



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.
(Refer to FCC Rules and Regulations Part 95, Subpart C & D.)

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50-ohm dummy load or the normally used antenna system.



JOHNSON MODELS MESSENGER 4170/75

MODEL 4175

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment. Maintain line voltage at 120V AC. Allow a 15-minute warm-up period. Adjustments made with 13.8-volt DC input. Connect low sides of test equipment to ground unless specified otherwise. Connect 50-ohm dummy load or antenna before keying transmitter. Connect microphone.

Suggested Alignment Tools: GC ELECTRONICS:
 T1 thru T13, T15, T16, T201..... 9440
 L5, T17, T18..... 9440, 8282, 8606, 9302
 L6, L7..... 9304, 9300, 9302

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of frequency counter thru 47pF to TP10 (U201, Pin 10).	Ch. 19	T201	Check for 5.120MHz.
Input of frequency counter thru 47pF to TP11 (W203, Emitter).	Ch. 19		Check for 21.855MHz.
Input of DC meter to TP1.	Ch. 19		Adjust for 3.80 volts.
Input of frequency counter to TP12 (Q202, Drain).	Ch. 1		Check for 22.665MHz. Check all channels. (See Truth Chart for correct frequency).
Input of frequency counter to TP13 (Q20, Emitter).	Ch. 1, XMT		Disconnect C215. Check for 4.3MHz. Reconnect C215.

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication. Set generator output low enough to prevent AGC limiting.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP14 (Q2, Base). 4.3MHz, 1000Hz @ 30% modulation.	Ch. 19 NOR/LOC NOR Squelch MINIMUM NB Off	T10, T9 T8, T7, T6, T5, T4, T3	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19 NOR/LOC NOR Squelch MINIMUM NB Off	T2, T1	Adjust for maximum output. If necessary readjust T3, T4, T5, T6, T7, T8, T9 and T10.
Output of signal generator thru .01uF to antenna jack. 23.5MHz no modulation. Input of oscilloscope to TP15 (CR10, Anode).	Ch. 19 NB On	T13, T12, T11	Adjust for maximum.

RECEIVER ADJUSTMENTS

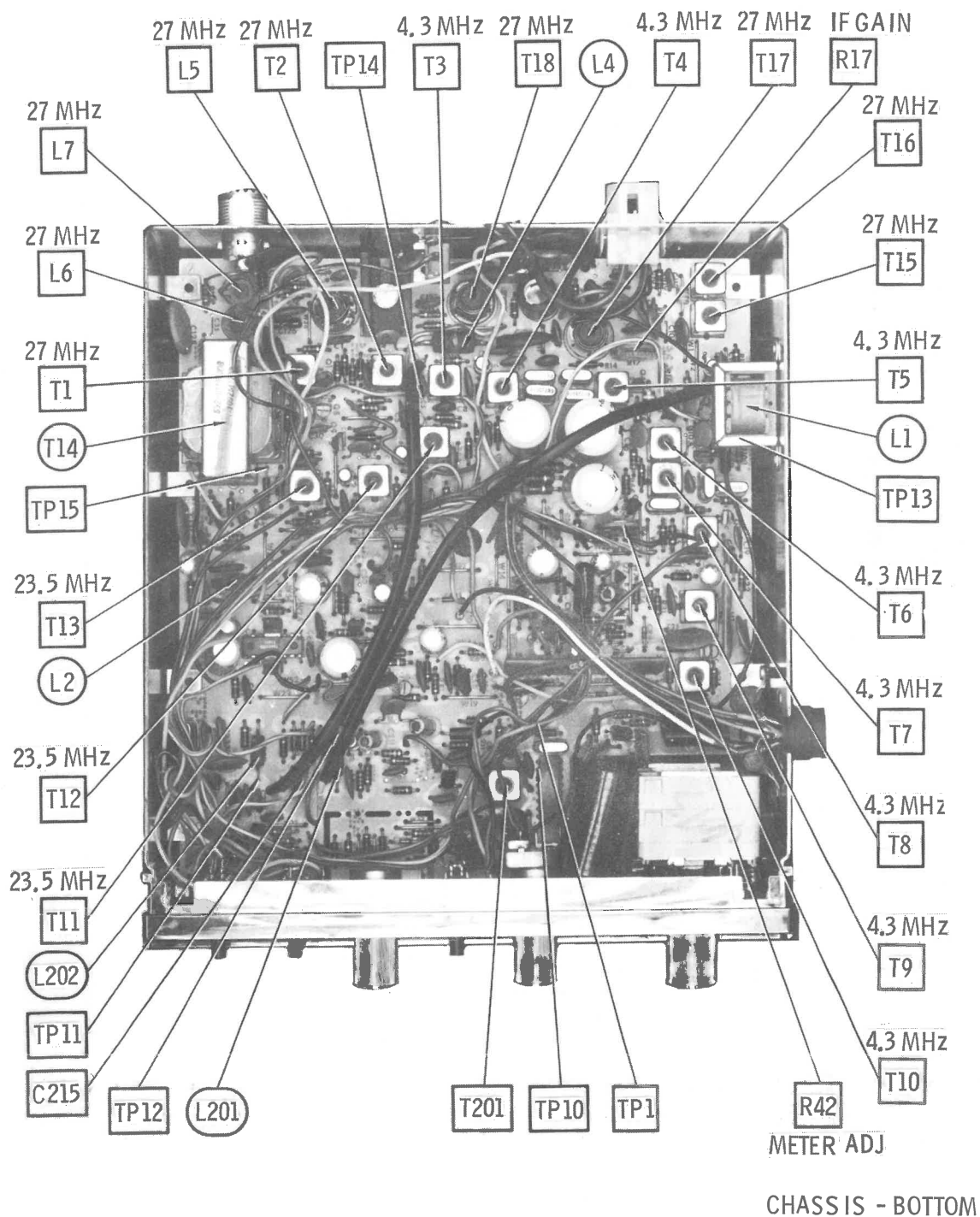
Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of oscilloscope across voice coil. Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 1uV.	Ch. 19 NOR/LOC NOR Squelch MINIMUM NB Off	R17	IF GAIN Adjust R17 for best signal to noise ratio.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19 NOR/LOC NOR Squelch MINIMUM NB Off	R42	S METER Adjust R42 for 9 on S meter.

TRANSMITTER ALIGNMENT

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
 NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.
 See page 4 for channel frequencies.

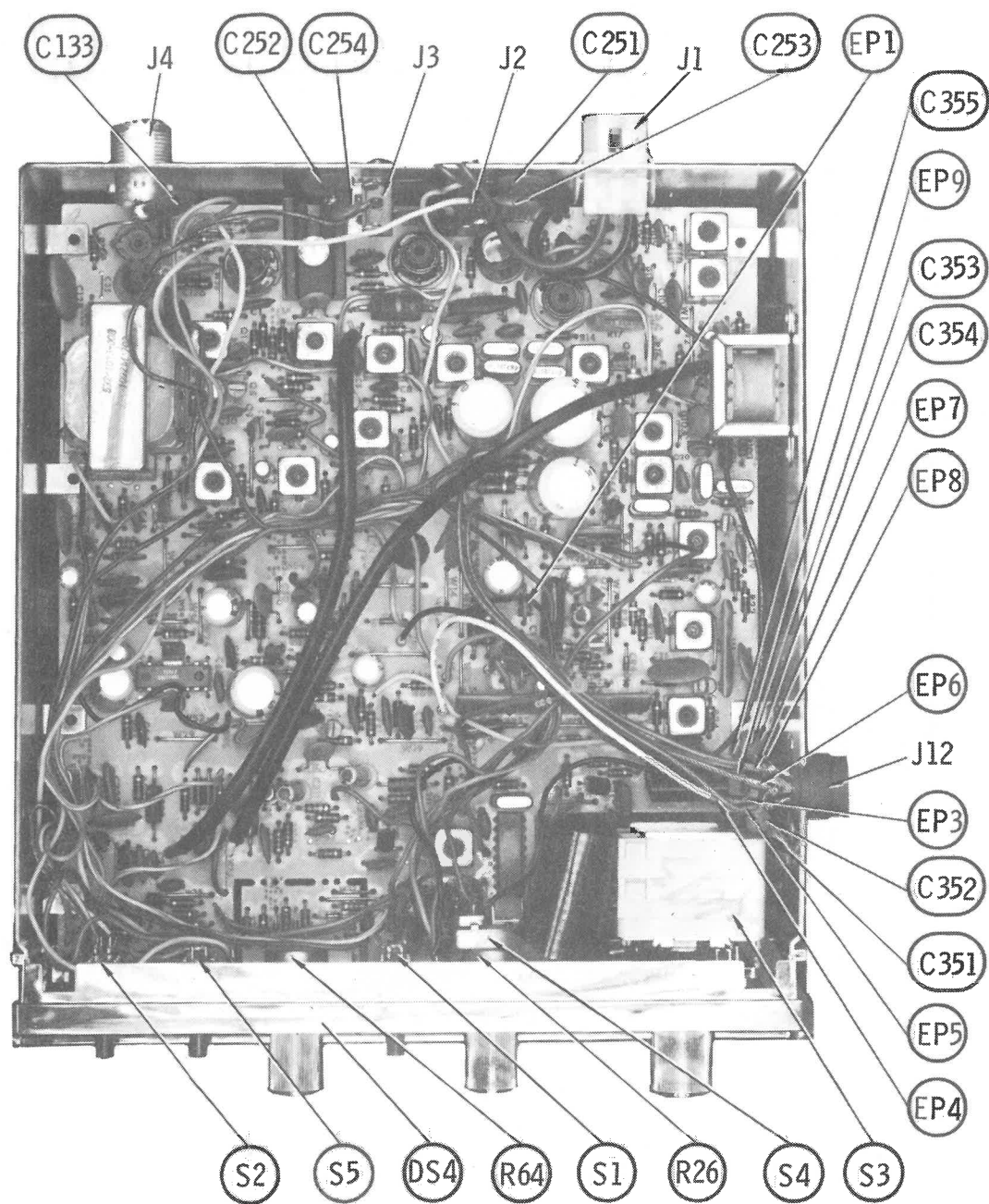
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
	Ch. 19	T15, T16, T17, T18, L5, L6, L7	Adjust for maximum.
	Ch. 19	T18	Adjust for 4 watts maximum.



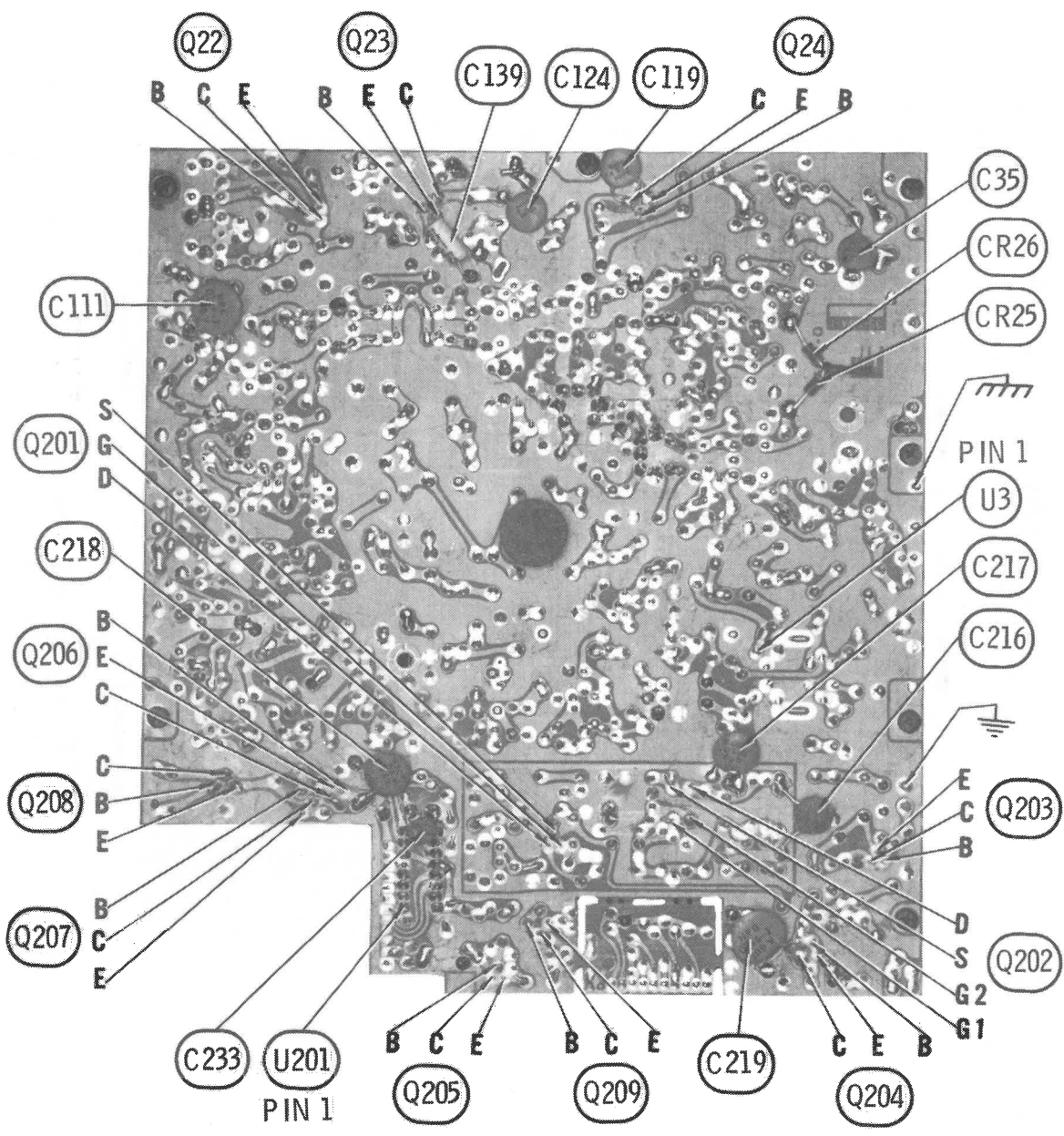
JOHNSON MODELS MESSENGER 4170/75

TRUTH CHART

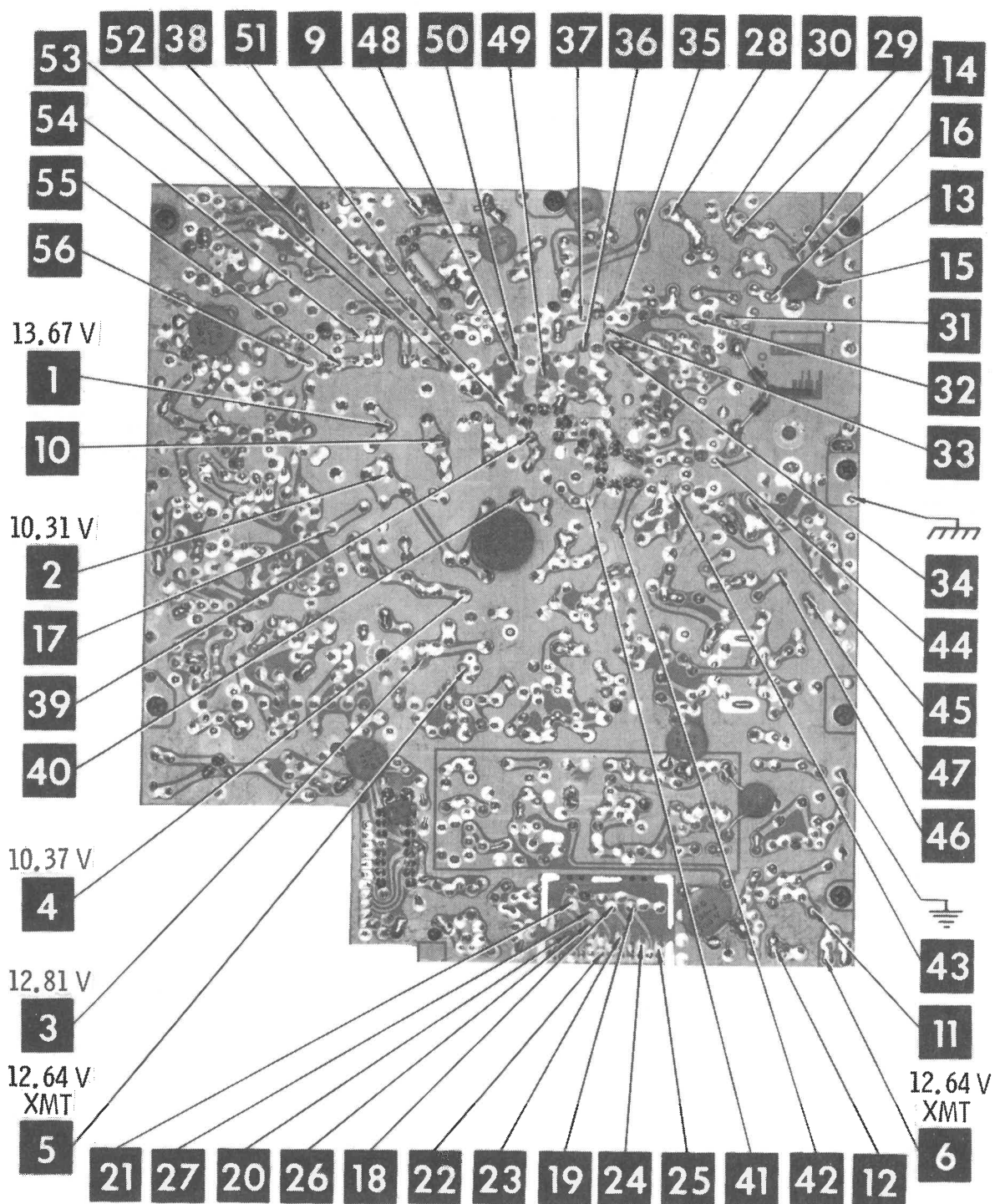
C H A N N E L	1 = 10.21 Volts 0 = 0 Volts 							
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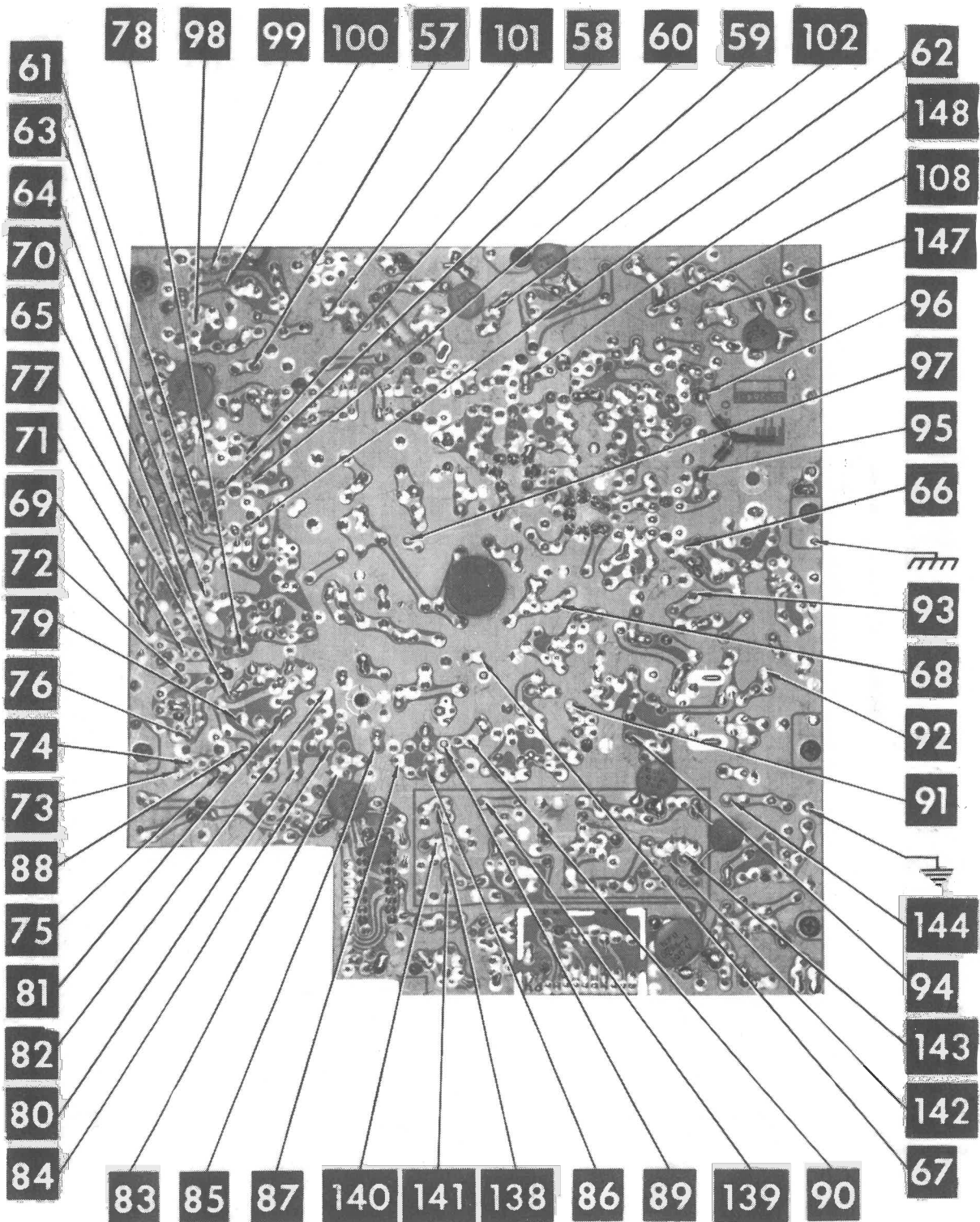


CHASSIS-BOTTOM



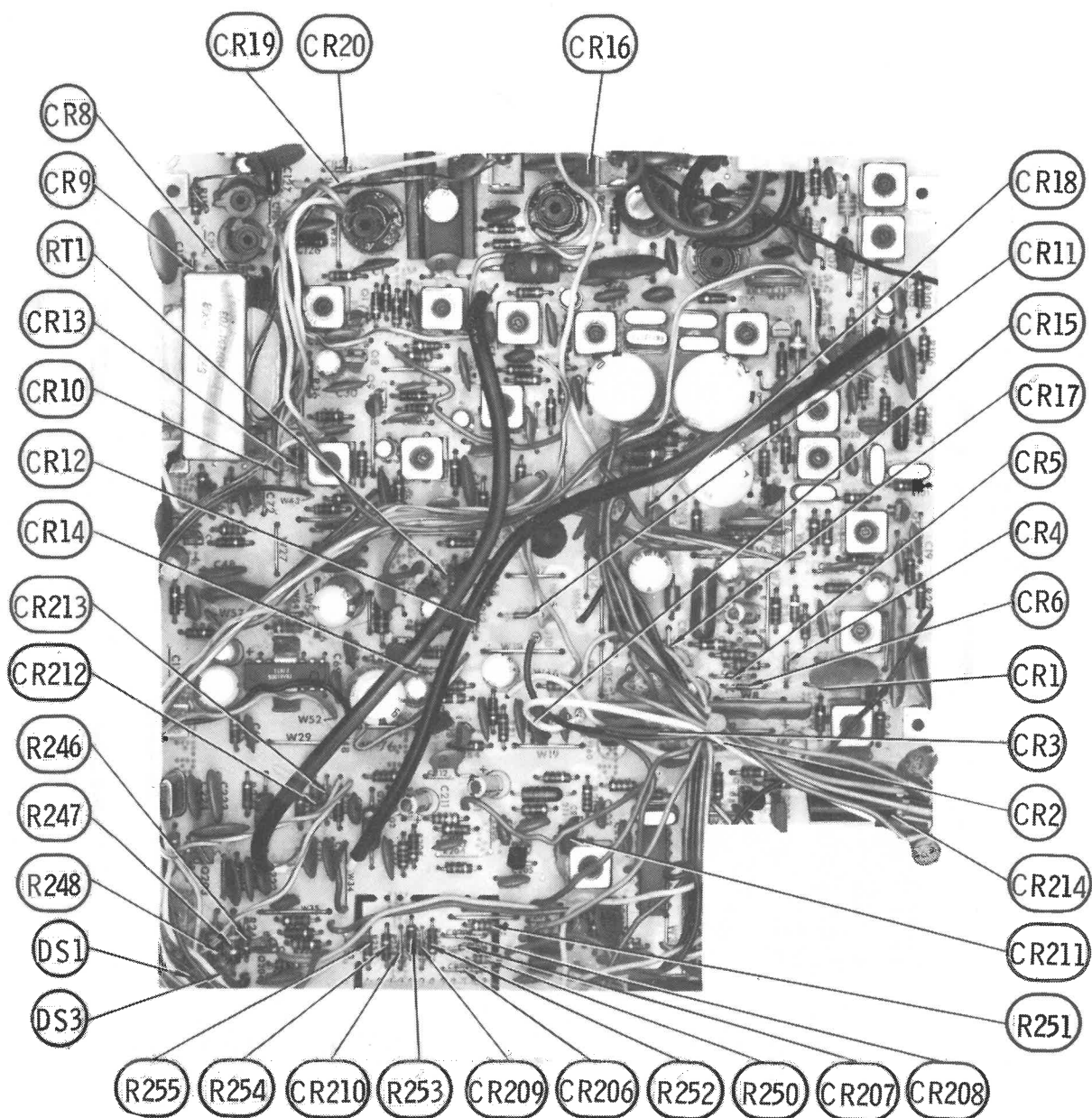
MAIN BOARD





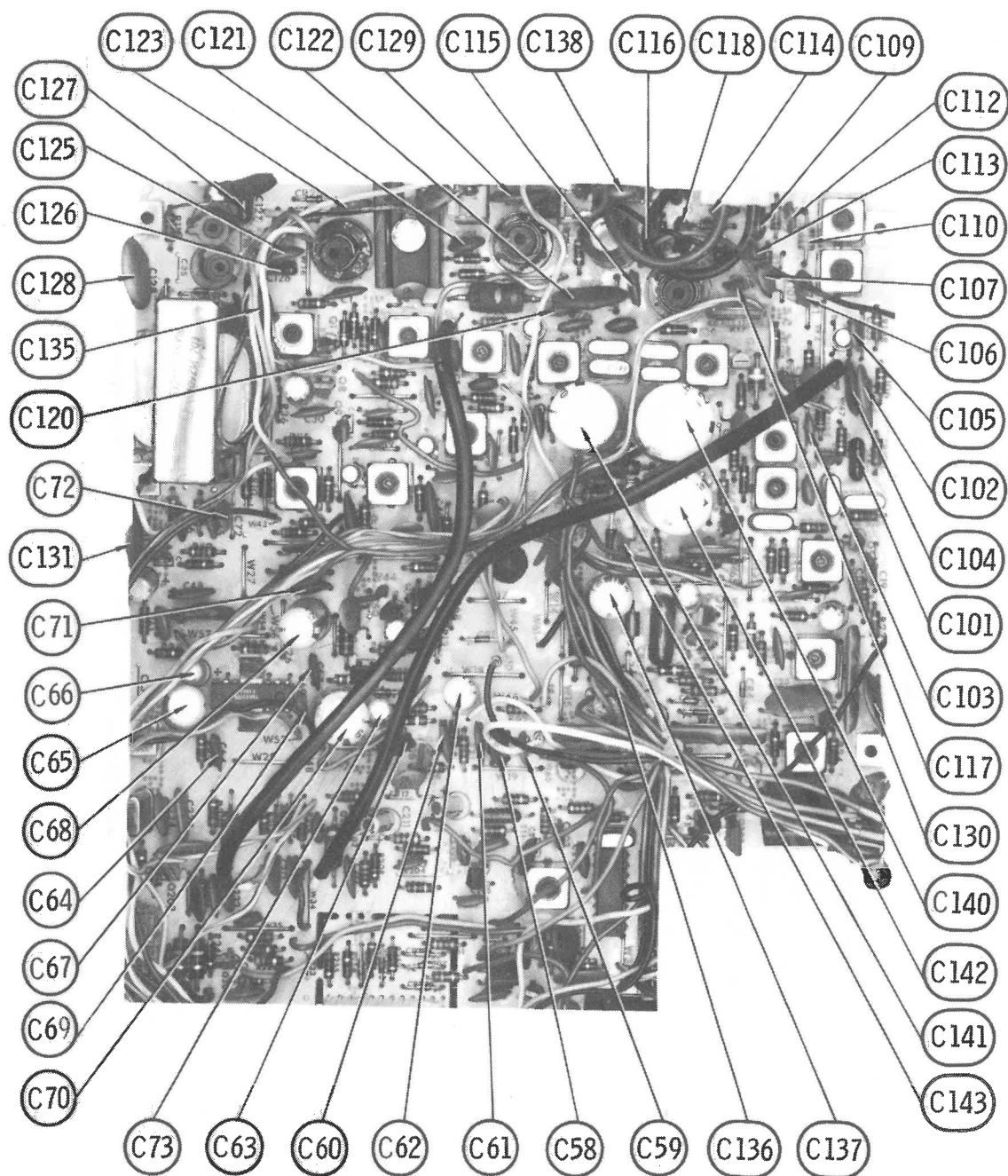
JOHNSON MODELS MESSENGER 4170/75

MAIN BOARD

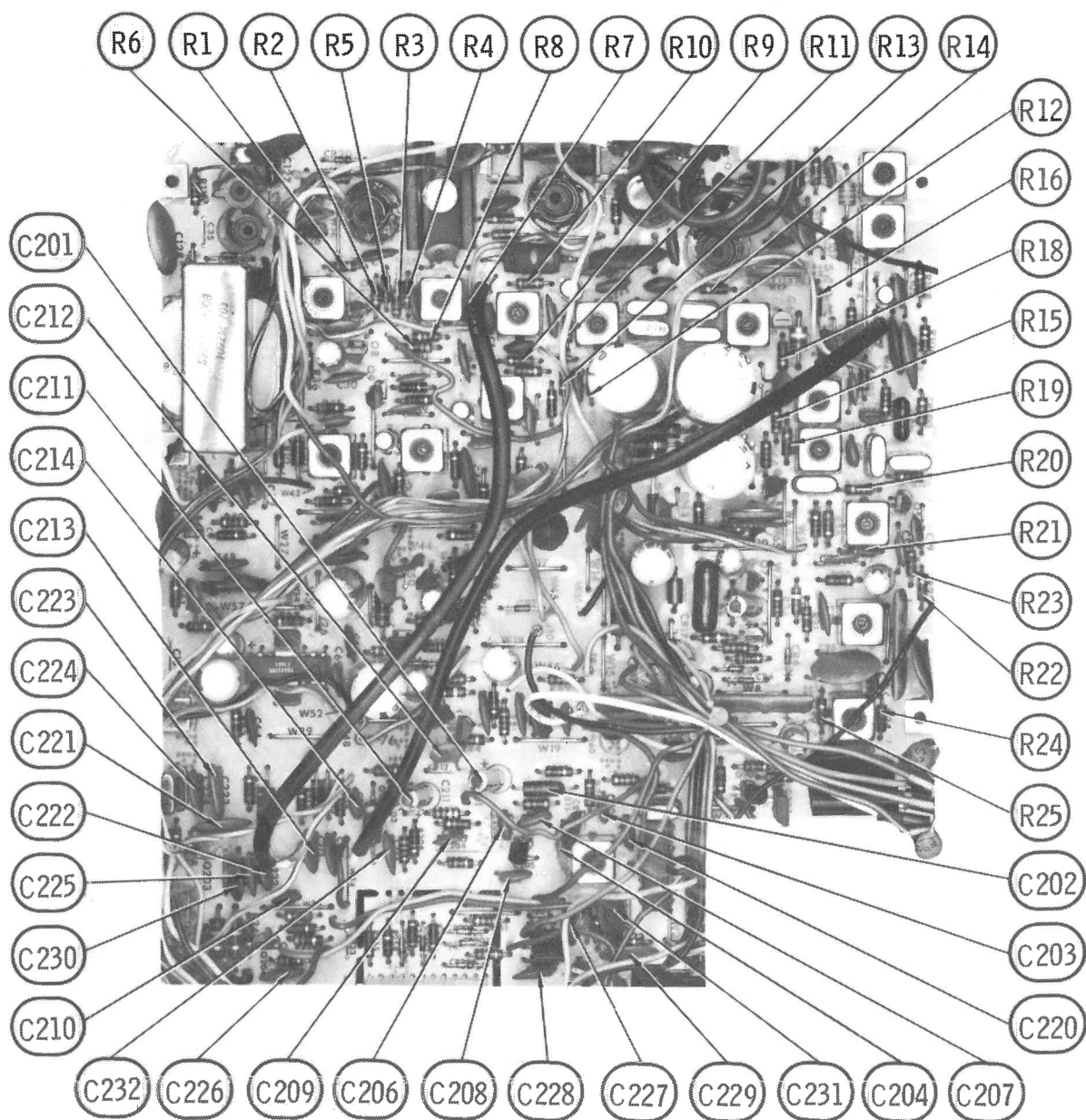


MAIN BOARD

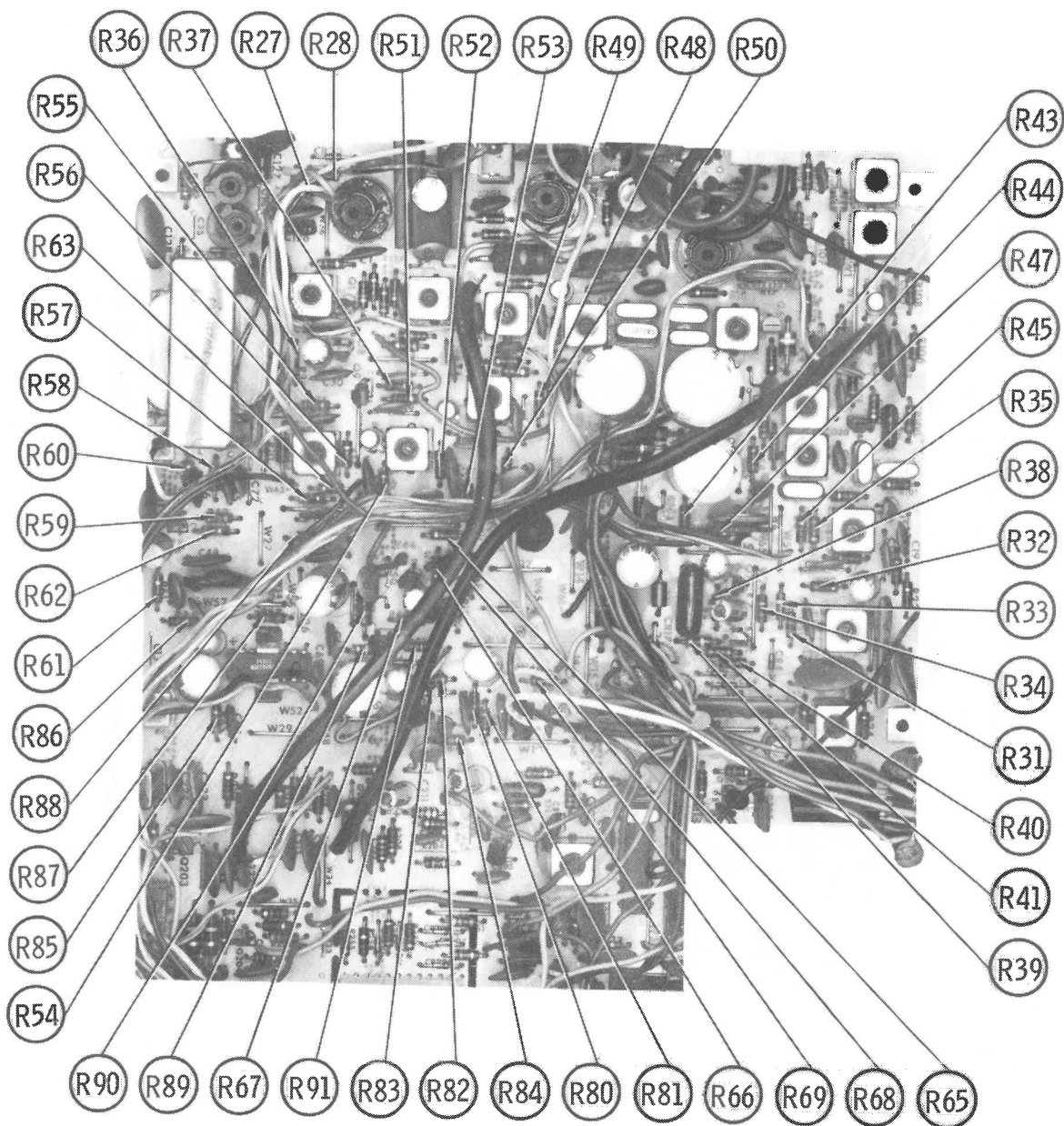




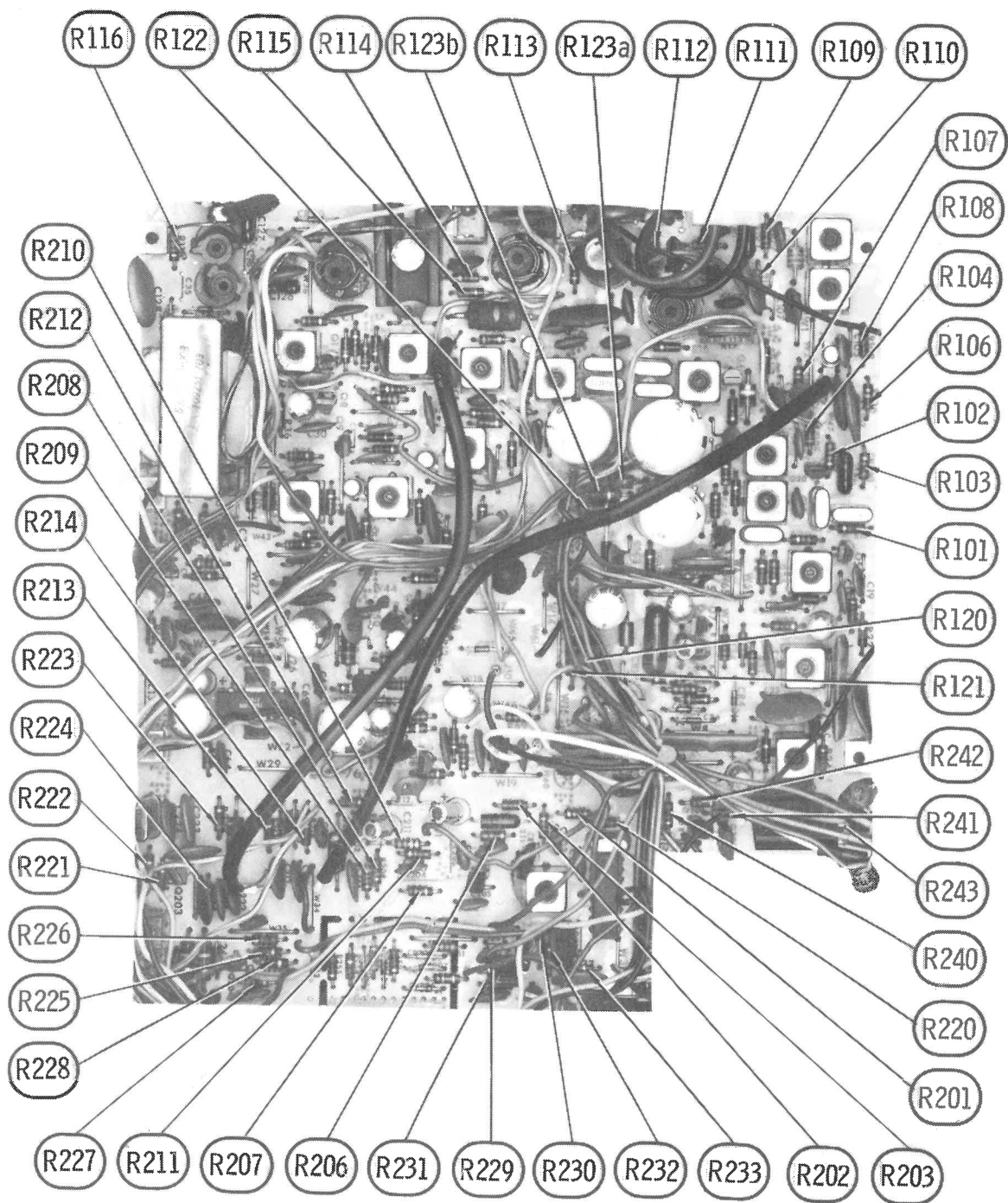
MAIN BOARD



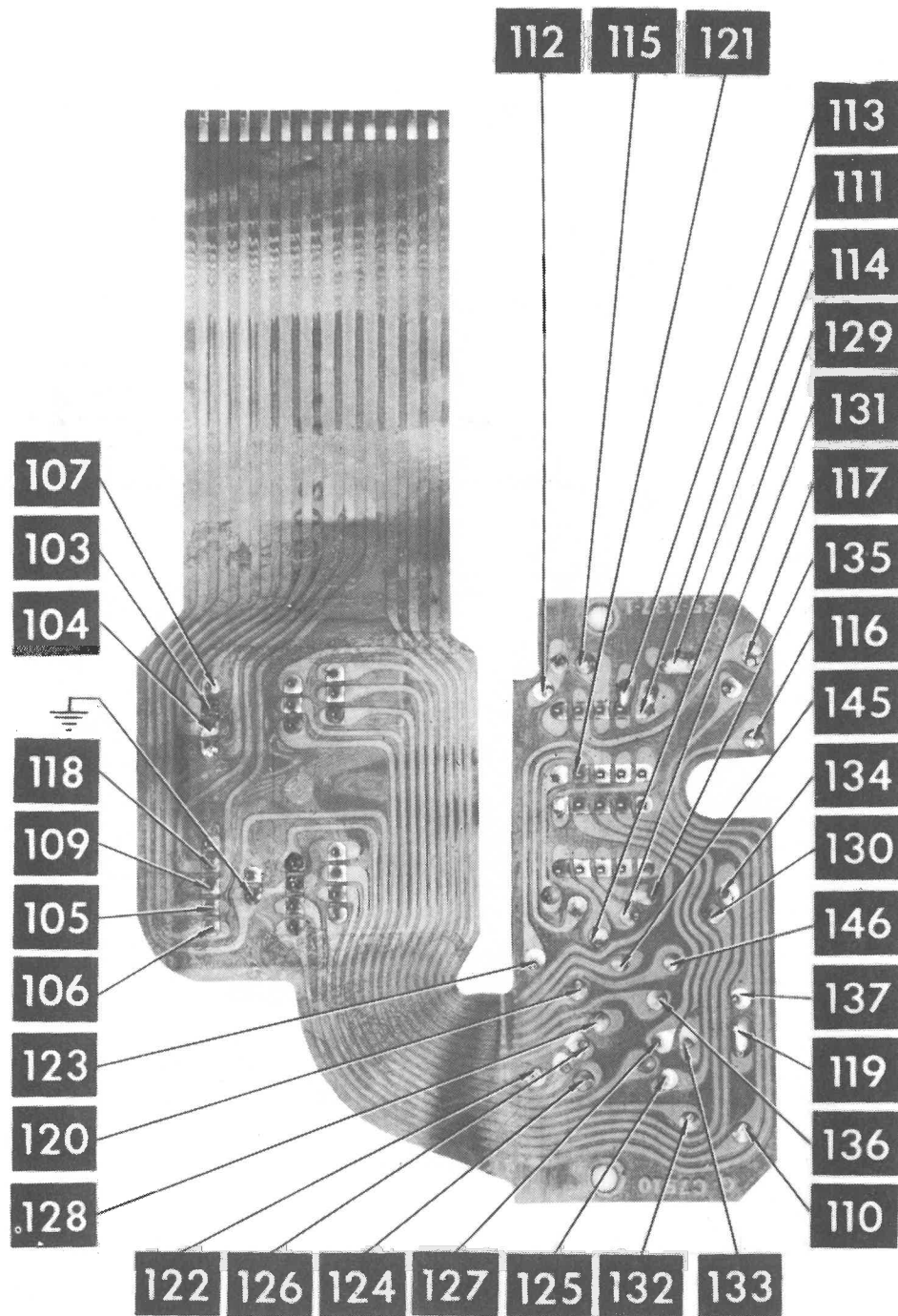
MAIN BOARD



MAIN BOARD

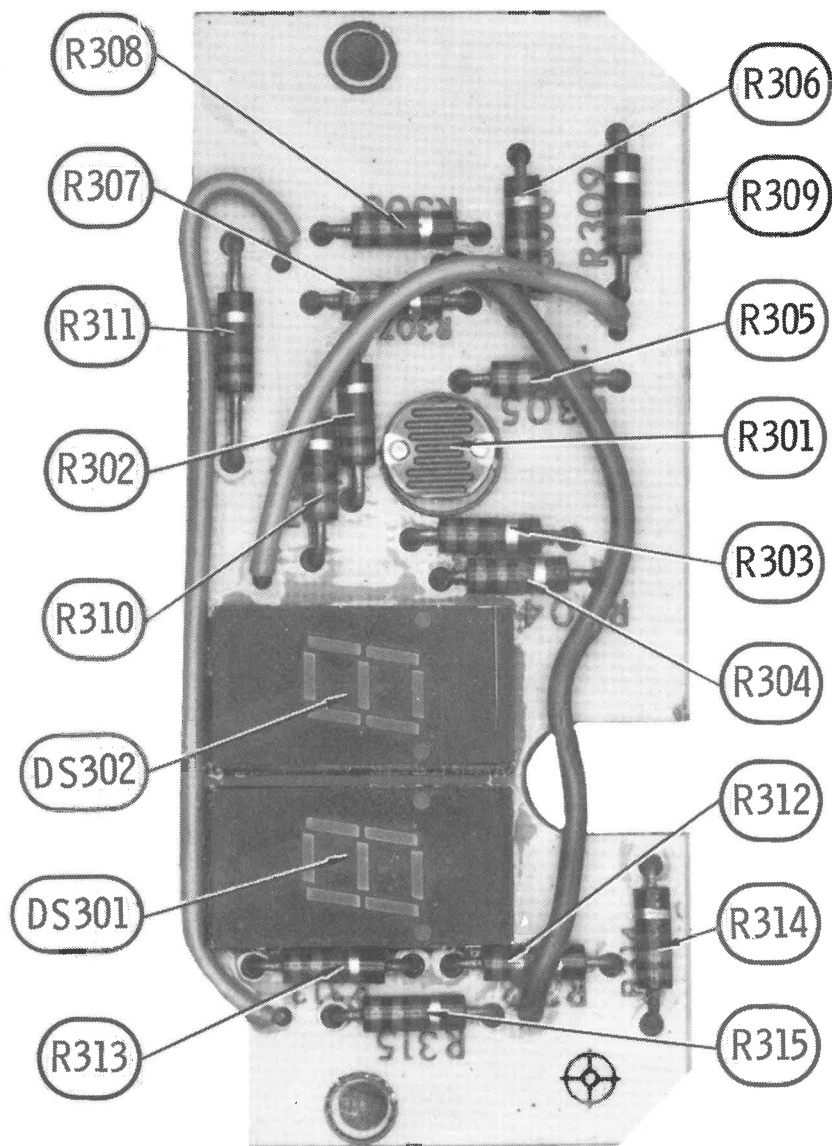


MAIN BOARD



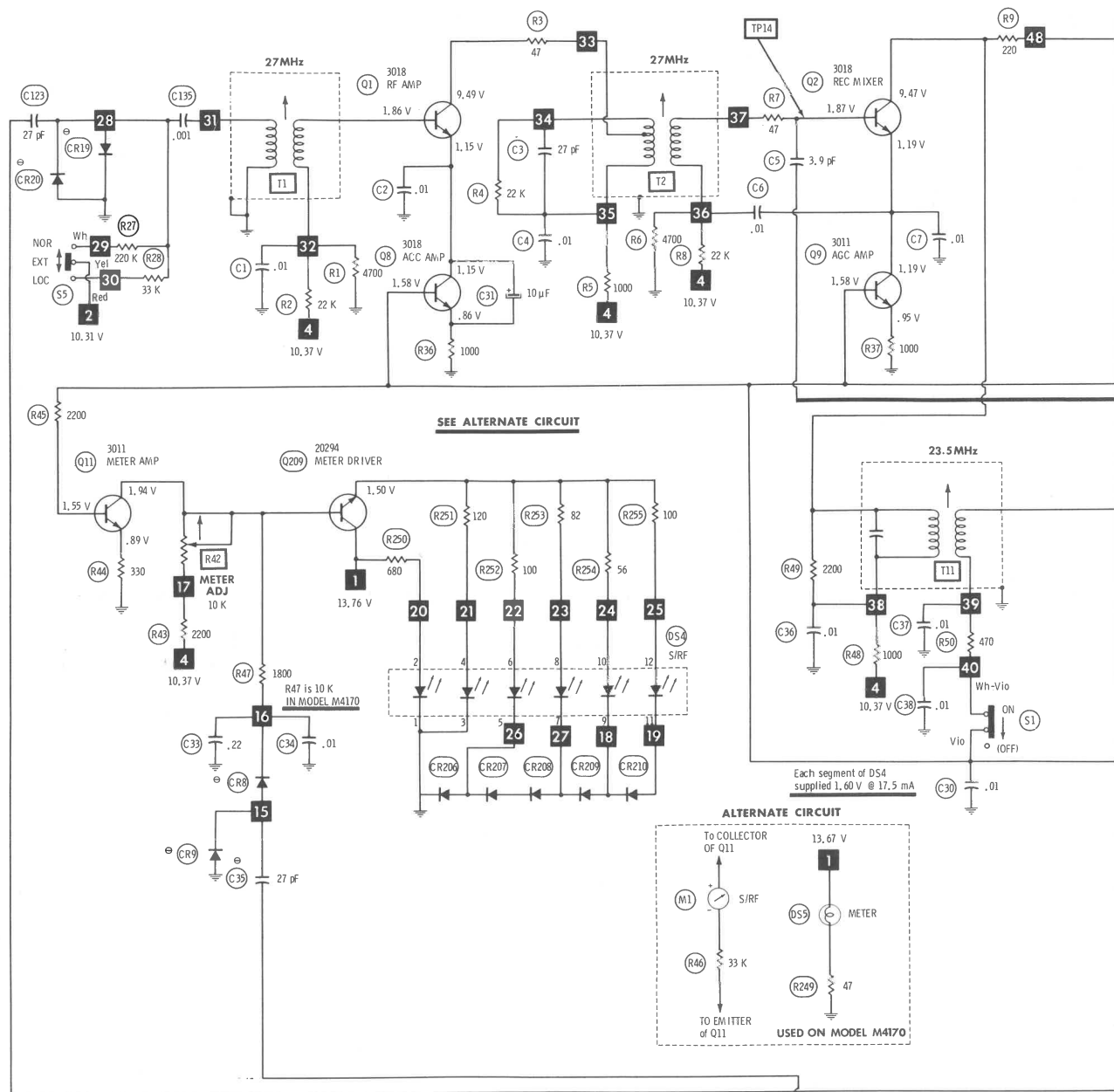
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CH SELECTOR & READOUT BOARD



CH READOUT BOARD



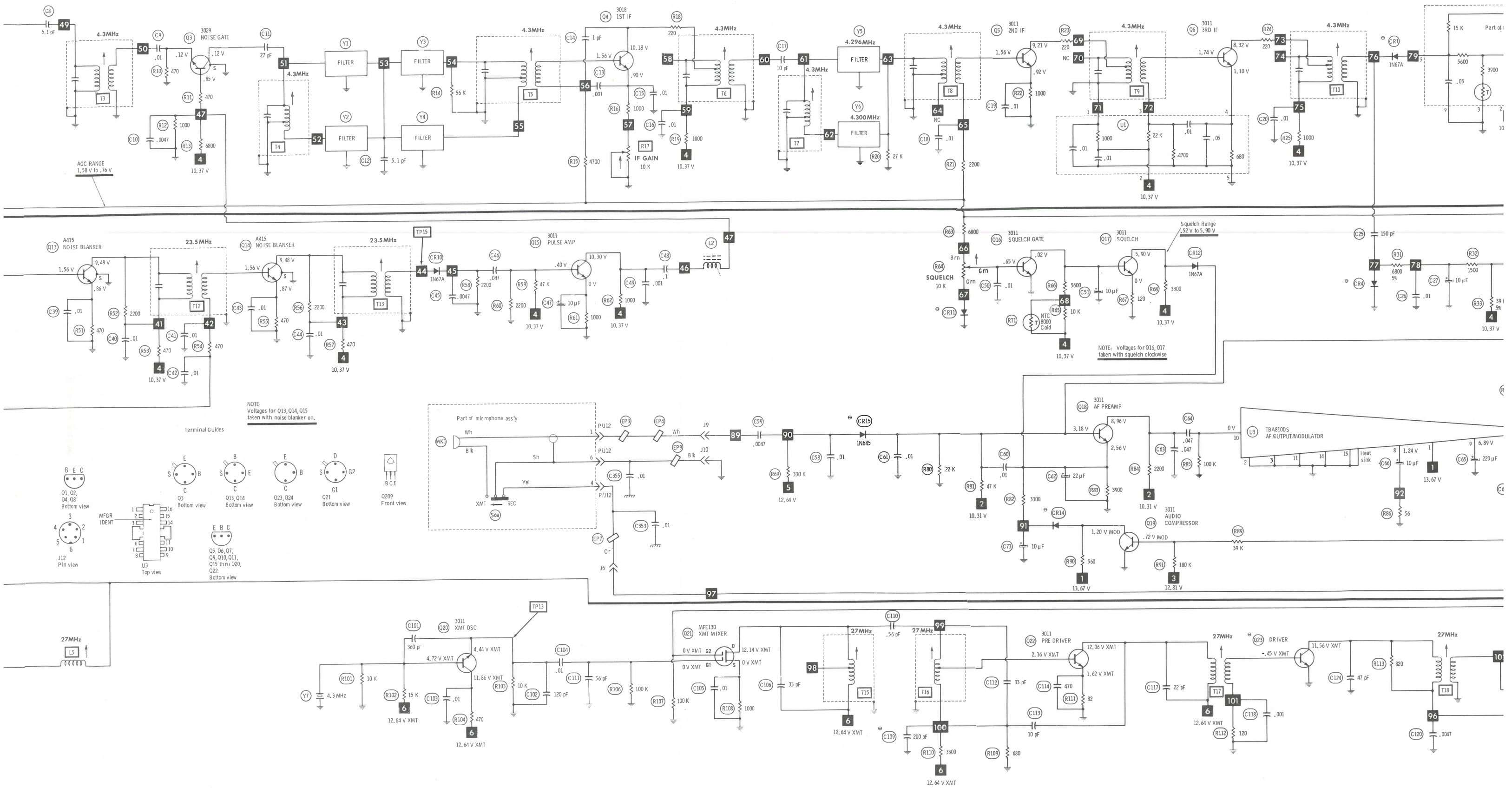


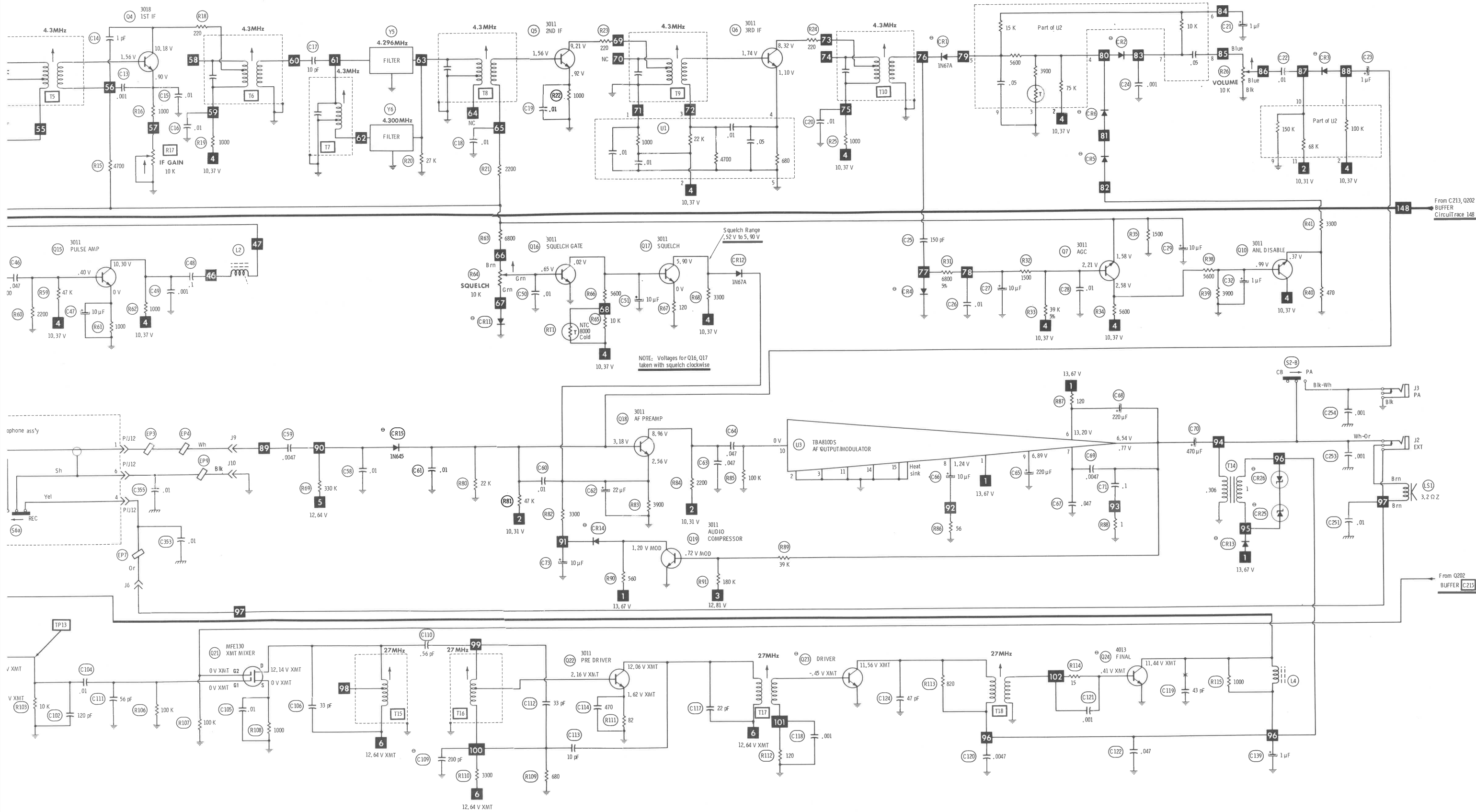
- ✱ Circuitry not used in some versions
 - Circuitry used in some versions
 - ⊕ See parts list
 - ⊛ Nominal value
 - ⊥ Ground
 - ⊥ Chassis
 - ▽ Common tie point
- Measurements made in Channel 1 with switching as shown unless noted.
 Item numbers in rectangles appear in the alignment/adjustment instructions.
 Supply voltage maintained as shown at input.
 Voltages measured with digital meter, no signal.
 Controls adjusted for normal operation.
 Arrow at control indicates direction of advance.
 Terminal identification may not be found on unit.
 Resistors are 1/2W or less, 5% unless noted.
 Value in () used in some versions.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

WITH **CIRCUITRACE**

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WIRING DATA

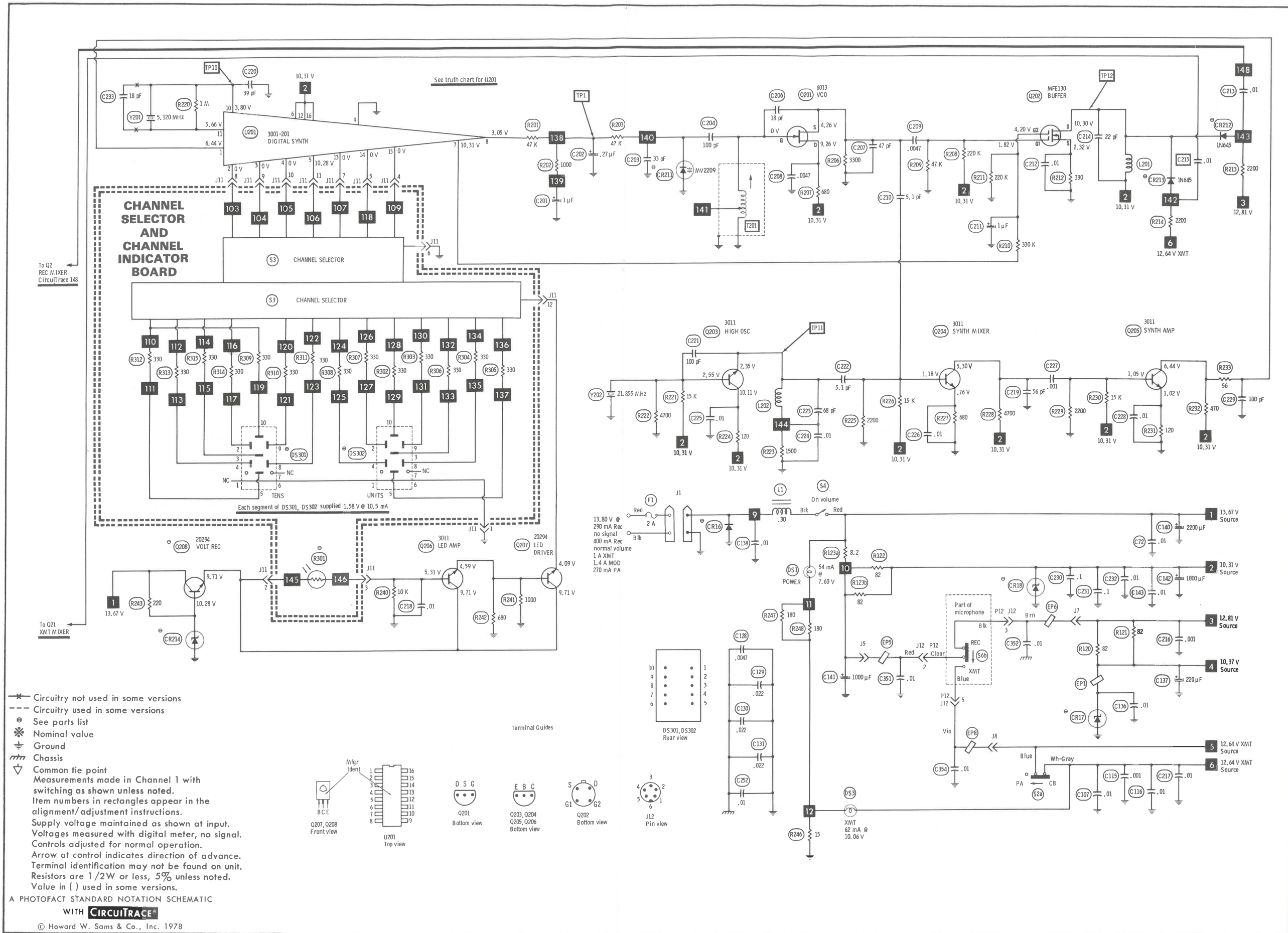
General-use Hook-up Wire
Shielded Hook-up Wire
Speaker Cable (available)
Bonding Strap
AC Power Cord

SEMICONDUCTORS (Se

ITEM No.	TYPE No.	MFG. PART No.
CR1	1N67A	523-1500-067
CR2		
CR3		
CR4		
CR5		
CR6		
CR8		
CR9		
CR10	1N67A	523-1500-067
CR11		
CR12	1N67A	523-1500-067
CR13		
CR14		
CR15	1N645	523-1500-881
	1N881	523-1500-881
CR16		
CR17		
CR18		
CR19		
CR20		
CR25		
CR26		
CR206		
CR207		
CR208		
CR209		
CR210		
CR211	MV2209	523-0009-049
CR212	1N645	523-1500-881
	1N881	523-1500-881
CR213	1N645	523-1500-881
	1N881	523-1500-881
CR214		
Q1	3011	576-0003-018
Q2	3011	576-0003-018
Q3	3029	576-0003-029
Q4	3011	576-0003-018
Q5	3011	576-0003-011
Q6	3011	576-0003-011
Q7	3011	576-0003-011
Q8	3011	576-0003-018
Q9	3011	576-0003-011
Q10	3011	516-0003-011
Q11	3011	576-0003-011
Q13	A415	
Q14	A415	
Q15	3011	576-0003-011
Q16	3011	576-0003-011
Q17	3011	576-0003-011
Q18	3011	576-0003-011
Q19	3011	576-0003-011
Q20	3011	576-0003-011
Q21	MFE130	576-0006-223
Q22	3011	576-0003-011
Q23		
Q24	4013	576-0004-013
Q201	6013	576-0006-013
Q202	MFE130	576-0006-223
Q203	3011	576-0003-011
Q204	3011	576-0003-011
Q205	3011	576-0003-011
Q206	3011	576-0003-011
Q207	20294	
Q208	20294	
Q209	20294	
U3	TBA810DS	544-2006-001
U201	3001-201	544-3001-201

(11) +5% TOL.
(12) No information available.

JOHNSON MODELS MESSENGER 4170/75





(When ordering parts, state Model, Part Number, and Description.)

General-use Hook-up Wire (available in 5 colors)	BELDEN No. 8523	Coiled Microphone Cable	
Shielded Hook-up Wire (spiral wrapped)	BELDEN No. 8421	3-conductor (1 shielded) 23AWG	BELDEN No. 9471 (5')
(braided)	BELDEN No. 8401		BELDEN No. 8497 (6')
Speaker Cable (available in 4 colors)	BELDEN No. 8782		BELDEN No. 9472 (7-1/2')
Bonding Strap	BELDEN No. 8672	28AWG	BELDEN No. 9466 (6')
AC Power Cord (6')	BELDEN No. 17106	31AWG	BELDEN No. 9468 (10')
(9')	BELDEN No. 17109	4-conductor (unshielded) 23AWG	BELDEN No. 8415 (6')
		5-conductor (1 shielded) 28AWG	BELDEN No. 9467 (6')
			BELDEN No. 9465 (7-1/2')

ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA									
			GENERAL ELECTRIC PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
CR1	1N67A	523-1500-067	1N34AS	PTC207	HEPR9134A	RE 47	SK3087	RT-200	ECG109	1N34A	WEP138	ZEN-430
CR2			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR3			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR4			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR5			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR6			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR8			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR9			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR10			1N67A	523-1500-067	1N34AS	PTC207	HEPR9134A	RE 47	SK3087		RT-200	
CR11	1N67A	523-1500-067	GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177	WEP1062		
CR12			1N34AS	PTC207	HEPR9134A	RE 47	SK3087	RT-200	ECG109	WEP138		
CR13			GE-512	PTC204	HEPR0098	RE 92	SK3051	RT-201	ECG156	WEP4008	1N4004	212-76
CR14	1N645	523-1500-881	GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177	WEP1062		
CR15			GE-504A	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116	WEP156		
CR16	1N881	523-1500-881	GE-504A	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116	1N4004	WEP156	212-76
CR17			GE-512	PTC204	HEPR0098	RE 92	SK3051	RT-201	ECG156		WEP4008	212-76
CR18			GEZD-10	ZB108		RE 115	SK3061	RT-241	ECG140A	1N4740A	WEP1110	
CR19			GEZD-10	ZB108		RE 115	SK3061	RT-241	ECG140A	1N4740A	WEP1110	
CR20			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR25			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR26												
CR206			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR207			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR208			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR209			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR210			GE-300	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177		WEP1062	
CR211	MV2209	523-0009-049	GE-90	HEPR2503				RT-262	ECG614		WEP200	ZEN-453
CR212	1N645	523-1500-881	GE-504A	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116	1N4004	WEP156	212-76
	1N881	523-1500-881	GE-504A	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116	1N4004	WEP156	212-76
CR213	1N645	523-1500-881	GE-504A	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116	1N4004	WEP156	212-76
	1N881	523-1500-881	GE-504A	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116	1N400		

(11) +5% TOL.
(12) No information available.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C21	1 50V	510-4150-109	PC1-50	VTT1A50	QV1-11	EV-1615
C23	1 50V	510-4150-109	PC1-50	VTT1A50	QV1-11	EV-1615
C27	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C29	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C31	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C32	1 50V	510-4150-109	PC1-50	VTT1A50	QV1-11	EV-1615
C47	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C51	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C62	22 25V	510-4125-220	PC25-25	VTT22D25	QV1-57	EV-1324
C65	220 16V	510-4116-221	PC250-25	VTT220H16	QV1-117	EV-1240
C66	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C68	220 16V	510-4116-221	PC250-25	VTT220H16	QV1-117	EV-1240
C70	470 16V	510-4116-471	PC500-16	VTT470K16	QV1-151	EV-1250
C73	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C137	220 16V	510-4116-221	PC250-25	VTT220H16	QV1-117	EV-1240
C139	1 50V	510-4150-109	PC1-50	VTT1A50	QV1-11	EV-1615
C140	2200 16V	510-4116-222	WBR2000-16	VTT2200N10	QV1-201	EV-1180
C141	1000 16V	510-4116-102	PC1000-16	VTT1000L16	QV1-183	EV-1260
C142	1000 16V	510-4116-102	PC1000-16	VTT1000L16	QV1-183	EV-1260
C201	1 50V	510-4150-109	PC1-50	VTT1A50	QV1-11	EV-1615
C202	.27 15V			TDC224M050EL	QDT1-10	SD50-R229
C211	1 50V	510-4150-109	PC1-50	VTT1A50	QV1-11	EV-1615

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C1	.01 50V		UK50-103		MAG5011		
C2	.01 50V		UK50-103		MAG5011		
C3	.27				CN0427		10TCC-Q27
C4	.01 50V		UK50-103		MAG5011		
C5	3.9 NPO		DTZ-3R3	NP03P3	CN0533		10TCC-V33
C6	.01 50V		UK50-103		MAG5011		
C7	.01 50V		UK50-103		MAG5011		
C8	5.1 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C9	.01 50V		UK50-103		MAG5011		
C10	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C11	27 NPO 5%				CN0427		10TCC-Q27
C12	5.1 NPO		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C13	.001 1KV		DD-102		GP210		10TS-D10
C14	1				CN0510		10TCC-V10
C15	.01 50V		UK50-103		MAG5011		
C16	.01 50V		UK50-103		MAG5011		
C17	10		DTZ-10	NP010	CN0410		10TCC-Q10
C18	.01 50V		UK50-103		MAG5011		
C19	.01 50V		UK50-103		MAG5011		
C20	.01 50V		UK50-103		MAG5011		
C22	.01			WMF1S1	EW1A110	QFT2-91	1FT-S10
C24	.001 1KV		DD-102		GP210		10TS-D10
C25	150 N150	510-3216-151			*		10TCP-T15*
C26	.01 50V		UK50-103		MAG5011		
C28	.01 50V		UK50-103		MAG5011		
C30	.01 50V		UK50-103		MAG5011		
C33	.22 +10		UK12-204		MAG12022		HY-370
C34	.01 50V		UK50-103		MAG5011		
C35	27 NPO 5%				CN0427		10TCC-Q27
C36	.01 50V		UK50-103		MAG5011		
C37	.01 50V		UK50-103		MAG5011		
C38	.01 50V		UK50-103		MAG5011		
C39	.01 50V		UK50-103		MAG5011		
C40	.01 50V		UK50-103		MAG5011		
C41	.01 50V		UK50-103		MAG5011		
C42	.01 50V		UK50-103		MAG5011		
C43	.01 50V		UK50-103		MAG5011		
C44	.01 50V		UK50-103		MAG5011		
C45	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C46	.047 16V		UK16-503		MAG1615		HY-635
C48	.1 16V		UK16-104		MAG1601		HY-650
C49	.001 1KV		DD-102		GP210		10TS-D10
C50	.01 50V		UK50-103		MAG5011		
C58	.01		UK50-103		MAG5011		
C59	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C60	.01 50V		UK50-103		MAG5011		
C61	.01 50V		UK50-103		MAG5011		
C63	.047 16V		UK16-503		MAG1615		HY-635
C64	.047 16V		UK16-503		MAG1615		HY-635
C67	.047 16V		UK16-503		MAG1615		HY-635
C69	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C71	.1 16V		UK16-104		MAG1601		HY-650
C72	.01 50V		UK50-103		MAG5011		
C101	360			CD15FD361J03	SX336	QW1-40	MWA-361
C102	120 N150 5%				*		10TCP-T12
C103	.01 50V		UK50-103		MAG5011		
C104	.01 50V		UK50-103		MAG5011		
C105	.01 50V		UK50-103		MAG5011		
C106	33 N150 5%	510-3216-330			*		10TCP-Q33
C107	.01 50V		UK50-103		MAG5011		
C109	200 5%		DTZ-200				10TCC-T20
C110	.56		UK12-474		MAG12047		HY-380
C111	56 NPO 5%			N33	CN0456		10TCC-Q56
C112	33 N750 5%		DTN-33		CN7433		10TCU-Q33
C113	10 N150 5%	510-3216-100			*		10TCP-Q10
C114	470		DD-471	GP470	GP347		10TS-T47
C115	.001 1KV		DD-102		GP210		10TS-D10

JOHNSON MODELS MESSENGER 4170/75

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C116	.01 50V		UK50-103		MAG5011		
C117	22 NPO 5%		DTZ-20	NP020	CN0420		10TCC-Q20
C118	.001 1KV		DD-102		GP210		10TS-D10
C119	43 NPO 5%		DTZ-47	NP047	CN0447		10TCC-Q47
C120	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C121	.001 1KV		DD-102		GP210		10TS-D10
C122	.047 50V		UK50-503		MAG5015		
C123	27 NPO 5%				CN0427		10TCC-Q27
C124	47 N150 5%	510-3016-470			*		10TCP-Q47
C125	82 N150 5%	510-3216-820			*		10TCP-Q82
C126	300 5%			CD15FD301J03	SX330	QW1-38	MWA-301
C127	330			CD15FD301J03	SX330	QW1-38	MWA-301
C128	.0047		DD-472	GP4700	GP247		5GA-D47
C129	.022 50V		DC-253	MGP025	TA125		TG-S25
C130	.022 50V		DC-253	MGP025	TA125		TG-S25
C131	.022 50V		DC-253	MGP025	TA125		TG-S25
C133	270 N750 5%				CN7327		10TCU-T27
C135	.001 1KV		DD-102		GP210		10TS-D10
C136	.01 50V		UK50-103		MAG5011		
C138	.01 50V		UK50-103		MAG5011		
C143	.01 50V		UK50-103		MAG5011		
C203	33 N750 5%		DTN-33	N33	CN7433		10TCU-Q33
C204	100 N750 5%		DTN-100	N100	CN7310		10TCU-T10
C206	18 N750 5%		DTN-20	N20	CN7420		10TCU-Q20
C207	47 N750 5%		DTN-47	N47	CN7447		10TCU-Q47
C208	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C209	.0047 50V		DD-472	GP4700	GP247		5GA-D47
C210	5.1 NPO ±.5		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C212	.01 50V		UK50-103		MAG5011		
C213	.01 50V		UK50-103		MAG5011		
C214	22 NPO 5%		DTZ-22	NP022	CN0422		10TCC-Q22
C215	.01 50V		UK50-103		MAG5011		
C216	.001 1KV		DD-102		GP210		10TS-D10
C217	.01 50V		UK50-103		MAG5011		
C218	.01 50V		UK50-103		MAG5011		
C219	56 NPO 5%				CN0456		10TCC-Q56
C220	39 NPO 5%				CN0439		10TCC-Q39
C221	100 N150 5%	510-3216-101			*		10TCP-T10
C222	5.1 NPO ±.5		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C223	68 N150 5%				*		10TCP-Q68
C224	.01 50V		UK50-103		MAG5011		
C225	.01 50V		UK50-103		MAG5011		
C226	.01 50V		UK50-103		MAG5011		
C227	.001 1KV		DD-102		GP210		10TS-D10
C228	.01 50V		UK50-103		MAG5011		
C229	100 N150 5%	510-3216-101			*		10TCP-T10
C230	.1 16V		UK16-104		MAG1601		HY-650
C231	.1 16V		UK16-104		MAG1601		HY-650
C232	.01 50V		UK50-103		MAG5011		
C233	18 N750 5%		DTN-20	N20	CN7420		10TCU-Q20
C251	.01 50V		UK50-103		MAG5011		
C252	.01 50V		UK50-103		MAG5011		
C253	.001 1KV		DD-102		GP210		10TS-D10
C254	.001 1KV		DD-102		GP210		10TS-D10
C351	.01 16V		UK16-103		MAG1611		HY-420
C352	.01 16V		UK16-103		MAG1611		HY-420
C353	.01 16V		UK16-103		MAG1611		HY-420
C354	.01 16V		UK16-103		MAG1611		HY-420
C355	.01 16V		UK16-103		MAG1611		HY-420

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
R17	IF Gain	10K	562-0004-103	T-10K	C-103	MTC14L1	X201R103B
R26	Volume/Switch	10K	562-0002-021				
R42	Meter Adj.	10K	562-0004-103	T-10K	C-103	MTC14L1	X201R103B
R64	Squelch	10K	562-0002-022				

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFR. PART No.			WORKMAN PART No.	MFR. PART No.
RT1	8000 Cold NTC			R301	LDR (1)		569-9001-001

(1) Light dependent resistor.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L2	RF Choke				
L4	RF Choke				
L5	Loading Final				
L6	Pi Filter (27MHz)				
L7	Matching				
L201	Buffer				
L202	High Osc				
T1	Antenna (27MHz)	592-5015-001		CBS731	
T2	RF (27MHz)	592-5015-009			
T3	IF (4.3MHz)	592-5015-008			
T4	IF (4.3MHz)				
T5	IF (4.3MHz)				
T6	IF (4.3MHz)				
T7	IF (4.3MHz)				
T8	IF (4.3MHz)				
T9	IF (4.3MHz)	592-5015-014			
T10	IF (4.3MHz)	592-5015-015			
T11	Noise Blanker (23.5MHz)	592-5015-010			
T12	Noise Blanker (23.5MHz)	592-5015-010			
T13	Noise Blanker (23.5MHz)	592-5015-007			
T15	Mixer (27MHz)	592-5015-005		CBS107-T	
T16	Mixer (27MHz)	592-5015-005		CBS107-T	
T17	Driver	592-5014-002		CB910	
T18	Final (27MHz)	592-5014-005			
T201	Vc Osc	592-5015-005		CBS107-T	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
L1	1.4A	.299	4.94mH	542-5007-021			

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T14	.4	1	592-1013-008		MCB31	

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
			MFGR. PART No.	QUAM PART No.	
LS1	3 1/2" PM	3.2 Ohms		3A05	

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFRG. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
MK1	023-2708-214	18-032	18-034	18-010	18-099	1	To Connector Case	5	3	4	2

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA							
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	
F1	2A Quick Acting	534-0003-024	534-1004-031	AGC-2	HDJ	312002	150145	FG2-2	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
DS4	LED	549-4002-051	S/R Meter
DS301	LED	549-4002-001	Tens
DS302	LED	549-4002-001	Units
J4	Jack	142-0101-002	Antenna Receptacle
S2	Switch	583-3003-011	CB/PA
S3	Switch	583-2009-221	Channel Selector (40Pos)
S4	Switch	583-3003-011	On/Off
S5	Switch	583-3003-021	NOR/EXT/LOC
S6	Switch	583-3001-011	XMT/REC
Y1	Filter		4.3MHz
Y2	Filter		4.3MHz
Y3	Filter		4.3MHz
Y4	Filter		4.3MHz
Y5	Filter		4.296MHz
Y6	Filter		4.3MHz
Y7	Filter		4.3MHz
Y201	Filter	519-0008-002	5.120MHz
Y202	Filter	519-0005-201	21.855MHz
	Ferrite Bead	517-2002-002	
	Power Cable	023-3690-001	
	Power Plug	515-9030-001	

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Bottom Cover Assembly	023-3855-001	Front Panel (Model 4175)	032-0514-011
Top Cover Assembly	017-1900-003	Knob	032-0470-011
Front Cover Assembly	032-0216-006	Knob	032-0470-017
Front Panel (Model 4170)	032-0515-011	Knob	534-1004-032