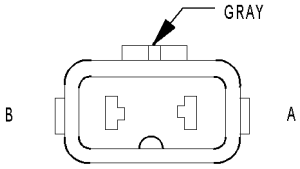
CAV	CIRCUIT	FUNCTION
1	X83 18YL/RD	LEFT INSTRUMENT PANEL SPEAKER (+)
2	X81 18YL/BK	LEFT INSTRUMENT PANEL SPEAKER (-)



LEFT LIFTGATE AJAR SWITCH

LEFT LIFTGATE AJAR SWITCH - BLACK 2 WAY

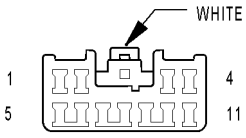
CAV	CIRCUIT	FUNCTION
1	Z309 20BK	GROUND
2	G78 20TN/BK	LIFTGATE AJAR SWITCH SENSE



LEFT LOW BEAM HEADLAMP

LEFT LOW BEAM HEADLAMP - GRAY 2 WAY

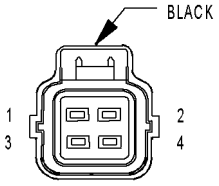
CAV	CIRCUIT	FUNCTION
A	Z141 18BK	GROUND
B	L43 18VT	FUSED LEFT LOW BEAM OUTPUT



LEFT MULTI-FUNCTION SWITCH

LEFT MULTI-FUNCTION SWITCH - WHITE 11 WAY

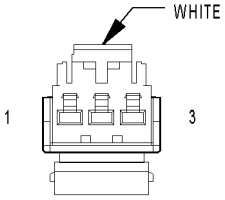
CAV	CIRCUIT	FUNCTION
1	L27 20WT/TN	FOG LAMP SWITCH SENSE
2	Z234 20BK	GROUND
3	-	-
4	L80 20WT/DG	HEADLAMP SWITCH RETURN
5	L309 20PK/LG	HIGH BEAM RELAY CONTROL
6	L40 20BR	HIGH BEAM SWITCH SENSE
7	L302 20LB/YL	RIGHT TURN SWITCH SENSE
8	L305 20LB/WT	LEFT TURN SWITCH SENSE
9	L91 20DB/PK	HAZARD SWITCH SENSE
10	E19 20RD	PANEL LAMPS DIMMER SIGNAL
11	G52 20YL	HEADLAMP SWITCH MUX



LEFT REAR DOOR LOCK MOTOR/AJAR SWITCH

LEFT REAR DOOR LOCK MOTOR/AJAR SWITCH - BLACK 4 WAY

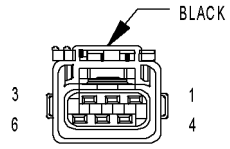
CAV	CIRCUIT	FUNCTION
1	G77 18TN/YL	LEFT REAR DOOR AJAR SWITCH SENSE
2	Z243 18BK (LHD)	GROUND
2	Z151 18BK (RHD)	
3	P36 18PK/VT	DOOR UNLOCK DRIVER
4	P35 18OR/VT	DOOR LOCK DRIVER



LEFT REAR DOOR SPEAKER

LEFT REAR DOOR SPEAKER - WHITE 3 WAY

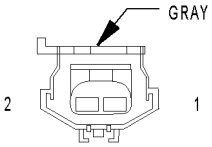
CAV	CIRCUIT	FUNCTION
1	X91 18WT/VT (PREMIUM)	LEFT REAR DOOR SPEAKER (+)
1	X51 18WT/VT (BASE)	LEFT REAR DOOR SPEAKER (+)
2	-	-
3	X93 18TN/DG (PREMIUM)	LEFT REAR DOOR SPEAKER (-)
3	X57 18TN/DG (BASE)	LEFT REAR DOOR SPEAKER (-)



LEFT REAR LAMP ASSEMBLY

LEFT REAR LAMP ASSEMBLY - BLACK 6 WAY

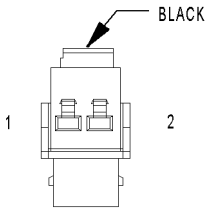
CAV	CIRCUIT	FUNCTION
1	L1 18VT/BK	BACK-UP LAMP FEED
2	L95 18DG/YL (EXPORT)	REAR FOG LAMP RELAY OUTPUT
3	L7 18BK/YL	PARK LAMP RELAY OUTPUT
4	L63 18DG/RD	LEFT TURN SIGNAL
5	Z150 18BK	GROUND
6	L50 18WT/TN	PRIMARY BRAKE SWITCH SIGNAL



LEFT REAR WHEEL SPEED SENSOR

LEFT REAR WHEEL SPEED SENSOR - GRAY 2 WAY

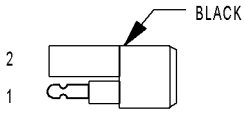
CAV	CIRCUIT	FUNCTION
1	B4 18LG	LEFT REAR WHEEL SPEED SENSOR 12 VOLT SUPPLY
2	B3 18LG/DB	LEFT REAR WHEEL SPEED SENSOR SIGNAL



LEFT REMOTE RADIO SWITCH

LEFT REMOTE RADIO SWITCH - BLACK 2 WAY

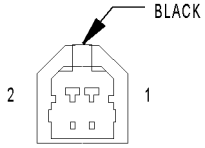
CAV	CIRCUIT	FUNCTION
1	X10 20RD/BK	RADIO CONTROL MUX RETURN
2	X20 20RD/YL	RADIO CONTROL MUX



LEFT SIDE REPEATER LAMP (EXPORT)

LEFT SIDE REPEATER LAMP (EXPORT) - BLACK 2 WAY

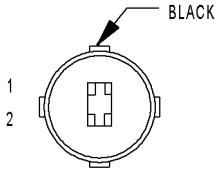
CAV	CIRCUIT	FUNCTION
1	L61 18TN/LG (GAS)	LEFT TURN SIGNAL
1	L61 18LG (DIESEL)	LEFT TURN SIGNAL
2	Z161 18BK	GROUND



LEFT VISOR/ VANITY LAMP

LEFT VISOR/VANITY LAMP - BLACK 2 WAY

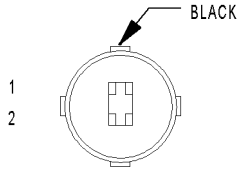
CAV	CIRCUIT	FUNCTION
1	F70 20PK	FUSED B(+)
2	M20 20YL/BK	COURTESY LAMP LOAD SHED



LICENSE LAMP NO. 1

LICENSE LAMP NO. 1 - BLACK 2 WAY

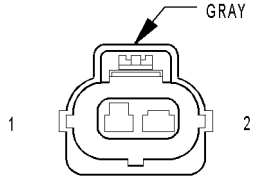
CAV	CIRCUIT	FUNCTION
1	L7 18BK/YL	PARK LAMP RELAY OUTPUT
2	Z309 18BK	GROUND



LICENSE
LAMP NO. 2

LICENSE LAMP NO. 2 - BLACK 2 WAY

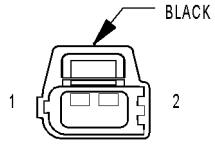
CAV	CIRCUIT	FUNCTION
1	L7 18BK/YL	PARK LAMP RELAY OUTPUT
2	Z309 18BK	GROUND



LIFTGATE
FLIP-UP
AJAR SWITCH

LIFTGATE FLIP-UP AJAR SWITCH - GRAY 2 WAY

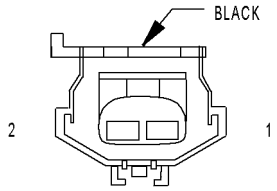
CAV	CIRCUIT	FUNCTION
1	Z309 18BK	GROUND
2	G80 20VT/YL	LIFTGATE FLIP-UP AJAR SWITCH SENSE



LIFTGATE
FLIP-UP
PUSH BUTTON
SWITCH

LIFTGATE FLIP-UP PUSH BUTTON SWITCH - BLACK 2 WAY

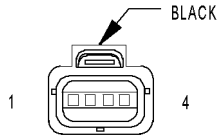
CAV	CIRCUIT	FUNCTION
1	P101 18OR/PK	LIFTGATE FLIP-UP SWITCH OUTPUT
2	F70 18PK	FUSED B(+)



LIFTGATE
FLIP-UP
RELEASE
SOLENOID

LIFTGATE FLIP-UP RELEASE SOLENOID - BLACK 2 WAY

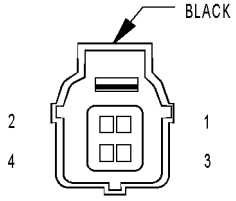
CAV	CIRCUIT	FUNCTION
1	Z1 18BK	GROUND
2	P100 18OR/BR	LIFTGATE GLASS LIMIT SWITCH OUTPUT



LIFTGATE POWER LOCK MOTOR

LIFTGATE POWER LOCK MOTOR - BLACK 4 WAY

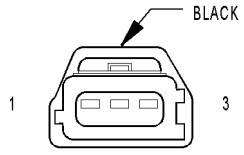
CAV	CIRCUIT	FUNCTION
1	P35 18OR/VT	DOOR LOCK DRIVER
2	P36 18PK/VT	DOOR UNLOCK DRIVER
3	P101 18OR/PK	LIFTGATE FLIP-UP SWITCH OUTPUT
4	P100 18OR/BR	LIFTGATE GLASS LIMIT SWITCH OUTPUT



LINE PRESSURE SENSOR (4.7L)

LINE PRESSURE SENSOR (4.7L) - BLACK 4 WAY

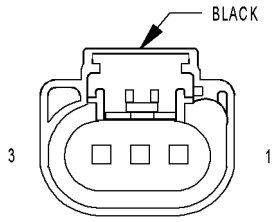
CAV	CIRCUIT	FUNCTION
1	Z114 14BK/LG	GROUND
2	T138 14GY/LB	5 VOLT SUPPLY
3	T130 14VT/TN	LINE PRESSURE SENSOR SIGNAL
4	-	-



MANIFOLD ABSOLUTE PRESSURE SENSOR (4.0L)

MANIFOLD ABSOLUTE PRESSURE SENSOR (4.0L) - BLACK 3 WAY

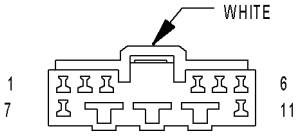
CAV	CIRCUIT	FUNCTION
1	K4 18BK/LB	SENSOR GROUND
2	K1 18DG/RD	MAP SENSOR SIGNAL
3	K7 18OR	5 VOLT SUPPLY



MANIFOLD ABSOLUTE PRESSURE SENSOR (4.7L)

MANIFOLD ABSOLUTE PRESSURE SENSOR (4.7L) - BLACK 3 WAY

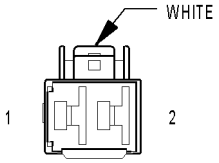
CAV	CIRCUIT	FUNCTION
1	K1 18DG/RD	MAP SENSOR SIGNAL
2	K4 18BK/LB	SENSOR GROUND
3	K7 18OR	5 VOLT SUPPLY



MANUAL TEMPERATURE CONTROL C1 (MTC)

MANUAL TEMPERATURE CONTROL C1 (MTC) - WHITE 11 WAY

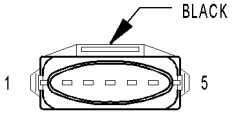
CAV	CIRCUIT	FUNCTION
1	C103 20DG	A/C SWITCH SIGNAL
2	Z123 20BK/OR	GROUND
3	C67 20RD/LB	BLEND AIR DOOR POSITION CONTROL
4	C79 20BK/WT	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
5	C81 20LB/WT	REAR WINDOW DEFOGGER SWITCH SENSE
6	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
7	E2 20OR	PANEL LAMPS DRIVER
8	C4 16TN	BLOWER MOTOR LOW DRIVER
9	C5 16LG	BLOWER MOTOR M1 DRIVER
10	C6 14LB	BLOWER MOTOR M2 DRIVER
11	-	-



MANUAL TEMPERATURE CONTROL C2 (MTC)

MANUAL TEMPERATURE CONTROL C2 (MTC) - WHITE 2 WAY

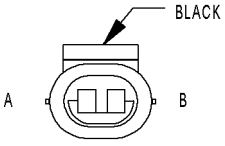
CAV	CIRCUIT	FUNCTION
1	Z118 12BK	GROUND
2	C7 12BK/TN	BLOWER MOTOR HIGH DRIVER



MASS AIR FLOW SENSOR (DIESEL)

MASS AIR FLOW SENSOR (DIESEL) - BLACK 5 WAY

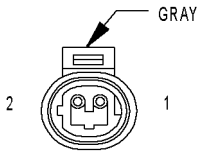
CAV	CIRCUIT	FUNCTION
1	-	-
2	F15 16RD/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
3	Z189 20BR	MASS AIR FLOW SENSOR GROUND
4	F855 20BR/YL	SENSOR REFERENCE VOLTAGE A
5	K155 20YL/WT	MASS AIR FLOW SENSOR SIGNAL



MODE DOOR MOTOR/ ACTUATOR (AZC)

MODE DOOR MOTOR/ACTUATOR (AZC) - BLACK 2 WAY

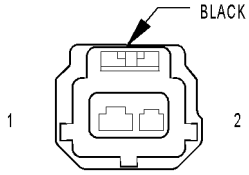
CAV	CIRCUIT	FUNCTION
A	C102 20TN/BK (LHD)	MODE DOOR DRIVER (B)
B	C35 20DG/YL (LHD)	MODE DOOR DRIVER (A)
A	C35 20DG/YL (RHD)	MODE DOOR DRIVER (A)
B	C102 20TN/BK (RHD)	MODE DOOR DRIVER (B)



OUTPUT SPEED SENSOR (4.0L)

OUTPUT SPEED SENSOR (4.0L) - GRAY 2 WAY

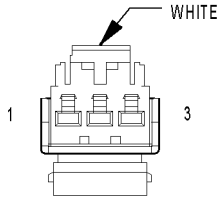
CAV	CIRCUIT	FUNCTION
1	T13 18DB/BK	SPEED SENSOR GROUND
2	T14 18LG/WT	OUTPUT SPEED SENSOR SIGNAL



OUTPUT SPEED SENSOR (4.7L)

OUTPUT SPEED SENSOR (4.7L) - BLACK 2 WAY

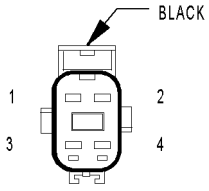
CAV	CIRCUIT	FUNCTION
1	T14 18LG/WT	OUTPUT SPEED SENSOR SIGNAL
2	T13 18DB/BK	SPEED SENSOR GROUND



OVERHEAD MAP/ COURTESY LAMP

OVERHEAD MAP/COURTESY LAMP - WHITE 3 WAY

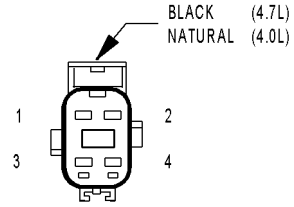
CAV	CIRCUIT	FUNCTION
1	F70 20PK	FUSED B(+)
2	M20 20YL/BK	COURTESY LAMP LOAD SHED
3	M2 20YL/DG	COURTESY LAMP DRIVER



OXYGEN SENSOR 1/1 UPSTREAM

OXYGEN SENSOR 1/1 UPSTREAM - BLACK 4 WAY

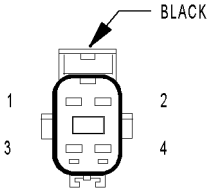
CAV	CIRCUIT	FUNCTION
1	F142 18OR/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
2	K99 18BR/OR	OXYGEN SENSOR 1/1 HEATER CONTROL
3	K4 18BK/LB	SENSOR GROUND
4	K41 18BK/DG	OXYGEN SENSOR 1/1 SIGNAL



OXYGEN SENSOR 1/2 DOWNSTREAM

OXYGEN SENSOR 1/2 DOWNSTREAM - BLACK/4.7L NATURAL/4.0L 4 WAY

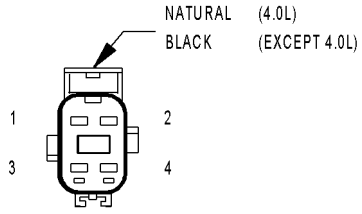
CAV	CIRCUIT	FUNCTION
1	K200 18VT/OR (EXCEPT 4.0L EXPORT)	OXYGEN SENSOR DOWNSTREAM RELAY OUTPUT
1	F142 18OR/DG (4.0L EXPORT)	FUSED AUTO SHUT DOWN RELAY OUTPUT
2	K299 18BR/WT (4.0L EXPORT)	OXYGEN SENSOR 1/2 HEATER CONTROL
2	Z186 18BK (EXCEPT 4.0L EXPORT)	GROUND
3	K4 18BK/LB	SENSOR GROUND
4	K141 18TN/WT	OXYGEN SENSOR 1/2 SIGNAL



OXYGEN SENSOR 2/1 UPSTREAM

OXYGEN SENSOR 2/1 UPSTREAM - BLACK 4 WAY

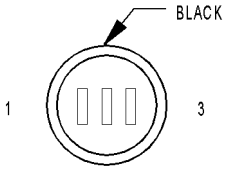
CAV	CIRCUIT	FUNCTION
1	F142 18OR/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT
2	K299 18BR/WT	OXYGEN SENSOR 2/1 HEATER CONTROL
3	K4 18BK/LB	SENSOR GROUND
4	K241 18LG/RD	OXYGEN SENSOR 2/1 SIGNAL



OXYGEN SENSOR 2/2 DOWNSTREAM

OXYGEN SENSOR 2/2 DOWNSTREAM - NATURAL/4.0L BLACK/EXCEPT 4.0L 4 WAY

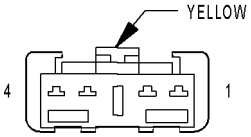
CAV	CIRCUIT	FUNCTION
1	K200 18VT/OR	OXYGEN SENSOR DOWNSTREAM RELAY OUTPUT
2	Z186 18BK	GROUND
3	K4 18BK/LB	SENSOR GROUND
4	K341 18PK/WT (4.7L/4.0L JAPAN)	OXYGEN SENSOR 2/2 SIGNAL
4	K341 18TN/WT (4.0L EXCEPT JAPAN)	OXYGEN SENSOR 2/2 SIGNAL



PARK/NEUTRAL POSITION SWITCH (4.0L)

PARK/NEUTRAL POSITION SWITCH (4.0L) - BLACK 3 WAY

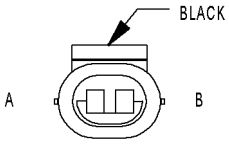
CAV	CIRCUIT	FUNCTION
1	L1 18VT/BK	BACK-UP LAMP FEED
2	T41 18BK/WT	PARK/NEUTRAL POSITION SWITCH SENSE (T41)
3	F22 18WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)



PASSENGER AIRBAG

PASSENGER AIRBAG - YELLOW 4 WAY

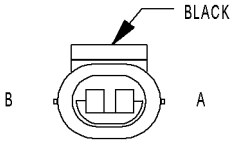
CAV	CIRCUIT	FUNCTION
1	R42 20BK/YL	PASSENGER SQUIB 1 LINE 1
2	R44 20DG/YL	PASSENGER SQUIB 1 LINE 2
3	R64 20TN/YL	PASSENGER SQUIB 2 LINE 1
4	R62 20OR/YL	PASSENGER SQUIB 2 LINE 2



PASSENGER BLEND DOOR MOTOR/ACTUATOR (LHD AZC)

PASSENGER BLEND DOOR MOTOR/ACTUATOR (LHD AZC) - BLACK 2 WAY

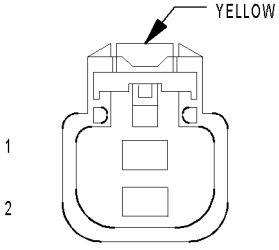
CAV	CIRCUIT	FUNCTION
B	C94 20WT/DG	PASSENGER BLEND DOOR DRIVER (A)
A	C96 20WT/DB	PASSENGER BLEND DOOR DRIVER (B)



PASSENGER BLEND DOOR MOTOR/ACTUATOR (RHD AZC)

PASSENGER BLEND DOOR MOTOR/ACTUATOR (RHD AZC) - BLACK 2 WAY

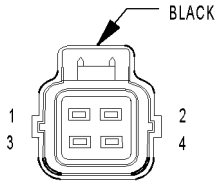
CAV	CIRCUIT	FUNCTION
B	C96 20WT/DB	PASSENGER BLEND DOOR DRIVER (B)
A	C94 20WT/DG	PASSENGER BLEND DOOR DRIVER (A)



PASSENGER CURTAIN AIRBAG SQUIB

PASSENGER CURTAIN AIRBAG SQUIB - YELLOW 2 WAY

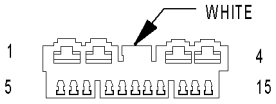
CAV	CIRCUIT	FUNCTION
1	R72 20LB/WT	PASSENGER CURTAIN SQUIB 1 LINE 2
2	R74 20LB/YL	PASSENGER CURTAIN SQUIB 1 LINE 1



PASSENGER DOOR LOCK MOTOR/ AJAR SWITCH

PASSENGER DOOR LOCK MOTOR/AJAR SWITCH - BLACK 4 WAY

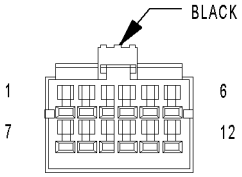
CAV	CIRCUIT	FUNCTION
1	G74 18TN/RD	PASSENGER DOOR AJAR SWITCH SENSE
2	Z28 12BK (LHD)	GROUND
2	Z243 12BK (RHD)	GROUND
3	P36 18PK/VT	DOOR UNLOCK DRIVER
4	P35 18OR/VT	DOOR LOCK DRIVER



PASSENGER DOOR MODULE C1

PASSENGER DOOR MODULE C1 - WHITE 15 WAY

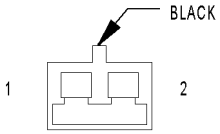
CAV	CIRCUIT	FUNCTION
1	A146 12OR/WT	FUSED B(+)
2	Q24 16DG	PASSENGER REAR WINDOW DRIVER (DOWN)
3	Q14 16GY	PASSENGER REAR WINDOW DRIVER (UP)
4	Z243 12BK (RHD)	GROUND
4	Z28 12BK (LHD)	GROUND
5	P35 18OR/VT	DOOR LOCK DRIVER
6	-	-
7	P36 18PK/VT	DOOR UNLOCK DRIVER
8	-	-
9	D25 20YL/VT	PCI BUS
10	-	-
11	G74 18TN/RD	PASSENGER DOOR AJAR SWITCH SENSE
12	E20 20OR/DB	PASSENGER REAR DOOR SWITCH ILLUMINATION
13	Q12 16BR	PASSENGER WINDOW DRIVER (UP)
14	-	-
15	Q22 16VT	PASSENGER WINDOW DRIVER (DOWN)



PASSENGER DOOR MODULE C2

PASSENGER DOOR MODULE C2 - BLACK 12 WAY

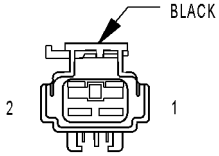
CAV	CIRCUIT	FUNCTION
1	P95 20OR	MIRROR HORIZONTAL DRIVER
2	C118 20BK/WT	MIRROR HEATER GROUND
3	P64 20VT	MIRROR VERTICAL POSITION SIGNAL
4	P69 20GY	MIRROR SENSOR GROUND
5	P65 20DG	MIRROR HORIZONTAL POSITION SIGNAL
6	C117 20BK	MIRROR HEATER 12 VOLT SUPPLY
7	P91 20WT	MIRROR COMMON DRIVER
8	P93 20RD	MIRROR VERTICAL DRIVER
9	M21 20PK/DG	COURTESY LAMP DRIVER
10	P110 20YL (EXPORT)	FOLDING MIRROR RETURN
11	P99 20DB (EXPORT)	FOLDING MIRROR FEED
12	L121 20BK/RD	COURTESY LAMP GROUND



PASSENGER FRONT DOOR COURTESY LAMP

PASSENGER FRONT DOOR COURTESY LAMP - BLACK 2 WAY

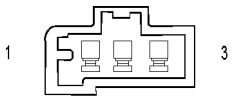
CAV	CIRCUIT	FUNCTION
1	M21 20PK/DG	COURTESY LAMP DRIVER
2	L121 20BK/RD	COURTESY LAMP GROUND



PASSENGER FRONT POWER WINDOW MOTOR

PASSENGER FRONT POWER WINDOW MOTOR - BLACK 2 WAY

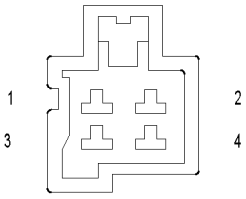
CAV	CIRCUIT	FUNCTION
1	Q22 16VT	PASSENGER WINDOW DRIVER (DOWN)
2	Q12 16BR	PASSENGER WINDOW DRIVER (UP)



PASSENGER HEATED SEAT BACK (PREMIUM I/III)

PASSENGER HEATED SEAT BACK (PREMIUM I/III) - 3 WAY

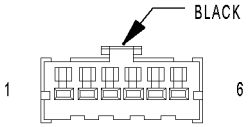
CAV	CIRCUIT	FUNCTION
1	P88 16BK/BR	HEATED SEAT DRIVER
2	Z5 16BK/VT	GROUND
3	-	-



PASSENGER HEATED SEAT CUSHION (PREMIUM I/III)

PASSENGER HEATED SEAT CUSHION (PREMIUM I/III) - 4 WAY

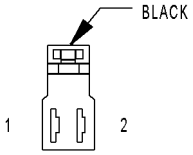
CAV	CIRCUIT	FUNCTION
1	P130 16DG/WT	PASSENGER SEAT HEATER B(+) DRIVER
2	P88 16BK/BR	HEATED SEAT DRIVER
3	P86 20DG/YL	PASSENGER SEAT TEMPERATURE SENSOR INPUT
4	P29 20BR/WT	SEAT SENSOR 5 VOLT SUPPLY



PASSENGER HEATED SEAT SWITCH

PASSENGER HEATED SEAT SWITCH - BLACK 6 WAY

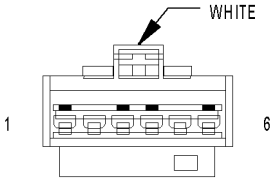
CAV	CIRCUIT	FUNCTION
1	P134 20TN/LG	PASSENGER SEAT HEATER SWITCH MUX
2	E2 20OR	PANEL LAMPS DRIVER
3	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
4	-	-
5	Z300 20BK	GROUND
6	P132 20OR/BK	SEAT HEATER SWITCH SENSOR GROUND



PASSENGER LUMBAR MOTOR (MIDLINE/PREMIUM)

PASSENGER LUMBAR MOTOR (MIDLINE/PREMIUM) - BLACK 2 WAY

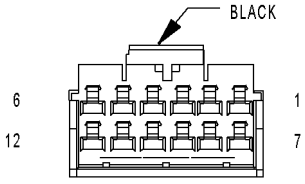
CAV	CIRCUIT	FUNCTION
1	P105 16LG/DB	LUMBAR FORWARD SWITCH SENSE
2	P104 16YL/RD	LUMBAR REARWARD SWITCH SENSE



PASSENGER LUMBAR SWITCH (MIDLINE/PREMIUM)

PASSENGER LUMBAR SWITCH (MIDLINE/PREMIUM) - WHITE 6 WAY

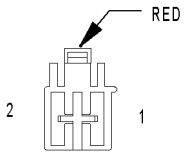
CAV	CIRCUIT	FUNCTION
1	-	-
2	Z238 16BK (LHD)	GROUND
2	Z243 16BK (RHD)	GROUND
3	P105 16LG/DB (LHD)	LUMBAR FORWARD SWITCH SENSE
3	P104 16YL/RD (RHD)	LUMBAR REARWARD SWITCH SENSE
4	P105 16LG/DB (RHD)	LUMBAR FORWARD SWITCH SENSE
4	P104 16YL/RD (LHD)	LUMBAR REARWARD SWITCH SENSE
5	Z238 16BK (LHD)	GROUND
5	Z243 16BK (RHD)	GROUND
6	F37 16RD/LB	FUSED B(+)



PASSENGER POWER MIRROR

PASSENGER POWER MIRROR - BLACK 12 WAY

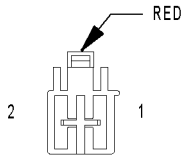
CAV	CIRCUIT	FUNCTION
1	C117 20BK	MIRROR HEATER 12 VOLT SUPPLY
2	P65 20DG	MIRROR HORIZONTAL POSITION SIGNAL
3	P69 20GY	MIRROR SENSOR GROUND
4	P64 20VT	MIRROR VERTICAL POSITION SIGNAL
5	C118 20BK/WT	MIRROR HEATER GROUND
6	P95 20OR	MIRROR HORIZONTAL DRIVER
7	-	-
8	P99 20DB (EXPORT)	FOLDING MIRROR FEED
9	P110 20YL (EXPORT)	FOLDING MIRROR RETURN
10	-	-
11	P93 20RD	MIRROR VERTICAL DRIVER
12	P91 20WT	MIRROR COMMON DRIVER



PASSENGER POWER SEAT FRONT RISER MOTOR

PASSENGER POWER SEAT FRONT RISER MOTOR - RED 2 WAY

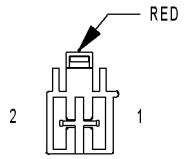
CAV	CIRCUIT	FUNCTION
1	P18 16YL/LG	PASSENGER SEAT FRONT UP DRIVER
2	P20 16RD/LG	PASSENGER SEAT FRONT DOWN DRIVER



PASSENGER POWER SEAT HORIZONTAL MOTOR

PASSENGER POWER SEAT HORIZONTAL MOTOR - RED 2 WAY

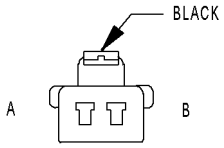
CAV	CIRCUIT	FUNCTION
1	P16 16RD/YL	PASSENGER SEAT HORIZONTAL REARWARD DRIVER
2	P14 16YL/LB	PASSENGER SEAT HORIZONTAL FORWARD DRIVER



PASSENGER POWER SEAT REAR RISER MOTOR

PASSENGER POWER SEAT REAR RISER MOTOR - RED 2 WAY

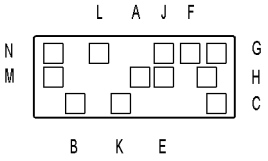
CAV	CIRCUIT	FUNCTION
1	P10 16YL/WT	PASSENGER SEAT REAR UP DRIVER
2	P12 16RD/WT	PASSENGER SEAT REAR DOWN DRIVER



PASSENGER POWER SEAT RECLINER MOTOR (MIDLINE/PREMIUM)

PASSENGER POWER SEAT RECLINER MOTOR (MIDLINE/PREMIUM) - BLACK 2 WAY

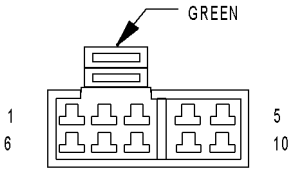
CAV	CIRCUIT	FUNCTION
A	P42 16BR/WT	PASSENGER SEAT RECLINER DOWN DRIVER
B	P44 16GY/LB	PASSENGER SEAT RECLINER UP DRIVER



PASSENGER POWER SEAT SWITCH (EXCEPT MIDLINE/PREMIUM)

PASSENGER POWER SEAT SWITCH (EXCEPT MIDLINE/PREMIUM) - 12 WAY

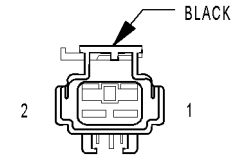
CAV	CIRCUIT	FUNCTION
A	F37 16RD/LB	FUSED B(+)
B	Z243 16BK (RHD)	GROUND
C	-	-
E	P18 16YL/DG	PASSENGER SEAT FRONT DOWN DRIVER
F	-	-
G	-	-
H	-	-
J	P20 16RD/LG	PASSENGER SEAT FRONT DOWN DRIVER
K	P14 16YL/LB	PASSENGER SEAT HORIZONTAL FORWARD DRIVER
L	P16 16RD/YL	PASSENGER SEAT HORIZONTAL REARWARD DRIVER
M	P10 16YL/WT	PASSENGER SEAT REAR UP DRIVER
N	P12 16RD/WT	PASSENGER SEAT REAR DOWN DRIVER
B	Z238 16BK (LHD)	GROUND



PASSENGER POWER SEAT SWITCH (MIDLINE/PREMIUM)

PASSENGER POWER SEAT SWITCH (MIDLINE/PREMIUM) - GREEN 10 WAY

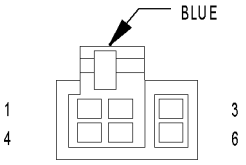
CAV	CIRCUIT	FUNCTION
1	Z238 16BK (LHD)	GROUND
1	Z243 16BK (RHD)	GROUND
2	P44 16GY/LB	PASSENGER SEAT RECLINER UP DRIVER
3	P16 16RD/YL	PASSENGER SEAT HORIZONTAL REARWARD DRIVER
4	P42 16BR/WT	PASSENGER SEAT RECLINER DOWN DRIVER
5	F37 16RD/LB	FUSED B(+)
6	P14 16YL/LB	PASSENGER SEAT HORIZONTAL FORWARD DRIVER
7	P20 16RD/LG (LHD)	PASSENGER SEAT FRONT DOWN DRIVER
8	P12 16RD/WT (LHD)	PASSENGER SEAT REAR DOWN DRIVER
9	P10 16YL/WT (LHD)	PASSENGER SEAT REAR UP DRIVER
10	P18 16YL/LG (LHD)	PASSENGER SEAT FRONT UP DRIVER



PASSENGER REAR POWER WINDOW MOTOR

PASSENGER REAR POWER WINDOW MOTOR - BLACK 2 WAY

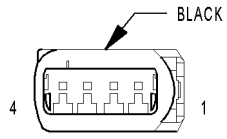
CAV	CIRCUIT	FUNCTION
1	Q124 16DG/WT	WINDOW DRIVER (DOWN)
2	Q114 16GY/WT	WINDOW DRIVER (UP)



PASSENGER REAR POWER WINDOW SWITCH

PASSENGER REAR POWER WINDOW SWITCH - BLUE 6 WAY

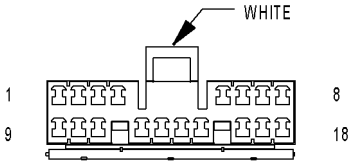
CAV	CIRCUIT	FUNCTION
1	Q14 16GY	PASSENGER REAR WINDOW DRIVER (UP)
2	Q114 16GY/WT	WINDOW DRIVER (UP)
3	E21 20OR/RD	PASSENGER REAR DOOR SWITCH ILLUMINATION
4	Q24 16DG	PASSENGER REAR WINDOW DRIVER (DOWN)
5	Q124 16DG/WT	WINDOW DRIVER (DOWN)
6	Z28 16BK (LHD)	GROUND
6	Z243 16BK (RHD)	GROUND



PASSENGER SIDE IMPACT SENSOR

PASSENGER SIDE IMPACT SENSOR - BLACK 4 WAY

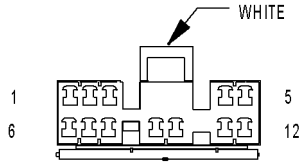
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	R134 20LB/BR	PASSENGER SIDE IMPACT SENSOR GROUND
4	R132 20LG/VT	PASSENGER SIDE IMPACT SENSOR SIGNAL



POWER AMPLIFIER C1 (PREMIUM RADIO)

POWER AMPLIFIER C1 (PREMIUM RADIO) - WHITE 18 WAY

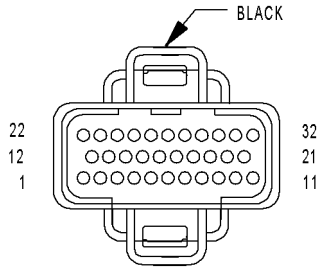
CAV	CIRCUIT	FUNCTION
1	D25 18YL/VT	PCI BUS
2	F60 16RD/WT	FUSED B(+)
3	Z9 16BK	GROUND
4	-	-
5	X58 18DB/OR	RIGHT REAR SPEAKER (-)
6	X57 18DG/WT	LEFT REAR SPEAKER (-)
7	X56 18DB/PK	RIGHT FRONT SPEAKER (-)
8	X55 18BR/RD	LEFT FRONT SPEAKER (-)
9	-	-
10	F60 16RD/WT	FUSED B(+)
11	Z9 16BK	GROUND
12	-	-
13	X64 18BR/WT	ENABLE SIGNAL TO AMPLIFIER
14	-	-
15	X52 18DB/WT	RIGHT REAR SPEAKER (+)
16	X51 18WT/DG	LEFT REAR SPEAKER (+)
17	X54 18VT	RIGHT FRONT SPEAKER (+)
18	X53 18DG/OR	LEFT FRONT SPEAKER (+)



POWER
AMPLIFIER C2
(PREMIUM RADIO)

POWER AMPLIFIER C2 (PREMIUM RADIO) - WHITE 12 WAY

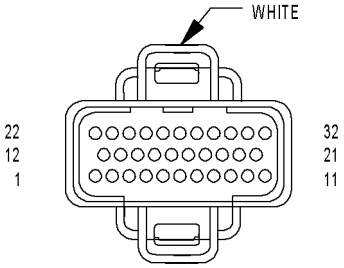
CAV	CIRCUIT	FUNCTION
1	X90 18WT/VT	RIGHT REAR DOOR SPEAKER (+)
2	X92 18TN/DG	RIGHT REAR DOOR SPEAKER (-)
3	X85 18LG/DG	LEFT FRONT DOOR SPEAKER (-)
4	X83 18YL/RD	LEFT INSTRUMENT PANEL SPEAKER (+)
5	X84 18OR/GY	RIGHT INSTRUMENT PANEL SPEAKER (-)
6	X93 18DG/WT	LEFT REAR DOOR SPEAKER (+)
7	X91 18WT/DG	LEFT REAR DOOR SPEAKER (-)
8	X87 18LG/RD	LEFT FRONT DOOR SPEAKER (+)
9	X80 18LB/BK	RIGHT FRONT DOOR SPEAKER (-)
10	X82 18LB/RD	RIGHT FRONT DOOR SPEAKER (+)
11	X81 18YL/BK	LEFT INSTRUMENT PANEL SPEAKER (-)
12	X86 18OR/RD	RIGHT INSTRUMENT PANEL SPEAKER (+)



POWERTRAIN
CONTROL
MODULE C1
(GAS)

POWERTRAIN CONTROL MODULE C1 (GAS) - BLACK 32 WAY

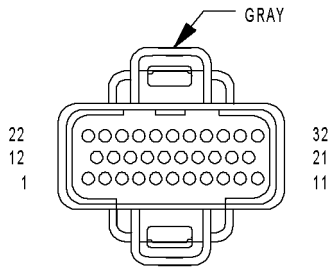
CAV	CIRCUIT	FUNCTION
1	K93 14TN/OR	COIL DRIVER NO. 3
2	F991 18OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
3	K94 14TN/LG (4.7L)	COIL DRIVER NO. 4
4	K4 18BK/LB	SENSOR GROUND
5	K96 14TN/LB (4.7L)	COIL DRIVER NO. 6
6	T41 18BK/WT	PARK/NEUTRAL POSITION SWITCH SENSE (T41)
7	K91 14TN/RD	COIL DRIVER NO. 1
8	K24 18GY/BK	CRANKSHAFT POSITION SENSOR SIGNAL
9	K98 14LB/RD (4.7L)	COIL DRIVER NO. 8
10	K60 18YL/BK	IDLE AIR CONTROL NO. 2 DRIVER
11	K40 18BR/WT	IDLE AIR CONTROL NO. 3 DRIVER
12	-	-
13	-	-
14	K77 18LG/BK (EXCEPT JAPAN)	TRANSFER CASE POSITION SENSOR INPUT
15	K21 18BK/RD	INTAKE AIR TEMPERATURE SENSOR SIGNAL
16	K2 18TN/BK	ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
17	K7 18OR	5 VOLT SUPPLY
18	K44 18TN/YL	CAMSHAFT POSITION SENSOR SIGNAL
19	K39 18GY/BK	IDLE AIR CONTROL NO. 1 DRIVER
20	K59 18VT/BK	IDLE AIR CONTROL NO. 4 DRIVER
21	K95 14TN/DG (4.7L)	COIL DRIVER NO. 5
22	A7 14RD/BK	FUSED B(+)
23	K22 18OR/RD	THROTTLE POSITION SENSOR SIGNAL
24	K41 18BK/DG	OXYGEN SENSOR 1/1 SIGNAL
25	K141 18TN/WT	OXYGEN SENSOR 1/2 SIGNAL
26	K241 18LG/RD (EXCEPT 4.0L EXPORT)	OXYGEN SENSOR 2/1 SIGNAL
27	K1 18DG/RD	MAP SENSOR SIGNAL
28	-	-
29	K341 18PK/WT (4.7L/4.0L JAPAN)	OXYGEN SENSOR 2/2 SIGNAL
29	K341 18TN/WT (4.0L EXCEPT JAPAN)	OXYGEN SENSOR 2/2 SIGNAL
30	-	-
31	Z82 14BK/WT	GROUND
32	Z81 14BK/TN	GROUND



POWERTRAIN CONTROL MODULE C2 (GAS)

POWERTRAIN CONTROL MODULE C2 (GAS) - WHITE 32 WAY

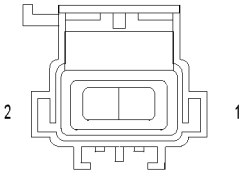
CAV	CIRCUIT	FUNCTION
1	T54 18VT (4.0L)	TRANSMISSION TEMPERATURE SENSOR SIGNAL
2	K26 18VT (4.7L)	FUEL INJECTOR NO. 7 DRIVER
3	-	-
4	K11 18WT/DB	FUEL INJECTOR NO. 1 DRIVER
5	K13 18YL/WT	FUEL INJECTOR NO. 3 DRIVER
6	K38 18GY	FUEL INJECTOR NO. 5 DRIVER
7	K97 14BR (4.7L)	COIL DRIVER NO. 7
8	K88 18PK (4.0L)	GOVERNOR PRESSURE SOLENOID CONTROL
9	K92 14TN/PK	COIL DRIVER NO. 2
10	K20 18DG	GENERATOR FIELD DRIVER
11	T20 18LB (4.0L)	TORQUE CONVERTER CLUTCH SOLENOID CONTROL
12	K58 18BR/DB	FUEL INJECTOR NO. 6 DRIVER
13	K28 18GY/LB (4.7L)	FUEL INJECTOR NO. 8 DRIVER
14	-	-
15	K12 18TN	FUEL INJECTOR NO. 2 DRIVER
16	K14 18LB/BR	FUEL INJECTOR NO. 4 DRIVER
17	K173 18LG	RADIATOR FAN RELAY CONTROL
18	-	-
19	C18 18DB	A/C PRESSURE SIGNAL
20	-	-
21	T60 18BR (4.0L)	3-4 SHIFT SOLENOID CONTROL
22	-	-
23	G60 18GY/YL	ENGINE OIL PRESSURE SWITCH SIGNAL
24	-	-
25	T13 18DB/BK (4.0L)	SPEED SENSOR GROUND
26	-	-
27	B22 18DG/YL	VEHICLE SPEED SIGNAL
28	T14 18LG/WT (4.0L)	OUTPUT SPEED SENSOR SIGNAL
29	T25 18LG/RD (4.0L)	GOVERNOR PRESSURE SENSOR SIGNAL
30	K30 18PK/YL (4.0L)	TRANSMISSION CONTROL RELAY CONTROL
31	K6 18VT/BK	5 VOLT SUPPLY
32	-	-



POWERTRAIN CONTROL MODULE C3 (GAS)

POWERTRAIN CONTROL MODULE C3 (GAS) - GRAY 32 WAY

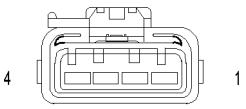
CAV	CIRCUIT	FUNCTION
1	C13 18DB/OR	A/C CLUTCH RELAY CONTROL
2	-	-
3	K51 18DB/YL	AUTO SHUT DOWN RELAY CONTROL
4	V36 18TN/RD	SPEED CONTROL VACUUM SOLENOID CONTROL
5	V35 18LG/RD	SPEED CONTROL VENT SOLENOID CONTROL
6	-	-
7	K42 18DB/LG (4.7L HIGH OUTPUT)	KNOCK SENSOR NO. 1 SIGNAL
8	K99 18BR/OR	OXYGEN SENSOR 1/1 HEATER CONTROL
9	K512 18RD/YL	OXYGEN SENSOR DOWNSTREAM RELAY CONTROL
10	K106 18WT/DG (EXCEPT EXPORT)	LEAK DETECTION PUMP SOLENOID CONTROL
11	V32 18OR/DG	SPEED CONTROL POWER SUPPLY
12	F42 18DG/LG	FUSED AUTO SHUT DOWN RELAY OUTPUT
13	T6 18OR/BK (4.0L RHD)	OVERDRIVE OFF SWITCH SENSE
13	T10 18YL/DG (4.7L RHD)	TORQUE MANAGEMENT REQUEST SENSE
13	T6 18OR/WT (4.0L LHD)	OVERDRIVE OFF SWITCH SENSE
13	T10 18DG/LG (4.7L LHD)	TORQUE MANAGEMENT REQUEST SENSE
14	K107 18OR/PK (EXCEPT EXPORT)	LEAK DETECTION PUMP SWITCH SENSE
15	K25 18VT/LG	BATTERY TEMPERATURE SENSOR SIGNAL
16	K299 18BR/WT	OXYGEN SENSOR 1/2 HEATER CONTROL
17	-	-
18	K142 18GY/BK (4.7L HIGH OUTPUT)	KNOCK SENSOR NO. 2 SIGNAL
19	K31 18BR	FUEL PUMP RELAY CONTROL
20	K52 18PK/BK	DUTY CYCLE EVAP/PURGE SOLENOID CONTROL
21	-	-
22	-	-
23	-	-
24	K29 18WT/PK	BRAKE SWITCH SENSE
25	K125 18WT/DB	GENERATOR SOURCE
26	K226 18LB/YL	FUEL LEVEL SENSOR SIGNAL
27	D21 18PK	SCI TRANSMIT
28	-	-
29	D32 18LG/DG (RHD)	SCI RECEIVE
29	D32 18LG (LHD)	SCI RECEIVE
30	D25 18VT/YL	PCI BUS
31	-	-
32	V37 18RD/LG	SPEED CONTROL SWITCH SIGNAL



RADIATOR FAN MOTOR (4.0L)

RADIATOR FAN MOTOR (4.0L) - 2 WAY

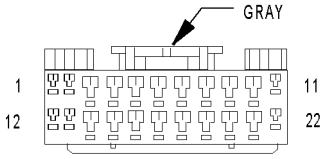
CAV	CIRCUIT	FUNCTION
1	C23 12DG	RADIATOR FAN MOTOR RELAY OUTPUT
2	Z4 12WT/BK	GROUND



RADIATOR FAN MOTOR RELAY (4.0L)

RADIATOR FAN MOTOR RELAY (4.0L) - 4 WAY

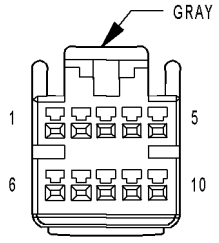
CAV	CIRCUIT	FUNCTION
1	Z307 20BK	GROUND
2	K173 20LG	RADIATOR FAN RELAY CONTROL
3	C23 12DG	RADIATOR FAN MOTOR RELAY OUTPUT
4	A16 12GY	FUSED B(+)



RADIO C1

RADIO C1

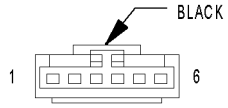
CAV	CIRCUIT	FUNCTION
1	F60 16RD/WT	FUSED B(+)
2	X12 20WT/RD	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
3	E2 20OR	PANEL LAMPS DRIVER
4	-	-
5	-	-
6	-	-
7	X54 18VT	RIGHT FRONT SPEAKER (+)
8	X56 18DB/PK	RIGHT FRONT SPEAKER (-)
9	X55 18BR/RD	LEFT FRONT SPEAKER (-)
10	X53 18DG/OR	LEFT FRONT SPEAKER (+)
11	Z9 16BK	GROUND
12	F60 16RD/WT	FUSED B(+)
13	X64 18BR/WT	ENABLE SIGNAL TO AMPLIFIER
14	D25 20YL/VT/DB	PCI BUS
15	-	-
16	-	-
17	-	-
18	X51 18WT/DG	LEFT REAR SPEAKER (+)
19	X57 18DG/WT	LEFT REAR SPEAKER (-)
20	X58 18DB/OR	RIGHT REAR SPEAKER (-)
21	X52 18DB/WT	RIGHT REAR SPEAKER (+)
22	Z9 16BK	GROUND



RADIO C2

RADIO C2

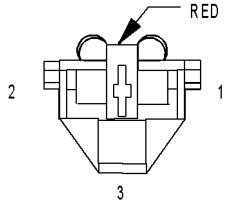
CAV	CIRCUIT	FUNCTION
1	X40 20WT/RD	AUDIO OUT RIGHT
2	Z4 20WT/BK	GROUND
3	Z5 20BK/LB	SHIELD
4	-	-
5	X112 20RD	IGNITION SWITCH OUTPUT (RUN-ACC)
6	X41 20WT/DG	AUDIO OUT LEFT
7	Z17 20BK	GROUND
8	-	-
9	-	-
10	X160 20YL	FUSED B(+)



RAIN SENSOR (AUTOWIPE)

RAIN SENSOR (AUTOWIPE) - BLACK 6 WAY

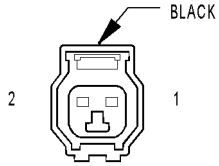
CAV	CIRCUIT	FUNCTION
1	-	-
2	D25 20BK/PK	PCI BUS
3	-	-
4	Z155 20BK/OR	GROUND
5	Q30 20BK/LB	ACCESSORY DELAY RELAY OUTPUT
6	-	-



REAR POWER OUTLET (EXCEPT BASE)

REAR POWER OUTLET - RED 3 WAY

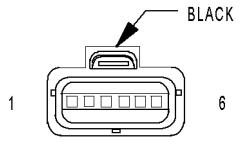
CAV	CIRCUIT	FUNCTION
1	A148 16LG/RD	FUSED B(+)
2	-	-
3	Z151 16BK	GROUND



REAR WASHER PUMP

REAR WASHER PUMP - BLACK 2 WAY

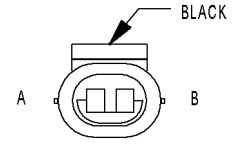
CAV	CIRCUIT	FUNCTION
1	Z141 18BK	GROUND
2	V20 18BK/WT	REAR WASHER PUMP MOTOR CONTROL



REAR
WIPER
MOTOR

REAR WIPER MOTOR - BLACK 6 WAY

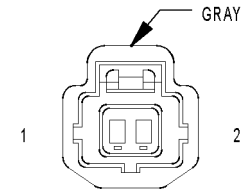
CAV	CIRCUIT	FUNCTION
1	Z309 18BK	GROUND
2	V13 18BR/LG	REAR WIPER MOTOR CONTROL
3	G80 20VT/YL	LIFTGATE FLIP-UP AJAR SWITCH SENSE
4	V22 18BR/YL	REAR WIPER MOTOR DELAY CONTROL
5	F70 18PK	FUSED B(+)
6	-	-



RECIRCULATION
DOOR MOTOR/
ACTUATOR
(AZC)

RECIRCULATION DOOR MOTOR/ACTUATOR (AZC) - BLACK 2 WAY

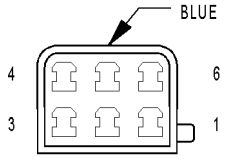
CAV	CIRCUIT	FUNCTION
A	C32 20GY/DB (LHD)	RECIRCULATION DOOR DRIVER (A)
B	C100 20YL/DB (LHD)	RECIRCULATION DOOR DRIVER (B)
A	C100 20YL/DB (RHD)	RECIRCULATION DOOR DRIVER (B)
B	C32 20GY/DB (RHD)	RECIRCULATION DOOR DRIVER (A)



RED BRAKE
WARNING
INDICATOR SWITCH

RED BRAKE WARNING INDICATOR SWITCH - GRAY 2 WAY

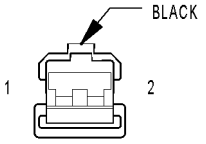
CAV	CIRCUIT	FUNCTION
1	Z231 18BK	GROUND
2	G9 18GY/BK	RED BRAKE WARNING INDICATOR SWITCH SENSE



REMOTE
KEYLESS
MODULE
(JAPAN)

REMOTE KEYLESS MODULE (JAPAN) - BLUE 6 WAY

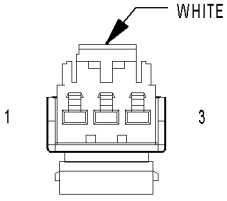
CAV	CIRCUIT	FUNCTION
1	K25 20RD/GY	ANTENNA SIGNAL
2	K25 20RD/GY	ANTENNA SIGNAL
3	M1 18PK	FUSED B(+)
4	Z1 18BK	GROUND
5	D30 20VT/YL	DIAGNOSTIC OUT
6	D30 20VT/YL	DIAGNOSTIC OUT



RIGHT COURTESY LAMP

RIGHT COURTESY LAMP - BLACK 2 WAY

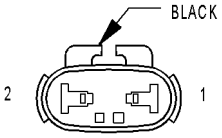
CAV	CIRCUIT	FUNCTION
1	F70 20PK/BK	FUSED B(+)
2	M2 20YL	COURTESY LAMP DRIVER



RIGHT DOOR HANDLE COURTESY LAMP

RIGHT DOOR HANDLE COURTESY LAMP - WHITE 3 WAY

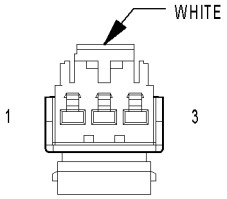
CAV	CIRCUIT	FUNCTION
1	F70 20PK	FUSED B(+)
2	M20 20YL/BK	COURTESY LAMP LOAD SHED
3	M2 20YL/DG	COURTESY LAMP DRIVER



RIGHT FOG LAMP

RIGHT FOG LAMP - BLACK 2 WAY

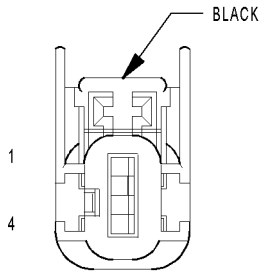
CAV	CIRCUIT	FUNCTION
1	L39 20LB	FOG LAMP RELAY OUTPUT
2	Z142 18BK	GROUND



RIGHT FRONT DOOR SPEAKER

RIGHT FRONT DOOR SPEAKER - WHITE 3 WAY

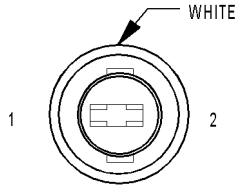
CAV	CIRCUIT	FUNCTION
1	X80 18LB/BK (LHD PREMIUM)	RIGHT FRONT DOOR SPEAKER (-)
1	X80 18LG/DG (RHD PREMIUM)	RIGHT FRONT DOOR SPEAKER (-)
1	X56 18LB/BK (BASE)	RIGHT FRONT DOOR SPEAKER (-)
2	-	-
3	X82 18LB/RD (LHD PREMIUM)	RIGHT FRONT DOOR SPEAKER (+)
3	X82 18LG/RD (RHD PREMIUM)	RIGHT FRONT DOOR SPEAKER (+)
3	X54 18LB/RD (BASE)	RIGHT FRONT DOOR SPEAKER (+)



RIGHT FRONT IMPACT SENSOR

RIGHT FRONT IMPACT SENSOR - BLACK 4 WAY

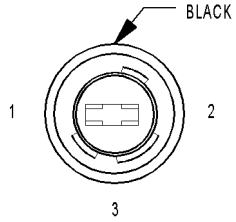
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	R46 18BR/LB	RIGHT FRONT IMPACT SENSOR GROUND
4	R48 18TN	RIGHT FRONT IMPACT SENSOR SIGNAL



RIGHT FRONT PARK LAMP

RIGHT FRONT PARK LAMP - WHITE 2 WAY

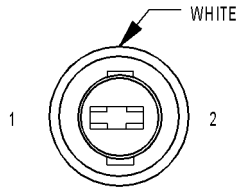
CAV	CIRCUIT	FUNCTION
1	Z142 18BK	GROUND
2	L7 20BK/PK	PARK LAMP RELAY OUTPUT



RIGHT FRONT PARK/TURN SIGNAL LAMP (EXCEPT EXPORT)

RIGHT FRONT PARK/TURN SIGNAL LAMP (EXCEPT EXPORT) - BLACK 3 WAY

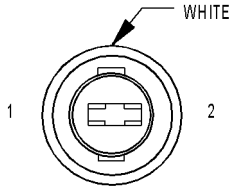
CAV	CIRCUIT	FUNCTION
1	L7 20BK/PK	PARK LAMP RELAY OUTPUT
2	Z142 18BK	GROUND
3	L60 20TN	RIGHT TURN SIGNAL



RIGHT FRONT SIDE MARKER LAMP (EXCEPT EXPORT)

RIGHT FRONT SIDE MARKER LAMP (EXCEPT EXPORT) - WHITE 2 WAY

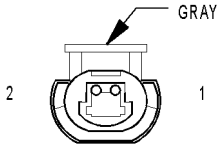
CAV	CIRCUIT	FUNCTION
1	L7 20BK/PK	PARK LAMP RELAY OUTPUT
2	L60 20TN	RIGHT TURN SIGNAL



RIGHT FRONT TURN SIGNAL LAMP (EXPORT)

RIGHT FRONT TURN SIGNAL LAMP (EXPORT) - WHITE 2 WAY

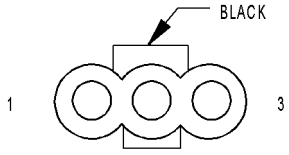
CAV	CIRCUIT	FUNCTION
1	L60 20TN	RIGHT TURN SIGNAL
2	Z142 18BK	GROUND



RIGHT FRONT WHEEL SPEED SENSOR

RIGHT FRONT WHEEL SPEED SENSOR - GRAY 2 WAY

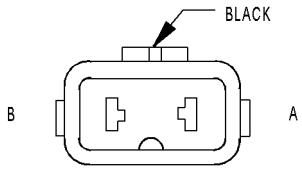
CAV	CIRCUIT	FUNCTION
1	B7 18WT	RIGHT FRONT WHEEL SPEED SENSOR 12 VOLT SUPPLY
2	B6 18WT/DB	RIGHT FRONT WHEEL SPEED SENSOR SIGNAL



RIGHT HEADLAMP LEVELING MOTOR (EXPORT)

RIGHT HEADLAMP LEVELING MOTOR (EXPORT) - BLACK 3 WAY

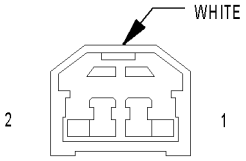
CAV	CIRCUIT	FUNCTION
1	Z142 18BK	GROUND
2	L114 18VT/DB	HEADLAMP ADJUST SIGNAL
3	L7 20BK/PK	PARK LAMP RELAY OUTPUT



RIGHT HIGH BEAM HEADLAMP

RIGHT HIGH BEAM HEADLAMP - BLACK 2 WAY

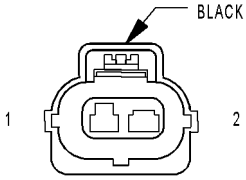
CAV	CIRCUIT	FUNCTION
A	Z142 18BK	GROUND
B	L34 18RD/OR	FUSED RIGHT HIGH BEAM OUTPUT



RIGHT INSTRUMENT PANEL SPEAKER

RIGHT INSTRUMENT PANEL SPEAKER - WHITE 2 WAY

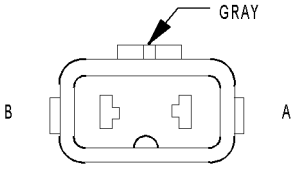
CAV	CIRCUIT	FUNCTION
1	X86 18OR/RD	RIGHT INSTRUMENT PANEL SPEAKER (+)
2	X84 18OR/BK	RIGHT INSTRUMENT PANEL SPEAKER (-)



RIGHT LIFTGATE AJAR SWITCH

RIGHT LIFTGATE AJAR SWITCH - BLACK 2 WAY

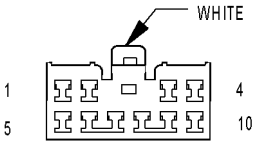
CAV	CIRCUIT	FUNCTION
1	Z1 20BK	GROUND
2	G78 20TN/BK	LIFTGATE AJAR SWITCH SENSE



RIGHT LOW BEAM HEADLAMP

RIGHT LOW BEAM HEADLAMP - GRAY 2 WAY

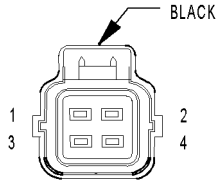
CAV	CIRCUIT	FUNCTION
A	Z142 18BK	GROUND
B	L44 18VT/RD	FUSED RIGHT LOW BEAM OUTPUT



RIGHT MULTI-FUNCTION SWITCH

RIGHT MULTI-FUNCTION SWITCH - WHITE 10 WAY

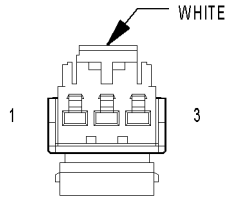
CAV	CIRCUIT	FUNCTION
1	V23 20BR/PK	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
2	V20 18BK/WT	REAR WASHER PUMP MOTOR CONTROL
3	V10 20BR	WASHER PUMP SWITCH SENSE
4	-	-
5	V13 18BR/LG	REAR WIPER MOTOR CONTROL
6	V22 18BR/YL	REAR WIPER MOTOR DELAY CONTROL
7	V9 20WT/BK	WINDSHIELD WIPER SWITCH RETURN
8	V52 20DG/RD	WINDSHIELD WIPER SWITCH MUX
9	V48 20RD/GY	WIPER HIGH CONTROL
10	-	-



RIGHT REAR DOOR LOCK MOTOR/AJAR SWITCH

RIGHT REAR DOOR LOCK MOTOR/AJAR SWITCH - BLACK 4 WAY

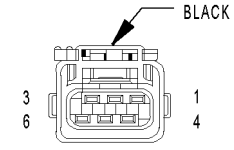
CAV	CIRCUIT	FUNCTION
1	G76 18TN/YL	RIGHT REAR DOOR AJAR SWITCH SENSE
2	Z28 18BK (LHD)	GROUND
2	Z151 18BK (RHD)	GROUND
3	P36 18PK/VT	DOOR UNLOCK DRIVER
4	P35 18OR/VT	DOOR LOCK DRIVER



RIGHT REAR DOOR SPEAKER

RIGHT REAR DOOR SPEAKER - WHITE 3 WAY

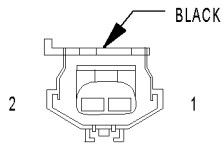
CAV	CIRCUIT	FUNCTION
1	X90 18WT/VT (PREMIUM)	RIGHT REAR DOOR SPEAKER (+)
1	X52 18WT/VT (BASE)	RIGHT REAR DOOR SPEAKER (+)
2	-	-
3	X92 18TN/DG (PREMIUM)	RIGHT REAR DOOR SPEAKER (-)
3	X58 18TN/DG (BASE)	RIGHT REAR DOOR SPEAKER (-)



RIGHT REAR LAMP ASSEMBLY

RIGHT REAR LAMP ASSEMBLY - BLACK 6 WAY

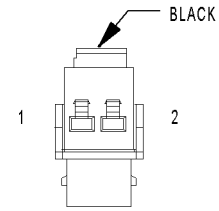
CAV	CIRCUIT	FUNCTION
1	L1 18VT/BK	BACK-UP LAMP FEED
2	L95 18DG/YL (EXPORT)	REAR FOG LAMP RELAY OUTPUT
3	L7 18BK/YL	PARK LAMP RELAY OUTPUT
4	L62 18BR/RD	RIGHT TURN SIGNAL
5	Z151 18BK	GROUND
6	L50 18WT/TN	PRIMARY BRAKE SWITCH SIGNAL



RIGHT REAR WHEEL SPEED SENSOR

RIGHT REAR WHEEL SPEED SENSOR - BLACK 2 WAY

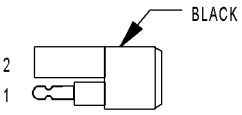
CAV	CIRCUIT	FUNCTION
1	B2 18YL	RIGHT REAR WHEEL SPEED SENSOR 12 VOLT SUPPLY
2	B1 18YL/DB	RIGHT REAR WHEEL SPEED SENSOR SIGNAL



RIGHT REMOTE RADIO SWITCH

RIGHT REMOTE RADIO SWITCH - BLACK 2 WAY

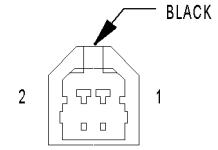
CAV	CIRCUIT	FUNCTION
1	X10 20RD/BK	RADIO CONTROL MUX RETURN
2	X20 20RD/YL	RADIO CONTROL MUX



RIGHT SIDE REPEATER LAMP (EXPORT)

RIGHT SIDE REPEATER LAMP (EXPORT) - BLACK 2 WAY

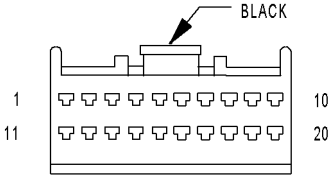
CAV	CIRCUIT	FUNCTION
1	L60 18TN	RIGHT TURN SIGNAL
2	Z142 18BK	GROUND



RIGHT VISOR/ VANITY LAMP

RIGHT VISOR/VANITY LAMP - BLACK 2 WAY

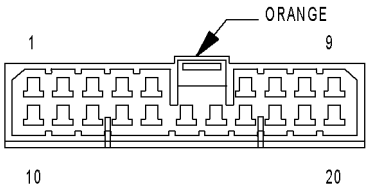
CAV	CIRCUIT	FUNCTION
1	F70 20PK	FUSED B(+)
2	M20 20YL/BK	COURTESY LAMP LOAD SHED



SEAT MODULE C1 (PREMIUM/ HEATED SEATS)

SEAT MODULE C1 (PREMIUM/HEATED SEATS) - BLACK 20 WAY

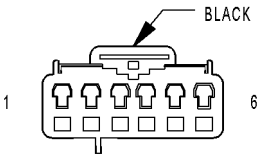
CAV	CIRCUIT	FUNCTION
1	P15 20YL/LB (PREMIUM II/III)	SEAT HORIZONTAL FORWARD SWITCH SENSE
2	-	-
3	P11 20YL/WT (PREMIUM II/III)	SEAT REAR UP SWITCH SENSE
4	P43 20GY/LB (PREMIUM II/III)	RECLINER UP SWITCH SENSE
5	P19 20YL/LG (PREMIUM II/III)	SEAT FRONT UP SWITCH SENSE
6	P86 20DG/YL (HEATED SEATS)	PASSENGER SEAT TEMPERATURE SENSOR INPUT
7	P27 20LB/RD (PREMIUM II/III)	REAR RISER POSITION SIGNAL
8	P25 20VT/RD (PREMIUM II/III)	SEAT HORIZONTAL POSITION SIGNAL
9	P135 20LB/BK (HEATED SEATS)	DRIVER SEAT TEMPERATURE SENSOR INPUT
10	P28 20BR/RD (PREMIUM II/III)	SEAT POSITION SENSOR GROUND
11	P41 20GY/WT (PREMIUM II/III)	RECLINER DOWN SWITCH SENSE
12	P17 20RD/YL (PREMIUM II/III)	SEAT HORIZONTAL REARWARD SWITCH SENSE
13	-	-
14	P21 20RD/LG (PREMIUM II/III)	SEAT FRONT DOWN SWITCH SENSE
15	P13 20RD/WT (PREMIUM II/III)	SEAT REAR DOWN SWITCH SENSE
16	P47 20LB (PREMIUM II/III)	RECLINER POSITION SIGNAL
17	P26 20BR (PREMIUM II/III)	FRONT RISER POSITION SIGNAL
18	P29 20BR/WT	SEAT SENSOR 5 VOLT SUPPLY
19	Z151 20BK/OR (RHD)	GROUND
19	Z155 20BK/OR (LHD)	GROUND
20	D25 20VT/YL	PCI BUS



SEAT MODULE C2 (PREMIUM/HEATED SEATS)

SEAT MODULE C2 (PREMIUM/HEATED SEATS) - ORANGE 20 WAY

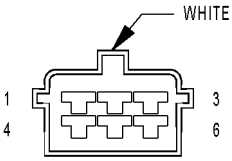
CAV	CIRCUIT	FUNCTION
1	F35 16RD	FUSED B(+)
2	P131 16BK/OR (PREMIUM I/III)	DRIVER SEAT HEATER B(+) DRIVER
3	Z1 16BK	GROUND
4	P119 16YL/RD (PREMIUM II/III)	SEAT FRONT UP DRIVER
5	P121 16RD/GY (PREMIUM II/III)	SEAT FRONT DOWN DRIVER
6	P111 16YL/DB (PREMIUM II/III)	SEAT REAR UP DRIVER
7	P113 16RD/BK (PREMIUM II/III)	SEAT REAR DOWN DRIVER
8	-	-
9	P115 16GY/LG (PREMIUM II/III)	SEAT HORIZONTAL FORWARD DRIVER
10	F35 16RD	FUSED B(+)
11	P130 16DG/WT (HEATED SEATS/ PREMIUM I/III)	PASSENGER SEAT HEATER B(+) DRIVER
12	Z1 16BK	GROUND
13	-	-
14	P9 20RD/LB (PREMIUM II/III)	SEAT SWITCH B(+) SUPPLY
15	Z6 16BK/YL (HEATED SEATS/PREMIUM I/III)	GROUND
16	Z5 16BK/VT (HEATED SEATS/PREMIUM I/III)	GROUND
17	-	-
18	P141 16GY/WT (PREMIUM II/III)	SEAT RECLINER DOWN DRIVER
19	P143 16GY/LB (PREMIUM II/III)	SEAT RECLINER UP DRIVER
20	P117 16RD/BR (PREMIUM II/III)	SEAT HORIZONTAL REARWARD DRIVER



SENTRY KEY IMMOBILIZER MODULE

SENTRY KEY IMMOBILIZER MODULE - BLACK 6 WAY

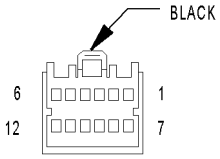
CAV	CIRCUIT	FUNCTION
1	M1 20PK	FUSED B(+)
2	Z132 20BK/OR	GROUND
3	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
4	-	-
5	D25 20YL/VT/BK	PCI BUS
6	-	-



SHIFTER ASSEMBLY (GAS)

SHIFTER ASSEMBLY (GAS) - WHITE 6 WAY

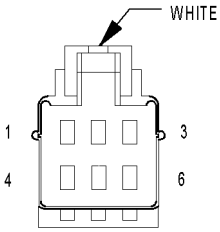
CAV	CIRCUIT	FUNCTION
1	E2 20OR	PANEL LAMPS DRIVER
2	Z234 18BK	GROUND
3	T6 18OR/WT	OVERDRIVE OFF SWITCH SENSE
4	Z300 18BK	GROUND
5	F12 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
6	K29 18WT/PK	SECONDARY BRAKE SWITCH SIGNAL



SHIFTER ASSEMBLY C1 (DIESEL)

SHIFTER ASSEMBLY C1 (DIESEL) - BLACK 12 WAY

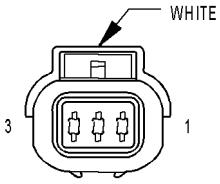
CAV	CIRCUIT	FUNCTION
1	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
2	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
3	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
4	T2 20TN/BK	BACK-UP LAMP RELAY CONTROL
5	D25 20RD	PCI BUS
6	W0 20DB/WT	SHIFTER C1 SENSE
7	W1 20VT/WT	SHIFTER C2 SENSE
8	W2 20VT	SHIFTER C3 SENSE
9	W3 20BK	SHIFTER C4 SENSE
10	W4 20PK/OR	SHIFTER C5 SENSE
11	Z234 20WT	GROUND
12	Z234 20WT	GROUND



SHIFTER ASSEMBLY C2 (DIESEL)

SHIFTER ASSEMBLY C2 (DIESEL) - WHITE 6 WAY

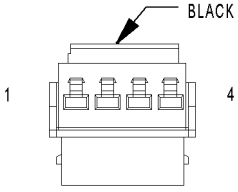
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	F12 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
4	K2 20WT/PK	SECONDARY BRAKE SWITCH SIGNAL
5	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
6	Y1 20DB/PK	PARK LOCKOUT SOLENOID CONTROL



SIREN (EXPORT)

SIREN (EXPORT) - BLACK 3 WAY

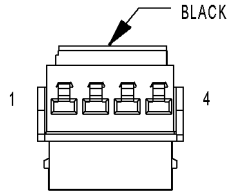
CAV	CIRCUIT	FUNCTION
1	Z141 18BK	GROUND
2	X75 18GY/LG (GAS)	SIREN SIGNAL CONTROL
2	X75 18GY/LB (DIESEL)	SIREN SIGNAL CONTROL
3	M1 18PK	FUSED B(+)



SPEED CONTROL SWITCH NO. 1

SPEED CONTROL SWITCH NO. 1 - BLACK 4 WAY

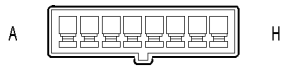
CAV	CIRCUIT	FUNCTION
1	-	-
2	K4 20BK/LB	SENSOR GROUND
3	V37 20RD/LG	SPEED CONTROL SWITCH SIGNAL
4	-	-



SPEED CONTROL SWITCH NO. 2

SPEED CONTROL SWITCH NO. 2 - BLACK 4 WAY

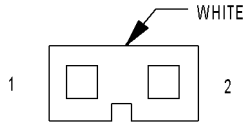
CAV	CIRCUIT	FUNCTION
1	-	-
2	K4 20BK/LB	SENSOR GROUND
3	V37 20RD/LG	SPEED CONTROL SWITCH SIGNAL
4	-	-



SUNROOF CONTROL MODULE

SUNROOF CONTROL MODULE - 8 WAY

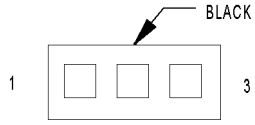
CAV	CIRCUIT	FUNCTION
A	Q46 20OR/WT	SUNROOF MOTOR POSITION SENSOR SIGNAL
B	Q41 20WT	SUNROOF OPEN
C	Q43 20VT	SUNROOF VENT
D	Z1 16BK	GROUND
E	-	-
F	Q30 16DB	ACCESSORY DELAY RELAY OUTPUT
G	Q5 16RD	SUNROOF MOTOR B(+)
H	Q6 16OR	SUNROOF MOTOR B(-)



SUNROOF MOTOR C1

SUNROOF MOTOR C1 - WHITE 2 WAY

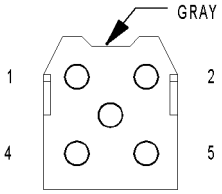
CAV	CIRCUIT	FUNCTION
1	Q5 16RD	SUNROOF MOTOR B(+)
2	Q6 16OR	SUNROOF MOTOR B(-)



SUNROOF MOTOR C2

SUNROOF MOTOR C2 - BLACK 3 WAY

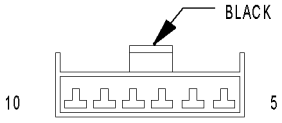
CAV	CIRCUIT	FUNCTION
1	Z150 20BK	GROUND
2	Q46 20OR/WT	SUNROOF MOTOR POSITION SENSOR SIGNAL
3	-	-



SUNROOF SWITCH

SUNROOF SWITCH - GRAY 5 WAY

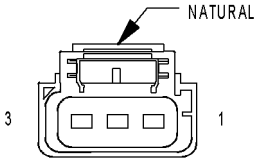
CAV	CIRCUIT	FUNCTION
1	Q43 20VT	SUNROOF VENT
2	-	-
3	Z150 20BK	GROUND
4	-	-
5	Q41 20WT	SUNROOF OPEN



TEMPERATURE VALVE ACTUATOR (MTC)

TEMPERATURE VALVE ACTUATOR (MTC) - BLACK 6 WAY

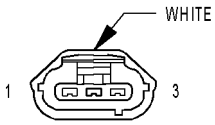
CAV	CIRCUIT	FUNCTION
5	-	-
6	-	-
7	Z132 20BK/OR	GROUND
8	C67 20RD/LB	BLEND AIR DOOR POSITION CONTROL
9	-	-
10	F22 20WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)



THROTTLE POSITION SENSOR (4.0L)

THROTTLE POSITION SENSOR (4.0L) - NATURAL 3 WAY

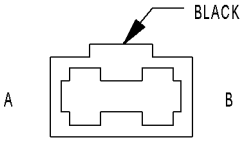
CAV	CIRCUIT	FUNCTION
1	K7 18OR	5 VOLT SUPPLY
2	K4 18BK/LB	SENSOR GROUND
3	K22 18OR/RD	THROTTLE POSITION SENSOR SIGNAL



THROTTLE POSITION SENSOR (4.7L)

THROTTLE POSITION SENSOR (4.7L) - WHITE 3 WAY

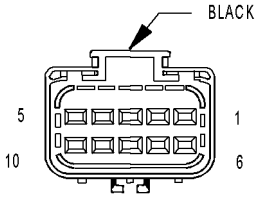
CAV	CIRCUIT	FUNCTION
1	K7 18OR	5 VOLT SUPPLY
2	K22 18OR/RD	THROTTLE POSITION SENSOR SIGNAL
3	K4 18BK/LB	SENSOR GROUND



TRAILER TOW
CIRCUIT BREAKER

TRAILER TOW CIRCUIT BREAKER - BLACK 2 WAY

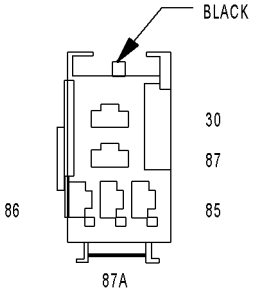
CAV	CIRCUIT	FUNCTION
A	Y203 14RD/WT	FUSED CIGAR LIGHTER RELAY OUTPUT
B	Y202 14RD/TN	CIGAR LIGHTER RELAY OUTPUT



TRAILER TOW
CONNECTOR

TRAILER TOW CONNECTOR - BLACK 10 WAY

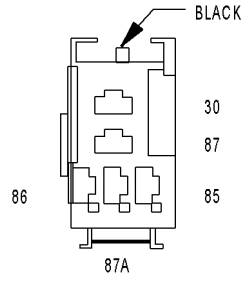
CAV	CIRCUIT	FUNCTION
1	-	-
2	L74 14PK/BK	TRAILER TOW LEFT TURN RELAY OUTPUT
3	L1 18VT/BK	BACK-UP LAMP FEED
4	Y203 14RD/WT	FUSED CIGAR LIGHTER RELAY OUTPUT
5	L7 18BK/YL	PARK LAMP RELAY OUTPUT
6	-	-
7	B40 14LB	TRAILER TOW BRAKE B(+)
8	Z150 14BK	GROUND
9	Z150 14BK	GROUND
10	L73 14PK/WT	TRAILER TOW RIGHT TURN RELAY OUTPUT



TRAILER TOW
LEFT TURN RELAY

TRAILER TOW LEFT TURN RELAY - BLACK 5 WAY

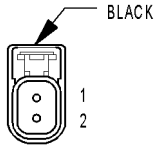
CAV	CIRCUIT	FUNCTION
30	L73 14PK/WT	TRAILER TOW LEFT TURN RELAY OUTPUT
85	L50 18WT/TN	PRIMARY BRAKE SWITCH SIGNAL
86	L63 20DG/RD	LEFT TURN SIGNAL
87A	-	-
87	F9 14RD/BK	FUSED B(+)



TRAILER TOW
RIGHT TURN RELAY

TRAILER TOW RIGHT TURN RELAY - BLACK 5 WAY

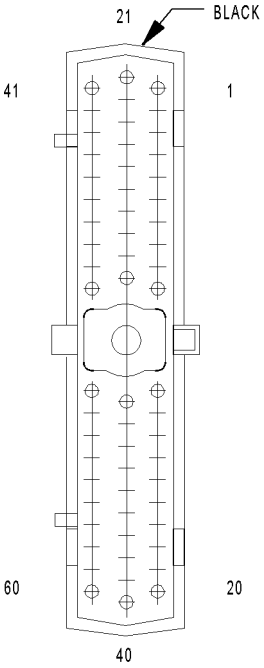
CAV	CIRCUIT	FUNCTION
30	L74 14PK/BK	TRAILER TOW RIGHT TURN RELAY OUTPUT
85	L50 18WT/TN	PRIMARY BRAKE SWITCH SIGNAL
86	L62 20BR/RD	RIGHT TURN SIGNAL
87	F9 14RD/BK	FUSED B(+)
87A	-	-



TRANSFER CASE POSITION SENSOR

TRANSFER CASE POSITION SENSOR - 2 WAY

CAV	CIRCUIT	FUNCTION
1	K77 18LG/BK (GAS)	TRANSFER CASE POSITION SENSOR INPUT
1	K77 20BR/WT (DIESEL)	TRANSFER CASE POSITION SENSOR SIGNAL
2	K4 20BK/LB (DIESEL)	SENSOR GROUND
2	K4 18BK/LB (GAS)	SENSOR GROUND



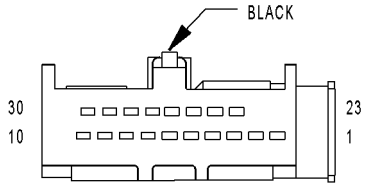
TRANSMISSION CONTROL MODULE (4.7L)

TRANSMISSION CONTROL MODULE (4.7L) - BLACK 60 WAY

CAV	CIRCUIT	FUNCTION
1	T1 18LG/BK	TRS T1 SENSE
2	T2 18TN/BK	BACK-UP LAMP RELAY CONTROL
3	T3 18VT	TRS T3 SENSE
4	-	-
5	-	-
6	K24 18GY/BK	CRANKSHAFT POSITION SENSOR SIGNAL
7	D21 18PK	SCI TRANSMIT
8	F45 18YL/RD	FUSED IGNITION SWITCH OUTPUT (START)
9	T9 18OR/BK	OVERDRIVE PRESSURE SWITCH SENSE
10	T10 18YL/DG	TORQUE MANAGEMENT REQUEST SENSE
11	F991 18OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
12	K22 18OR/RD	THROTTLE POSITION SENSOR SIGNAL
13	T13 18DB/BK	SPEED SENSOR GROUND
14	T14 18LG/WT	OUTPUT SPEED SENSOR SIGNAL
15	K30 18PK/YL	TRANSMISSION CONTROL RELAY CONTROL
16	T16 14RD	TRANSMISSION CONTROL RELAY OUTPUT
17	T16 14RD	TRANSMISSION CONTROL RELAY OUTPUT
18	T118 18YL/DB	PRESSURE CONTROL SOLENOID CONTROL
19	T119 18WT/DB	2C SOLENOID CONTROL
20	T120 18LG	LR SOLENOID CONTROL
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	T29 18GY	UNDERDRIVE PRESSURE SWITCH SENSE
30	T130 14VT/TN	LINE PRESSURE SENSOR SIGNAL
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	T16 14RD	TRANSMISSION CONTROL RELAY OUTPUT
37	Z113 14BK/WT	GROUND
38	T138 14GY/LB	5 VOLT SUPPLY
39	Z112 14BK/YL	GROUND
40	T140 18VT/LG	MS SOLENOID CONTROL
41	T42 18WT	TRS T41 SENSE
42	T42 18VT/WT	TRS T42 SENSE
43	D25 18YL/VT	PCI BUS
44	-	-

TRANSMISSION CONTROL MODULE (4.7L) - BLACK 60 WAY

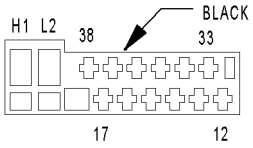
CAV	CIRCUIT	FUNCTION
45	-	-
46	D20 18LG	SCI RECEIVE
47	T147 18LB	2C PRESSURE SWITCH SENSE
48	T48 18DB	4C PRESSURE SWITCH SENSE
49	T6 18VT/WT	OVERDRIVE OFF SWITCH SENSE
50	T150 18BR/LB	LR PRESSURE SWITCH SENSE
51	K4 18BK/LB	SENSOR GROUND
52	T52 18RD/BK	INPUT SPEED SENSOR SIGNAL
53	Z114 14BK/LG	GROUND
54	T54 18VT	TRANSMISSION TEMPERATURE SENSOR SIGNAL
55	T59 18PK	UNDERDRIVE SOLENOID CONTROL
56	A30 14RD/WT	FUSED B(+)
57	Z12 14BK/TN	GROUND
58	-	-
59	T159 18DG/WT	4C SOLENOID CONTROL
60	T60 18BR	OVERDRIVE SOLENOID CONTROL



TRANSMISSION CONTROL MODULE C1 (DIESEL)

TRANSMISSION CONTROL MODULE C1 (DIESEL) - BLACK 18 WAY

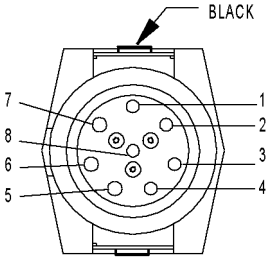
CAV	CIRCUIT	FUNCTION
1	D21 20PK	SCI TRANSMIT
2	-	-
3	W4 20PK/OR	SHIFTER C5 SENSE
4	Y1 20DB/PK	PARK LOCKOUT SOLENOID CONTROL
5	-	-
6	-	-
7	T41 20BK/WT	PARK/NEUTRAL POSITION SWITCH SENSE (T41)
8	-	-
9	-	-
10	-	-
23	-	-
24	-	-
25	W0 20DB/WT	SHIFTER C1 SENSE
26	W1 20VT/WT	SHIFTER C2 SENSE
27	W2 20VT	SHIFTER C3 SENSE
28	W3 20BK	SHIFTER C4 SENSE
29	F991 20OR/DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
30	Z234 20WT	GROUND



TRANSMISSION CONTROL MODULE C2 (DIESEL)

TRANSMISSION CONTROL MODULE C2 (DIESEL) - BLACK 14 WAY

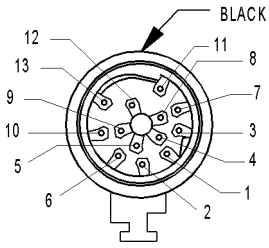
CAV	CIRCUIT	FUNCTION
12	T52 18RD/BK	N2 INPUT SPEED SENSOR
13	T39 18GY/LB	SENSOR SUPPLY VOLTAGE
14	T60 18BR	1-2/4-5 SOLENOID CONTROL
15	T159 18DG/WT	3-4 SOLENOID CONTROL
16	T119 18WT/DB	2-3 SOLENOID CONTROL
17	T120 18LG	TCC SOLENOID CONTROL
33	T13 18DB/BK	SENSOR GROUND
34	T54 18VT	TEMP SENSOR - P/N SWITCH
35	T14 18LG/WT	N3 INPUT SPEED SENSOR
36	T591 18YL/DB	MODULATION PRESSURE SOLENOID CONTROL
37	T118 18YL/DB	SHIFT PRESSURE SOLENOID CONTROL
38	T16 18RD	SOLENOID SUPPLY VOLTAGE
H1	D52 18LG/WT	CAN C BUS(+)
L2	D51 18DG/WT	CAN C BUS(-)



TRANSMISSION SOLENOID (4.0L)

TRANSMISSION SOLENOID (4.0L) - BLACK 8 WAY

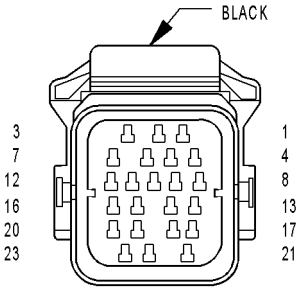
CAV	CIRCUIT	FUNCTION
1	T15 18LG	FUSED TRANSMISSION CONTROL RELAY OUTPUT
2	K6 18VT/BK	5 VOLT SUPPLY
3	K4 18BK/LB	SENSOR GROUND
4	T25 18LG/RD	GOVERNOR PRESSURE SENSOR SIGNAL
5	K88 18PK	GOVERNOR PRESSURE SOLENOID CONTROL
6	T60 18BR	3-4 SHIFT SOLENOID CONTROL
7	T20 18LB	TORQUE CONVERTER CLUTCH SOLENOID CONTROL
8	T54 18VT	TRANSMISSION TEMPERATURE SENSOR SIGNAL



TRANSMISSION SOLENOID ASSEMBLY (DIESEL)

TRANSMISSION SOLENOID ASSEMBLY (DIESEL) - BLACK 13 WAY

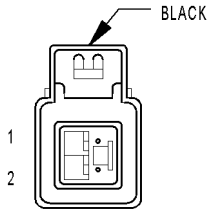
CAV	CIRCUIT	FUNCTION
1	T14 18LG/WT	N3 INPUT SPEED SENSOR
2	T591 18YL/DB	MODULATION PRESSURE SOLENOID CONTROL
3	T52 18RD/BK	N2 INPUT SPEED SENSOR
4	T54 18VT	TEMP SENSOR - P/N SWITCH
5	-	-
6	T16 18RD	SOLENOID SUPPLY VOLTAGE
7	T39 18GY/LB	SENSOR SUPPLY VOLTAGE
8	T119 18WT/DB	2-3 SOLENOID CONTROL
9	T159 18DG/WT	3-4 SOLENOID CONTROL
10	T118 18YL/DB	SHIFT PRESSURE SOLENOID CONTROL
11	T120 18LG	TCC SOLENOID CONTROL
12	T13 18DB/BK	SENSOR GROUND
13	T60 18BR	1-2/4-5 SOLENOID CONTROL



TRANSMISSION SOLENOID/ TRS ASSEMBLY (4.7L)

TRANSMISSION SOLENOID/TRS ASSEMBLY (4.7L) - BLACK 23 WAY

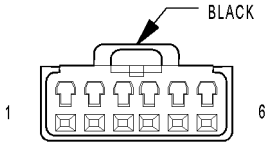
CAV	CIRCUIT	FUNCTION
1	F22 18WT/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
2	T120 18LG	LR SOLENOID CONTROL
3	T41 18BK/WT	PARK/NEUTRAL POSITION SWITCH SENSE (T41)
4	T141 18WT	TRS T41 SENSE
5	T42 18VT/WT	TRS T42 SENSE
6	L1 18VT/BK	BACK-UP LAMP FEED
7	T60 18BR	OVERDRIVE SOLENOID CONTROL
8	T3 18VT	TRS T3 SENSE
9	T1 18LG/BK	TRS T1 SENSE
10	T16 14RD	TRANSMISSION CONTROL RELAY OUTPUT
11	T48 18DB	4C PRESSURE SWITCH SENSE
12	T118 18YL/DB	PRESSURE CONTROL SOLENOID CONTROL
13	T2 18TN/BK	TRS T2 SENSE
14	T150 18BR/LB	LR PRESSURE SWITCH SENSE
15	T147 18LB	2C PRESSURE SWITCH SENSE
16	T9 18OR/BK	OVERDRIVE PRESSURE SWITCH SENSE
17	T59 18PK	UNDERDRIVE SOLENOID CONTROL
18	T29 18GY	UNDERDRIVE PRESSURE SWITCH SENSE
19	T159 18DG/WT	4C SOLENOID CONTROL
20	T119 18WT/DB	2C SOLENOID CONTROL
21	T140 18VT/LG	MS SOLENOID CONTROL
22	T13 18DB/BK	SPEED SENSOR GROUND
23	T54 18VT	TRANSMISSION TEMPERATURE SENSOR SIGNAL



UNDERHOOD LAMP

UNDERHOOD LAMP - BLACK 2 WAY

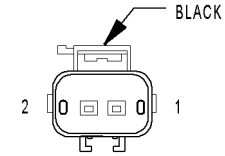
CAV	CIRCUIT	FUNCTION
1	Z141 20BK	GROUND
2	M1 20PK/RD	FUSED B(+)



VEHICLE INFORMATION CENTER

VEHICLE INFORMATION CENTER - BLACK 6 WAY

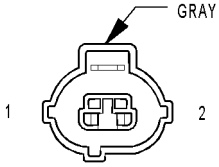
CAV	CIRCUIT	FUNCTION
1	-	-
2	D25 20YL/VT	PCI BUS
3	F70 20PK	FUSED B(+)
4	Z155 20BK/OR	GROUND
5	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
6	-	-



VISCOUS/CABIN HEATER (DIESEL)

VISCOUS/CABIN HEATER (DIESEL) - BLACK 2 WAY

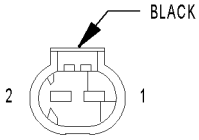
CAV	CIRCUIT	FUNCTION
1	A82 16PK/LG	VISCOUS/CABIN HEATER RELAY OUTPUT
2	Z18 16BK	GROUND



WASHER FLUID LEVEL SWITCH

WASHER FLUID LEVEL SWITCH - GRAY 2 WAY

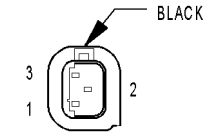
CAV	CIRCUIT	FUNCTION
1	V11 20BK/TN	WASHER FLUID SWITCH SENSE
2	Z141 20BK	GROUND



WASTEGATE SOLENOID (DIESEL)

WASTEGATE SOLENOID (DIESEL) - BLACK 2 WAY

CAV	CIRCUIT	FUNCTION
1	F15 18DB/WT	FUSED AUTO SHUT DOWN RELAY OUTPUT
2	Y42 18OR/DB	WASTEGATE SOLENOID CONTROL



WATER IN FUEL SENSOR (DIESEL)

WATER IN FUEL SENSOR (DIESEL) - BLACK 3 WAY

CAV	CIRCUIT	FUNCTION
1	K4 20BK/LB	SENSOR GROUND
2	G123 20DG/WT	WATER IN FUEL SENSOR SIGNAL
3	F15 20RD/DG	FUSED AUTO SHUT DOWN RELAY OUTPUT

8W-91 CONNECTOR/GROUND/SPLICE LOCATION

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CONNECTOR/GROUND/SPLICE LOCATION
DESCRIPTION 1

CONNECTOR/GROUND/SPLICE LOCATION

DESCRIPTION

This section provides illustrations identifying connector, ground, and splice locations in the vehicle. Connector, ground, and splice indexes are provided. Use the wiring diagrams in each section for connector, ground, and splice identification. Refer to the appropriate index for the proper figure number. For items that are not shown in this section N/S is placed in the Fig. column.

CONNECTORS

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
A/C Compressor Clutch	BK	At A/C Compressor	14, 18
A/C Pressure Transducer	BK	Right Front of Engine Compartment	4, 5, 6, 7
Accelerator Pedal Position Sensor (Diesel)	BK	Rear of Engine Compartment Near Fuel/Water Seperator	9
Adjustable Pedals Module (Except Export)	GN	Above Drivers Control Pedals	N/S
Adjustable Pedals Motor/ Sensor Assembly (Except Export)		Above Drivers Control Pedals	N/S
Adjustable Pedals Switch	WT	Drivers Lower Kick Panel	27
Airbag Control Module (ORC) C1	YL	Below Center Floor Console, Near Park Brake	24, 25, 26, 27, 28
Airbag Control Module (ORC) C2	YL	Below Center Floor Console, Near Park Brake	24, 25, 27, 28
Ambient Temperature Sensor	BK	On Radiator Center Support	6, 7
Antenna Module (Export)	WT	Above Right Quarter Window	N/S
Ash Receiver Lamp	BK	Below Cigarette Lighter	24, 25
Automatic Day/Night Mirror	BK	In Front of Rear View Mirror	N/S
Automatic Headlamp Light Sensor/VTSS LED	BK	Near Left Instrument Panel Speaker	24, 25
Automatic Zone Control Module - C1 (AZC)	WT	Left Side of HVAC Housing	N/S
Automatic Zone Control Module - C2 (AZC)	WT	Left Side of HVAC Housing	N/S
Battery Temperature Sensor	BK	Below Battery Tray	5, 6

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Blower Motor	BK	Behind Right Hand Side of Instrument Panel	N/S
Blower Motor Controller (AZC)	BK	Behind Right Hand Side of Instrument Panel	N/S
Blower Motor Resistor Block (MTC)	BK	Behind Right Hand Side of Instrument Panel	N/S
Body Control Module - C1	GY	Lower Left Side of Instrument Panel	27, 28
Body Control Module-C2 -LHD	WT	Lower Left Side of Instrument Panel	27
Body Control Module-C2 - RHD	GY	Lower Left Side of Instrument Panel	28
Boost Pressure Sensor (Diesel)	BK	Top Front of Engine	9, 10
Brake Lamp Switch	GY	Brake Pedal Arm	37
C100	BK	Right Front Engine Compartment	3, 6
C101 (4.0L RHD)	LTGY	Rear of Engine Compartment	20
C101 (4.7L RHD)	BK	Rear of Engine Compartment	N/S
C102 (Diesel)	BK	Left Rear Engine Compartment	5, 9
C102 (Gas)	BK	Right Rear Engine Compartment	6, 15, 16, 19, 20, 23
C103 (Diesel)	LTGY	Rear of Engine	5, 9
C103 (Gas)	GY	Right Rear Engine Compartment	6, 15, 16, 19, 20
C104	LTGY	Right Rear Engine Compartment	15, 19 23
C105 (Diesel)	GY	Right Rear Engine Compartment	5, 9, 13
C106 (Diesel)	GY	Lower Right Instrument Panel	7
C106 (Gas RHD)	GY	Lower Right Instrument Panel	N/S
C107 (Diesel)	GY	Left Rear Engine Compartment	5
C107 (LHD)	BK	Passenger Side Near Kick Panel	4, 36, 42
C107 (RHD)	GY	Passenger Side Near Kick Panel	4, 37
C108	BK	Left Cowl	4, 5
C109	BK	Near Transfer Case switch	17
C110 (Diesel)	GY	Top of Engine Near Glow Plugs	5, 9
C111	BK	Left Front Frame Near Windshield Washer Pump	1, 4, 5
C112	BK	Right Front Frame Near Horns	1, 6, 7
C113 (Diesel)	LTGY	Rear of Engine	9, 13
C200 - LHD	GY	Passenger Side Near Kick Panel	24, 27, 42
C200 - RHD	BK	Passenger Side Near Kick Panel	25, 28
C201)	WT	Below Center Floor Console, Near Park Brake	24, 25, 26, 27, 28
C202	WT	HVAC Unit, Right Side of Instrument Panel	24, 25, 27, 28
C203 (AZC)	WT	HVAC Unit, Right Side of Instrument Panel	24, 25, 27, 28

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
C300 (LHD)	GY	Near Junction Block	36, 40
C301 (RHD)	BK	Near Junction Block	37
C302	BK	At Driver Door	30, 31, 36, 37
C303	WT	Right Rear Door	35, 41, 43
C304	BK	Under Driver Seat	40, 43
C306	BK	Under Passenger Seat	41, 42
C307	WT	Left Rear Door	34, 40 42
C308	WT	Top of Liftgate	44, 45
C309	WT	Left Rear Quarter Pillar	44
C310 (Export)	LT GY	Above Left Quarter Wheel Housing	44, 46
C310 (Except Export)	LT GN	Above Left Quarter Wheel Housing	46
C311	WT	Top of Liftgate	45
C312		Center of Liftgate	45
C313	WT	In Driver Door	30, 31
C314	LT GY	At Passenger Door	32, 33, 37
C315		To Rear of Right Quarter Window	39
C318		At B Pillar	40, 43
C319		At Center of Headliner	42
Camshaft Position Sensor (Diesel)	BK	Top of Engine	9, 12
Camshaft Position Sensor (Gas)	GY	Right Side of Engine	15, 16, 19, 20
Capacitor (4.0L)	BK	Right Rear of Engine	15
Capacitor NO. 1 (4.7L)	BK	Right Side of Engine	19, 20
Capacitor NO. 2 (4.7L)	BK	Left Side of Engine	18
Cargo Lamp	WT	In Headliner Near Liftgate	N/S
Center High Mounted Stop Lamp	BK	Top of Liftgate	N/S
Cigar Lighter	RD	Center of Instrument Panel	24, 25
Clockspring - C1	BK	At Steering Column	29
Clockspring - C2		At Steering Column	29
Clockspring - C3	GY	At Steering Column	29
Clockspring - C4	BK	At Steering Column	N/S
Coil On Plug NO. 1 (4.7L)	BK	Left Side of Engine Near Fuel Injector No.1	18
Coil On Plug NO. 2 (4.7L)	BK	Right Side of Engine Near Fuel Injector No.2	19, 20
Coil On Plug NO. 3 (4.7L)	BK	Left Side of Engine Near Fuel Injector No.3	18
Coil On Plug NO. 4 (4.7L)	BK	Right Side of Engine Near Fuel Injector No.4	19, 20
Coil On Plug NO. 5 (4.7L)	BK	Left Side of Engine Near Fuel Injector No.5	18

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Coil On Plug NO. 6 (4.7L)	BK	Right Side of Engine Near Fuel Injector No.6	19, 20
Coil On Plug NO. 7 (4.7L)	BK	Left Side of Engine Near Fuel Injector No.7	18
Coil On Plug NO. 8 (4.7L)	BK	Right Side of Engine Near Fuel Injector No.8	19, 20
Coil Rail (4.0L)	BK	Right Rear of Engine	15, 16
Compact Disc Changer	BK	Near Radio	N/S
Compact Disc Changer	BK	Right Rear Quarter Panel	44
Controller Antilock Brake	BK	Left Front Engine Compartment	4, 5
Coolant Level Sensor	LT GY	Right Rear of Engine	6, 7
Crankcase Heater (Diesel)	BK	At top of Inlet Air Hose to Turbo	13
Crankshaft Position Sensor (Diesel)	BK	Rear of Engine Near Transmission Bell Housing	11
Crankshaft Position Sensor (Gas)	BK	Rear of Engine Near Transmission Bell Housing	15, 16, 19, 20, 22
Data Link Connector	BK	Under Lower Driver's Side of Instrument Panel	25, 27, 28
Driver Airbag Squib 1	BK	In Steering Wheel	29
Driver Airbag Squib 2	BK	In Steering Wheel	29
Driver Blend Door Motor/ Actuator (AZC)	BK	On HVAC Housing	N/S
Driver Cylinder Lock Switch	GY	In Driver Door	30, 31
Driver Door Lock Motor/Ajar Switch	BK	In Driver Door	30, 31
Driver Door Module - C1	WT	In Driver Door	30, 31
Driver Door Module - C2	BK	In Driver Door	N/S
Driver Door Module - C3	BK	In Driver Door	N/S
Driver Front Door Courtesy Lamp	BK	In Driver Door	N/S
Driver Front Power Window Motor	BK	In Driver Door	30, 31
Driver Heated Seat Back (Premium I/III)	GN	At Driver Seat	38
Driver Heated Seat Cushion (Premium I/III)	BK	At Driver Seat	38
Driver Heated Seat Switch	WT	Center of Instrument Panel	24 25, 27
Driver Lumbar Motor (Midline/Premium)	BK	At Driver Seat	38
Driver Lumbar Switch (Midline/Premium)	WT	At Driver Seat	N/S
Driver Power Mirror	BK	At Driver Door	N/S
Driver Power Seat Front Riser Motor	RD	At Driver Seat	N/S

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Driver Power Seat Front Riser Motor Sensor (Premium II/III)	BK	At Driver Seat	N/S
Driver Power Seat Horizontal Motor	BK	At Driver Seat	N/S
Driver Power Seat Horizontal Motor Sensor (Premium II/III)	BK	At Driver Seat	N/S
Driver Power Seat Rear Riser Motor	RD	At Driver Seat	N/S
Driver Power Seat Rear Riser Motor Sensor (Premium II/III)	BK	At Driver Seat	N/S
Driver Power Seat Recliner Motor	BK	At Driver Seat	N/S
Driver Power Seat Recliner Motor Sensor (Premium II/III)	BK	At Driver Seat	N/S
Driver Power Seat Switch (Midline/Premium)	GN	At Driver Seat	N/S
Driver Rear Power Window Motor	BK	In Left Rear Door	34
Driver Rear Power Window Switch	BL	In Left Rear Door	34
Driver Seat Belt Switch		At Switch	N/S
EGR Solenoid (Diesel)	BK	Left Front Fender	9, 13
Electric Brake	BL	Near Junction Block	N/S
Electronic Speed Control Servo	BK	Right Front of Engine Compartment	6
Engine Control Module C1 (Diesel)	BK	Left Front of Engine	9, 13
Engine Control Module C2 (Diesel)	BK	Left Front of Engine	9, 13
Engine Coolant Temperature Sensor (Diesel)	BK	Top of Engine	13
Engine Control Module C1	BK	Left Rear Engine Compartment LHD	9, 13
Engine Control Module C2	BK	Left Rear Engine Compartment LHD	9, 13
Engine Coolant Temperature Sensor (GAS)	BK	Front of Engine	14, 18
Engine Oil Pressure Sensor	BK	Side of Engine	11, 15, 16, 18
EVAP/Purge Solenoid	BK	Left Front Fender Near Controller Antilock Brake	4
Front Power Outlet	RD	Center of Instrument Panel	24, 25
Front Washer Pump	WT	Left Front of Engine Compartment	4, 5
Front Wiper Motor	BK	Left Side of Cowl	4, 5
Fuel Injector No.1	BK	At Injector	9, 14, 18
Fuel Injector No.2	BK	At Injector	9, 14, 19, 20

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Fuel Injector No.3	BK	At Injector	9, 14, 18
Fuel Injector No.4	BK	At Injector	9, 14, 19, 20
Fuel Injector No.5	BK	At Injector	14, 18
Fuel Injector No.6	BK	At Injector	14, 19, 20
Fuel Injector No.7 (4.7L)	BK	At Injector	18
Fuel Injector No.8 (4.7L)	BK	At Injector	19, 20
Fuel Pressure Sensor (Diesel)	BK	Right Front of Engine	9, 10, 12
Fuel Pressure Solenoid (Diesel)	BK	Top of Engine	9, 12
Fuel Pump Module (Gas)	BK	Near Fuel Tank	40, 42
Fuel Tank Module Diesel)	BK	Near Fuel Tank	40, 42
Generator (Diesel)	LTGY	At Generator	13
Generator (Gas)	BK	At Generator	N/S
Glove Box Lamp	BK	Inside Glove Box	24, 25, 28
Glow Plugs		Left Side of Engine Head	12
Headlamp Leveling Switch (Built-Up-Export)	WT	Driver Side of Instrument Panel	25
Hood Ajar Switch	BK	Left Side of Engine Compartment	4, 5
Horn No.1	BK	Right Front Fascia	6, 7
Horn No.2	BK	Right Front Fascia	6, 7
Hydraulic Cooling Module	BK	Right Front of Engine Compartment	6, 7
Idle Air Control Motor	BK	Left Side of Engine Near Throttle Body	18
Ignition Switch - C1	WT	On Steering Column	29
Ignition Switch - C2	BK	On Steering Column	29
Input Speed Sensor (4.7L)	BK	Left Side of Transmission	21
Instrument Cluster	WT	At Instrument Cluster	24, 25
Intake Air Temperature Sensor (Gas)	GY	Left Side of Engine	14, 18
Intake Air Temperature Sensor (Diesel)	BK	Lower Left Front of Engine Intake	10
Intake Port Swirl Actuator (Diesel)	BK	Left Rear of Engine Block	11
Intrusion Transceiver Module (Export)	BK	In The Overhead	N/S
Junction Block - C1	BK	At Junction Block	36, 37, 40
Junction Block - C2	BK	At Junction Block	36, 37
Junction Block - C3	BK	At Junction Block	27, 28, 36
Junction Block - C4	WT	At Junction Block	36, 37
Junction Block - C5	WT	At Junction Block	36, 37
Knock Sensor (4.7L High Output)	BK	Right Rear Side of Engine, Near Coil on Plug No.8	N/S

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Leak Detection Pump (Except Export)		Left Rear Quarter	4
Left Courtesy Lamp	BK	Left Side of Instrument Panel	27 28, 29
Left Curtain Airbag	BK	Near Left C Pillar	44
Left Door Handle Courtesy Lamp	BK	At Lamp	N/S
Left Fog Lamp	BK	At Lamp	4, 5
Left Front Door Speaker	WT	In Left Front Door	30, 33
Left Front Impact Sensor	BK	Left Front Frame Near Windshield Washer Pump	4, 5
Left Front Park Lamp	WT	At Lamp	2
Left Front Park/Turn Signal Lamp (Except Export)	BK	At Lamp	N/S
Left Front Side Marker Lamp (Except Export)	WT	At Lamp	N/S
Left Front Turn Signal Lamp (Export)	WT	At Lamp	2
Left Front Wheel Speed Sensor	GY	At Left Front Wheel Opening	5
Left Headlamp Leveling Motor (Export)	BK	At Motor	2
Left High Beam Headlamp	BK	At Lamp	2
Left Instrument Panel Speaker	WT	At Speaker	24, 25
Left Liftgate Ajar Switch	BK	In Liftgate	45
Left Low Beam Headlamp	GY	At Lamp	2
Left Multi-Function Switch	WT	On Steering Column	29
Left Rear Door Lock Motor/Ajar Switch	BK	In Left Rear Door	34
Left Rear Door Speaker	WT	In Left Rear Door	34
Left Rear Lamp Assembly	BK	At Lamp Assembly	44
Left Rear Wheel Speed Sensor	GY	Near Left Rear Wheel	40, 42
Left Remote Radio Switch	BK	At Switch in Steering Wheel	N/S
Left Side Impact Sensor	BK	Left Body	N/S
Left Side Repeater Lamp (Export)	BK	On Left Front Fender	4, 5
Left Visor/Vanity Lamp	BK	At Lamp	N/S
License Lamp No.1	BK	At Lamp	N/S
License Lamp No.2	BK	At Lamp	N/S
Liftgate Flip-Up Ajar Switch	GY	In Liftgate	45
Liftgate Flip-Up Push Button Switch	BK	In Liftgate	N/S
Liftgate Flip-Up Release Solenoid	BK	In Liftgate	45

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Liftgate Lock Motor	BK	In Liftgate	45
Line Pressure Sensor (4.7L)	BK	Rear of Transmission	N/S
Manifold Absolute Pressure Sensor (4.0L)	BK	At Throttle Body	14
Manifold Absolute Pressure Sensor (4.7L)	BK	Right Side of Engine	18
Manual Temperature Control - C1 (MTC)	WT	Center of Instrument Panel	N/S
Manual Temperature Control - C2 (MTC)	WT	Center of Instrument Panel	N/S
Mass Air Flow sensor (Diesel)	BK	At Bottom of Air Inlet Hose Near Air Cleaner	13
Mode Door Motor/Actuator (AZC)	BK	Right Center of Instrument Panel	N/S
Output Speed Sensor (4.0L)	GY	Left Side of Transmission	17
Output Speed Sensor (4.7L)	BK	Left Side of Transmission	21
Overhead Map/Courtesy Lamp	WT	At Overhead Console	N/S
Oxygen Sensor 1/1 Upstream (4.0L)	GY	Left Side of Engine at Exhaust	14
Oxygen Sensor 1/1 Upstream (4.7L)	BK	Left Side of Engine Near Engine Mount	22
Oxygen Sensor 1/2 Downstream (4.0L)	BK	Rear of Transmission	14, 17
Oxygen Sensor 1/2 Downstream (4.7L)	GY	Right side of Trans BellHousing, Near 'Y' Pipe Wire cover Green	22
Oxygen Sensor 2/1 Upstream (4.0L)	NAT	Left of Transmission	17
Oxygen Sensor 2/1 Upstream (4.7L)	BK	Right Front Lower Engine, Forward of Engine mount	19
Oxygen Sensor 2/2 Downstream (4.0L)	NAT	Rear of Transmission	N/S
Oxygen Sensor 2/2 Downstream (4.7L)	BK	Right side of Trans BellHousing, Near 'Y' Pipe	N/S
Park Brake Switch		Center Console Area, Near Airbag Control Module	25, 26,27, 28
Park/Neutral Position Switch (4.0L)	BK	Left Side of Transmission	17
Park/Neutral Position Switch (Diesel)	BK	Left Side of Transmission	N/S
Passenger Airbag	YL	Passenger Side of Instrument Panel	24, 25
Passenger Blend Door Motor/Actuator (AZC)	BK	Passenger Side of Instrument Panel	N/S
Passenger Door Lock Motor/Ajar Switch	BK	In Passenger Door	32, 33

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Passenger Door Module - C1	WT	In Passenger Door	32, 33
Passenger Door Module - C2	BK	In Passenger Door	N/S
Passenger Front Door Courtesy Lamp	BK	In Passenger Door	N/S
Passenger Front Power Window Motor	BK	In Passenger Door	32, 33
Passenger Heated Seat Back (Premium I/III)	GN	At Passenger Seat	38
Passenger Heated Seat Cushion (Premium I/III)	BK	At Passenger Seat	38
Passenger Heated Seat Switch	BK	Center of Instrument Panel	24, 25, 27
Passenger Lumbar Motor (Midline/Premium)	BK	At Passenger Seat	38
Passenger Lumbar Switch (Midline/Premium)	WT	At Passenger Seat	N/S
Passenger Power Mirror	BK	In Passenger Door	N/S
Passenger Power Seat Front Riser Motor	RD	At Passenger Seat	N/S
Passenger Power Seat Horizontal Motor	RD	At Passenger Seat	N/S
Passenger Power Seat Rear Riser Motor	RD	At Passenger Seat	N/S
Passenger Power Seat Recliner Motor (Midline/ Premium)	BK	At Passenger Seat	N/S
Passenger Power Seat Switch (Midline/Premium)	GN	At Passenger Seat	N/S
Passenger Rear Power Window Motor	BK	In Right Rear Door	35
Passenger Rear Power Window Switch	BL	In Right Rear Door	35
Passenger Seat Belt Switch		t Switch	N/S
Power Amplifier - C1	WT	Under Rear Seat	41, 43
Power Amplifier - C2	WT	Under Rear Seat	41, 43
Powertrain Control Module - C1 (Gas)	BK	Rear of Engine Compartment	6, 15, 16, 19, 20, 23
Powertrain Control Module - C2 (Gas)	WT	Rear of Engine Compartment	6, 15, 16, 19, 20, 23
Powertrain Control Module - C3 (Gas)	WT	Rear of Engine Compartment	N/S
Radiator Fan Motor	BK	At Radiator	6
Radiator Fan Relay	BK	Right Side of Engine Compartment	6
Radio - C1	GY	Center of Instrument Panel	24, 25
Radio - C2	BK	Center of Instrument Panel	24, 25

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Rain Sensor	BK	Front Center Overhead	N/S
Rear Power Outlet	RD	Right Rear Quarter Panel	44
Rear Washer Pump	BK	Left Front of Engine Compartment	4, 5
Rear Window Defogger	BK	Right Upper Coner of Liftgate	45
Rear Wiper Motor	BK	In Liftgate	45
Recirculation Door Motor/ Actuator (AZC)	BK	Center of Instrument Panel	N/S
Red Brake Warning Indicator Switch	GY	At Master Cylinder	5
Remote Keyless Module (Japan)	BL	In Driver Door	31
Right Courtesy Lamp	BK	At Lamp	25 27, 28
Right Curtain Airbag	BK	Near Right C Pillar	44
Right Door Handle Courtesy Lamp	BK	At Lamp	N/S
Right Fog Lamp	BK	At Right Front Fascia	6, 7
Right Front Door Speaker	WT	In Right Front Door	31, 32
Right Front Impact Sensor	BK	Near Right Verticle Radiator Support	7
Right Front Park Lamp	WT	At Lamp	2
Right Front Park/Turn Signal Lamp (Except Export)	BK	At Lamp	N/S
Right Front Side Marker Lamp (Except Export)	WT	At Lamp	N/S
Right Front Turn Signal Lamp (Export)	WT	At Lamp	2
Right Front Wheel Speed Sensor	GY	In Right Front Wheel Opening	7
Right Headlamp Leveling Motor (Export)	BK	At Motor	2
Right High Beam Headlamp	BK	At Lamp	2
Right Instrument Panel Speaker	WT	At Speaker	24, 25
Right Liftgate Ajar Switch	BK	In Liftgate	45
Right Low Beam Headlamp	GY	At Lamp	2
Right Multi-Function Switch	WT	On Steering Column	29
Right Rear Door Lock Motor/Ajar Switch	BK	In Right Rear Door	35
Right Rear Door Speaker	WT	In Right Rear Door	35
Right Rear Lamp Assembly	BK	At Lamp Assembly	44
Right Rear Wheel Speed Sensor	BK	Near Right Rear Wheel	40, 42
Right Remote Radio Switch	BK	At Switch in Steering Wheel	N/S
Right Side Repeater Lamp (Export)	BK	On Right Front Fender	6, 7

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Right Visor/Vanity Lamp	BK	At Lamp	N/S
Seat Belt Switch	WT	At Driver Seat	N/S
Seat Module - C1 (Premium)	BK	Under Driver Seat	N/S
Seat Module - C2 (Premium)	OR	Under Driver Seat	N/S
Sentry Key Immobilizer Module	BK	On Steering Column	29
Shifter Assembly (Gas)	WT	Between Front Seats	29
Shifter Assembly C1 (Diesel)		Between Front Seats	N/S
Shifter Assembly C2 (Diesel)		Between Front Seats	N/S
Siren (Export)		Left Front Fender	4, 5
Speed Control Switch NO. 1	BK	On Steering Wheel	N/S
Speed Control Switch NO. 2	BK	On Steering Wheel	N/S
Sunroof Control Module		At Sunroof	39
Sunroof Motor C1	WT	At Sunroof	39
Sunroof Motor C2	BK	In Overhead	39
Sunroof Switch	GY	At Switch	N/S
Temperature Valve Actuator (MTC)	BK	On HVAC Housing	N/S
Throttle Position Sensor (4.0L)	BK	Left Side of Engine	14
Throttle Position Sensor (4.7L)	WT	Left Side of Engine	18
Trailer Tow Brake Lamp Relay	BK	Left Quarter Panel	N/S
Trailer Tow Circuit Breaker	BK	Left Quarter Panel	N/S
Trailer Tow Connector	BK	In Rear Bumper	46
Trailer Tow Left Turn Relay	BK	Left Quarter Panel	N/S
Trailer Tow Right Turn Relay	BK	Left Quarter Panel	N/S
Transfer Case Position Sensor	BK	On Transfer Case	9
Transmission Control Module (4.7L)	BK	Rear of Engine Compartment	19, 20, 23
Transmission Control Module C1 (Diesel)	BK	Right Rear Side of Engine Compartment	N/S
Transmission Control Module C2 (Diesel)	BK	Right Rear Side of Engine Compartment	13
Transmission Solenoid (4.0L Gas)	BK	Left Side of Transmission	17
Transmission Solenoid Assembly (Diesel)	BK	On Transmission	13
Transmission Solenoid/TRS Assembly (4.7L)	GY	Left Side of Transmission	21
Underhood Lamp	BK	At Lamp	8
Vehicle Information Center	BK	In Overhead Console	N/S

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

CONNECTOR NAME/ NUMBER	COLOR	LOCATION	FIG.
Viscous/Cabin Heater (Diesel)	BK	Right Front of Engine Above Generator	13
Washer Fluid Level Switch	GY	Left Front of Engine Compartment	4, 5
Wastegate Solenoid (Diesel)		Near Power Distribution Center	7, 10
Water In Fuel Sensor (Diesel)	BK	Left Rear of Engine Compartment	N/S

GROUNDS

GROUND NUMBER	LOCATION	FIG.
G100 (4.0L and Diesel)	Near Starter	N/S
G100 (4.7L)	Near Intake Plenum	N/S
G101	Near Battery	3
G102	Right Side of Engine	19, 20
G103	Right Side of Engine	9, 13, 15, 16, 19, 20
G104 (4.0L)	Right Rear of Engine	15, 16
G104 (4.7L)	Left Side of Engine	18
G105	Right Side of Engine	13
G106	Left Side of Engine Compartment	4, 5
G107	Left Side of Engine Compartment	4, 5
G108	Near Power Distribution Center	6, 7
G200	Near Airbag Control Module	24, 25, 26, 27, 28
G201	Near Airbag Control Module	24, 25, 26, 27, 28
G300	Near Right Front Seat	41, 43
G301	Near Left Front Seat	40, 42

SPLICES

SPLICE NUMBER	LOCATION	FIG.
S100	Near T/O for Power Distribution Center Eyelet	3
S102 (4.0L)	Near T/O for G103	15, 16
102 (4.7L)	Near T/O for Fuel Injector No. 1	18
S102 (Diesel)	Near T/O for C110	9, 13
S103 (4.7L)	Near T/O for Engine Oil Pressure Sensor	18
S104 (4.0L)	Near T/O for A/C Compressor Clutch	N/S
S104 (4.7L)	Near T/O for Oxygen Sensor 2/2 Downstream	N/S
S105 (4.0L)	Near T/O for Capacitor	16
S105 (4.7L)	Near T/O for Fuel Injector NO. 7	18
S106 (4.0L)	In T/O for Oxygen Sensors	16, 17
S106 (4.7L)	Near T/O for C103	19
S106 (4.7L) RHD	Near T/O for Fuel Injector No.4	20
S107 (4.0L)	Near T/O for Fuel Injector No.5	14
S107 (4.7L)	Near T/O for Fuel Injector No.7	18

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

SPLICE NUMBER	LOCATION	FIG.
S109 (4.0L)	Near T/O for Fuel Injector No.2	14
S109 (4.7L)	Near T/O for Coil On Plug No. 6	19, 20
S110 (4.0L Except Export)	Near T/O for Oxygen Sensor	N/S
S111 (4.7L)	In T/O for Oxygen Sensor	N/S
S111 (4.0L Except Export)	Near T/O for Oxygen Sensor	N/S
S112 (4.0L)	Near T/O for C102, C103 and C104	15, 16
S112 (4.7L)	Near T/O for Coil On Plug No.8	20
S112 (Diesel)	Near T/O for Accelerator Pedal Position Sensor	N/S
S113 (4.7L)	Near T/O for Transmission Control Module	20, 23
S114 (4.0L)	Near T/O for Transmission Control Module	23
S114 (4.7L)	Near T/O for Transmission Control Module	20, 23
S115 (4.0L)	Near T/O for Transmission Control Module	23
S115 (4.7L)	Near T/O for Transmission Control Module	20, 23
S116 (4.0L)	Near Powertrain Control Module C1 and C2	23
S116 (4.7L) LHD	Near T/O for C102, C103 and C104	19
S116 (4.7L) RHD	In T/O for Powertrain Control Module	20
S117 (4.7L) LHD	Neat T/O for C102, C103 and C104	19
S118 (4.7L)	Near T/O for Coil On PlugNo.4	19, 20
S118 (Diesel)	Near T/O for Fuel Sender Unit	N/S
S119 (4.7L) LHD	In T/O for Crankshaft Position Sensor	23
S119 (4.7L) RHD	In T/O for Powertrain Control Module	20
S120 (4.7L)	Near T/O for Powertrain Control Module	20, 23
S121 (4.7L)	Near T/O for Idle Air Control Motor	18
S122 (4.0L)	Near T/O for G103	15, 16
S122 (4.7L) LHD	Near T/O for Input Speed Sensor	20
S122 (4.7L) RHD	Near T/O for Powertrain Control Module	21
S122 (Diesel)	Near T/O for Generator	N/S
S123 (4.0L)	Near T/O for Capacitor	15, 16
S124 (4.7L)	In Trough Near T/O for Capacitor No.2	18
S125 (Diesel)	In T/O for C103 and C105 Left Rear of Engine Compartment	N/S
S125 (Gas)	Near T/O for Powertrain Control Module - C3	N/S
S126 (4.0L) LHD	Near T/O for Battery Temperature Sensor	N/S
S126 (4.0L) RHD	In Trough Near T/O for Powertrain Control Module - C3	N/S
S127 (LHD) Gas	In Trough Near T/O for Powertrain Control Module - C3	N/S
S127 (RHD) Gas	In T/O for Power Distribution Center	6
S127 (Diesel)	Near T/O for Power Distribution Center	5
S128 (Diesel)	In T/O for C102 Left Rear of Engine Compartment	N/S
S128 (LHD) Gas	In Trough Near T/O for Powertrain Control Module - C3	N/S
S128 (RHD) Gas	In T/O for C102	6
S130 (LHD) Gas	In T/O for C102	N/S

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

SPLICE NUMBER	LOCATION	FIG.
S130 (RHD) Gas	In T/O for Controller Antilock Brake	4
S130 (Diesel)	In T/O for Controller Anti-Lock Brake	5
S131	In Trough Near T/O for Power Distribution Center	6
S131 (Diesel)	Near T/O for Power Distribution Center	5
S132 (Diesel)	Near T/O for EGR Solenoid	N/S
S132 (Gas)	Near T/O for Battery Temperature Sensor	6
S133 (Diesel)	In Trough Near T/O for EGR Solenoid	7
S133 (Gas)	Near T/O for Battery Temperature Sensor	6
S134 (Diesel)	In Trough Near T/O for G106/G107	5
S134 (Gas)	In Trough Near T/O for Controller Anti-Lock Brake	4
S135 (Diesel)	Near T/O for Engine Control Module C1	9, 13
S136 (Diesel)	Near T/O for Engine Control Module C1	9, 13
S137 (Diesel)	In Trough Near T/O for Coolant Level Sensor	7
S139 (Diesel)	Near T/O for Engine Control Module C1	9, 13
S140 (Diesel)	Near T/O for Power Distribution Center	5
S140 (Gas)	Near T/O for Controller Antilock Brake	N/S
S141 (Gas)	Near T/O for Controller Antilock Brake	4
S142 (Diesel)	In Trough Near T/O for Coolant Level Sensor	7
S142 Gas	In T/O for C102	6
S143 (Diesel)	In Trough Near T/O for Hood Ajar Switch	5
S143 (Gas, Export) LHD	In Trough Near T/O for Controller Antilock Brake	4
S143 Gas RHD	Near T/O for Evap/Purge Solenoid	N/S
S145 (Diesel)	Near T/O for Engine Control Module C1	9, 13
S147 (Diesel)	In T/O for Controller Anti-Lock Brake	5
S151	In Headlamp Assembly	N/S
S152	In Headlamp Assembly	N/S
S153	In Headlamp Assembly	N/S
S154	In Headlamp Assembly	N/S
S155	In Headlamp Assembly	N/S
S156	In Headlamp Assembly	N/S
S158 4.7L RHD	Near T/O for Fuel Injector No. 1	18
S159	In T/O for C101	N/S
S160 (4.7L High Output)	In T/O for C102	N/S
S162 (Diesel)	In T/O for Wastegate Solenoid	5, 7, 13
S163	Near T/O for Leak Detection Pump	4
S165 (Diesel)	Near T/O for Left Front Wheel Speed Sensor	5
S168	Near T/O for Intake Air Temperature Sensor	9, 13
S169	Near T/O for Engine Control Module C1	9, 13
S170	Near T/O for Engine Control Module C2	9, 13
S171	Near T/O for C113	9

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

SPLICE NUMBER	LOCATION	FIG.
S172	Near T/O for C113	9
S174	Near Washer Fluid Level Switch Connector	4, 5
S176	Near T/O for Intake Air Temperature Sensor	9
S200	In Trough Near T/O for Passenger Heated Seat Switch	27
S200 (RHD)	Upper Center Instrument Panel	28
S201	In Trough Near T/O for Front Power Outlet	27
S201 (RHD)	Near T/O for Power Connector	28
S202	In Trough Near T/O for Passenger Heated Seat Switch	27
S202 (RHD)	Upper Center Instrument Panel	28
S203	In Trough Near T/O for Cigar Lighter	27
S203 (RHD)	Lower Center Instrument Panel	28
S204	In Trough Near T/O for Power Connector	27
S204 (RHD)	Right Center Instrument Panel	28
S205	Near T/O for Adjustable Pedal Switch	27
S205 (RHD)	Upper Center Instrument Panel	28
S206	Near T/O for Adjustable Pedals Switch	N/S
S206 (RHD)	Upper Center Instrument Panel	28
S207	In Trough Near T/O for Radio Connectors	27
S207 (RHD)	Upper Center Instrument Panel	28
S208	In Trough Near T/O for Radio Connectors	27
S208 (RHD)	Upper Center Instrument Panel	28
S210	In Trough Near T/O for Left Courtesy Lamp	27
S210 (RHD)	Lower Center Instrument Panel	28
S211	In Trough Near T/O for Left Courtesy Lamp	N/S
S211 (RHD)	Right Side of Instrument Panel	28
S212	In Trough Near T/O for Left Courtesy Lamp	27
S212 (RHD)	Right Center Instrument Panel	28
S213	Near T/O for Cruise Switch No.1	N/S
S214	Near T/O for Cruise Switch No.1	N/S
S215	Near T/O for Horn Switch	N/S
S216	Near T/O for Remote Radio Switch No.2	N/S
S217	In Trough Near T/O for Power Connector	27
S217 (RHD)	Lower Center Instrument Panel	28
S221	Right Center of Instrument Panel	27
S221 (RHD)	Left Center of Instrument Panel	28
S222	Right Center of Instrument Panel	27
S222 (RHD)	Near T/O for Front Power Outlet	28
S223	Near T/O for Adjustable Pedals Switch	27
S223 (RHD)	Lower Left Side of Instrument Panel	28
S224	Right Center of Instrument Panel	27
S224 (RHD)	Upper Center of Instrument Panel	28

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

SPLICE NUMBER	LOCATION	FIG.
S300	Near T/O for G304	40
S301	In T/O for C304	40
S302	In Sill Trough Near T/O for C307	40, 42
S303	In Sill Trough Near T/O for C307	40, 42
S304	In Sill Trough Near T/O for C307	42
S305	In Sill Trough Near T/O for C307	N/S
S306	Near T/O for C310	44
S307	Near T/O for C310	44
S308	Between T/O's for C310 and Left Rear Lamp Assembly	43, 44
S309	Between T/O's for C310 and Left Rear Lamp Assembly	44
S310	Between T/O's for C310 and Left Rear Lamp Assembly	42, 44
S311	Near T/O for Left Rear Lamp Assembly	44
S312	Near T/O for C200	42
S313	Near T/O for G301	42
S314	Near T/O for C314	N/S
S315 (Gas)	In Center Spline Near T/O for G301	42
S316 (Gas)	Near T/O for Junction Block C2, C4, C5	N/S
S317	Between Troughs Near T/O for C314	N/S
S318	Between Troughs Near T/O for C314	N/S
S319	In Trough Near T/O for C304	40
S323	Near T/O for C314	N/S
S324	In T/O for C200	41
S326	Near T/O for C200	41, 42
S327	Near T/O for c307	41, 42
S328	In Sill Trough Near T/O for G300	41
S329	In Sill Trough Near T/O for G300	41
S330	Near T/O for G300	41
S331	In Sill Trough Near T/O for C303	41, 43
S332	In Sill Trough Near T/O for C303	41, 43
S333	Near T/O for Power Amplifiers	43
S334	In T/O for Power Amplifier - C2	41
S335	Near T/O for C314	43
S336	Near T/O for Driver Power Window Motor	30, 31
S338	Near T/O for Passenger Power Window Motor	32, 33
S339	Near T/O for Passenger Power Window Motor	32 33
S340	In T/O for Passenger Door Module - C1	32, 33
S341	Near T/O for C306	N/S
S345	Near T/O for Sunroof Switch	39
S346	Near T/O for Left Visor/Vanity Lamp	39
S347	Near T/O for Left Visor/Vanity Lamp	39
S348	Near T/O for Automatic Day/Night Mirror	39

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

SPLICE NUMBER	LOCATION	FIG.
S349	Near T/O for Automatic Day/Night Mirror	39
S351	Near T/O for Seat Belt Switch	N/S
S352	Near T/O for Seat Belt Switch	N/S
S353	Near T/O for Driver Lumbar Switch	N/S
S355	Near T/O for C304 and C306	N/S
S356	In T/O for Left Rear Door Lock Motor/Ajar Switch	34
S357	In T/O for Right Rear Door Lock Motor/Ajar Switch	35
S358	Near Left B Pillar Sill Trough	42
S359	Near T/O for C302	41
S360	In T/O for C302	N/S
S362	In T/O for C200	41
S363	In T/O for C200	41
S364	Near B Pillar Sill Trough	43
S365 Japan	Near T/O for Remote Keyless Entry Module	30, 31
S366	Near T/O for Junction Block C1	N/S
S367 (RHD)	Near T/O for C310	N/S
S368	Near T/O for Power Amplifier - C1	41
S369	Near T/O for Left Visor Vanity Lamp	N/S
S370	Near T/O for Sunroof Module	39
S371	In Trailer Tow Harness Jumper	N/S
S374 shown as S400	Near Rear Window Defogger Ground Connector	45
S375 shown as S401	Near Rear Window Defogger Ground Connector	45
S376 shown as S402	Near T/O for Liftgate Flip-Up Ajar Switch	45
S377 shown as S403	Near T/O for Rear Wiper Motor	45
S378 shown as S404	Near T/O for Liftgate Lock Motor	45
S379 shown as S405	In T/O for Rear Wiper Motor	45
S380	Near T/O for License Lamp No.1	N/S
S381	In T/O for C312	N/S

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

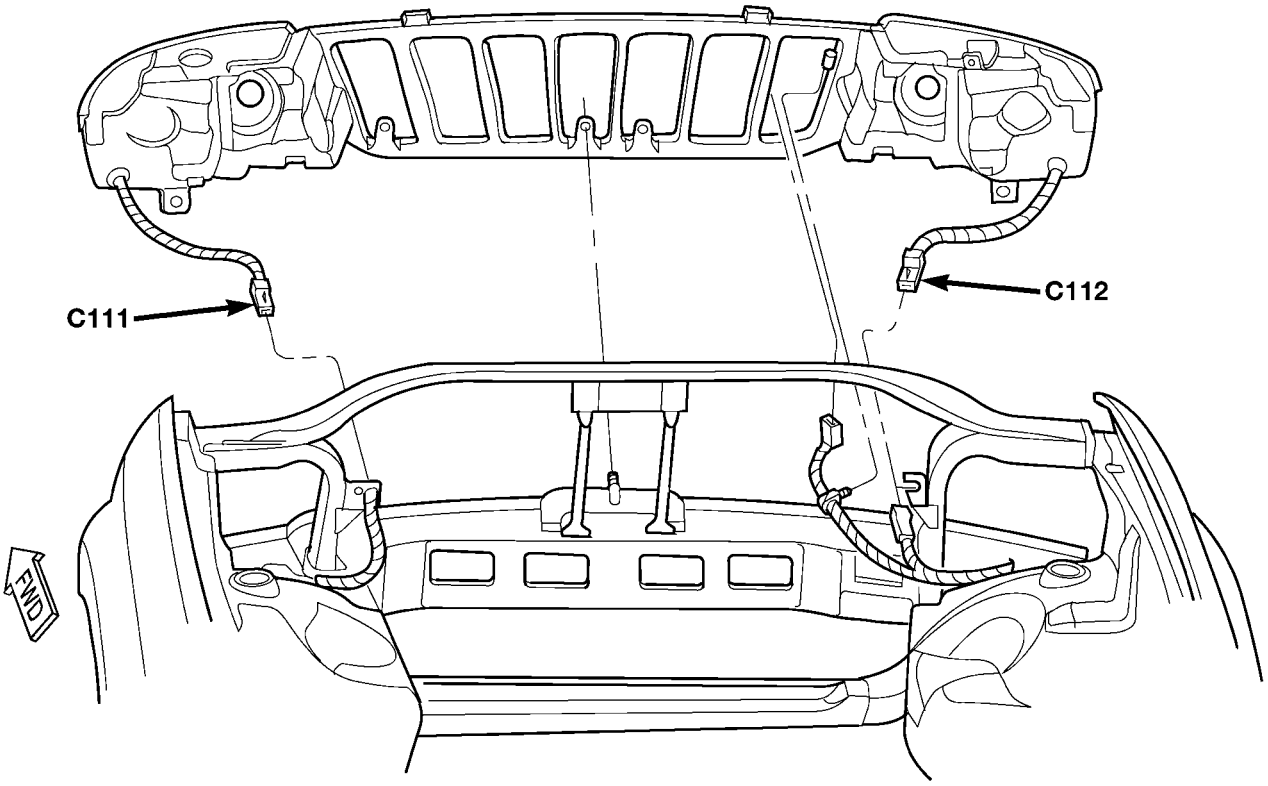


Fig. 1 ENGINE COMPARTMENT (FRONT CLIP)

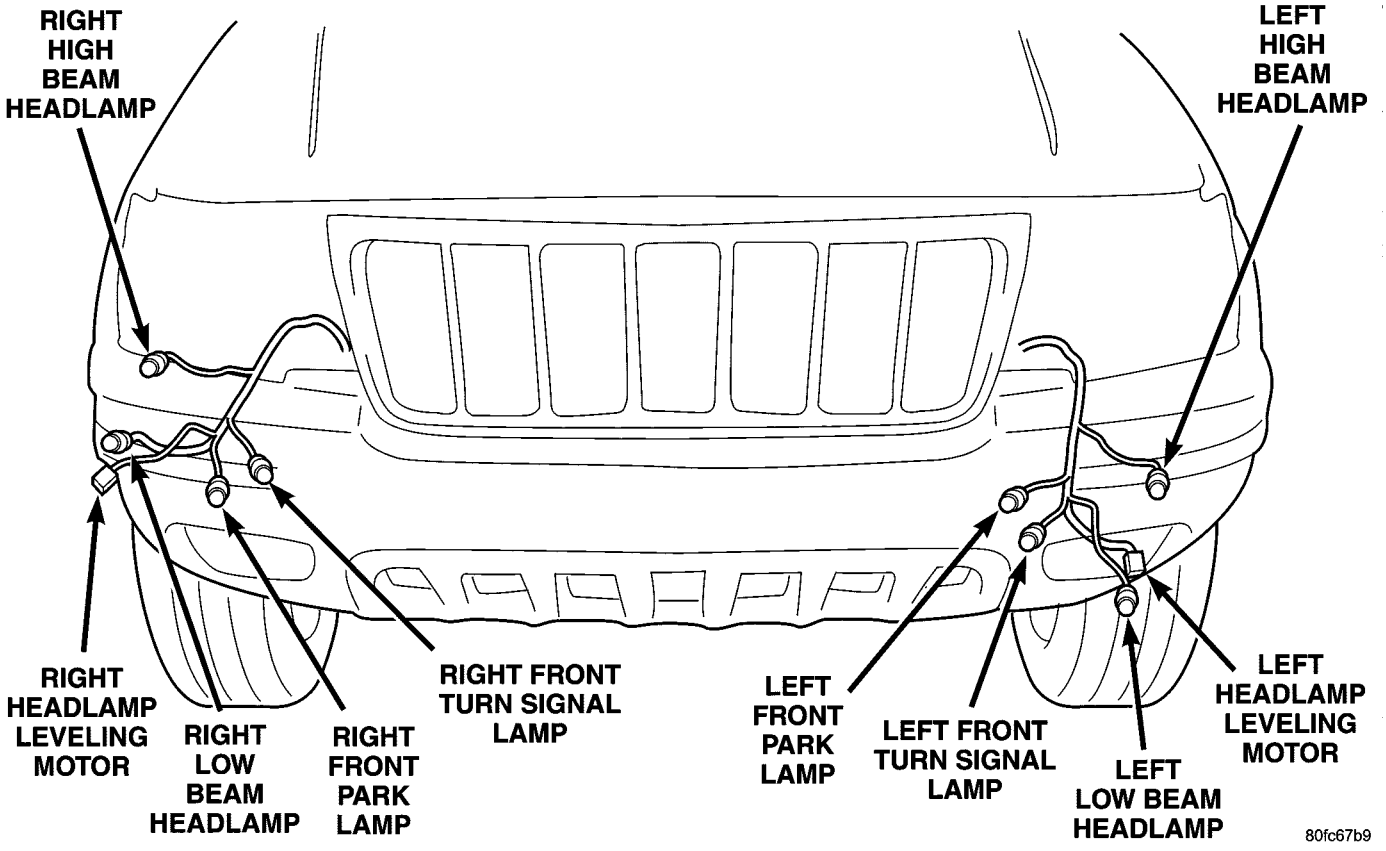


Fig. 2 FRONT LIGHTING EXPORT

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

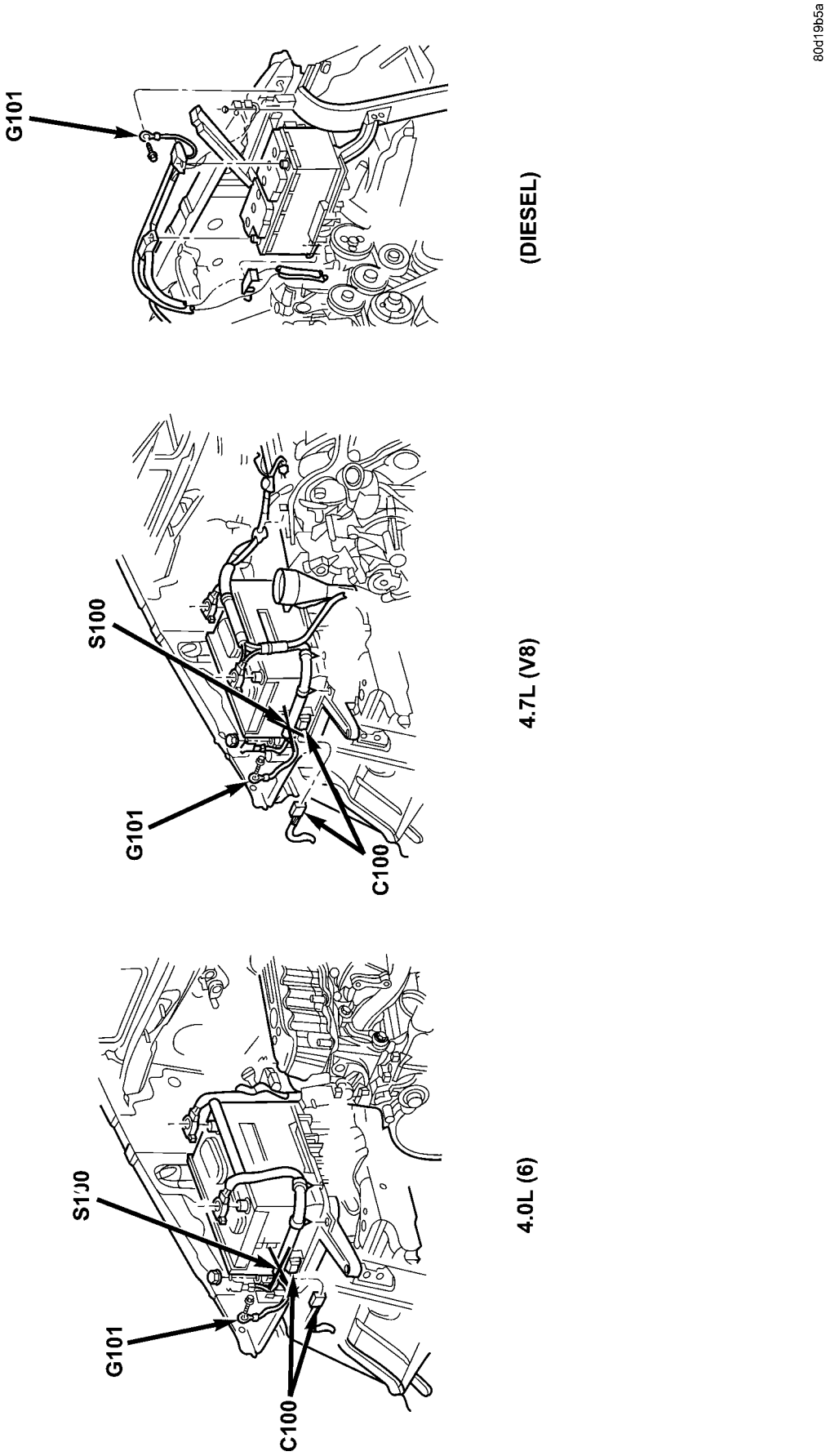


Fig. 3 ENGINE COMPARTMENT (BATTERY)

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

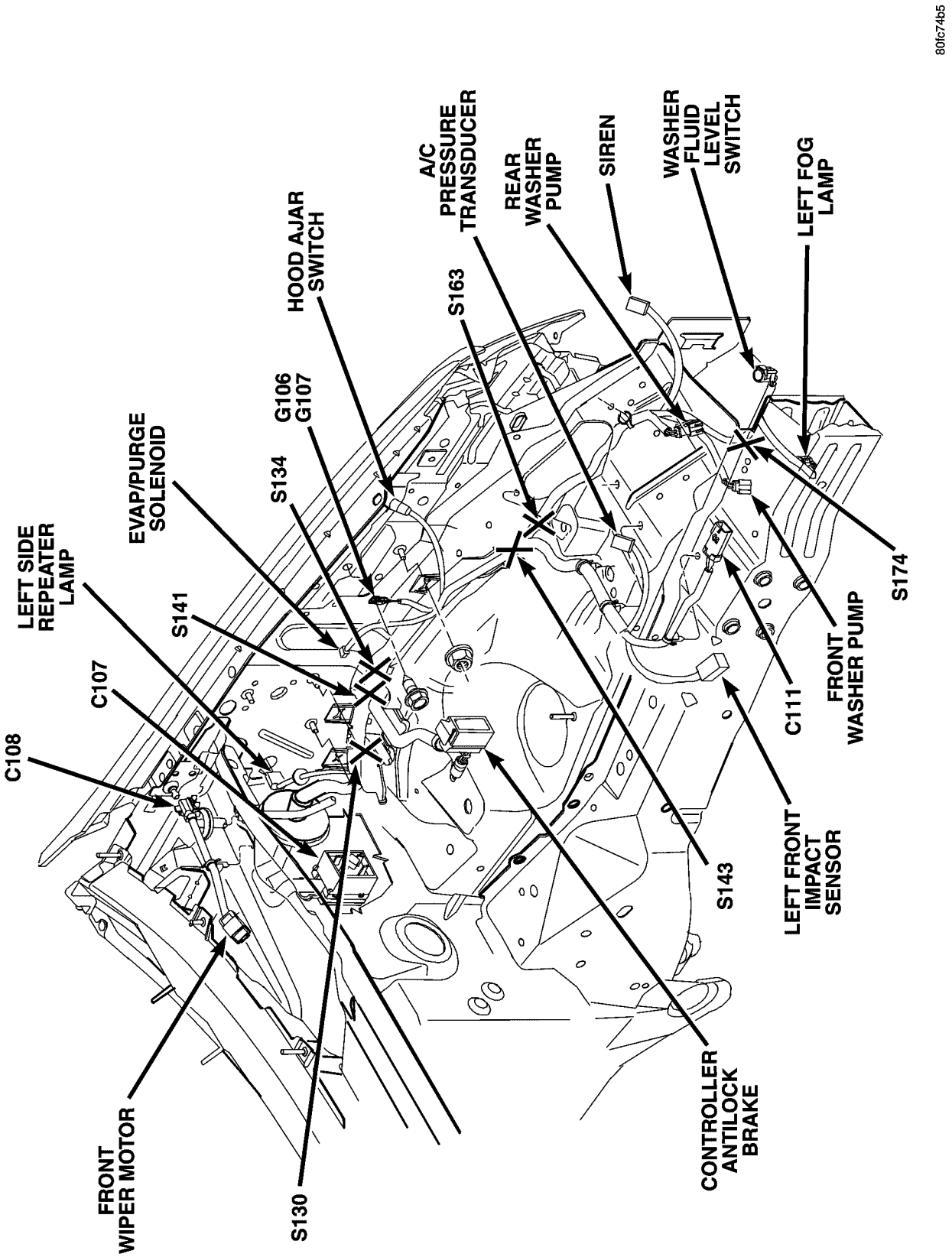


Fig. 4 ENGINE COMPARTMENT LEFT SIDE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

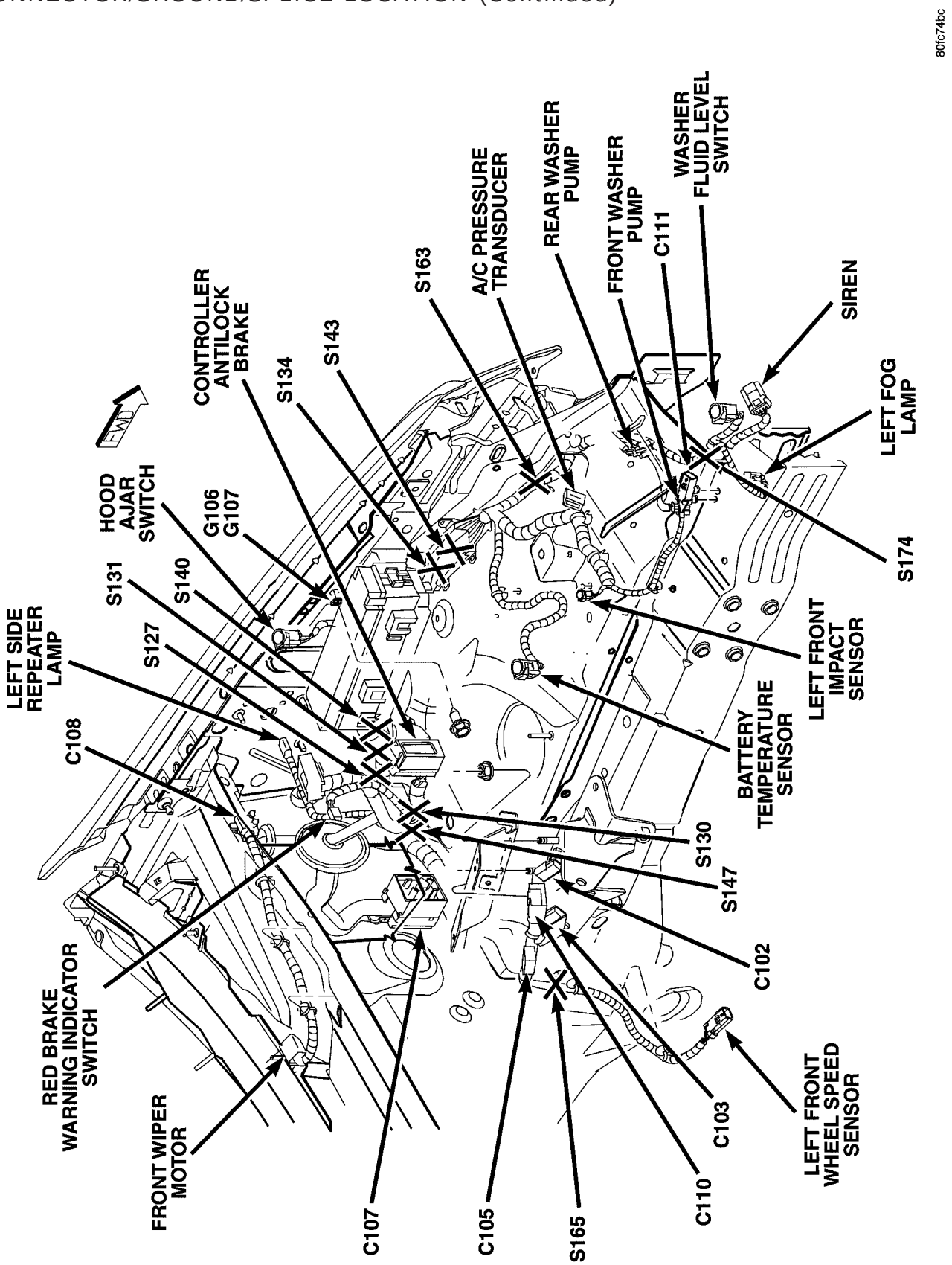


Fig. 5 ENGINE COMPARTMENT LEFT SIDE DIESEL

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

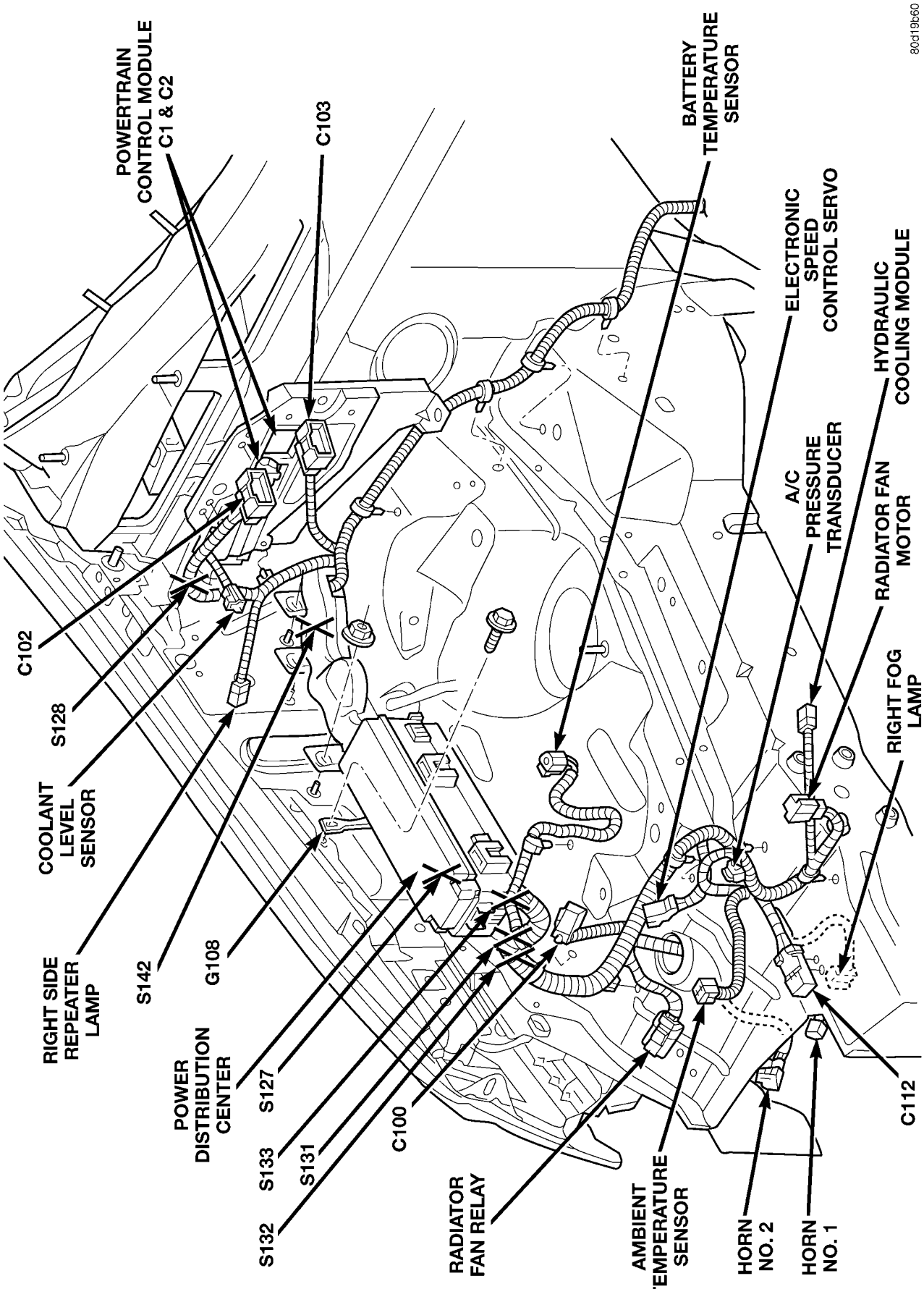


Fig. 6 ENGINE COMPARTMENT RIGHT SIDE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

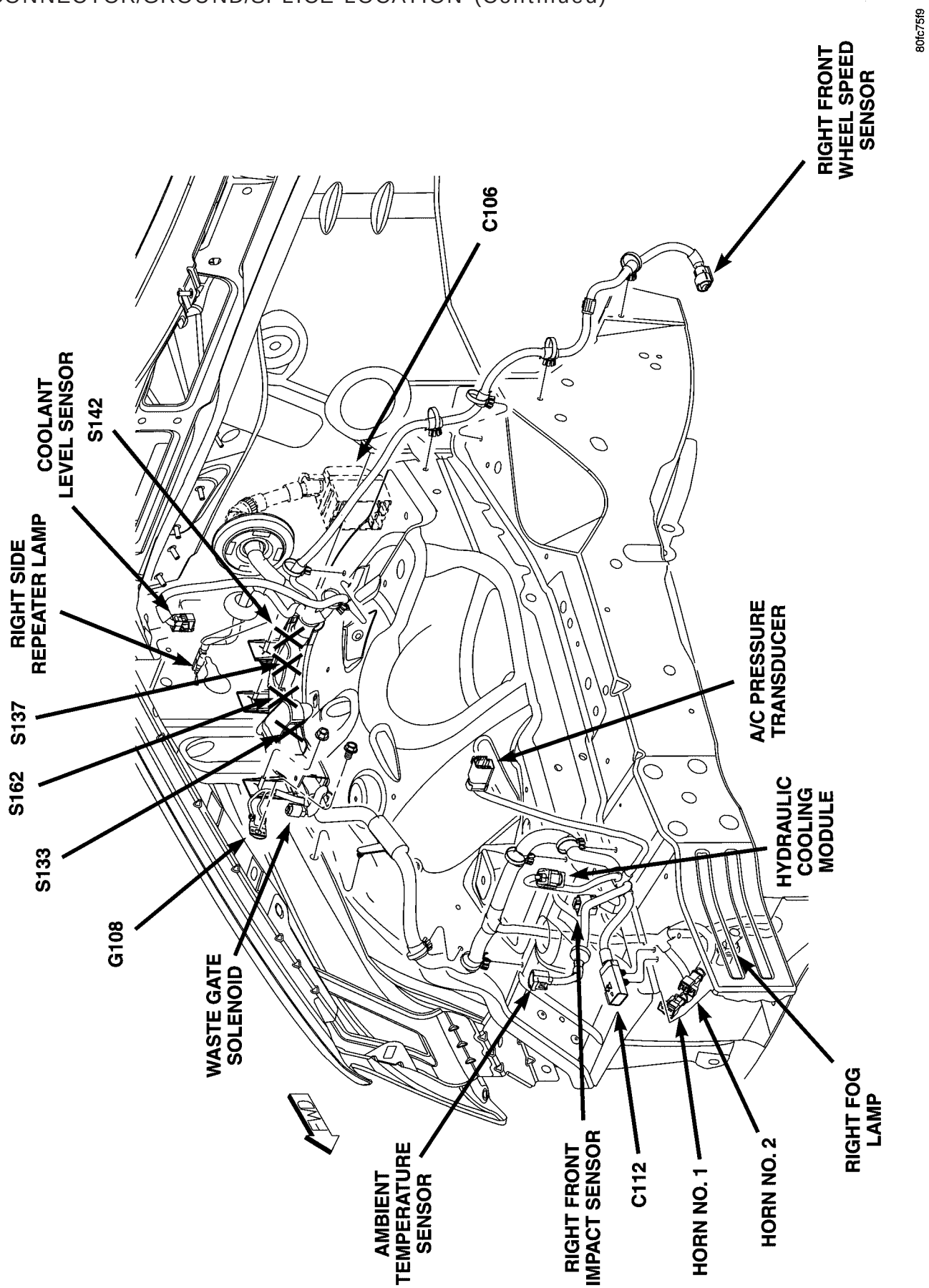


Fig. 7 DIESEL ENGINE COMPARTMENT RIGHT SIDE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

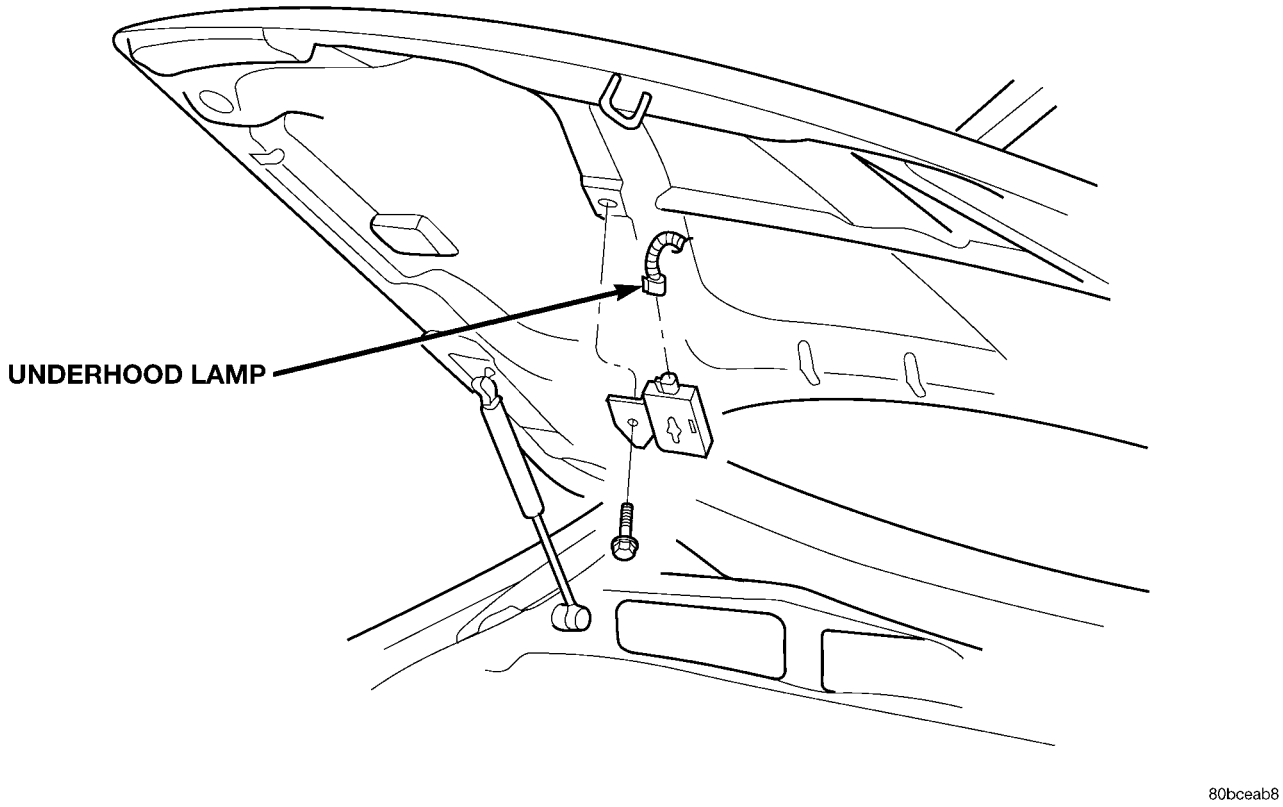


Fig. 8 UNDERHOOD LAMP

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

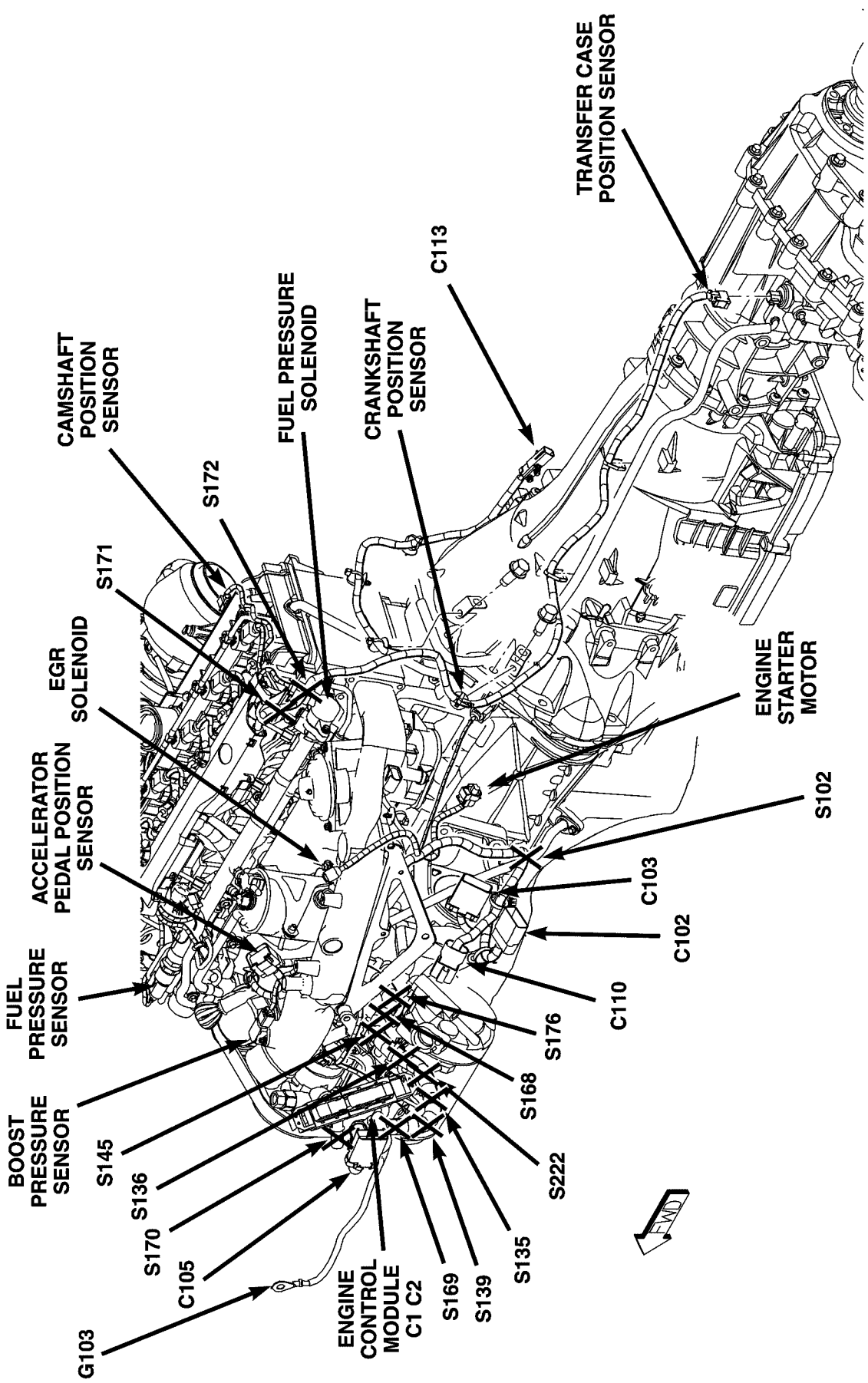


Fig. 9 2.7 LITER DIESEL ENGINE LEFT SIDE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

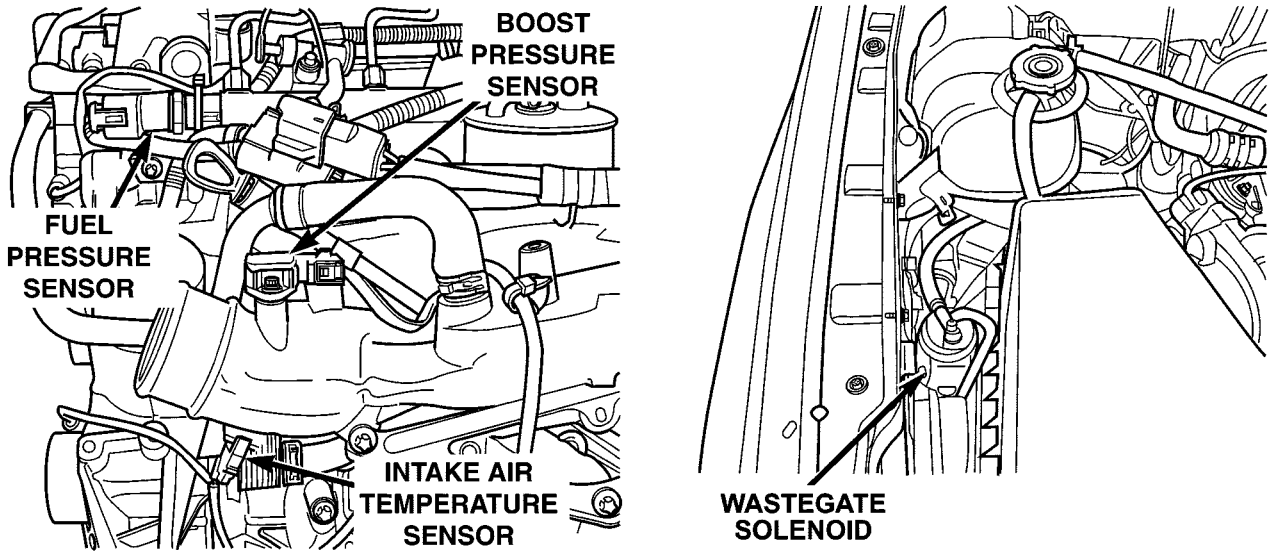


Fig. 10 DIESEL ENGINE LEFT SENSORS

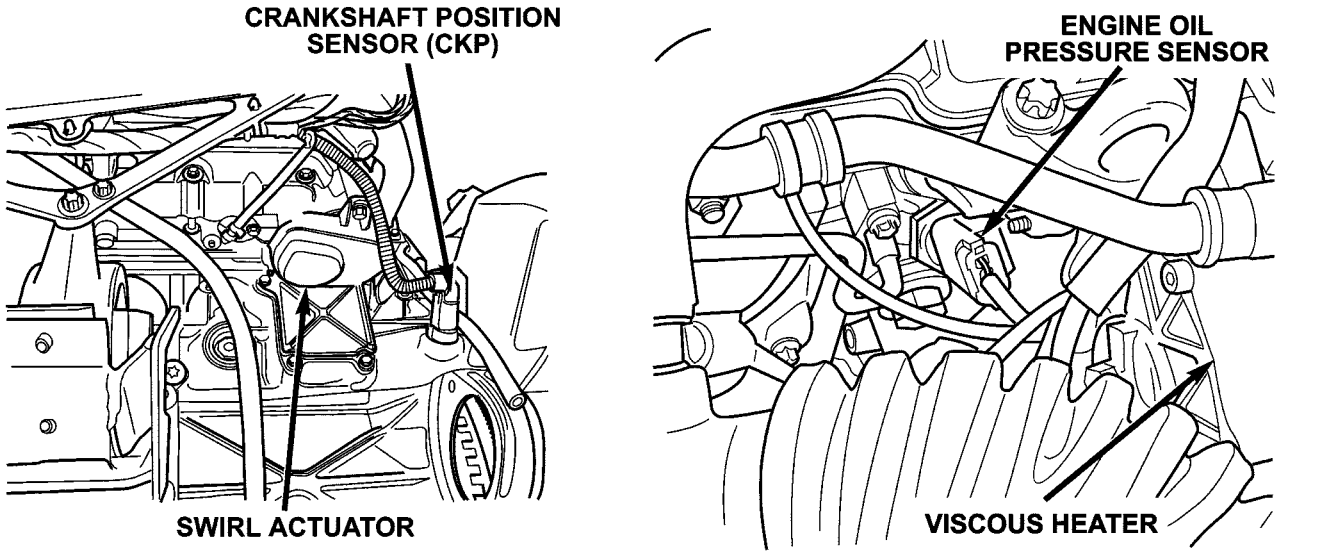


Fig. 11 DIESEL ENGINE RIGHT SENSORS

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

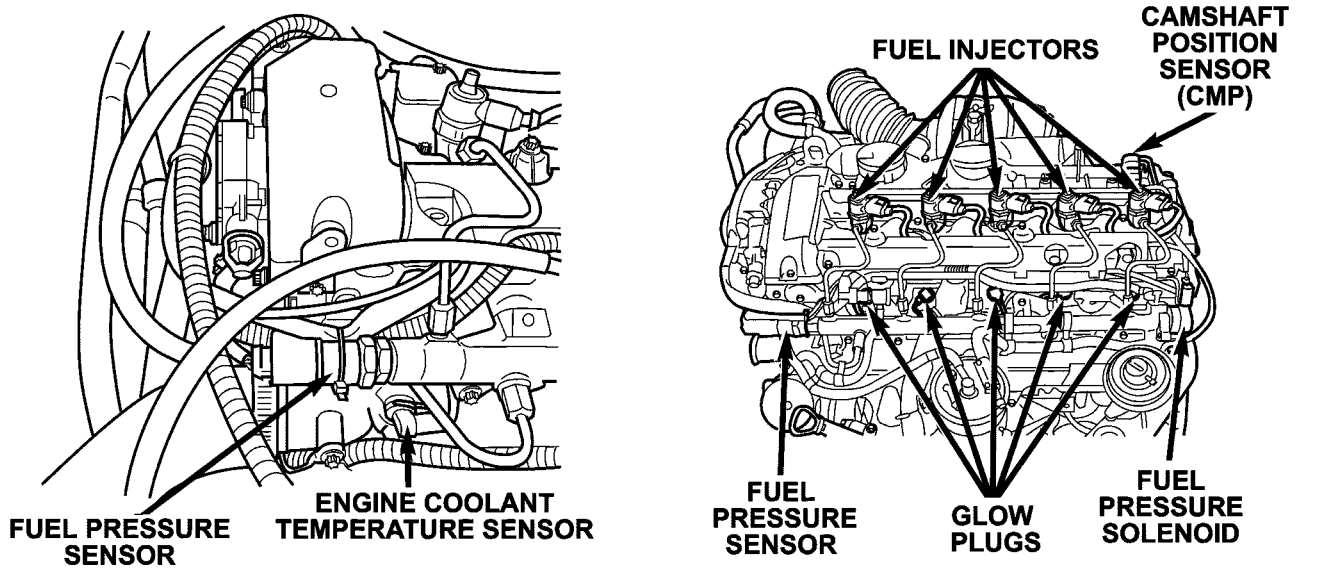


Fig. 12 DIESEL ENGINE FUEL SENSORS

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

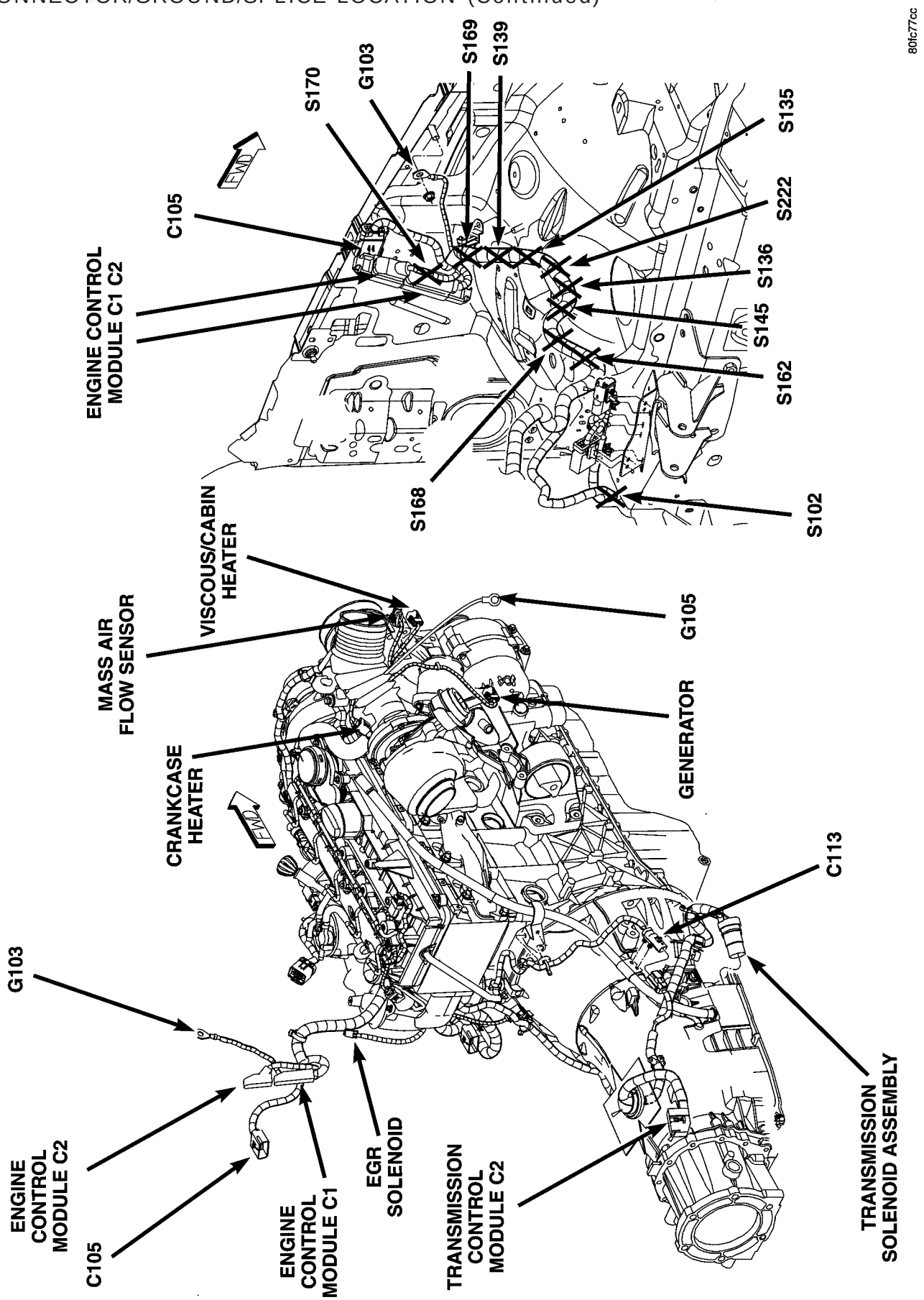


Fig. 13 2.7 LITER DIESEL ENGINE RIGHT SIDE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

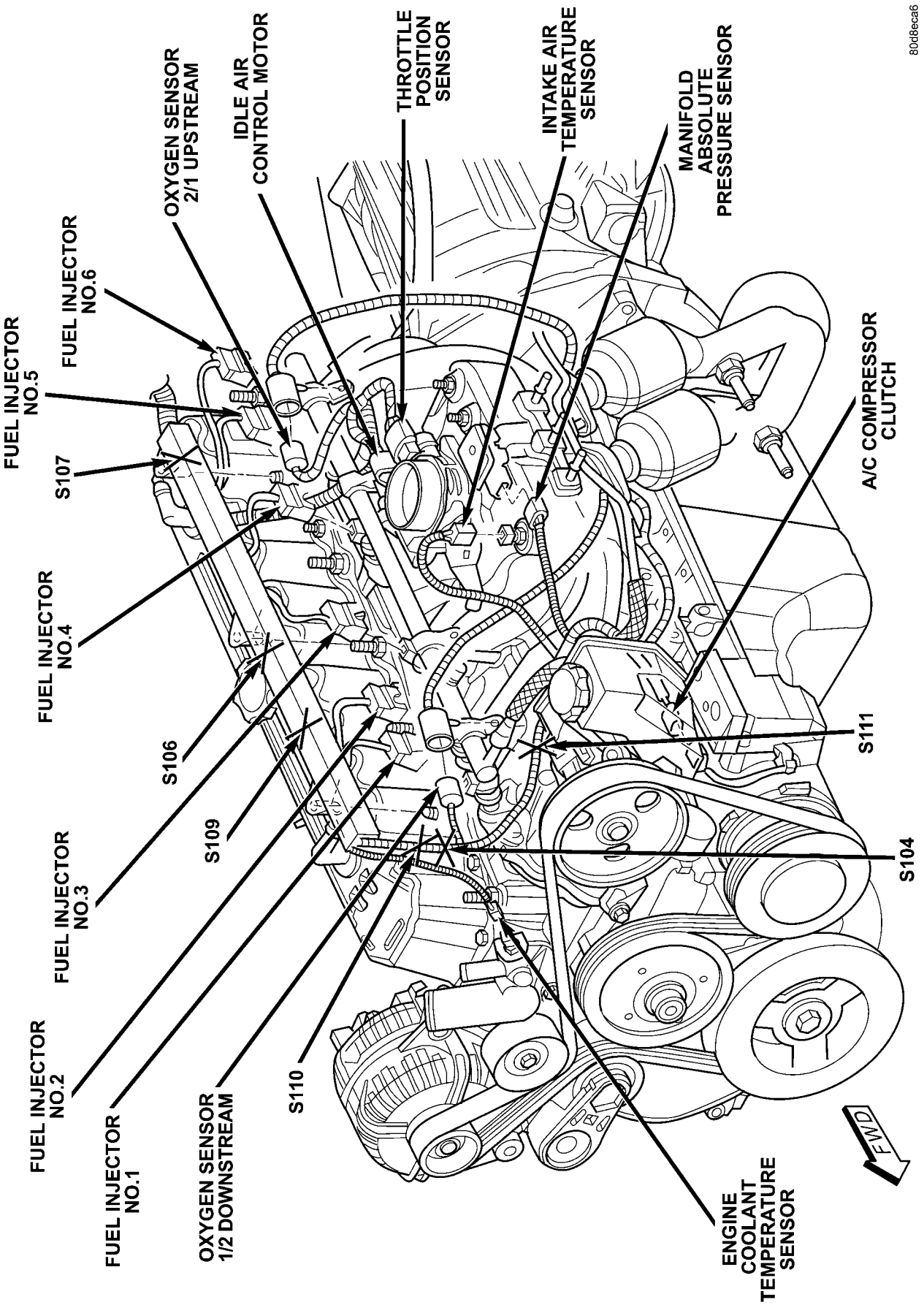


Fig. 14 4.0 LITER ENGINE LEFT SIDE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

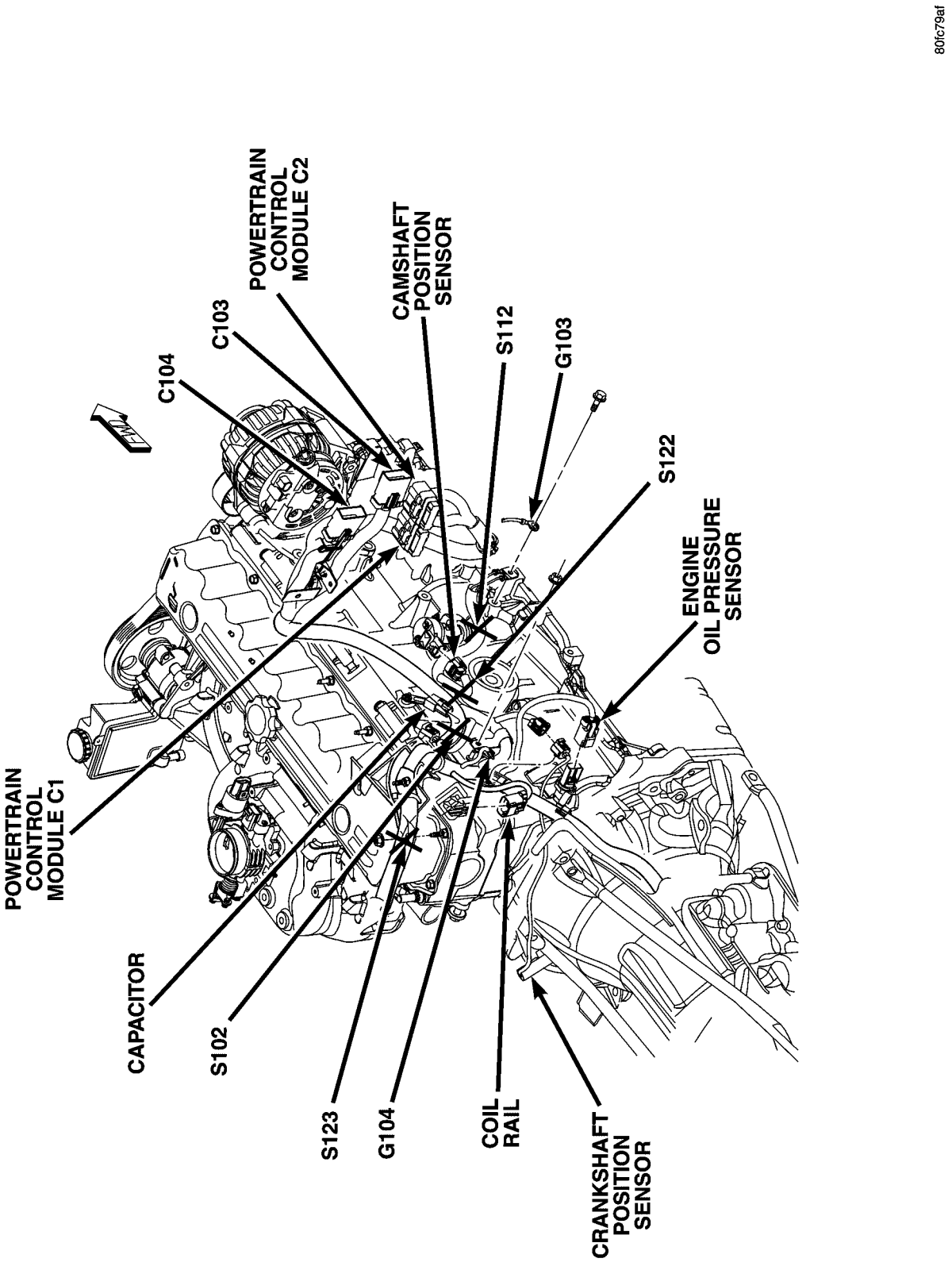


Fig. 15 4.0 LITER ENGINE RIGHT REAR LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

80d8f0b1

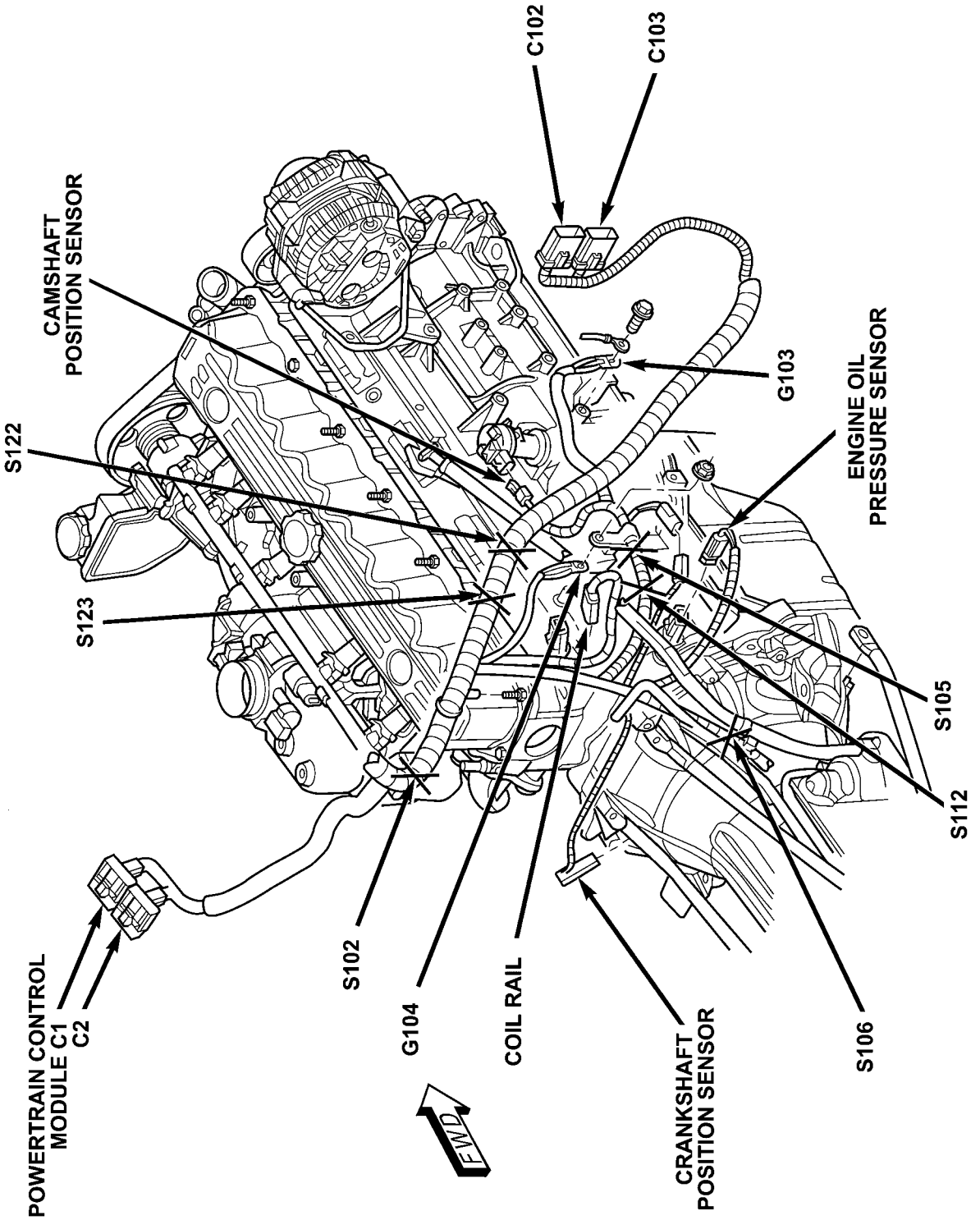


Fig. 16 4.0 LITER ENGINE RIGHT REAR RHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

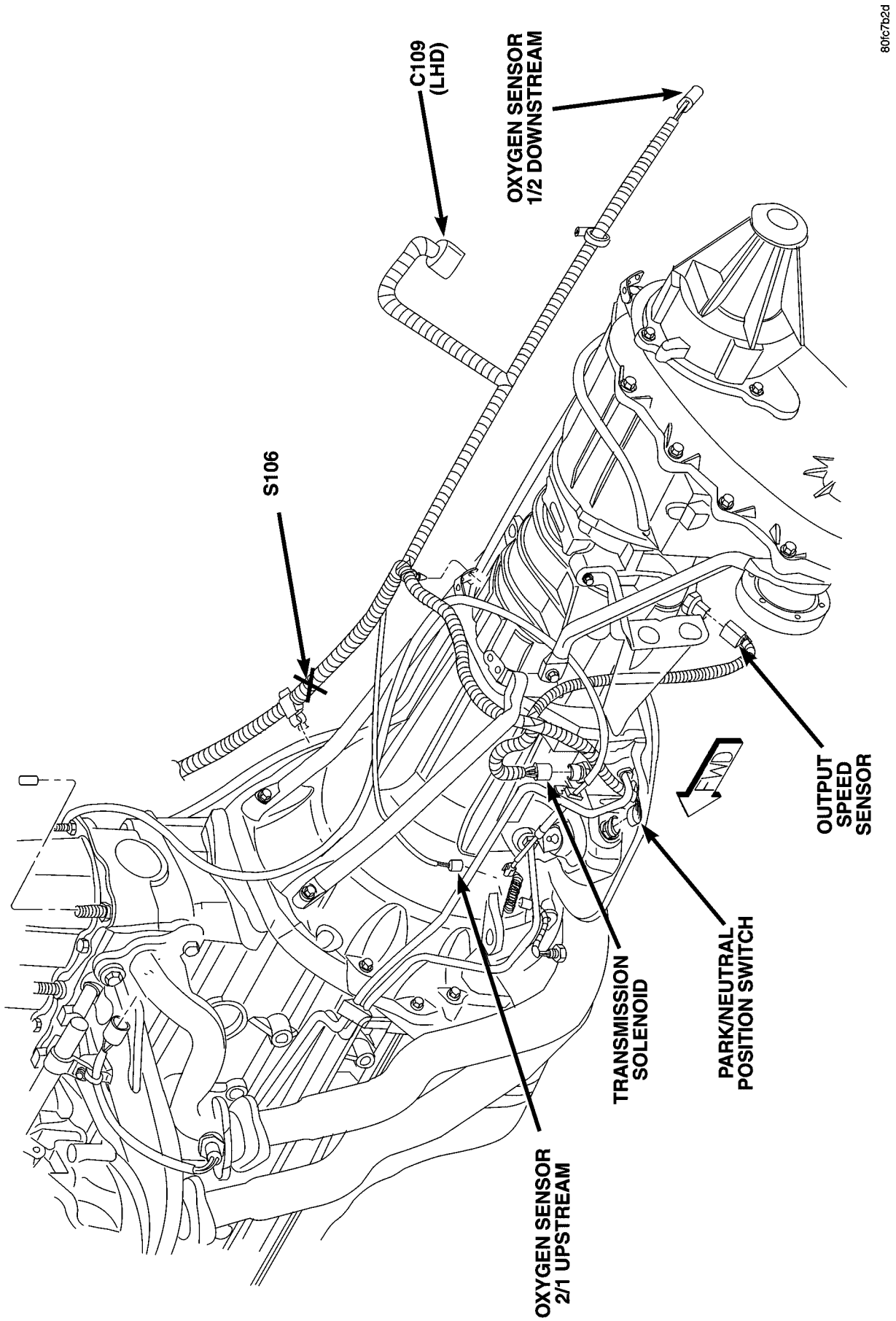


Fig. 17 TRANSMISSION 4.0 LITER ENGINE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

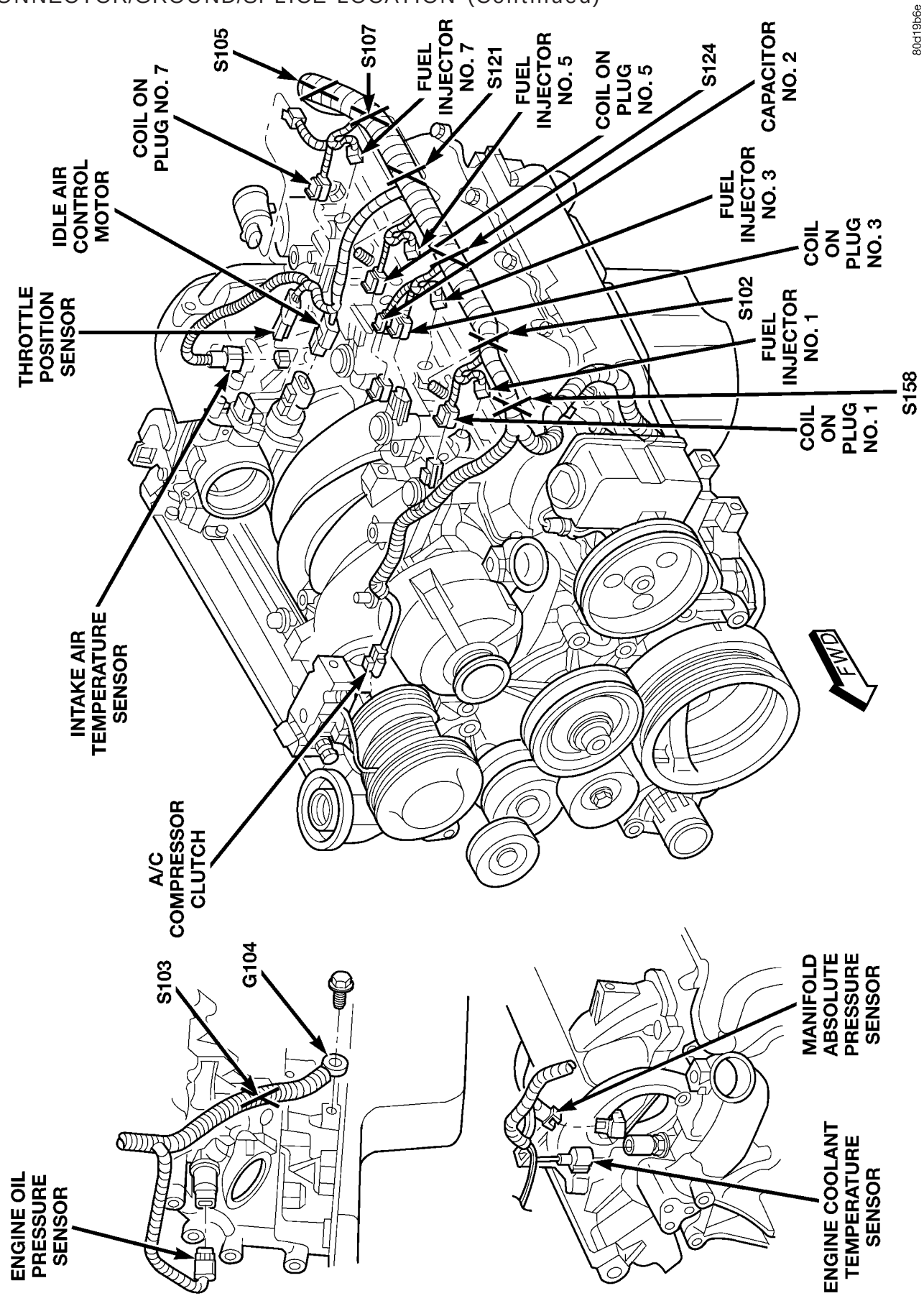


Fig. 18 4.7 LITER ENGINE LEFT FRONT

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

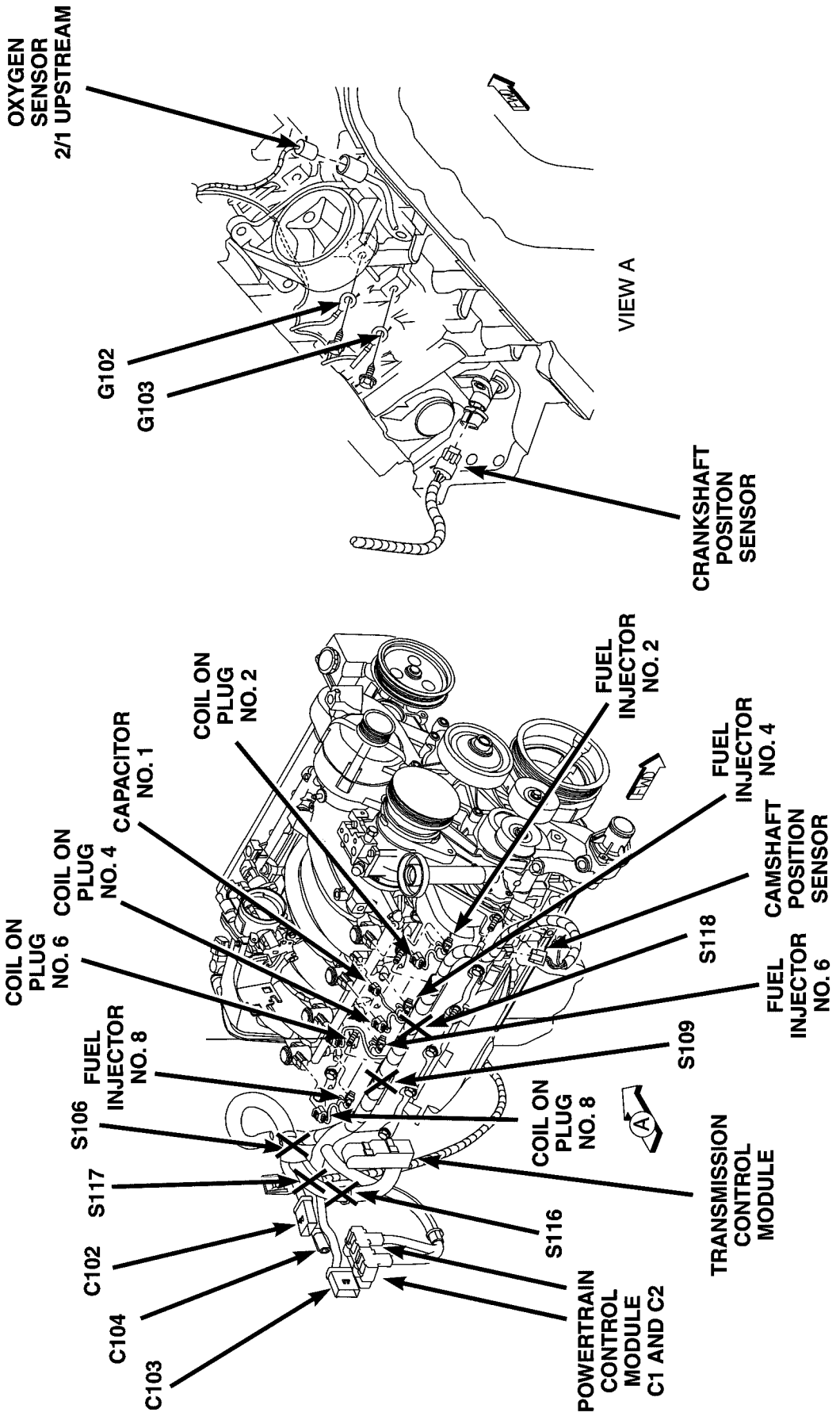


Fig. 19 4.7 LITER ENGINE RIGHT FRONT LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

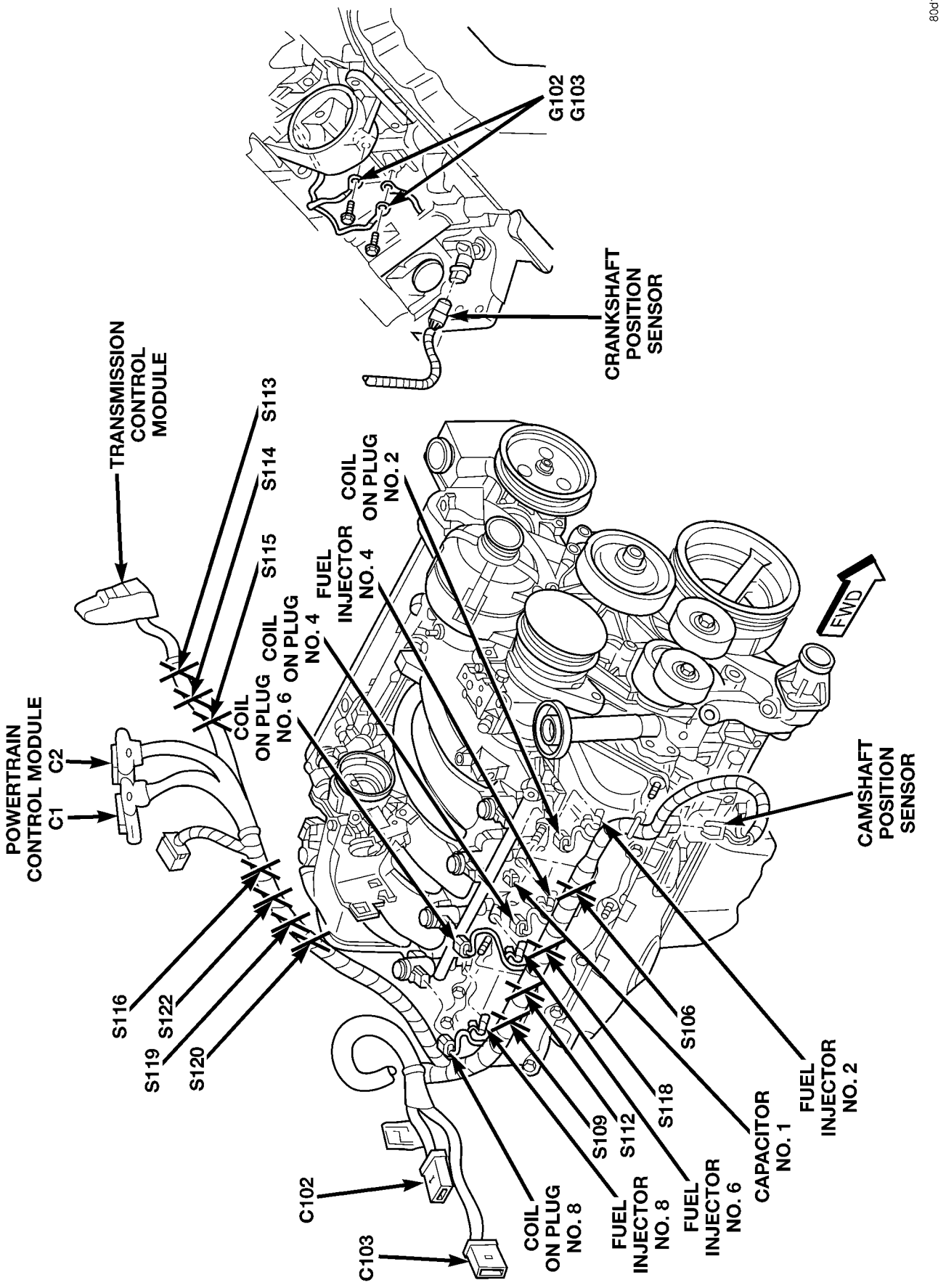


Fig. 20 INSTRUMENT PANEL REAR LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

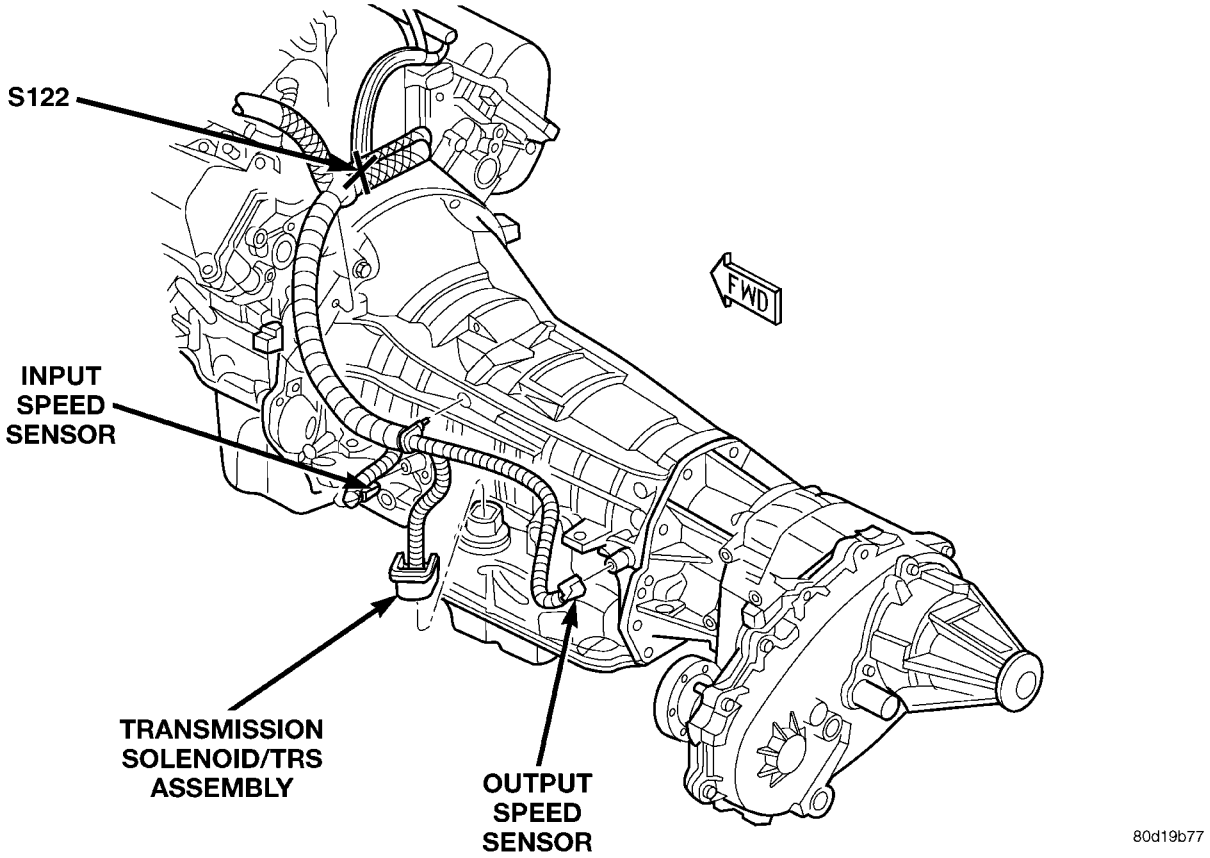


Fig. 21 TRANSMISSION 4.7 LITER ENGINE LEFT SIDE

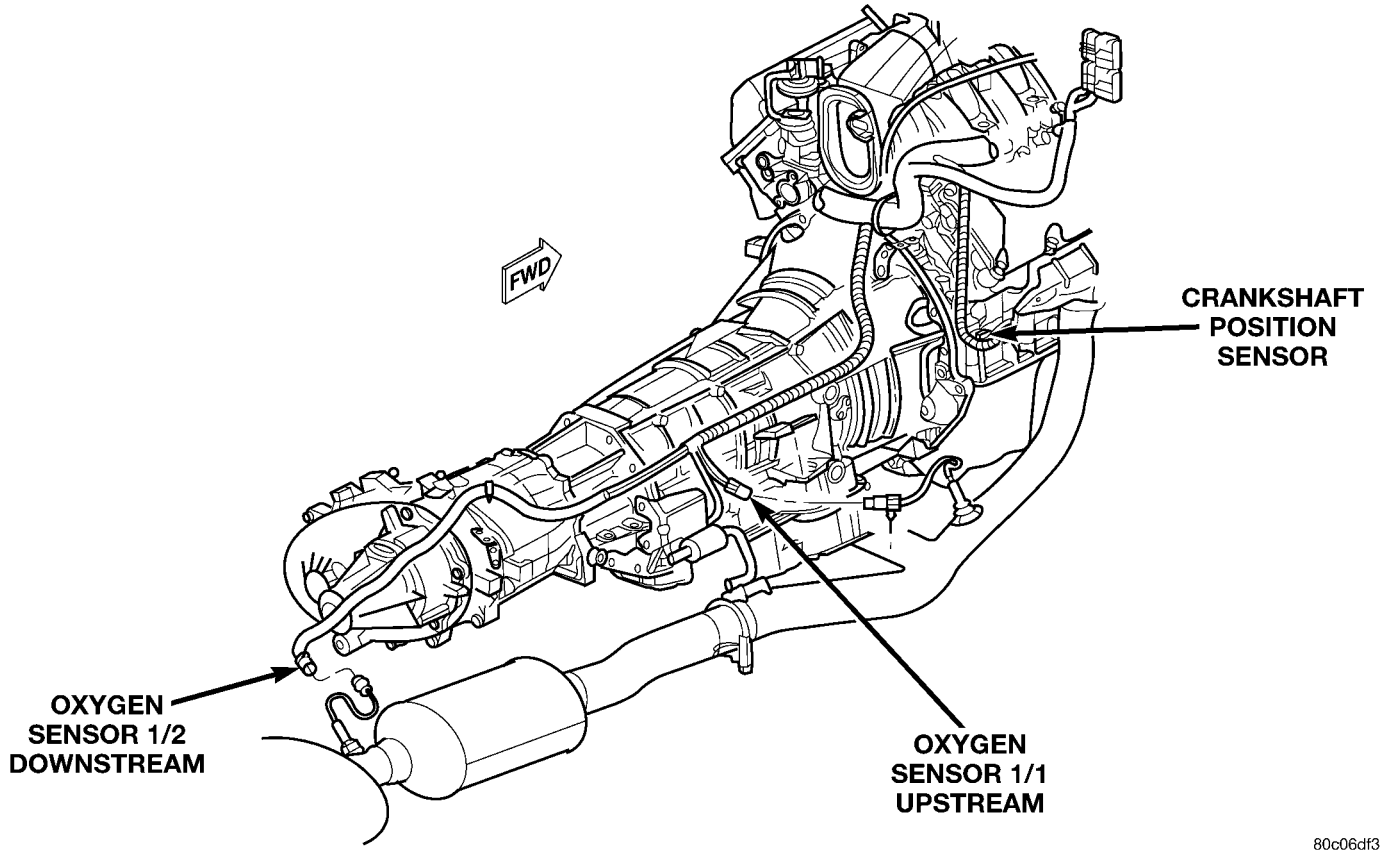


Fig. 22 TRANSMISSION 4.7 LITER ENGINE RIGHT SIDE

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

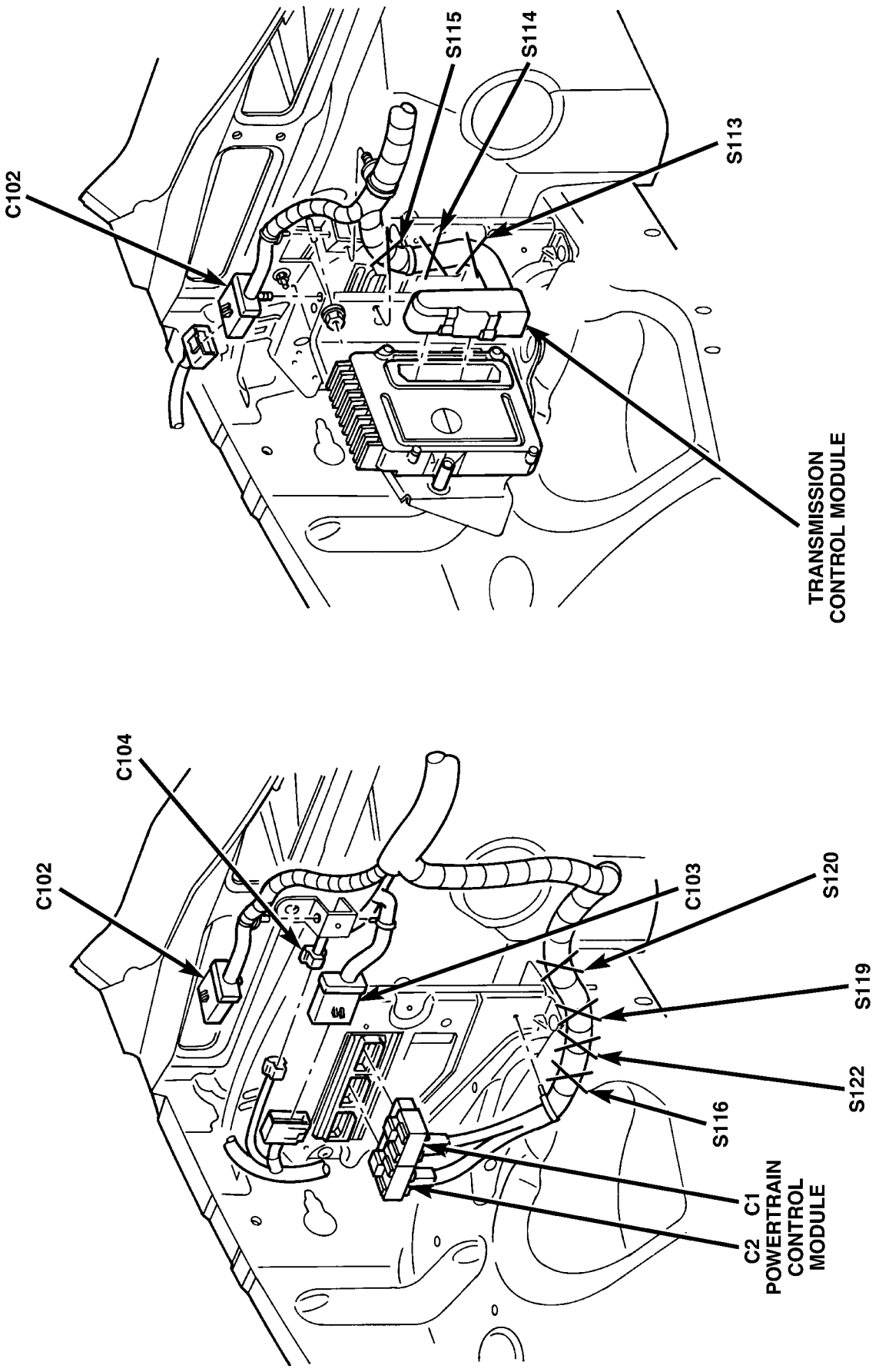


Fig. 23 REAR ENGINE COMPARTMENT LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

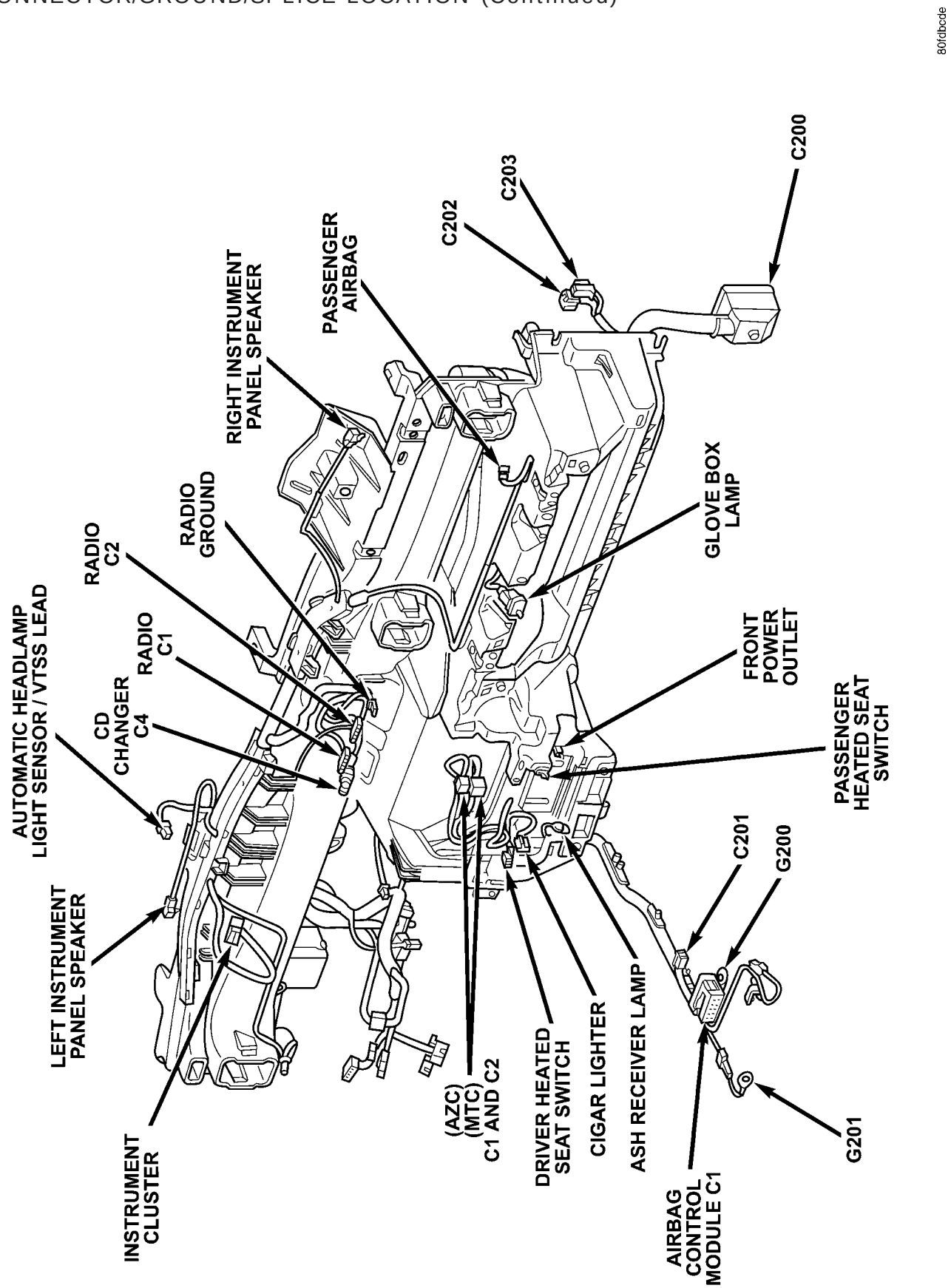


Fig. 24 INSTRUMENT PANEL FRONT LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

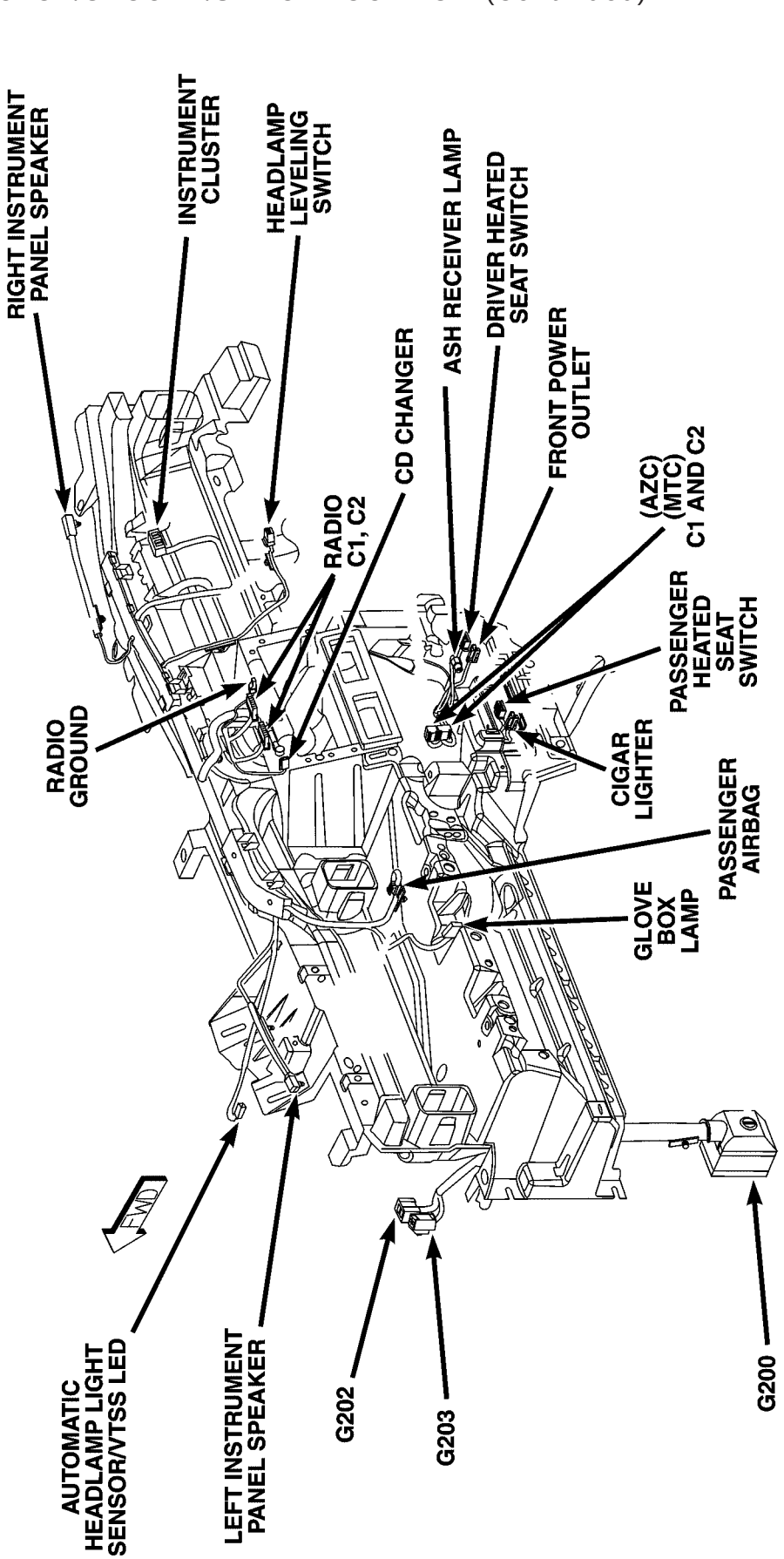


Fig. 25 INSTRUMENT PANEL FRONT RHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

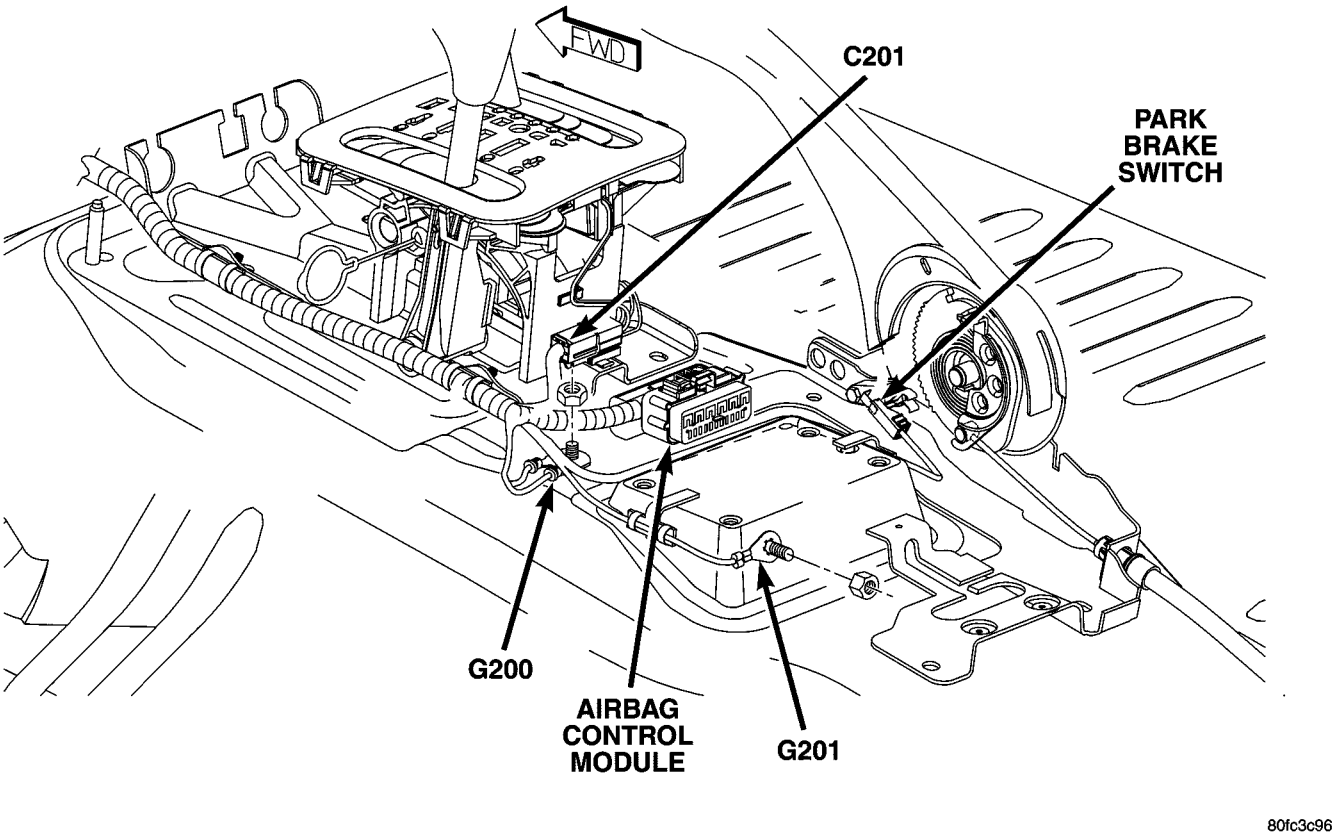


Fig. 26 CONSOLE SHIFTER ASSEMBLY

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

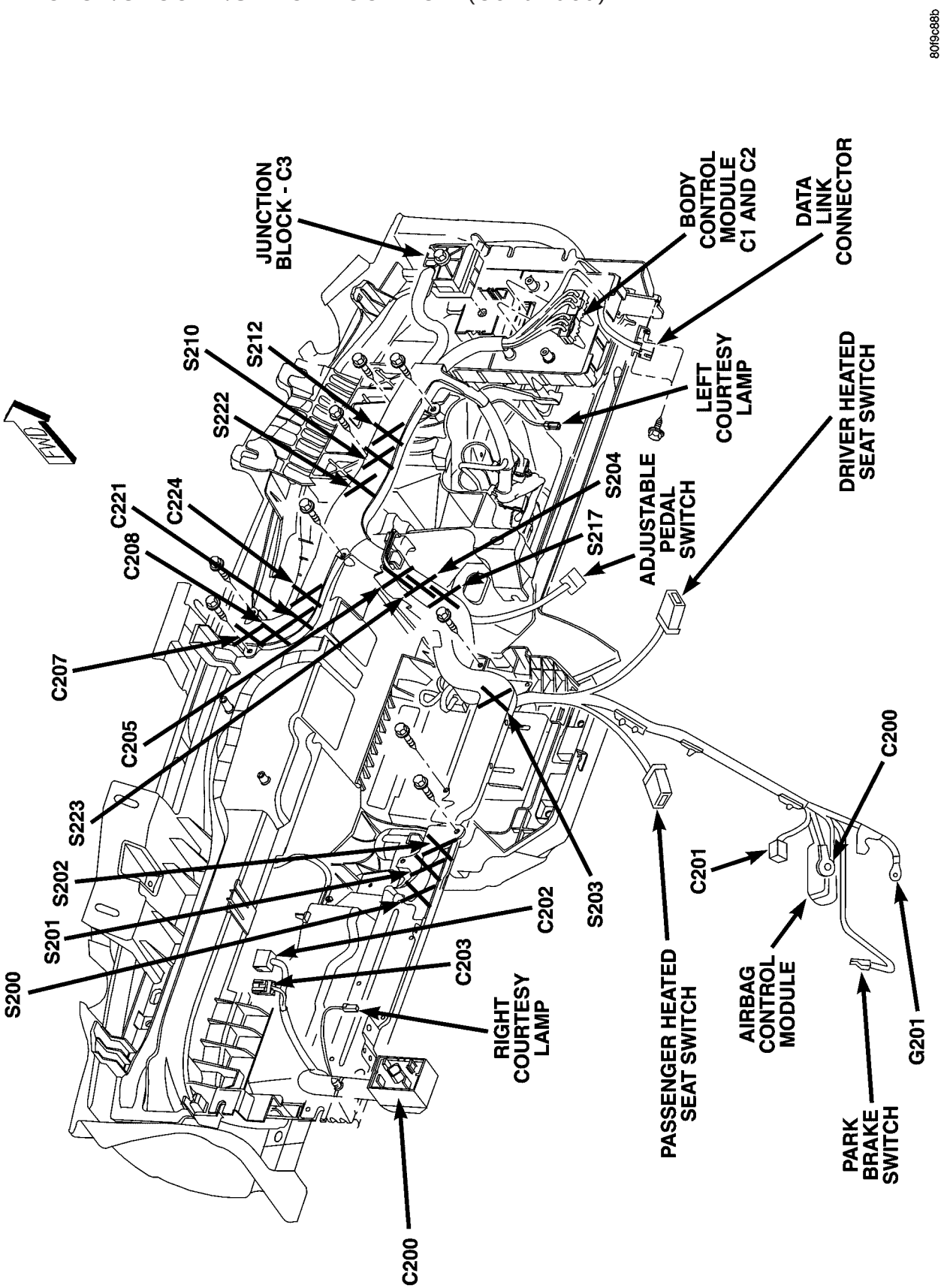


Fig. 27 INSTRUMENT PANEL REAR LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

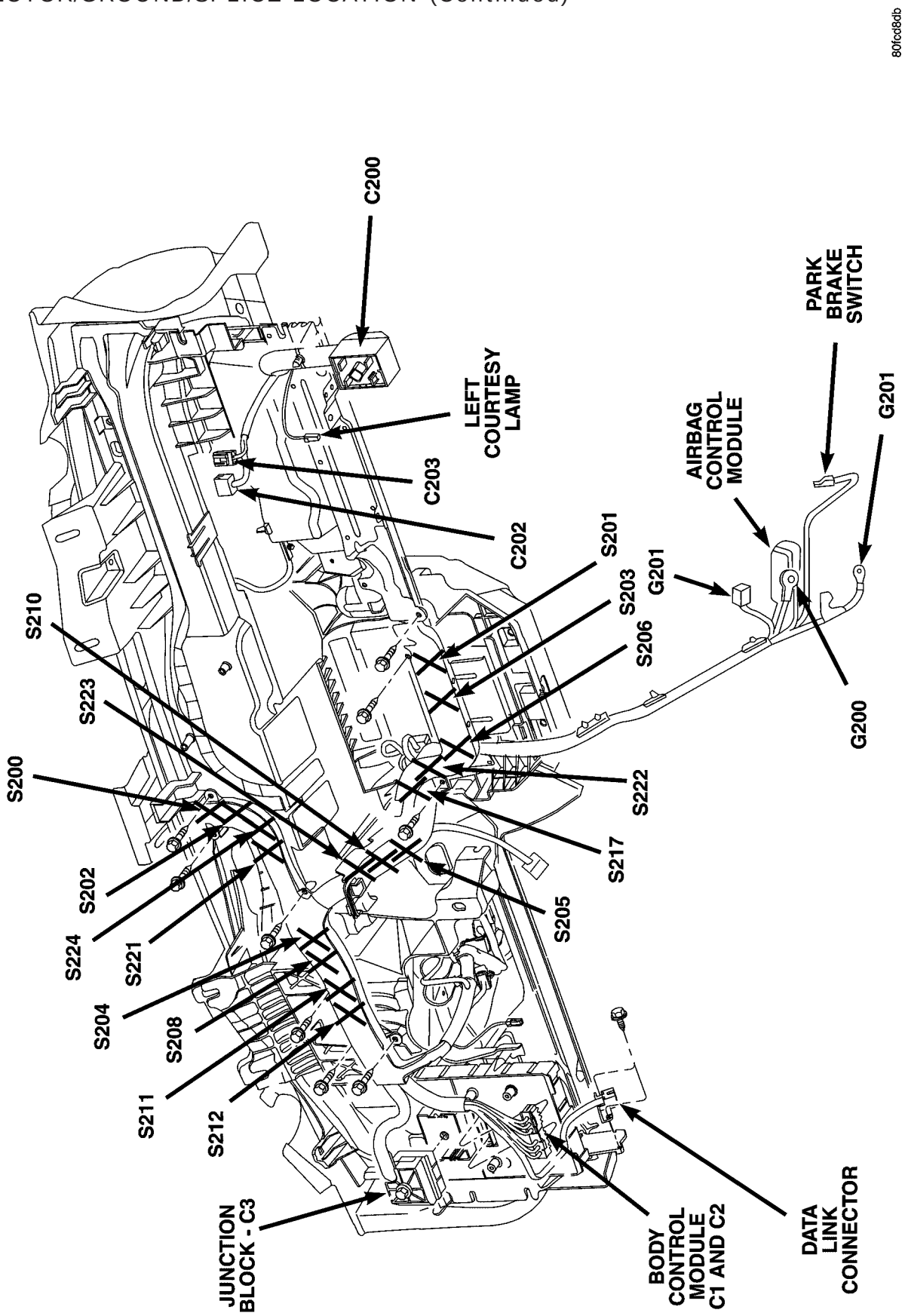


Fig. 28 INSTRUMENT PANEL REAR RHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

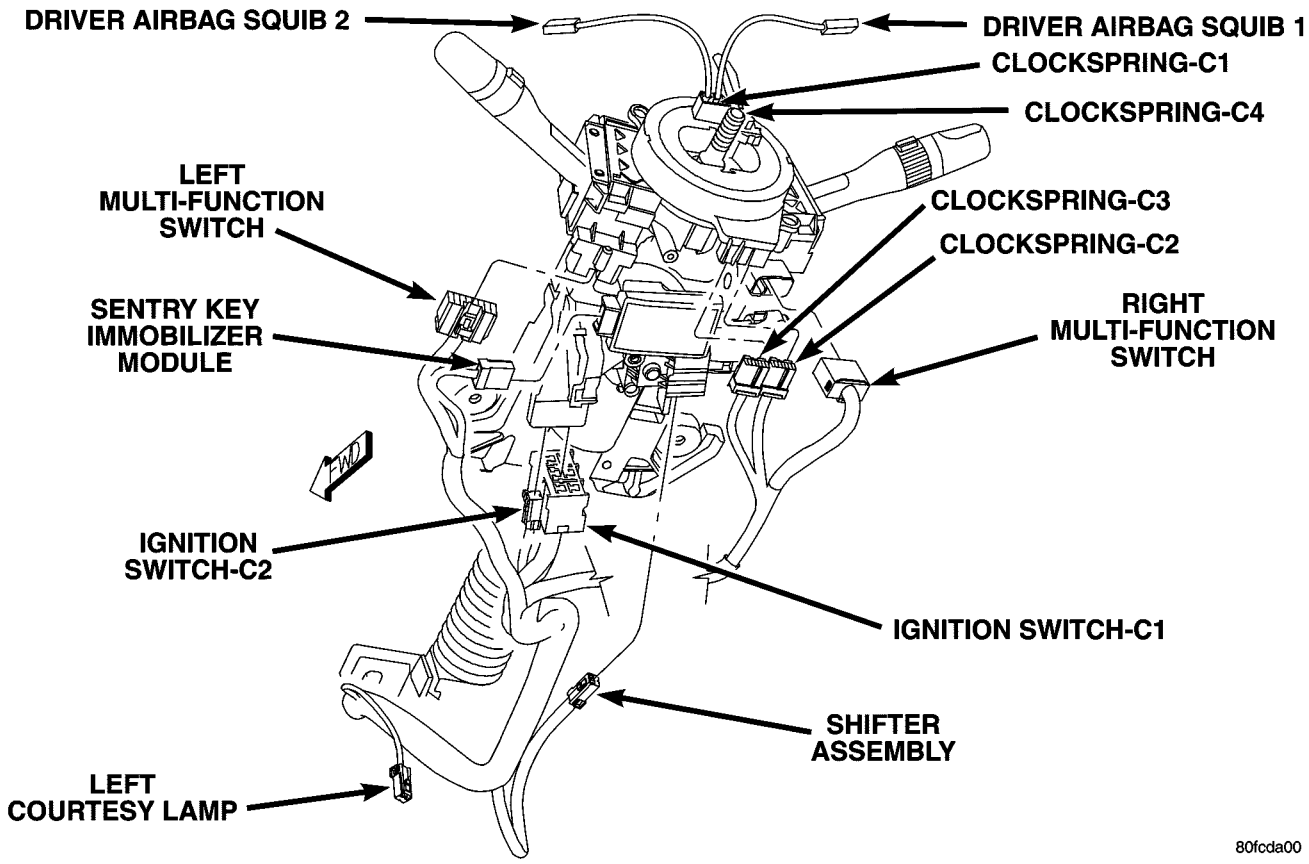


Fig. 29 STEERING COLUMN

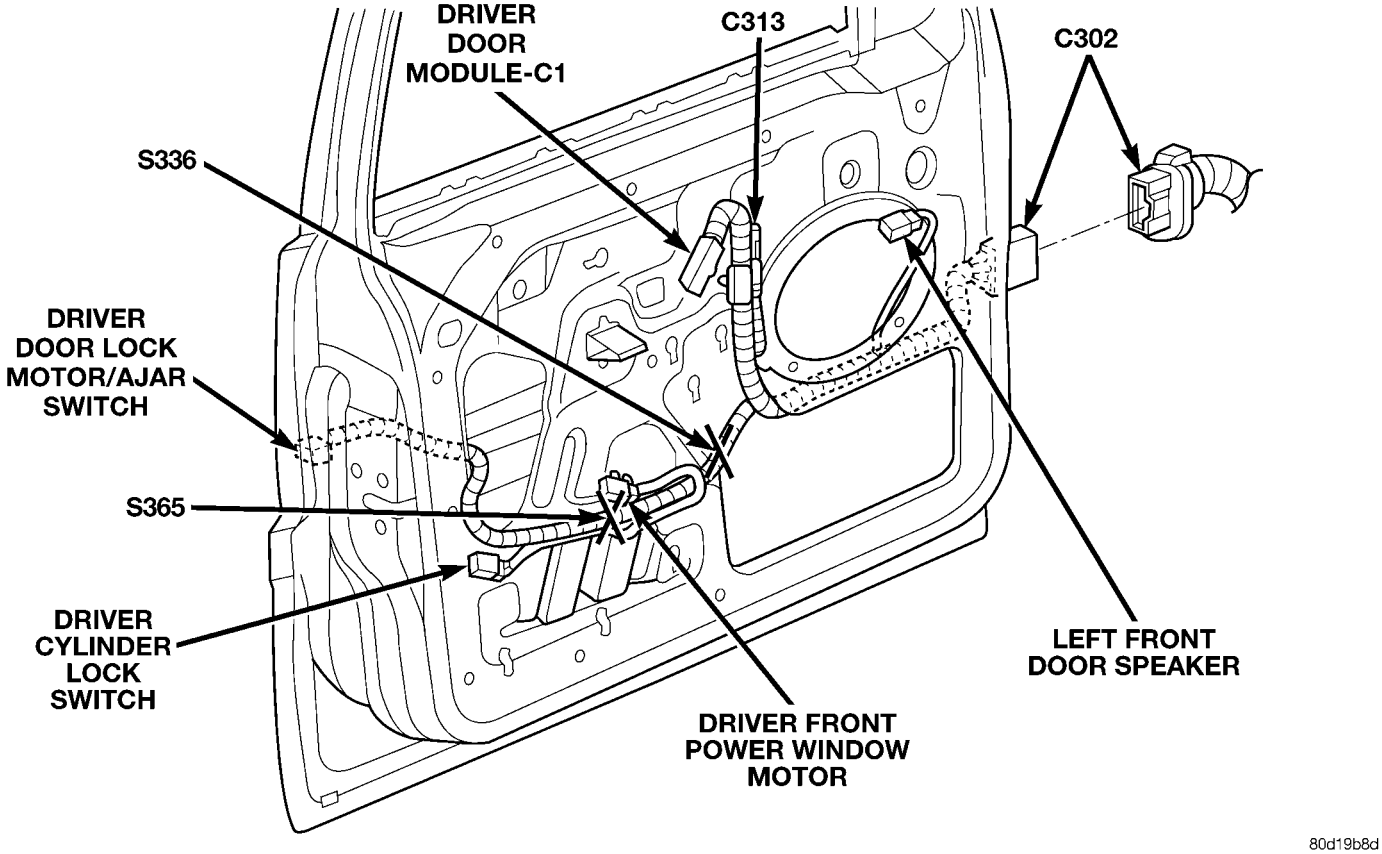


Fig. 30 DRIVER DOOR LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

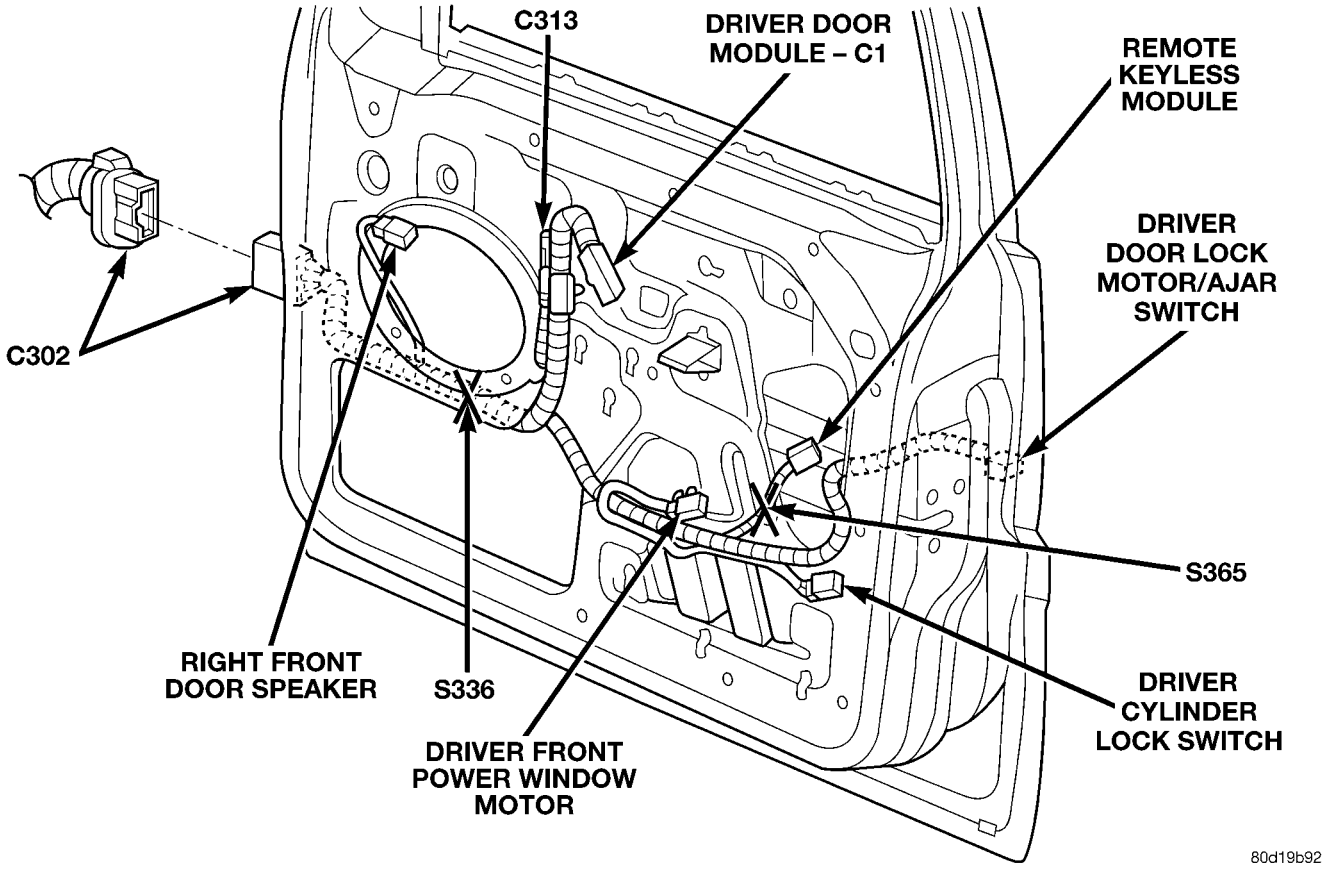


Fig. 31 DRIVER DOOR RHD

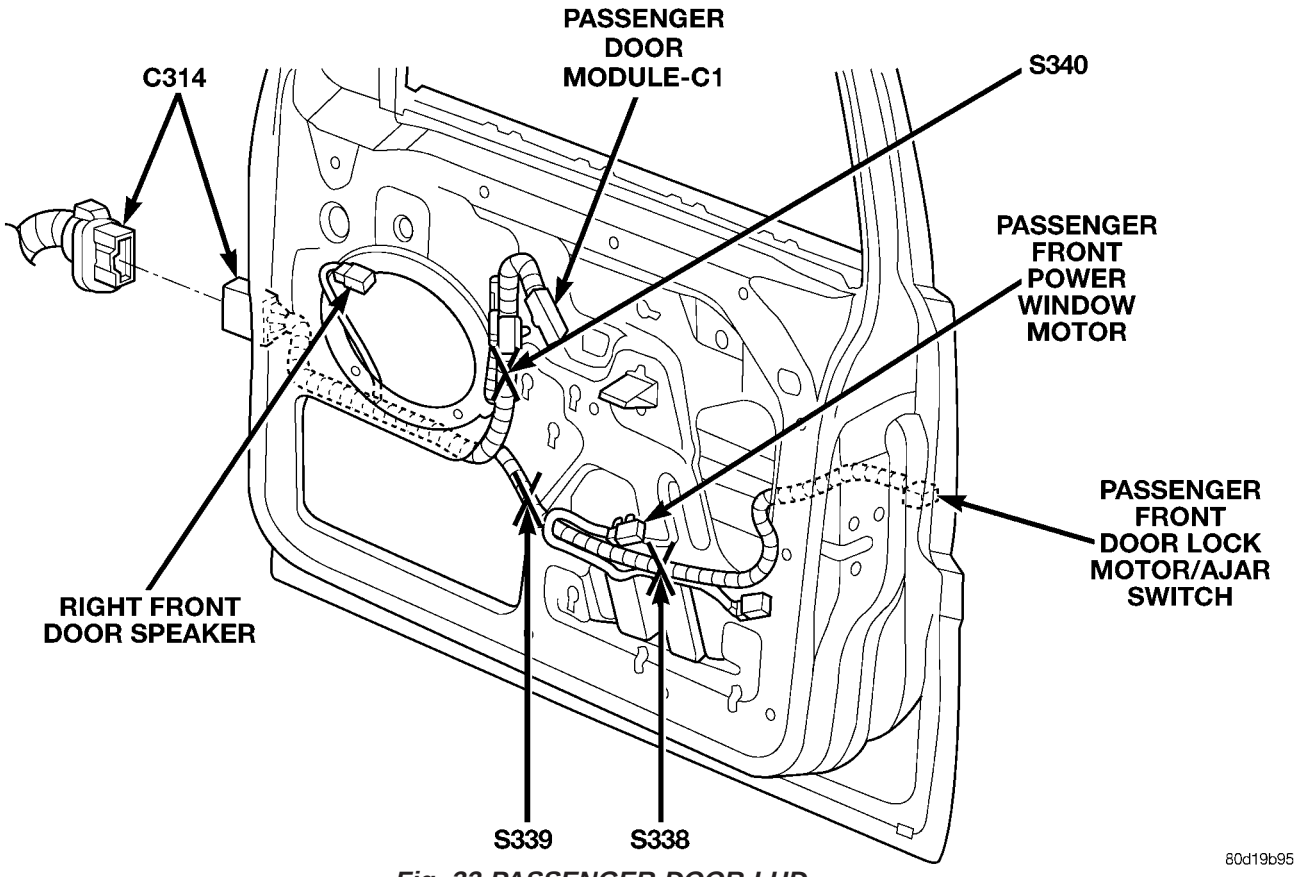


Fig. 32 PASSENGER DOOR LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

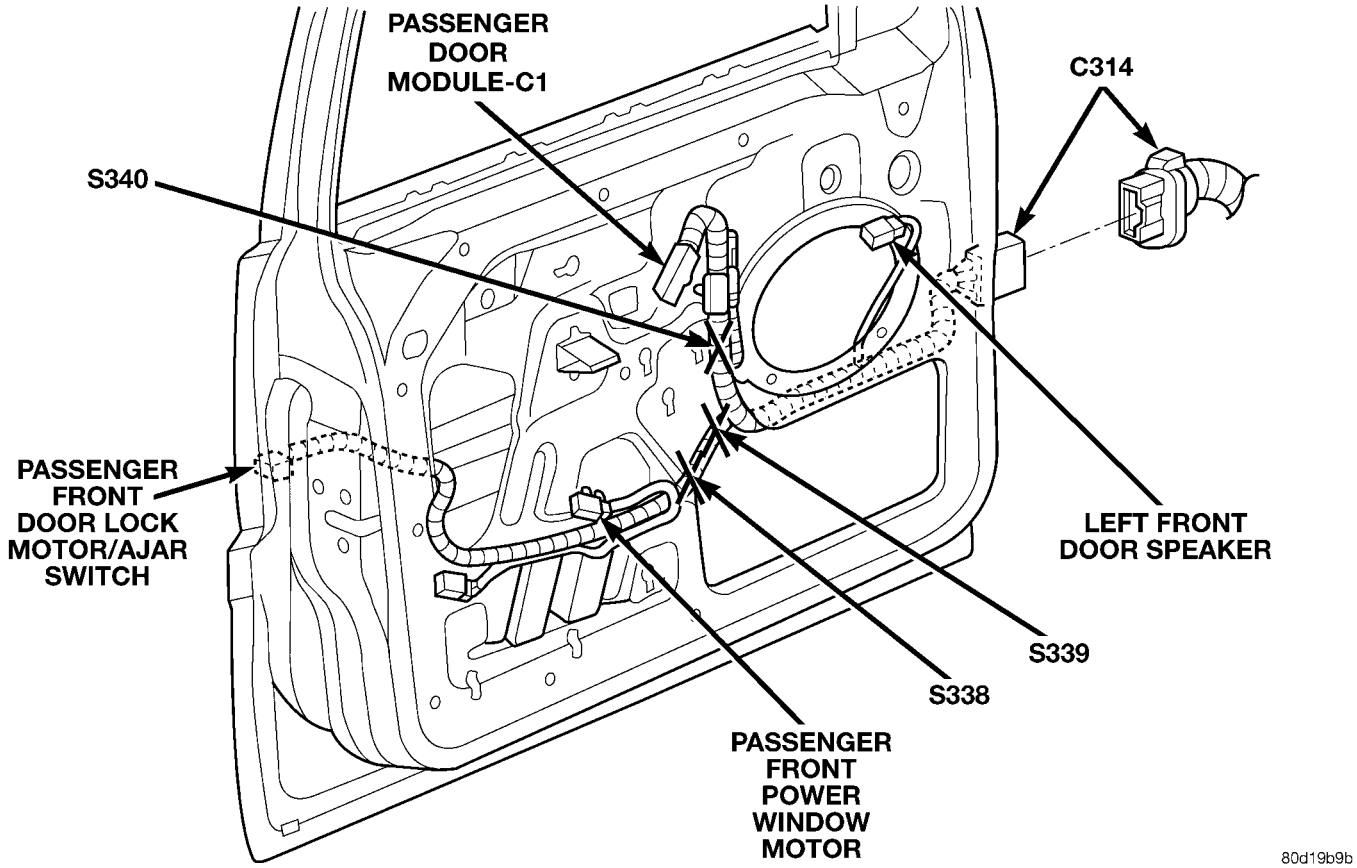


Fig. 33 PASSENGER DOOR RHD

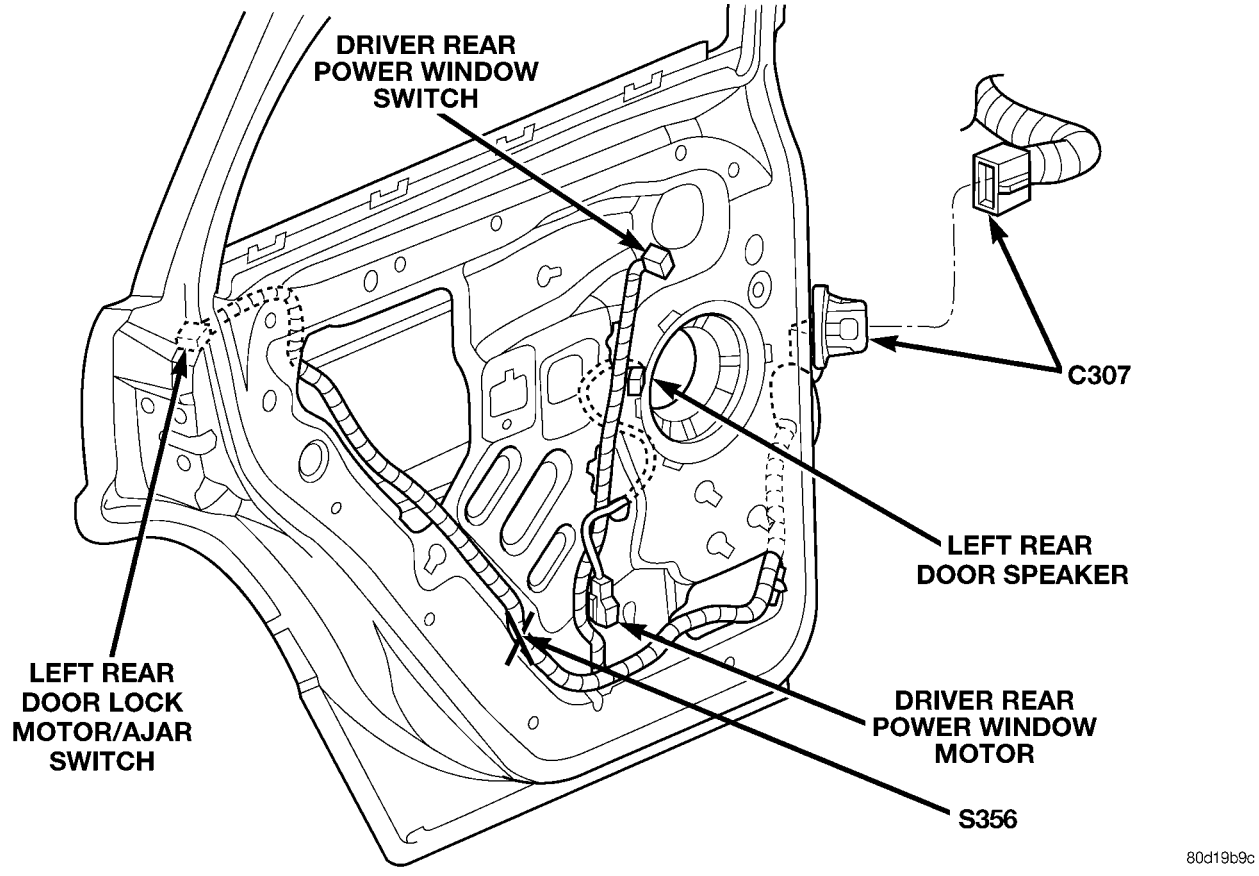


Fig. 34 LEFT REAR DOOR

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

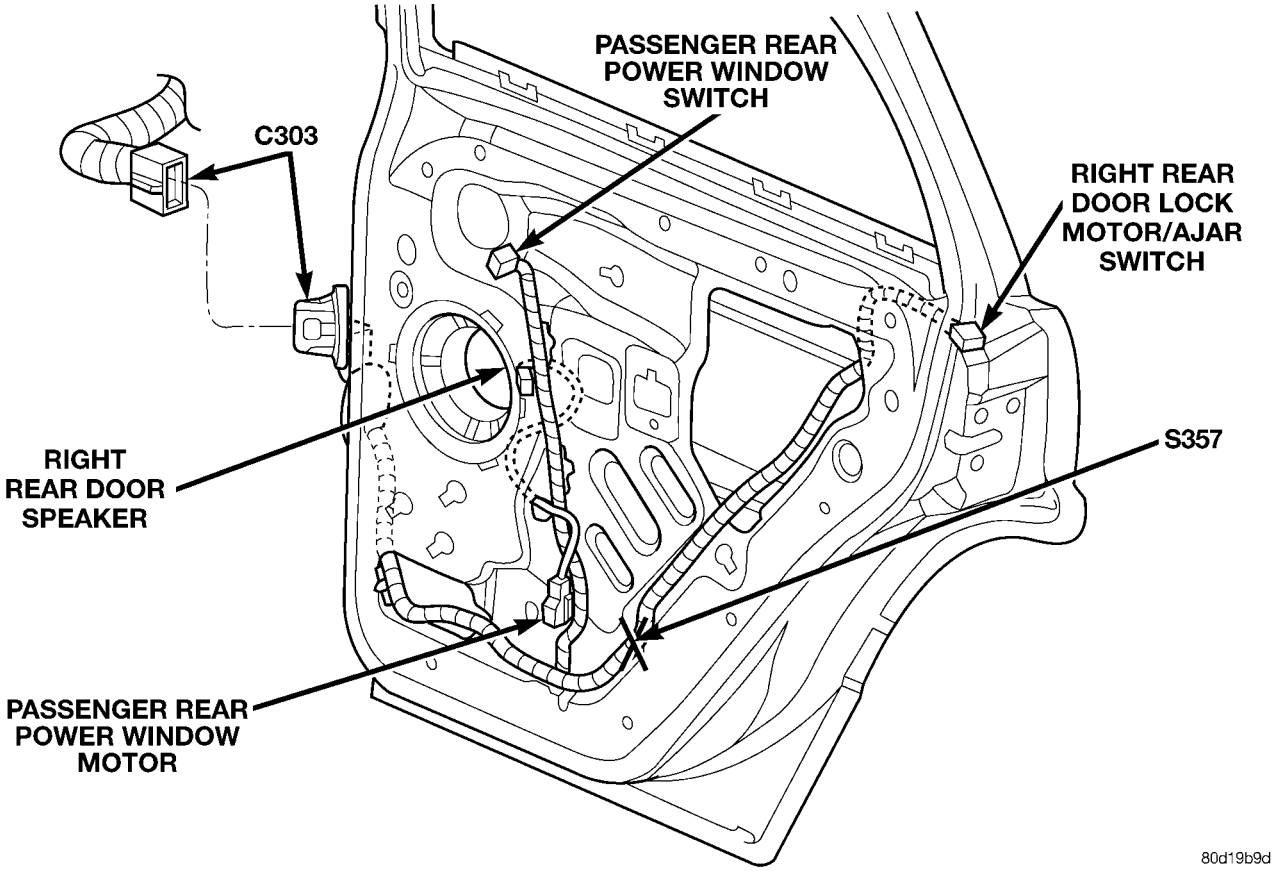


Fig. 35 RIGHT REAR DOOR

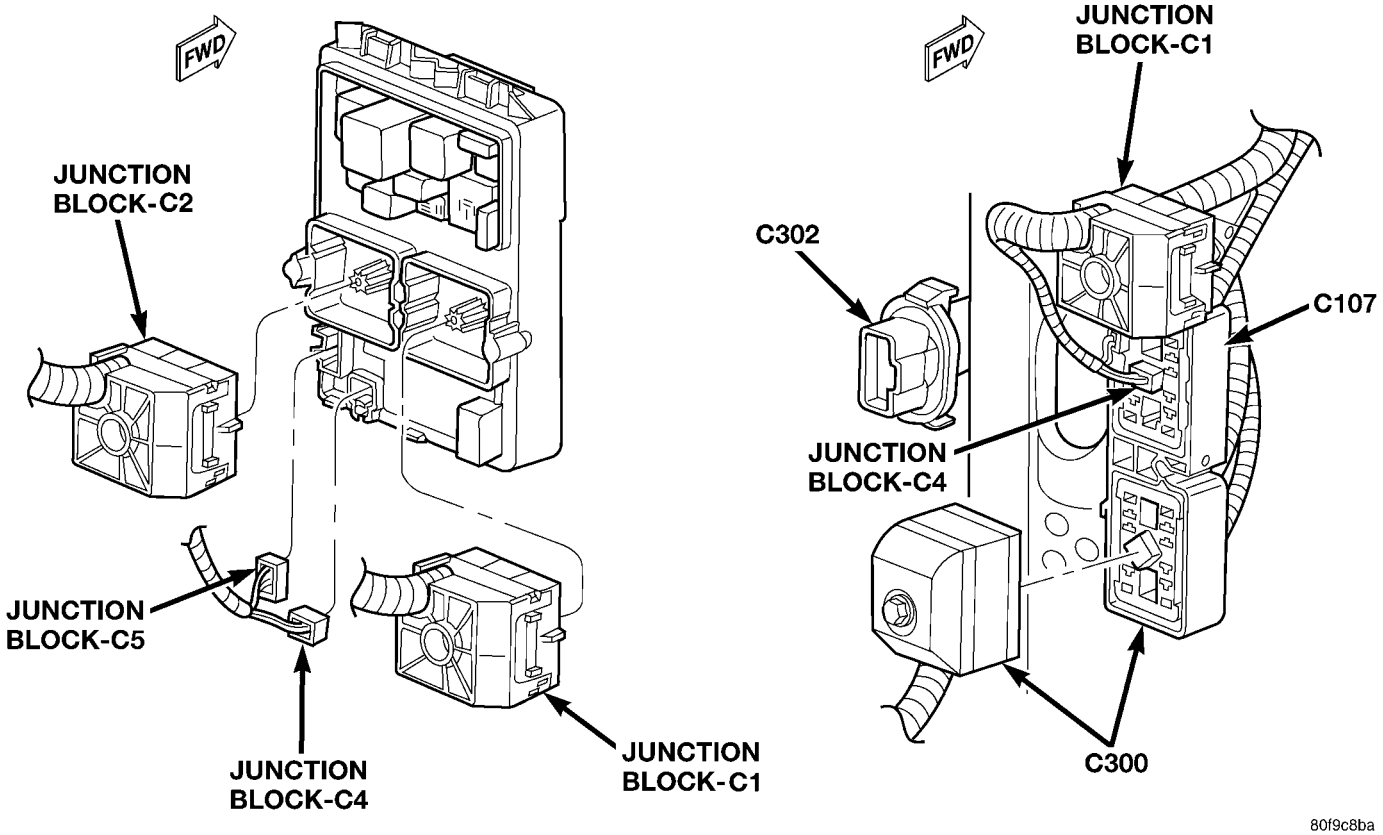


Fig. 36 KICK PANEL AREA LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

80d19ba6

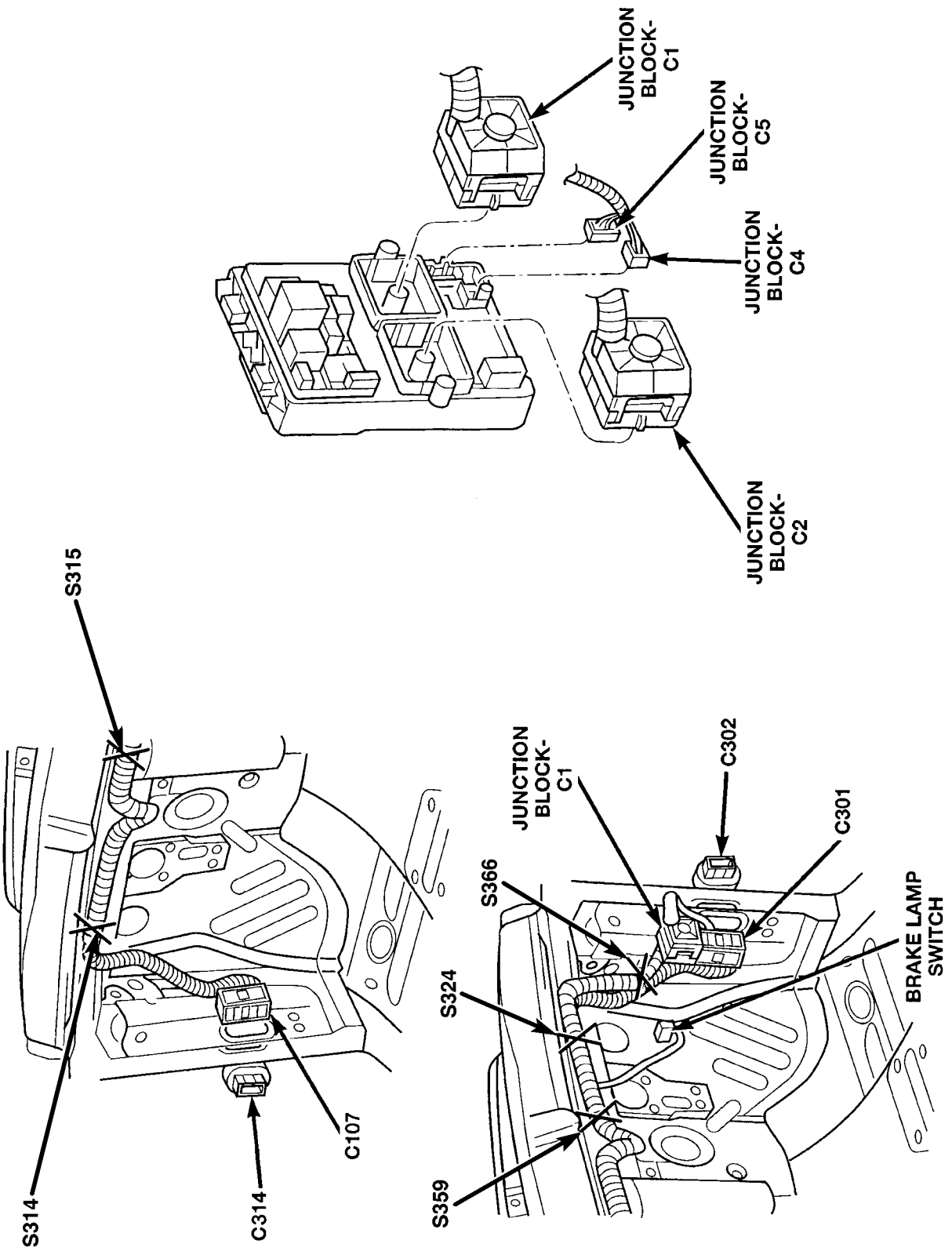


Fig. 37 KICK PANEL AREA RHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

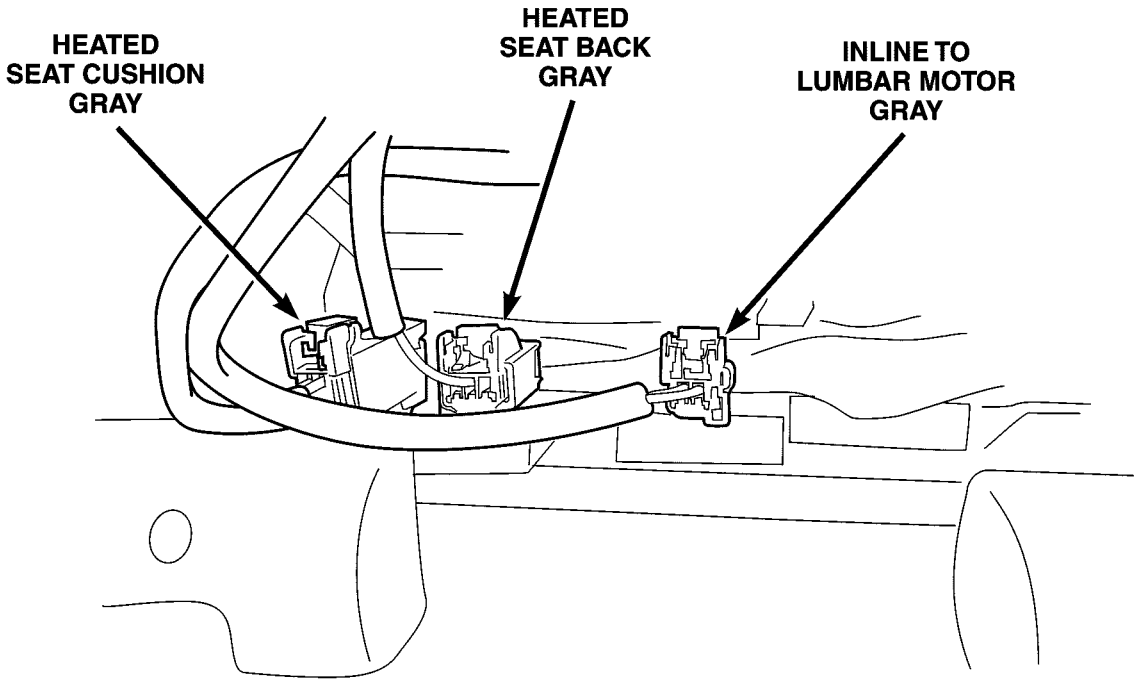


Fig. 38 POWER HEATED SEAT

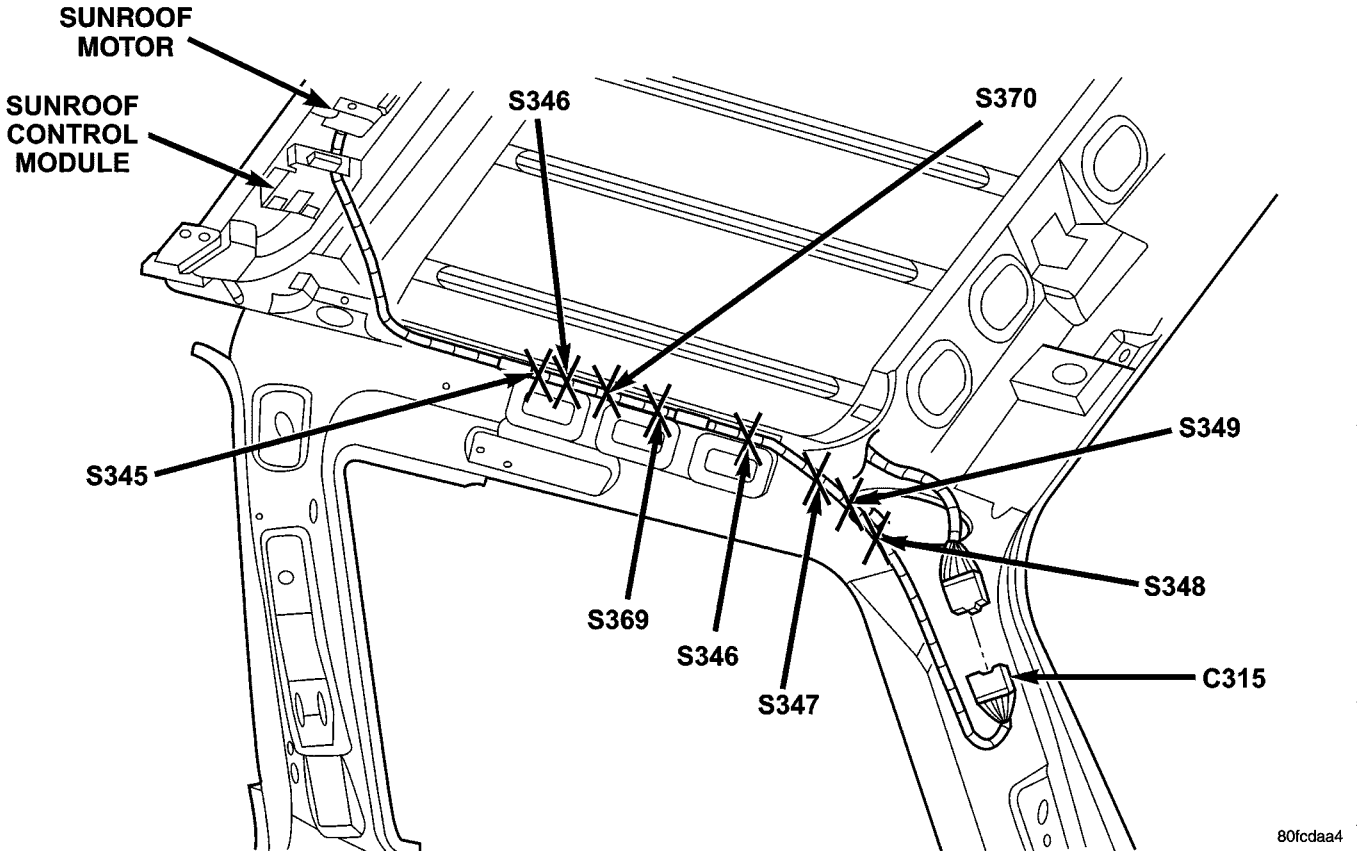


Fig. 39 ROOF AREA

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

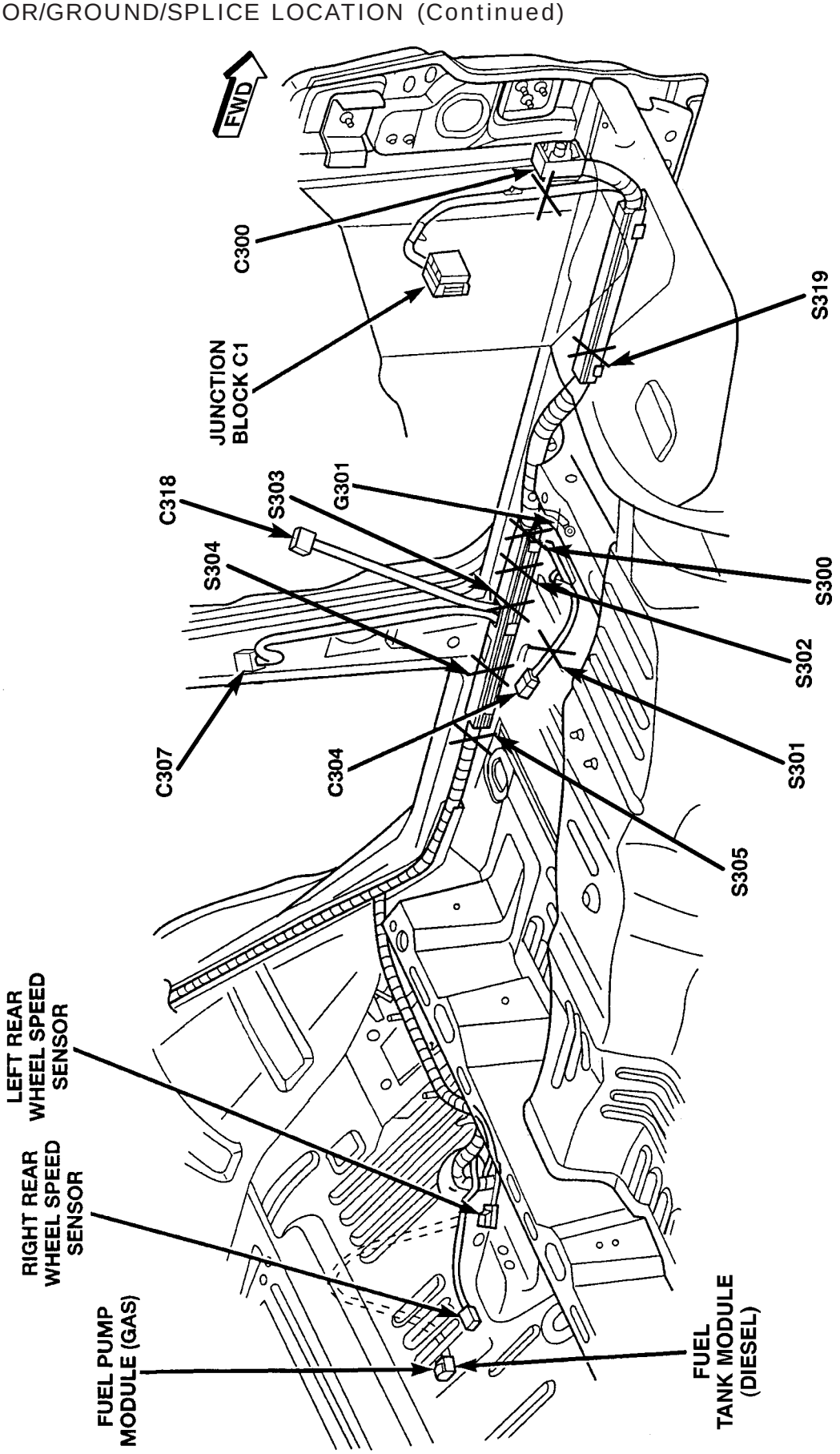


Fig. 40 BODY LEFT SIDE LHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

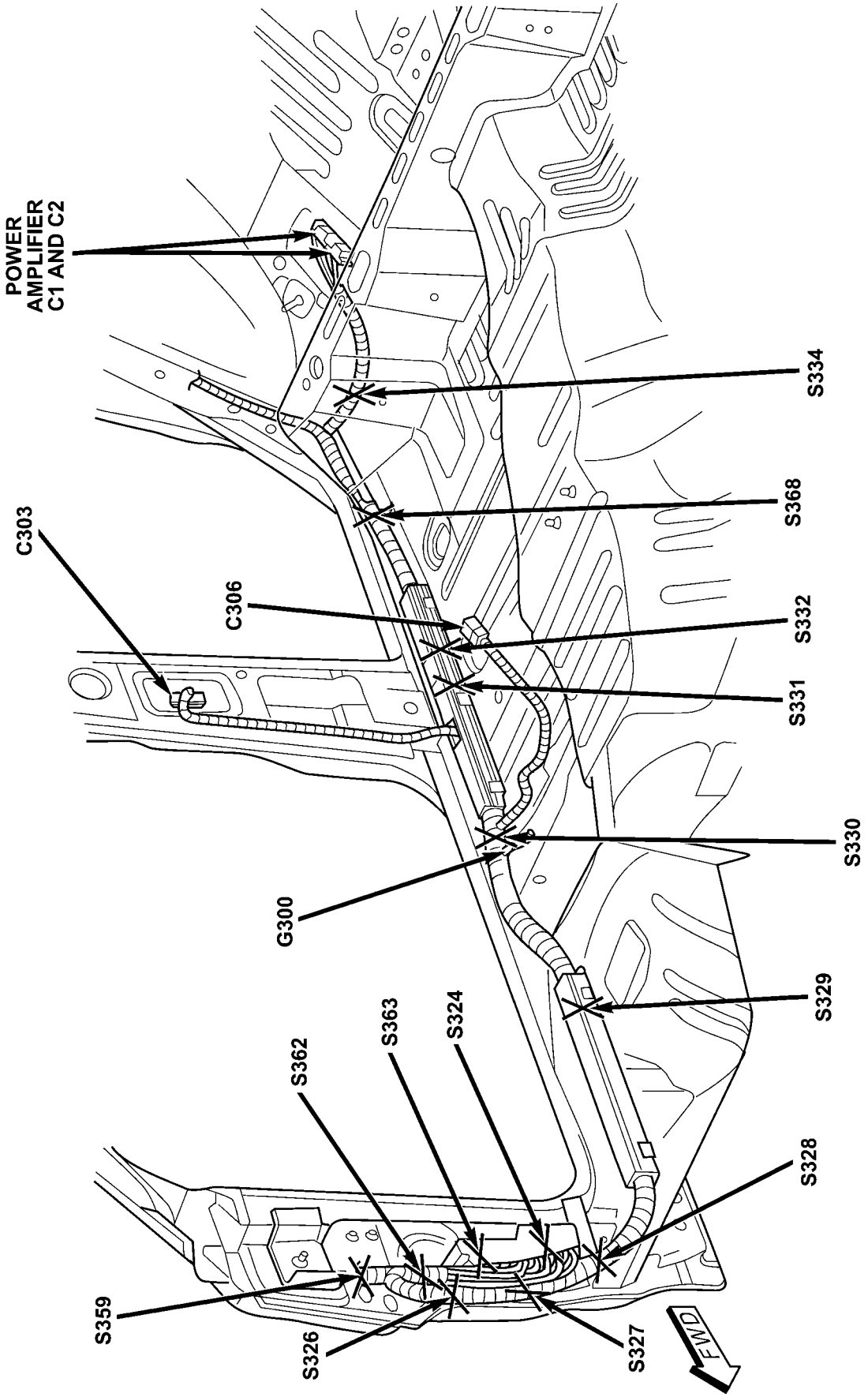


Fig. 41 BODY LEFT SIDE RHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

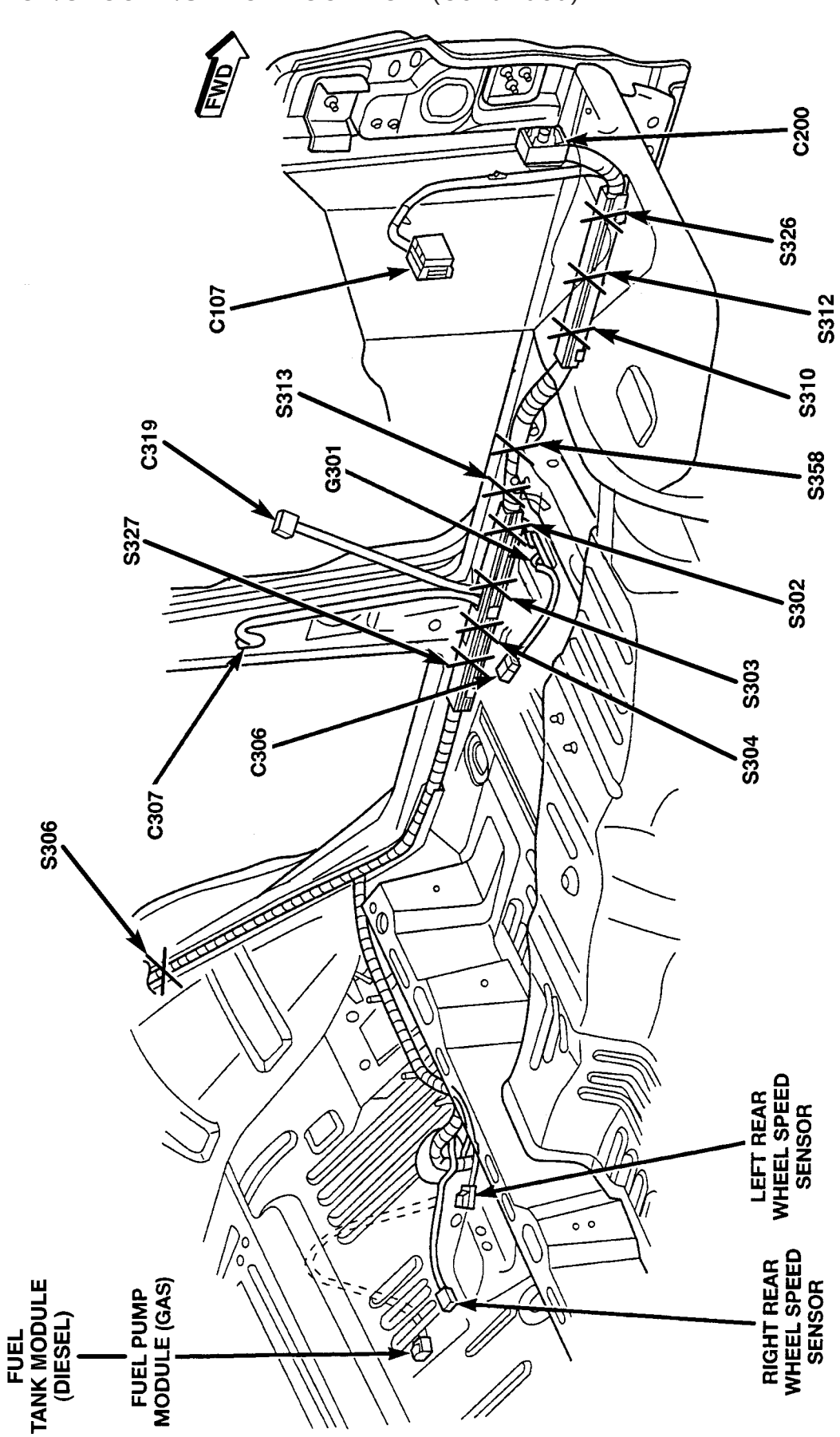


Fig. 42 BODY LEFT SIDE RHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

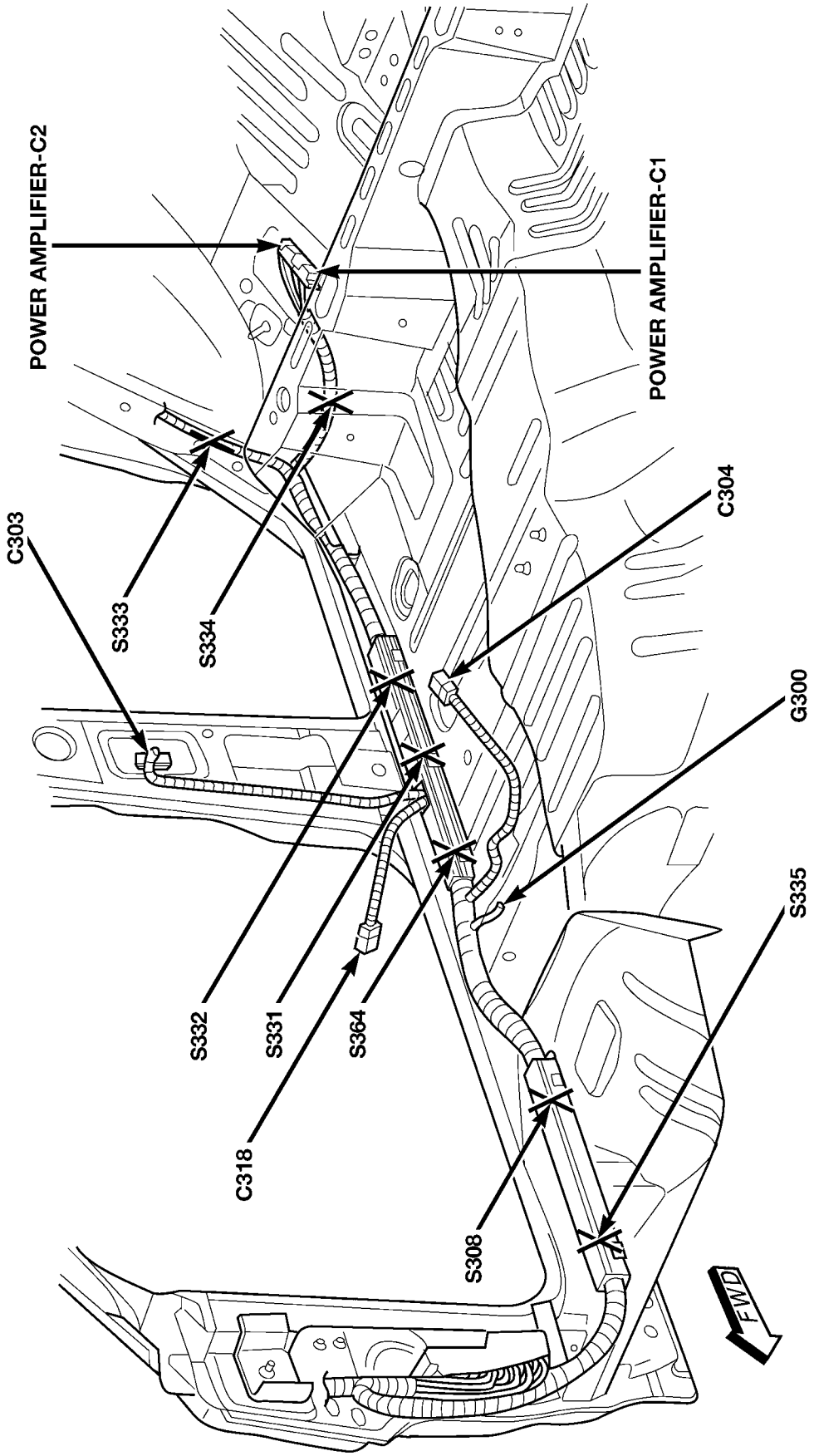
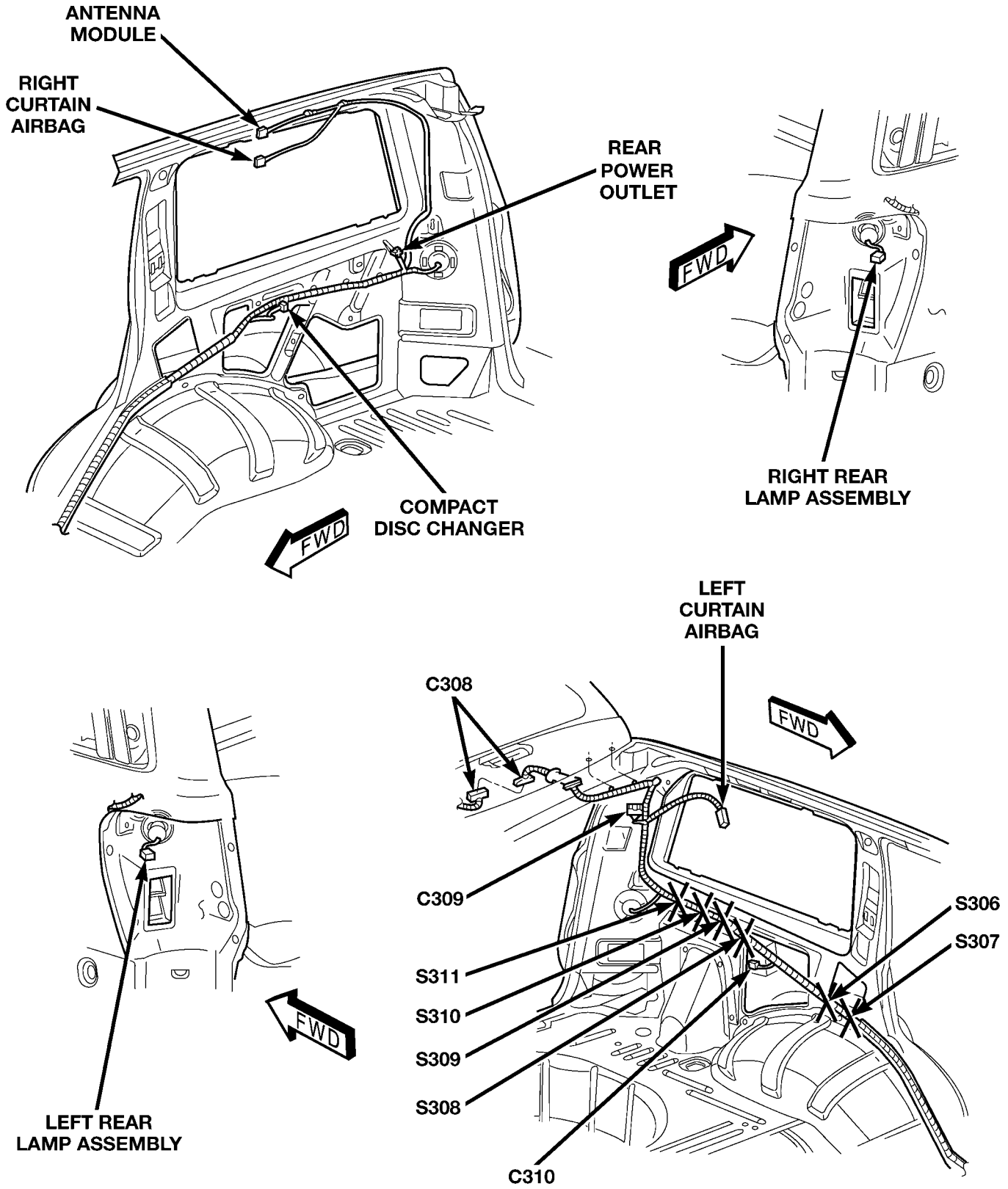


Fig. 43 BODY RIGHT SIDE RHD

CONNECTOR/GROUND/SPLICE LOCATION (Continued)



80d19bb0

Fig. 44 BODY QUARTER PANELS

CONNECTOR/GROUND/SPLICE LOCATION (Continued)

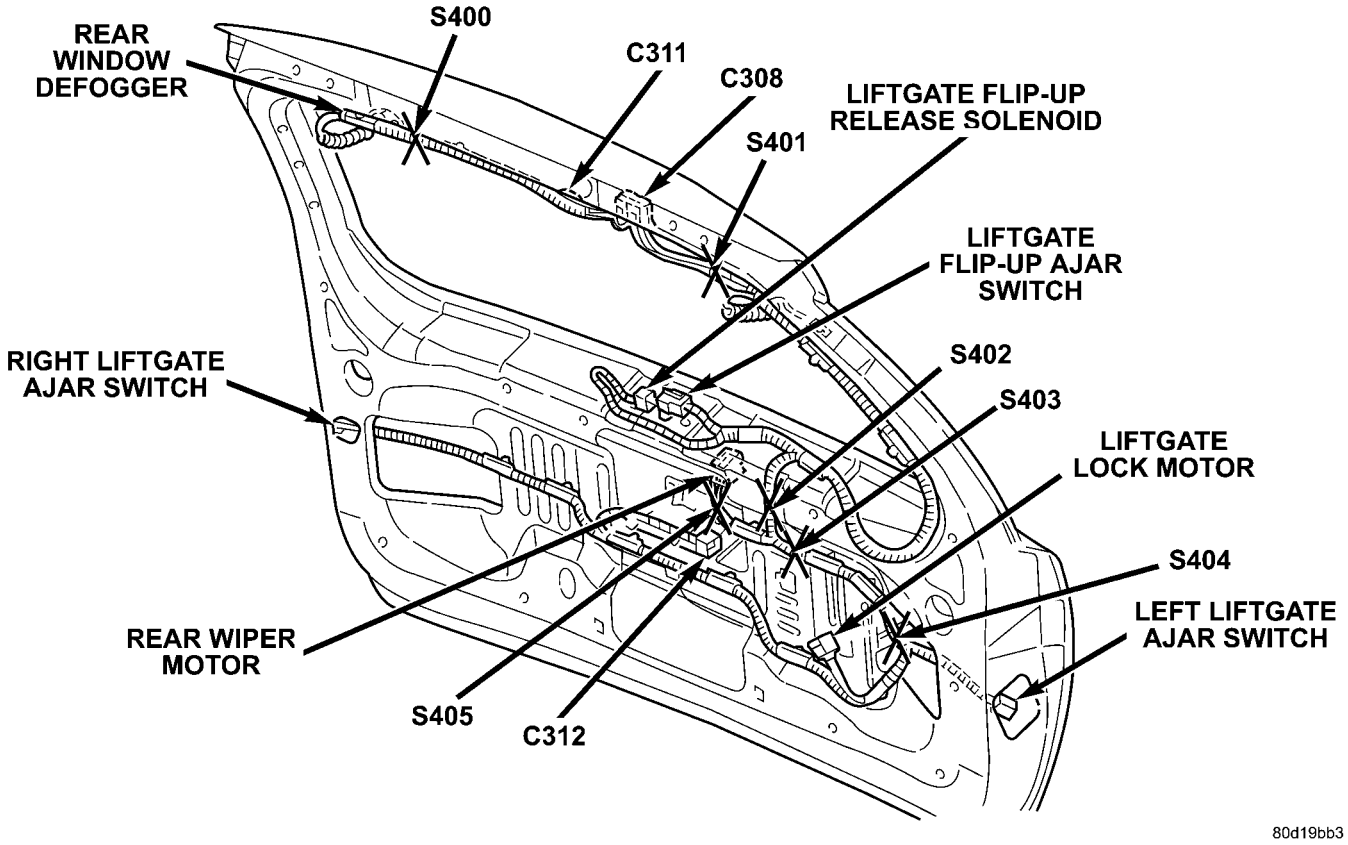


Fig. 45 LIFTGATE

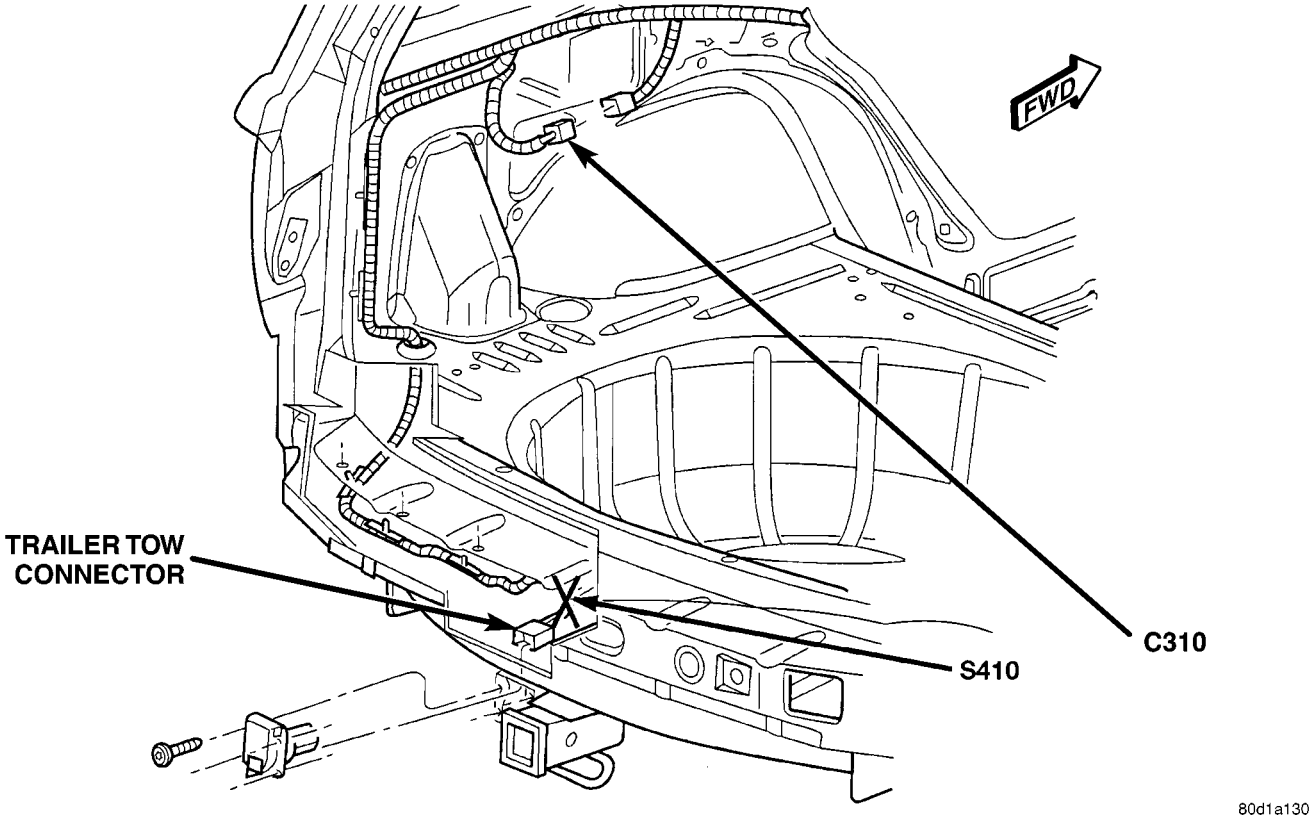


Fig. 46 TRAILER TOW

8W-97 POWER DISTRIBUTION

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POWER DISTRIBUTION

DESCRIPTION

This group covers the various standard and optional power distribution components used on this model. The power distribution system for this vehicle consists of the following components:

- Power Distribution Center (PDC)
- Junction Block (JB)
- Power Outlets

The power distribution system also incorporates various types of circuit control and protection features, including:

- Automatic resetting circuit breakers
- Blade-type fuses
- Bus bars
- Cartridge fuses
- Circuit splice blocks
- Flashers
- Fusible links
- Standard and Micro-Relays

Following are general descriptions of the major components in the power distribution system. See the owner's manual in the vehicle glove box for more information on the features and use of all of the power distribution system components. Refer to Wiring Diagrams for complete circuit diagrams.

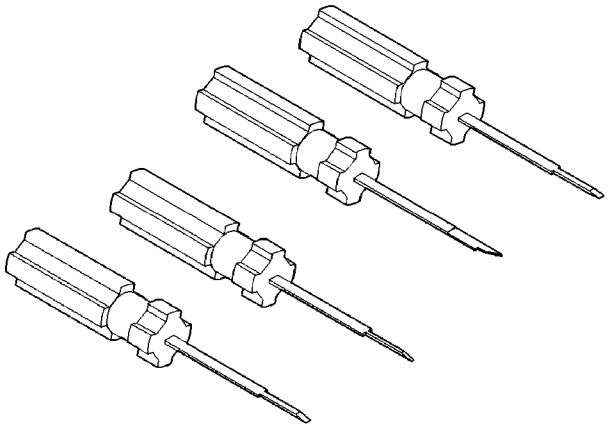
OPERATION

The power distribution system for this vehicle is designed to provide safe, reliable, and centralized distribution points for the electrical current required to operate all of the standard and optional factory-installed electrical and electronic powertrain, chassis, safety, security, comfort and convenience systems. At

the same time, the power distribution system was designed to provide ready access to these electrical distribution points for the vehicle technician to use when conducting diagnosis and repair of faulty circuits. The power distribution system can also prove useful for the sourcing of additional electrical circuits that may be required to provide the electrical current needed to operate accessories that the vehicle owner may choose to have installed in the aftermarket.

SPECIAL TOOLS

POWER DISTRIBUTION SYSTEMS



Terminal Pick Kit 6680

CIGAR LIGHTER OUTLET

DESCRIPTION

A cigar lighter outlet is standard equipment on this model. On models equipped with the optional Smoker's Package, the cigar lighter knob and heating element are included. On models without the Smoker's Package, the cigar lighter outlet is equipped with a snap fit plastic cap and is treated as an extra accessory power outlet. The cigar lighter outlet is installed in the instrument panel center lower bezel, which is located near the bottom of the instrument panel center stack area, below the heater and air conditioner controls. The cigar lighter outlet is secured by a snap fit within the center lower bezel.

The cigar lighter outlet, plastic cap and the knob and heating element unit are available for service replacement. These components cannot be repaired and, if faulty or damaged, they must be replaced.

OPERATION

The cigar lighter consists of two major components: a knob and heating element unit, and the cigar lighter base or outlet shell. The receptacle shell is connected to ground, and an insulated contact in the bottom of the shell is connected to battery current. The cigar lighter receives battery voltage from a fuse in the junction block when the ignition switch is in the Accessory or On positions.

The cigar lighter knob and heating element are encased within a spring-loaded housing, which also features a sliding protective heat shield. When the knob and heating element are inserted in the outlet shell, the heating element resistor coil is grounded through its housing to the outlet shell. If the cigar lighter knob is pushed inward, the heat shield slides up toward the knob exposing the heating element, and the heating element extends from the housing toward the insulated contact in the bottom of the outlet shell.

Two small spring-clip retainers are located on either side of the insulated contact inside the bottom of the outlet shell. These clips engage and hold the heating element against the insulated contact long enough for the resistor coil to heat up. When the heating element is engaged with the contact, battery current can flow through the resistor coil to ground, causing the resistor coil to heat.

When the resistor coil becomes sufficiently heated, excess heat radiates from the heating element causing the spring-clips to expand. Once the spring-clips expand far enough to release the heating element, the spring-loaded housing forces the knob and heating element to pop back outward to their relaxed position. When the cigar lighter knob and element are pulled out of the outlet shell, the protective heat shield slides downward on the housing so that the heating element is recessed and shielded around its circumference for safety.

DIAGNOSIS AND TESTING - CIGAR LIGHTER OUTLET

For complete circuit diagrams, refer to **Horn/Cigar Lighter/Power Outlet** in Wiring Diagrams.

(1) Check the fused B(+) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Turn the ignition switch to the On position. Check for battery voltage at the fused B(+) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open or short as required.

(3) Remove the cigar lighter knob and element from the cigar lighter outlet shell. Check for continuity between the inside circumference of the cigar lighter outlet shell and a good ground. there should be continuity. If OK, go to Step 4. If not OK, go to Step 5.

(4) Turn the ignition switch to the On position. Check for battery voltage at the insulated contact located at the back of the cigar lighter outlet shell. If

CIGAR LIGHTER OUTLET (Continued)

OK, replace the faulty cigar lighter knob and element. If not OK, go to Step 5.

(5) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the instrument panel center lower bezel. Check for continuity between the ground circuit cavity of the cigar lighter wire harness connector and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit to ground as required.

(6) Connect the battery negative cable. Turn the ignition switch to the Accessory or On positions. Check for battery voltage at the fused B(+) circuit cavity of the cigar lighter wire harness connector. If OK, replace the faulty cigar lighter outlet. If not OK, repair the open fused B(+) circuit to the junction block fuse as required.

CIGAR LIGHTER OUTLET DOOR SPRING

REMOVAL

(1) Disconnect and isolate the negative battery cable.

(2) Remove the instrument panel center lower bezel from the I.P. Refer to Body for the procedure.

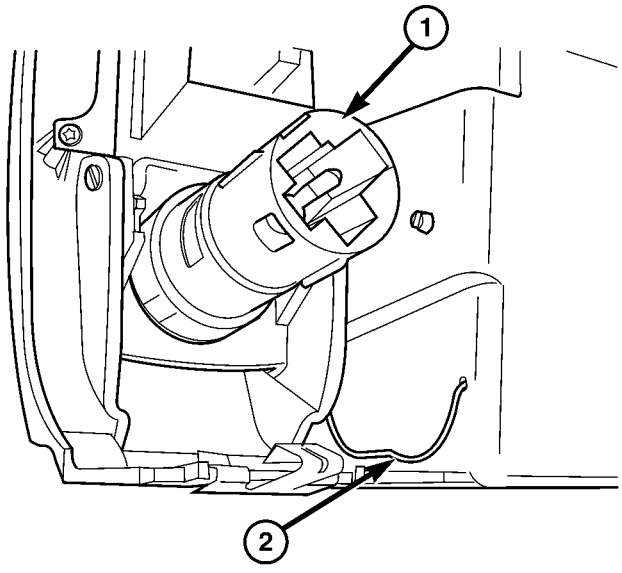


Fig. 1 Cigar Lighter Outlet Door Spring

1 - CIGAR LIGHTER OUTLET
2 - CIGAR LIGHTER OUTLET DOOR SPRING

(3) Remove the cigar lighter outlet door spring from its locating holes (Fig. 1).

INSTALLATION

(1) Install the cigar outlet door spring in its locating holes.

(2) Install the instrument panel center lower bezel on the I.P. Refer to Body for the procedure.

(3) Connect the negative battery cable.

IOD FUSE

DESCRIPTION

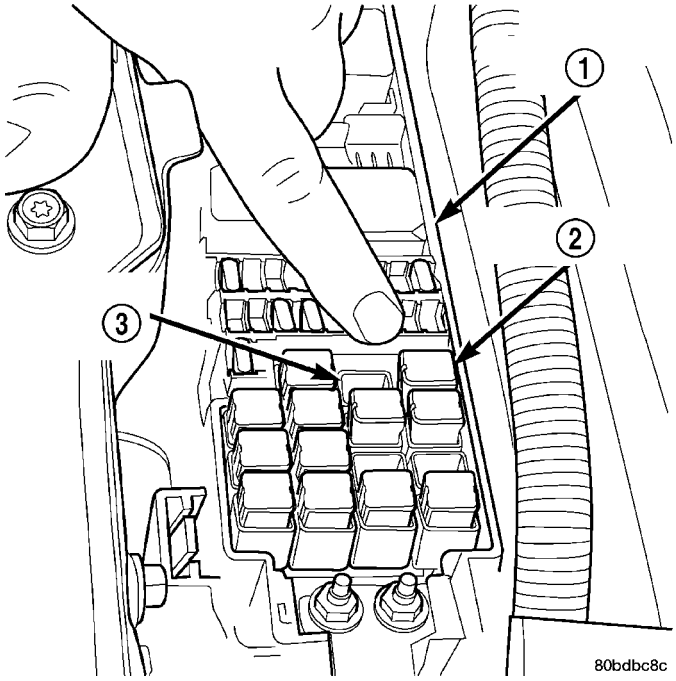


Fig. 2 Ignition-Off Draw Fuse

1 - POWER DISTRIBUTION CENTER
2 - IGNITION-OFF DRAW FUSE
3 - IOD FUSE STORAGE CAVITY

All vehicles are equipped with an Ignition-Off Draw (IOD) fuse (Fig. 2) that is removed from its cavity in the Power Distribution Center (PDC) when the vehicle is shipped from the factory. Dealer personnel are to remove the IOD fuse from the storage location and install it into PDC fuse cavity 15 as part of the preparation procedures performed just prior to new vehicle delivery.

The PDC has a molded plastic cover that can be removed to provide service access to all of the fuses and relays in the PDC. An integral latch and hinges are molded into the PDC cover for easy removal. A fuse layout map is integral to the underside of the PDC cover to ensure proper fuse and relay identification. The IOD fuse is a 50 ampere maxi-type cartridge fuse and, when removed, it is stored in a spare fuse cavity within the PDC.

IOD FUSE (Continued)

OPERATION

The term ignition-off draw identifies a normal condition where power is being drained from the battery with the ignition switch in the Off position. The IOD fuse feeds the memory and sleep mode functions for some of the electronic modules in the vehicle as well as various other accessories that require battery current when the ignition switch is in the Off position, including the clock. The only reason the IOD fuse is removed is to reduce the normal IOD of the vehicle electrical system during new vehicle transportation and pre-delivery storage to reduce battery depletion, while still allowing vehicle operation so that the vehicle can be loaded, unloaded and moved as needed by both vehicle transportation company and dealer personnel.

The IOD fuse is removed from PDC fuse cavity 15 when the vehicle is shipped from the assembly plant. Dealer personnel must install the IOD fuse when the vehicle is being prepared for delivery in order to restore full electrical system operation. Once the vehicle is prepared for delivery, the IOD function of this fuse becomes transparent and the fuse that has been assigned the IOD designation becomes only another Fused B(+) circuit fuse. The IOD fuse serves no useful purpose to the dealer technician in the service or diagnosis of any vehicle system or condition, other than the same purpose as that of any other standard circuit protection device.

The IOD fuse can be used by the vehicle owner as a convenient means of reducing battery depletion when a vehicle is to be stored for periods not to exceed about thirty days. However, it must be remembered that removing the IOD fuse will not eliminate IOD, but only reduce this normal condition. If a vehicle will be stored for more than about thirty days, the battery negative cable should be disconnected to eliminate normal IOD; and, the battery should be tested and recharged at regular intervals during the vehicle storage period to prevent the battery from becoming discharged or damaged. Refer to **Battery System** for additional service information.

REMOVAL

The Ignition-Off Draw (IOD) fuses normal installation location is cavity 15 in the power distribution center. When the vehicle is shipped from the assembly plant the fuse is removed to maintain proper battery voltage during vehicle storage (in some cases). Dealer personnel must install the IOD fuse when the vehicle is being prepared for customer delivery in order to restore full electrical system operation.

(1) Turn the ignition switch to the Off position.

(2) Unlatch and open the cover of the power distribution center.

(3) Remove the IOD fuse from fuse **cavity 15** of the power distribution center (Fig. 2).

(4) Store the removed IOD fuse by installing it in the unused fuse storage **cavity 11** of the PDC (Fig. 2).

(5) Close and latch the power distribution center cover.

INSTALLATION

(1) Be certain the ignition switch is in the Off position.

(2) Unlatch and open the cover of the power distribution center.

(3) Remove the stored IOD fuse from fuse storage **cavity 11** of the power distribution center.

(4) Use a thumb to press the IOD fuse firmly down into power distribution center fuse **cavity 15**.

(5) Close and latch the power distribution center cover.

JUNCTION BLOCK

DESCRIPTION

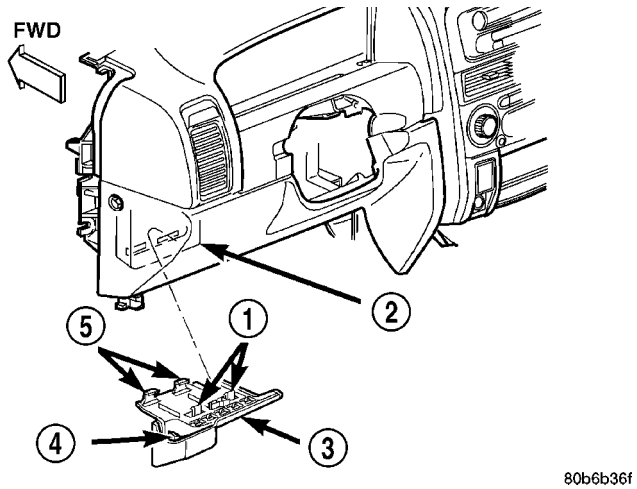


Fig. 3 Junction Block Location

1 - REAR LATCHES
2 - JUNCTION BLOCK AND BODY CONTROL MODULE UNIT
3 - INSTRUMENT PANEL FUSE COVER
4 - SIDE LATCH
5 - FRONT LATCHES

An electrical Junction Block (JB) is concealed beneath the driver side of the instrument panel in the passenger compartment of the vehicle (Fig. 3). The JB combines the functions previously provided by a separate fuseblock module and relay center. The JB serves to simplify and centralize numerous electrical components, as well as to distribute electrical current to many of the accessory systems in the vehicle. It also eliminates the need for numerous splice connections. The JB houses up to thirty-three blade-

JUNCTION BLOCK (Continued)

type mini fuses, up to two blade-type automatic resetting circuit breakers, the electronic combination flasher, the Daytime Running Lamp (DRL) module (Canada only) and up to twelve International Standards Organization (ISO) relays (three standard-type and nine micro-type). The JB also incorporates an integral connector and mounting for the Body Control Module (BCM). The BCM is secured with four screws directly to the dash panel side of the JB. Refer to **Body Control Module** in Electronic Control Modules for additional information covering the BCM.

The molded plastic JB housing has integral mounts that are secured with two screws and two snap retainers to the instrument panel steering column support bracket behind the instrument panel steering column opening cover. The JB is concealed above the molded plastic instrument panel fuse cover. Integral latches molded into the fuse cover secure it the JB, the BCM and the 16-way data link connector tab of the instrument panel steering column support bracket. The fuse cover can be pulled downward to disengage the latches and provide service access to all of the fuses, relays and wire harness connectors of the JB. The fuse cover has a fuse puller and spare fuses secured to its upper surface. Refer to **Instrument Panel Fuse Cover** in Body for additional service information.

The JB unit cannot be repaired and is only serviced as an assembly. If any internal circuit or the JB housing is faulty or damaged, the entire JB unit must be replaced. The BCM is available for separate service replacement.

OPERATION

All of the circuits entering and leaving the Junction Block (JB) do so through up to five wire harness connectors, which are connected to the JB through integral connector receptacles molded into the JB housing. Internal connection of all of the JB circuits is accomplished by a printed circuit board. There are also two separate wire harness connections to connector receptacles that are integral to the BCM. Refer to **Junction Block** in Wiring Diagrams for additional information and the location of complete JB circuit diagrams.

REMOVAL

WARNING: DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the fuse cover from the bottom of the Junction Block (JB).

(3) Remove the steering column opening cover from the instrument panel. Refer to **Steering Column Opening Cover** in Body for the location of steering column opening cover removal procedures.

(4) Reach behind the JB to disconnect the two instrument panel wire harness connectors from the Body Control Module (BCM) connector receptacles located near the bottom of the JB (Fig. 4).

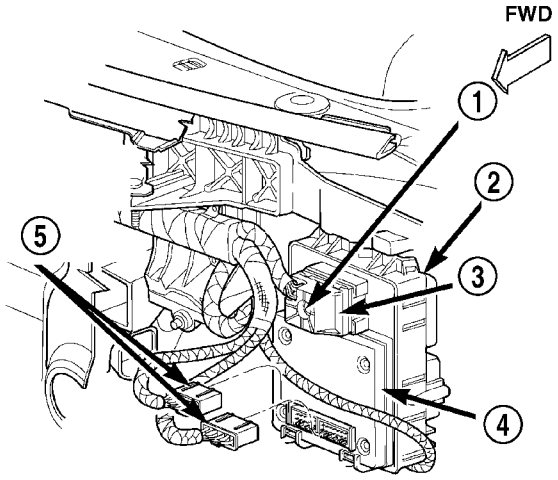


Fig. 4 Junction Block Connections

1 - SCREW
2 - JUNCTION BLOCK
3 - BULKHEAD CONNECTOR
4 - BODY CONTROL MODULE
5 - INSTRUMENT PANEL WIRE HARNESS CONNECTORS

JUNCTION BLOCK (Continued)

(5) Reach behind the JB to remove the screw that secures the instrument panel wire harness bulkhead connector to the connector receptacle located near the top of the JB and disconnect the connector.

(6) Disconnect the fused B(+) and the IOD wire harness connectors from the connector receptacles located near the bottom of the JB (Fig. 5).

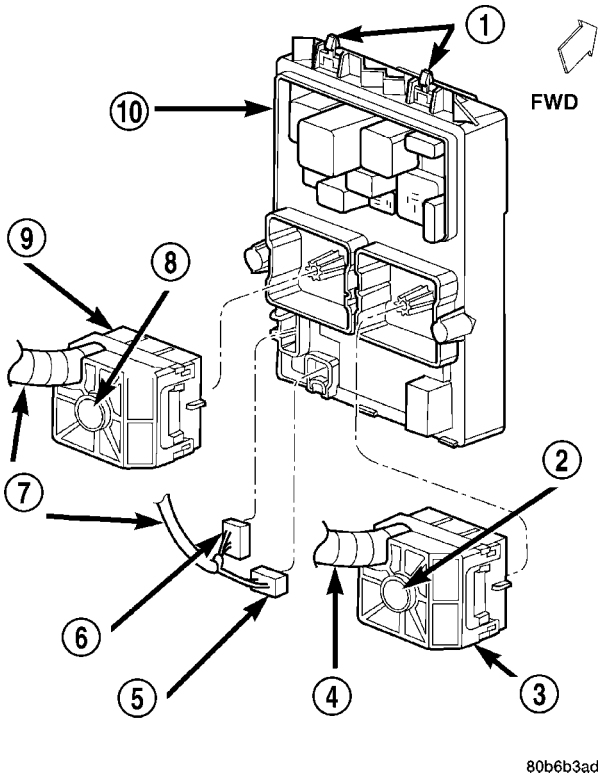


Fig. 5 Junction Block Connections

1 - SNAP CLIPS
2 - SCREW
3 - CONNECTOR
4 - LEFT BODY WIRE HARNESS
5 - IOD CONNECTOR
6 - FUSED B+ CONNECTOR
7 - RIGHT BODY WIRE HARNESS
8 - SCREW
9 - CONNECTOR
10 - JUNCTION BLOCK

(7) Remove the screws that secure the right and left body wire harness bulkhead connectors to the connector receptacles located near the center of the JB and disconnect the connectors.

(8) Remove the two screws that secure the JB to the instrument panel steering column support bracket (Fig. 6).

(9) To disengage the two snap clips that secure the top of the JB to the instrument panel steering column support bracket, grasp the bottom of the junction block firmly with both hands and pull it downward sharply.

(10) Remove the JB from the instrument panel steering column support bracket.

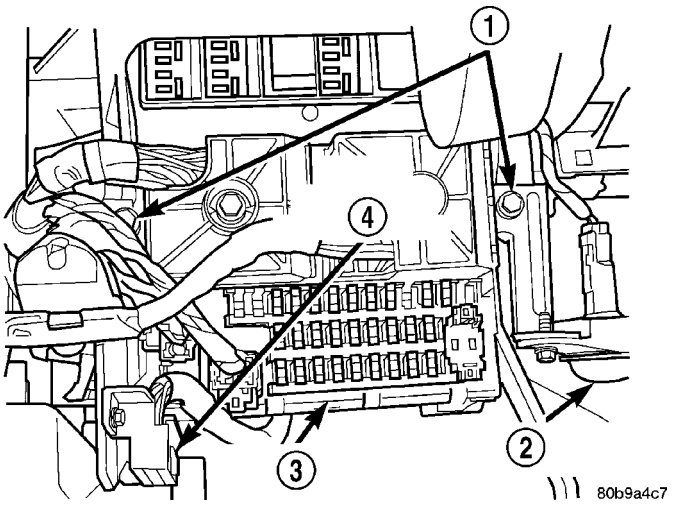


Fig. 6 Junction Block

1 - SCREW (2)
2 - DRIVER SIDE COURTESY LAMP
3 - JUNCTION BLOCK
4 - 16 WAY DATA LINK CONNECTOR

INSTALLATION

NOTE: If the Junction Block (JB) is being replaced with a new unit, be certain to transfer each of the optional fuses, circuit breakers and relays from the faulty JB to the proper cavities of the replacement JB. Refer to Junction Block in Wiring Diagrams for the location of complete circuit diagrams and cavity assignments for the JB. The Body Control Module (BCM) must also be transferred to the new JB. Refer to Body Control Module in Electronic Control Modules for the location of the BCM removal and installation procedures.

(1) Position the JB into its mounting location on the instrument panel steering column support bracket.

(2) Align the snap clips at the top of the JB with the mounting holes in the instrument panel steering column support bracket.

(3) Grasp the bottom of the JB firmly with both hands and push it upward sharply to engage the two snap clips that secure the top of the JB to the instrument panel steering column support bracket.

(4) Install and tighten the two screws that secure the JB to the instrument panel steering column support bracket. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Reconnect the right and left body wire harness bulkhead connectors to the connector receptacles located near the center of the JB.

(6) Install and tighten the screws that secure the right and left body wire harness bulkhead connectors to the connector receptacles located near the center of the JB. Tighten the screws to 2.2 N·m (20 in. lbs.).

JUNCTION BLOCK (Continued)

(7) Reconnect the fused B(+) and the IOD wire harness connectors to the connector receptacles located near the bottom of the JB.

(8) Reach behind the JB to reconnect the instrument panel wire harness bulkhead connector to the connector receptacle located near the top of the JB.

(9) Install and tighten the screw that secures the instrument panel wire harness bulkhead connector to the connector receptacle located near the top of the JB. Tighten the screw to 2.2 N·m (20 in. lbs.).

(10) Reach behind the JB to reconnect the two instrument panel wire harness connectors to the BCM connector receptacles located near the bottom of the JB.

(11) Install the steering column opening cover onto the instrument panel. Refer to **Steering Column Opening Cover** in Body for the location of the steering column opening cover installation procedures.

(12) Install the fuse cover onto the bottom of the JB.

(13) Reconnect the battery negative cable.

POWER DISTRIBUTION CENTER

DESCRIPTION

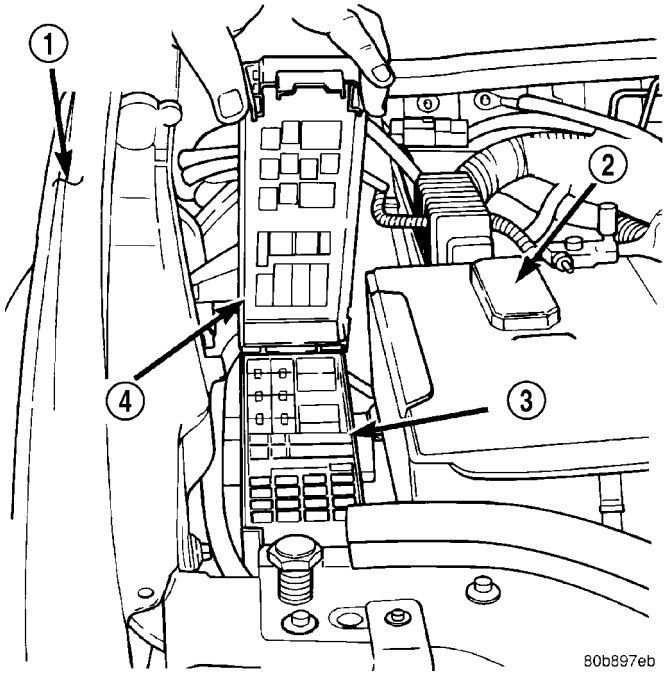


Fig. 7 Power Distribution Center Location

1 - RIGHT FENDER
2 - BATTERY
3 - POWER DISTRIBUTION CENTER
4 - COVER

All of the electrical current distributed throughout this vehicle is directed through the standard equipment Power Distribution Center (PDC) (Fig. 7). The molded plastic PDC housing is located in the right front corner of the engine compartment, between the battery and the right front inner fender shield. The PDC houses up to fifteen maxi-type cartridge fuses, which replace all in-line fusible links. The PDC also houses up to thirteen blade-type mini fuses, and up to ten International Standards Organization (ISO) relays (two standard-type and eight micro-type).

The PDC housing is secured in the engine compartment at three points. Integral mounts on both sides of the PDC housing engage and latch to stanchions that are integral to the molded plastic battery support. The PDC is integral to the right headlamp and dash wire harness, which exits from the bottom of the PDC housing. The PDC housing has a molded plastic cover that includes two integral latches at the front and pivot hooks at the back that snap over a hinge pin on the rear of the PDC housing. The PDC cover is easily opened or removed for service access and has a convenient fuse and relay layout map integral to the inside surface of the cover to ensure proper component identification. A fuse puller is also stored on the inside of the PDC cover.

The PDC cover, the PDC housing lower cover, the PDC relay wedges, the PDC relay cassettes and the PDC B(+) terminal stud module are available for service replacement. The PDC main housing unit, the fuse wedges and the bus bars cannot be repaired and are only serviced as a unit with the right headlamp and dash wire harness. If the PDC main housing unit, fuse wedges or the bus bars are faulty or damaged, the right headlamp and dash wire harness unit must be replaced.

OPERATION

All of the current from the battery and the generator output enters the PDC through two cables and a single two-holed eyelet that is secured with nuts to the two PDC B(+) terminal studs just inside the front end of the PDC housing. The PDC cover is unlatched and opened to access the battery and generator output connection B(+) terminal studs, the fuses or the relays. Internal connection of all of the PDC circuits is accomplished by an intricate combination of hard wiring and bus bars. Refer to **Power Distribution** in Wiring Diagrams for the location of complete PDC circuit diagrams.

REMOVAL

The Power Distribution Center (PDC) main housing unit, the PDC fuse wedges and the PDC bus bars cannot be repaired and are only serviced as a unit with the right headlamp and dash wire harness. If the PDC main housing unit, the fuse wedges or the bus bars are faulty or damaged, the entire PDC and

POWER DISTRIBUTION CENTER (Continued)

right headlamp and dash wire harness unit must be replaced.

(1) Disconnect and isolate the battery negative cable.

(2) Disconnect each of the right headlamp and dash wire harness connectors. Refer to **Connector Locations** in Wiring Diagrams for the location of more information on the right headlamp and dash wire harness connector locations.

(3) Remove all of the fasteners that secure each of the right headlamp and dash wire harness ground eyelets to the vehicle body and chassis components. Refer to **Connector Locations** in Wiring Diagrams for the location of more information on the ground eyelet locations.

(4) Disengage each of the retainers that secure the right headlamp and dash wire harness to the vehicle body and chassis components. Refer to **Connector Locations** in Wiring Diagrams for the location of more information on the right headlamp and dash wire harness retainer locations.

(5) Unlatch and open the PDC cover.

(6) Remove the two nuts that secure the two-holed eyelet of the battery wire harness PDC take outs to the PDC B(+) terminal studs (Fig. 8).

(7) Remove the battery wire harness PDC take out eyelet from the B(+) terminal studs.

(8) Disengage the latches on the PDC housing mounts from the tabs on the PDC mounting stanchions of the battery support, and pull the PDC housing upward to disengage the mounts from the stanchions (Fig. 9).

(9) Remove the PDC and the right headlamp and dash wire harness from the engine compartment as a unit.

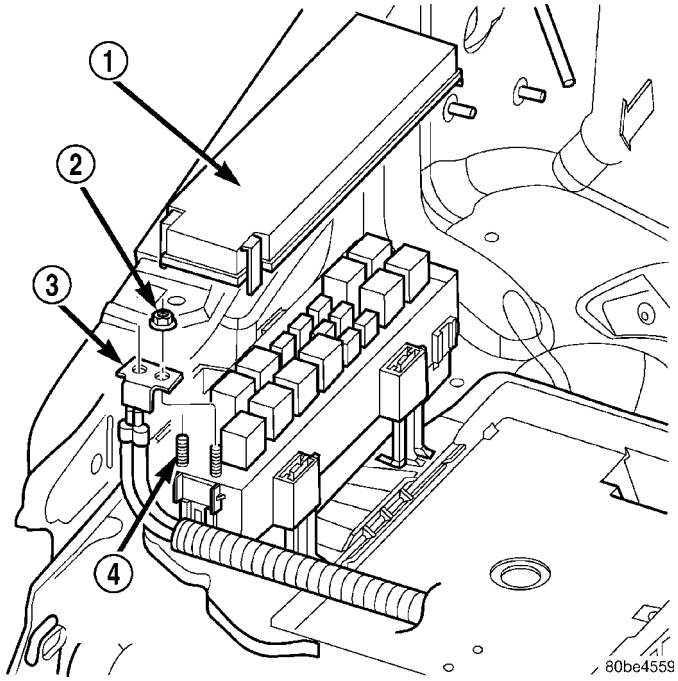


Fig. 8 Power Distribution Center Connections

1 - PDC COVER
2 - NUT (2)
3 - EYELET
4 - B(+) TERMINAL STUDS

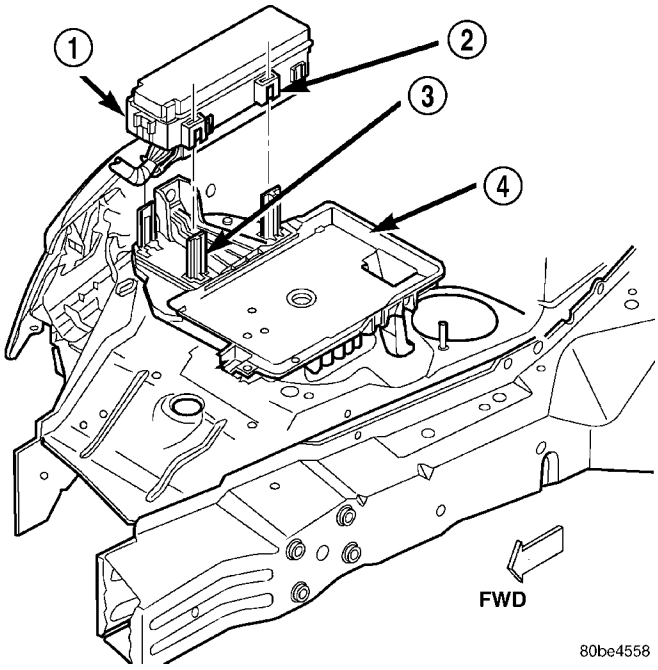


Fig. 9 Power Distribution Center Remove/Install

1 - POWER DISTRIBUTION CENTER
2 - MOUNTS
3 - STANCHIONS (3)
4 - BATTERY SUPPORT

POWER DISTRIBUTION CENTER (Continued)

DISASSEMBLY

POWER DISTRIBUTION CENTER DISASSEMBLY

PDC HOUSING LOWER COVER REMOVAL

The Power Distribution Center (PDC) cover, the PDC housing lower cover, the PDC relay wedges, the PDC relay cassettes and the PDC B(+) terminal stud module are available for service replacement. The PDC cover can be simply unlatched and removed from the PDC housing without the PDC being removed or disassembled. Service of the remaining PDC components requires that the PDC be removed from its mounting and disassembled. Refer to **Wiring Repair** in Wiring Diagrams for the location of the wiring repair procedures.

(1) Remove the battery from the battery support. Refer to **Battery System** for the location of the battery removal procedures.

(2) Unlatch and remove the cover from the PDC.

(3) Remove the two nuts that secure the two-holed eyelet of the battery wire harness PDC take out to the B(+) terminal studs near the front of the PDC.

(4) Remove the battery wire harness PDC take out eyelet from the two PDC B(+) terminal studs.

(5) Disengage the latches on the PDC housing mounts from the tabs on the PDC mounting stanchions on the battery support, and pull the PDC housing upward to disengage the mounts from the stanchions.

(6) Where the right headlamp and dash wire harness exits the PDC, remove the tape that secures the wire harness to the trough formation on the PDC housing lower cover.

(7) Using a trim stick or another suitable wide flat-bladed tool, gently pry the latches on each side and the front of the PDC housing that secure the housing lower cover to the PDC and remove the housing lower cover (Fig. 10).

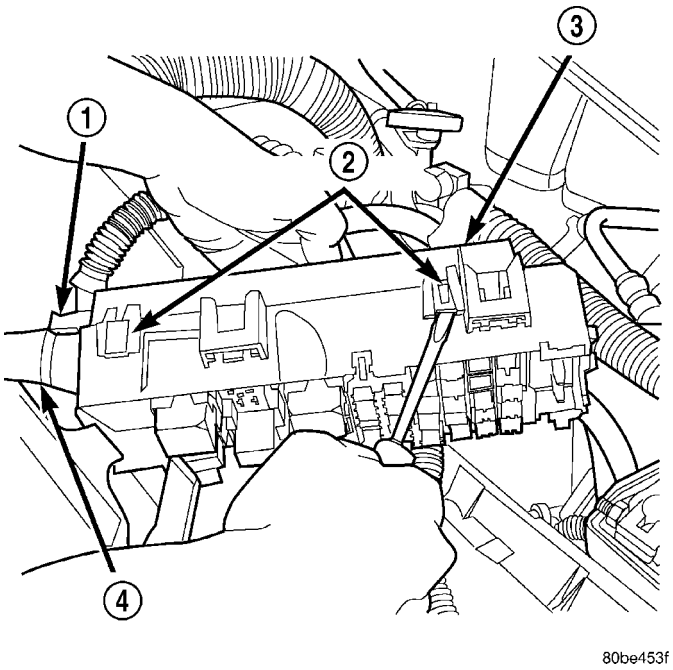


Fig. 10 PDC Housing Lower Cover Remove/Install - Typical

1 - TROUGH FORMATION
2 - LATCHES (5)
3 - PDC HOUSING LOWER COVER
4 - WIRE HARNESS

PDC B+ TERMINAL MODULE REMOVAL

The Power Distribution Center (PDC) cover, the PDC housing lower cover, the PDC relay wedges, the PDC relay cassettes and the PDC B(+) terminal stud module are available for service replacement. The PDC cover can be simply unlatched and removed from the PDC housing without the PDC being removed or disassembled. Service of the remaining PDC components requires that the PDC be removed from its mounting and disassembled. Refer to **Wiring Repair** in Wiring Diagrams for the location of the wiring repair procedures.

(1) Remove the PDC housing lower cover.

(2) From the top of the PDC housing, use a small screwdriver or a terminal pick tool (Special Tool Kit 6680) to release the two latches that secure the B(+) terminal module in the PDC.

(3) Gently and evenly press the two B(+) terminal studs down through the bus bar in the PDC.

(4) From the bottom of the PDC housing, remove the B(+) terminal module from the PDC.

PDC RELAY WEDGE REMOVAL

The Power Distribution Center (PDC) cover, the PDC housing lower cover, the PDC relay wedges, the PDC relay cassettes and the PDC B(+) terminal stud module are available for service replacement. The PDC cover can be simply unlatched and removed from the PDC housing without the PDC being removed or disassembled. Service of the remaining PDC components requires that the PDC be removed from its mounting and disassembled. Refer to **Wiring Repair** in Wiring Diagrams for the location of the wiring repair procedures.

(1) Remove the PDC housing lower cover.

(2) Remove each of the relays from the PDC relay wedge to be removed.

(3) From the bottom of the PDC housing, use a small screwdriver or a terminal pick tool (Special Tool Kit 6680) to release the two latches (yellow) that secure the relay wedge to the PDC relay cassette.

(4) From the top of the PDC housing, remove the relay wedge from the PDC relay cassette (Fig. 11).

POWER DISTRIBUTION CENTER (Continued)

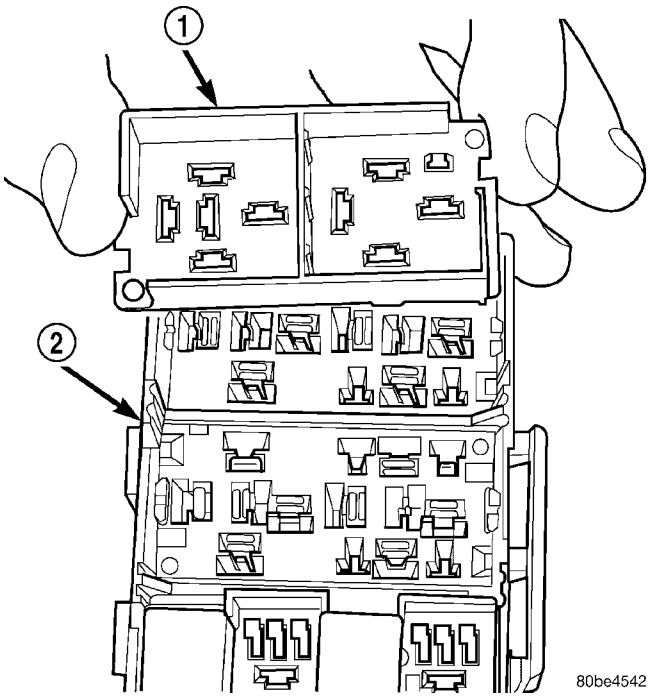


Fig. 11 PDC Relay Wedge Remove/Install - Typical

1 - RELAY WEDGE (TYPICAL)
2 - PDC HOUSING

PDC RELAY CASSETTE REMOVAL

The Power Distribution Center (PDC) cover, the PDC housing lower cover, the PDC relay wedges, the PDC relay cassettes and the PDC B(+) terminal stud module are available for service replacement. The PDC cover can be simply unlatched and removed from the PDC housing without the PDC being removed or disassembled. Service of the remaining PDC components requires that the PDC be removed from its mounting and disassembled. Refer to **Wiring Repair** in Wiring Diagrams for the location of the wiring repair procedures.

(1) Remove the relay wedge from the PDC relay cassette to be removed.

NOTE: It may be necessary to remove relay cassettes that are not being serviced from the PDC housing in order to obtain sufficient clearance to access the faulty relay cassette. The same service procedure is repeated as necessary to remove each of the interfering relay wedges and relay cassettes from the PDC housing.

(2) From the top of the PDC housing, use a small screwdriver or a terminal pick tool (Special Tool Kit 6680) to release the two latches that secure the relay cassette in the PDC (Fig. 12).

(3) Gently and evenly press the relay cassette down through the PDC housing.

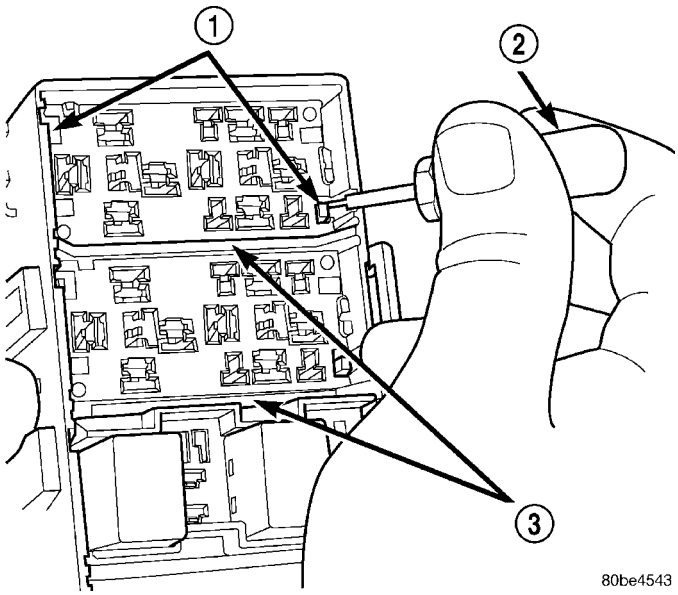


Fig. 12 PDC Relay Cassette Latches - Typical

1 - LATCHES
2 - FROM SPECIAL TOOL KIT 6680
3 - PDC RELAY CASSETTES (TYPICAL)

(4) From the bottom of the PDC housing, remove the relay cassette from the PDC (Fig. 13).

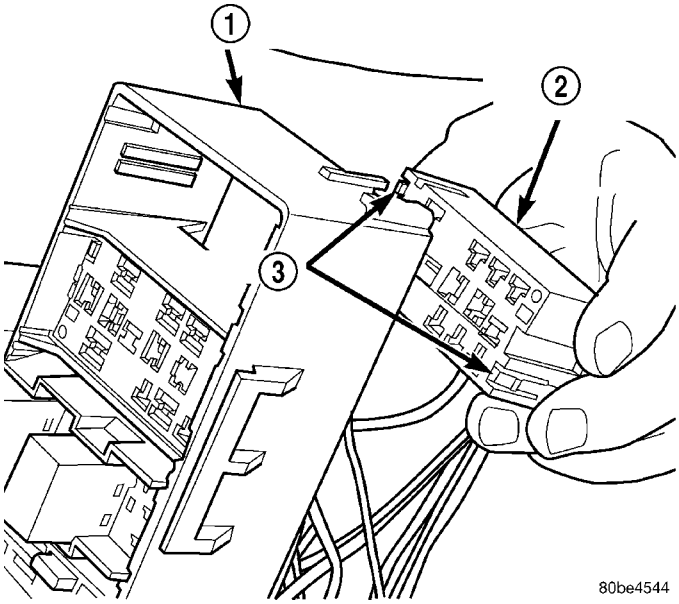


Fig. 13 PDC Relay - Typical

1 - PDC HOUSING
2 - PDC RELAY CASSETTE (TYPICAL)
3 - LATCHES

CAUTION: Do not remove the wiring and terminals from the terminal cavities of the faulty PDC relay cassette at this time. Refer to the Assembly procedure that follows for the proper procedures for transferring the wiring and terminals to the replacement PDC relay cassette.

POWER DISTRIBUTION CENTER (Continued)

ASSEMBLY

POWER DISTRIBUTION CENTER ASSEMBLY

PDC B(+) TERMINAL MODULE INSTALLATION

(1) From the bottom of the PDC housing, align and insert the B(+) terminal module into the PDC.

(2) From the bottom of the PDC housing, align and insert the two studs of the PDC B(+) terminal module through the bus bar in the PDC.

(3) From the bottom of the PDC housing, press the B(+) terminal module gently and evenly into the PDC until both of the latches are fully engaged.

(4) Install the PDC housing lower cover.

RELAY WEDGE INSTALLATION

(1) From the top of the PDC housing, align and insert the PDC relay wedge latch arms into the correct cavities in the relay cassette.

(2) Gently and evenly press the PDC relay wedge down into the relay cassette until both of the latches are fully engaged.

(3) Install each of the removed relays into the proper cavities of the PDC relay wedge.

(4) Install the PDC housing lower cover.

RELAY CASSETTE INSTALLATION

(1) Move the faulty PDC relay cassette with its wiring away from the bottom of the PDC housing far enough to allow the replacement relay cassette to be installed into the PDC.

(2) Using the faulty relay cassette as a guide, be certain that the replacement relay cassette is correctly oriented before installing it into the PDC housing.

(3) From the bottom of the PDC housing, align and insert the replacement relay cassette into the PDC. Press the relay cassette up into the PDC until both of the latches are fully engaged.

CAUTION: Proper care must be taken to be certain that the wiring and terminals from the faulty PDC relay cassette are installed in the correct terminal cavities of the replacement relay cassette. To prevent mistakes it is recommended that the wiring and terminals be removed from the faulty relay cassette one cavity at a time, repaired or spliced as necessary, then installed securely into the correct cavity of the replacement relay cassette. If you are not absolutely certain into which cavity a terminal should be installed, refer to Power Distribution in the index of this service manual for the location of complete circuit diagrams covering the PDC.

(4) While pulling gently on the wire from the bottom of the faulty PDC relay cassette, use a terminal pick tool (Special Tool Kit 6680) from the top of the relay cassette to release the latch that secures the terminal in the relay cassette terminal cavity (Fig. 14).

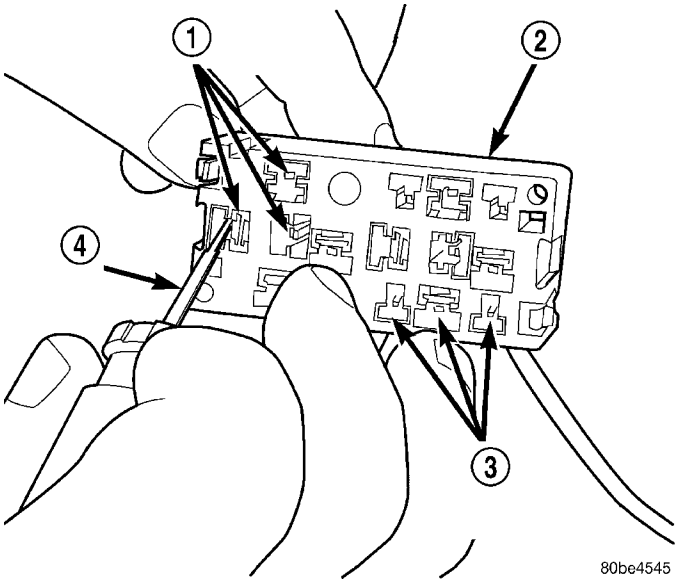


Fig. 14 PDC Relay Cassette Terminal Remove/Install

1 - TERMINAL CAVITIES (TYPICAL)
2 - PDC RELAY CASSETTE (TYPICAL)
3 - TERMINAL LATCHES (TYPICAL)
4 - FROM SPECIAL TOOL KIT 6680

(5) From the bottom of the faulty PDC relay cassette, remove the wire and terminal from the relay cassette terminal cavity.

(6) Make all necessary repairs and splices to the wire for the removed terminal. Refer to **Wiring Repair** in Wiring Diagrams for the location of the wiring repair procedures.

(7) From the bottom of the PDC housing, align and insert the removed wire and terminal into the correct terminal cavity of the replacement relay cassette. Push the wire and terminal up into the relay cassette terminal cavity until it is fully engaged by the latch.

(8) Repeat Step 4, Step 5, Step 6 and Step 7 one wire and terminal at a time until each of the wires and terminals have been transferred from the faulty PDC relay cassette into the replacement relay cassette.

(9) Install the PDC relay wedge into the replacement PDC relay cassette.

PDC LOWER COVER INSTALLATION

(1) Align the PDC housing lower cover on the bottom of the PDC.

(2) Evenly press the lower cover into place until latches are fully engaged.

(3) Where the right headlamp and dash harness enters the PDC, tape the harness securely to the trough formation on the PDC lower cover.

(4) Install the PDC in its mounting location on the battery support.

(5) Install the battery wire harness over the two PDC B+ terminal studs. Torque the nuts to 11.3 N·m (100 in. lbs.).

(6) Install the battery. Refer to Battery System for the procedure.

(7) Install the PDC cover.

INSTALLATION

The Power Distribution Center (PDC) main housing unit, the PDC fuse wedges and the PDC bus bars cannot be repaired and are only serviced as a unit with the right headlamp and dash wire harness. If the PDC main housing unit, the fuse wedges or the bus bars are faulty or damaged, the entire PDC and right headlamp and dash wire harness unit must be replaced.

(1) Position the PDC and the right headlamp and dash wire harness unit in the engine compartment.

(2) Engage the PDC housing mounts with the stanchions of the battery support and push the unit downward until the mount latches fully engage the mounting tabs on the stanchions.

(3) Install the two-holed eyelet of the battery wire harness PDC take outs onto the two PDC B(+) terminal studs.

(4) Install and tighten the nuts that secure the eyelet of the battery wire harness PDC take outs to the B(+) terminal studs. Tighten the nuts to 11.3 N·m (100 in. lbs.).

(5) Engage each of the retainers that secure the right headlamp and dash wire harness to the vehicle body and chassis components. Refer to **Connector Locations** in Wiring Diagrams for the location of more information on the right headlamp and dash wire harness retainer locations.

(6) Install all of the fasteners that secure each of the right headlamp and dash wire harness ground eyelets to the vehicle body and chassis components. Refer to **Connector Locations** in Wiring Diagrams for the location of more information on the ground eyelet locations.

(7) Reconnect each of the right headlamp and dash wire harness connectors. Refer to **Connector Locations** in Wiring Diagrams for the location of more information on the right headlamp and dash wire harness connector locations. For connectors secured with screws, tighten the screws to 4.3 N·m (38 in. lbs.).

(8) Reconnect the battery negative cable.

POWER OUTLET

DESCRIPTION - FRONT POWER OUTLET

An accessory power outlet is standard equipment on this model. The power outlet is installed in the instrument panel center lower bezel, which is located near the bottom of the instrument panel center stack area, below the heater and air conditioner controls. The power outlet base is secured by a snap fit within the center lower bezel. A hinged door with an over-center spring flips closed to conceal and protect the power outlet base when the power outlet is not being used, and flips open below the center lower bezel while the power outlet is in use.

The power outlet receptacle unit and the power outlet door are each available for service replacement.

OPERATION - FRONT POWER OUTLET

The power outlet base or receptacle shell is connected to ground, and an insulated contact in the bottom of the shell is connected to battery current. The power outlet receives battery voltage from a fuse in the junction block at all times.

While the power outlet is very similar to a cigar lighter base unit, it does not include the two small spring-clip retainers inside the bottom of the receptacle shell that are used to secure the cigar lighter heating element to the insulated contact.

DIAGNOSIS AND TESTING - POWER OUTLET

For complete circuit diagrams, refer to **Horn/Cigar Lighter/Power Outlet** in Wiring Diagrams.

WARNING: REFER TO RESTRAINTS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Check the fused B(+) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit to the Power Distribution Center (PDC) fuse as required.

(3) Open the power outlet door. Check for continuity between the inside circumference of the power outlet receptacle and a good ground. There should be continuity. If OK, go to Step 4. If not OK, go to Step 5.

POWER OUTLET (Continued)

(4) Check for battery voltage at the insulated contact located at the back of the power outlet receptacle. If not OK, go to Step 5.

(5) Disconnect and isolate the battery negative cable. Remove the instrument panel center lower bezel. Check for continuity between the ground circuit cavity of the power outlet wire harness connector and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit to ground as required.

(6) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the power outlet wire harness connector. If OK, replace the faulty power outlet receptacle. If not OK, repair the open fused B(+) circuit to the junction block fuse as required.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the center lower bezel from the instrument panel. Refer to **Instrument Panel Center Lower Bezel** in Body for the procedure.

(3) Pull the cigar lighter knob and element or the protective cap out of the cigar lighter receptacle base, or open the power outlet door in the instrument panel center lower bezel.

(4) Look inside the cigar lighter or power outlet receptacle base and note the position of the rectangular retaining bosses of the mount that secures the receptacle base to the instrument panel center lower bezel (Fig. 15).

(5) Insert a pair of external snap ring pliers into the cigar lighter or power outlet receptacle base and engage the tips of the pliers with the retaining bosses of the mount.

(6) Squeeze the pliers to disengage the mount retaining bosses from the receptacle base and, using a gentle rocking motion, pull the pliers and the receptacle base out of the mount.

(7) Remove the cigar lighter or power outlet mount from the instrument panel center lower bezel.

INSTALLATION

(1) Install the cigar lighter or power outlet mount into the instrument panel center lower bezel.

(2) Align the splines on the outside of the cigar lighter or power outlet receptacle base connector receptacle with the grooves on the inside of the mount.

(3) Press firmly on the cigar lighter or power outlet receptacle base until the retaining bosses of the mount are fully engaged in their receptacles.

(4) Install the cigar lighter knob and element or the protective cap into the cigar lighter receptacle base, or close the power outlet door in the instrument panel center lower bezel.

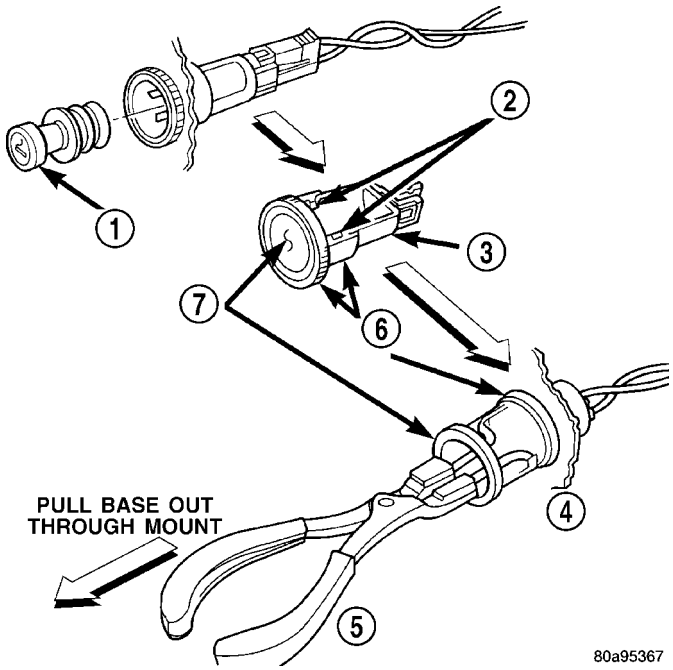


Fig. 15 Cigar Lighter and Power Outlet Remove/ Install - Typical

1 - KNOB AND ELEMENT
2 - RETAINING BOSSES-ENGAGE PLIERS HERE
3 - BASE
4 - PARTIALLY REMOVED
5 - EXTERNAL SNAP-RING PLIERS
6 - MOUNT
7 - BASE

(5) Install the center lower bezel onto the instrument panel. Refer to **Instrument Panel Center Lower Bezel** in Body for the procedure.

(6) Reconnect the battery negative cable.

POWER OUTLET RELAY

DESCRIPTION

The power outlet / cigar lighter relay is an electromechanical device that switches fused battery current to the cigar lighter or power outlet when the ignition switch is turned to the Accessory or On positions. The power outlet / cigar lighter relay is located in the junction block, below the driver side of the instrument panel in the passenger compartment.

The cigar lighter relay is a International Standards Organization (ISO) relay. Relays conforming to the ISO specifications have common physical dimensions, current capacities, terminal patterns, and terminal functions.

The cigar lighter relay cannot be repaired or adjusted and, if faulty or damaged, it must be replaced.

POWER OUTLET RELAY (Continued)

OPERATION

The ISO relay consists of an electromagnetic coil, a resistor or diode, and three (two fixed and one movable) electrical contacts. The movable (common feed) relay contact is held against one of the fixed contacts (normally closed) by spring pressure. When the electromagnetic coil is energized, it draws the movable contact away from the normally closed fixed contact, and holds it against the other (normally open) fixed contact.

When the electromagnetic coil is de-energized, spring pressure returns the movable contact to the normally closed position. The resistor or diode is connected in parallel with the electromagnetic coil in the relay, and helps to dissipate voltage spikes that are produced when the coil is de-energized.

DIAGNOSIS AND TESTING - POWER OUTLET RELAY

The power outlet / cigar lighter relay (Fig. 16) is located in the junction block, below the driver side end of the instrument panel in the passenger compartment. For complete circuit diagrams, refer to **Horn/Cigar Lighter/Power Outlet** in Wiring Diagrams.

WARNING: REFER TO RESTRAINTS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Remove the power outlet / cigar lighter relay from the junction block. Refer to the procedure in this group.

(2) A relay in the de-energized position should have continuity between terminals 87A and 30, and no continuity between terminals 87 and 30. If OK, go to Step 3. If not OK, replace the faulty relay.

(3) Resistance between terminals 85 and 86 (electromagnet) should be 75 ± 5 ohms. If OK, go to Step 4. If not OK, replace the faulty relay.

(4) Connect a battery to terminals 85 and 86. There should now be continuity between terminals 30 and 87, and no continuity between terminals 87A and 30. If OK, perform the Relay Circuit Test that follows. If not OK, replace the faulty relay.

DIAGNOSIS AND TESTING - RELAY CIRCUIT TEST

(1) The relay common feed terminal cavity (30) of the junction block is connected to battery voltage and should be hot at all times. Check for battery voltage at the fused B(+) circuit cavity in the junction block receptacle for the cigar lighter relay. If OK, go to Step 2. If not OK, repair the fused B(+) circuit to the Power Distribution Center (PDC) fuse as required.

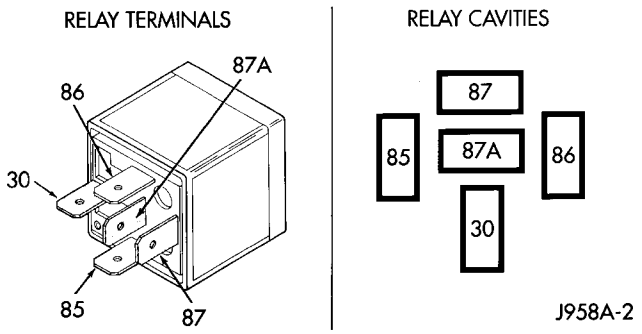


Fig. 16 Accessory Relay

TERMINAL LEGEND

NUMBER	IDENTIFICATION
30	COMMON FEED
85	COIL GROUND
86	COIL BATTERY
87	NORMALLY OPEN
87A	NORMALLY CLOSED

(2) The relay normally closed terminal (87A) is connected to terminal 30 in the de-energized position, but is not used for this application. Go to Step 3.

(3) The relay normally open terminal (87) is connected to the common feed terminal (30) in the energized position. This terminal supplies battery voltage to the fused B(+) fuse in the junction block that feeds the cigar lighter when the relay is energized by the ignition switch. There should be continuity between the junction block cavity for relay terminal 87 and the fused B(+) fuse in the junction block at all times. If OK, go to Step 4. If not OK, repair the open fused B(+) circuit to the junction block fuse as required.

(4) The coil ground terminal (85) is connected to the electromagnet in the relay. It receives battery feed to energize the cigar lighter relay when the ignition switch is in the Accessory or On positions. Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (acc/run) circuit cavity for relay terminal 85 in the junction block receptacle for the cigar lighter relay. If OK, go to Step 5. If not OK, repair the open fused ignition switch output (acc/run) circuit to the ignition switch as required.

(5) The coil battery terminal (86) is connected to the electromagnet in the relay. The junction block cavity for this terminal should have continuity to ground at all times. If not OK, repair the open ground circuit to ground as required.

POWER OUTLET RELAY (Continued)

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the steering column opening cover from the instrument panel. Refer to **Steering Column Opening Cover** in Body for the procedure.

(3) The power outlet / cigar lighter relay is located on the left side of the combination flasher in the junction block.

(4) Remove the power outlet / cigar lighter relay from the junction block.

INSTALLATION

(1) Position the power outlet / cigar lighter relay in the proper receptacle in the junction block.

(2) Align the power outlet / cigar lighter relay terminals with the terminal cavities in the junction block receptacle.

(3) Push in firmly on the power outlet / cigar lighter relay until the terminals are fully seated in the terminal cavities in the junction block receptacle.

(4) Install the steering column opening cover onto the instrument panel. Refer to **Steering Column Opening Cover** in Body for the procedure.

(5) Reconnect the battery negative cable.

IOD WIRE HARNESS CONNECTOR

DESCRIPTION

All vehicles are equipped with an Ignition-Off Draw (IOD) connector that is located in a molded connector receptacle on the lower rear surface of the Junction Block (JB) housing (Fig. 17). The JB is concealed above the molded plastic instrument panel fuse cover. Integral latches molded into the fuse cover secure it the JB, the Body Control Module (BCM) and the 16-way data link connector tab of the instrument panel steering column support bracket. The fuse cover can be pulled downward to disengage the latches and provide service access to all of the fuses, relays and wire harness connectors of the JB. Refer to **Instrument Panel Fuse Cover** in the index of this service manual for the location of additional service information covering the fuse cover.

OPERATION

The term ignition-off draw identifies a normal condition where power is being drained from the battery with the ignition switch in the Off position. The IOD connector feeds the memory and sleep mode functions for some of the electronic modules in the vehicle as well as various other accessories that require battery current when the ignition switch is in the Off position, including the clock.

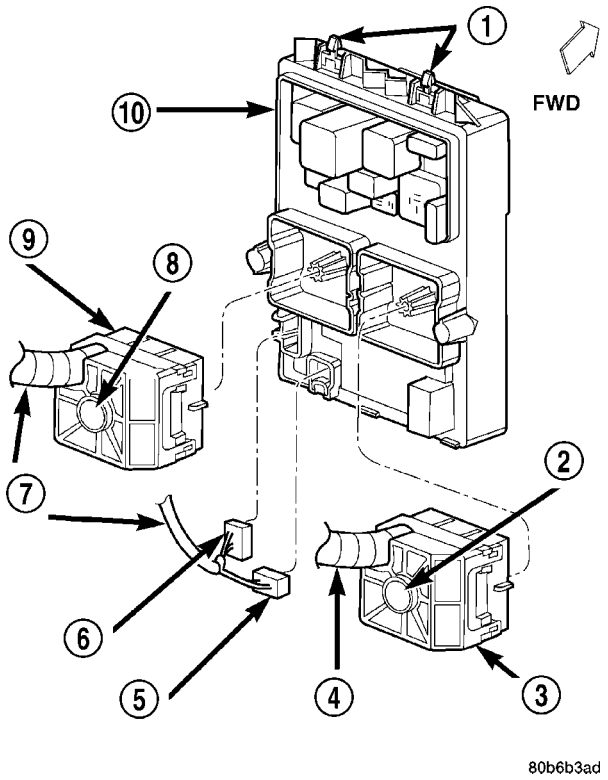


Fig. 17 Ignition-Off Draw Connector

1 - SNAP CLIPS
2 - SCREW
3 - CONNECTOR
4 - LEFT BODY WIRE HARNESS
5 - IOD CONNECTOR
6 - FUSED B+ CONNECTOR
7 - RIGHT BODY WIRE HARNESS
8 - SCREW
9 - CONNECTOR
10 - JUNCTION BLOCK

The IOD connector can be used by the vehicle owner as a convenient means of reducing battery depletion when a vehicle is to be stored for periods not to exceed about twenty days (short-term storage). Simply disconnect the IOD connector from the JB receptacle. However, it must be remembered that disconnecting the IOD connector will not eliminate IOD, but only reduce this normal condition. When a vehicle will not be used for more than twenty days, but less than thirty days, remove the IOD fuse from the Power Distribution Center (PDC). If a vehicle will be stored for more than about thirty days, the battery negative cable should be disconnected to eliminate normal IOD; and, the battery should be tested and recharged at regular intervals during the vehicle storage period to prevent the battery from becoming discharged or damaged. Refer to **Ignition-Off Draw Fuse** and **Battery** in the index in this service manual for the location of additional service information covering the ignition-off draw fuse and the battery.

FUSE COVER

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Pull down on the rear edge (nearest the rear of the vehicle) of the instrument panel fuse cover until the rear latches unsnap from the tabs on the lower junction block housing and the side latch unsnaps from the tab on the instrument panel steering column support bracket outboard of the 16-way data link connector (Fig. 18).

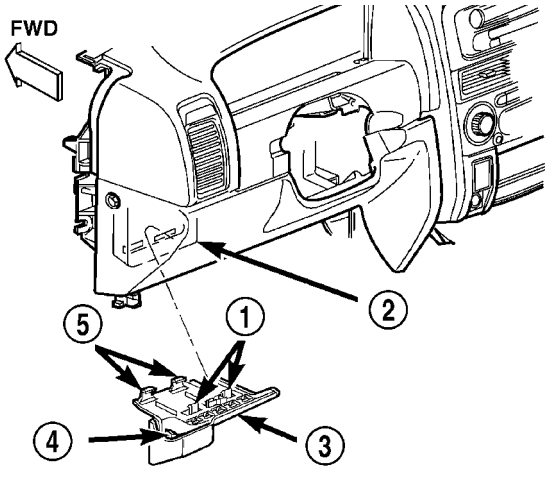


Fig. 18 Instrument Panel Fuse Cover Remove/Install

1 - REAR LATCHES
2 - JUNCTION BLOCK AND BODY CONTROL MODULE UNIT
3 - INSTRUMENT PANEL FUSE COVER
4 - SIDE LATCH
5 - FRONT LATCHES

(3) Move the instrument panel fuse cover towards the front of the vehicle to disengage the front latches from the mounting slots in the lower housing of the body control module.

(4) Remove the fuse cover from under the instrument panel.

INSTALLATION

(1) Position the two front latches of the instrument panel fuse cover within the two locator channel formations on the bottom of the body control module housing (Fig. 19).

(2) While applying a slight upward pressure to the instrument panel fuse cover over the front latches,

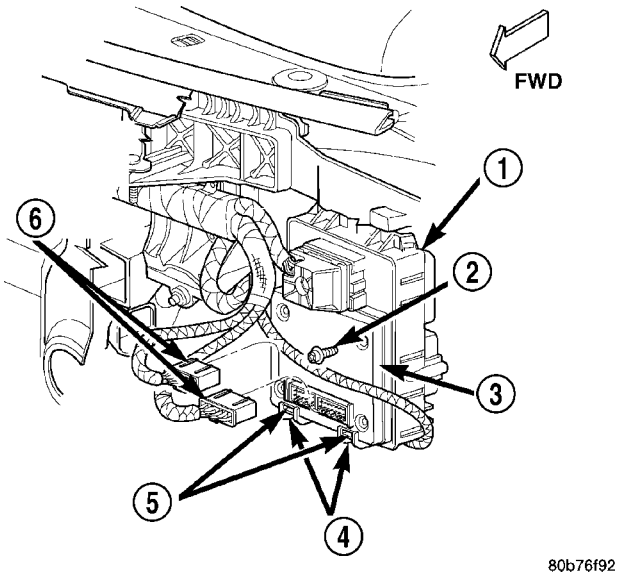


Fig. 19 Instrument Panel Fuse Cover Locator Channels

1 - JUNCTION BLOCK
2 - SCREWS (4)
3 - BODY CONTROL MODULE
4 - FUSE COVER LOCATOR CHANNELS
5 - FUSE COVER MOUNTING SLOTS
6 - INSTRUMENT PANEL WIRE HARNESS CONNECTORS

slowly slide the front latches through the locator channels toward the front of the vehicle until the latches exit the front of the locator channels. This will locate the front latches at the mounting slots in the lower housing of the body control module.

(3) Apply a slight rearward pressure on the instrument panel fuse cover to engage the front latches in the mounting slots in the lower housing of the body control module.

(4) Swing the rear edge (nearest the rear of the vehicle) of the instrument panel fuse cover up toward the junction block.

(5) Press firmly upward on the instrument panel fuse cover over the rear latches until the latches snap into place over the tabs on the lower edge of the junction block housing.

(6) Press firmly upward on the 16-way data link connector cover formation of the instrument panel fuse cover until the side latch snaps into place over the tab on the outboard side of the instrument panel steering column support bracket.

(7) Reconnect the battery negative cable.

REAR POWER OUTLET

DESCRIPTION - REAR POWER OUTLET

A rear accessory power outlet is optional equipment on this model. The rear power outlet is installed in the lower right quarter trim panel near the right liftgate opening pillar in the cargo area of the vehicle. The power outlet base and mount are secured by a snap fit within the quarter trim panel. A plastic protective cap snaps into the power outlet base when the power outlet is not being used, and hangs from the power outlet base mount by an integral bail strap while the power outlet is in use. While the power outlet is very similar to a cigar lighter base unit, it does not include the two small spring-clip retainers inside the bottom of the receptacle shell that are used to secure the cigar lighter heating element to the insulated contact.

The power outlet receptacle unit and the accessory power outlet protective cap are available for service. The power outlet receptacle cannot be repaired and, if faulty or damaged, it must be replaced.

OPERATION - REAR POWER OUTLET

The power outlet base or receptacle shell is connected to ground, and an insulated contact in the bottom of the shell is connected to battery current. The power outlet receives battery voltage from a fuse in the Power Distribution Center (PDC) through a fuse in the Junction Block (JB) at all times. Refer to **Horn/Cigar Lighter/Power Outlet** in Wiring Diagrams for the location of complete rear power outlet circuit diagrams.

DIAGNOSIS AND TESTING - REAR POWER OUTLET

Refer to **Horn/Cigar Lighter/Power Outlet** in Wiring Diagrams for the location of complete rear power outlet circuit diagrams.

(1) Check the fused B(+) fuse in the Junction Block (JB). If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse in the JB. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit to the Power Distribution Center (PDC) as required.

(3) Remove the plastic protective cap from the rear power outlet receptacle. Check for continuity between the inside circumference of the rear power outlet receptacle and a good ground. There should be continuity. If OK, go to Step 4. If not OK, go to Step 5.

(4) Check for battery voltage at the insulated contact located at the back of the rear power outlet receptacle. If not OK, go to Step 5.

(5) Disconnect and isolate the battery negative cable. Remove the rear power outlet from the right quarter trim panel. Check for continuity between the ground circuit cavity of the rear power outlet wire harness connector and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit to ground as required.

(6) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the rear power outlet wire harness connector. If OK, replace the faulty rear power outlet receptacle base. If not OK, repair the open fused B(+) circuit to the JB fuse as required.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Pull the protective cap out of the rear power outlet receptacle base (Fig. 20).

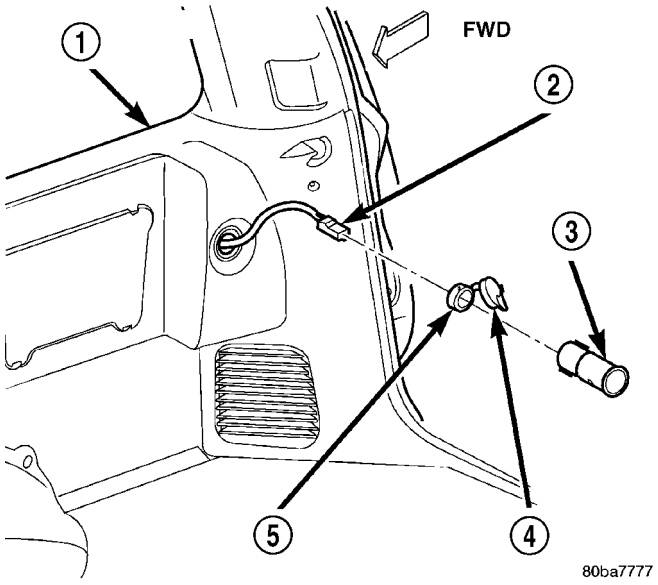


Fig. 20 Rear Power Outlet Remove/Install

1 - RIGHT QUARTER TRIM PANEL
2 - RIGHT BODY WIRE HARNESS CONNECTOR
3 - RECEPTACLE BASE
4 - PROTECTIVE CAP
5 - MOUNT

REAR POWER OUTLET (Continued)

(3) Look inside the rear power outlet receptacle base and note the position of the rectangular retaining bosses of the mount that secures the receptacle base to the right quarter trim panel (Fig. 21).

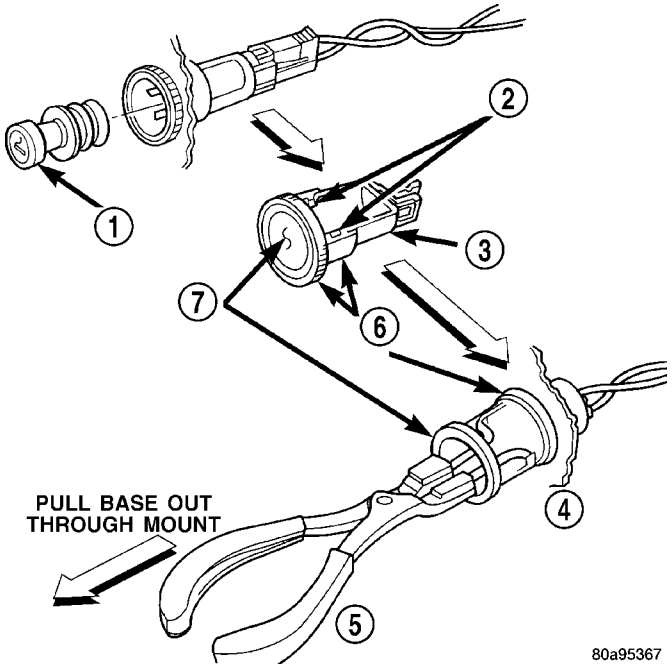


Fig. 21 Power Outlet Remove/Install - Typical

1 - KNOB AND ELEMENT
2 - RETAINING BOSSES-ENGAGE PLIERS HERE
3 - BASE
4 - PARTIALLY REMOVED
5 - EXTERNAL SNAP-RING PLIERS
6 - MOUNT
7 - BASE

(4) Insert a pair of external snap ring pliers into the rear power outlet receptacle base and engage the tips of the pliers with the retaining bosses of the mount.

(5) Squeeze the pliers to disengage the mount retaining bosses from the receptacle base and, using a gentle rocking motion, pull the pliers and the receptacle base out of the mount.

(6) Pull the rear power outlet receptacle base away from the right quarter trim panel far enough to access the wire harness connector.

(7) Disconnect the right body wire harness connector from the rear power outlet receptacle base connector receptacle.

(8) Remove the rear power outlet mount from the right quarter trim panel.

INSTALLATION

(1) Align the splines on the outside of the rear power outlet receptacle base connector receptacle with the grooves on the inside of the mount.

(2) Insert the rear power outlet receptacle base about half way through the mount.

(3) Reconnect the right body wire harness connector to the rear power outlet receptacle base connector receptacle.

(4) Insert the rear power outlet receptacle base and mount into the right quarter trim panel as a unit until the mount is seated flush against the trim panel.

(5) Press firmly on the rear power outlet receptacle base until the retaining bosses of the mount are fully engaged in their receptacles.

(6) Install the protective cap into the rear power outlet receptacle base.

(7) Reconnect the battery negative cable.

STEERING

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LINKAGE

DESCRIPTION

STEERING LINKAGE – RIGHT HAND DRIVE (RHD) VEHICLES

Vehicles equipped with right hand drive (RHD) steering utilize the same components of left hand drive vehicles. The RHD Steering linkage is designed as a mirror image of left hand drive linkage with the exception of the steering damper (Fig. 1), which is mounted on the same side of the vehicle weather RHD or LHD. See figure below for reference. All specifications are the same as LHD. Refer to Group 19, Steering of the gasoline engine service manual for additional information.

PUMP

REMOVAL - 2.7L DIESEL

(1) Open the hood and disconnect the negative battery cable.
(2) Remove the intercooler outlet hose from the vehicle.
(3) Remove the battery. Refer to the electrical section.
(4) Siphon and drain the fluid from the pump.
(5) Remove the accessory drive belt from the power steering pump pulley. Refer to Cooling System for the procedure.
(6) Install a allen wrench in the power steering pump center shaft to hold the pump in position. Remove the (3) power steering pump pulley retaining bolts (Fig. 2).
(7) Remove the power steering pump pulley from the pump.
(8) Remove the power steering fluid supply hose from the pump (Fig. 3).

PUMP (Continued)

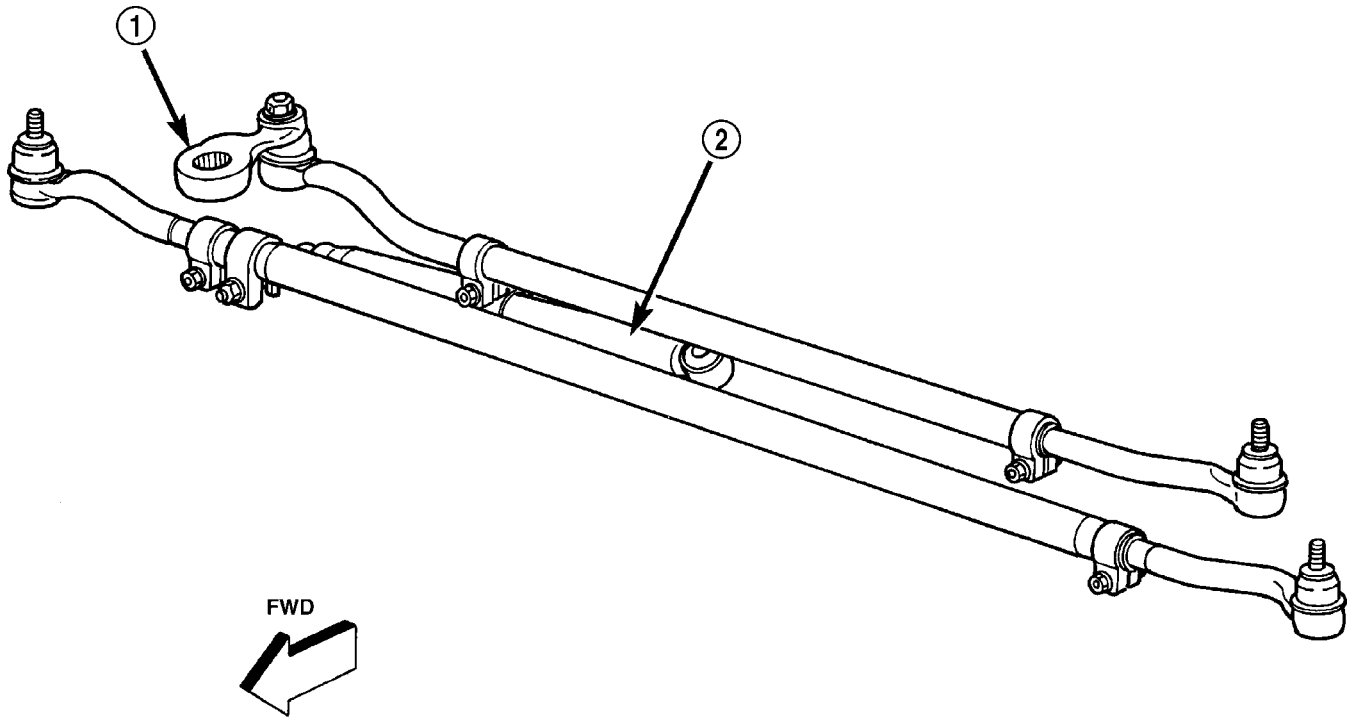


Fig. 1 Right Hand Drive Steering Linkage

1 - PITMAN ARM
2 - STEERING DAMPENER

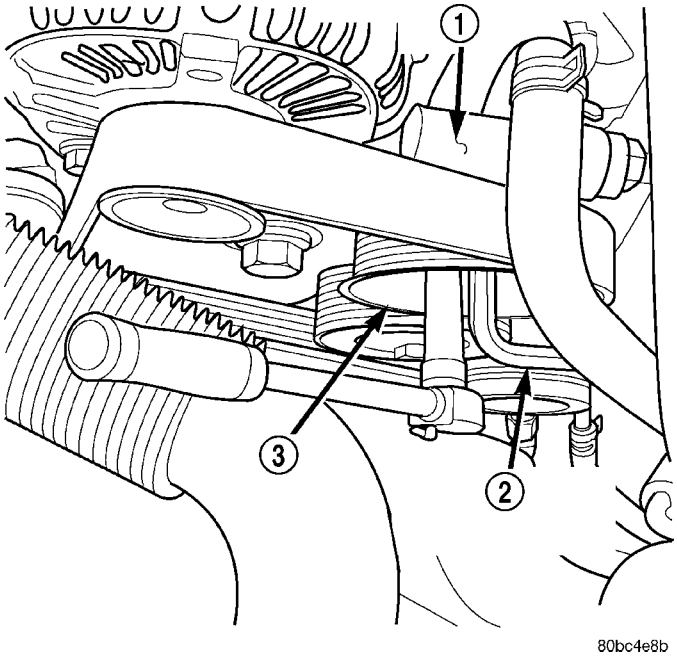


Fig. 2 Installing Power Steering Pump Pulley

1 - POWER STEERING PUMP
2 - ALLEN WRENCH HOLDING PUMP CENTER SHAFT
3 - POWER STEERING PUMP PULLEY

(9) Remove the power steering fluid pressure line from the pump (Fig. 3).

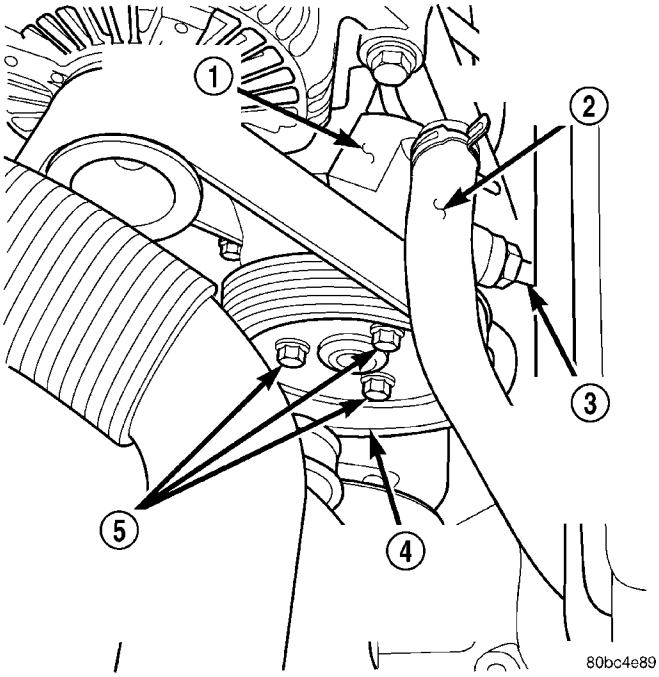


Fig. 3 Diesel Power Steering Pump Position & Orientation

1 - POWER STEERING PUMP
2 - POWER STEERING FLUID SUPPLY HOSE
3 - POWER STEERING FLUID PRESSURE LINE
4 - POWER STEERING PUMP PULLEY
5 - POWER STEERING PUMP PULLEY RETAINING BOLTS

PUMP (Continued)

(10) Remove the power steering pump to the mount and remove the pump from the vehicle.

INSTALLATION - 2.7L DIESEL

CAUTION: Power steering system fluid may be contaminated with metal shavings, overheated or improper fluid. All fluid should be drained from the system. After any component replacement, system should be flushed and filled with Mopar Power Steering fluid, or equivalent.

(1) Position the pump to the pump mount and install the retaining bolts. Torque the bolts to 27 N·m (20 ft. lbs.).

(2) Install the power steering fluid pressure line on the pump. Torque the nut to 24 N·m (18 ft. lbs.). Be certain the sealing o-ring is lubricated and free of tears.

(3) Install the power steering fluid supply hose on the pump.

(4) Install the power steering pump pulley on the pump. Torque the retaining bolts to 27 N·m (20 ft. lbs.). Use the allen wrench to hold the pump from rotating.

(5) Install the accessory drive belt on the power steering pump pulley. Refer to Cooling System for the procedure.

(6) Install the battery.

(7) Install the intercooler outlet hose on the vehicle.

(8) Connect the negative battery cable.

(9) Fill the power steering fluid. Refer to - Power Steering Pump Initial Operation - in this group for the procedure.

HOSES - 2.7L DIESEL

REMOVAL

REMOVAL - PRESSURE HOSE - PUMP TO THE HYDRAULIC FAN MODULE (2.7L DIESEL)

(1) Drain the power steering fluid from the reservoir.

(2) Raise and support the vehicle.

(3) Remove the metal skid plate.

(4) Disconnect the high pressure hose from the hydraulic fan motor.

(5) Lower the vehicle.

(6) Disconnect the high pressure hose from the power steering pump.

(7) Remove the hose from the clipped position on the fan shroud.

(8) Remove the hose from the vehicle.

REMOVAL - RETURN HOSE - RESERVOIR TO THE HYDRAULIC FAN MODULE (2.7L DIESEL)

(1) Drain the power steering fluid from the reservoir.

(2) Remove the battery.

(3) Remove the front fascia. Refer to the body section.

(4) Remove the power steering reservoir. Refer to reservoir removal in this section.

(5) Disconnect the rubber return hose from the power steering reservoir.

(6) Raise and support the vehicle.

(7) Remove the metal skid plate.

(8) Disconnect the rubber return hose from the hydraulic fan motor.

(9) Remove the hose from the vehicle.

REMOVAL - PRESSURE HOSE - GEAR TO THE HYDRAULIC FAN MODULE (2.7L DIESEL)

(1) Drain the power steering fluid from the reservoir.

(2) Remove the battery.

(3) Remove the battery tray.

(4) Remove the front fascia. Refer to the body section.

(5) Remove the power steering reservoir. Refer to reservoir removal in this section.

(6) Disconnect the high pressure hose from the power steering gear.

(7) Remove the hose from the clipped position on the fan shroud.

(8) Raise and support the vehicle.

(9) Remove the metal skid plate.

(10) Disconnect the high pressure hose from the hydraulic fan motor.

(11) Remove the hose from the vehicle.

REMOVAL - RETURN HOSE - RESERVOIR TO THE PUMP (2.7L DIESEL)

(1) Drain the power steering fluid from the reservoir.

(2) Remove the battery.

(3) Disconnect the rubber hose from the power steering pump.

(4) Disconnect the rubber hose from the power steering reservoir.

(5) Remove the hose from the vehicle.

REMOVAL - 3/8” GEAR OUTLET HOSE (2.7L DIESEL)

(1) Drain the power steering fluid from the reservoir.

(2) Remove the battery.

(3) Remove the battery tray.

HOSES - 2.7L DIESEL (Continued)

(4) Remove the front fascia. Refer to the body section.
(5) Remove the power steering reservoir. Refer to reservoir removal in this section.
(6) Disconnect the rubber hose from the steering cooler inlet tube.
(7) Disconnect the metal tube from the power steering gear.
(8) Remove the hose from the vehicle.

REMOVAL - INLET COOLER HOSE (2.7L DIESEL)

(1) Disconnect negative battery cable at battery.
(2) Drain the power steering fluid out of the reservoir.
(3) Remove the front fascia grille assembly,(Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - REMOVAL).
(4) Remove the grille opening reinforcement panel
(5) Place a drain pan under the cooler.
(6) Disconnect the lower hose at cooler.
(7) Disconnect the cooler hose at the gear.
(8) Remove the bracket holding the cooler hoses (Fig. 4).
(9) Remove the cooler hose from the vehicle.

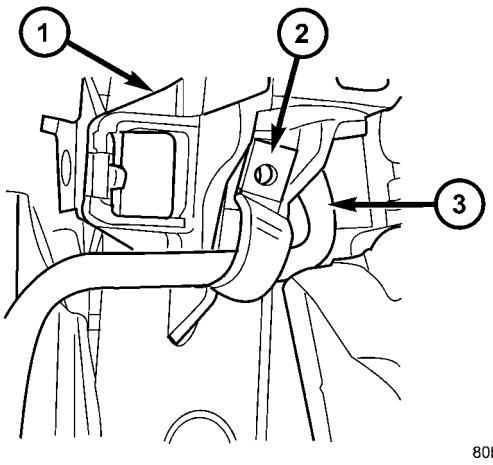


Fig. 4 COOLER HOSES MOUNTING BRACKET

1 - RADIATOR
2 - COOLER HOSES MOUNTING BRACKET
3 - COOLER HOSE

REMOVAL - OUTLET COOLER HOSE (2.7L DIESEL)

(1) Disconnect negative battery cable at battery.
(2) Drain the power steering fluid out of the reservoir.
(3) Remove the front fascia grille assembly,(Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - REMOVAL).
(4) Remove the grille opening reinforcement panel
(5) Place a drain pan under the cooler.
(6) Disconnect the upper hose at cooler.
(7) Disconnect the cooler hose at the reservoir.
(8) Remove the bracket holding the cooler hoses (Fig. 4).
(9) Remove the cooler hose from the vehicle.

INSTALLATION

INSTALLATION - PRESSURE HOSE PUMP TO THE HYDRAULIC FAN MODULE (2.7L DIESEL)

NOTE: Lubrication and a new o-ring must be used when reinstalling.

(1) Install the hose to the vehicle.
(2) Reconnect the high pressure hose to the power steering pump. Tighten the hose to 22.5 N·m (17 ft.lbs.).
(3) Install the hose to the clipped position on the fan shroud.
(4) Raise and support the vehicle.
(5) Reconnect the high pressure hose to the hydraulic fan motor. Tighten the hose to 22.5 N·m (17 ft.lbs.).
(6) Install the metal skid plate.
(7) Remove the support and lower the vehicle.
(8) Refill the power steering fluid and bleed the system,(Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

INSTALLATION - RETURN HOSE - RESERVOIR TO THE HYDRAULIC FAN MODULE (2.7L DIESEL)

(1) Install the hose to the vehicle.
(2) Reconnect the rubber return hose to the hydraulic fan motor. Tighten the hose.
(3) Install the metal skid plate.
(4) Reconnect the rubber return hose to the power steering reservoir. Tighten the hose clamp.
(5) Remove the support and lower the vehicle.
(6) Install the power steering reservoir. Refer to the reservoir installation in this section.
(7) Install the front fascia. Refer to the body section.

HOSES - 2.7L DIESEL (Continued)

(8) Install the battery
(9) Refill the power steering fluid and bleed the system,(Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

INSTALLATION - PRESSURE HOSE - GEAR TO HYDRAULIC FAN MODULE (2.7L DIESEL)

NOTE: Lubrication and a new o-ring must be used when reinstalling.

(1) Install the hose to the vehicle.
(2) Reconnect the high pressure hose to the hydraulic fan motor. Tighten the hose to 22.5 N·m (17 ft.lbs.).
(3) Install the metal skid plate.
(4) Remove the support and lower the vehicle.
(5) Reconnect the high pressure hose to the power steering gear. Tighten the hose to 22.5 N·m (17 ft.lbs.).
(6) Install the hose to the clipped position on the fan shroud.
(7) Install the battery tray.
(8) Install the power steering reservoir. Refer to the reservoir installation in this section.
(9) Install the front fascia. Refer to the body section.
(10) Install the battery
(11) Refill the power steering fluid and bleed the system,(Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

INSTALLATION - RETURN HOSE - RESERVOIR TO THE PUMP (2.7L DIESEL)

(1) Install the hose to the vehicle.
(2) Reconnect the rubber hose to the power steering pump. Tighten the hose clamp.
(3) Reconnect the rubber hose to the power steering reservoir. Tighten the hose clamp.
(4) Install thebattery.
(5) Refill the power steering fluid and bleed the system,(Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

INSTALLATION - 3/8″ GEAR OUTLET HOSE (2.7L DIESEL)

NOTE: Lubrication and a new o-ring must be used when reinstalling.

(1) Install the hose to the vehicle.
(2) Reconnect the rubber hose to the steering cooler inlet tube. Tighten the hose clamp.
(3) Reconnect the metal tube to the power steering gear. Tighten the hose to 22.5 N·m (17 ft.lbs.).
(4) Install the battery tray.
(5) Install the power steering reservoir. Refer to the reservoir installation in this section.
(6) Install the front fascia. Refer to the body section.
(7) Install the battery
(8) Refill the power steering fluid and bleed the system,(Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

INSTALLATION - INLET COOLER HOSE (2.7L DIESEL)

(1) Install the cooler hose to the vehicle.
(2) Reconnect the cooler hose at the gear.
(3) Reconnect the lower hose at cooler. Tighten the hose to 22.5 N·m (17 ft.lbs.)
(4) Install the bracket holding the cooler hoses (Fig. 4).
(5) Install the grille opening reinforcement panel
(6) Install the front fascia grille assembly, (Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - INSTALLATION).
(7) Reconnect negative battery cable at battery.
(8) Refill the power steering fluid and bleed the system,(Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

INSTALLATION - OUTLET COOLER HOSE (2.7L DIESEL)

(1) Install the cooler hose to the vehicle.
(2) Reconnect the cooler hose at the reservoir.
(3) Reconnect the upper hose at the cooler. Tighten the hose to 22.5 N·m (17 ft. lbs.)
(4) Install the bracket holding the cooler hoses (Fig. 4). Tighten the bracket to 22.5 N·m (17 ft. lbs.)
(5) Install the grille opening reinforcement panel
(6) Install the front fascia grille assembly, (Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - INSTALLATION).
(7) Reconnect negative battery cable at battery.
(8) Refill the power steering fluid and bleed the system,(Refer to 19 - STEERING/PUMP - STANDARD PROCEDURE).

PULLEY

REMOVAL - 2.7L DIESEL

(1) Open the hood and disconnect the negative battery cable.

(2) Remove the intercooler outlet hose from the vehicle.

(3) Remove the accessory drive belt from the power steering pump pulley. Refer to Cooling System for the procedure.

(4) Install a allen wrench in the power steering pump center shaft to hold the pump in position. Remove the (3) power steering pump pulley retaining bolts (Fig. 5).

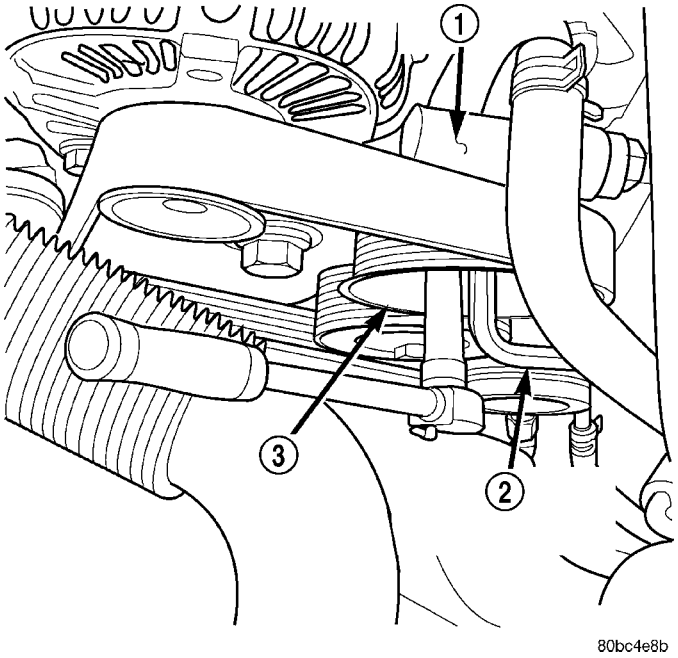


Fig. 5 Installing Power Steering Pump Pulley

1 - POWER STEERING PUMP
2 - ALLEN WRENCH HOLDING PUMP CENTER SHAFT
3 - POWER STEERING PUMP PULLEY

(5) Remove the power steering pulley.

INSTALLATION - 2.7L DIESEL

(1) Install the power steering pump pulley on the pump. Torque the retaining bolts to 27 N·m (20 ft. lbs.). Use the allen wrench to hold the pump from rotating.

(2) Install the accessory drive belt on the power steering pump pulley. Refer to Cooling System for the procedure.

(3) Install the intercooler outlet hose on the vehicle.

(4) Connect the negative battery cable.

RESERVOIR

REMOVAL - 2.7L DIESEL

(1) Siphon and drain the fluid from the pump.

(2) Remove the intercooler outlet hose from the vehicle.

(3) Remove the front fascia. Refer to the body section.

(4) Remove the cooler hose to the reservoir.

(5) Remove the return hose at the reservoir from the pump.

(6) Remove the supply hose at the reservoir from the fan.

INSTALLATION - 2.7L DIESEL

(1) Install the supply hose at the reservoir from the fan.

(2) Install the return hose at the reservoir from the pump.

(3) Install the cooler hose to the reservoir.

(4) Install the front fascia. Refer to the body section.

(5) Install the intercooler outlet hose to the vehicle.

(6) Fill the reservoir and check the power steering system for leaks.

TIRES/WHEELS

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TIRES/WHEELS

DIAGNOSIS AND TESTING - TIRE AND WHEEL RUNOUT

Radial runout is the difference between the high and low points on the tire or wheel (Fig. 1).

Lateral runout is the **wobble** of the tire or wheel.

Radial runout of more than 1.5 mm (.060 inch) measured at the center line of the tread may cause the vehicle to shake.

Lateral runout of more than 2.0 mm (.080 inch) measured near the shoulder of the tire may cause the vehicle to shake.

Sometimes radial runout can be reduced. Relocate the wheel and tire assembly on the mounting studs (See Method 1). If this does not reduce runout to an acceptable level, the tire can be rotated on the wheel. (See Method 2).

METHOD 1 (RELOCATE WHEEL ON HUB)

(1) Drive vehicle a short distance to eliminate tire flat spotting from a parked position.

(2) Check wheel bearings and adjust if adjustable or replace if necessary.

(3) Check the wheel mounting surface.

(4) Relocate wheel on the mounting, two studs over from the original position.

TIRES/WHEELS (Continued)

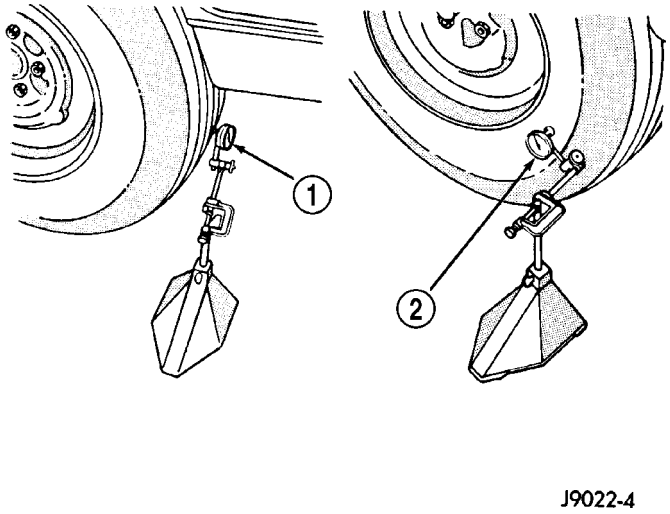


Fig. 1 Checking Tire/Wheel/Hub Runout

1 - RADIAL RUNOUT
2 - LATERAL RUNOUT

(5) Tighten wheel nuts until all are properly torqued, to eliminate brake distortion.

(6) Check radial runout. If still excessive, mark tire sidewall, wheel, and stud at point of maximum runout and proceed to Method 2.

METHOD 2 (RELOCATE TIRE ON WHEEL)

NOTE: Rotating the tire on wheel is particularly effective when there is runout in both tire and wheel.

(1) Remove tire from wheel and mount wheel on service dynamic balance machine.

(2) Check wheel radial runout (Fig. 2) and lateral runout (Fig. 3).

- STEEL WHEELS: Radial runout 0.040 in., Lateral runout 0.045 in. (average-maximum)
- ALUMINUM WHEELS: Radial runout 0.030 in., Lateral runout 0.035 in. (average-maximum)

(3) If point of greatest wheel lateral runout is near original chalk mark, remount tire 180 degrees. Recheck runout or match mount, (Refer to 22 - TIRES/WHEELS - STANDARD PROCEDURE).

STANDARD PROCEDURE

STANDARD PROCEDURE - TIRE AND WHEEL BALANCE

It is recommended that a two plane service dynamic balancer be used when a tire and wheel assembly require balancing. Refer to balancer operation instructions for proper cone mounting procedures. Typically use front cone mounting method for steel wheels. For aluminum wheel use back cone mounting method without cone spring.

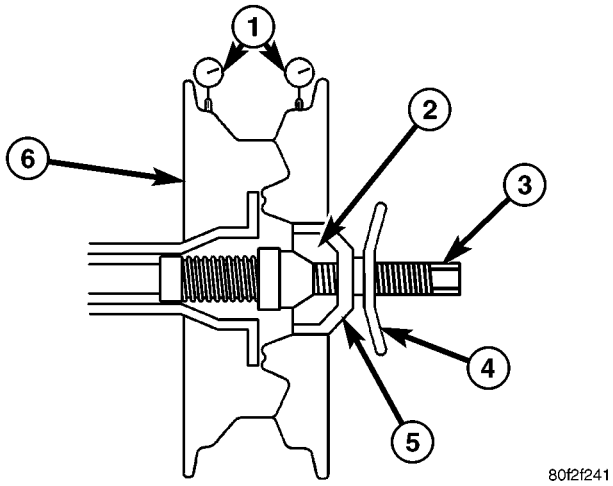


Fig. 2 RADIAL RUNOUT

1 - DIAL INDICATORS
2 - MOUNTING CONE
3 - SPINDLE SHAFT
4 - WING NUT
5 - PLASTIC CUP
6 - WHEEL

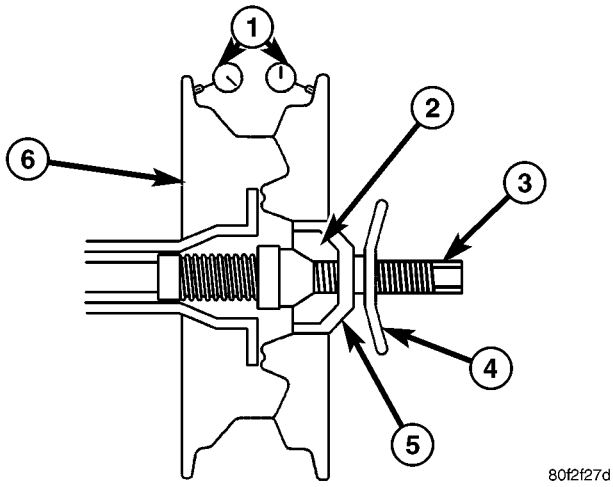


Fig. 3 LATERAL RUNOUT

1 - DIAL INDICATORS
2 - MOUNTING CONE
3 - SPINDLE SHAFT
4 - WING NUT
5 - PLASTIC CUP
6 - WHEEL

NOTE: Static should be used only when a two plane balancer is not available.

NOTE: Cast aluminum and forged aluminum wheels require coated balance weights and special alignment equipment.

Wheel balancing can be accomplished with either on or off vehicle equipment. When using on-vehicle balancing equipment, remove the opposite wheel/tire. Off-vehicle balancing is recommended.

TIRES/WHEELS (Continued)

For static balancing, find the location of the heavy spot causing the imbalance. Counter balance wheel directly opposite the heavy spot. Determine weight required to counter balance the area of imbalance. Place half of this weight on the **inner** rim flange and the other half on the **outer** rim flange (Fig. 4).

For dynamic balancing, the balancing equipment is designed to locate the amount of weight to be applied to both the inner and outer rim flange (Fig. 5).

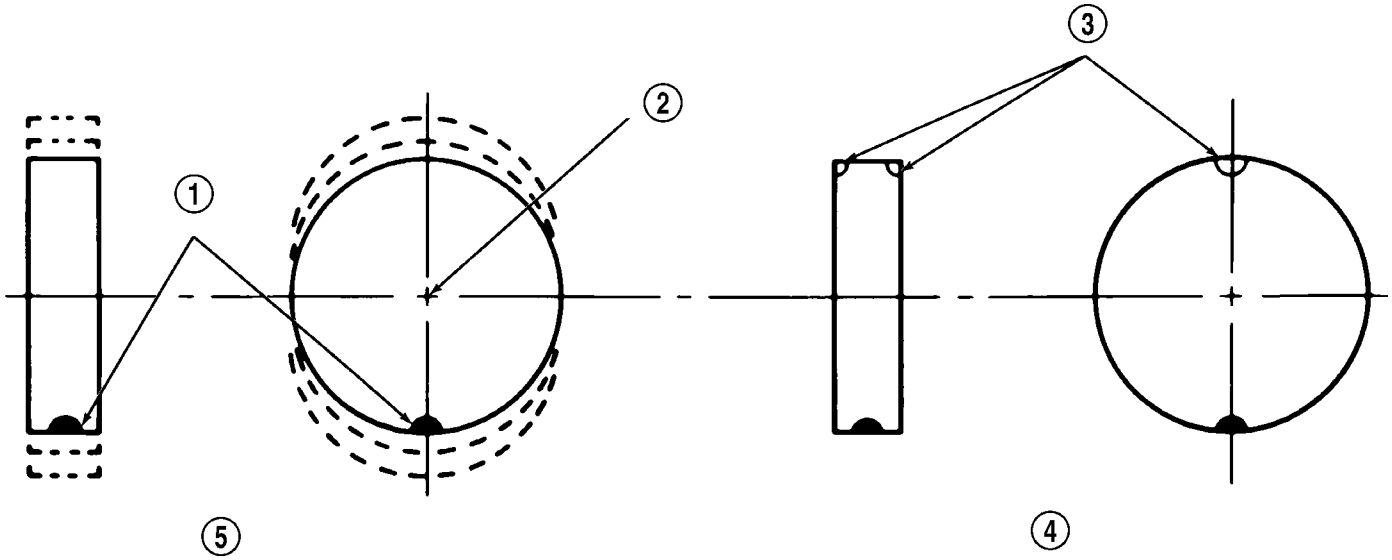


Fig. 4 Static Unbalance & Balance

1 - HEAVY SPOT
2 - CENTER LINE OF SPINDLE
3 - ADD BALANCE WEIGHTS HERE
4 - CORRECTIVE WEIGHT LOCATION
5 - TIRE OR WHEEL TRAMP, OR WHEEL HOP

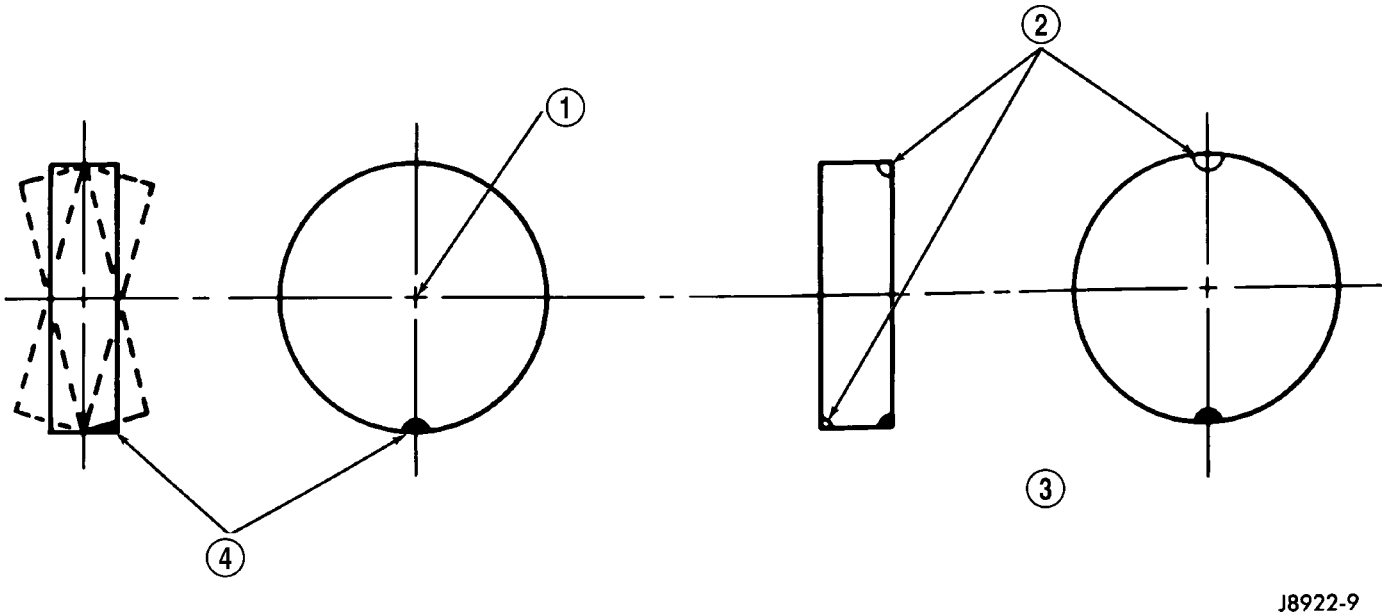


Fig. 5 Dynamic Unbalance & Balance

1 - CENTER LINE OF SPINDLE
2 - ADD BALANCE WEIGHTS HERE
3 - CORRECTIVE WEIGHT LOCATION
4 - HEAVY SPOT WHEEL SHIMMY AND VIBRATION

TIRES/WHEELS (Continued)

STANDARD PROCEDURE - MATCH MOUNTING

Tires and wheels are currently not match mounted at the factory. Match mounting is a technique used to reduce runout in the wheel/tire assembly. This means that the high spot of the tire is aligned with the low spot on the wheel rim. The high spot on the tire is marked with a paint mark or a bright colored adhesive label on the outboard sidewall. The low spot on the rim is identified with a label on the outside of the rim and a dot on the inside of the rim. If the outside label has been removed the tire will have to be removed to locate the dot on the inside of the rim.

Before dismounting a tire from its wheel, a reference mark should be placed on the tire at the valve stem location. This reference will ensure that it is remounted in the original position on the wheel.

(1) Use a dial indicator to locate the high spot of the tire on the center tread rib (Fig. 6). Record the indicator reading and mark the high spot on the tire. Place a mark on the tire at the valve stem location (Fig. 7).

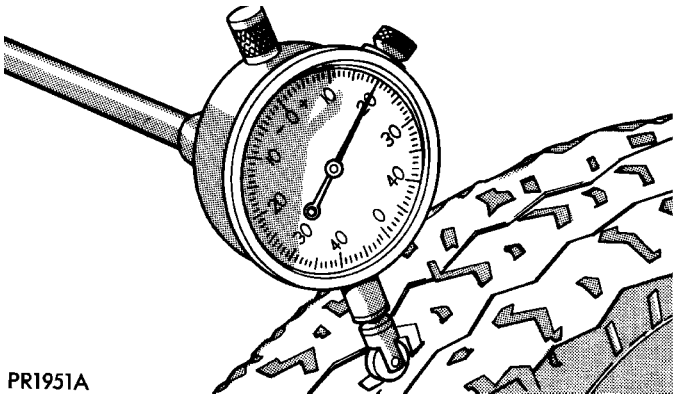


Fig. 6 Dial Indicator

(2) Break down the tire and remount it 180 degrees on the rim (Fig. 8).

(3) Measure the total runout again and mark the tire to indicate the high spot.

(4) If runout is still excessive use the following procedures.

(a) If the high spot is within 101.6 mm (4.0 in.) of the first spot and is still excessive, replace the tire.

(b) If the high spot is within 101.6 mm (4.0 in.) of the first spot on the wheel, the wheel may be out of specifications,(Refer to 22 - TIRES/WHEELS - DIAGNOSIS AND TESTING).

(c) If the high spot is NOT within 101.6 mm (4.0 in.) of either high spot, draw an arrow on the tread from second high spot to first. Break down the tire and remount it 90 degrees on rim in that direction (Fig. 9). This procedure will normally reduce the runout to an acceptable amount.

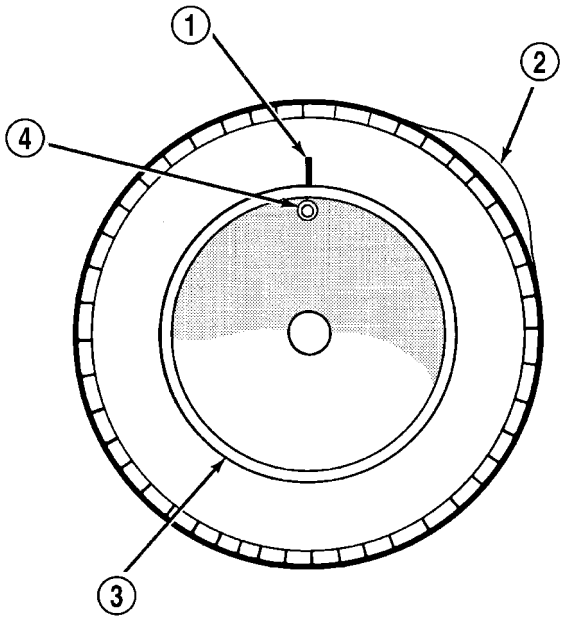


Fig. 7 First Measurement On Tire

1 - REFERENCE MARK
2 - 1ST MEASUREMENT HIGH SPOT MARK TIRE AND RIM
3 - WHEEL
4 - VALVE STEM

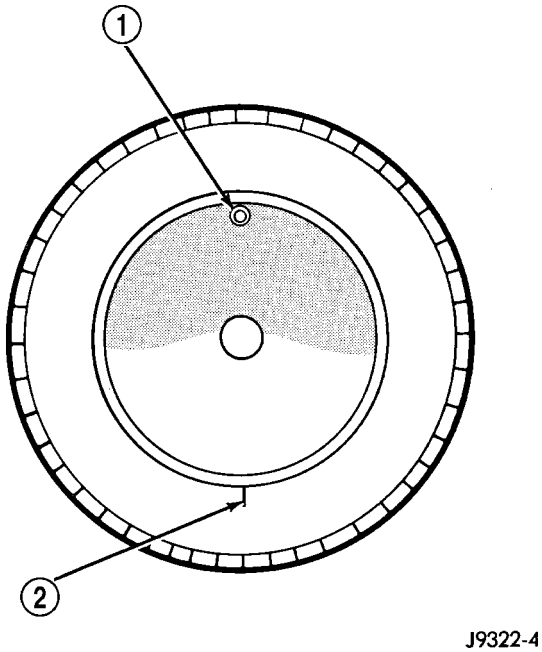


Fig. 8 Remount Tire 180 Degrees

1 - VALVE STEM
2 - REFERENCE MARK

STANDARD PROCEDURE - TIRE ROTATION

Tires on the front and rear operate at different loads and perform different steering, driving, and braking functions. For these reasons they wear at unequal rates and tend to develop irregular wear

TIRES/WHEELS (Continued)

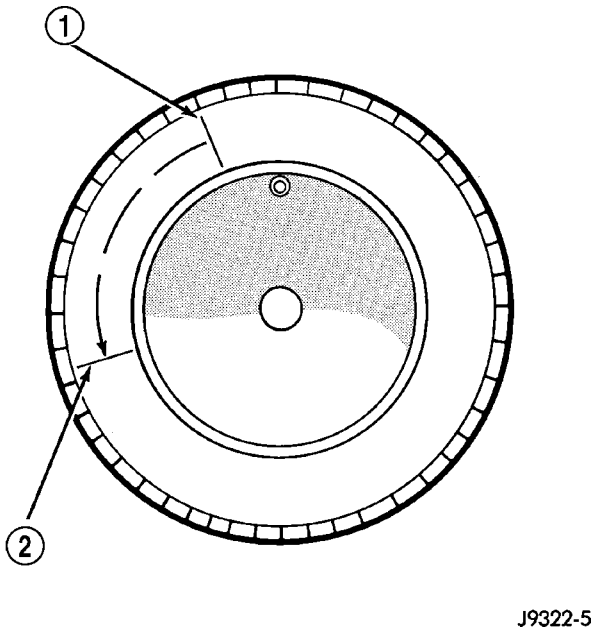


Fig. 9 Remount Tire 90 Degrees In Direction of Arrow

1 - 2ND HIGH SPOT ON TIRE
2 - 1ST HIGH SPOT ON TIRE

patterns. These effects can be reduced by rotating the tires at regular intervals. The benefits of tire rotation are:

- Increase tread life
- Maintain traction levels
- A smooth, quiet ride

The suggested method of tire rotation is (Fig. 10). Other rotation methods can be used, but they will not provide all the tire longevity benefits.

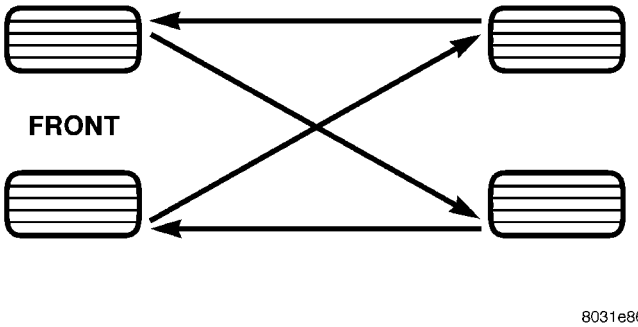


Fig. 10 Tire Rotation Pattern

STANDARD PROCEDURE - WHEEL INSTALLATION

The wheel studs and nuts are designed for specific applications. They must be replaced with equivalent parts. Do not use replacement parts of lesser quality or a substitute design. All aluminum and some steel wheels have wheel stud nuts which feature an enlarged nose. This enlarged nose is necessary to ensure proper retention of the aluminum wheels.

NOTE: Do not use chrome plated lug nuts with chrome plated wheels.

Before installing the wheel, be sure to remove any build up of corrosion on the wheel mounting surfaces. Ensure wheels are installed with good metal-to-metal contact. Improper installation could cause loosening of wheel nuts. This could affect the safety and handling of your vehicle.

To install the wheel, first position it properly on the mounting surface. All wheel nuts should then be tightened just snug. Gradually tighten them in sequence to the proper torque specification (Fig. 11). **Never use oil or grease on studs or nuts.**

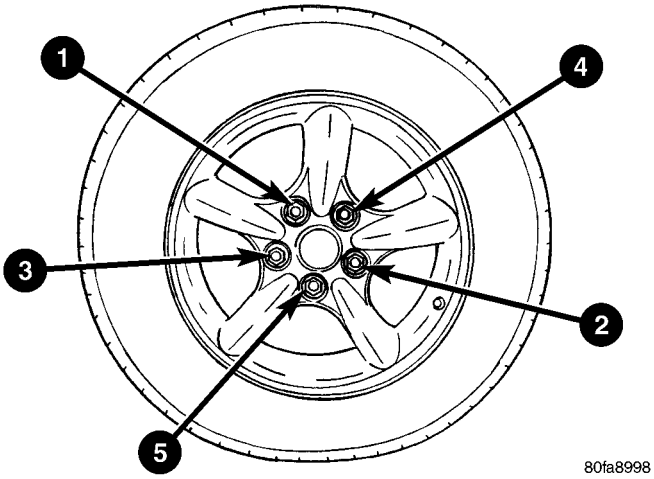


Fig. 11 LUG NUT TIGHTENING PATTERN

TIRES

DESCRIPTION

DESCRIPTION - TIRES

Tires are designed and engineered for each specific vehicle. They provide the best overall performance for normal operation. The ride and handling characteristics match the vehicle's requirements. With proper care they will give excellent reliability, traction, skid resistance, and tread life.

Driving habits have more effect on tire life than any other factor. Careful drivers will obtain in most cases, much greater mileage than severe use or careless drivers. A few of the driving habits which will shorten the life of any tire are:

- Rapid acceleration
- Severe brake applications
- High speed driving
- Excessive speeds on turns
- Striking curbs and other obstacles

TIRES (Continued)

Radial-ply tires are more prone to irregular tread wear. It is important to follow the tire rotation interval shown in the section on Tire Rotation.(Refer to 22 - TIRES/WHEELS - STANDARD PROCEDURE), This will help to achieve a greater tread life.

TIRE IDENTIFICATION

Tire type, size, aspect ratio and speed rating are encoded in the letters and numbers imprinted on the side wall of the tire. Refer to the chart to decipher the tire identification code (Fig. 12).

Performance tires have a speed rating letter after the aspect ratio number. The speed rating is not always printed on the tire sidewall. These ratings are:

- **Q** up to 100 mph
- **S** up to 112 mph
- **T** up to 118 mph
- **U** up to 124 mph
- **H** up to 130 mph
- **V** up to 149 mph
- **Z** more than 149 mph (consult the tire manufacturer for the specific speed rating)

An All Season type tire will have either **M + S, M & S or M–S** (indicating mud and snow traction) imprinted on the side wall.

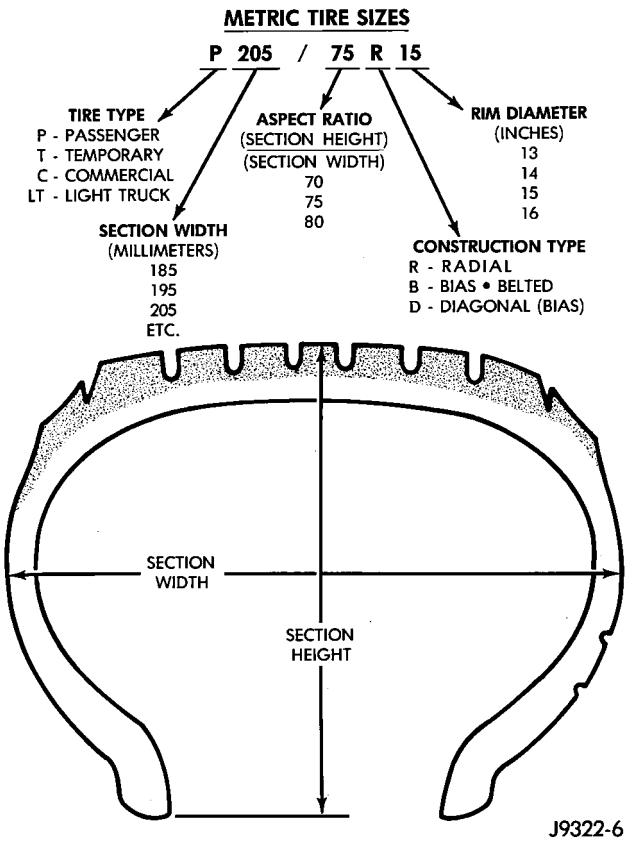


Fig. 12 Tire Identification

TIRE CHAINS

Tire snow chains may be used on **certain** models. Refer to the Owner's Manual for more information.

DESCRIPTION - RADIAL–PLY TIRES

Radial-ply tires improve handling, tread life and ride quality, and decrease rolling resistance.

Radial-ply tires must always be used in sets of four. Under no circumstances should they be used on the front only. They may be mixed with temporary spare tires when necessary. A maximum speed of 50 MPH is recommended while a temporary spare is in use.

Radial-ply tires have the same load-carrying capacity as other types of tires of the same size. They also use the same recommended inflation pressures.

The use of oversized tires, either in the front or rear of the vehicle, can cause vehicle drive train failure. This could also cause inaccurate wheel speed signals when the vehicle is equipped with Anti-Lock Brakes.

The use of tires from different manufactures on the same vehicle is NOT recommended. The proper tire pressure should be maintained on all four tires.

DESCRIPTION - TIRE INFLATION PRESSURES

Under inflation will cause rapid shoulder wear, tire flexing, and possible tire failure (Fig. 13).

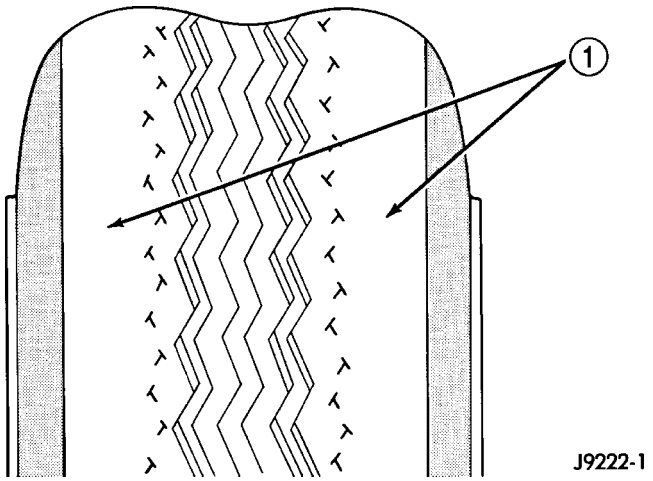


Fig. 13 Under Inflation Wear

1 - THIN TIRE THREAD AREAS

Over inflation will cause rapid center wear and loss of the tire's ability to cushion shocks (Fig. 14).

Improper inflation can cause:

- Uneven wear patterns
- Reduced tread life
- Reduced fuel economy
- Unsatisfactory ride
- Vehicle drift

TIRES (Continued)

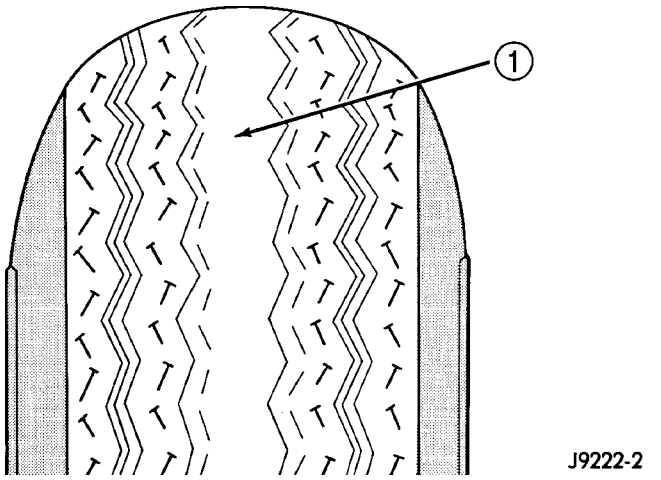


Fig. 14 Over Inflation Wear

1 - THIN TIRE THREAD AREA

For proper tire pressure specification refer to the Tire Inflation Pressure Chart provided with the vehicles Owners Manual. A Certification Label on the drivers side door pillar provides the minimum tire and rim size for the vehicle. The label also list the cold inflation pressure for these tires at full load operation

Tire pressures have been chosen to provide safe operation, vehicle stability, and a smooth ride. Tire pressure should be checked cold once a month. Tire pressure decreases as the ambient temperature drops. Check tire pressure frequently when ambient temperature varies widely.

Tire inflation pressures are cold inflation pressure. The vehicle must sit for at least 3 hours to obtain the correct cold inflation pressure reading. Or be driven less than one mile after sitting for 3 hours. Tire inflation pressures may increase from 2 to 6 pounds per square inch (psi) during operation. Do not reduce this normal pressure build-up.

WARNING: OVER OR UNDER INFLATED TIRES CAN AFFECT VEHICLE HANDLING AND TREAD WEAR. THIS MAY CAUSE THE TIRE TO FAIL SUDDENLY, RESULTING IN LOSS OF VEHICLE CONTROL.

DESCRIPTION - TIRE PRESSURE FOR HIGH SPEED

Where speed limits allow the vehicle to be driven at high speeds, correct tire inflation pressure is very important. For speeds up to and including 120 km/h (75 mph), tires must be inflated to the pressures shown on the tire placard. For continuous speeds in excess of 120 km/h (75 mph), tires must be inflated to the maximum pressure specified on the tire sidewall.

Vehicles loaded to the maximum capacity should not be driven at continuous speeds above 75 mph (120 km/h).

For emergency vehicles that are driven at speeds over 90 mph (144 km/h), special high speed tires must be used. Consult tire manufacturer for correct inflation pressure recommendations.

DESCRIPTION - REPLACEMENT TIRES

The original equipment tires provide a proper balance of many characteristics such as:

- Ride
- Noise
- Handling
- Durability
- Tread life
- Traction
- Rolling resistance
- Speed capability

It is recommended that tires equivalent to the original equipment tires be used when replacement is needed.

Failure to use equivalent replacement tires may adversely affect the safety and handling of the vehicle.

The use of oversize tires may cause interference with vehicle components. Under extremes of suspension and steering travel, interference with vehicle components may cause tire damage.

WARNING: FAILURE TO EQUIP THE VEHICLE WITH TIRES HAVING ADEQUATE SPEED CAPABILITY CAN RESULT IN SUDDEN TIRE FAILURE.

DIAGNOSIS AND TESTING

DIAGNOSIS AND TESTING - PRESSURE GAUGES

A quality air pressure gauge is recommended to check tire pressure. After checking the air pressure, replace valve cap finger tight.

DIAGNOSIS AND TESTING - TREAD WEAR INDICATORS

Tread wear indicators are molded into the bottom of the tread grooves. When tread depth is 1.6 mm (1/16 in.), the tread wear indicators will appear as a 13 mm (1/2 in.) band (Fig. 15).

Tire replacement is necessary when indicators appear in two or more grooves or if localized balding occurs.

TIRES (Continued)

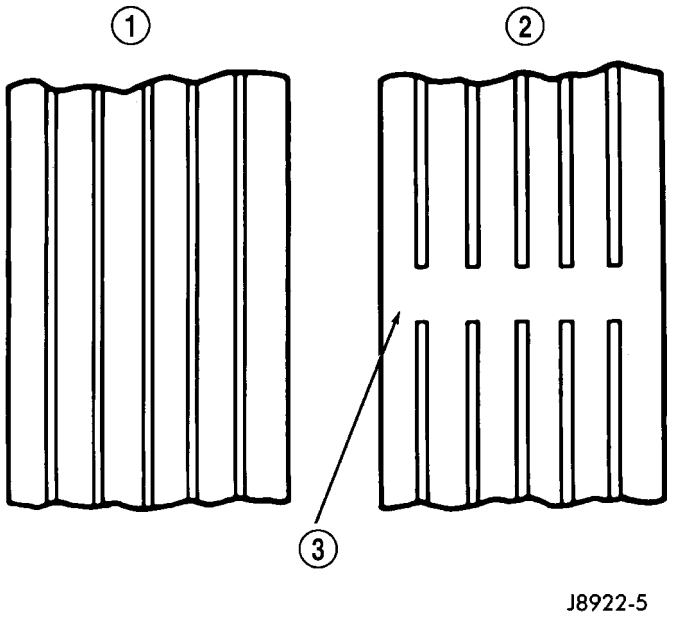


Fig. 15 Tread Wear Indicators

1 - TREAD ACCEPTABLE
2 - TREAD UNACCEPTABLE
3 - WEAR INDICATOR

DIAGNOSIS AND TESTING - TIRE WEAR PATTERNS

Under inflation will cause wear on the shoulders of tire. Over inflation will cause wear at the center of tire.

Excessive camber causes the tire to run at an angle to the road. One side of tread is then worn more than the other (Fig. 16).

Excessive toe-in or toe-out causes wear on the tread edges and a feathered effect across the tread (Fig. 16).

DIAGNOSIS AND TESTING - TIRE NOISE OR VIBRATION

Radial-ply tires are sensitive to force impulses caused by improper mounting, vibration, wheel defects, or possibly tire imbalance.

To find out if tires are causing the noise or vibration, drive the vehicle over a smooth road at varying speeds. Note the noise level during acceleration and deceleration. The engine, differential and exhaust noises will change as speed varies, while the tire noise will usually remain constant.

DIAGNOSIS AND TESTING - TIRE/VEHICLE LEAD

Use the following Vehicle Lead Diagnosis And Correction Chart to diagnose and correct a vehicle lead or drift problem (Fig. 17).

STANDARD PROCEDURE - REPAIRING LEAKS

For proper repairing, a radial tire must be removed from the wheel. Repairs should only be made if the defect, or puncture, is in the tread area (Fig. 18). The tire should be replaced if the puncture is located in the sidewall.

Deflate tire completely before removing the tire from the wheel. Use lubrication such as a mild soap solution when dismounting or mounting tire. Use tools free of burrs or sharp edges which could damage the tire or wheel rim.

Before mounting tire on wheel, make sure all rust is removed from the rim bead and repaint if necessary.

Install wheel on vehicle, and tighten to proper torque specification (Refer to 22 - TIRES/WHEELS/ WHEELS - SPECIFICATIONS).

CONDITION	RAPID WEAR AT SHOULDERS	RAPID WEAR AT CENTER	CRACKED TREADS	WEAR ON ONE SIDE	FEATHERED EDGE	BALD SPOTS	SCALLOPED WEAR
EFFECT	1. 2.						
CAUSE	UNDER-INFLATION OR LACK OF ROTATION	OVER-INFLATION OR LACK OF ROTATION	UNDER-INFLATION OR EXCESSIVE SPEED*	EXCESSIVE CAMBER	INCORRECT TOE	UNBALANCED WHEEL OR TIRE DEFECT *	LACK OF ROTATION OF TIRES OR WORN OR OUT-OF-ALIGNMENT SUSPENSION.
CORRECTION	ADJUST PRESSURE TO SPECIFICATIONS WHEN TIRES ARE COOL ROTATE TIRES			ADJUST CAMBER TO SPECIFICATIONS	ADJUST TOE-IN TO SPECIFICATIONS	DYNAMIC OR STATIC BALANCE WHEELS	ROTATE TIRES AND INSPECT SUSPENSION SEE GROUP 2

*HAVE TIRE INSPECTED FOR FURTHER USE.

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Fig. 16 Tire Wear Patterns

TIRES (Continued)

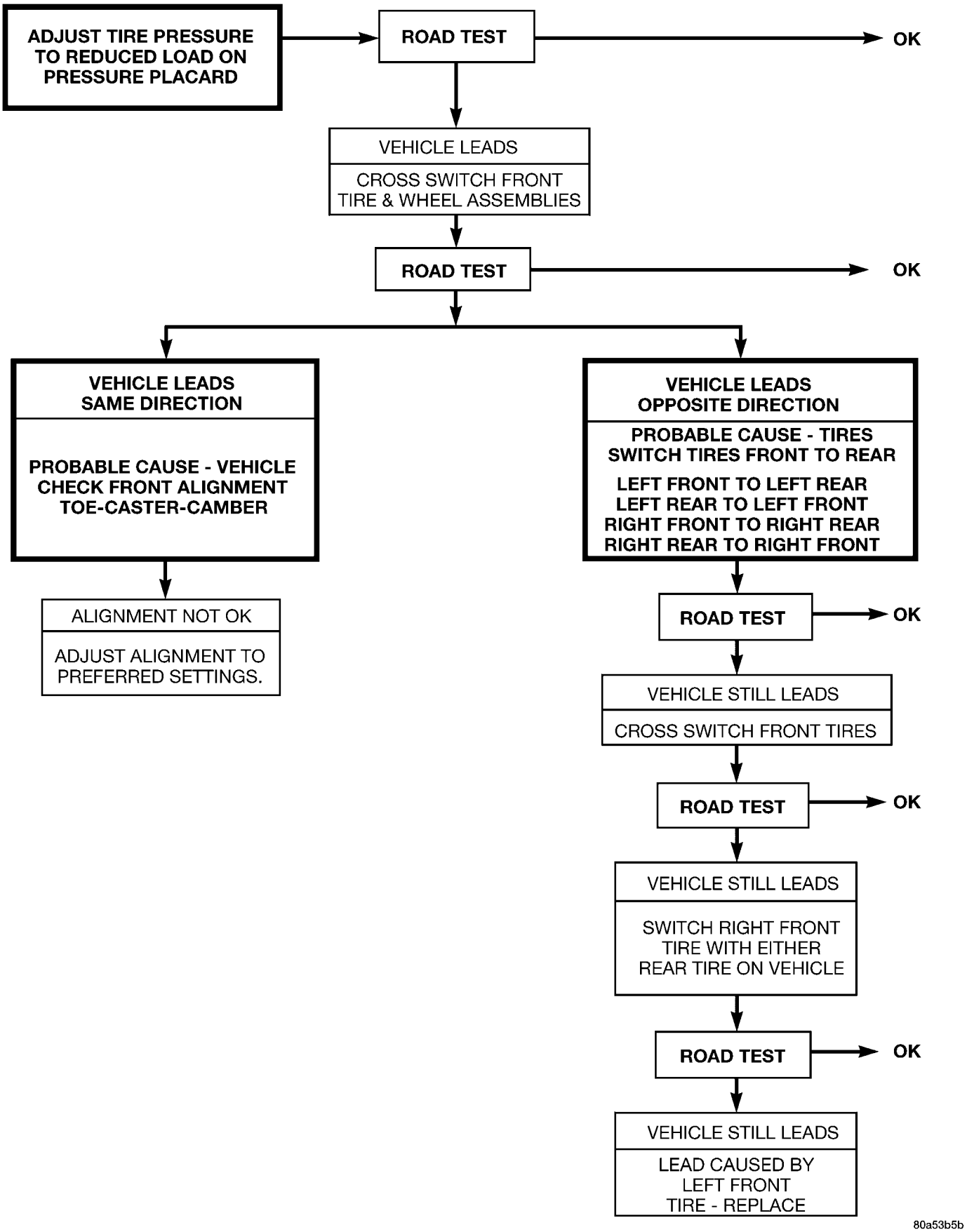


Fig. 17 VEHICLE LEAD DIAGNOSIS AND CORRECTION CHART

TIRES (Continued)

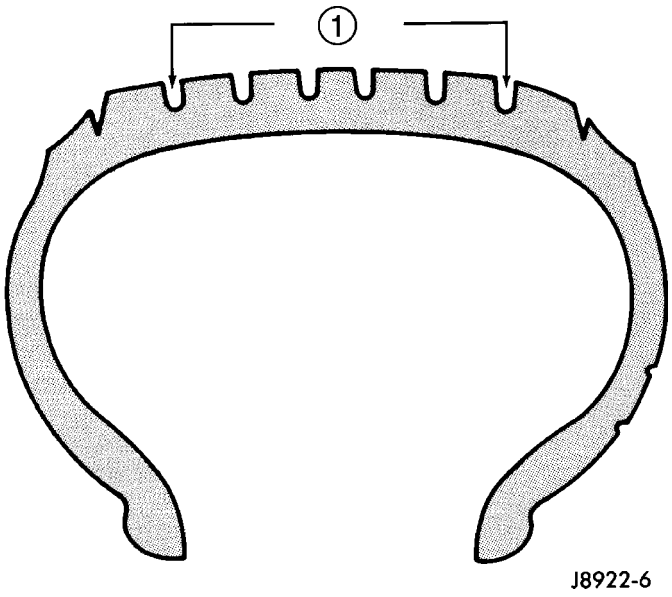


Fig. 18 Tire Repair Area

1 - REPAIRABLE AREA

CLEANING

Remove the protective coating on the tires before delivery of a vehicle. This coating may cause deterioration of the tires.

To remove the protective coating, apply warm water and let it soak for a few minutes. Afterwards, scrub the coating away with a soft bristle brush. Steam cleaning may also be used to remove the coating.

NOTE: DO NOT use gasoline, mineral oil, oil-based solvent or a wire brush for cleaning.

SPECIFICATIONS

TIRES

SPECIFICATIONS

DESCRIPTION	SPECIFICATION
TIRE	P225/75R16
TIRE	P245/70R16
TIRE	P235/65R17
TIRE WG	225/75HR16
TIRE WG	245/70HR16
TIRE WG	235/65HR17

SPECIFICATIONS -

SPECIFICATIONS

DESCRIPTION - RIM	SPECIFICATION - TIRE
BASE LAREDO (2.7L & 4.0L) 16x7	P225/75R16
OPTIONAL LAREDO (2.7L, 4.0L, 4.7L) 16x7	P245/70R16
LAREDO 4.7L (JAPAN & AUSTRALIA) 17x7.5	P235/65R17
OPTIONAL LAREDO (UP COUNTRY) 17x7.5	P235/65R17
BASE LIMITED 17x7.5	P235/65R17
OPTIONAL LIMITED (UP COUNTRY) & OVERLAND 17x7.5	P235/65R17
BASE WHEEL / SNOW TIRE	P235/65R17

SPARE TIRE

DESCRIPTION

DESCRIPTION - SPARE / TEMPORARY TIRE

The temporary spare tire is designed for emergency use only. The original tire should be repaired or replaced at the first opportunity, then reinstalled. Do not exceed speeds of 50 M.P.H. when using the temporary spare tire. Refer to Owner's Manual for complete details.

DESCRIPTION - FULL SIZE, SPARE WHEEL WITH MATCHING TIRE

The spare is a full usage wheel with a matching tire, It can be used within the (posted legal) speed limits or distance limitations as of the rest of the vehicles four tires. Refer to Owner's Manual for complete details.

WHEELS

DESCRIPTION

The rim size is on the vehicle safety certification label located on the drivers door shut face. The size of the rim is determined by the drivetrain package. Original equipment wheels/rims are designed for operation up to the specified maximum vehicle capacity.

All models use stamped steel, cast aluminum or forged aluminum wheels. Every wheel has raised sections between the rim flanges and rim drop well called safety humps (Fig. 19) .

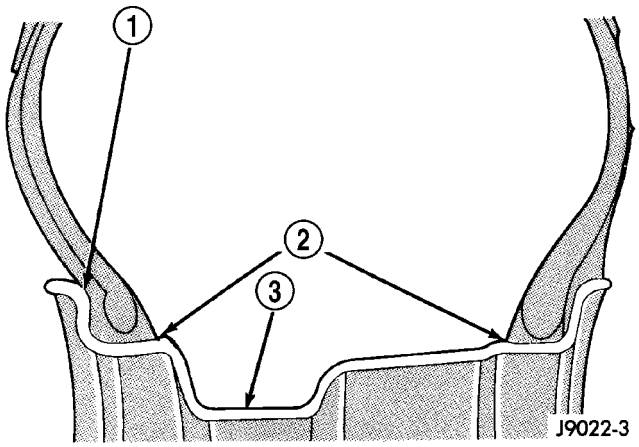


Fig. 19 Safety Rim

1 - FLANGE
2 - RIDGE
3 - WELL

Initial inflation of the tire forces the bead over these raised sections. In case of rapid loss of air pressure, the raised sections help hold the tire on the wheel.

The wheel studs and nuts are designed for specific applications. All aluminum and some steel wheels have wheel stud nuts with an enlarged nose. This enlarged nose is necessary to ensure proper retention of the wheels. Do not use replacement studs or nuts with a different design or lesser quality.

DIAGNOSIS AND TESTING - WHEEL INSPECTION

Inspect wheels for:

- Excessive run out
- Dents or cracks
- Damaged wheel lug nut holes
- Air Leaks from any area or surface of the rim

NOTE: Do not attempt to repair a wheel by hammering, heating or welding.

If a wheel is damaged an original equipment replacement wheel should be used. When obtaining replacement wheels, they should be equivalent in load carrying capacity. The diameter, width, offset, pilot hole and bolt circle of the wheel should be the same as the original wheel.

WARNING: FAILURE TO USE EQUIVALENT REPLACEMENT WHEELS MAY ADVERSELY AFFECT THE SAFETY AND HANDLING OF THE VEHICLE. USED WHEELS ARE NOT RECOMMENDED. THE SERVICE HISTORY OF THE WHEEL MAY HAVE INCLUDED SEVERE TREATMENT OR VERY HIGH MILEAGE. THE RIM COULD FAIL WITHOUT WARNING.

STANDARD PROCEDURE - WHEEL REPLACEMENT

The wheel studs and nuts are designed for specific applications. They must be replaced with equivalent parts. Do not use replacement parts of lesser quality or a substitute design. All aluminum and some steel wheels have wheel stud nuts which feature an enlarged nose. This enlarged nose is necessary to ensure proper retention of the aluminum wheels.

NOTE: Do not use chrome plated lug nuts with chrome plated wheels.

Before installing the wheel, be sure to remove any build up of corrosion on the wheel mounting surfaces. Ensure wheels are installed with good metal-to-metal contact. Improper installation could cause loosening of wheel nuts. This could affect the safety and handling of your vehicle.

To install the wheel, first position it properly on the mounting surface. All wheel nuts should then be tightened just snug. Gradually tighten them in sequence to the proper torque specification. **Never use oil or grease on studs or nuts.**

Wheels must be replaced if they have:

- Excessive runout
- Bent or dented
- Leak air through welds
- Have damaged bolt holes

Wheel repairs employing hammering, heating, or welding are not allowed.

Original equipment wheels are available through your dealer. Replacement wheels from any other source should be equivalent in:

- Load carrying capacity
- Diameter
- Width

WHEELS (Continued)

- Offset
- Mounting configuration

Failure to use equivalent replacement wheels may affect the safety and handling of your vehicle. Replacement with **used** wheels is not recommended. Their service history may have included severe treatment.

SPECIFICATIONS

TORQUE CHART

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Lug Nut 1/2 X 20 with 60° Cone	115-150	85-115	—

STUDS

REMOVAL

CAUTION: Do not use a hammer to remove wheel studs.

(1) Raise and support vehicle.
(2) Remove wheel and tire assembly.
(3) Remove brake caliper, caliper adapter and rotor,(Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/ROTORS - REMOVAL).
(4) Remove stud from hub with Remover C-4150A (Fig. 20).

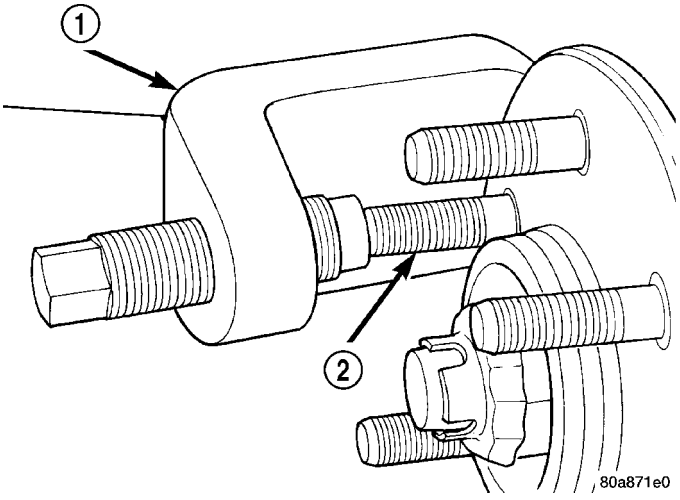


Fig. 20 Wheel Stud Removal

1 - REMOVER
2 - WHEEL STUD

INSTALLATION

CAUTION: Do not use a hammer to remove wheel studs.

(1) Install the new stud into the hub flange.
(2) Install the three washers onto the stud, then install the lug nut with the flat side of the nut against the washers.
(3) Tighten the lug nut until the stud is pulled into the hub flange. Verify that the stud is properly seated into the flange.
(4) Remove the lug nut and washers.
(5) Install the brake rotor, caliper adapter, and caliper,(Refer to 5 - BRAKES/HYDRAULIC/MECHANICAL/DISC BRAKE CALIPERS - INSTALLATION).
(6) Install the wheel and tire assembly, use new lug nut on stud or studs that were replaced.
(7) Remove the support and lower vehicle.

TIRE PRESSURE MONITORING SYSTEM

DESCRIPTION

The EVIC will monitor the tire pressure signals from the four tire sensors (five sensors in the case of vehicles with the chrome wheel option) and determine if any tire has gone below the low pressure threshold or raised above the high pressure threshold. Refer to the table below.

TIRE PRESSURE MONITORING SYSTEM (Continued)

LOW TIRE PRESSURE THRESHOLDS	
SYSTEM STATUS INDICATOR	TIRE PRESSURE
ON	172 kPa (25 PSI)
OFF	193 kPa (28 PSI)

HIGH TIRE PRESSURE THRESHOLDS	
SYSTEM STATUS INDICATOR	TIRE PRESSURE
ON	310 kPa (45 PSI)
OFF	276 kPa (40 PSI)

The Remote Tire Pressure Monitors (RTPM) are not internally serviceable. For a Sensor Failure or Low Battery fault, the RTPM must be replaced.

OPERATION

If equipped with the Tire Pressure Monitoring System, each of the vehicle's four (or five for chrome wheel option) wheels will have a valve stem with a pressure sensor and radio transmitter built in. Signals from the tire pressure sensors are received and interpreted by the Electronic Vehicle Information Center (EVIC). A sensor in a mounted wheel will broadcast its detected pressure once per minute when the vehicle is moving faster than 40 km/h (25 mph). The spare tire sensor will broadcast once every hour. Each sensor's broadcast is uniquely coded so that the EVIC can determine location. The individual tire pressures can be displayed graphically on the EVIC

DIAGNOSIS AND TESTING - TIRE PRESSURE MONITORING SYSTEM

All Tire Pressure Monitoring System Faults are specific to one location. If a ″BATTERY LOW″ or ″SENSOR FAILURE″ fault is detected, the location will be displayed. The appropriate sensor/transmitter can then be replaced. If a single sensor/transmitter cannot be detected by the EVIC, replace that sensor transmitter. If none of the sensors/transmitters can be detected, refer to symptoms in the EVIC section. For additional system description and diagnosis, refer to Tire Pressure Monitoring in the Body Diagnostic manual.

SPECIFICATIONS

TORQUE CHART

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Tire Pressure Sensor/ Transmitter Mounting Nut	7	—	64

SENSOR

STANDARD PROCEDURE - TIRE PRESSURE SENSOR RETRAIN

WARNING: DEATH OR SERIOUS INJURY CAN OCCUR IF MAGNETICALLY SENSITIVE DEVICES ARE EXPOSED TO THE RELEARN MAGNET. MAGNETS CAN AFFECT PACEMAKERS.

CAUTION: Never attempt to train more than one vehicle at a time. System is capable of reading tire pressure sensor transmissions from other nearby vehicles while in train mode.

Each time a wheel rotation or tire pressure sensor replacement occurs the tire pressure sensors must be retrained. This is necessary to inform the Electronic Vehicle Information Center (EVIC) that a sensor change was made and the new locations of the sensors. Retraining is accomplished through the EVIC used in conjunction with a Re-learn Magnet, Special Tool 8821.

NOTE: Use the following procedure to retrain all tire pressure sensors (four or five sensor systems). No attempt should be made to retrain individual sensors.

(1) Retrieve Re-learn Magnet, Special Tool 8821.
(2) Press MENU Button on EVIC until ″RETRAIN TIRE SENSORS - NO″ is displayed.
(3) Press STEP button to select ″YES″.

SENSOR (Continued)

NOTE: There is a 60 second timer for training the first sensor and a 30 second timer between training the remaining sensors. If either of these timers expire, the EVIC will abort the training procedure.

NOTE: If at any time the EVIC display reads ″TRAINING ABORTED″, move the vehicle ahead at least one foot and repeat the entire retraining procedure.

(4) Press MENU button to start retraining. Display will read ″TRAIN LEFT FRONT TIRE″

NOTE: The order for retraining all five sensors is:
- **Left Front**
- **Right Front**
- **Right Rear**
- **Left Rear**
- **Spare (if so equipped)**

(5) Starting at left front tire, place Re-learn Magnet over valve stem (Fig. 21). Within approximately 5 seconds, vehicle horn will chirp indicating training complete for that particular sensor. Remove the magnet.

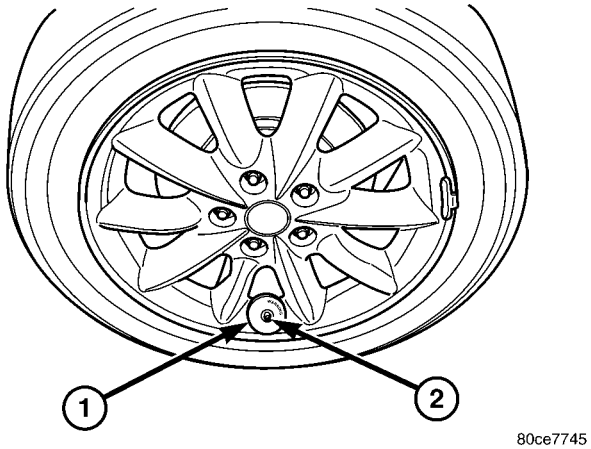


Fig. 21 Magnet Placement Over Valve Stem

1 - RE-LEARN MAGNET
2 - VALVE STEM

(6) Repeat step (6) on remaining sensors as indicated by EVIC until all TPM sensors positions are trained.

(7) Once EVIC displays ″TRAINING COMPLETE″, pressing either STEP, C/T, RESET or MENU button will exit training routine.

REMOVAL - TIRE PRESSURE SENSOR/ TRANSMITTER

(1) Remove the tire/wheel from the vehicle.

CAUTION: When removing the stick on balancing weights from the wheel, do not use an abrasive cleaner or a cleaner which will damage the protective finish on the wheel.

(2) Remove the balancing weights from the wheel.

NOTE: The cap used on this valve stem contains an O-ring seal to prevent contamination and moisture from entering the valve stem. Retain this valve stem cap for re-use. Do not substitute a regular valve stem cap in its place.

(3) Remove the cap from the valve stem.

NOTE: The valve stem used on this vehicle is made of aluminum and the core is nickel plated brass. The original valve stem core must be reinstalled and not substituted for a valve stem core made of a different material. This is required to prevent corrosion in the valve stem caused by the different metals.

(4) Using the appropriate tool, remove the core from the valve stem (Fig. 22).

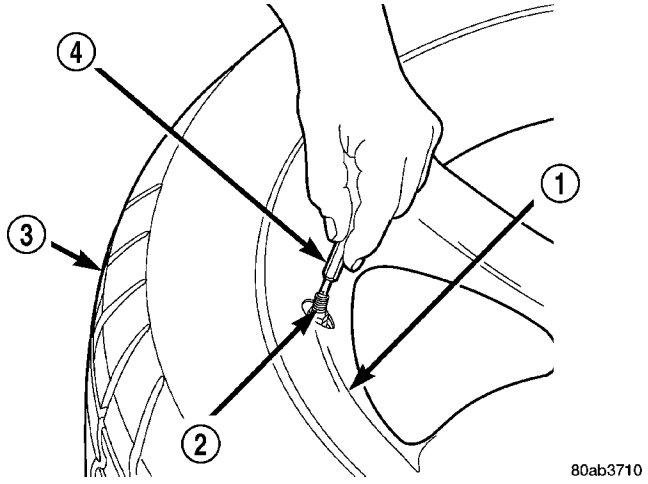


Fig. 22 REMOVING VALVE STEM CORE - TYPICAL

1 - WHEEL
2 - VALVE STEM
3 - TIRE
4 - VALVE STEM CORE TOOL

(5) Let the tire fully deflate.

CAUTION: The pressure transmitter must be removed from the wheel and dropped into the tire prior to breaking the bead and dismounting the tire. Failure to do this will greatly increase the risk of damaging the pressure transducer when servicing the tire.

SENSOR (Continued)

(6) Remove nut mounting valve stem of pressure sensor/transmitter to the wheel (Fig. 23). Drop sensor/transmitter into tire.

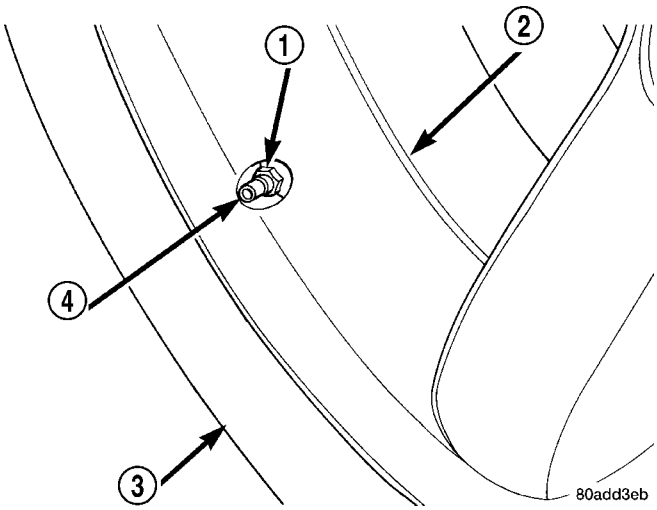


Fig. 23 VALVE STEM/PRESSURE TRANSMITTER - TYPICAL

1 - NUT
2 - WHEEL
3 - TIRE
4 - VALVE STEM

CAUTION: When breaking the top and bottom bead of the tire off the wheel, care must be used so the bead breaking mechanism on the tire changer does not damage the wheel. This includes the surface of the wheel flange on the inside of the wheel.

(7) Using the tire changer manufacturers procedure, first break down the upper bead of the tire. Then break down the bottom bead of the tire.

CAUTION: When dismounting the upper tire bead from the wheel, the proper procedure must be used. Not using the proper procedure will result in damage to the wheel and tire.

(8) Dismount the upper bead of the tire from the wheel. **The upper bead must be fully dismounted from the wheel to remove the tire pressure transmitter from the inside of the tire. The bottom bead of the tire does not need to be removed from the wheel.**

(9) Pull upward on the tire (Fig. 24). Reach into the tire and remove the pressure sensor/transmitter from inside the tire.

INSTALLATION - TIRE PRESSURE SENSOR/ TRANSMITTER

NOTE: When installing the tire pressure sensor/ transmitter, inspect the sealing O-ring at the bottom of the valve stem for any sign of damage or deterioration. Replace O-ring if necessary, before installing the pressure transmitter on the wheel. Also, be sure the surface of the wheel that the O-ring seals against is clean and not damaged.



Fig. 24 PRESSURE TRANSMITTER REMOVAL - TYPICAL

1 - TIRE
2 - WHEEL
3 - PRESSURE TRANSMITTER

(1) Install the tire pressure sensor/transmitter on the wheel (Fig. 25).

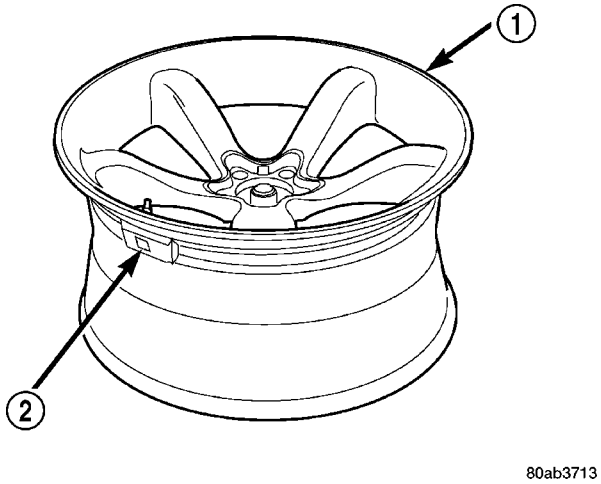


Fig. 25 TIRE PRESSURE SENSOR/TRANSMITTER - TYPICAL

1 - WHEEL
2 - TIRE PRESSURE TRANSMITTER

(2) Tighten the tire pressure sensor/transmitter mounting nut to a torque of 7 N·m (64 in. lbs.) (Fig. 26). When tightening the sensor/transmitter nut, hold the transmitter so it does not rotate. If the sensor/transmitter rotates so the top edge is not level with the wheel (Fig. 27), damage to the transmitter will occur when mounting the tire. If the top edge of

SENSOR (Continued)

the transmitter is not level with the wheel, it can be rotated into position by lightly tapping it with your hand.

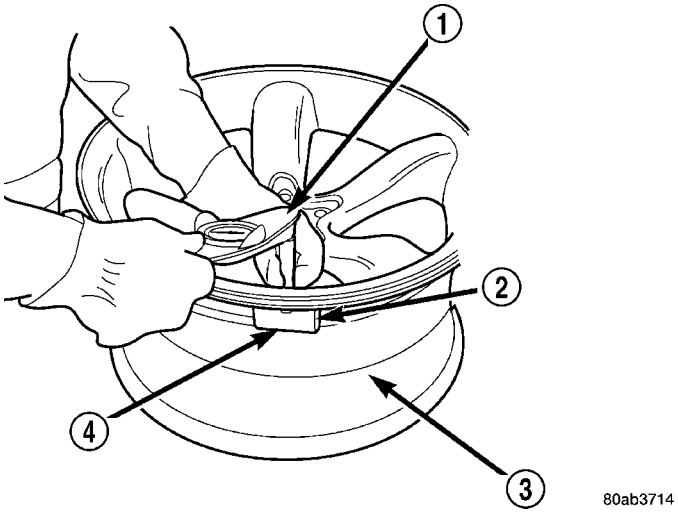


Fig. 26 TIGHTENING SENSOR/TRANSDUCER - TYPICAL

1 - TORQUE WRENCH
2 - WHEN TORQUING TRANSMITTER MOUNTING NUT DO NOT LET THIS END OF TRANSMITTER ROTATE AWAY FROM THE WHEEL
3 - WHEEL
4 - TIRE PRESSURE TRANSMITTER

CAUTION: When mounting the upper bead of the extended mobility tire, the proper procedure must be used. Not using the proper procedure will result in damage to the wheel and tire.

(3) Mount the upper bead of the tire on the wheel.

(4) Install the original or an OEM replacement valve stem cap on the valve stem.

(5) Using a soap solution, check that no air leak is present where the valve stem mounts to the wheel.

(6) Balance the tire/wheel assembly using the correct procedure for using wheel flange mount and stick-on wheel weights. For balancing information and wheel weight positioning, (Refer to 22 - TIRES/WHEELS - STANDARD PROCEDURE).

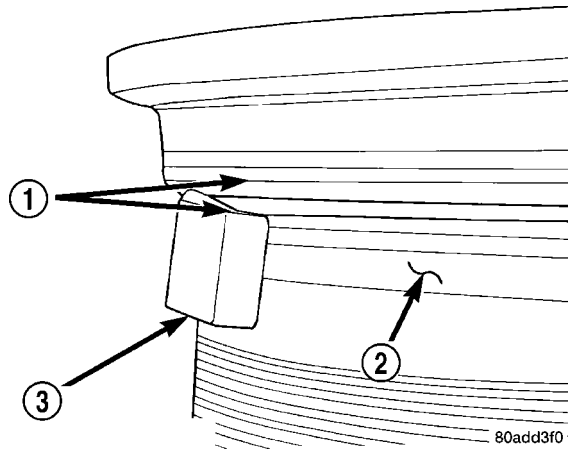


Fig. 27 CORRECTLY POSITIONED SENSOR/TRAN - TYPICAL

1 - THE TOP EDGES OF THE TIRE PRESSURE SENSOR/TRANSMITTER MUST BE FLUSH WITH THE WHEEL HERE
2 - WHEEL
3 - TIRE PRESSURE SENSOR/TRANSMITTER

(7) Install the tire/wheel on the vehicle (Refer to 22 - TIRES/WHEELS - STANDARD PROCEDURE).

(8) Program the identification code for the new tire pressure sensor/transmitter into the TPM module.

(9) Verify that the TPM module has been programmed with the identification code from the new tire pressure sensor/transmitter Refer to the appropiate electrical section. If the identification code and tire pressure thresholds from the new tire pressure transmitter are present in the receivers memory the new tire pressure transmitter has been correctly programmed to the receiver.

BODY

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BODY

WARNING

SAFETY PRECAUTIONS AND WARNINGS

WARNING: USE AN OSHA APPROVED BREATHING FILTER WHEN SPRAYING PAINT OR SOLVENTS IN A CONFINED AREA. PERSONAL INJURY CAN RESULT.

- **AVOID PROLONGED SKIN CONTACT WITH PETROLEUM OR ALCOHOL – BASED CLEANING SOLVENTS. PERSONAL INJURY CAN RESULT.**
- **DO NOT STAND UNDER A HOISTED VEHICLE THAT IS NOT PROPERLY SUPPORTED ON SAFETY STANDS. PERSONAL INJURY CAN RESULT.**

CAUTION: When holes must be drilled or punched in an inner body panel, verify depth of space to the outer body panel, electrical wiring, or other components. Damage to vehicle can result.

- **Do not weld exterior panels unless combustible material on the interior of vehicle is removed from the repair area. Fire or hazardous conditions, can result.**
- **Always have a fire extinguisher ready for use when welding.**
- **Disconnect the negative (-) cable clamp from the battery when servicing electrical components that are live when the ignition is OFF. Damage to electrical system can result.**
- **Do not use abrasive chemicals or compounds on painted surfaces. Damage to finish can result.**
- **Do not use harsh alkaline based cleaning solvents on painted or upholstered surfaces. Damage to finish or color can result.**
- **Do not hammer or pound on plastic trim panel when servicing interior trim. Plastic panels can break.**

DIAGNOSIS AND TESTING

DIAGNOSIS AND TESTING - WATER LEAKS

Water leaks can be caused by poor sealing, improper body component alignment, body seam porosity, missing plugs, or blocked drain holes. Centrifugal and gravitational force can cause water to drip from a location away from the actual leak point, making leak detection difficult. All body sealing points should be water tight in normal wet-driving conditions. Water flowing downward from the front of the vehicle should not enter the passenger or luggage compartment. Moving sealing surfaces will not always seal water tight under all conditions. At times, side glass or door seals will allow water to enter the passenger compartment during high pressure washing or hard driving rain (severe) conditions. Overcompensating on door or glass adjustments to stop a water leak that occurs under severe conditions can cause premature seal wear and excessive closing or latching effort. After completing a repair, water test vehicle to verify leak has stopped before returning vehicle to use.

BODY (Continued)

VISUAL INSPECTION BEFORE WATER LEAK TESTS

Verify that floor and body plugs are in place, body drains are clear, and body components are properly aligned and sealed. If component alignment or sealing is necessary, refer to the appropriate section of this group for proper procedures.

WATER LEAK TESTS

WARNING: DO NOT USE ELECTRIC SHOP LIGHTS OR TOOLS IN WATER TEST AREA. PERSONAL INJURY CAN RESULT.

When the conditions causing a water leak have been determined, simulate the conditions as closely as possible.

- If a leak occurs with the vehicle parked in a steady light rain, flood the leak area with an open-ended garden hose.
- If a leak occurs while driving at highway speeds in a steady rain, test the leak area with a reasonable velocity stream or fan spray of water. Direct the spray in a direction comparable to actual conditions.
- If a leak occurs when the vehicle is parked on an incline, hoist the end or side of the vehicle to simulate this condition. This method can be used when the leak occurs when the vehicle accelerates, stops or turns. If the leak occurs on acceleration, hoist the front of the vehicle. If the leak occurs when braking, hoist the back of the vehicle. If the leak occurs on left turns, hoist the left side of the vehicle. If the leak occurs on right turns, hoist the right side of the vehicle. For hoisting recommendations (Refer to LUBRICATION & MAINTENANCE/HOISTING - STANDARD PROCEDURE).

WATER LEAK DETECTION

To detect a water leak point-of-entry, do a water test and watch for water tracks or droplets forming on the inside of the vehicle. If necessary, remove interior trim covers or panels to gain visual access to the leak area. If the hose cannot be positioned without being held, have someone help do the water test.

Some water leaks must be tested for a considerable length of time to become apparent. When a leak appears, find the highest point of the water track or drop. The highest point usually will show the point of entry. After leak point has been found, repair the leak and water test to verify that the leak has stopped.

Locating the entry point of water that is leaking into a cavity between panels can be difficult. The trapped water may splash or run from the cavity, often at a distance from the entry point. Most water leaks of this type become apparent after accelerating, stopping, turning, or when on an incline.

MIRROR INSPECTION METHOD

When a leak point area is visually obstructed, use a suitable mirror to gain visual access. A mirror can also be used to deflect light to a limited-access area to assist in locating a leak point.

BRIGHT LIGHT LEAK TEST METHOD

Some water leaks in the luggage compartment can be detected without water testing. Position the vehicle in a brightly lit area. From inside the darkened luggage compartment inspect around seals and body seams. If necessary, have a helper direct a drop light over the suspected leak areas around the luggage compartment. If light is visible through a normally sealed location, water could enter through the opening.

PRESSURIZED LEAK TEST METHOD

When a water leak into the passenger compartment cannot be detected by water testing, pressurize the passenger compartment and soap test exterior of the vehicle. To pressurize the passenger compartment, close all doors and windows, start engine, and set heater control to high blower in HEAT position. If engine can not be started, connect a charger to the battery to ensure adequate voltage to the blower. With interior pressurized, apply dish detergent solution to suspected leak area on the exterior of the vehicle. Apply detergent solution with spray device or soft bristle brush. If soap bubbles occur at a body seam, joint, seal or gasket, the leak entry point could be at that location.

DIAGNOSIS AND TESTING - WIND NOISE

Wind noise is the result of most air leaks. Air leaks can be caused by poor sealing, improper body component alignment, body seam porosity, or missing plugs in the engine compartment or door hinge pillar areas. All body sealing points should be airtight in normal driving conditions. Moving sealing surfaces will not always seal airtight under all conditions. At times, side glass or door seals will allow wind noise to be noticed in the passenger compartment during high cross winds. Over compensating on door or glass adjustments to stop wind noise that occurs under severe conditions can cause premature seal wear and excessive closing or latching effort. After a repair procedure has been performed, test vehicle to verify noise has stopped before returning vehicle to use.

VISUAL INSPECTION BEFORE TESTS

Verify that floor and body plugs are in place and body components are aligned and sealed. If component alignment or sealing is necessary, refer to the appropriate section of this group for proper procedures.

BODY (Continued)

ROAD TESTING WIND NOISE

(1) Drive the vehicle to verify the general location of the wind noise.

(2) Apply 50 mm (2 in.) masking tape in 150 mm (6 in.) lengths along weatherstrips, weld seams or moldings. After each length is applied, drive the vehicle. If noise goes away after a piece of tape is applied, remove tape, locate, and repair defect.

POSSIBLE CAUSE OF WIND NOISE

- Moldings standing away from body surface can catch wind and whistle.
- Gaps in sealed areas behind overhanging body flanges can cause wind-rushing sounds.
- Misaligned movable components.
- Missing or improperly installed plugs in pillars.
- Weld burn through holes.

STANDARD PROCEDURE

STANDARD PROCEDURE - BODY LUBRICATION

All mechanisms and linkages should be lubricated when necessary. This will maintain ease of operation and provide protection against rust and excessive wear. The weatherstrip seals should be lubricated to prolong their life as well as to improve door sealing.

All applicable exterior and interior vehicle operating mechanisms should be inspected and cleaned. Pivot/sliding contact areas on the mechanisms should then be lubricated.

(1) When necessary, lubricate the operating mechanisms with the specified lubricants.

(2) Apply silicone lubricant to a cloth and wipe it on door seals to avoid over-spray that can soil passenger's clothing.

(3) Before applying lubricant, the component should be wiped clean. After lubrication, any excess lubricant should be removed.

(4) The hood latch, latch release mechanism, latch striker, and safety latch should be lubricated periodically.

(5) The door lock cylinders should be lubricated twice each year (preferably autumn and spring).

(a) Spray a small amount of lock cylinder lubricant directly into the lock cylinder.

(b) Apply a small amount to the key and insert it into the lock cylinder.

(c) Rotate it to the locked position and then back to the unlocked position several times.

(d) Remove the key. Wipe the lubricant from it with a clean cloth to avoid soiling of clothing.

STANDARD PROCEDURE - PLASTIC BODY PANEL REPAIR

There are many different types of plastics used in today's automotive environment. We group plastics in three different categories: Rigid, Semi-Rigid, and Flexible. Any of these plastics may require the use of an adhesion promoter for repair. These types of plastic are used extensively on DaimlerChrysler Motors vehicles. Always follow repair material manufacturer's plastic identification and repair procedures.

Rigid Plastics:

Examples of rigid plastic use: Fascias, Hoods, Doors, and other Body Panels, which include SMC, ABS, and Polycarbonates.

Semi-Rigid Plastics:

Examples of semi-rigid plastic use: Interior Panels, Under Hood Panels, and other Body Trim Panels.

Flexible Plastics:

Examples of flexible plastic use: Fascias, Body Moldings, and upper and lower Fascia Covers.

Repair Procedure:

The repair procedure for all three categories of plastics is basically the same. The one difference is the material used for the repair. The materials must be specific for each substrate, rigid repair material for rigid plastic repair, semi-rigid repair material for semi-rigid plastic repair and flexible repair material for flexible plastic repair.

Adhesion Promoter/Surface Modifier:

Adhesion Promoters/Surface Modifiers are required for certain plastics. All three categories may have plastics that require the use of adhesion promoter/surface modifiers. Always follow repair material manufacturer's plastic identification and repair procedures.

SAFETY PRECAUTION AND WARNINGS

WARNING:

- **EYE PROTECTION SHOULD BE USED WHEN SERVICING COMPONENTS. PERSONAL INJURY CAN RESULT.**
- **USE AN OSHA APPROVED BREATHING MASK WHEN MIXING EPOXY, GRINDING, AND SPRAYING PAINT OR SOLVENTS IN A CONFINED AREA. PERSONAL INJURY CAN RESULT.**
- **AVOID PROLONGED SKIN CONTACT WITH RESIN, PETROLEUM, OR ALCOHOL BASED SOLVENTS. PERSONAL INJURY CAN RESULT.**
- **DO NOT VENTURE UNDER A HOISTED VEHICLE THAT IS NOT PROPERLY SUPPORTED ON SAFETY STANDS. PERSONAL INJURY CAN RESULT.**

BODY (Continued)

NOTE:

- **When holes must be drilled or cut in body panels, verify locations of internal body components and electrical wiring. Damage to vehicle can result.**
- **Do not use abrasive chemicals or compounds on undamaged painted surfaces around repair areas. Damage to finish can result.**

RIGID, SEMI-RIGID, AND FLEXIBLE PLASTIC PARTS TYPES

CODE	FAMILY NAME	COMMON TRADE NAME	TYPICAL APPLICATION
ASA	ACRYLONITRILE STYRENE ACRYLITE	LURAN S	CONSOLES, GRILLES
ABS	ACRYLONITRILE BUTADIENE STYRENE	TERLURAN	″A″ PILLARS, CONSOLES, GRILLES
ABS/PC	ABS/PC ALLOY	PULSE, PROLOY, BAYBLEND	DOORS, INSTRUMENT PANELS
ABS/PVC	ABS/PV ALLOY	PROLOY, PULSE, LUSTRAN, CYCLOVIN	DOOR PANELS, GRILLES, TRIM
BMC	BULK MOLDING COMPOUND	BMC	FENDER EXTENSIONS
EMA	EHTYLENE METHYL ACRYLATE/IONOMER	SURLYN, EMA, IONOMER	BUMPER GUARDS, PADS
METTON	METTON	METTON	GRILLES, KICK PANELS, RUNNING BOARDS
MPPO	MODIFIED POLYPHENYLENE OXIDE	MPPO	SPOILER ASSEMBLY
PA	POLYAMID	ZYTEL, VYDYNE, PA, MINLON	FENDERS, QUARTER PANELS
PET	THERMOPLASTIC POLYESTER	RYNITE	TRIM
PBT/PPO	PBT/PPO ALLOY	GERMAX	CLADDINGS
PBTP	POLYBUTYLENE THEREPTHALATE	PBT, PBTP, POCAN, VALOX	WHEEL COVERS, FENDERS, GRILLES
PBTP/EEBC	POLYBUTYLENE THEREPTHALATE/EEBC ALLOY	BEXLOY, ″M″, PBTP/EEBC	FASCIAS, ROCKER PANEL, MOLDINGS
PC	POLYCARBONATE	LEXAN, MERLON, CALIBRE, MAKROLON PC	TAIL LIGHT LENSES, IP TRIM, VALANCE PANELS
PC/ABS	PC/ABS ALLOY	GERMAX, BAY BLENDS, PULSE	DOORS, INSTRUMENT PANELS
PPO	POLYPHENYLENE OXIDE	AZDEL, HOSTALEN, MARLEX, PRFAX, NORYL, GTX, PPO	INTERIOR TRIM, DOOR PANELS, SPLASH SHIELDS, STEERING COLUMN SHROUD
PPO/PA	POLYPHENYLENE/ POLYAMID	PPO/PA, GTX 910	FENDERS, QUARTER PANELS
PR/FV	FIBERGLASS REINFORCED PLASTIC	FIBERGLASS, FV, PR/FV	BODY PANELS
PS	POLYSTYRENE	LUSTREX, STYRON, PS	DOOR PANELS, DASH PANELS
RTM	RESIN TRANSFER MOLDING COMPOUND	RTM	BODY PANELS

BODY (Continued)

CODE	FAMILY NAME	COMMON TRADE NAME	TYPICAL APPLICATION
SMC	SHEET MOLDED COMPOUND	SMC	BODY PANELS
TMC	TRANSFER MOLDING COMPOUND	TMC	GRILLES
UP	UNSATURATED POLYESTER (THERMOSETTING)	SMC, BMC, TMC, ZMC, IMC, XSMC, UP	GRILLE OPENING PANEL, LIFTGATES, FLARESIDE FENDERS, FENDER EXTENSIONS
EEBC	ETHER/ESTER BLOCKED CO-POLYMER	EEBC	BUMPERS
EEBC/PBTP	EEBC/POLYBUTYLENE TEREPTHALATE	EEBC, PBTP, BEXLOY	BUMPER, ROCKER PANELS
EMPP	ETHYLENE MODIFIED POLYPROPYLENE	EMPP	BUMPER COVERS
EPDM	ETHYLENE/ PROPROPYLENE DIENE MONOMER	EPDM, NORDEL, VISTALON	BUMPERS
EPM	ETHYLENE/ PROPROPYLENE CO-POLYMER	EPM	FENDERS
MPU	FOAM POLYURETHANE	MPU	SPOILERS
PE	POLYETHYLENE	ALATHON, DYLAN, LUPOLEN, MARLEX	-
PP	POLYPROPYLENE (BLENDS)	NORYL, AZDEL, MARLOX, DYLON, PRAVEX	INNER FENDER, SPOILERS, KICK PANELS
PP/EPDM	PP/EPDM ALLOY	PP/EPDM	SPOILERS, GRILLES
PUR	POLYURETHANE	COLONELS, PUR, PU	FASCIAS, BUMPERS
PUR/PC	PUR/PC ALLOY	TEXIN	BUMPERS
PVC	POLYVINYL CHLORIDE	APEX, GEON, VINYLITE	BODY MOLDINGS, WIRE INSULATION, STEERING WHEELS
RIM	REACTION INJECTED MOLDED POLYURETHANE	RIM, BAYFLEX	FRONT FASCIAS, MODULAR WINDOWS
RRIM	REINFORCED REACTION INJECTED MOLDED	PUR, RRIM	FASCIAS, BODY PANELS, BODY TRIMS
TPE	THERMO POLYETHYLENE	TPE, HYTREL, BEXLOY-V	FASCIAS, BUMPERS, CLADDINGS
TPO	THERMOPOLYOLEFIN	POLYTROPE, RENFLEX, SANTOPRENE, VISAFLEX, ETA, APEX, TPO, SHIELDS, CLADDINGS	BUMPERS, END CAPS, TELCAR, RUBBER, STRIPS, SIGHT, INTERIOR B POST
TPP	THERMO-POLYPROPYLENE	TPP	BUMPERS
TPU	THERMOPOLYURETHANE, POLYESTER	TPU, HYTREL, TEXIN, ESTANE	BUMPERS, BODY SIDE, MOLDINGS, FENDERS, FASCIAS

BODY (Continued)

PANEL SECTIONING

If it is required to section a large panel for a plastic repair, it will be necessary to reinforce the panel (Fig. 1). To bond two plastic panels together, a reinforcement must overlap both panels. The panels must be "V'd" at a 20 degree angle. The area to be reinforced should be washed, then sanded. Be sure to wipe off any excess soap and water when finished. Lightly sand or abrade the plastic with an abrasive pad or sandpaper. Blow off any dust with compressed air or wipe with a clean dry rag.

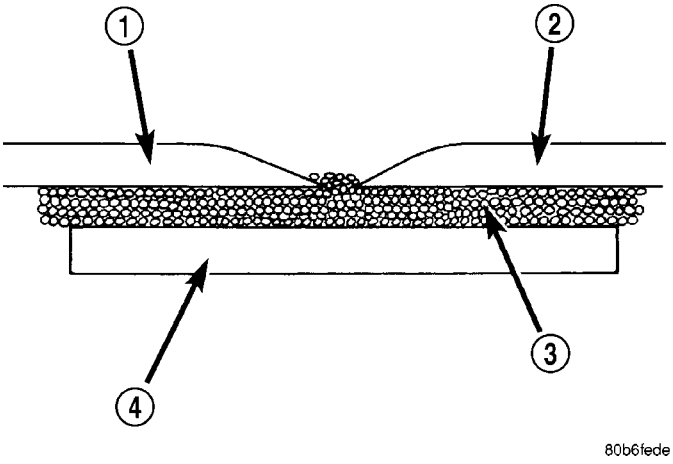


Fig. 1 PANEL SECTIONING

1 - EXISTING PANEL
2 - NEW PANEL
3 - PANEL ADHESIVE
4 - BONDING STRIP

When bonding plastic panels, Follow repair material manufacturers recommendations. Be sure that enough adhesive has been applied to allow squeeze out and to fill the full bond line. Once the pieces have been brought together, do not move them until the adhesive is cured. The assembly can be held together with clamps, rivets, etc. A faster cure can be obtained by heating with a heat lamp or heat gun. After the parts have been bonded and have had time to cure, rough sand the seam and apply the final adhesive filler to the area being repaired. Smooth the filler with a spreader, wooden tongue depressor, or squeegee. For fine texturing, a small amount of water can be applied to the filler surface while smoothing. The cured filler can be sanded as necessary and, as a final step, cleanup can be done with soapy water. Wipe the surface clean with a dry cloth allowing time for the panel to dry before moving on with the repair.

PANEL REINFORCEMENT

Structural repair procedures for rigid panels with large cracks and holes will require a reinforcement backing. Reinforcements can be made with several applications of glass cloth saturated with structural adhesive. Semi-rigid or flexible repair materials should be used for semi-rigid or flexible backing reinforcement (Fig. 2) and (Fig. 3). Open meshed fiberglass dry wall tape can be used to form a reinforcement. The dry wall tape allows the resin to penetrate through and make a good bond between the panel and the adhesive. Structurally, the more dry wall tape used, the stronger the repair.

Another kind of repair that can be done to repair large cracks and holes is to use a scrap piece of similar plastic and bond with structural adhesive. The reinforcement should cover the entire break and should have a generous amount of overlap on either side of the cracked or broken area.

When repairing plastic, the damaged area is first "V'd" out, or beveled. Large bonding areas are desirable when repairing plastic because small repairs are less likely to hold permanently. Beveling the area around a crack at a 20 degree angle will increase the bonding surface for a repair (Fig. 4). It is recommended that sharp edges be avoided because the joint may show through after the panel is refinished.

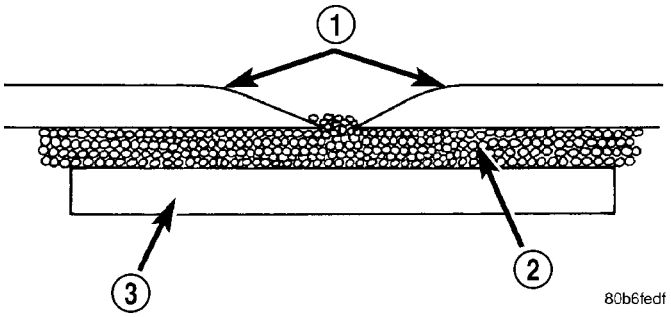


Fig. 2 SOFTENED EDGES

1 - SOFTENED EDGES
2 - PANEL ADHESIVE
3 - BONDING STRIP

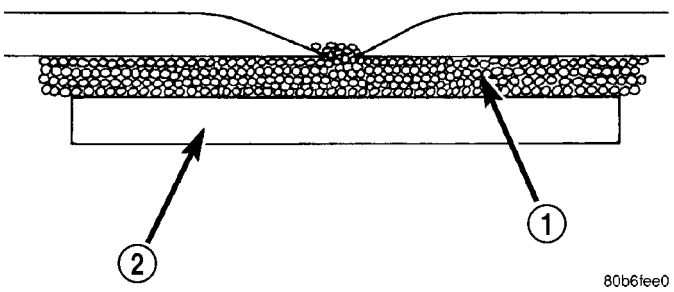


Fig. 3 PANEL REINFORCEMENT

1 - PANEL ADHESIVE
2 - REINFORCEMENT

BODY (Continued)

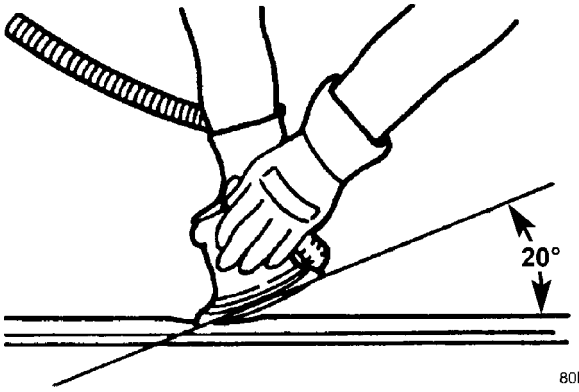


Fig. 4 BEVELING ANGLE - 20 DEGREE

- Panel repair for both flexible and rigid panels are basically the same. The primary difference between flexible panel repair and rigid panel repair is in the adhesive materials used (Fig. 5).
- The technician should first decide what needs to be done when working on any type of body panel. One should determine if it is possible to return the damage part to its original strength and appearance without exceeding the value of the replacement part.
- When plastic repairs are required, it is recommended that the part be left on the vehicle when every possible. That will save time, and the panel will remain stationary during the repair. Misalignment can cause stress in the repair areas and can result in future failure.

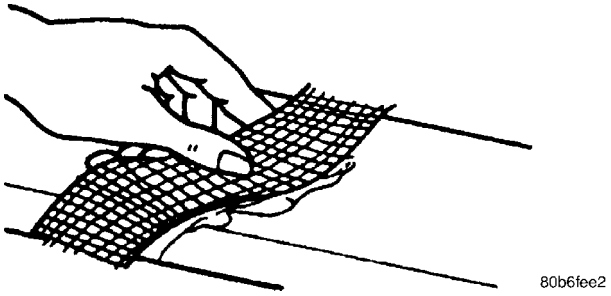


Fig. 5 FIBERGLASS TAPE

VISUAL INSPECTION

Composite materials can mask the severity of an accident. Adhesive bond lines, interior structure of the doors, and steel structures need to be inspected carefully to get a true damage assessment. Close inspection may require partial removal of interior trim or inner panels.

Identify the type of repair: Puncture or Crack - Damage that has penetrated completely through the panel. Damage is confined to one general area; a panel section is not required. However, a backer panel, open fiberglass tape, or matted material must be bonded from behind (Fig. 7) (Fig. 6).

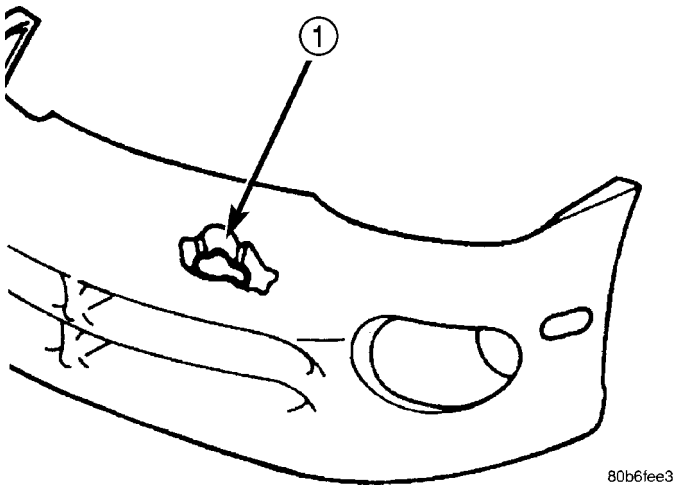


Fig. 6 DAMAGE COMPONENT

1 - PUNCTURE

PANEL SURFACE PREPARATION

If a body panel has been punctured, cracked, or crushed, the damaged area must be removed from the panel to achieve a successful repair. All spider web cracks leading away from a damaged area must be stopped or removed. To stop a running crack in a panel, drill a 6 mm (0.250 in.) hole at the end of the crack farthest away from the damage. If spider web cracks can not be stopped, the panel would require replacement. The surfaces around the damaged area should be stripped of paint and freed from wax and oil. Scuff surfaces around repair area with 360 grit wet/dry sandpaper, or equivalent, to assure adhesion of repair materials.

PATCHING PANELS

An panel that has extensive puncture type damage can be repaired by cutting out the damaged material (Fig. 7). Use a suitable reciprocating saw or cut off wheel to remove the section of the panel that is damaged. The piece cut out can be used as a template to shape the new patch. It is not necessary to have access to the back of the panel to install a patch. Bevel edges of cutout at 20 degrees to expose a larger bonding area on the outer side. This will allow for an increased reinforcement areas.

PANEL PATCH FABRICATIONS

A patch can be fabricated from any rigid fiberglass panel that has comparable contour with the repair area. Lift gates and fenders can be used to supply patch material. If existing material is not available or compatible, a patch can be constructed with adhesive and reinforcement mesh (dry wall tape). Perform the following operation if required:

BODY (Continued)

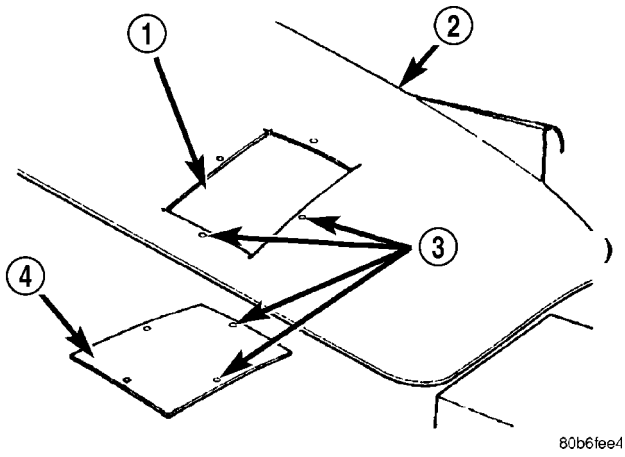


Fig. 7 DAMAGED PANEL CUTOUT AND PATCH

1 - CUTOUT
2 - DAMAGED BODY PANEL
3 - 4 MM (0.160 IN.) HOLES
4 - PATCH CUT TO SIZE

(1) Cover waxed paper or plastic with adhesive backed nylon mesh (dry wall tape) larger than the patch required (Fig. 8).

(2) Tape waxed paper or plastic sheet with mesh to a surface that has a compatible contour to the repair area.

(3) Apply a liberal coat of adhesive over the reinforcement mesh (Fig. 8). If necessary apply a second or third coat of adhesive and mesh after firs coat has cured. The thickness of the patch should be the same as the repair area.

(4) After patch has cured, peel waxed paper or plastic from the back of the patch.

(5) If desired, a thin film coat of adhesive can be applied to the back of the patch to cover mesh for added strength.

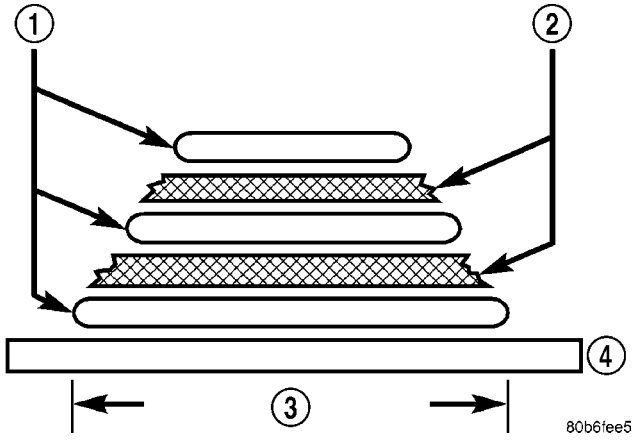


Fig. 8 FABRICATED PANEL

1 - STRUCTURAL ADHESIVE
2 - FIBERGLASS CLOTH OR FIBERGLASS MESH TAPE
3 - WIDTH OF V-GROOVE
4 - WAXED PAPER

PANEL PATCH INSTALLATION

(1) Make a paper or cardboard pattern the size and shape of the cutout hole in the panel.

(2) Trim 3 mm (0.125 in.) from edges of pattern so patch will have a gap between connecting surfaces.

(3) Using the pattern as a guide, cut the patch to size.

(4) Cut scrap pieces of patch material into 50 mm (2 in.) squares to use as patch supports to sustain the patch in the cutout.

(5) Drill 4 mm (0.160 in.) holes 13 mm (0.5 in.) in from edge of cutout hole (Fig. 7).

(6) Drill 4 mm (0.160 in.) holes 13 mm (0.5 in.) away from edge of patch across from holes drilled around cutout.

(7) Drill 3 mm (0.125 in.) holes in the support squares 13 mm (0.5 in.) from the edge in the center of one side.

(8) Scuff the backside of the body panel around the cutout hole with a scuff pad or sandpaper.

(9) Mix enough adhesive to cover one side of all support squares.

(10) Apply adhesive to cover one side of all support squares.

(11) Using number 8 sheet metal screws, secure support squares to back side of body panel with adhesive sandwiched between the panel and squares (Fig. 9).

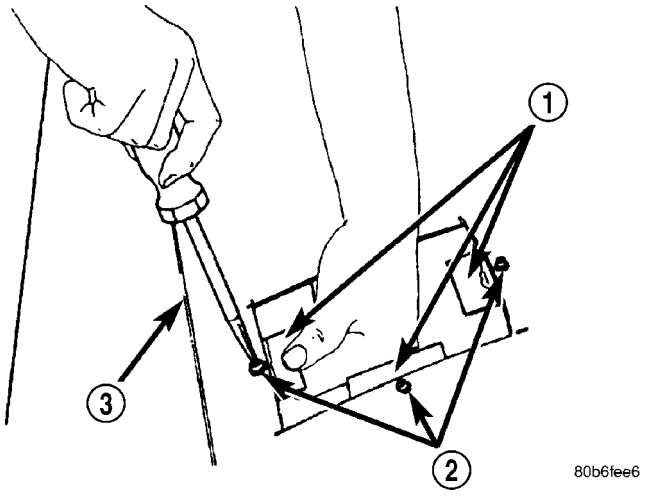


Fig. 9 SECURE SUPPORT SQUARES TO BODY PANEL

1 - SUPPORT SQUARES
2 - SCREWS
3 - DAMAGED BODY PANEL

(12) Position patch in cutout against support squares and adjust patch until the gap is equal along all sides (Fig. 10).

(13) Drill 3 mm (0.125 in.) holes in the support squares through the pre-drilled holes in the patch.

BODY (Continued)

(14) Apply a coat of adhesive to the exposed ends of the support squares (Fig. 11).

(15) Install screws to hold the patch to support squares (Fig. 12). Tighten screws until patch surface is flush with panel surface.

(16) Allow adhesive to cure, and remove all screws.

(17) Using a 125 mm (5 in.) 24 grit disc grinder, grind a 50 mm (2 in.) to 75 mm (3 in.) wide and 2 mm (0.080 in.) deep path across the gaps around the patch (Fig. 13). With compressed air, blow dust from around patch.

(18) Apply adhesive backed nylon mesh (dry wall tape) over gaps around patch (Fig. 14).

(19) Mix enough adhesive to cover the entire patch area.

(20) Apply adhesive over the mesh around patch, and smooth epoxy with a wide spreader to reduce finish grinding. Use two to three layers of mesh and adhesive to create a stronger repair (Fig. 15).

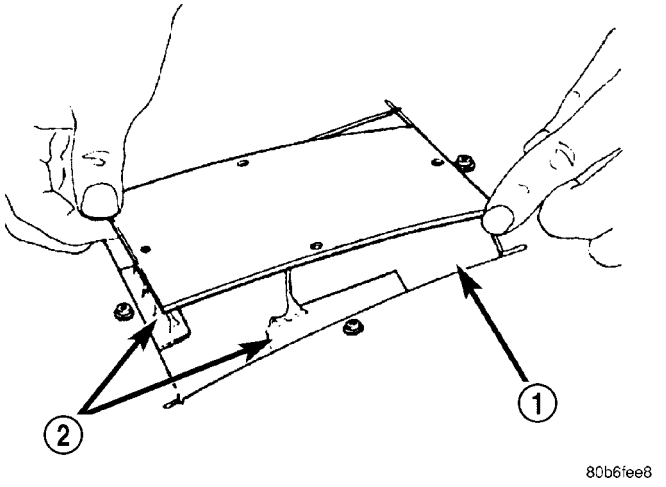


Fig. 10 POSITION PATCH IN CUTOUT AND ALIGN

1 - CUTOUT
2 - SUPPORT SQUARES

PATCHED PANEL SURFACING

After patch panel is installed, the patch area can be finished using the same methods as finishing other types of body panels. If mesh material is exposed in the patched area, grind surface down, and apply a coat of high quality rigid plastic body filler. Prime, block sand, and paint as required.

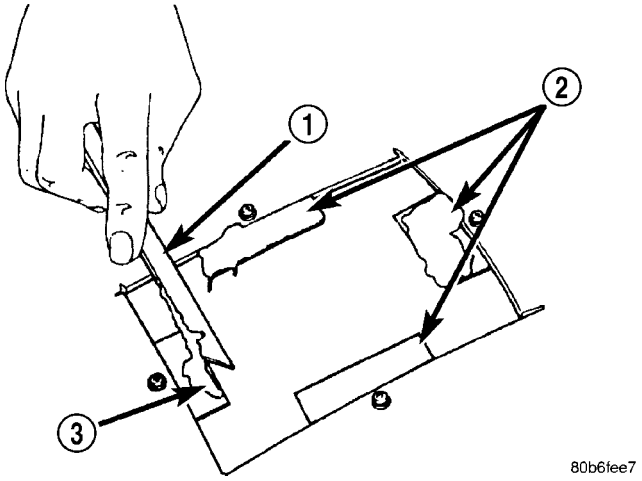


Fig. 11 APPLY ADHESIVE TO SUPPORT SQUARES

1 - APPLICATOR
2 - SUPPORT SQUARES
3 - ADHESIVE

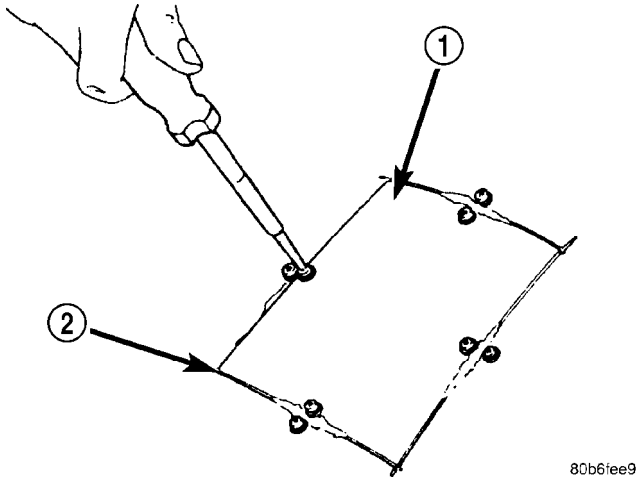


Fig. 12 INSTALL SCREWS

1 - PATCH
2 - GAP

BODY (Continued)

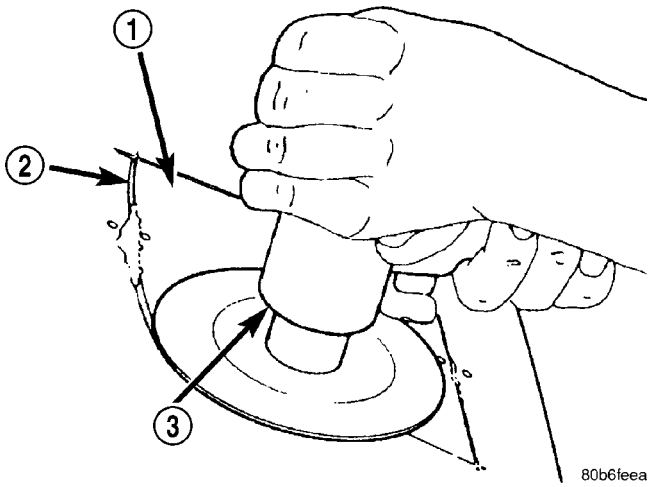


Fig. 13 GRIND SURFACE

1 - PATCH
2 - GAP
3 - DISC GRINDER

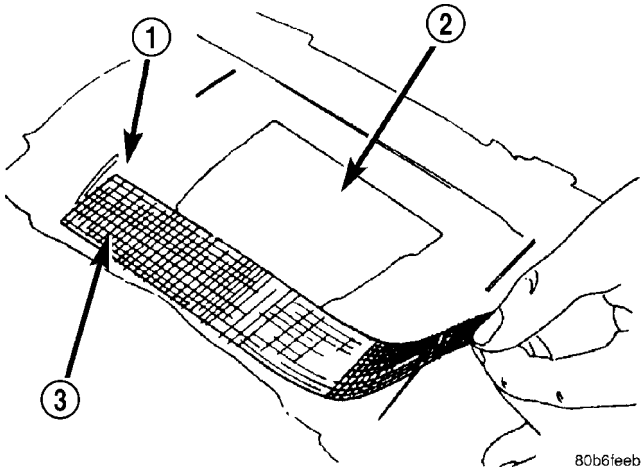


Fig. 14 COVER GAPS WITH MESH

1 - GROUND DOWN AREA
2 - PATCH
3 - MESH

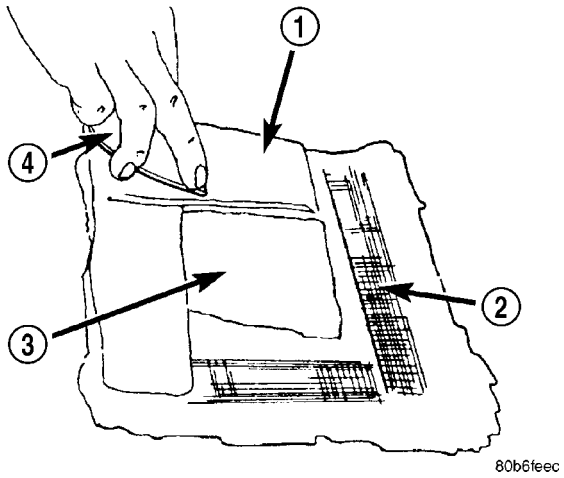


Fig. 15 COVER MESH WITH ADHESIVE

1 - ADHESIVE
2 - MESH
3 - PATCH
4 - SPREADER

STANDARD PROCEDURE - BUZZ, SQUEAK & RATTLE

Buzz, Squeak & Rattles (BSR) may be caused by any one or more of the following and may be corrected as indicated:

- Loose fasteners should be tightened to specifications.
- Damaged or missing clips should be replaced.
- Damaged trim panels should be replaced.
- Incorrectly installed trim panels should be reinstalled properly.

Many BSR complaints such as loose trim, can be serviced using the Mopar® Parts BSR Noise Reduction Kit. This kit contains various tapes including foam, flock and anti-squeak used to eliminate noises caused by metal, plastic and vinyl components. Long life lubricants and greases can also be used on a variety of components. Refer to the Buzz, Squeak & Rattle Kit table for material contents and usage.

BODY (Continued)

BUZZ, SQUEAK & RATTLE KIT

ITEM	FEATURES	APPLICATIONS	SERVICE TEMP
Itch And Squeak Tape	An abrasion resistant material thin enough to conform to most irregular surfaces. Stops most itches and squeaks.	Between metal and metal, metal and plastic, metal and vinyl, vinyl and plastic. Interior. Examples: Trim panels and bezels.	-40° to 225° Fahrenheit (-40° to 107° Celsius)
Black Nylon Flock	Nylon Flock with an aggressive acrylic adhesive. Provides for cushioning and compression fit, also isolates components. Water-resistant.	Between metal and metal, metal and plastic, vinyl and plastic. Examples: Pull cups, bezels, clips, ducts, top cover to glass, cowl panel.	-40° to 180° Fahrenheit (-40° to 82° Celsius)
High Density Urethane Foam	Tear resistant, highly resilient and durable.	Between metal and metal, metal and plastic. Water-resistant. Examples: I/P, heavy metal rattles, isolating brackets.	-40° to 180° Fahrenheit (-40° to 82° Celsius)
Open Cell Foam Tape	Soft foam conforms to irregular surfaces.	Wire harness and connector wrap. Examples: Seals, gasket, wiring, heat ducts.	-40° to 180° Fahrenheit (-40° to 82° Celsius)
Closed Cell Low Density Foam Tape	Soft, conformable. Water-resistant.	Wherever bulk is needed. Prevents closing flutters and rattles when applied to door watershield. Examples: Door, I/P.	-40° to 180° Fahrenheit (-40° to 82° Celsius)
NYE® Grease 880	Long life.	Suspensions. Examples: Strut busings, sway bars.	-40° to 390° Fahrenheit (-40° to 200° Celsius)
Krytox® Oil	Long life. Will not dry out or harm plastics or rubber.	When access is not possible, oil will migrate to condition. Vinyl, rubber, plastic, metal. Examples: Convertible top bushings, pull cups trim panel inserts.	-30° to 400° Fahrenheit (-34° to 205° Celsius)
Krytox® Grease	Long life. Will not dry out or harm plastics or rubber.	Vinyl, rubber, plastic, metal, glass. Examples: Weather-strips, backlite and windshield moldings.	-30° to 400° Fahrenheit (-34° to 205° Celsius)

BODY (Continued)

SPECIFICATIONS

SPECIFICATIONS - TORQUE

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
BUCKET SEAT BACK FRAME RECLINER BOLTS TO SEAT CUSHION FRAME	28	20	—
BUCKET SEAT RECLINER TO SEAT BACK FRAME BOLTS	28	20	—
BUCKET SEAT TRACK ADJUSTER NUTS TO SEAT CUSHION FRAME	28	20	—
FRONT BUCKET SEAT TO FLOOR PAN BOLTS	40	30	—
FRONT BUCKET SEAT TO FLOOR PAN FRONT BOLTS	40	30	—
FRONT DOOR HINGE BOLTS	35	26	—
FRONT DOOR LATCH TO DOOR SCREWS	10	—	89
FRONT DOOR STRIKER TO B-PILLAR	28	20	—
HOOD LATCH TO RADIATOR CROSSMEMBER	11	8	—
LIFT GATE LATCH STRIKER TO D-PILLAR NUTS	10	—	89
REAR DOOR LATCH TO DOOR SCREWS	10	—	89
REAR DOOR STRIKER TO C-PILLAR SCREWS	28	20	—
REAR SEAT BACK LATCH/HINGE TO SEAT BACK FRAME	28	20	—
REAR SEAT BACK LEFT SIDE SUPPORT BRACKET TO CENTER PIVOT BRACKET	28	20	—
REAR SEAT BACK RIGHT SIDE SUPPORT BRACKET	28	20	—
REAR SEAT CUSHION LATCH BASE PANEL SCREWS	8	—	75
REAR SEAT CUSHION TO FLOOR PAN BOLTS	11	8	—
SUNROOF MODULE TO ROOF PANEL NUTS	11	8	—

BODY LUBRICANTS

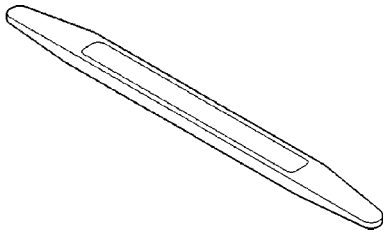
COMPONENT	SERVICE INTERVAL	LUBRICANT
Door Hinges	As Required	Multi-Purpose Grease NLGI GC-LB (Water Resistant) (1)
Door Latches	As Required	Multi-Purpose Grease NLGI GC-LB (Water Resistant) (1)
Hood Latch, Release Mechanism and Safety Latch	As Required (When Performing Other Underhood Service)	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Hood Hinges	As Required	Engine Oil
Seat Track and Release Mechanism	As Required	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Liftgate Hinge	As Required	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Liftgate Support Arms	As Required	Engine Oil
Liftgate Latches	As Required	White Spray Lubricant (3)

BODY (Continued)

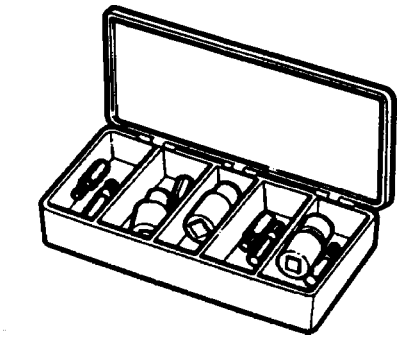
COMPONENT	SERVICE INTERVAL	LUBRICANT
Liftgate Release Handle (Pivot and Slide Contact Surfaces)	As Required	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Window System Components	As Required	White Spray Lubricant (3)
Lock Cylinders	Twice a Year	Lock-Cylinder Lubricant (4)
Parking Brake Mechanism	As Required	Multi-Purpose Grease NLGI GC-LB 2 EP (1)
1 = Mopar Wheel Bearing Grease (High Temp) 2 = Mopar Multi-Mileage Lubricant 3 = Mopar Spray White Lube 4 = Mopar Lock Cylinder Lubricant		

SPECIAL TOOLS

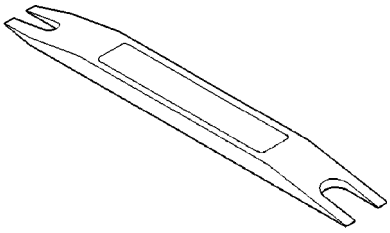
BODY



Trim Stick C-4755



Torx Bit Set C-4794-B



Molding Remover C-4829

LIFTGATE

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LIFTGATE

DIAGNOSIS AND TESTING - LIFTGATE

When the liftgate fails to open as designed, the possible causes may be one of more of the following:

POSSIBLE CAUSES	CORRECTION
The liftgate may be out of adjustment.	(Refer to 23 - BODY/LIFTGATE/LIFTGATE - ADJUSTMENTS)
The liftgate latch striker(s) may be worn or out of adjustment.	Replace the striker. (Refer to 23 - BODY/LIFTGATE/ LATCH STRIKER - REMOVAL) Adjust the striker.
The liftgate guide plate(s) may be worn or out of adjustment.	Replace the guide plates. (Refer to 23 - BODY/ LIFTGATE/ALIGNMENT GUIDE PLATE - REMOVAL) Adjust the guide plate.
One or both of the latches may be worn or do not operate smoothly.	Replace the latch. (Refer to 23 - BODY/LIFTGATE/ LATCH - REMOVAL)
The liftgate latch actuator (power lock motor) is inoperative.	Replace the actuator. (Refer to 8 - ELECTRICAL/ POWER LOCKS/LIFTGATE LOCK MOTOR)

LIFTGATE (Continued)

POSSIBLE CAUSES	CORRECTION
The latch rod between the outside latch handle and the latch control assembly is loose or out of adjustment.	Replace the rod clips. (Refer to 23 - BODY/LIFTGATE/LATCH - CONTROL ASSEMBLY - REMOVAL) Adjust the latch control assembly rod. (Refer to 23 - BODY/LIFTGATE/LATCH - CONTROL ASSEMBLY - ADJUSTMENTS)
One or both latch cables is either loose, binding, stretched, or out of adjustment.	Replace the cable(s). (Refer to 23 - BODY/LIFTGATE/LATCH - CABLES - REMOVAL) Adjust the latch cables. (Refer to 23 - BODY/LIFTGATE/LATCH - CABLES - ADJUSTMENTS)

EXTERIOR HANDLE

REMOVAL

(1) Remove the insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE INSULATOR PAD - REMOVAL)

(2) Open the actuator rod clip and disconnect the actuator rod. (Fig. 1)

(3) Remove the nuts attaching the handle to the liftgate and remove the handle.

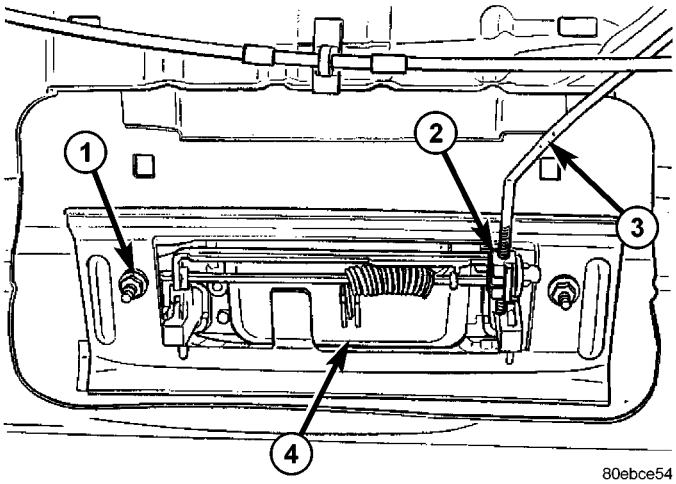


Fig. 1 EXTERIOR HANDLE

1 - NUTS (2)
2 - ACTUATOR ROD CLIP
3 - ACTUATOR ROD
4 - EXTERIOR HANDLE

INSTALLATION

(1) Position the exterior handle on the liftgate.

(2) Install the nuts attaching exterior handle to liftgate and tighten to 9 N·m (80 in. lbs.).

(3) Connect exterior handle link and adjust. (Refer to 23 - BODY/LIFTGATE/LATCH CONTROL ASSEMBLY - ADJUSTMENTS)

(4) Install the liftgate insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE INSULATOR PAD - INSTALLATION)

FLIP-UP GLASS

REMOVAL

CAUTION: Do not disconnect the flip-up glass hinges with the liftgate flip up glass closed. The prop rod pistons are operated by high pressure gas. This pressure could cause damage and/or personal injury if they are removed while the pistons are compressed.

(1) Using a trim stick C-4755 or equivalent, separate the glass hinge cover from the hinge on the liftgate (Fig. 2).

(2) Open and support the liftgate glass.

(3) Using a trim stick C-4755 or equivalent, gently pry open the locking caps on the end of the prop rods.

(4) Remove prop rod cylinders from ball studs.

(5) Lower the glass.

(6) Remove the bolts that secure the glass hinges to the liftgate and remove the glass.

INSTALLATION

(1) Position the glass on liftgate.

(2) Install hinge bolts and hand tighten.

(3) With the glass panel in the fully open position, push the glass forward to completely seat the hinges and tighten the bolts to 7 N·m (60 in. lbs.).

(4) Install prop rods on ball studs and compress locking caps to lock rods on ball studs.

(5) Lower the glass and install the hinge covers.

(6) Check the flip up glass for proper alignment and latching.

FLIP-UP GLASS (Continued)

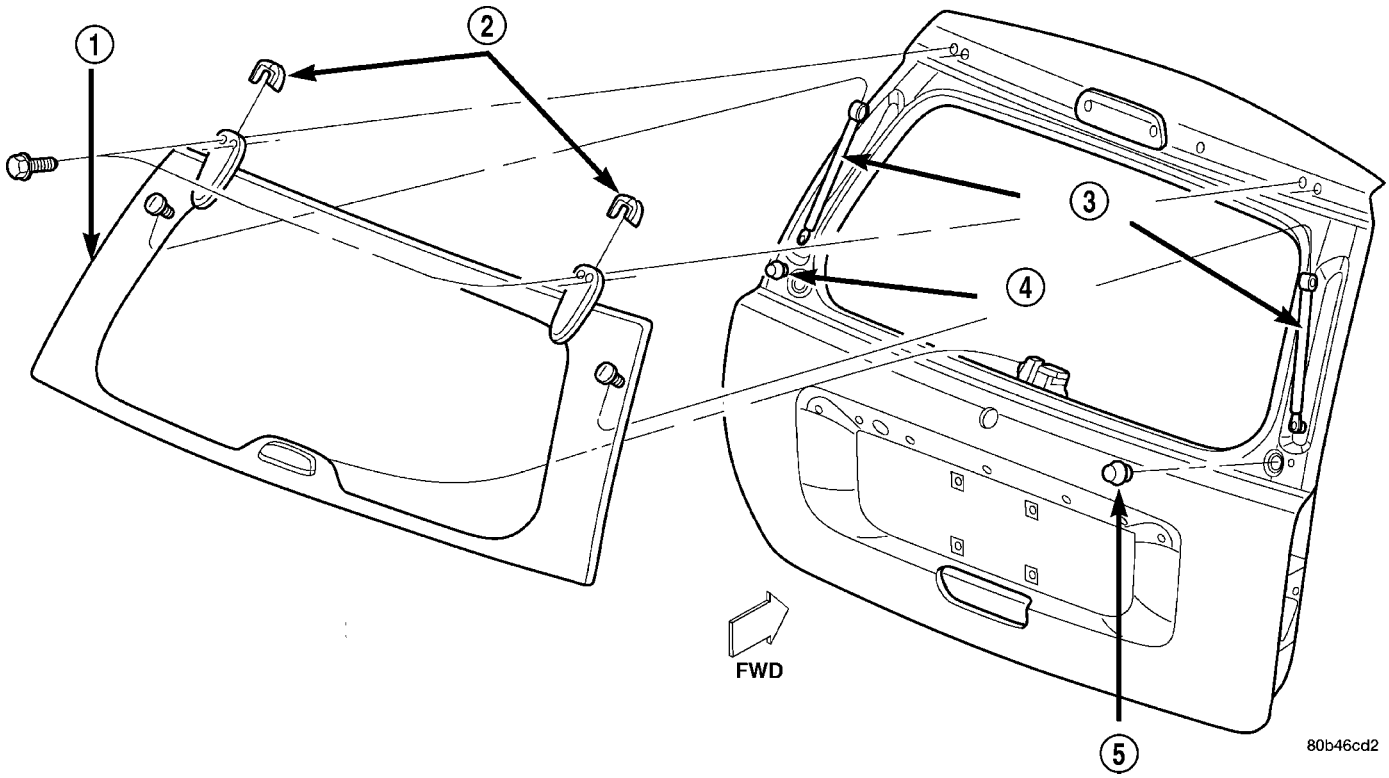


Fig. 2 FLIP-UP GLASS

1 - FLIP-UP GLASS
2 - HINGE COVER
3 - SUPPORT PROP
4 - BUMPER
5 - BUMPER

FLIP-UP GLASS LATCH

REMOVAL

(1) Open liftgate glass.
(2) Remove the trim panel (Refer to 23 - BODY/ LIFTGATE/TRIM PANEL - REMOVAL).
(3) Remove the nuts and remove the latch. (Fig. 3)
(4) Disconnect switch electrtical connectors.
(5) Remove latch from liftgate.

INSTALLATION

(1) Position the latch on the liftgate (Fig. 3).
(2) Connect switch electrical connectors.
(3) Adjust latch to the proper position, and tighten the nuts to 12 N·m (9 ft. lbs.).
(4) Close the glass and verify proper operation.
(5) Install the trim panel. (Refer to 23 - BODY/ LIFTGATE/TRIM PANEL - INSTALLATION)

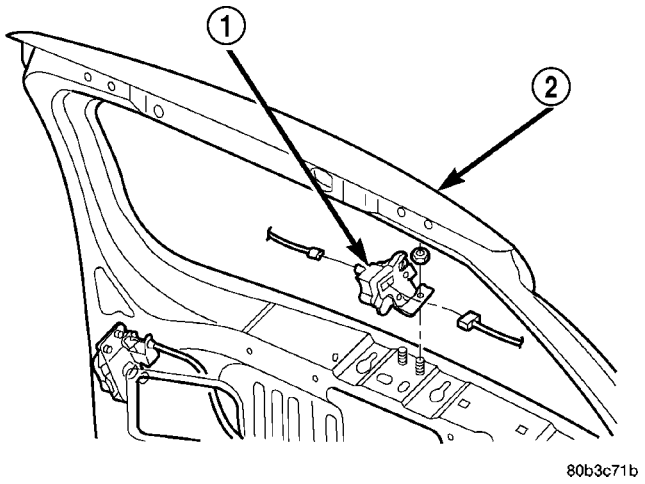


Fig. 3 FLIP-UP GLASS LATCH

1 - LATCH
2 - LIFTGATE

FLIP-UP GLASS LATCH STRIKER

REMOVAL

(1) Raise the flip up glass.
(2) Using a grease pencil or equivalent, mark the position of the handle/striker on the glass.
(3) Remove the screws attaching the handle/striker to the glass.

INSTALLATION

(1) Position the handle/striker on the glass panel and align the reference marks.
(2) Install the screws attaching the handle/striker to the glass panel and tighten to 7 N·m (60 in. lbs.).

FLIP-UP GLASS SWITCH

REMOVAL

(1) Remove license plate lamp housing/trim panel from liftgate.(Refer to 8 - ELECTRICAL/LAMPS/ LIGHTING - EXTERIOR/LICENSE PLATE LAMP UNIT - REMOVAL)
(2) Squeeze the locking tabs inward to release the switch from the housing.
(3) Disconnect the switch harness connector, remove the switch from the housing.

INSTALLATION

(1) Connect the switch harness electrical connector.
(2) Position switch in housing, snap switch into place.
(3) Install license plate lamp housing/trim panel onto liftgate. (Refer to 8 - ELECTRICAL/LAMPS/ LIGHTING - EXTERIOR/LICENSE PLATE LAMP UNIT - INSTALLATION)

HINGE

REMOVAL

NOTE: It is not necessary to remove the liftgate to replace one or both hinges. The hinges can be replaced one at a time.

(1) Open and support the liftgate.
(2) Remove the upper liftgate opening trim panel. (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - REMOVAL)
(3) Using a grease pencil or equivalent, mark the hinge location.
(4) Remove the hinge screws and remove the hinge. (Fig. 4) and (Fig. 5)

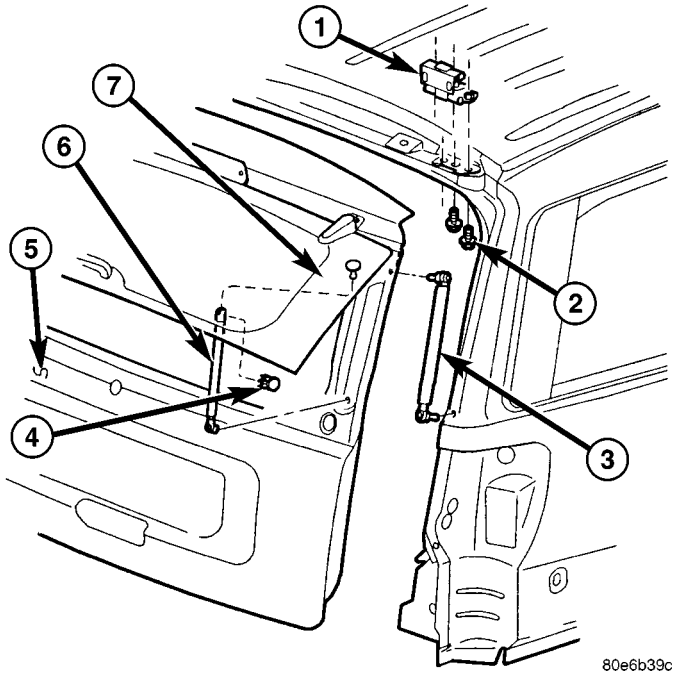


Fig. 4 HINGE

1 - LIFTGATE HINGE
2 - HINGE TO HEADER BOLTS (3 PER SIDE)
3 - LIFTGATE SUPPORT CYLINDER
4 - FLIP-UP GLASS SUPPORT CYLINDER LOCK CAP
5 - LIFTGATE
6 - FLIP-UP GLASS SUPPORT CYLINDER
7 - FLIP-UP GLASS

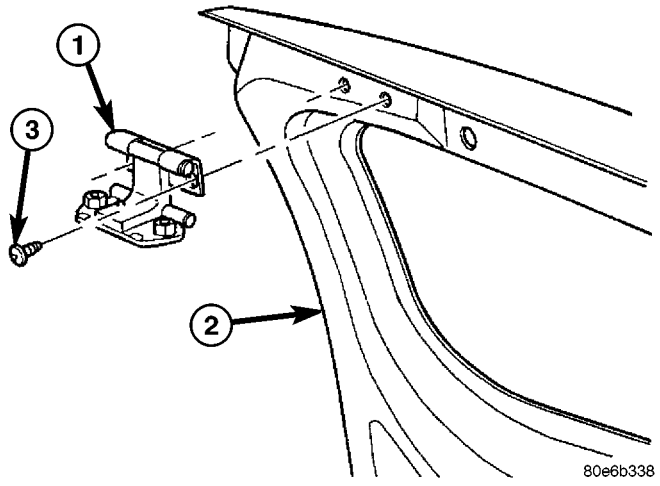


Fig. 5 LIFTGATE HINGE

1 - HINGE
2 - LIFTGATE
3 - SCREWS (2)

HINGE (Continued)

INSTALLATION

NOTE: It is not necessary to remove the liftgate to replace one or both hinges. The hinges can be replaced one at a time.

NOTE: Use a suitable body sealer on the hinge to body mating surfaces prior to installation.

(1) Position the hinge on the roof panel and on the liftgate.
(2) Install and tighten hinge screws at roof panel to 28 N·m (21 ft. lbs.).
(3) Install hinge screws at liftgate and tighten to 28 N·m (21 ft. lbs.).
(4) Install the upper liftgate opening trim panel. (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - INSTALLATION)
(5) Check the liftgate for proper alignment and operation. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)
(6) Check for water leaks at hinge to body screws.

LATCH/GUIDE PLATE

REMOVAL

(1) Remove the liftgate insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE INSULATOR PAD - REMOVAL)
(2) Remove the three bolts attaching the latch and guide plate to the liftgate. (Fig. 6)
(3) Remove the latch.
(4) Squeeze the cable retainer clips and remove the cable housing from the latch assembly. (Fig. 7)
(5) Disconnect the latch cable from the latch lever and remove the cable.

INSTALLATION

(1) Connect the latch cable to the latch and install the latch.
(2) Install the guide plate and install the bolts.
(3) Tighten the bolts to 16 N·m (12 ft. lbs.).
(4) Verify liftgate latches are timed correctly. (Refer to 23 - BODY/LIFTGATE/LATCH - ADJUSTMENTS)
(5) Install the insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE INSULATOR PAD - INSTALLATION)

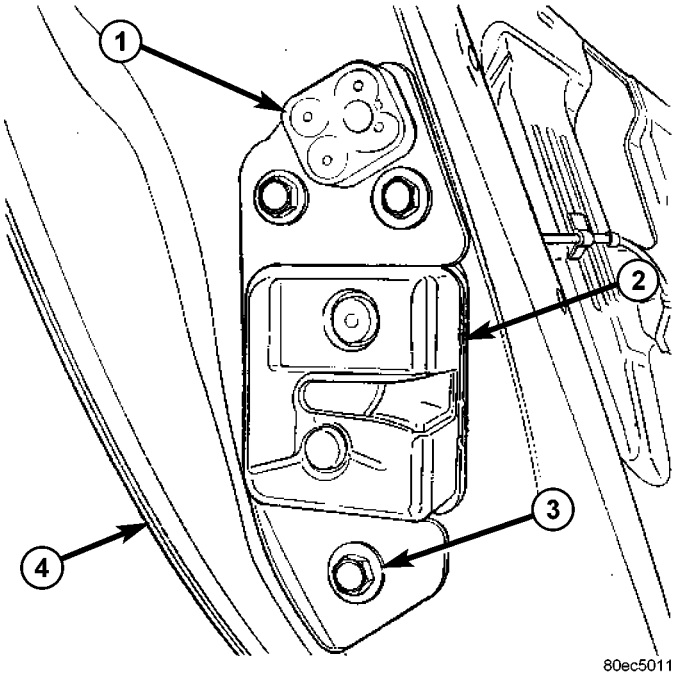


Fig. 6 LATCH

1 - LATCH GUIDE PLATE
2 - LATCH
3 - BOLTS (3)
4 - LIFTGATE

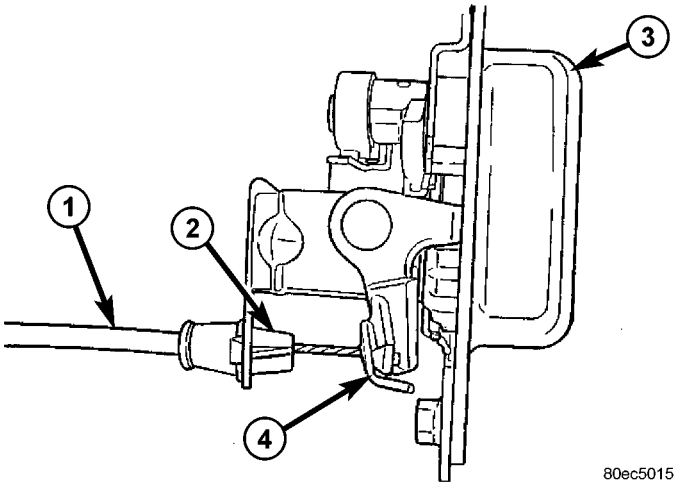


Fig. 7 LATCH/CABLE CONNECTION

1 - LATCH CABLE
2 - RETAINER CLIP
3 - LATCH ASSEMBLY
4 - LATCH LEVER

LATCH STRIKER

REMOVAL

(1) Open liftgate.
(2) Remove bolts attaching striker to d-pillar (Fig. 8).
(3) Separate striker from d-pillar.

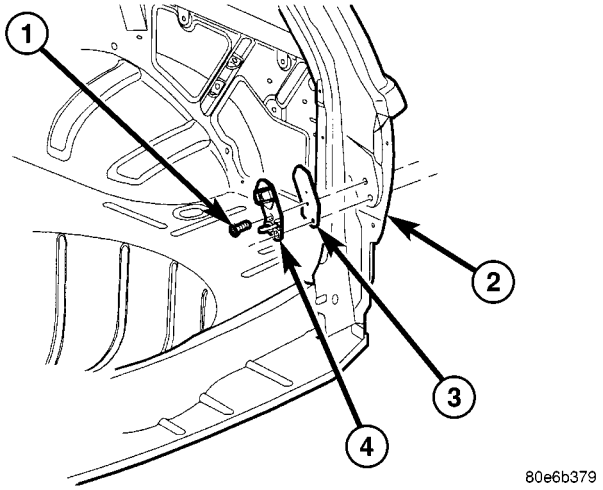


Fig. 8 LATCH STRIKER

1 - BOLTS (2 PER SIDE)
2 - D-PILLAR
3 - STRIKER SHIM (IF EQUIPPED)
4 - STRIKER

INSTALLATION

(1) Position the striker on the d-pillar.
(2) Install the bolts attaching the striker to the d-pillar and tighten to 28 N·m (20 ft. lbs.) (Fig. 8).
(3) Install the tail lamp (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/TAIL LAMP - INSTALLATION).
(4) Verify the striker wedge and latch guide plate are correctly aligned and striker is positioned in the center of the latch fishmouth opening. (Fig. 6)

LIFTGATE

REMOVAL

CAUTION: Do not disconnect the support rod cylinders with the liftgate closed. The support rod pistons are operated by high pressure gas. This pressure could cause damage and /or personal injury if they are removed while the pistons are compressed.

(1) Open and support the liftgate.
(2) Remove the trim panel. (Refer to 23 - BODY/LIFTGATE/TRIM PANEL - REMOVAL)
(3) Remove the prop rods from the liftgate.
(4) Disconnect the wire harnesses and the washer hose.
(5) Using a grease pencil or equivalent, mark the hinge location.
(6) Remove the liftgate to hinge screws and remove liftgate from vehicle. (Fig. 9)

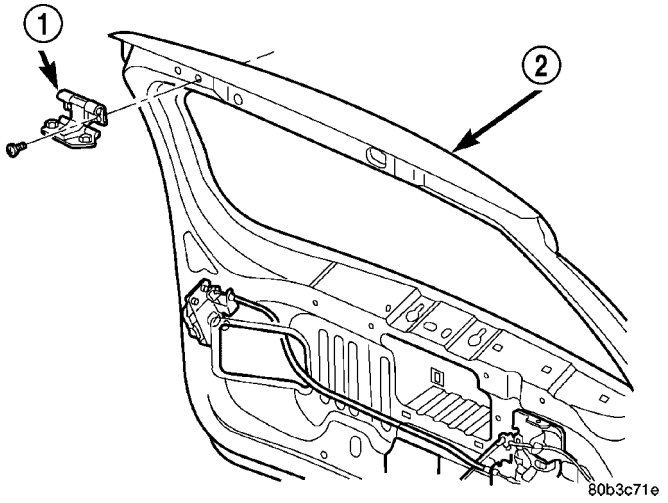


Fig. 9 LIFTGATE

1 - HINGE
2 - LIFTGATE

INSTALLATION

(1) Position the liftgate on the vehicle and align the witness marks.
(2) Install the hinge screws at liftgate and tighten to 28 N·m (20 ft. lbs.).
(3) Connect the wire harnesses and the washer hose.
(4) Install the trim panel. (Refer to 23 - BODY/LIFTGATE/TRIM PANEL - INSTALLATION)
(5) Install the prop rods.
(6) Close the liftgate and check for proper latching and alignment. Adjust as necessary. (Refer to 23 - BODY/LIFTGATE/LIFTGATE - ADJUSTMENTS)

ADJUSTMENTS

NOTE: The position of the liftgate can be adjusted upward or downward by the use of slots in the hinge. An inward or outward adjustment is achieved by use of slots in the body. If an inward or outward adjustment is needed, use a body sealer on the hinge to body mating surface.

LIFTGATE (Continued)

In/out

(1) Remove the upper liftgate trim. (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - REMOVAL)

(2) For the upper lift gate adjustments, loosen the hinge to header bolts and adjust to specifications (Fig. 4). (Refer to 23 - BODY/BODY STRUCTURE/ GAP AND FLUSH - SPECIFICATIONS)

(3) Tighten the hinge bolts to 28 N·m (20 ft. lbs.).

(4) For the lower lift gate adjustments, loosen the striker screws and adjust to specifications (Fig. 8). (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

(5) Tighten the striker screws to 28 N·m (20 ft. lbs.).

(6) Install the upper liftgate opening trim. (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - INSTALLATION)

Up/Down and Left/Right

(1) Loosen the hinge to liftgate bolts (Fig. 9).

(2) Loosen the striker screws (Fig. 8).

(3) Adjust the liftgate up/down position and tighten the hinge bolts to 28 N·m (20 ft. lbs.). (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

(4) Confirm the lower liftgate in/out position and tighten the striker screws to 10 N·m (85 in. lbs.).

TRIM PANEL

REMOVAL

NOTE: The liftgate trim panel is attached with screws and clips.

(1) Raise the liftgate.

(2) Remove the screws securing the liftgate trim panel to the liftgate (Fig. 10).

(3) Disconnect the rear window defroster wires.

(4) Using a trim stick C-4755 or equivalent, pry the liftgate trim panel off the liftgate.

INSTALLATION

NOTE: The liftgate trim panel is attached with screws and clips.

(1) Align the liftgate trim panel spring clips and press the panel into the liftgate.

(2) Install the trim panel screws.

(3) Connect the rear defroster wires.

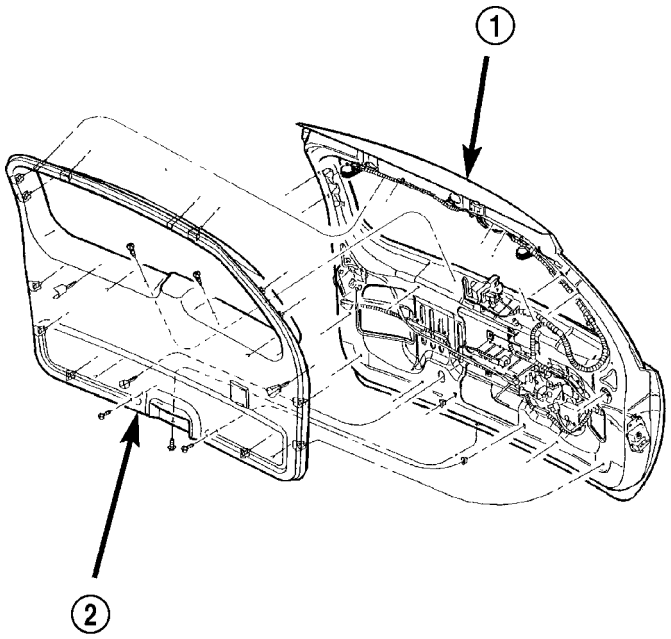


Fig. 10 LIFTGATE TRIM PANEL

1 - LIFTGATE
2 - LIFTGATE TRIM PANEL

LIFTGATE INSUALTOR PAD

REMOVAL

(1) Remove the trim panel. (Refer to 23 - BODY/ LIFTGATE/TRIM PANEL - REMOVAL)

(2) Separate the liftgate insulator from the liftgate and trim panel (Fig. 11).

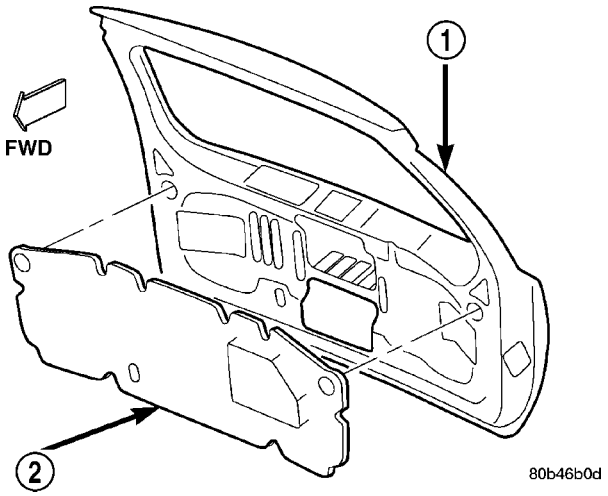


Fig. 11 LIFTGATE INSULATOR PAD

1 - LIFTGATE
2 - INSULATION PAD

LIFTGATE INSULATOR PAD (Continued)

INSTALLATION

(1) Thoroughly clean the area of any adhesive or insulation material.

(2) Install the insulator in the liftgate.

(3) Install the trim panel. (Refer to 23 - BODY/LIFTGATE/TRIM PANEL - INSTALLATION)

LATCH - CONTROL ASSEMBLY

REMOVAL

(1) Remove the liftgate insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE INSULATOR PAD - REMOVAL)

(2) Disconnect the electrical connector.

(3) Disconnect the outside handle link from the latch. (Fig. 12)

(4) Open the plastic retention clips and seperate the latch cables from the control assembly.

(5) Remove the three bolts and remove the control assembly. (Fig. 13)

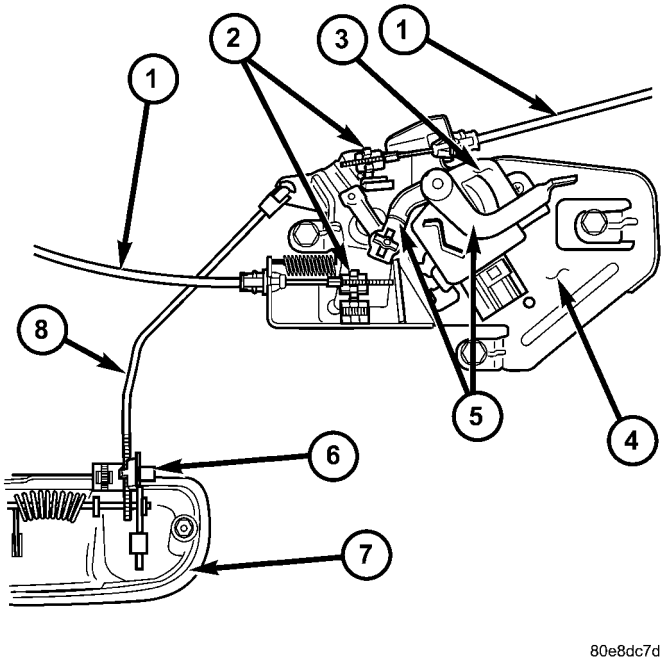


Fig. 12 LATCH CONTROL ASSEMBLY & HANDLE

1 - LATCH CABLES (ADJUSTABLE)
2 - LATCH CABLE PLASTIC RETENTION CLIPS (CLIP SHOWN WITH COVER OPEN)
3 - LATCH ACTUATOR/POWER LOCK MOTOR (CAN BE SERVICE SEPARATELY)
4 - LATCH CONTROL ASSEMBLY METAL BRACKET
5 - MANUAL LOCK/UNLOCK LEVER MECHANISM
6 - LATCH ROD PLASTIC RETENTION CLIP (CLIP SHOWN WITH OPEN COVER)
7 - OUTSIDE LIFTGATE LATCH HANDLE (REAR VIEW)
8 - LATCH ROD (ADJUSTABLE)

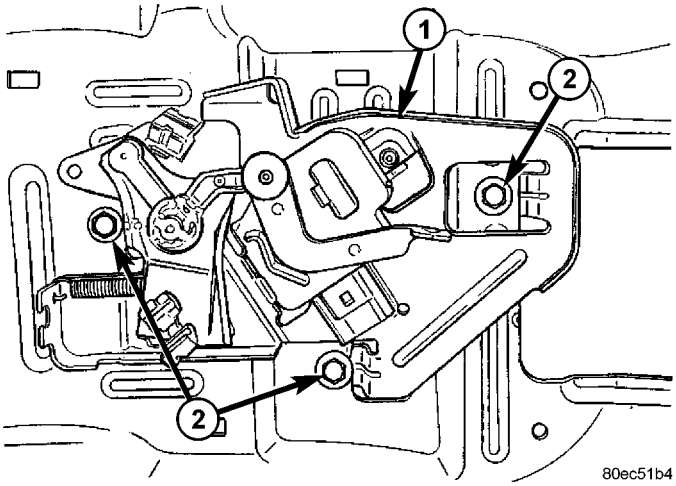


Fig. 13 LATCH FASTENERS

1 - LATCH CONTROL ASSEMBLY
2 - BOLTS (3)

INSTALLATION

(1) Install the control assembly.

(2) Install the three bolts and tighten to 10 N·m (90 in. lbs.).

(3) Connect the outside handle link.

(4) Connect the latch cables.

(5) Connect the electrical connector.

(6) Adjust the outside handle. (Refer to 23 - BODY/LIFTGATE/LATCH - CONTROL ASSEMBLY - ADJUSTMENTS)

(7) Adjust the latch cables. (Refer to 23 - BODY/LIFTGATE/LATCH - CABLE - ADJUSTMENTS)

(8) Install the liftgate insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE - INSULATOR PAD - INSTALLATION)

ADJUSTMENTS

ADJUSTMENT

(1) Remove the insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE - INSULATOR PAD - REMOVAL)

(2) With the liftgate closed, slowly open the liftgate using the outside handle.

(3) Determine if excessive handle travel is required to unlatch the liftgate. If so, adjustment to the latch rod may be required.

(4) Open the liftgate.

(5) Open the plastic latch rod retention clip on the outside handle and disconnect the latch rod from the outside handle. (Fig. 12)

(6) Verify that the latch control assembly is in its fully returned position.

NOTE: Do not pre-load the latch rod when attaching.

LATCH - CONTROL ASSEMBLY (Continued)

(7) Attach the threaded end of the latch rod to the open retention clip. Make sure all excess play has been removed between the outside liftgate handle and the latch assembly.

(8) Fully close the plastic retention clip.

(9) Cycle the outside handle and verify smooth operation.

(10) Install the insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE - INSULATOR PAD - INSTALLATION)

LATCH - CABLES

REMOVAL

(1) Remove the latch. (Refer to 23 - BODY/LIFTGATE/LATCH/GUIDE PLATE - REMOVAL)

(2) Open the cable plastic retention clip. (Fig. 12)

(3) Seperate the cable from the control assembly. (Fig. 12)

(4) Release the support clips, if equipped, and remove the cable.

INSTALLATION

(1) Install the cable and attach it to the latch.

(2) Connect the cable to the control assembly and secure the retainer clips.

(3) Attach the support clips if equipped.

(4) Install the latch. (Refer to 23 - BODY/LIFTGATE/LATCH/GUIDE PLATE - INSTALLATION)

(5) Adjust the cables. (Refer to 23 - BODY/LIFTGATE/LATCH - CABLES - ADJUSTMENTS)

ADJUSTMENTS

ADJUSTMENT

(1) Remove the trim panel. (Refer to 23 - BODY/LIFTGATE/TRIM PANEL - REMOVAL)

(2) With the liftgate closed, slowly open the liftgate using the outside handle.

(3) Determine if one of more of the following occurs:

- Excessive handle travel is required to unlatch the liftgate.
- Only one side of the liftgate will unlatch.
- As one side of the liftgate unlatches, more than 2 mm (0.08 in.) of additional outside handle travel is required to unlatch the other side (latches are not synchronized/timed).

NOTE: Do not close the liftgate during the adjustment procedure.

(4) To adjust the latch cables, open the liftgate.

(5) Open the plastic latch rod retention clip on the outside handle and disconnect the latch rod from the outside handle. (Fig. 12)

(6) Open both latch cable retention clips and remove the threaded end of the cable from each clip.

(7) Verify that the latch control assembly is in its fully returned position.

(8) Verify that both latch cables slide smoothly and do not bind.

NOTE: The latches must be in their fully closed position to properly adjust the latch cables. The following step is necessary to remove excess cable play at the latch end of the cable.

(9) Using a suitable tool, fully latch (close) both liftgate latches.

(10) Gently pull on the latch cable threaded end to remove any excess play in the cable.

(11) Remove the excess play from the other latch cable and seat both cable threaded ends into their respective opened retention clips.

NOTE: Apply a small bead of RTV to both open cable retention clips and threaded cable ends to prevent the threaded ends from rotating within the retention clips.

(12) Close both cable retention clips. Verify complete clip closure.

(13) Adjust the outside handle rod. (Refer to 23 - BODY/LIFTGATE/LATCH - ADJUSTMENTS)

(14) While the liftgate is open and the latch control assembly is still uncovered, slowly open the outside latch handle to unlatch both side latches. Verify both latches unlatch.

(15) Cycle the liftgate closed and open to verify correct operation of the liftgate latch system.

(16) Install the insulator pad. (Refer to 23 - BODY/LIFTGATE/LIFTGATE INSULATOR PAD - INSTALLATION)

DOOR - FRONT

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CHECK STRAP

REMOVAL

(1) Remove the waterdam. (Refer to 23 - BODY/DOOR - FRONT/WATERDAM - REMOVAL)
(2) Remove screws attaching door check to A-pillar.
(3) Remove nuts attaching door check to door (Fig. 1).
(4) Remove door check through speaker location hole.

INSTALLATION

(1) Position door check on door through speaker location hole (Fig. 1).
(2) Install nuts attaching door check to door and tighten to 11 N·m (8 ft. lbs.).
(3) Install screws attaching door check to a-pillar and tighten to 15 N·m (11 ft. lbs.).
(4) Install the waterdam. (Refer to 23 - BODY/DOOR - FRONT/WATERDAM - INSTALLATION)

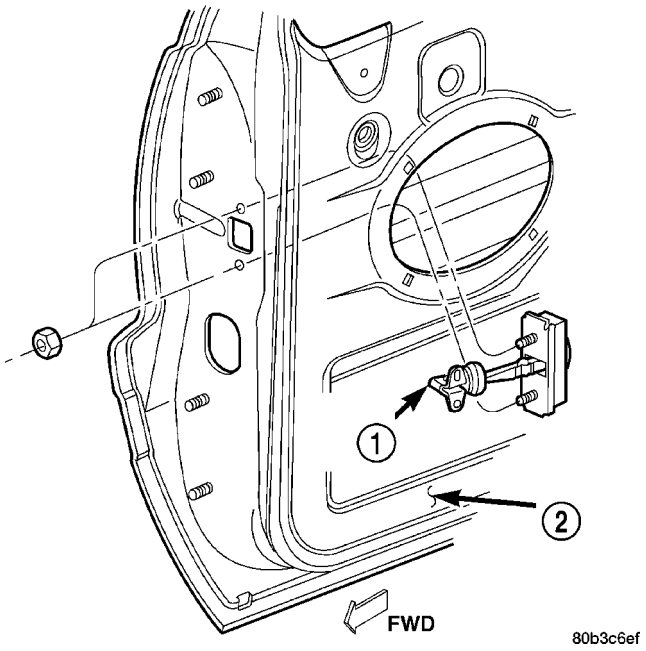


Fig. 1 DOOR CHECK

1 - DOOR CHECK
2 - FRONT DOOR

DOOR

REMOVAL

(1) Disconnect front door harness connector (Fig. 2).
(2) Support door with padded floor jack.
(3) Remove the check strap to body screws. (Refer to 23 - BODY/DOOR - FRONT/CHECK STRAP - REMOVAL)
(4) Remove the four nuts from the door hinge studs. (Refer to 23 - BODY/DOOR - FRONT/HINGE - REMOVAL)
(5) Separate door from vehicle.

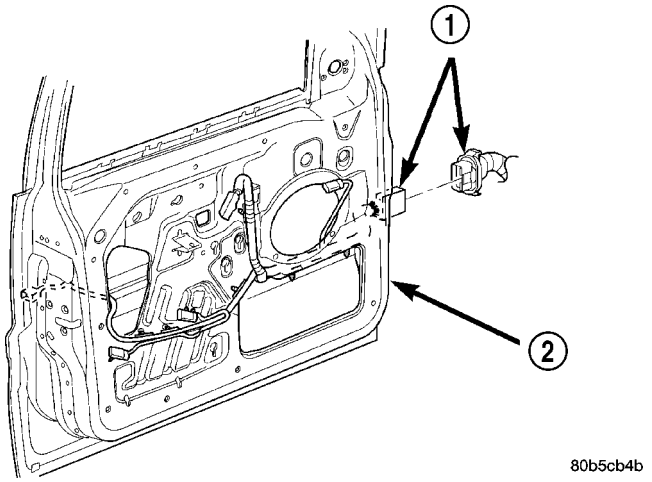


Fig. 2 FRONT DOOR HARNESS CONNECTOR

1 - HARNESS CONNECTOR
2 - DOOR

INSTALLATION

(1) Position door at vehicle and align hinges.
(2) Install the hinge nuts. (Refer to 23 - BODY/DOOR - FRONT/HINGE - INSTALLATION)
(3) Connect front door harness connector (Fig. 2).
(4) Install the check strap to body screws. (Refer to 23 - BODY/DOOR - FRONT/CHECK STRAP - INSTALLATION)

ADJUSTMENTS

ADJUSTMENT

NOTE: For vehicles with four doors, it is recommended that you adjust the rear door before adjusting the front door. (Refer to 23 - BODY/DOORS - REAR/DOOR - ADJUSTMENTS)

- **Door adjustment measurements should be taken from stationary or welded body panels like the roof, rocker or quarter panels.**
- **During adjustment procedures, it is recommended that all the hinge fasteners be loosened except for the upper most fasteners. Adjustments can be made using the upper bolts to hold the door with final torque of the fasteners occurring after correct door positioning is achieved.**
- **A suitable body sealant should be used when removing or moving the hinges.**

FORE/AFT

NOTE: Fore/aft (lateral) door adjustment is done by loosening the hinge to the hinge pillar fasteners one hinge at a time and moving the door to the correct position.

(1) Support the door with a suitable lifting device.
(2) Loosen the hinge to hinge pillar fasteners. (Refer to 23 - BODY/DOOR - FRONT/HINGE - REMOVAL)
(3) Adjust the door to the correct position. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)
(4) Tighten the hinge pillar fasteners to 28 N·m (21 ft. lbs.).

UP/DOWN

NOTE: Up/down door adjustment is done by loosening either the hinge to the hinge pillar fasteners or the hinge to door fasteners and moving the door to the correct position.

NOTE: When adjustment of the door requires the loosening of the door to hinge fasteners, it will be necessary to separate the epoxy bonded washers with a chisel or other suitable tool.

NOTE: When the up/down adjustments are done correctly, the top of the door is positioned over flush to the roof. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

(1) Support the door with a suitable lifting device.
(2) Loosen the latch striker bolts. (Refer to 23 - BODY/DOOR - FRONT/LATCH STRIKER - REMOVAL)
(3) Loosen the hinge to door fasteners (Refer to 23 - BODY/DOOR - FRONT/DOOR - REMOVAL) or loosen the hinge to hinge pillar fasteners (Refer to 23 - BODY/DOOR - FRONT/HINGE - REMOVAL).
(4) Adjust the door to the correct position. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)
(5) Tighten the hinge pillar fasteners or the door to hinges fasteners to 28 N·m (21 ft. lbs.).

DOOR (Continued)

(6) Tighten the latch striker bolts. (Refer to 23 - BODY/DOOR - FRONT/LATCH STRIKER - INSTALLATION)

IN/OUT

NOTE: In/out door adjustment is done by loosening the hinge to door fasteners one hinge at a time and moving the door to the correct position.

NOTE: When adjustment of the door requires the loosening of the door to hinge fasteners, it will be necessary to separate the epoxy bonded washers with a chisel or other suitable tool.

(1) Support the door with a suitable lifting device.
(2) Loosen the latch striker bolts. (Refer to 23 - BODY/DOOR - FRONT/LATCH STRIKER - REMOVAL)
(3) Loosen the hinge to door fasteners. (Refer to 23 - BODY/DOOR - FRONT/DOOR - REMOVAL)
(4) Adjust the door to the correct position. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)
(5) Tighten the door to hinges fasteners to 28 N·m (21 ft. lbs.).
(6) Tighten the latch striker bolts. (Refer to 23 - BODY/DOOR - FRONT/LATCH STRIKER - INSTALLATION)

DOOR GLASS

REMOVAL

(1) Locate glass to half down position.
(2) Remove the waterdam, (Refer to 23 - BODY/DOOR - FRONT/WATERDAM - REMOVAL).
(3) Remove inner belt weatherstrip,(Refer to 23 - BODY/WEATHERSTRIP/SEALS/FDR INNER BELT WEATHERSTRIP - REMOVAL).
(4) Using a long flat blade or hook type tool, disengage clips (Fig. 3) attaching glass liftplate to the regulator.
(5) Carefully push bottom of glass panel outward to disengage glass retainer studs from lift plate (Fig. 4).
(6) Lift glass upward and out of door.

INSTALLATION

(1) Lower glass into position.
(2) Carefully align glass lift plate studs with regulator lift plate and insert studs into lift plate.
(3) Engage clips attaching glass lift plate to regulator lift plate.

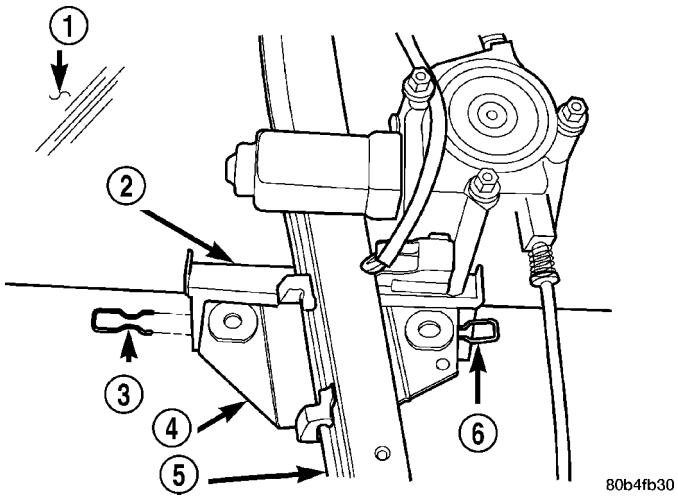


Fig. 3 FRONT DOOR GLASS CLIPS

1 - GLASS
2 - GLASS LIFT PLATE
3 - CLIP
4 - REGULATOR LIFT PLATE
5 - REGULATOR
6 - CLIP

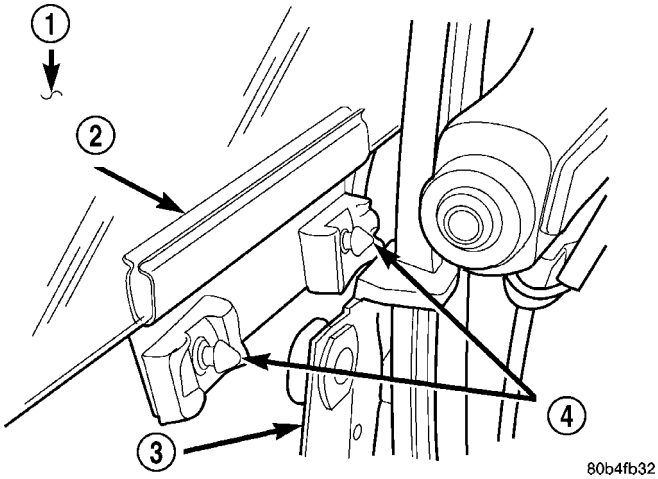


Fig. 4 FRONT DOOR GLASS RETAINER

1 - GLASS
2 - GLASS LIFT PLATE
3 - REGULATOR LIFT PLATE
4 - STUD

(4) Install inner belt weatherstrip, (Refer to 23 - BODY/WEATHERSTRIP/SEALS/FDR INNER BELT WEATHERSTRIP - INSTALLATION).
(5) Install waterdam. (Refer to 23 - BODY/DOOR - FRONT/WATERDAM - INSTALLATION)

EXTERIOR HANDLE

REMOVAL

(1) Raise the glass to the full up position and remove glass run channel. (Refer to 23 - BODY/ DOOR - FRONT/GLASS RUN CHANNEL - REMOVAL).

(2) For the drivers door, disconnect lock cylinder to latch rod.

(3) Disconnect exterior handle to latch rod

(4) Remove fasteners attaching outside handle to door (Fig. 5).

(5) Remove outside handle from door.

(6) Disconnect anti-theft harness connector, if equipped.

(7) Separate outside handle from vehicle.

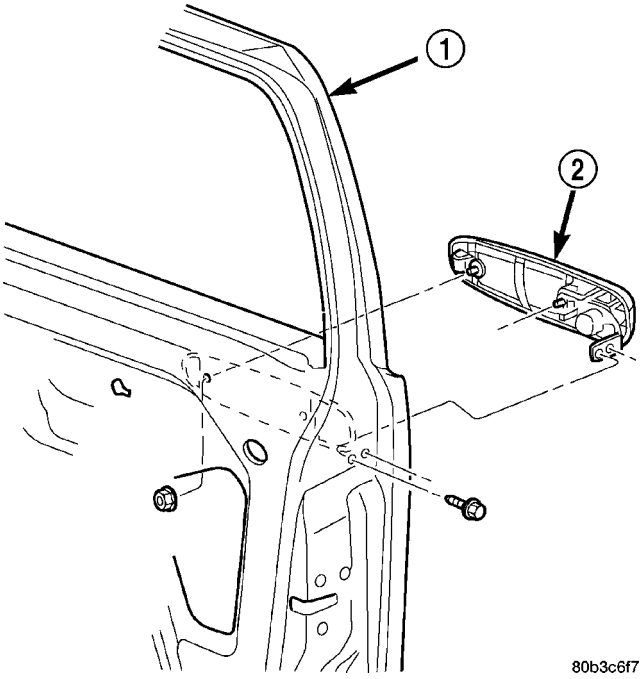


Fig. 5 FRONT DOOR OUTSIDE HANDLE

1 - DOOR
2 - OUTSIDE HANDLE

INSTALLATION

(1) Position exterior handle at door (Fig. 5).

(2) Connect anti-theft harness connector, if equipped.

(3) Position the handle on the door and slide fully toward the rear of the door.

(4) Install nuts attaching exterior handle to door and tighten to 6 N·m (55 in. lbs.).

(5) For the drivers door, install the screws attaching the key cylinder screws bracket and tighten to 6 N·m (55 in. lbs.).

(6) Connect exterior handle to latch rod

(7) For the drivers door, connect lock cylinder to latch rod.

(8) Install glass run channel. (Refer to 23 - BODY/ DOOR - FRONT/GLASS RUN CHANNEL - INSTALLATION)

GLASS RUN CHANNEL

REMOVAL

NOTE: Only the rearward glass run channel is serviceable.

(1) Remove the waterdam. (Refer to 23 - BODY/ DOOR - FRONT/WATERDAM - REMOVAL)

(2) Remove bolt attaching run channel to inner door panel (Fig. 6).

(3) Peel back glass run channel weatherstrip on rear run channel.

(4) Pull glass run channel downward to separate from door.

(5) Remove glass run channel from door.

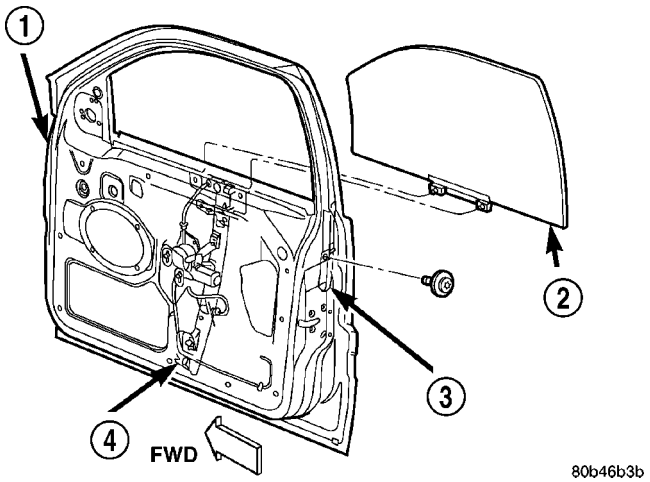


Fig. 6 FRONT DOOR GLASS RUN CHANNEL

1 - DOOR
2 - GLASS
3 - GLASS RUN CHANNEL
4 - REGULATOR

INSTALLATION

(1) Position glass run channel in door (Fig. 6).

(2) Align glass run channel with door frame run channel and slide channel upward to secure door.

(3) Press glass run channel weatherstrip into rear run channel.

(4) Install bolt attaching run channel to inner door panel.

(5) Install the waterdam, (Refer to 23 - BODY/ DOOR - FRONT/WATERDAM - INSTALLATION).

HINGE

REMOVAL

NOTE: The hinges may be removed and replaced one at a time to make the door fit adjustment easier.

(1) Open and support door with a suitable lifting device.
(2) Using a grease pencil or equivalent, mark the hinge location.
(3) Disconnect the door wire harness.
(4) If replacing both hinges at the same time, remove the bolts and disconnect the door check from the a-pillar. (Fig. 7)

NOTE: The epoxy coated washers should not be removed from the hinges. If the washers are removed the door may have to be re-adjusted.

(5) Remove the door hinge to the door nuts. (Fig. 8)
(6) If replacing both hinges at the same time, remove the door.
(7) Remove the bolts and remove the hinge from the a-pillar.

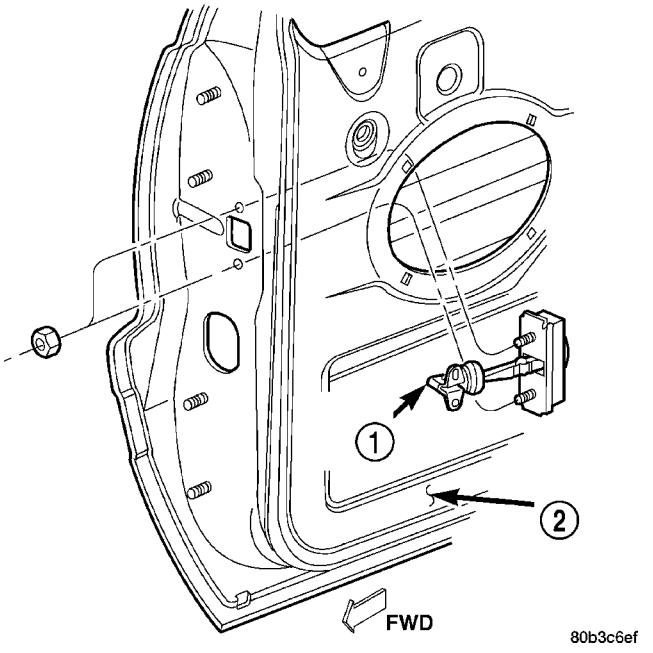


Fig. 7 FRONT DOOR CHECK

1 - DOOR CHECK
2 - FRONT DOOR

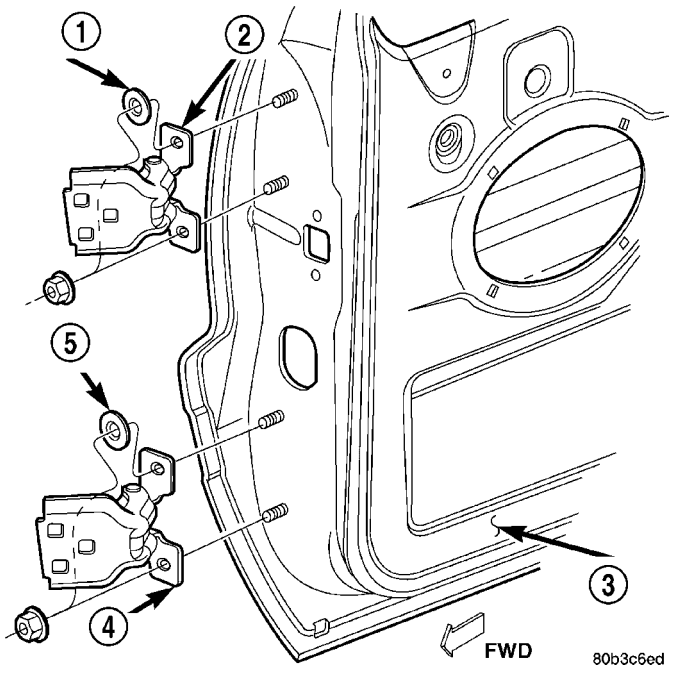


Fig. 8 Front Door Hinges

1 - WASHER
2 - UPPER HINGE
3 - FRONT DOOR
4 - LOWER HINGE
5 - WASHER

INSTALLATION

NOTE: Use 3M® Fast and Firm or equivalent on the hinge to body mating surface as a sealant.

(1) Position hinge on a-pillar.
(2) Install hinge to body bolts, but do not tighten.
(3) Align the hinge to the reference marks and torque the bolts to 28 N·m (21 ft. lbs.).
(4) Install the door on the hinge and align with the reference marks.
(5) Install the nuts and washers and tighten 31 N·m (23 ft. lbs.). (Fig. 8)
(6) Check and adjust the door position if necessary. (Refer to 23 - BODY/DOOR - FRONT/DOOR - ADJUSTMENTS)

INSIDE HANDLE ACTUATOR

REMOVAL

(1) Remove the trim panel. (Refer to 23 - BODY/ DOOR - FRONT/TRIM PANEL - REMOVAL)

(2) Remove screws attaching inside handle actuator to trim panel (Fig. 9).

(3) Separate inside handle actuator from trim panel.

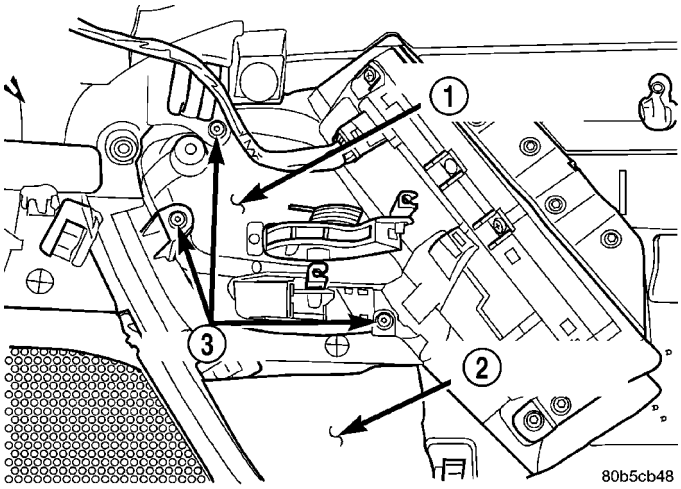


Fig. 9 FRONT DOOR INSIDE HANDLE ACTUATOR

1 - INSIDE HANDLE ACTUATOR
2 - DRIVER'S DOOR TRIM PANEL
3 - SCREW

INSTALLATION

(1) Position inside handle actuator in trim panel.

(2) Install screws attaching inside handle actuator to trim panel (Fig. 9).

(3) Install the trim panel. (Refer to 23 - BODY/ DOOR - FRONT/TRIM PANEL - INSTALLATION)

LATCH

REMOVAL

(1) Remove glass run channel. (Refer to 23 - BODY/DOOR - FRONT/GLASS RUN CHANNEL - REMOVAL)

(2) Remove screws attaching door latch to door (Fig. 10).

(3) Disconnect all rods from door latch.

(4) Disconnect wire harness connector.

(5) Separate door latch from door.

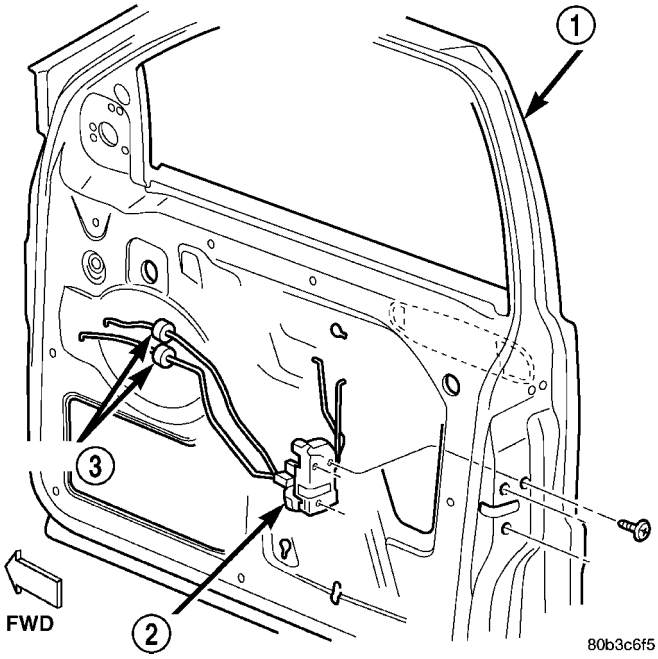


Fig. 10 DOOR LATCH

1 - DOOR
2 - LATCH
3 - ISOLATOR

INSTALLATION

(1) Position door latch at door.

(2) Connect wire harness connector.

(3) Connect all rods to door latch.

(4) Install screws attaching door latch to door and tighten to 11 N·m (8 ft. lbs.). (Fig. 10)

(5) Install glass run channel. (Refer to 23 - BODY/ DOOR - FRONT/GLASS RUN CHANNEL - INSTALLATION)

(6) Adjust the latch. (Refer to 23 - BODY/DOOR - FRONT/LATCH - ADJUSTMENTS)

LATCH (Continued)

ADJUSTMENTS

ADJUSTMENT

(1) Locate access hole and remove the mylar tape covering it. (Fig. 11)

(2) Insert a 5/32-inch hex-wrench through hole and into adjustment screw. Loosen screw.

(3) Operate outside handle several times to release any restriction because of mis-alignment.

(4) Tighten adjustment screw to 3 N·m (30 in. lbs.).

(5) Test handle for proper operation.

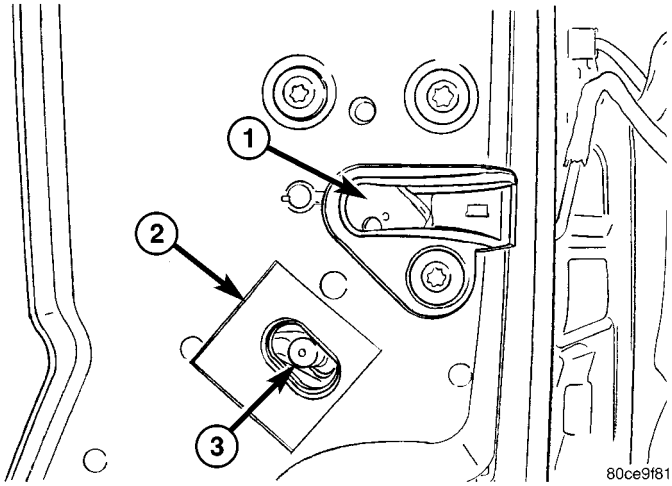


Fig. 11 LATCH ADJUSTMENT SCREW - TYPICAL

1 - DOOR LATCH
2 - MYLAR TAPE
3 - ADJUSTMENT SCREW

LATCH STRIKER

REMOVAL

(1) Remove screws attaching striker to b-pillar.

(2) Separate striker and spacer from b-pillar (Fig. 12).

INSTALLATION

(1) Position striker and spacer on b-pillar.

(2) Install screws attaching striker to b-pillar and tighten to 28 N·m (21 ft. lbs.). (Fig. 12)

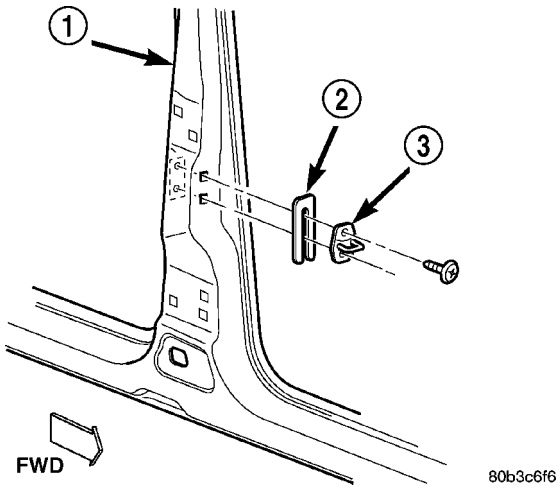


Fig. 12 FRONT DOOR LATCH STRIKER

1 - B-PILLAR
2 - SPACER
3 - STRIKER

LOCK CYLINDER

REMOVAL

(1) Remove exterior handle. (Refer to 23 - BODY/DOOR - FRONT/EXTERIOR HANDLE - REMOVAL)

(2) Remove screw securing lock cylinder retainer to outside door handle (Fig. 13).

(3) Separate lock cylinder from door handle.

(4) Disconnect lock cylinder switch, if equipped.

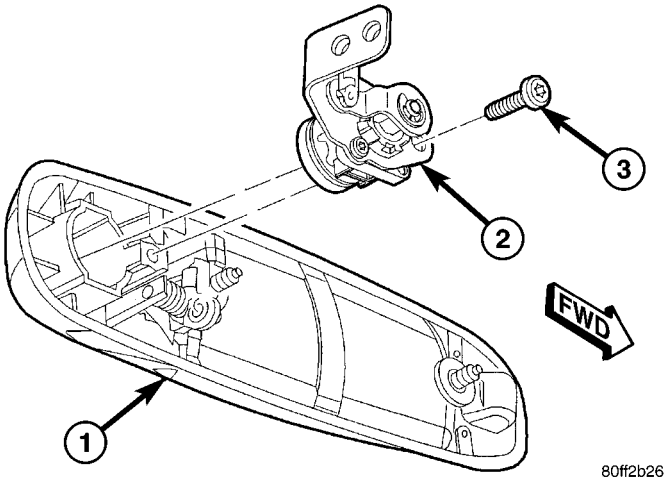


Fig. 13 FRONT DOOR LOCK CYLINDER

1 - OUTSIDE DOOR HANDLE
2 - LOCK CYLINDER
3 - SCREW

INSTALLATION

(1) Connect lock cylinder switch, if equipped.

(2) Position lock cylinder in door handle.

(3) Position lock cylinder retainer and install screw (Fig. 13).

(4) Install exterior handle. (Refer to 23 - BODY/DOOR - FRONT/EXTERIOR HANDLE - INSTALLATION)

TRIM PANEL

REMOVAL

(1) Remove trim plug from mirror flag bezel.
(2) Remove three screws attaching trim panel to door (Fig. 14).
(3) Using a trim stick C-4829 or equivalent, detach trim panel perimeter push-in fasteners from door inner panel.
(4) Lift trim panel upward and separate from door.
(5) Disconnect latch rods from inside handle actuator.
(6) Disconnect harness connectors for power accessories.
(7) Separate trim panel from vehicle.

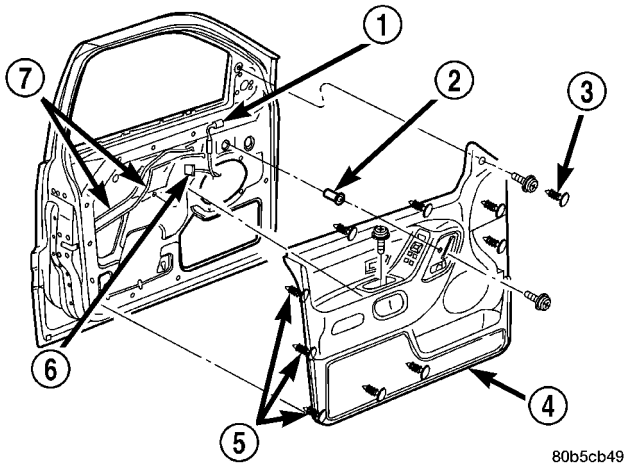


Fig. 14 FRONT DOOR TRIM PANEL

1 - HARNESS CONNECTOR
2 - NUTSERT
3 - TRIM PLUG
4 - TRIM PANEL
5 - PUSH-IN FASTENER
6 - HARNESS CONNECTOR
7 - LATCH RODS

INSTALLATION

(1) Connect harness connectors to power accessories.
(2) Connect latch rods to inside handle actuator.
(3) Position trim panel on door inner panel.
(4) Press trim panel push-in fasteners inward around perimeter of door.
(5) Install screws attaching trim panel to door (Fig. 14).
(6) Install trim plug in mirror flag bezel.

WATERDAM

REMOVAL

(1) Remove the door speaker. (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - REMOVAL)
(2) Peel the waterdam from door.
(3) Route all harnesses and linkage rods through waterdam as necessary.
(4) Separate waterdam from door (Fig. 15).

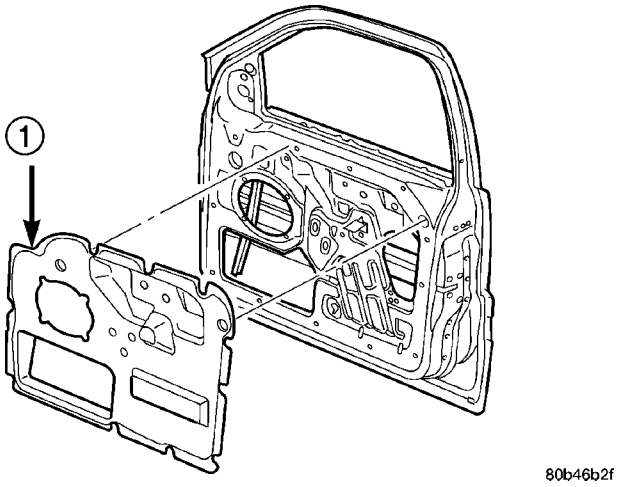


Fig. 15 FRONT DOOR WATERDAM

1 - INSULATOR PAD/WATERDAM

INSTALLATION

(1) Using MOPAR® Super Kleen solvent or equivalent, clean the waterdam contact surface of contaminants.
(2) Route all harnesses and linkage rods through waterdam as necessary.
(3) Position waterdam on door and align all holes.
(4) Press waterdam on door (Fig. 15).
(5) Install the door speaker. (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - INSTALLATION)

WINDOW REGULATOR

REMOVAL

(1) Remove the waterdam, (Refer to 23 - BODY/DOOR - FRONT/WATERDAM - REMOVAL).

(2) Using a long flat blade or hook type tool, disengage clips attaching glass liftplate to the regulator, (Refer to 23 - BODY/DOOR - FRONT/DOOR GLASS - REMOVAL).

(3) Secure glass in up position using a wood wedge, tape, or equivalent.

(4) Loosen the regulator bolts located at the keyhole slots in the inner door panel (Fig. 16).

(5) Remove the remaining bolts attaching regulator to inner door panel.

(6) Disengage power window regulator harness connector, if equipped.

(7) Lift regulator upward to disengage bolts from door inner panel (Fig. 17).

(8) Remove regulator through access hole in door.

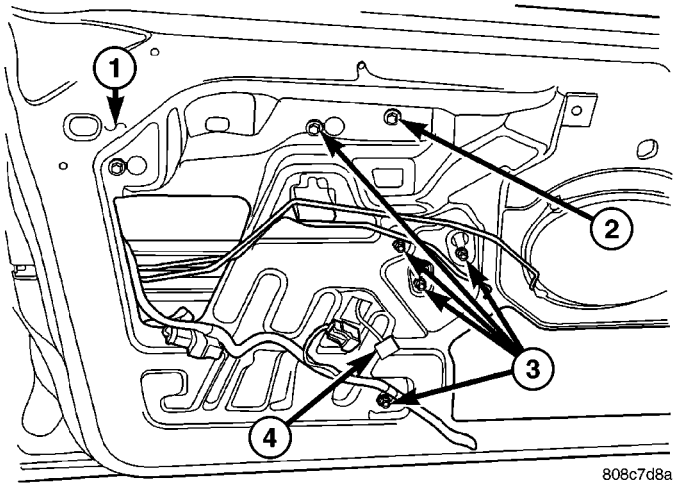


Fig. 16 FRONT DOOR REGULATOR BOLTS

1 - FRONT DOOR
2 - REMOVE BOLT
3 - LOOSEN BOLTS
4 - REGULATOR WIRING PIGTAIL

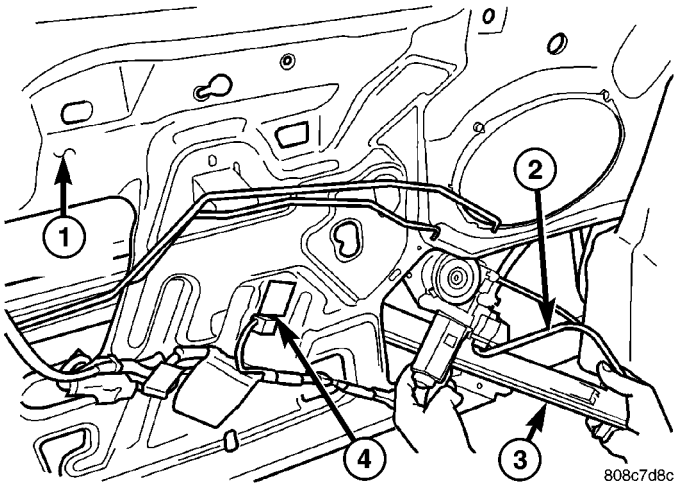


Fig. 17 FRONT DOOR WINDOW REGULATOR

1 - FRONT DOOR
2 - REGULATOR PIGTAIL
3 - REGULATOR
4 - PIGTAIL WIRING PASS THROUGH HOLE

INSTALLATION

(1) Position regulator in door through access hole.

(2) Lift regulator upward and engage bolts in door inner panel key hole slots.

(3) Route the regulator wiring pigtail through the hole in the inner panel and connect, if equipped.

(4) Install bolt attaching regulator to inner door panel.

(5) Tighten bolts attaching regulator to inner door panel to 9 N·m (80 in. lbs.).

(6) Remove glass support and then position glass lift plate to regulator lift plate.

(7) Engage clips attaching glass lift plate to regulator lift plate, (Refer to 23 - BODY/DOOR - FRONT/DOOR GLASS - INSTALLATION).

(8) Install waterdam, (Refer to 23 - BODY/DOOR - FRONT/WATERDAM - INSTALLATION).

DOORS - REAR

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CHECK STRAP

REMOVAL

(1) Remove waterdam.(Refer to 23 - BODY/DOORS - REAR/WATERDAM - REMOVAL)
(2) Remove screws attaching door check to b-pillar.
(3) Remove nuts attaching door check to door (Fig. 1).
(4) Remove door check through speaker location hole.

INSTALLATION

(1) Position door check on door through speaker location hole.
(2) Install nuts attaching door check to door and tighten to 11 N·m (8 ft. lbs.). (Fig. 1)
(3) Install screws attaching door check to b-pillar and tighten to 15 N·m (11 ft. lbs.).
(4) Install waterdam. (Refer to 23 - BODY/DOORS - REAR/WATERDAM - INSTALLATION)

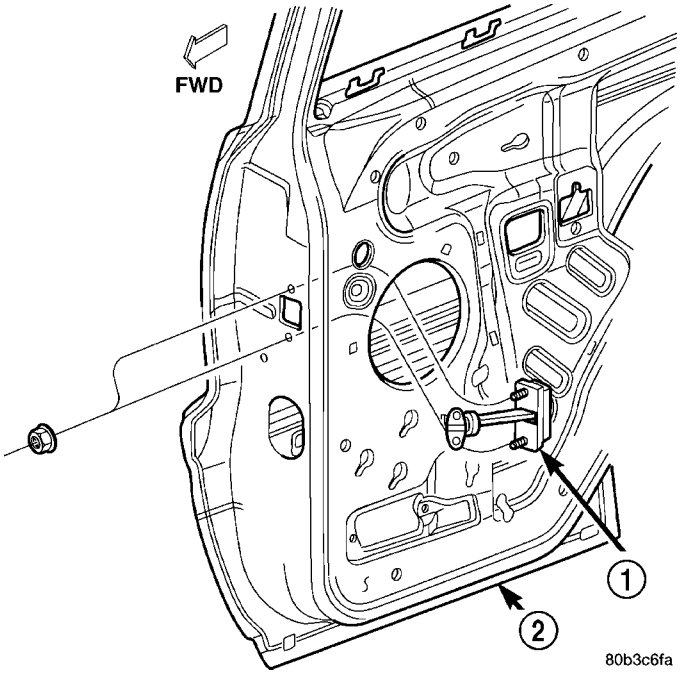


Fig. 1 DOOR CHECK

1 - DOOR CHECK
2 - REAR DOOR

DOOR

REMOVAL

(1) Disconnect rear door harness connector (Fig. 2).
(2) Support door with suitable lifting device.
(3) Remove the check strap screws to the b-pillar. (Refer to 23 - BODY/DOORS - REAR/CHECK STRAP - REMOVAL)
(4) Remove the four nuts from the door hinge studs. (Refer to 23 - BODY/DOORS - REAR/HINGE - REMOVAL)
(5) Separate door from vehicle.

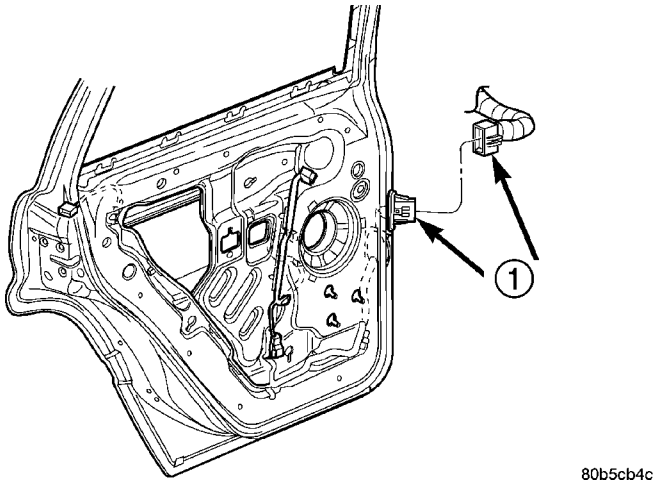


Fig. 2 REAR DOOR HARNESS CONNECTOR

1 - HARNESS CONNECTOR

INSTALLATION

(1) Position door at vehicle and align hinges.
(2) Install the hinge nuts. (Refer to 23 - BODY/DOORS - REAR/HINGE - INSTALLATION)
(3) Install the check strap to body screws. (Refer to 23 - BODY/DOORS - REAR/CHECK STRAP - INSTALLATION)
(4) Connect rear door harness connector (Fig. 2).

ADJUSTMENTS

ADJUSTMENT

NOTE: For vehicles equipped with four doors, it is recommended that you adjust the rear door before adjusting the front door.

- **Door adjustment measurements should be taken from stationary or welded body panels like the roof, rocker or quarter panels.**
- **During adjustment procedures, it is recommended that all the hinge fasteners be loosened except for the upper most fasteners. Adjustments can be made using the upper fasteners to hold the door with final torque of the fasteners occurring after correct door positioning is achieved.**

FORE/AFT

NOTE: Fore/aft (lateral) door adjustment is done by loosening the hinge to the hinge pillar fasteners one hinge at a time and moving the door to the correct position.

(1) Support the door with a suitable lifting device.
(2) Loosen the hinge to hinge pillar fasteners. (Refer to 23 - BODY/DOORS - REAR/HINGE - REMOVAL)
(3) Adjust the door to the correct position. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)
(4) Tighten to hinge pillar fasteners to 28 N·m (21 ft. lbs.). (Refer to 23 - BODY/DOORS - REAR/HINGE - INSTALLATION)

NOTE: Use a suitable body sealer on the hinge to body mating surfaces.

UP/DOWN

NOTE: Up/down door adjustment is done by loosening either the hinge to the hinge pillar fasteners or the hinge to door fasteners and moving the door to the correct position.

NOTE: When adjustment of the door requires the loosening of the door to hinge fasteners, it will be necessary to separate the epoxy bonded washers with a chisel or other suitable tool.

NOTE: When the up/down adjustments are done correctly, the top of the door is positioned over flush to the roof. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

(1) Support the door with a suitable lifting device.
(2) Loosen the latch striker. (Refer to 23 - BODY/DOORS - REAR/LATCH STRIKER - REMOVAL)
(3) Loosen the hinge to hinge pillar fasteners (Refer to 23 - BODY/DOORS - REAR/HINGE - REMOVAL) or loosen the hinge to door fasteners (Refer to 23 - BODY/DOORS - REAR/DOOR - REMOVAL).
(4) Adjust the door to the correct position. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

DOOR (Continued)

(5) Tighten to hinge pillar fasteners or the door to hinges fasteners and fasteners to 28 N·m (21 ft. lbs.). (Refer to 23 - BODY/DOORS - REAR/HINGE - INSTALLATION)

(6) Tighten the latch striker. (Refer to 23 - BODY/DOORS - REAR/LATCH STRIKER - INSTALLATION)

IN/OUT

NOTE: In/out door adjustment is done by loosening the hinge to door fasteners one hinge at a time and moving the door to the correct position.

NOTE: When adjustment of the door requires the loosening of the door to hinge fasteners, it will be necessary to separate the epoxy bonded washers with a chisel or other suitable tool.

(1) Support the door with a suitable lifting device.

(2) Loosen the latch striker. (Refer to 23 - BODY/DOORS - REAR/LATCH STRIKER - REMOVAL)

(3) Loosen the hinge to door fasteners. (Refer to 23 - BODY/DOORS - REAR/DOOR - REMOVAL)

(4) Adjust the front of the door to the correct position. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

(5) Tighten the door to hinges fasteners to 28 N·m (21 ft. lbs.).

(6) Tighten the latch striker. (Refer to 23 - BODY/DOORS - REAR/LATCH STRIKER - INSTALLATION)

DOOR GLASS

REMOVAL

(1) Remove stationary glass. (Refer to 23 - BODY/STATIONARY GLASS/DOOR GLASS - REMOVAL)

(2) Disengage clips attaching window glass to lift plate.

(3) Press studs out of lift plate.

(4) Lift window glass from door (Fig. 3).

INSTALLATION

(1) Position window glass in door (Fig. 3).

(2) Engage clips attaching window glass to lift plate.

(3) Engage studs into lift plate.

(4) Install stationary glass. (Refer to 23 - BODY/STATIONARY GLASS/DOOR GLASS - INSTALLATION)

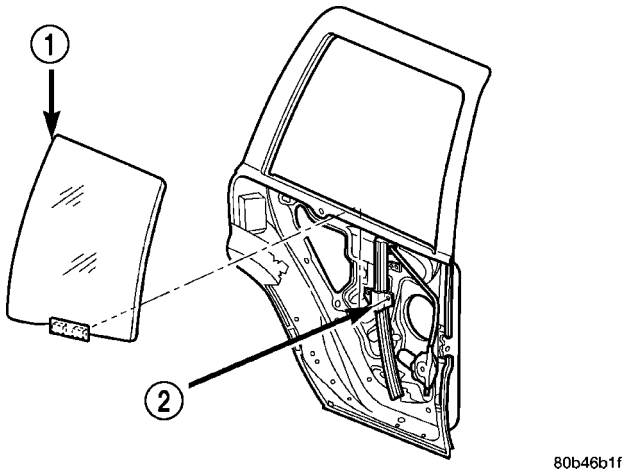


Fig. 3 GLASS CHANNEL

1 - GLASS
2 - REGULATOR

EXTERIOR HANDLE

REMOVAL

(1) Remove waterdam. (Refer to 23 - BODY/DOORS - REAR/WATERDAM - REMOVAL)

(2) Disconnect exterior handle to latch rod.

(3) Remove fasteners attaching exterior handle to door (Fig. 4).

(4) Remove exterior handle from door.

(5) Separate exterior handle from vehicle.

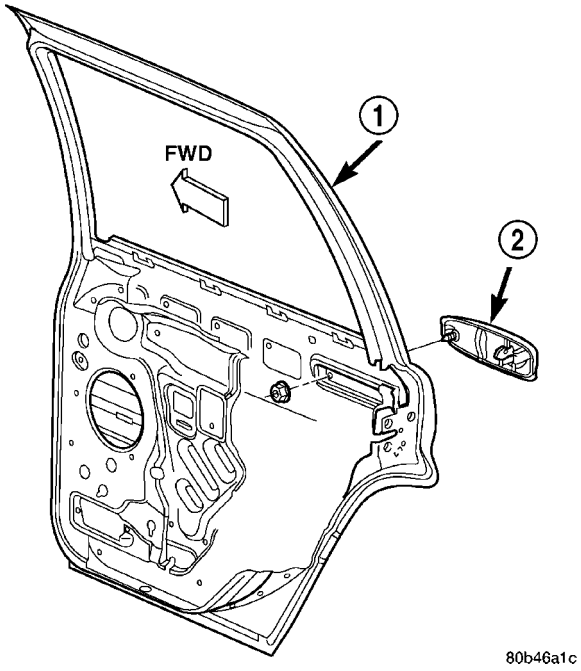


Fig. 4 FRONT

1 - DOOR
2 - OUTSIDE HANDLE

EXTERIOR HANDLE (Continued)

INSTALLATION

(1) Position exterior handle in door.
(2) Install fasteners attaching exterior handle to door (Fig. 4).
(3) Connect exterior handle to latch rod.
(4) Install waterdam. (Refer to 23 - BODY/DOORS - REAR/WATERDAM - INSTALLATION)

HINGE

REMOVAL

NOTE: The hinges may be removed and replaced one at a time to make the door fit adjustment easier.

(1) Open front door and rear door.
(2) Using a grease pencil or equivalent, mark hinges for installation (Fig. 5).
(3) Support rear door with suitable lifting device.
(4) If replacing both hinges at the same time, disconnect rear door harness connector (Fig. 2).
(5) If replacing both hinges at the same time, remove the bolts and disconnect the door check from the b-pillar. (Refer to 23 - BODY/DOORS - REAR/CHECK STRAP - REMOVAL)
(6) Remove the lower b-pillar trim. (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - REMOVAL)

NOTE: The epoxy coated washers should not be removed from the hinges. If the washers are removed the door may have to be re-adjusted.

(7) Remove nuts holding door to hinge and remove the door.
(8) Remove the two outside bolts and the one inside bolt holding hinge to b-pillar.

INSTALLATION

NOTE: Use 3M® Fast and Firm or equivalent on the hinge to body mating surface as a sealant.

(1) Install hinge on b-pillar and align reference marks (Fig. 5).
(2) Install bolts holding hinge to b-pillar and tighten to 28N·m (21 ft. lbs.).
(3) Install door on hinge and align reference marks.

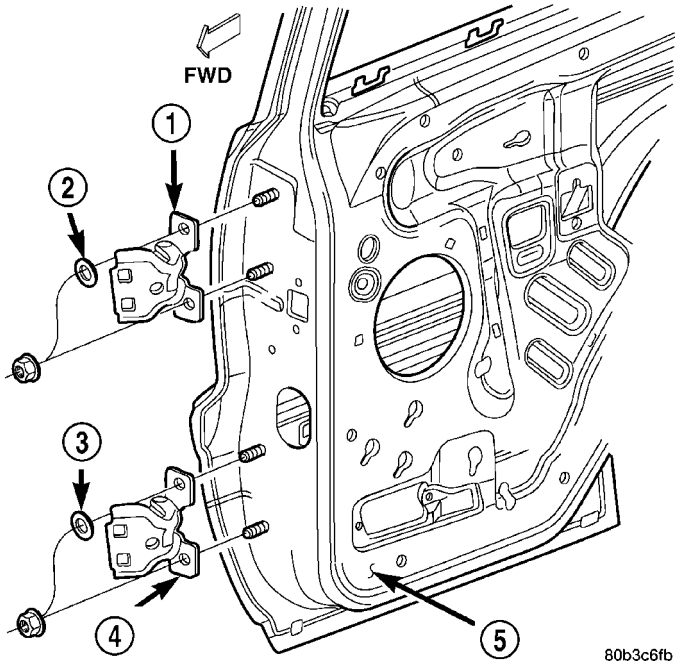


Fig. 5 Rear Door Hinge

1 - UPPER HINGE
2 - WASHER
3 - WASHER
4 - LOWER HINGE
5 - REAR DOOR

(4) Install nuts, the epoxy washers if necessary, and tighten to 31 N·m (23 ft. lbs.).
(5) Check door for fit and ease of operation. Adjust as necessary, refer to (Refer to 23 - BODY/DOOR - FRONT/DOOR - ADJUSTMENTS).
(6) Install the lower b-pillar trim. (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - INSTALLATION)

INSIDE HANDLE ACTUATOR

REMOVAL

(1) Remove the trim panel. (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - REMOVAL)
(2) Disconnect latch and lock rods from inside handle actuator.
(3) Remove screws attaching inside handle actuator to trim panel (Fig. 6).
(4) Separate inside handle actuator from trim panel.

INSIDE HANDLE ACTUATOR (Continued)

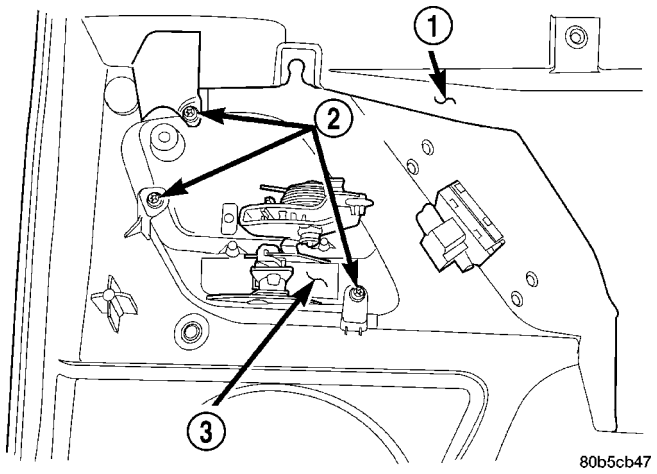


Fig. 6 REAR DOOR INSIDE HANDLE ACTUATOR

1 - REAR DOOR TRIM PANEL
2 - SCREW
3 - INSIDE HANDLE ACTUATOR

INSTALLATION

(1) Position inside handle actuator in trim panel.

(2) Install screws attaching inside handle actuator to trim panel (Fig. 6).

(3) Connect latch and lock rods to inside handle actuator.

(4) Install door trim panel, refer to (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - INSTALLATION).

LATCH

REMOVAL

(1) Remove waterdam. (Refer to 23 - BODY/DOORS - REAR/WATERDAM - REMOVAL).

(2) Remove screws attaching latch to door (Fig. 7).

(3) Disconnect the electrical harness connector.

(4) Disconnect rods from door latch.

(5) Separate door latch from door.

INSTALLATION

(1) Connect the electrical harness electrical connector and position the latch in door.

(2) Connect rods to door latch.

(3) Install screws attaching latch to door and tighten to 11 N·m (8 ft. lbs.). (Fig. 7)

(4) Install waterdam. (Refer to 23 - BODY/DOORS - REAR/WATERDAM - INSTALLATION).

(5) Verify proper power lock and ajar switch operation.

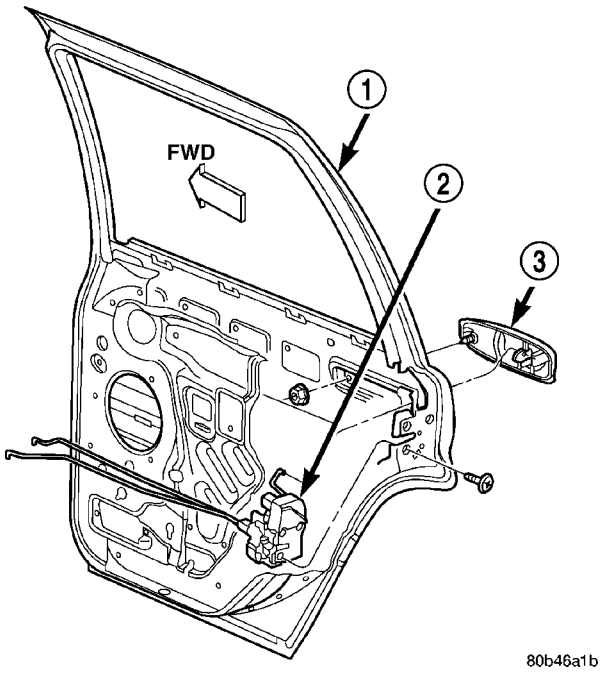


Fig. 7 REAR DOOR LATCH

1 - DOOR
2 - LATCH
3 - OUTSIDE HANDLE

ADJUSTMENTS

ADJUSTMENT

(1) Locate access hole and remove the mylar tape covering it. (Fig. 8)

(2) Insert a 5/32-inch hex-wrench through hole and into adjustment screw. Loosen screw.

(3) Operate outside handle several times to release any restriction because of mis-alignment.

(4) Tighten adjustment screw to 3 N·m (30 in. lbs.).

(5) Test handle for proper operation.

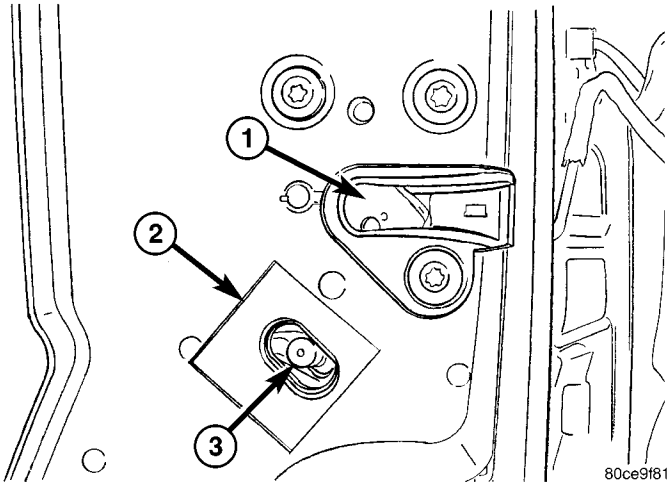


Fig. 8 LATCH ADJUSTMENT SCREW - TYPICAL

1 - DOOR LATCH
2 - MYLAR TAPE
3 - ADJUSTMENT SCREW

LATCH STRIKER

REMOVAL

(1) Remove screws attaching striker to C-pillar (Fig. 9).
(2) Separate striker and spacer from vehicle.

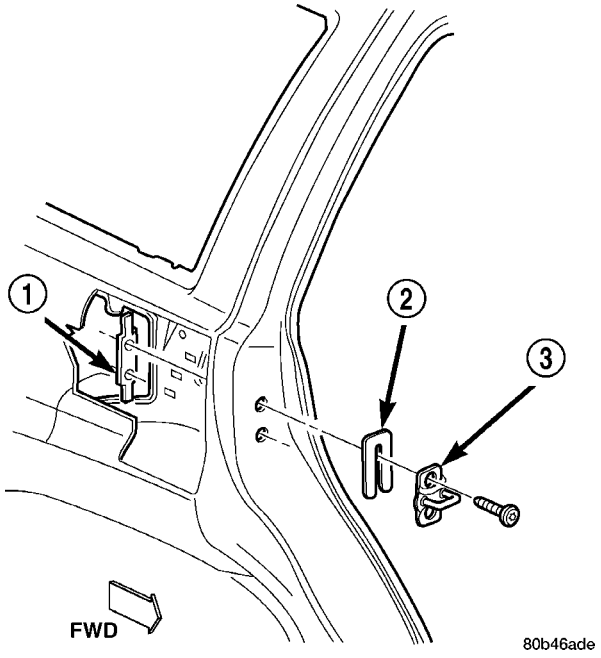


Fig. 9 REAR DOOR LATCH STRIKER

1 - TAPPING PLATE
2 - SPACER
3 - STRIKER

INSTALLATION

(1) Position striker and spacer on C-pillar.
(2) Install screws and tighten to 28 N·m (21 ft. lbs.).
(3) Check door fit and adjust striker as necessary. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

TRIM PANEL

REMOVAL

(1) Remove screws attaching trim panel to door (Fig. 10).
(2) Using a trim stick C-4829 or equivalent, detach trim panel perimeter push-in fasteners from door inner panel.
(3) Lift trim panel upward and separate from door.
(4) Disconnect latch rods from inside handle actuator.
(5) Disconnect harness connectors for power accessories.
(6) Separate trim panel from vehicle.

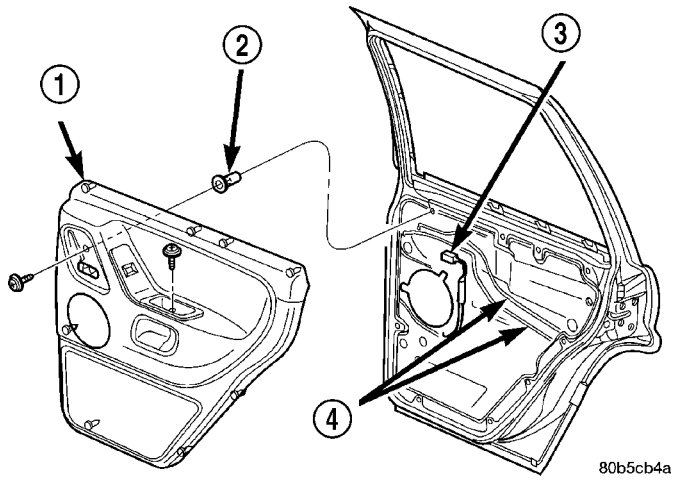


Fig. 10 REAR DOOR TRIM PANEL

1 - TRIM PANEL
2 - NUTSERT
3 - HARNESS CONNECTOR
4 - LATCH RODS

INSTALLATION

(1) Connect harness connectors to power accessories.
(2) Connect latch rods to inside handle actuator.
(3) Position trim panel on door inner panel.
(4) Press trim panel push-in fasteners inward around perimeter of door.
(5) Install screws attaching trim panel to door (Fig. 10).

WATERDAM

REMOVAL

(1) Remove the door speaker. (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - REMOVAL)
(2) Peel the waterdam from door.
(3) Route all harnesses and linkage rods through waterdam as necessary.
(4) Separate waterdam from door (Fig. 11).

INSTALLATION

(1) Waterdam contact surface must be free of contaminants. Clean as necessary.
(2) Route all harnesses and linkage rods through waterdam as necessary.
(3) Position waterdam on door and align all holes (Fig. 11).
(4) Press waterdam on door.
(5) Install the door speaker. (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - INSTALLATION)

WATERDAM (Continued)

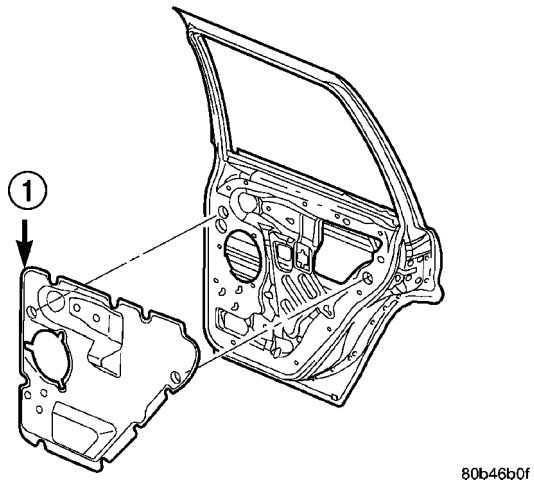


Fig. 11 REAR DOOR WATERDAM

1 - INSULATOR PAD

WINDOW REGULATOR

REMOVAL

(1) Remove the waterdam, (Refer to 23 - BODY/DOORS - REAR/WATERDAM - REMOVAL).

(2) Using a long flat blade or hook type tool, disengage clips attaching glass liftplate to the regulator (Fig. 12).

(3) Secure glass in up position using a wood wedge, tape, or equivalent.

(4) Remove the fasteners retaining the regulator (Fig. 13).

(5) Disconnect the electrical harness from the regulator pigtail.

(6) Remove the regulator.

INSTALLATION

(1) Position the window regulator in the door.

(2) Install the fasteners retaining the regulator and tighten to 9 N·m (80 in. lbs.) (Fig. 13).

(3) Connect the electrical harness and regulator pigtail connector.

(4) Remove glass support and then position glass lift plate to regulator lift plate.

(5) Engage clips attaching glass lift plate to regulator lift plate, (Refer to 23 - BODY/DOORS - REAR/DOOR GLASS - INSTALLATION).

(6) Install waterdam, (Refer to 23 - BODY/DOORS - REAR/WATERDAM - INSTALLATION).

(7) Cycle the glass and check for proper operation.

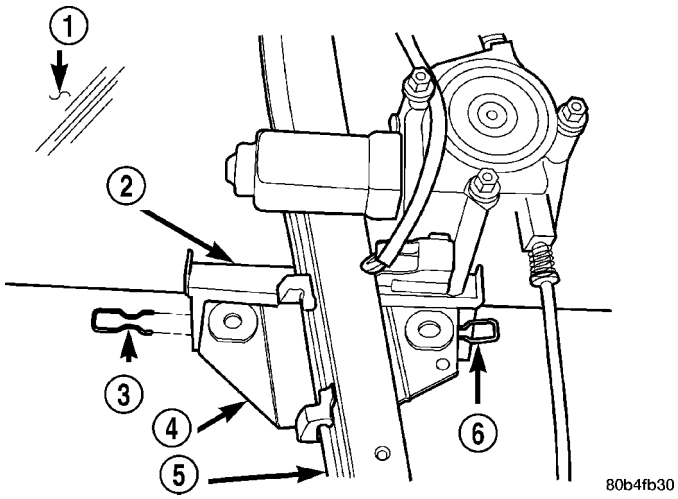


Fig. 12 WINDOW REGULATOR RETAINER CLIPS

1 - GLASS
2 - GLASS LIFT PLATE
3 - CLIP
4 - REGULATOR LIFT PLATE
5 - REGULATOR
6 - CLIP

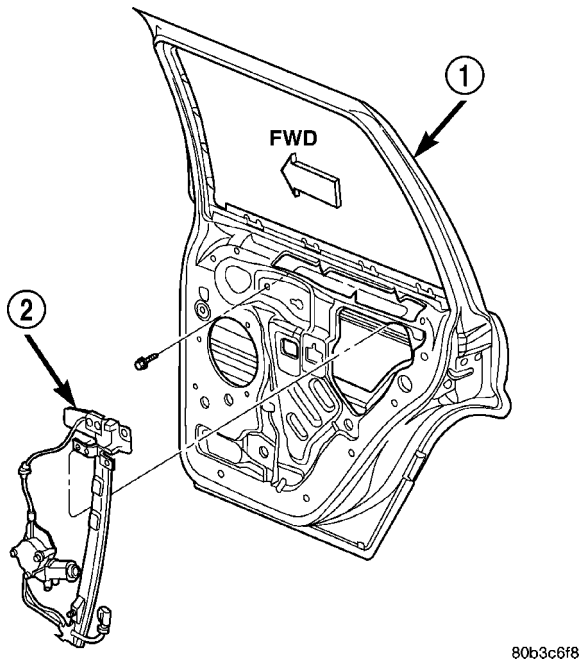


Fig. 13 REAR DOOR WINDOW REGULATOR

1 - DOOR
2 - REGULATOR

EXTERIOR

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BODY SIDE MOLDINGS

REMOVAL

Doors

(1) Open the door.

(2) Using a trim stick C-4755 or equivalent, pry the upper rear edge off the door. Continue to the front edge of the front door. (Fig. 1) and (Fig. 2).

(3) Using a heat gun, warm the adhesive tape on the lower edge of the cladding and pull the cladding from the door.

Fender/Quarter Panel

(1) Remove the screws at wheel opening (Fig. 3).

(2) Using a trim stick C-4755 or equivalent, gently pry bottom of cladding up.

(3) Lift upwards and remove cladding.

INSTALLATION

Doors

(1) Clean the area thoroughly with MOPAR® Super Kleen, or equivalent.

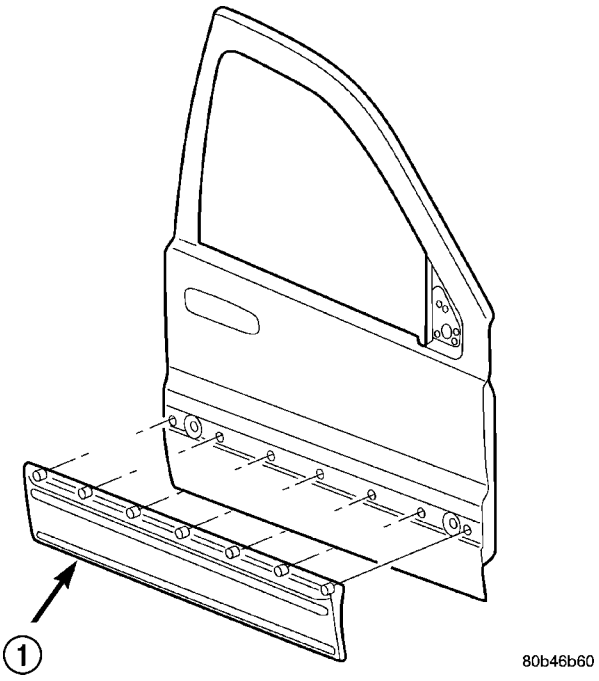


Fig. 1 FRONT DOOR CLADDING

1 - CLADDING

BODY SIDE MOLDINGS (Continued)

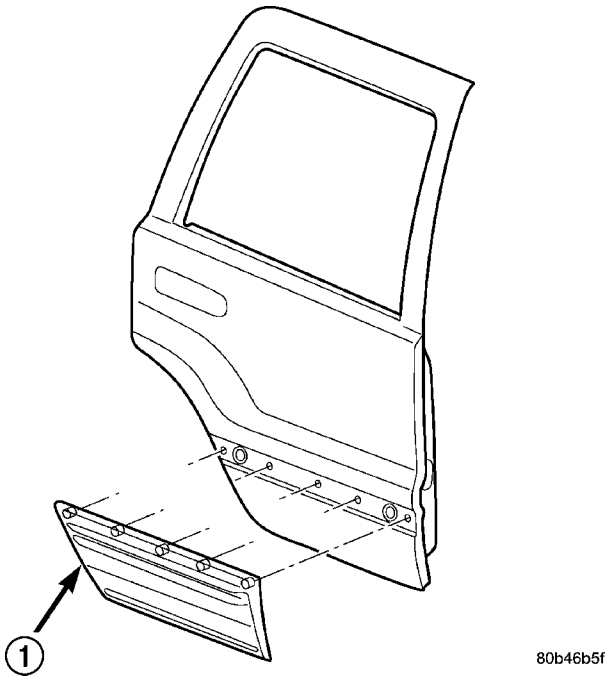


Fig. 2 REAR DOOR CLADDING

1 - CLADDING

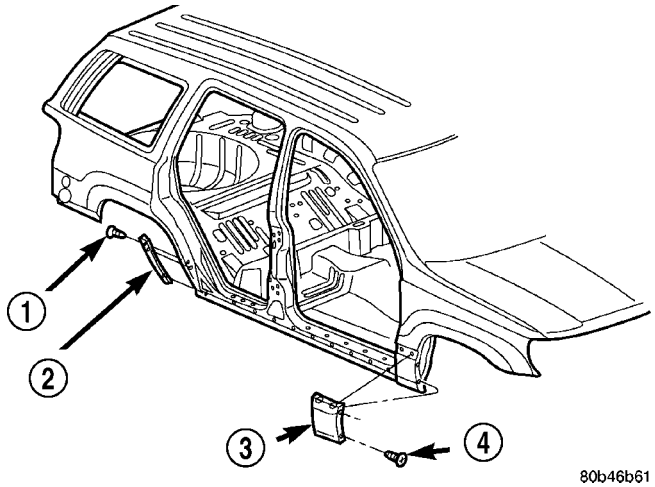


Fig. 3 FRONT FENDER/ QUARTER PANEL

1 - SCREW
2 - QUARTER PANEL CLADDING
3 - FRONT FENDER CLADDING
4 - SCREW

(2) Align the body side cladding with the slots in the door. Press the adhesive pad to the door and snap the retainers into the slots.

Fender/Quarter Panel

(1) Thoroughly clean the area with MOPAR® Super Kleen, or equivalent.

(2) Align the cladding with the screw holes in the fender.

(3) Press the cladding in place.

(4) Install the screws at the wheel opening.

COWL GRILLE

REMOVAL

(1) Remove wiper arms. (Refer to 8 - ELECTRICAL/WIPERS/WASHERS/WIPER ARMS - REMOVAL)

(2) Remove plenum seal.

(3) Remove plastic push nuts attaching cowl cover to cowl (Fig. 4).

(4) Remove windshield washer tubes at connector.

(5) Remove cowl cover from cowl.

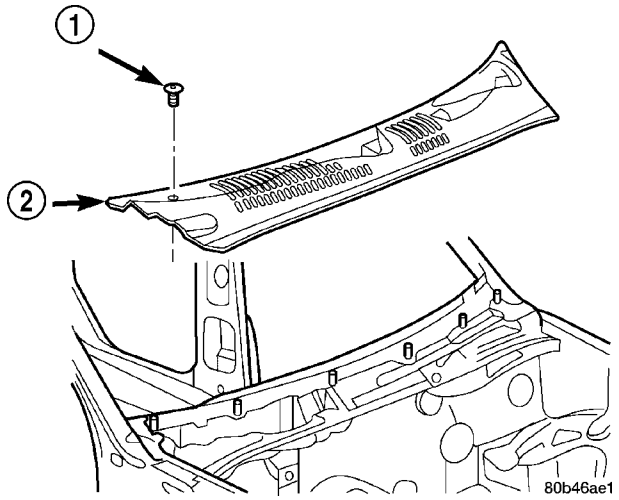


Fig. 4 COWL COVER

1 - PLASTIC NUT
2 - COWL COVER

INSTALLATION

(1) Position cowl cover on cowl.

(2) Install windshield washer tubes at connector.

(3) Install plastic push nuts attaching cowl cover to cowl (Fig. 4).

(4) Install plenum seal.

(5) Install windshield wiper arms. (Refer to 8 - ELECTRICAL/WIPERS/WASHERS/WIPER ARMS - INSTALLATION)

D-PILLAR APPLIQUE

REMOVAL

(1) Using a trim stick C-4755 or equivalent, carefully pry applique from panel (Fig. 5).

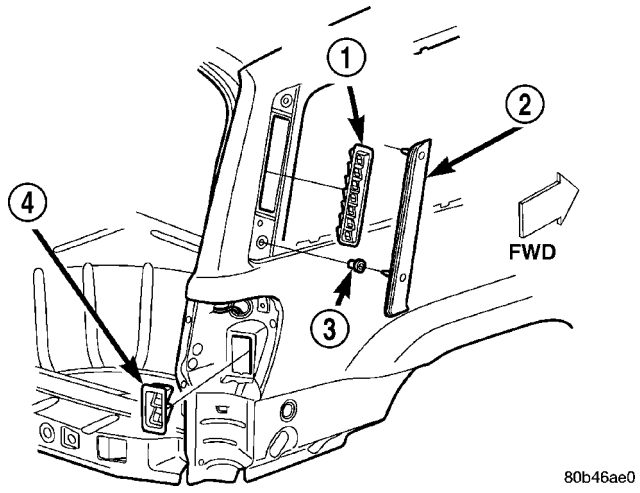


Fig. 5 D - PILLAR APPLIQUE & AIR EXHAUSTER

1 - D - PILLAR EXHAUSTER
2 - D - PILLAR APPLIQUE
3 - CLIP
4 - TAIL LAMP EXHAUSTER

INSTALLATION

(1) Position applique on panel with retainers aligned.

(2) Press applique firmly in place.

EXHAUSTER - RIGHT D-PILLAR

REMOVAL

(1) Remove D-pillar applique. (Refer to 23 - BODY/EXTERIOR/COWL GRILLE SCREEN - REMOVAL)

(2) Carefully pry air exhauster from D-pillar using a flat blade screwdriver (Fig. 5).

INSTALLATION

(1) Reseal air exhauster using foam tape.

(2) Install air exhauster on D-pillar.

(3) Install D-pillar applique. (Refer to 23 - BODY/EXTERIOR/COWL GRILLE SCREEN - INSTALLATION)

EXHAUSTER - TAIL LAMP

REMOVAL

(1) Remove tail lamp. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/TAIL LAMP - REMOVAL)

(2) Using a trim stick C-4755 or equivalent, pry the top of the air exhauster downward to detach the retaining clips.

(3) Separate air exhauster from vehicle (Fig. 5).

INSTALLATION

(1) Position air exhauster in opening.

(2) Press air exhauster inward to secure.

(3) Install tail lamp. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - EXTERIOR/TAIL LAMP - INSTALLATION)

EXHAUSTER - LEFT QUARTER PANEL

REMOVAL

(1) Remove the rear fascia. (Refer to 13 - FRAME & BUMPERS/BUMPERS/REAR FASCIA - REMOVAL)

(2) Using a trim stick C-4755 or equivalent, pry air exhauster from panel.

INSTALLATION

(1) Using a foam tape, reseal the air exhauster.

(2) Install the exhauster onto the quarter panel.

(3) Install the rear fascia. (Refer to 13 - FRAME & BUMPERS/BUMPERS/REAR FASCIA - INSTALLATION)

EXTERIOR NAME PLATES

REMOVAL

NOTE: Exterior nameplates are attached to body panels with adhesive tape.

(1) Apply a length of masking tape on the body, parallel to the top edge of the nameplate to use as a guide, if necessary.

(2) If temperature is below 21°C (70°F) warm emblem with a heat lamp or gun. Do not exceed 52°C (120°F) when heating emblem.

(3) Using a trim stick C-4755 or a hard wood wedge behind the emblem to separate the adhesive backing from the body.

(4) Clean adhesive residue from body with MOPAR® Super Clean solvent or equivalent.

INSTALLATION

(1) Remove protective cover from adhesive tape on back of emblem.

(2) Position emblem properly on body.

(3) Press emblem firmly to body with palm of hand.

(4) If temperature is below 21°C (70°F) warm emblem with a heat lamp or gun to assure adhesion. Do not exceed 52°C (120°F) when heating emblem.

FRONT FENDER

REMOVAL

(1) Using a grease pencil or equivalent, mark position of fender.
(2) Remove front fender liner.
(3) Pull back fascia and remove screws attaching fender to fascia.
(4) Remove screws attaching lower fender bracket located behind fascia.
(5) Remove screws attaching fender to rocker panel (Fig. 6).
(6) Remove screws attaching rear of fender to A-pillar brackets.
(7) Open hood.
(8) Loosen screw under hood hinge, attaching fender to engine compartment rail.
(9) Remove screws attaching fender to engine compartment rail (Fig. 7).
(10) Right fender only:
(a) If equipped, remove radio antenna. (Refer to 8 - ELECTRICAL/AUDIO/ANTENNA BODY & CABLE - REMOVAL)
(11) Separate fender from body.

INSTALLATION

(1) Position fender on body.
(2) If equipped, install radio antenna. (Refer to 8 - ELECTRICAL/AUDIO/ANTENNA BODY & CABLE - INSTALLATION)
(3) Install all screws finger-tight.
(4) Align fender with adjacent body panels and reference marks. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)
(5) Tighten all screws to 12 N·m (9 ft. lbs.).
(6) Install inner fender liner.

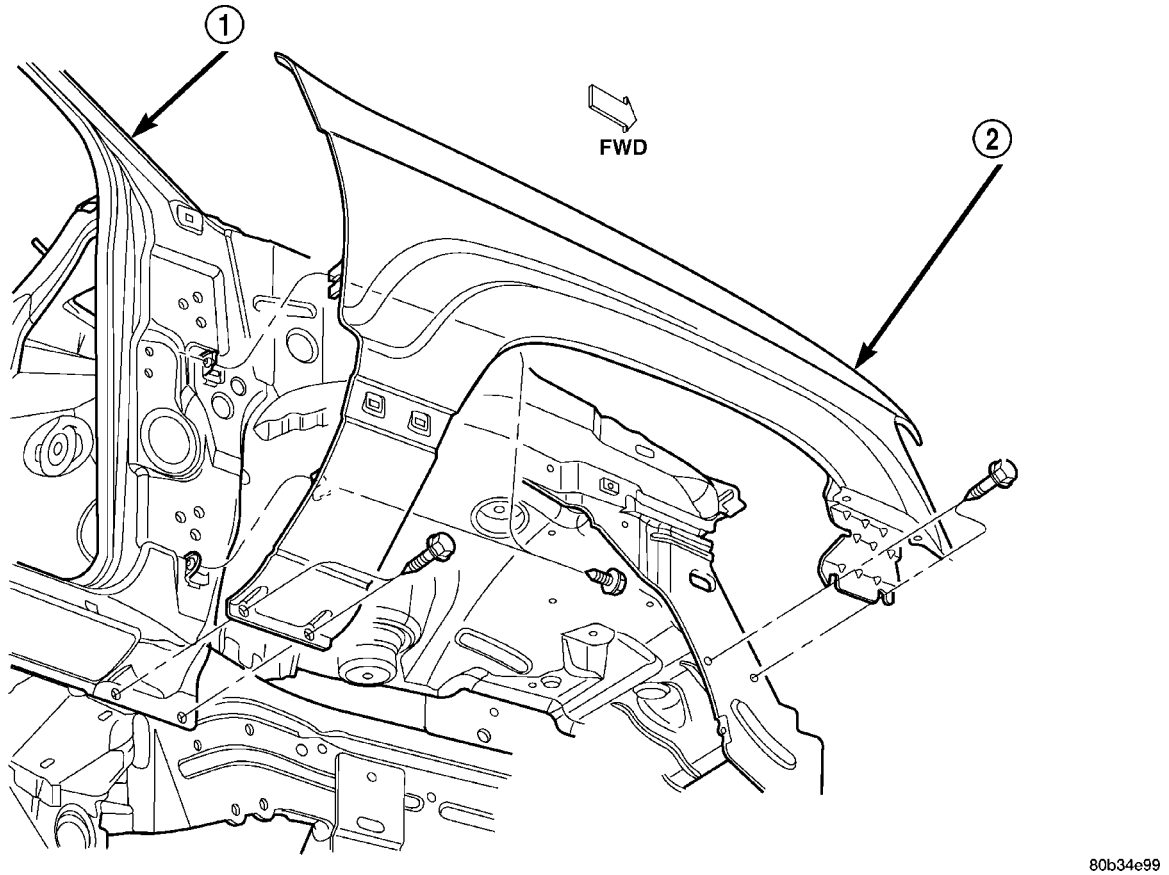


Fig. 6 FENDER MOUNTING

1 - BODY
2 - FENDER

FRONT FENDER (Continued)

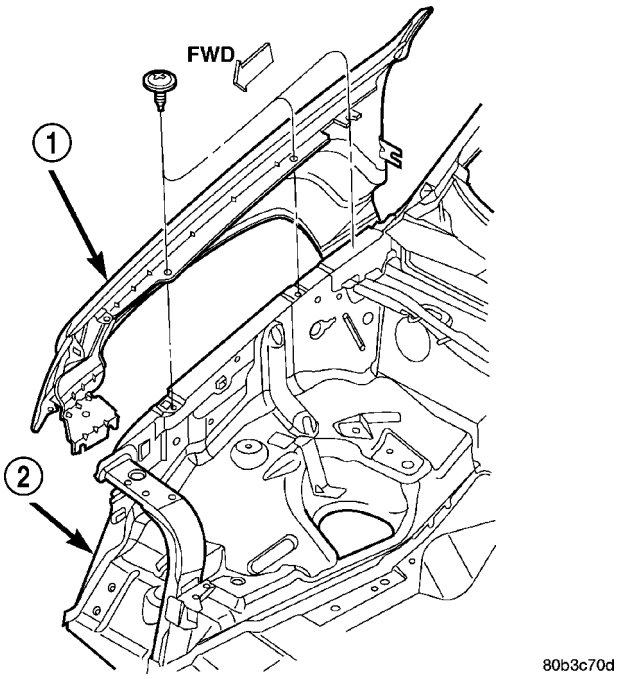


Fig. 7 UPPER FENDER MOUNTING

1 - FENDER
2 - BODY

FUEL FILL DOOR

REMOVAL

(1) Open the fuel filler door.
(2) Remove the screws attaching the door to the quarter panel (Fig. 8).
(3) Remove the door from the panel.

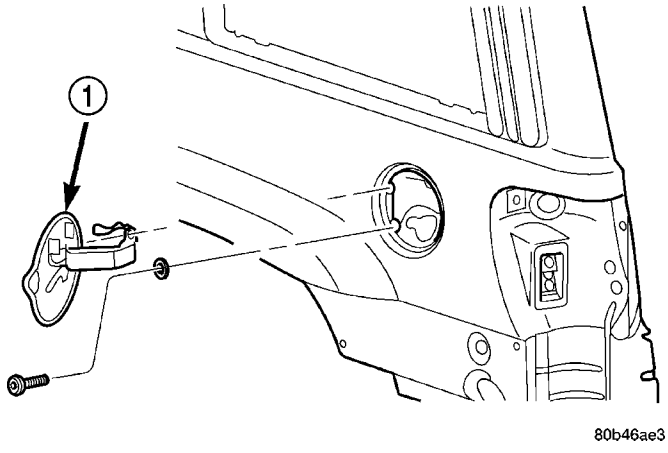


Fig. 8 FUEL FILLER DOOR

1 - FUEL FILL DOOR

INSTALLATION

(1) Position the fuel filler door on the quarter panel with the screw holes aligned.
(2) Install the screws attaching the fuel filler door to the quarter panel and tighten to 9 N·m (80 in. lbs.).

GRILLE

REMOVAL

(1) Remove fascia. (Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - REMOVAL)
(2) Disengage retainers attaching grille insert to grille/fascia.
(3) Separate grille insert from grille/fascia (Fig. 9).

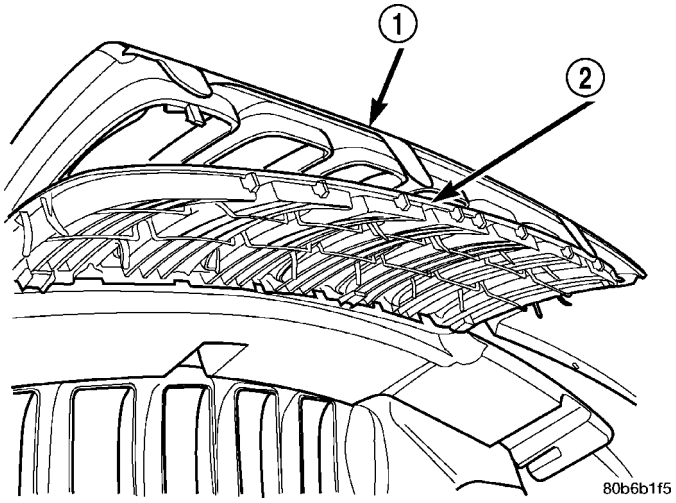


Fig. 9 GRILLE INSERT

1 - GRILLE/FASCIA
2 - INSERT

INSTALLATION

(1) Position grille insert in grille/fascia (Fig. 9).
(2) Engage retainers attaching grille insert to grille/fascia.
(3) Install fascia. (Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - INSTALLATION)

HEADLAMP MOUNTING MODULE (HMM)

REMOVAL

CAUTION: Take special care when handling the Headlight Mounting Module (HMM) not to damage the upper mounting tabs. Step #3 must be performed prior to removing HMM from the vehicle to prevent damage to HMM.

(1) Remove fascia. (Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - REMOVAL)
(2) Remove inner fender liner.
(3) Reach into the wheelhouse opening and disengage the retainer attaching the HMM to each side of the body.
(4) Remove bolts attaching headlamp mounting module to body (Fig. 10).
(5) Disconnect headlamp wire harness connectors.
(6) Separate headlamp mounting module from vehicle.

INSTALLATION

(1) Position headlamp mounting module (HMM) at vehicle.
(2) Connect headlamp wire harness connectors.
(3) Engage the retainer attaching the HMM to each side of the body.
(4) Install bolts attaching headlamp mounting module to body and tighten to 6 Nm (55 in. lbs.). (Fig. 10)
(5) Install inner fender liner.
(6) Install front fascia, refer to (Refer to 13 - FRAMES & BUMPERS/BUMPERS/FRONT FASCIA - INSTALLATION).

LUGGAGE RACK

REMOVAL

NOTE: The skid strips are attached to the roof panel with adhesive.

(1) Using a trim stick C-4755 or equivalent, pry support cover off.

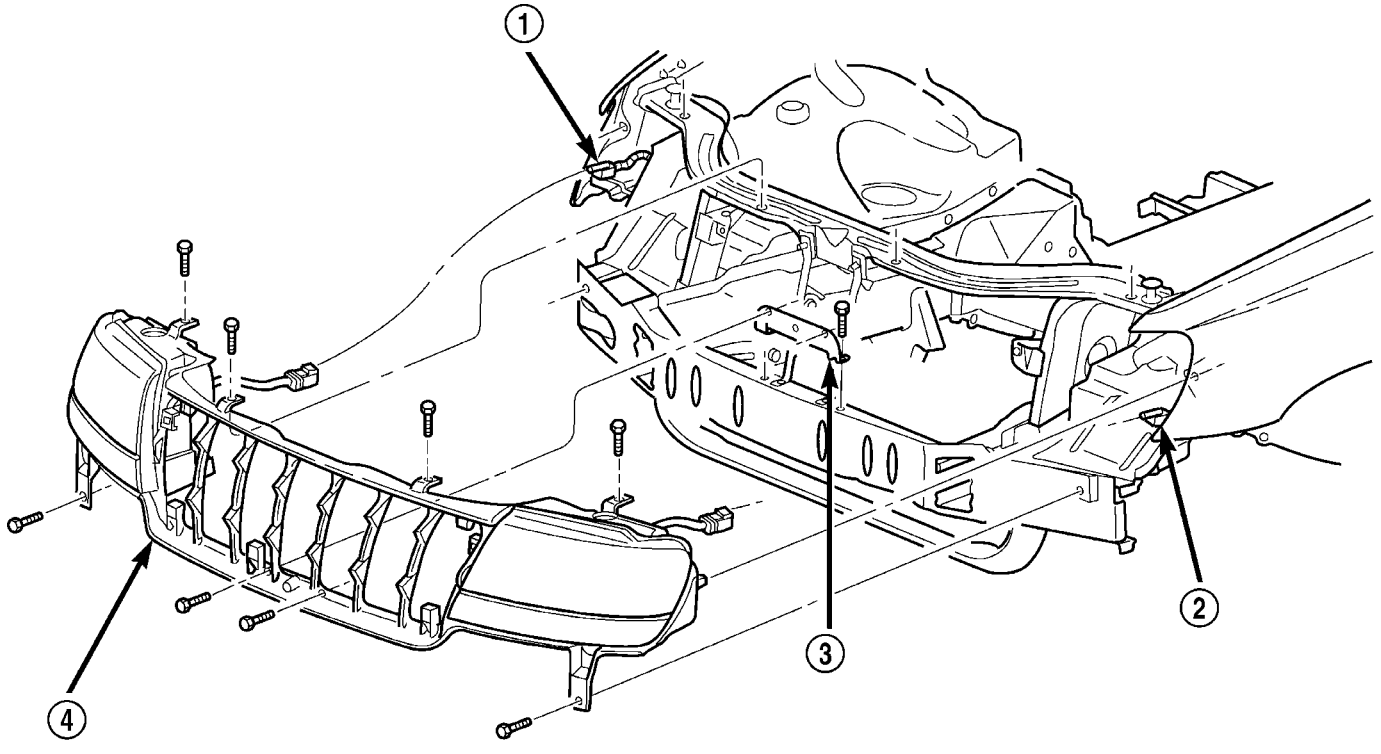


Fig. 10 HEADLAMP MOUNTING MODULE

1 - CONNECTOR
2 - CONNECTOR
3 - MOUNTING BRACKET
4 - HEADLAMP MODULE

LUGGAGE RACK (Continued)

(2) If necessary, slide the crossbars to expose the screws attaching the slide rails to the supports.
(3) Remove the screws retaining the slide rails to the supports.
(4) Remove the screws attaching the supports to the roof panel.
(5) Separate the supports from the roof panel.

NOTE: If a crossbar needs to be serviced, the forward or rearward supports will have to be removed.

INSTALLATION

(1) Position the supports on the roof panel and install the screw. Be sure that the gasket is properly seated.
(2) Position the luggage rack on the supports.
(3) Install the screws attaching the side rails to the supports.
(4) Position the supports covers on the supports and press into place.

SIDE VIEW MIRROR GLASS

REMOVAL

WARNING: ALWAYS WEAR EYE AND HAND PROTECTION WHEN SERVICING THE MIRROR ASSEMBLY. FAILURE TO OBSERVE THESE WARNINGS MAY RESULT IN PERSONAL INJURY FROM BROKEN GLASS.

(1) Carefully pull/pry the broken glass holder from the mirror assembly.
(2) Disconnect the heated mirror electrical connectors from the terminals on the mirror glass holder, if equipped.

INSTALLATION

CAUTION: It is important to make sure the motor is square to the glass holder (attaching fingers) prior to glass holder attachment, otherwise the glass holder could be installed incorrectly causing poor retention and possible repeat failure.

(1) Position the new mirror glass holder to the mirror assembly.

NOTE: Position the mirror glass holder so that the moisture drain hole on the mirror glass holder assembly is facing downward.

(2) Align the mirror glass holder's attaching fingers to the mirror motor housing.

NOTE: Ensure that the protective rubber cover of the mirror motor housing is positioned correctly around the bottom of the fingers area.

(3) Using one hand, firmly press the mirror glass holder assembly into place while at the same time supporting the housing assembly from the backside with the other hand.

NOTE: Pressure must be applied equally over the center portion of the mirror to engage the mirror glass holder's attaching fingers to the corresponding fingers on the housing assembly. One or more clicks may be heard when finger engagement takes place.

(4) Verify retention of the mirror glass holder assembly by gently pulling outward on the mirror glass holder.

SIDE VIEW MIRROR

REMOVAL

(1) Remove door trim panel, refer to (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL).
(2) Disengage power mirror harness connector, if equipped.
(3) Remove mirror flag seal.
(4) Remove nuts attaching mirror to door (Fig. 11).
(5) Separate mirror from door.

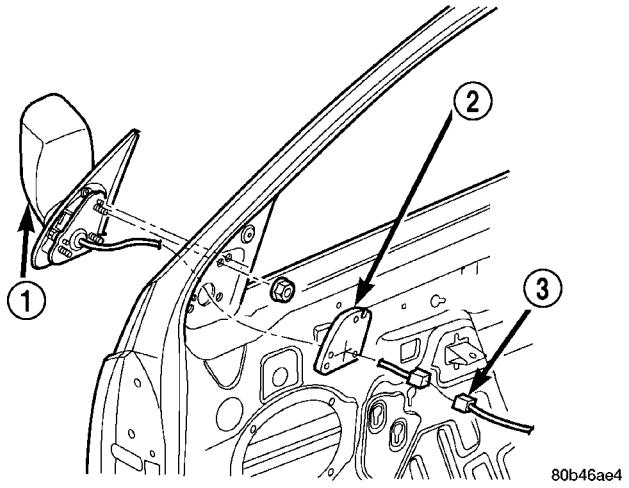


Fig. 11 SIDE VIEW MIRROR

1 - SIDEVIEW MIRROR
2 - MIRROR FLAG SEAL
3 - CONNECTOR

INSTALLATION

(1) Position mirror on door. Verify that gasket seal is properly positioned.
(2) Install nuts attaching mirror to door (Fig. 11).

SIDE VIEW MIRROR (Continued)

(3) Install mirror retaining nuts and tighten to 7 N·m (60 in. lbs.).
(4) Install mirror flag seal.
(5) Engage power mirror harness connector, if equipped.
(6) Install door trim panel, refer to (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - INSTALLATION).

ROCK RAIL

REMOVAL

(1) Remove the bolts and remove the rock rail. (Fig. 12)

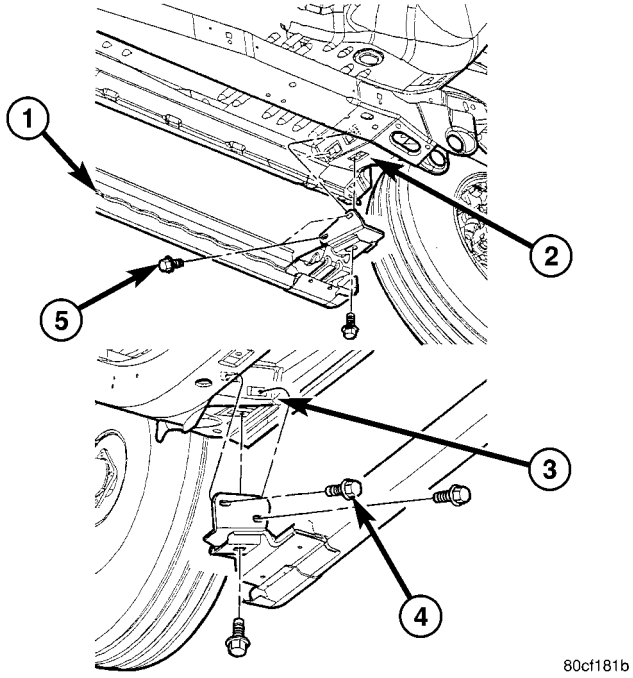


Fig. 12 ROCK RAIL

1 - ROCK RAIL
2 - J-NUTS (3)
3 - J-NUTS (3)
4 - BOLTS (3)
5 - BOLTS (3)

INSTALLATION

NOTE: Shims may be used to adjust rock rail positioning, if required.

(1) Loosen the rear bracket slide bolts. (Fig. 13)
(2) Install the rock rail and install the bolts.
(3) Tighten the front bolts to 27 N·m (20 ft. lbs.).
(4) Slide the rear bracket to contact the mounting surface and tighten the rear mounting bolts to 27 N·m (20 ft. lbs.).
(5) Tighten the slide bolts to 27 N·m (20 ft. lbs.).
(6) Loosen the end cap bolts and slide the end caps against the body.
(7) Tighten the end cap bolts.

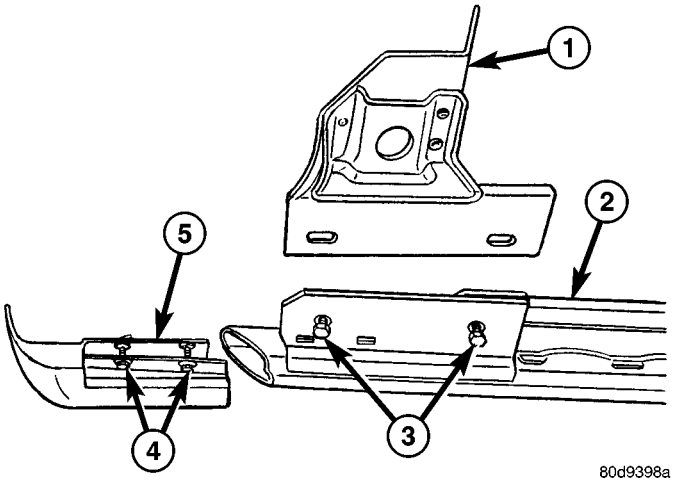


Fig. 13 REAR ROCK RAIL BRACKET

1 - REAR BRACKET
2 - ROCK RAIL
3 - REAR BRACKET BOLTS (2)
4 - END CAP BOLTS (2 PER CAP)
5 - END CAP (2)

HOOD

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GAS PROP

REMOVAL

(1) Raise and support hood.
(2) Using a small flat blade, pry the retainer attaching hood support prop to lower ball stud.
(3) Slide retainer attaching hood support prop upper ball stud downward.
(4) Disconnect hood support prop from lower ball stud and rotate support prop upward and disconnect from upper ball stud (Fig. 1).

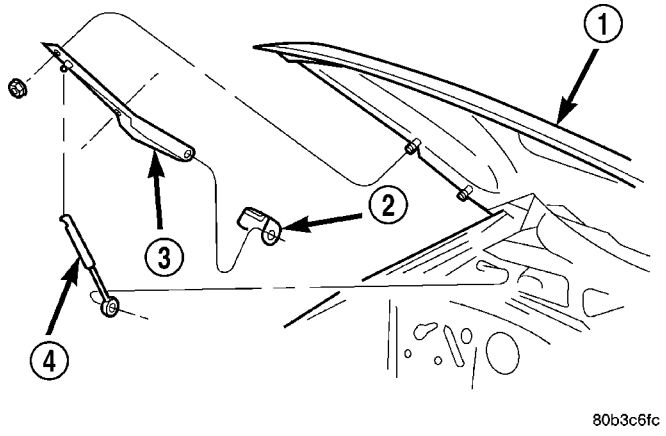


Fig. 1 HOOD SUPPORT PROP

1 - HOOD
2 - COVER
3 - HINGE
4 - PROP

INSTALLATION

(1) Position hood support prop on upper ball stud (Fig. 1).
(2) Slide retainer upward to secure support prop to upper ball stud.
(3) Position support prop on lower ball stud and press retainer inward to secure.

HINGE

REMOVAL

NOTE: It is not necessary to remove the hood to replace one or both hinges. The hinges can be replaces one at a time.

(1) Raise and support hood.
(2) Using a grease pencil or equivalent, mark the position of the hinge.
(3) Remove the hood hinge gas prop. (Refer to 23 - BODY/HOOD/GAS PROP - REMOVAL)
(4) Remove thenuts attaching hinge to hood (Fig. 1).
(5) Remove the bolts attaching hinge to body.
(6) Separate the hinge from vehicle.

INSTALLATION

(1) Position hinge on vehicle and align reference marks.
(2) Install bolts attaching hinge to body and tighten to 12 N·m (9 ft. lbs.).
(3) Install nuts attaching hinge to hood and tighten to 12 N·m (9 ft. lbs.).
(4) Install hood hinge prop rod. (Refer to 23 - BODY/HOOD/GAS PROP - INSTALLATION)
(5) Check hood fit and adjust if required. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

HOOD

REMOVAL

(1) Raise and support the hood.
(2) If equipped, disconnect underhood lamp harness connector. (Connector is located under cowl cover).
(3) Using a grease pencil or equivalent, mark location of hood hinges on hood for installation alignment.
(4) Remove hood gas props. (Refer to 23 - BODY/HOOD/GAS PROP - REMOVAL)
(5) Remove bolts attaching hinges to hood.
(6) With the aid of a helper, remove hood from vehicle.

INSTALLATION

(1) Position hood on hinges.
(2) Install bolts finger-tight.
(3) Align hinges with installation reference marks and tighten bolts 12 N·m (9 ft. lbs.).
(4) Install hood gas props. (Refer to 23 - BODY/HOOD/GAS PROP - INSTALLATION)
(5) Connect underhood lamp connector.
(6) Inspect hood for proper alignment and adjust as necessary. (Refer to 23 - BODY/HOOD/HOOD - ADJUSTMENTS)

ADJUSTMENTS

HOOD ADJUSTMENT

NOTE: The hood attaching holes are enlarged to aid front, back and side to side adjustment.

(1) Check the hood alignment. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)
(2) If hood is low in relation to cowl panel, insert shims between hinge and hood.
(3) Adjust hood bumper in or out to adjust hood-to-fender height alignment.
(4) Adjust the hood latch as necessary. Tighten the nuts to 11N·m (8 ft. lbs.).
(5) Align the latch striker so that striker enters the latch squarely and without binding.

INSULATION

REMOVAL

(1) Raise the hood.
(2) Remove the insulation panel fasteners.
(3) Remove the hood insulation panel.

INSTALLATION

(1) Position the insulation panel on the underside of the hood.
(2) Install the insulation panel fasteners.
(3) Close the hood.

LATCH

REMOVAL

(1) Remove nuts attaching latch to radiator crossmember support (Fig. 2).
(2) Disconnect hood release cable from latch.
(3) Separate latch from vehicle.

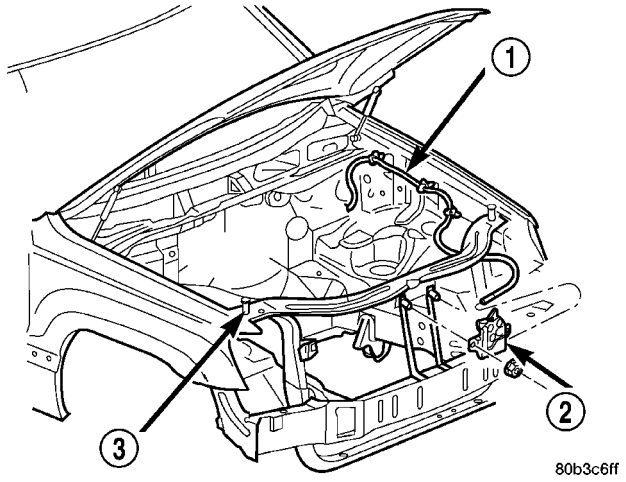


Fig. 2 HOOD LATCH

1 - HOOD RELEASE CABLE
2 - LATCH
3 - BUMPER

INSTALLATION

(1) Connect latch release cable to latch.
(2) Position latch on radiator crossmember support.
(3) Install nuts attaching latch to radiator crossmember support. Tighten nuts to 11 N·m (8 ft. lbs.) torque (Fig. 2).
(4) Check hood fit and adjust if required. (Refer to 23 - BODY/BODY STRUCTURE/GAP AND FLUSH - SPECIFICATIONS)

LATCH RELEASE CABLE

REMOVAL

(1) Disconnect cable from hood latch (Fig. 3).
(2) Disconnect cable from retaining clips on left inner fender panel.
(3) Remove left cowl side trim panel.
(4) Remove fasteners attaching cable bracket to cowl side panel (Fig. 4).
(5) Route cable through dash panel and remove it from under instrument panel.

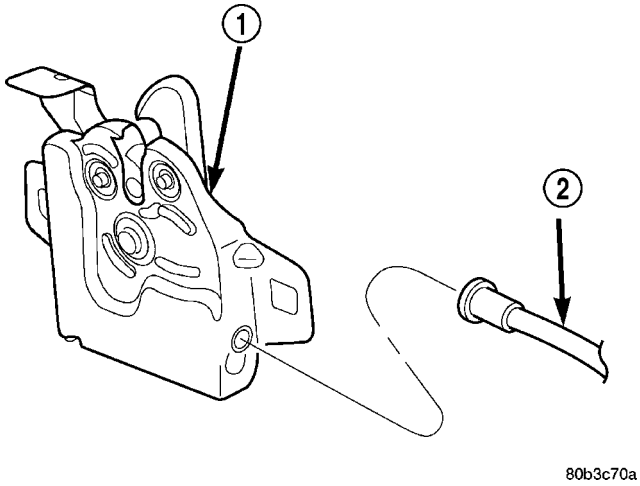


Fig. 3 HOOD LATCH

1 - HOOD LATCH
2 - HOOD RELEASE CABLE

INSTALLATION

(1) Route cable through hole in dash panel into engine compartment.

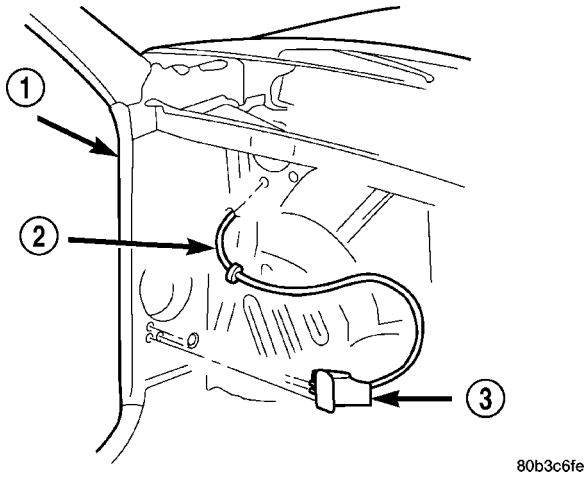


Fig. 4 HOOD RELEASE CABLE

1 - LOWER COWL
2 - HOOD RELEASE CABLE
3 - RELEASE HANDLE

(2) Pull cable forward and seat grommet in dash panel.
(3) Position cable bracket on cowl side panel and install fasteners (Fig. 4).
(4) Install left cowl side trim panel.
(5) Route and install cable in retaining clips on left inner fender panel.
(6) Connect cable to hood latch (Fig. 3).

INSTRUMENT PANEL SYSTEM

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CLUSTER BEZEL

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Place the tilt steering wheel in its fully lowered position.

(3) Using a trim stick C-4755 or equivalent, gently pry each of the four corners of the cluster bezel away from the instrument panel far enough to disengage the four snap clips from their receptacles (Fig. 1).

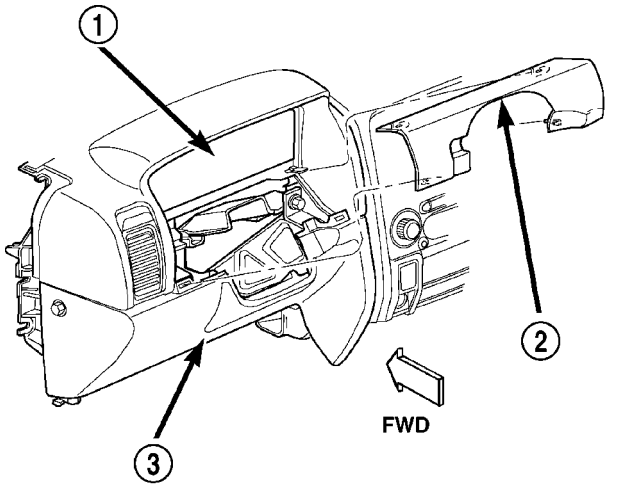


Fig. 1 CLUSTER BEZEL REMOVE/INSTALL

1 - INSTRUMENT CLUSTER
2 - INSTRUMENT PANEL CLUSTER BEZEL
3 - STEERING COLUMN OPENING COVER

(4) Being certain not to scratch the instrument cluster lens with the two snap clips on the lower edge of the cluster bezel, roll the top of the cluster bezel rearward over the top of the steering column.

(5) If equipped, reach behind the cluster bezel to access and disconnect the instrument panel wire harness connector for the headlamp leveling switch from the switch connector receptacle.

(6) Remove the cluster bezel from the instrument panel.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the cluster bezel onto the instrument panel (Fig. 1).

(2) If equipped, reach behind the cluster bezel to access and reconnect the instrument panel wire harness connector for the headlamp leveling switch to the switch connector receptacle.

(3) Being certain not to scratch the instrument cluster lens with the two snap clips on the lower edge of the cluster bezel, slide the lower edge of the cluster bezel forward and down over the top of the steering column to position it onto the instrument panel.

(4) Align the two snap clips on the lower edge of the cluster bezel with their receptacles in the instrument panel.

(5) Press firmly on the cluster bezel over each of the lower snap clip locations until each of the snap clips is fully engaged in its receptacle.

(6) Align the two receptacles on the upper edge of the cluster bezel with the snap clips on the instrument panel.

(7) Press firmly on the cluster bezel over each of the upper snap clip locations until each of the snap clips is fully engaged in its receptacle.

(8) Connect the battery negative cable.

GLOVE BOX

STANDARD PROCEDURE - GLOVE BOX ROLL DOWN

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Open the glove box until the integral stops on the back edge of the glove box bin are resting against the rubber stop bumpers in the upper glove box opening reinforcement.

(3) Reach into the glove box and with the middle finger of each hand, deflect the rubber flap of the two glove box stop bumpers on the upper glove box opening reinforcement toward the front of the vehicle.

(4) With the glove box stop bumpers deflected, roll the glove box door downward until the integral stops on the back edge of the glove box bin pass through the rubber stop bumper openings in the upper glove box opening reinforcement (Fig. 2)

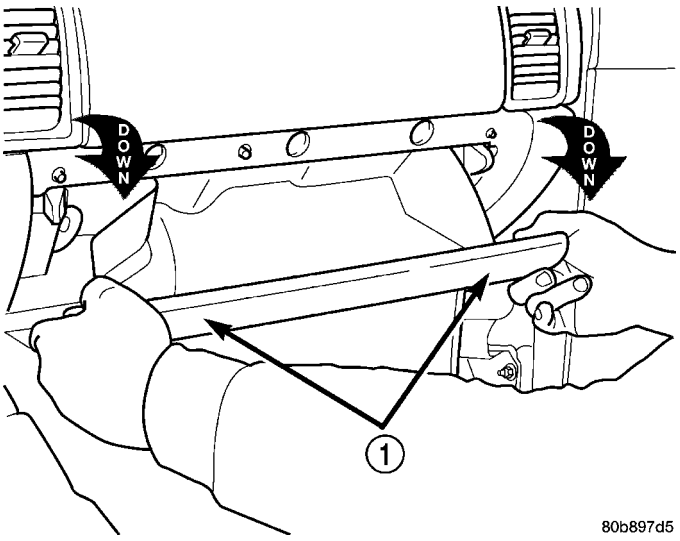


Fig. 2 GLOVE BOX ROLL DOWN

1 - GLOVE BOX DOOR

(5) Before rolling the glove box back up into the instrument panel, grasp the pneumatic glove box damper arm and pull the connector feature rearward to the end of its travel. The rubber stop bumpers will be deflected automatically by the integral stops on the back of the glove box when the glove box is rolled back up into the instrument panel.

(6) With the glove box stops oriented behind the stop bumpers, position the connector feature of the damper to the keyed slot on the outboard end of the glove box bin.

(7) Using hand pressure, press downward on the damper arm until the damper connector feature snaps back into the keyed slot.

REMOVAL

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(1) Disconnect and isolate the battery negative cable.

(2) Roll the glove box down from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/ GLOVE BOX - STANDARD PROCEDURE - GLOVE BOX ROLL DOWN).

NOTE: Be certain to use care not to damage or remove the glove box hinge bumpers on the lower instrument panel glove box opening reinforcement when removing the glove box from the instrument panel.

(3) Firmly grip both ends of the glove box door, then twist and pull the door as necessary to disengage the inboard hinge hook from the inboard hinge pin on the instrument panel and reorient the hook to the underside of the hinge pin (Fig. 3).

(4) Raise the glove box door until it is perpendicular to the instrument panel.

(5) Twist the door slightly in the counterclockwise direction and use a jiggling action to disengage the remaining two hinge hooks from their respective hinge pins on the instrument panel.

(6) Remove the glove box from the instrument panel.

GLOVE BOX (Continued)

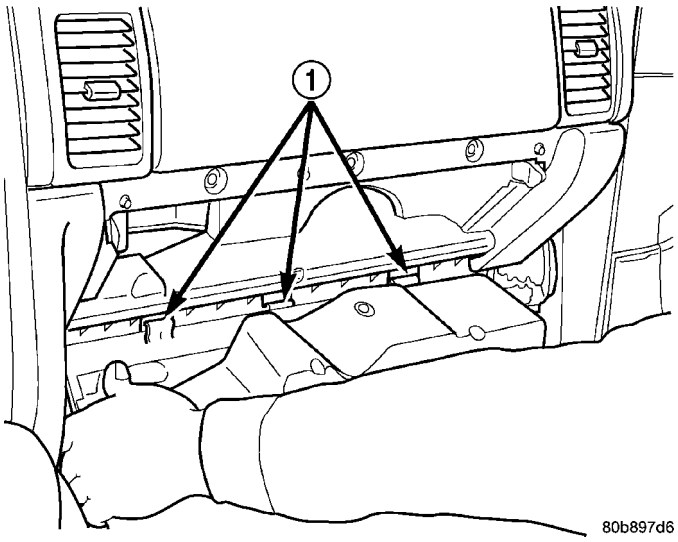


Fig. 3 GLOVE BOX REMOVE/INSTALL

1 - GLOVE BOX HINGE HOOKS AND HINGE PINS (3)

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

NOTE: Be certain to use care not to damage or remove the glove box hinge bumpers on the lower instrument panel glove box opening reinforcement when installing the glove box onto the instrument panel.

(1) Position the glove box to the instrument panel with the outboard hinge hook oriented over the outboard hinge pin and the center hinge hook oriented under the center hinge pin (Fig. 3).

(2) Raise the glove box door until it is perpendicular to the instrument panel.

(3) Firmly grip both ends of the glove box door and twist the door slightly in the clockwise direction to engage the inboard glove box hinge hook over the inboard hinge pin on the instrument panel.

(4) Roll the glove box back up into the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/ GLOVE BOX - STANDARD PROCEDURE - GLOVE BOX ROLL DOWN).

(5) Connect the battery negative cable.

GLOVE BOX LATCH

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Roll down the glove box from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/ GLOVE BOX - STANDARD PROCEDURE - GLOVE BOX ROLL DOWN).

(3) Remove the three screws that secure the glove box latch to the inner glove box door (Fig. 4).

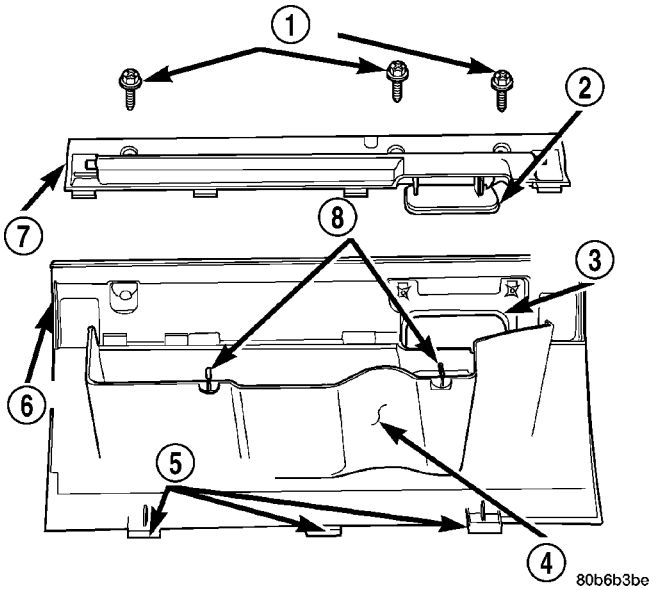


Fig. 4 GLOVE BOX LATCH REMOVE/INSTALL

1 - SCREW (3)
2 - LATCH HANDLE
3 - LATCH HANDLE POCKET
4 - BIN
5 - HINGE HOOKS
6 - DOOR
7 - GLOVE BOX LATCH
8 - STOPS

GLOVE BOX LATCH (Continued)

(4) Lift up on the latch handle on the outer glove box door far enough to loosen the latch assembly on the inner glove box door.

(5) Remove the latch unit from the inner glove box door.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the latch unit to the inner glove box door (Fig. 4).

(2) Guide the latch handle into the latch handle pocket on the outer glove box door.

(3) Install and tighten the three screws that secure the glove box latch to the inner glove box door.

(4) Roll the glove box back up into the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/GLOVE BOX - STANDARD PROCEDURE - GLOVE BOX ROLL DOWN).

(5) Connect the battery negative cable.

GLOVE BOX LATCH STRIKER

REMOVAL

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(1) Disconnect and isolate the battery negative cable.

(2) If the inboard glove box latch striker is being serviced, remove the lower right center bezel from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL - REMOVAL). If the outboard glove box latch striker is being serviced, remove the end cap from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL END CAP - REMOVAL).

(3) Remove the one screw that secures the upper mounting flange of the glove box latch striker to the instrument panel structural duct at either side of the glove box opening (Fig. 5).

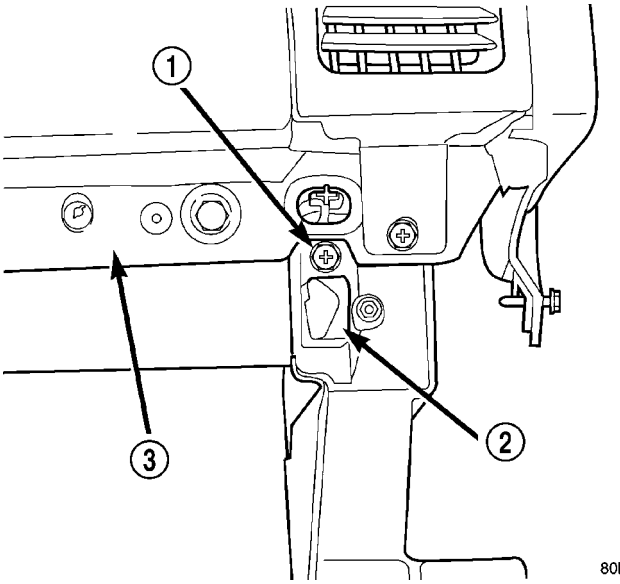


Fig. 5 GLOVE BOX LATCH STRIKER REMOVE/INSTALL

1 - SCREW
2 - GLOVE BOX LATCH STRIKER
3 - INSTRUMENT PANEL TOP PAD

(4) Pull the upper mounting flange of the glove box latch striker downward to disengage the hook formation on the lower end of the striker from the mounting hole in the instrument panel structural duct.

(5) Remove the glove box latch striker from the instrument panel.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

GLOVE BOX LATCH STRIKER (Continued)

(1) Position the glove box latch striker to the instrument panel.

(2) Engage the hook formation on the lower end of the glove box latch striker in the mounting hole in the instrument panel structural duct.

(3) Roll the upper mounting flange of the glove box latch striker upward until it is flush with the instrument panel structural duct on either side of the glove box opening.

(4) Install and tighten the screw that secures the upper mounting flange of the glove box latch striker to the instrument panel structural duct (Fig. 5).

(5) If the inboard glove box latch striker was serviced, reinstall the lower right center bezel onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL - INSTALLATION). If the outboard glove box latch striker was serviced, reinstall the end cap onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL END CAP - INSTALLATION).

(6) Connect the battery negative cable.

INSTRUMENT PANEL END CAP

REMOVAL

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(1) Disconnect and isolate the battery negative cable.

(2) Unlatch and open the glove box.

(3) Remove the one screw that secures the outboard end of the end cap to the instrument panel top pad (Fig. 6).

(4) Remove the three screws that secure the end cap to the instrument panel glove box opening.

(5) Pull the end cap straight back from the instrument panel to disengage the one snap clip that secures it to the receptacle in the instrument panel structural duct.

(6) Remove the end cap from the instrument panel.

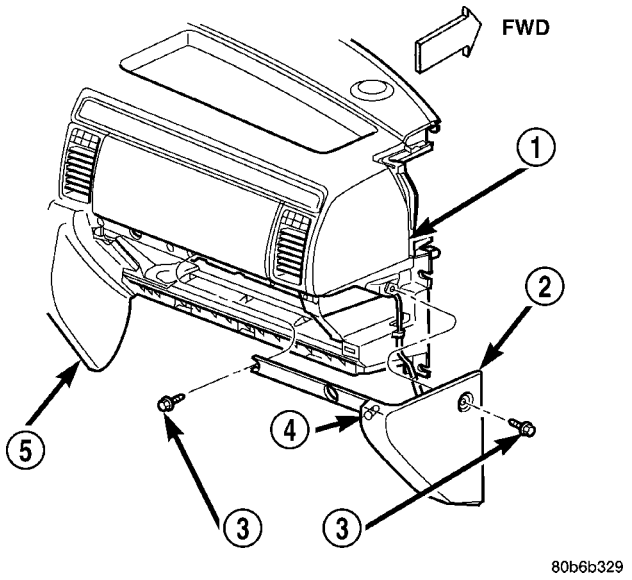


Fig. 6 INSTRUMENT PANEL END CAP REMOVE/INSTALL

1 - INSTRUMENT PANEL TOP PAD
2 - END CAP
3 - SCREW (4)
4 - BUMPER
5 - LOWER RIGHT CENTER BEZEL

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Be certain that the glove box catch bumper is installed in the mounting hole nearest the outboard end of the end cap extension over the instrument panel upper glove box opening reinforcement (Fig. 6).

(2) Position the end cap to the instrument panel. Be certain that the end of the end cap extension near the center of the upper glove box opening reinforcement is positioned underneath the end of the extension from the lower right center bezel.

(3) Align the snap clip on the end cap with the receptacle on the instrument panel structural duct.

(4) Press firmly on the instrument panel end cap over the snap clip location until the snap clip is fully engaged in its receptacle.

INSTRUMENT PANEL END CAP (Continued)

(5) Install and tighten the three screws that secure the end cap to the instrument panel glove box opening.

(6) Install and tighten the one screw that secures the outboard end of the end cap to the instrument panel top pad.

(7) Close and latch the glove box.

(8) Connect the battery negative cable.

INSTRUMENT PANEL STRUCTURAL DUCT

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument panel from the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - REMOVAL).

(3) Place the instrument panel on a suitable work surface. Be certain to take the proper precautions to protect the instrument panel from any possible cosmetic damage.

(4) Remove all of the individual components that remain secured to the instrument panel structural duct as described elsewhere in this service information.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Install all of the individual components that were removed from the instrument panel structural duct as described elsewhere in this service information.

(2) Install the instrument panel into the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - INSTALLATION).

(3) Connect the battery negative cable.

INSTRUMENT PANEL TOP COVER

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Using a trim stick C-4755 or equivalent, gently pry the rear edge (farthest from the windshield) of the top cover up and away from the instrument panel far enough to disengage the four snap clip retainers from their receptacles in the instrument panel top pad (Fig. 7).

(3) Remove the top cover from the top of the instrument panel.

INSTRUMENT PANEL TOP COVER (Continued)

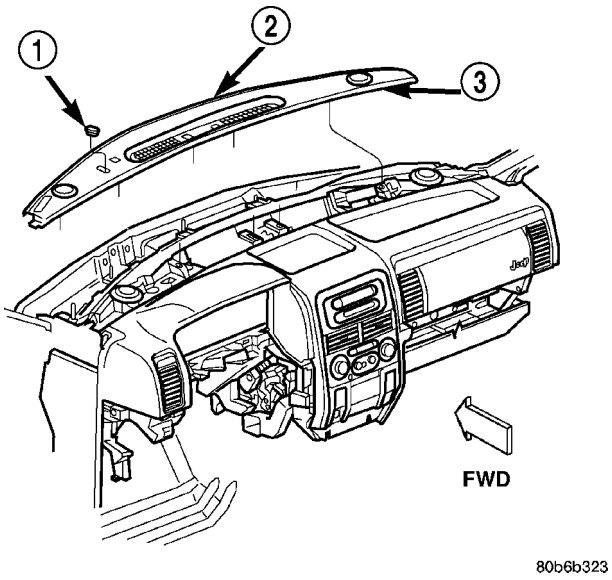


Fig. 7 INSTRUMENT PANEL TOP COVER REMOVE/INSTALL

1 - ULTRA LIGHT SENSOR PLUG
2 - SEAL
3 - INSTRUMENT PANEL TOP COVER

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) If the vehicle is not equipped with the optional automatic headlamps light sensor/vehicle theft security system indicator, be certain that the hole plug is installed in the clearance hole located to the outboard side of the driver side defroster outlet in the instrument panel top cover (Fig. 7).

(2) Before installing the top cover onto the top of the instrument panel, be certain that the rubber top cover seal is properly positioned on the forward edge of the top cover panel.

(3) Position the top cover onto the top of the instrument panel.

(4) Align the four snap clips on the top cover with the snap clip receptacles in the instrument panel top pad.

(5) Press firmly downward on the top cover over each of the four snap clip locations until each of the snap clips is fully seated in their receptacles in the instrument panel top pad.

(6) Connect the battery negative cable.

INSTRUMENT PANEL TOP PAD

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the trim from the right and left A-pillars. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - REMOVAL).

(3) Remove the top cover from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP COVER - REMOVAL).

(4) Remove the four nuts that secure the instrument panel top pad to the studs on the dash panel near the windshield fence line (Fig. 8).

(5) Remove the speakers from the instrument panel top pad. (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - REMOVAL - INSTRUMENT PANEL SPEAKER).

(6) Disengage the retainer that secures each of the two instrument panel wire harness speaker take outs to the mounting hole in the instrument panel top pad. Tuck the loose ends of these speaker take outs down the defroster ducts to keep them out of the way during the remainder of this procedure.

(7) If equipped, remove the two screws that secure the automatic headlamp light sensor/vehicle theft security system indicator unit to the instrument panel top pad just outboard of the driver side defroster outlet. Move the sensor/indicator unit towards the windshield to keep it out of the way during the remainder of this procedure.

(8) Remove the cluster bezel. (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - REMOVAL).

INSTRUMENT PANEL TOP PAD (Continued)

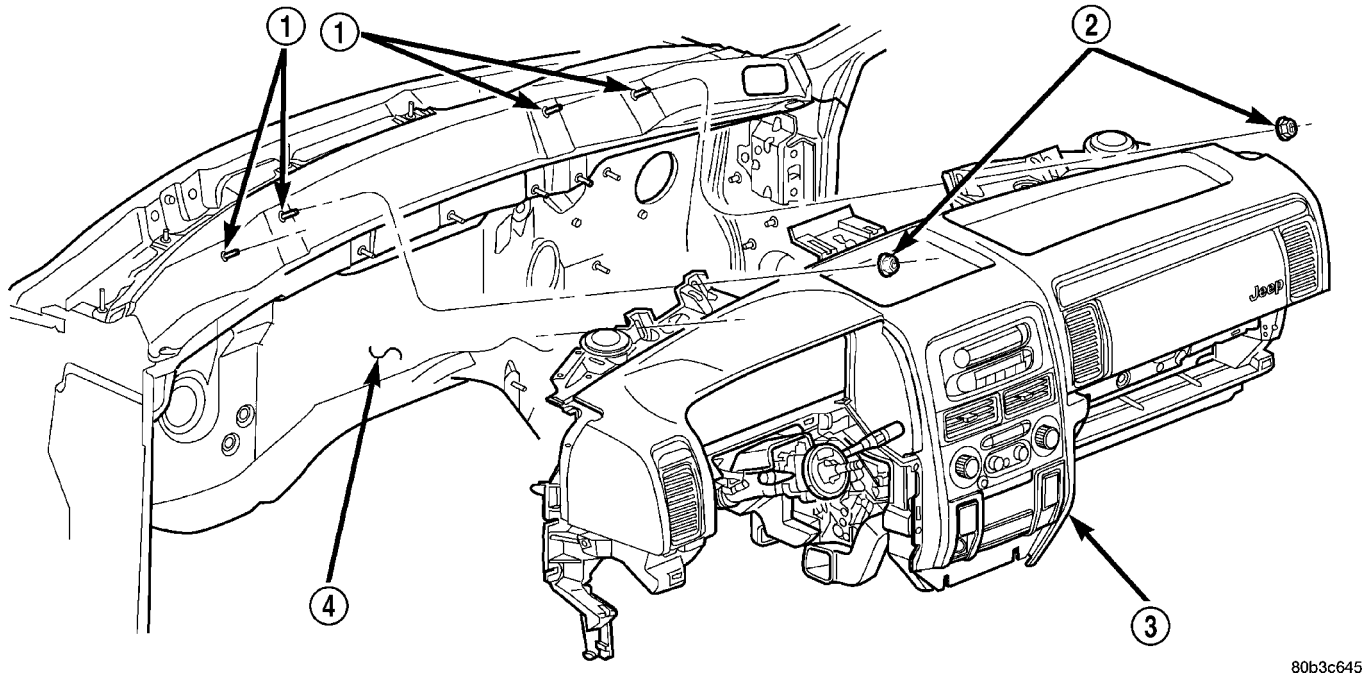


Fig. 8 INSTRUMENT PANEL TOP PAD TO DASH PANEL MOUNTING

1 - STUD (4)
2 - NUT (4)
3 - INSTRUMENT PANEL
4 - DASH PANEL

(9) Remove the instrument cluster. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - REMOVAL).

(10) Remove the steering column opening cover. (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).

(11) Roll the glove box down. (Refer to 23 - BODY/INSTRUMENT PANEL/GLOVE BOX - STANDARD PROCEDURE - GLOVE BOX ROLL DOWN).

(12) Remove the end cap from the passenger side lower outboard end of the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL END CAP - REMOVAL).

(13) Remove the lower right center bezel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL - REMOVAL).

(14) Remove the glove box lamp and switch. (Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - INTERIOR/GLOVE BOX LAMP/SWITCH - REMOVAL).

(15) Remove the two large screws on the glove box opening upper reinforcement that secure the top pad to the instrument panel structural duct (Fig. 9).

(16) Remove the two small screws on the glove box opening upper reinforcement that secure the panel outlets to the instrument panel structural duct.

(17) Remove the center upper bezel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER BEZEL - UPPER - REMOVAL).

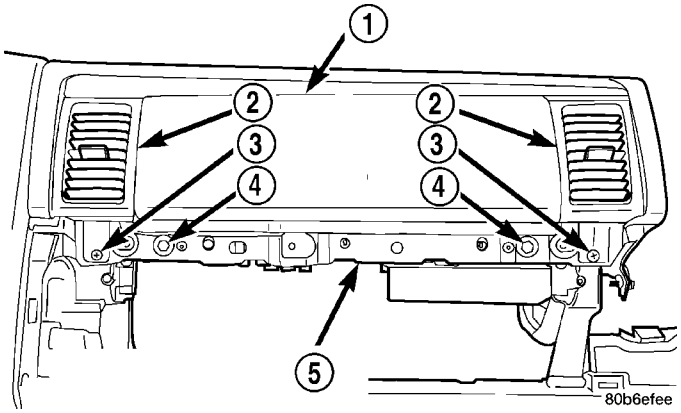


Fig. 9 INSTRUMENT PANEL TOP PAD TO GLOVE BOX OPENING MOUNTING

1 - PASSENGER SIDE TRIM BEZEL
2 - PANEL OUTLETS
3 - SMALL SCREWS
4 - LARGE SCREWS
5 - GLOVE BOX OPENING UPPER REINFORCEMENT

(18) Remove the center lower bezel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER BEZEL - LOWER - REMOVAL).

(19) Remove the four screws that secure the radio to the instrument panel structural duct. Pull the radio out of the instrument panel only far enough to access the screws that secure the top pad to the instrument panel structural duct.

INSTRUMENT PANEL TOP PAD (Continued)

(20) Remove the four screws that secure the heater-A/C control to the instrument panel structural duct. Pull the heater-A/C control out of the instrument panel only far enough to access the screws that secure the top pad to the instrument panel structural duct.

(21) Remove all of the screws that secure the perimeter of the top pad to the instrument panel structural duct.

(22) Remove the front bin from the floor console. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).

(23) Reach through the front bin opening of the floor console to access and remove the two screws that secure the center floor tunnel bracket to the instrument panel.

(24) Reach through the front bin opening of the floor console to access and loosen the two nuts that secure the center floor tunnel bracket to the studs on the floor panel transmission tunnel.

(25) Slide the center floor tunnel bracket rearward in the vehicle far enough to disengage the locating hole in the lower flange of the top pad from the locating pin on the instrument panel structural duct (Fig. 10).

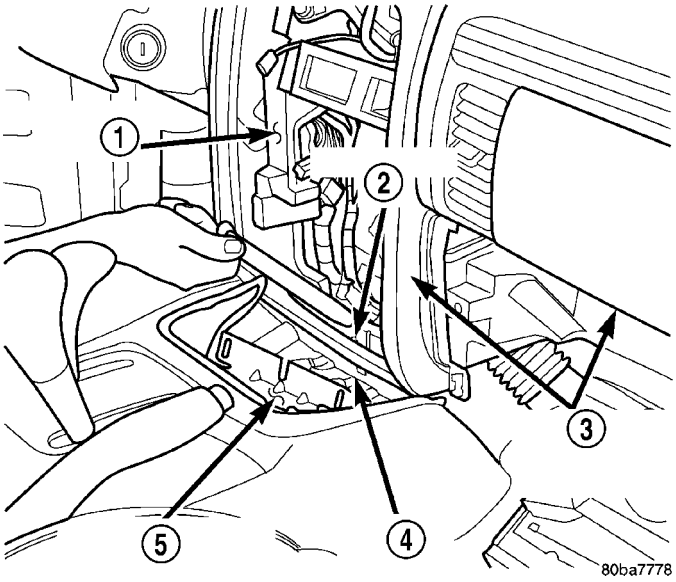


Fig. 10 INSTRUMENT PANEL TOP PAD REMOVE/INSTALL

1 - STRUCTURAL DUCT
2 - LOCATING PIN
3 - INSTRUMENT PANEL TOP PAD
4 - LOWER FLANGE
5 - CENTER FLOOR TUNNEL BRACKET

(26) Remove the instrument panel top pad from the instrument panel structural duct.

INSTALLATION

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If the top pad is being replaced with a new unit, be certain to transfer or install the panel outlets and the passenger side trim bezel to the new unit before it is installed on the instrument panel structural duct. (Refer to 24 - HEATING & AIR CONDITIONING/DISTRIBUTION/AIR OUTLETS - REMOVAL) and (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TRIM BEZEL - PASSENGER - REMOVAL).

(1) Position the instrument panel top pad over the instrument panel structural duct and the studs on the dash panel near the windshield fence line.

(2) Route the instrument panel wire harness take out for the glove box lamp and switch unit to the switch mounting hole in the upper glove box opening reinforcement.

(3) Reach through the front bin opening of the floor console to engage the locating hole in the lower flange of the top pad with the locating pin on the instrument panel structural duct (Fig. 10).

(4) Reach through the front bin opening of the floor console to slide the center floor tunnel bracket forward in the vehicle far enough to capture the lower flange of the top pad between the bracket and the structural duct.

(5) Reach through the front bin opening of the floor console to install the two screws that secure the center floor tunnel bracket to the instrument panel and tighten to 11 N·m (8 ft. lbs.).

(6) Reach through the front bin opening of the floor console to install the two nuts that secure the center floor tunnel bracket to the studs on the floor panel transmission tunnel and tighten to 11 N·m (8 ft. lbs.).

(7) Install the front bin into the floor console. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - INSTALLATION).

INSTRUMENT PANEL TOP PAD (Continued)

(8) Install all of the screws that secure the perimeter of the top pad to the instrument panel structural duct.

(9) Install the four screws that secure the heater-A/C control to the instrument panel structural duct.

(10) Install the four screws that secure the radio to the instrument panel structural duct.

(11) Install the center lower bezel.(Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER BEZEL - LOWER - INSTALLATION).

(12) Install the center upper bezel.(Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER BEZEL - UPPER - INSTALLATION).

(13) Install the two large screws on the glove box opening upper reinforcement that secure the top pad to the instrument panel structural duct (Fig. 9) and tighten to 11 N·m (8 ft. lbs.).

(14) Install the two small screws on the glove box opening upper reinforcement that secure the panel outlets to the instrument panel structural duct.

(15) Install the glove box lamp and switch.(Refer to 8 - ELECTRICAL/LAMPS/LIGHTING - INTERIOR/GLOVE BOX LAMP/SWITCH - INSTALLATION).

(16) Install the lower right center bezel.(Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL - INSTALLATION).

(17) Install the end cap.(Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL END CAP - INSTALLATION).

(18) Roll the glove box back up.(Refer to 23 - BODY/INSTRUMENT PANEL/GLOVE BOX - STANDARD PROCEDURE - GLOVE BOX ROLL DOWN).

(19) Install the steering column opening cover.(Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).

(20) Install the instrument cluster.(Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - INSTALLATION).

(21) Install the cluster bezel onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - INSTALLATION).

(22) If equipped, position the automatic headlamp light sensor/vehicle theft security system indicator unit to the instrument panel top pad just outboard of the driver side defroster outlet. Install and tighten the two screws that secure the sensor/indicator unit.

(23) Engage the retainer that secures each of the two instrument panel wire harness speaker take outs to the mounting hole in the instrument panel top pad.

(24) Install the speakers onto the instrument panel top pad. (Refer to 8 - ELECTRICAL/AUDIO/SPEAKER - INSTALLATION - INSTRUMENT PANEL SPEAKER).

(25) Install the four nuts that secure the instrument panel top pad to the studs on the dash panel near the windshield fence line (Fig. 8), and tighten the nuts to 11 N·m (8 ft. lbs.).

(26) Install the top cover onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP COVER - INSTALLATION).

(27) Install the trim onto the right and left A-pillars. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - INSTALLATION).

(28) Reconnect the battery negative cable.

INSTRUMENT PANEL C-CHANNEL COVER BRACKET

REMOVAL

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(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument panel from the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - REMOVAL).

(3) Place the instrument panel top down on a suitable work surface. Be certain to take the proper precautions to protect the top of the instrument panel from any possible cosmetic damage.

(4) Disengage the radio antenna coaxial cable retainer from the mounting hole in the instrument panel wire harness mounting tab on the passenger side outboard end of the instrument panel c-channel cover bracket.

INSTRUMENT PANEL C-CHANNEL COVER BRACKET (Continued)

(5) Remove the screw that secures the instrument panel wire harness mounting tab on the passenger side outboard end of the instrument panel c-channel cover bracket (Fig. 11).

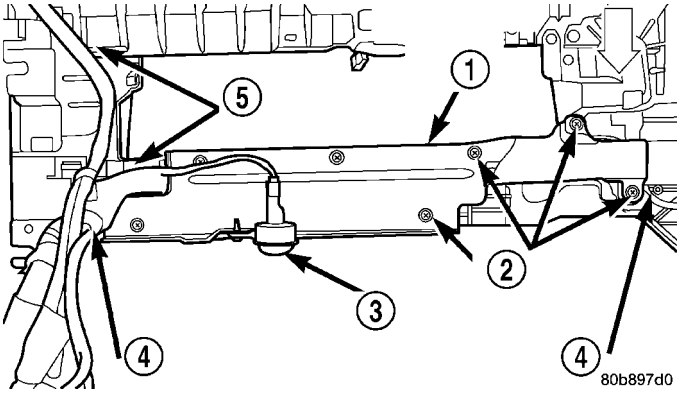


Fig. 11 INSTRUMENT PANEL c-channel COVER BRACKET REMOVE/INSTALL

1 - C-CHANNEL COVER BRACKET
2 - SCREWS (8)
3 - PASSENGER SIDE COURTESY LAMP
4 - INSTRUMENT PANEL WIRE HARNESS
5 - STRUCTURAL DUCT

(6) Remove the screw that secures the passenger side courtesy lamp to the lower tab of instrument panel c-channel cover bracket.

(7) Remove the eight screws that secure the c-channel cover bracket to the instrument panel structural duct.

(8) Remove the c-channel cover bracket from the instrument panel structural duct.

INSTALLATION

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(1) Position the c-channel cover bracket to the instrument panel structural duct.

(2) Install the eight screws that secure the c-channel cover bracket to the instrument panel structural duct (Fig. 11).

(3) Position the passenger side courtesy lamp to the lower tab of instrument panel c-channel cover bracket.

(4) Install the screw that secures the passenger side courtesy lamp to the lower tab of instrument panel c-channel cover bracket.

(5) Position the instrument panel wire harness mounting tab to the passenger side outboard end of the instrument panel c-channel cover bracket.

(6) Install the screw that secures the instrument panel wire harness mounting tab to the passenger side outboard end of the instrument panel c-channel cover bracket.

(7) Engage the radio antenna coaxial cable retainer in the mounting hole in the instrument panel wire harness mounting tab on the passenger side outboard end of the instrument panel c-channel cover bracket.

(8) Install the instrument panel into the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - INSTALLATION).

(9) Connect the battery negative cable.

INSTRUMENT PANEL CENTER BEZEL - LOWER

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Using a trim stick C-4755 or equivalent, gently pry each of the four corners of the center lower bezel away from the instrument panel far enough to disengage the four snap clips from their receptacles (Fig. 12).

(3) Pull the center lower bezel away from the instrument panel far enough to access the instrument panel wire harness connectors.

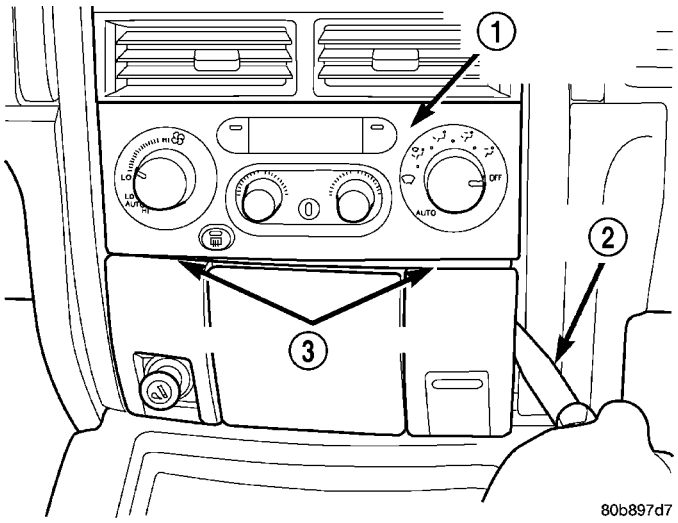


Fig. 12 INSTRUMENT PANEL CENTER LOWER BEZEL REMOVE/INSTALL

1 - HEATER AND AIR CONDITIONER CONTROLS
2 - TRIM STICK
3 - CENTER LOWER BEZEL

(4) Squeeze the mounting legs of the ash receiver lamp hood and remove it from the rectangular hole in the ash receiver flame shield.

(5) If equipped, disconnect the instrument panel wire harness connectors for the two heated seat switches from the switch connector receptacles.

(6) Disconnect the instrument panel wire harness connectors for the cigar lighter and accessory power outlet from the lighter and outlet connector receptacles.

(7) Remove the center lower bezel from the instrument panel.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the center lower bezel to the instrument panel.

(2) Connect the instrument panel wire harness connectors for the cigar lighter and the accessory power outlet to the lighter and outlet connector receptacles.

(3) If equipped, connect the instrument panel wire harness connectors for the two heated seat switches to the switch connector receptacles.

(4) Squeeze the mounting legs of the ash receiver lamp hood and install them into the rectangular hole in the ash receiver flame shield.

(5) Align the two lower snap clips on the center lower bezel with their receptacles in the instrument panel top pad.

(6) Using hand pressure, press firmly and evenly on the center lower bezel over each of the lower snap clip locations until each of the snap clips is fully engaged in its receptacle.

(7) Align the two upper snap clips on the center lower bezel with their receptacles in the instrument panel top pad.

(8) Using hand pressure, press firmly and evenly on the center lower bezel over each of the upper snap clip locations until each of the snap clips is fully engaged in its receptacle.

(9) Connect the battery negative cable.

INSTRUMENT PANEL CENTER BEZEL - UPPER

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Using a trim stick C-4755 or equivalent, gently pry each of the four corners of the center upper bezel away from the instrument panel far enough to disengage the four snap clips from their receptacles (Fig. 13).

(3) Remove the center upper bezel from the instrument panel.

INSTRUMENT PANEL CENTER BEZEL - UPPER (Continued)

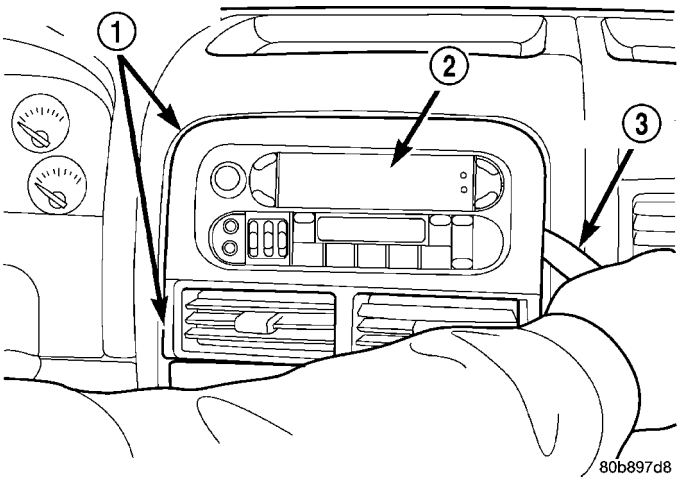


Fig. 13 INSTRUMENT PANEL CENTER UPPER BEZEL REMOVE/INSTALL

1 - CENTER UPPER BEZEL
2 - RADIO
3 - TRIM STICK

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the center upper bezel onto the instrument panel.

(2) Align the four snap clips on the center upper bezel with their receptacles in the instrument panel top pad.

(3) Using hand pressure, press firmly and evenly on the center upper bezel over each of the snap clip locations until each of the snap clips is fully engaged in its receptacle.

(4) Connect the battery negative cable.

INSTRUMENT PANEL CENTER FLOOR TUNNEL BRACKET

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the front bin from the floor console. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).

(3) Reach through the front bin opening of the floor console to access and disengage the instrument panel wire harness retainer from the mounting hole on the driver side of the instrument panel center floor tunnel bracket.

(4) Remove the two screws that secure the center floor tunnel bracket to the instrument panel (Fig. 14).

(5) Remove the two nuts that secure the center floor tunnel bracket to the studs on the floor panel transmission tunnel.

(6) Remove the center floor tunnel bracket from the instrument panel and the floor panel transmission tunnel.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

INSTRUMENT PANEL CENTER FLOOR TUNNEL BRACKET (Continued)

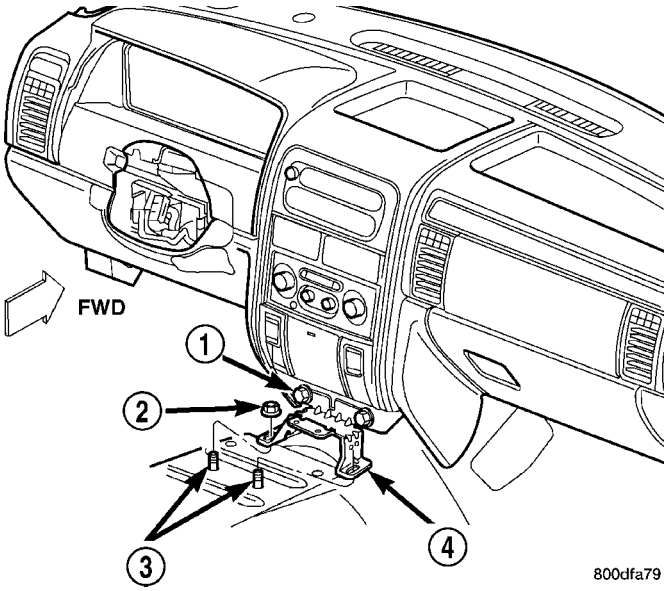


Fig. 14 INSTRUMENT PANEL CENTER FLOOR TUNNEL BRACKET REMOVE/INSTALL

1 - SCREW (2)
2 - NUT (2)
3 - STUDS
4 - CENTER FLOOR TUNNEL BRACKET

(1) Position the center floor tunnel bracket over the floor panel transmission tunnel studs and slide it up against the instrument panel (Fig. 14).

(2) Install the two nuts that secure the center floor tunnel bracket to the studs on the floor panel transmission tunnel and tighten to 11 N·m (8 ft. lbs.).

(3) Install the two screws that secure the center floor tunnel bracket to the instrument panel and tighten the screws to 11 N·m (8 ft. lbs.).

(4) Reach through the front bin opening of the floor console to access and engage the instrument panel wire harness retainer with the mounting hole on the driver side of the instrument panel center floor tunnel bracket.

(5) Install the front bin into the floor console. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - INSTALLATION).

(6) Connect the battery negative cable.

INSTRUMENT PANEL COURTESY LAMP BRACKET

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument panel fuse cover from the bottom of the junction block (JB) and body control module (BCM) unit. (Refer to 8 - ELECTRICAL/ POWER DISTRIBUTION/FUSE COVER - REMOVAL).

(3) Reach under the steering column opening cover to access and remove the screw that secures the courtesy lamp unit to the lower end of the instrument panel courtesy lamp bracket near the inboard side of the JB (Fig. 15).

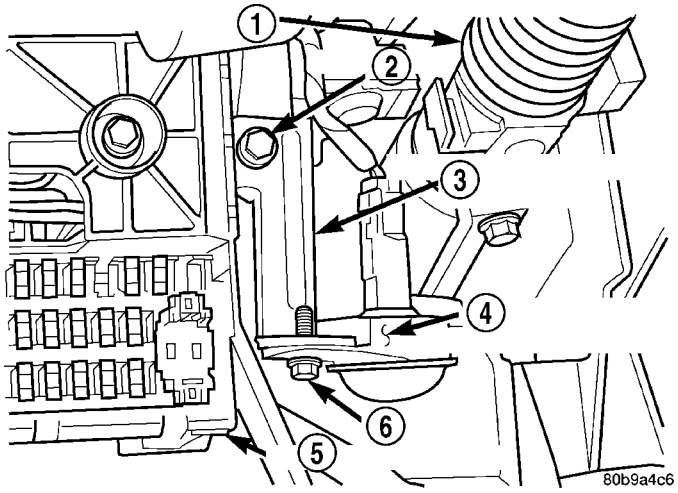


Fig. 15 INSTRUMENT PANEL COURTESY LAMP BRACKET REMOVE/INSTALL

1 - STEERING COLUMN
2 - SCREW
3 - COURTESY LAMP BRACKET
4 - DRIVER SIDE COURTESY LAMP
5 - JUNCTION BLOCK
6 - SCREW

(4) Remove the courtesy lamp from the lower end of the courtesy lamp bracket.

(5) Reach under the steering column opening cover to access and remove the screw that secures the courtesy lamp bracket and the inboard side of the JB to the instrument panel steering column support bracket.

(6) Remove the courtesy lamp bracket from the inboard side of the JB and the instrument panel steering column support bracket.

INSTRUMENT PANEL COURTESY LAMP BRACKET (Continued)

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Reach under the instrument panel to position the upper end of the courtesy lamp bracket to the inboard side of the junction block (JB) and the instrument panel steering column support bracket (Fig. 15).

(2) Install the screw that secures the courtesy lamp bracket and the inboard side of the JB to the instrument panel steering column support bracket.

(3) Position the courtesy lamp to the lower end of the courtesy lamp bracket.

(4) Install the screw that secures the courtesy lamp to the lower end of the courtesy lamp bracket.

(5) Install the instrument panel fuse cover to the bottom of the JB and body control module (BCM) unit. (Refer to 8 - ELECTRICAL/POWER DISTRIBUTION/FUSE COVER - INSTALLATION).

(6) Connect the battery negative cable.

INSTRUMENT PANEL INTERMEDIATE BRACKET

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the accelerator pedal assembly from the shoulder studs on the dash panel. (Refer to 14 - FUEL SYSTEM/FUEL INJECTION/ACCELERATOR PEDAL - REMOVAL).

(3) Remove the instrument panel from the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - REMOVAL).

(4) Remove the one nut that secures the instrument panel intermediate bracket to the stud on the dash panel (Fig. 16).

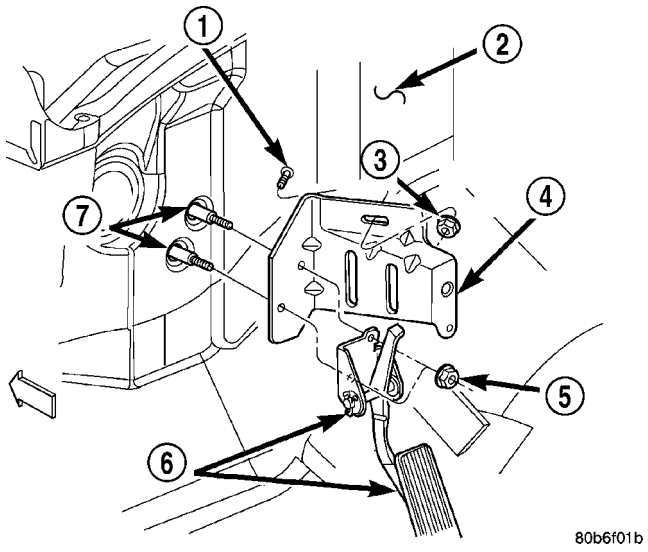


Fig. 16 INSTRUMENT PANEL INTERMEDIATE BRACKET REMOVE/INSTALL

1 - STUD
2 - DASH PANEL
3 - NUT (2)
4 - INTERMEDIATE BRACKET
5 - NUT (2)
6 - ACCELERATOR PEDAL
7 - SHOULDER STUDS

(5) Remove the instrument panel intermediate bracket from the two shoulder studs and the one stud on the dash panel.

INSTRUMENT PANEL INTERMEDIATE BRACKET (Continued)

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the instrument panel intermediate bracket to the two shoulder studs and the one stud on the dash panel (Fig. 16).

(2) Loosely install the one nut that secures the intermediate bracket to the one stud on the dash panel.

(3) Install the instrument panel into the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - INSTALLATION).

(4) Install the accelerator pedal assembly onto the shoulder studs on the dash panel. (Refer to 14 - FUEL SYSTEM/FUEL INJECTION/ACCELERATOR PEDAL - INSTALLATION).

(5) Connect the battery negative cable.

INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Unlatch and open the glove box.

(3) Remove the three screws that secure the lower right center bezel to the instrument panel glove box opening (Fig. 17).

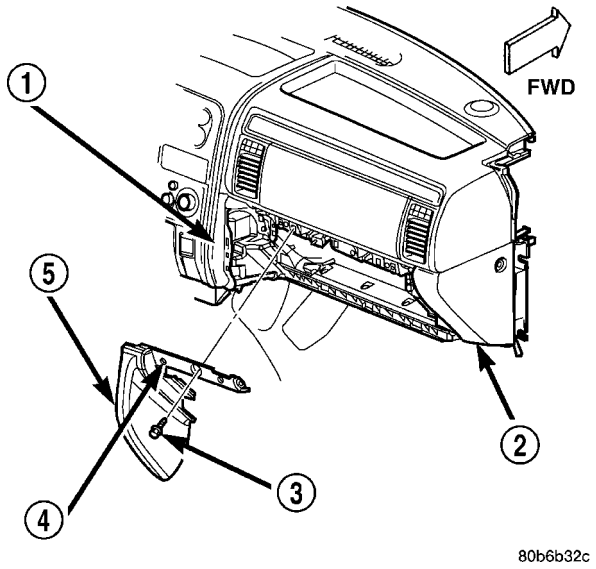


Fig. 17 INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL REMOVE/INSTALL

1 - INSTRUMENT PANEL TOP PAD
2 - END CAP
3 - SCREWS (3)
4 - BUMPER
5 - LOWER RIGHT CENTER BEZEL

(4) Pull the lower right center bezel straight back from the instrument panel to disengage the two snap clips that secure it to the receptacles in the instrument panel top pad.

(5) Remove the lower right center bezel from the instrument panel.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Be certain that the glove box catch bumper is installed in the mounting hole nearest the inboard end of the lower right center bezel extension over the instrument panel upper glove box opening reinforcement.

INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL (Continued)

(2) Position the lower right center bezel to the instrument panel. Be certain that the end of the lower right center bezel extension near the center of the upper glove box opening reinforcement is positioned on top of the end of the extension from the end cap (Fig. 17).

(3) Align the snap clips on the lower right center bezel with the receptacles in the instrument panel top pad.

(4) Using hand pressure, press firmly on the lower right center bezel over each of the snap clip locations until the snap clips are fully engaged in their receptacles.

(5) Install the three screws that secure the lower right center bezel to the instrument panel glove box opening.

(6) Close and latch the glove box.

(7) Connect the battery negative cable.

INSTRUMENT PANEL PLENUM BRACKET

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument panel from the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - REMOVAL).

(3) Place the instrument panel top down on a suitable work surface. Be certain to take the proper precautions to protect the top of the instrument panel from any possible cosmetic damage.

(4) Remove the one screw that secures the plenum bracket to the instrument panel steering column support bracket (Fig. 18).

(5) Remove the plenum bracket from the instrument panel steering column support bracket.

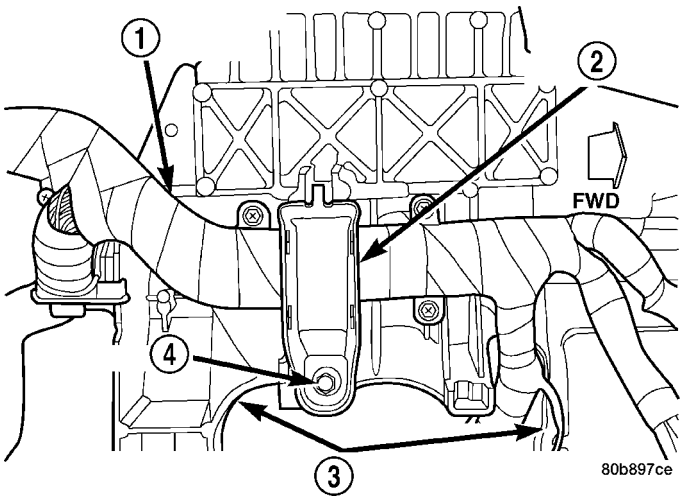


Fig. 18 INSTRUMENT PANEL PLENUM BRACKET REMOVE/INSTALL

1 - INSTRUMENT PANEL WIRE HARNESS
2 - PLENUM BRACKET
3 - STEERING COLUMN SUPPORT BRACKET
4 - SCREW

INSTALLATION

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(1) Position the plenum bracket to the instrument panel steering column support bracket (Fig. 18).

(2) Install the one screw that secures the plenum bracket to the instrument panel steering column support bracket and tighten the screw to 11 N·m (8 ft. lbs.).

(3) Install the instrument panel into the vehicle. (Refer to 23 - BODY/INSTRUMENT PANEL - INSTALLATION).

(4) Connect the battery negative cable.

INSTRUMENT PANEL STEERING COLUMN BRACKET

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the steering column opening cover from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).

(3) Remove the four screws that secure the steering column bracket to the instrument panel steering column support bracket (Fig. 19).

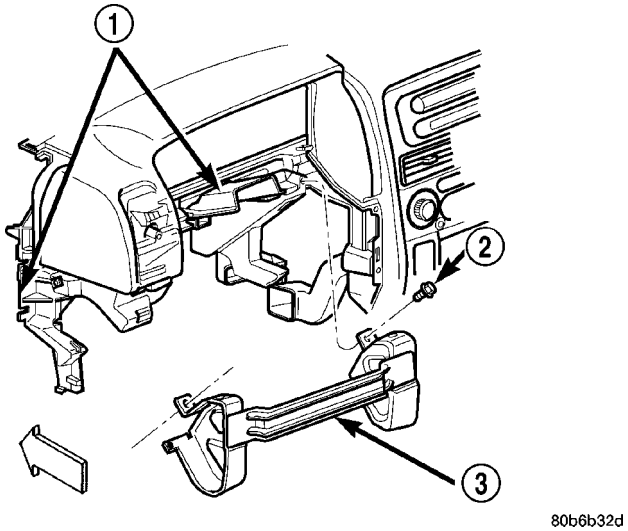


Fig. 19 INSTRUMENT PANEL STEERING COLUMN BRACKET REMOVE/INSTALL

1 - INSTRUMENT PANEL STEERING COLUMN SUPPORT BRACKET
2 - SCREW (4)
3 - INSTRUMENT PANEL STEERING COLUMN BRACKET

(4) Remove the steering column bracket from the instrument panel steering column support bracket.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the steering column bracket to the instrument panel steering column support bracket (Fig. 19).

(2) Install the four screws that secure the steering column bracket to the instrument panel steering column support bracket and tighten the screws to 11 N·m (9 ft. lbs.).

(3) Install the steering column opening cover. (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).

(4) Connect the battery negative cable.

INSTRUMENT PANEL STEERING COLUMN SUPPORT BRACKET

REMOVAL

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(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument cluster. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - REMOVAL).

INSTRUMENT PANEL STEERING COLUMN SUPPORT BRACKET (Continued)

(3) Remove the instrument panel plenum bracket from the steering column support bracket. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL PLENUM BRACKET - REMOVAL).

(4) Remove the three screws that secure the instrument panel wire harness mounting tabs to the back of the steering column support bracket.

(5) Remove the two screws that secure the 16-way data link connector to the instrument panel steering column support bracket and remove the connector from the bracket (Fig. 20).

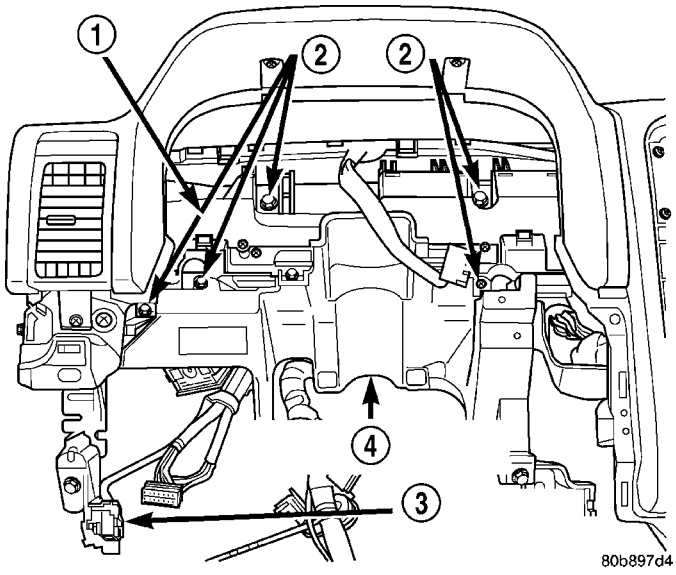


Fig. 20 INSTRUMENT PANEL STEERING COLUMN SUPPORT BRACKET REMOVE/INSTALL

1 - STRUCTURAL DUCT
2 - SCREWS (5)
3 - 16–WAY DATA LINK CONNECTOR
4 - STEERING COLUMN SUPPORT BRACKET

(6) Remove the junction block (JB) and body control module (BCM) unit from the instrument panel steering column support bracket, but do not disconnect any of the instrument panel wire harness connectors from the unit. (Refer to 8 - ELECTRICAL/ POWER DISTRIBUTION/JUNCTION BLOCK - REMOVAL).

(7) From the face of the instrument panel, remove the five screws that secure the steering column support bracket to the instrument panel structural duct.

(8) Remove the steering column support bracket from the instrument panel structural duct.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the steering column support bracket to the instrument panel structural duct.

(2) From the face of the instrument panel, install the five screws that secure the steering column support bracket to the instrument panel structural duct (Fig. 20), and tighten the screws to 11 N·m (8 ft. lbs.).

(3) Position the instrument panel wire harness mounting tabs to the back of the steering column support bracket.

(4) Install the three screws that secure the instrument panel wire harness mounting tabs to the back of the steering column support bracket.

(5) Install the instrument panel plenum bracket onto the steering column support bracket. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL PLENUM BRACKET - INSTALLATION).

(6) Install the junction block (JB) and body control module (BCM) unit onto the instrument panel steering column support bracket. (Refer to 8 - ELECTRICAL/POWER DISTRIBUTION/JUNCTION BLOCK - INSTALLATION).

(7) Position the 16-way data link connector to the instrument panel steering column support bracket.

(8) Install the two screws that secure the 16-way data link connector to the instrument panel steering column support bracket.

(9) Install the instrument cluster onto the instrument panel. (Refer to 8 - ELECTRICAL/INSTRUMENT CLUSTER - INSTALLATION).

(10) Connect the battery negative cable.

INSTRUMENT PANEL TRIM BEZEL - DRIVER

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Using a trim stick C-4755 or equivalent, gently pry the edges of the driver side trim bezel up and away from the instrument panel far enough to disengage the two snap clips from their receptacles (Fig. 21).

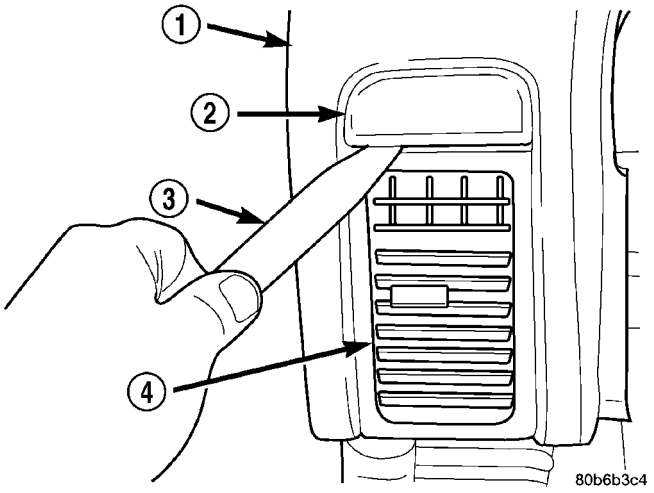


Fig. 21 INSTRUMENT PANEL DRIVER SIDE TRIM BEZEL REMOVE/INSTALL

1 - INSTRUMENT PANEL TOP PAD
2 - DRIVER SIDE TRIM BEZEL
3 - TRIM STICK
4 - PANEL OUTLET

(3) Remove the driver side trim bezel from the instrument panel top pad.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the driver side trim bezel to the instrument panel top pad.

(2) Align the snap clips on the driver side trim bezel with the receptacles in the instrument panel top pad.

(3) Using hand pressure, press firmly and evenly on the driver side trim bezel over the snap clip locations until each of the snap clips is fully engaged in its receptacle.

(4) Connect the battery negative cable.

INSTRUMENT PANEL TRIM BEZEL - PASSENGER

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the top pad from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP PAD - REMOVAL).

(3) From the underside of the top pad, remove the four screws from the top of the passenger airbag door

that secure the passenger side trim bezel to the instrument panel (Fig. 22).

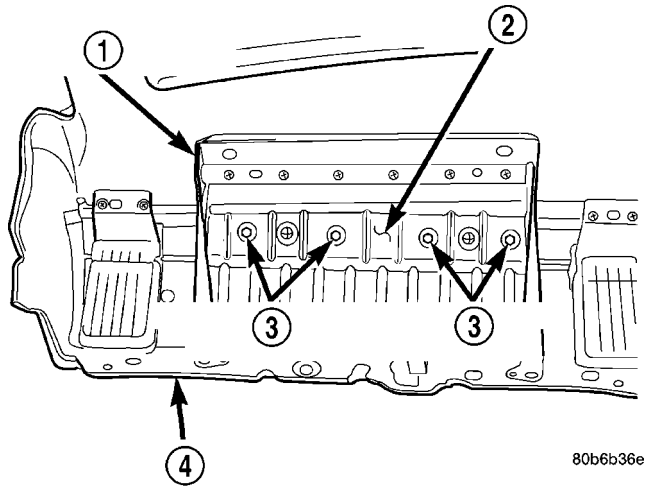


Fig. 22 INSTRUMENT PANEL PASSENGER SIDE TRIM BEZEL REMOVE/INSTALL

1 - INSTRUMENT PANEL AIRBAG DOOR REINFORCEMENT
2 - PASSENGER AIRBAG DOOR
3 - PASSENGER SIDE TRIM BEZEL SCREWS (4)
4 - INSTRUMENT PANEL TOP PAD

(4) Remove the passenger side trim bezel from the instrument panel top pad.

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the passenger side trim bezel to the instrument panel top pad.

(2) From the underside of the top pad, install the four screws through the passenger airbag door that secure the passenger side trim bezel to the instrument panel (Fig. 22), and tighten the screws to 11 N·m (8 ft. lbs.).

(3) Install the top pad onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP PAD - INSTALLATION).

(4) Connect the battery negative cable.

POWER OUTLET DOOR

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the center lower bezel from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER BEZEL - LOWER - REMOVAL).

(3) With the power outlet door in the open position, carefully spread the power outlet door hinge arms far enough to disengage the pivot pins from the pivots on the back side of the center lower bezel (Fig. 23).

NOTE: The power outlet door is more easily serviced while in the open position. The illustration shows the door in the closed position for improved visibility of the assist spring orientation and anchor point details.

(4) Disengage the stepped ends of the assist spring from the anchor holes in the inboard power outlet door hinge arm and in the side of the ash receiver housing.

(5) Remove the power outlet door from the instrument panel center lower bezel.

POWER OUTLET DOOR (Continued)

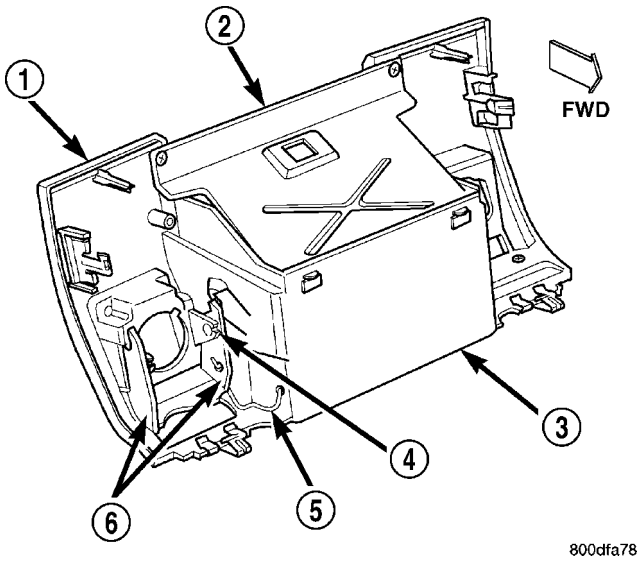


Fig. 23 INSTRUMENT PANEL POWER OUTLET DOOR REMOVE/INSTALL

1 - CENTER LOWER BEZEL
2 - ASH RECEIVER FLAME SHIELD
3 - ASH RECEIVER HOUSING
4 - PIVOT PINS
5 - ASSIST SPRING
6 - POWER OUTLET DOOR HINGE ARMS

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the power outlet door to the instrument panel center lower bezel.

(2) Engage the stepped ends of the assist spring with the anchor holes in the inboard power outlet door hinge arm and in the side of the ash receiver housing (Fig. 23).

(3) With the power outlet door in the open position, carefully spread the power outlet door hinge arms far enough to engage the pivot pins with the pivots on the back side of the lower center bezel.

(4) Install the center lower bezel into the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER BEZEL - LOWER - INSTALLATION).

(5) Connect the battery negative cable.

STEERING COLUMN OPENING COVER

REMOVAL

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(1) Disconnect and isolate the battery negative cable.

(2) Remove the fuse cover from the junction block (JB) and body control module (BCM) unit under the driver side outboard end of the instrument panel. (Refer to 8 - ELECTRICAL/POWER DISTRIBUTION/FUSE COVER - REMOVAL).

(3) Remove the cluster bezel from the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - REMOVAL).

(4) Remove the one screw that secures the outboard end of the steering column opening cover to the u-nut on the outboard end of the instrument panel top pad (Fig. 24).

(5) Remove the two screws that secure the lower edge of the steering column opening cover to the u-nuts on the instrument panel steering column support bracket.

(6) Pull the steering column opening cover rearward to disengage the three snap clips (one outboard and two inboard) that secure it to the receptacles in the instrument panel.

(7) Remove the steering column opening cover from the instrument panel.

STEERING COLUMN OPENING COVER (Continued)

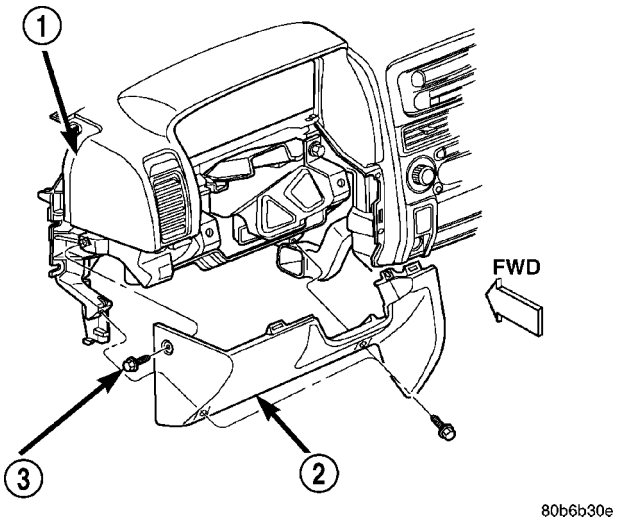


Fig. 24 STEERING COLUMN OPENING COVER REMOVE/INSTALL

1 - INSTRUMENT PANEL TOP PAD
2 - STEERING COLUMN OPENING COVER
3 - SCREW (3)

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position the steering column opening cover onto the instrument panel (Fig. 24).

(2) Align the three snap clips on the steering column opening cover with their receptacles in the instrument panel.

(3) Using hand pressure, press firmly and evenly on the steering column opening cover over the snap clip locations until each of the snap clips is fully engaged in its receptacle.

(4) Install the two screws that secure the lower edge of the steering column opening cover to the instrument panel steering column support bracket.

(5) Install the one screw that secures the outboard end of the steering column opening cover to the u-nut on the outboard end of the instrument panel top pad.

(6) Install the cluster bezel onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - INSTALLATION).

(7) Install the fuse cover onto the junction block (JB) and body control module (BCM) unit under the driver side outboard end of the instrument panel. (Refer to 8 - ELECTRICAL/POWER DISTRIBUTION/FUSE COVER - INSTALLATION).

(8) Connect the battery negative cable.

INSTRUMENT PANEL ASSEMBLY

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

NOTE: Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the trim from the right and left A-pillars. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - REMOVAL).

(3) Remove the top cover. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP COVER - REMOVAL).

INSTRUMENT PANEL ASSEMBLY (Continued)

(4) Remove the four nuts that secure the instrument panel to the studs on the dash panel near the windshield fence line (Fig. 25).

(5) Remove the scuff plates from the right and left front door sills. (Refer to 23 - BODY/INTERIOR/DOOR SILL SCUFF PLATE - REMOVAL).

(6) Remove the trim panels from the right and left inner cowl sides. (Refer to 23 - BODY/INTERIOR/COWL TRIM - REMOVAL).

(7) Remove the console from the floor panel transmission tunnel. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).

(8) Remove the fuse cover from the junction block (JB). (Refer to 8 - ELECTRICAL/POWER DISTRIBUTION/FUSE COVER - REMOVAL).

(9) Remove the cluster bezel.(Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - REMOVAL).

(10) Remove the steering column opening cover. (Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - REMOVAL).

(11) Remove the steering column bracket from the instrument panel steering column support bracket. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL STEERING COLUMN BRACKET - REMOVAL).

(12) Remove the screw that secures the lower tilting steering column shroud to the steering column multi-function switch mounting housing (Fig. 26).

(13) Unsnap the two halves of the tilting steering column shroud from each other and remove both halves from the steering column.

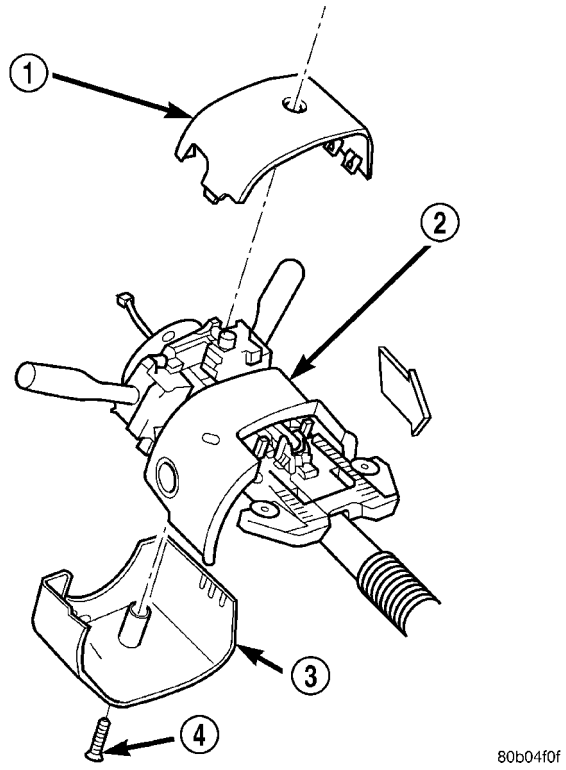


Fig. 26 STEERING COLUMN SHROUDS REMOVE/INSTALL

1 - UPPER TILTING COLUMN SHROUD
2 - FIXED COLUMN SHROUD
3 - LOWER TILTING COLUMN SHROUD
4 - SCREW

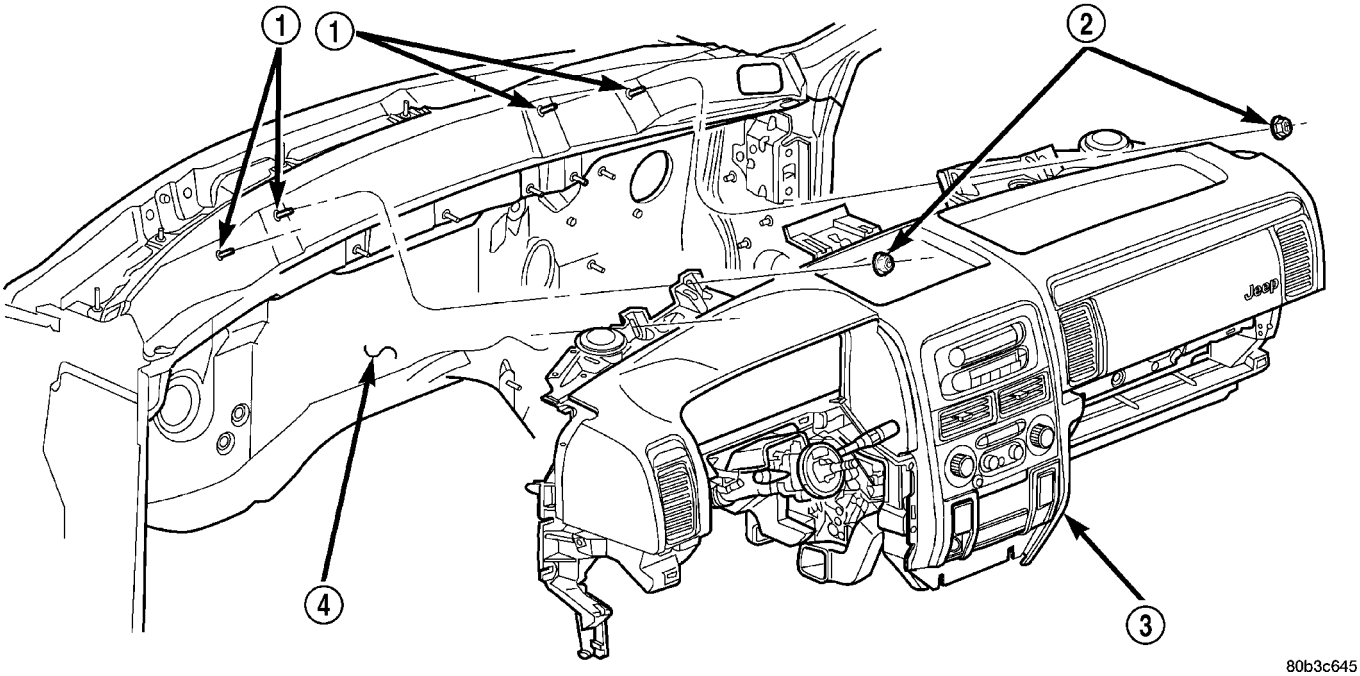


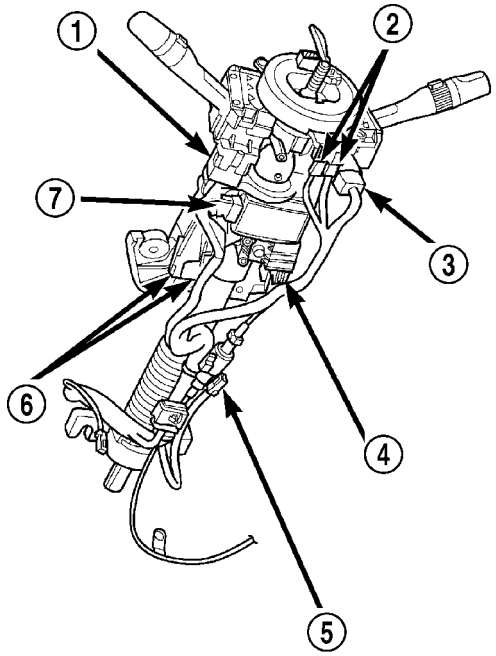
Fig. 25 INSTRUMENT PANEL TO DASH PANEL MOUNTING

1 - STUD (4)
2 - NUT (4)
3 - INSTRUMENT PANEL
4 - DASH PANEL

INSTRUMENT PANEL ASSEMBLY (Continued)

(14) Disconnect the instrument panel wire harness connectors from the following steering column components (Fig. 27):

- the two lower clockspring connector receptacles
- the left multi-function switch connector receptacle
- the right multi-function switch connector receptacle
- the two ignition switch connector receptacles
- the shifter interlock solenoid connector receptacle
- if equipped, the sentry key immobilizer module (SKIM) connector receptacle.



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Fig. 27 STEERING COLUMN CONNECTIONS

1 - LEFT MULTIFUNCTION SWITCH CONNECTOR
2 - LOWER CLOCKSPRING CONNECTORS
3 - RIGHT MULTIFUNCTION SWITCH CONNECTOR
4 - SHIFTER INTERLOCK CABLE CONNECTOR
5 - SHIFTER INTERLOCK SOLENOID CONNECTOR
6 - IGNITION SWITCH CONNECTOR RECEPTACLES
7 - SKIM CONNECTOR

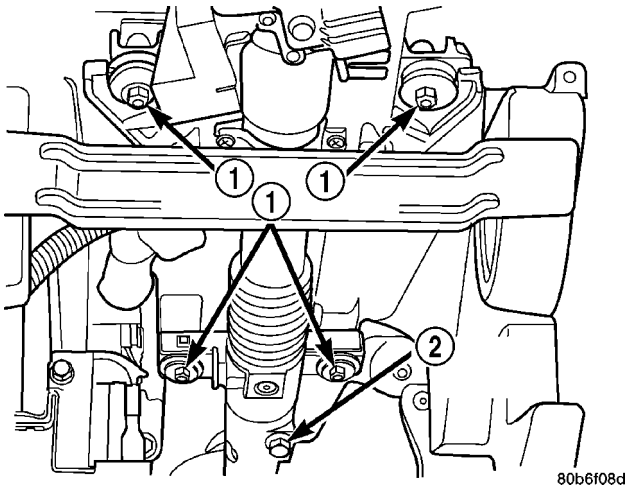
(15) Turn the ignition switch to the On position, then release and remove the shifter interlock cable connector from the ignition lock housing receptacle.

(16) Turn the ignition switch back to the Lock position to prevent steering wheel rotation and the loss of clockspring centering following steering column removal.

(17) Remove the bolt that secures the coupler to the lower steering column shaft (Fig. 28).

(18) Remove the four nuts that secure the steering column to the studs on the instrument panel steering column support bracket.

(19) Remove the steering column from the instrument panel. Be certain that the steering wheel is locked and secured from rotation to prevent the loss of clockspring centering.

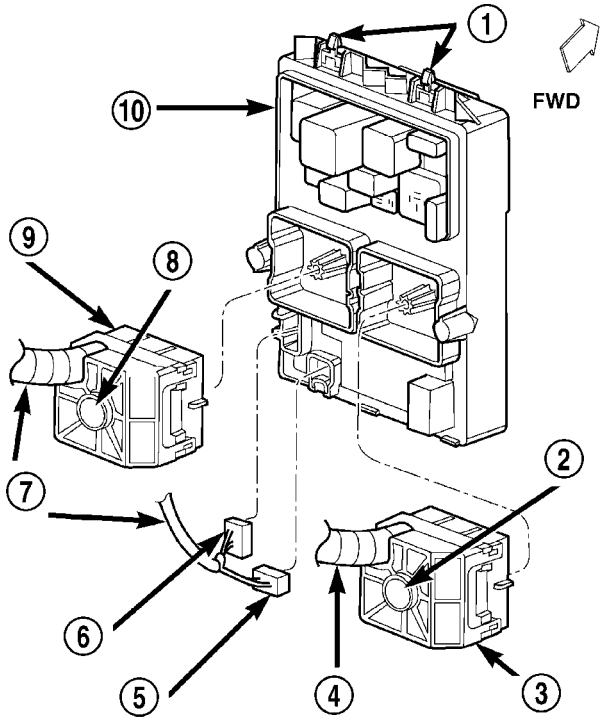


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Fig. 28 STEERING COLUMN MOUNTING

1 - COLUMN MOUNTING NUTS
2 - COUPLER BOLT

(20) Disconnect the left and right body wire harness connectors, the ignition off draw (IOD) wire harness connector and the fused B(+) wire harness connector from the connector receptacles of the JB (Fig. 29).



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Fig. 29 JUNCTION BLOCK CONNECTIONS

1 - SNAP CLIPS
2 - SCREW
3 - CONNECTOR
4 - LEFT BODY WIRE HARNESS
5 - IOD CONNECTOR
6 - FUSED B+ CONNECTOR
7 - RIGHT BODY WIRE HARNESS
8 - SCREW
9 - CONNECTOR
10 - JUNCTION BLOCK

INSTRUMENT PANEL ASSEMBLY (Continued)

(21) Disconnect the instrument panel wire harness connectors from the following floor panel transmission tunnel components (Fig. 30):

- the airbag control module (ACM) connector receptacle
- the park brake switch terminal
- the transmission shifter connector receptacle.

(22) Remove the two nuts that secure the instrument panel wire harness ground eyelets to the studs on the floor panel transmission tunnel in front of and behind the ACM.

(23) Disengage the retainers that secure the instrument panel wire harness to the floor panel transmission tunnel.

(24) Remove the instrument panel to center floor tunnel bracket from the instrument panel and the floor panel transmission tunnel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER FLOOR TUNNEL BRACKET - REMOVAL).

(25) Remove the one screw that secures the floor duct to the heater and air conditioner housing near the driver side of the floor panel transmission tunnel and remove the duct from the housing.

(26) If the vehicle is equipped with the manual heating and air conditioning system, disconnect the vacuum harness connector located near the driver side of the floor panel transmission tunnel behind the driver side floor duct.

(27) Remove the one screw that secures the instrument panel steering column support bracket to the driver side end of the heater and air conditioner housing (Fig. 31).

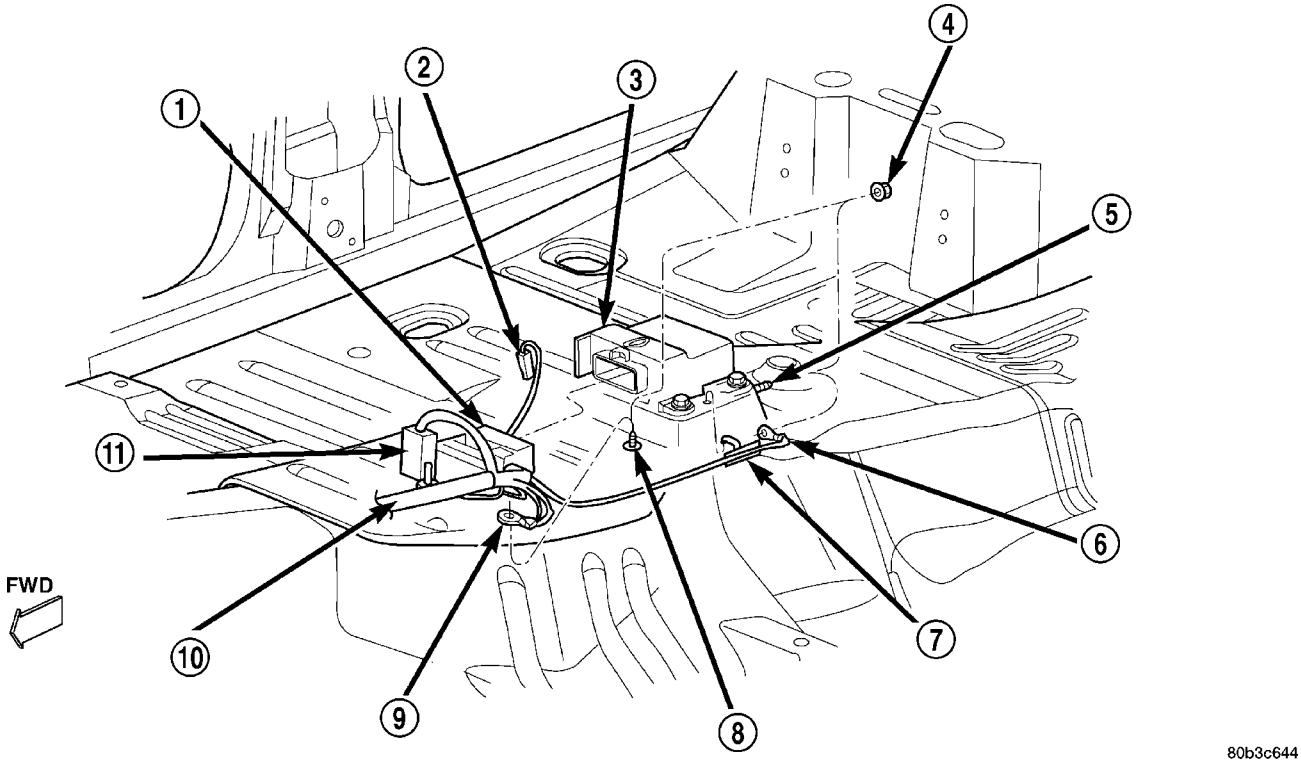


Fig. 30 FLOOR PANEL TRANSMISSION TUNNEL

1 - AIRBAG CONTROL MODULE CONNECTOR
2 - PARK BRAKE SWITCH CONNECTOR
3 - AIRBAG CONTROL MODULE
4 - NUT (2)
5 - STUD
6 - GROUND EYELET
7 - RETAINER
8 - STUD
9 - GROUND EYELET
10 - INSTRUMENT PANEL WIRE HARNESS
11 - TRANSMISSION SHIFTER CONNECTOR

INSTRUMENT PANEL ASSEMBLY (Continued)

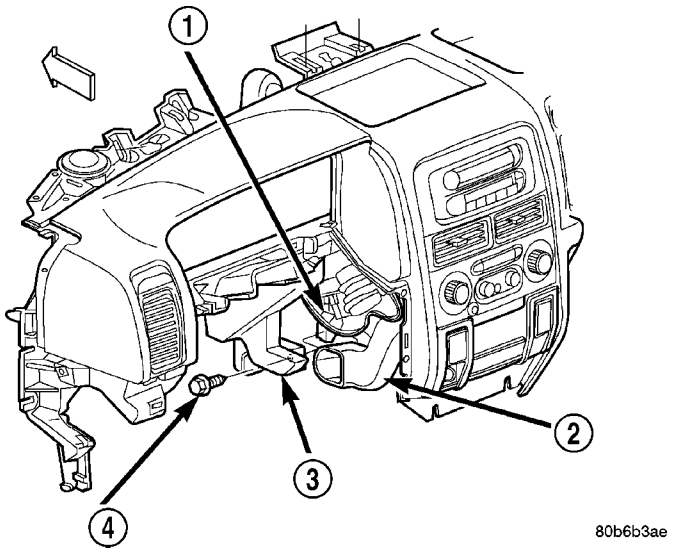


Fig. 31 INSTRUMENT PANEL TO HEATER-A/C HOUSING - DRIVER SIDE

1 - HEATER AND AIR CONDITIONER HOUSING
2 - FLOOR DUCT
3 - INSTRUMENT PANEL STEERING COLUMN SUPPORT BRACKET
4 - SCREW

(28) Remove the one screw that secures the instrument panel steering column support bracket to the intermediate bracket on the driver side dash panel (Fig. 32).

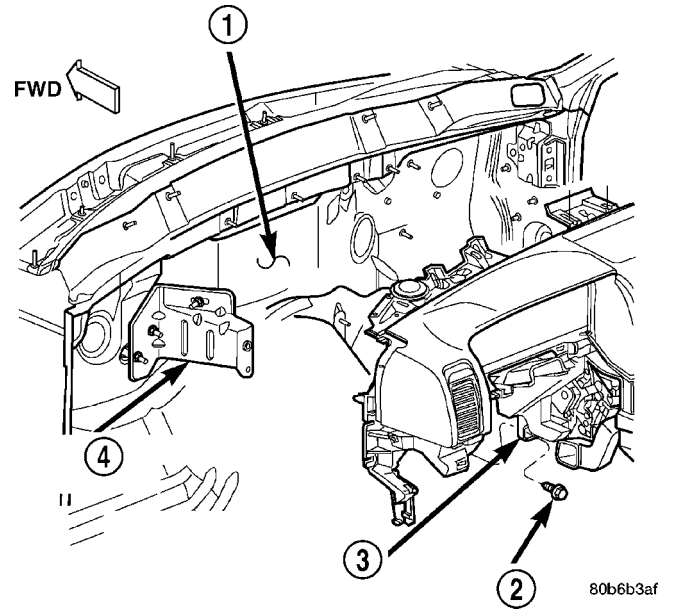


Fig. 32 INSTRUMENT PANEL TO INTERMEDIATE BRACKET MOUNTING

1 - DASH PANEL
2 - SCREW
3 - INSTRUMENT PANEL STEERING COLUMN SUPPORT BRACKET
4 - INTERMEDIATE BRACKET

(29) Remove the nut that secures the instrument panel steering column support bracket to the stud on the driver side cowl plenum panel (Fig. 33).

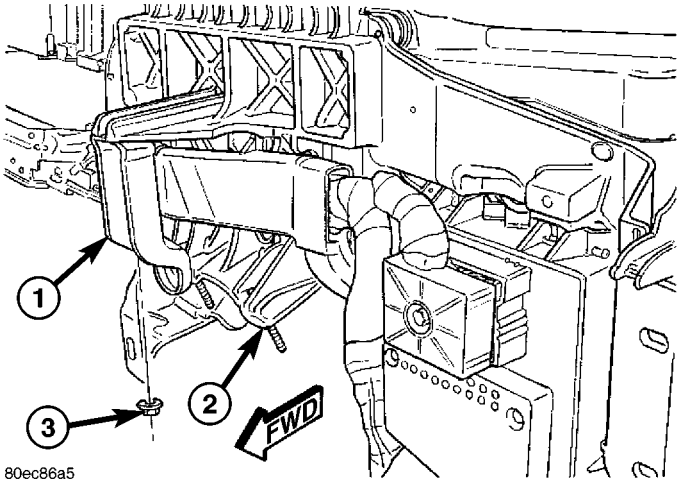


Fig. 33 PANEL TO COWL PLENUM

1 - SECONDARY SUPPORT BRACKET
2 - STEERING COLUMN SUPPORT BRACKET
3 - NUT

(30) Remove the nut and disconnect the safety strap from the support bracket. (Fig. 34)

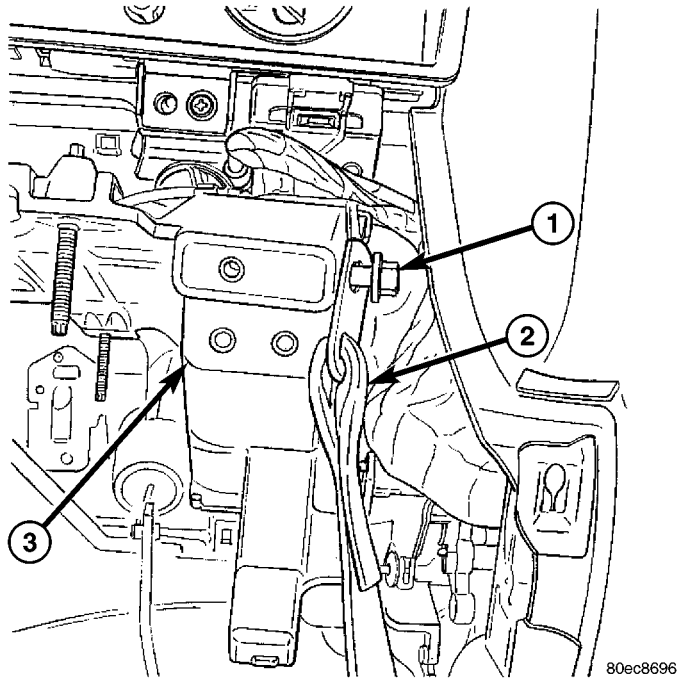


Fig. 34 DRIVERS SIDE SAFETY STRAP

1 - NUT/STUD
2 - STRAP
3 - STEERING COLUMN SUPPORT BRACKET

INSTRUMENT PANEL ASSEMBLY (Continued)

(31) Remove the two screws that secure the instrument panel to the driver side cowl side inner panel (Fig. 35).

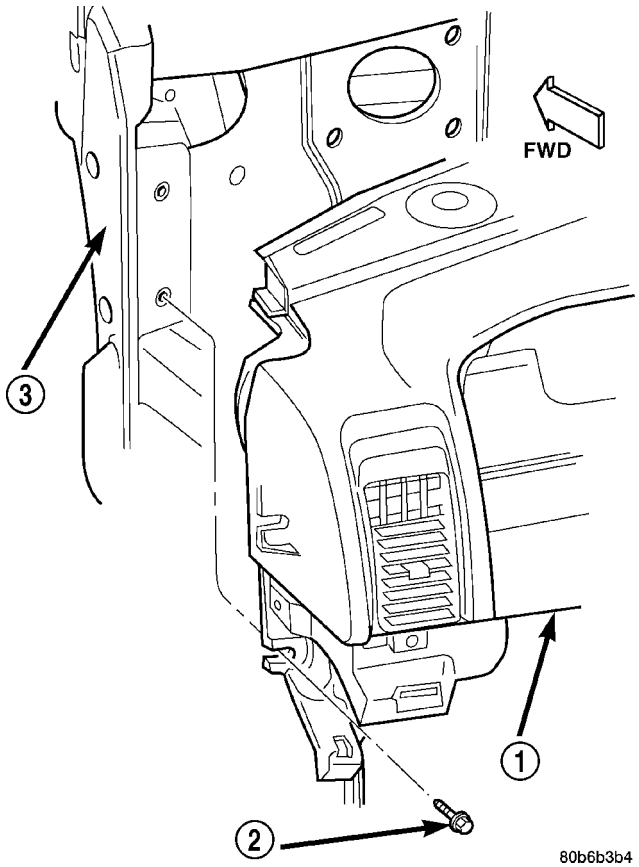


Fig. 35 INSTRUMENT PANEL TO DRIVER SIDE COWL SIDE INNER PANEL MOUNTING

1 - INSTRUMENT PANEL
2 - SCREW (2)
3 - COWL SIDE PANEL

(32) Remove the end cap. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL END CAP - REMOVAL).

(33) Remove the lower right center bezel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL - REMOVAL).

(34) Remove the glove box. (Refer to 23 - BODY/INSTRUMENT PANEL/GLOVE BOX - REMOVAL)

(35) Disconnect the instrument panel wire harness connector from the lower cavity of the inline connector on the passenger side cowl side inner panel (Fig. 36).

(36) Disconnect the two halves of the radio antenna coaxial cable connector near the right cowl side inner panel under the end of the instrument panel.

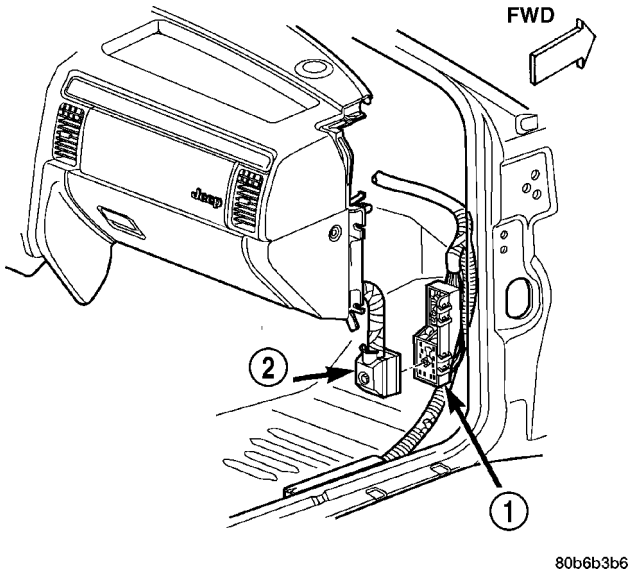


Fig. 36 INSTRUMENT PANEL PASSENGER SIDE CONNECTION

1 - INLINE CONNECTOR
2 - INSTRUMENT PANEL WIRE HARNESS CONNECTOR

(37) Disconnect the two instrument panel wire harness connectors from the two heater and air conditioner housing connectors located near the blower motor on the passenger side end of the housing (Fig. 37).

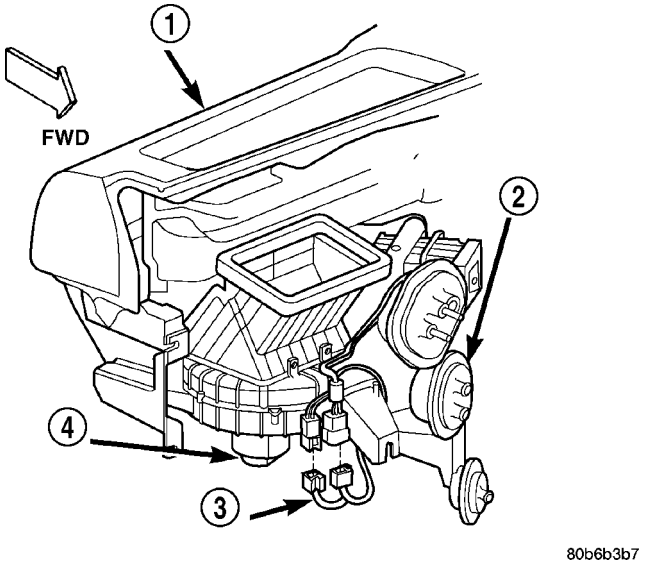


Fig. 37 HEATER AND AIR CONDITIONER HOUSING CONNECTIONS

1 - INSTRUMENT PANEL
2 - HVAC HOUSING
3 - INSTRUMENT PANEL WIRE HARNESS
4 - BLOWER MOTOR

INSTRUMENT PANEL ASSEMBLY (Continued)

(38) Remove the two screws that secure the passenger side instrument panel structural duct to the heater and air conditioner housing (Fig. 38).

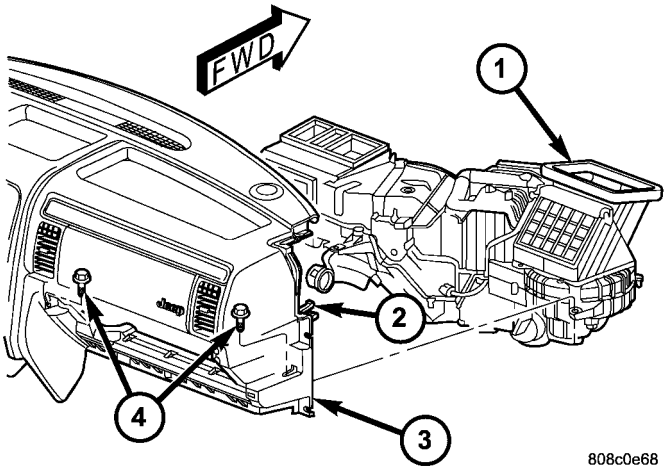


Fig. 38 PASSENGER SIDE INSTRUMENT PANEL TO HEATER-A/C HOUSING MOUNTING

1 - HEATER AND AIR CONDITIONER HOUSING
2 - RETAINER TAB
3 - INSTRUMENT PANEL STRUCTURAL DUCT
4 - SCREW (2)

(39) Remove the two screws that secure the instrument panel to the passenger side cowl side inner panel (Fig. 39).

(40) Depress the tab on the passenger side and with the aid of an assistant, lift the instrument panel assembly upward off of the studs on the dash panel near the windshield fence line and pull the instrument panel rearward from the dash panel and the cowl side inner panels and remove it through the driver side front door of the vehicle. (Fig. 40)

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Prior to installing the instrument panel into the vehicle, loosen the three nuts that secure the instrument panel intermediate bracket and the accelerator pedal assembly to the studs on the dash panel (Fig. 32).

(2) With the aid of an assistant, load the instrument panel assembly through the driver side front

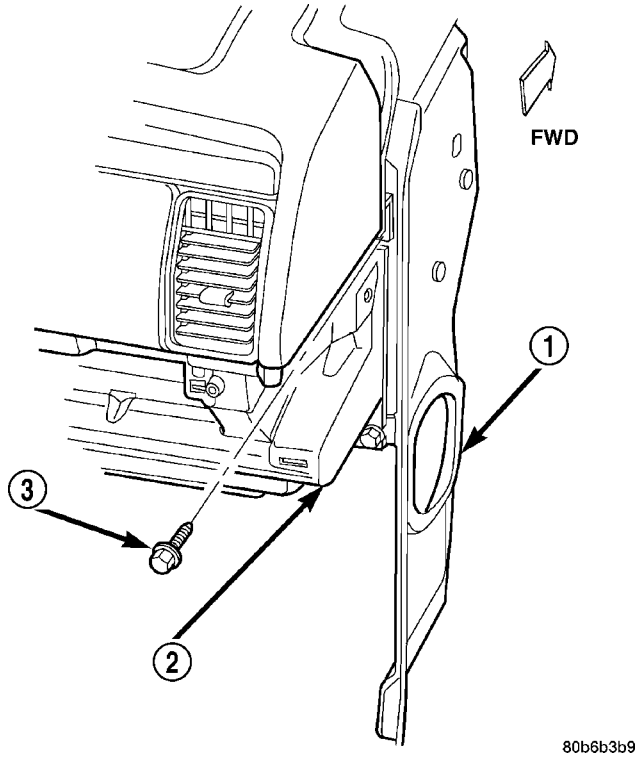


Fig. 39 INSTRUMENT PANEL TO PASSENGER SIDE COWL SIDE INNER PANEL MOUNTING

1 - COWL SIDE INNER PANEL
2 - INSTRUMENT PANEL STRUCTURAL DUCT
3 - SCREW (2)

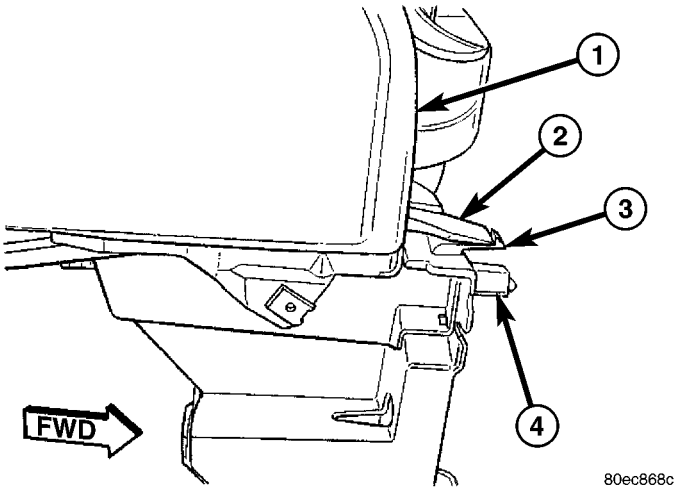


Fig. 40 PASSENGER SIDE RETAINER TAB

1 - INSTRUMENT PANEL SIDE PANEL
2 - PRY BAR
3 - RETAINER TAB
4 - PASSANGER SIDE GUIDE/SUPPORT PIN

door of the vehicle and hang it on the studs on the dash panel near the windshield fence line (Fig. 25).

(3) Be certain that the molded plastic guide/pin formations on the instrument panel structural duct are inserted into and seated in the guide holes at each cowl side inner panel.

(4) Loosely install the two screws that secure each end of the instrument panel to the cowl side inner panels.

(5) Install the two screws that secure the passenger side instrument panel structural duct to the heater and air conditioner housing (Fig. 38), and tighten to 11 N·m (8 ft. lbs.).

(6) Install the one screw that secures the instrument panel steering column support bracket to the driver side end of the heater and air conditioner housing (Fig. 31), and tighten the to 11 N·m (8 ft. lbs.).

(7) Tighten the two screws that secure each end of the instrument panel to the cowl side inner panels (Fig. 35) and (Fig. 39), to 11 N·m (8 ft. lbs.).

(8) Install the one screw that secures the instrument panel steering column support bracket to the intermediate bracket on the driver side dash panel (Fig. 32), and tighten to 11 N·m (8 ft. lbs.).

(9) Tighten the three nuts that secure the instrument panel intermediate bracket and the accelerator pedal assembly to the studs on the dash panel to 11 N·m (8 ft. lbs.).

(10) Install the safety strap and tighten the nut.

(11) Install the four nuts that secure the instrument panel to the studs on the dash panel near the windshield fence line and tighten to 11 N·m (8 ft. lbs.).

(12) Install the nut that secures the instrument panel steering column support bracket to the stud on the driver side cowl plenum panel (Fig. 33), and tighten to 28 N·m (21 ft. lbs.).

(13) Install the instrument panel to center floor tunnel bracket onto the instrument panel and the floor panel transmission tunnel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL CENTER FLOOR TUNNEL BRACKET - INSTALLATION).

(14) Connect the two instrument panel wire harness connectors to the two heater and air conditioner housing connectors located near the blower motor on the passenger side end of the housing (Fig. 37).

(15) Connect the two halves of the radio antenna coaxial cable connector near the passenger cowl side inner panel under the end of the instrument panel.

(16) Connect the instrument panel wire harness connector to the lower cavity of the inline connector on the passenger side cowl side inner panel and tighten the connector screw (Fig. 36).

(17) Install the lower right center bezel onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL LOWER RIGHT CENTER BEZEL - INSTALLATION).

(18) Install the end cap onto the instrument panel. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL END CAP - INSTALLATION).

(19) Install the glove box. (Refer to 23 - BODY/INSTRUMENT PANEL/GLOVE BOX - INSTALLATION)

(20) If equipped with the manual heating and air conditioning system, connect the vacuum harness connector located near the driver side of the floor panel transmission tunnel behind the driver side floor duct.

(21) Position the driver side floor duct to the heater and air conditioner housing near the driver side of the floor panel transmission tunnel (Fig. 31).

(22) Install the one screw that secures the driver side floor duct to the heater and air conditioner housing near the driver side of the floor panel transmission tunnel.

(23) Route the instrument panel wire harness to the floor panel transmission tunnel and engage the retainers that secure the harness to the mounting brackets on the tunnel (Fig. 30).

(24) Install the instrument panel wire harness ground eyelets to the studs on the floor panel transmission tunnel in front of and behind the airbag control module and secure the eyelets with nuts and tighten to 7 N·m (60 in. lbs.).

(25) Connect the instrument panel wire harness connectors to the following floor panel transmission tunnel components:

- the airbag control module (ACM) connector receptacle
- the park brake switch terminal
- the transmission shifter connector receptacle.

(26) Connect the left and right body wire harness connectors, the ignition off draw (IOD) wire harness connector and the fused B(+) wire harness connector to the connector receptacles of the junction block (JB) and tighten the connector screws (Fig. 29).

(27) Engage the lower steering column shaft with the steering shaft coupler and position the steering column to the mounting studs on the instrument panel steering column support bracket (Fig. 28).

(28) Install the four nuts that secure the steering column to the studs on the instrument panel steering column support bracket and tighten to 11 N·m (8 ft. lbs.).

(29) Install the bolt that secures the coupler to the lower steering column shaft and tighten to 49 N·m (36 ft. lbs.).

INSTRUMENT PANEL ASSEMBLY (Continued)

(30) Turn the ignition switch to the On position, then install the shifter interlock cable connector into the ignition lock housing receptacle.

(31) Connect the instrument panel wire harness connectors to the following steering column components (Fig. 27):

- the two lower clockspring connector receptacles
- the left multi-function switch connector receptacle
- the right multi-function switch connector receptacle
- the two ignition switch connector receptacles
- the shifter interlock solenoid connector receptacle
- if the vehicle is so equipped, the sentry key immobilizer module (SKIM) connector receptacle.

(32) Position the lower tilting steering column shroud to the steering column multi-function switch mounting housing, then install and tighten the screw that secures the shroud to the housing (Fig. 26).

(33) Position the upper tilting steering column shroud over the steering column. Align the upper and lower shrouds with each other and snap the two halves together.

(34) Install the steering column bracket onto the instrument panel steering column support bracket. (Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL STEERING COLUMN BRACKET - INSTALLATION).

(35) Install the steering column opening cover.(Refer to 23 - BODY/INSTRUMENT PANEL/STEERING COLUMN OPENING COVER - INSTALLATION).

(36) Install the cluster bezel.(Refer to 23 - BODY/INSTRUMENT PANEL/CLUSTER BEZEL - INSTALLATION).

(37) Install the fuse cover onto the JB. (Refer to 8 - ELECTRICAL/POWER DISTRIBUTION/FUSE COVER - INSTALLATION).

(38) Install the console onto the floor panel transmission tunnel. (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - INSTALLATION).

(39) Install the trim panels onto the right and left inner cowl sides. (Refer to 23 - BODY/INTERIOR/COWL TRIM - INSTALLATION).

(40) Install the scuff plates onto the right and left front door sills. (Refer to 23 - BODY/INTERIOR/DOOR SILL SCUFF PLATE - INSTALLATION).

(41) Install the top cover.(Refer to 23 - BODY/INSTRUMENT PANEL/INSTRUMENT PANEL TOP COVER - INSTALLATION).

(42) Install the trim onto the right and left a-pillars. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - INSTALLATION).

(43) Connect the battery negative cable.

INTERIOR

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A-PILLAR TRIM

REMOVAL

The a-pillar trim is attached to the a-pillar with spring clips.

(1) Grasp a-pillar trim and pull trim outward from a-pillar (Fig. 1).

(2) Separate a-pillar trim from a-pillar.

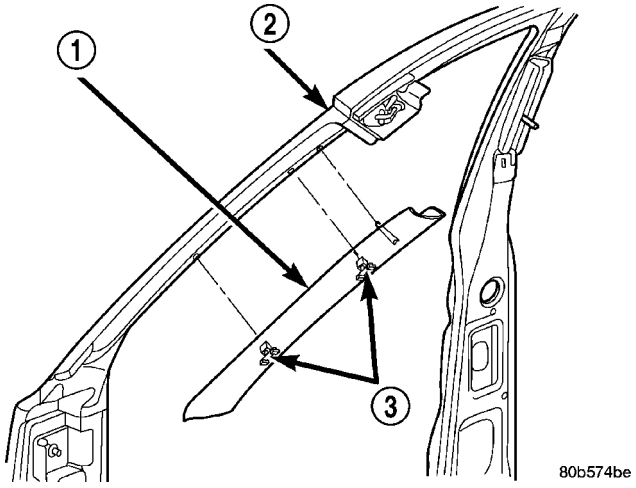


Fig. 1 A-PILLAR TRIM

1 - A-PILLAR TRIM
2 - A-PILLAR
3 - SPRING CLIP

INSTALLATION

(1) Position a-pillar trim on a-pillar and, starting at the bottom, press into place (Fig. 1).

(2) Using a trim stick C-4755 or equivalent, carefully cover the edge of the trim with weatherstrip.

ASSIST HANDLE

REMOVAL

(1) Remove the screws holding the assist handle to the roof panel.

(2) Remove the assist handle from the roof panel.

INSTALLATION

(1) Align the assist handle with the screw holes in the roof panel.

(2) Install the screws holding the assist handle to the roof panel.

B-PILLAR LOWER TRIM

REMOVAL

(1) Remove front door sill trim (Refer to 23 - BODY/INTERIOR/DOOR SILL TRIM - REMOVAL).

(2) Remove front seat shoulder belt anchor bolt.

(3) Remove front seat shoulder belt height adjustment knob and turning loop.

(4) Remove screw attaching front of quarter panel trim to floor.

(5) Remove screws attaching front and rear of b-pillar lower trim to floor.

(6) Remove screw attaching b-pillar lower trim to b-pillar (Fig. 2).

(7) Grasp b-pillar lower trim and pull outward to separate from b-pillar.

(8) Route seat/shoulder belt through access slot in b-pillar lower trim.

(9) Separate b-pillar lower trim from b-pillar.

B-PILLAR LOWER TRIM (Continued)

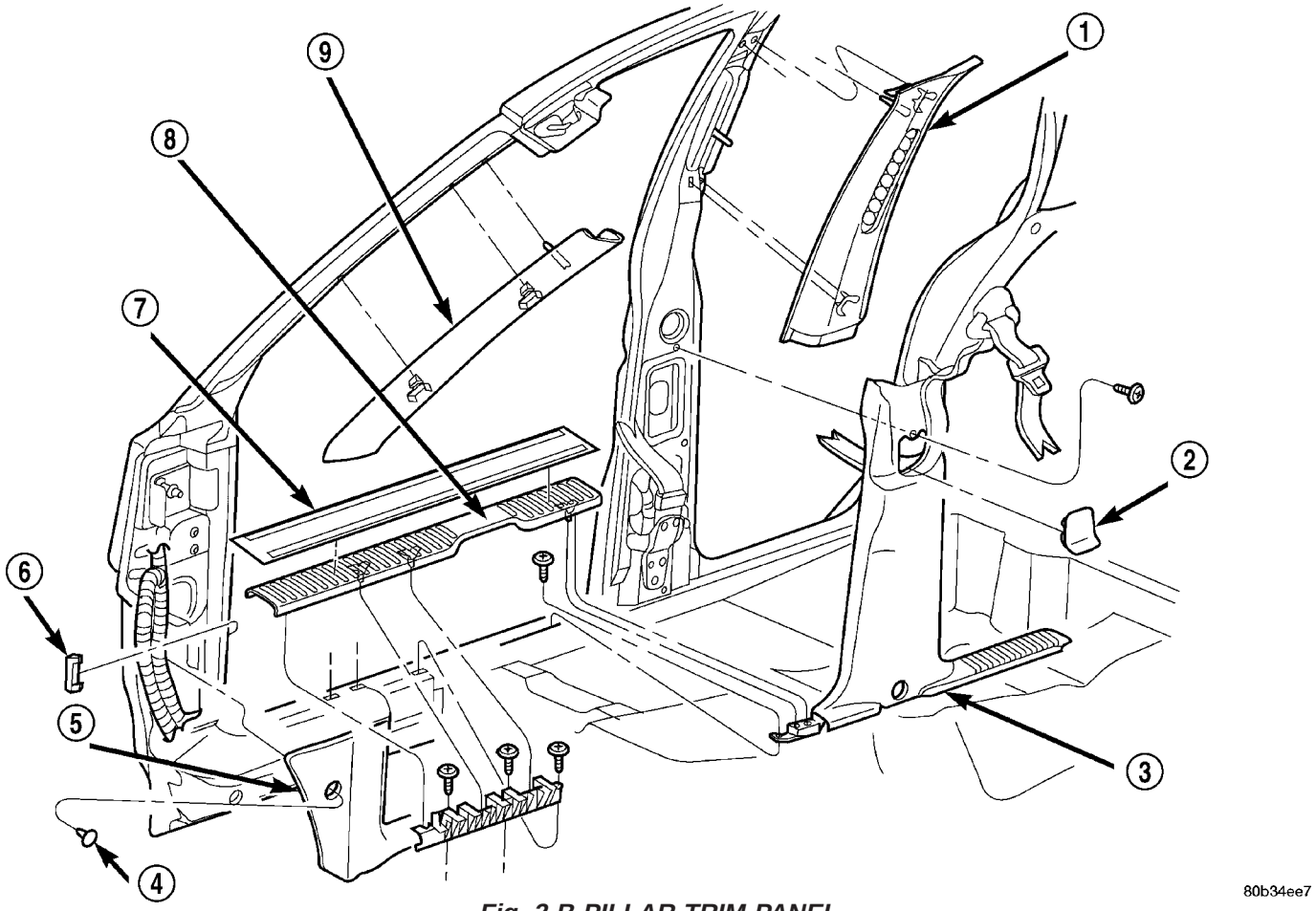


Fig. 2 B-PILLAR TRIM PANEL

1 - B-PILLAR UPPER TRIM
2 - ACCESS COVER
3 - B-PILLAR LOWER TRIM
4 - PLASTIC NUT
5 - COWL LOWER TRIM
6 - CLIP
7 - SCUFF PLATE
8 - SILL TRIM
9 - A-PILLAR TRIM

INSTALLATION

(1) Position b-pillar lower trim panel at b-pillar (Fig. 2).

(2) Route seat/shoulder belt through access slot in b-pillar lower trim.

(3) Press b-pillar lower trim onto b-pillar.

(4) Install screw attaching b-pillar lower trim to b-pillar.

(5) Install screw attaching front of b-pillar lower trim to floor.

(6) Install screw attaching front of quarter panel trim to floor.

(7) Install front seat shoulder belt anchor bolt.

(8) Install front seat shoulder belt height adjustment knob and turning loop.

(9) Install front door sill trim (Refer to 23 - BODY/INTERIOR/DOOR SILL TRIM - INSTALLATION).

B-PILLAR UPPER TRIM

REMOVAL

(1) Remove shoulder belt height adjustment knob.

(2) Remove front seat belt turning loop.

(3) Remove the screw attaching lower B pillar trim.

(4) Pull lower B pillar trim out far enough to remove upper trim panel.

(5) Grasp upper B-pillar trim and pull outward to detach from B-pillar (Fig. 2).

INSTALLATION

(1) Position trim panel on b-pillar (Fig. 2).

(2) Ensure trim panel covers inner edge of door opening weatherstrip and press inward to seat.

(3) Install screw attaching lower b-pillar trim panel.

(4) Install front seat belt turning loop.

(5) Install shoulder belt height adjustment knob.

CARPETS AND FLOOR MATS

REMOVAL

REMOVAL - FRONT CARPET

(1) Remove door sill trim (Refer to 23 - BODY/INTERIOR/DOOR SILL TRIM - REMOVAL).
(2) Remove the B-pillar lower trim, refer to (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - REMOVAL).
(3) Remove front seats (Refer to 23 - BODY/SEATS/SEAT - REMOVAL).
(4) Remove the rear seats lower cushions (Refer to 23 - BODY/SEATS/SEAT CUSHION - REMOVAL).
(5) Remove center floor console (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - REMOVAL).
(6) Remove any other interfering trim or molding.
(7) Lift carpet and mat from floor panel.

REMOVAL - CARGO AREA CARPET

(1) Lift tailgate.
(2) Fold rear seat cushions forward.
(3) Remove rear seat backs (Refer to 23 - BODY/SEATS/REAR SEAT BACK - REMOVAL).
(4) Remove the rear shoulder belts (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR SEAT BELT & RETRACTOR - REMOVAL).
(5) Remove the retractable security cargo cover assembly.
(6) Remove the spare tire cover.
(7) Remove the rear cargo tie down footman loops. The side mounted footman loops are retained by screws. The floor footman loops are riveted (Fig. 3).
(8) Remove the C pillar trim (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - REMOVAL).
(9) Remove the CD changer, if equipped (Refer to 8 - ELECTRICAL/AUDIO/CD CHANGER - REMOVAL).
(10) Remove the Infinity amp, if equipped (Refer to 8 - ELECTRICAL/AUDIO/AMPLIFIER - REMOVAL).
(11) Lift the carpet.

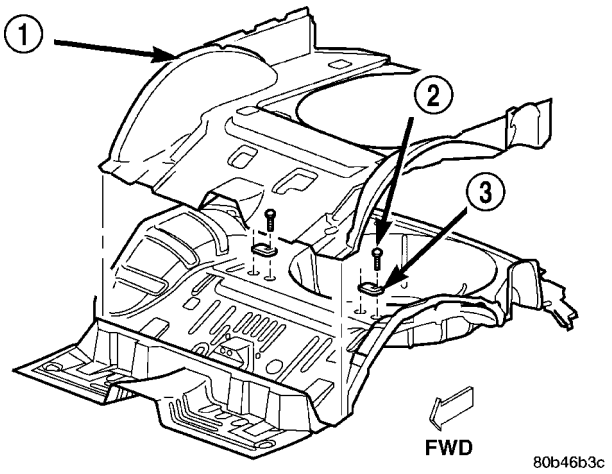


Fig. 3 CARGO AREA CARPET

1 - CARGO AREA CARPET
2 - RIVET
3 - CARGO TIE-DOWN LOOP

INSTALLATION

INSTALLATION - FRONT CARPET

(1) Carefully lay the carpet and mat on the floor panel. Align the carpet to allow installation of the components fastened to the floor panel.
(2) Install the center console (Refer to 23 - BODY/INTERIOR/FLOOR CONSOLE - INSTALLATION).
(3) Install the front seats (Refer to 23 - BODY/SEATS/SEAT - INSTALLATION).
(4) Install the rear seat cushions (Refer to 23 - BODY/SEATS/SEAT CUSHION - INSTALLATION).
(5) Install the lower B pillar trim (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - INSTALLATION).
(6) Install the door sill trim (Refer to 23 - BODY/INTERIOR/DOOR SILL TRIM - INSTALLATION).
(7) Install any other moldings or trim panels removed.

INSTALLATION - CARGO AREA CARPET

(1) Thoroughly clean the area with Mopar Super Kleen®, or equivalent.
(2) Lay the new carpet in.
(3) Install the c-pillar trim (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - INSTALLATION).
(4) Install the CD changer, if equipped (Refer to 8 - ELECTRICAL/AUDIO/CD CHANGER - INSTALLATION).
(5) Install the footman loops (Fig. 3).
(6) Install the rear shoulder belts (Refer to 8 - ELECTRICAL/RESTRAINTS/REAR SEAT BELT & RETRACTOR - INSTALLATION).
(7) Install the rear seat backs (Refer to 23 - BODY/SEATS/REAR SEAT BACK - INSTALLATION).
(8) Install the Infinity amp, if equipped (Refer to 8 - ELECTRICAL/AUDIO/AMPLIFIER - INSTALLATION).
(9) Install the spare tire cover.
(10) Install the retractable security cover.

COWL TRIM

REMOVAL

(1) Remove front door sill trim (Refer to 23 - BODY/INTERIOR/DOOR SILL TRIM - REMOVAL).
(2) Remove screws attaching cowl trim to floor.
(3) Remove plastic nut.
(4) Grasp cowl trim and pull outward to separate from clip.
(5) Separate cowl trim from vehicle.

INSTALLATION

(1) Position cowl trim and press into place.
(2) Install screws attaching cowl trim to floor.
(3) Install plastic nut.
(4) Install front door sill trim (Refer to 23 - BODY/INTERIOR/DOOR SILL TRIM - INSTALLATION).

C-PILLAR TRIM

REMOVAL

(1) Remove rear shoulder belt turning loop.
(2) Remove rear shoulder belt height adjustment knob.
(3) Remove screws attaching quarter panel trim.
(4) Pull quarter panel trim outward as necessary.
(5) Grasp c-pillar upper trim and pull outward to disengage from c-pillar (Fig. 4).
(6) Route rear shoulder belt through access hole.
(7) Separate c-pillar upper trim from vehicle.

INSTALLATION

(1) Position c-pillar upper trim at c-pillar (Fig. 4).
(2) Route rear shoulder belt through access hole.
(3) Press c-pillar upper trim onto c-pillar.
(4) Press quarter panel trim into place as necessary.

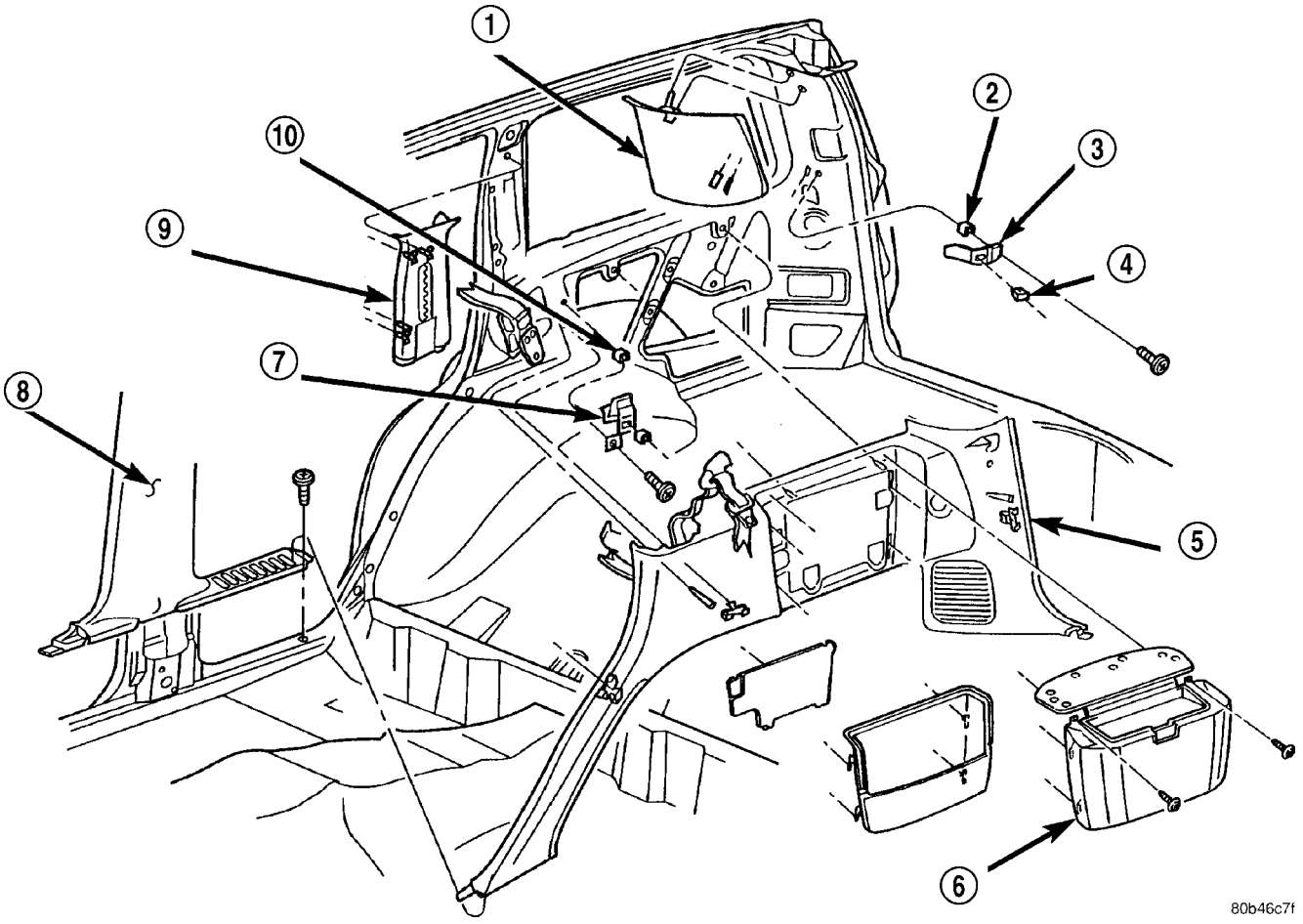


Fig. 4 RIGHT SIDE TRIM PANEL

1 - D-PILLAR TRIM
2 - SNAP-IN NUT
3 - BRACKET
4 - SNAP-IN NUT
5 - QUARTER TRIM PANEL
6 - STORAGE BIN
7 - BRACKET
8 - B-PILLAR LOWER TRIM
9 - C-PILLAR UPPER TRIM
10 - SNAP-IN NUT

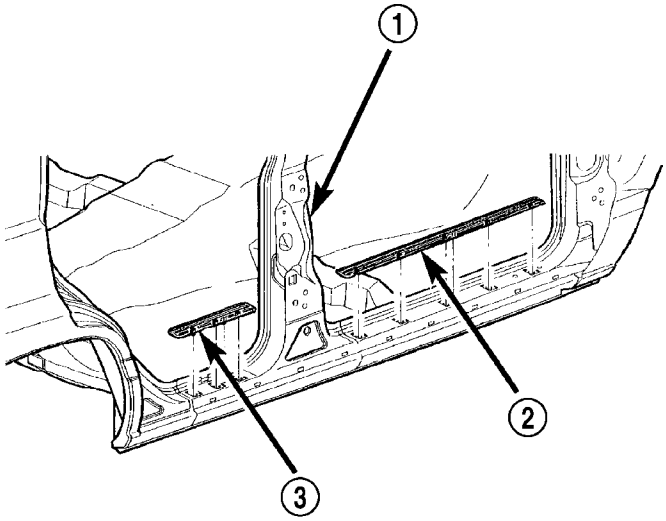
C-PILLAR TRIM (Continued)

(5) Ensure front edge of trim is covered by weatherstrip.
(6) Install screws attaching quarter panel trim.
(7) Install rear shoulder belt height adjustment knob.
(8) Install rear shoulder belt turning loop.

DOOR SILL SCUFF PLATE

REMOVAL

(1) Using a trim stick C-4755 or equivalent, carefully pry up the scuff plate from the door sill (Fig. 5).
(2) Remove the scuff plate.



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Fig. 5 DOOR SILL SCUFF PLATES

1 - B-PILLAR
2 - FRONT DOOR SCUFF PLATE
3 - REAR DOOR SCUFF PLATE

INSTALLATION

(1) Install the scuff plate on the door sill (Fig. 5).
(2) Press the molded in snap retainers into the door sill.

DOOR SILL TRIM

REMOVAL

The sill trim molding is held in place with molded in snap retainers (Fig. 6).
(1) Using a trim stick C-4755 or equivalent, carefully pry up one corner of the sill trim.
(2) Grasp the edge of the trim and pull up gently to release the snap retainers.

INSTALLATION

(1) Position the sill molding on the door sill.
(2) Press the snap retainers into place.

DOOR SILL TRIM (Continued)

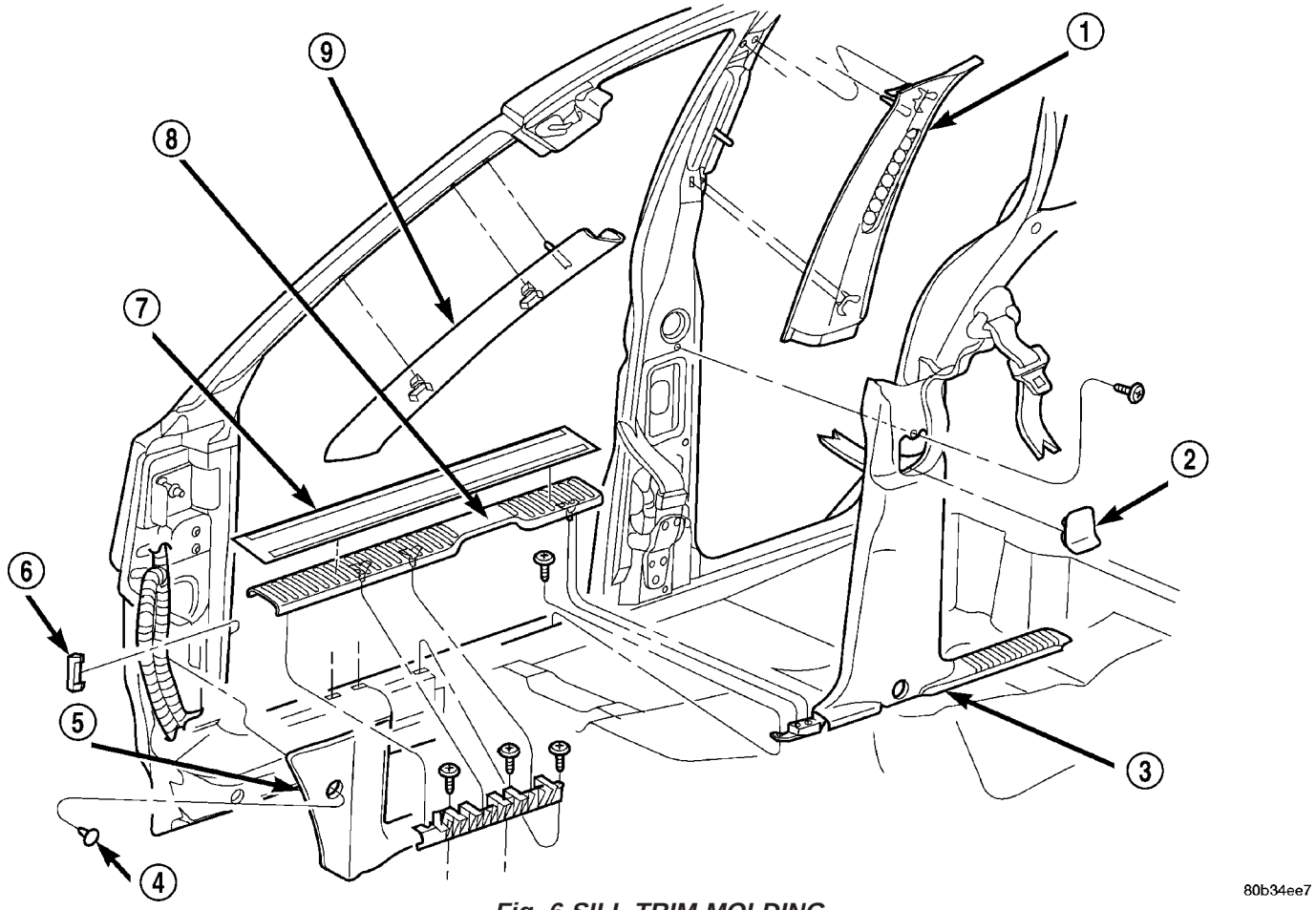


Fig. 6 SILL TRIM MOLDING

1 - B-PILLAR UPPER TRIM
2 - ACCESS COVER
3 - B-PILLAR LOWER TRIM
4 - PLASTIC NUT
5 - COWL LOWER TRIM
6 - CLIP
7 - SCUFF PLATE
8 - SILL TRIM
9 - A-PILLAR TRIM

D-PILLAR TRIM

REMOVAL

The d-pillar trim is attached to the d-pillar with spring clips (Fig. 7).

(1) Remove liftgate opening upper trim panel (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - REMOVAL).

(2) Grasp d-pillar trim and pull outward from d-pillar.

(3) Separate d-pillar trim from d-pillar.

INSTALLATION

(1) Position d-pillar trim panel at d-pillar and press into place.

(2) Install upper liftgate opening trim panel (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - INSTALLATION).

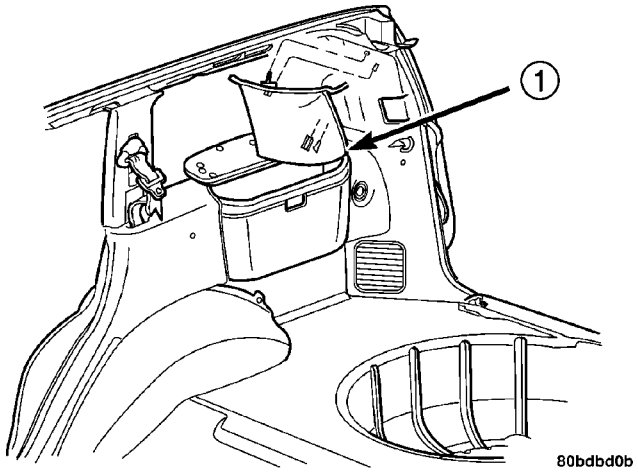


Fig. 7 D-PILLAR UPPER TRIM

1 - D-PILLAR UPPER TRIM

FLOOR CONSOLE

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY OPERATION REQUIRING THE KEY TO BE TURNED "ON", WHILE WORKING IN THE CONSOLE AREA. E.G. CONSOLE, CARPET, OR SEAT REMOVAL OR INSTALLATION; SHIFTER LINKAGE ADJUSTMENT OR REPLACEMENT; PARKING BRAKE CABLE REPLACEMENT OR ADJUSTMENT. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Set park brake.

(2) Place transmission shift lever and transfer case lever in full rearward position.

(3) Remove mat from front bin and remove screws attaching front of console to floor (Fig. 8).

(4) Remove screws attaching rear bin to console.

(5) Remove rear bin.

(6) Pull rear passenger cupholder outward to access screws.

(7) Remove screws attaching rear of console to floor.

(8) Lift the console upward and rearward.

(9) Remove console from vehicle.

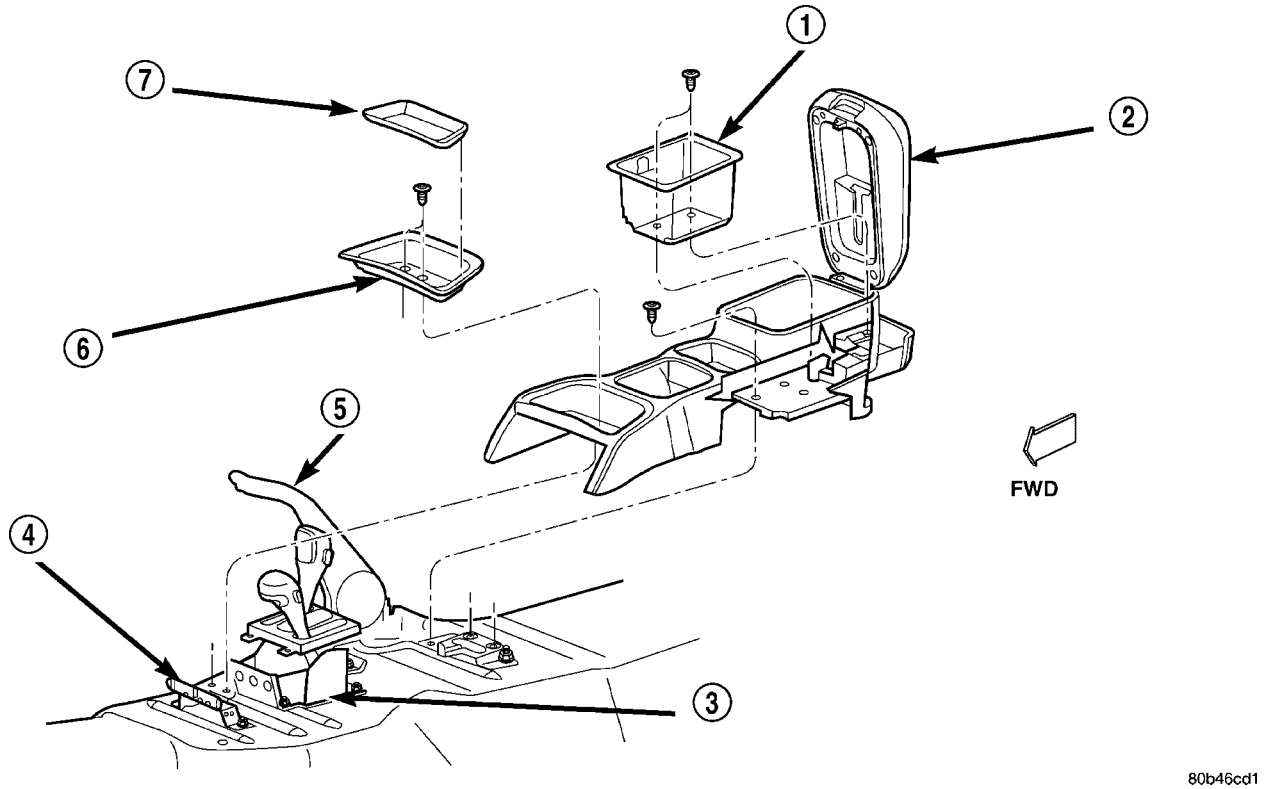


Fig. 8 FLOOR CONSOLE

1 - REAR BIN
2 - CONSOLE LID
3 - SHIFTER CONSOLE
4 - BRACKET
5 - PARKING BRAKE
6 - FRONT PIN
7 - MAT

FLOOR CONSOLE (Continued)

INSTALLATION

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, DISABLE THE AIRBAG SYSTEM BEFORE ATTEMPTING ANY OPERATION REQUIRING THE KEY TO BE TURNED "ON", WHILE WORKING IN THE CONSOLE AREA. E.G. CONSOLE, CARPET, OR SEAT REMOVAL OR INSTALLATION; SHIFTER LINKAGE ADJUSTMENT OR REPLACEMENT; PARKING BRAKE CABLE REPLACEMENT OR ADJUSTMENT. DISCONNECT AND ISOLATE THE BATTERY NEGATIVE (GROUND) CABLE, THEN WAIT TWO MINUTES FOR THE AIRBAG SYSTEM CAPACITOR TO DISCHARGE BEFORE PERFORMING FURTHER DIAGNOSIS OR SERVICE. THIS IS THE ONLY SURE WAY TO DISABLE THE AIRBAG SYSTEM. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Position console in vehicle. Ensure rear passenger HEVAC duct is engaged.
(2) Install screws attaching rear of console to floor.
(3) Position rear bin in console.
(4) Install screws attaching rear bin to console.
(5) Install screws attaching front of console to floor and place front bin mat in front bin.
(6) Return transmission shift lever and transfer case lever to original position.
(7) Release park brake.

HEADLINER

REMOVAL

CAUTION: The headliner is a one-piece, molded component. It has limited flexibility and must not be bent. Damage may possibly result.

(1) Record radio presets and disconnect negative battery cable.
(2) Remove a-pillar trim moldings (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - REMOVAL).
(3) Remove b-pillar upper trim moldings (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - REMOVAL).
(4) Remove c-pillar trim moldings (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - REMOVAL).
(5) Remove d-pillar trim molding (Refer to 23 - BODY/INTERIOR/D-PILLAR TRIM - REMOVAL).
(6) Remove the sun visors (Refer to 23 - BODY/INTERIOR/SUN VISOR - REMOVAL).
(7) Disconnect the vanity lamp electrical connector.
(8) Remove assist handles from roof rails (Refer to 23 - BODY/INTERIOR/ASSIST HANDLE - REMOVAL).
(9) Remove dome lamp and overhead console, if equipped.
(10) Remove rear cargo/dome lamp.
(11) Remove sun roof pinch welt, if equipped.
(12) Disengage rear washer hose from liftgate (Fig. 9).
(13) Disengage the wire harness connectors at rear of headliner.
(14) Disconnect the rear washer hose at the left a-pillar (Fig. 10).
(15) Disengage the wire harness for the sunroof, if equipped.
(16) Fold down the rear seats, move the front seats full forward, and lower the front seat backs.
(17) Partially lower the headliner and disengage the sunroof drain hoses, if equipped (Fig. 11).
(18) With the aid of an assistant, remove the headliner through the liftgate opening.

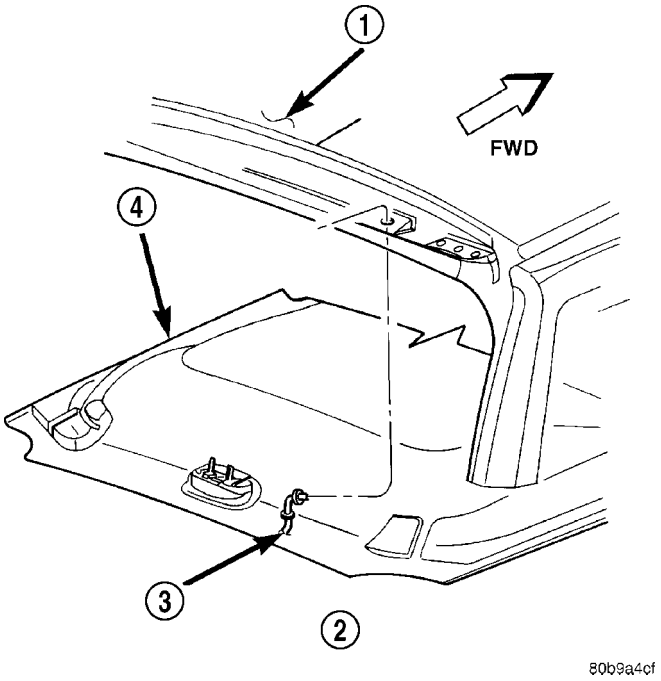


Fig. 9 LIFTGATE WASHER HOSE ROUTING AT REAR OF HEADLINER

1 - ROOF
2 - REAR WASHER HOSE ROUTING
3 - REAR WASHER HOSE
4 - HEADLINER

HEADLINER (Continued)

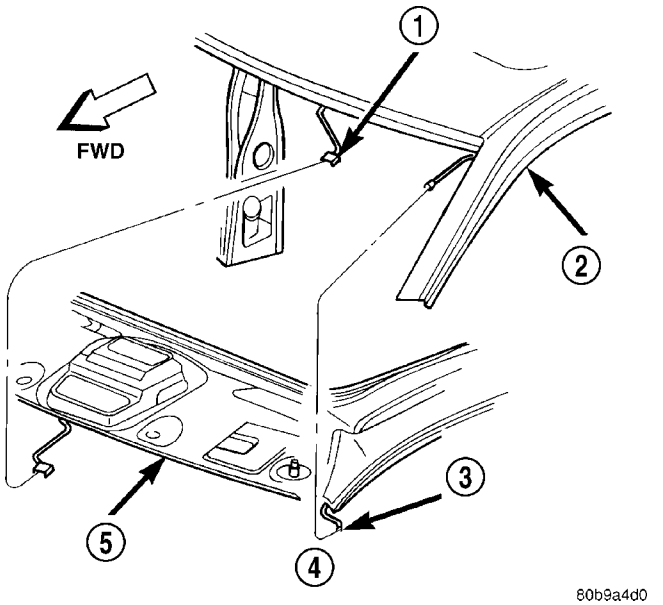


Fig. 10 REAR LIFTGATE WASHER HOSE ROUTING AT A PILLAR

1 - OVERHEAD CONSOLE WIRE HARNESS
2 - ROOF
3 - REAR WASHER HOSE
4 - REAR WASHER HOSE ROUTING
5 - HEADLINER

INSTALLATION

(1) With the aid of an assistant, position the headliner in the vehicle.

(2) Connect the sunroof drain hoses, if equipped.

(3) Connect the sunroof harness, the rear wire harnesses, and the washer hose at the a-pillar and at the liftgate.

(4) Install the sunroof pinch welt, if equipped.

(5) Install the roof rail assist handles (Refer to 23 - BODY/INTERIOR/ASSIST HANDLE - INSTALLATION).

(6) Install the sun visors (Refer to 23 - BODY/INTERIOR/SUN VISOR - INSTALLATION).

(7) Install the overhead console, if equipped.

(8) Install the rear cargo/dome lamp.

(9) Install the d-trim (Refer to 23 - BODY/INTERIOR/D-PILLAR TRIM - INSTALLATION).

(10) Install the c-pillar trim (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - INSTALLATION).

(11) Install the upper b-pillar trim (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - INSTALLATION).

(12) Install the a-pillar trim (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - INSTALLATION).

(13) Connect the negative battery cable.

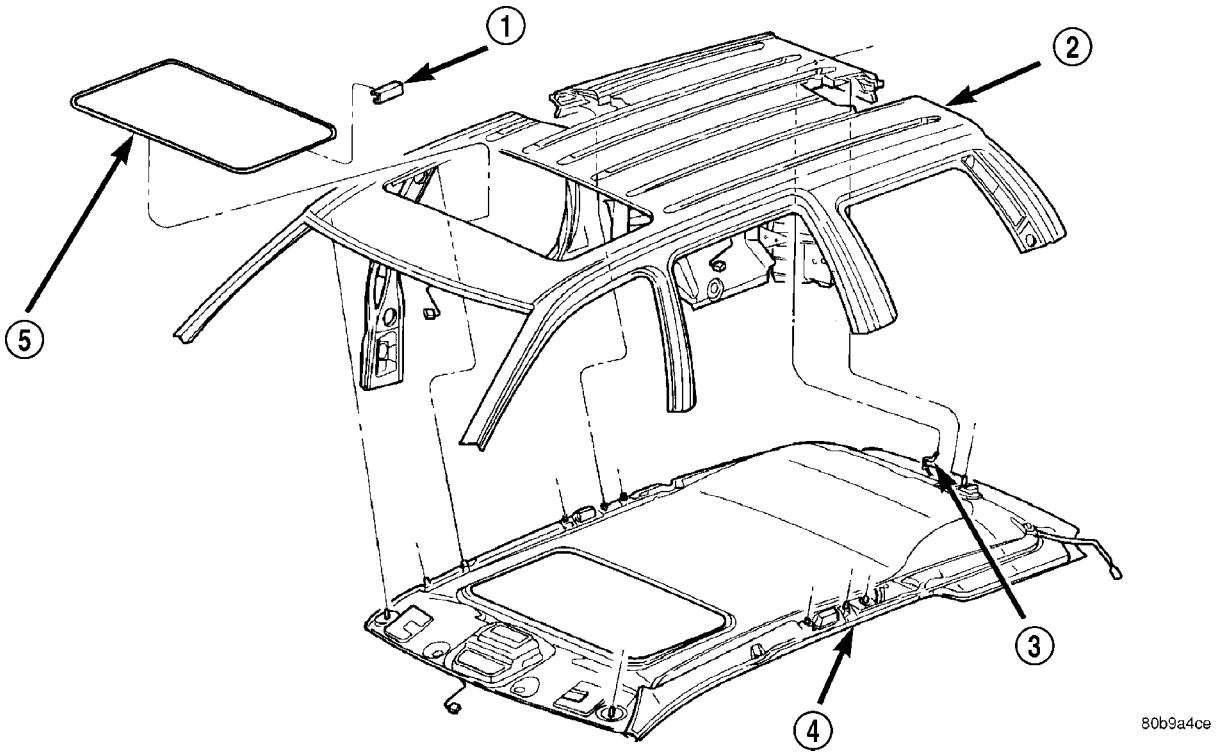


Fig. 11 HEADLINER

1 - SUNROOF PINCH WELT
2 - ROOF
3 - REAR WASHER HOSE
4 - HEADLINER
5 - SUNROOF

LIFTGATE OPENING UPPER TRIM

REMOVAL

The upper liftgate opening trim is held on with spring clips.

(1) Grasp the rear of the trim piece and pull down and back to disengage clips (Fig. 12).

(2) Slide the trim piece to the rear to disengage headliner locating hooks.

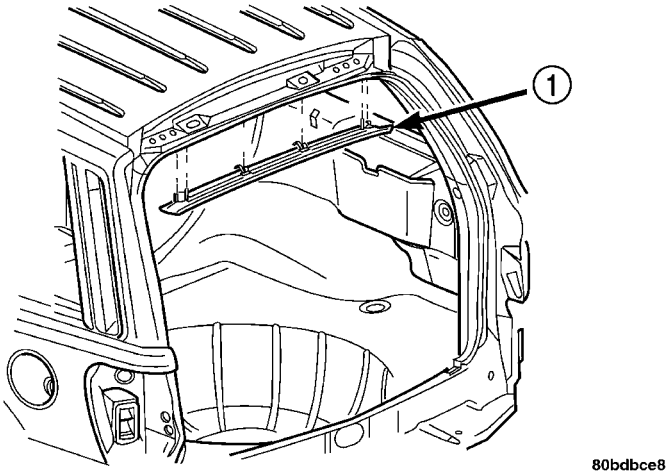


Fig. 12 UPPER LIFTGATE OPENING TRIM

1 - UPPER LIFTGATE OPENING TRIM

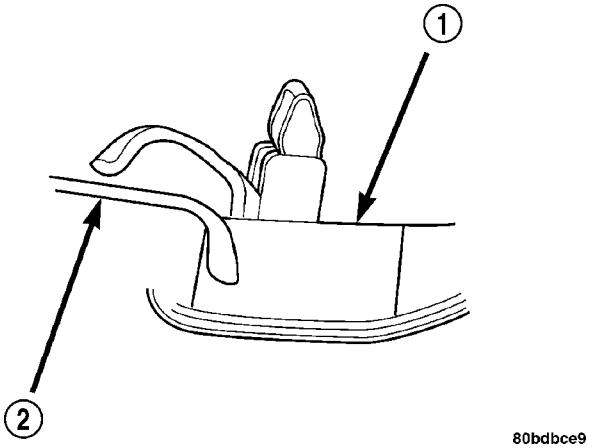


Fig. 13 HEADLINER LOCATING HOOKS

1 - UPPER LIFTGATE OPENING TRIM
2 - HEADLINER

INSTALLATION

The liftgate upper opening trim piece is equipped with headliner locating hooks (Fig. 13).

(1) Align the locating hooks with the slots in the headliner.

(2) Engage the spring clips and press the liftgate upper opening trim panel into place.

LIFTGATE SCUFF PLATE

REMOVAL

(1) Remove screws at outboard end of lower liftgate trim panel.

(2) Open the spare tire cover and remove the screws near the center of the lower liftgate trim panel (Fig. 14).

(3) Remove the lower liftgate trim panel.

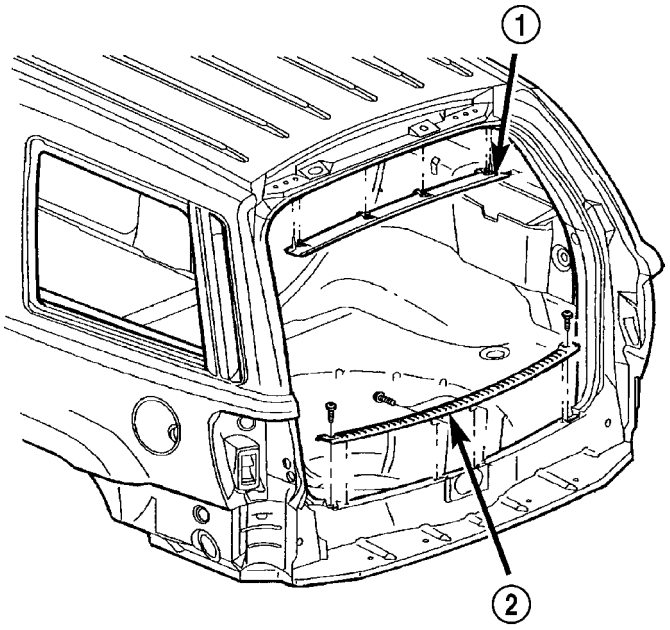


Fig. 14 LIFTGATE OPENING TRIM PANEL

1 - UPPER LIFTGATE OPENING TRIM PANEL
2 - LOWER LIFTGATE OPENING TRIM PANEL

INSTALLATION

(1) Align the screw holes and locators to the holes in the liftgate opening.

(2) Install the screws in the liftgate opening trim panel.

(3) Install the spare tire cover.

QUARTER TRIM PANEL

REMOVAL

(1) Move rear seat to cargo position.

(2) If equipped, remove sunshade cover.

(3) Open liftgate.

(4) Remove upper and lower liftgate opening trim panels (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - REMOVAL).

(5) Remove d-pillar upper trim (Refer to 23 - BODY/INTERIOR/D-PILLAR TRIM - REMOVAL).

QUARTER TRIM PANEL (Continued)

(6) Remove storage bin (right side only) (Refer to 23 - BODY/INTERIOR/REAR STORAGE BOX - REMOVAL).
(7) Remove c-pillar upper trim panel (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - REMOVAL).
(8) Remove mounting screws.
(9) Pull quarter trim panel forward and disengage connectors for CD player and power outlet, if equipped.
(10) Pull quarter trim panel extension in the rear door opening upward.
(11) Remove rear quarter trim panel.

INSTALLATION

(1) Position quarter trim panel, engage connectors for CD player and power outlet, if equipped, and align screw holes.
(2) Install quarter trim panel.
(3) Install c-pillar upper trim panel (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - INSTALLATION).
(4) Install storage bin (Refer to 23 - BODY/INTERIOR/REAR STORAGE BOX - INSTALLATION).
(5) Install d-pillar upper trim panel (Refer to 23 - BODY/INTERIOR/D-PILLAR TRIM - INSTALLATION).
(6) Install upper and lower liftgate opening trim panels (Refer to 23 - BODY/INTERIOR/LIFTGATE OPENING UPPER TRIM - INSTALLATION).
(7) If equipped, install sunshade cover.
(8) Install cargo loops.
(9) Move the rear seat to the upright position.

REAR STORAGE BOX

REMOVAL

(1) Open the storage bin lid and remove screws on each side of the lid hinge.
(2) Pull upward sharply on the bottom of the bin to disengage hooks.
(3) Raise bin and move inboard to disengage the quarter trim panel.

INSTALLATION

(1) Position the bin hooks high in the slots on the quarter trim panel.
(2) Push downward until the bin snaps into place.
(3) Install the hinge screws.

REAR VIEW MIRROR

REMOVAL

(1) If equipped, disconnect mirror harness connector.
(2) Loosen the mirror base setscrew (Fig. 15).
(3) Slide the mirror base upward and off the bracket.

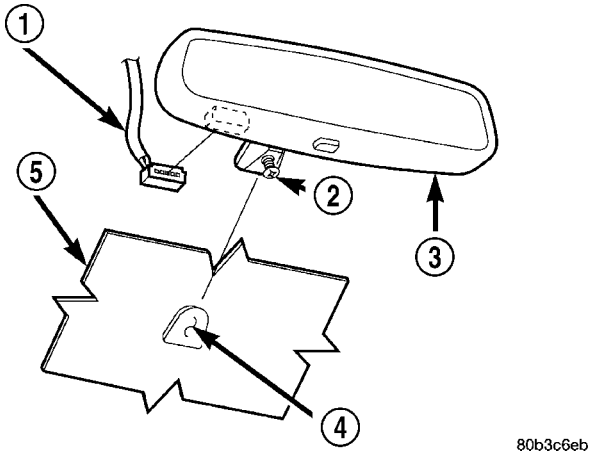


Fig. 15 REAR VIEW MIRROR

1 - CONNECTOR
2 - SCREW
3 - REAR VIEW MIRROR
4 - SUPPORT BUTTON
5 - WINDSHIELD

INSTALLATION

INSTALLATION

(1) Position the mirror base at the bracket and slide it downward onto the support bracket (Fig. 15).
(2) Tighten the setscrew 1 N·m (15 in. lbs.) torque.
(3) If equipped, connect mirror harness connector.

INSTALLATION - REARVIEW MIRROR SUPPORT BRACKET

(1) Mark the position for the mirror bracket on the outside of the windshield glass with a wax pencil.
(2) Clean the bracket contact area on the glass. Use a mild powdered cleanser on a cloth saturated with isopropyl (rubbing) alcohol. Finally, clean the glass with a paper towel dampened with alcohol.
(3) Sand the surface on the support bracket with fine grit-sandpaper. Wipe the bracket surface clean with a paper towel.
(4) Apply accelerator to the surface on the bracket according to the following instructions:
(a) Crush the vial to saturate the felt applicator.
(b) Remove the paper sleeve.
(c) Apply accelerator to the contact surface on the bracket.
(d) Allow the accelerator to dry for five minutes.
(e) Do not touch the bracket contact surface after the accelerator has been applied.

REAR VIEW MIRROR (Continued)

(5) Apply adhesive accelerator to the bracket contact surface on the windshield glass. Allow the accelerator to dry for one minute. Do not touch the glass contact surface after the accelerator has been applied.

(6) Install the bracket according to the following instructions:

(a) Apply one drop of adhesive at the center of the bracket contact-surface on the windshield glass.

(b) Apply an even coat of adhesive to the contact surface on the bracket.

(c) Align the bracket with the marked position on the windshield glass.

(d) Press and hold the bracket in place for at least one minute.

NOTE: Verify that the mirror support bracket is correctly aligned, because the adhesive will cure rapidly.

(7) Allow the adhesive to cure for 8-10 minutes. Remove any excess adhesive with an alcohol-dampened cloth.

(8) Allow the adhesive to cure for an additional 8-10 minutes before installing the mirror.

SUN VISOR

REMOVAL

(1) Remove screws attaching sunvisor arm support bracket to headliner and roof panel.

(2) Disengage electrical connections for vanity mirror, if equipped.

(3) Detach sunvisor from support bracket.

(4) Remove sunvisor from vehicle.

(5) Remove retaining screw and support bracket.

INSTALLATION

(1) Install the retaining screw and support bracket.

(2) Position the sunvisor in the vehicle.

(3) Connect the electrical harness for the lighted vanity mirror, if equipped.

(4) Attach the sunvisor to the support bracket.

(5) Install the support bracket w/sunvisor onto the headliner and roof panel.

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PAINT

SPECIFICATIONS - PAINT CODES

EXTERIOR COLORS

EXTERIOR COLOR	DAIMLERCHRYSLER CODE
Dark Garnet Red Pearlcoat	XRV
Inferno Red Tinted Pearlcoat	WEL
Light Pewter Metallic Clearcoat	YFF
Woodland Brown Satin Glow	YUB
Onyx Green Pearlcoat	YJR
Patriot Blue Pearlcoat	WBT
Bright Silver Metallic Clearcoat	WSB
Graphite Metallic Clearcoat	ZDR
Brilliant Black Crystal Pearlcoat	AXR
Stone White Clearcoat	SW1

INTERIOR COLORS

INTERIOR COLOR	DAIMLERCHRYSLER CODE
Dark Slate Grey	DV
Taupe	L5
Sandstone	T5
Dark Slate Gray/Cognac	DU

LAREDO FASCIA/CLADDING COLORS

COLOR	DAIMLERCHRYSLER CODE
Deep Gray	ZSP
Taupe	WLP

PAINT STRIPE COLORS

COLOR	DAIMLERCHRYSLER CODE
Cognac	WUC
Dark Quartz	HA8
Light Quartz	HA2

PAINT CODE

DESCRIPTION

Exterior vehicle body colors are identified on the Vehicle Safety Certification Label (Refer to VEHICLE DATA/VEHICLE INFORMATION/VEHICLE SAFETY CERTIFICATION LABEL - DESCRIPTION) or the Body Code Plate (Refer to VEHICLE DATA/VEHICLE INFORMATION/BODY CODE PLATE - DESCRIPTION). The first digit of the paint code listed on the vehicle indicates the sequence of application, i.e.: P = primary coat, Q = secondary coat. The color names provided in the Paint and Trim Code Description chart are the color names used on most repair product containers. (Refer to 23 - BODY/PAINT - SPECIFICATIONS)

BASECOAT/CLEARCOAT FINISH

DESCRIPTION

The original equipment finish is a multi step process that involves cleaning, applying electro de-position (E-coat), anti-chip primer, basecoat, and clearcoat steps.

On most vehicles a two-part paint application (basecoat/clearcoat) is used. Color paint that is applied to primer is called basecoat. The clearcoat protects the basecoat from ultraviolet light and provides a durable high-gloss finish.

CAUTION: Do not use abrasive chemicals or compounds on painted surfaces. Damage to finish can result.
Do not use harsh alkaline based cleaning solvents on painted surfaces. Damage to finish or color can result.

PAINT TOUCH-UP

DESCRIPTION

When a painted metal surface has been scratched or chipped, it should be touched-up as soon as possible to avoid corrosion. For best results, use MOPAR® Scratch Filler/Primer, Touch-Up Paints and Clear Top Coat. (Refer to VEHICLE DATA/VEHICLE INFORMATION/BODY CODE PLATE - DESCRIPTION) for Body Code Plate information.

WARNING: USE AN OSHA APPROVED RESPIRATOR AND SAFETY GLASSES WHEN SPRAYING PAINT OR SOLVENTS IN A CONFINED AREA. PERSONAL INJURY CAN RESULT.

STANDARD PROCEDURE - PAINT TOUCH-UP

(1) Scrape loose paint and corrosion from inside scratch or chip.

(2) Clean affected area with MOPAR® Tar/Road Oil Remover or equivalent, and allow to dry.

(3) Fill the inside of the scratch or chip with a coat of filler/primer. Do not overlap primer onto good surface finish. The applicator brush should be wet enough to puddle-fill the scratch or chip without running. Do not stroke brush applicator on body surface. Allow the filler/primer to dry hard.

(4) Cover the filler/primer with color touch-up paint. Do not overlap touch-up color onto the original color coat around the scratch or chip. Butt the new color to the original color, if possible. Do not stroke applicator brush on body surface. Allow touch-up paint to dry hard.

(5) On vehicles without clearcoat, the touch-up color can be lightly finesse sanded (1500 grit) and polished with rubbing compound.

(6) On vehicles with clearcoat, apply clear top coat to touch-up paint with the same technique as described in Step 4. Allow clear top coat to dry hard. If desired, Step 5 can be performed on clear top coat.

WARNING: AVOID PROLONGED SKIN CONTACT WITH PETROLEUM OR ALCOHOL – BASED CLEANING SOLVENTS. PERSONAL INJURY CAN RESULT. AVOID PROLONGED SKIN CONTACT WITH PETROLEUM OR ALCOHOL – BASED CLEANING SOLVENTS. PERSONAL INJURY CAN RESULT.

FINESSE SANDING/BUFFING & POLISHING

DESCRIPTION

CAUTION: Do not remove more than .5 mils of clearcoat finish, if equipped. Basecoat paint must retain clearcoat for durability.
Use a Paint Thickness Gauge #PR-ETG-2X or equivalent to determine film thickness before and after the repair.

Minor acid etching, orange peel, or smudging in clearcoat or single-stage finishes can be reduced with light finesse sanding, hand buffing, and polishing. **If the finish has been finesse sanded in the past, it cannot be repeated. Finesse sanding operation should be performed by a trained automotive paint technician.**

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FRONT HEADREST

REMOVAL

(1) Lift head restraint to full up position.

(2) Using a small flat blade, depress tab on right side head restraint release button and using your hand, simultaneously press tab on left side head restraint release button (Fig. 1), and pull head restraint up to separate from seat back.

INSTALLATION

(1) Position head restraint in seat back, press tab on left side head restraint release button and push down head restraint to secure.

FRONT HEADREST (Continued)

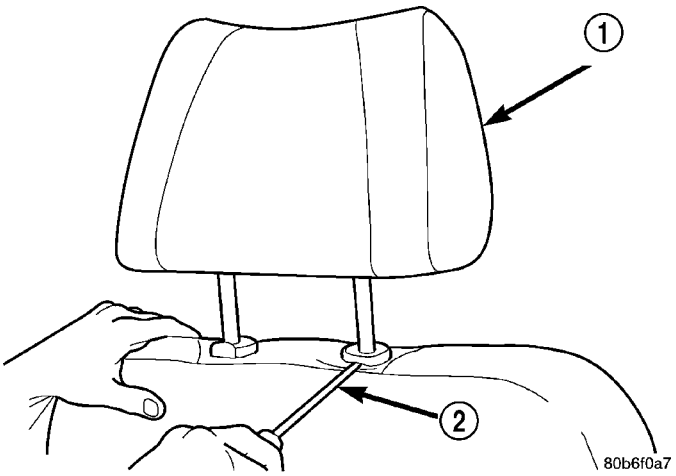


Fig. 1 HEAD RESTRAINT

1 - HEAD RESTRAINT
2 - FLAT BLADE

FRONT HEADREST SLEEVE

REMOVAL

(1) Remove head restraint (Refer to 23 - BODY/SEATS/FRONT HEADREST - REMOVAL).

(2) Remove seat back cover (Refer to 23 - BODY/SEATS/FRONT SEAT BACK COVER - REMOVAL).

(3) Remove hog rings attaching cushion pad to seat back frame (Fig. 2).

(4) Remove cushion pad from seat back frame.

(5) Rotate head restraint sleeve 1/4 turn counterclockwise to release retaining tab.

(6) Pull sleeve from seat back frame (Fig. 3).

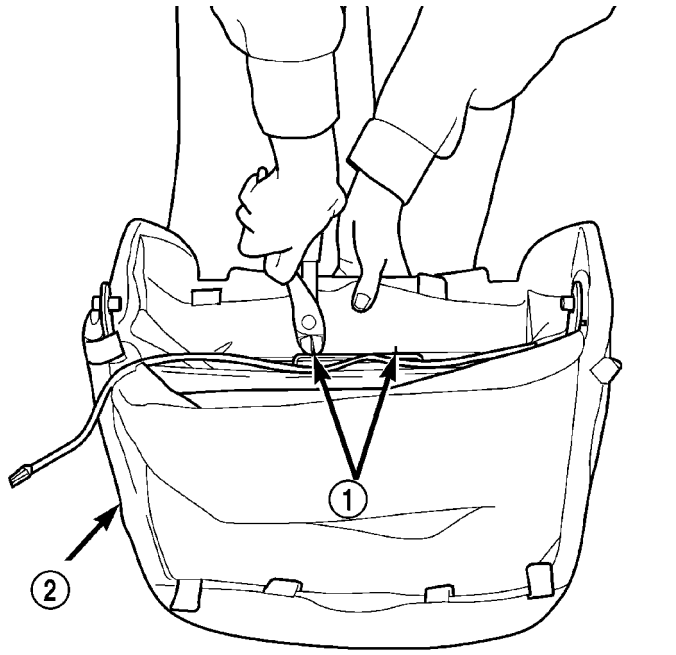


Fig. 2 CUSHION PAD

1 - HOG RING
2 - SEAT BACK CUSHION PAD

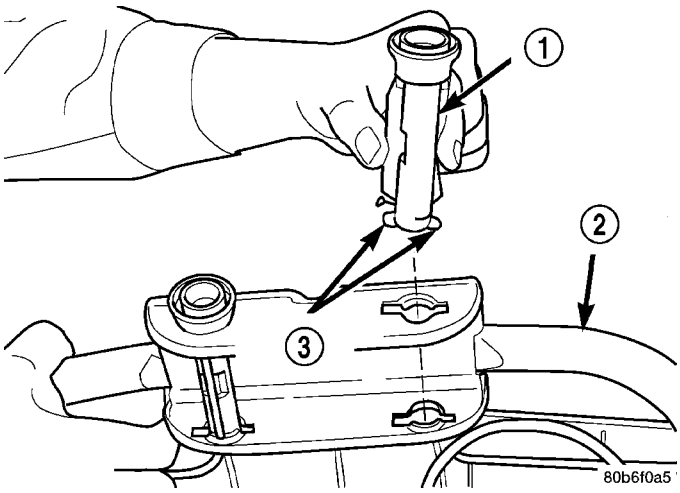


Fig. 3 HEAD RESTRAINT SLEEVE

1 - HEAD RESTRAINT SLEEVE
2 - SEAT BACK FRAME
3 - RETAINING TAB

INSTALLATION

(1) Position sleeve in seat back frame.

(2) Rotate head restraint sleeve 1/4 turn clockwise to engage retaining tab.

(3) Install cushion pad onto seat back frame.

(4) Install hog rings attaching cushion pad to seat back frame.

(5) Install seat back cover (Refer to 23 - BODY/SEATS/FRONT SEAT BACK COVER - INSTALLATION).

(6) Install head restraint (Refer to 23 - BODY/SEATS/FRONT HEADREST - INSTALLATION).

FRONT SEAT

REMOVAL

(1) Move seat to full rearward position.

(2) Remove front bolts attaching seat to floor pan (Fig. 4).

(3) Move seat to full forward position.

(4) Using a trim stick C-4755 or equivalent, pry cover from seat track (power seat only).

(5) Remove rear bolts attaching seat to floor pan.

(6) If equipped, disconnect power seat wire harness connector.

(7) Remove seat from vehicle.

INSTALLATION

(1) Position seat on floor pan.

(2) If equipped, connect power seat wire harness connector.

(3) Install rear bolts attaching seat to floor pan and tighten to 40 N·m (30 ft. lbs.).

(4) If equipped, install cover on seat track.

(5) Move seat to full rearward position.

FRONT SEAT (Continued)

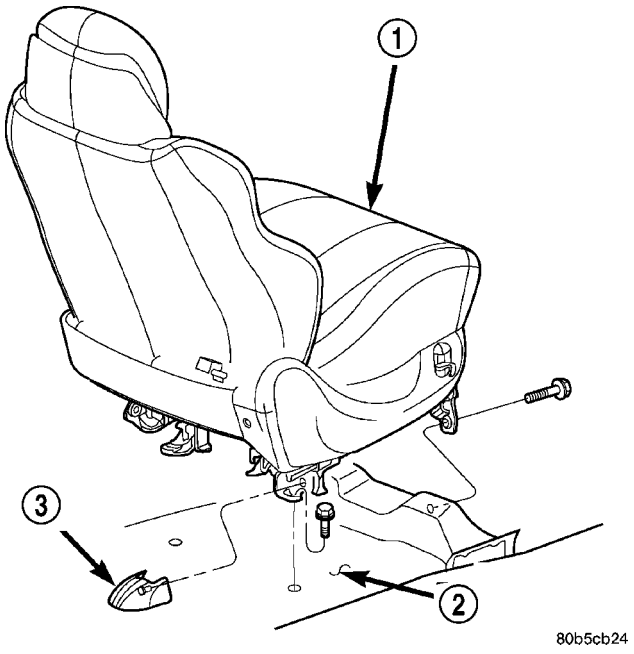


Fig. 4 FRONT BUCKET SEAT

1 - POWER BUCKET SEAT
2 - FLOOR PAN
3 - SEAT TRACK COVER

(6) Install front bolts attaching seat to floor pan and tighten to 40 N·m (30 ft. lbs.).

FRONT SEAT BACK

REMOVAL

(1) Move seat to full rearward position.
(2) Remove inboard bolt attaching seat back frame to seat cushion frame.
(3) Move seat to full forward position.
(4) Move seat back to full recline position.
(5) Remove screws attaching seat side shield to seat frame.
(6) Disconnect wire harness connector from recliner motor, if equipped.
(7) From the underside of the seat, disconnect the wire harness connector for the power lumber and/or heated seat, if equipped.
(8) Remove outboard bolts attaching recliner to seat cushion frame.
(9) Route the power lumber and/or heated seat harness through the seat cushion cover, if equipped.
(10) Separate seat back from seat cushion.

INSTALLATION

(1) Position seat back on seat cushion.
(2) Route the power lumber and heater harness through the seat cushion cover, if equipped.
(3) Install recliner bolts attaching seat back frame to seat cushion frame and tighten to 28 N·m (20 ft. lbs.).
(4) Install the inboard bolt attaching seat back frame to seat cushion frame and tighten to 47 N·m (35 ft.lbs.).
(5) Connect wire harness connector to recliner motor and/or heated seat, if equipped.
(6) From the underside of the seat, connect the power lumber and/or heated seat wire harness connector to the seat harness, if equipped.
(7) Install screws attaching seat side shield to seat frame.

FRONT SEAT BACK COVER

REMOVAL

(1) Remove head restraint (Refer to 23 - BODY/SEATS/FRONT HEADREST - REMOVAL).
(2) Using a trim stick C-4755 or equivalent, carefully pry head restraint release button caps from the top of seat back.
(3) Remove seat back (Refer to 23 - BODY/SEATS/FRONT SEAT BACK - REMOVAL).
(4) Disengage J-strap at base of seat back.
(5) Slide hand between the face of the seat back pad and the cushion cover and carefully separate hook and loop fastener (Fig. 5).
(6) Roll cover upward and disengage hog rings.
(7) Roll cover upward to top of seat back.
(8) Separate cover from seat back.

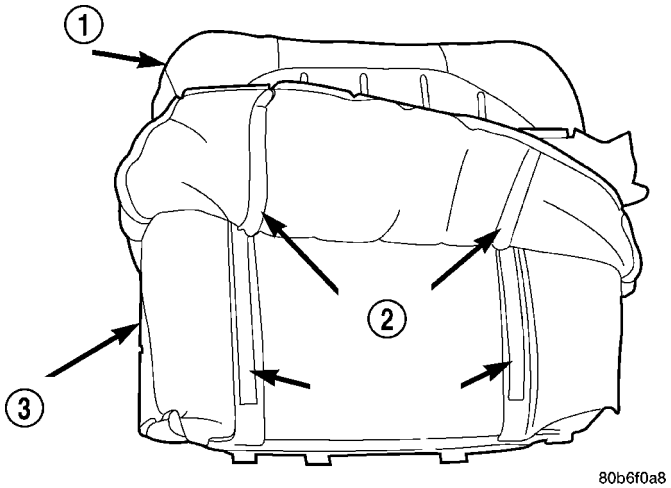


Fig. 5 SEAT BACK COVER

1 - SEAT BACK COVER
2 - HOOK AND LOOP FASTENER
3 - SEAT BACK PAD

FRONT SEAT BACK COVER (Continued)

INSTALLATION

(1) Position cover inside-out at the top of seat back.
(2) Roll cover downward.
(3) Engage hog rings.
(4) Align seat back cover with hook and loop fasteners and secure.
(5) Roll cover downward.
(6) Engage J-strap at base of seat back.
(7) Install seat back (Refer to 23 - BODY/SEATS/FRONT SEAT BACK - INSTALLATION).

NOTE: The taller head restraint release button cap is positioned on the left hand side and the head restraint button cap with the hidden button is positioned on the right hand side.

(8) Position head restraint release button caps on head restraint sleeves and press to secure.
(9) Install head restraint (Refer to 23 - BODY/SEATS/FRONT HEADREST - INSTALLATION).

FRONT SEAT CUSHION/COVER

REMOVAL

(1) Remove seat from vehicle (Refer to 23 - BODY/SEATS/FRONT SEAT - REMOVAL).
(2) Remove seat back (Refer to 23 - BODY/SEATS/FRONT SEAT BACK - REMOVAL).
(3) Disengage J-straps attaching cushion cover to seat cushion frame.
(4) Disengage hog rings attaching cushion cover to cushion frame at rear of seat along bottom of cushion cover (Fig. 6).
(5) Roll up edges of cover and route seat function switches through access hole on outboard side of seat cushion, if equipped.
(6) Disengage seat cushion heater element connector, if equipped.
(7) Disengage hog rings attaching cover to cushion along cover insert.
(8) Separate seat cushion cover from seat cushion.

INSTALLATION

(1) Position seat cover on cushion.
(2) Engage hog rings attaching cushion cover to cushion along insert.
(3) Engage seat cushion heater element connector, if equipped.

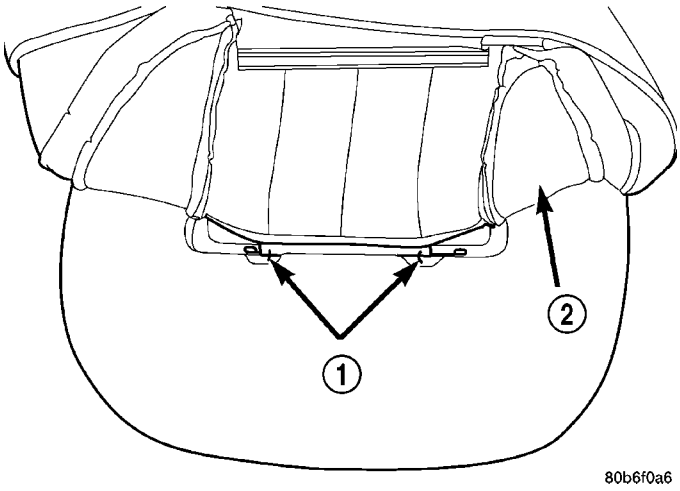


Fig. 6 SEAT CUSHION COVER

1 - HOG RING
2 - CUSHION COVER

(4) Route seat function switches through access hole on outboard side of seat cushion, if equipped.
(5) Engage J-straps attaching cushion cover to seat cushion frame.
(6) Engage hog rings attaching cushion cover to cushion frame.
(7) Install seat back (Refer to 23 - BODY/SEATS/FRONT SEAT BACK - INSTALLATION).
(8) Install seat (Refer to 23 - BODY/SEATS/FRONT SEAT - INSTALLATION).

FRONT SEAT SIDE SHIELD

REMOVAL

(1) Remove screws attaching side shield to seat frame.
(2) Disconnect wire harness connectors from power seat and power lumbar switches, if equipped.
(3) Separate side shield from seat.

INSTALLATION

(1) Position side shield on seat.
(2) Connect wire harness connectors to power seat and power lumbar switches, if equipped.
(3) Install screws attaching side shield to seat frame.

SEAT TRACK & RECLINER ASSEMBLY

REMOVAL

(1) Remove seat back (Refer to 23 - BODY/SEATS/ FRONT SEAT BACK - REMOVAL).
(2) Disengage J-strap at base of seat back.
(3) Roll seat back cover upward to access bolts attaching recliner to seat back frame.
(4) Remove bolts attaching recliner to seat back frame.
(5) Separate recliner from seat back.

INSTALLATION

(1) Position recliner on seat back.
(2) Install bolts attaching recliner to seat back frame and tighten to 28 N·m (20 ft. lbs.).
(3) Roll seat back cover downward.
(4) Engage J-strap at base of seat back.
(5) Install seat back (Refer to 23 - BODY/SEATS/ FRONT SEAT BACK - INSTALLATION).

SEAT TRACK ADJUSTER

REMOVAL

(1) Remove seat (Refer to 23 - BODY/SEATS/ FRONT SEAT - REMOVAL).
(2) Remove side shield (Refer to 23 - BODY/ SEATS/FRONT SEAT SIDE SHIELD - REMOVAL).
(3) Remove nuts attaching seat track adjuster to seat cushion frame (Fig. 7) and (Fig. 8). Roll cushion trim cover up to access the two front nuts.
(4) Disengage clips attaching wire harness to adjuster.
(5) Disengage seat memory module connector, if equipped.
(6) Separate seat track from seat cushion frame.

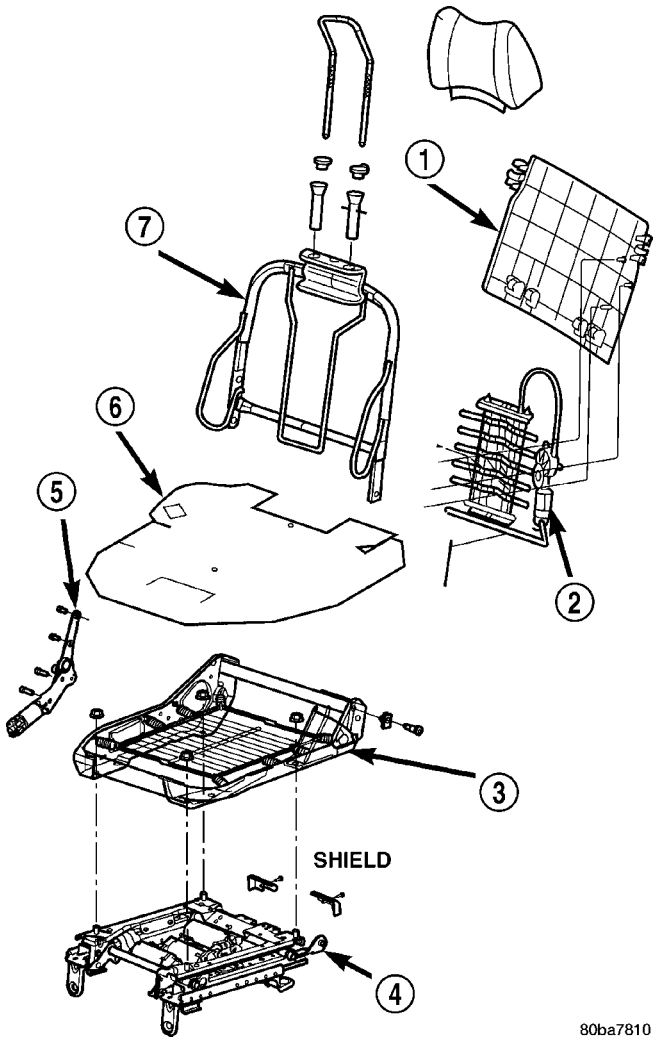


Fig. 7 SEAT TRACK ADJUSTER-POWER

1 - BACK PANEL
2 - LUMBAR ASSEMBLY
3 - SEAT CUSHION FRAME
4 - POWER SEAT TRACK ADJUSTER
5 - POWER RECLINER
6 - SEAT CUSHION PAD
7 - SEAT BACK FRAME

SEAT TRACK ADJUSTER (Continued)

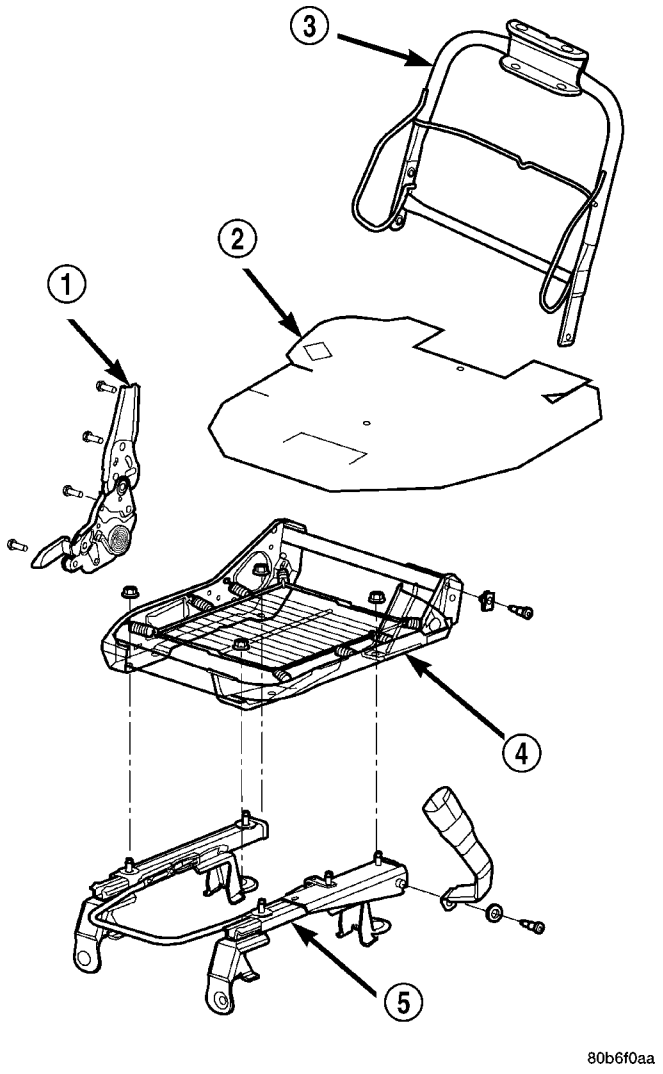


Fig. 8 SEAT TRACK ADJUSTER - MANUAL

1 - MANUAL RECLINER
2 - SEAT CUSHION PAD
3 - SEAT BACK FRAME
4 - SEAT CUSHION FRAME
5 - MANUAL SEAT TRACK ADJUSTER

INSTALLATION

(1) Transfer seat memory module, if equipped.

(2) Position seat track on seat cushion frame.

(3) Route harness through frame and engage clips attaching wire harness to adjuster.

(4) Engage seat memory module connector, if equipped.

(5) Install nuts attaching seat track adjuster to seat cushion frame and tighten to 28 N·m (20 ft. lbs.).

(6) Install the side shield (Refer to 23 - BODY/SEATS/FRONT SEAT SIDE SHIELD - INSTALLATION).

(7) Install seat (Refer to 23 - BODY/SEATS/FRONT SEAT - INSTALLATION).

REAR HEADREST

REMOVAL

(1) Depress head rest release button and lift head rest to full up position.

(2) Using a small flat blade, depress tab on outboard side head rest release button and using your hand, simultaneously press tab on inboard side head rest release button (Fig. 9) and pull head rest up to separate from seat back.

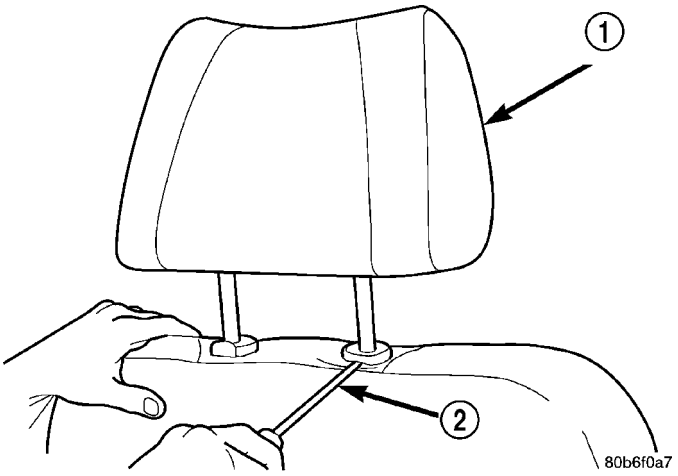


Fig. 9 HEAD REST

1 - HEAD RESTRAINT
2 - FLAT BLADE

INSTALLATION

(1) Position head rest in seat back, press tab on inboard side head rest release button cap and push down head restraint to secure.

REAR HEADREST RELEASE KNOB

REMOVAL

(1) Using a razor knife or equivalent, cut the release knob from the release lever.

(2) Pull the release knob from the lever (Fig. 10).

INSTALLATION

(1) Position the release knob on the lever and press to snap in place.

REAR HEADREST FOLDING MECHANISM

REMOVAL

(1) Remove the head rest (Refer to 23 - BODY/SEATS/REAR HEADREST - REMOVAL).
(2) Remove folding mechanism cover (Fig. 10).
(3) Remove the screws that secure the head rest bun to the folding mechanism.

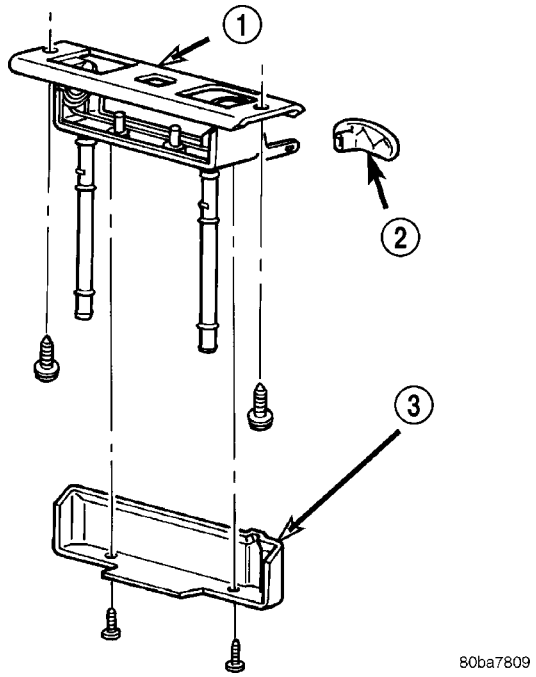


Fig. 10 Rear Seat Head Rest Folding Mechanism

1 - REAR SEAT HEAD REST FOLDING MECHANISM
2 - RELEASE KNOB
3 - FOLDING MECHANISM COVER

NOTE: The folding release knob is always located on the outboard side.

INSTALLATION

(1) Position the head rest bun on the folding mechanism and install the screws.
(2) Install the folding mechanism cover.
(3) Install the head restraint (Refer to 23 - BODY/SEATS/REAR HEADREST - INSTALLATION).

REAR HEADREST SLEEVE

REMOVAL

(1) Remove seat back (Refer to 23 - BODY/SEATS/REAR SEAT BACK - REMOVAL).
(2) Remove head rest (Refer to 23 - BODY/SEATS/REAR HEADREST - REMOVAL).
(3) Remove head rest caps.
(4) Remove seat back cover (Refer to 23 - BODY/SEATS/REAR SEAT BACK COVER - REMOVAL).
(5) Rotate head rest sleeve 1/4 turn counter-clockwise to release retaining tab.
(6) Pull sleeve from seat back frame.

INSTALLATION

(1) Position sleeve in seat back frame.
(2) Rotate head rest sleeve 1/4 turn clockwise to engage retaining tab.
(3) Install seat back cover (Refer to 23 - BODY/SEATS/REAR SEAT BACK COVER - INSTALLATION).
(4) Install head rest caps.

NOTE: The head rest cap with the taller button is always on the inboard side of the seat back.

(5) Install the head rest (Refer to 23 - BODY/SEATS/REAR HEADREST - INSTALLATION).

NOTE: The folding head rest release knob is always on the outboard side.

(6) Install the seat back (Refer to 23 - BODY/SEATS/REAR SEAT BACK - INSTALLATION).

REAR SEAT BACK

REMOVAL

(1) Move rear seat cushions to forward cargo position.
(2) Remove bolts attaching seatback side support bracket to floor pan (right side) (Fig. 11).
(3) Tilt seatback forward, and slide it outboard to detach it from pin on center pivot bracket.
(4) Remove right side (60%) seatback from vehicle.
(5) Remove bolts attaching seatback side support bracket and center pivot bracket to floor pan (left side).
(6) Remove left side (40%) seatback from vehicle.

REAR SEAT BACK (Continued)

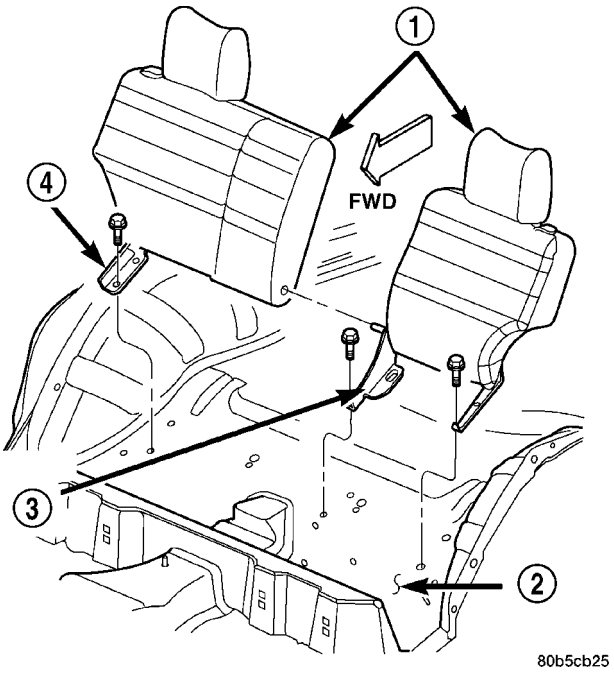


Fig. 11 Rear Seat Back

1 - SEAT BACK
2 - FLOOR PAN
3 - CENTER PIVOT BRACKET
4 - SIDE SUPPORT BRACKET

INSTALLATION

(1) Position left side (40%) seatback in vehicle.

(2) Position left side support bracket and center pivot bracket with bolt holes aligned and install bolts. Tighten bolts to 28 N·m (20 ft. lbs.) torque.

(3) Position right side (60%) seatback in vehicle.

(4) Install seatback onto center pivot bracket pin. Ensure seat back is properly engaged on the center pivot pin.

(5) Position right side support bracket with bolt holes aligned and install bolts. Tighten bolts to 28 N·m (20 ft. lbs.) torque.

(6) Return seat cushions to seating position.

REAR SEAT BACK COVER

REMOVAL

(1) Remove seat back (Refer to 23 - BODY/SEATS/REAR SEAT BACK - REMOVAL).

(2) Remove head restraint (Refer to 23 - BODY/SEATS/REAR HEADREST - REMOVAL).

(3) Remove head restraint caps.

(4) Disengage J-straps on outboard side of seat back.

(5) Disengage J-straps at base of seat back.

(6) Remove screws attaching latch release handle to seat back frame.

(7) Roll seat back cover upward.

(8) Disengage hook and loop fasteners attaching seat back cover to seat back pad (Fig. 12).

(9) Roll seat back cover upward and route latch release handle through seat back cover.

(10) Separate seat back cover from seat back.

(11) Separate seat back pad from seat back frame.

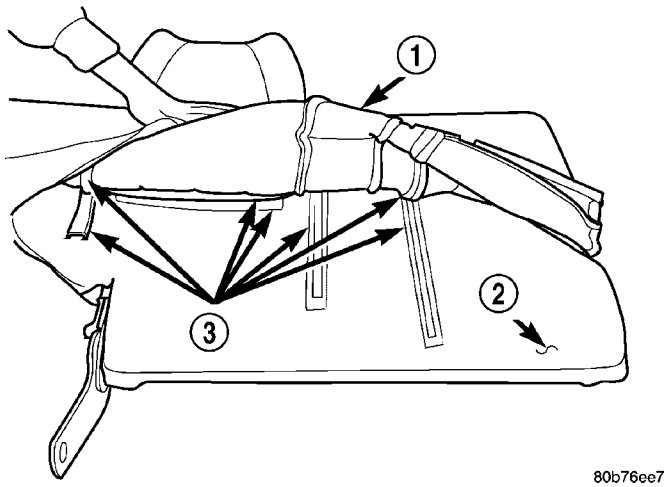


Fig. 12 Rear Seat Back Cover

1 - SEAT BACK COVER
2 - SEAT BACK PAD
3 - HOOK AND LOOP FASTENER

INSTALLATION

(1) Position seat back cover and pad on seat back frame.

(2) Route latch release handle through seat back cover.

(3) Roll seat back cover partially downward aligning holes in seat back cover for head restraint and latch release handle.

(4) Roll seat back cover downward align and engage hook and loop fasteners to seat back pad.

(5) Engage J-straps at base of seat back.

(6) Engage J-straps on outboard side of seat back.

(7) Install screws attaching latch release handle to seat back frame.

(8) Install head restraint (Refer to 23 - BODY/SEATS/REAR HEADREST - INSTALLATION).

(9) Install seat back (Refer to 23 - BODY/SEATS/REAR SEAT BACK - INSTALLATION).

REAR SEAT CUSHION

REMOVAL

(1) Disengage seat cushion at rear by pulling upward on release strap.

(2) Remove bolts attaching seat cushion to floor pan (Fig. 13).

(3) Remove seat cushion from vehicle.

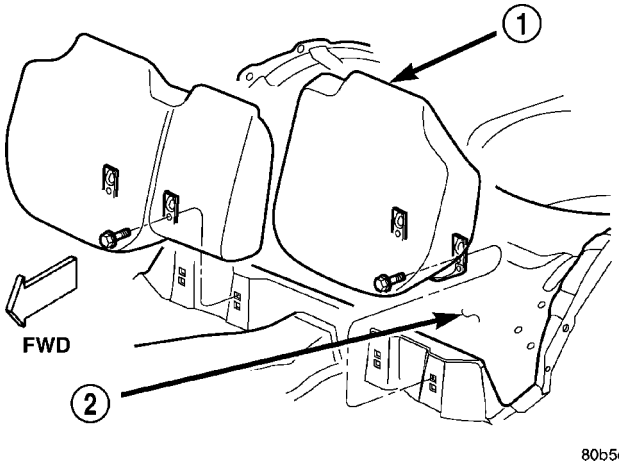


Fig. 13 Rear Seat Cushion

1 - SEAT CUSHION
2 - FLOOR PAN

INSTALLATION

(1) Position seat cushion in vehicle.

(2) Install bolts attaching seat cushion to floor pan. Tighten bolts to 11 N·m (8 ft. lbs.) torque.

(3) Lock seat cushion down by pressing firmly on center of cushion until latch engages.

REAR SEAT CUSHION COVER

REMOVAL

(1) Remove rear seat cushion (Refer to 23 - BODY/SEATS/REAR SEAT CUSHION - REMOVAL).

(2) From the underside of the seat, disengage J-straps attaching cover to seat cushion base panel.

(3) Remove push-in fasteners attaching cushion cover to seat cushion base panel (Fig. 14).

(4) Roll back cover.

(5) Disengage hog rings attaching cushion cover to seat cushion foam pad.

(6) Separate cushion cover from seat cushion foam pad.

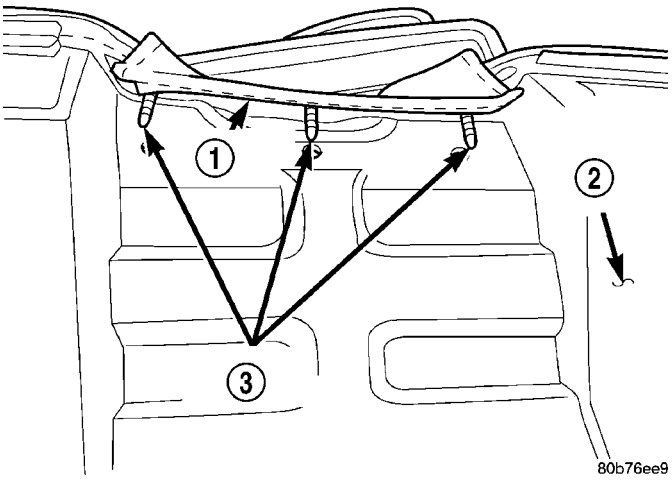


Fig. 14 Push-in Fasteners

1 - CUSHION COVER
2 - SEAT CUSHION BASE PANEL
3 - PUSH-IN FASTENER

INSTALLATION

(1) Position cushion cover on seat cushion foam pad.

(2) Engage hog rings attaching cushion cover to seat cushion foam pad.

(3) Align cushion cover and engage J-straps attaching cushion cover to seat cushion base panel.

(4) Install push-in fasteners attaching cushion cover to seat cushion base panel.

(5) Install rear seat cushion (Refer to 23 - BODY/SEATS/REAR SEAT CUSHION - INSTALLATION).

REAR SEAT CUSHION RELEASE LATCH

REMOVAL

(1) Unlatch seat and pivot seat upward.

(2) Disengage J-strap at seat cushion base panel.

(3) Roll back cushion cover.

(4) Remove screws attaching latch to base panel.

(5) Separate latch from base panel.

INSTALLATION

(1) Position latch on base panel.

(2) Install screws attaching latch to base panel. Tighten screws to 8 N·m (75 in. lbs.) torque.

(3) Route the cushion release strap from the loop on the latch through the slot in the trim cover.

(4) Engage J-strap at seat cushion base panel.

(5) latch seat.

FOLDING REAR SEAT BACK LATCH HANDLE

REMOVAL

(1) Pull handle to release latch.
(2) Remove screws attaching release handle to seat back frame.
(3) Using a small flat blade, disengage retainers securing latch release cable housing to latch release handle.
(4) Rotate cable end until barrel end aligns with key hole slot in latch release handle.
(5) Disengage cable barrel end from release handle.
(6) Separate latch release handle from seat back (Fig. 15).

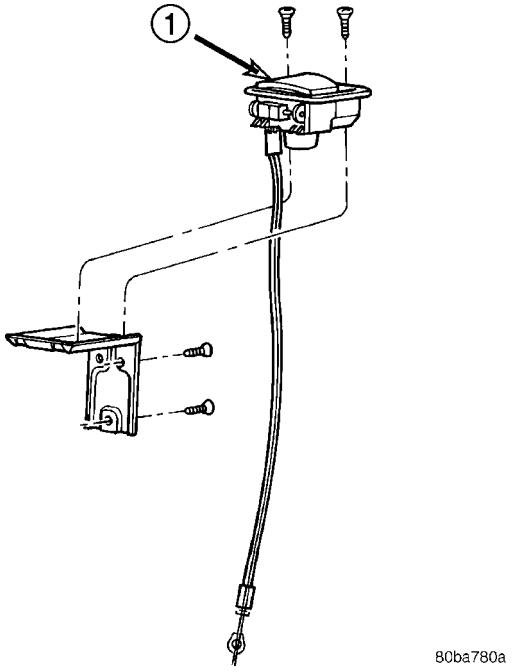


Fig. 15 Rear Seat Release Handle

1 - REAR SEAT FOLDING RELEASE HANDLE

INSTALLATION

(1) Route cable end into latch release handle.
(2) Rotate cable end until barrel end aligns with key hole slot in latch release handle and insert into handle.
(3) Engage retainers securing latch release cable housing to latch release handle.
(4) Position latch release handle in seat back. Ensure seat back cover is properly aligned.
(5) Install screws attaching release handle to seat back frame.

FOLDING REAR SEAT BACK LATCH/HINGE

REMOVAL

(1) Remove seat back (Refer to 23 - BODY/SEATS/ REAR SEAT BACK - REMOVAL).
(2) Disengage J-straps on outboard side of seat back.
(3) Disengage release cable from latch.
(4) Remove bolts attaching latch/hinge to seat back frame.
(5) Separate latch/hinge from seat back frame.

INSTALLATION

(1) Position latch/hinge on seat back frame.
(2) Install bolts attaching latch/hinge to seat back frame. Tighten bolts to 28 N·m (20 ft. lbs.) torque.
(3) Engage latch release cable.
(4) Engage J-straps on outboard side of seat back.
(5) Install seat back (Refer to 23 - BODY/SEATS/ REAR SEAT BACK - INSTALLATION).

STATIONARY GLASS

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DOOR GLASS

REMOVAL

(1) Place door window fully down.
(2) Remove waterdam. (Refer to 23 - BODY/DOORS - REAR/WATERDAM - REMOVAL)
(3) Remove inner belt weatherstrip. (Refer to 23 - BODY/WEATHERSTRIP/SEALS/RDR INNER BELT WEATHERSTRIP - REMOVAL)
(4) Remove bolt attaching bottom of rear glass run channel to door.
(5) Pull run channel downward and separate from door.
(6) Remove screws attaching stationary door glass frame to door. (Fig. 1).
(7) Separate stationary door glass from door.

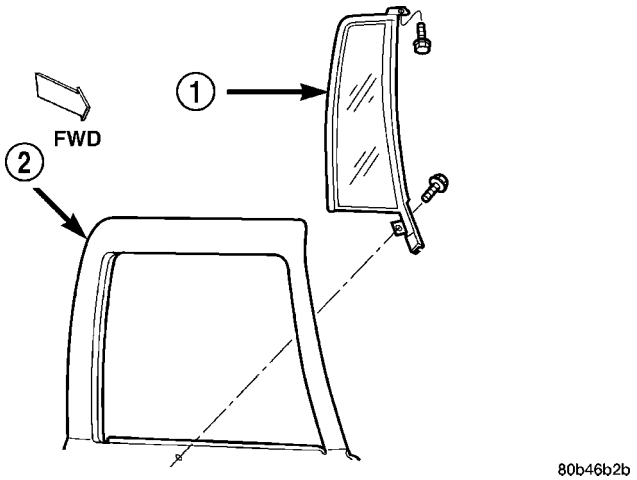


Fig. 1 STATIONARY DOOR GLASS

1 - STATIONARY DOOR GLASS
2 - DOOR

INSTALLATION

(1) Position stationary door glass in door.
(2) Install screws attaching stationary door glass frame to door.
(3) Install glass run channel.
(4) Install inner belt weatherstrip. (Refer to 23 - BODY/WEATHERSTRIP/SEALS/RDR INNER BELT WEATHERSTRIP - INSTALLATION)
(5) Install waterdam. (Refer to 23 - BODY/DOORS - REAR/WATERDAM - INSTALLATION)

QUARTER WINDOW

REMOVAL

(1) Cut urethane bonding from around quarter window glass using a suitable sharp cold knife. A pneumatic cutting device can be used if available.

CAUTION: Care should be taken when removing the glass to avoid scratching the exterior paint surface.
(2) Separate glass from vehicle.

INSTALLATION

CAUTION: Open a window before installing glass. This will avoid pressurizing the passenger compartment. If a door or liftgate is slammed before urethane is cured, water leaks can result.

The window opening fence should be cleaned of old urethane bonding material.
(1) Clean inside of glass with Mopar Glass Cleaner and lint-free cloth.
(2) Apply clear PVC (vinyl) primer 25 mm (1 in.) wide around edge of glass. Wipe with clean/dry lint-free cloth.

NOTE: Make sure primer does not flow passed the black frit.

(3) Apply black primer 25 mm (1 in.) wide around edge of glass. Allow at least eighteen minutes drying time.
(4) Apply a 16 mm (0.6 in.) high by 10 mm (0.4 in.) wide triangular bead of urethane around window vinyl border location.
(5) Position glass into window opening and lock the four clips into place.

WINDSHIELD

REMOVAL

(1) Remove inside rear view mirror.
(2) Remove cowl cover.
(3) Remove screws attaching windshield side molding to A-pillar (Fig. 2).
(4) Remove upper windshield molding.
(5) Cut urethane bonding from around windshield using a suitable sharp cold knife. A pneumatic cutting device can be used if available (Fig. 3).
(6) Separate windshield from vehicle.

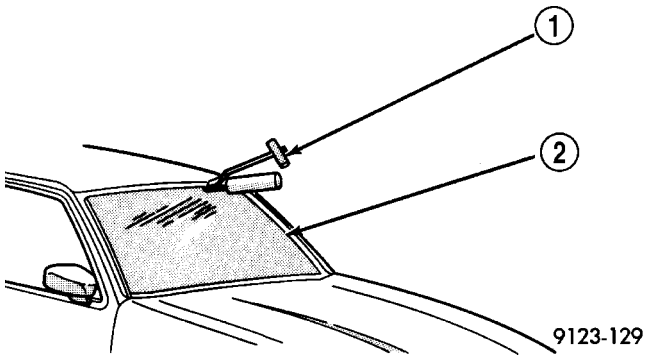


Fig. 3 Cut Urethane Around Windshield—Typical

1 - COLD KNIFE
2 - WINDSHIELD

INSTALLATION

WARNING: REVIEW ALL WARNINGS AND CAUTIONS IN THIS GROUP BEFORE PRECEDING WITH INSTALLATION.

CAUTION: Open a window before installing windshield. This will avoid pressurizing the passenger compartment. If a door or liftgate is slammed before urethane is cured, water leaks can result.

The windshield fence should be cleaned of old urethane bonding material. Support spacers should be cleaned and properly installed on weld studs or repair screws at bottom of windshield opening.

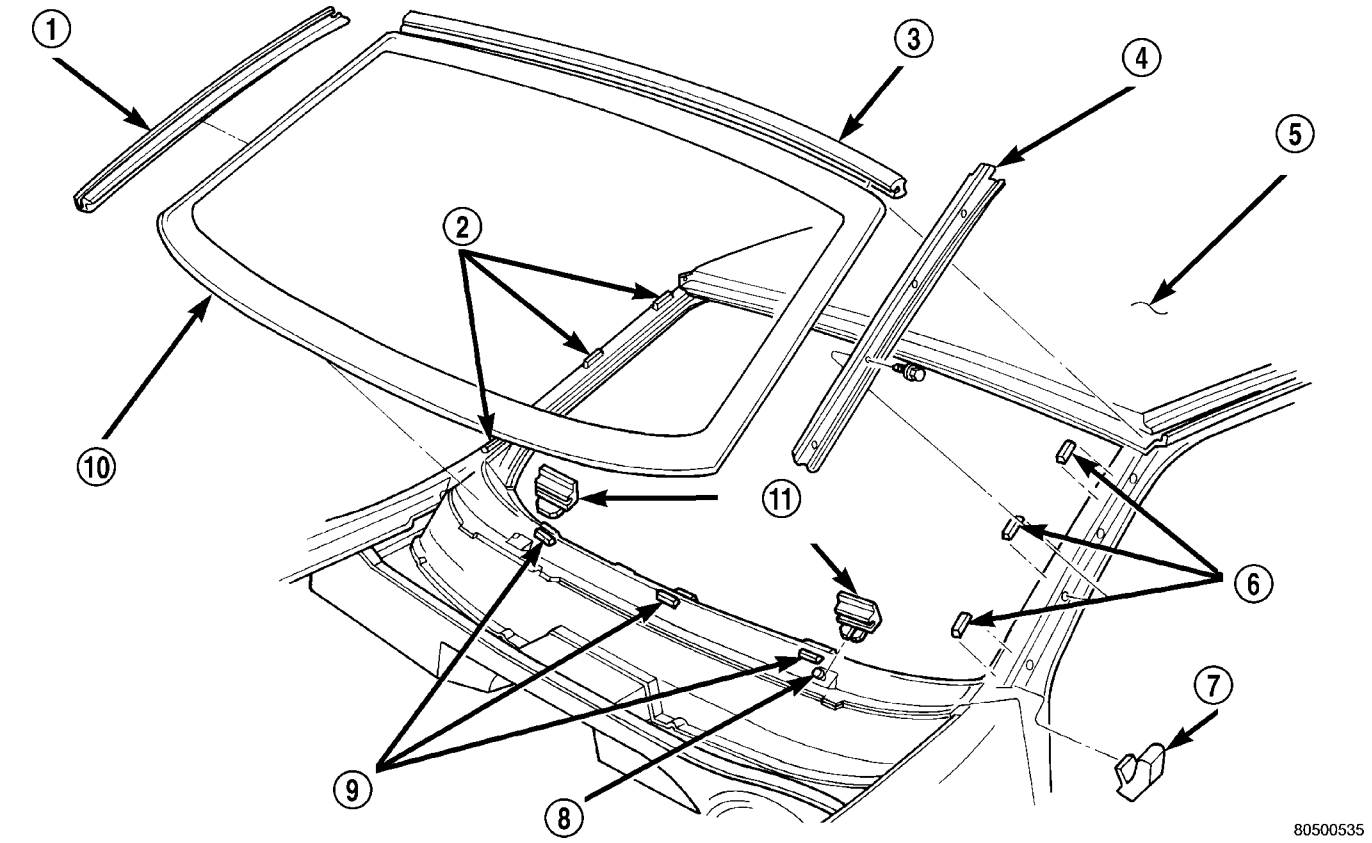


Fig. 2 Windshield

1 - SIDE MOLDING
2 - SUPPORT SPACER
3 - UPPER MOLDING
4 - SIDE MOLDING
5 - ROOF PANEL
6 - SUPPORT SPACER
7 - BLOCKER
8 - STUD
9 - SUPPORT SPACER
10 - WINDSHIELD
11 - ALIGNMENT SPACER

WINDSHIELD (Continued)

(1) Place replacement windshield into windshield opening. Position glass in the center of the opening against the support spacers. Mark the glass at the support spacers with a grease pencil or masking tape and ink pen to use as a reference for installation. Remove replacement windshield from windshield opening (Fig. 4).

(2) Position the windshield inside up on a suitable work surface with two padded, wood 10 cm by 10 cm by 50 cm (4 in. by 4 in. by 20 in.) blocks, placed parallel 75 cm (2.5 ft.) apart (Fig. 5).

(3) Clean inside of windshield with Mopar Glass Cleaner and lint-free cloth.

(4) Apply clear glass primer 25 mm (1 in.) wide around edge of windshield. Wipe with clean/dry lint-free cloth.

(5) Apply black-out primer 25 mm (1 in.) wide on top and sides of windshield and 25 mm (1 in.) on bottom of windshield. Allow at least three minutes drying time.

NOTE: Make sure the clear and black primers do not flow passed the black frit.

(6) Position windshield spacers on lower fence above support spacers at the edge of the windshield opening (Fig. 2).

(7) Apply a 16 mm (0.6 in.) high by 10 mm (0.4 in.) wide triangular bead of urethane around perimeter of windshield along the inside of the moldings. Apply two beads along the bottom edge.

(8) Install upper molding onto windshield.

(9) Apply fence primer around the perimeter of the windshield opening fence. Allow at least 18 minutes drying time.

(10) With aid of a helper, position windshield over windshield opening. Align reference marks at bottom of windshield to support spacers.

(11) Slowly lower windshield glass to windshield opening fence. Guide top molding into proper position if necessary. Push windshield inward to fence spacers at bottom and until top molding is flush to roof line.

(12) Clean excess urethane from exterior with Mopar Super Clean or equivalent.

(13) Install windshield side moldings.

(14) Install cowl cover and wipers.

(15) Install inside rear view mirror.

(16) After urethane has cured, water test windshield to verify repair.

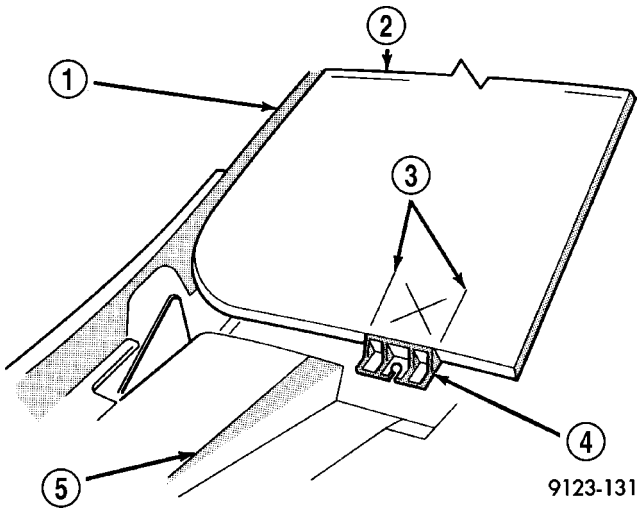


Fig. 4 Center Windshield and Mark at Support Spacers

1 - A-PILLAR
2 - WINDSHIELD
3 - MARKS
4 - SUPPORT SPACER
5 - COWL

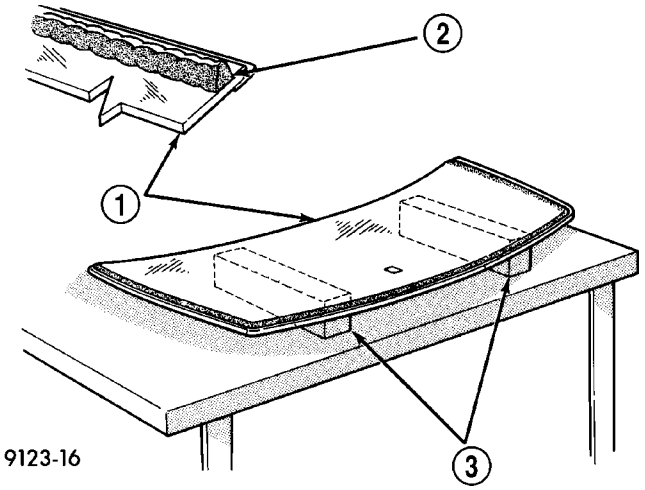


Fig. 5 Work Surface Set up and Molding Installation

1 - WINDSHIELD AND MOULDINGS
2 - TRIANGULAR URETHANE BEAD AROUND GLASS 16 mm (0.6 in.) HIGH BY 10 mm (0.4 in.) WIDE
3 - BLOCKS

SUNROOF

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SUNROOF

DESCRIPTION

WARNING: Keep fingers and other body parts out of sunroof opening at all times.

The sunroof features a power sliding glass panel and a sunshade which can be manually positioned anywhere along its travel, rearward of glass panel front edge.

The sunroof is electrically operated from a switch located on the mini overhead console. To operate the sunroof the ignition switch must be in the On/Run position. The sunroof has both manual and Express Open modes of operation when opening. To open the sunroof in the Express Open mode, the switch is pressed rearward for less than **1 second.** This causes the sunroof glass to automatically retract and stop at a position slightly forward of full open that reduces low speed wind buffeting. The sunroof can also be opened manually by pressing and holding the switch rearward. Once the switch is held reward for more than **1 second,** the glass will retract in the manual mode. Releasing the switch at any time during travel will cause the sunroof to stop at the current position.

To close the sunroof from an open position, the switch must be pushed forward and held until the sunroof glass comes to a complete stop. Releasing the switch at any time in this mode will cause the sunroof to stop at the current position.

To vent the sunroof from the closed position, the switch is pushed forward and held. Releasing the switch at any time during travel will cause the sunroof to stop at the current vent position. To reach the fully vented position, continue to hold the switch forward until vent motion stops. To close the sunroof from the vent position, push and hold the switch rearward until the glass comes to a complete stop.

DIAGNOSIS AND TESTING - SUNROOF

CAUTION: The sunroof motor is only to be powered through the vehicle battery and vehicle wire harness. Applying power to the sunroof motor leads will cause failure of the sunroof control unit.

Before beginning sunroof diagnostics verify that all other power accessories are in proper operating condition. Refer to Sunroof Diagnostic Chart for possible causes. If not, a common electrical problem may exist. Refer to Group 8W, Wiring Diagrams, of this publication for circuit, splice and component descriptions. Check the condition of the circuit protection (20 amp high current fuse (battery feed) located in the Power Distribution Center (PDC). Check the cover of the PDC for location of the fuse. Check for correct operation of the sunroof delay relay. Inspect all wiring connector pins for proper engagement and continuity. Check for battery voltage at battery and ignition pins of the power sunroof express module wiring connector. Refer to Group 8W, Wiring Diagrams, for circuit information. The controller will not operate at less than 10 volts. Check the ground at the sunroof express module.

Before beginning diagnosis for wind noise or water leaks, verify that the problem was not caused by

SUNROOF (Continued)

releasing the control switch before the sunroof was fully closed. The sunroof module has a water-management system. During washing high-pressure water may be forced between the glass panel seal and the roof opening. Normally this water will drain. However, when some type of drying blower system is used, like those found in automatic car washes, the water may not have a chance to drain before the blower forces air between the seal and the roof opening. This causes the water to blow over the edge of the module and onto the headlining.

Refer to (Fig. 1) Sunroof Assembly for exploded view of the sunroof.

SYMPTOM	STEP	POSSIBLE CAUSE
Sunroof squeaks when opening/closing.	1	Identify if the cause is a seal squeak. If seal is worn, replace the seal.
	2	Check seal compression for uniformity in opening, If not uniform, glass is not centered in opening.
	3	Re-center glass by repositioning module in opening.
	4	Identify if mechanism squeaks.
	5	Check for lubrication, re-lube if necessary.
	6	Check for dirt/debris in tracks, clean and re-lube.
	7	Identify if motor squeaks, replace the motor.
Water leaks into the vehicle.	1	Check for a good connection at the drain tubes, re-connect where needed.
	2	Check for plugged/pinched hoses throughout.
	3	Adjust the glass panel. Refer to glass panel adjustments in this section.
	4	Check seal for wear/damage, replace glass as necessary.
Motor inoperative.	1	Check connectors at the motor, switch, control module and power source.
	2	Check for defective control module, replace if necessary.
	3	Replace the motor.
Motor noise when opening/ closing.	1	Identify if motor noise, replace motor.
	2	Insure noise is from the motor and not cables, (cable ratcheting).
Grinding noise when opening/ closing.	1	Identify if the motor is grinding, replace motor.
(Mechanism noise, scraping.)	2	Check for lubrication in tracks and mechanism, re-lube if necessary.
	3	Check for dirt/debris in tracks, clean and re-lube.
(Cable ratcheting.)	4	Cables ratchet at the motor pinion; mechanism jammed, fix mechanism and replace cables and motor bracket.
Wind noise when sunroof fully closed.	1	Check seal compression for uniformity in opening, If not uniform, glass is not centered in opening.
	2	Glass not adjusted flush to roof. Refer to glass panel adjustments in this section.
	3	Mechanism not fully closed. A) Motor out of time, re-time motor/mechanism. Refer to glass panel adjustments in this section. B) Cable ratcheting, replace cables and motor bracket.
	4	Seal worn, replace glass.

SUNROOF (Continued)

SYMPTOM	STEP	POSSIBLE CAUSE
Sunroof will not open/close.	1	Check switch and switch connection.
	2	Check mechanism for binding (result of forcing the glass closed/ broken components).
	3	See motor inoperative above.
Sunroof ″rattles″, anytime, closed/open.	1	Loose attachment screws (module), re-fasten and adjust module.
	2	Loose glass panel, re-fasten and adjust glass panel.
	3	Loose drain channel, refasten/secure to repair.
	4	Broken mechanism, replace the sunroof assembly module.
	5	Mechanism not fully closed. A) Motor out of time, re-time motor/mechanism. Refer to glass panel adjustments in this section. B) Cable ratcheting, replace cables and motor bracket.
	6	Check for sunshade out of track or for sunshade broken slide block.
	7	Loose wind deflector. Replace if broken.
	8	Loose wind deflector spring. Replace if loose.
Sunshade squeaks/rattles, anytime.	1	Sunshade slide blocks out of track(s), put back in tracks.
-OR-	2	Missing felt pads on the drain channel, add felt pads.
Sunshade force high/low or binding during operation.	3	Felt on the drain channel rolling off, (sunshade rubs on adhesive), replace felt pads.
	4	Slide block binding in sunshade, free-up slide block by actuating a couple times, grease slide block(s) and spring(s).
	5	Broken slide block in sunshade, replace slide block.
	6	Slide block spring missing, replace spring and slide block.
	7	Sunshade interference with drain channel or trim welt, replace trim welt and/or sunshade.
Motor/sunroof control module operation: Auto open doesn’t work, or doesn’t stop at closed position.	1	After power disconnect or replacement, sunroof module has to complete on full cycle to program the sunroof control module. Full cycle = close > open > close > vent > close.

SUNROOF (Continued)

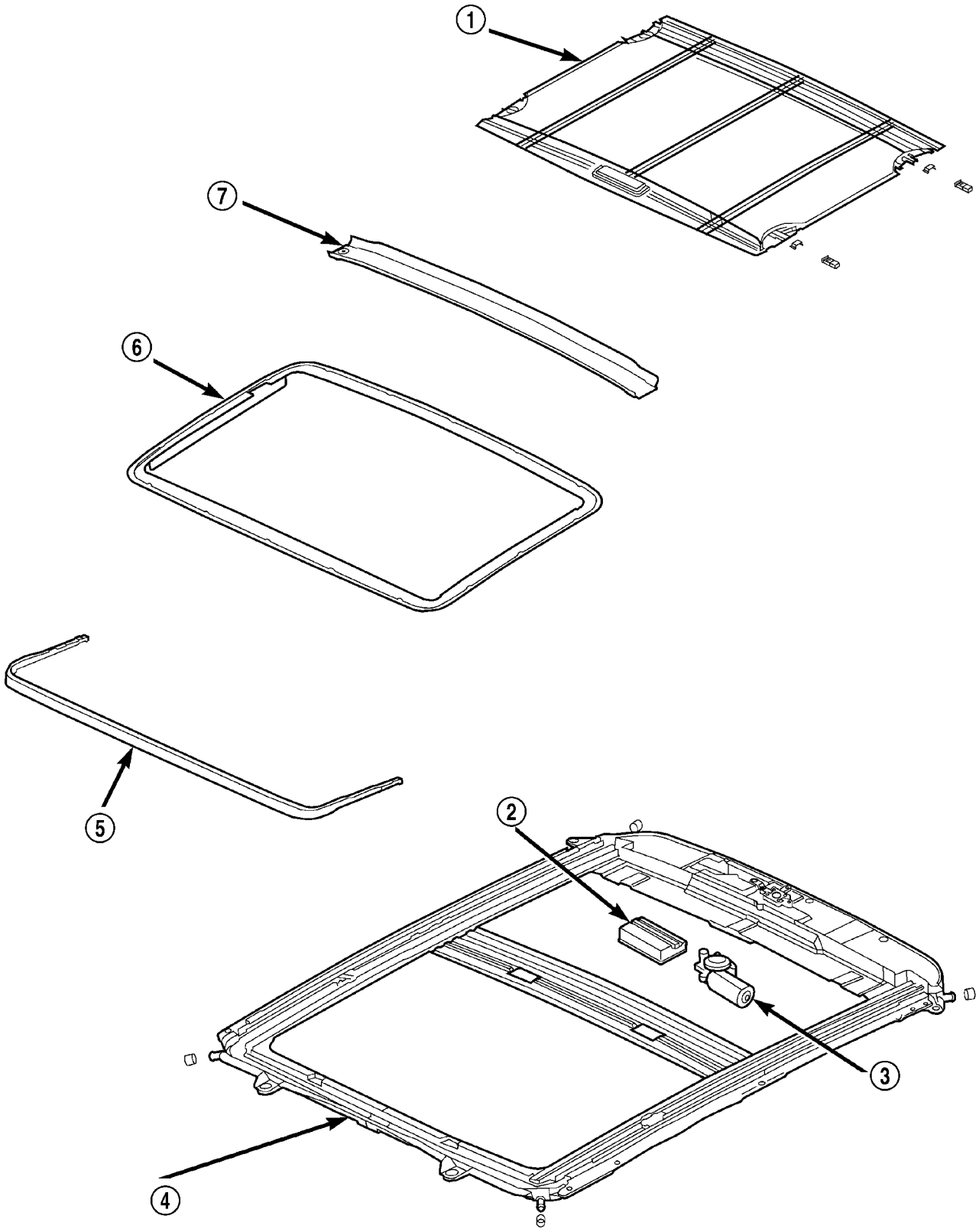


Fig. 1 Sunroof Assembly

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1 - SUNSHADE
2 - EXPRESS MODULE
3 - DRIVE MOTOR
4 - FRAME ASSEMBLY
5 - WIND DEFLECTOR
6 - GLASS PANEL
7 - DRAIN CHANNEL

DRAIN TUBE

REMOVAL

(1) Remove the headliner. (Refer to 23 - BODY/INTERIOR/HEADLINER - REMOVAL)

(2) Disengage clamps attaching drain tube to sunroof (Fig. 2).

(3) Tape the end of the old drain tube to the new drain tube. Ensure that the tape build up on the tube ends is not excessive.

(4) Remove front/rear trim panels as necessary to disengage clamps securing drain tube to body.

(5) Remove the drain tube plug from the underside of the vehicle.

(6) From the underside of the vehicle carefully, pull/route the drain tube through the body panel. Applying a soapy water solution to the new tube may aid in this procedure.

INSTALLATION

(1) Install the plug adapter to the bottom of the drain tube.

(2) Engage clamps securing drain tube to body (Fig. 2).

(3) Install front/rear trim panels as necessary.

(4) Install drain tube to sunroof and engage clamp.

(5) Install the headliner. (Refer to 23 - BODY/INTERIOR/HEADLINER - INSTALLATION)

CONTROL MODULE

REMOVAL

(1) Move the glass panel to the fully closed position.

(2) Remove the A-pillar trim. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - REMOVAL)

(3) Remove the sun visors. (Refer to 23 - BODY/INTERIOR/SUN VISOR - REMOVAL)

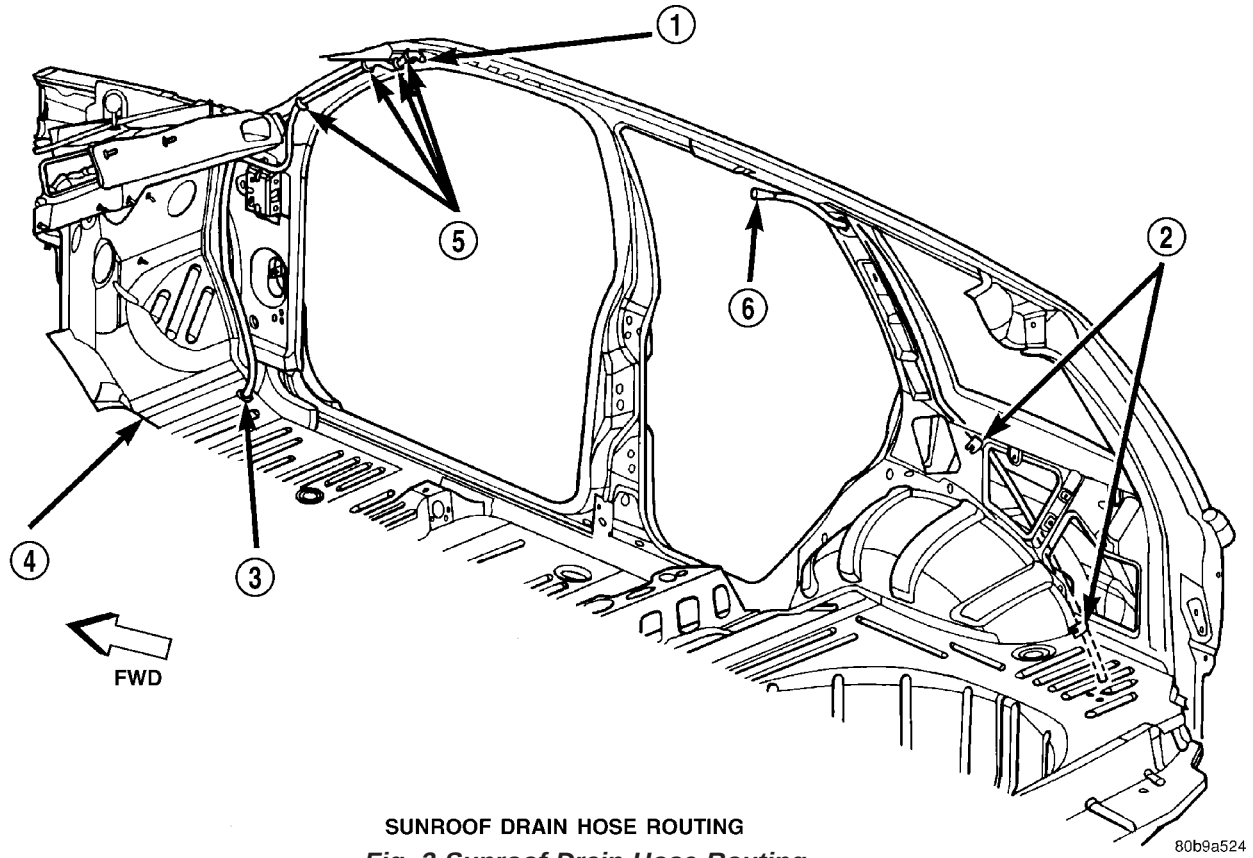
(4) Remove the overhead console. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL)

(5) Lower headliner as necessary to gain access to the sunroof express module.

(6) Disconnect the express module wire harness connectors.

(7) Remove express module screw.

(8) Remove express module from the keyway by sliding module towards the center of the vehicle.



SUNROOF DRAIN HOSE ROUTING

Fig. 2 Sunroof Drain Hose Routing

1 - DRAIN HOSE
2 - CLAMPS
3 - PLUG
4 - FLOOR
5 - CLAMPS
6 - DRAIN HOSE

CONTROL MODULE (Continued)

INSTALLATION

(1) Insert sunroof express module in the keyway located in the sunroof module and slide the module outward to lock it into position.
(2) Install the sunroof express module screw.
(3) Connect the wire connectors to the sunroof express module.
(4) Install the headliner into position.
(5) Install the overhead console. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - INSTALLATION)
(6) Install the sun visors. (Refer to 23 - BODY/INTERIOR/SUN VISOR - INSTALLATION)
(7) Install the A-pillar trim. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - INSTALLATION)
(8) Test sunroof operation, adjust if necessary. (Refer to 23 - BODY/SUNROOF/GLASS PANEL - ADJUSTMENTS)

DRIVE MOTOR

REMOVAL

CAUTION: The sunroof system is timed from the factory so that the motor shuts off automatically when the sunroof window reaches a certain position. Extreme care must be taken when removing the motor, timing may be thrown off causing possible damage to the sunroof system. Anytime the motor is removed from the sunroof assembly the sunroof glass panel must be in the FULLY CLOSED POSITION or the unit will be out of timing. The drive motor cannot be reset to the park position after being removed.

CAUTION: The sunroof motor should only be powered through the vehicle battery and sunroof wire harness. Applying power to the sunroof motor leads will cause failure of the control module.

(1) Move glass panel to the fully closed position.
(2) Remove the A-pillar trim. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - REMOVAL)
(3) Remove the B-pillar upper trim. (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - REMOVAL)
(4) Remove the C-pillar trim. (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - REMOVAL)
(5) Remove the D-pillar trim. (Refer to 23 - BODY/INTERIOR/D-PILLAR TRIM - REMOVAL)
(6) Remove the sunvisors. (Refer to 23 - BODY/INTERIOR/SUN VISOR - REMOVAL)
(7) Remove the overhead console. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - REMOVAL)
(8) Disconnect the control switch wire connector.
(9) Remove headliner as necessary to gain access to sunroof drive motor. Refer to Headliner Removal and Installation for proper procedures.
(10) Disconnect the drive motor wire harness connectors (Fig. 3).
(11) Remove drive motor fasteners and remove motor from the sunroof housing.

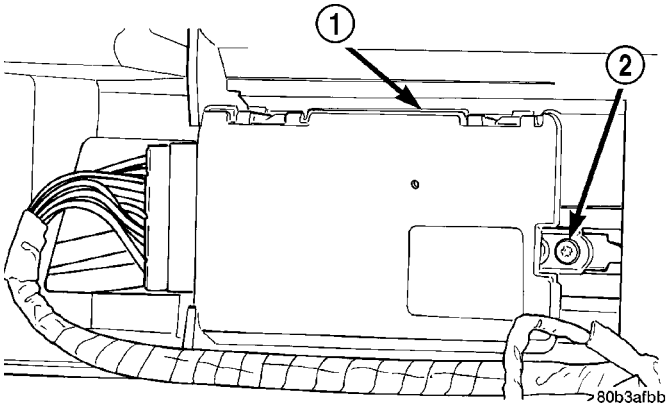


Fig. 3 Sunroof Drive Motor and Express Module

1 - EXPRESS MODULE
2 - SCREW

INSTALLATION

(1) Ensure that the window is in the fully closed position before mounting the motor. If motor fails with the window in the open position the sunroof glass panel timing will have to be timed. The new motor comes in the fully closed position and with a gage for setting cable timing. (Refer to 23 - BODY/SUNROOF/GLASS PANEL - ADJUSTMENTS - TIMING)
(2) Place drive motor into position on the sunroof housing and install fasteners.
(3) Connect express module, drive motor, and control switch wire connectors.
(4) Set headliner into position.
(5) Test sunroof operation, adjust as necessary. (Refer to 23 - BODY/SUNROOF/GLASS PANEL - ADJUSTMENTS)
(6) Finish installing the headliner.
(7) Connect the control switch wire connector.
(8) Install the overhead console. (Refer to 8 - ELECTRICAL/OVERHEAD CONSOLE - INSTALLATION)
(9) Install the sunvisors. (Refer to 23 - BODY/INTERIOR/SUN VISOR - INSTALLATION)
(10) Install the D-pillar trim. (Refer to 23 - BODY/INTERIOR/D-PILLAR TRIM - INSTALLATION)
(11) Install the C-pillar trim. (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - INSTALLATION)
(12) Install the B-pillar upper trim. (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - INSTALLATION)
(13) Install the A-pillar trim. (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - INSTALLATION)

WIND DEFLECTOR

REMOVAL

(1) Open sunroof glass panel.
(2) Push down one corner of the wind deflector and let the other corner rise up (Fig. 4).
(3) Push the low corner towards the opposite side of the vehicle until tab on sunshade clears the body. Then raise the corner up.
(4) Repeat the procedure to the other corner.
(5) Lift wind deflector to 90% of the way.
(6) Push the attaching ends of the deflector to the rear of the vehicle to disengage the deflector.

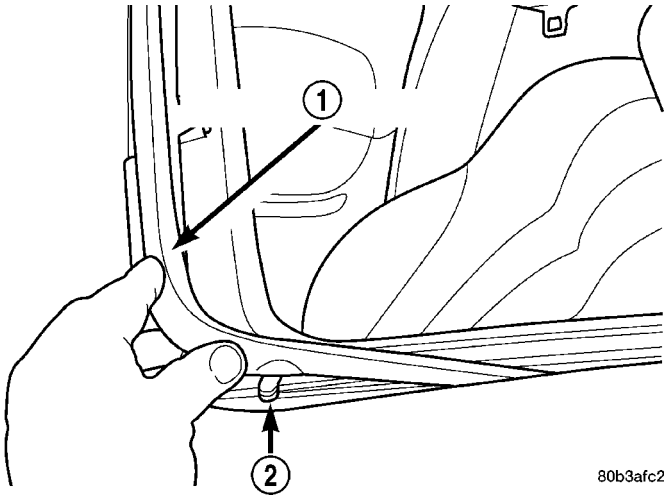


Fig. 4 Wind Deflector

1 - WIND DEFLECTOR
2 - TAB

INSTALLATION

(1) Place wind deflector at 90% in the vertical position to the sunroof. With the sunroof open.
(2) Push ends of the deflector towards the front of the vehicle to engage ends.
(3) Lower wind deflector to normal position.
(4) Push one corner to the opposite side of the vehicle until tab clears vehicle body and lower deflector for that corner.
(5) Push the side that was just installed completely down.
(6) Push the opposite corner cross vehicle until tab clears the body. Then lower deflector to position.
(7) Test sunroof operation.

GLASS PANEL

REMOVAL

(1) Slide sunshade rearward to the open position.
(2) Move the glass panel to the fully closed position.
(3) Remove the four attaching screws (Fig. 5).
(4) Lift off glass panel and remove from vehicle.

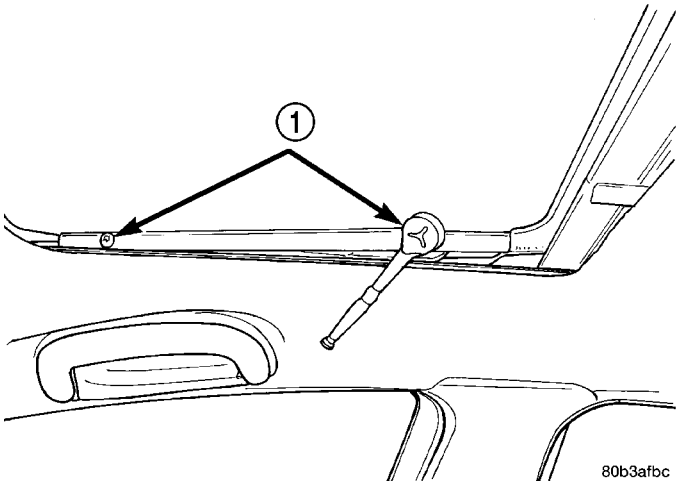


Fig. 5 Sunroof Glass Panel Removal

1 - ATTACHING SCREW

INSTALLATION

NOTE: Sunroof glass must be set in place and attached as close as possible to flush with the roof surface. For wind noise reasons, care must be taken to ensure that the glass is not remounted either a) Overflush to the roof surface at the front edge of the glass, or b) Underflush to the roof surface at the rear edge of the glass.

(1) Position glass panel in to opening.
(2) Start the four attaching screws.
(3) Tighten screws.
(4) Verify sunroof operation and alignment. Check fit and adjust as necessary. (Refer to 23 - BODY/ SUNROOF/GLASS PANEL - ADJUSTMENTS - FIT)

ADJUSTMENTS

ADJUSTMENTS - FIT

(1) Move the sunshade rearward to the open position.
(2) Move the sunroof glass panel to the fully closed position.
(3) Loosen the forward screws on each side enough to make the front adjustment.

GLASS PANEL (Continued)

(4) Adjust the front of the sunroof glass panel 1 mm (1/32 inch) below the top surface of the roof panel.
(5) Tighten the front two screws.
(6) Loosen the rear screws on each side enough to make the rear adjustment.
(7) Adjust the rear of the sunroof glass panel 1 mm (1/32 inch) above the top surface of the roof panel.
(8) Tighten the rear two screws.
(9) Check for proper fit. If not OK, repeat glass panel adjustment.

ADJUSTMENT - TIMING

NOTE: A gage comes with the new motor.

(1) If the glass panel was not in the fully closed position, when the motor was removed, the sunroof glass panel needs to be timed, before the new motor is installed.
(2) Remove sunroof glass panel.
(3) Set gage into the track near the rear of the opening between the driver slide and the bracket (Fig. 6).
(4) Move the driver slide forward or aft to get proper setting.
(5) Repeat the operation on the other side.
(6) Install drive motor.

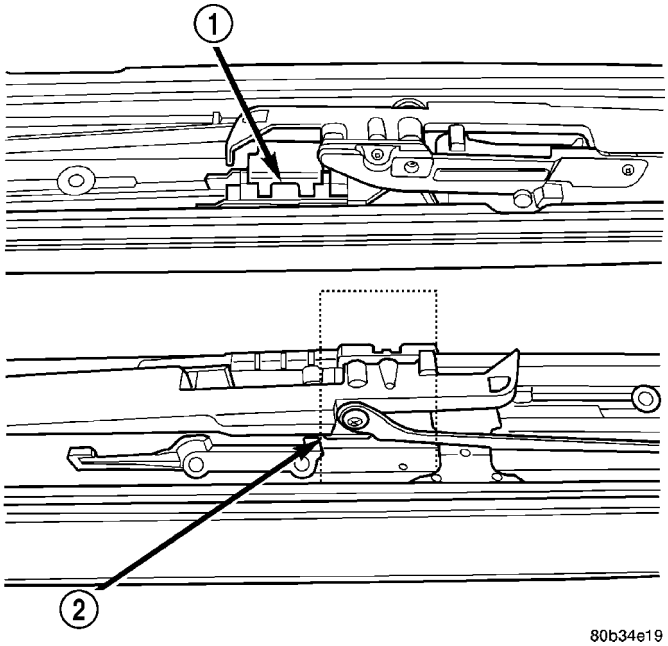


Fig. 6 Sunroof Drive Cable Timing

1 - MOVE DRIVER SLIDE FORWARD/AFT
2 - GAGE

SUNSHADE

REMOVAL

(1) Open sunroof approximately 50% of the way.
(2) Push sunshade down until tabs clear glass.
(3) Move sunshade forward of glass panel.
(4) Compress the spring loaded plungers holding the guide blocks in the track.
(5) Slide the sunshade forward while lifting the front through the opening until the rear guide blocks are accessible.

CAUTION: Use care not to crease the sunshade when removing or installing.

(6) Disengage rear guide blocks from track.

INSTALLATION

(1) Install the sunshade from outside of the vehicle with the sunroof fully open.
(2) Put rear guide blocks into sunshade guide track.
(3) Push sunshade back and down through the sunroof opening.
(4) Using a flat blade tool, put front guide blocks into the sunshade track. By pushing the block towards the center of the vehicle.
(5) Move the glass panel to approximately halfway to the fully closed position.
(6) Push sunshade down until the sunshade clears the glass then move sunshade rearward behind the glass panel.

HOUSING ASSEMBLY

REMOVAL

(1) Move glass panel to the fully closed position.
(2) Disconnect battery negative cable.
(3) Recline both front seats.
(4) Remove headliner. (Refer to 23 - BODY/INTERIOR/HEADLINER - REMOVAL)
(5) Disconnect the drain tubes from sunroof housing (Fig. 7).
(6) Loosen fasteners attaching sunroof housing assembly.
(7) With the aid of a helper, remove fasteners attaching sunroof housing assembly to roof panel.

HOUSING ASSEMBLY (Continued)

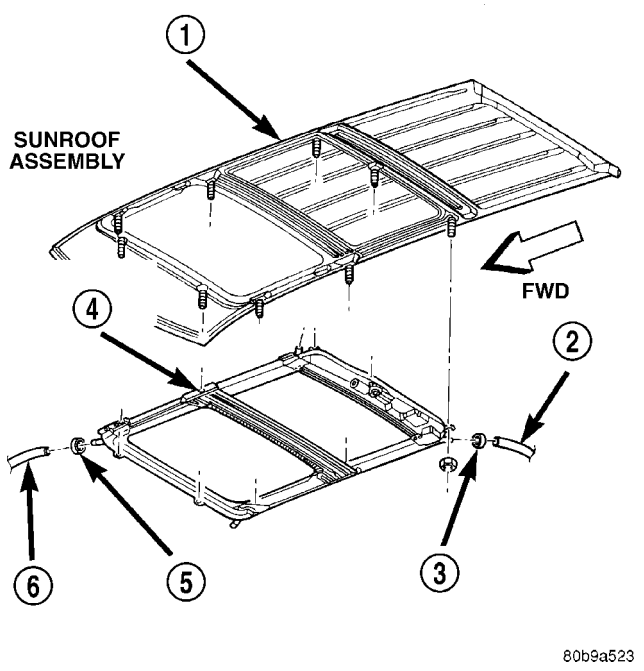


Fig. 7 SUNROOF ASSEMBLY

1 - ROOF
2 - DRAIN HOSE
3 - CLAMP
4 - SUNROOF ASSEMBLY
5 - CLAMP
6 - DRAIN HOSE

INSTALLATION

(1) Raise the sunroof housing assembly and guide into position and start fasteners (Fig. 7).

(2) Tighten the fasteners, front to rear, attaching the sunroof module to roof panel. Tighten the fasteners, front to rear, to 11 N·m (97 in. lbs.) torque.

(3) Connect the drain tubes to the sunroof housing.

(4) Set headliner into position.

(5) Connect express module, drive motor, and control switch wire connectors.

(6) Test sunroof operation, adjust as necessary.

(7) Finish installing the headliner. (Refer to 23 - BODY/INTERIOR/HEADLINER - INSTALLATION)

(8) Connect battery negative cable.

WEATHERSTRIP/SEALS

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B-PILLAR DOOR SEAL

REMOVAL

The B-pillar seal is attached to the rear door with adhesive tape.

(1) Peel seal from the door (Fig. 1).

INSTALLATION

(1) Clean contact area with Mopar® Super Kleen or equivalent.

(2) Remove carrier from seal.

(3) Align seal on door and press into place.

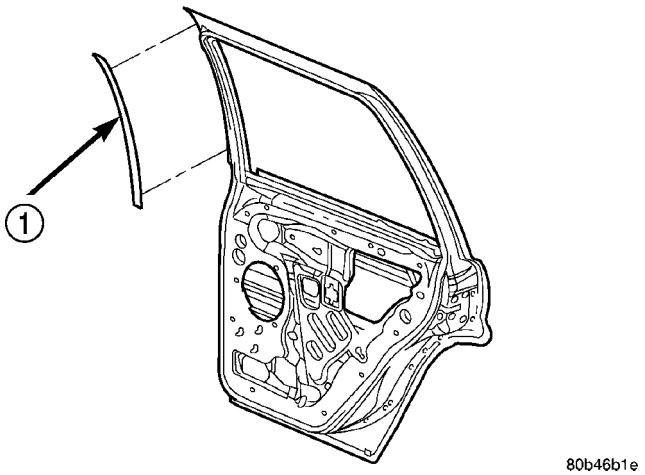


Fig. 1 B-Pillar Seal

1 - B-PILLAR SEAL

COWL WEATHERSTRIP

REMOVAL

(1) Raise hood.
(2) Pull cowl plenum seal from cowl.
(3) Separate cowl plenum seal from cowl (Fig. 2).

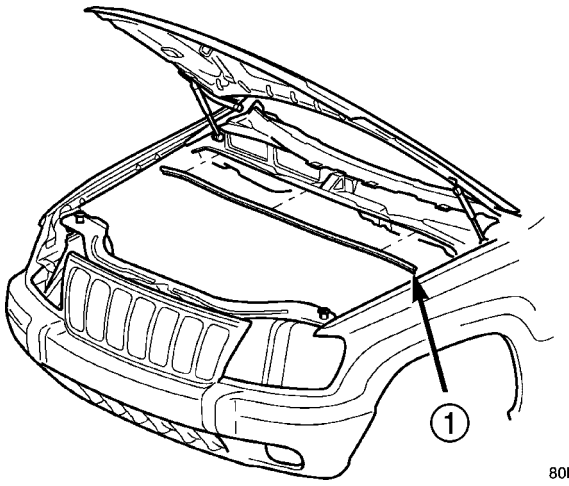


Fig. 2 Cowl Plenum Seal

1 - PLENUM SEAL

INSTALLATION

(1) Position cowl plenum seal on cowl.
(2) Press cowl plenum seal to seat.

FRONT DOOR GLASS RUN WEATHERSTRIP

REMOVAL

(1) Remove the front door glass. (Refer to 23 - BODY/DOOR - FRONT/DOOR GLASS - REMOVAL)
(2) Grasp seal from upper run channel corner and firmly pull weatherstrip from flange and run channel (Fig. 3).
(3) Remove the glass run from below the belt channels & seperate from the door.

INSTALLATION

NOTE: Soapy water may be used to aid in installation.

(1) Position weatherstrip in channel aligning upper rear corner.
(2) Press weatherstrip into position.
(3) Press weatherstrip into lower glass run channels.
(4) Install front door speaker.
(5) Install the door glass. (Refer to 23 - BODY/DOOR - FRONT/DOOR GLASS - INSTALLATION)

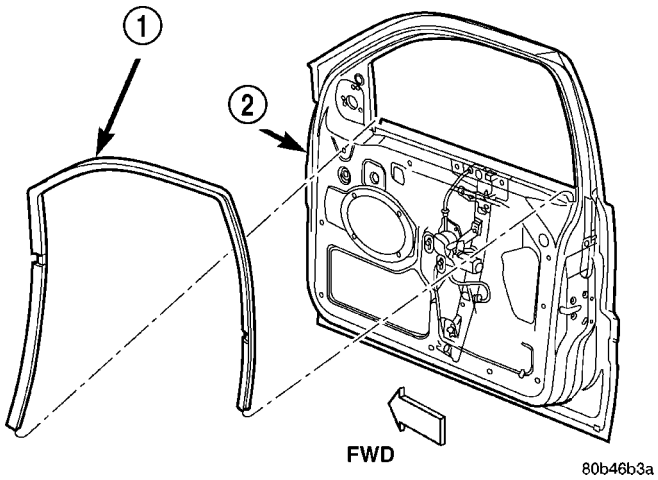


Fig. 3 FRONT DOOR GLASS RUN CHANNEL WEATHERSTRIP

1 - GLASS RUN CHANNEL WEATHERSTRIP
2 - DOOR

FRONT DOOR INNER BELT WEATHERSTRIP

REMOVAL

(1) Remove door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - REMOVAL).
(2) Using a trim stick or other suitable device, carefully pry up inner edge of seal (Fig. 4).
(3) Grasp the edge of the seal and pull upward to remove seal from door flange.

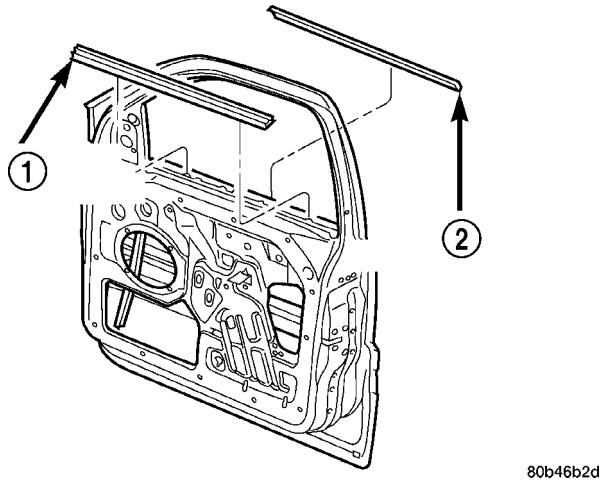


Fig. 4 Inner/Outer Belt Weather Strip

1 - INNER BELT WEATHERSTRIP
2 - OUTER BELT WEATHERSTRIP

INSTALLATION

(1) Position the seal on the door flange.
(2) Firmly press downward to seat seal on the door flange.
(3) Install the door trim panel (Refer to 23 - BODY/DOOR - FRONT/TRIM PANEL - INSTALLATION).

FDR OUTER BELT WEATHERSTRIP

REMOVAL

(1) Lower the door glass.
(2) Using a trim stick C-4755 or equivalent, pry seal up from flange. (Fig. 4)
(3) Pull the seal rearward to release from the side view mirror bezel.
(4) Lift seal and separate from door panel.

INSTALLATION

(1) Position seal on the door panel.
(2) Push the seal forward to install under the side view mirror bezel.
(3) Using a mallet or equivalent, tap seal into place.
(4) Raise the door glass.

FLIP-UP GLASS WEATHERSTRIP

REMOVAL

(1) Remove the liftgate trim panel screws at the window opening.
(2) Raise flip up glass.
(3) Carefully pull the seal away from the flange around the edge of the glass opening (Fig. 5).
(4) Remove it from the vehicle.

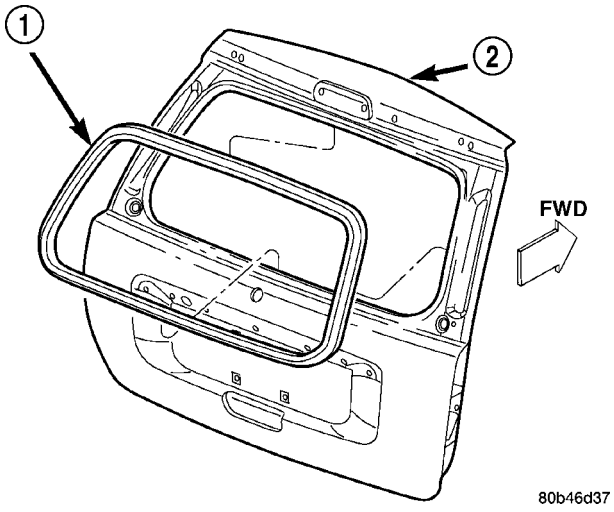


Fig. 5 FLIP-UP GLASS WEATHERSTRIP

1 - WEATHERSTRIP
2 - LIFTGATE W/FLIP-UP GLASS

INSTALLATION

(1) Thoroughly clean the surface of the flange as necessary.
(2) Align the weather strip seal with the window opening corners.
(3) Firmly seat the seal around the entire flange. Join the seal ends together and smooth out any remaining length.
(4) Weatherstrip break should be 120mm left of latch opening.
(5) Install the liftgate trim panel screws.

FRONT DOOR SECONDARY WEATHERSTRIP

REMOVAL

The front door secondary weatherstrip is attached to the door shutface with push-in fasteners.
(1) Open door.
(2) Using a trim panel removal tool, remove push-in fasteners attaching secondary weatherstrip to door shutface (Fig. 6).
(3) Separate secondary weatherstrip from door.

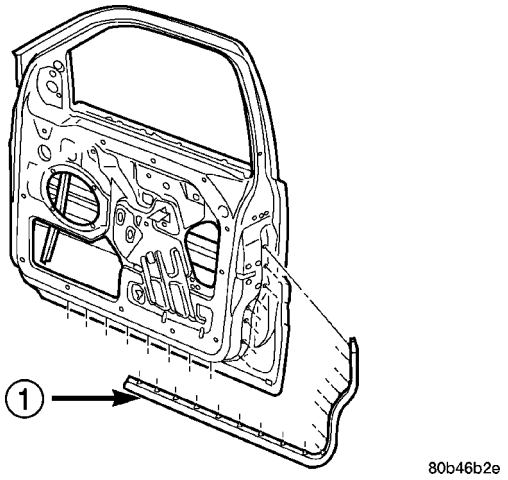


Fig. 6 Front Door Secondary Weatherstrip

1 - SECONDARY WEATHERSTRIP

INSTALLATION

(1) Clean contact area as necessary.
(2) Position secondary weatherstrip on door shutface.
(3) Install push-in fasteners attaching secondary weatherstrip to door shutface.

FRONT DOOR WEATHERSTRIP

REMOVAL

(1) Remove A-pillar trim (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - REMOVAL).
(2) Remove B-pillar upper trim (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - REMOVAL).
(3) Remove B-pillar lower trim (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - REMOVAL).
(4) Pull weatherstrip from door opening flange.

INSTALLATION

(1) Apply three 12 inch strips of foam tape to the flange in the areas shown. (Fig. 7)
(2) Position weatherstrip at corners.
(3) Move upward and around edge of door opening seating weatherstrip onto flange (Fig. 8).
(4) Engage connector plug with each end of weatherstrip at bottom of door opening.
(5) Install B-pillar lower trim (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - INSTALLATION).
(6) Install B-pillar upper trim (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - INSTALLATION).
(7) Install A-pillar trim (Refer to 23 - BODY/INTERIOR/A-PILLAR TRIM - INSTALLATION).

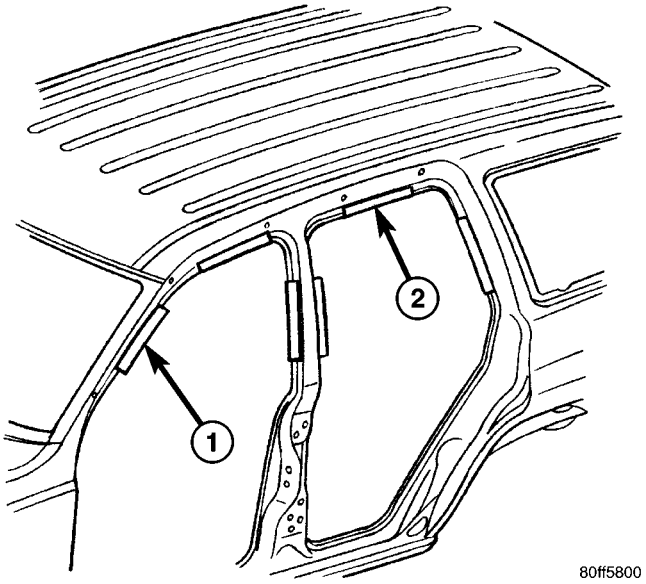


Fig. 7 SEAL TAPE

1 - FRONT DOOR FOAM TAPE (3 12 in. STRIPS)
2 - REAR DOOR FOAM TAPE (3 12 in. STRIPS)

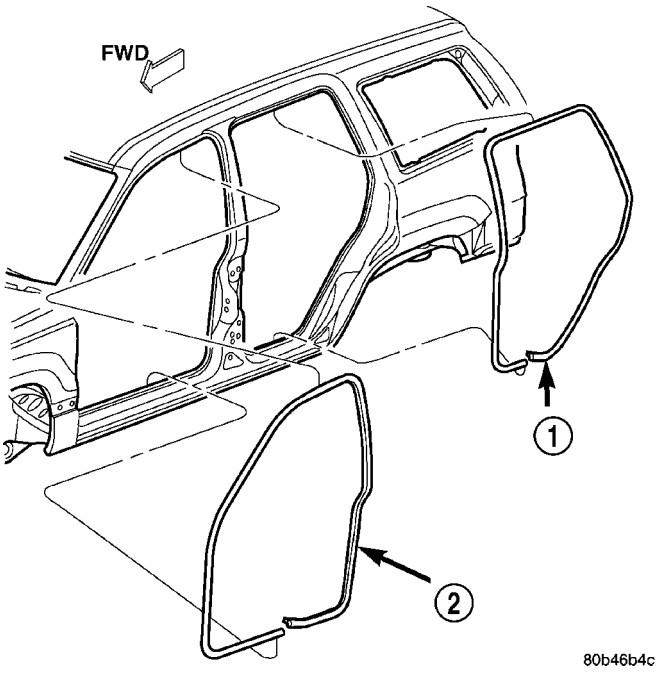


Fig. 8 Door Opening

1 - REAR DOOR OPENING WEATHERSTRIP
2 - FRONT DOOR OPENING WEATHERSTRIP

HOOD SEAL

REMOVAL

(1) Raise hood.
(2) Pull hood seal from upper radiator crossmember.
(3) Separate seal from upper radiator crossmember (Fig. 9).

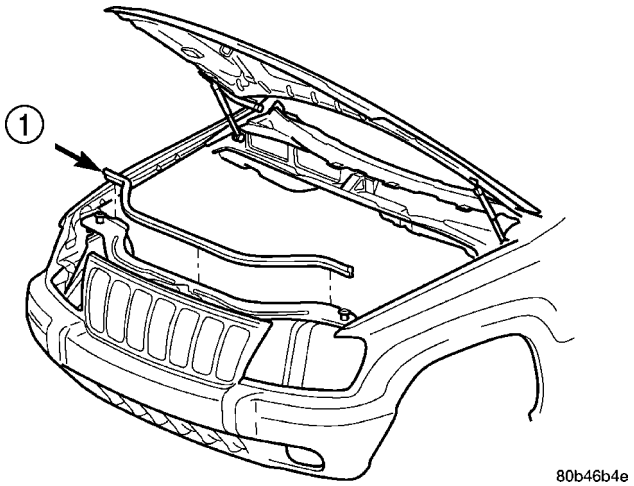


Fig. 9 Hood Seal

1 - HOOD SEAL

INSTALLATION

(1) Position seal on upper radiator crossmember.
(2) Press seal onto upper radiator crossmember to seat.

LIFTGATE OPENING WEATHERSTRIP

REMOVAL

(1) Remove the liftgate scuff plate trim. (Refer to 23 - BODY/INTERIOR/LIFTGATE SCUFF PLATE - REMOVAL)

(2) Pull seal away from flange around edge of liftgate opening.

(3) Separate weatherstrip from opening (Fig. 10).

(4) Clean weatherstrip flange as necessary.

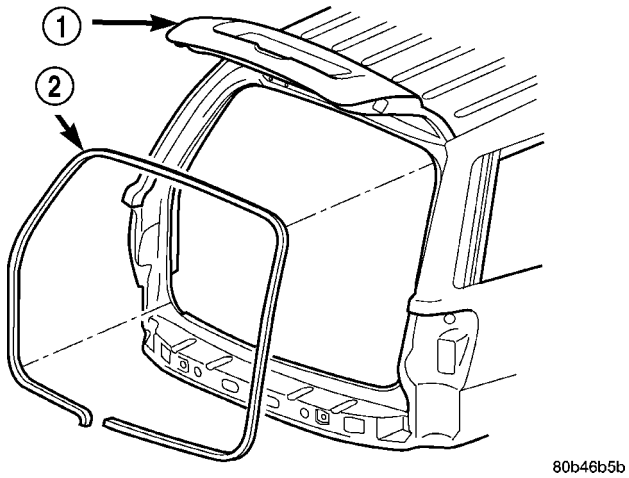


Fig. 10 LIFTGATE OPENING WEATHERSTRIP

1 - LIFTGATE
2 - WEATHERSTRIP

INSTALLATION

(1) Position weatherstrip in opening with left end of seal at opening centerline.

(2) Press weatherstrip onto flange in a clockwise direction.

(3) Center and butt weatherstrip ends together at centerline.

(4) Install the liftgate scuff plate trim. (Refer to 23 - BODY/INTERIOR/LIFTGATE SCUFF PLATE - INSTALLATION)

RDR INNER BELT WEATHERSTRIP

REMOVAL

(1) Remove door trim panel (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - REMOVAL).

(2) Using a trim stick, carefully pry rear inner edge of inner belt weatherstrip upward.

(3) Grasp weatherstrip and pull upward to separate from door flange (Fig. 11).

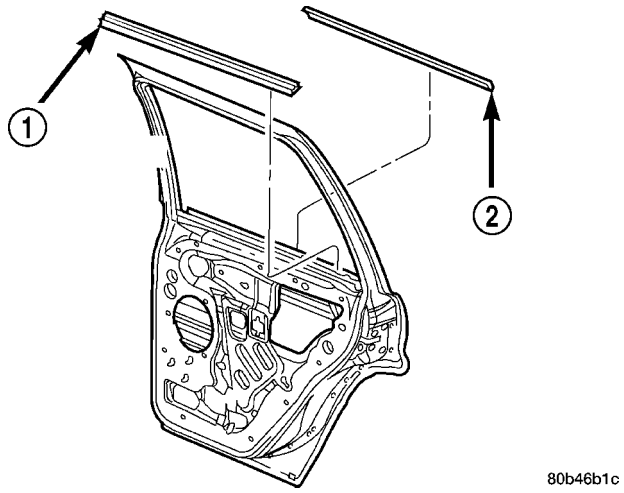


Fig. 11 Rear Door Inner/Outer Belt Weatherstrip

1 - INNER BELT WEATHERSTRIP
2 - OUTER BELT WEATHERSTRIP

INSTALLATION

(1) Position weatherstrip on door flange.

(2) Firmly press downward to seat weatherstrip on flange.

(3) Install trim panel (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - INSTALLATION).

RDR OUTER BELT WEATHERSTRIP

REMOVAL

(1) Remove trim panel (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - REMOVAL).

(2) Using a small flat blade, disengage tangs attaching outer belt weatherstrip to inner door panel.

(3) Lift weatherstrip upward and separate from door (Fig. 11).

INSTALLATION

(1) Position the weatherstrip onto the door flange.

(2) Force the weatherstrip onto door flange and engage tangs. Continue rearward until it is seated on flange.

(3) Instal trim panel (Refer to 23 - BODY/DOORS - REAR/TRIM PANEL - INSTALLATION).

RDR SECONDARY WEATHERSTRIP

REMOVAL

The rear door secondary weatherstrip is attached to the door shutface with push-in fasteners.

(1) Open door.

(2) Using a trim panel removal tool, remove push-in fasteners attaching secondary weatherstrip to door shutface.

(3) Separate secondary weatherstrip from door (Fig. 12).

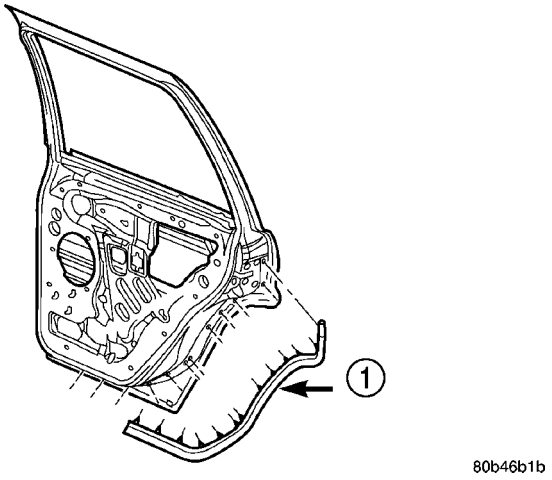


Fig. 12 Rear Door Secondary Weatherstrip

1 - SECONDARY WEATHERSTRIP

INSTALLATION

(1) Clean contact area as necessary.

(2) Position secondary weatherstrip on door shutface.

(3) Install push-in fasteners attaching secondary weatherstrip to door shutface.

REAR DOOR WEATHERSTRIP

REMOVAL

(1) Remove C-pillar trim (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - REMOVAL).

(2) Remove B-pillar upper trim (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - REMOVAL).

(3) Remove B-pillar lower trim(Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - REMOVAL).

(4) Remove screws at front of quarter trim panel.

(5) Pull weatherstrip from door opening flange.

INSTALLATION

(1) Apply three 12 inch strips of foam tape to the flange in the areas shown. (Fig. 13)

(2) Position weatherstrip at corners.

(3) Move upward and around edge of door opening seating weatherstrip onto flange (Fig. 8).

(4) Engage connector plug with each end of weatherstrip at bottom of door opening.

(5) Install screws at front of quarter trim panel.

(6) Install B-pillar lower trim (Refer to 23 - BODY/INTERIOR/B-PILLAR LOWER TRIM - INSTALLATION).

(7) Install B-pillar upper trim (Refer to 23 - BODY/INTERIOR/B-PILLAR UPPER TRIM - INSTALLATION).

(8) Install C-pillar trim (Refer to 23 - BODY/INTERIOR/C-PILLAR TRIM - INSTALLATION).

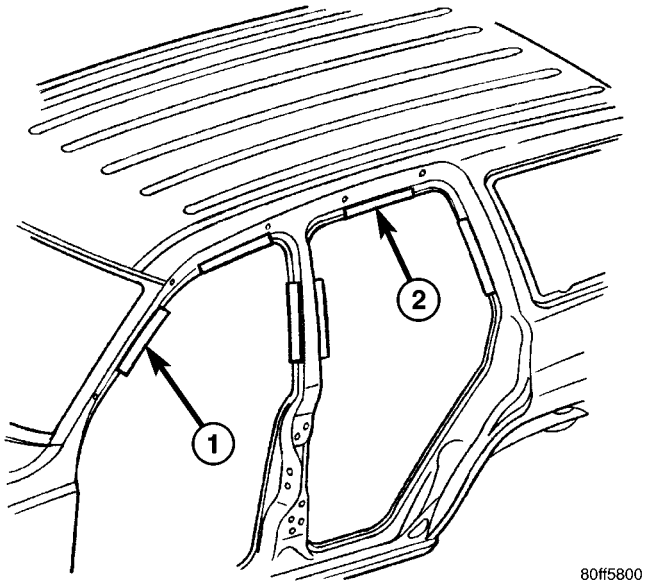


Fig. 13 SEAL TAPE

1 - FRONT DOOR FOAM TAPE (3 12 in. STRIPS)
2 - REAR DOOR FOAM TAPE (3 12 in. STRIPS)

ROOF RAIL WEATHERSTRIP / RETAINR

REMOVAL

(1) Open front and rear doors.
(2) Remove secondary seal from retainer to access the screws holding the retainer to the A pillar and roof panel.
(3) Remove the screws holding the retainer in place (Fig. 14).
(4) Remove the retainer.

INSTALLATION

(1) Position the retainer on the A pillar and roof panel.
(2) Align the screw holes and install the screws.
(3) Install secondary seal.

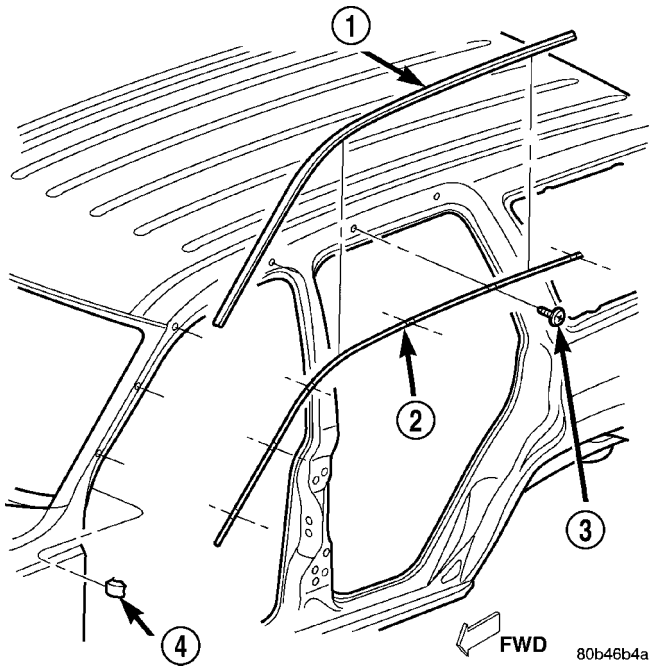


Fig. 14 Upper Body Seal With Retainer

1 - ROOF RAIL WEATHERSTRIP
2 - RETAINER
3 - SCREW
4 - BLOCKER

BODY STRUCTURE

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GAP AND FLUSH

SPECIFICATIONS - GAP AND FLUSH

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REAR VIEW	2

GAP AND FLUSH (Continued)

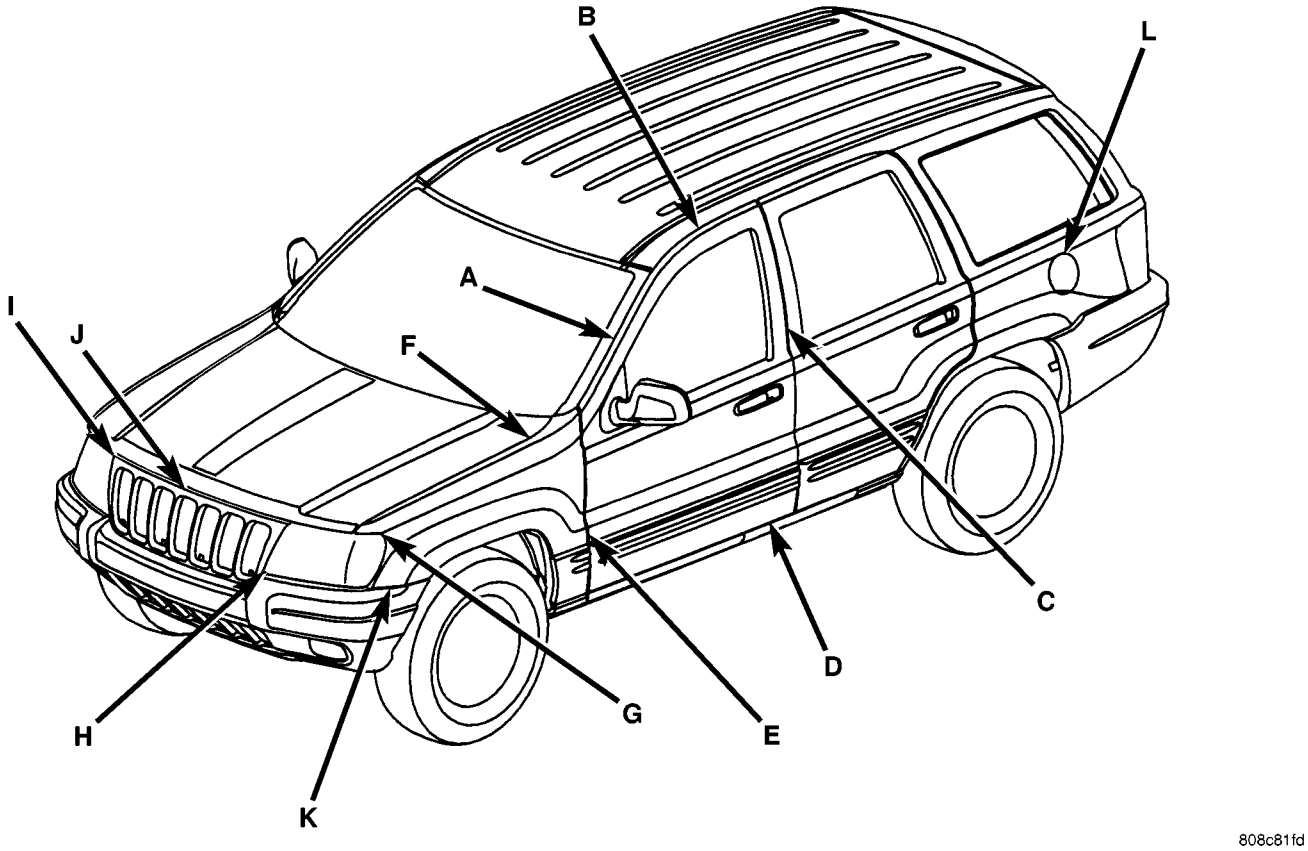


Fig. 1 FRONT VIEW

NOTE:
All measurements are in mm.

FRONT VIEW

LOCATION	DESCRIPTION	GAP	FLUSH
A	Front Door to Windshield Pillar	N/A	3.0 +/- 1.0
B	Front Door Header to Aperture	6.0 +/- 1.5	1.0 +/- 1.5
C	Front Door to Rear Door	5.0 +/- 1.0	0.0 +1.5/-1.0
D	Front Door to Aperture at Sill	7.0 +/- 1.5	N/A
E	Front Door to Fender	5.0 +/- 1.0	1.0 +/- 1.5
F	Hood to Fender	5.0 +/- 1.0	0.0 +/- 1.0
G	Headlamp to Fender	5.0 +/- 2.0	3.0 +/- 2.0
H	Headlamp to Grille	5.5 +/- 2.0	0.0 +2.0/-1.0
I	Grille to Headlamp	N/A	0.0 +/- 1.0
J	Grille to Hood	8.75 +/- 2.25	0.8 +/- 2.0
K	Front Fascia to Fender	Net + 1.0 - 0.0	3.0 +/- 2.0
L	Fuel Filler Door to Bodyside	3.0 +/- 0.75	0.5 +/- 0.75

GAP AND FLUSH (Continued)

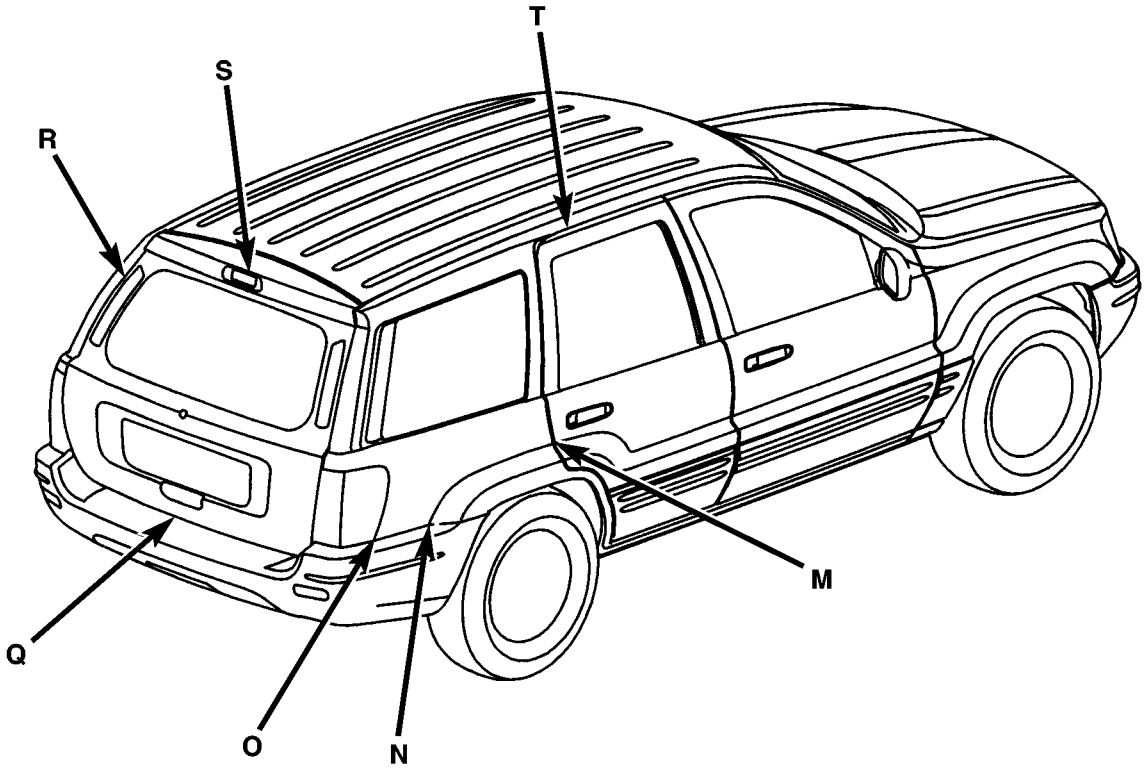


Fig. 2 REAR VIEW

NOTE:
All measurements are in mm.

REAR VIEW

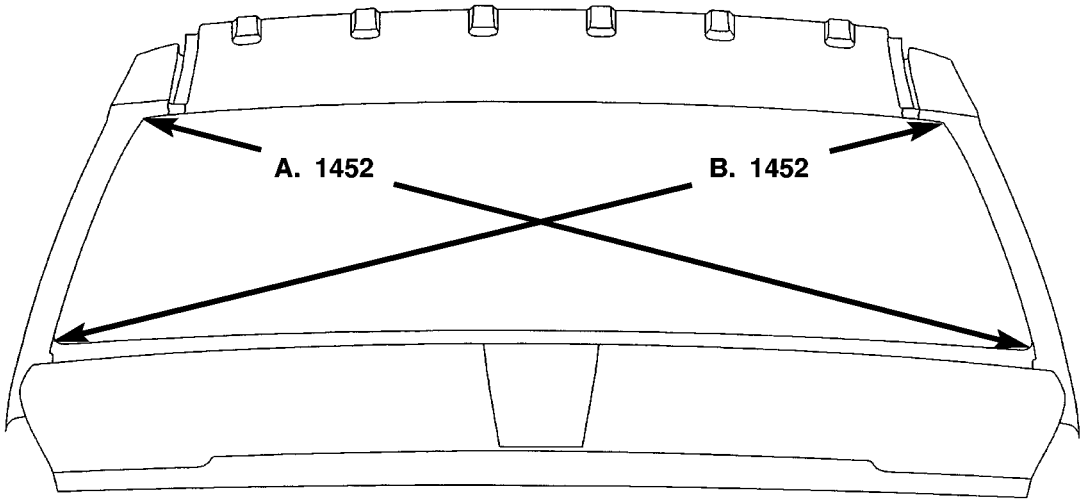
LOCATION	DESCRIPTION	GAP	FLUSH
M	Rear Door to Quarter Panel	5.0 +/- 1.0	0.5 +/- 1.0
N	Aperture to Rear Fascia	Net to 1.0	3.0 +/- 2.0
O	Taillamp to Quarter Panel	2.0 +/- 1.5	3.0 +/- 1.5
Q	Liftgate to Fascia	10.0 +/- 3.0	N/A
R	Liftgate to Aperture	5.0 +/- 1.5	1.0 +/- 1.5
S	Liftgate to Roof	11.0 +/- 1.5	0.0 +/- 1.0
T	Rear Door Header to Aperture	6.0 +/- 1.5	2.0 +/- 1.5

OPENING DIMENSIONS

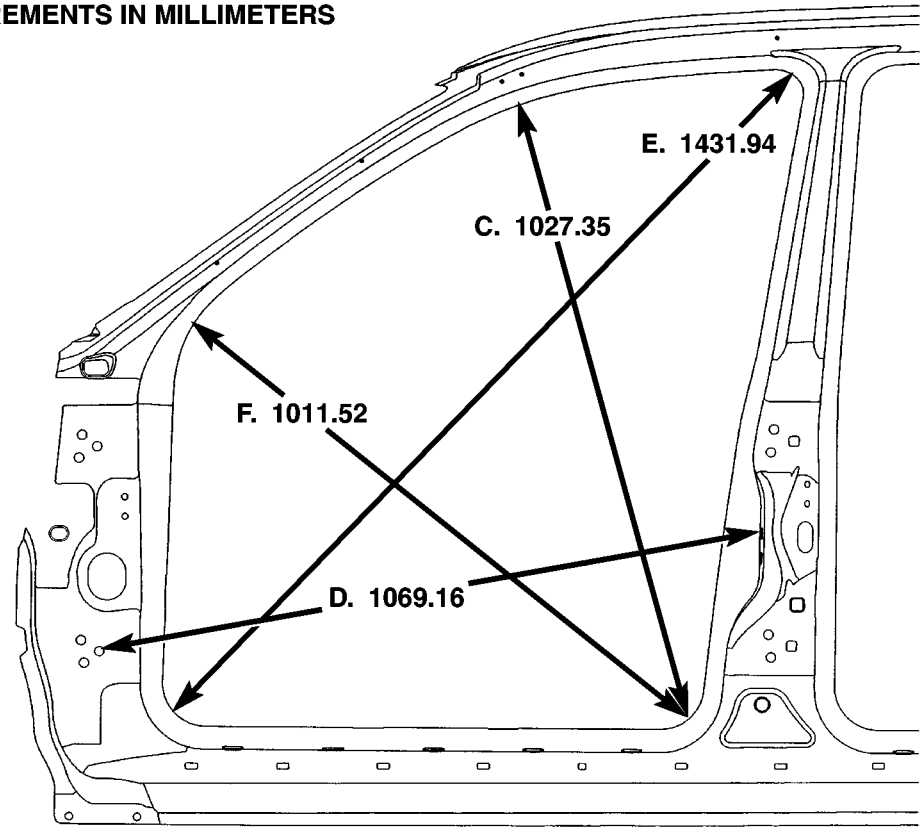
SPECIFICATIONS - BODY OPENING DIMENSIONS

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LIFTGATE OPENING AND ENGINE COMPARTMENT	5

OPENING DIMENSIONS (Continued)



ALL MEASUREMENTS IN MILLIMETERS



A. & B. Center of radius at bottom to center of radius at top.

C. Center of front door lower rear corner radius to center of A-pillar radius.

D. Center of door hinge mount to center of door striker mount.

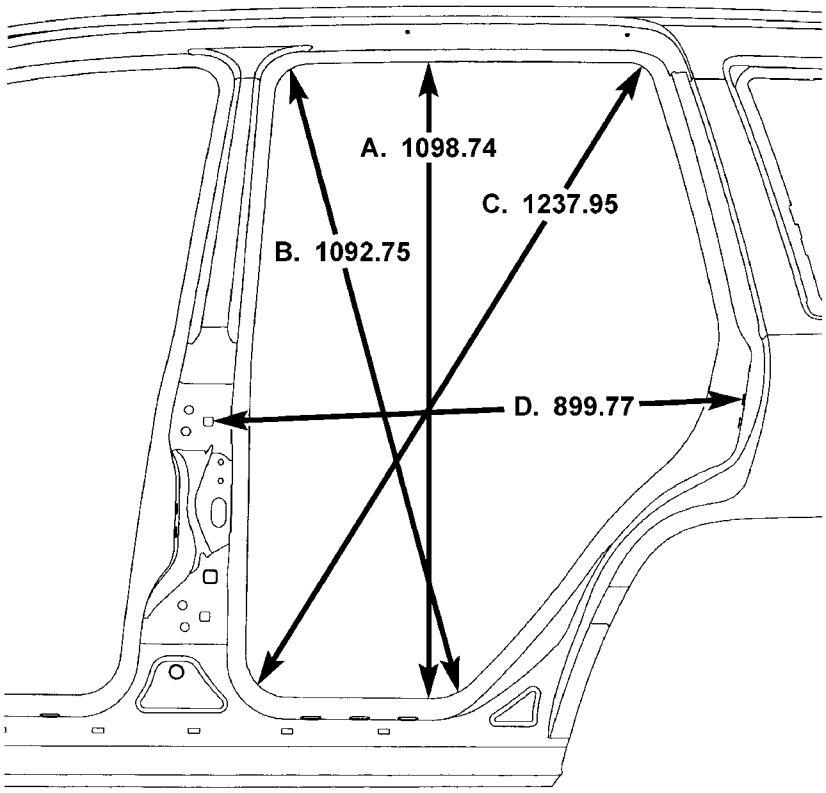
E. Center of radius at bottom front to center of radius at top rear.

F. Center of radius at bottom rear to center of radius at lower A-pillar.

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Fig. 3 WINDSHIELD AND FRONT DOOR OPENING

OPENING DIMENSIONS (Continued)

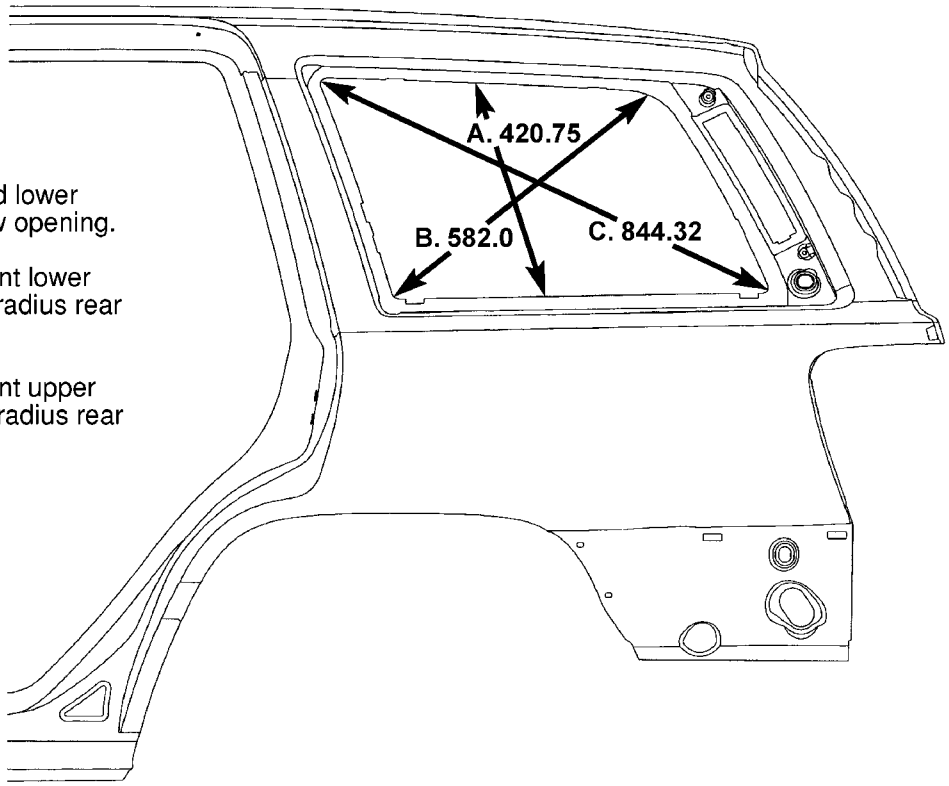


A. Quarter panel to front outer body side upper and lower seam.

B. Center of front upper door radius to center of rear lower door radius.

C. Center of front lower door radius to center of rear upper door radius.

D. Rear door hinge mount to rear door striker mount.



A. Center of upper and lower rear quarter window opening.

B. Center of radius front lower corner to center of radius rear upper corner.

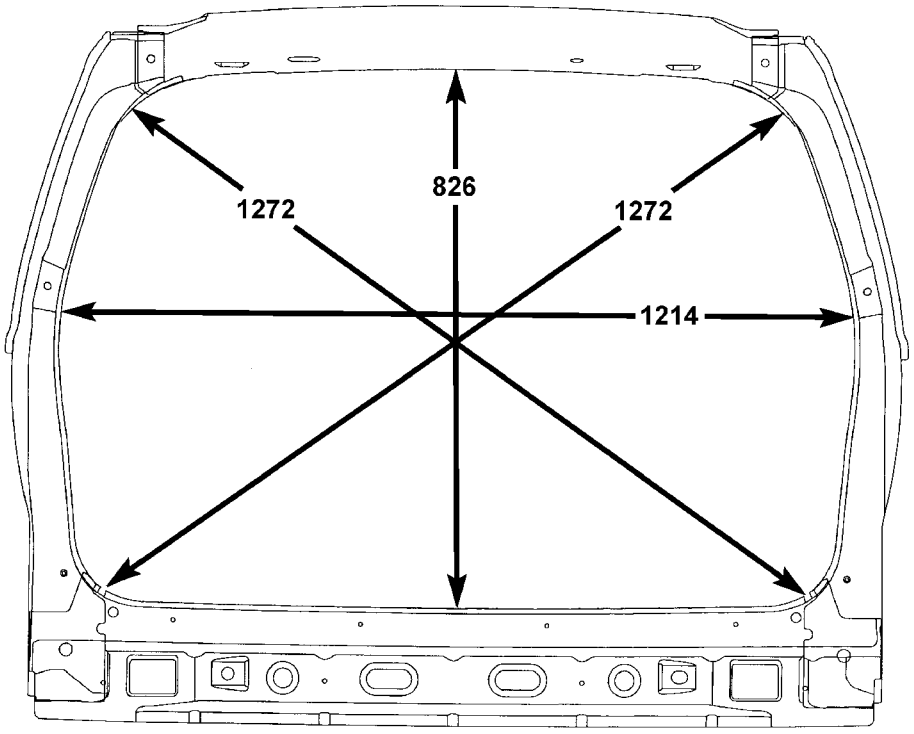
C. Center of radius front upper corner ro center of radius rear lower corner.

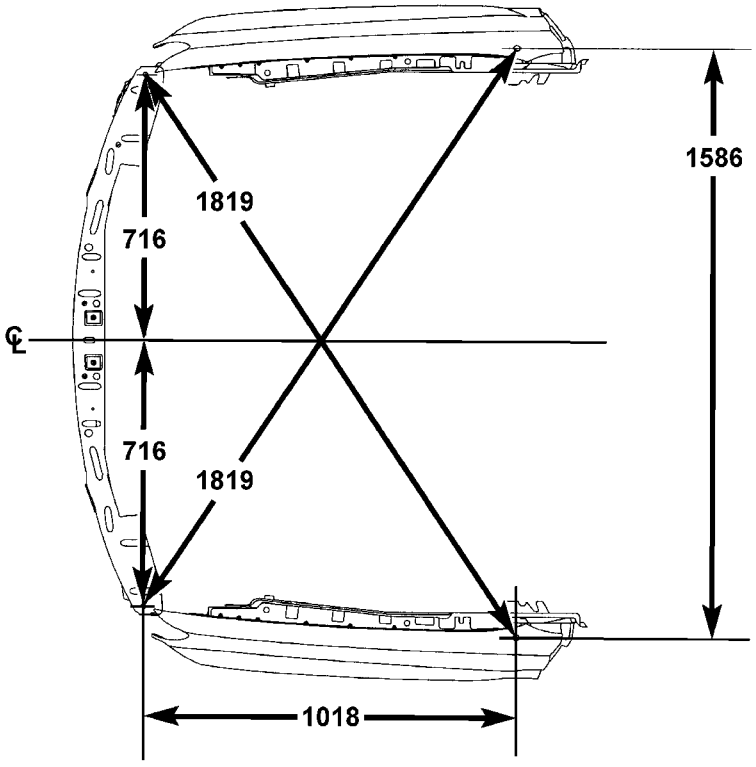
ALL MEASUREMENTS IN MILLIMETERS

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Fig. 4 REAR DOOR AND QUARTER GLASS OPENING

OPENING DIMENSIONS (Continued)





ALL MEASUREMENTS IN MILLIMETERS

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Fig. 5 LIFTGATE OPENING AND ENGINE COMPARTMENT

SEALER LOCATIONS

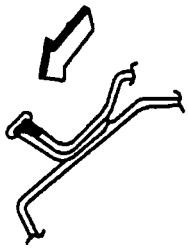
SPECIFICATIONS

SEALER LOCATIONS

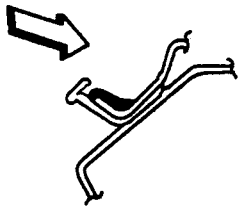
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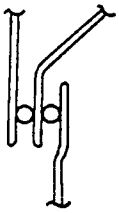
SEALER LOCATIONS (Continued)



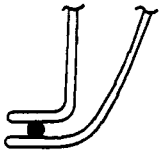
HOLD GUN NOZZLE IN DIRECTION OF ARROW IN ORDER TO EFFECTIVELY SEAL METAL JOINTS.



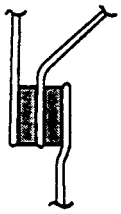
DO NOT HOLD GUN NOZZLE IN DIRECTION OF ARROW. SEALER APPLIED AS SHOWN IS INEFFECTIVE.



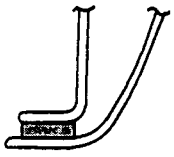
3 METAL THICKNESS



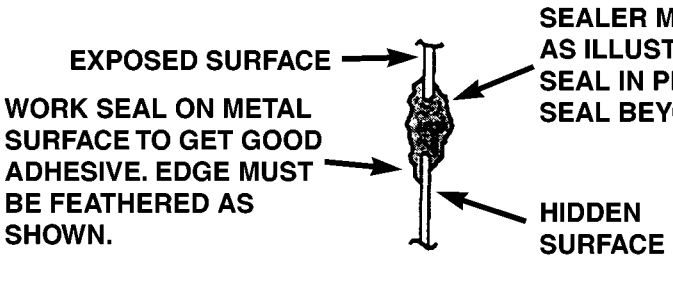
2 METAL THICKNESS

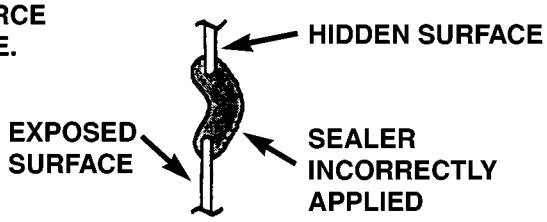


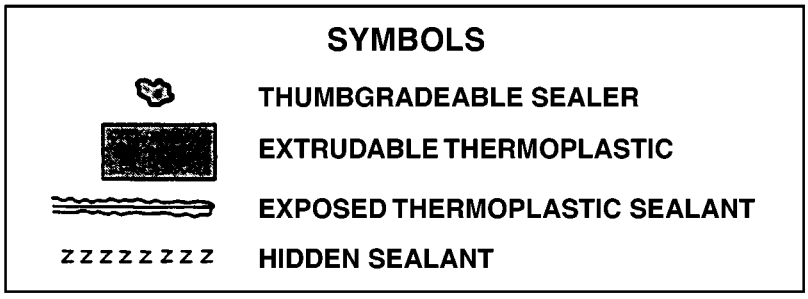
3 METAL THICKNESS



2 METAL THICKNESS







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Fig. 6 APPLICATION METHODS

SEALER LOCATIONS (Continued)

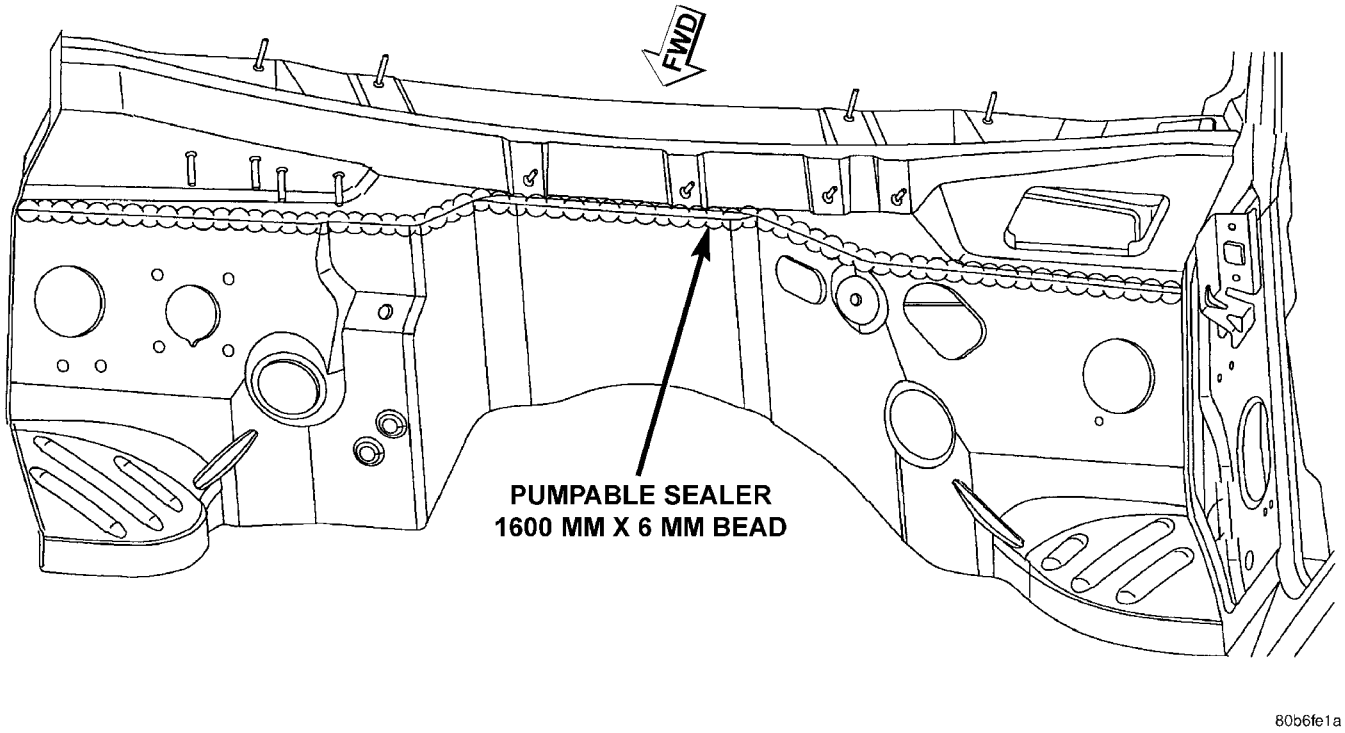


Fig. 7 COWL PLENUM AND DASH PANEL

SEALER LOCATIONS (Continued)

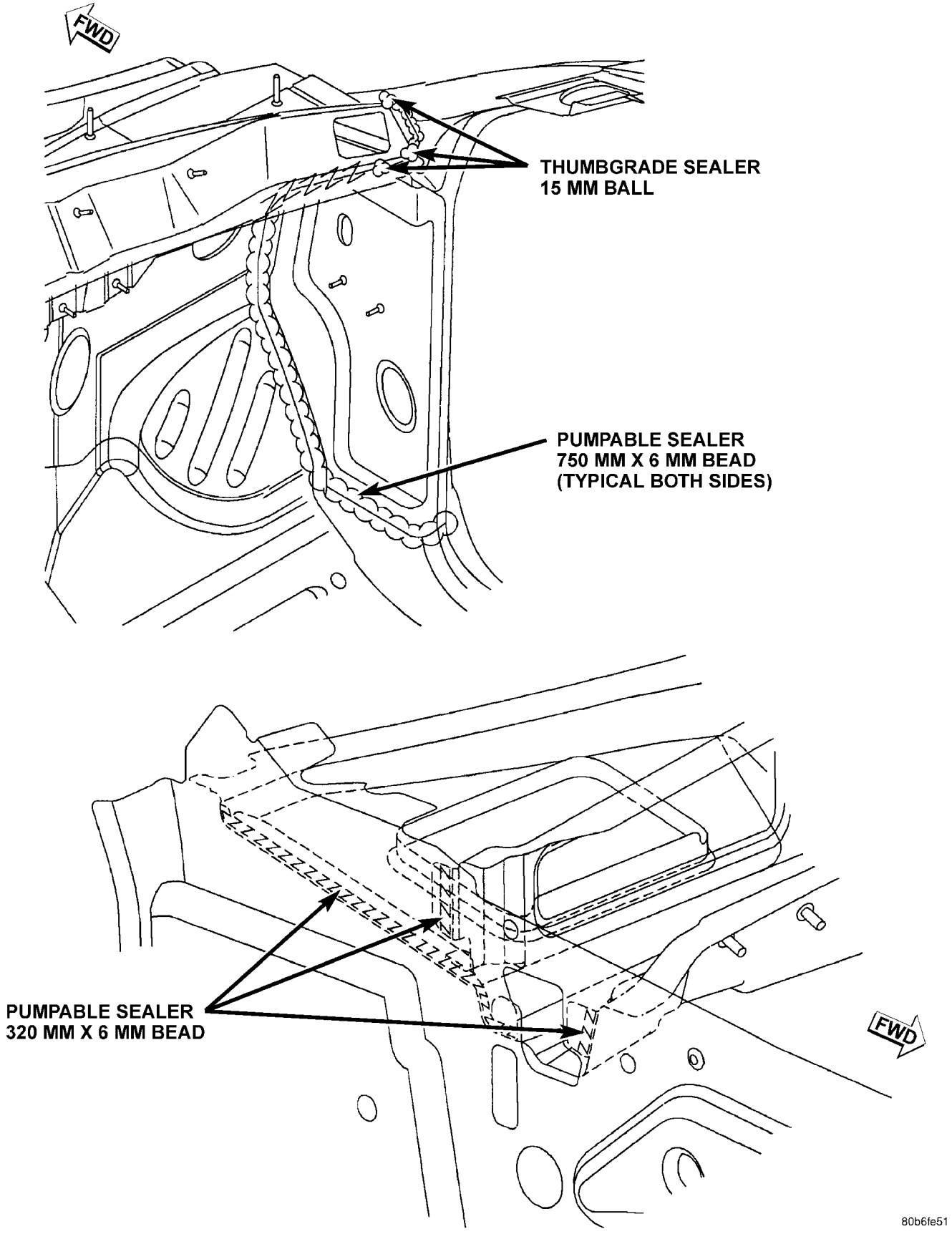


Fig. 8 DASH, COWL AND PLENUM

SEALER LOCATIONS (Continued)

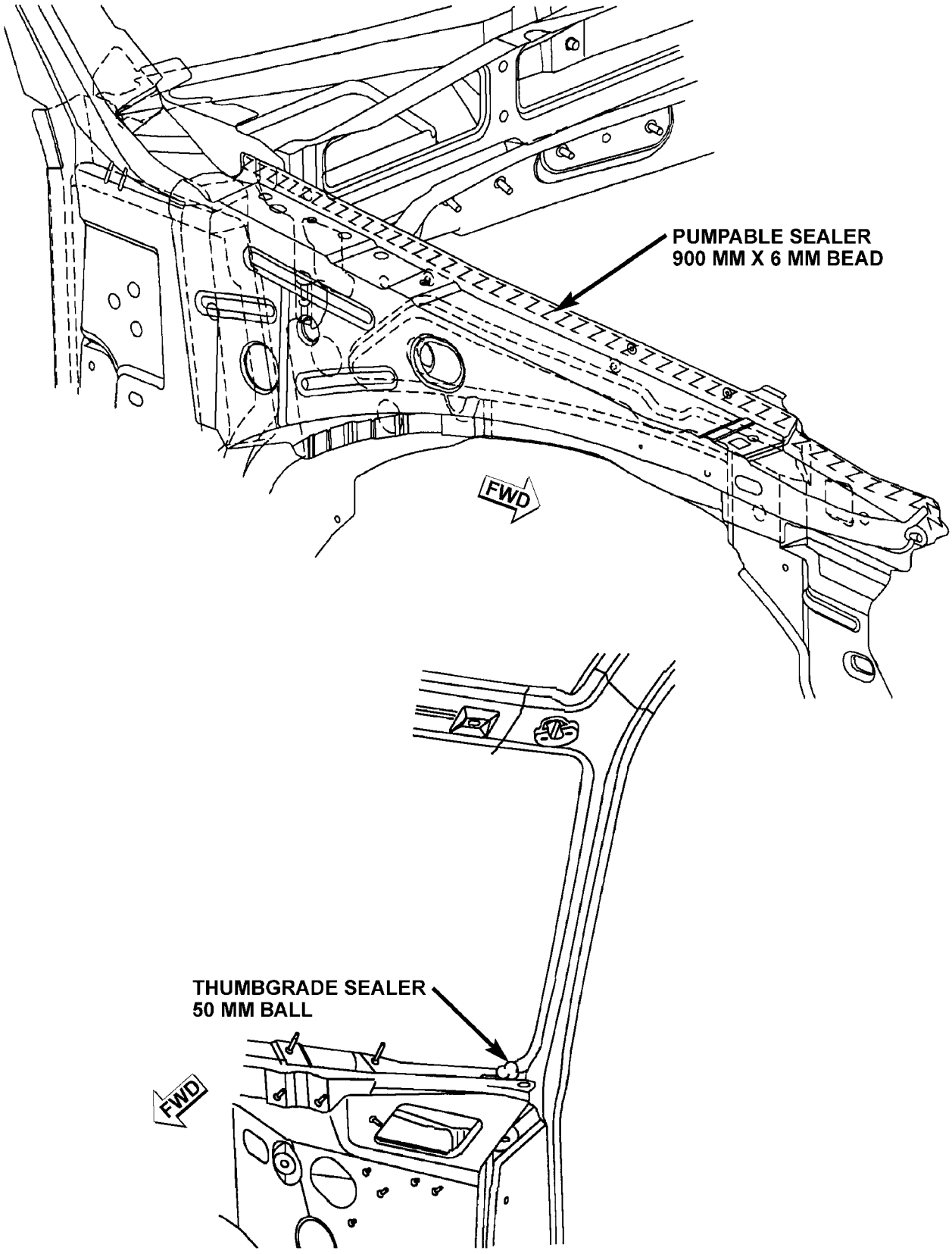


Fig. 9 INNER FENDER AND COWL

SEALER LOCATIONS (Continued)

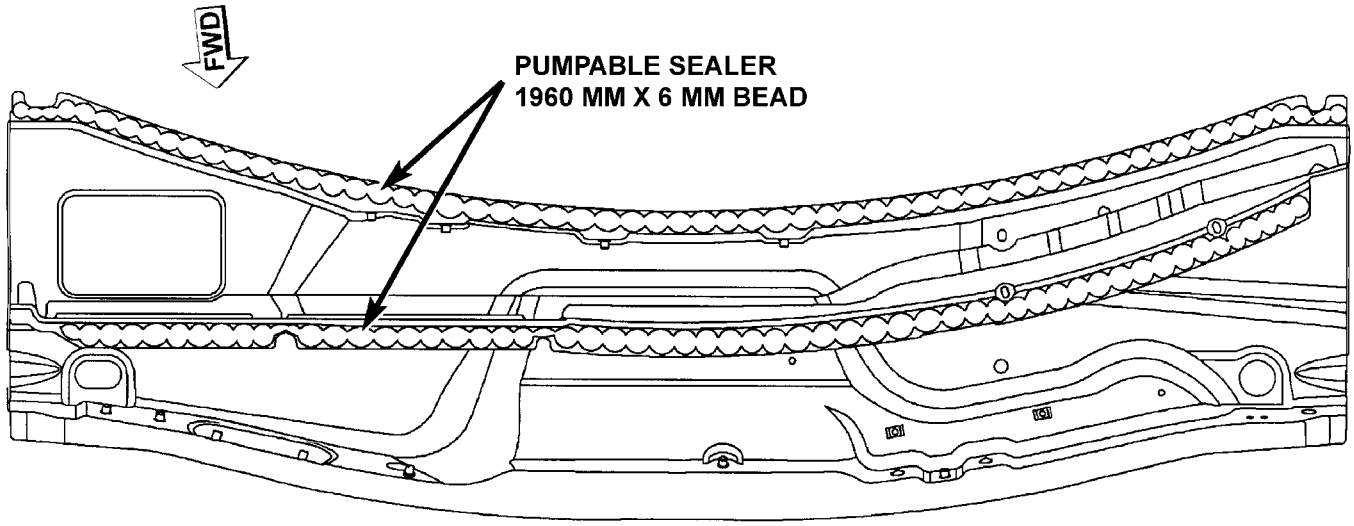


Fig. 10 LOWER PLENUM AND BAFFLE

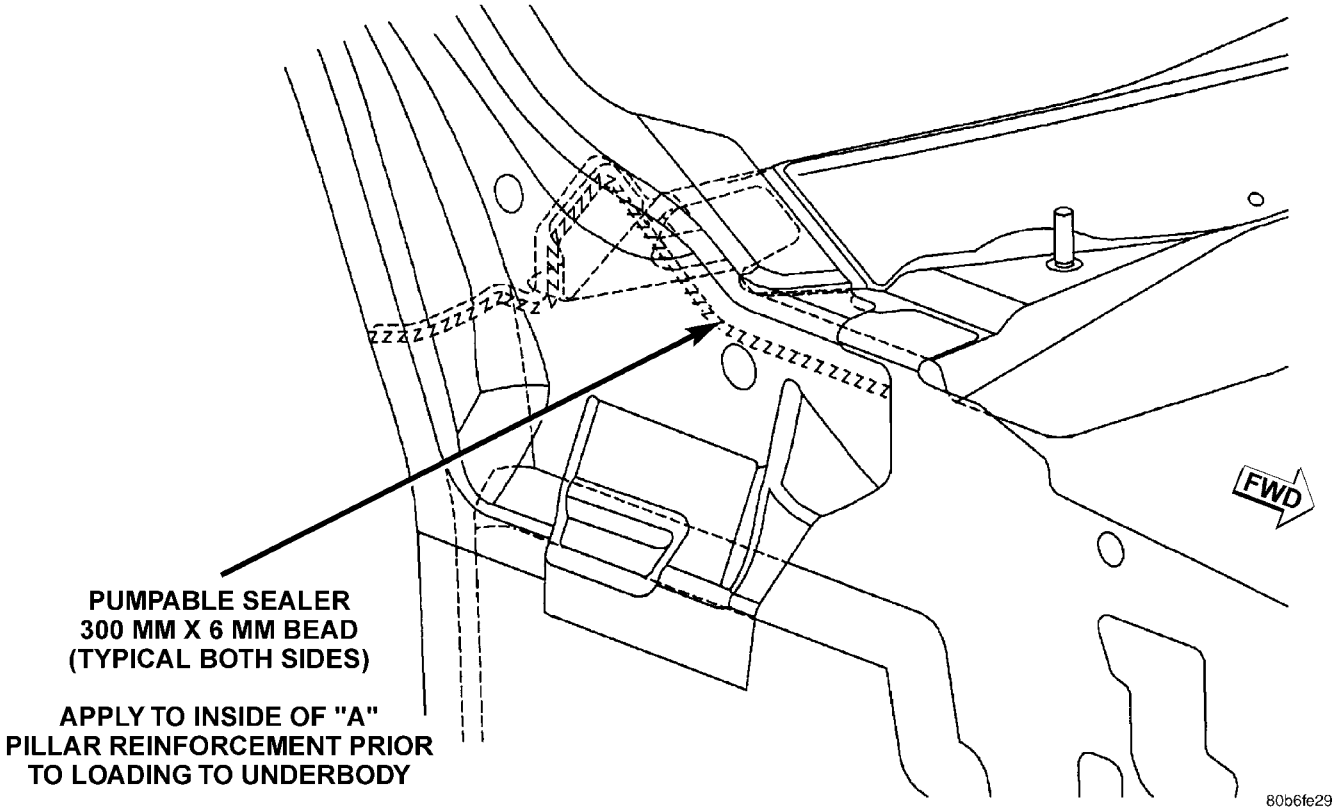


Fig. 11 A-PILLAR

SEALER LOCATIONS (Continued)

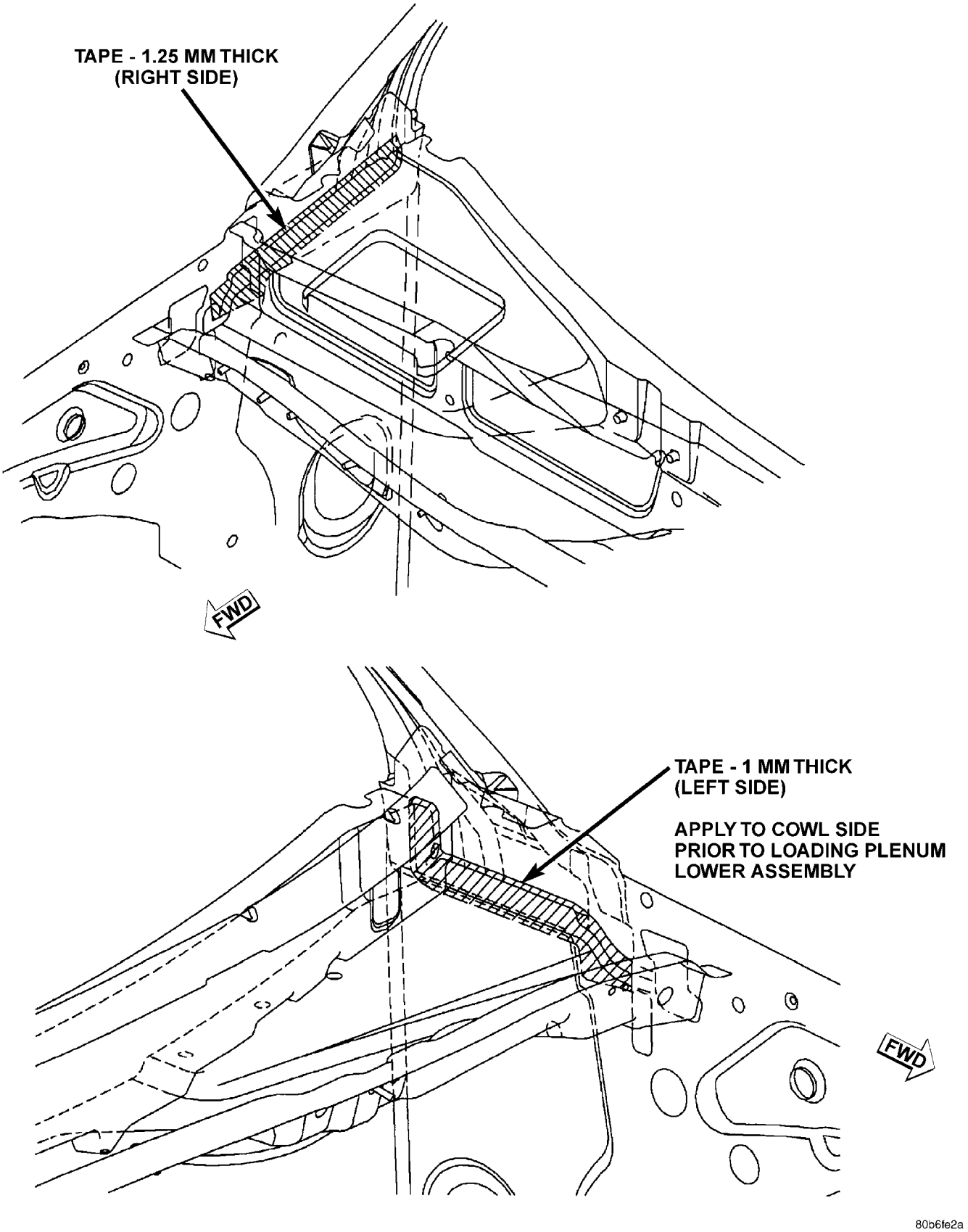


Fig. 12 COWL SIDE ATTACHMENT

SEALER LOCATIONS (Continued)

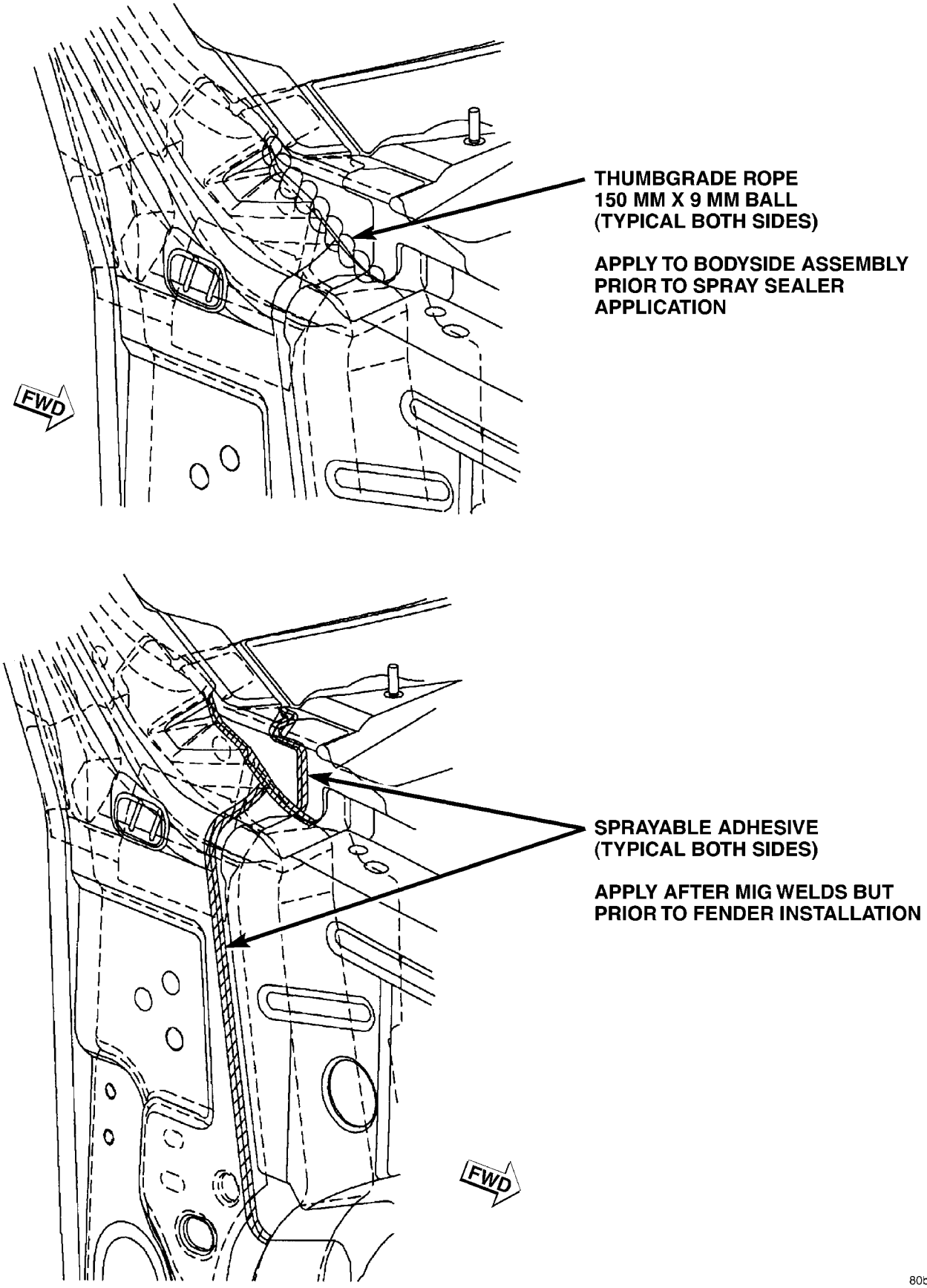


Fig. 13 BODYSIDE ATTACHMENT

SEALER LOCATIONS (Continued)

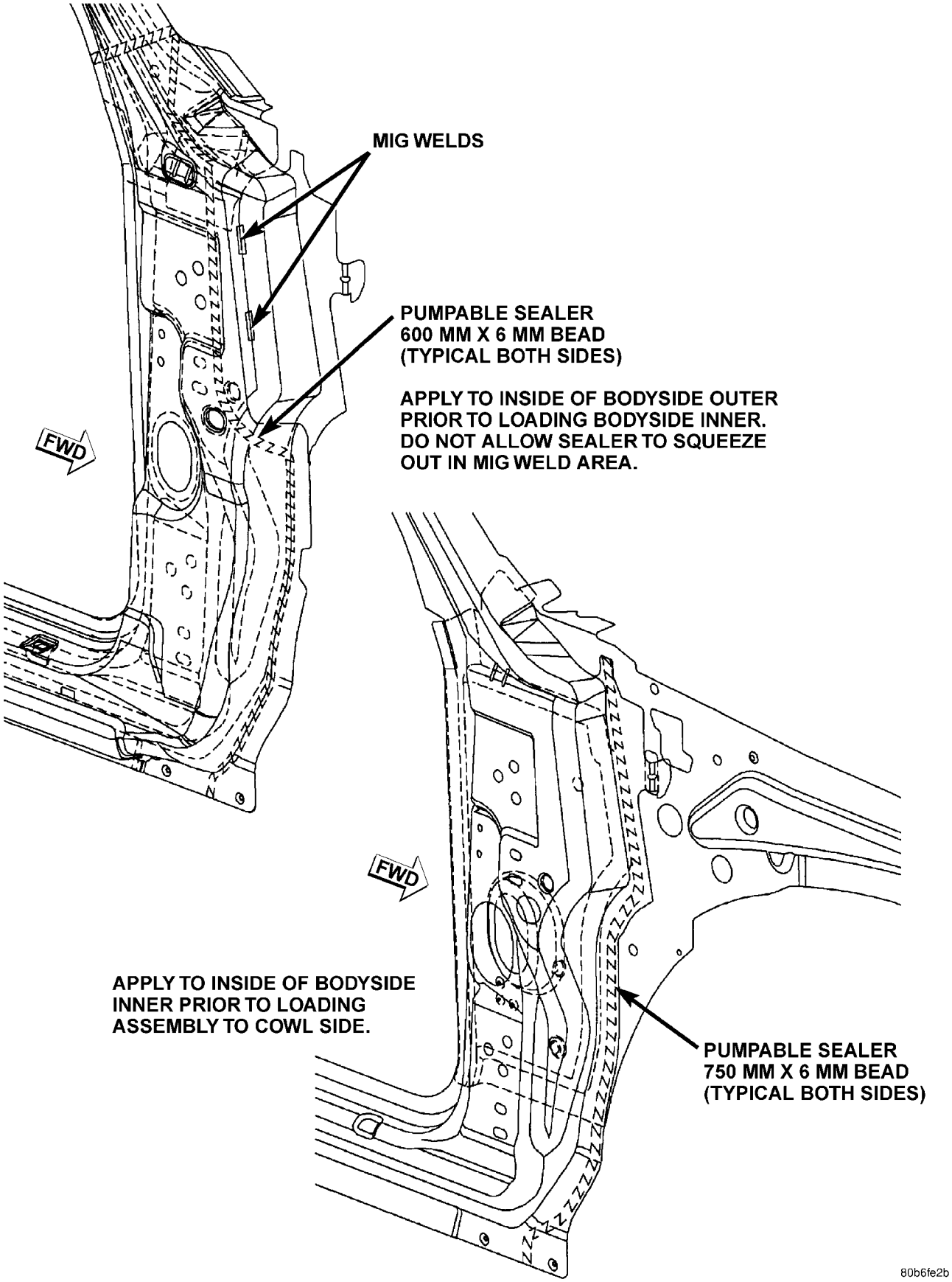


Fig. 14 BODYSIDE INNER AND OUTER TO COWL

SEALER LOCATIONS (Continued)

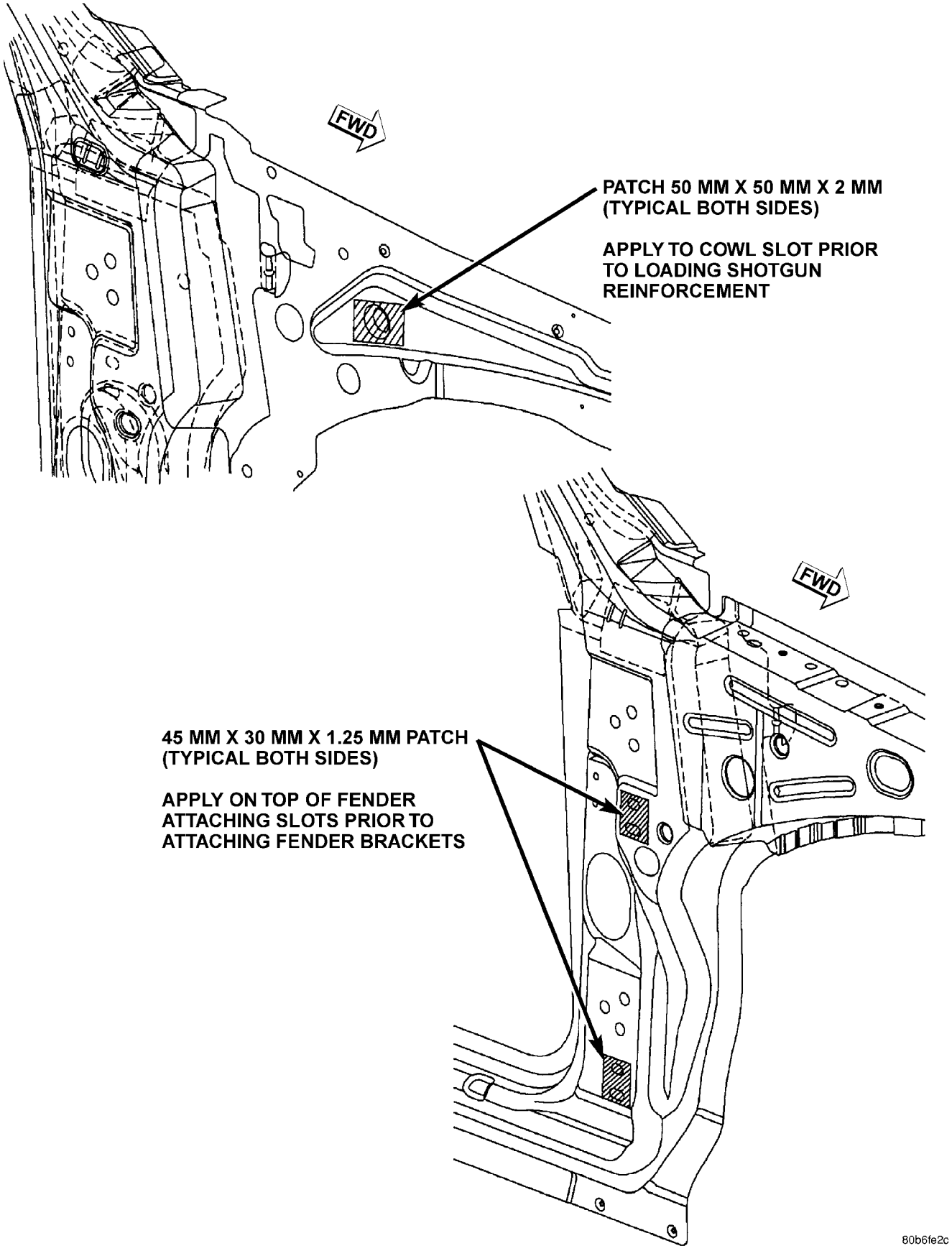
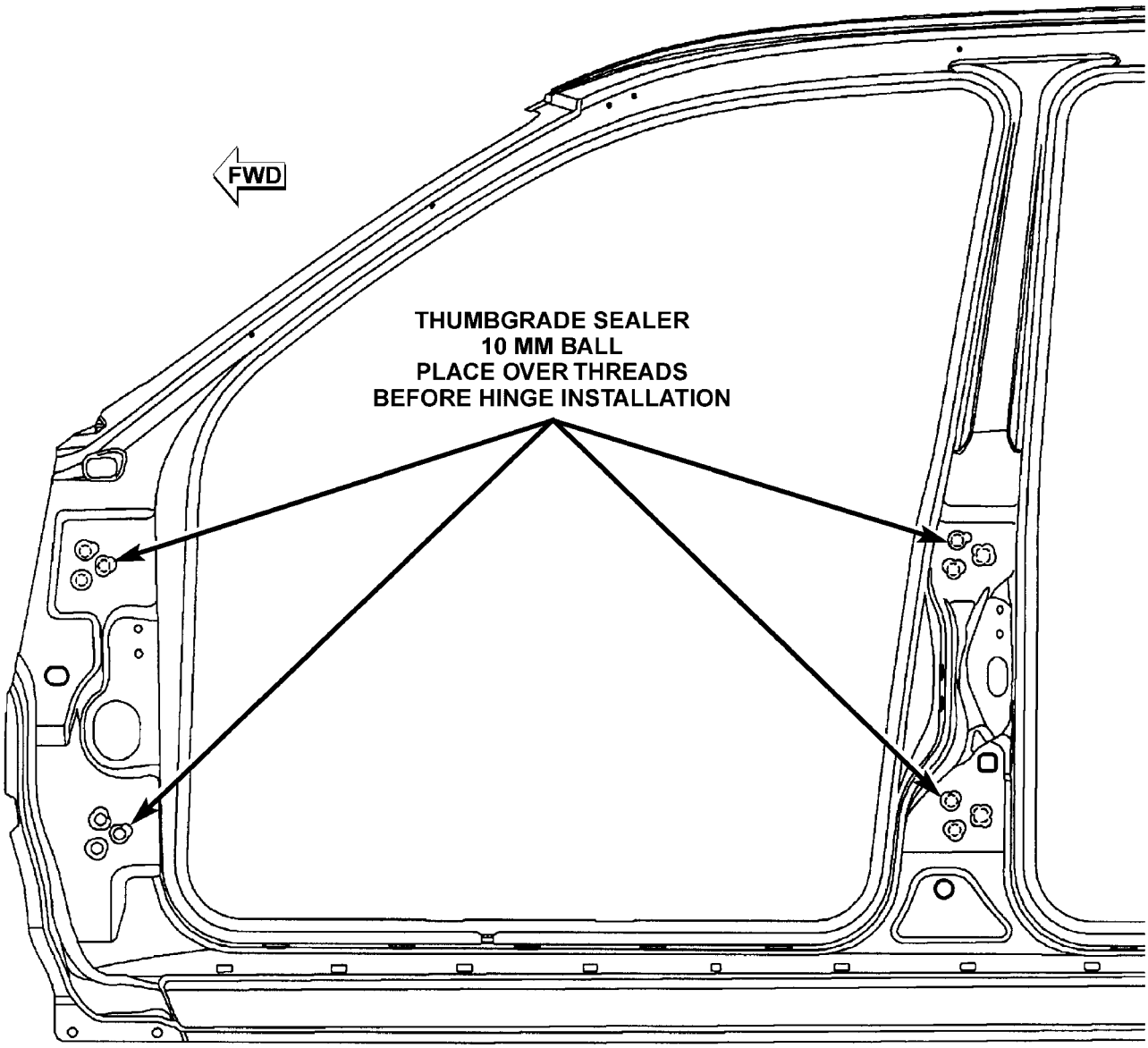


Fig. 15 FENDER ATTACHMENT

SEALER LOCATIONS (Continued)



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Fig. 16 DOOR HINGE BOLT HOLES

SEALER LOCATIONS (Continued)

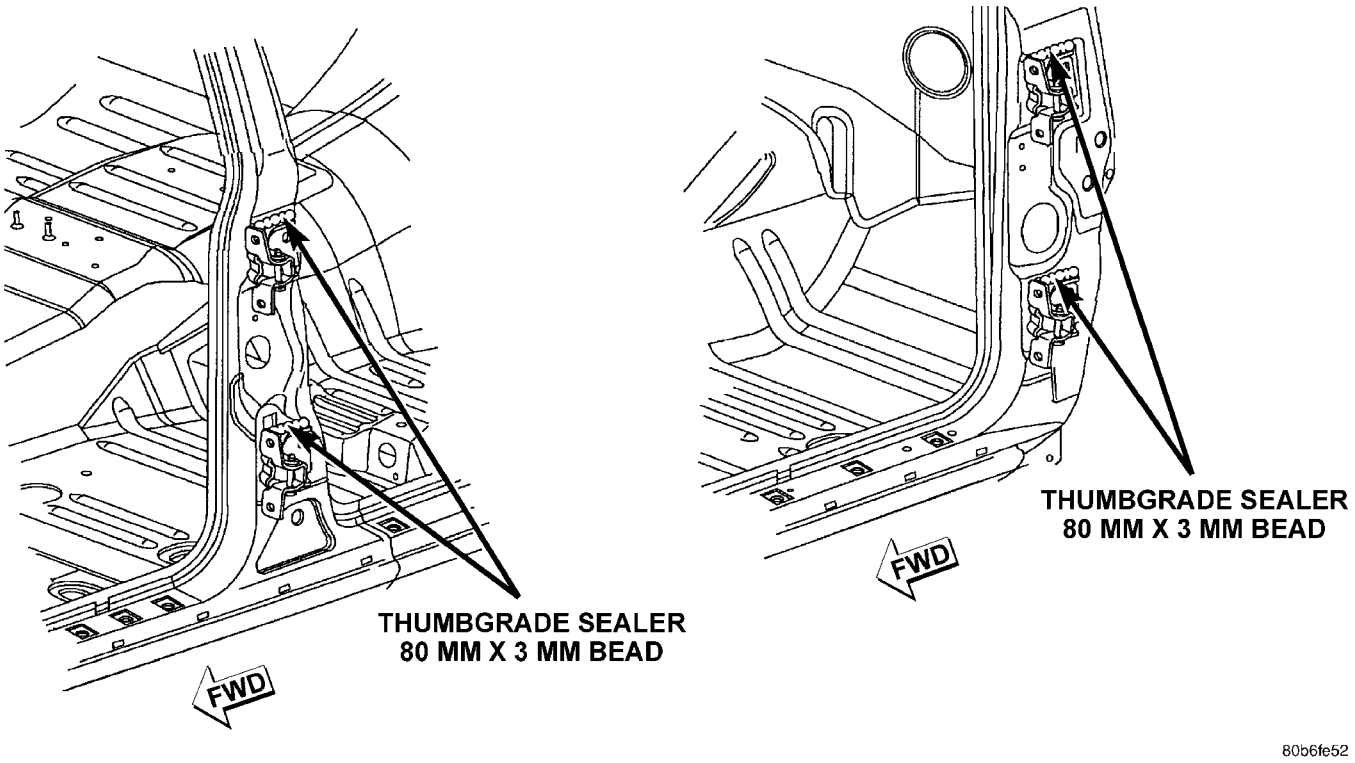


Fig. 17 A-PILLAR AND B-PILLAR HINGE AREA

SEALER LOCATIONS (Continued)

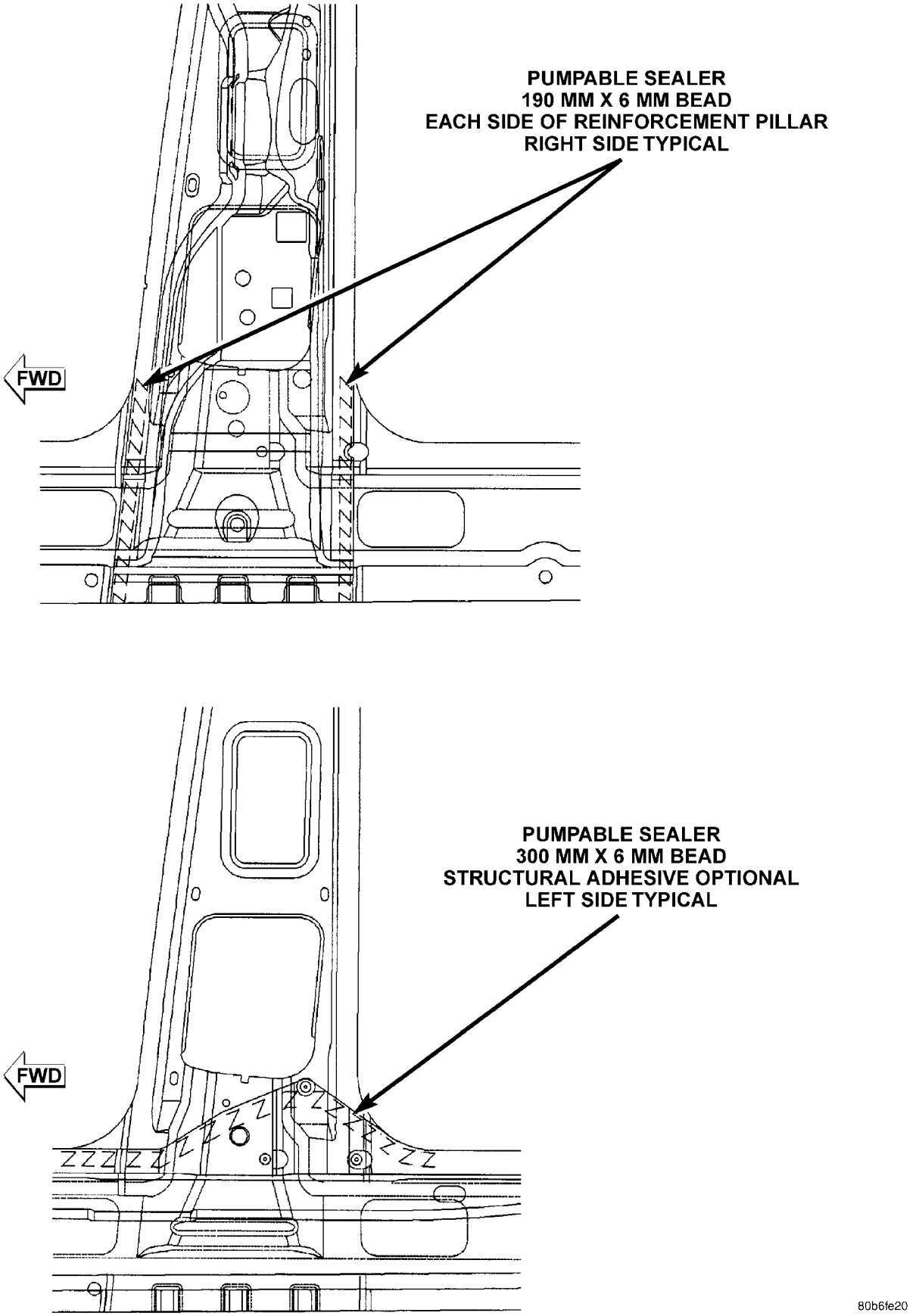


Fig. 18 B-PILLAR AND SILL

SEALER LOCATIONS (Continued)

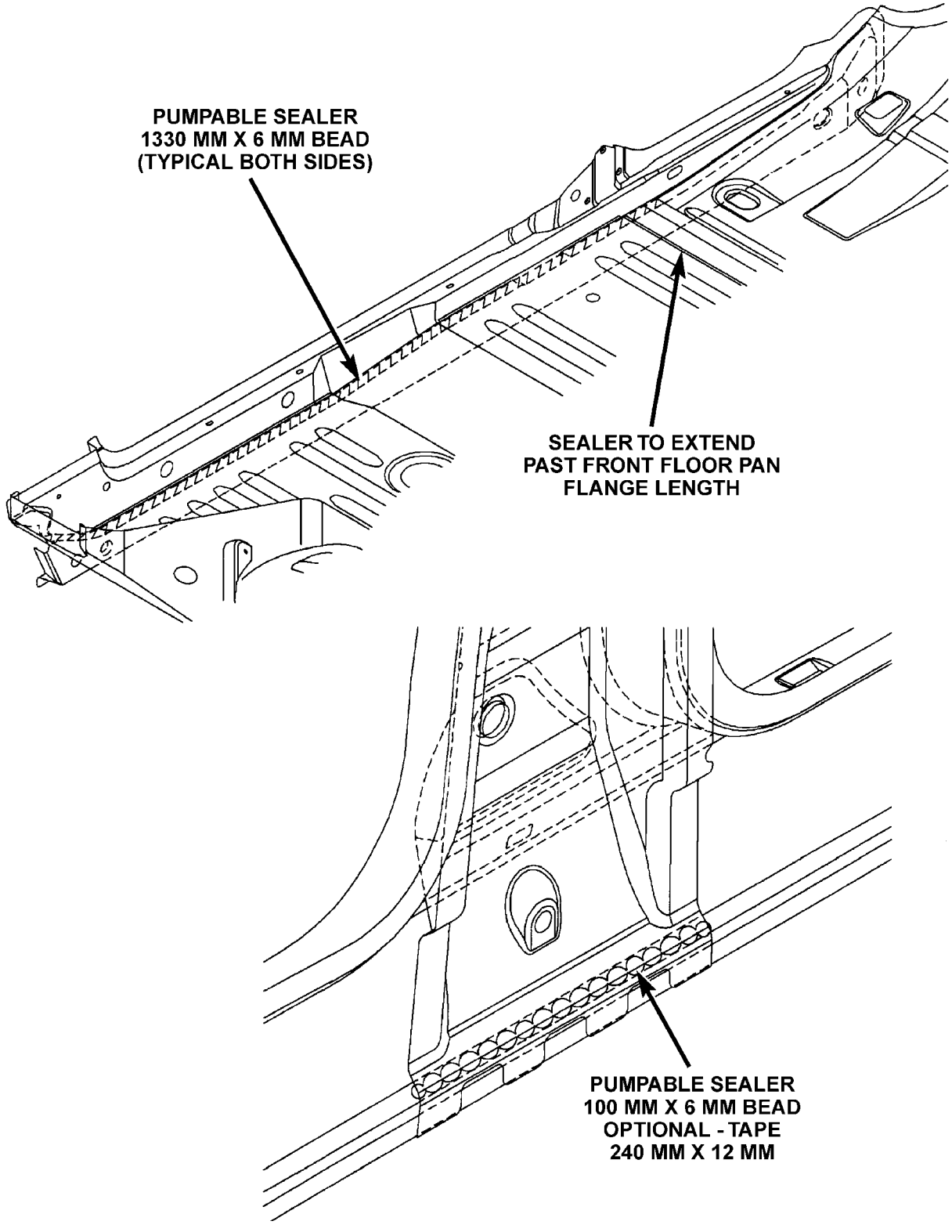


Fig. 19 SILL AND B-PILLAR

SEALER LOCATIONS (Continued)

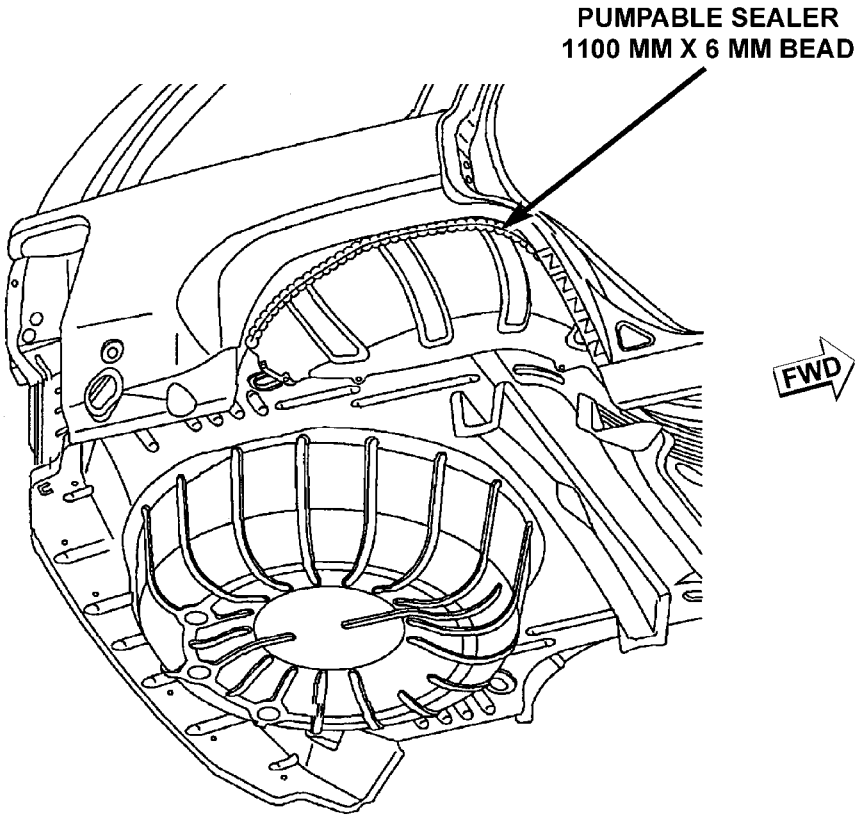


Fig. 20 BODYSIDE APERTURE AND REAR WHEELHOUSE

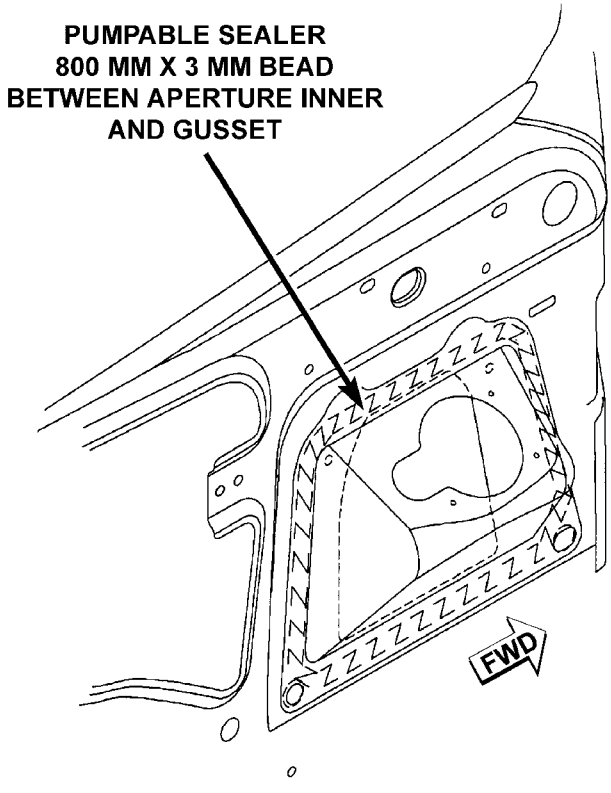


Fig. 21 FUEL FILLER GUSSET

SEALER LOCATIONS (Continued)

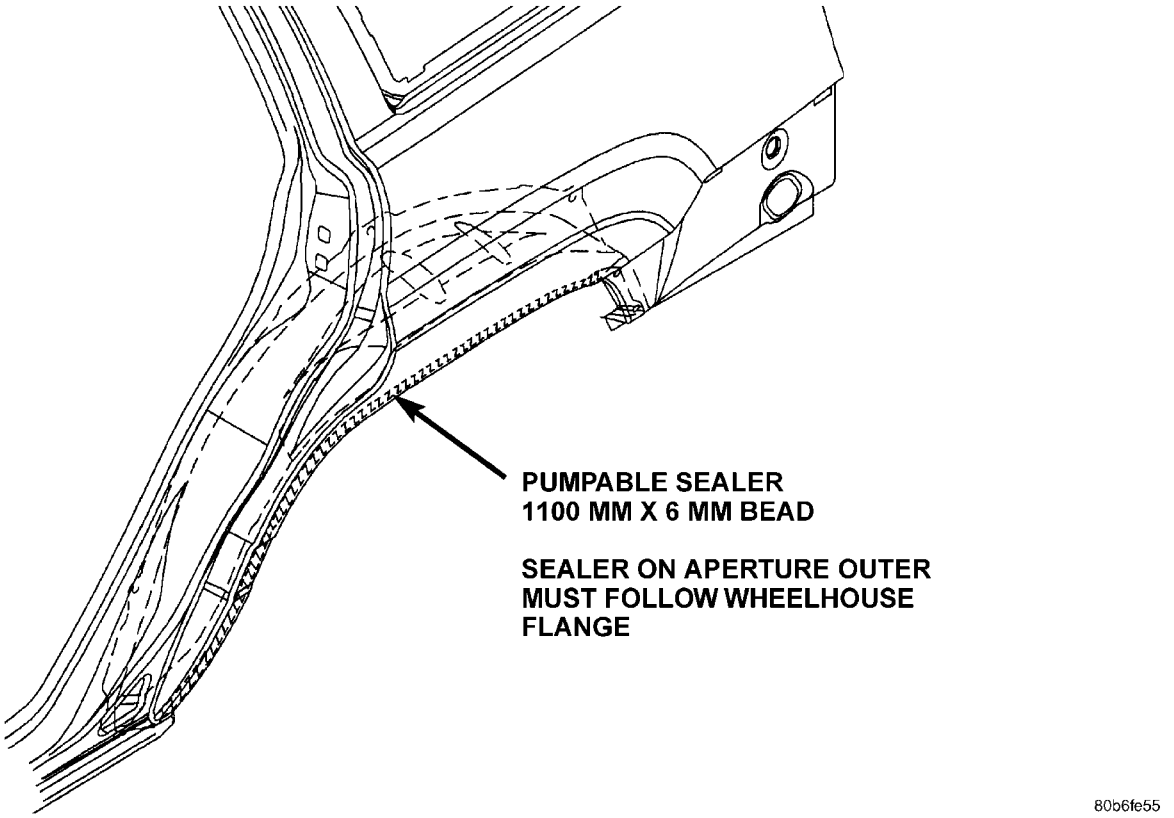


Fig. 22 OUTER WHEELHOUSE FLANGE

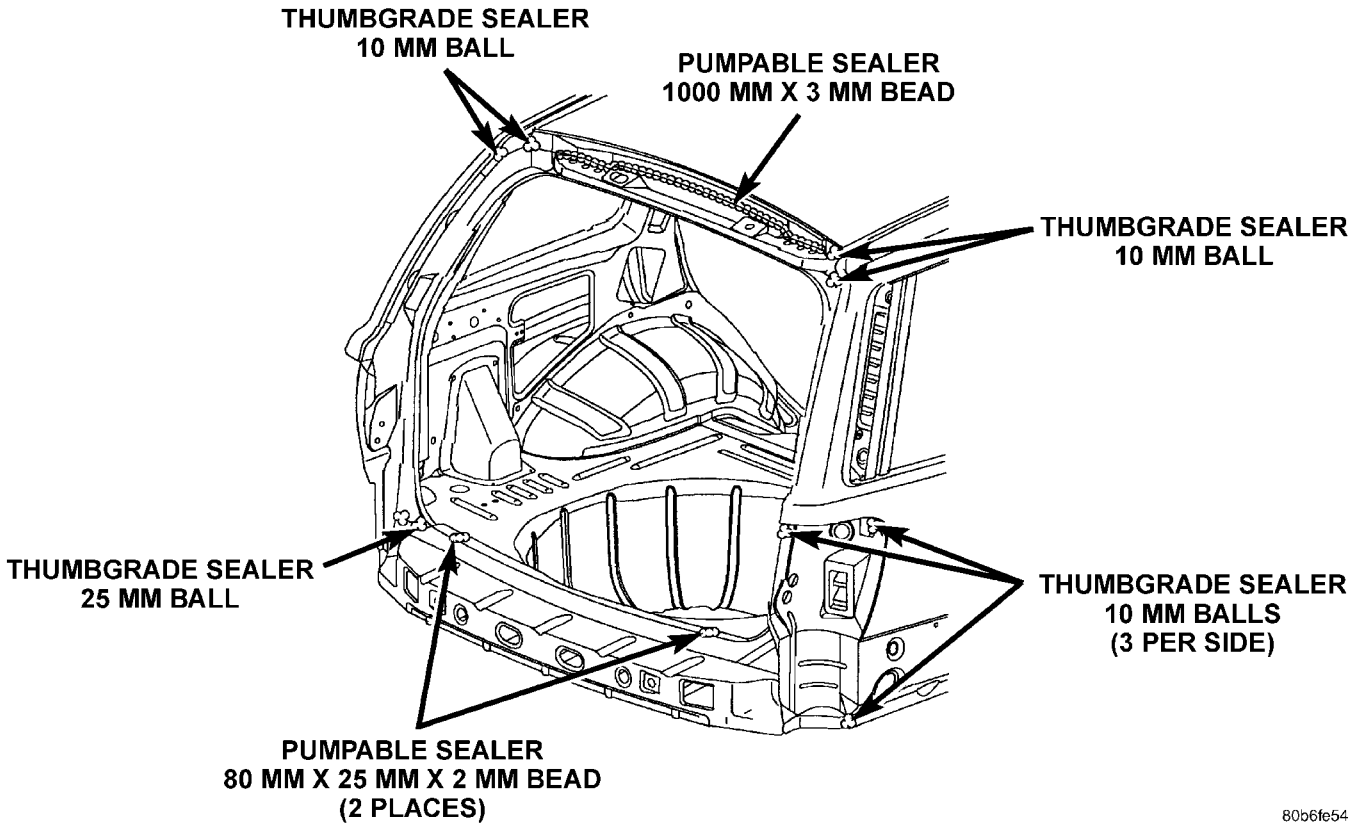


Fig. 23 LIFTGATE OPENING

SEALER LOCATIONS (Continued)

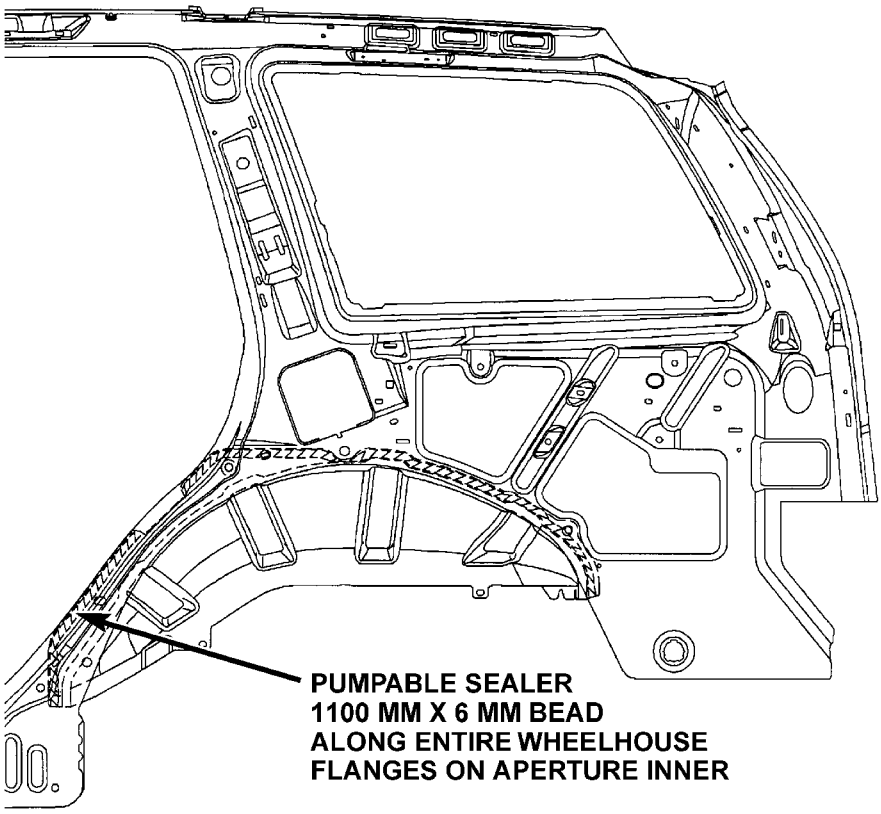


Fig. 24 INNER WHEELHOUSE FLANGE TO BODYSIDE APERTURE

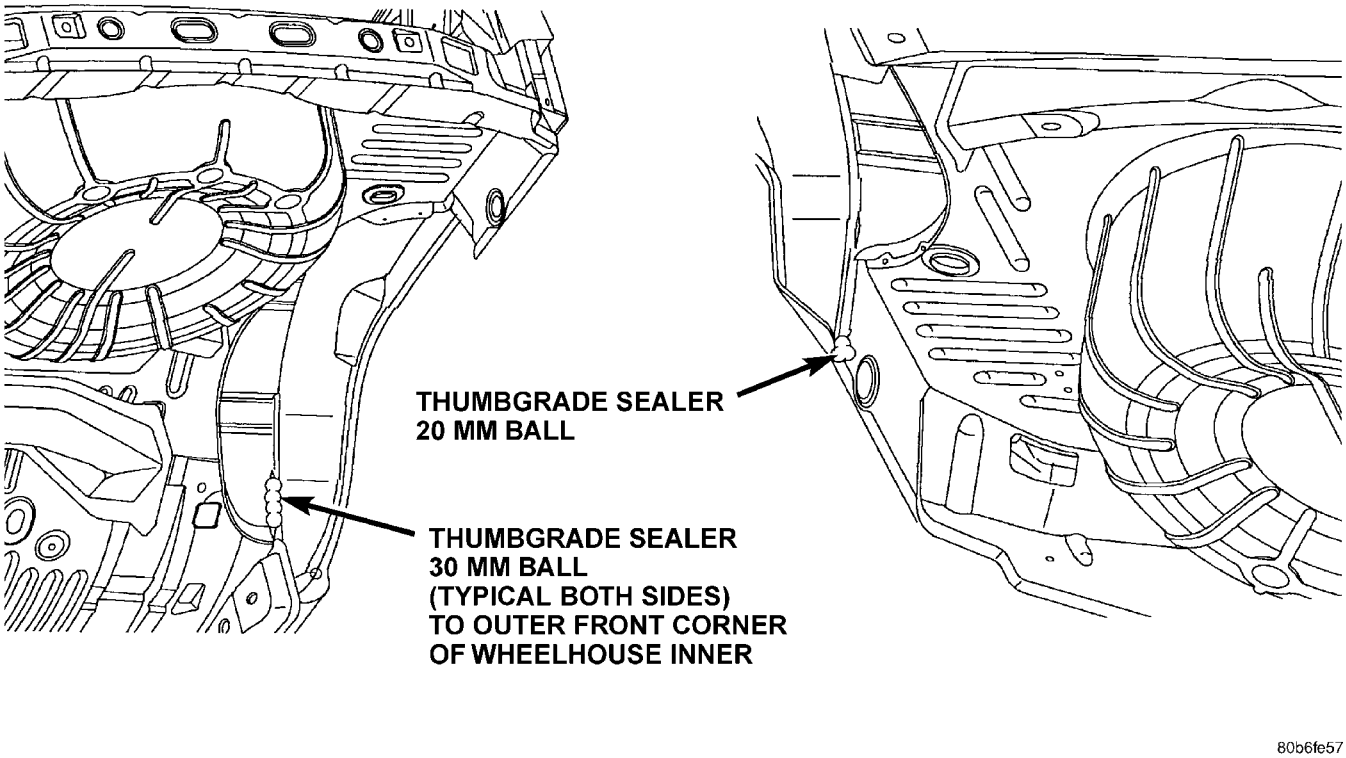


Fig. 25 WHEELHOUSE LOWER

SEALER LOCATIONS (Continued)

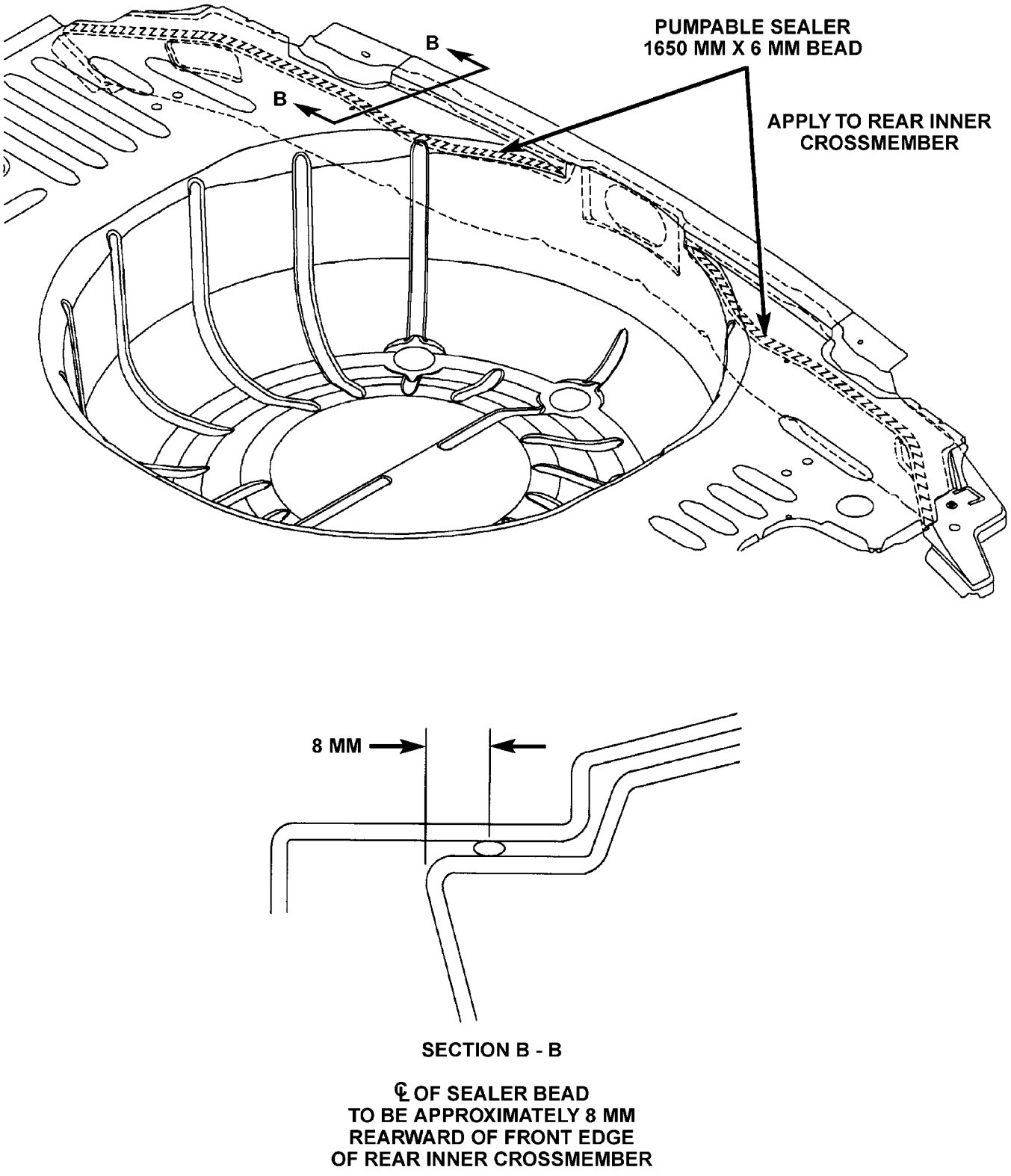


Fig. 26 REAR INNER CROSSMEMBER

SEALER LOCATIONS (Continued)

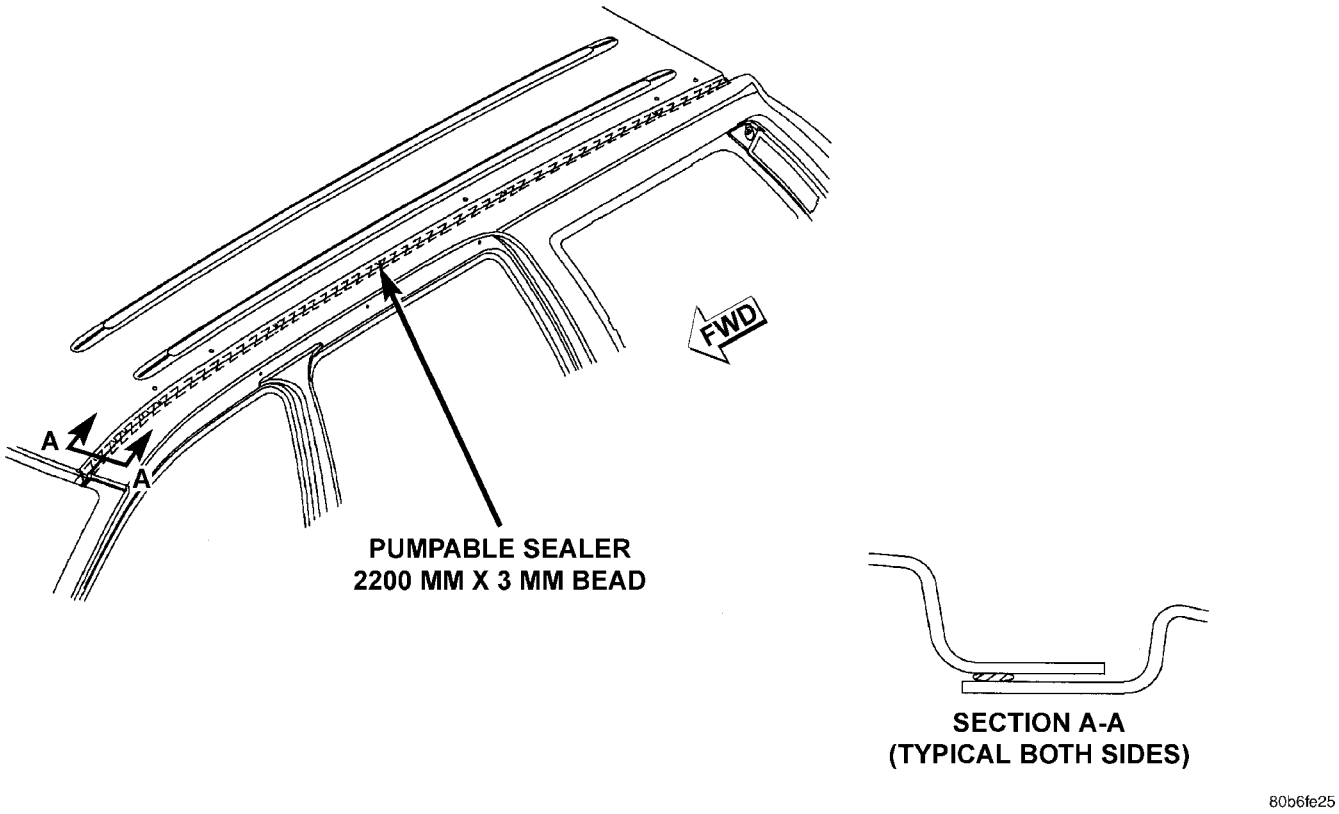


Fig. 27 ROOF TO BODY SIDE APERTURE

STUCTURAL ADHESIVE LOCATIONS

SPECIFICATIONS - STRUCTURAL ADHESIVE LOCATIONS

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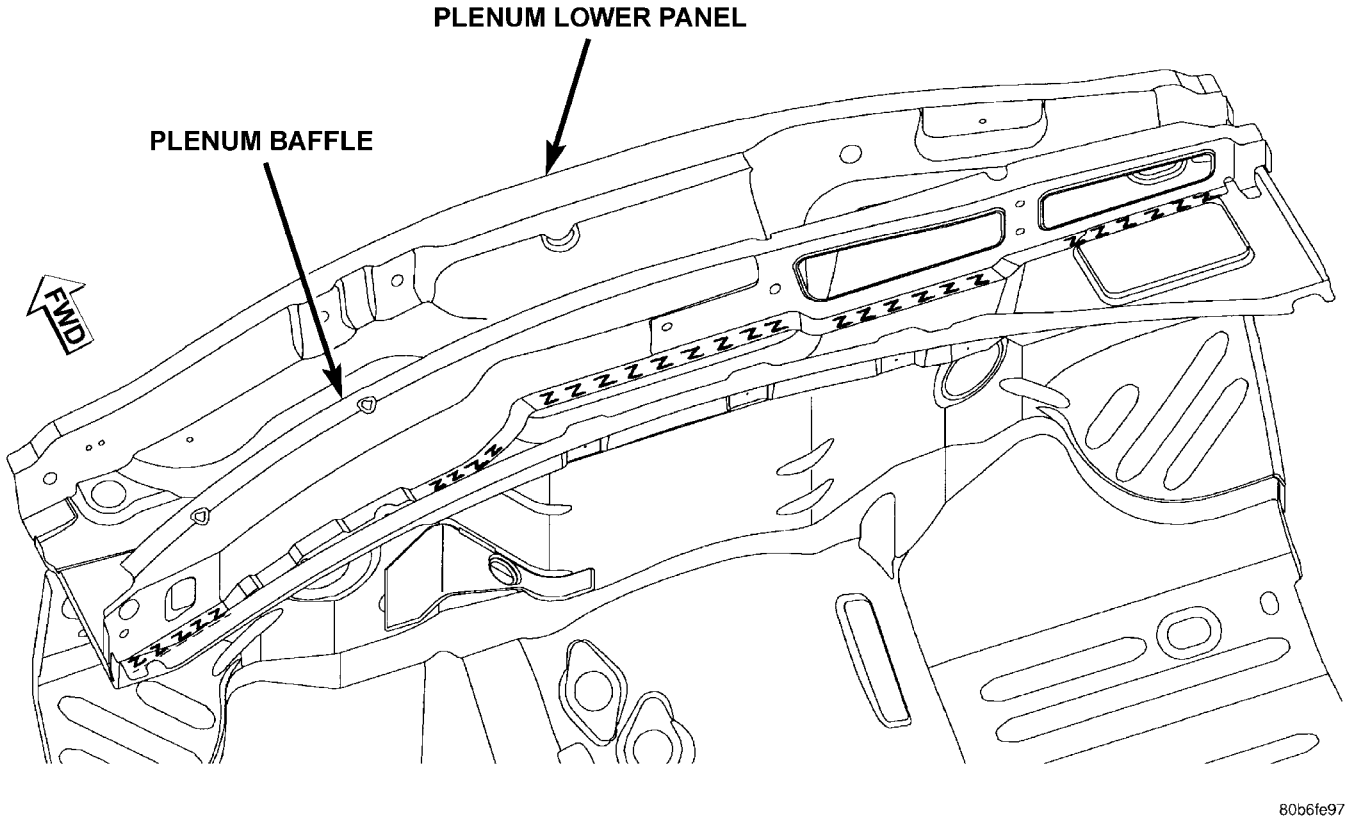


Fig. 28 COWL PLENUM

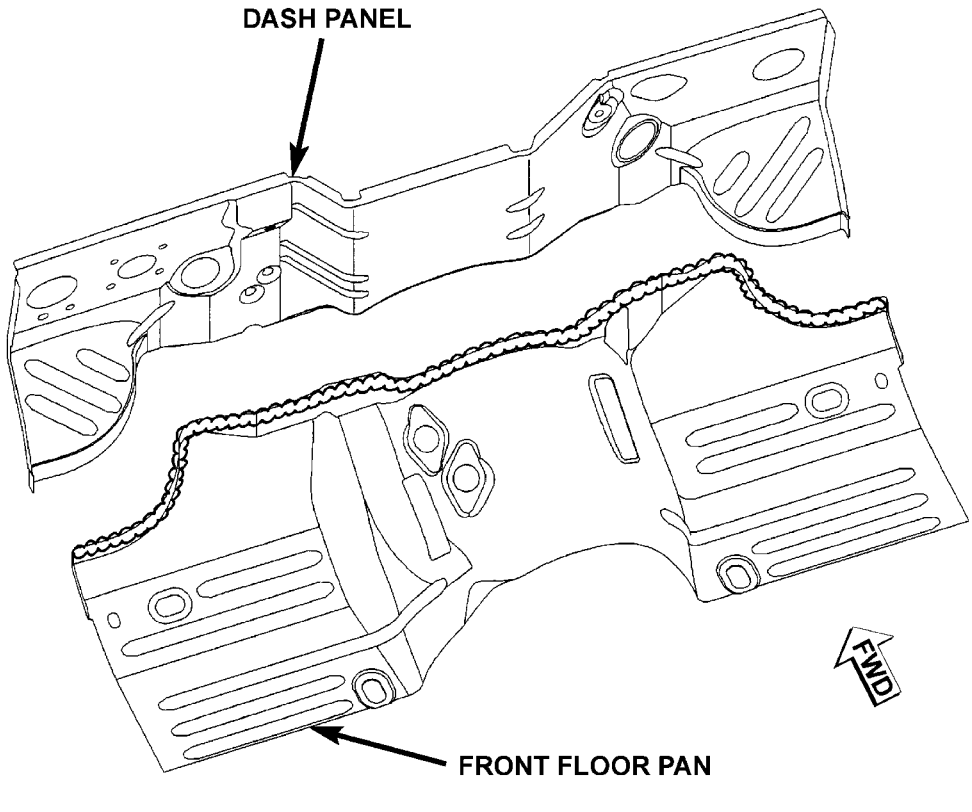


Fig. 29 DASH PANEL AND FRONT FLOOR PAN

STUCTURAL ADHESIVE LOCATIONS (Continued)

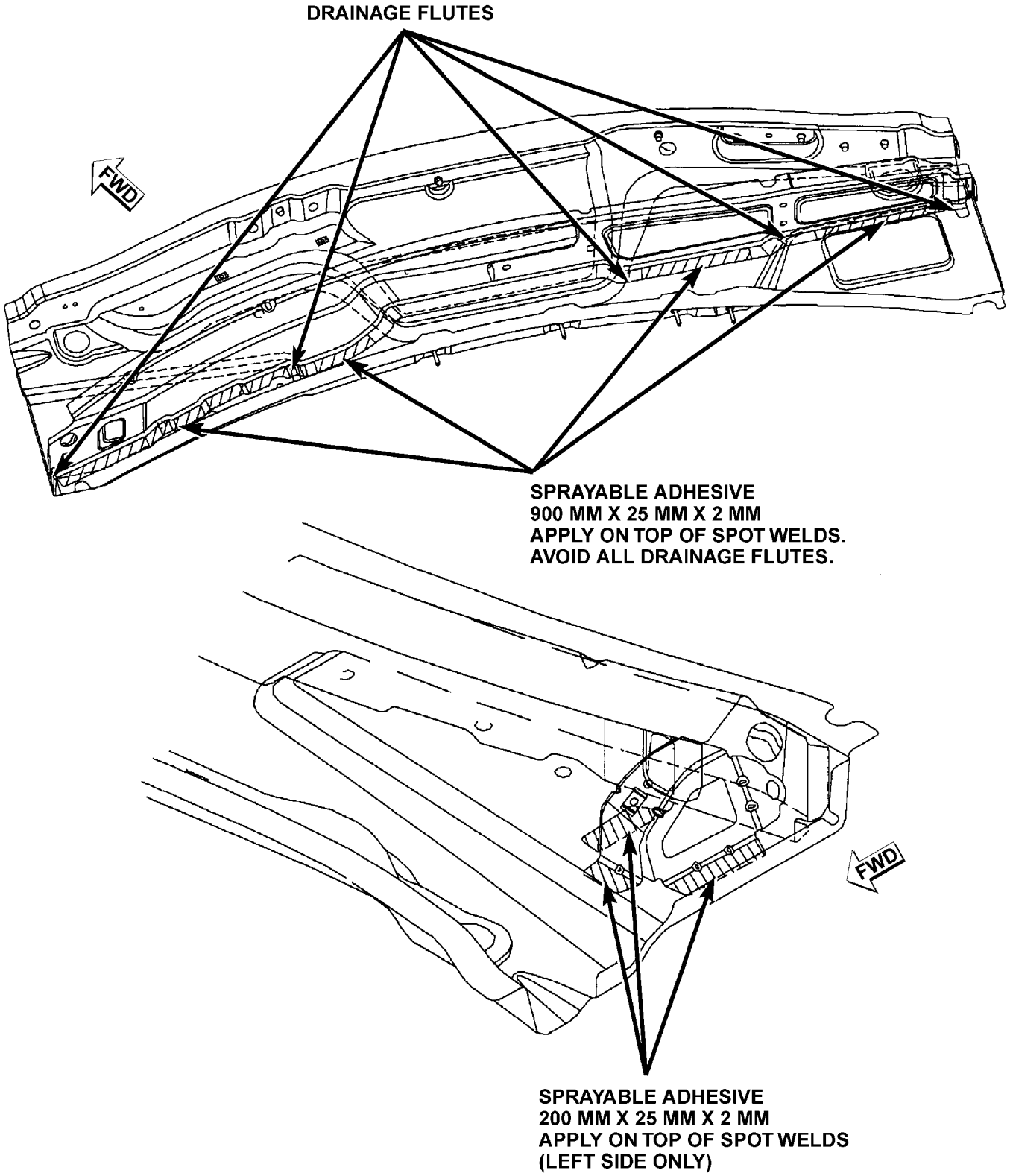


Fig. 30 PLENUM AND WINDSHIELD WIPER MOUNTING

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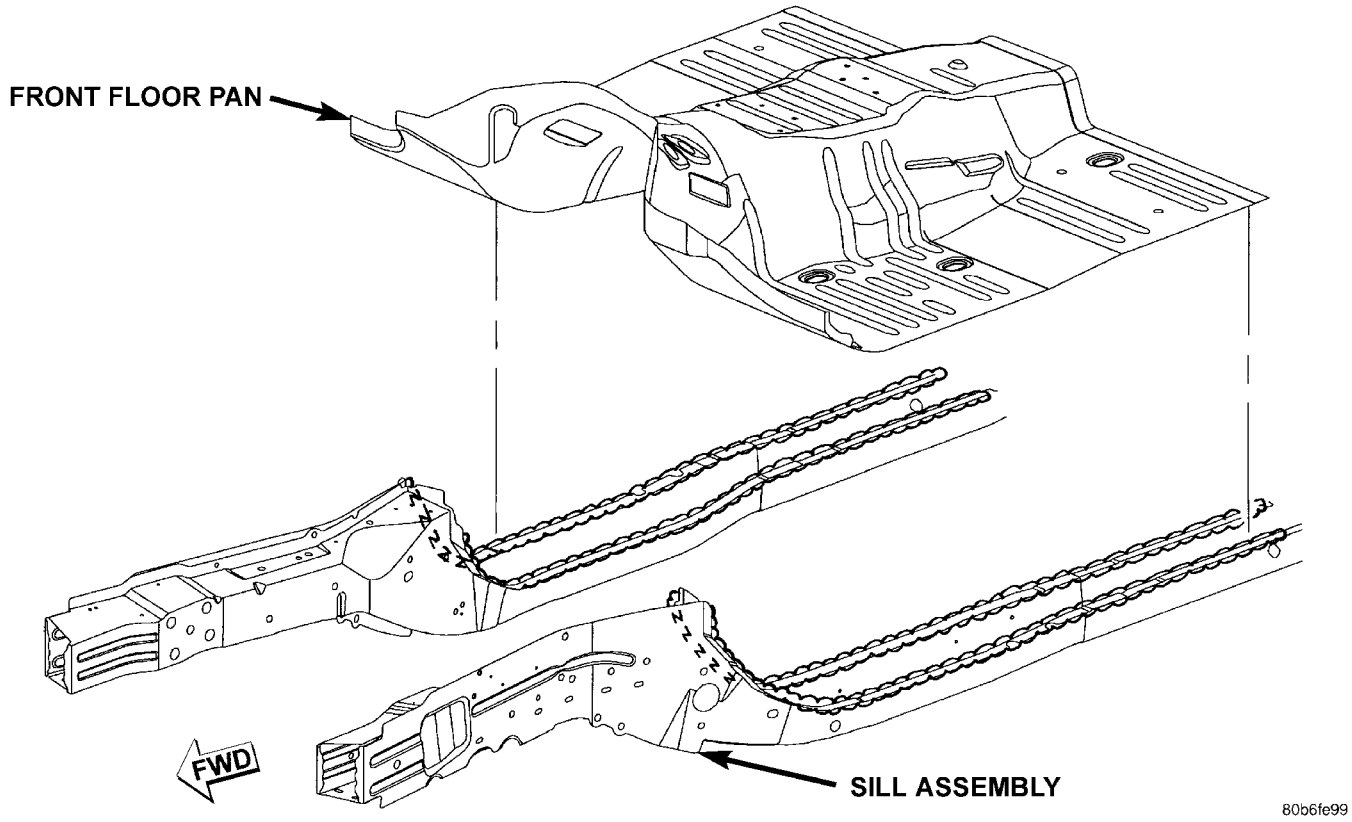


Fig. 31 FRONT FLOOR PAN AND SILLS

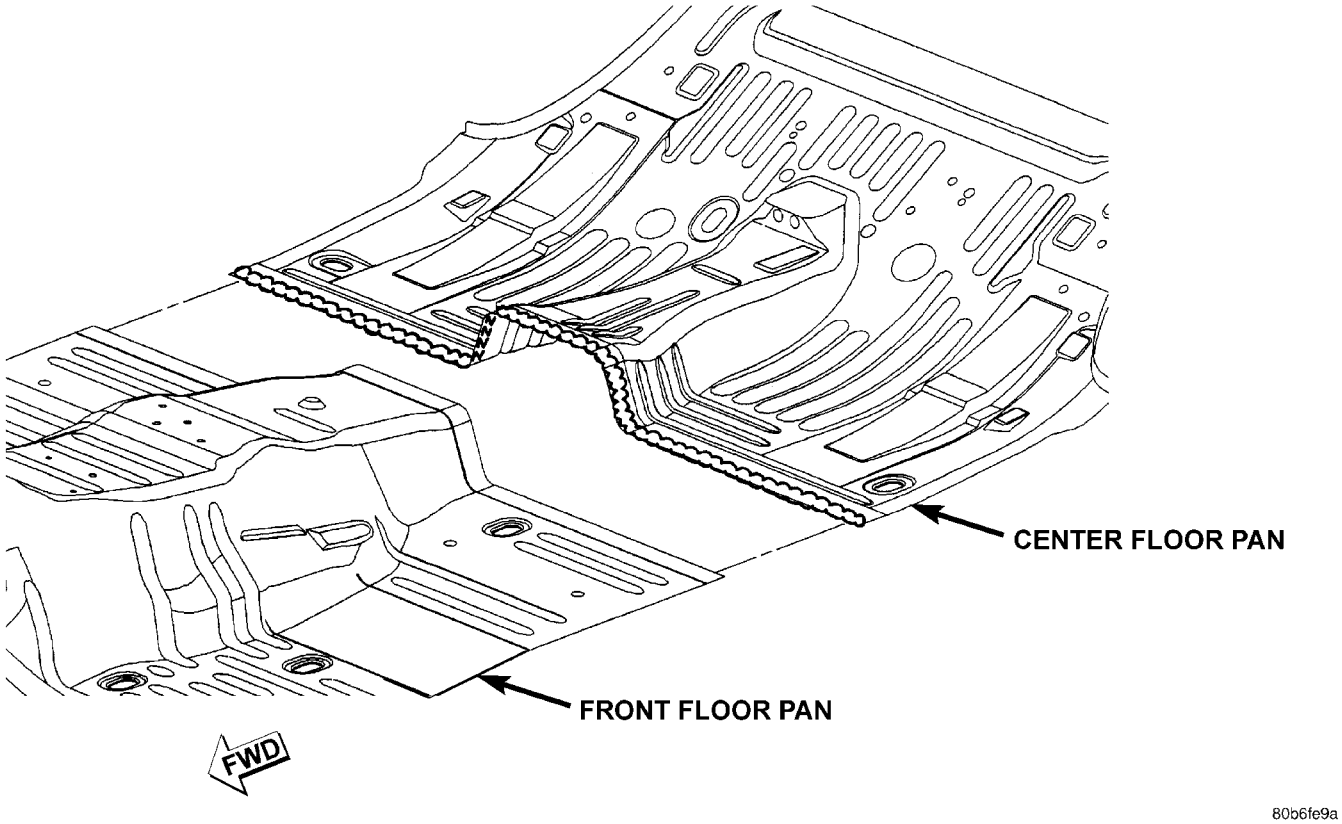


Fig. 32 FRONT AND CENTER FLOOR PAN

STUCTURAL ADHESIVE LOCATIONS (Continued)

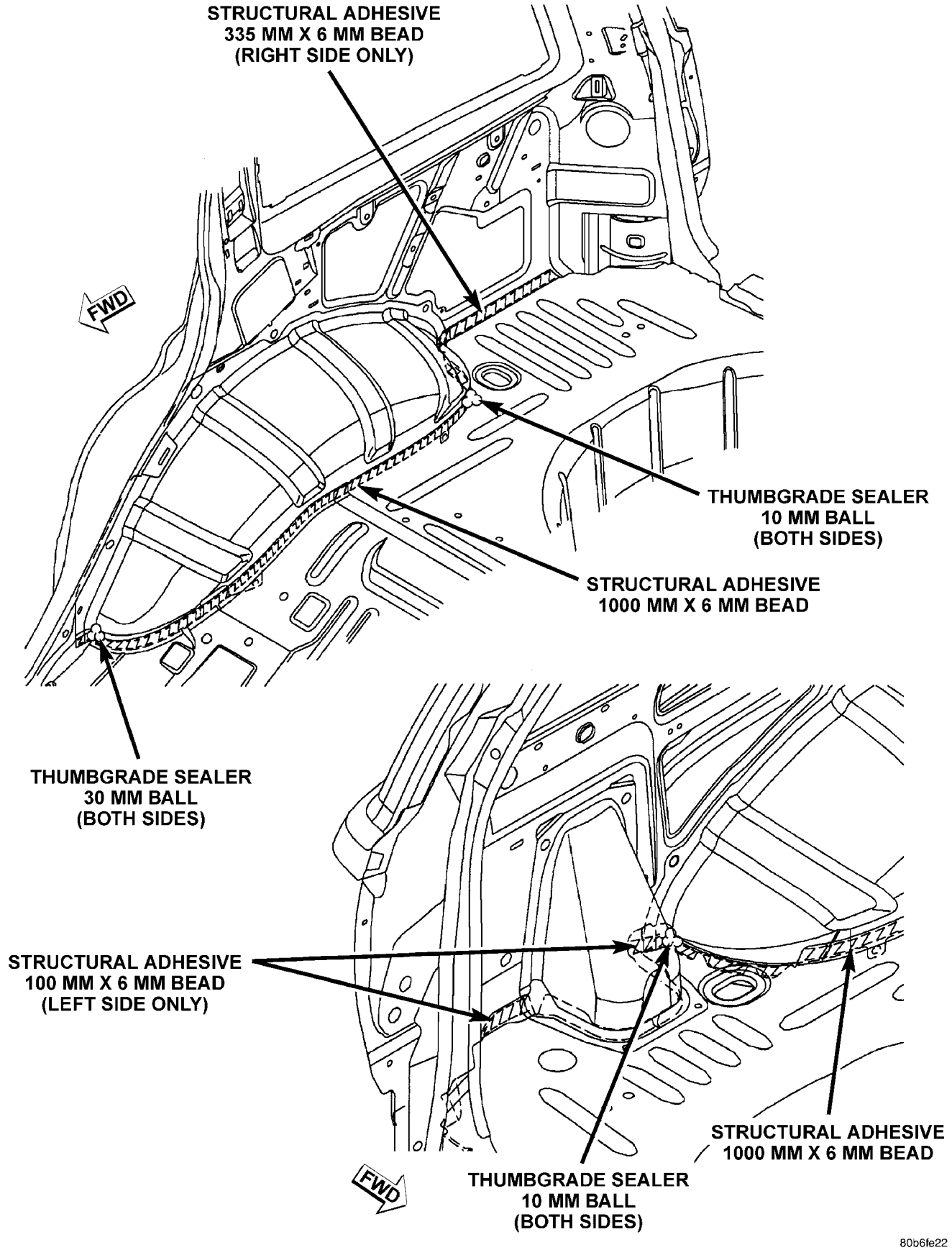


Fig. 33 FRONT PAN AND INNER BODY SIDE APERTURE

STUCTURAL ADHESIVE LOCATIONS (Continued)

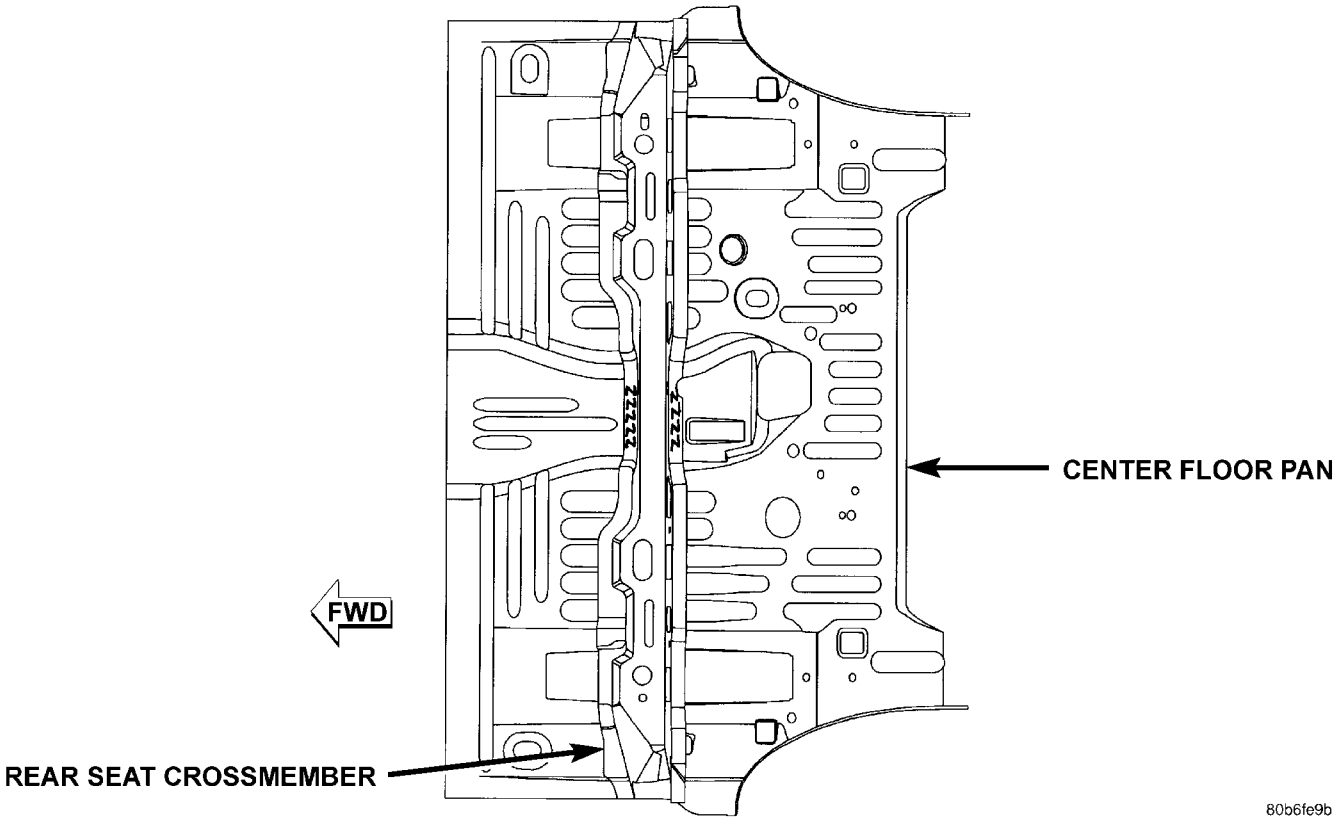


Fig. 34 REAR SEAT CROSSMEMBER

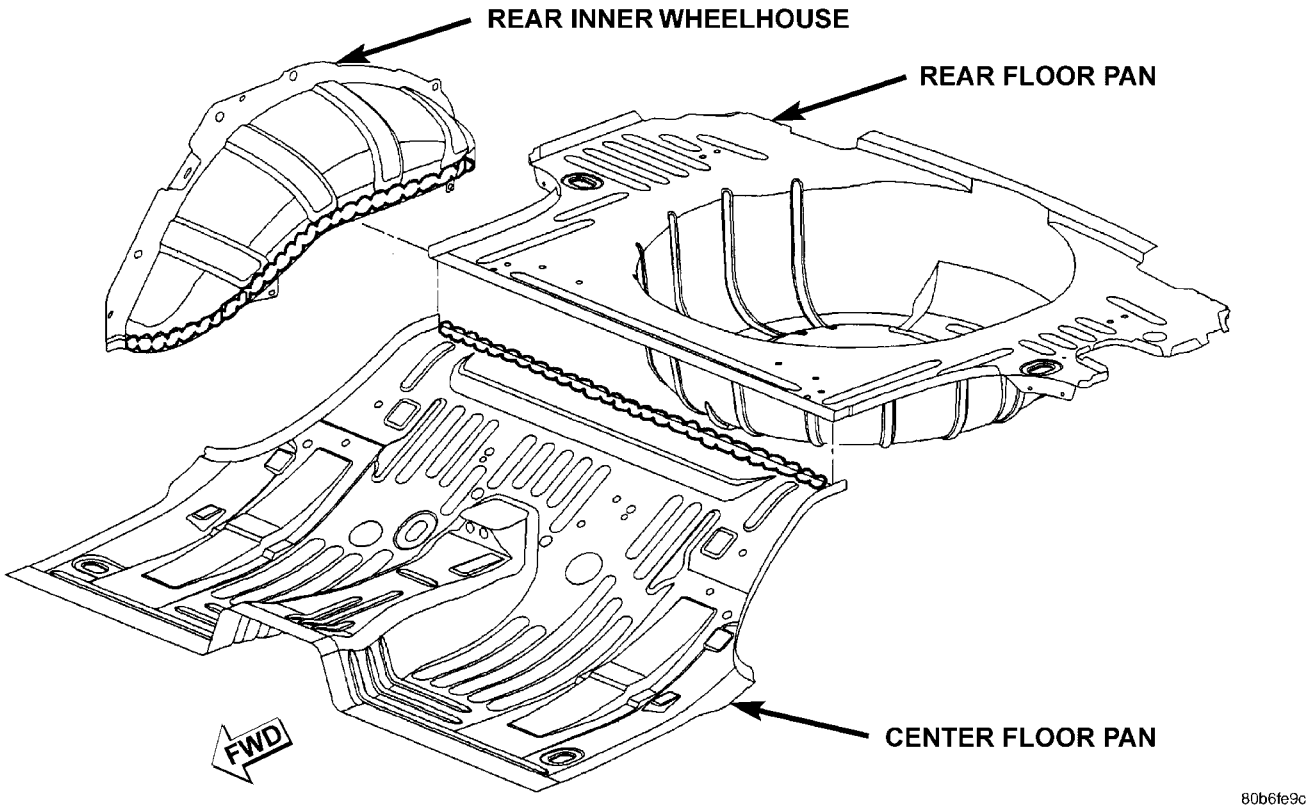


Fig. 35 REAR INNER WHEELHOUSE

STUCTURAL ADHESIVE LOCATIONS (Continued)

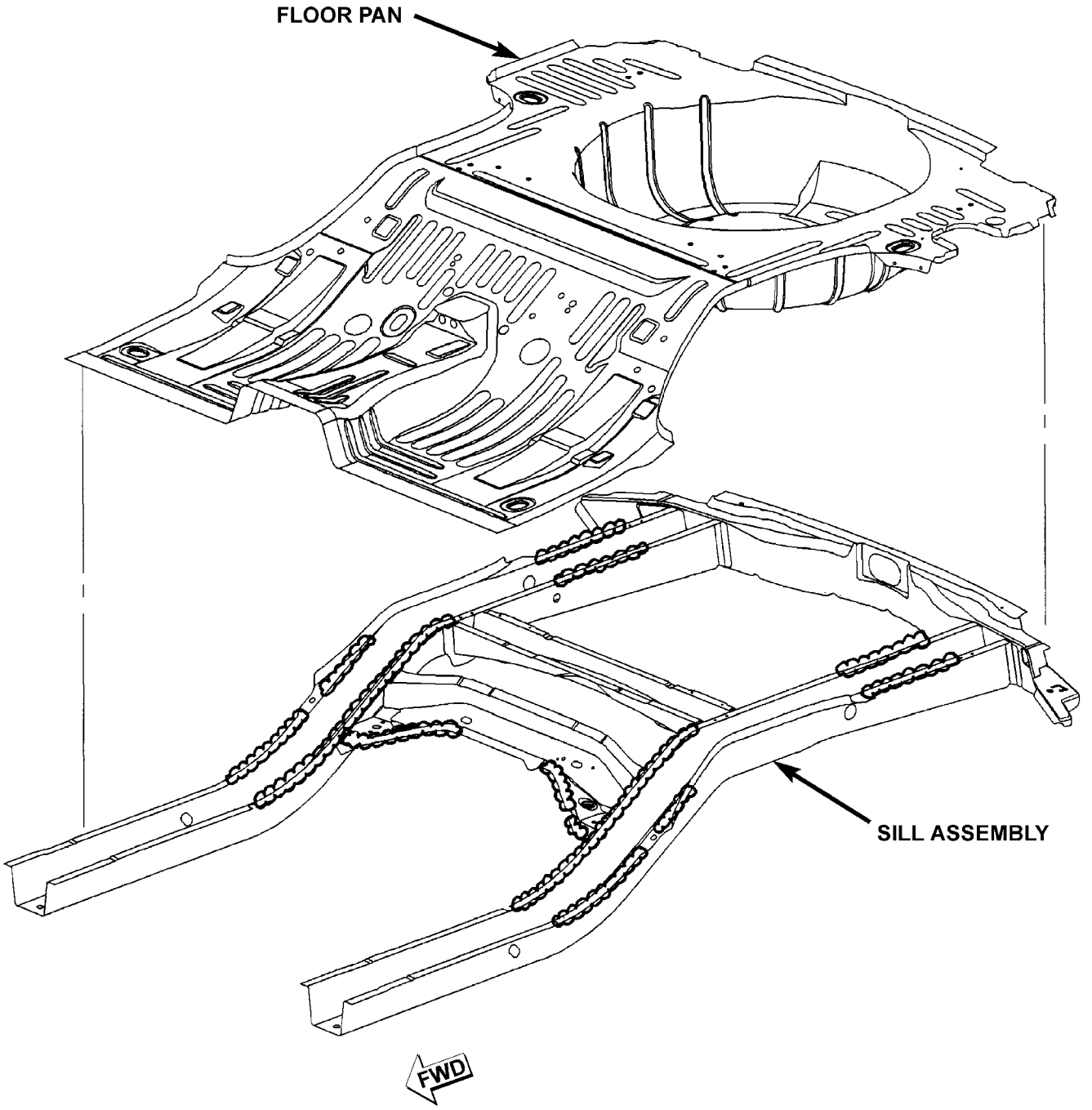


Fig. 36 FLOOR PAN AND SILL ASSEMBLY

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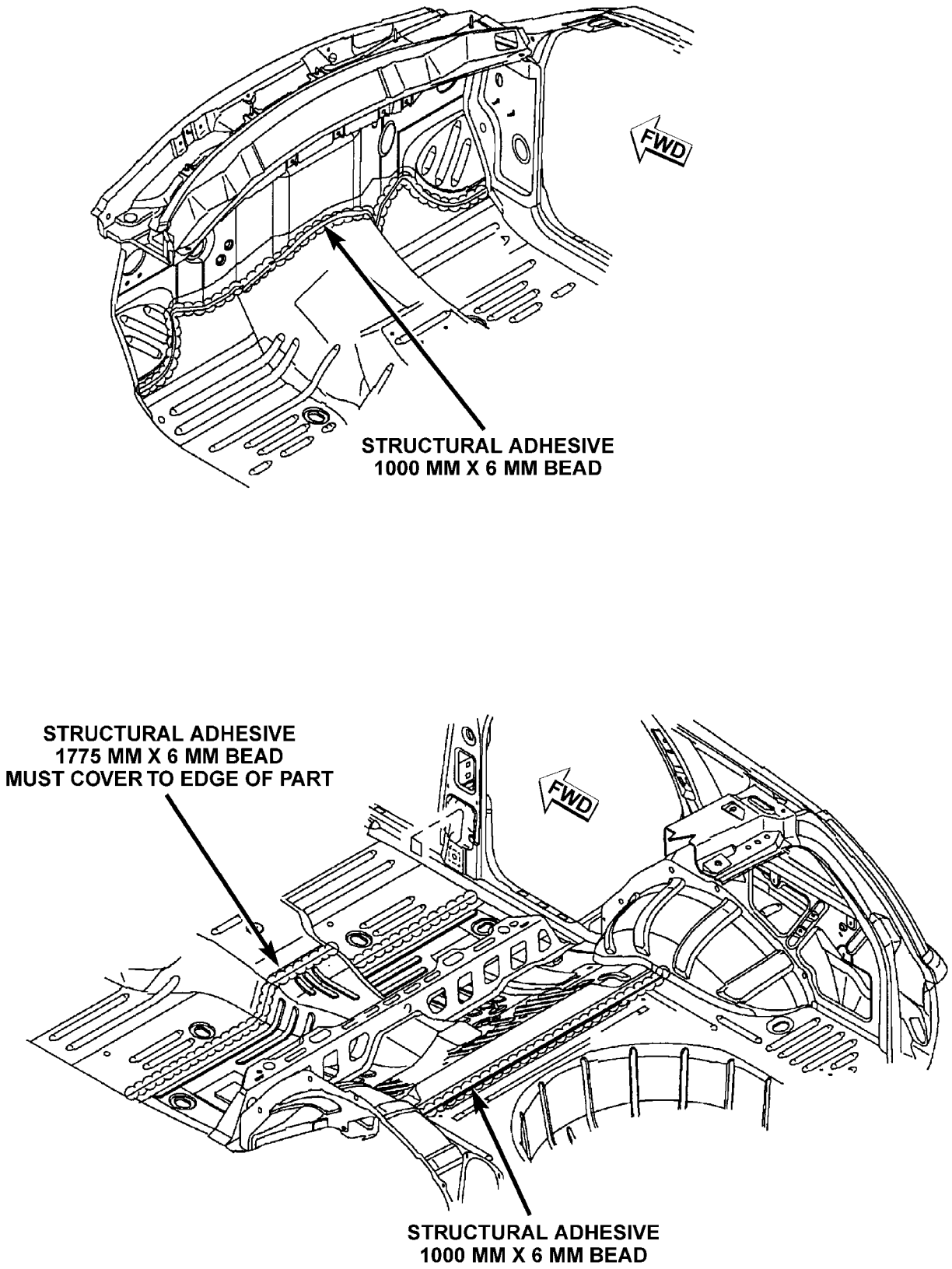


Fig. 37 FLOOR PAN

STUCTURAL ADHESIVE LOCATIONS (Continued)

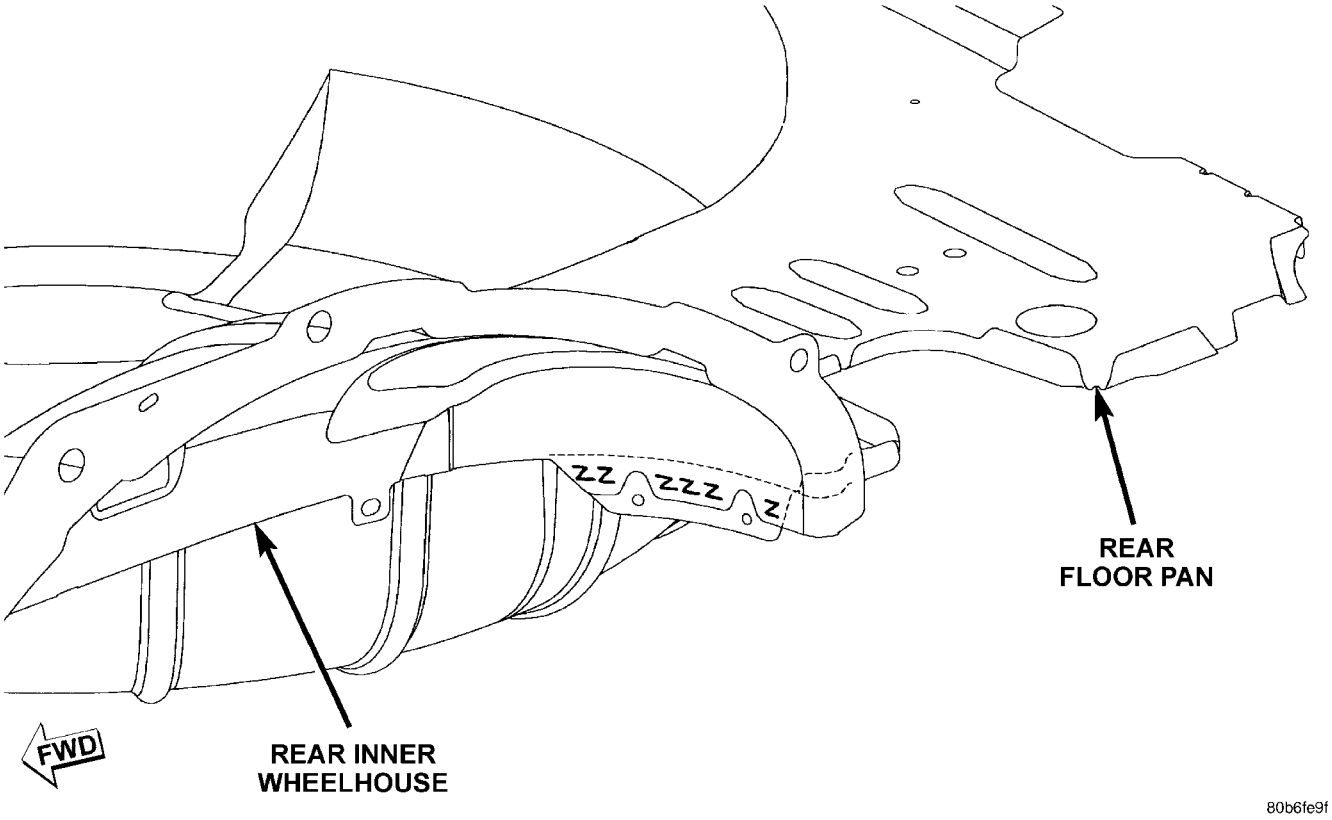


Fig. 38 REAR INNER WHEELHOUSE AND REAR FLOOR PAN

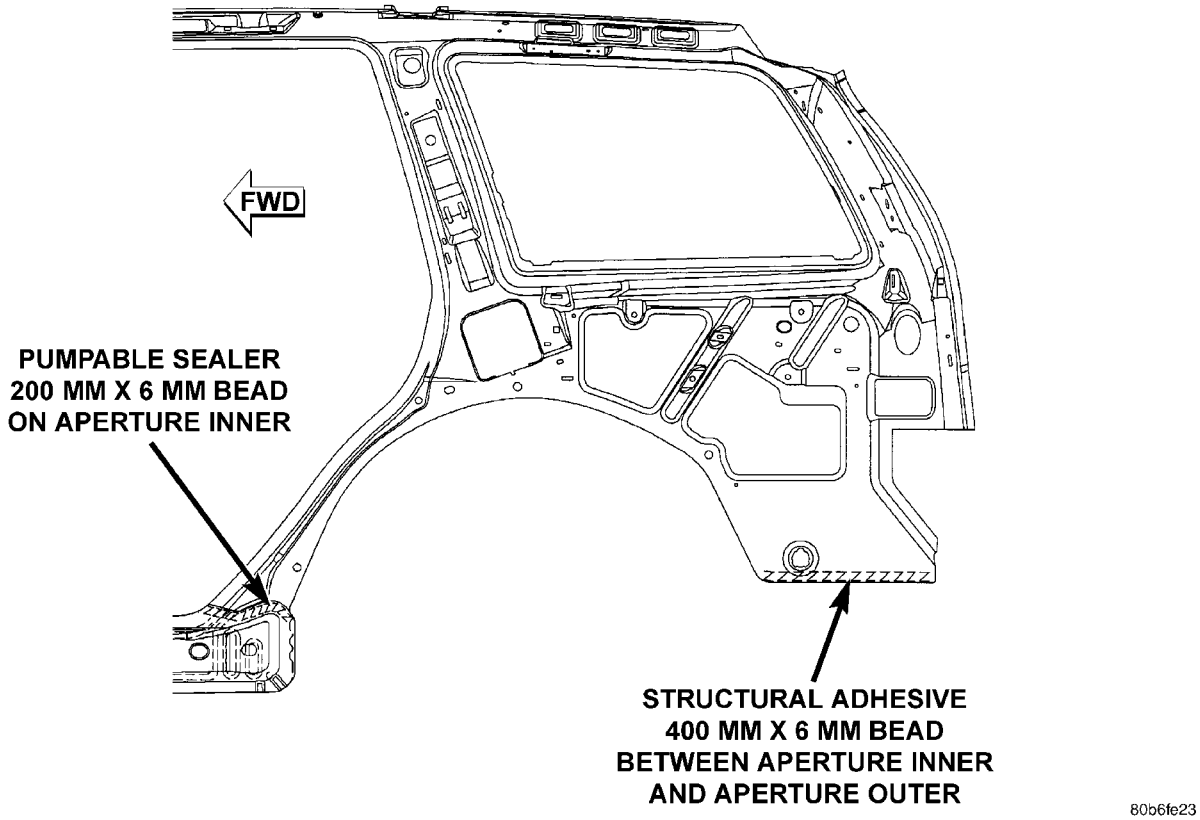


Fig. 39 RIGHT INNER BODYSIDE APERTURE

STUCTURAL ADHESIVE LOCATIONS (Continued)

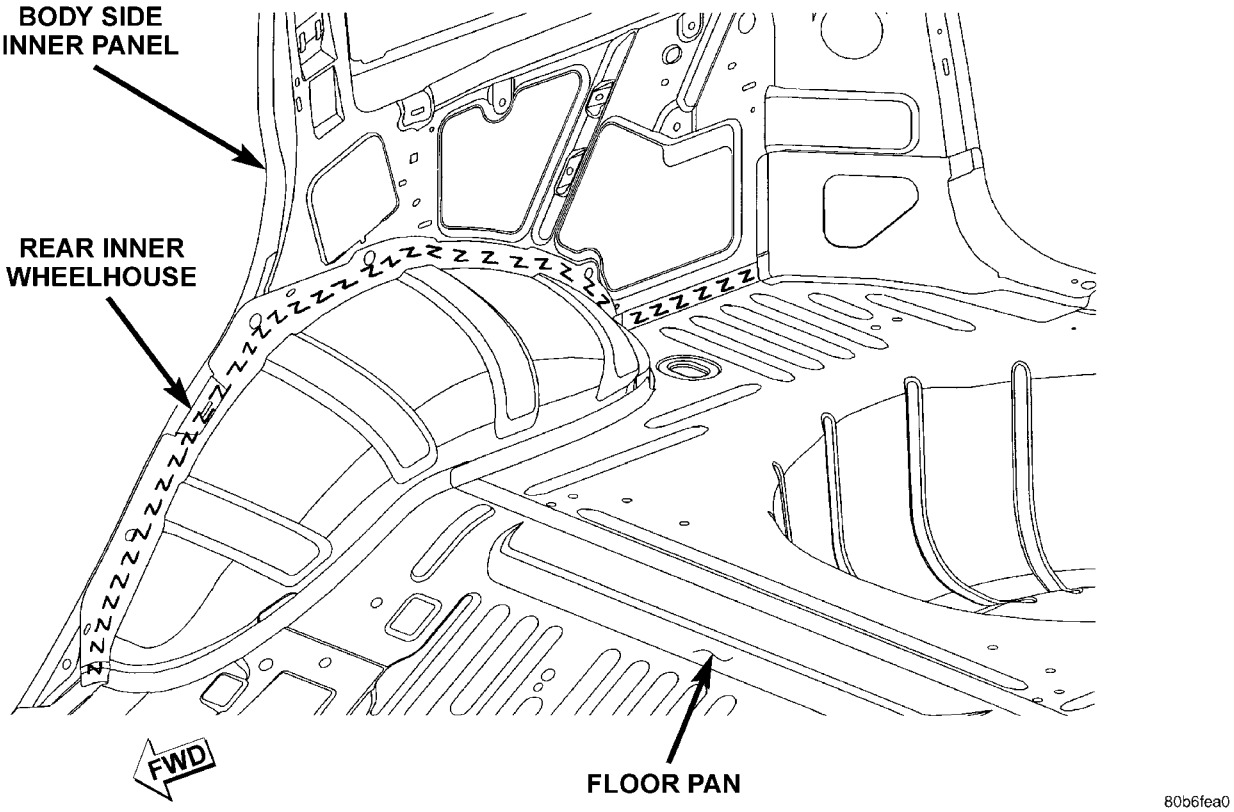


Fig. 40 BODY SIDE INNER PANEL AND WHEELHOUSE

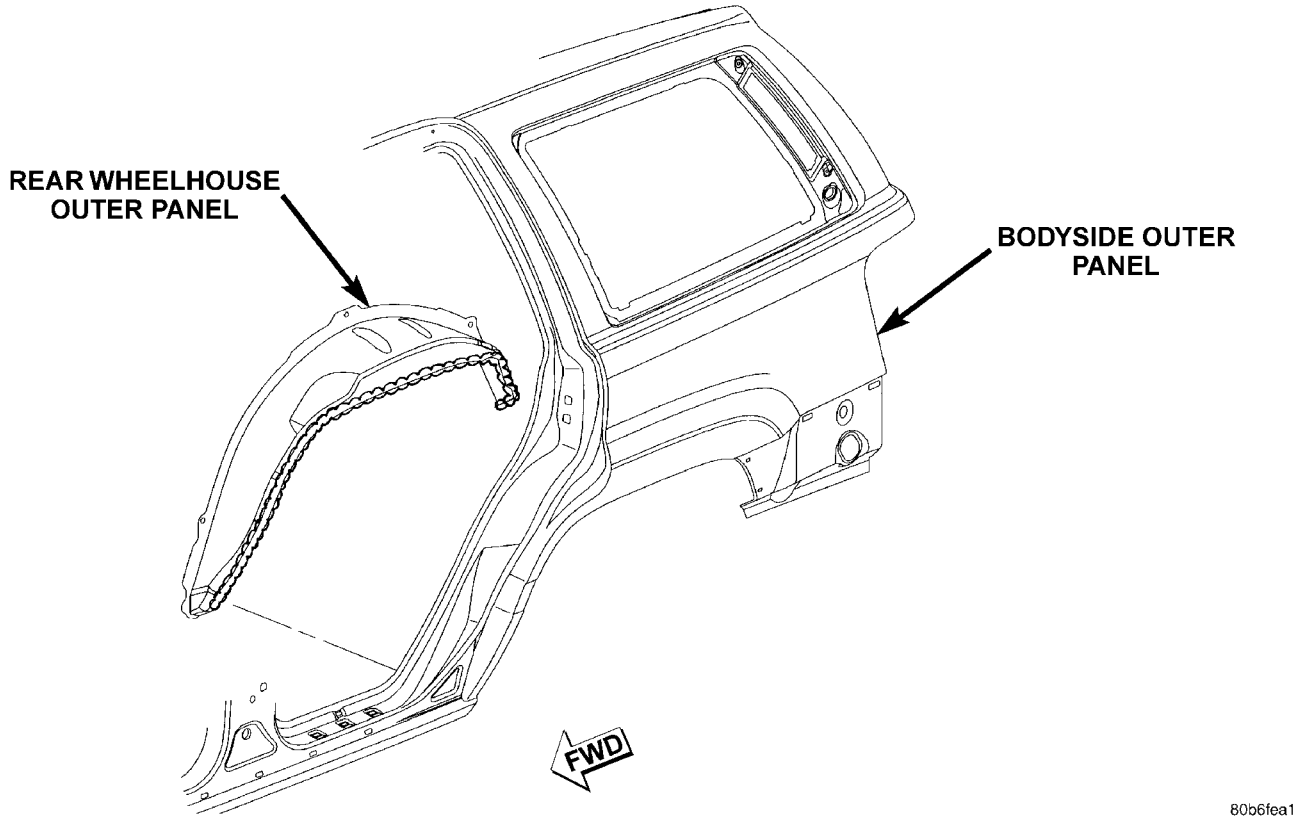


Fig. 41 BODY SIDE OUTER PANEL AND REAR WHEELHOUSE OUTER PANEL

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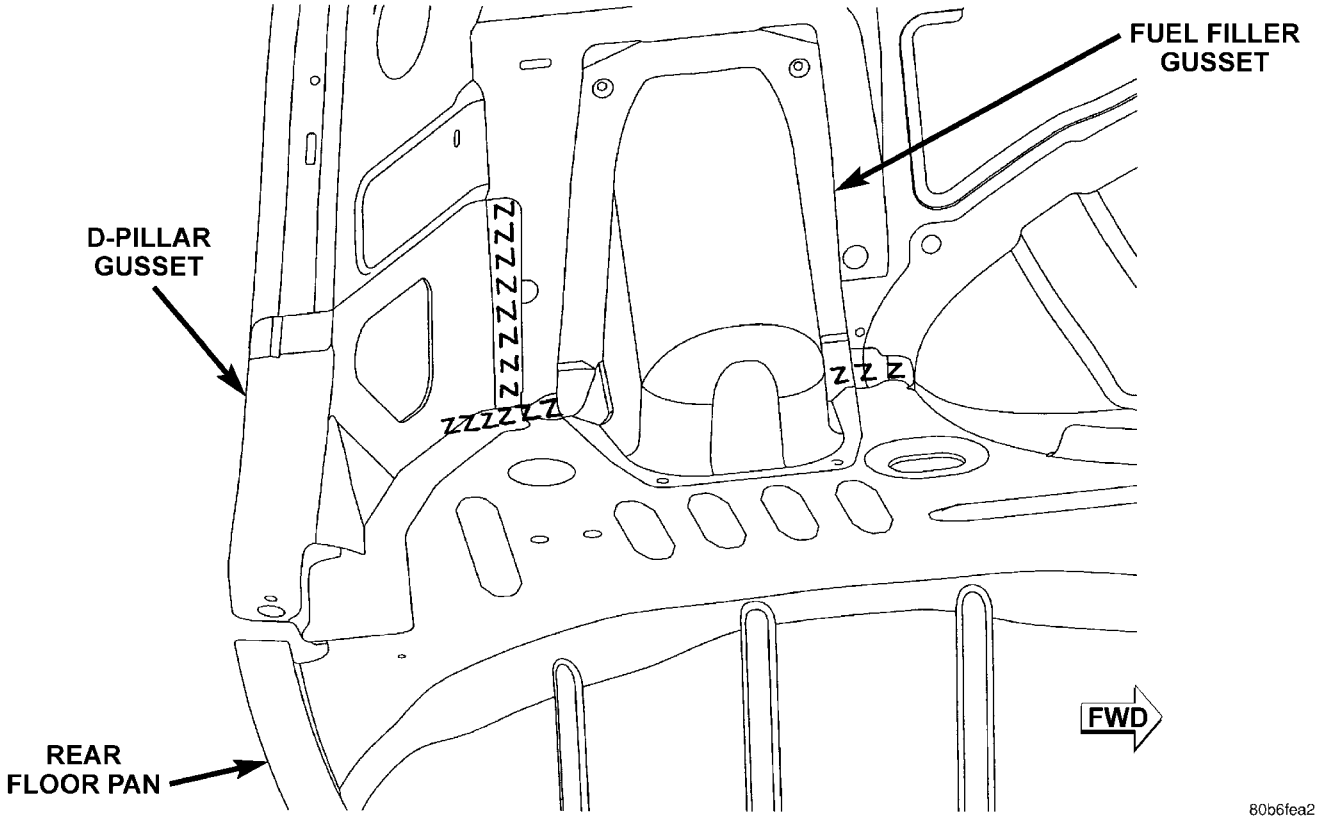


Fig. 42 D-PILLAR AND FUEL FILLER GUSSETS

STUCTURAL ADHESIVE LOCATIONS (Continued)

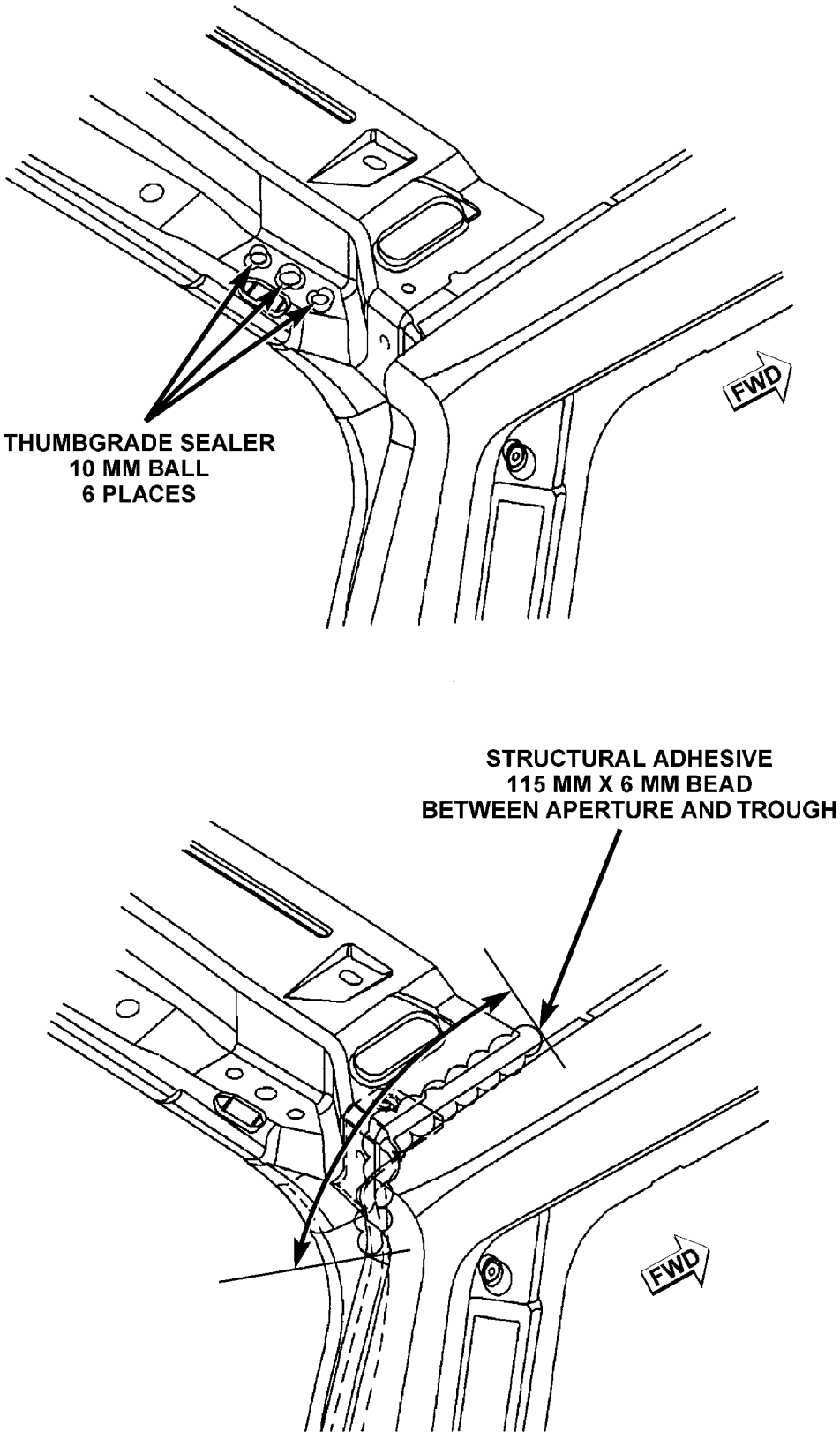


Fig. 43 LIFTGATE

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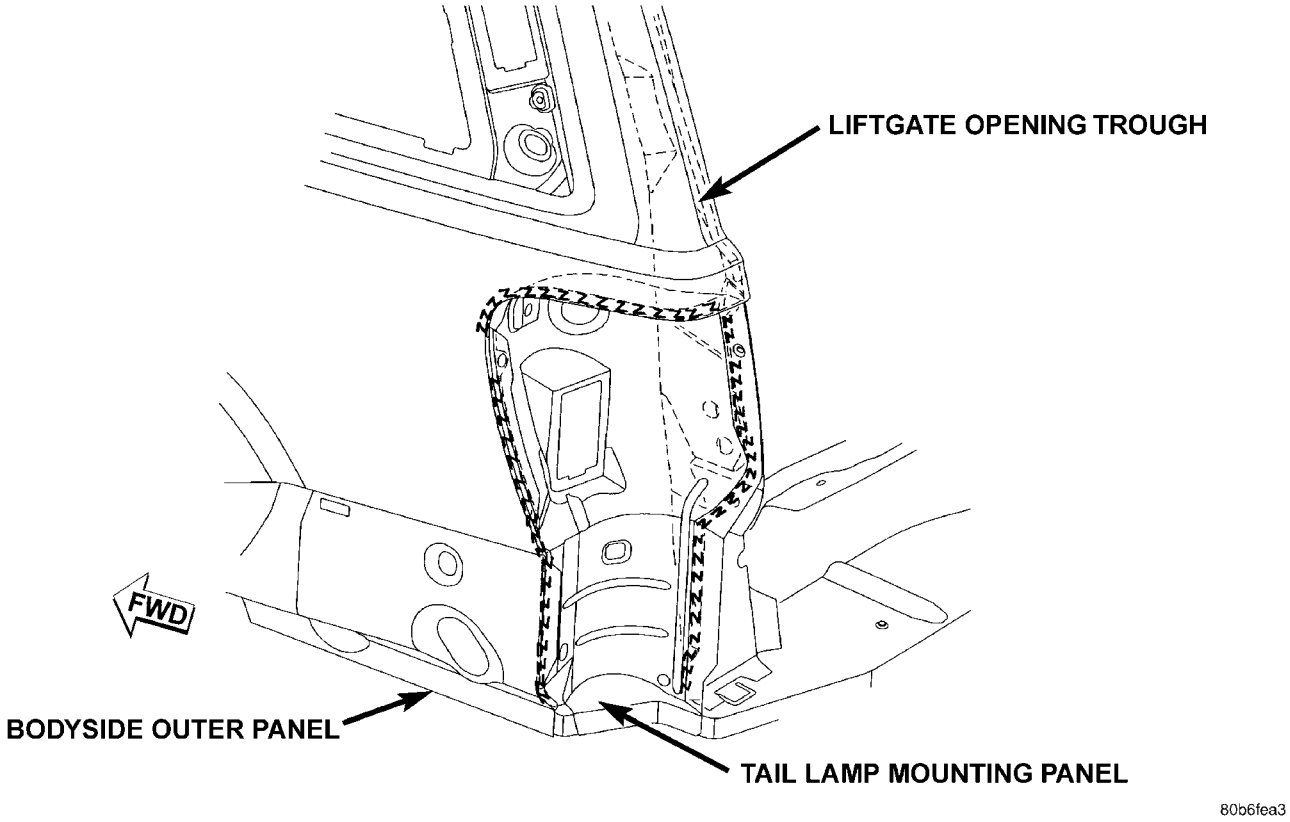


Fig. 44 TAILLAMP MOUNTING PANEL

STUCTURAL ADHESIVE LOCATIONS (Continued)

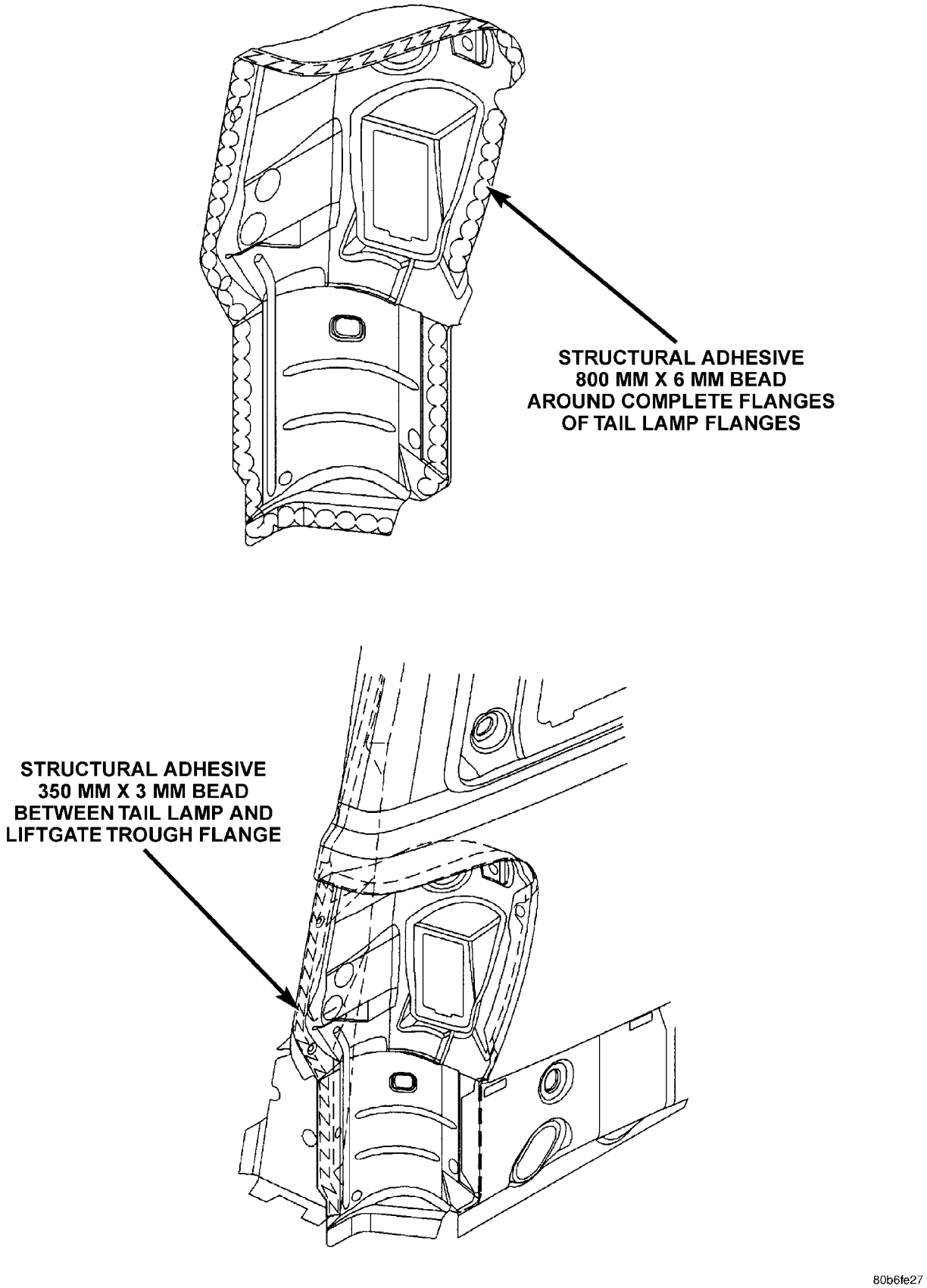


Fig. 45 TAILLAMP

STUCTURAL ADHESIVE LOCATIONS (Continued)

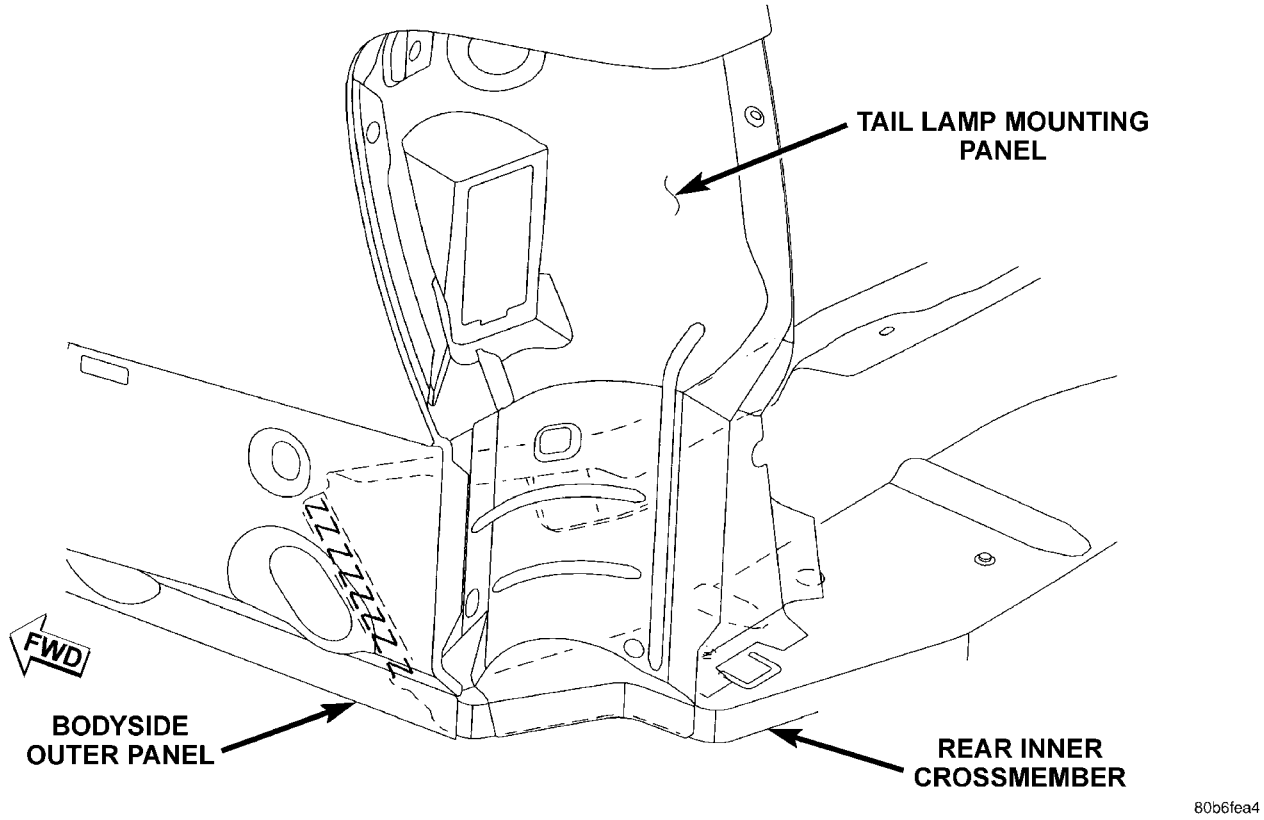


Fig. 46 REAR INNER CROSSMEMBER

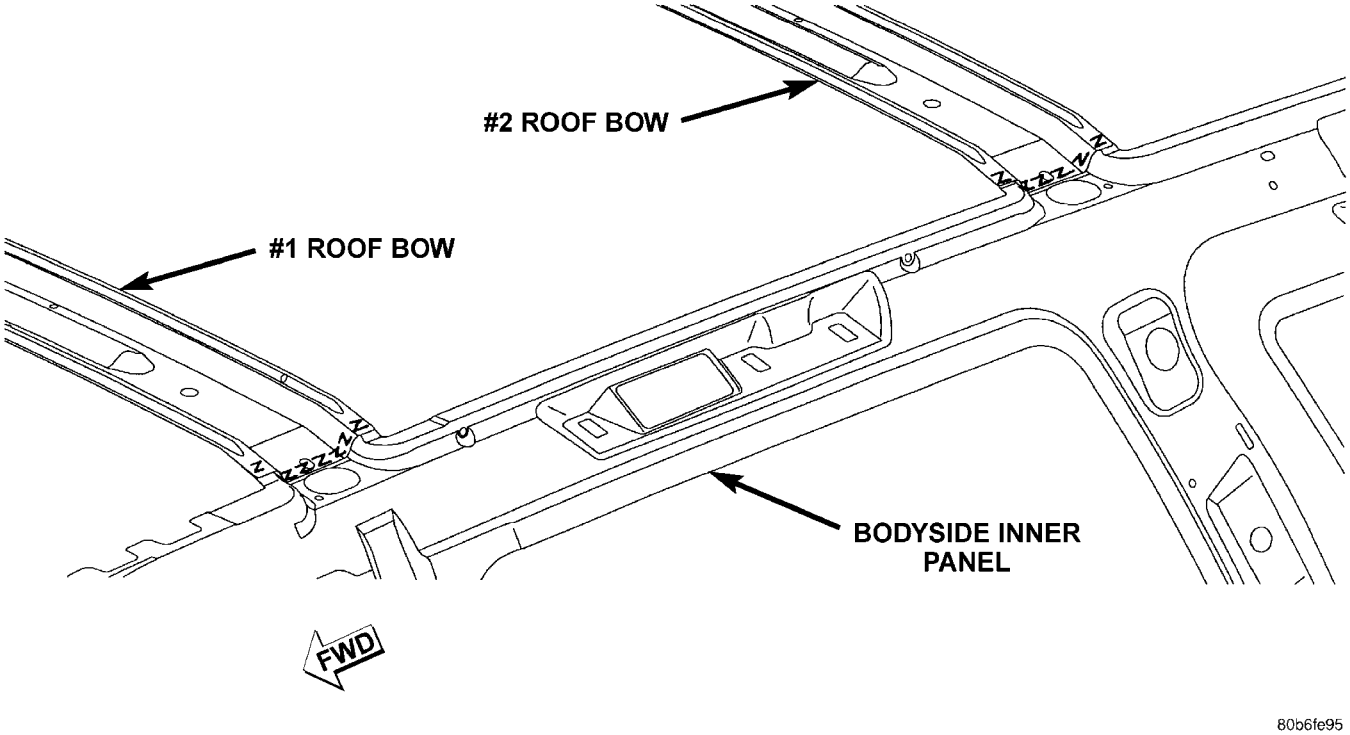


Fig. 47 ROOF BOWS

STUCTURAL ADHESIVE LOCATIONS (Continued)

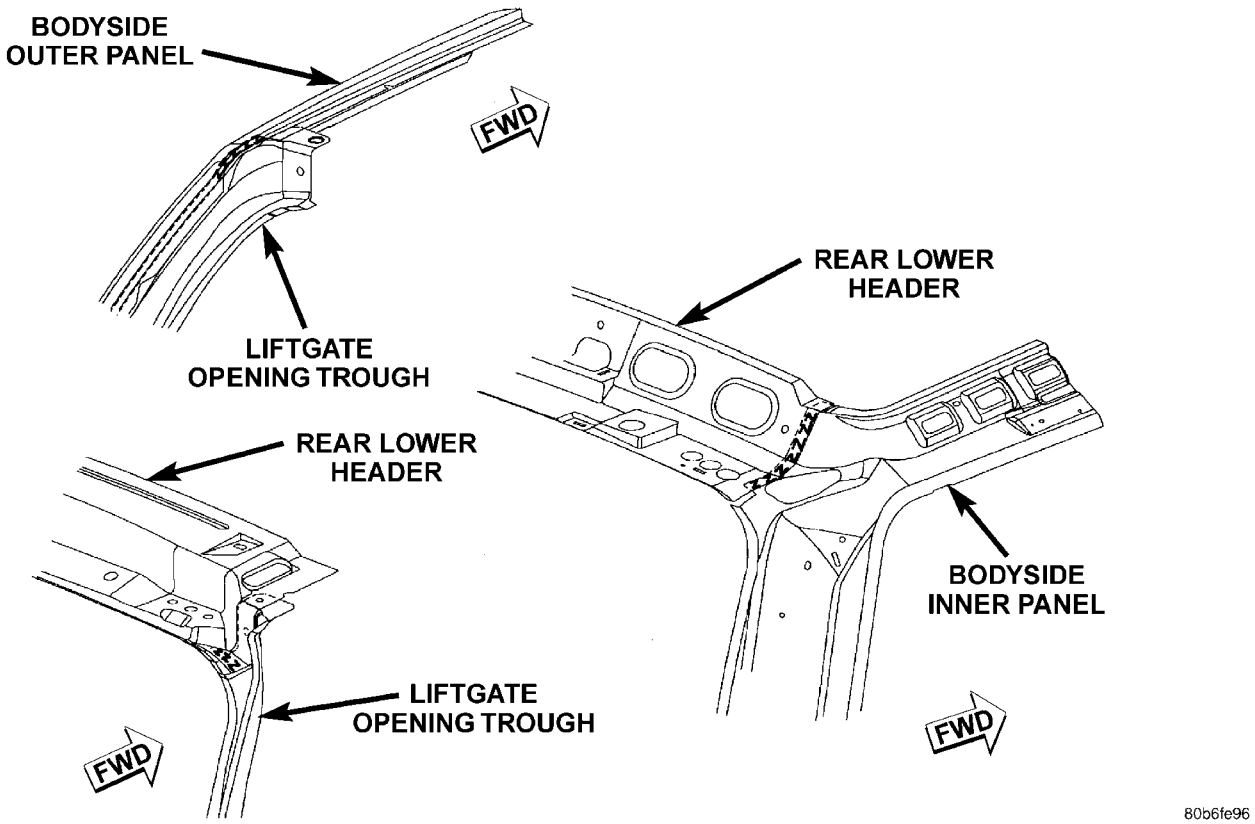


Fig. 48 REAR LOWER HEADER

WELD LOCATIONS

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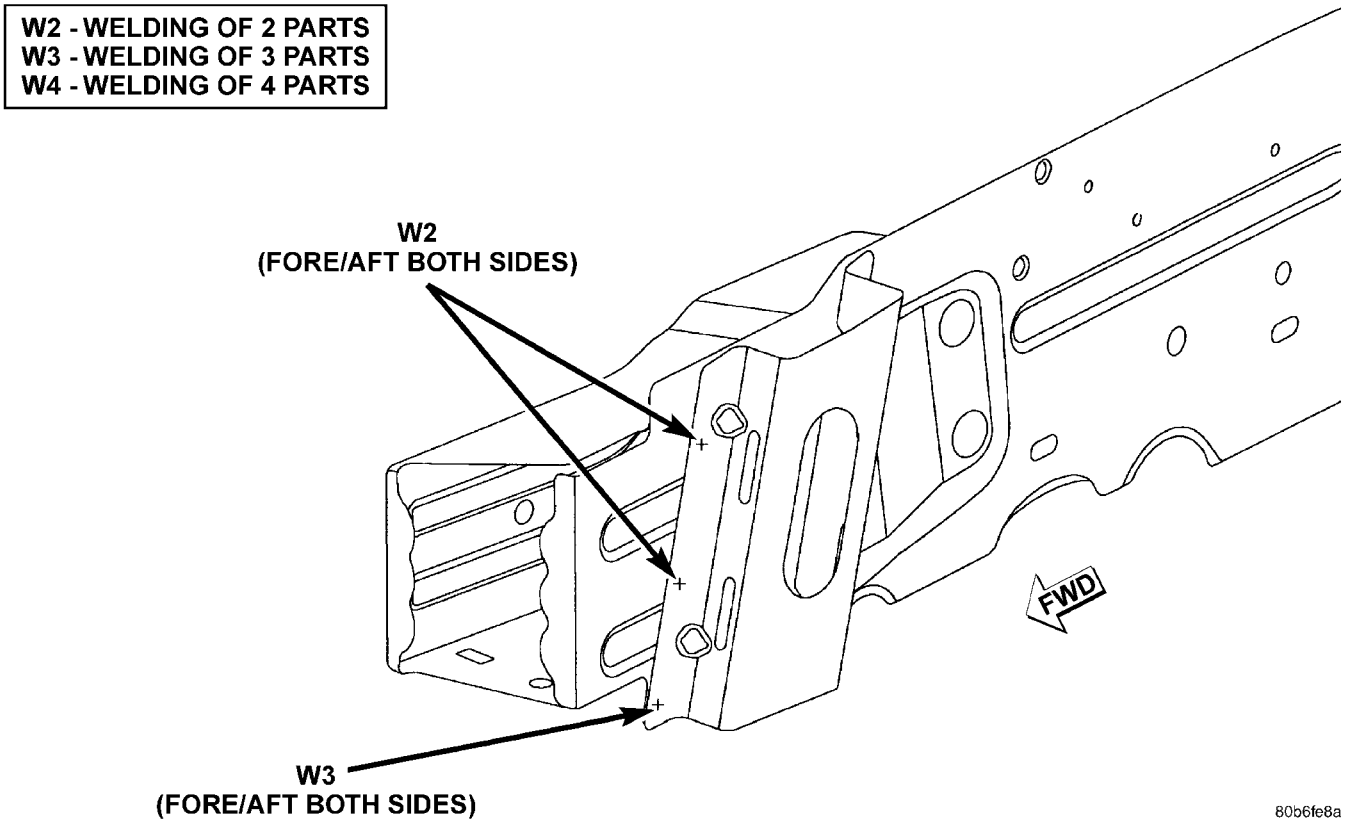


Fig. 49 RADIATOR SUPPORT BRACKETS

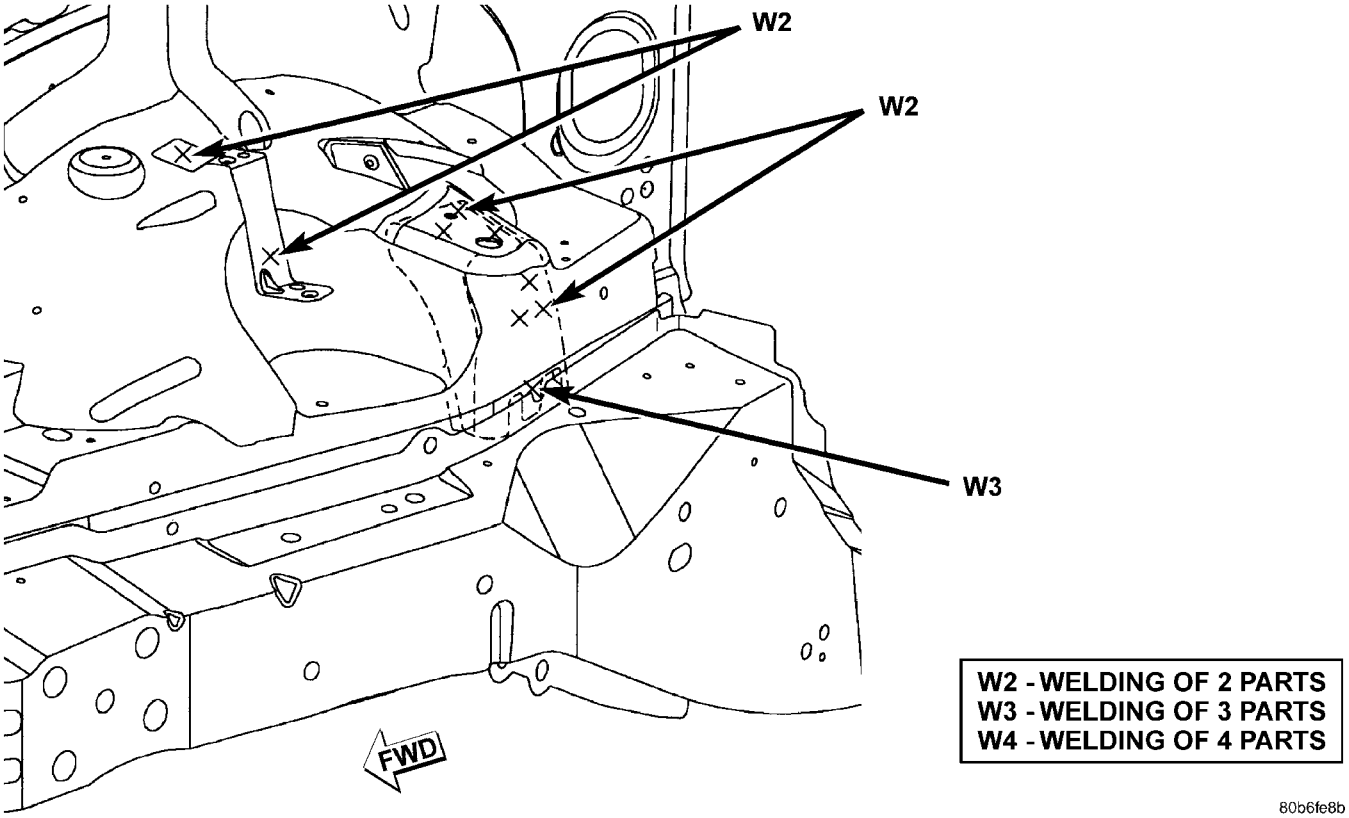


Fig. 50 FRONT SUSPENSION SUPPORT REINFORCEMENT

WELD LOCATIONS (Continued)

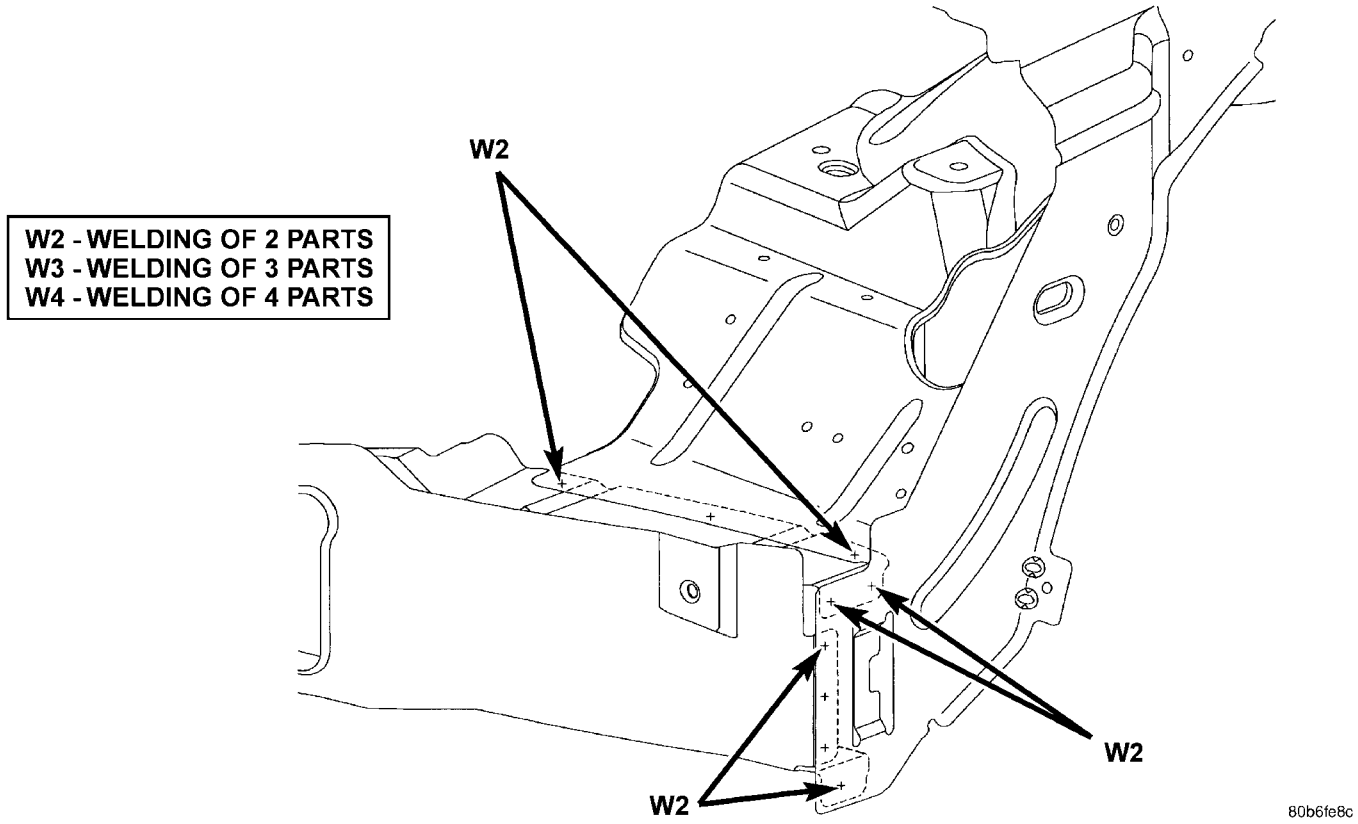


Fig. 51 FRONT LOWER CROSSMEMBER TO COWL SIDE PANEL

WELD LOCATIONS (Continued)

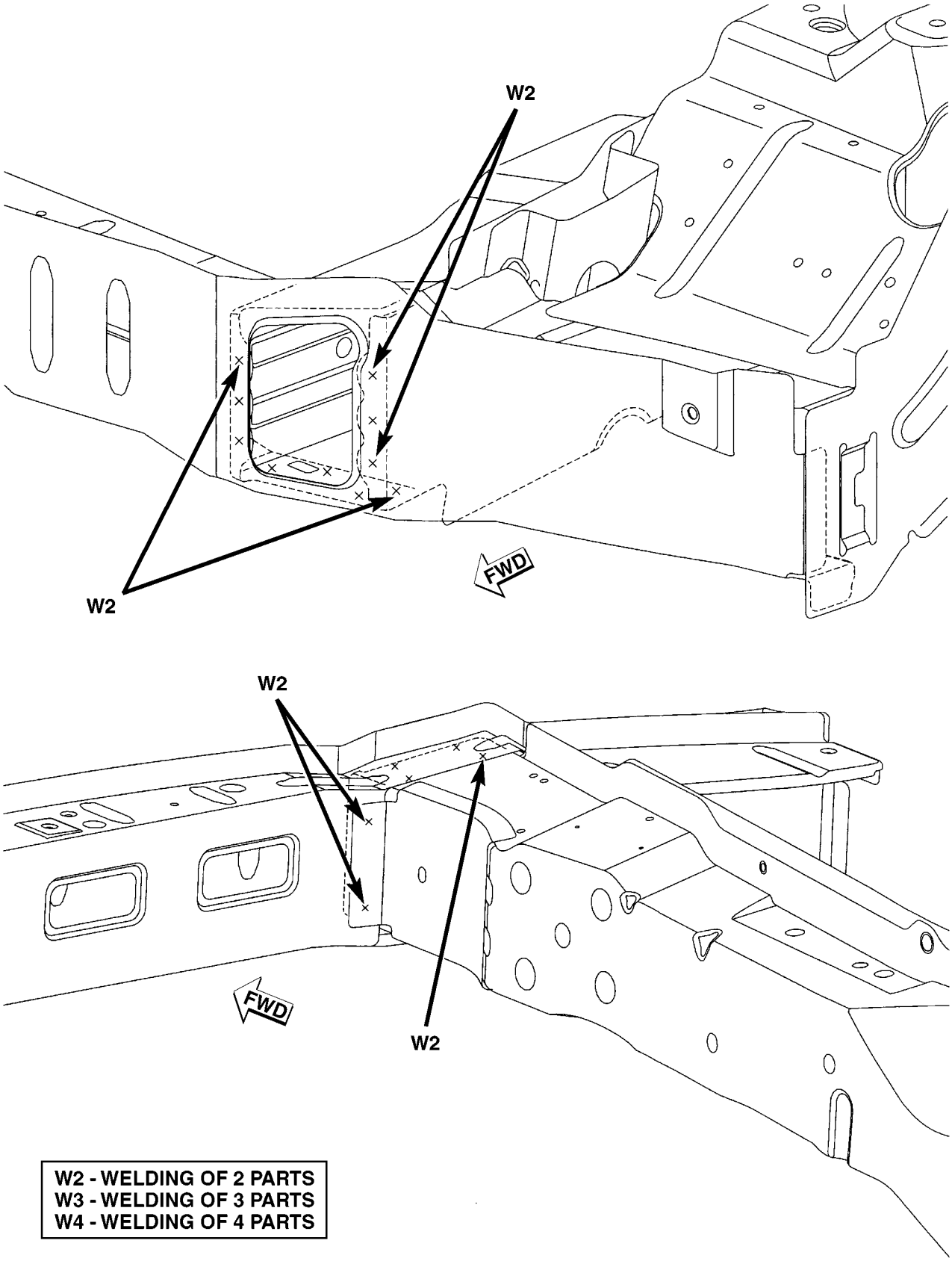


Fig. 52 FRONT SILL TO LOWER CROSSMEMBER

WELD LOCATIONS (Continued)

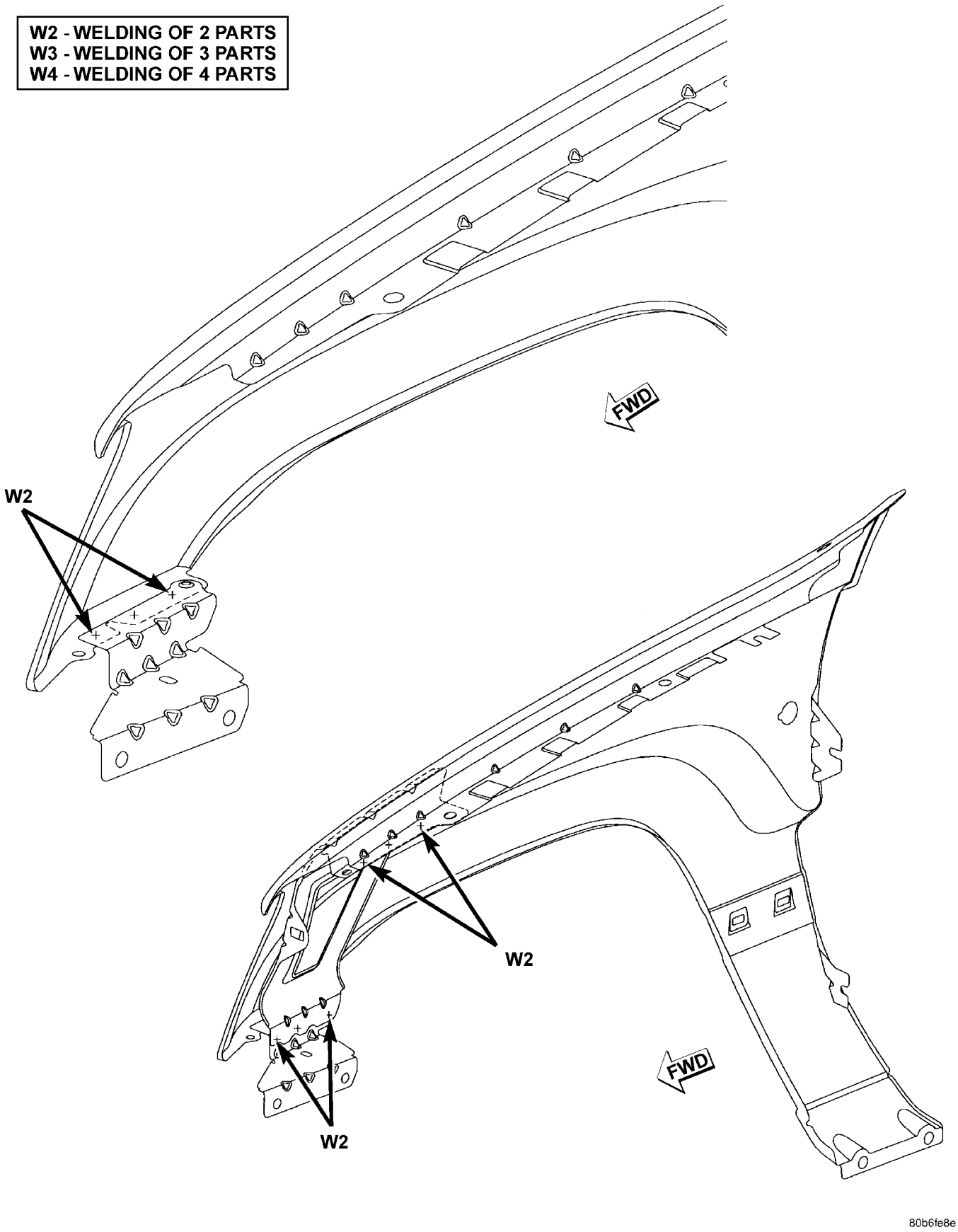
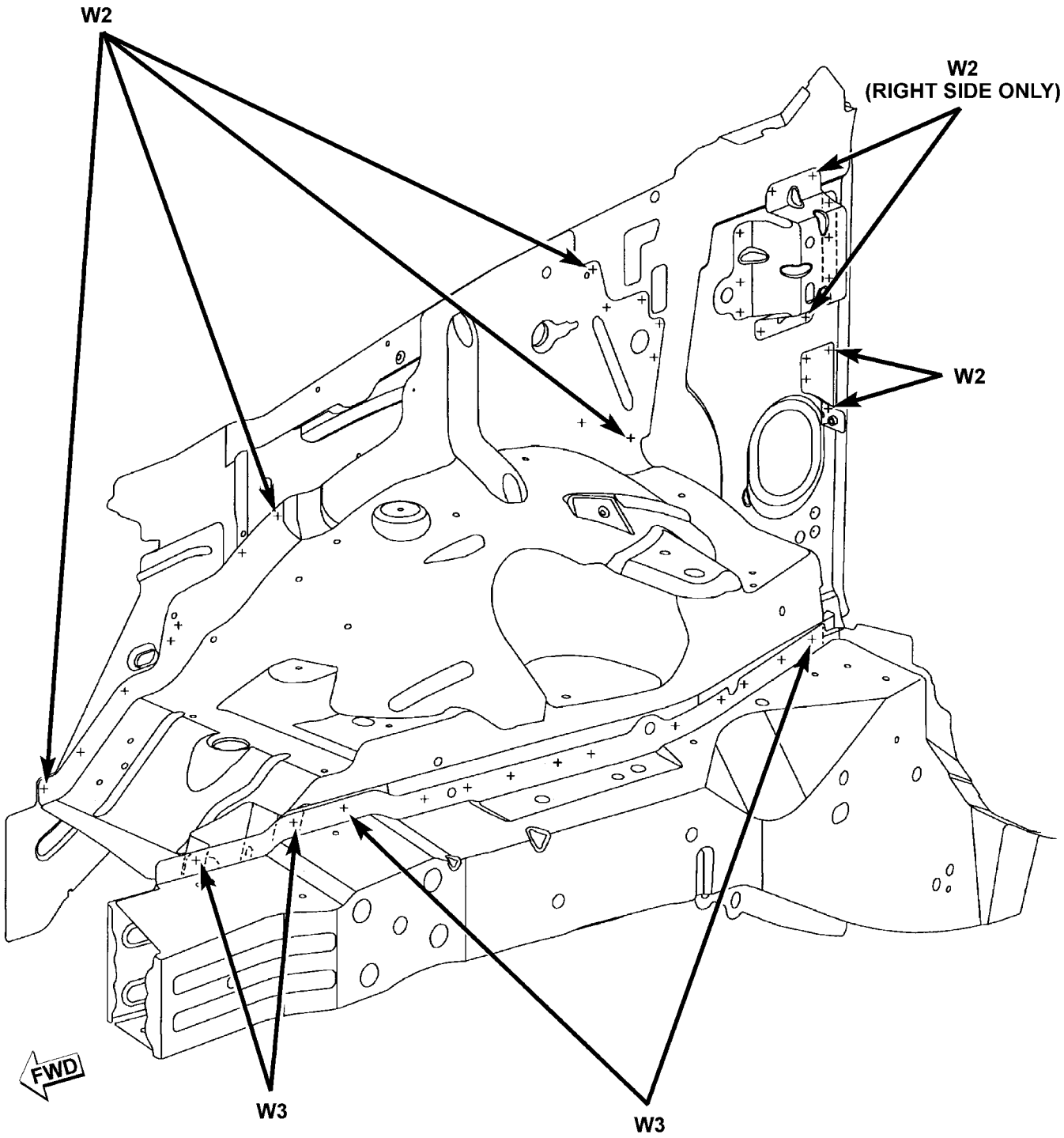


Fig. 53 FRONT FENDER MOUNTING BRACKET AND REINFORCEMENT

WELD LOCATIONS (Continued)



W2 - WELDING OF 2 PARTS
W3 - WELDING OF 3 PARTS
W4 - WELDING OF 4 PARTS

80b6fe59

Fig. 54 FRONT SUSPENSION SUPPORT TO SILLS AND COWL SIDE PANEL

WELD LOCATIONS (Continued)

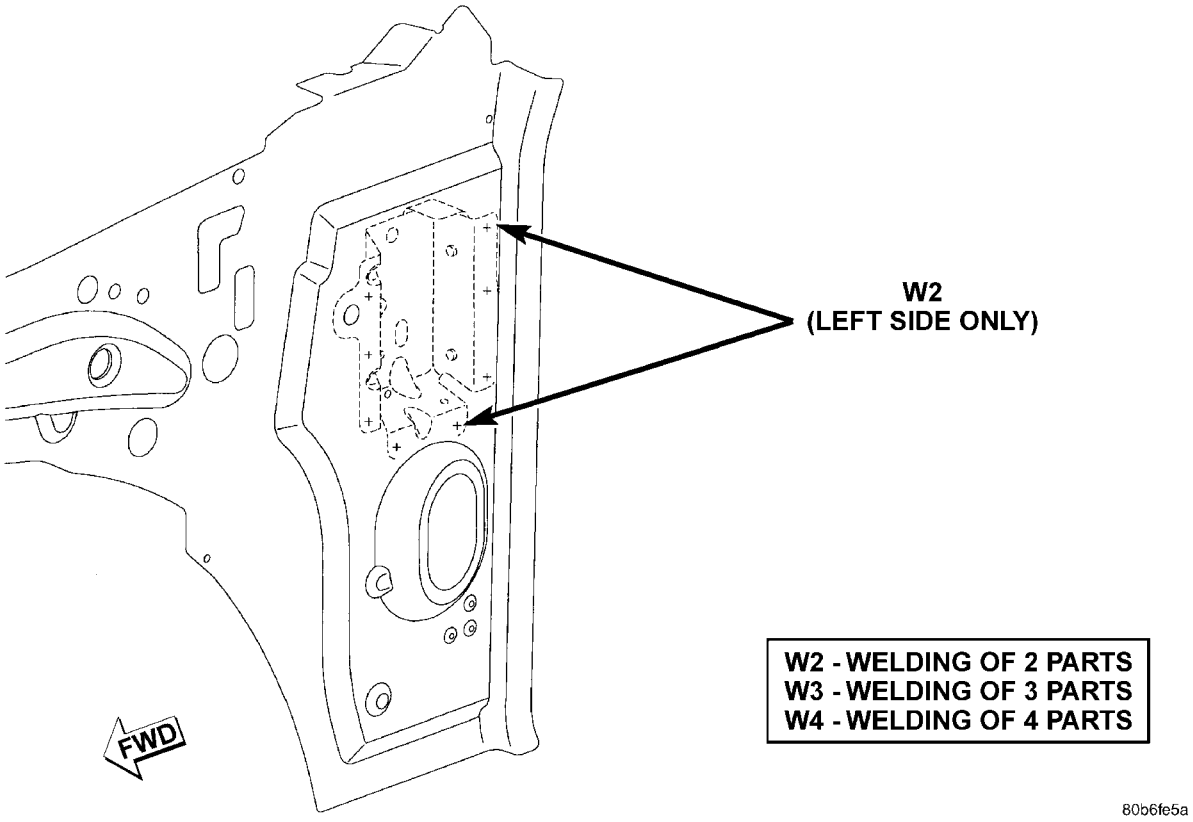
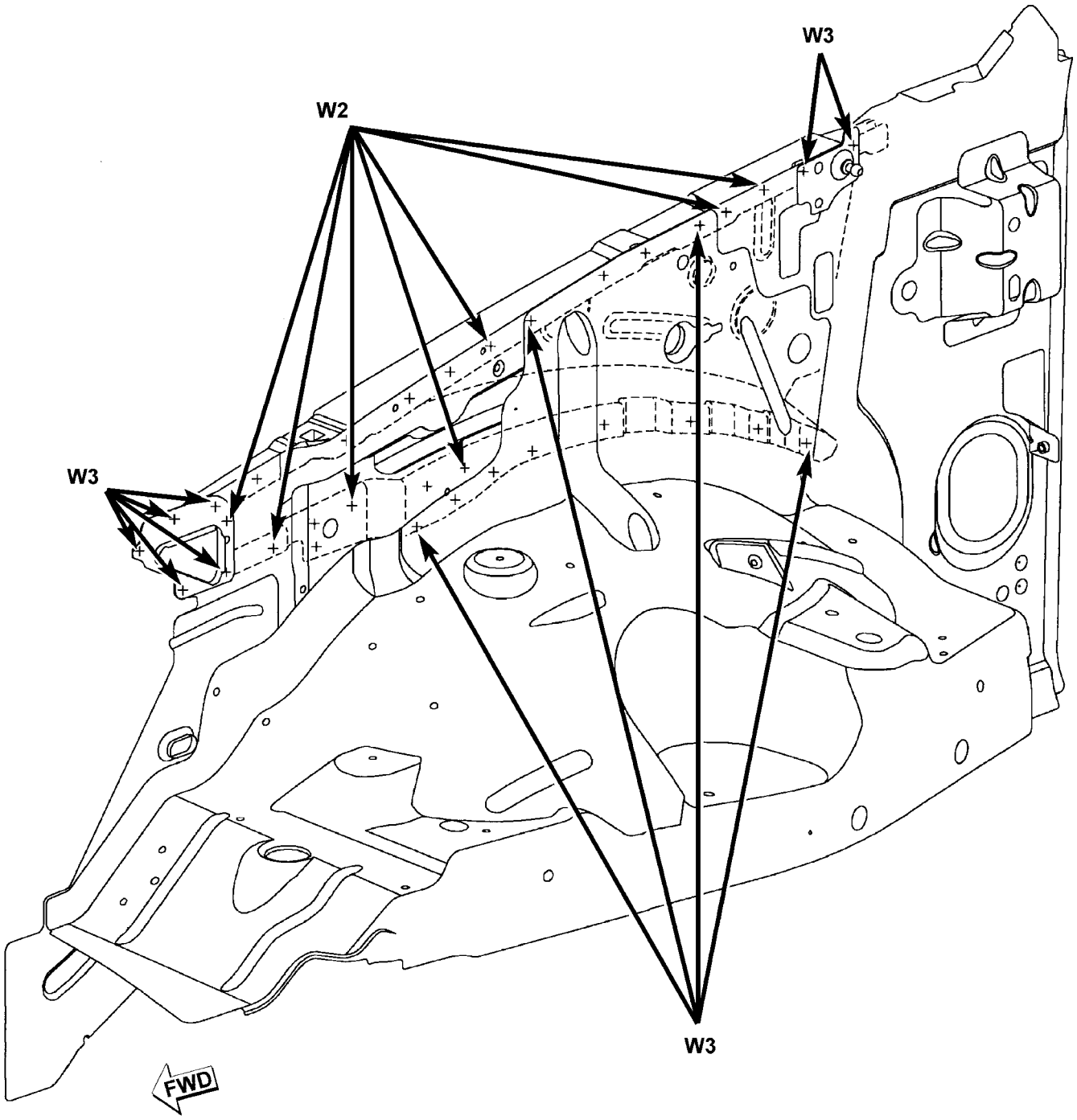


Fig. 55 LEFT INSTRUMENT PANEL BRACKET TO COWL SIDE PANEL

WELD LOCATIONS (Continued)



W2 - WELDING OF 2 PARTS
W3 - WELDING OF 3 PARTS
W4 - WELDING OF 4 PARTS

80b6fe5b

Fig. 56 COWL SIDE UPPER REINFORCEMENT TO COWL SIDE AND FRONT SUSPENSION SUPPORT

WELD LOCATIONS (Continued)

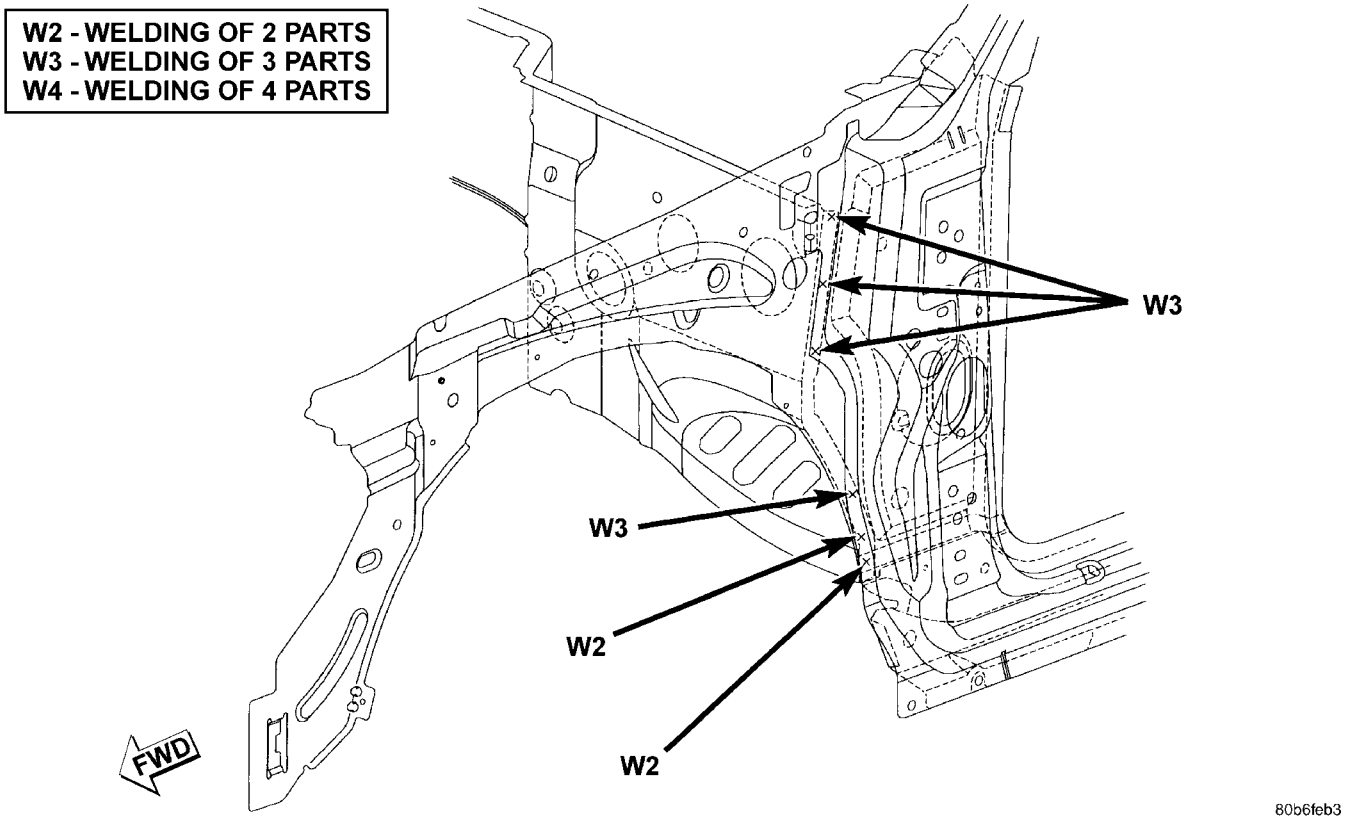


Fig. 57 COWL SIDE PANEL TO DASH PANEL AND INNER BODYSIDE PANEL AND SILL

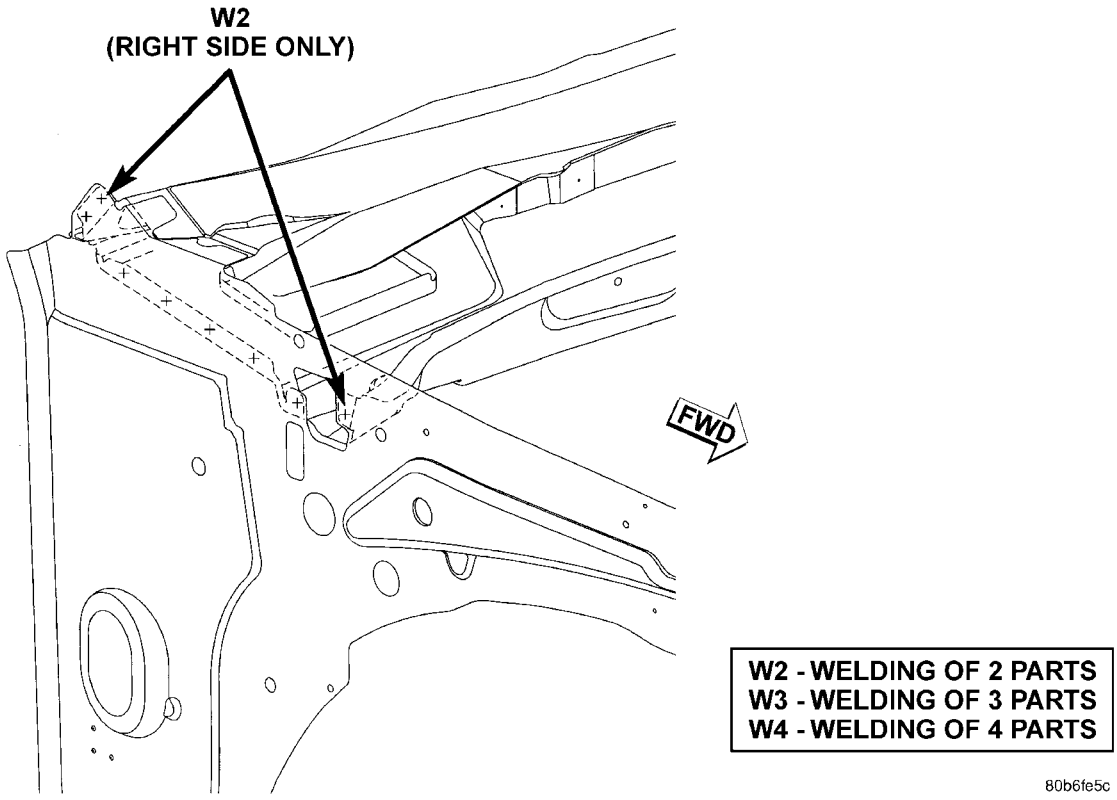


Fig. 58 PLENUM ASSEMBLY TO COWL SIDE PANEL

WELD LOCATIONS (Continued)

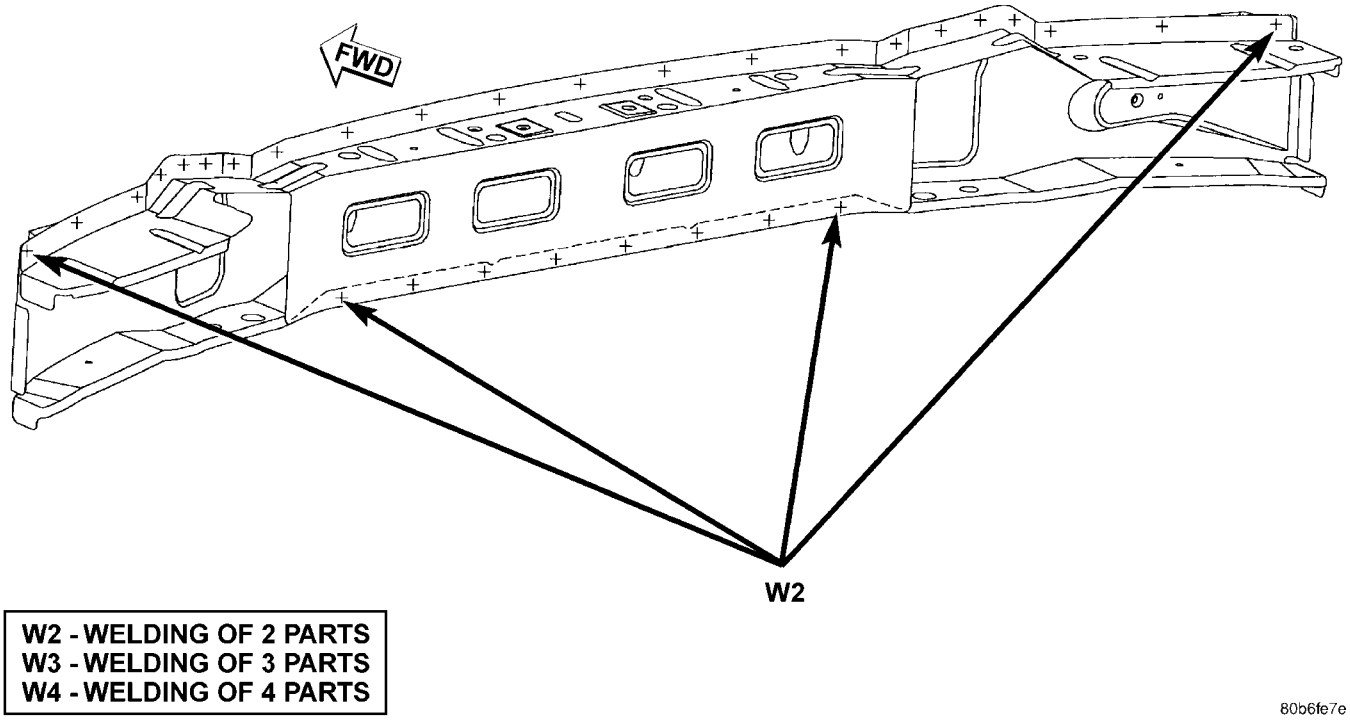


Fig. 59 FRONT LOWER CROSSMEMBER

WELD LOCATIONS (Continued)

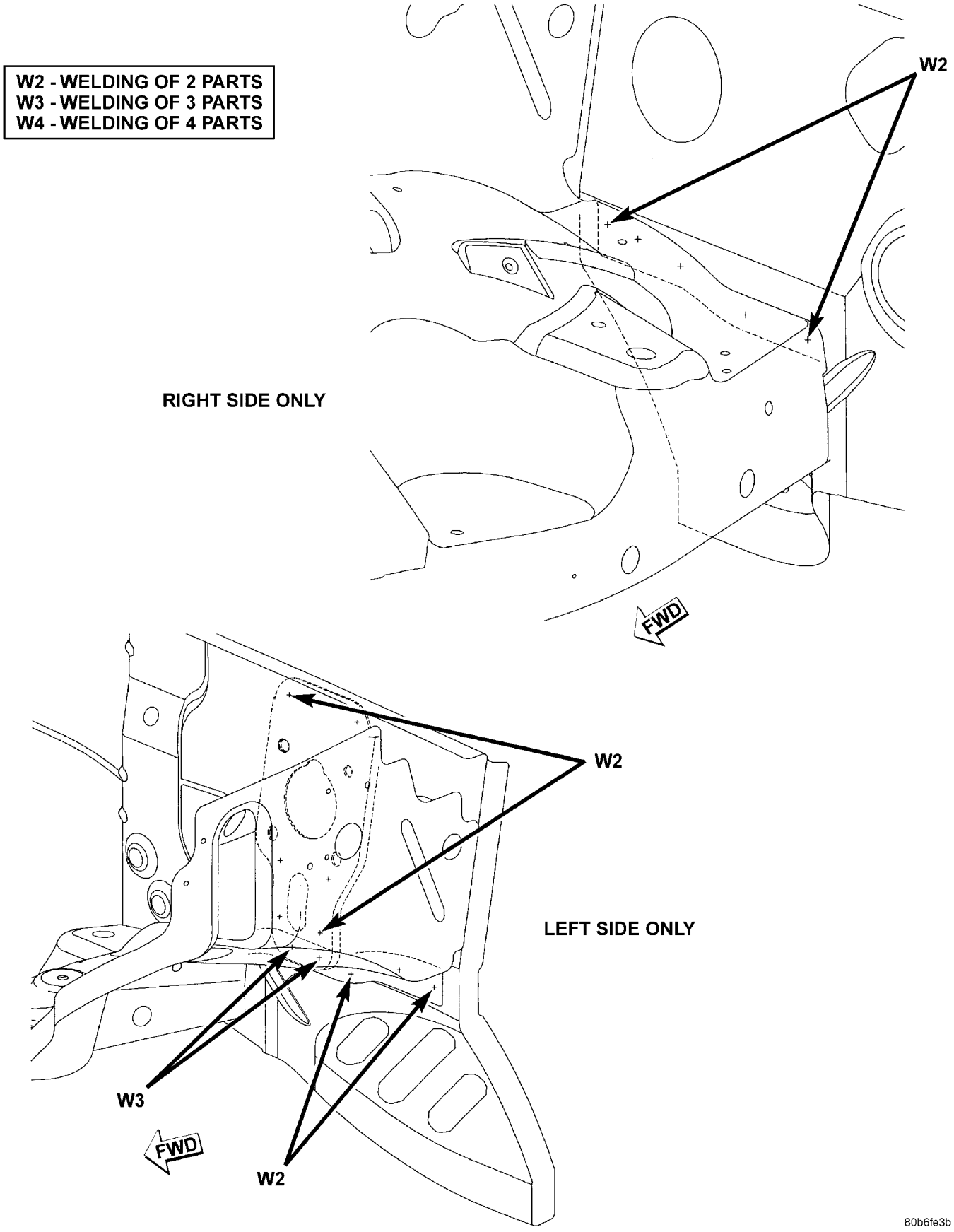


Fig. 60 FRONT SUSPENSION SUPPORT TO DASH

WELD LOCATIONS (Continued)

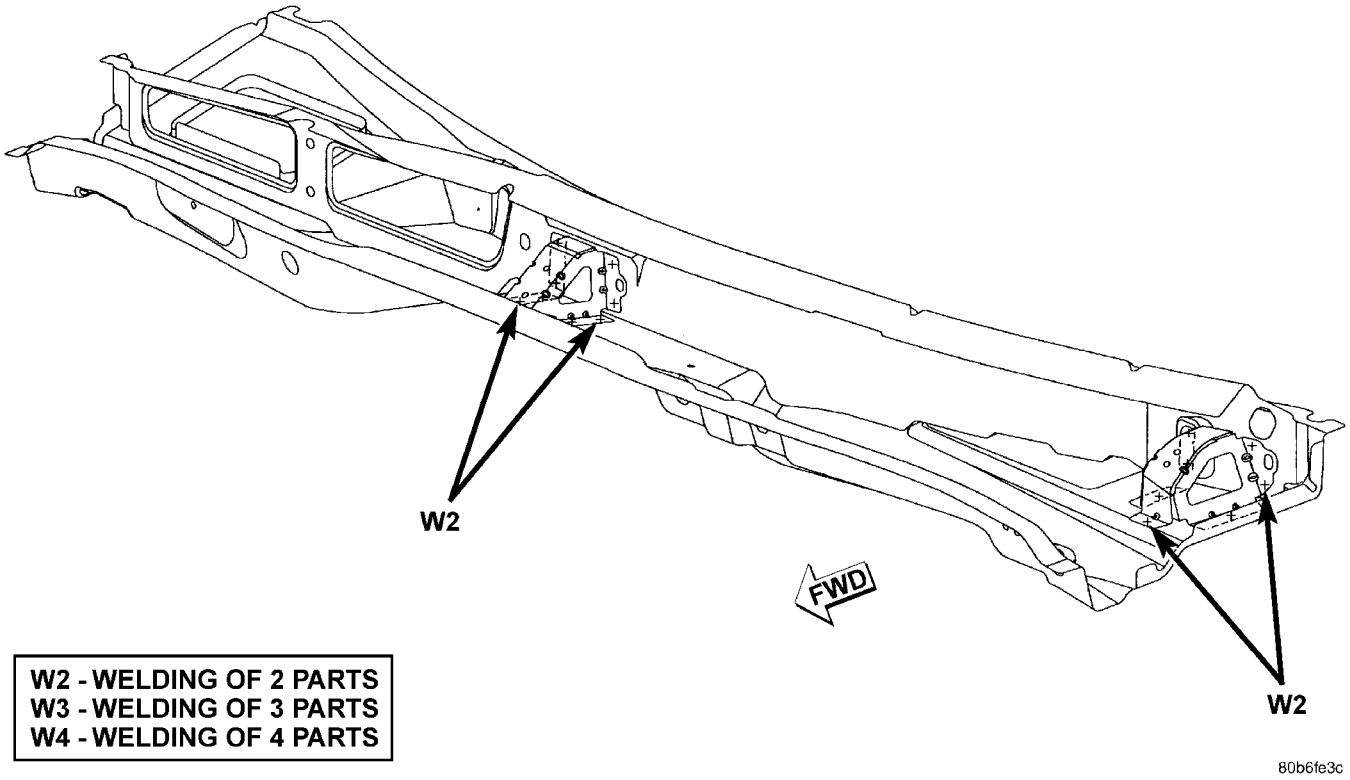


Fig. 61 WIPER MOUNTING BRACKETS TO PLENUM ASSEMBLY

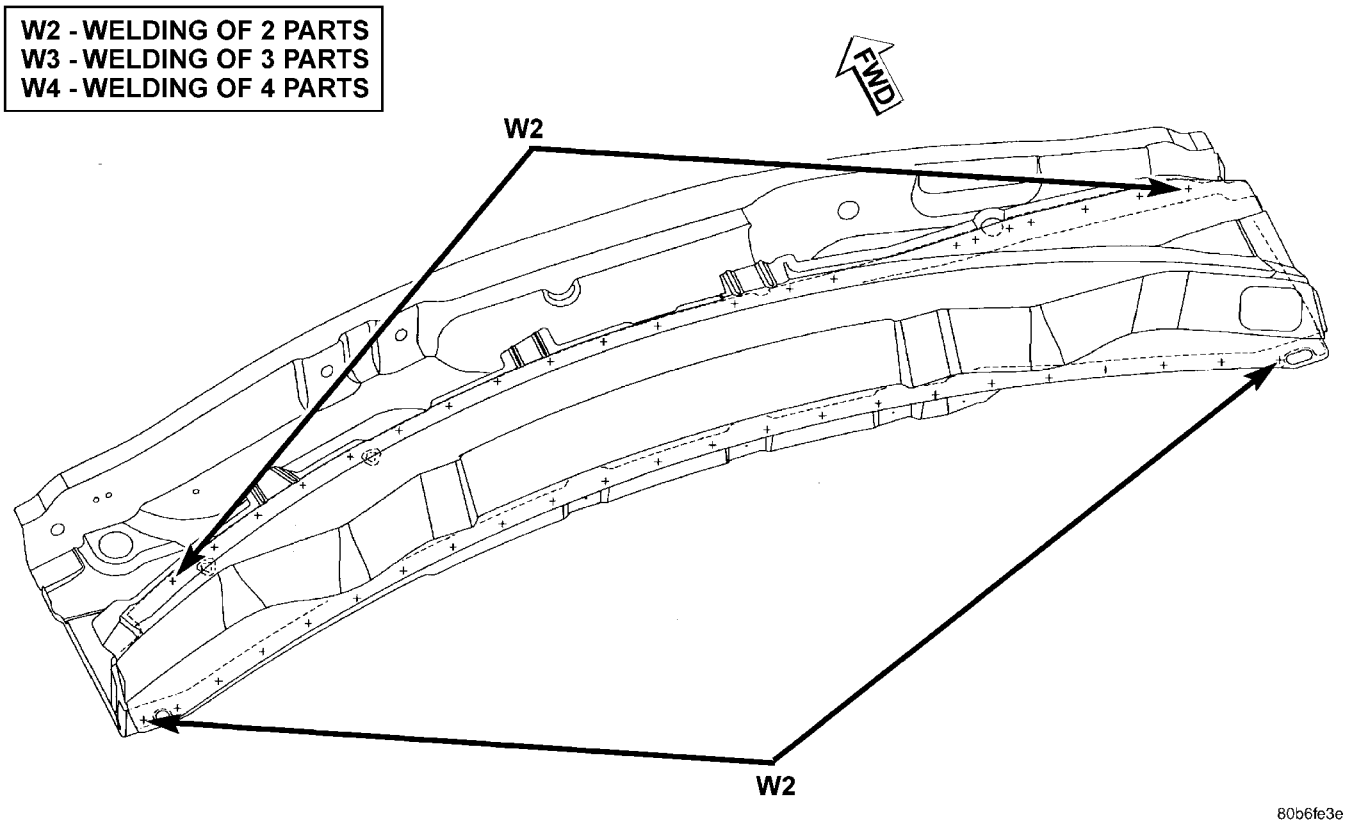


Fig. 62 COWL TOP AND PLENUM ASSEMBLY

WELD LOCATIONS (Continued)

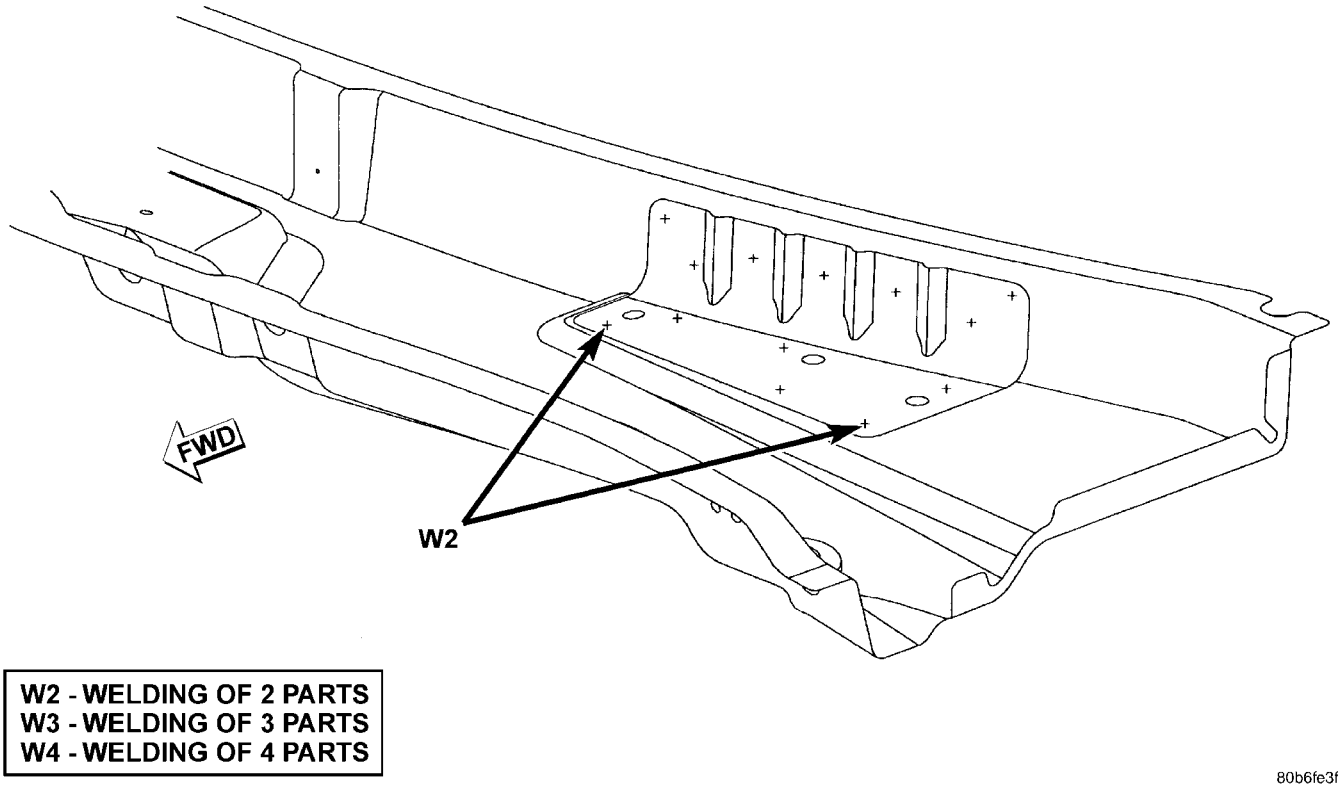


Fig. 63 LOWER PLENUM REINFORCEMENT TO LOWER PLENUM PANEL

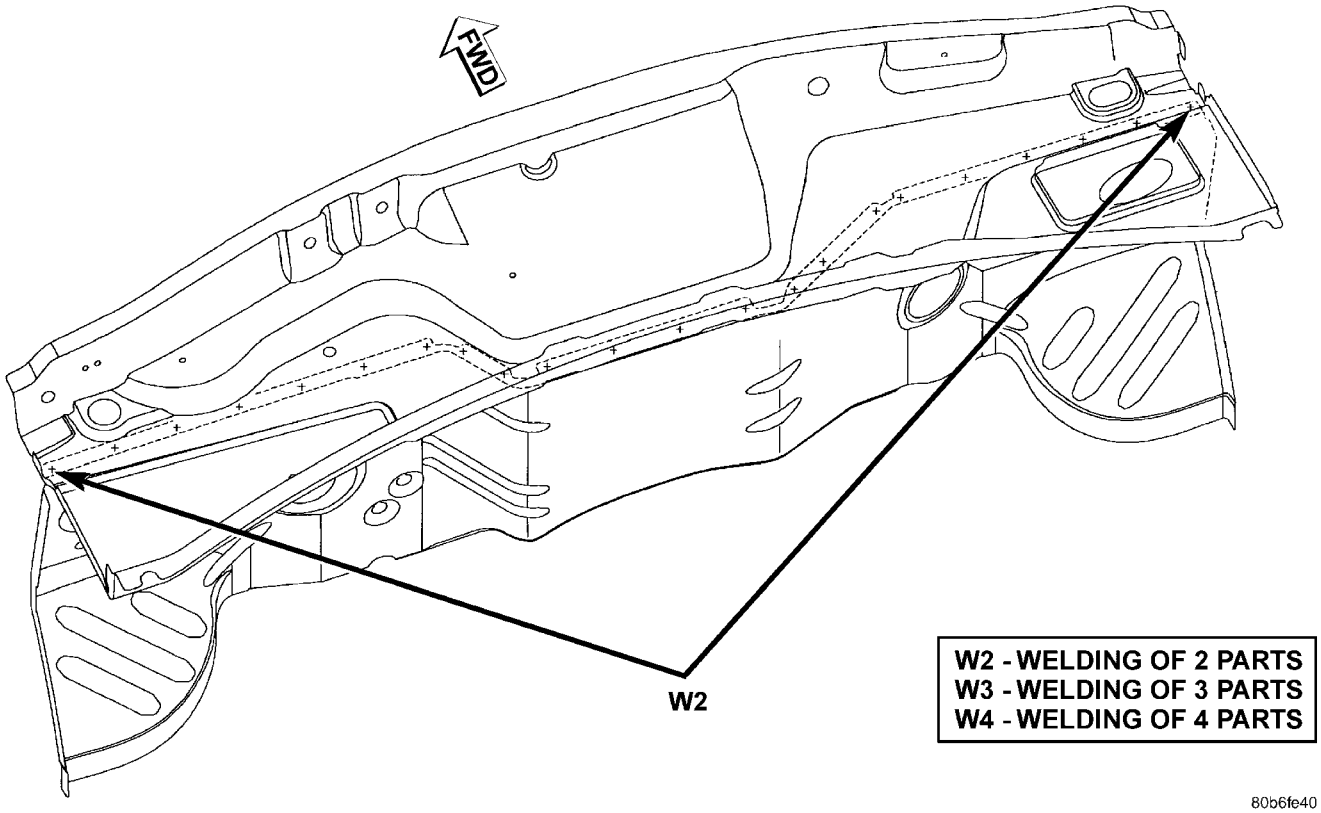


Fig. 64 DASH PANEL TO LOWER PLENUM PANEL

WELD LOCATIONS (Continued)

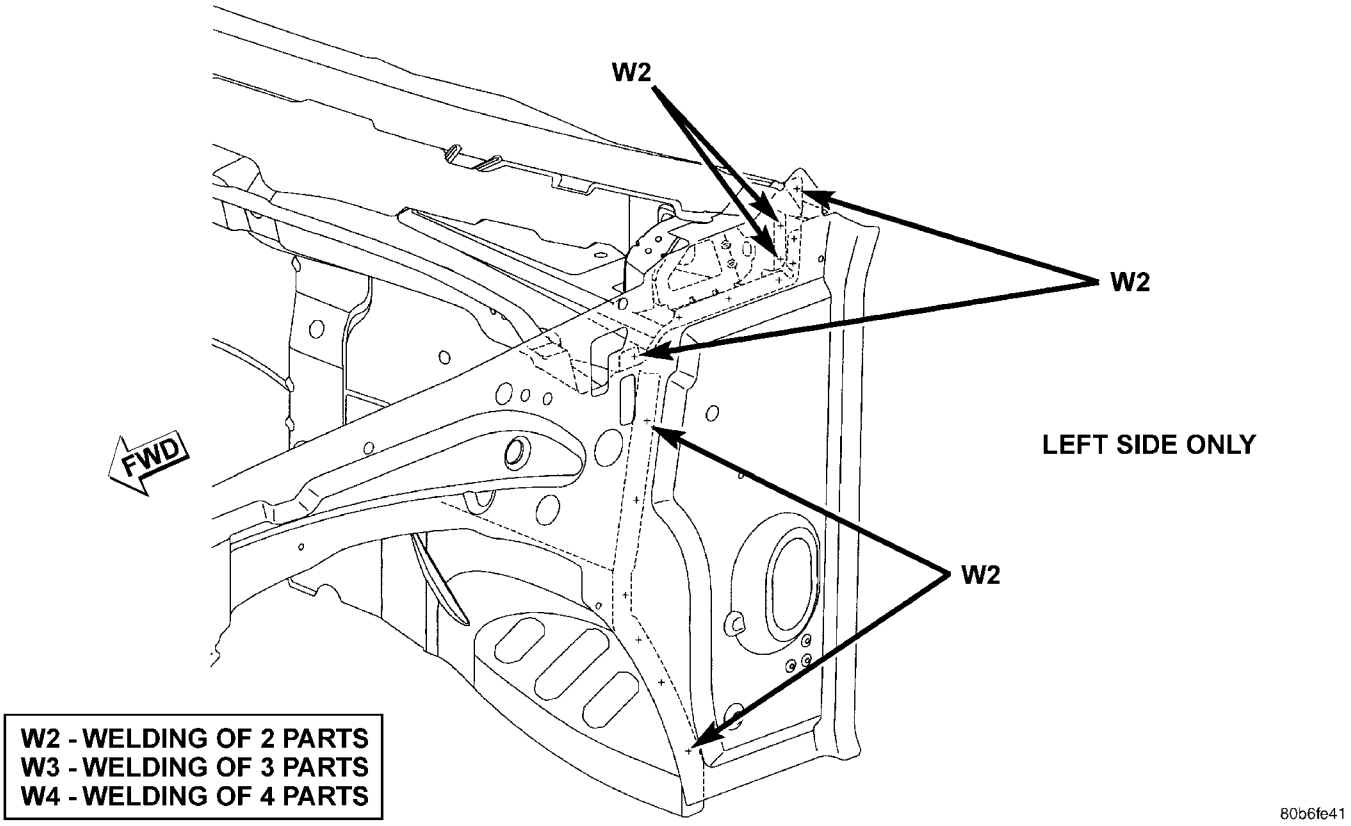


Fig. 65 PLENUM ASSEMBLY TO COWL

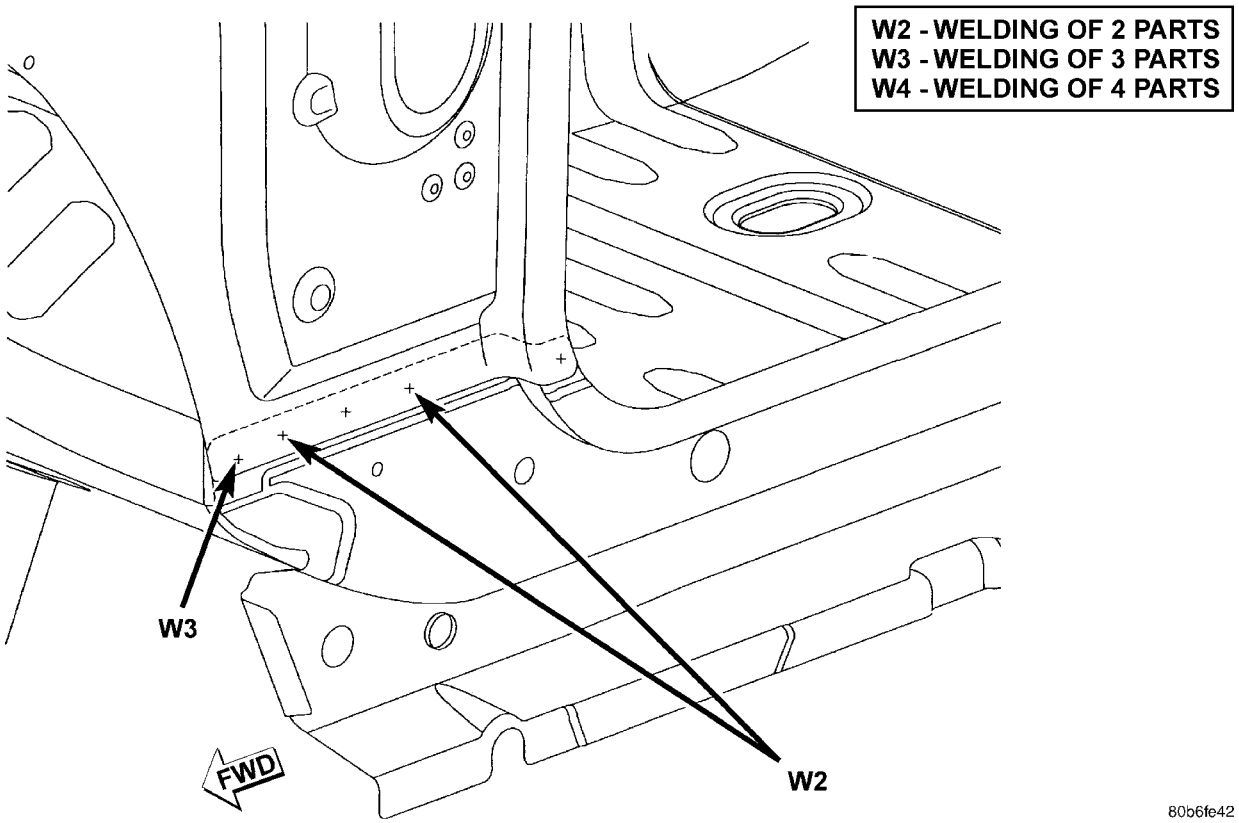
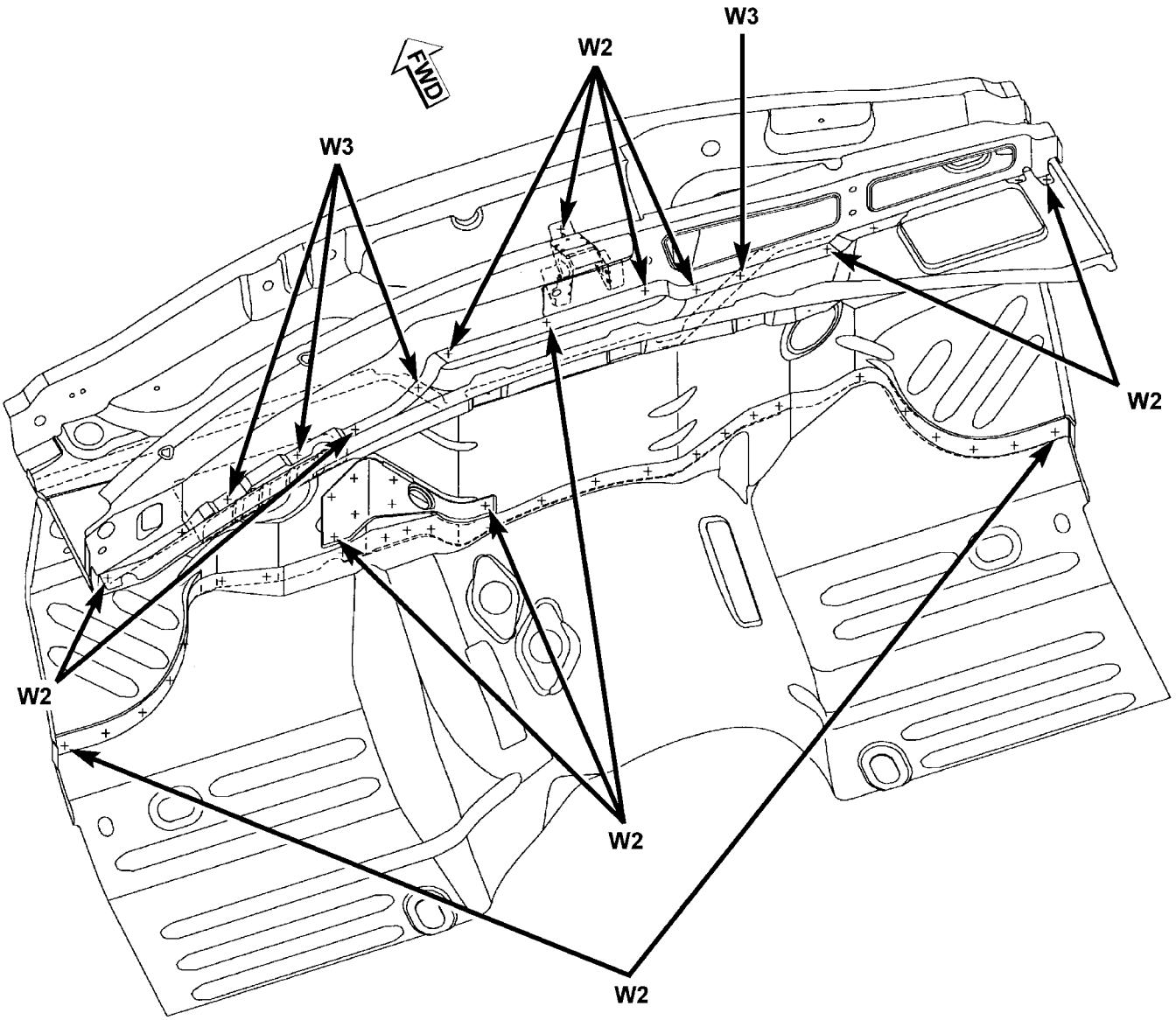


Fig. 66 COWL PANEL TO BODYSIDE SILL

WELD LOCATIONS (Continued)



W2 - WELDING OF 2 PARTS
W3 - WELDING OF 3 PARTS
W4 - WELDING OF 4 PARTS

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Fig. 67 COWL PANEL TO FRONT FLOOR PAN

WELD LOCATIONS (Continued)

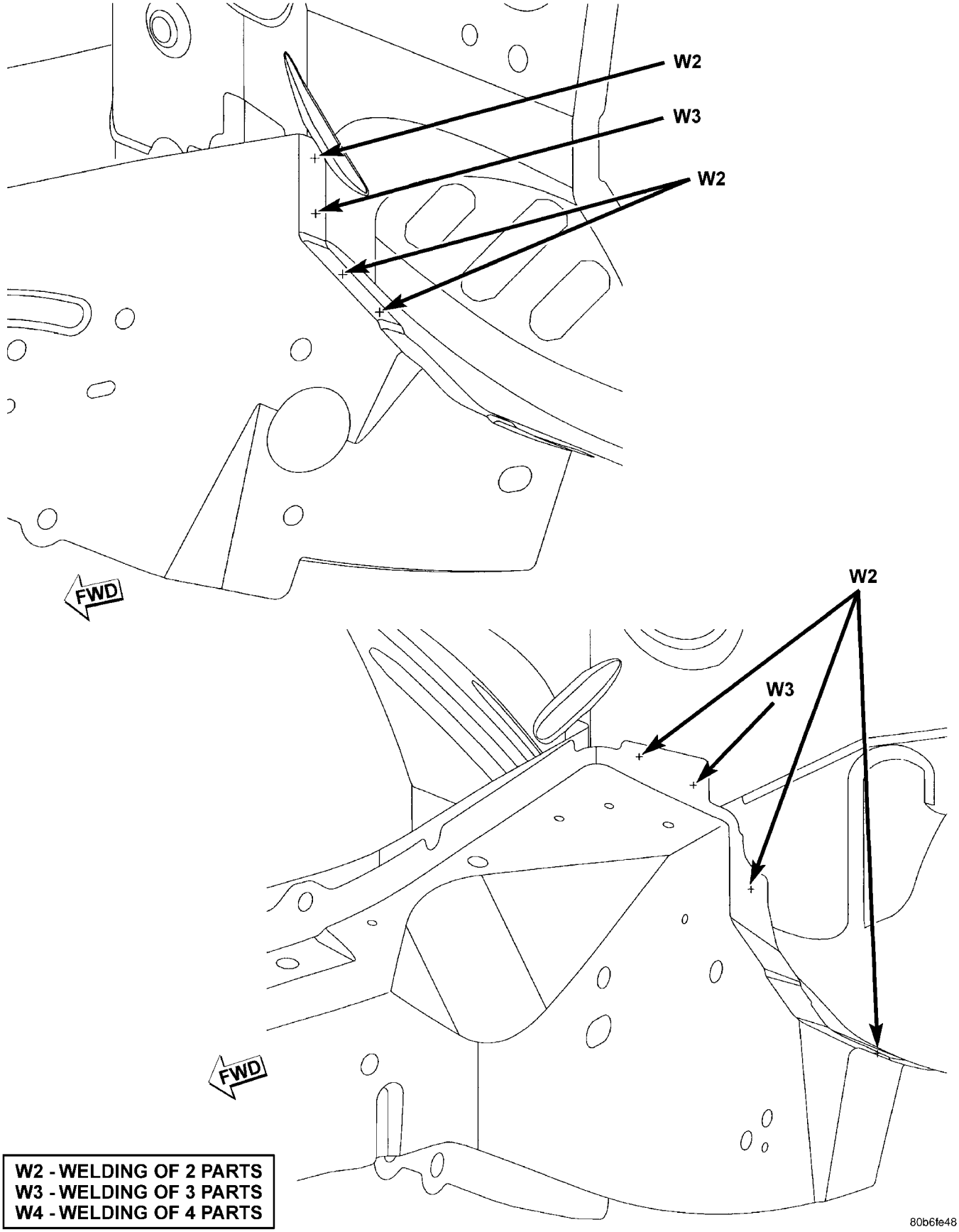


Fig. 68 FRONT SILLS TO DASH AND FRONT FLOOR PAN

WELD LOCATIONS (Continued)

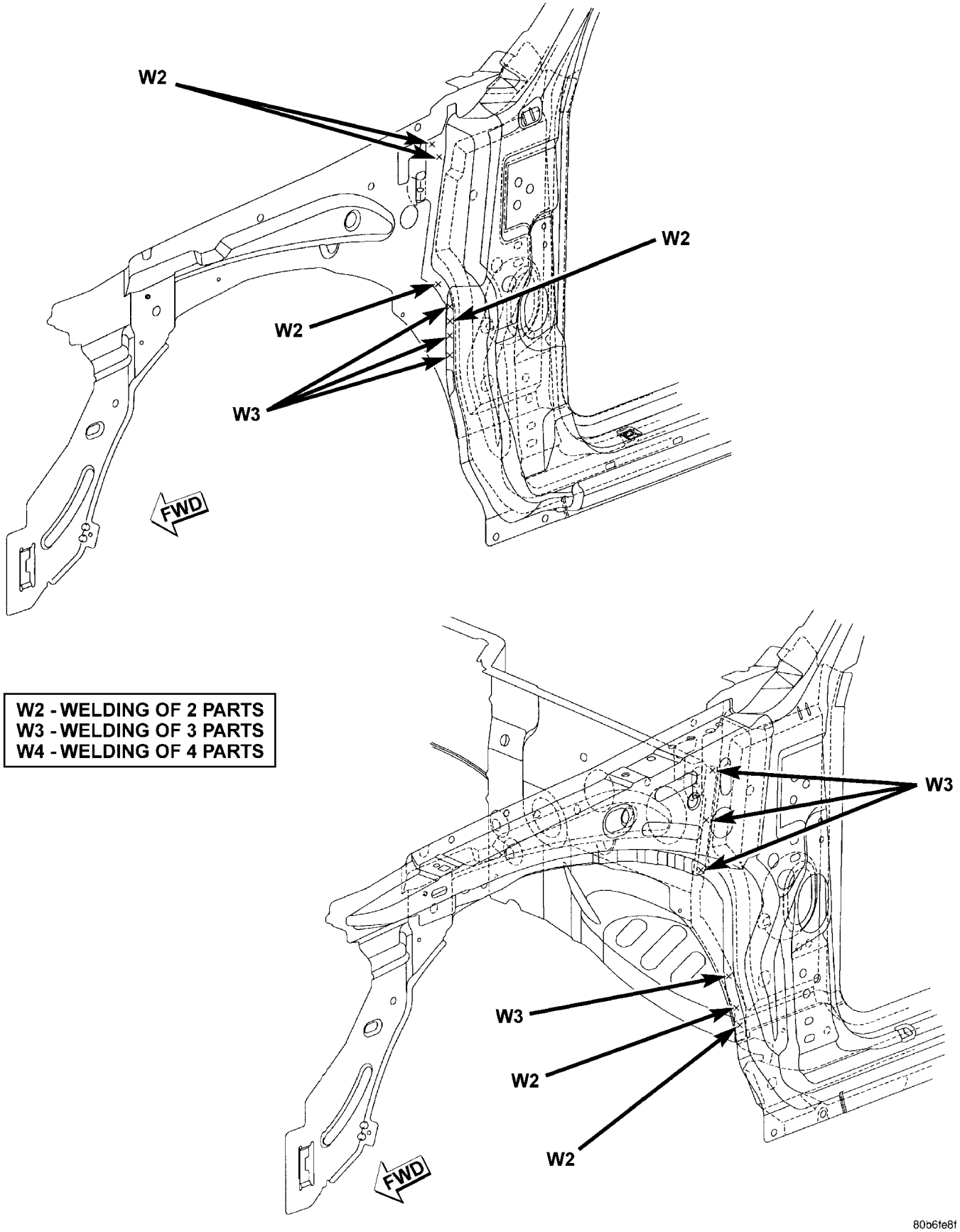


Fig. 69 COWL SIDE PANEL DASH INNER BODYSIDE AND OUTER BODYSIDE PANELS

WELD LOCATIONS (Continued)

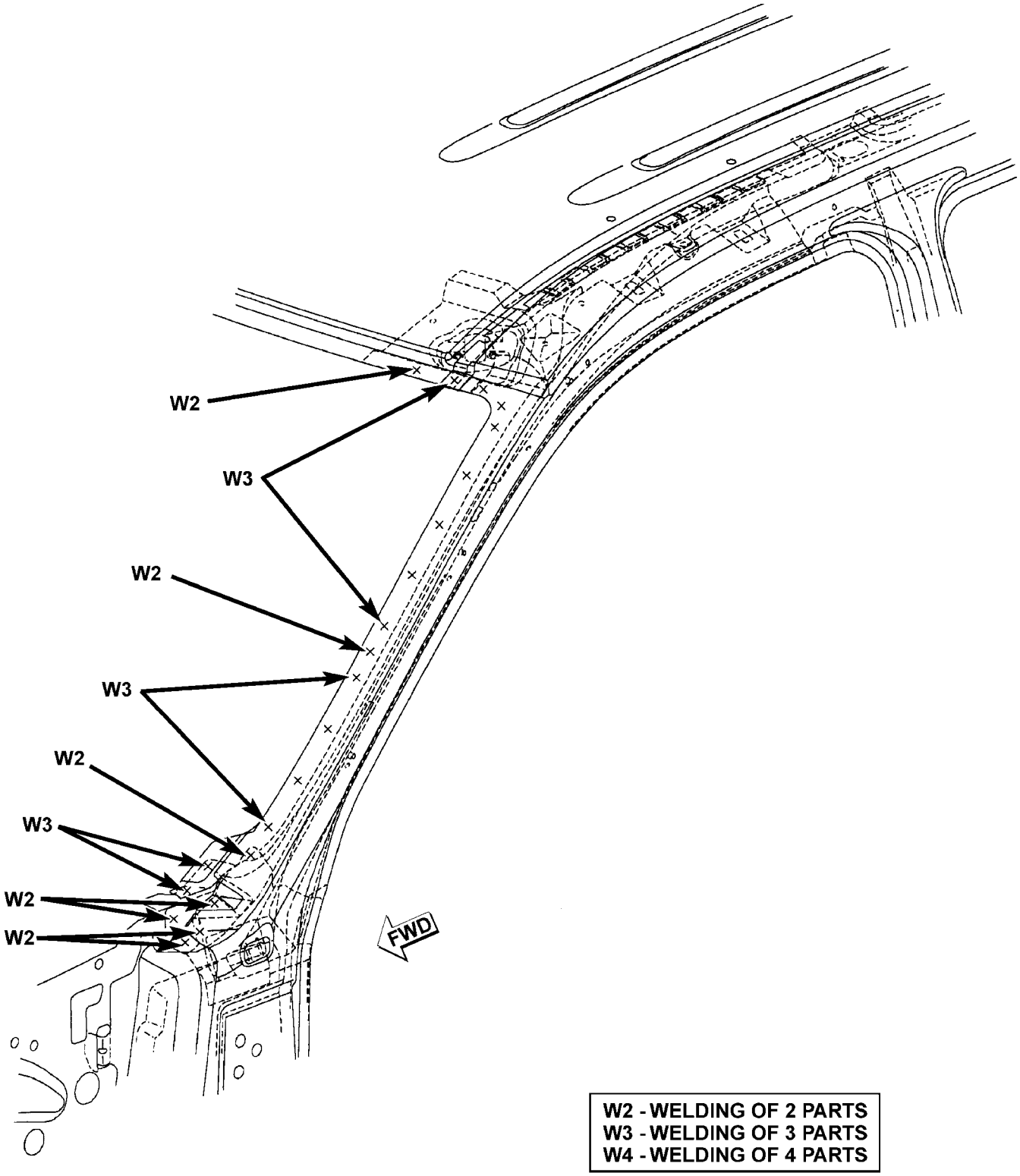


Fig. 70 UPPER FRONT INNER PILLAR TO ROOF AND COWL

WELD LOCATIONS (Continued)

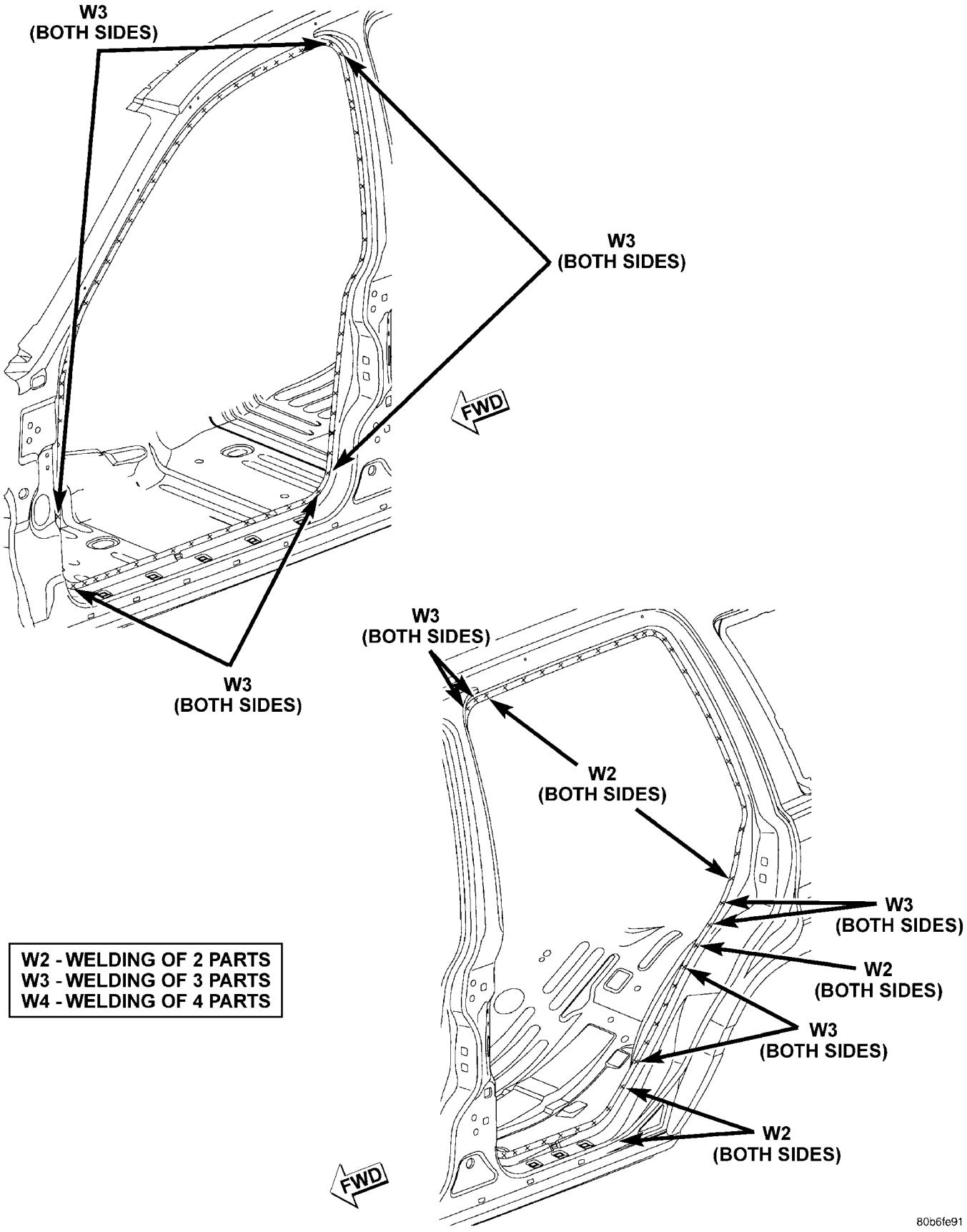


Fig. 71 DOOR OPENINGS

WELD LOCATIONS (Continued)

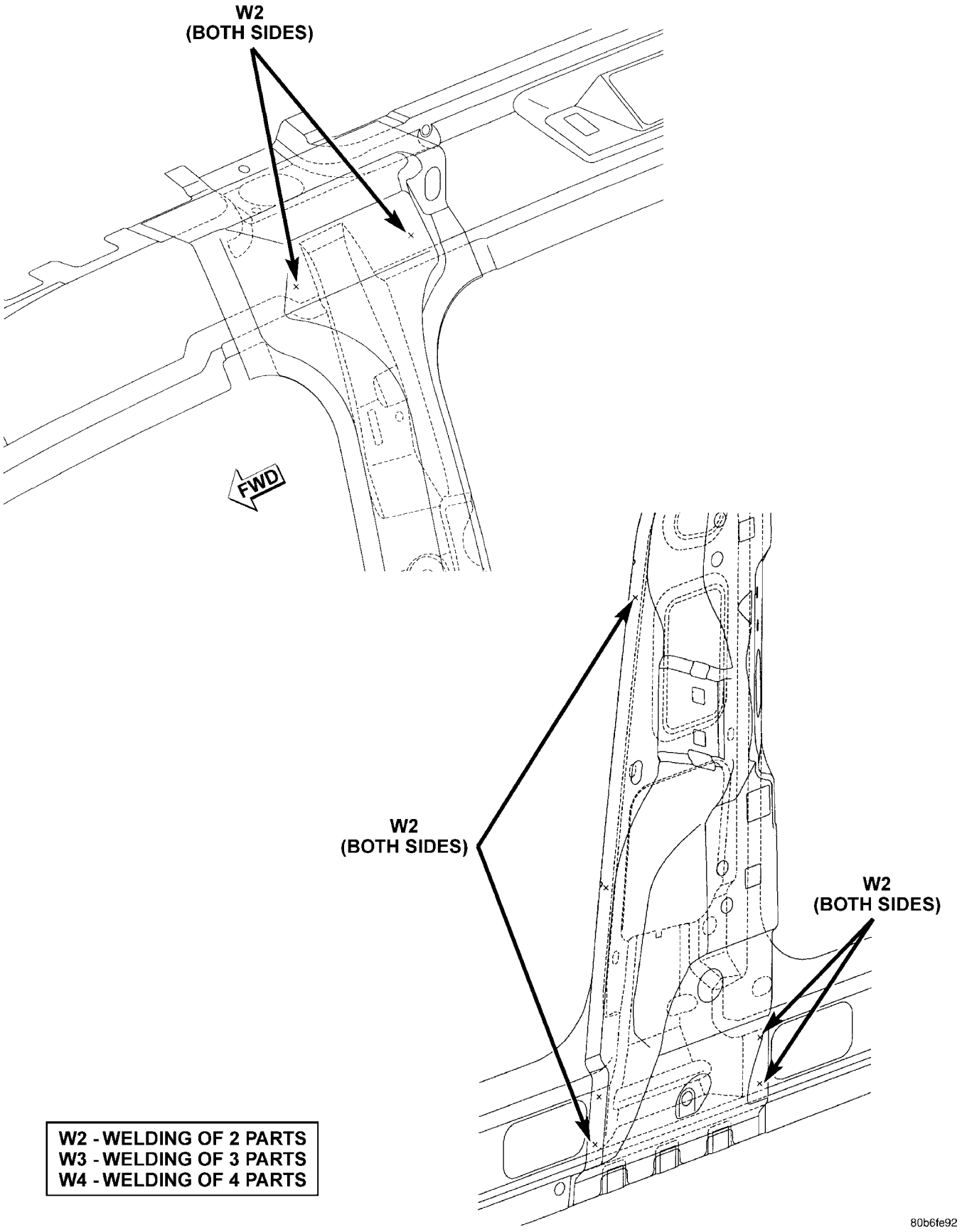


Fig. 72 B-PILLAR REINFORCEMENT TO INNER BODYSIDE APERTURE

WELD LOCATIONS (Continued)

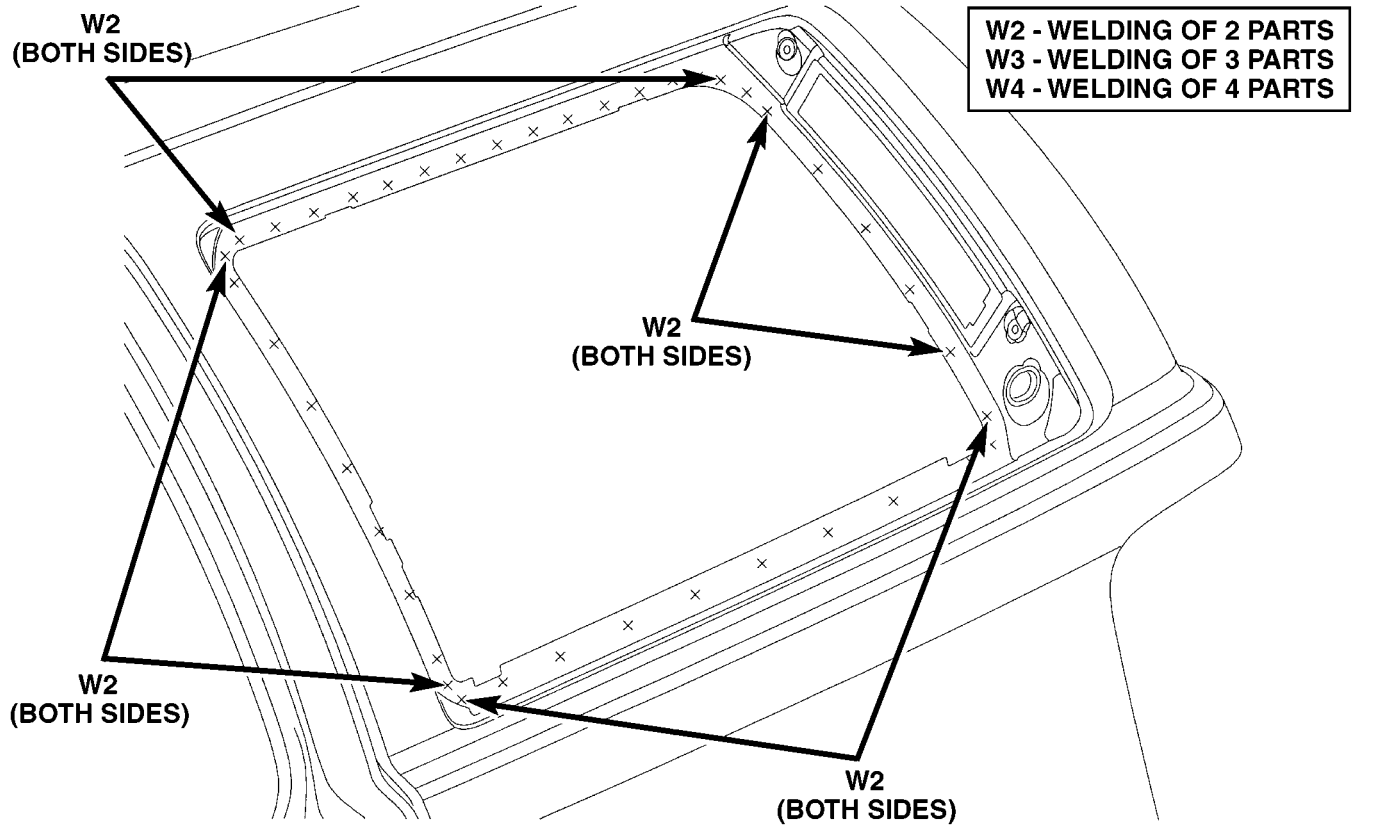


Fig. 73 REAR QUARTER WINDOW TO BODY SIDE APERTURE INNER AND OUTER

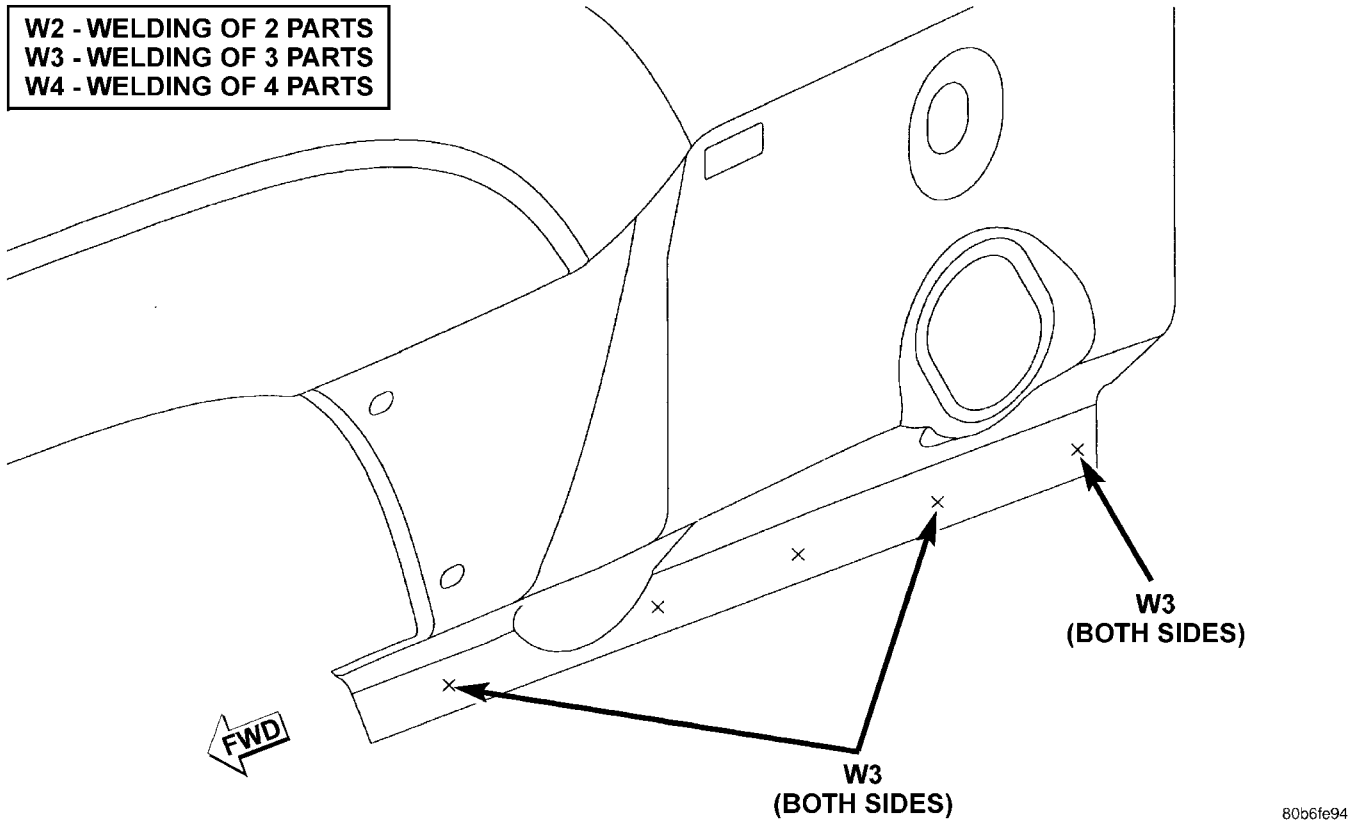


Fig. 74 LOWER REAR QUARTER TO BODYSIDE APERTURE INNER AND OUTER

WELD LOCATIONS (Continued)

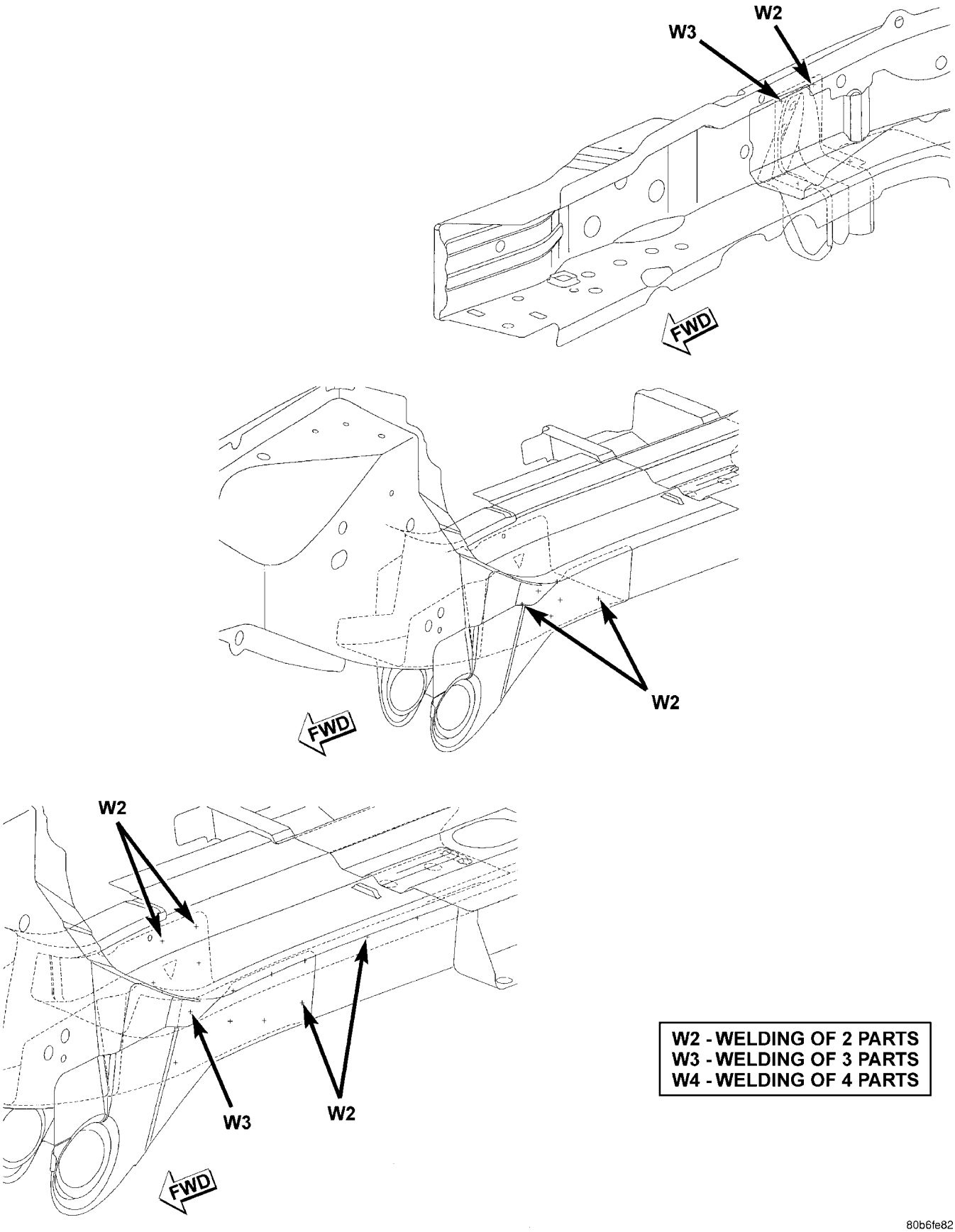


Fig. 75 INNER TRACK BAR, LOWER CONTROL ARM AND TRANSMISSION CROSSMEMBER BRACKETS TO FRONT SILLS

WELD LOCATIONS (Continued)

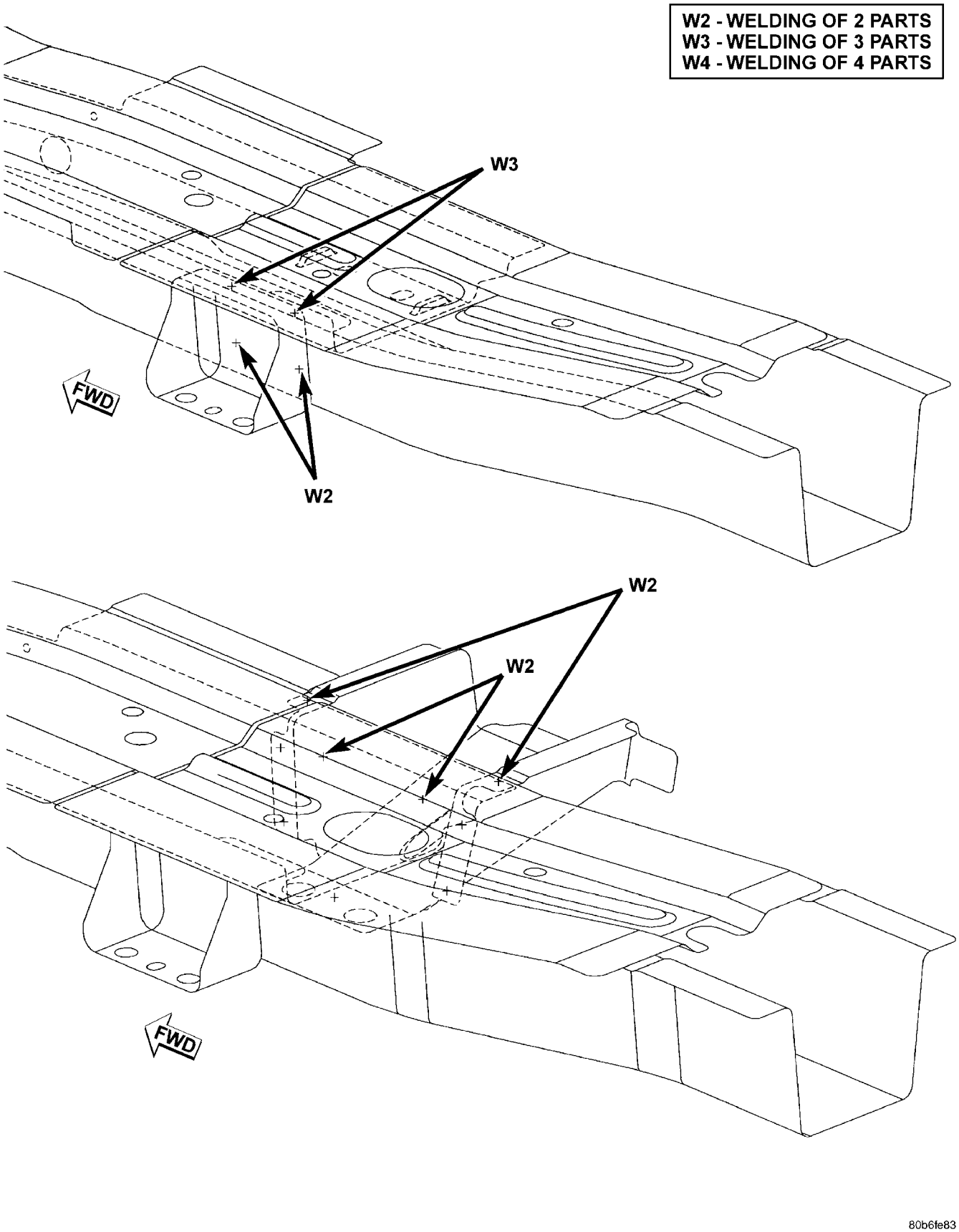


Fig. 76 TRANSMISSION CROSSMEMBER BRACKET AND REINFORCEMENT TO FRONT SILLS

WELD LOCATIONS (Continued)

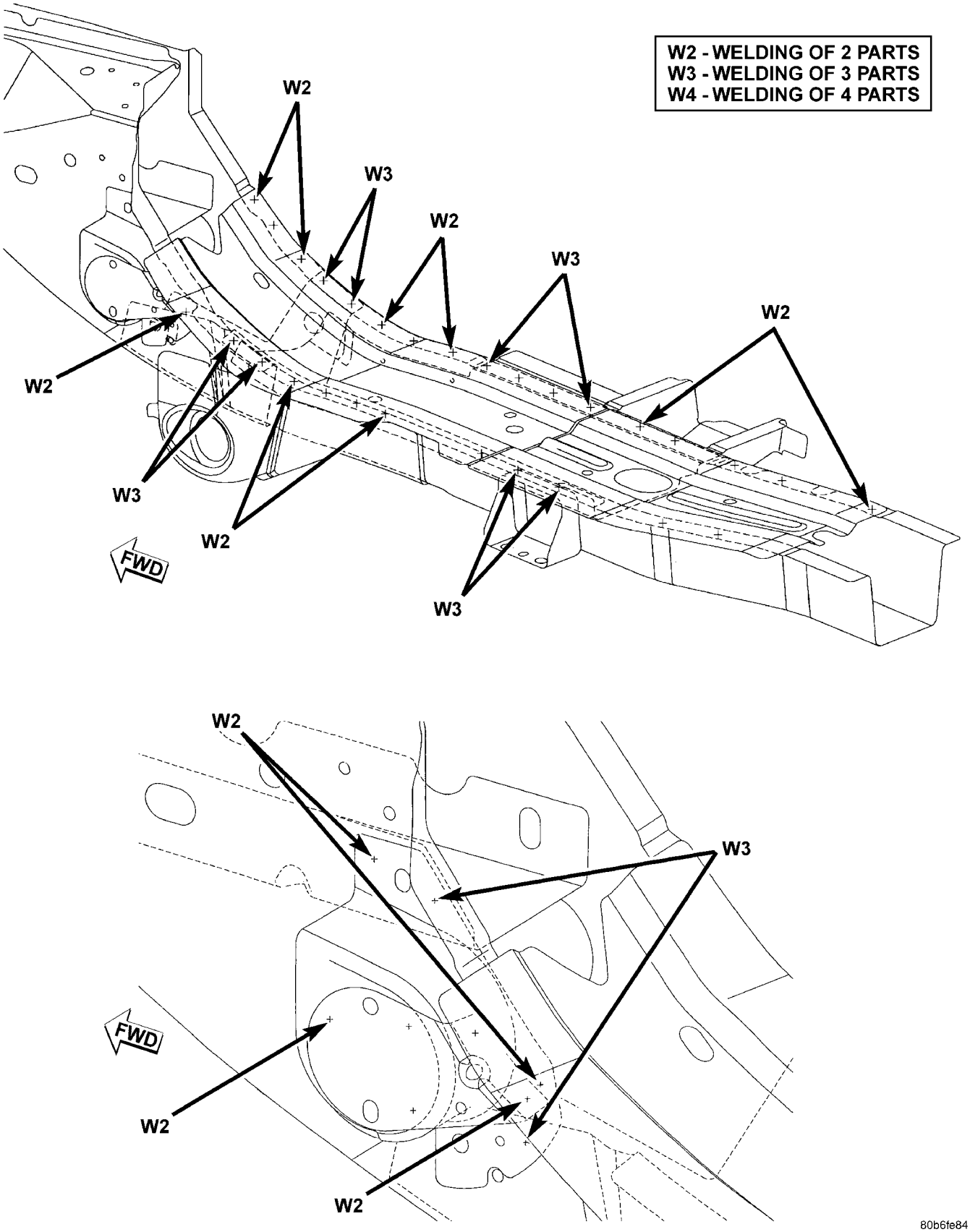


Fig. 77 UPPER SILLS AND UPPER CONTROL ARM REINFORCEMENT AND BRACKETS TO FRONT SILLS

WELD LOCATIONS (Continued)

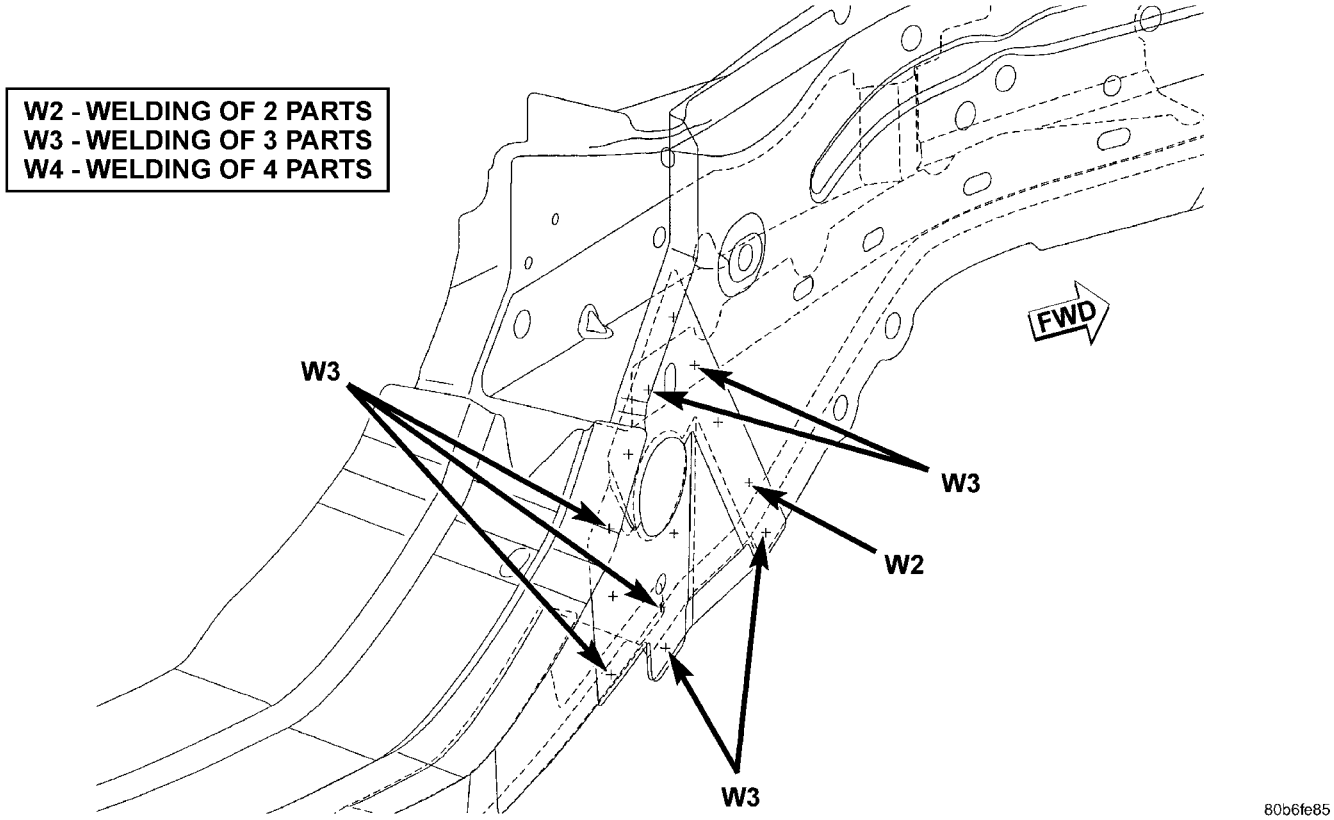


Fig. 78 REINFORCEMENT TO FRONT OUTER SILLS

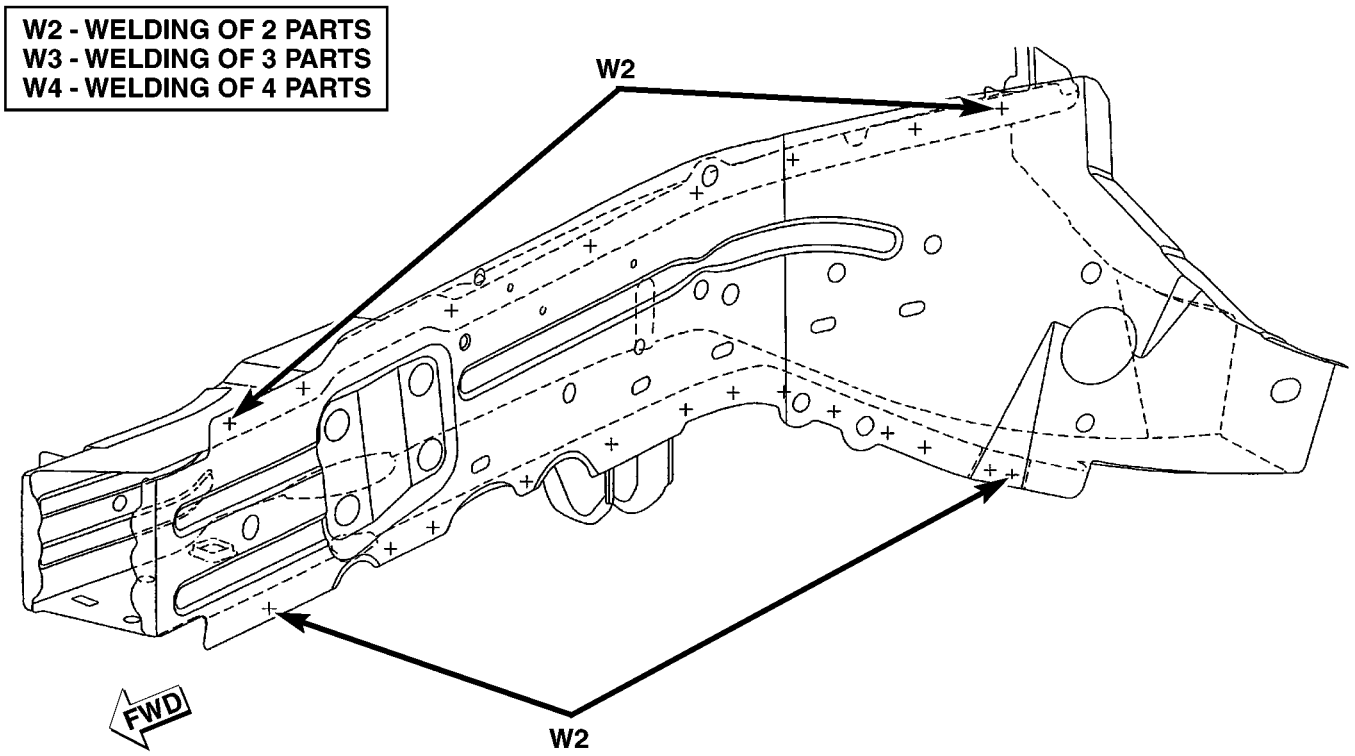


Fig. 79 FRONT INNER SILL TO FRONT OUTER SILL

WELD LOCATIONS (Continued)

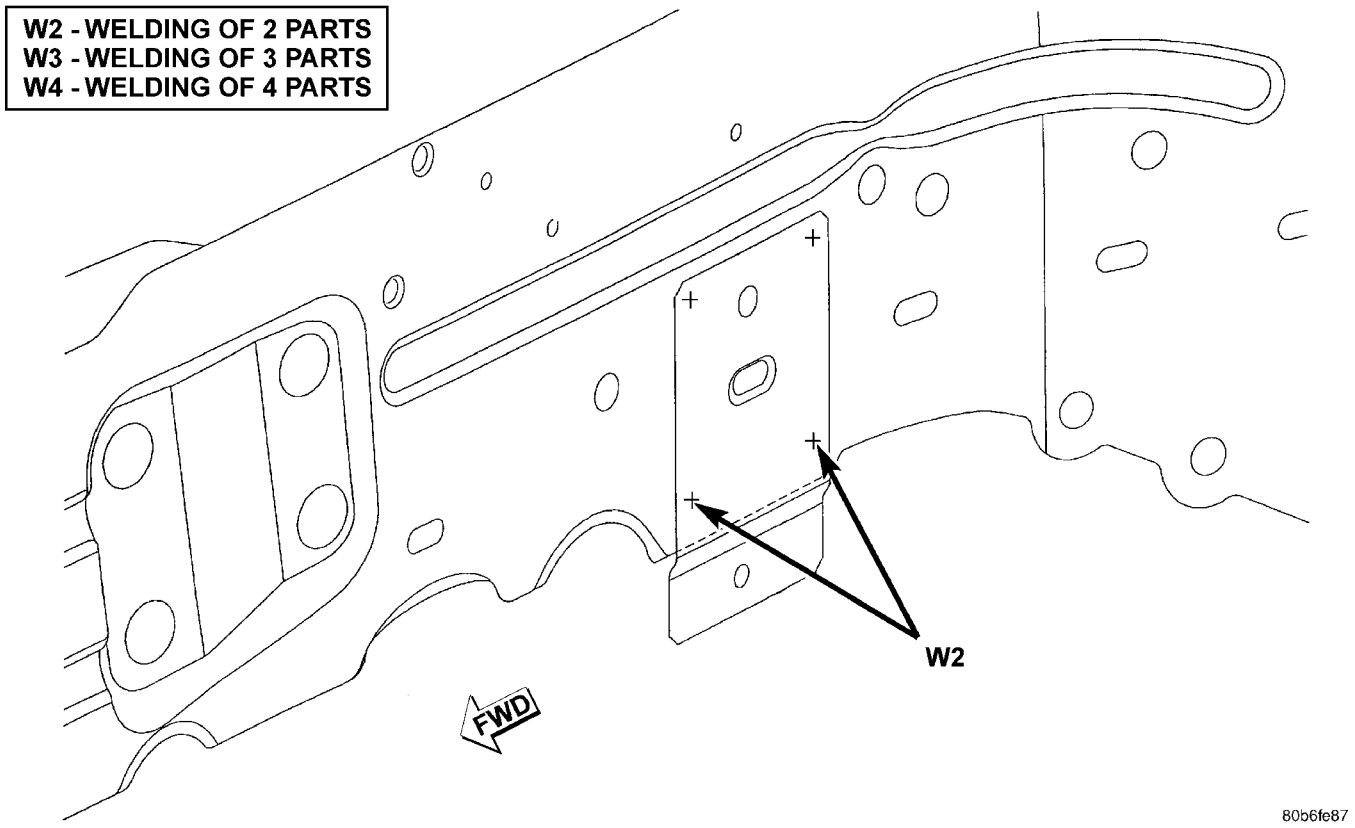


Fig. 80 OUTER TRACK BAR BRACKET TO FRONT OUTER SILL

WELD LOCATIONS (Continued)

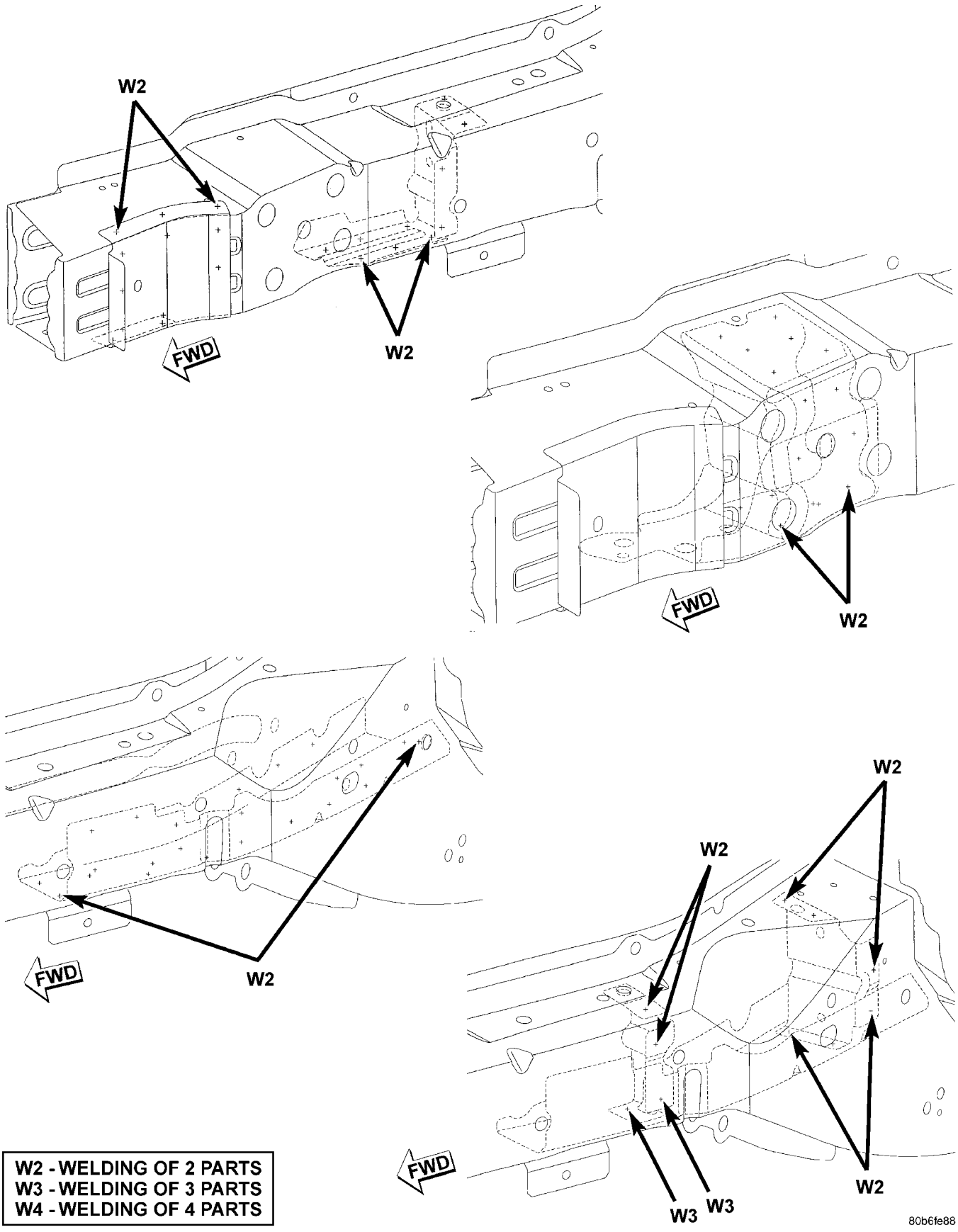


Fig. 81 REINFORCEMENT FOR FRONT ENGINE MOUNTING AND STEERING GEAR TO FRONT INNER SILL

WELD LOCATIONS (Continued)

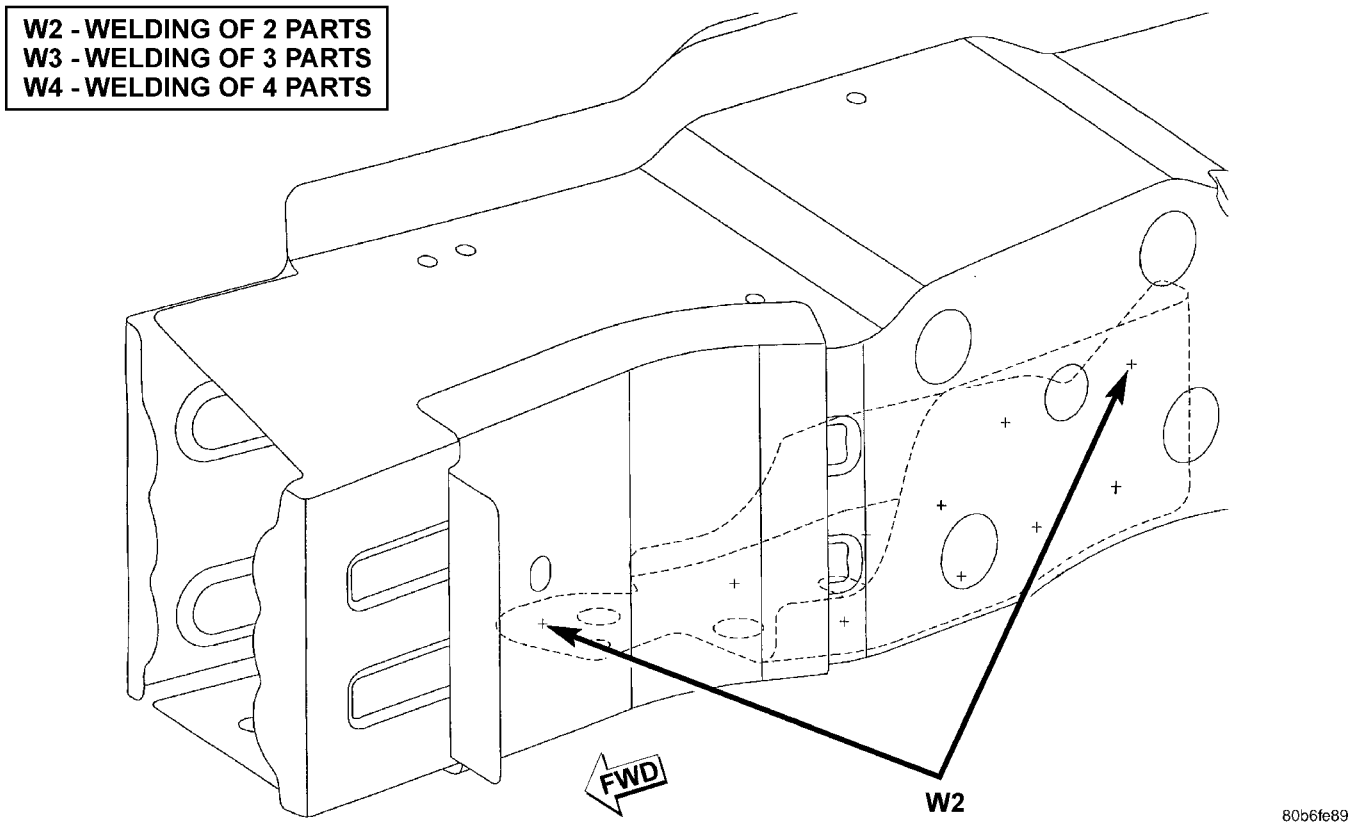


Fig. 82 LARGE AND SMALL SWAY BAR TAPPING PLATES TO FRONT INNER SILLS

WELD LOCATIONS (Continued)

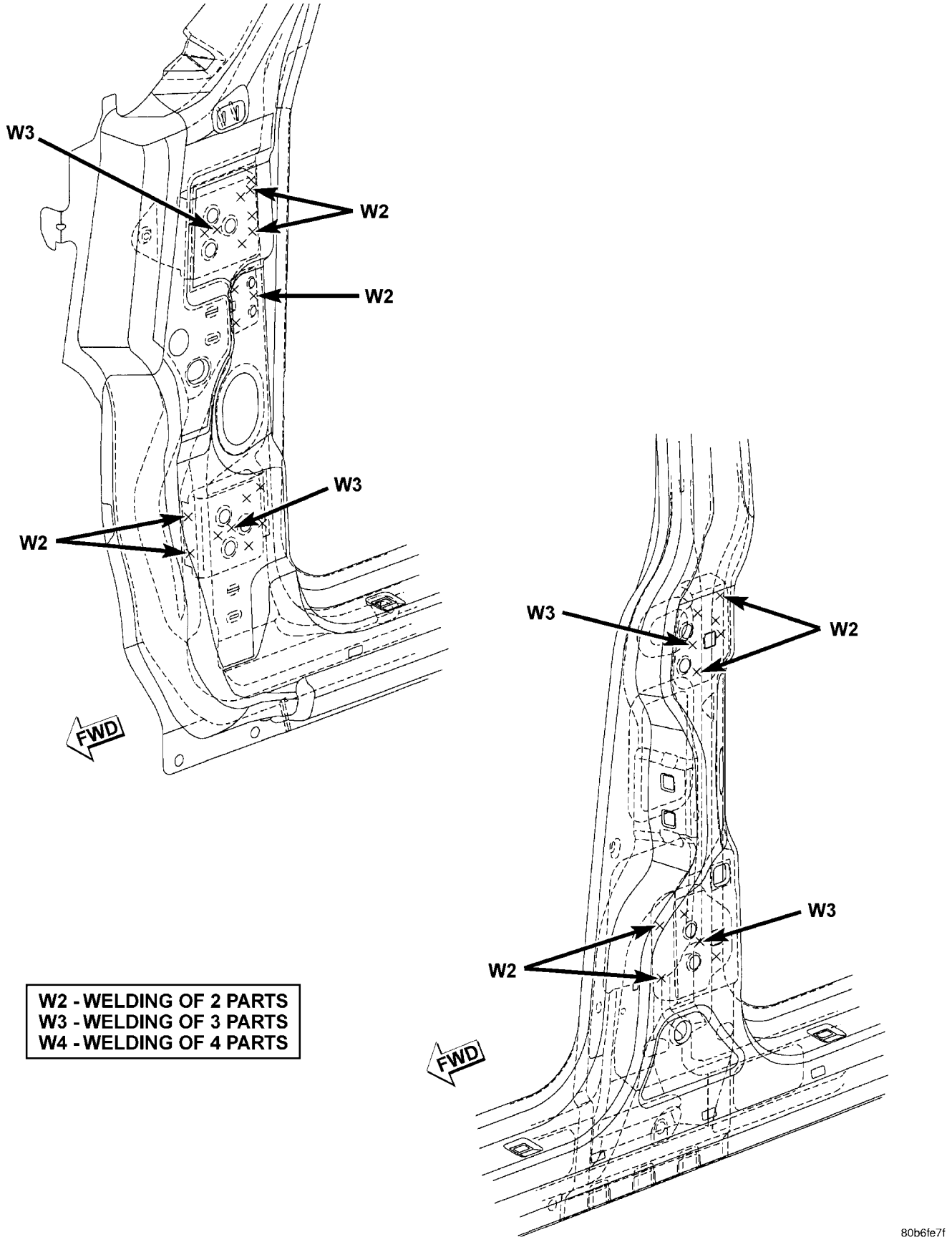


Fig. 83 FRONT AND REAR DOOR HINGE TAPPING PLATES

WELD LOCATIONS (Continued)

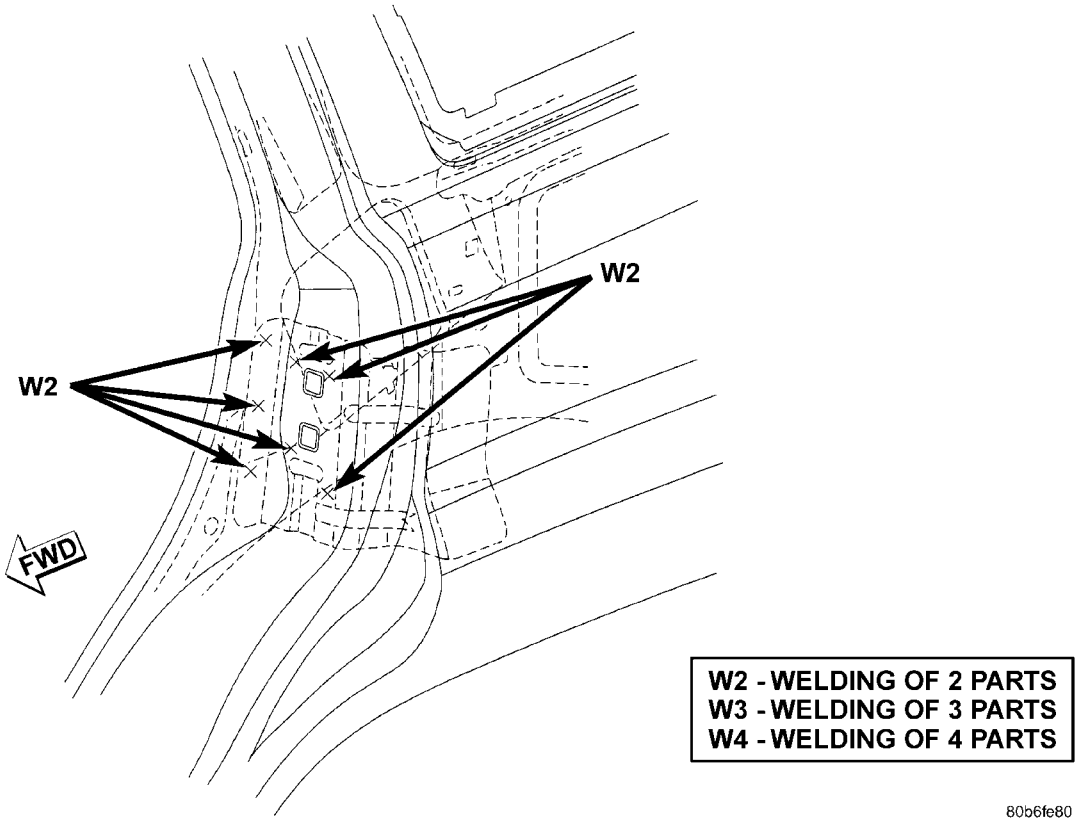


Fig. 84 REAR DOOR STRIKER REINFORCEMENT

WELD LOCATIONS (Continued)

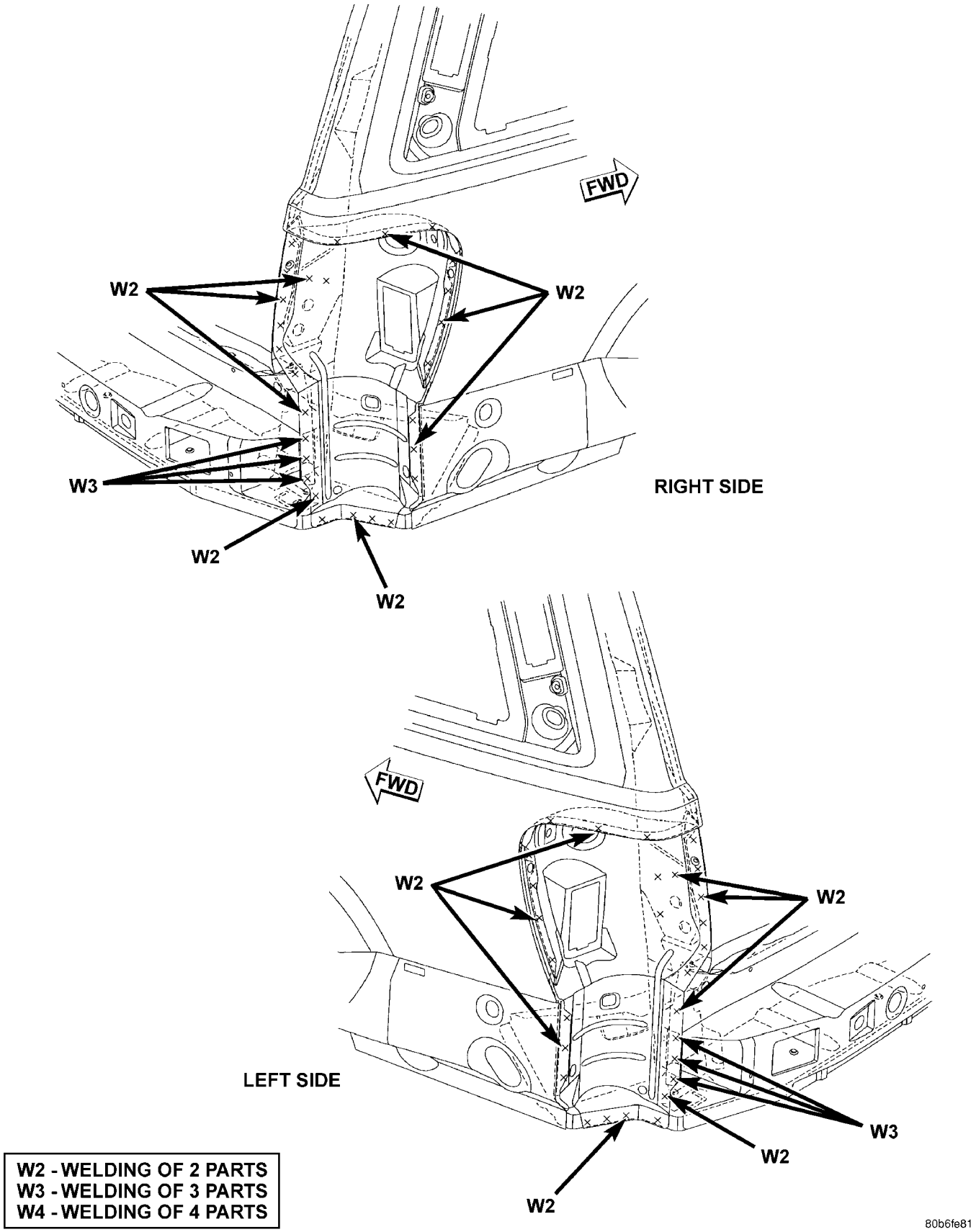
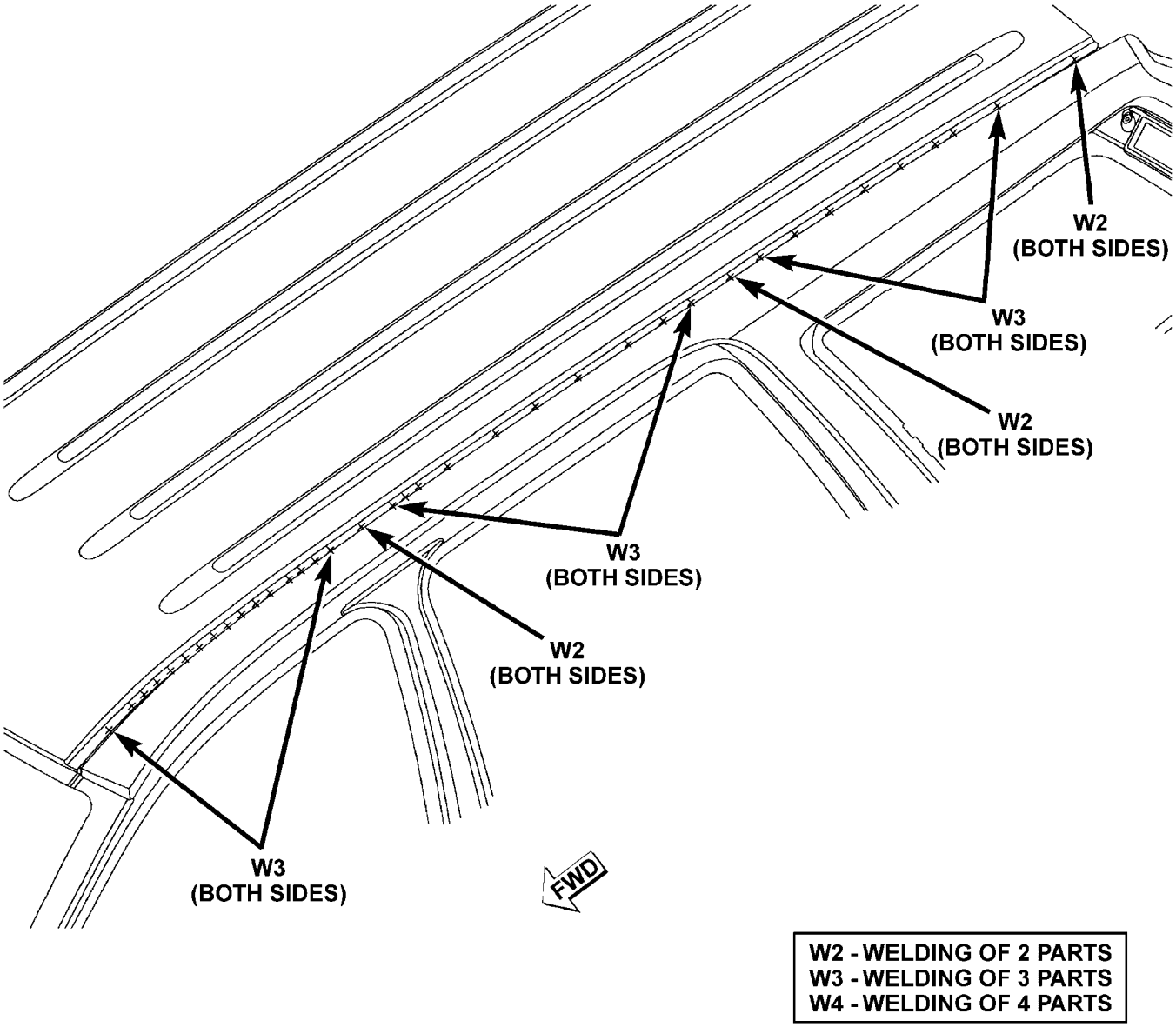


Fig. 85 TAIL LAMP MOUNTING PANELS

WELD LOCATIONS (Continued)



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Fig. 86 ROOF PANEL TO BODYSIDE APERTURE

WELD LOCATIONS (Continued)

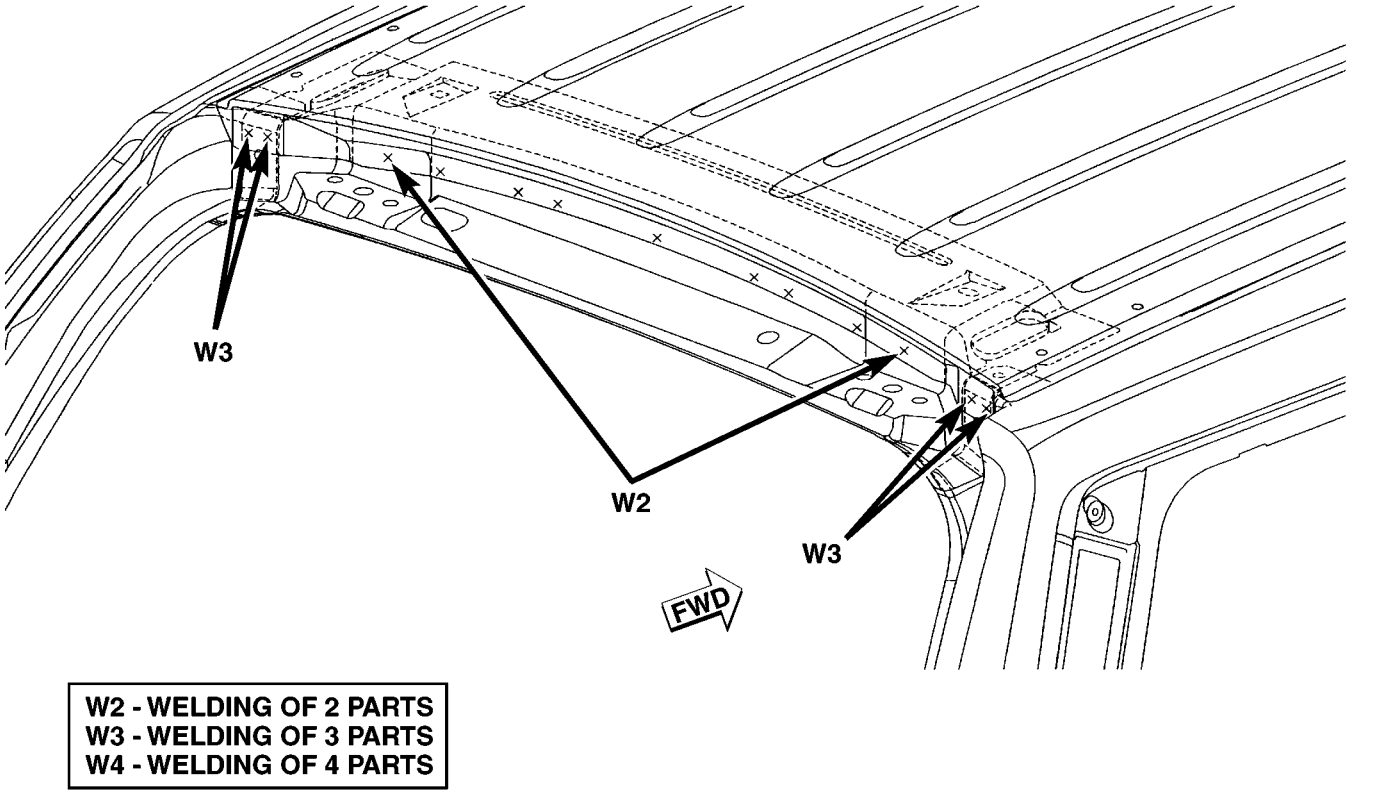
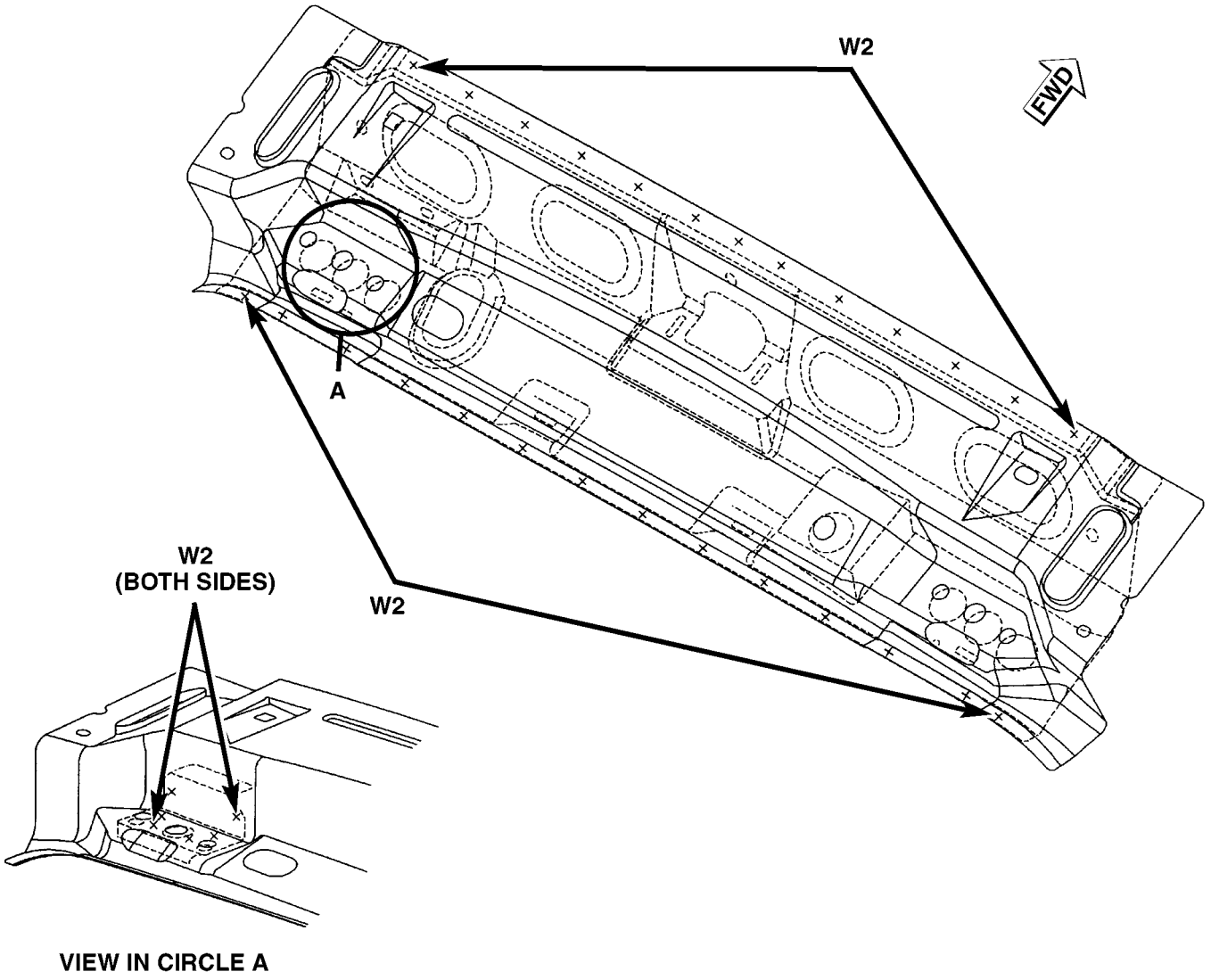


Fig. 87 ROOF PANEL TO REAR HEADER

WELD LOCATIONS (Continued)



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Fig. 88 UPPER REAR HEADER TO LOWER HEADER

WELD LOCATIONS (Continued)

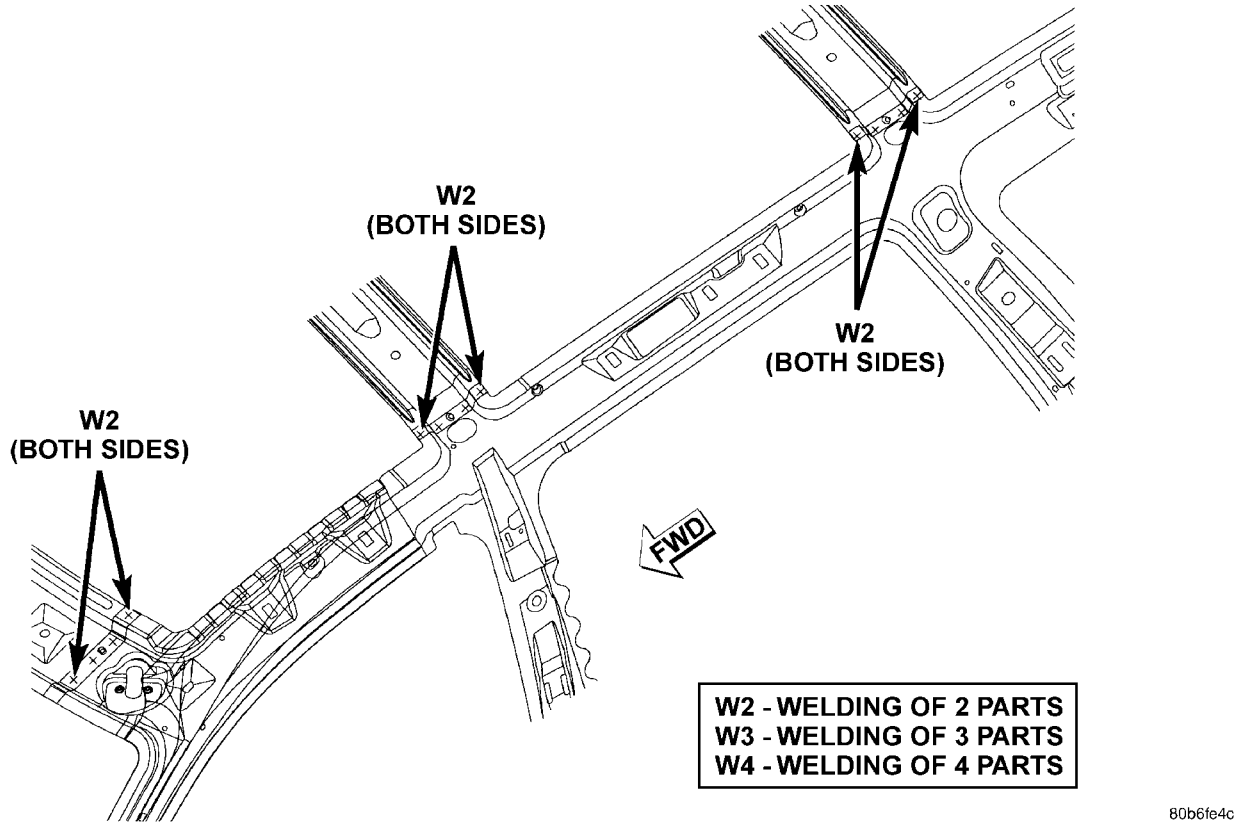


Fig. 89 FRONT HEADER AND ROOF BOWS TO INNER PANEL

WELD LOCATIONS (Continued)

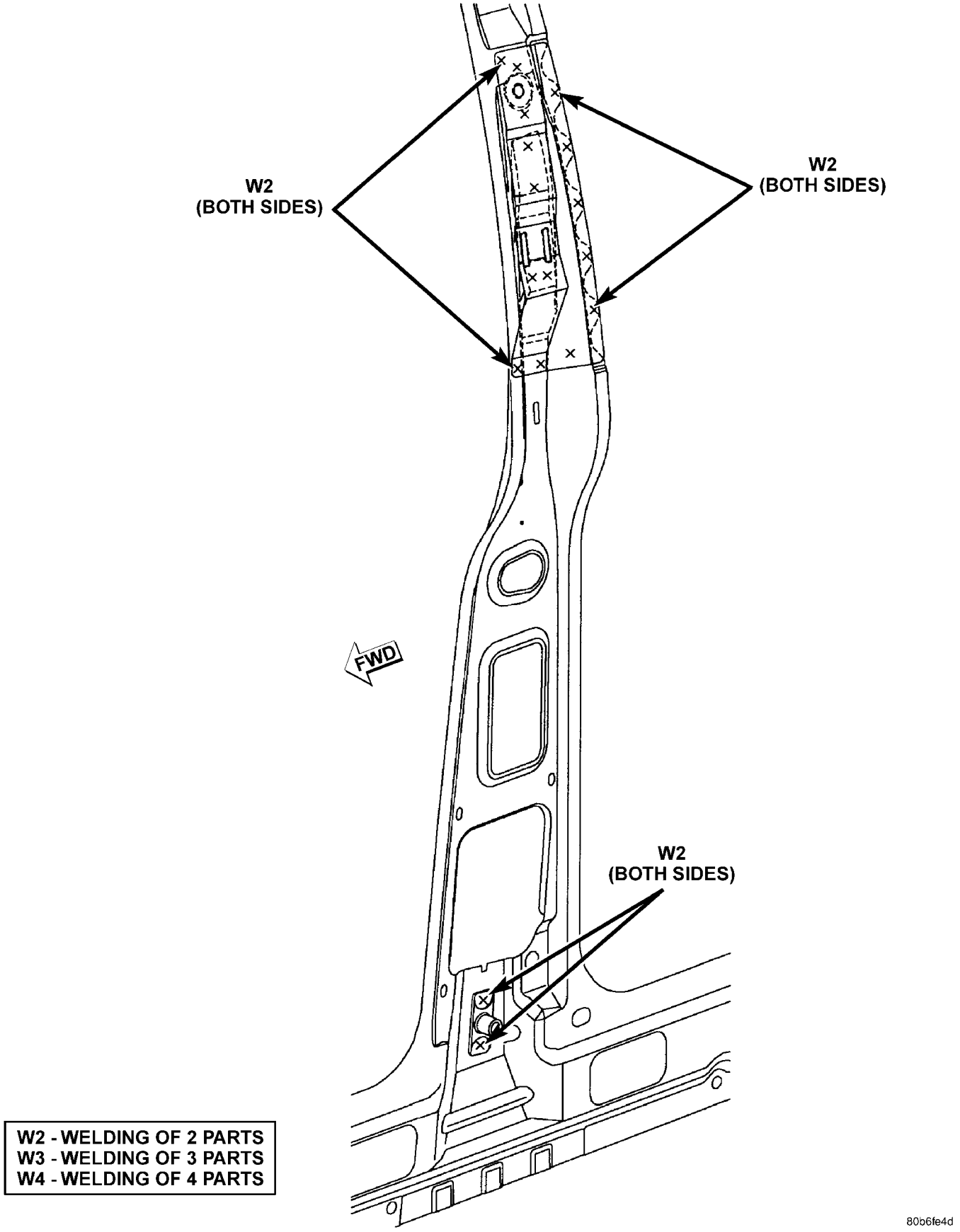


Fig. 90 FRONT SEAT/SHOULDER BELT TO INNER PANEL REINFORCEMENT

WELD LOCATIONS (Continued)

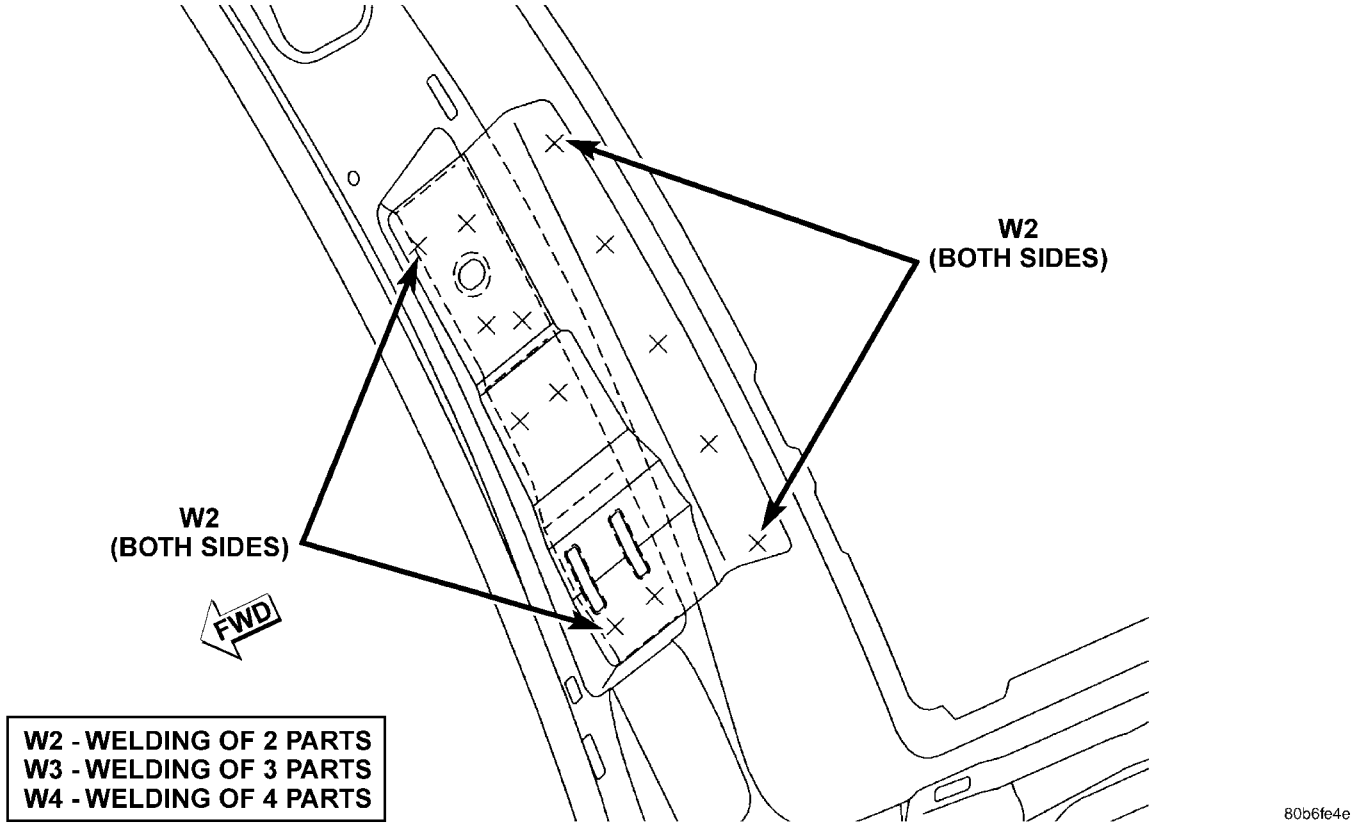


Fig. 91 REAR SEAT/SHOULDER BELT TO INNER PANEL REINFORCEMENT

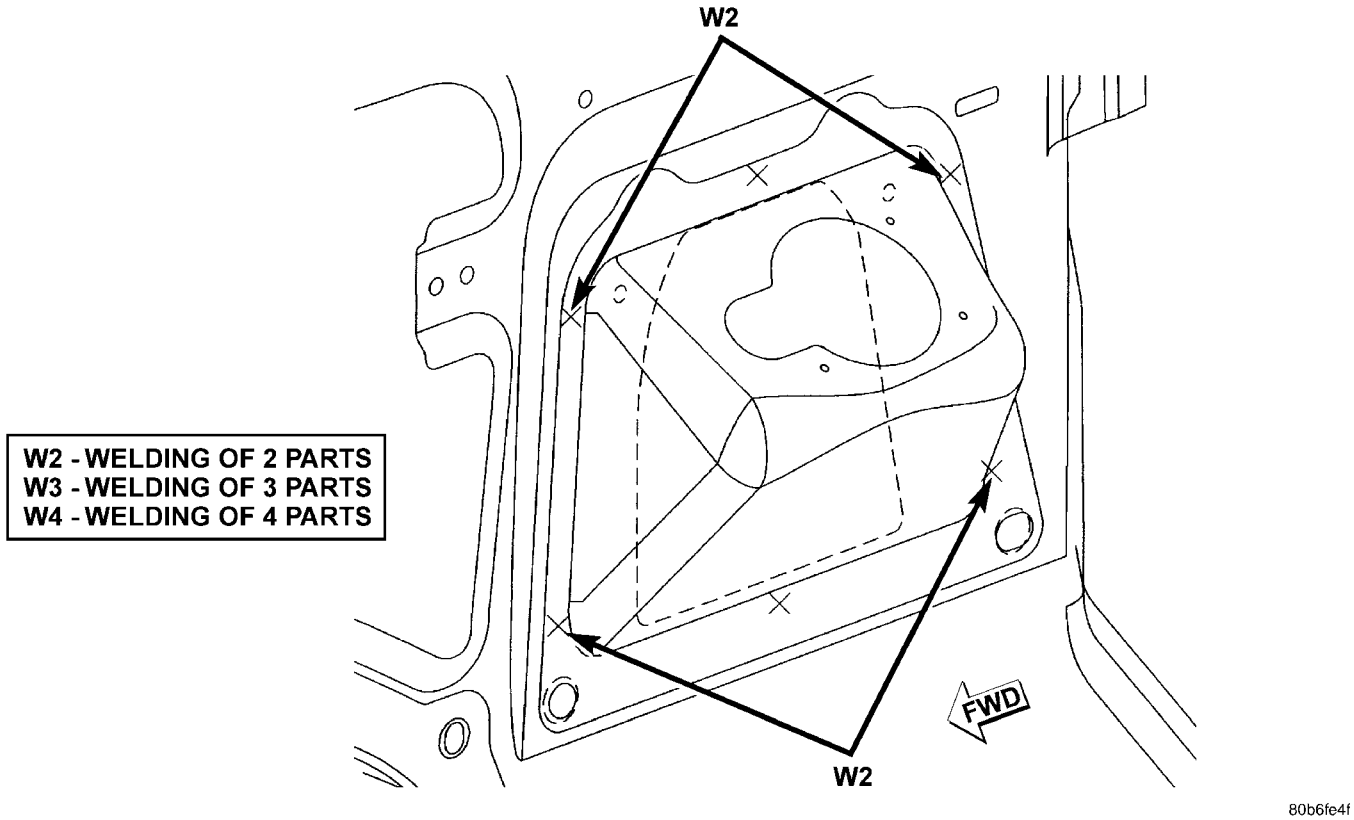


Fig. 92 FUEL FILLER GUSSET TO INNER QUARTER PANEL

WELD LOCATIONS (Continued)

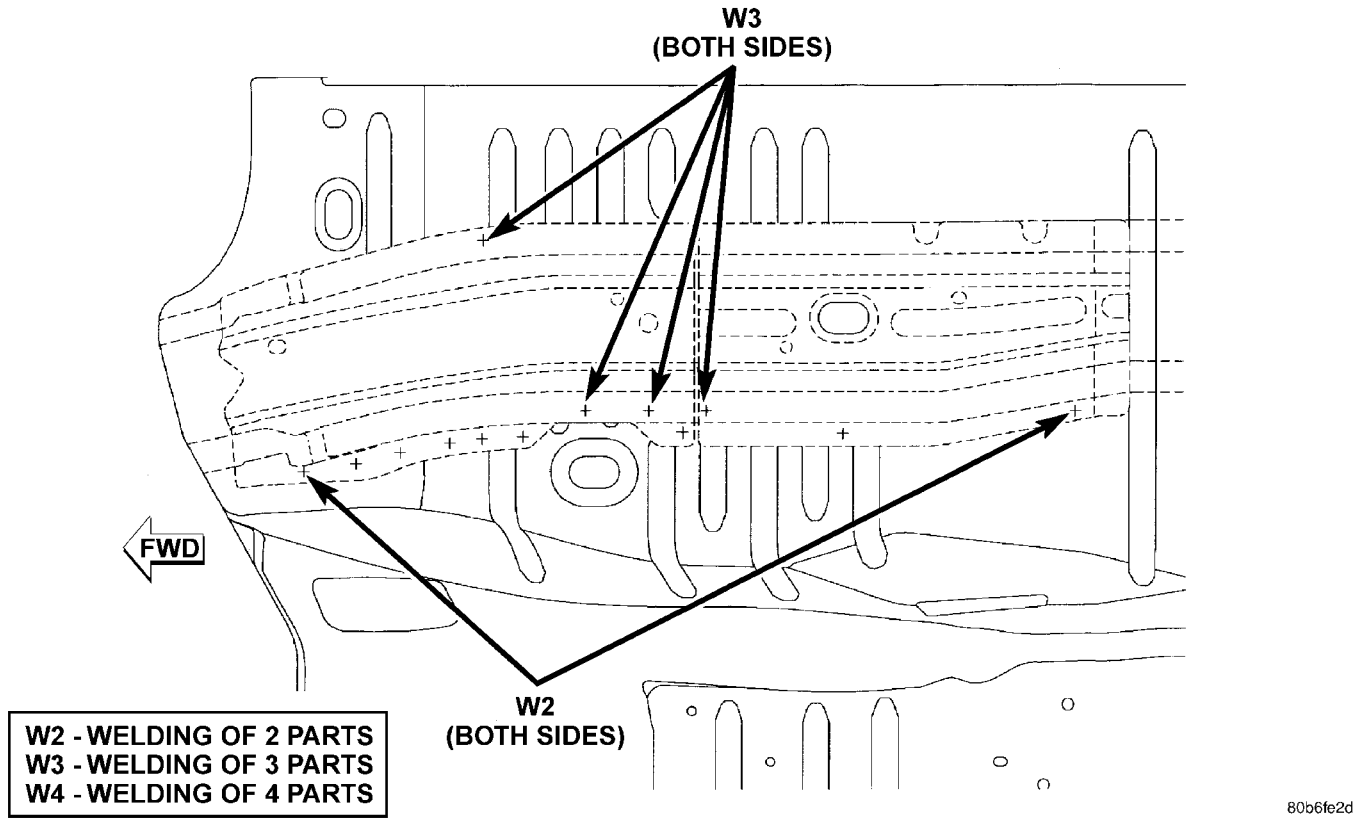
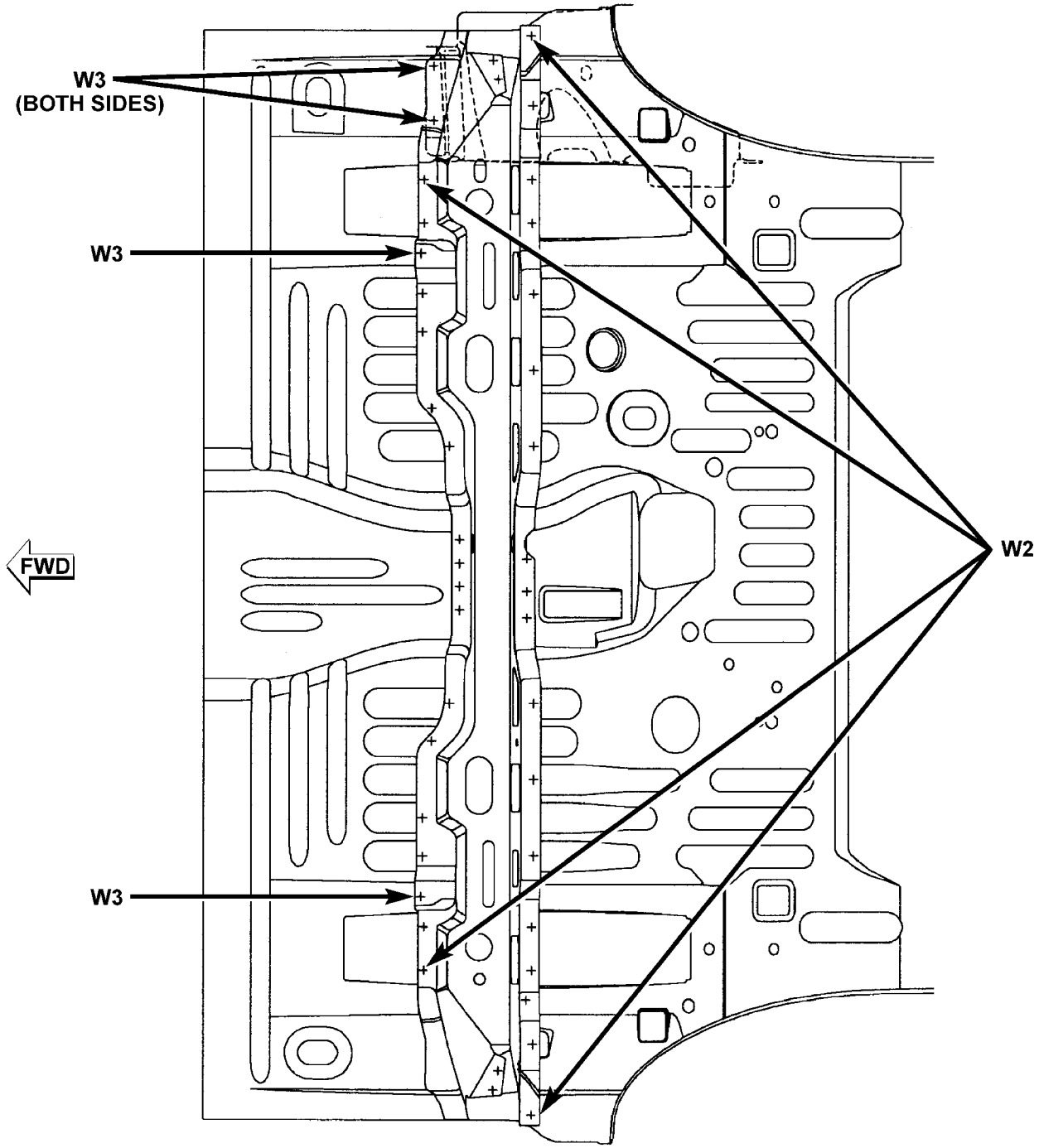


Fig. 93 FRONT FLOOR PAN TO SILL REINFORCEMENT

WELD LOCATIONS (Continued)

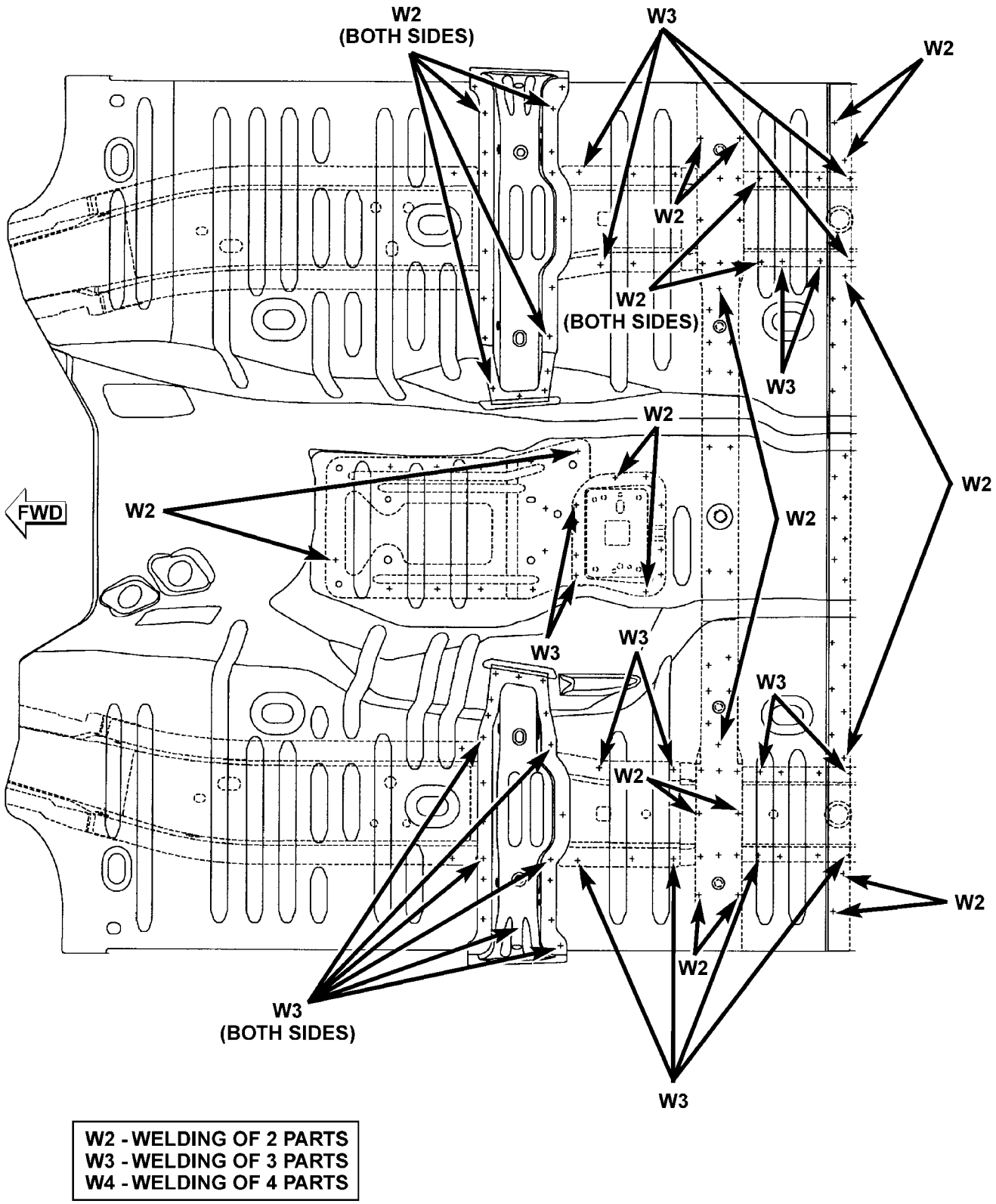


W2 - WELDING OF 2 PARTS
W3 - WELDING OF 3 PARTS
W4 - WELDING OF 4 PARTS

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Fig. 94 CENTER FLOOR PAN TO REAR SEAT CROSSMEMBER

WELD LOCATIONS (Continued)



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Fig. 95 FRONT FLOOR PAN TO FRONT SEAT REINFORCEMENT AND RAILS

WELD LOCATIONS (Continued)

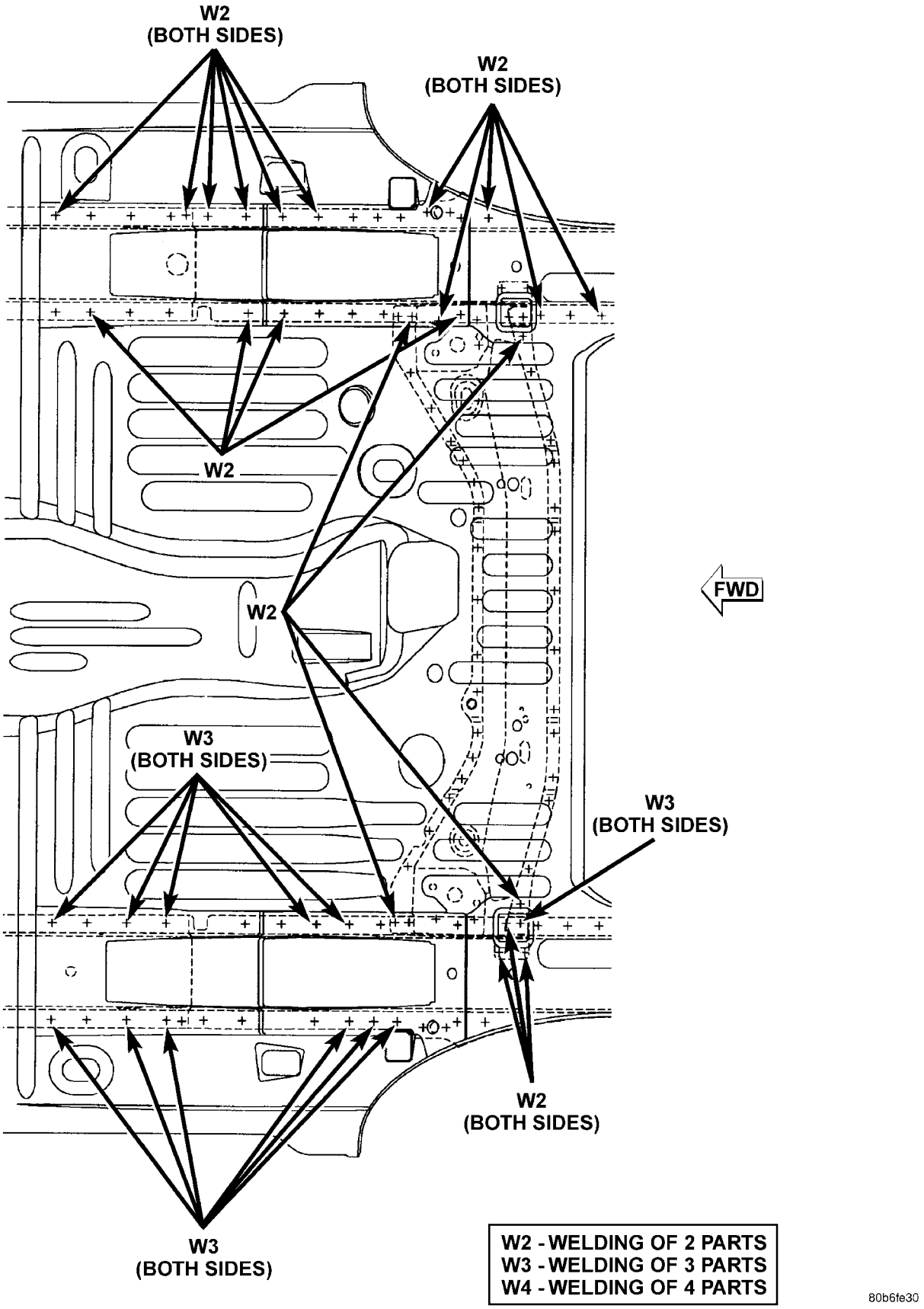


Fig. 96 CENTER FLOOR PAN TO UPPER CONTROL ARM CROSSMEMBER AND RAILS

WELD LOCATIONS (Continued)

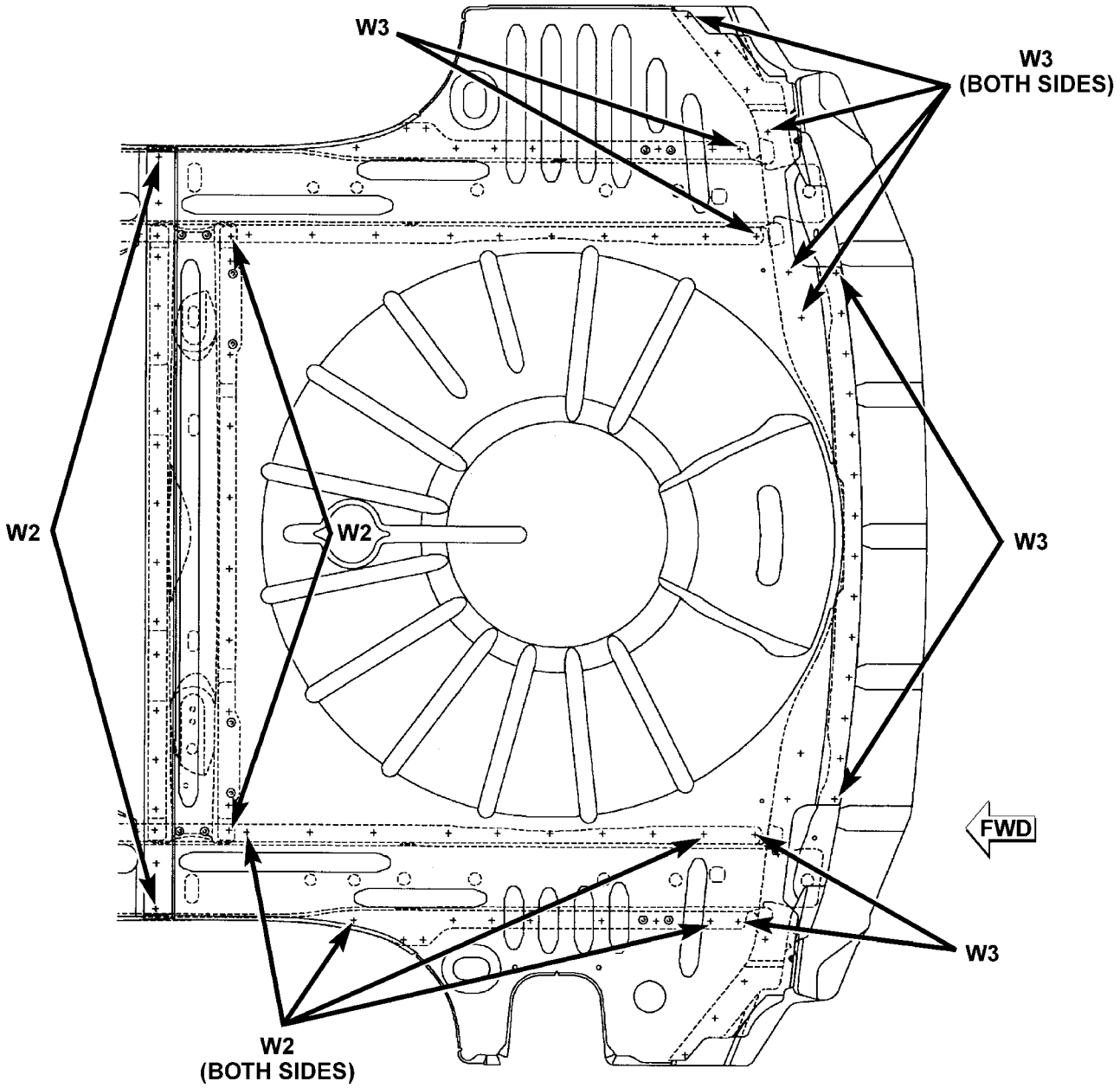


Fig. 97 REAR FLOOR PAN TO RAILS AND SPRING GUIDE CROSSMEMBER

WELD LOCATIONS (Continued)

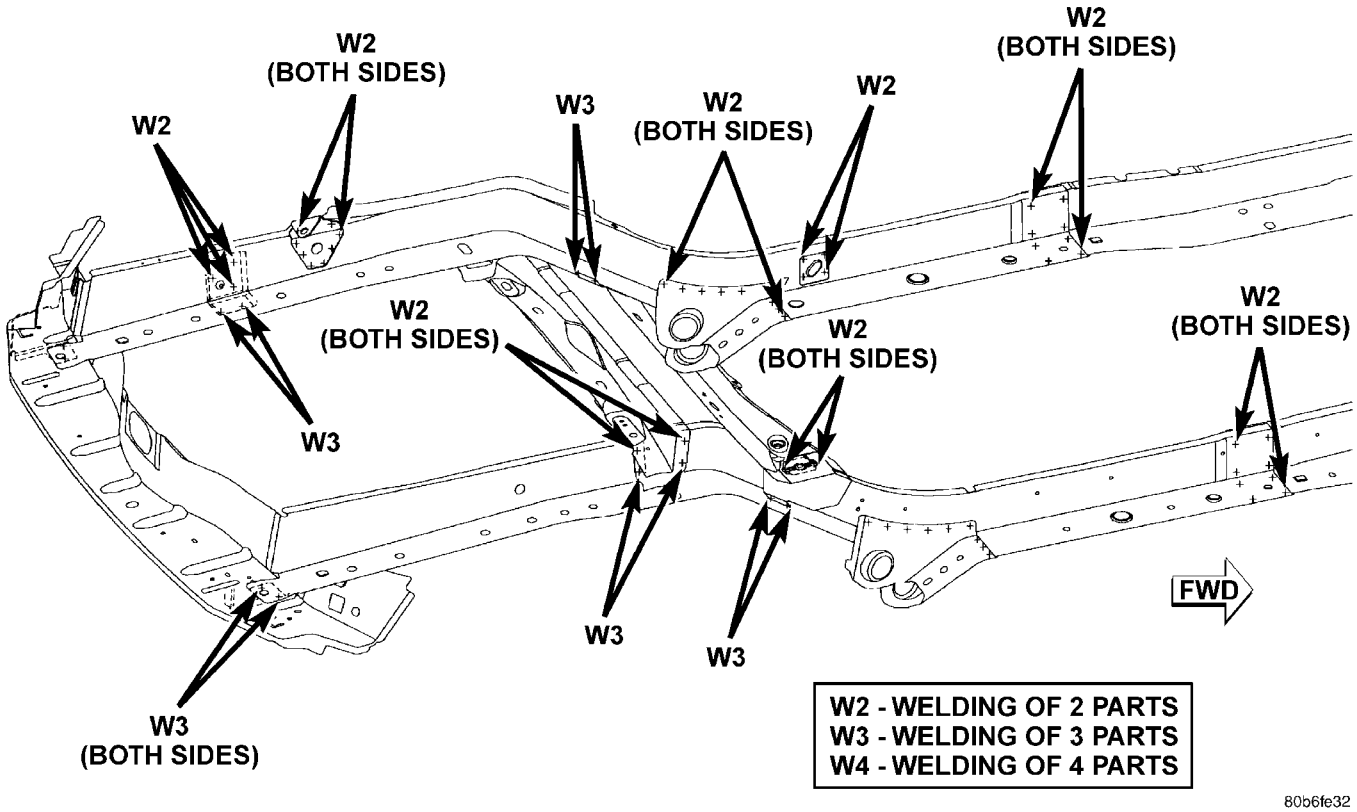


Fig. 98 REAR RAILS

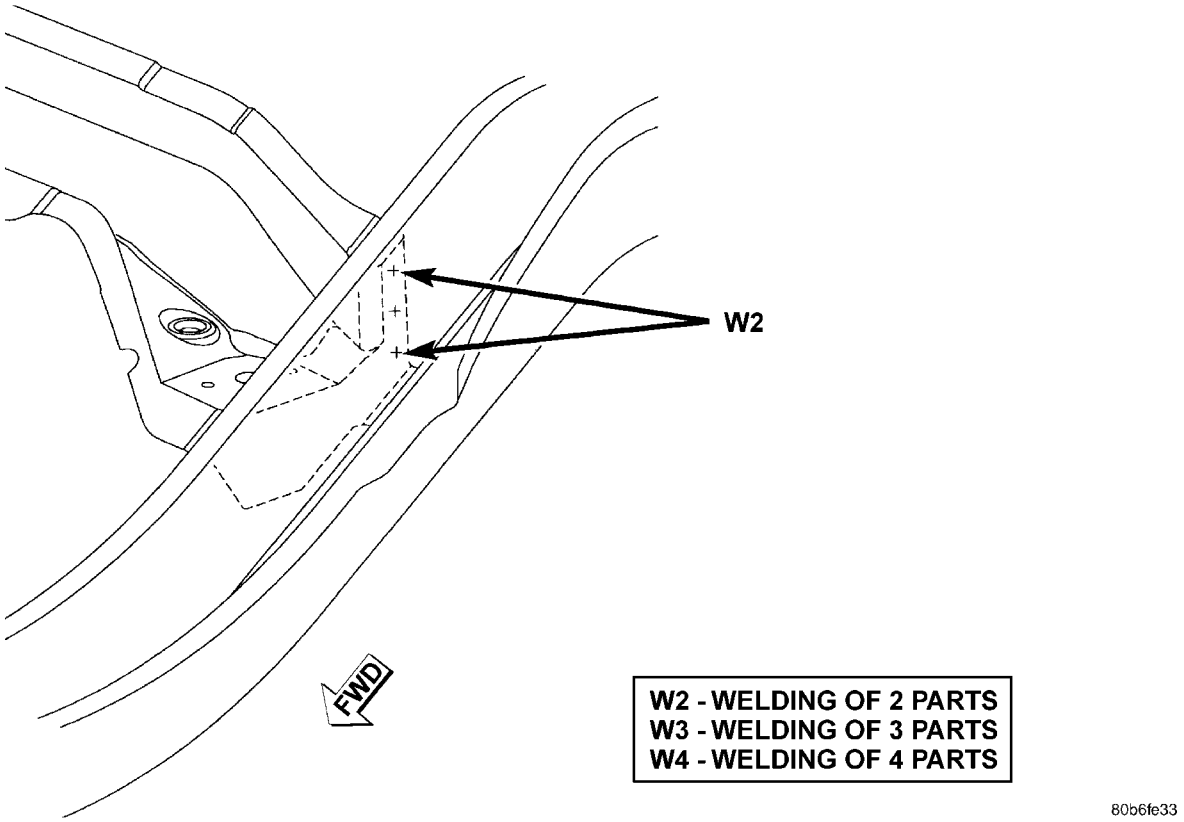


Fig. 99 UPPER CONTROL ARM CROSSMEMBER TO REAR RAIL

WELD LOCATIONS (Continued)

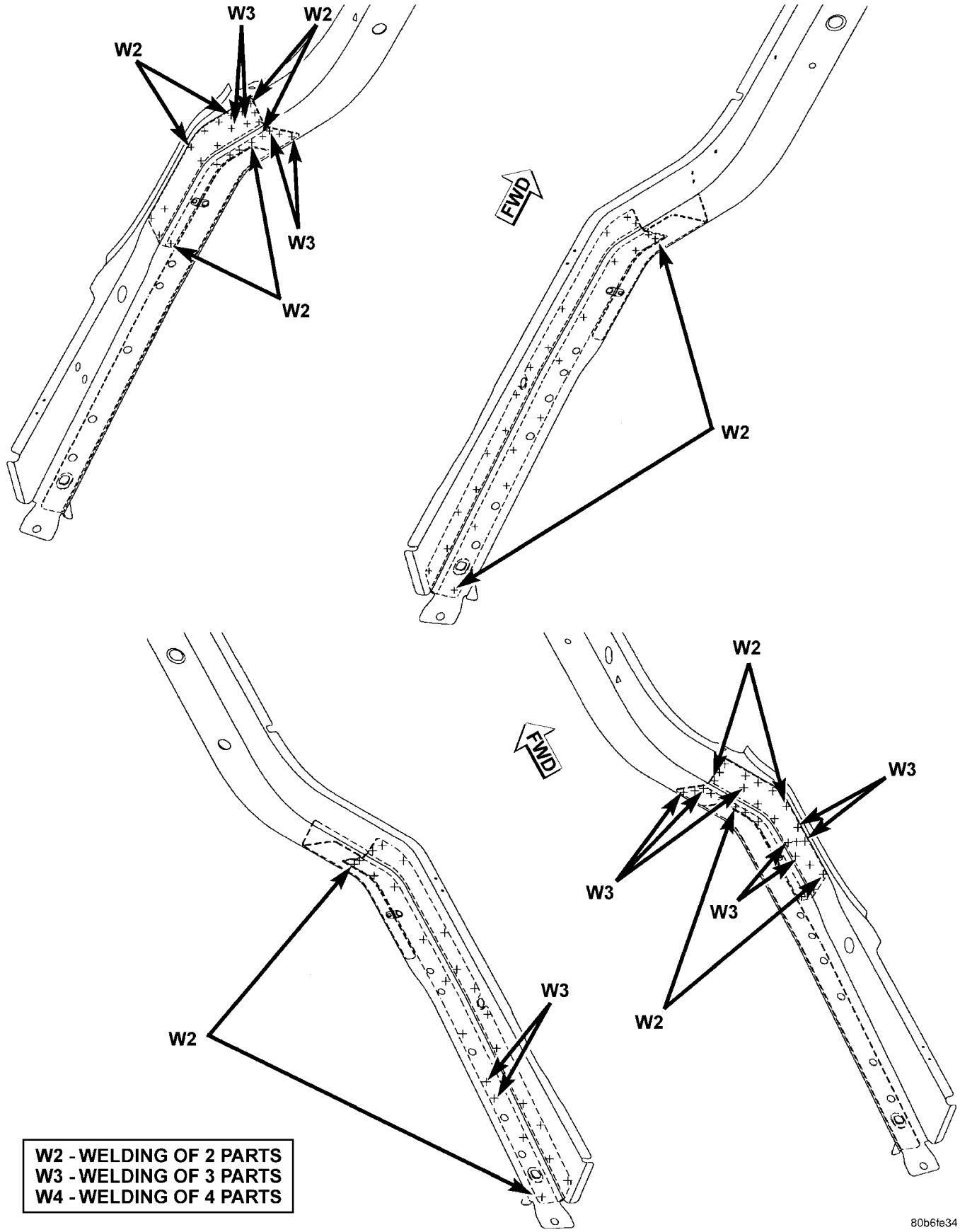
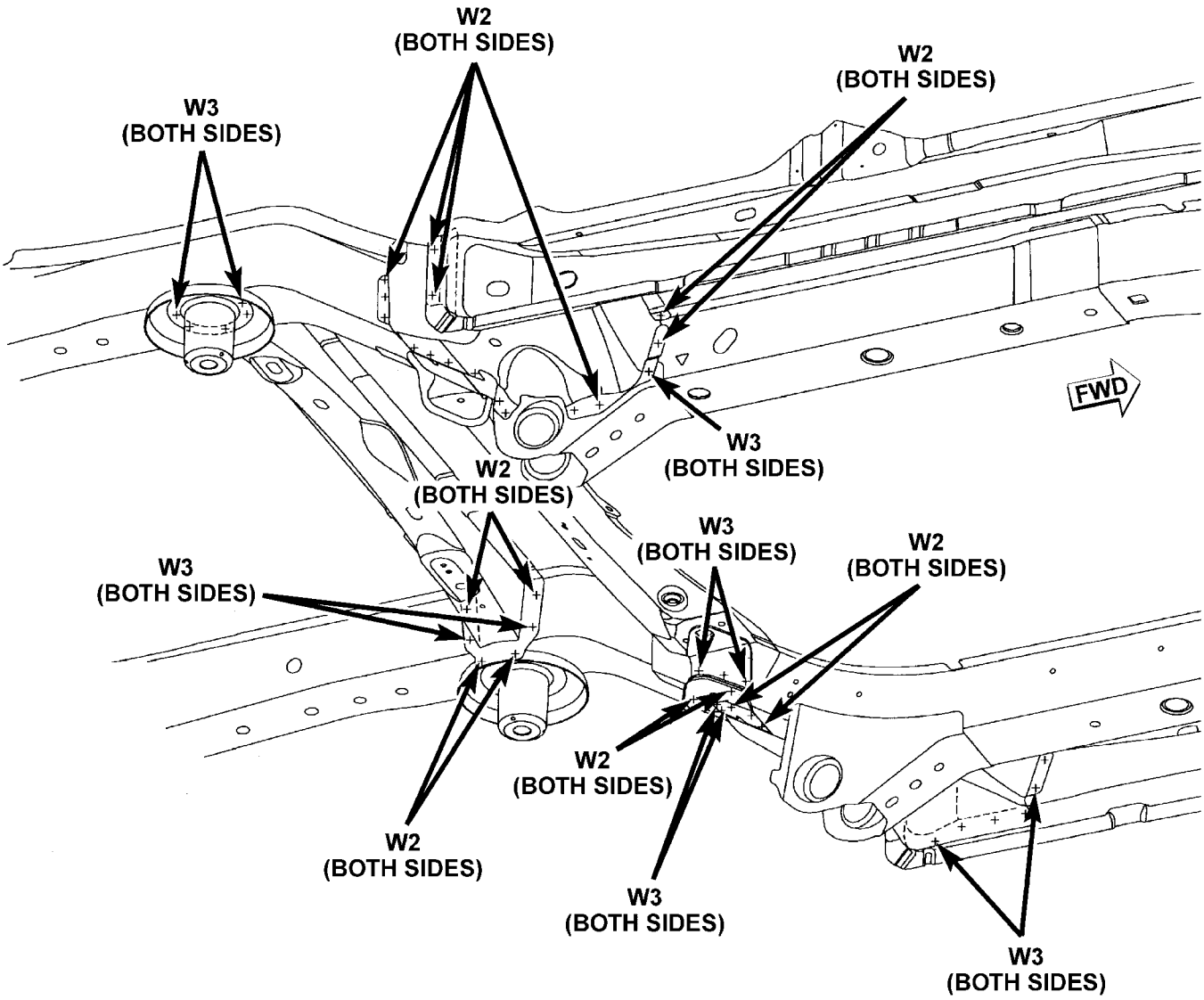


Fig. 100 REAR RAIL REINFORCEMENT TO REAR RAILS

WELD LOCATIONS (Continued)



W2 - WELDING OF 2 PARTS
W3 - WELDING OF 3 PARTS
W4 - WELDING OF 4 PARTS

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Fig. 101 UPPER CONTROL ARM REINFORCEMENTS TO REAR RAIL

WELD LOCATIONS (Continued)

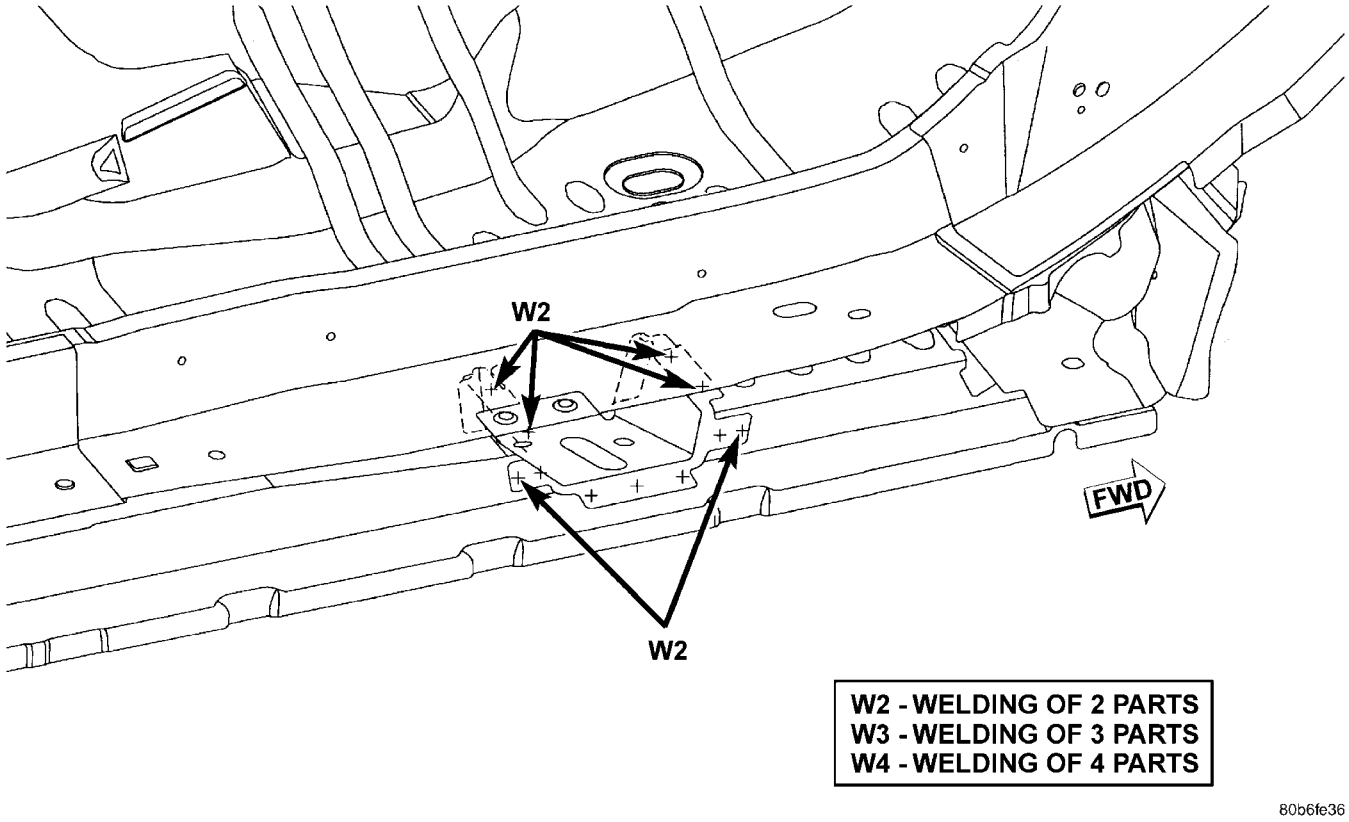


Fig. 102 OUTER TRANSMISSION CROSSMEMBER REINFORCEMENT TO RAIL AND BODYSIDE SILL

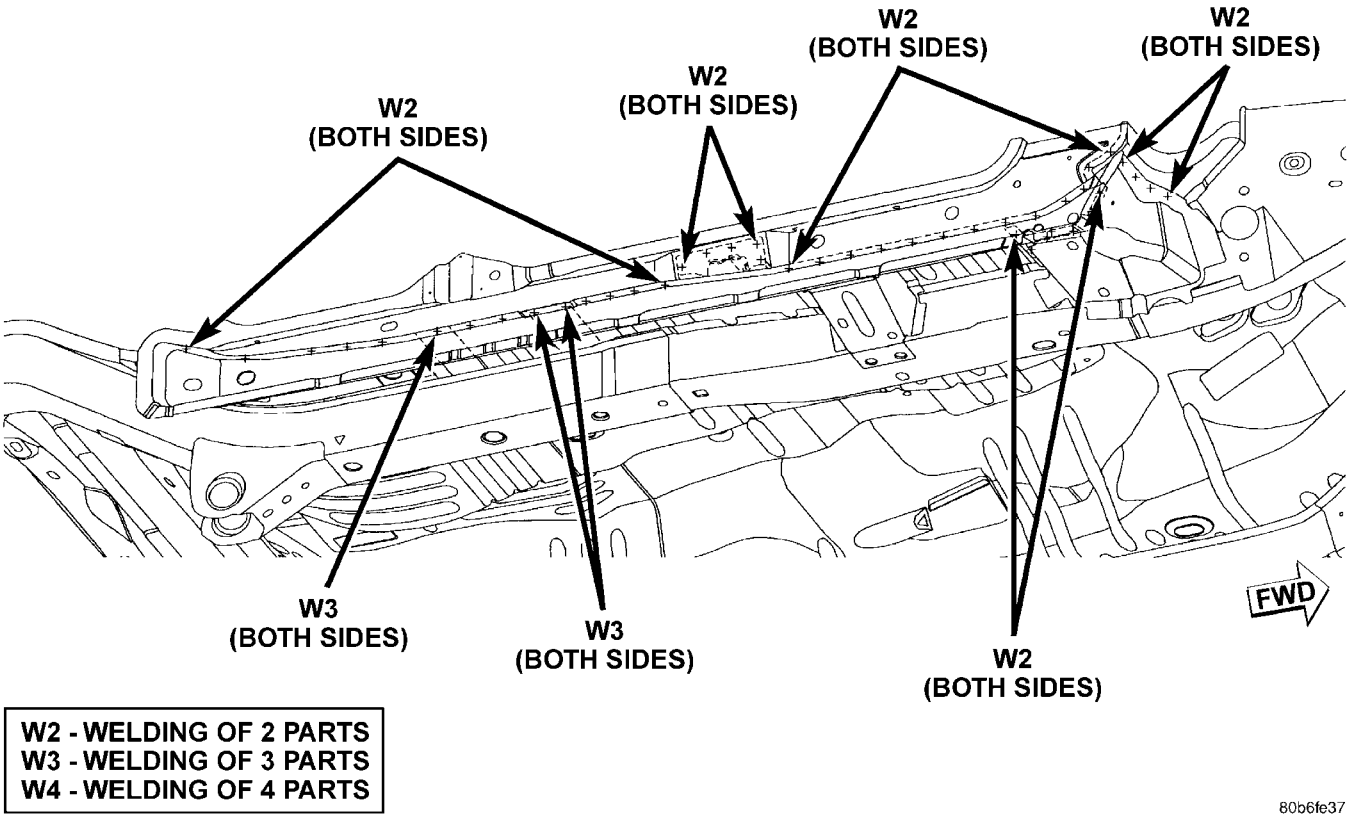


Fig. 103 BODYSIDE SILL TO FLOOR PAN

WELD LOCATIONS (Continued)

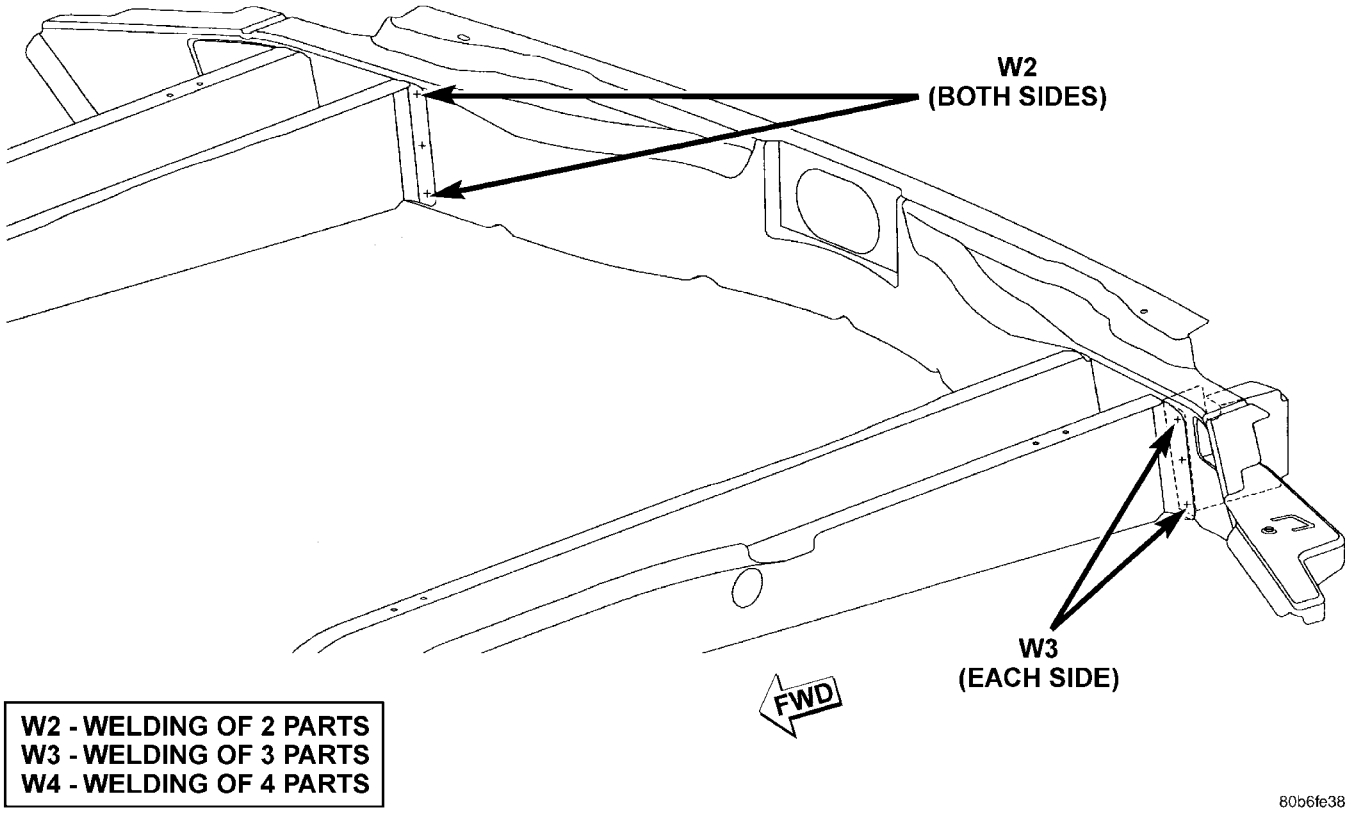


Fig. 104 REAR RAILS TO REAR CROSSMEMBER

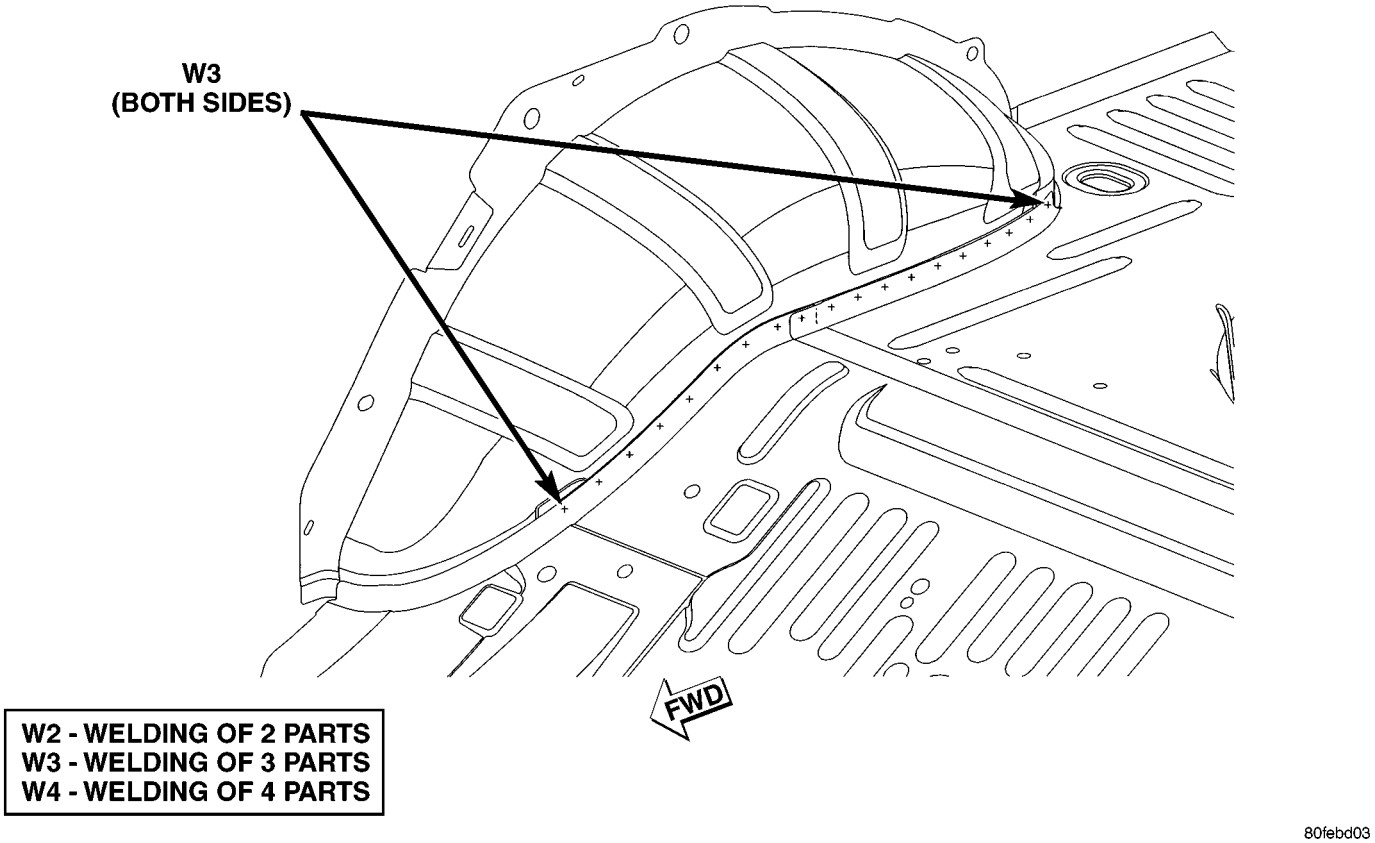


Fig. 105 INNER WHEELHOUSE TO FLOOR PAN

WELD LOCATIONS (Continued)

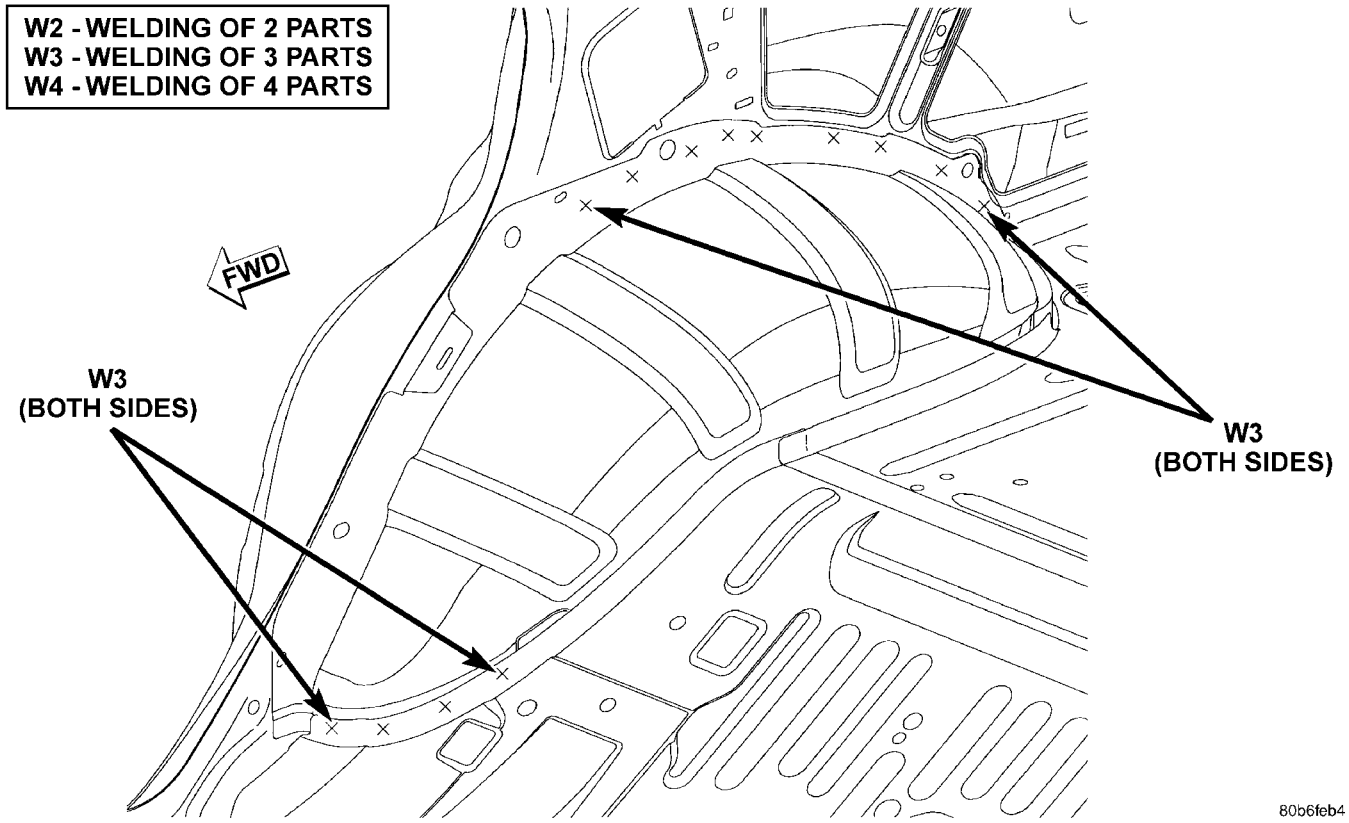


Fig. 106 INNER WHEELHOUSE TO INNER BODYSIDE APERTURE AND FLOOR PAN

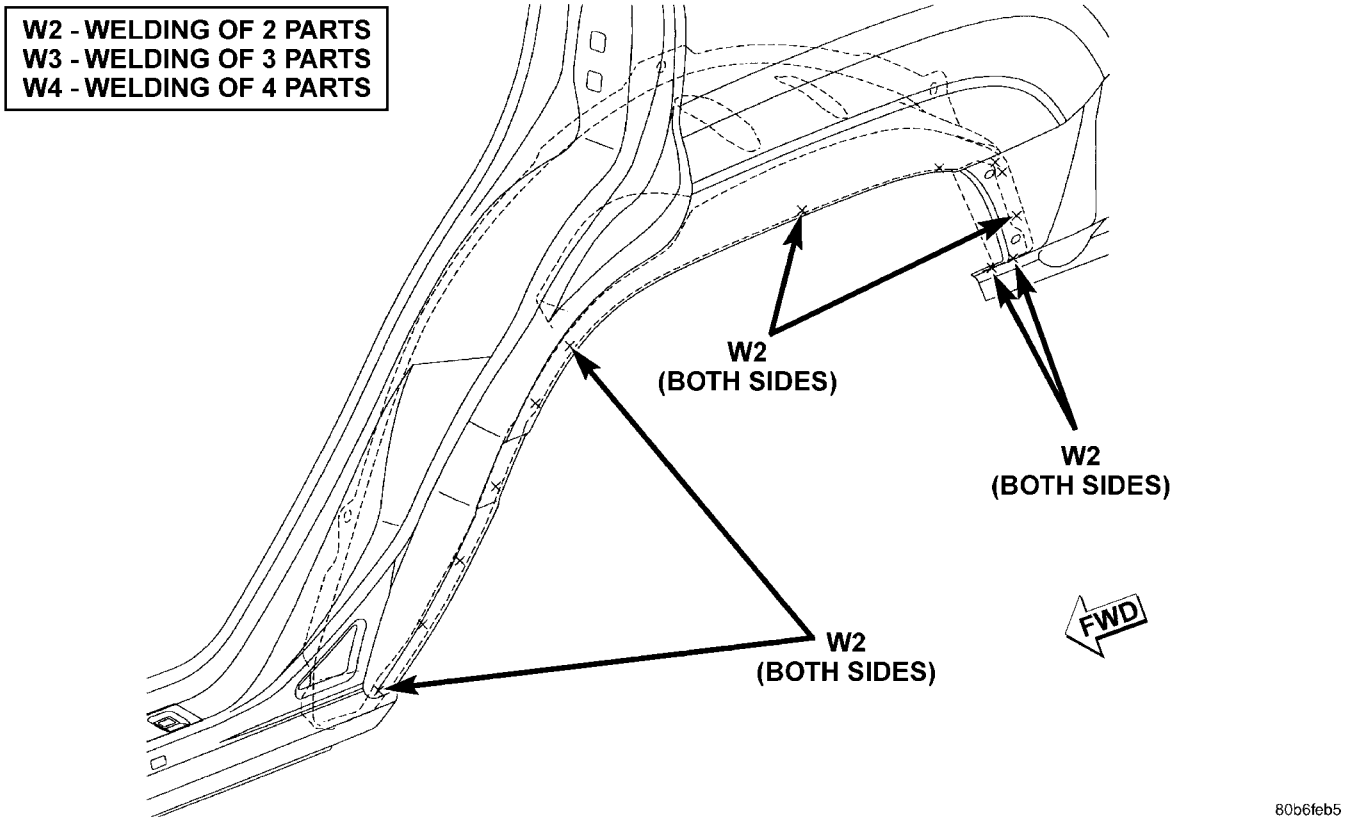


Fig. 107 OUTER WHEELHOUSE TO OUTER BODYSIDE APERTURE

WELD LOCATIONS (Continued)

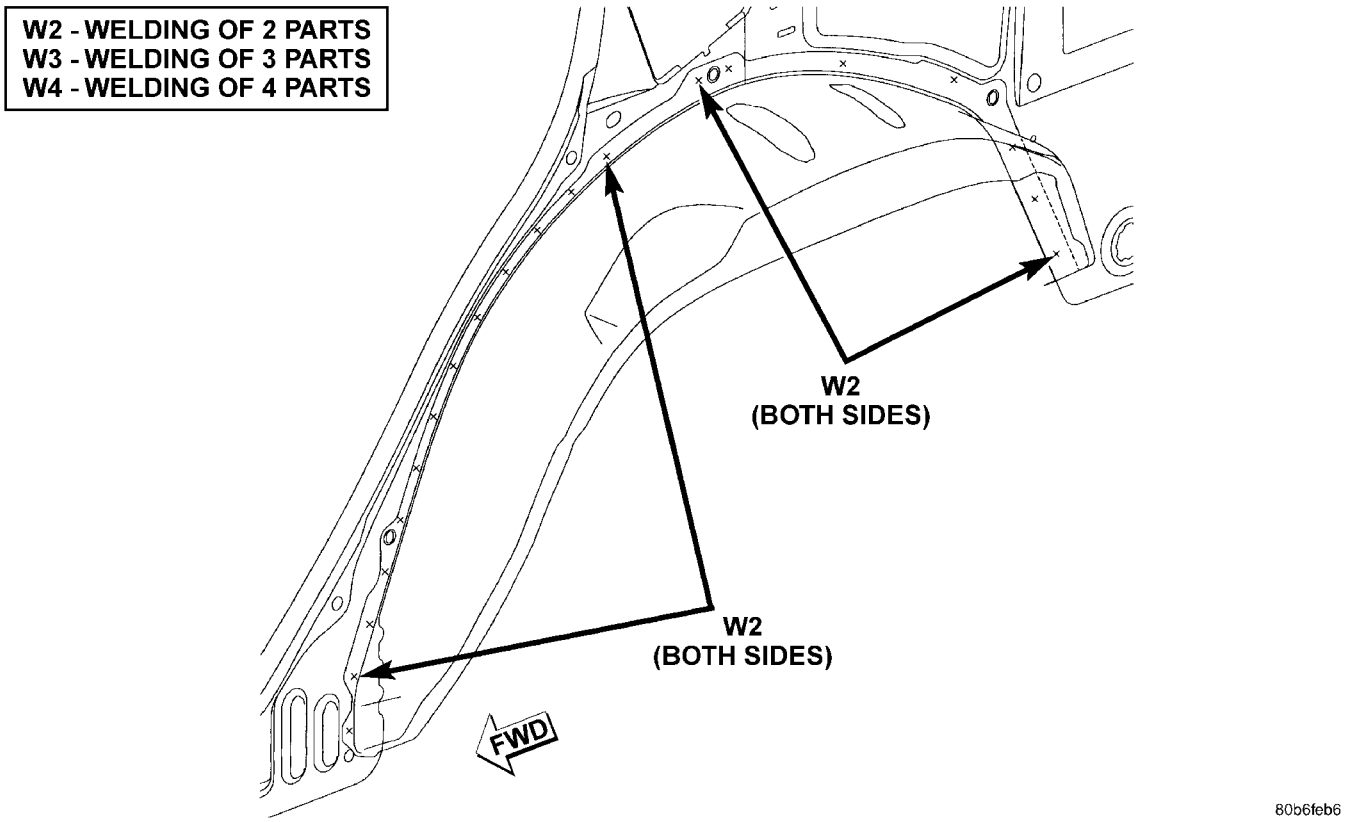


Fig. 108 OUTER WHEELHOUSE TO INNER BODYSIDE APERTURE

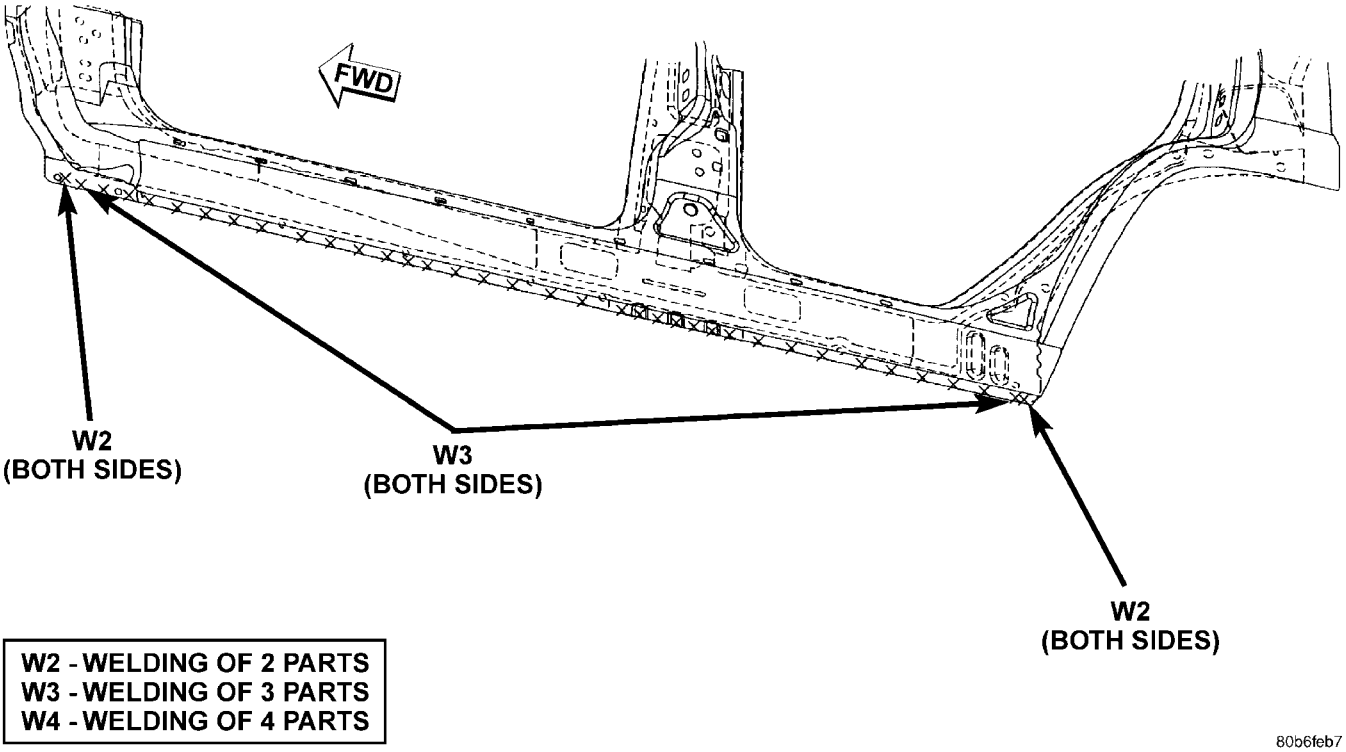


Fig. 109 INNER BODYSIDE APERTURE TO OUTER BODYSIDE APERTURE

WELD LOCATIONS (Continued)

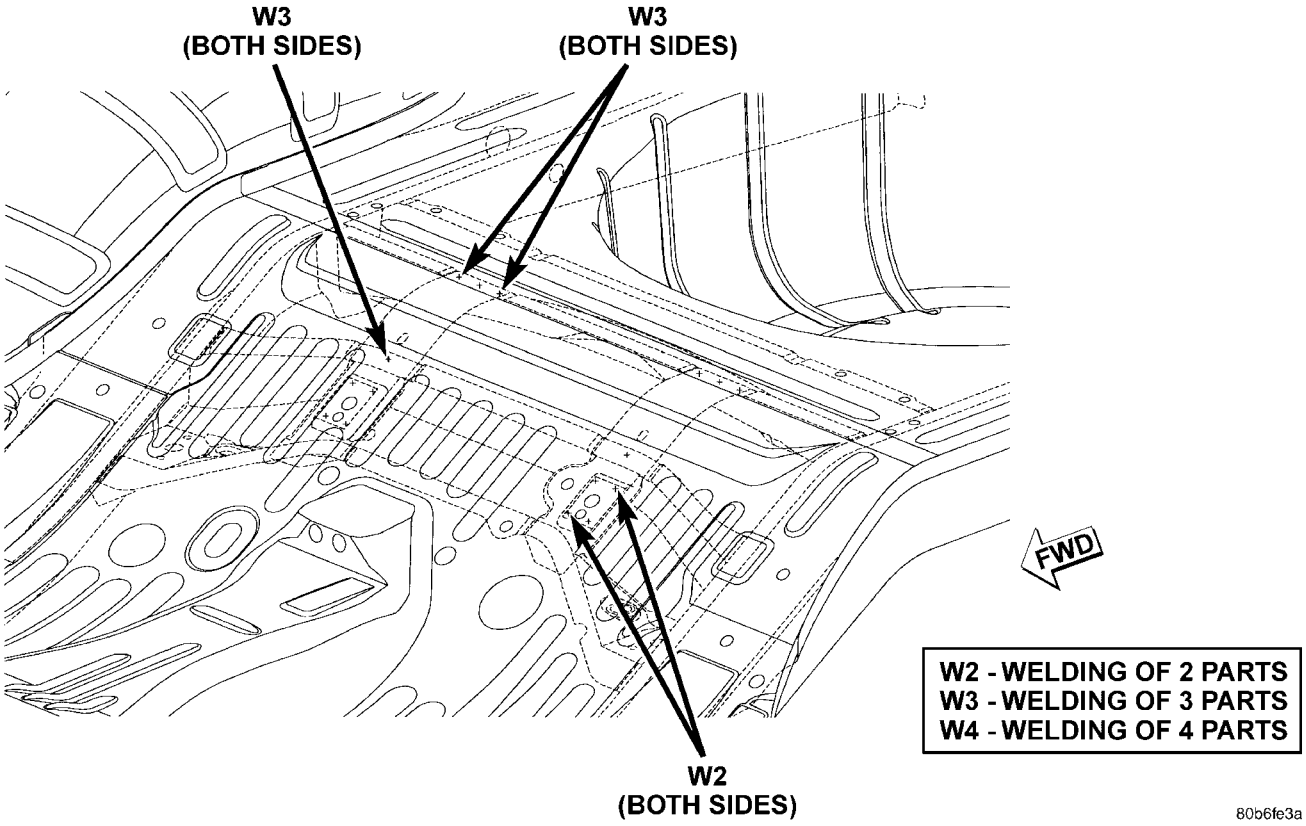


Fig. 110 REAR INBOARD SEAT BELT REINFORCEMENT TO FLOOR PAN

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