

PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

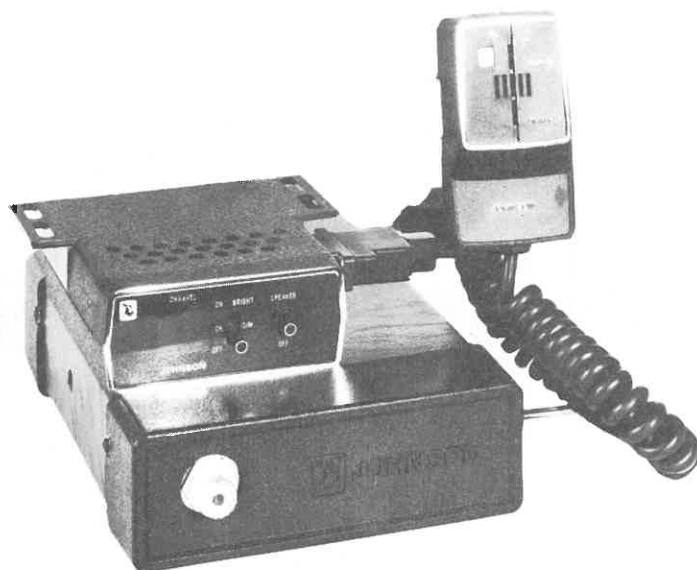
Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.

(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.



MODEL VIKING 4360

JOHNSON MODELS VIKING 4330/60

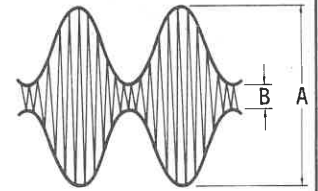
HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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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. Suggested Alignment Tools:

L4, L5, L7 9304, 9300, 9302
T1, T2, T101, T102 9440
Z1A, Z1B, T3, T4 5009, 8728A, 8728
L3, L6, T7, T8 9440, 8282, 8606, 9302



$$\text{Modulation Ratio} = \frac{A - B}{A + B} \times 100 (\%)$$

FIGURE 1

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of frequency counter thru 5pF to TP3 (U102 Pin 11).	Ch. 19		Check for 5.120MHz.
Input of frequency counter thru 5pF to TP2 (Q104 Emitter).	Ch. 19		Check for 30.870MHz.
	Ch. 19, XMT		Check for 31.325MHz.
Input of DC meter to TP1.	Ch. 1	T101	Adjust for 3.2 volts. Check for approx. 4-6 volts on channel 40.
	Ch. 1, XMT		Check for approx. 4-6 volts Check for approx. 6-7 volts on channel 40.
Input of frequency counter to TP4 (Junction C114 & C4).	Ch. 1		Check for 26.510MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP5 (CR103 Anode).	Ch. 1		Check for 26.965MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP6 (Q106 Collector).	Ch. 1		Check for .760MHz. Check all channels. (See Truth Chart for correct frequencies.)

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil. Adjust volume control to obtain a suitable indication. Set generator low enough to prevent AGC limiting. Preset as indicated, unless otherwise noted:
Squelch MINIMUM

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP7 (Q2 Base). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T4, T3, Z1B, Z1A	Adjust for maximum.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T2, T1	Adjust for maximum. If necessary readjust Z1A, Z1B, T3 and T4.

RECEIVER ADJUSTMENTS

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

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna input. 27.105MHz, 1000Hz @ 30% modulation Output 2uV.	Ch. 19 Volume Maximum	R2	IF GAIN Adjust for 2 volts audio.

TRANSMITTER ALIGNMENT

Connect a 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
Input of RF wattmeter to antenna input.	Ch. 19	T102,T5,T6 T7,T8	Adjust for maximum.
	Ch. 19	T8	Adjust for 4 watts maximum.
Input of spectrum analyzer or harmonic meter to antenna input.	Ch. 19	L7	Adjust for MINIMUM at 54MHz (2nd harmonic).
	Ch. 19	L5	Adjust for MINIMUM at 81MHz (3rd harmonic).

JOHNSON MODELS VIKING 4330/60

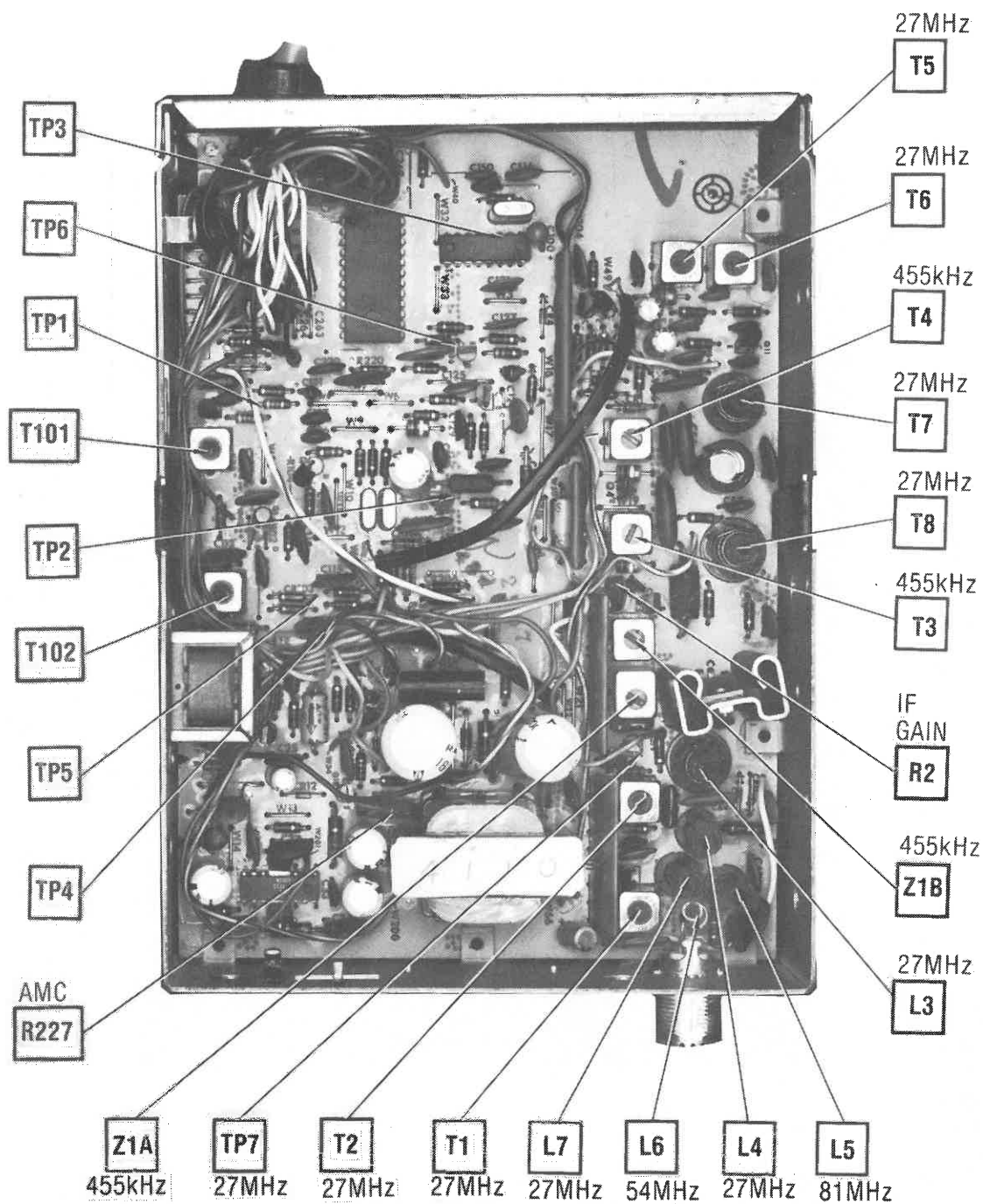
TRANSMITTER ADJUSTMENTS

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 adjustment of transmitter.
See page 4 for channel frequencies.

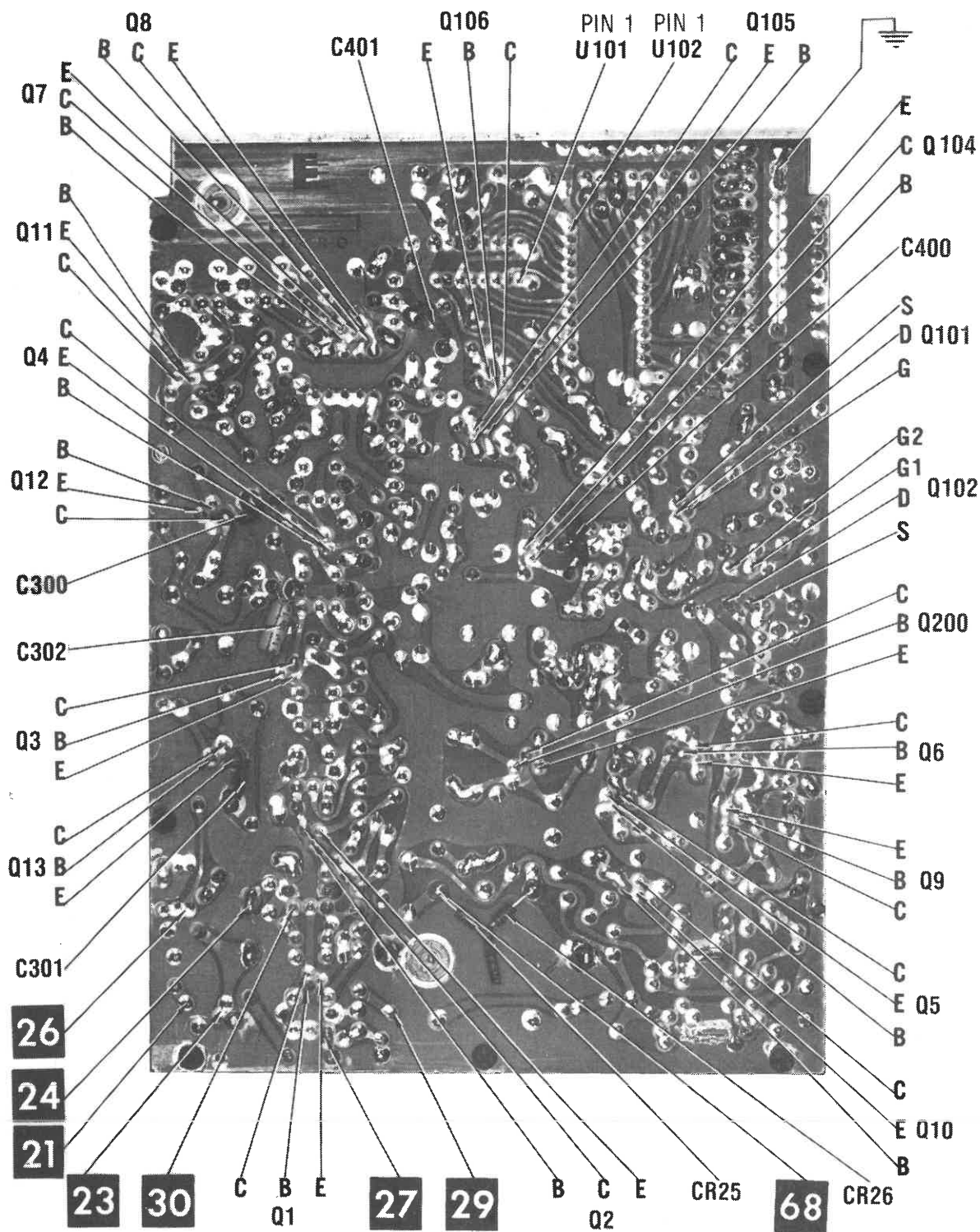
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 20mV signal at Mic input.	Ch. 19	R227	AMC Adjust R227 for 100% modulation maximum. (See Figure 1.)

TRUTH CHART

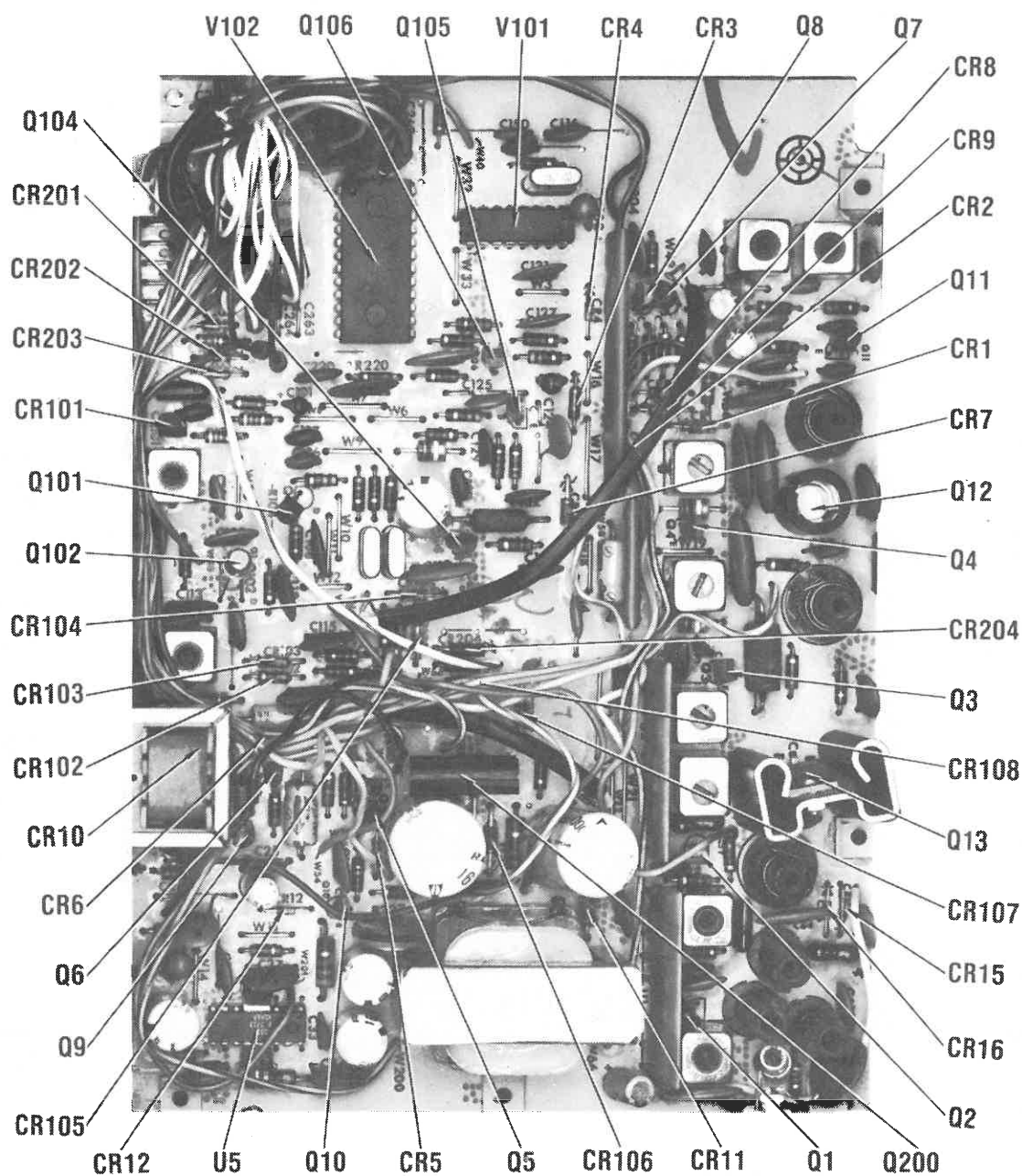
C H A N N E L	1 = 9.95 Volts 0 = 0 Volts								REC SYNTHESIZER OUTPUT IN MHz AT TP4 (Junction C114 & C4)	XMT SYNTHESIZER OUTPUT IN MHz AT TP5 (CR103,Anode)	REC & XMT DIVIDER INPUT IN MHz AT TP6 (Q106, Collector)
	CHANNEL INPUT CODE										
	PINS										
	12	13	14	15	2	3	4	5			
1	0	1	1	1	0	1	1	0	26.510	26.965	.760
2	0	1	1	1	0	1	1	1	26.520	26.975	.770
3	0	1	1	1	1	0	0	0	26.530	26.985	.780
4	1	0	0	0	0	0	0	0	26.550	27.005	.800
5	1	0	0	0	0	0	0	1	26.560	27.015	.810
6	1	0	0	0	0	0	1	0	26.570	27.025	.820
7	1	0	0	0	0	0	1	1	26.580	27.035	.830
8	1	0	0	0	0	1	0	1	26.600	27.055	.850
9	1	0	0	0	0	1	1	0	26.610	27.065	.860
10	1	0	0	0	0	1	1	1	26.620	27.075	.870
11	1	0	0	0	1	0	0	0	26.630	27.085	.880
12	1	0	0	1	0	0	0	0	26.650	27.105	.900
13	1	0	0	1	0	0	0	1	26.660	27.115	.910
14	1	0	0	1	0	0	1	0	26.670	27.125	.920
15	1	0	0	1	0	0	1	1	26.680	27.135	.930
16	1	0	0	1	0	1	0	1	26.700	27.155	.950
17	1	0	0	1	0	1	1	0	26.710	27.165	.960
18	1	0	0	1	0	1	1	1	26.720	27.175	.970
19	1	0	0	1	1	0	0	0	26.730	27.185	.980
20	1	0	1	0	0	0	0	0	26.750	27.205	1.000
21	1	0	1	0	0	0	0	1	26.760	27.215	1.010
22	1	0	1	0	0	0	1	0	26.770	27.225	1.020
23	1	0	1	0	0	1	0	1	26.800	27.255	1.050
24	1	0	1	0	0	0	1	1	26.780	27.235	1.030
25	1	0	1	0	0	1	0	0	26.790	27.245	1.040
26	1	0	1	0	0	1	1	0	26.810	27.265	1.060
27	1	0	1	0	0	1	1	1	26.820	27.275	1.070
28	1	0	1	0	1	0	0	0	26.830	27.285	1.080
29	1	0	1	0	1	0	0	1	26.840	27.295	1.090
30	1	0	1	1	0	0	0	0	26.850	27.305	1.100
31	1	0	1	1	0	0	0	1	26.860	27.315	1.110
32	1	0	1	1	0	0	1	0	26.870	27.325	1.120
33	1	0	1	1	0	0	1	1	26.880	27.335	1.130
34	1	0	1	1	0	1	0	0	26.890	27.345	1.140
35	1	0	1	1	0	1	0	1	26.900	27.355	1.150
36	1	0	1	1	0	1	1	0	26.910	27.365	1.160
37	1	0	1	1	0	1	1	1	26.920	27.375	1.170
38	1	0	1	1	1	0	0	0	26.930	27.385	1.180
39	1	0	1	1	1	0	0	1	26.940	27.395	1.190
40	1	1	0	0	0	0	0	0	26.950	27.405	1.200



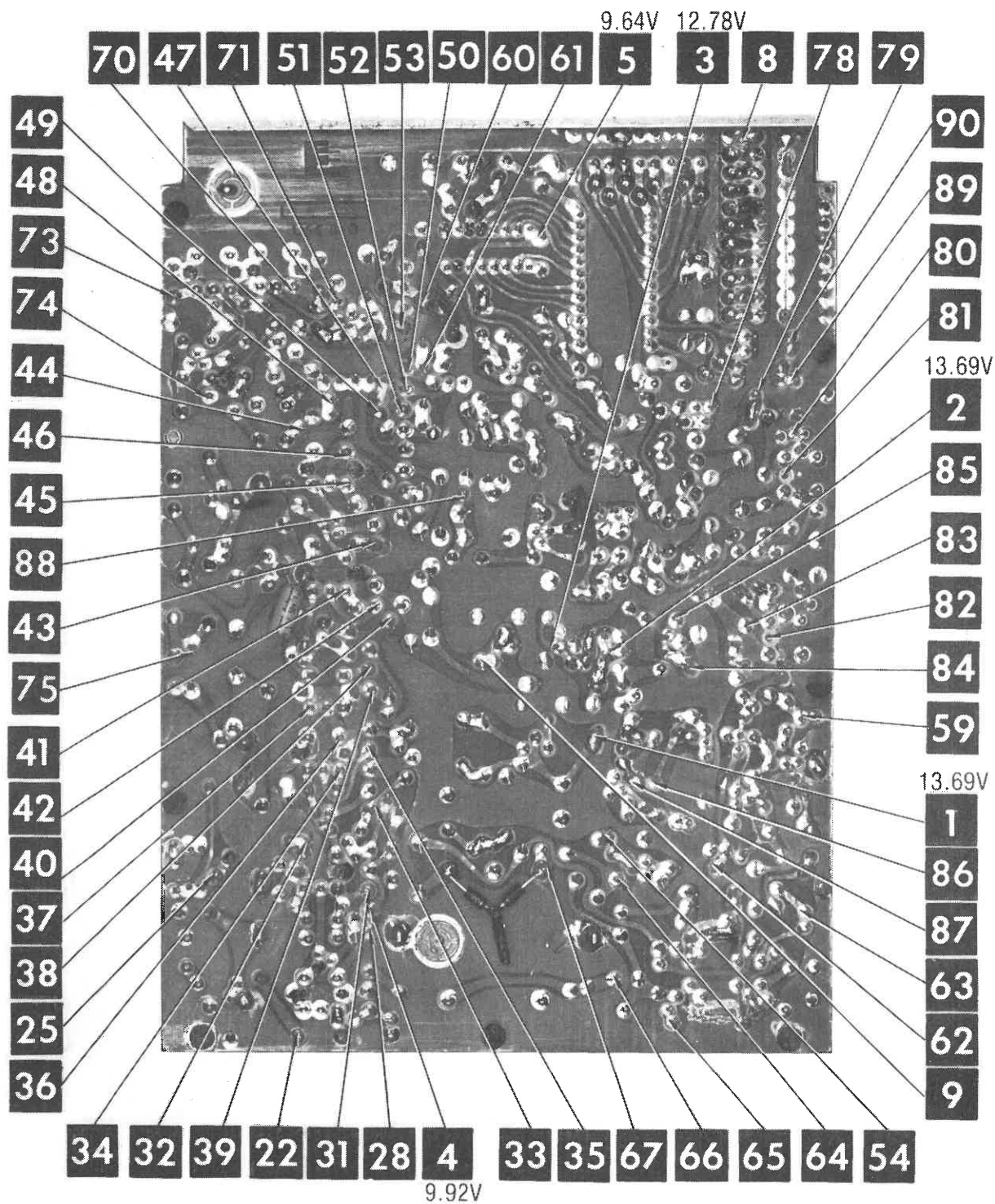
CHASSIS-BOTTOM



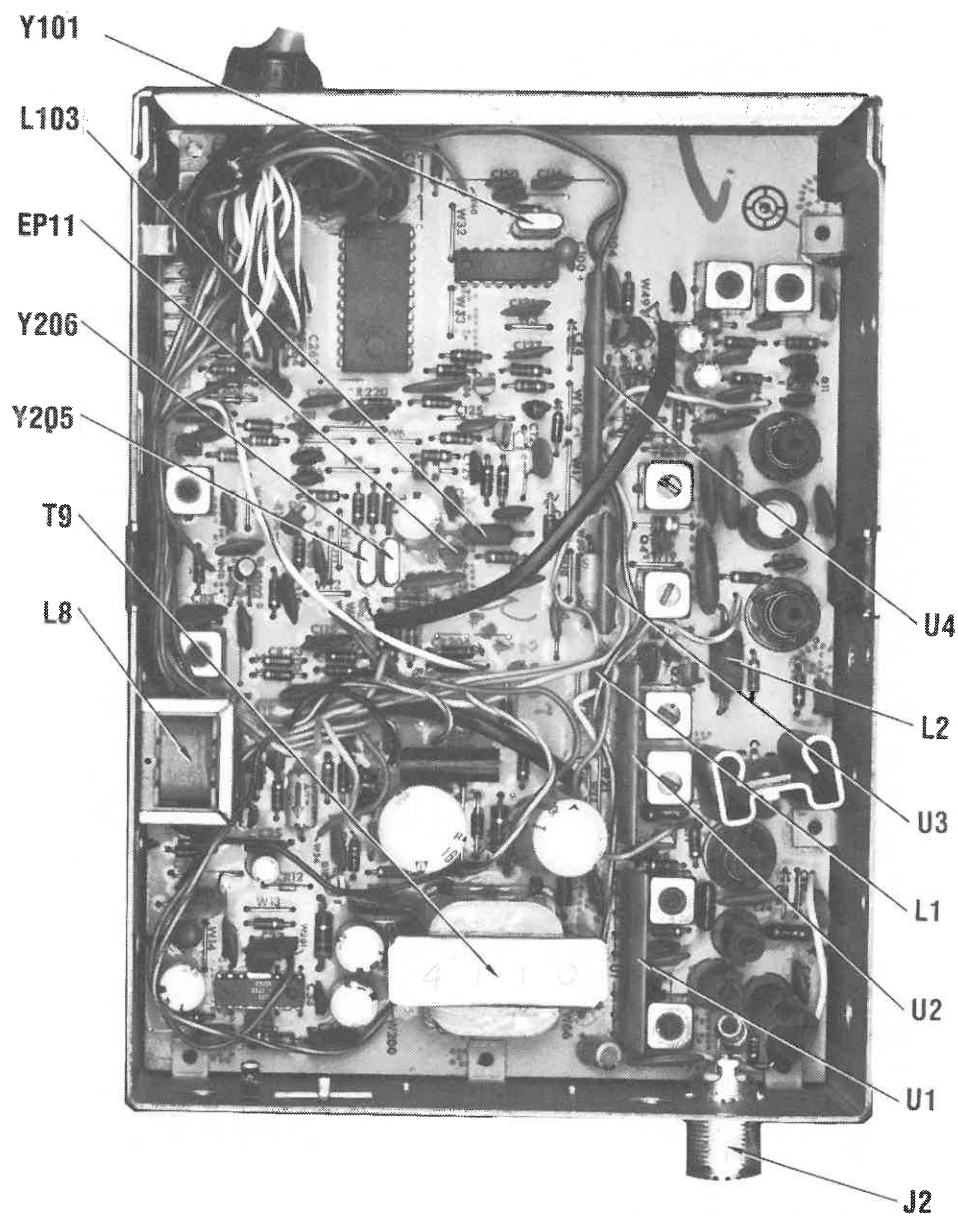
MAIN BOARD



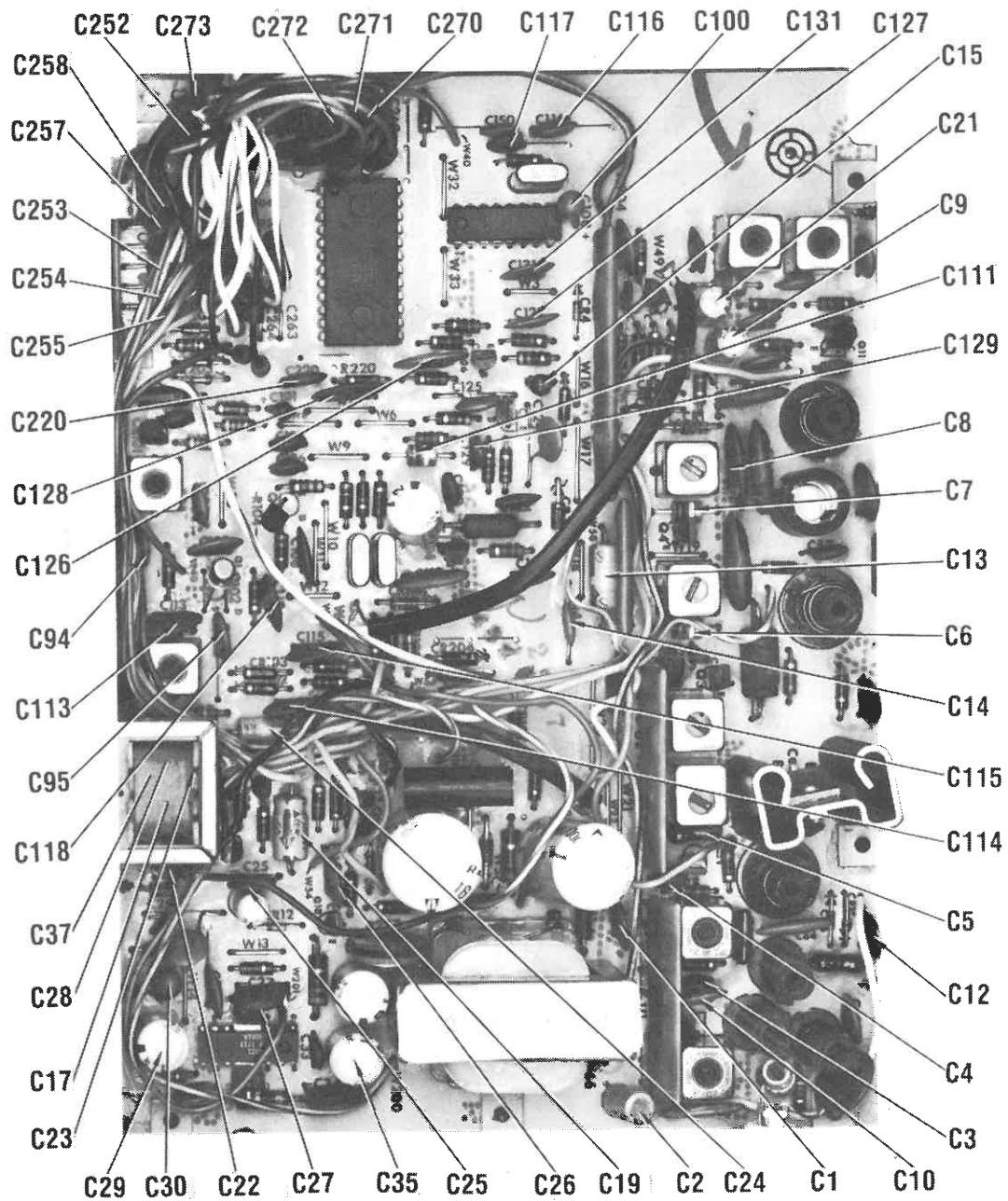
MAIN BOARD



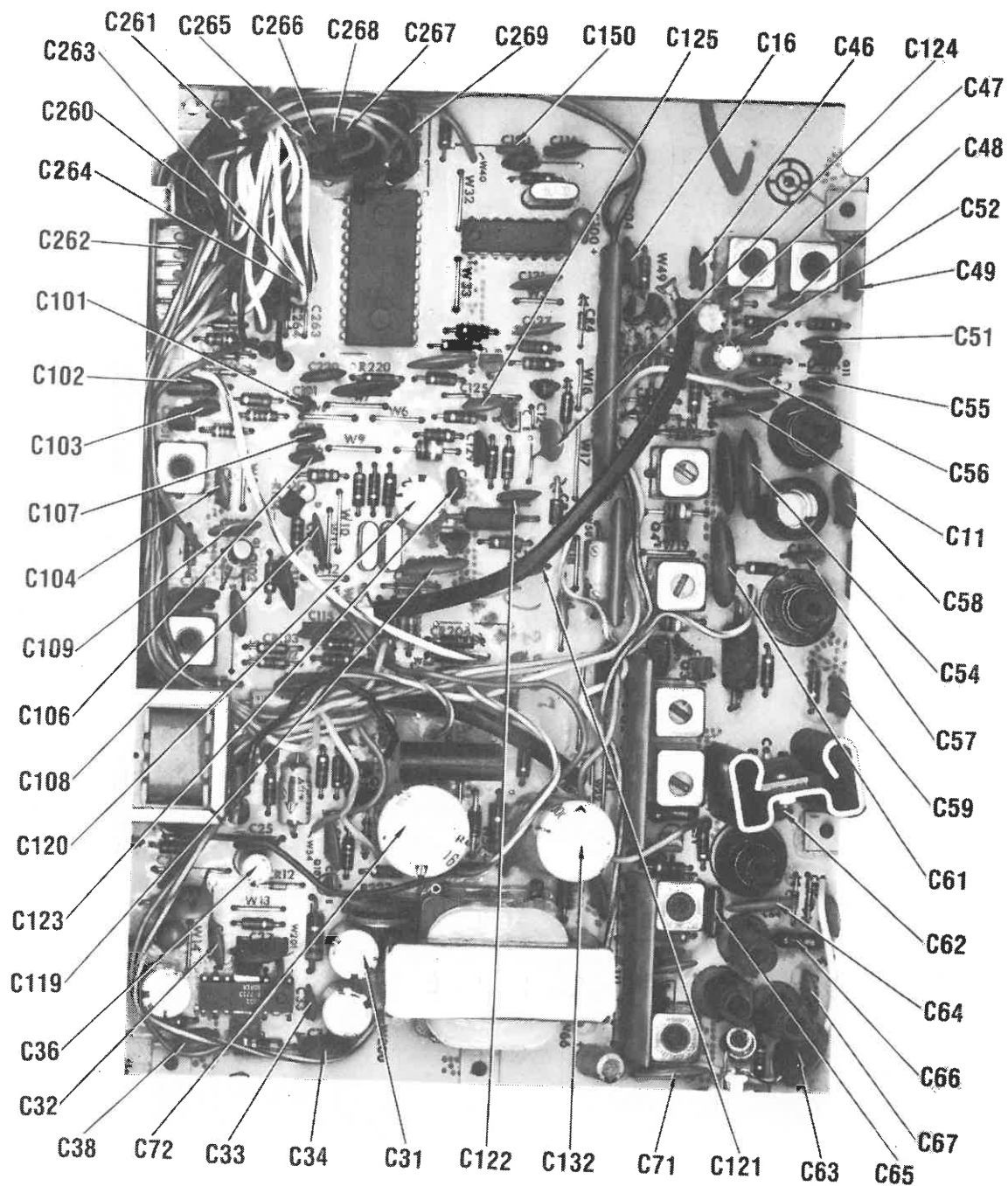
MAIN BOARD



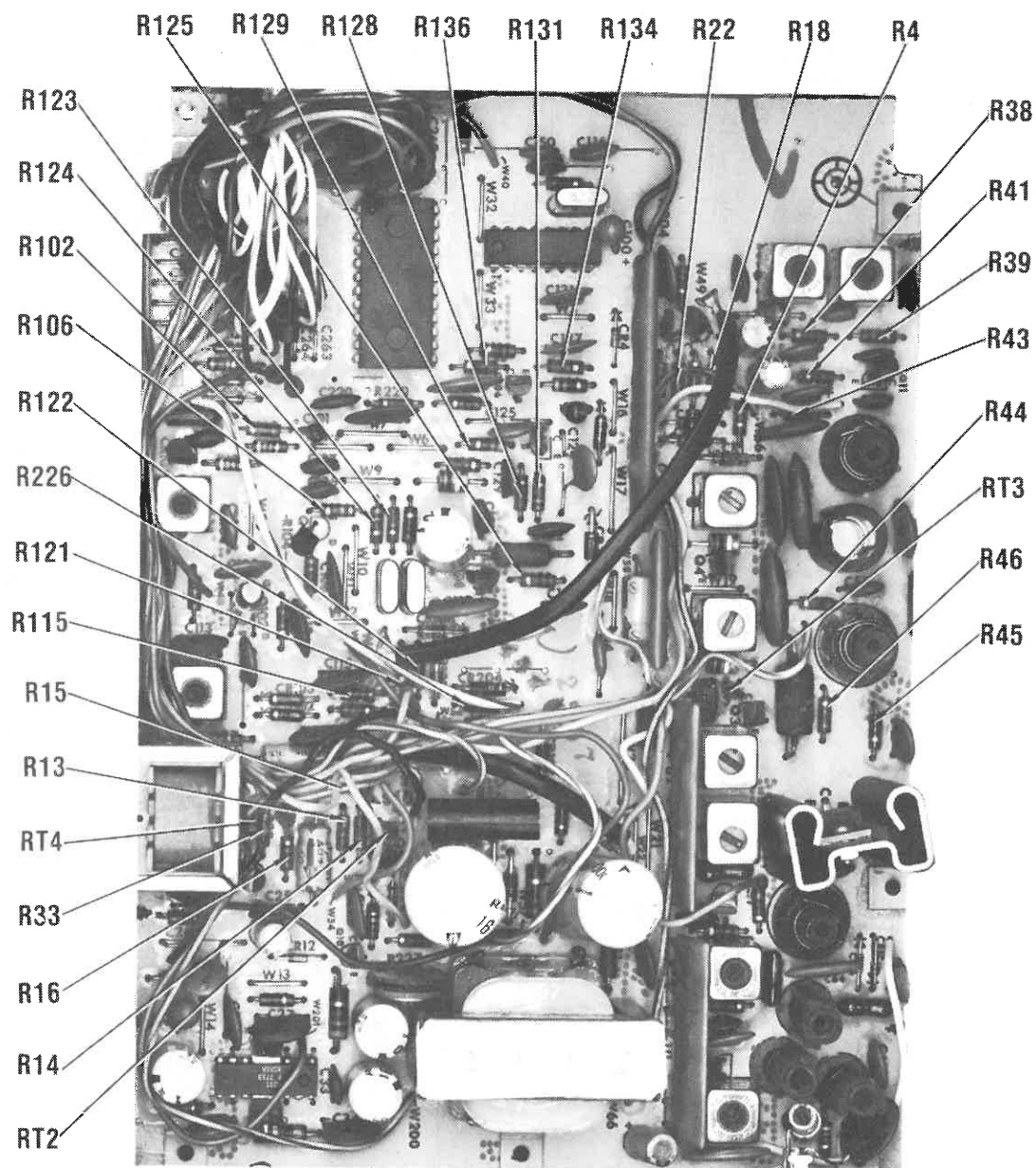
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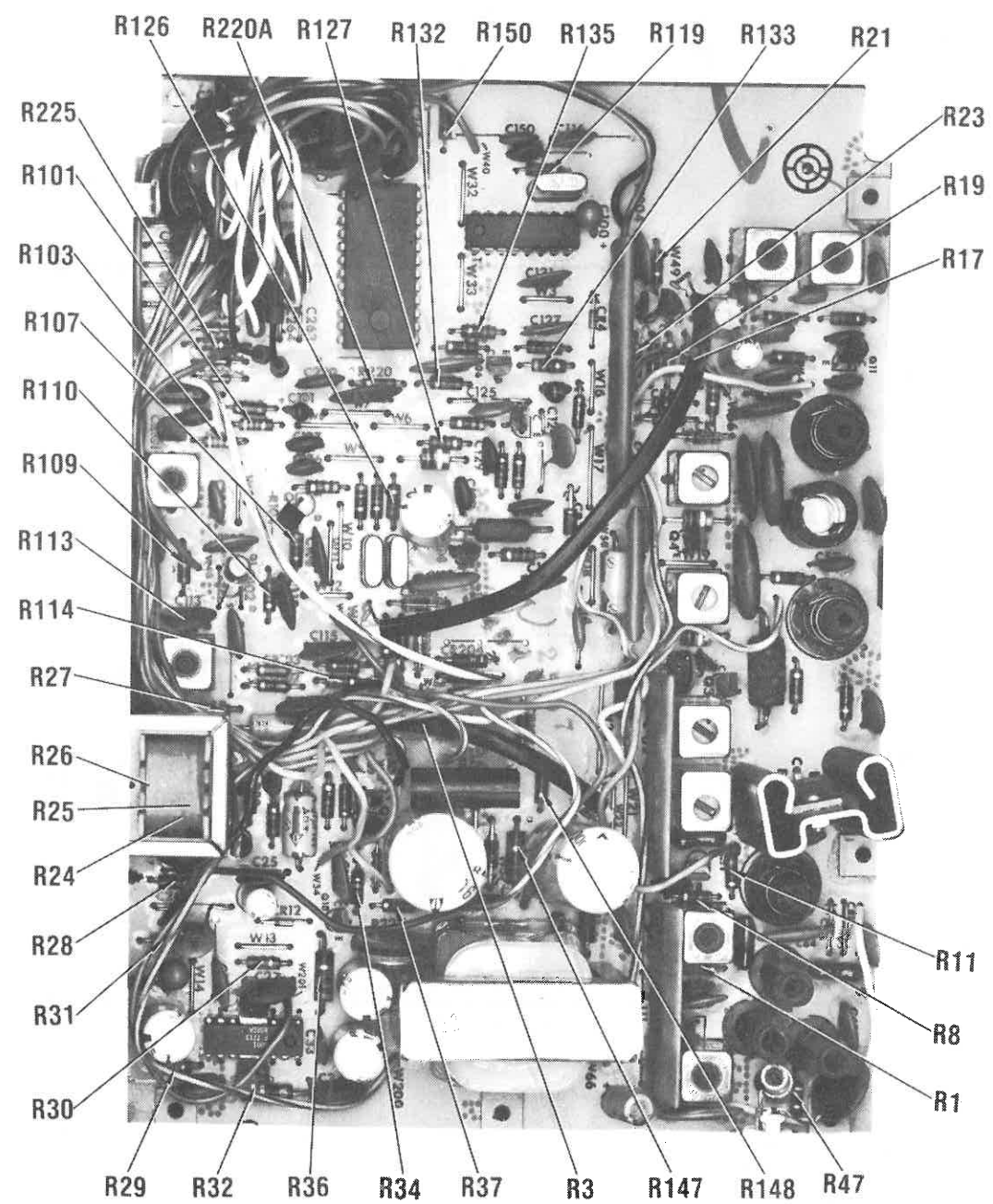
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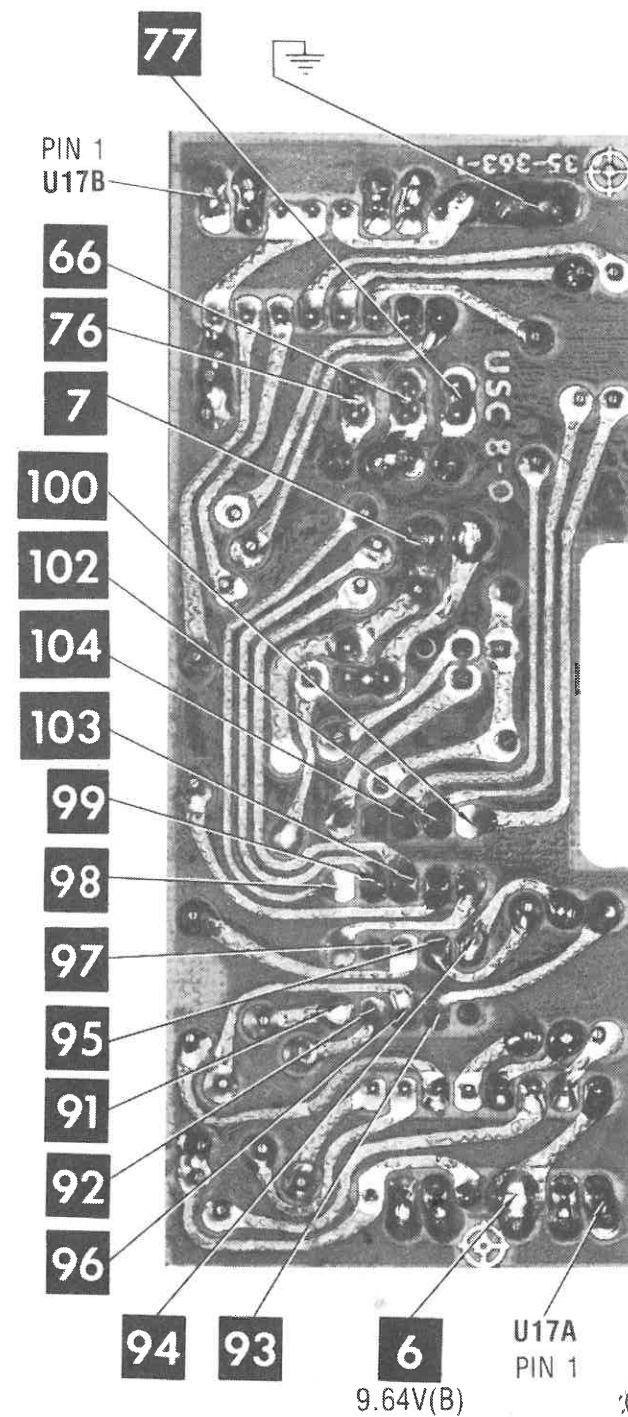
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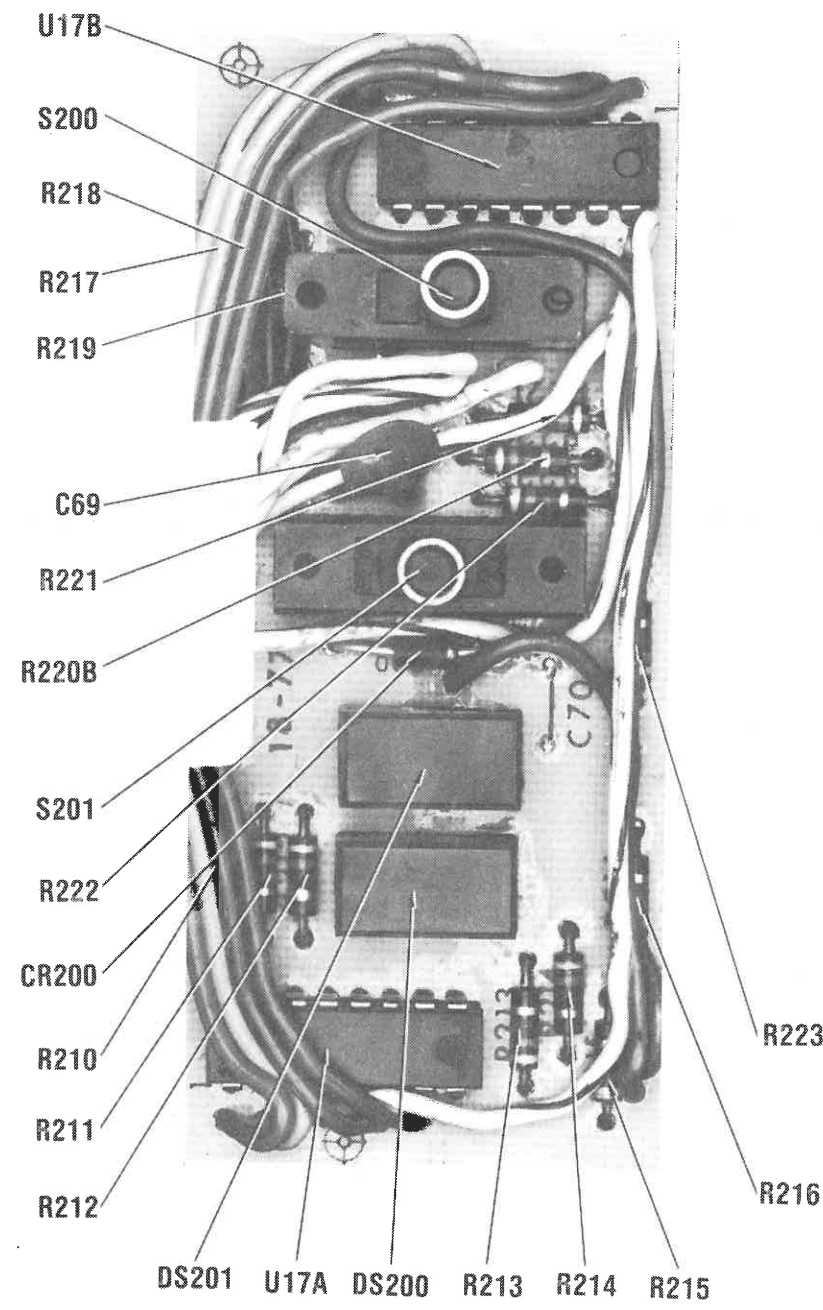
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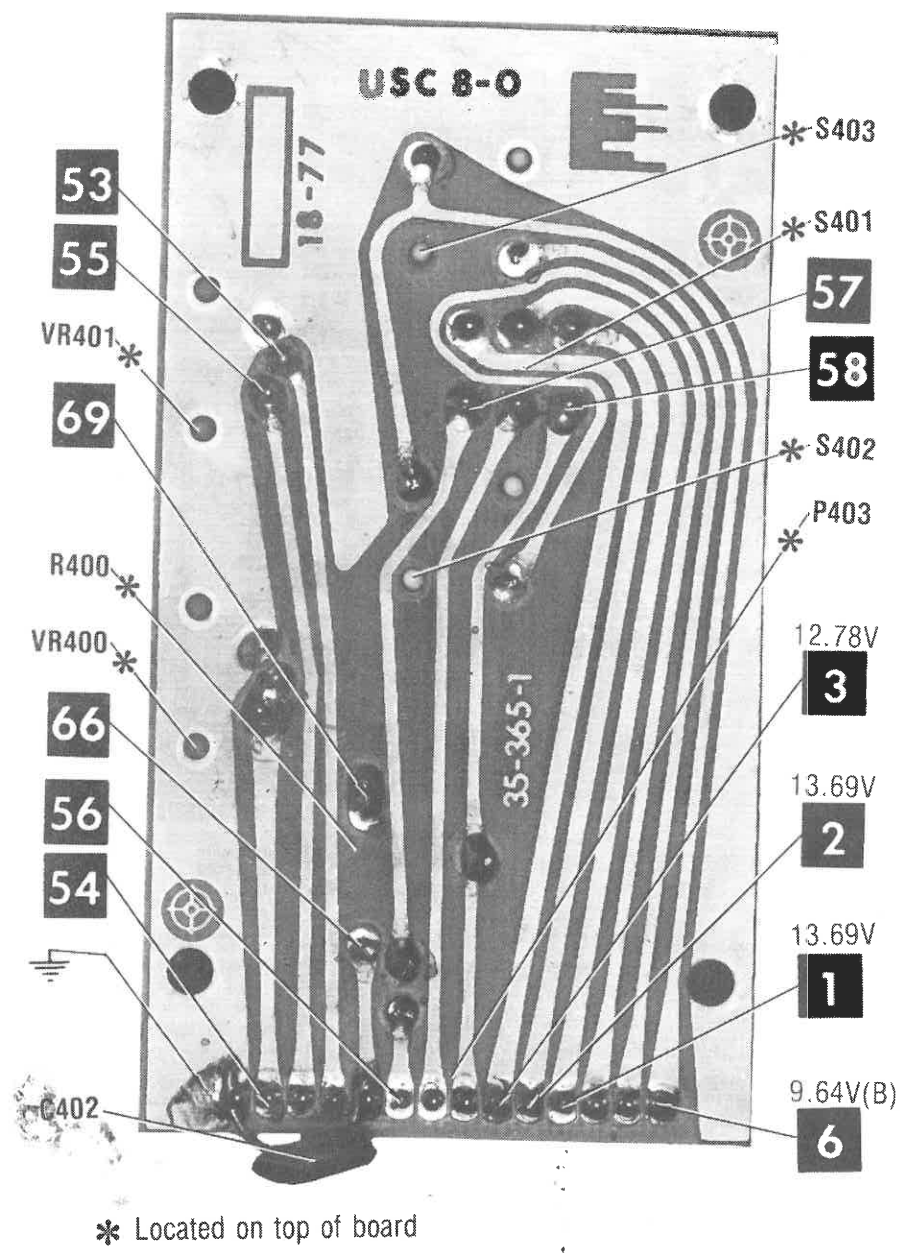
MAIN BOARD



CONTROL BOARD

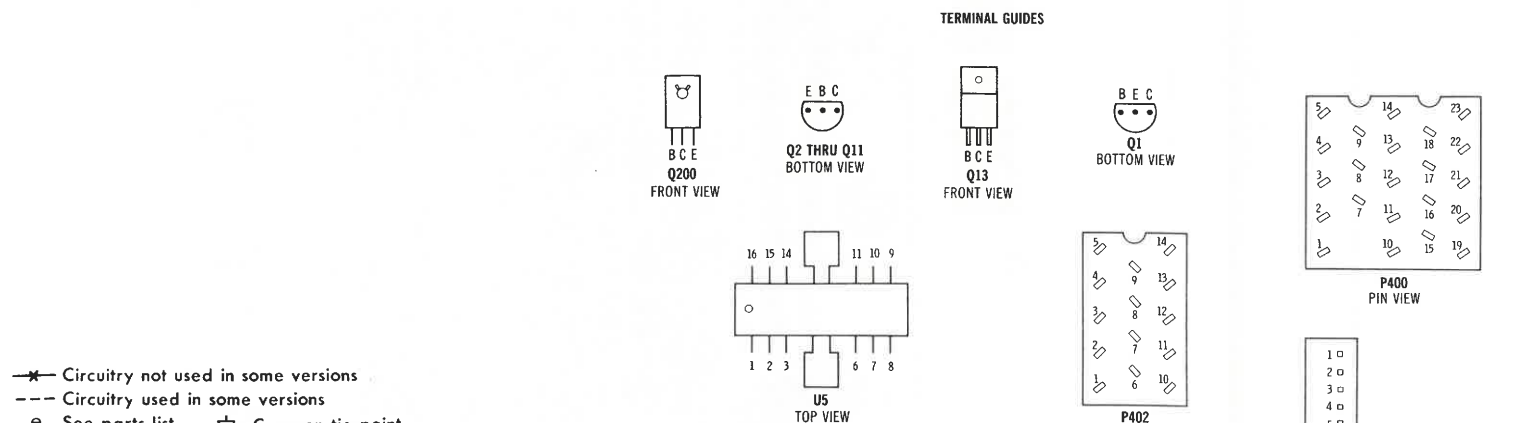
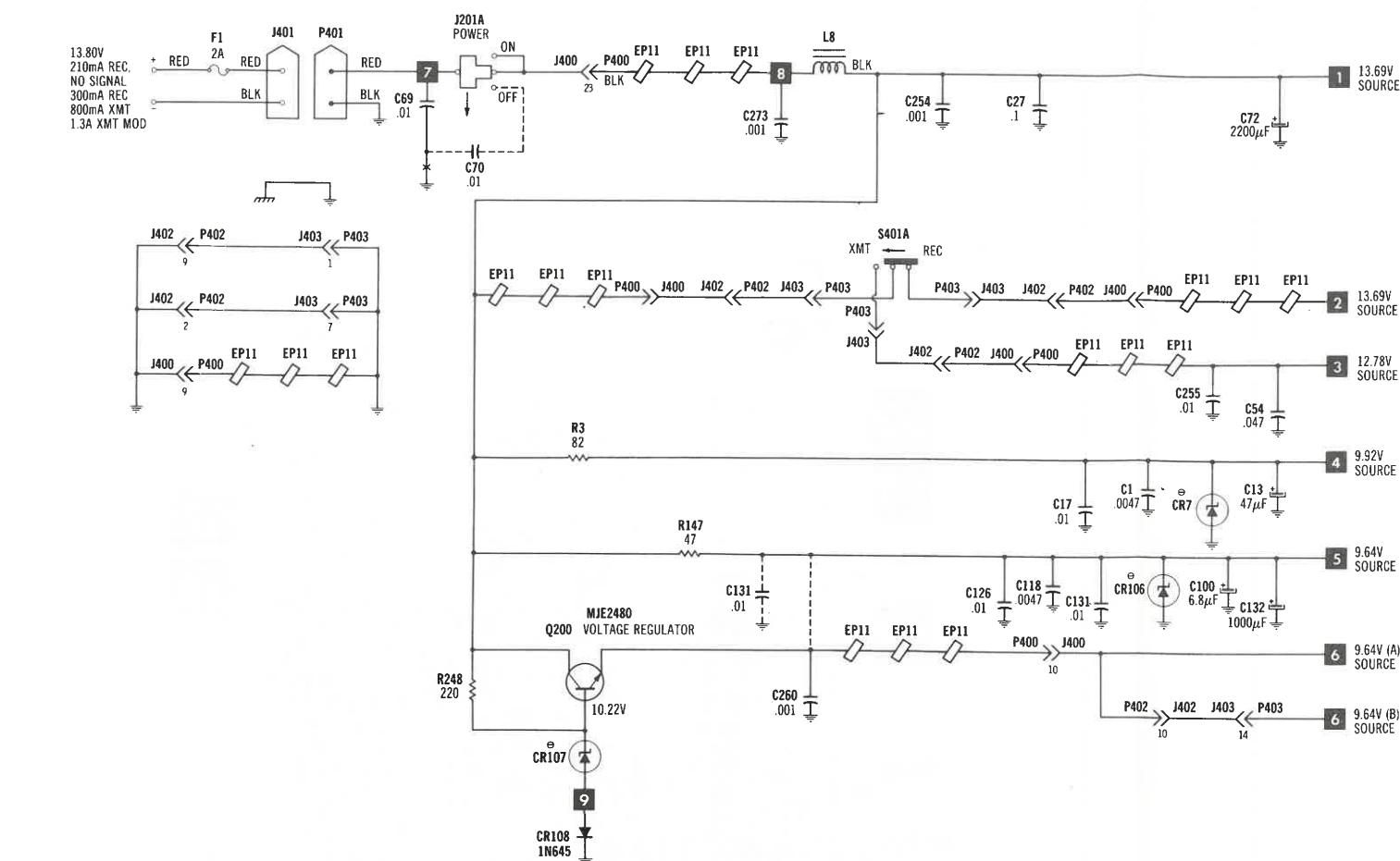


CONTROL BOARD



MIC BOARD

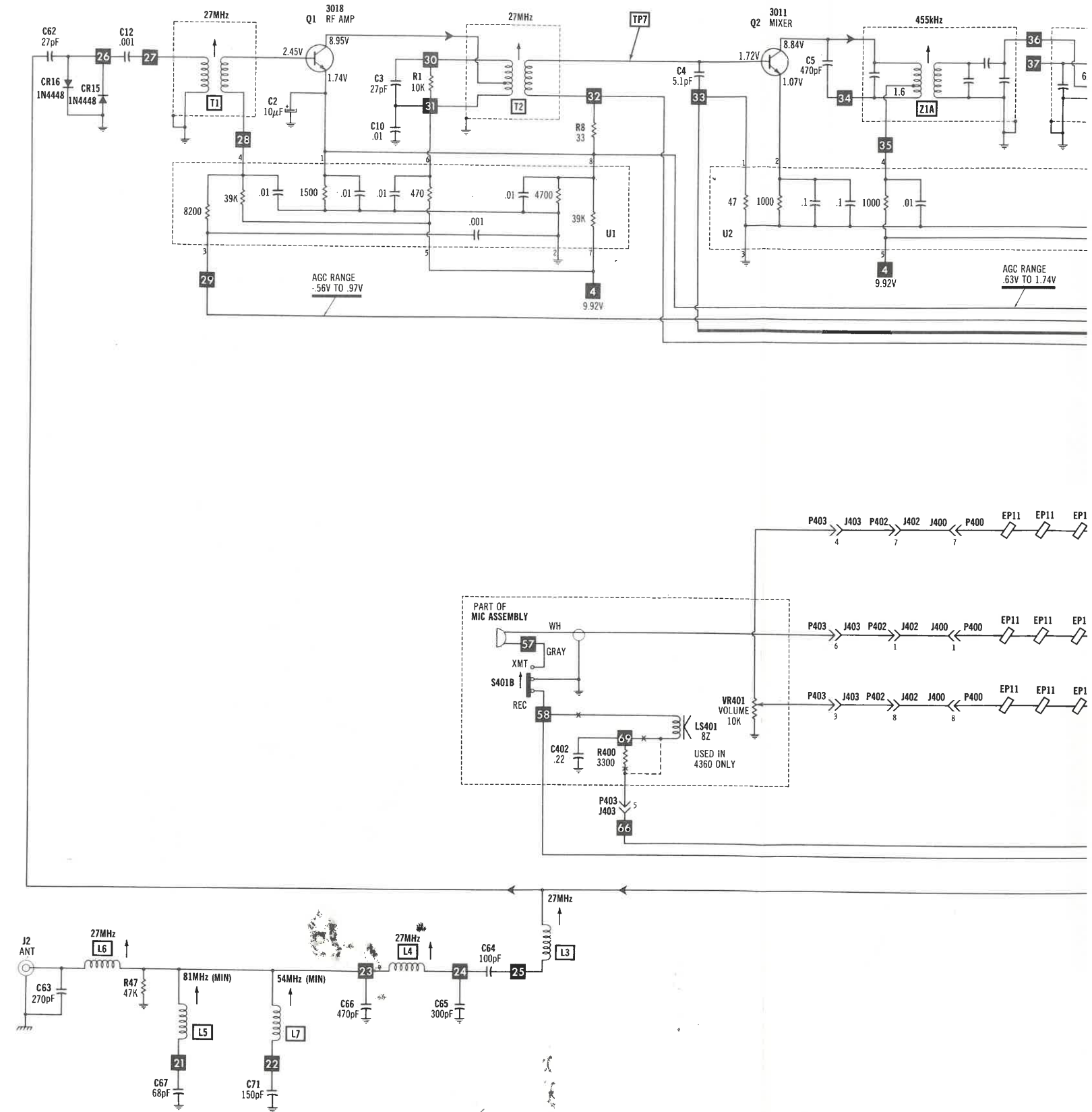
JOHNSON MODELS VIKING 4330/60

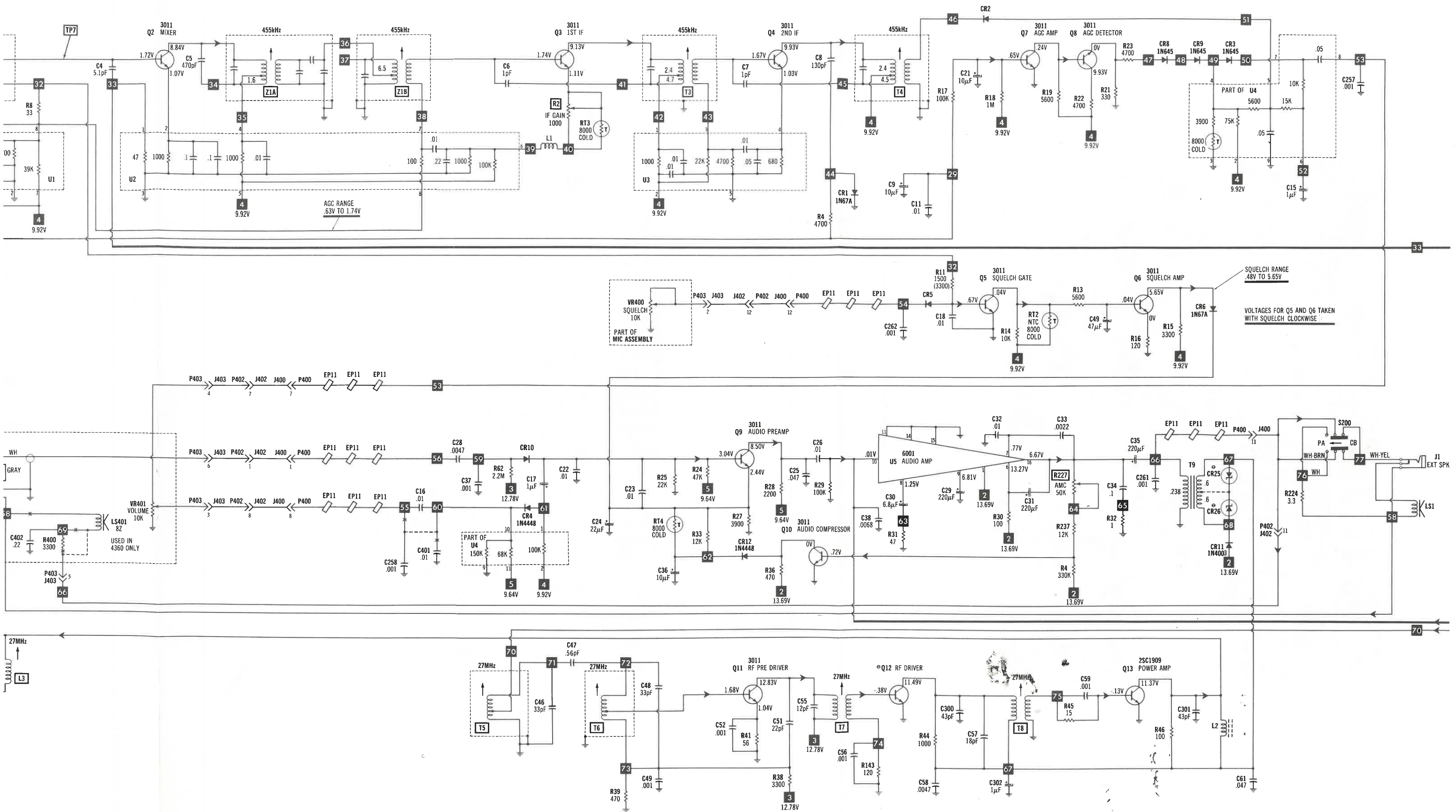


* Circuitry not used in some versions
 --- Circuitry used in some versions
 e See parts list
 * Nominal value
 Ground
 Chassis
 Measurements made in Channel 1 with switching as shown unless noted.
 Item numbers in rectangles appear in the alignment/adjustment instructions.
 Supply voltage maintained 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 PHOTOFACE STANDARD NOTATION SCHEMATIC
 WITH **CIRCUITRACE**
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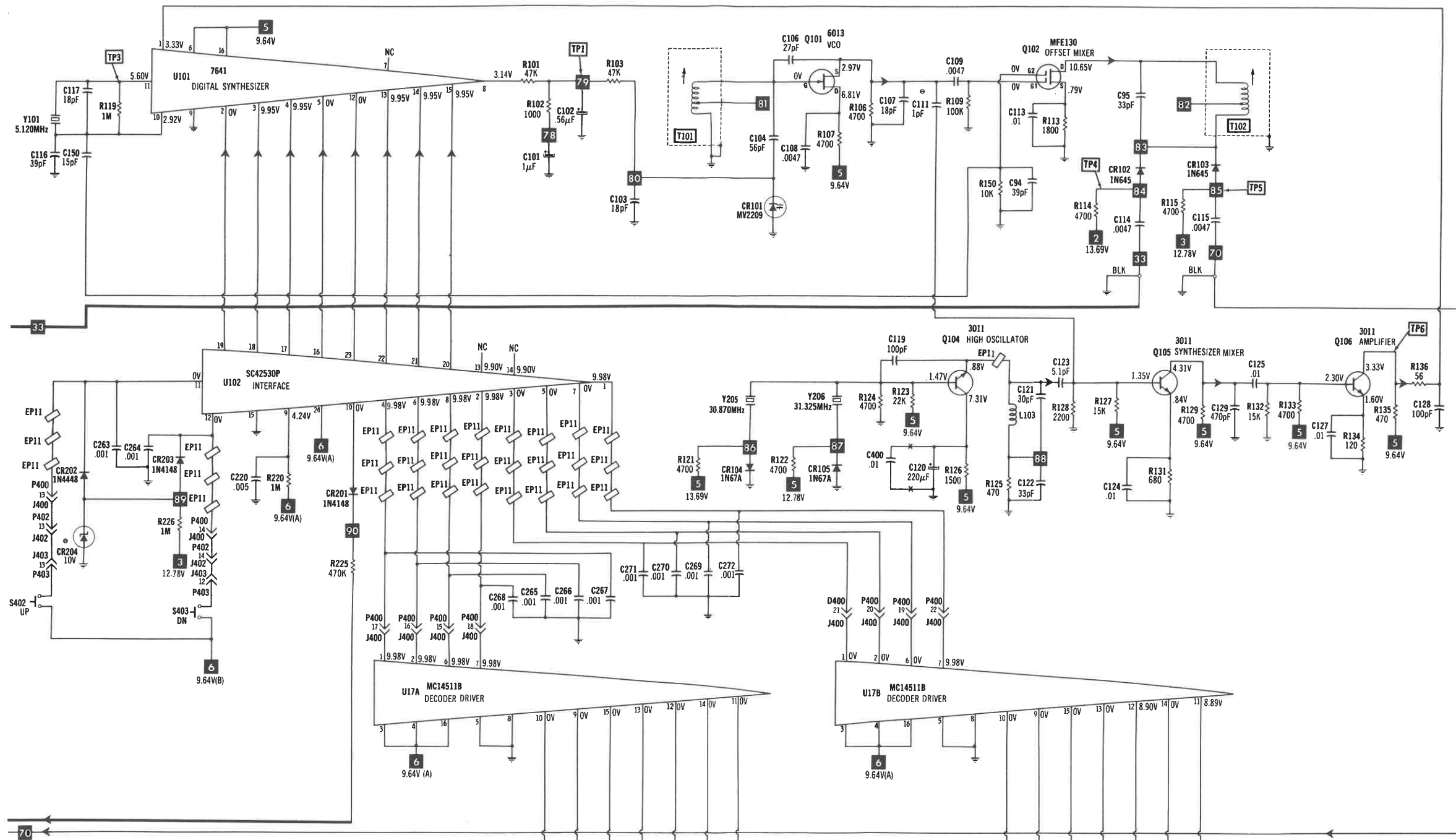
POWER SUPPLY SCHEMATIC



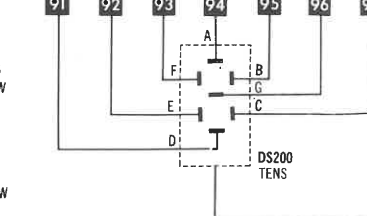
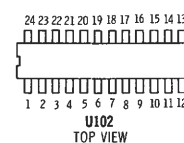
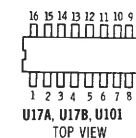


MAIN SCHEMATIC

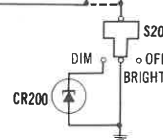
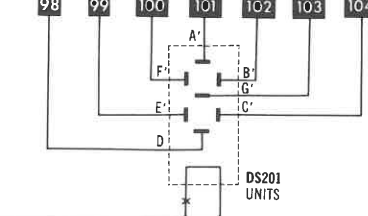
JOHNSON MODELS VIKING 4330/60

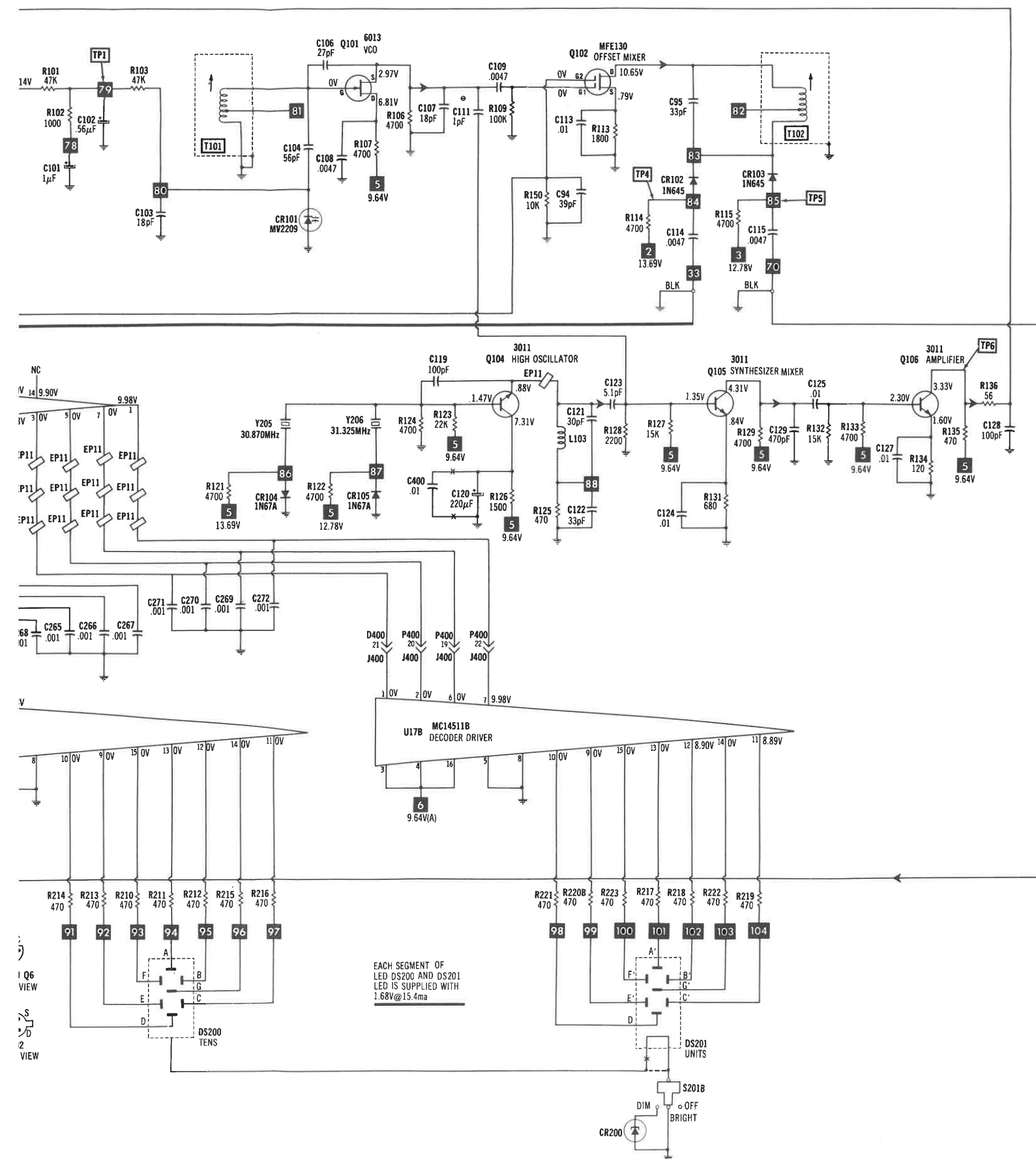


- Circuitry not used in some versions
 - Circuitry used in some versions
 - ⊙ See parts list
 - * Nominal value
 - ⊥ Ground
 - Chassis
 - Common tie point
 - Signal path
 - Voltage path
- Measurements made in Channel 1 with switching as shown unless noted.
 Item numbers in rectangles appear in the alignment/adjustment 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.

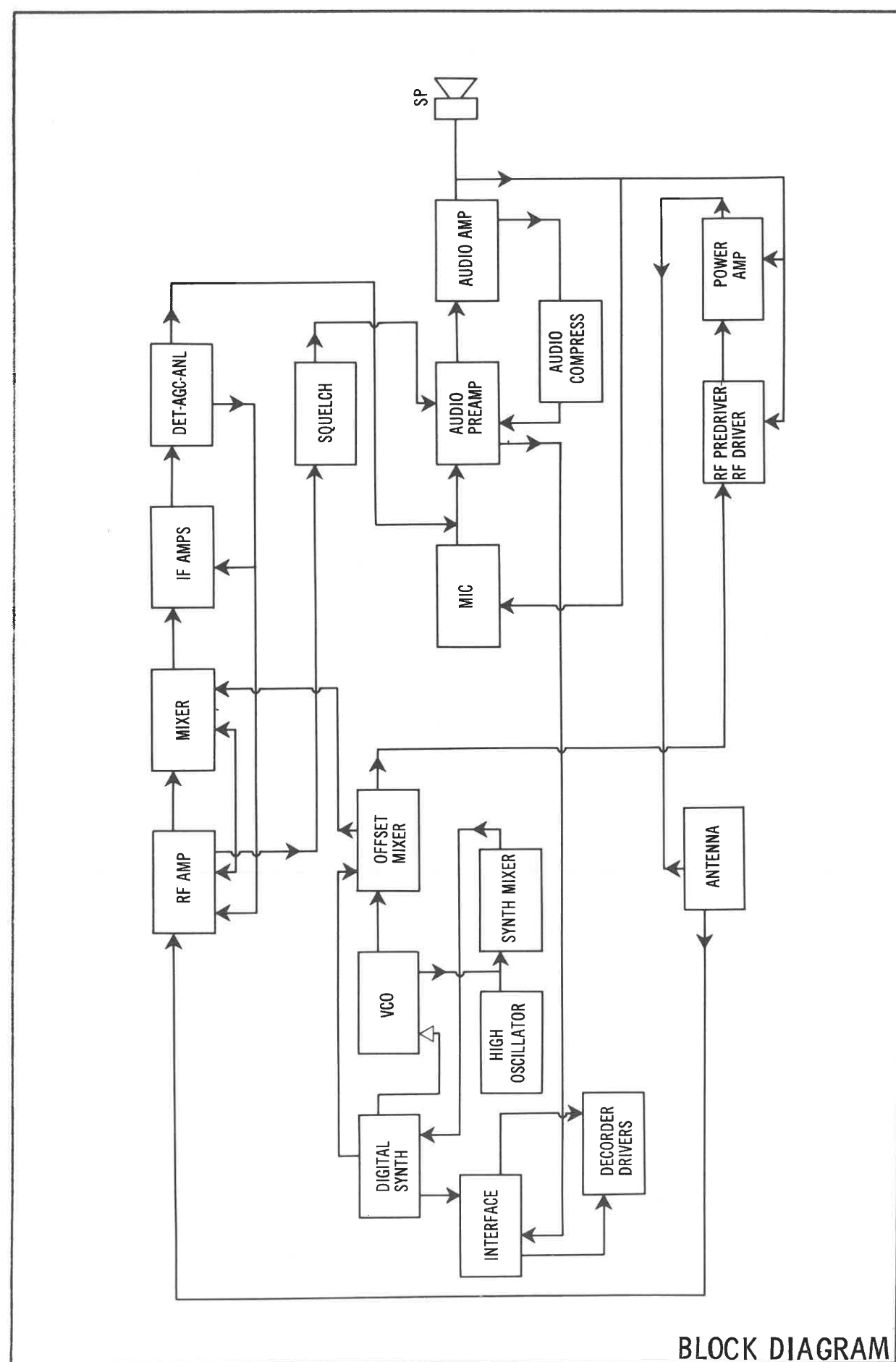


EACH SEGMENT OF LED DS200 AND DS201 LED IS SUPPLIED WITH 1.68V@15.4ma





PLL SCHEMATIC



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTION
(When ordering parts, state Model, Part Number, and Description.)

WIRING DATA

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. 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	REN 109	SK3087	RT-200	ECG109	TM109/**	WEP134	103-Z9001
CR2	1N67A	523-1500-067	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	TM109/**	WEP134	103-Z9001
CR3	1N645	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR4	1N881	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
	1N4448	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
CR5	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
CR6	1N67A	523-1500-067	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	TM109/**	WEP134	103-Z9001
CR7	1N645	523-2503-100	GEZD-10	ZB10B		REN 140	SK3061	RT-241	ECG140A	TM140/**	WEP1110	103-Z9010
CR8		523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR9	1N881	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
	1N645	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR10	1N881	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
	1N67A	523-1500-067	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	TM109/**	WEP134	103-Z9001
CR11	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
CR12	1N4003	523-0501-002	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR15	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
CR16	1N4448	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
CR25	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1N4148	523-2003-150	GEZD-15	ZB15B		REN 145	SK3063	RT-245	ECG145A	TM145/**	WEP1114	103-Z9013
CR26	MV2209	523-2003-150	GEZD-15	ZB15B		REN 145	SK3063	RT-245	ECG145A	TM145/**	WEP1114	103-Z9013
CR101		523-0009-049	GE-90		HEPR2503	REN 614		RT-262	ECG614	TM116	WEP200	103-219
CR102	1N645	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR103	1N881	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
	1N645	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR104	1N881	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
	1N67A	523-1500-067	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	TM109/**	WEP134	103-Z9001
CR105	1N67A	523-1500-067	1N34AS	PTC207	HEPR9134A	REN 109	SK3087	RT-200	ECG109	TM109/**	WEP134	103-Z9001
CR106	1N4148	523-2509-100	GEZD-10			REN 140	SK3061	RT-241	ECG140A	TM140/**	WEP1619	103-Z9010
CR107		523-2503-100	GEZD-10	ZB10B		REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR108	1N645	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR200	1N881	523-1500-881	GE-504A	PTC201	HEPRO052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
CR201	1N4448	523-2003-519	GEZD-5.0			REN 135			ECG135A	TM135	WEP1103	103-Z9006
		523-2503-519	GEZD-5.1						ECG135A	TM135	WEP1103	103-Z9006
CR202	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
CR203	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
CR204	1N4148	523-1500-883	GE-514	PTC214	HEPR9137	REN 177	SK3100	RT-218	ECG519	TM519	WEP925	103-287
Q1	3018	576-0003-018	GE-86	PTC121	HEPS0014	REN 108	SK3018	RT-107	ECG108	TM108	WEP56	121-522
Q2	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q3	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q4	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q5	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q6	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q7	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q8	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q9	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q10	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q11	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q12		576-0004-004	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102A	ECG123A	TM123A	WEP736	121-Z9000A
Q13	25C1909	576-0004-105	GE-215	PTC186		REN 235	SK3197	RT-146	ECG235	TM235	WEP785	121-Z9039
Q101	6013	576-0004-004	GE-FET-2	PTC161	HEPF0021	REN 132	SK3448	RT-175	ECG312	TM312	WEP920	121-756
Q102	MFC130	576-0003-224	GE-FET-4	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEP905	121-826
Q104	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102	ECG123A	TM123A	WEP736	121-Z9000A
Q105	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102	ECG123A	TM123A	WEP736	121-Z9000A
Q106	3011	576-0003-011	GE-20	PTC136	HEPS0015	REN 123A	SK3444	RT-102	ECG123A	TM123A	WEP736	121-Z9000A
Q200	MJE2480	576-0002-029	GE-57	PTC163	HEPS0527	REN 152	SK3188	RT-197	ECG241	TM241	WEP880	121-Z9002
U5	6001	544-2006-001	GE1C-278				SK3184		ECG1115	TM1115	WEP2089	
U17A	MC14511B	544-3001-143										
U17B	MC14511B	544-3001-143										
U101	7641	544-3001-201										
U102	SC42530P	544-3001-213										

* Lead configuration may vary from original.
/** Also available as exact type replacement.

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
C2	10 25V	510-4125-100	PC10-25	VTT10825	QV1-43	EV-1322
C9	10 25V	510-4125-100	PC10-25	VTT10825	QV1-43	EV-1322
C13	47 10V	510-4503-004	PC50-16(1)	VTT47D16(1)	QV1-73(1)	EV-1226(1)
C15	1 35V	510-2245-109		TDC105M035EL		SD35-19
C17	1 35V	510-2245-109		TDC105M035EL		SD35-19
C19	47 10V	510-4503-004	PC50-16(1)	VTT47D16(1)	QV1-73(1)	EV-1226(1)
C21	10 25V	510-4125-100	PC10-25	VTT10825	QV1-43	EV-1322
C24	22 25V	510-4006-009	PC25-25(1)	VTT22D25(1)	QV1-57(1)	EV-1324(1)
C29	220 16V	510-4116-221	PC250-25	VTT220H16	QV1-117	EV-1240
C30	6.8 35V	510-2245-689		TDC685M035FL		SD35-6R89
C31	220 16V	510-4116-221	PC250-25	VTT220H16	QV1-117	EV-1240
C35	220 16V	510-4116-221	PC250-25	VTT220H16	QV1-117	EV-1240
C36	10 25V	510-4125-100	PC10-25	VTT10825	QV1-43	EV-1322
C72	2200 16V	510-4116-222	WBR2000-16*	TC1520C*	QE1-643*	TVA-1175, 3*
C100	6.8 35V	510-2245-689		TDC685M035FL		SD35-6R89
C101	1 35V	510-2245-109		TDC105M035EL		SD35-19
C102	.56 35V	510-2005-568		TM564K050POM		SD50-R569
C120	220 16V	510-4116-221	PC250-25	VTT220H16	QV1-117	EV-1240
C132	1000 16V	510-4116-102	PC1000-16	VTT1000L16	QV1-183	EV-1260
C302	1 50V	510-4150-109	PC1-50	VTT1A50	QV1-11	EV-1615

* Axial replacement for radial device.
(1) Radial replacement used in place of axial device.

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	.0047 50V	510-3216-270	DD-472	GP4700	GP247	QW1-42	5GA-D47	
C3	27 N150 200V 5%				*		10TCP-Q27	
C4	5.1 NPO 200V ±.5		DTZ-4R7	NPO4P7	CN0547		10TCC-V47	
C5	470 100V 5%			CD15FD471J03	CD15FD471J03		MMA-471	
C6	1 500V 5%				CN0510		10TCC-V10	
C7	1 500V 5%				CN0510		10TCC-V10	
C8	130 NPO 50V 5%		DTZ-120		CN0312		10TCC-T12	
C10	.01 50V		UK50-103		MAG5011			
C11	.01 50V		UK50-103		MAG5011			
C12	.001 1KV		DD-102		GP210		10TS-D10	
C14	.01 50V		UK50-103		MAG5011			
C16	.01 50V		UK50-103		MAG5011			
C18	.01 50V		UK50-103		MAG5011			
C22	.01 50V		UK50-103		MAG5011			
C23	.01 50V		UK50-103		MAG5011			
C25	.047 16V		UK16-503		MAG1615		HY-635	
C26	.01 50V		UK50-103		MAG5011			
C27	.1 16V		UK16-104		MAG1601		HY-650	
C28	.0047 50V	DD-472	GP4700	GP247	5GA-D47			
C32	.01 50V	UK50-103			MAG5011			
C33	.0022 50V				GP222	10TS-D22		
C34	.1 16V	UK16-104		MAG1601	HY-650			
C37	.001 1KV	DD-102		GP210	10TS-D10			
C38	.0068 50V	DD-682	GP6800	GP268	5GA-D68			
C46	33 N150 200V 5%	510-3216-330 510-9502-568		*	10TCP-Q33			
C47	.56 500V 5%							
C48	33 N750 200V 5%		DTN-33	N33	CN7433	10TCU-Q33		
C49	.001 1KV		DD-102		GP210	10TS-D10		
C51	22 NPO 50V 5%		DTZ-22	NPO22	CN0422	10TCC-Q22		
C52	.001 1KV		DD-102		GP210	10TS-D10		
C54	.047 50V			DPMS2S47	EW1A147	1PB-S47		
C55	12 N750 200V 5%				CN7412	10TCU-Q12		
C56	.001 1KV		DD-102		GP210	10TS-D10		
C57	18 N150 200V 5%				*	10TCP-Q18		
C58	.0047 50V	DD-472	GP4700	GP247	5GA-D47			
C59	.001 1KV	DD-102		GP210	10TS-D10			
C61	.047 50V		DPMS2S47	EW1A147	1PB-S47			
C62	27 N150 200V 5%	510-3216-270		*	10TCP-Q27			
C63	270 N750 50V 5%			CN7327	10TCU-T27			
C64	100 N150 200V 5%	510-3216-101		*	10TCP-T10			
C65	300 100V 5%		CD15FD301J03	5X330	MMA-301			
C66	470 100V 5%		CD15FD471J03	5X347	MMA-471			
C67	68 N750 200V 5%		N68	CN7468	10TCU-Q68			
C69	.01 50V	DTN-68		MAG5011				
C70	.01 50V	UK50-103		MAG5011				
C71	150 NPO 200V 5%	UK50-103		CN0315	10TCC-T15			
C94	39 NPO 200V 5%	DTZ-150		CN0439	10TCC-Q39			
C95	33 NPO 200V 5%		DTZ-33	CN0433	10TCC-Q33			
C103	18 N750 200V 5%		DTN-20	N20	10TCU-Q20			
C104	56 N750 200V 5%		DTN-47	N47	10TCU-Q47			
C106	27 N750 200V 5%			CN7427	10TCU-Q27			
C107	18 N750 200V 5%		DTN-20	N20	10TCU-Q20			
C108	.0047 50V		DD-472	GP4700	5GA-D47			
C109	.0047 500V		DD-472	GP4700	5GA-D47			
C111	1 500V 5%			GP247	5GA-D47			
				CN0510	10TCC-V10			

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFRG. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C2	10 25V	510-4125-100		VTT10B25	QV1-43	EV-1322
C9	10 25V	510-4125-100		VTT10B25	QV1-43	EV-1322
C13	47 10V	510-4503-004		VTT47D16(1)	QV1-73(1)	EV-1226(1)
C15	1 35V	510-2245-109		TDC105M035EL		SD35-19
C17	1 35V	510-2245-109		TDC105M035EL		SD35-19
C19	47 10V	510-4503-004		VTT47D16(1)	QV1-73(1)	EV-1226(1)
C21	10 25V	510-4125-100		VTT10B25	QV1-43	EV-1322
C24	22 25V	510-4006-009		VTT22D25(1)	QV1-57(1)	EV-1324(1)
C29	220 16V	510-4116-221		VTT220H16	QV1-117	EV-1240
C30	6.8 35V	510-2245-689		TDC685M035FL		SD35-6R89
C31	220 16V	510-4116-221		VTT220H16	QV1-117	EV-1240
C35	220 16V	510-4116-221		VTT220H16	QV1-117	EV-1240
C36	10 25V	510-4125-100		VTT10B25	QV1-43	EV-1322
C72	2200 16V	510-4116-222		TC1520C*	QE1-643*	TVA-1175.3*
C100	6.8 35V	510-2245-689		TDC685M035FL		SD35-6R89
C101	1 35V	510-2245-109		TDC105M035EL		SD35-19
C102	.56 35V	510-2005-568		T1M564K050POM		SD50-R569
C120	220 16V	510-4116-221		VTT220H16	QV1-117	EV-1240
C132	1000 16V	510-4116-102		VTT1000L16	QV1-183	EV-1260
C302	1 50V	510-4150-109		VTT1A50	QV1-11	EV-1615

* Axial replacement for radial device.
(1) Radial replacement used in place of axial device.

CAPACITORS

ITEM No.	RATING	MFRG. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C1	.0047 50V	510-3216-270	DD-472	GP4700	GP247	QW1-42	56A-D47
C3	27 N150 200V 5%				*		10TCP-Q27
C4	5.1 NPO 200V ±.5		DTZ-4R7	NP04P7	CN0547		10TCC-V47
C5	470 100V 5%			CD15FD471J03	SX347		MMA-471
C6	1 500V 5%				CN0510		10TCC-V10
C7	1 500V 5%				CN0510		10TCC-V10
C8	130 NPO 50V 5%				CN0312		10TCC-T12
C10	.01 50V				MAG5011		
C11	.01 50V				MAG5011		
C12	.001 1KV				GP210		10TS-D10
C14	.01 50V	510-3216-330	DD-102		MAG5011	QF1-171	HY-635
C16	.01 50V		UK50-103		MAG5011		HY-650
C18	.01 50V		UK50-103		MAG5011		56A-D47
C22	.01 50V		UK50-103		MAG5011		
C23	.01 50V		UK50-103		MAG5011		
C25	.047 16V		UK16-503		MAG1615		
C26	.01 50V		UK50-103		MAG5011		
C27	.1 16V		UK16-104		MAG1601		
C28	.0047 50V		DD-472	GP4700	GP247		
C32	.01 50V		UK50-103		MAG5011		
C33	.0022 50V	510-3216-330 510-9502-568	DD-682	GP6800	GP268	QF1-171	10TS-D22
C34	.1 16V				GP222		HY-650
C37	.001 1KV		UK16-104		MAG1601		10TS-D10
C38	.0068 50V		DD-102		GP210		56A-D68
C46	33 N150 200V 5%				*		10TCP-Q33
C47	.56 500V 5%						
C48	33 N750 200V 5%		DTN-33	N33	CN7433		10TCU-Q33
C49	.001 1KV		DD-102		GP210		10TS-D10
C51	22 NPO 50V 5%		DTZ-22	NP022	CN0422		10TCC-Q22
C52	.001 1KV		DD-102		GP210		10TS-D10
C54	.047 50V	510-3016-180		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C55	12 N750 200V 5%				CN7412		10TCU-Q12
C56	.001 1KV		DD-102		GP210		10TS-D10
C57	18 N150 200V 5%		DD-472	GP4700	*		10TCP-Q18
C58	.0047 50V		DD-102		GP247		56A-D47
C59	.001 1KV	510-3216-270		DPMS2S47	GP210	QF1-171	10TS-D10
C61	.047 50V				EWF1A147		1PB-S47
C62	27 N150 200V 5%				*		10TCP-Q27
C63	270 N750 50V 5%				CN7327		10TCU-T27
C64	100 N150 200V 5%				*		10TCP-T10
C65	300 100V 5%			CD15FD301J03	SX330		MMA-301
C66	470 100V 5%			CD15FD471J03	SX347		MMA-471
C67	68 N750 200V 5%		DTN-68	N68	CN7468		10TCU-Q68
C69	.01 50V		UK50-103		MAG5011		
C70	.01 50V		UK50-103		MAG5011		
C71	150 NPO 200V 5%	(1)	DTZ-33	NP033	CN0315	QW1-38 QW1-42	10TCC-T15
C94	39 NPO 200V 5%		N20	N47	CN0439		10TCC-Q39
C95	33 NPO 200V 5%		DTN-20		CN0433		10TCC-Q33
C103	18 N750 200V 5%		DTN-30		CN7420		10TCU-Q20
C104	56 N750 200V 5%		DTN-47		CN7447		10TCU-Q47
C106	27 N750 200V 5%				CN7427		10TCU-Q27
C107	18 N750 200V 5%		DTN-20	N20	CN7420		10TCU-Q20
C108	.0047 50V		DD-472	GP4700	GP247		56A-D47
C109	.0047 500V		DD-472	GP4700	GP247		56A-D47
C111	1 500V 5%				CN0510		10TCC-V10

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFRG. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C113	.01 50V	510-3216-101	UK50-103		MAG5011	DTN-20 DD-472	56A-D47
C114	.0047 50V		DD-472	GP4700	GP247		56A-D47
C115	.0047 50V		DD-472	GP4700	GP247		10TCC-Q39
C116	39 NPO 200V 5%			N20	CN0439		10TCU-Q20
C117	18 N750 200V 5%			GP4700	CN7420		56A-D47
C118	.0047 50V				GP247		10TCP-T100
C119	100 N150 200V 5%				*		10TCP-Q33
C121	33 N150 200V 5%				*		10TCP-Q33
C122	33 N150 200V 5%				*		10TCP-Q33
C123	5.1 NPO 200V 5%				CN0547		10TCC-V47
C124	.01 50V	510-3216-101	DTZ-4R7	NP04P7	MAG5011	DTN-20 DD-472	10TCP-T10
C125	.01 50V		UK50-103		MAG5011		10TS-T47
C126	.01 50V		UK50-103		MAG5011		
C127	.01 50V		UK50-103		MAG5011		
C128	100 N150 200V 5%				*		
C129	470 500V		DD-471	GP470	GP347		
C131	.01 50V		UK50-103		MAG5011		
C150	15 NPO 200V 5%		DTZ-15	NP015	CN0415		10TCC-Q15
C220	.005 600V		DD-472	GP4700	GP247		56A-D47
C252	.001 500V		DD-102		GP210		10TS-D10
C253	.001 500V	510-3016-430 510-3016-430	DD-102		GP210	* *	10TS-D10
C254	.001 500V		DD-102		GP210		10TS-D10
C255	.001 500V		DD-102		GP210		10TS-D10
C257	.001 500V		DD-102		GP210		10TS-D10
C258	.001 500V		DD-102		GP210		10TS-D10
C260	.001 500V		DD-102		GP210		10TS-D10
C261	.001 500V		DD-102		GP210		10TS-D10
C262	.001 500V		DD-102		GP210		10TS-D10
C263	.001 500V		DD-102		GP210		10TS-D10
C264	.001 500V		DD-102		GP210		10TS-D10
C265	.001 500V	510-3016-430 510-3016-430	DD-102		GP210	* *	10TS-D10
C266	.001 500V		DD-102		GP210		10TS-D10
C267	.001 500V		DD-102		GP210		10TS-D10
C268	.001 500V		DD-102		GP210		10TS-D10
C269	.001 500V		DD-102		GP210		10TS-D10
C270	.001 500V		DD-102		GP210		10TS-D10
C271	.001 500V		DD-102		GP210		10TS-D10
C272	.001 500V		DD-102		GP210		10TS-D10
C273	.001 500V		DD-102		GP210		10TS-D10
C300	43 N150 50V 5%					10TCP-Q47 10TCP-Q47	10TS-D10
C301	43 N150 50V 5%						10TS-D10
C400	.01 50V	510-3016-430 510-3016-430	UK50-103		MAG5011		10TS-D10
C401	.01 50V		UK50-103		MAG5011		10TS-D10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
(1) Used only in Model 4330.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA			
			MFRG. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
R2 R227 R400 R401	IF Gain AMC Squelch Volume	1000 50K 10K 10K	562-0019-102 562-0004-503 562-0027-001 562-0027-002	T-50K B16-115 B16-116	MTS54L1	X260R102B X201R503B

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFRG. PART No.			WORKMAN PART No.	MFRG. PART No.
RT2 RT3	8000 Co1d NTC 8000 Cold NTC		569-3001-001 569-3001-001	RT4	8000 Co1d NTC		569-3001-001

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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.	
L1	RF Choke (6.8uH)	542-3504-689			
L2	RF Choke (13uH)	542-3003-001		4624	
L3	Loading Final (27MHz)	542-1005-010		7515-E	
L4	Pi Filter (27MHz)	542-1015-002			
L5	TVI Trap (81MHz)	542-1015-002			
L6	Antenna Matching (27MHz)	542-1007-005			
L7	TVI Trap (54MHz)	542-1015-002			
L103	RF Choke (6.8uH)	542-3504-689			
T1	RF (27MHz)	592-5015-001	5015001	CBS731	
T2	RF Amp (27MHz)	592-5015-002	5015002	CBS739-T	
T3	IF (455kHz)	592-5015-024	5015-024		
T4	IF (455kHz)	592-5015-024	5015-024		
T5	Offset Mixer (27MHz)	592-5015-005	5925015005	CBS107-T	
T6	Offset Mixer (27MHz)	592-5015-005	5925015005	CBS107-T	
T7	RF Predriver (27MHz)	592-5014-001		C8909	
T8	RF Driver (27MHz)	592-5014-002		C8910	
T101	VCO	592-5015-005		CBS107-T	
T102	Offset Mixer (27MHz)	592-5015-005		CBS107-T	
Z1	IF (455kHz)	532-1004-001	MFH71T 10857	CBS505-4TCC CBS603-4TCC	

JOHNSON MODELS VIKING 4330/60

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.	
L8	1.3	.47	3mH	542-5007-021			

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T9	5.12	8	592-1013-008			

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
			MFGR. PART No.	QUAM PART No.	
SP	3 1/2" PM	3.2 Ohms	589-1013-001	3A05	

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			AGC-2	HRK	312002	150145	FG2-2

PARTS LIST AND DESCRIPTION (CONTINUED)

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

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFGR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
	*										

* Assembly contains channel Up & Down, volume, squelch, and speaker.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
DS200	LED	549-4002-011	Channel Indicator, Tens (Each of seven segments supplied with 1.68V @ 15.4mA)
DS201	LED	549-4002-011	Channel Indicator, Units (Each of seven segments supplied with 1.68V @ 15.4mA)
EP11	Ferrite Bead	517-2002-001	
J1	Jack	515-2001-011	External Speaker
J2	Jack	142-0101-002	Antenna
P403	Plug	515-9031-001	Microphone (Male) (P.C.B. Connector)
S200	Switch	583-3003-013	CB/PA
S201A	Switch	583-3003-031	Power On/Off
S201B	Switch	583-3003-031	On Bright/Dim
S401A	Switch	583-4009-021	XMT/REC
S402	Switch	583-4009-001	Channel Selector, Up (4330 Model)
S403	Switch	583-4009-001	Channel Selector, Down (4330 Model)
S402	Switch	583-4009-011	Channel Selector, Up (4360 Model)
S403	Switch	583-4009-011	Channel Selector, Down (4360 Model)
U1	RC Network	544-0002-040	RF Amp
U2	RC Network	544-0002-044	IF Amp/Mixer
U3	RC Network	544-0002-042	IF Amp/Mixer
U4	RC Network	544-0002-043	NL Audio Switch
Y101	Crystal	519-0008-002	5.120MHz
Y205	Crystal	519-0005-205	30.870MHz
Y206	Crystal	519-0005-206	31.325MHz
	Cable	023-3852-001	Assembly
	Cable	023-3690-001	DC Power
	Printed Circuit Board	023-3848-011	Control Box Assembly
	Printed Circuit Board	023-3850-011	Handset Assembly (Model 4360)
	Printed Circuit Board	023-3849-011	Microphone Assembly (Model 4330)
	Printed Circuit Board	023-4071-001	Remote Assembly
	Flex Circuit	035-0341-011	

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

ITEM	PART No.	ITEM	PART No.
Case, Back Handset	023-3866-011	Cover, Bottom, Remote	017-1905-023
Case, Front Handset	032-0555-001	Cover, Top, Remote	017-1904-023
Case, Back Microphone	023-3866-001	End Cap, Front	017-0586-001
Case, Front Microphone	032-0556-001	Knob, Channel Selector	032-0571-011
Cover, Top (Intercom Control Box)	032-0554-001	Knob, Talk Switch	032-0571-001
Cover, Bottom (Intercom Control Box)	032-0554-011		