



PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES AND REGULATIONS PART 95, SUBPARTS 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 13-898B

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

L101, L102, L103, L104, L105, L109, L115, L116	L117, L118, L119	GC ELECTRONICS
L111, L112, L113, L114		9440
L106, L107, L108, L110, L120, L121, L122, L123, L124, L125, L126, MF ..		9300
TC101 thru TC119		5000, 8290
		8290

SYNTHESIZER

INDICATOR	CHANNEL	ADJUST	FREQUENCY	REMARKS
FREQUENCY COUNTER DC VTVM	1	TC101	23.330MHz	Connect counter to TP101 and ground. Set mode switch to AM. Set fine tune to center scale. Connect DC VTVM to L103 (secondary) and ground. Selector to Channel 13. Key transmitter. Adjust L101 and L102 for maximum.
	5	TC102	23.380MHz	
	9	TC103	23.430MHz	
	13	TC104	23.480MHz	
	17	TC105	23.530MHz	
	21	TC106	23.580MHz	
	1	TC107	14.910MHz	Connect counter to TP102 and ground. Set mode switch to USB. Set fine tune to center scale. Key transmitter.
	2	TC108	14.920MHz	
	3	TC109	14.930MHz	
	4	TC110	14.950MHz	
	1	TC111	14.907MHz	Connect counter to TP102 and ground. Set mode switch to LSB. Set fine tune to center scale. Key transmitter.
	2	TC112	14.917MHz	
	3	TC113	14.927MHz	
	4	TC114	14.947MHz	
FREQUENCY COUNTER Oscilloscope (Response to 30MHz)	Any	L122	11.730MHz	Connect scope and counter to TP119 and ground. Adjust clockwise 1/8 turn beyond maximum amplitude.

MIDLAND MODEL 13-898B

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

© 1975 Howard W. Sams & Co., Inc. Printed in U. S. of America 5CZ238

RECEIVER

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
Adjustments made with 120-volt AC input to power supply.
Adjust volume control to obtain suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
High side thru .01uF to antenna jack, low side to ground.	27.115MHz, 1000Hz @ 30% modulation, output 1uV.	13	L115, L116, L120, L121, MF, L123, L124, L125	Set mode switch to AM. Set ANL/Blanker to ANL. Set squelch control fully counter-clockwise. Set fine tune to center position. Adjust for maximum.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
These adjustments made with 120-volt AC input to power supply.
Adjust volume control to obtain a suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
AGC High side thru .01uF to antenna jack, low side to ground.	27.114MHz, no modulation, output 10,000uV.	13	RV303	Set RV304 for 1.2V DC on center arm. Adjust volume control to obtain 0 db. Decrease generator to 3.2uV. Adjust so that signal does not drop more than 10 db.
SQUELCH RANGE High side thru .01uF to antenna jack, low side to ground.	27.115MHz, 1000Hz @ 30% modulation, output 100uV (AM), 10uV (SSB).	13	RV105 (AM) RV106 (SSB)	Set squelch control fully clockwise. Adjust so that squelch just breaks.
NOISE BLANKER High side thru .01uF to antenna jack, low side to ground.	26.965MHz, no modulation.	1	L117, TC118	Set ANL/Blanker switch to blanker. Set mode switch to AM. Set channel selector to CH1. Connect DC-VTVM to TP115 and ground. Increase generator level to get a -DC reading. Adjust for MINIMUM.
	25.000MHz, no modulation.	1	L118, L119	Adjust for maximum -DC reading.
NOISE BLANKER Square wave or noise generator connected to antenna jack and ground.	Adjust amplitude for readable pulses on oscilloscope.	1	TC118, L118, L119 TC118, TC119, L119	Connect scope to TP115 and ground. Adjust for maximum pulse amplitude. Connect scope to speaker output. Adjust for MINIMUM pulse amplitude.
"S" METER High side thru .01uF to antenna jack, low side to ground.	27.115MHz, 1000Hz @ 30% modulation, output 100uV (AM), 10uV (SSB).	13	RV104 (AM) RV107 (SSB)	Adjust for "S"9 on panel meter. Adjust for "S"9 on panel meter.

TRANSMITTER

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 120-volt AC input to power supply.

AM

INDICATOR	ADJUST	REMARKS
MIXER, BUFFER, DRIVER, FINAL RF Wattmeter	L103, L104, L105, L108, L109, L111, L112, L113, L114	Mode switch to AM. Channel selector to CH 13. Key transmitter. Adjust for maximum.
TVI TRAP TV (Ch. 2)	L1	Mode switch to AM. Key transmitter. Adjust for MINIMUM interference on TV.
FINAL INPUT POWER Remove jumper at TP121 and connect 0-1000 DC milliammeter between R172 and B+.	L112	Adjust for 5 watts (maximum).

TRANSMITTER

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 120-volt AC input to power supply.

SSB

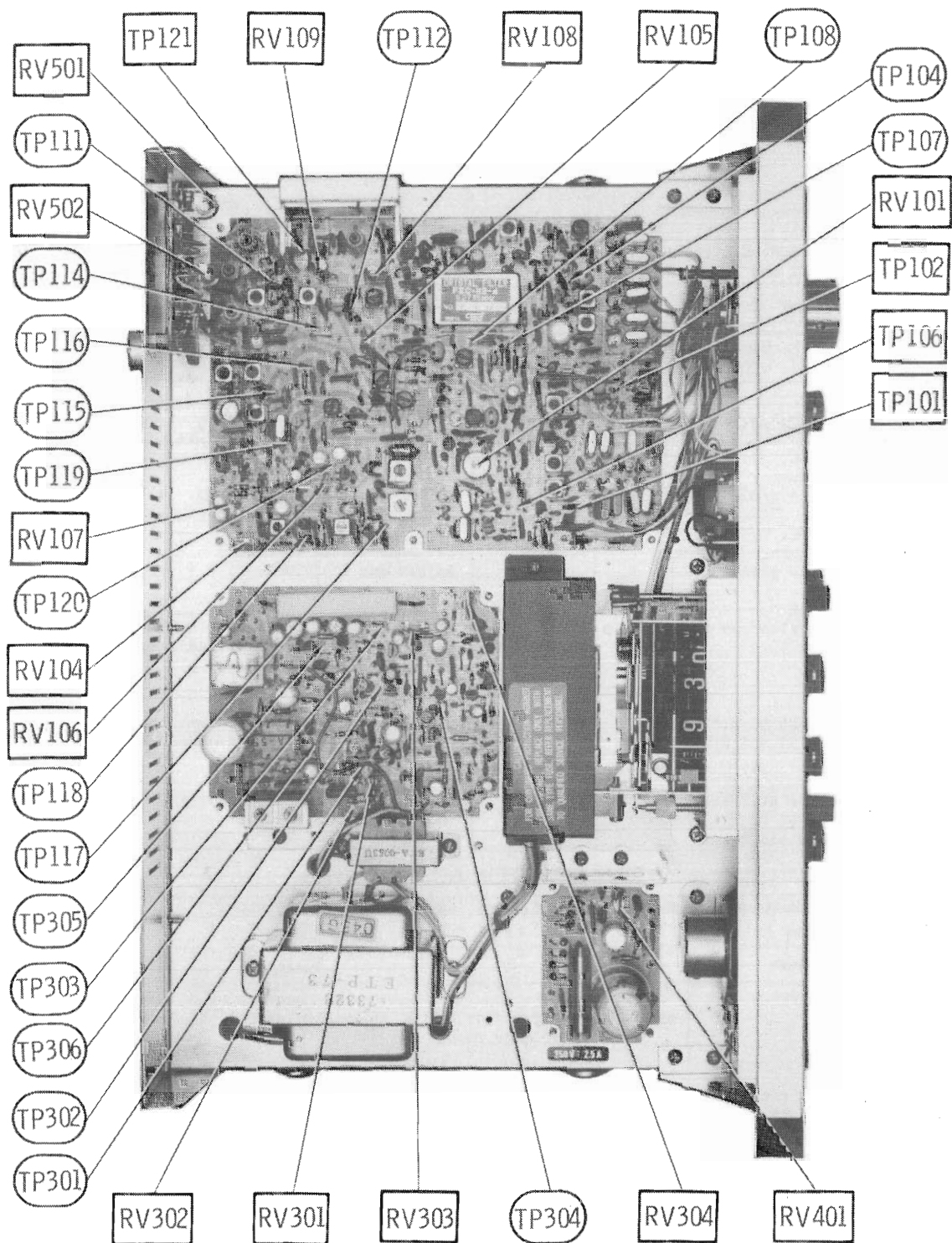
INDICATOR	ADJUST	REMARKS
USB CARRIER OSC. Connect frequency counter from TP106 to ground.	TC115	Set mode switch to USB. Adjust for 11.275MHz.
LSB CARRIER OSC. Connect frequency counter from TP106 to ground.	TC116	Set mode switch to LSB. Adjust for 11.272MHz.
CARRIER BALANCE Connect oscilloscope to antenna jack.	RV101, TC117, L106	Short mic input. Set mode switch to LSB or USB. Key transmitter and adjust for MINIMUM on scope (less than 0.3V p-p).
BIAS Connect a 0-25 DC milliammeter between RFC103 and B+.	RV108	Short mic input. Key transmitter. Adjust bias for 6mA. Reconnect jumper.
BIAS Remove jumper at TP121 and connect a 0-50 DC milliammeter between R172 and B+.	RV109	Short mic input. Key transmitter. Adjust bias for 20mA. Reconnect jumper.

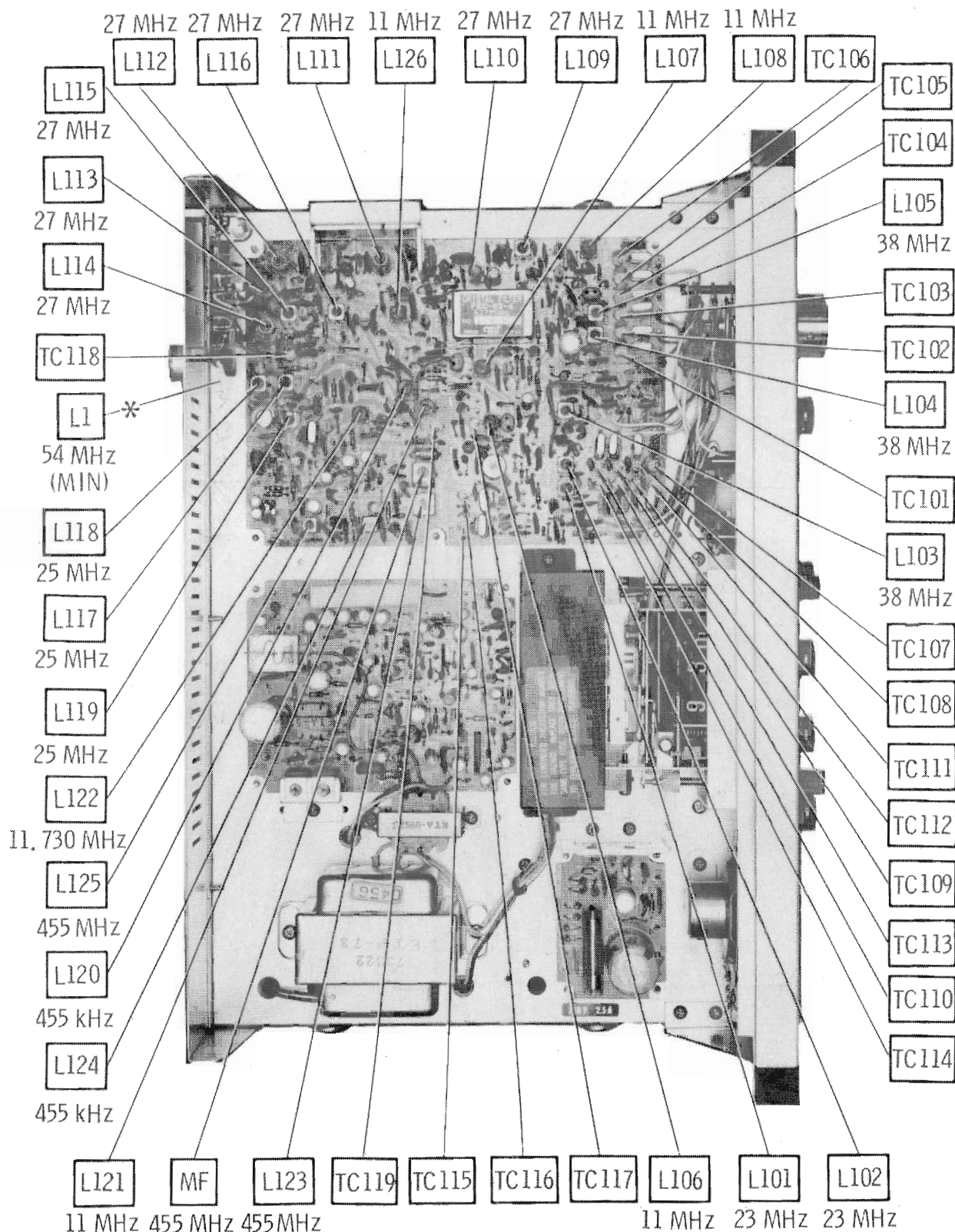
TRANSMITTER ADJUSTMENTS

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 120-volt AC input to power supply.

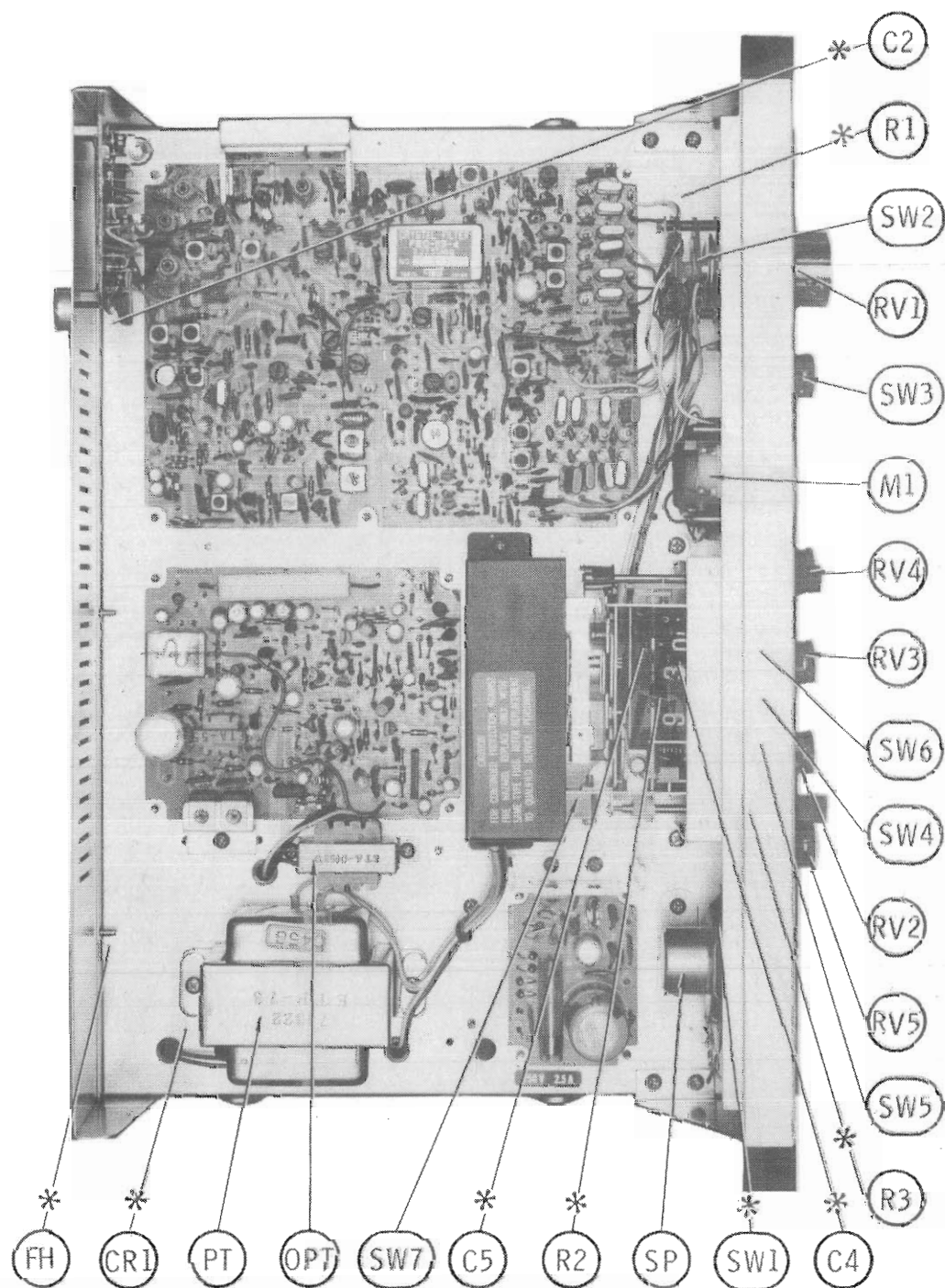
INDICATOR	ADJUST	REMARKS
VOLTAGE REGULATOR DC Voltmeter	RV401	Adjust for 14V DC at Emitter of Q5. Key transmitter. Voltage should not vary.
ALC RF Wattmeter Oscilloscope connected to antenna jack.	L107, RV301	Set mode switch to LSB. Inject single tone generator to microphone input. Adjust L107 for maximum RF power output. Inject two tone generator to microphone input. Set output of generator to 10mV. Adjust for 100% modulation.
AMC Modulation Meter connected to antenna jack.	RV302	Set mode switch to AM. Inject a 1000Hz, 10mV audio signal at mic input. Key transmitter. Adjust for 80% modulation maximum.
RF PANEL METER RF Wattmeter	RV502	Set mode switch to AM. Set Cal. pot to maximum counter- clockwise (RF). Key transmitter. Adjust so that panel RF meter agrees with RF wattmeter.
SWR METER	RV501	Connect a non-inductive 100-ohm, +2% resistor to antenna jack. Set Channel Selector to CH 13. Set CAL/SWR switch to CAL. Key transmitter. Adjust CAL control to deflect pointer to SET. Set CAL/SWR switch to SWR. Adjust RV501 for a meter reading of 2.

MIDLAND MODEL 13-898B

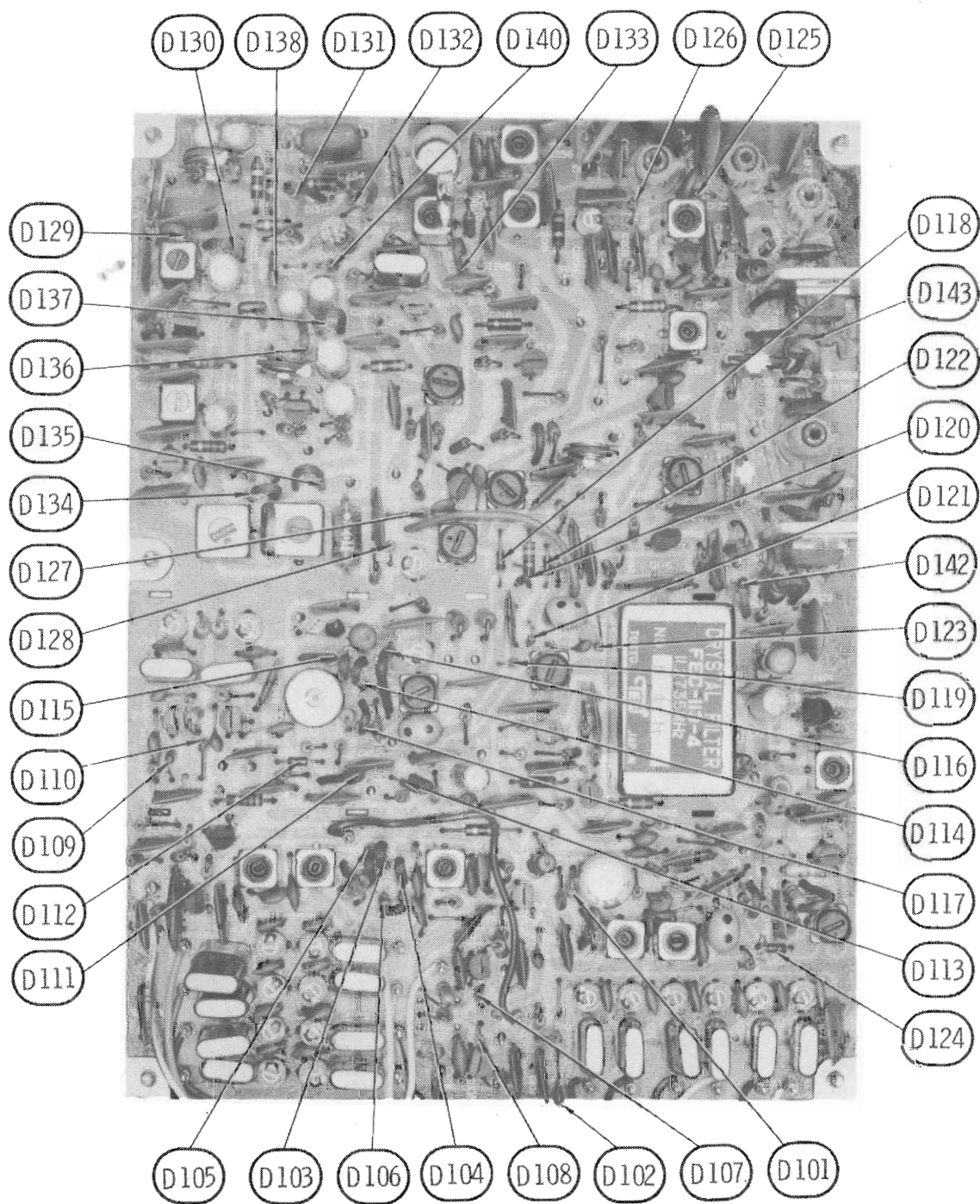




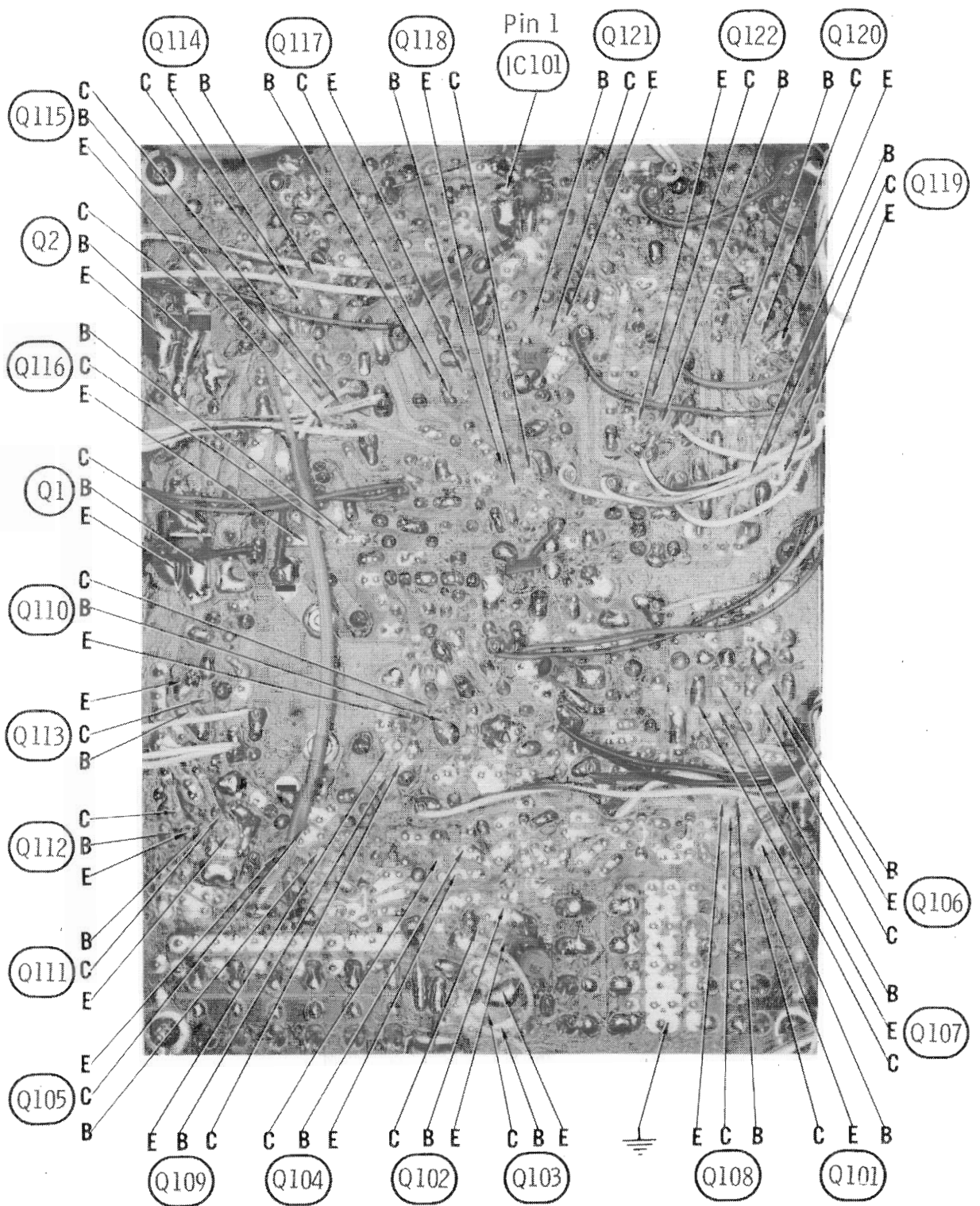
* Located on bottom of chassis



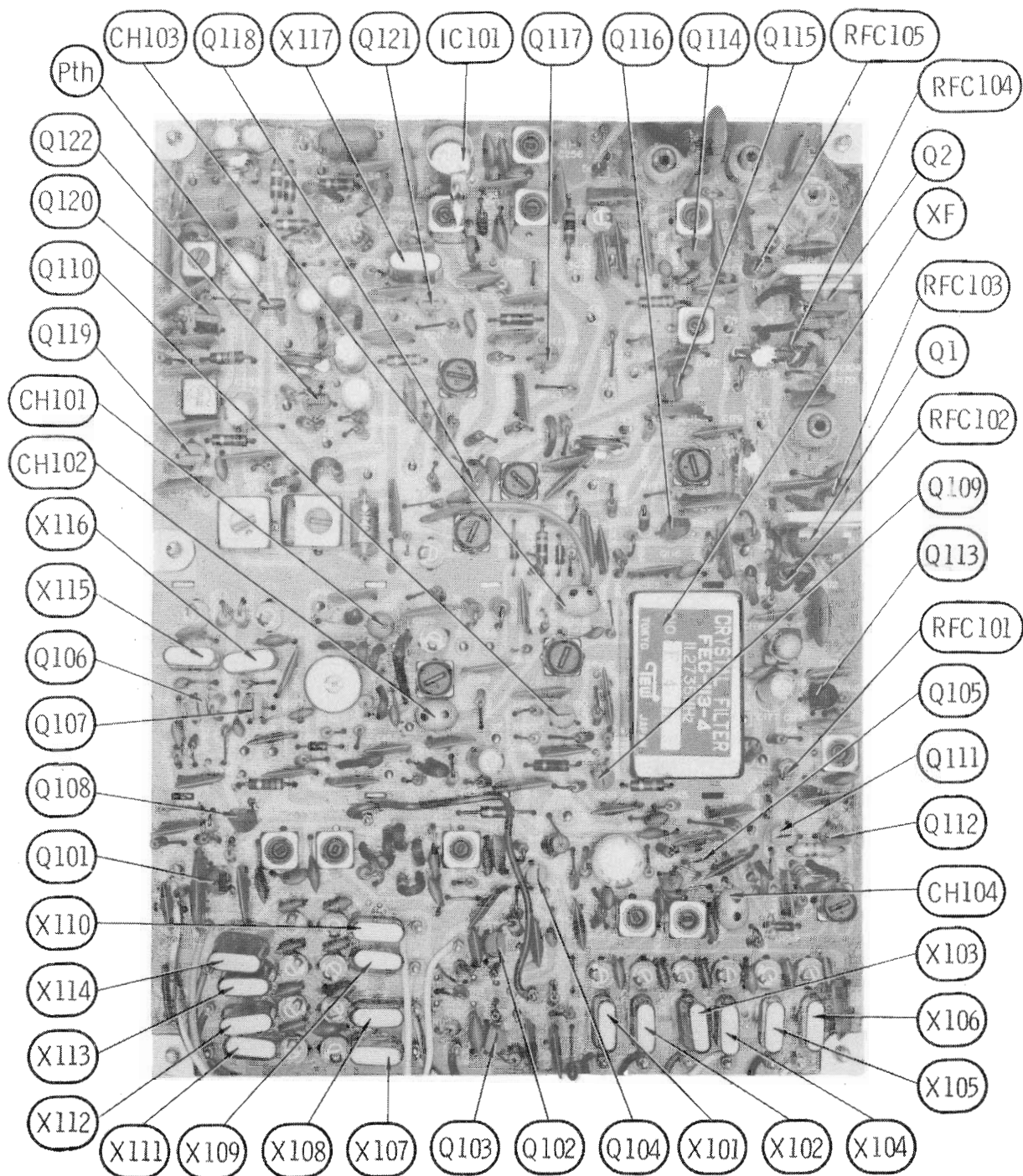
* Located on bottom of chassis



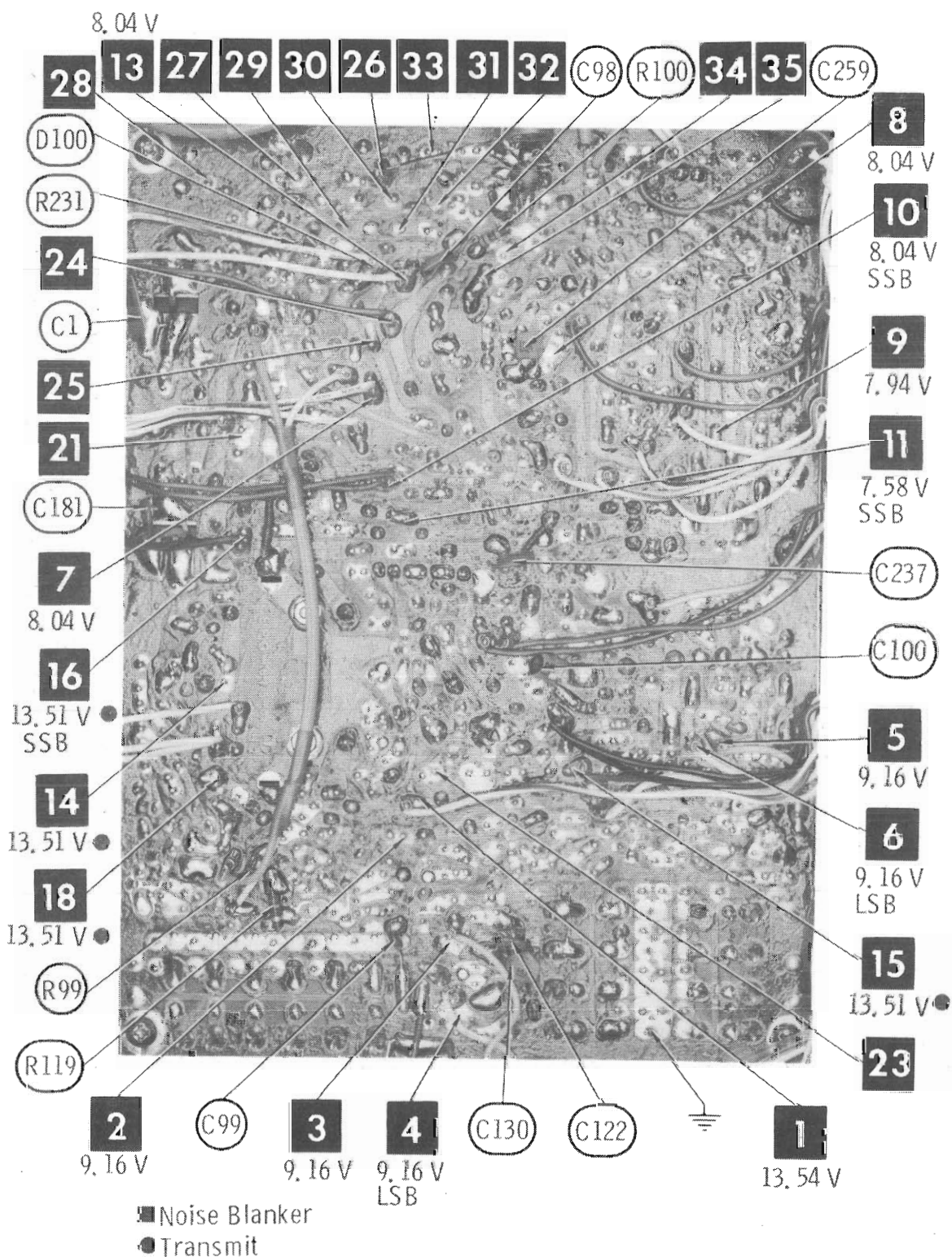
MAIN BOARD-TOP VIEW



MAIN BOARD-BOTTOM VIEW

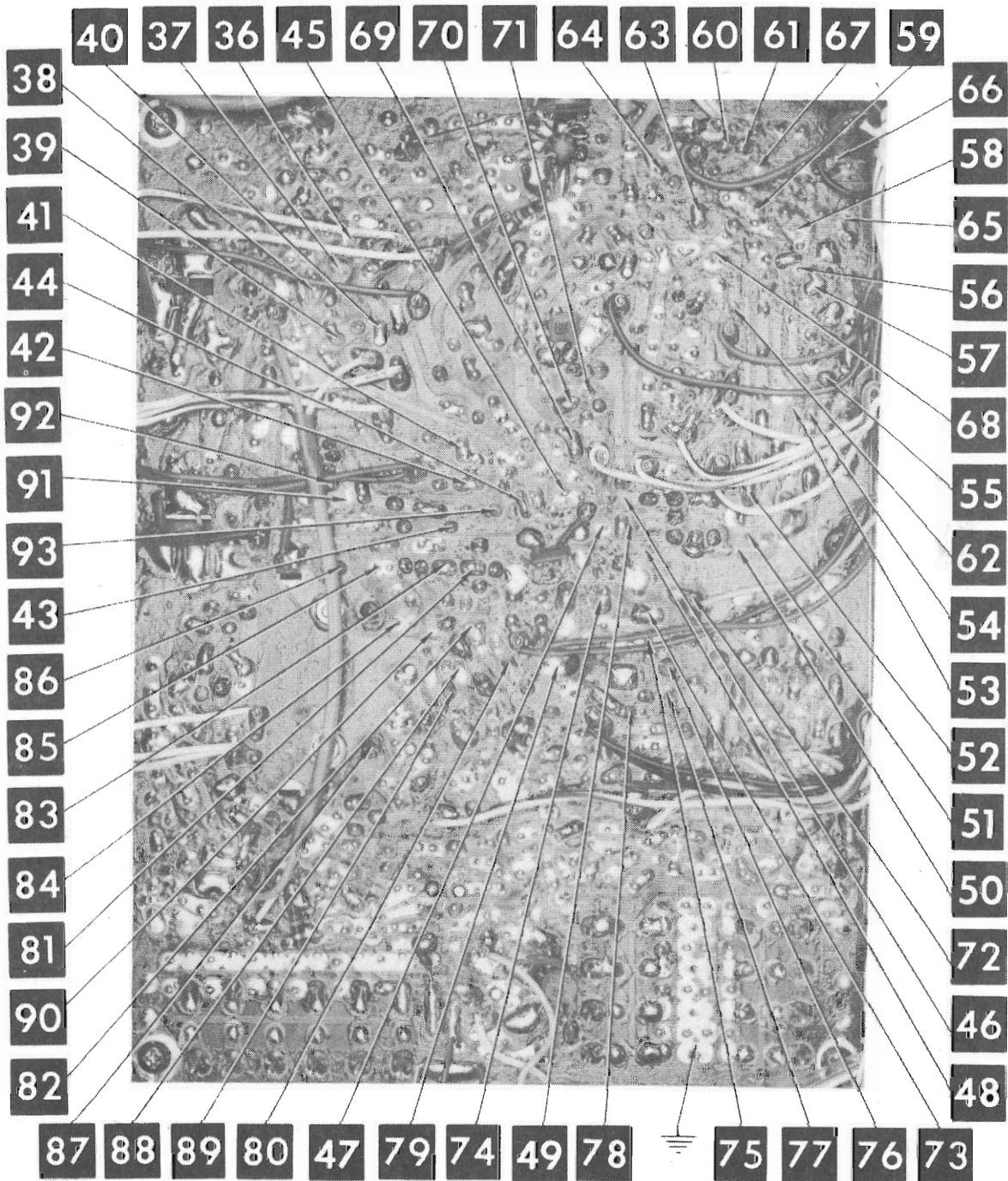


MAIN BOARD-TOP VIEW

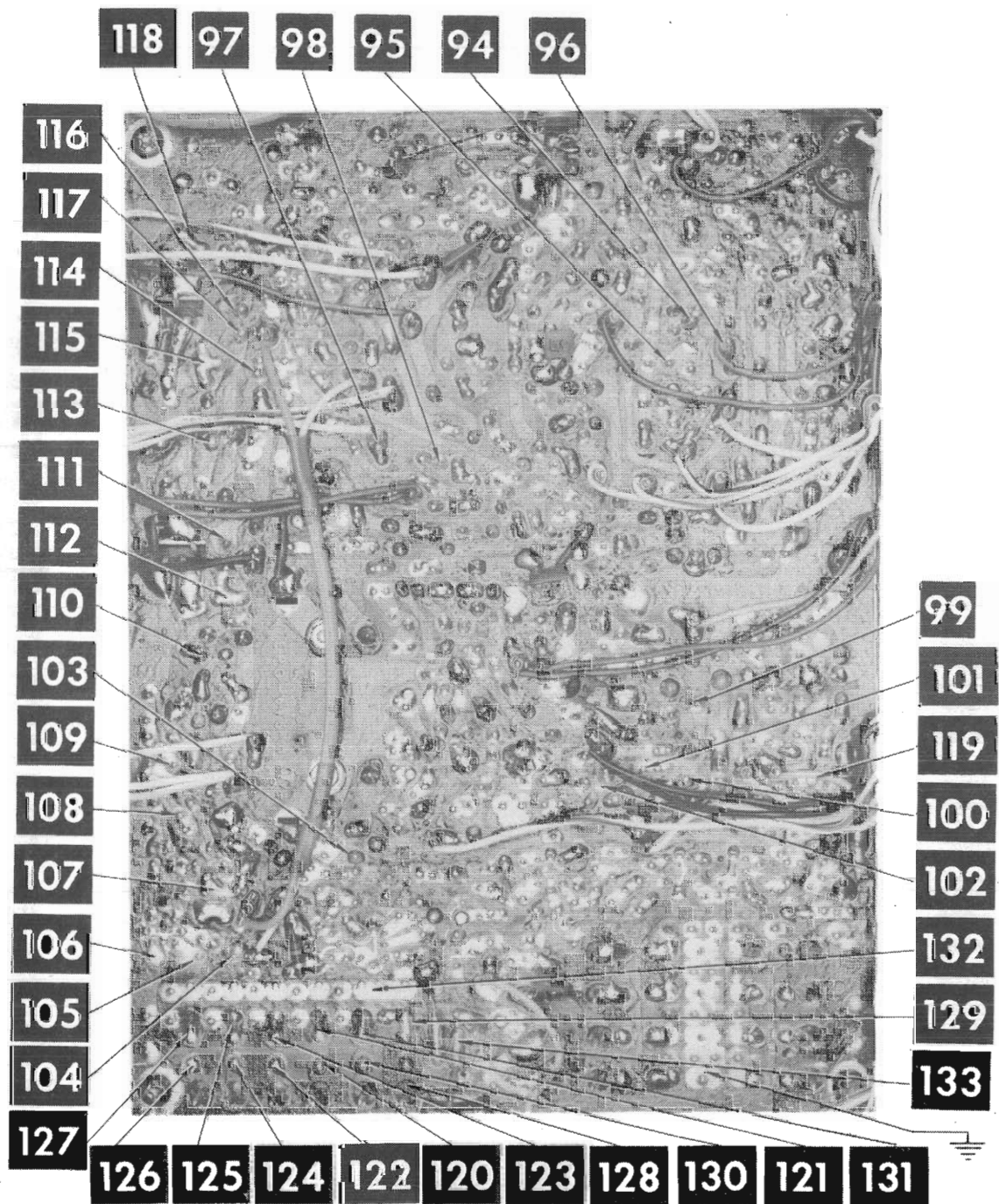


MAIN BOARD-BOTTOM VIEW

MIDLAND MODEL 13-898B

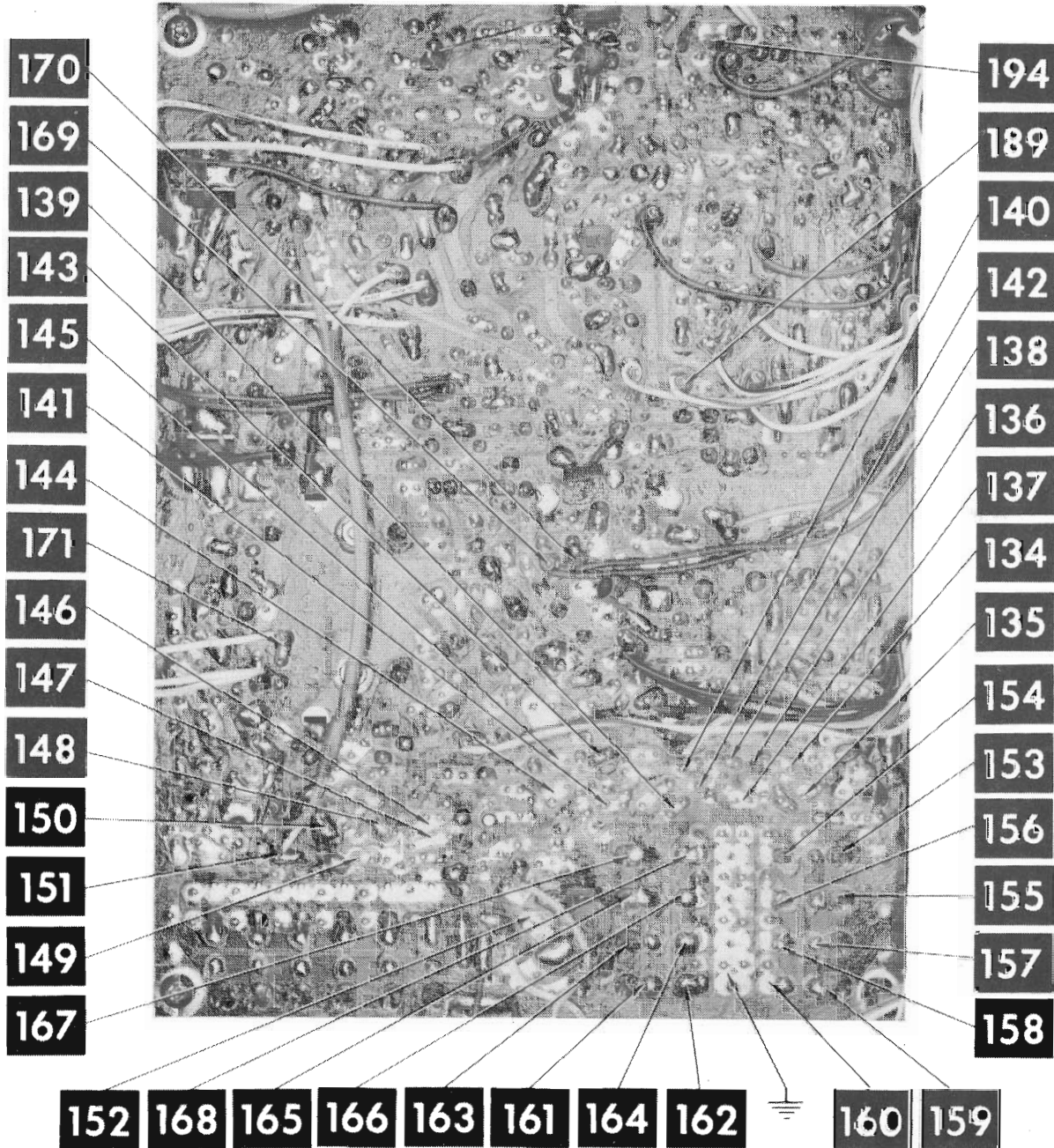


MAIN BOARD-BOTTOM VIEW

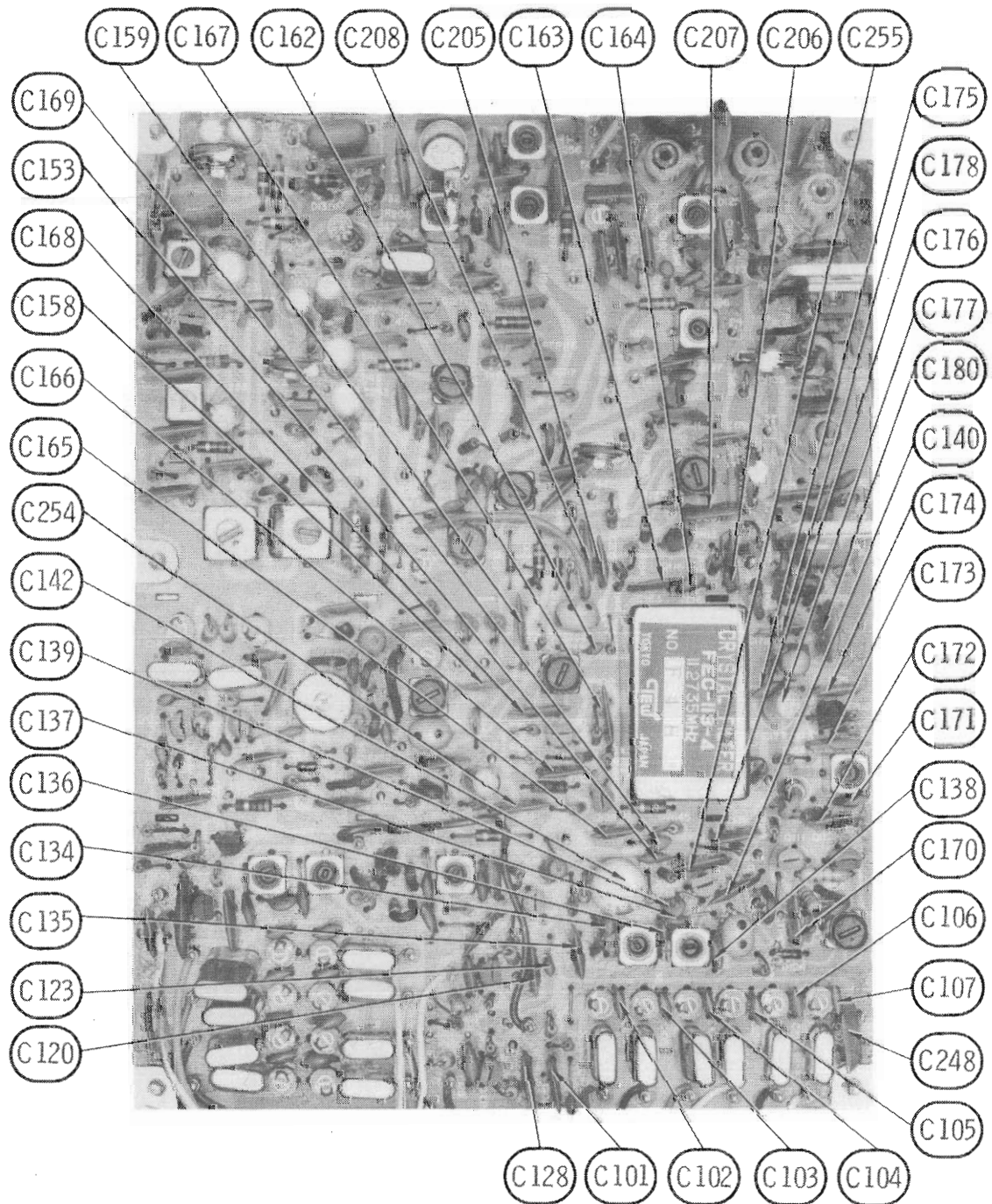


MAIN BOARD-BOTTOM VIEW

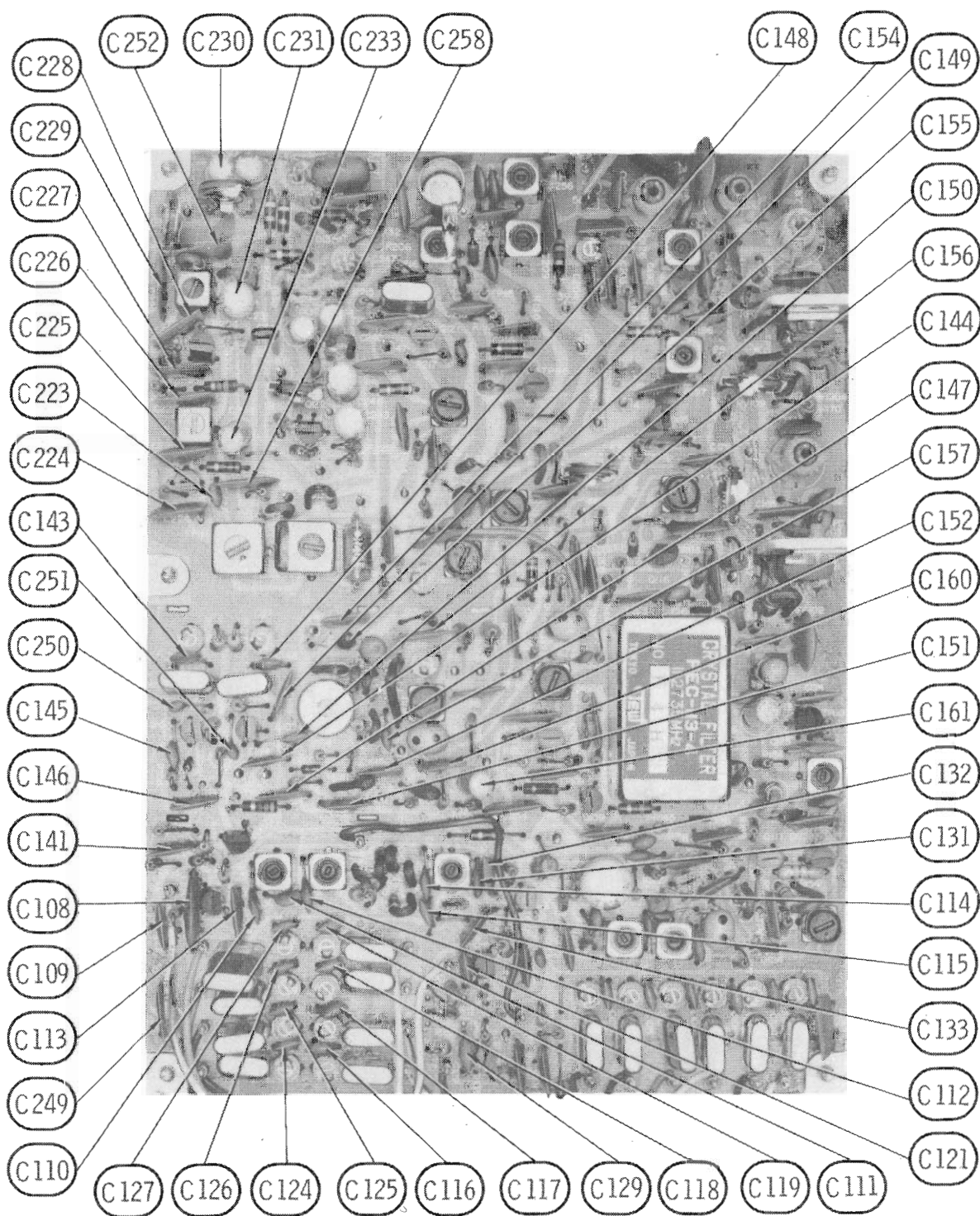
MIDLAND MODEL 13-898B



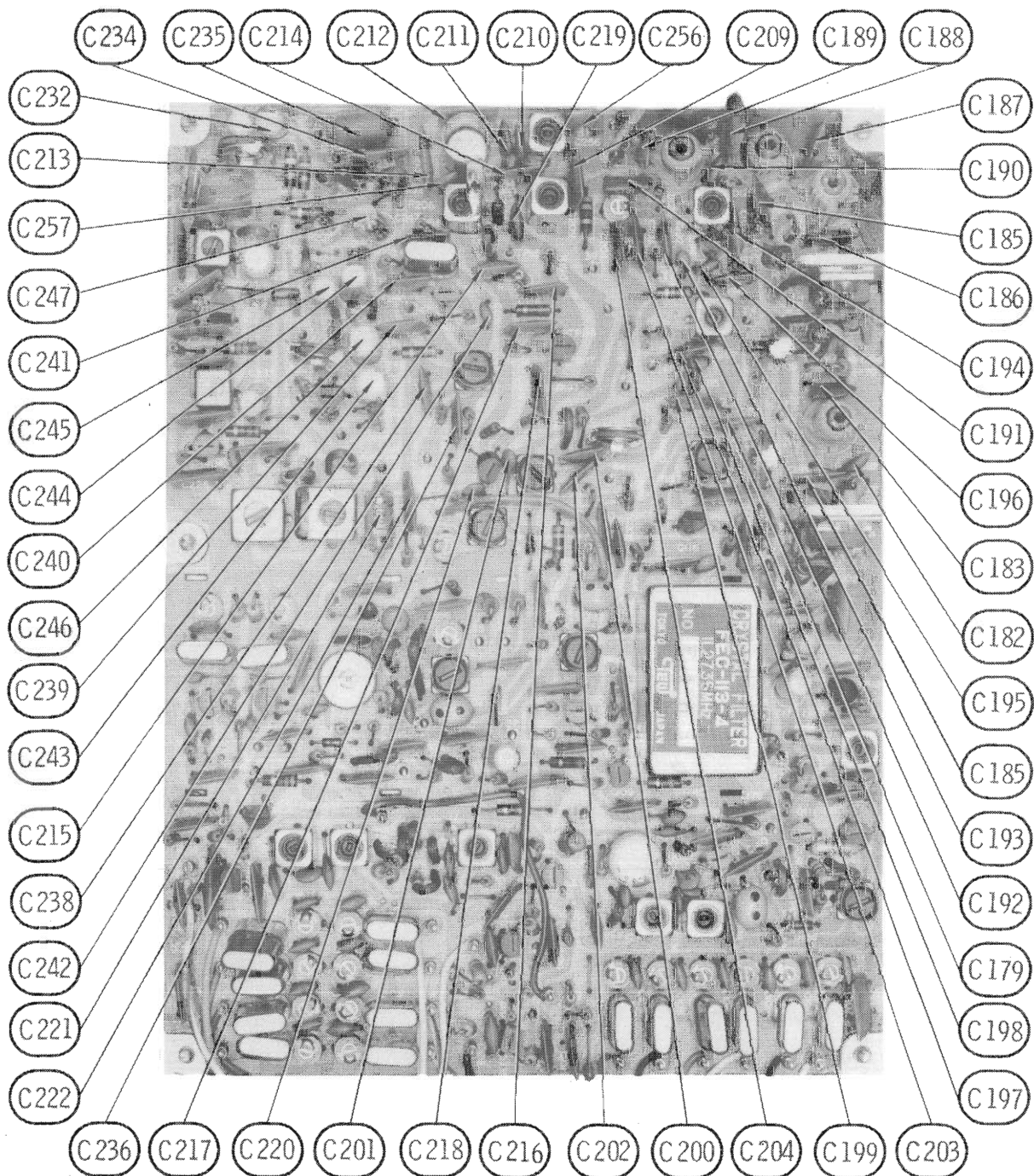
MAIN BOARD-BOTTOM VIEW



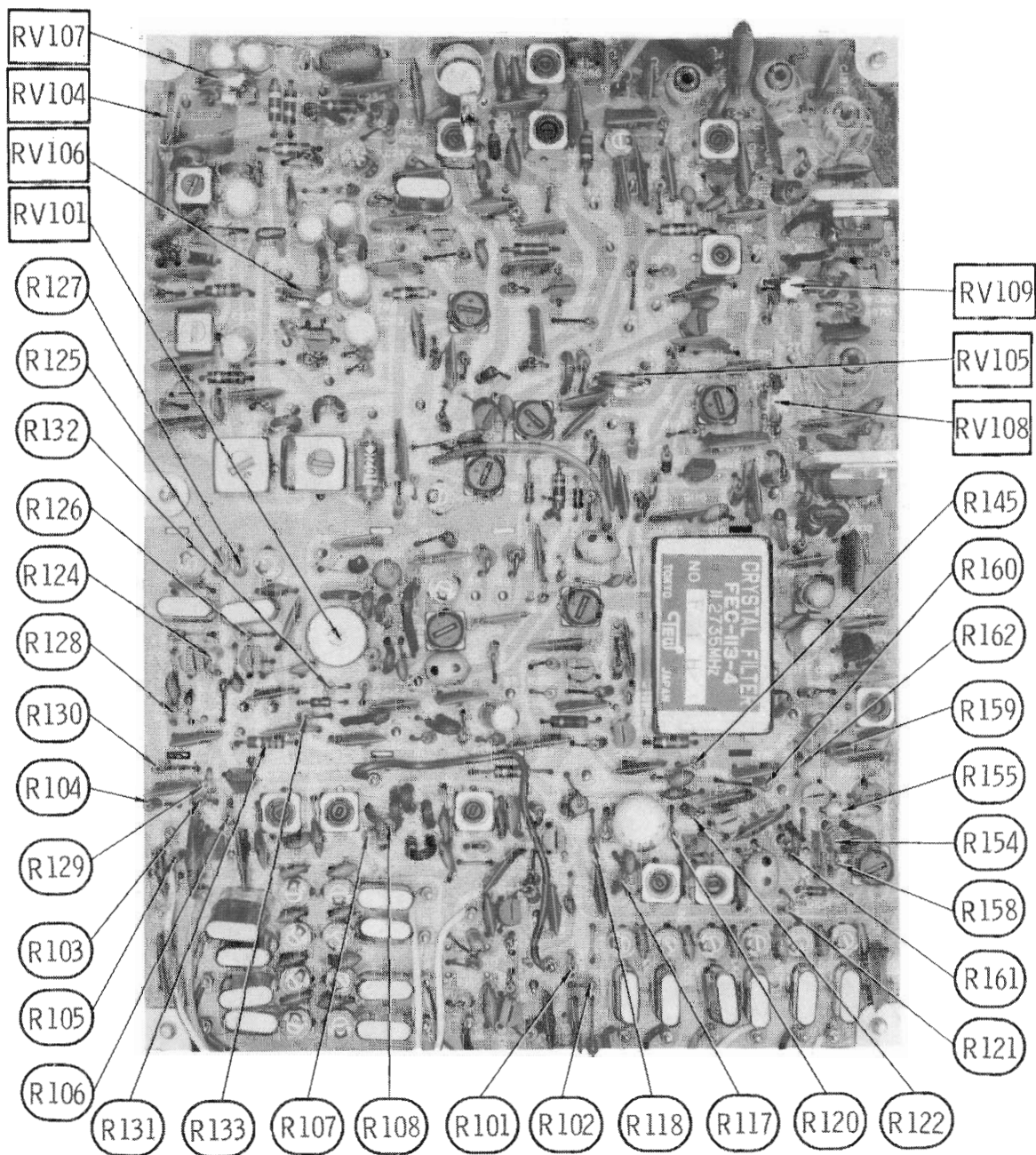
MAIN BOARD-TOP VIEW



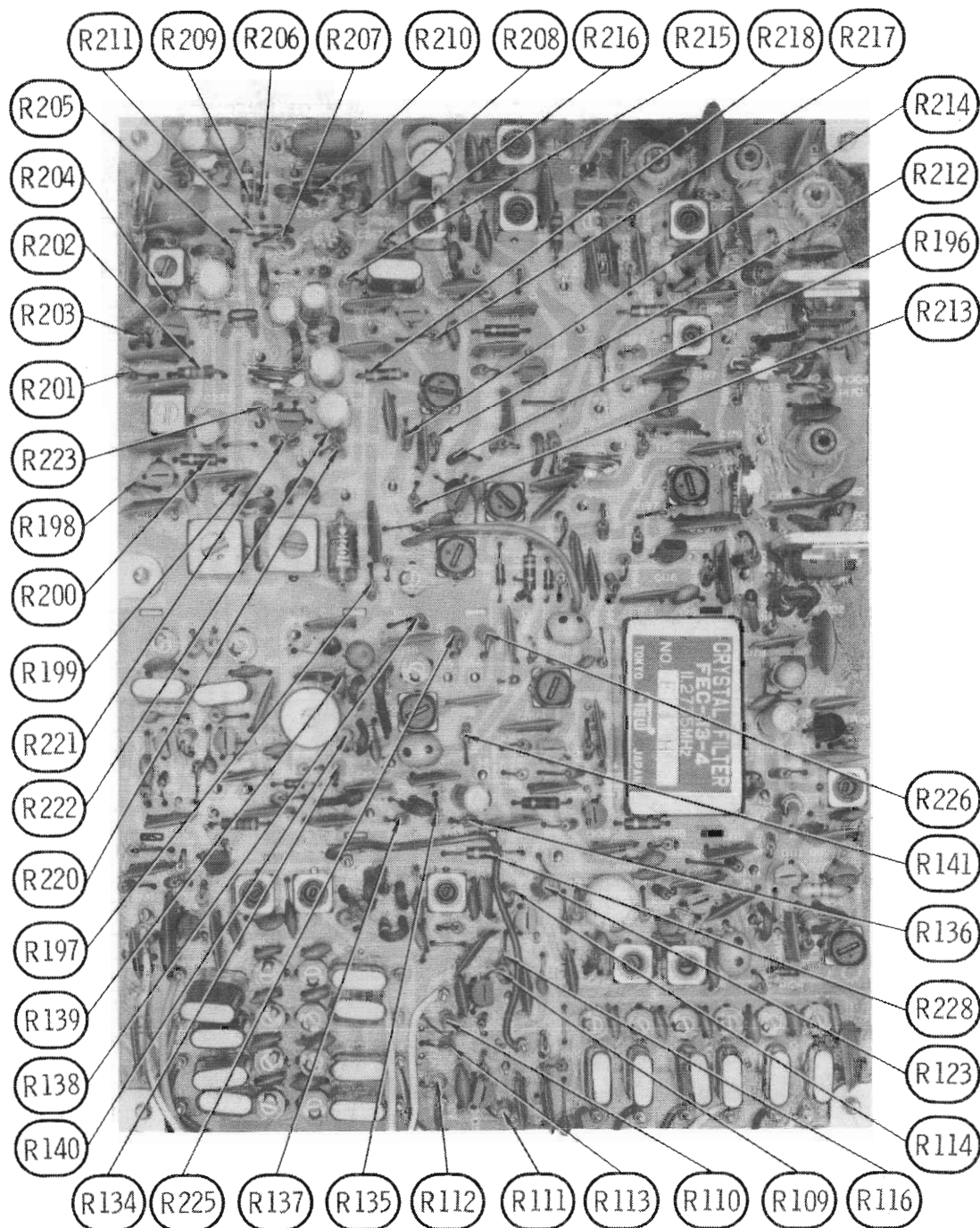
MAIN BOARD-TOP VIEW



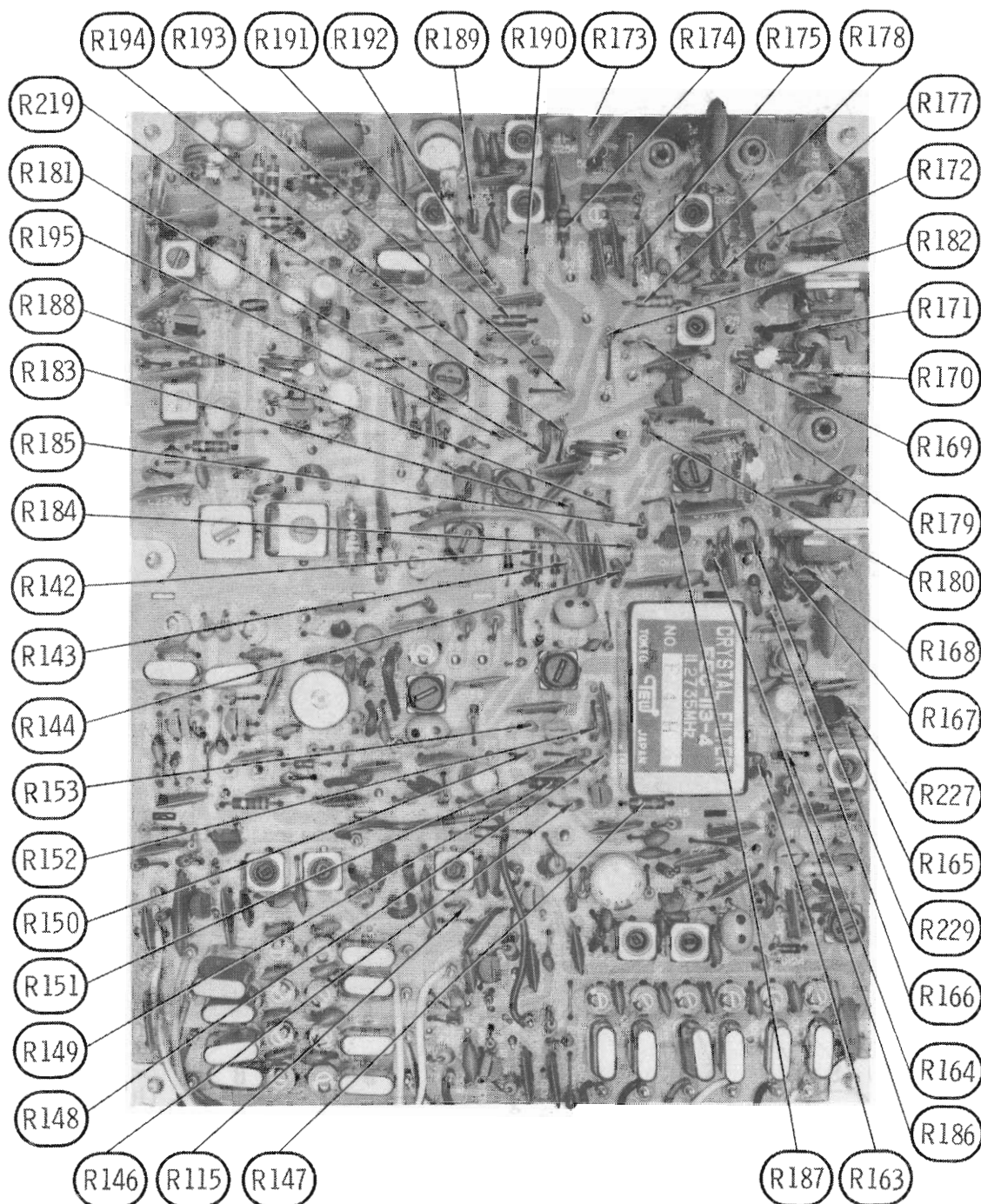
MAIN BOARD-TOP VIEW



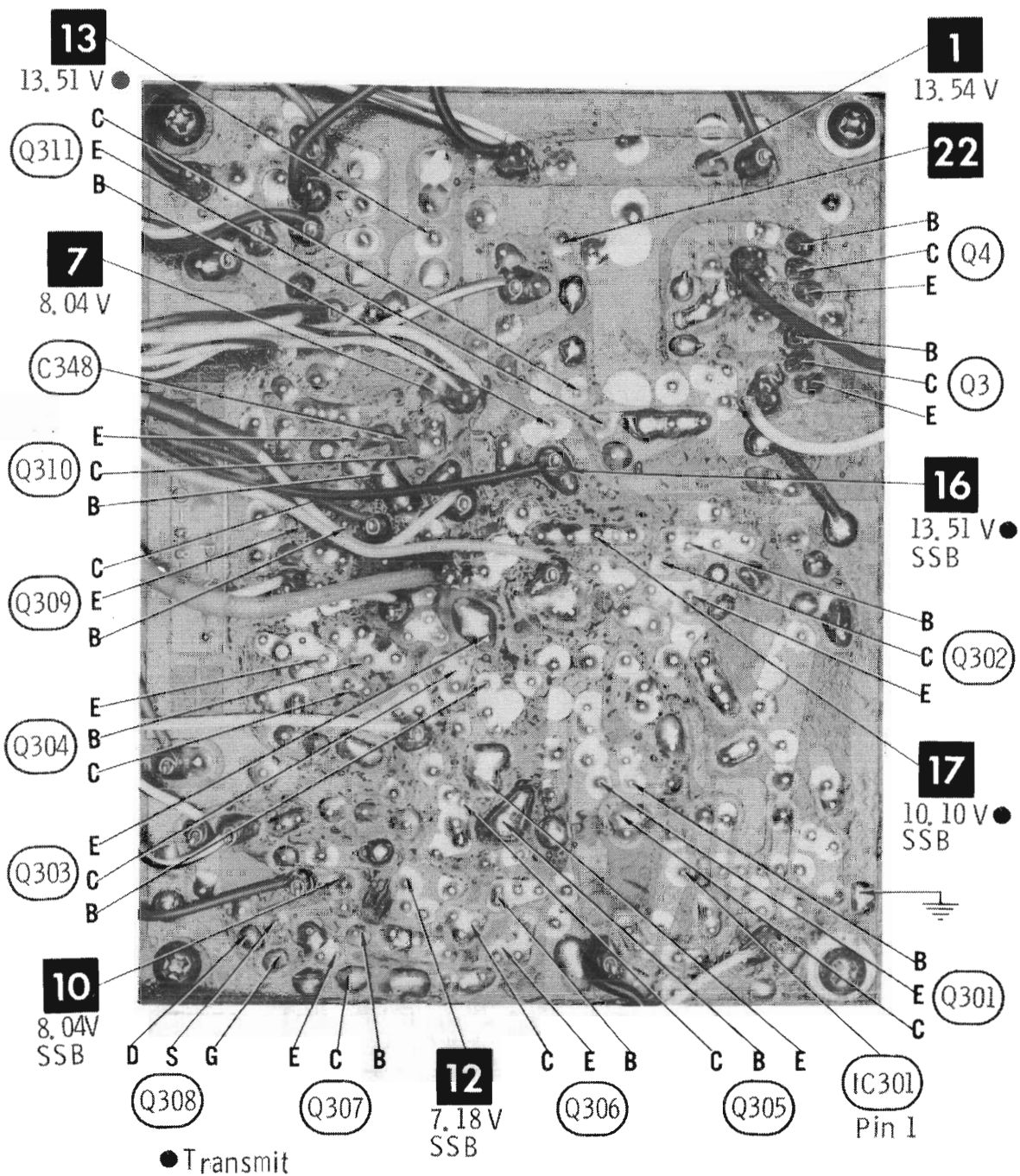
MAIN BOARD-TOP VIEW



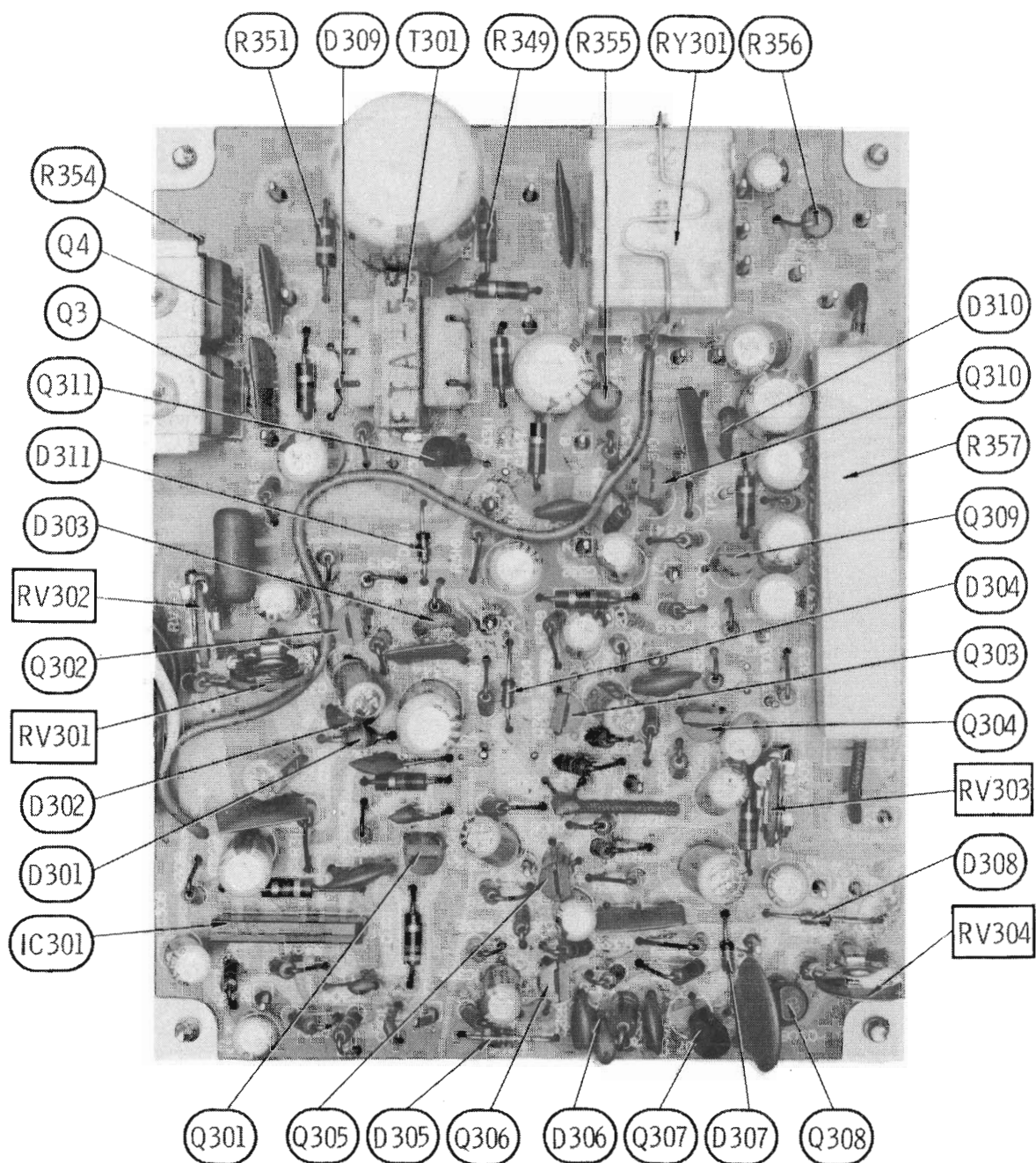
MAIN BOARD-TOP VIEW



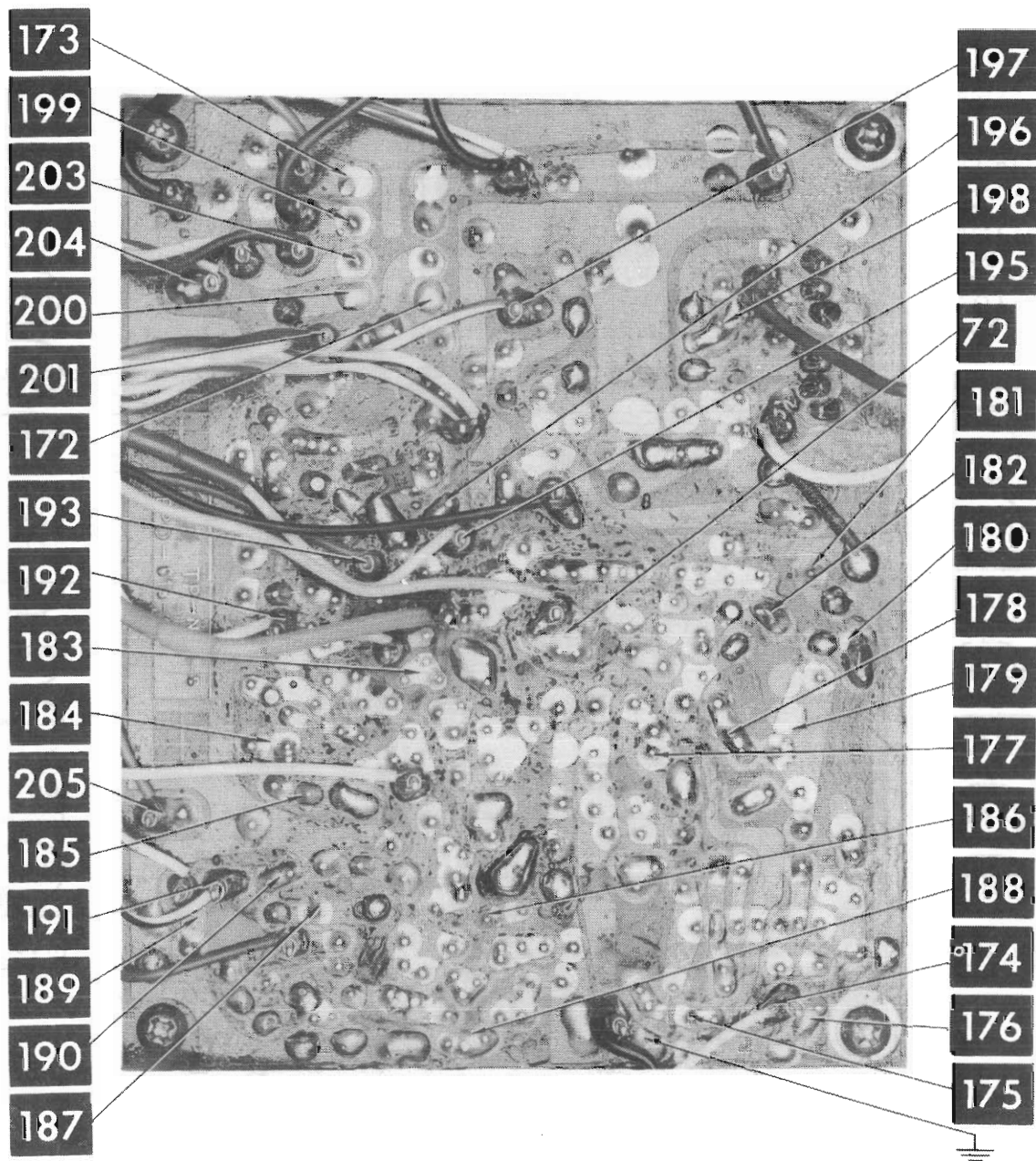
MAIN BOARD-TOP VIEW



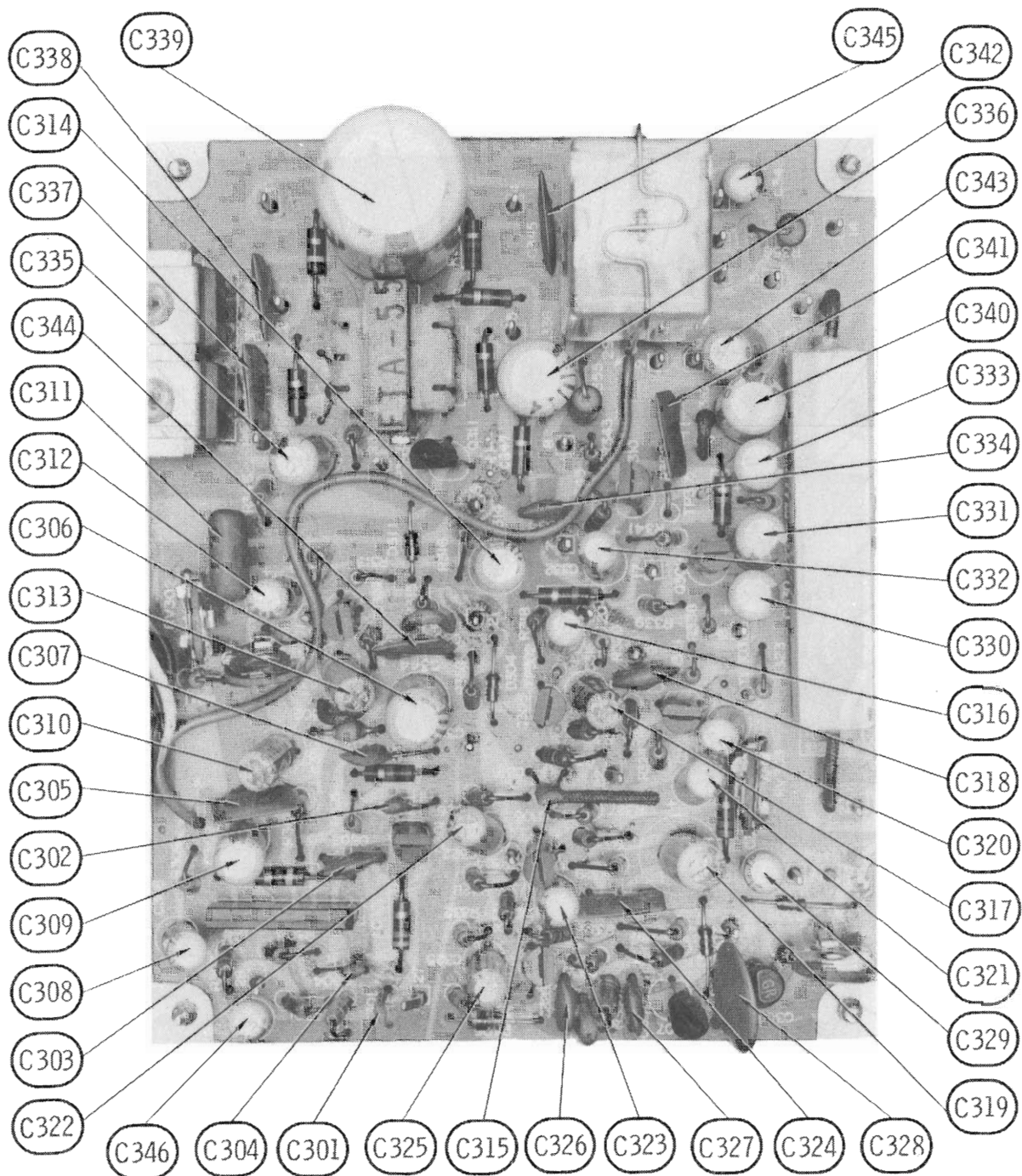
AUDIO BOARD-BOTTOM VIEW



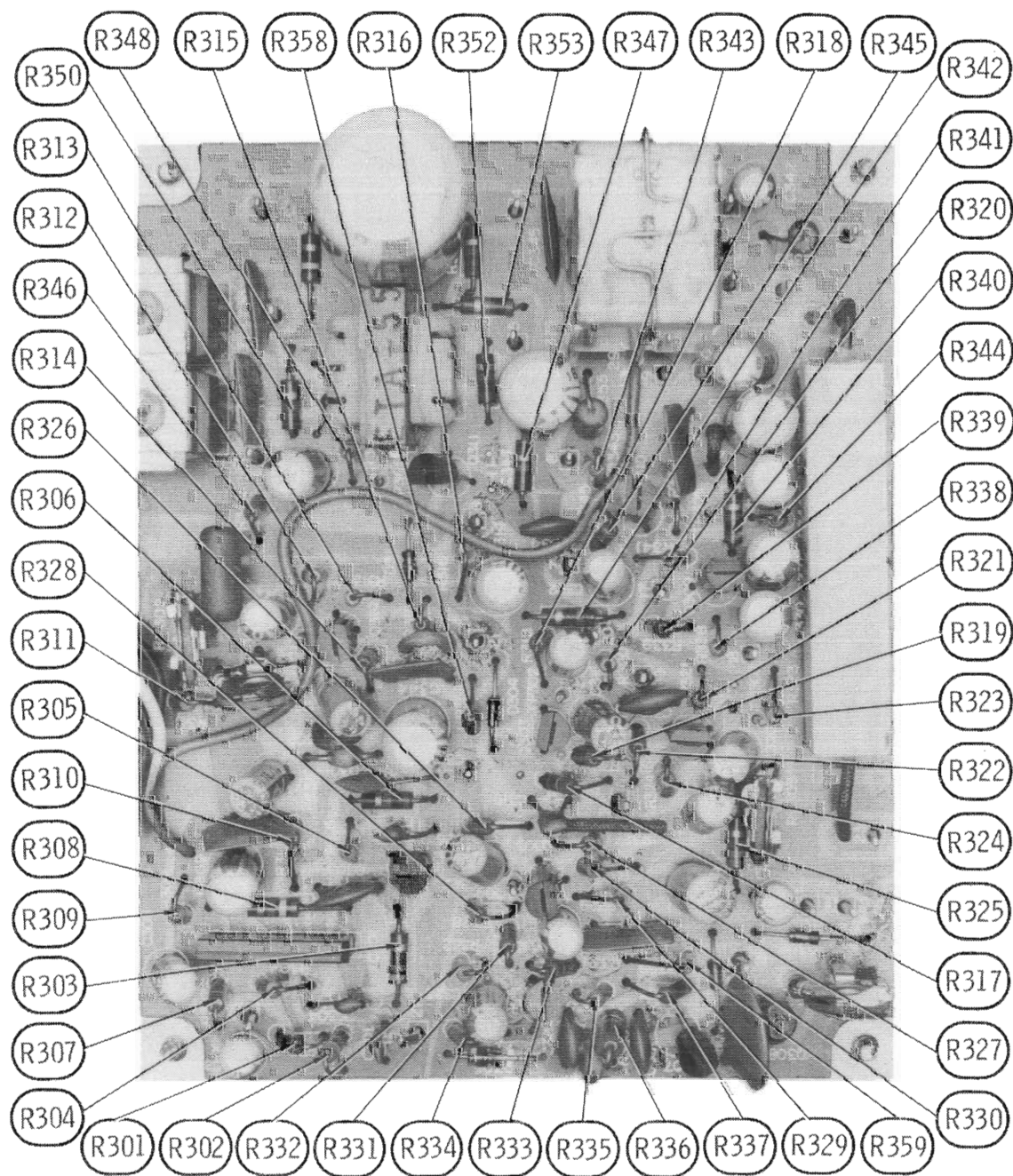
AUDIO BOARD-TOP VIEW



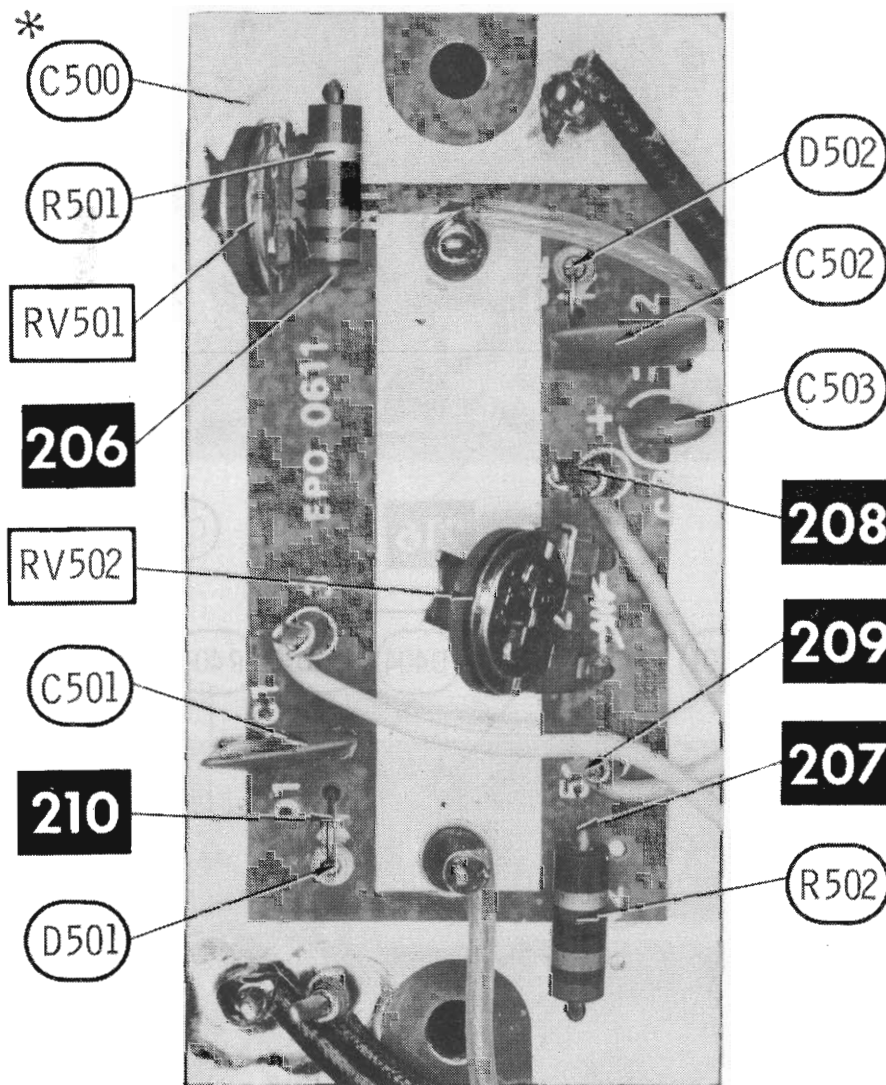
AUDIO BOARD-BOTTOM VIEW



AUDIO BOARD-TOP VIEW



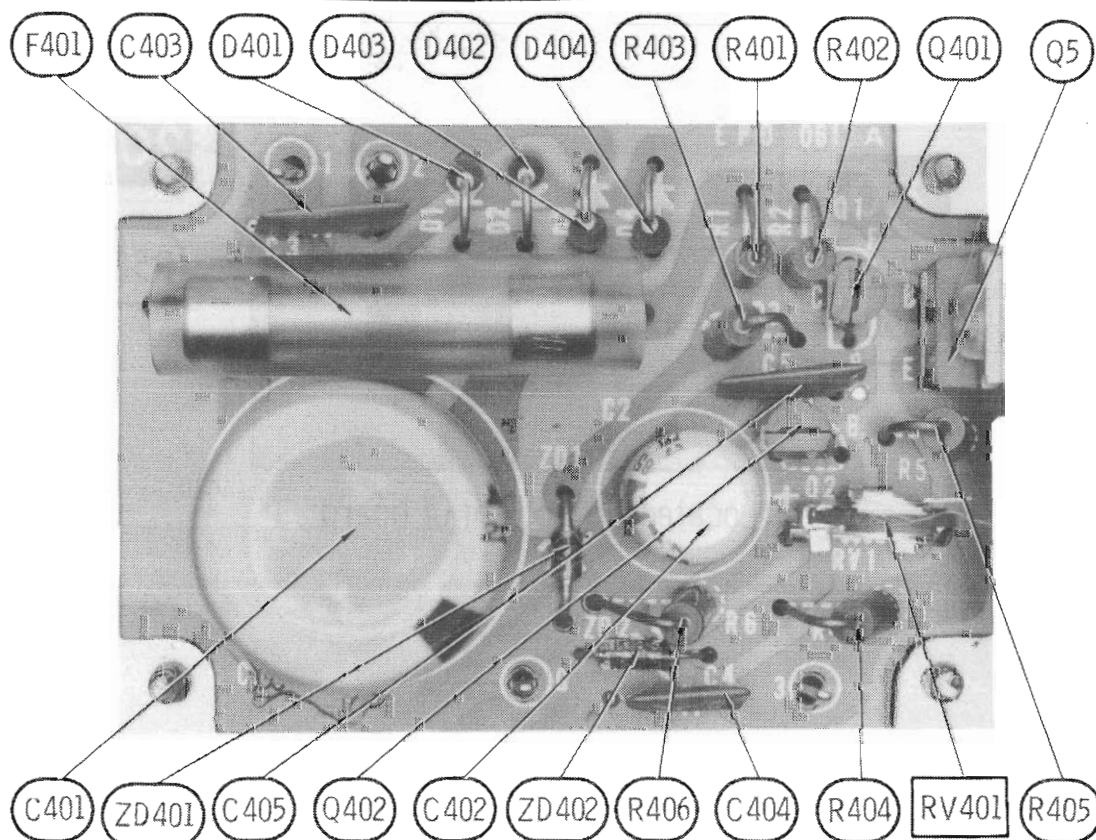
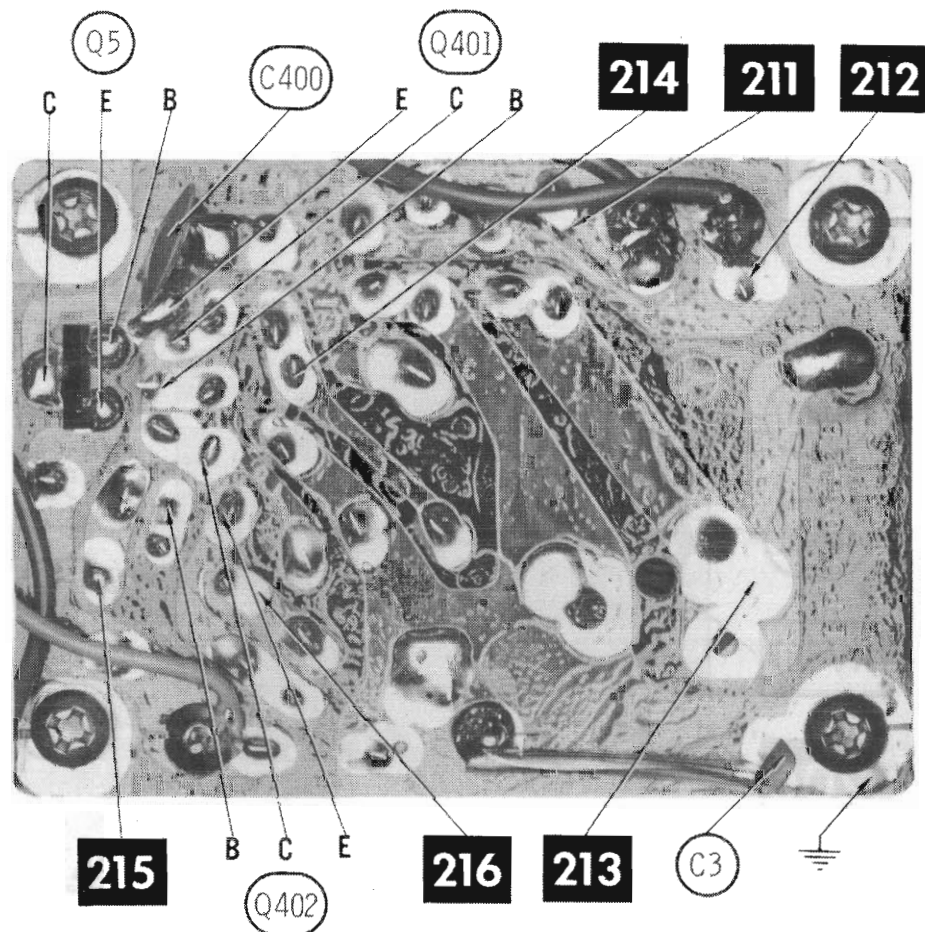
AUDIO BOARD-TOP VIEW



*Located on bottom of board

MIDLAND MODEL 13-898B

ANTENNA BOARD



POWER SUPPLY BOARD

PARTS LIST AND DESCRIPTION

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

WIRING DATA

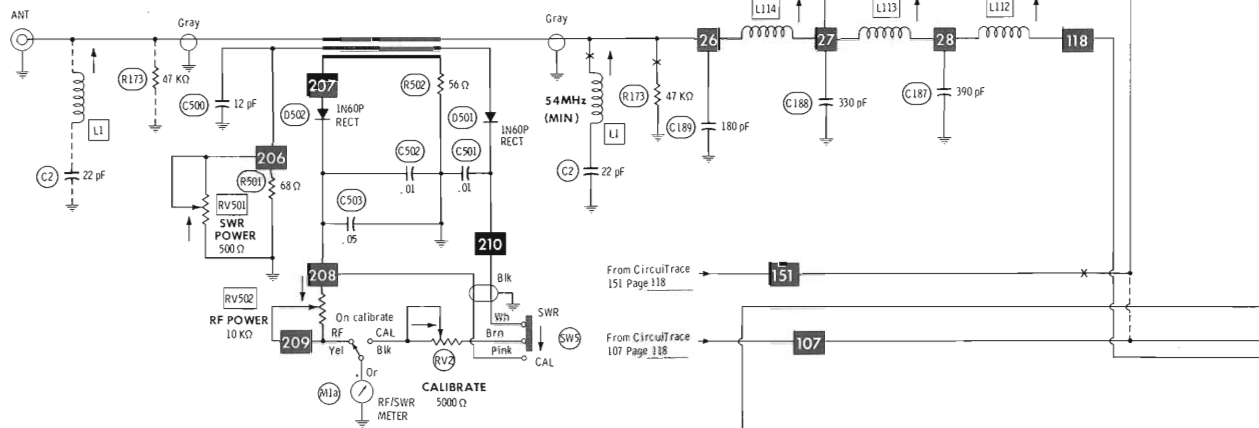
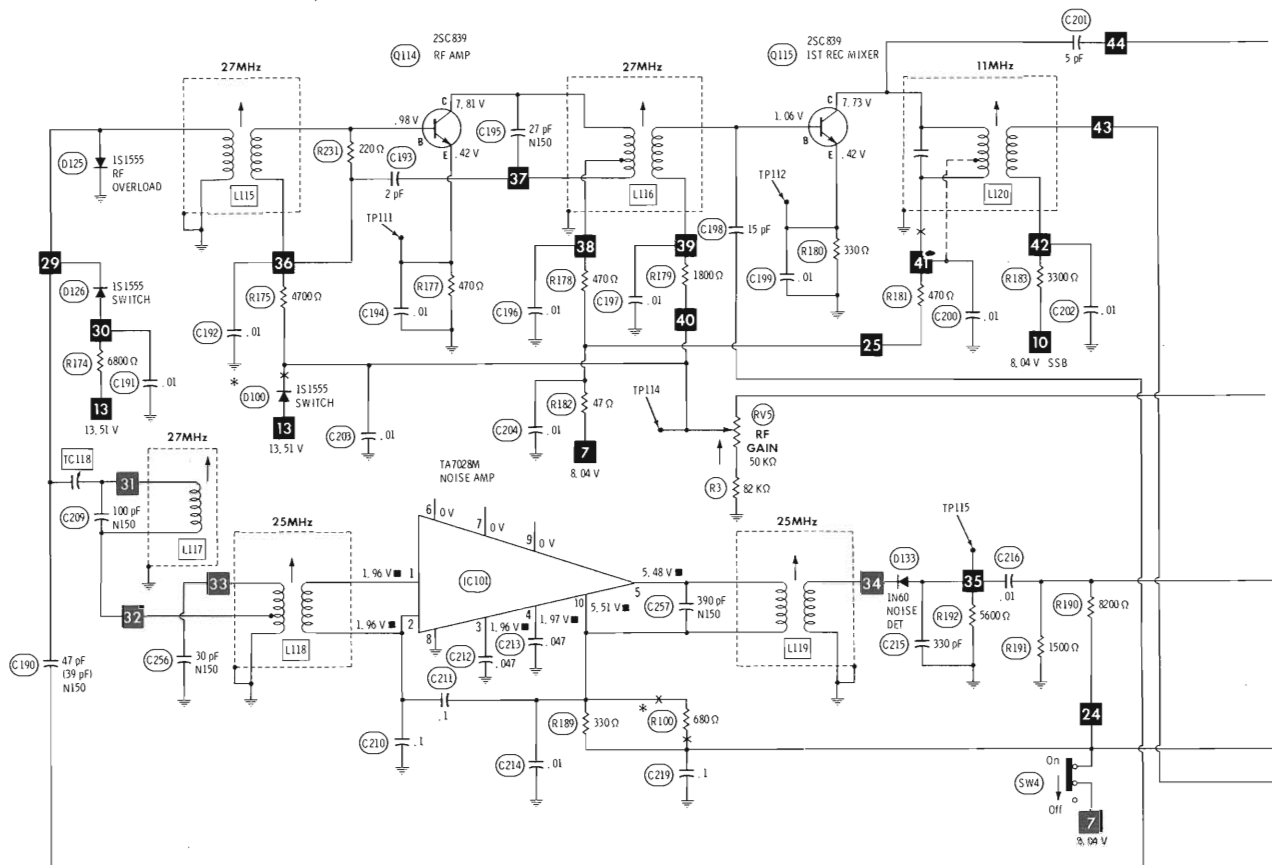
General-use Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Power Cord, 2-Wire	Use BELDEN No.	17106 (Plastic) or 17126 (Rubber) -6 feet 17109 (Plastic) or 17129 (Rubber) -9 feet
Shielded Antenna Lead	Use BELDEN No.	8214 Lowest-Loss (RG-8/U Type) 8237 Low-loss (RG-8/U) 8240 (Solid) Miniature (RG-58/U) 8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No.	8497 3-Conductor (1 shielded for Press-to-Talk) Neoprene 8491 4-Conductor (2 shielded, 2 unshielded) Neoprene
Ignition Noise Suppression	Use BELDEN No.	7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No.	8661 (3/8 inch)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
D100	1S1555(1)	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D101	BZ-0900 9V Zener	09-306382	GEZD-9.1	Z1210	PTC505	HEPZ0412	RE 114	SK3060	RT-240	ECG139
D102	1S352	09-306039	GE-90	D201		HEPR2503		SK3126	RT-262	
D103	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D104	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D105	1N60P	09-306019	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D106	1N60P	09-306019	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D107	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D108	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D109	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D110	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D111	1S2186	09-306276	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D112	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D113	1S2186	09-306276	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D114	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D115	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D116	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D117	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D118	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D119	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D120	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D121	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D122	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D123	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D124	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D125	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D126	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D127	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D128	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D129	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D130	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D131	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D132	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D133	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D134	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D135	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D136	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D137	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D138	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D139	1N60(2)	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D140	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D142	VD1124	09-306353	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D143	VD1124	09-306353	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D301	F14A	09-306274	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D302	F14A	09-306274	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D303	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D304	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D305	1N60	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D306	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D307	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D308	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D309	S3016	09-307083	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D310	BZ-0800 8V Zener	09-306381	GEZD-8.2	Z1208	ZB8.2	HEPZ0411	RE 112	SK3136	RT-257	ECG5072
D311	1S1555	09-306154	GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
D401	F14A	09-306274	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D402	F14A	09-306274	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D403	F14A	09-306274	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D404	F14A	09-306274	GE-504A	8D4	PTC201	HEPR0052	RE 49	SK3030	RT-213	ECG116
D501	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
D502	1N60P	09-306019	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
IC101	TA7028M	09-308039								
IC301	uPC566H	09-308076								ECG1052
Q1	2SC1018(3)	09-302102			PTC110	HEPS3020	RE 80	SK3054		ECG210
Q2	2SC1307(4)	09-305137	GE-216		PTC186				RT-197	ECG236
Q3	2SC1096(5)	09-302126	GE-28	TR-55	PTC110	HEPS5000	RE 42	SK3054	RT-197	ECG186
Q4	2SC1096(5)	09-302126	GE-28	TR-55	PTC110	HEPS5000	RE 42	SK3054	RT-197	ECG186
Q5	2SD313(6)	09-303021	GE-66	TR-76	PTC154	HEPS5000		SK3054	RT-154	ECG196
Q101	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q102	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q103	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A

(CONTINUED ON PAGE 119)

MIDLAND MODEL 13-898B

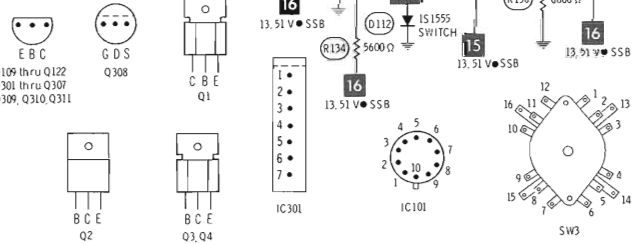


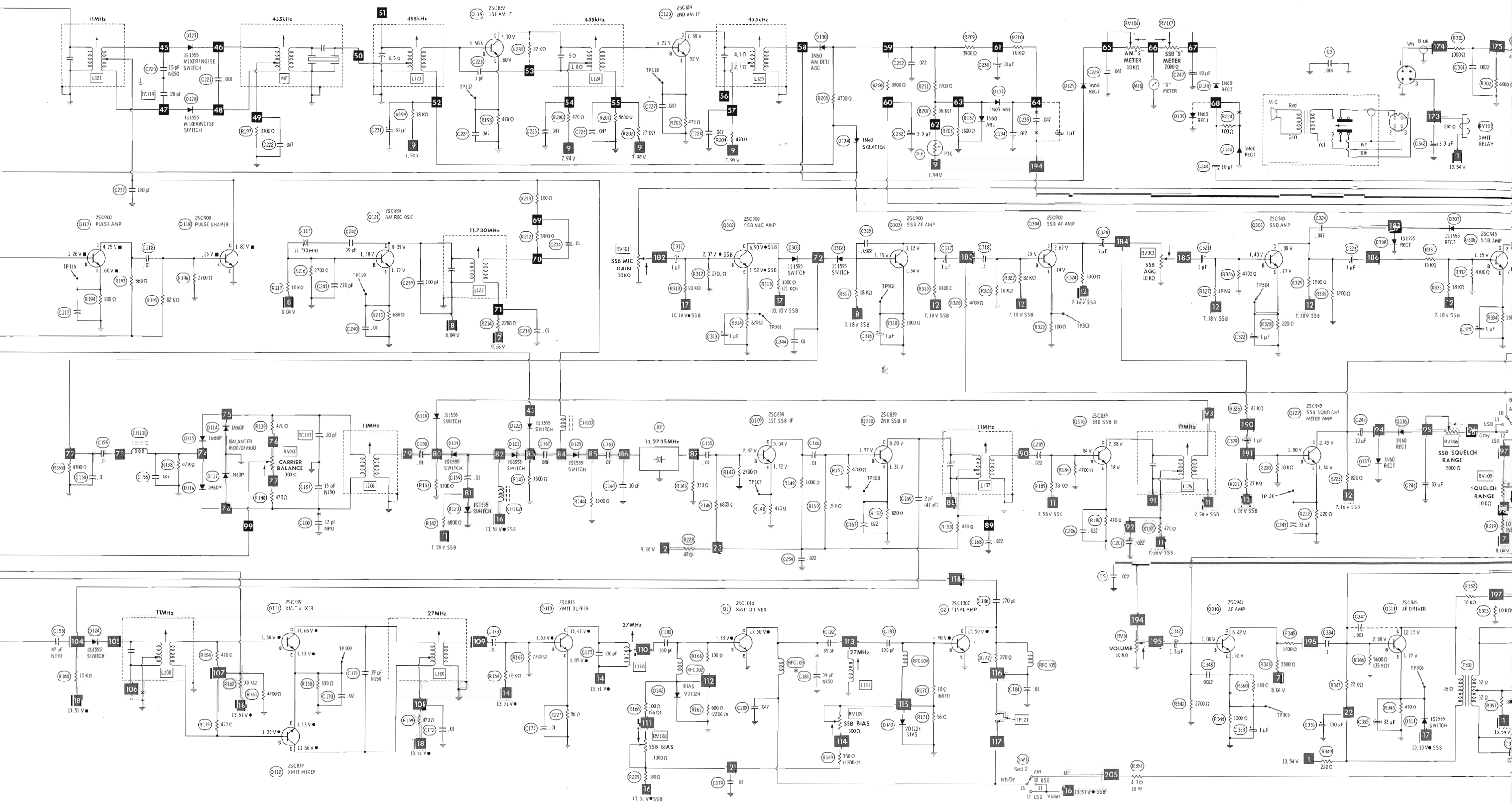
- 100% modulation.
- Noise blanker.
- Squelch control fully clockwise.
- Transmit.
- Indicates chassis.
- Indicates ground. (Voltage reference unless otherwise noted).
- Indicates connection used in some versions.
- Indicates connection not used in some versions.
- Omitted in some versions.
- See parts list.
- Value varies; replace with original value.
- RF-IF coil resistance less than one ohm not given.
- Measurements taken with switching as shown unless otherwise noted.
- Values shown in () used in some versions.
- Resistors are 1/2 W, or less, 5% unless otherwise noted.
- Supply voltage maintained at rated value for measurements.
- Voltage measured with VIVM, no signal applied, controls adjusted for normal operation.
- Arrow on control indicates direction of advance.
- Numbers assigned to terminals may not be found on unit.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**

© Howard W. Sams & Co., Inc. 1975

Terminal Guides







MOTOFAC STANDARD NOTATION SCHEMATIC
with **CIRCUITRACE**
© Howard W. Sams & Co., Inc. 1975

SEE NOTES ON PAGE 112



PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (Select replacement transistor for best results) (cont)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
Q104	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q105	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q106	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q107	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q108	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q109	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q110	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q111	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q112	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q113	2SC815	09-302062	GE-20	TR-21	PTC139	HEPS0015	RE 13	SK3038	RT-172	ECG123A
Q114	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q115	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q116	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q117	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
Q118	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
Q119	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q120	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q121	2SC839	09-302124	GE-20	(IR)2SC644	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
Q122	2SC945	09-302125	GE-18	(IR)2SC945	PTC121	HEPS0015	RE 13	SK3124	RT-107A	ECG123A
Q301	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
Q302	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
Q303	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
Q304	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
Q305	2SC945	09-302125	GE-18	(IR)2SC945	PTC121	HEPS0015	RE 13	SK3124	RT-107A	ECG123A
Q306	2SC945	09-302125	GE-18	(IR)2SC945	PTC121	HEPS0015	RE 13	SK3124	RT-107A	ECG123A
Q307	2SC945	09-302125	GE-18	(IR)2SC945	PTC121	HEPS0015	RE 13	SK3124	RT-107A	ECG123A
Q308	2SK19GR	09-305014	GE-FET-2	FE-100	PTC152	HEPF0021	RE 45	SK3116	RT-175	ECG132
Q309	2SC945	09-302125	GE-18	(IR)2SC945	PTC121	HEPS0015	RE 13	SK3124	RT-107A	ECG123A
Q310	2SC945	09-302125	GE-18	(IR)2SC945	PTC121	HEPS0015	RE 13	SK3124	RT-107A	ECG123A
Q311	2SC945	09-302125	GE-18	(IR)2SC945	PTC121	HEPS0015	RE 13	SK3124	RT-107A	ECG123A
Q401	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
Q402	2SC900	09-302093	GE-62	(IR)2SC644	PTC121	HEPS0015	RE 64	SK3124	RT-102	ECG199
ZD401	BZ-162 16V Zener	09-306268	GEZD-15	Z1214	ZB16	HEPZ0419	RE 122	SK3063	RT-246	ECG5075
ZD402	RD6A	09-306383	GEZD-6.8	Z1206	ZB6.8	HEPZ0409	RE 110	SK3058	RT-238	ECG5071

(1) Not used in some versions.

(2) Used in some versions.

(3) Rating 4 watts @ 1 amp.

(4) Rating 25 watts @ 8 amps.

(5) Rating 10 watts @ 2 amps.

(6) Rating 30 watts @ 3 amps.

MIDLAND MODEL 13-898B

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	33 16V	77-337336	ME-4-G-035	EP30-25	PC30-25	VTT33D25	EV-1325
C142	100 16V	77-337107	RME-E-E-100	EP15-100	PC100-16	VTT100F16	EV-1230
C161	10 16V	77-337106	RME-B-G-010	EP15-10	PC10-25	VTT10A25	EV-1222
C177	10 16V	77-337106	RME-B-G-010	EP15-10	PC10-25	VTT10A25	EV-1222
C230	10 16V	77-337106	RME-B-G-010	EP15-10	PC10-25	VTT10A25	EV-1222
C231	33 16V	77-337336	ME-4-G-035	EP30-25	PC30-25	VTT33D25	EV-1325
C232	3.3 16V	77-339335	RME-A-H-003	EP30-5	PC5-50	VTT3R3A50	EV-1318
C233	10 16V	77-337106	RME-B-G-010	EP15-10	PC10-25	VTT10A25	EV-1222
C243	33 10V	77-336336	ME-3-D-035	EP15-25	PC30-25	VTT33A10	EV-1125
C244	10 10V	77-336106	RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C245	10 10V	77-336106	RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C246	33 16V	77-336106	ME-4-G-035	EP30-25	PC30-25	VTT33D25	EV-1325
C247	10 10V	77-336106	RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C306	100 6.3V	77-337106	RME-E-E-100	EP6-100	PC100-10	MTV100CB6	EV-1030
C308	10 16V	77-337107	RME-B-G-010	EP15-10	PC10-25	VTT10A25	EV-1222
C309	33 10V	77-336336	ME-3-D-035	EP15-25	PC30-25	VTT33A10	EV-1125
C310	10 16V	77-337106	RME-B-G-010	EP15-10	PC10-25	VTT10A25	EV-1222
C312	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C313	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C314	33 10V	77-336336	ME-3-D-035	EP15-25	PC30-25	VTT33A10	EV-1125
C316	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C317	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C319	47 10V	77-333105	RME-E-E-050	EP15-50	PC50-16	VTT47D16	EV-1226
C320	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C321	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C322	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C323	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C325	1 50V	77-333105	RME-A-J-501	EP50-1	PC1-50	MTV1CB50	EV-1615
C329	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C330	33 10V	77-336336	ME-3-D-035	EP15-25	PC30-25	VTT33A10	EV-1125
C331	33 10V	77-336336	ME-3-D-035	EP15-25	PC30-25	VTT33A10	EV-1125
C332	3.3 25V	77-339335	RME-A-H-003	EP30-5	PC5-50	VTT3R3A50	EV-1318
C333	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1CB50	EV-1615
C335	33 10V	77-339335	ME-3-D-035	EP15-25	PC30-25	VTT33A10	EV-1125
C336	100 16V	77-337107	RME-E-E-100	EP15-100	PC100-16	VTT100F16	EV-1230

PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS (cont)

ITEM No.	RATING	REPLACEMENT DATA					
		MFGR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C339	2200 16V	77-337228	ME-G2000	EA15-2000	WBR2000-16	TC1520C	TVA-1175.3
C340	100 10V	77-336107	RME-E-E-100	EP15-100	PC100-10	VTT100E10	EV-1130
C342	3.3 25V	77-339335	RME-A-H-003	EP30-5	PC5-50	VTT3R3A5C	EV-1318
C343	33 16V	77-337336	ME-4-G-035	EP30-25	PC30-25	VTT33D25	EV-1325
C346	1 50V	77-333105	RME-A-J-001	EP50-1	PC1-50	MTV1C850	EV-1615
C401	2200 25V	77-339228	ME-G2000		WBR2000-25	TC2520A	TVA-1213.5
C402	100 16V	77-337107	RME-E-E-100	EP15-100	PC100-16	VTT100F16	EV-1230

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENDO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C2	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C3	.001		CCD-102	DD-102		GP210	10TS-D10
C5	.022		CCD-203			GP120	5GA-S20
C98	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C99	3 N330		*			*	10TCS-V30
C100	12 NP0		CCTO-120			CN0412	10TCC-Q12
C101	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C102	39 N150		*			*	10TCP-Q39
C103	39 N150		*			*	10TCP-Q39
C104	39 N150		*			*	10TCP-Q39
C105	39 N150		*			*	10TCP-Q39
C106	39 N150		*			*	10TCP-Q39
C107	39 N150		*			*	10TCP-Q39
C108	560 5%		CCD-561	DD-561		GP356	10TS-T56
C109	150 N150		*			*	10TCP-T15
C110	39 N150		*			*	10TCP-Q39
C111	3		CCTO-3R3	DTZ-3R3	NP03P3	CN0533	10TCC-V33
C112	39 N150		*			*	10TCP-Q39
C113	.022		CCD-203			GP120	5GA-S20
C114	27		CCTO-270			CN0427	10TCC-Q27
C115	27		CCTO-270			CN0427	10TCC-Q27
C116	36 N150		*			*	10TCP-Q36
C117	36 N150		*			*	10TCP-Q36
C118	36 N150		*			*	10TCP-Q36
C119	36 N150		*			*	10TCP-Q36
C120	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C121	220		CCD-221	DD-221		GP322	10TS-T22
C122	36 5% N150		*			*	10TCP-Q36
C123	.001		CCD-102	DD-102		GP210	10TS-D10
C124	36 N150		*			*	10TCP-Q36
C125	36 N150		*			*	10TCP-Q36
C126	36 N150		*			*	10TCP-Q36
C127	36 N150		*			*	10TCP-Q36
C128	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C129	220		CCD-221	DD-221		GP322	10TS-T22
C130	36 5% N150		*			*	10TCP-Q36
C131	22 N150		*			*	10TCP-Q22
C132	220		CCD-221	DD-221		GP322	10TS-T22
C133	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C134	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C135	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C136	51		DM10-510J		CD6ED510J03		424MC51R0J501
C137	15 N150		*			*	10TCP-Q15
C138	22 N150		*			*	10TCP-Q22
C139	15 N150		*			*	10TCP-Q15
C140	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C141	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C143	22 N150		*			*	10TCP-Q22
C144	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C145	47 N150		*			*	10TCP-Q47
C146	150 N150		*			*	10TCP-V15
C147	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C148	22 N150		*			*	10TCP-Q22
C149	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C150	47 N150		*			*	10TCP-Q47
C151	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C152	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C153	47 N150		*			*	10TCP-Q47
C154	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C155	.2		1MDF-4-204		DPMS2P2	PVC602	2PS-P20
C156	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C157	15 N150		*			*	10TCP-Q15
C158	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C159	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C160	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C162	.001		CCD-102	DD-102		GP210	10TS-D10
C163	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C164	10		CCTO-100	DTZ-10	NP010	CN0410	10TCC-Q10
C165	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C166	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C167	.022		CCD-203			GP120	5GA-S20

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS(cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C168	.022		CCD-203			GP120	5GA-S20
C169	2		CCT0-2R2	DTZ-2R2	NP02P2	CN0522	10TCC-V22
C170	.02		CCD-203			GP120	5GA-S20
C171	39 N150		*			*	10TCP-Q39
C172	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C173	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C174	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C175	100		CCD-101	DD-101	GP100	GP310	10TS-T10
C176	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C178	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C179	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C180	330		CCD-331	DD-331	GP330	GP333	10TS-T33
C181	39 N150		*			*	10TCP-Q39
C182	39		CCT0-390			CN0439	10TCC-Q39
C183	150		CCD-151	DD-151		CN0315	10TCC-T15
C184	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C185	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C186	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C187	390		CCD-391	DD-391	GP390	GP339	10TS-T39
C188	330		CCD-331	DD-331	GP330	GP333	10TS-T33
C189	180		CCD-181	DD-181		GP318	10TS-T18
C190	47 N150		*			*	10TCP-Q47
C191	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C192	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C193	2		CCT0-2R2	DTZ-2R2	NP02P2	CN0522	10TCC-V22
C194	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C195	27 N150		*			*	10TCP-Q27
C196	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C197	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C198	15		CCT0-150	DTZ-15	NP015	CN0415	10TCC-Q15
C199	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C200	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C201	5		CCT0-050				10TCC-V50
C202	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C203	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C204	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C205	.022		CCD-203			GP120	5GA-S20
C206	.022		CCD-203			GP120	5GA-S20
C207	.022		CCD-203			GP120	5GA-S20
C208	.022		CCD-203			GP120	5GA-S20
C209	100 N150		*			*	10TCP-V10
C210	.1			DC-104	MGP1	MAG5001	TG-P10
C211	.1			DC-104	MGP1	MAG5001	TG-P10
C212	.047		CCD-403			GP140	5GA-S40
C213	.047		CCD-403			GP140	5GA-S40
C214	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C215	330		CCD-331	DD-331	GP330	GP333	10TS-T33
C216	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C217	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C218	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C219	.1			DC-104	MGP1	MAG5001	TG-P10
C220	15 N150		*			*	10TCP-Q15
C221	.001		DM19-102J	CPR-1000J	CD19FD102J03	SX210	424ME1001J501
C222	.047		CCD-403			GP140	5GA-S40
C223	3		CCT0-3R3	DTZ-3R3	NP03P3	CN0533	10TCC-V33
C224	.047		CCD-403			GP140	5GA-S40
C225	.047		CCD-403			GP140	5GA-S40
C226	.047		CCD-403			GP140	5GA-S40
C227	.047		CCD-403			GP140	5GA-S40
C228	.047		CCD-403			GP140	5GA-S40
C229	.047		CCD-403			GP140	5GA-S40
C234	.022		CCD-203			GP120	5GA-S20
C235	.047		CCD-403			GP140	5GA-S40
C236	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C237	180		CCD-181	DD-181		GP318	10TS-T18
C238	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C239	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C240	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C241	270		CCD-271	DD-271	GP270	GP327	10TS-T27
C242	39					CN0439	10TCC-Q39
C248	.047		CCD-403			GP140	5GA-S40
C249	.047		CCD-403			GP140	5GA-S40
C250	.001		CCD-102	DD-102		GP210	10TS-D10
C251	.001		CCD-102	DD-102		GP210	10TS-D10
C252	.022		CCD-203			GP120	5GA-S20
C254	.022		CCD-203			GP120	5GA-S20
C255	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C256	30 N150		*			*	10TCP-Q30
C257	390 N150		*			*	10TCP-V39
C258	.047		CCD-403			GP140	5GA-S40
C259	100		CCT0-101	DTZ-100	NP0100	CN0310	10TCC-T10
C301	.0022		CCD-222			GP222	10TS-D22
C302	.0022		CCD-222			GP222	10TS-D22
C303	.2		1MDF-4-204		DPMS2P2	PVC602	2PS-P20
C304	.001		CCD-102	DD-102		GP210	10TS-D10
C305	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50

MIDLAND MODEL 13-896B

PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C307	.0033	13-123037	CCD-332				10TS-D33
C311	.047		1MDF-2-473			EW1A147	1PB-S47
C315	.0022		CCD-222		DPMS2S47	GP222	10TS-D22
C318	2		1MDF-4-204		DPMS2P2	PVC602	2PS-P20
C324	.047		CCD-403			GP140	5GA-S40
C326	.1			DC-104	MGP1	MAG5001	TG-P10
C327	.1			DC-104	MGP1	MAG5001	TG-P10
C328	.5			DTN-390			10TCU-T39
C334	.1		CCTN-391	DC-104	MGP1	MAG5001	TG-P10
C337	.022		CCD-203			GP120	5GA-S20
C338	.022		CCD-203			GP120	5GA-S20
C341	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C344	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C345	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C347	.001		CCD-102	DD-102		GP210	10TS-D10
C348	.0022		CCD-222			GP222	10TS-D22
C400	.022		CCD-203			GP120	5GA-S20
C403	.022		CCD-203			GP120	5GA-S20
C404	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C405	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C500	12						
C501	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C502	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C503	.05						
TC101 thru TC119	20						

* 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	RESIST-ANCE	REPLACEMENT DATA				
			MFR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
RV1	Fine Tuning	10K	13-166059	F1-10K (1), SSK012	A47-10K-S (1), KSS-3 or [NP-10K-S (1), UP-C-400]	RU14L,SL36,SL1500 or [UA14L (1), SK750] or U20 (1)	BU1 (1),CF9, SS6A
RV2	Calibrate/Switch	5000	13-166060	F1-5000 (1), SSK012,KR1	A47-5000-S (1), KSS-3,SWE-12 or [NP-5000-S (1), UP-C-400,NWE-12]	RU53L,SL36,SL1500, US41 or [UA53L (1), SK750,US41]	BU1 (1),CF8,SS1, GC
RV3	Volume	10K	13-160089	F2-10K (1), SSK012	A47-10K-Z (1), KSS-3 or [NP-10K-Z (1), UP-C-400]	RU14A,SL36,SL1500 or [UA14A,SK750] or U18 (1)	BU1 (1),CF61, SS6A
RV4	Squelch	10K	13-166041	F5-10K (1), SSK012	A47-10K-V (1), KSS-3 or [NP-10K-V (1), UP-C-400]	RU14R,SL36,SL1500 or [UA14R (1), SK750] or U19 (1)	BU1 (1),CF35, SS6A
RV5	RF Gain	50K	13-166042	F1-50K (1), SSK012	A47-50K-S (1), KSS-3 or [NP-50K-S (1), UP-C-400]	RU54L,SL36,SL1500 or [UA54L (1), SK750] or U35 (1)	BU1 (1),CF12, SS6A
RV101	Carrier Balance	300	13-164084				
RV104	AM "S" Meter	10K	13-164087	TSV-10K (2) or T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)
RV105	Squelch Range	10K	13-164087	TSV-10K (2) or T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)
RV106	SSB Squelch Range	5000	13-164114	TSV-5K (2) or T-5000 (2)	C-502 (2)	MTC53L1 (2)	X201R502B (2)
RV107	SSB "S" Meter	2000	13-164086	TSV-2.5K (2) or T-2500 (2)	C-252 (2)	MTC23L1 (2)	X201R252B (2)
RV108	SSB Bias	1000	13-164083	TSV-1K (2) or T-1000 (2)	C-102 (2)	MTC13L1 (2)	X201R102B (2)
RV109	SSB Bias	500	13-164085	TSV-500 (2) or T-500 (2)	C-501 (2)	MTC52L1 (2)	X201R501B (2)

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
RV301	SSB Mic Gain	10K	13-164088	TSV-10K or T-10K	C-103	MTC14L1	X201R103B
RV302	AM Mic Gain	10K	13-164089	TSV-10K or T-10K	C-103	MTC14L1	X201R103B
RV303	SSB AGC	10K	13-164088	TSV-10K or T-10K	C-103	MTC14L1	X201R103B
RV304	SSB AGC	5000	13-164089	TSV-5K or T-5000	C-502	MTC53L1	X201R502B
RV401	Voltage	500	13-164115	TSV-5K or T-5000	C-502	MTC53L1	X201R502B
RV501	SWR	500	13-164085	TSV-500 (2) or T-500 (2)	C-501 (2)	MTC52L1 (2)	X201R501B (2)
RV502	RF Power	10K	13-164087	TSV-10K (2) or T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)

(1) Enlarge mounting hole.

(2) Cut off one of the end terminals and bend to fit PC board.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
R357	4.7 10W		ERF-10SK4R7	PTH	Posistor		09-307082

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
CH101	RF Choke	13-178191			
CH102	RF Choke	13-178135			
CH103	RF Choke	13-178135			
CH104	RF Choke	13-178135			
L1	TVI Trap (54MHz)				
L101	Synth. Osc. (23MHz)	13-094204	ETR290		
L102	Synth. Output (23MHz)	13-094204	ETR290		
L103	Synth. Buffer Input (38MHz)	13-094205	ETR291		
L104	Harmonic Sup. (38MHz)	13-094205	ETR291		
L105	Harmonic Sup. (38MHz)	13-094205	ETR291		
L106	11MHz IF	13-094206	ETA292		
L107	11MHz IF	13-090351	ETR107		
L108	Xmit. Mixer Input (11 MHz)	13-090351	ETA107		
L109	Xmit. Buffer (27MHz)	13-094207	ETR293		
L110	Xmit. Buffer Output (27MHz)	13-094014			
L111	RF Choke	13-094208			
L112	RF Choke	13-094208			
L113	Pi Filter	13-094208			
L114	Pi Filter	13-094208			
L115	Rec. Antenna (27MHz)	13-090341	ETR194		
L116	Rec. RF Amp. Output (27MHz)	13-094209	ETR240		
L117	Antenna (27MHz)	13-094210	R257		
L118	Noise Amp. Input(25MHz)	13-094211	R258		
L119	Noise Amp. Output (25MHz)	13-094212	R259		
L120	Rec. Mixer (11MHz)	13-094213	R255		
L121	Rec. Mixer (11MHz)	13-094214	R256		
L122	AM Rec. Osc.(11.730MHz)	13-094213	R255		

MIDLAND MODEL 13-898B

PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF) (cont)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L123	Input IF (455kHz)	13-094215	1-334515		
L124	Interstage IF (455kHz)	13-090309	ET17		
L125	Output IF (455kHz)	13-090310	ET118		
L126	11MHz IF Output	13-090351			
RFC101	RF Choke	13-178136			
RFC102	RF Choke	13-178136			
RFC103	RF Choke	13-178136			
RFC104	RF Choke	13-178136			
RFC105	RF Choke	13-178136			

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
PT	120V AC @ 410mA AC	18V AC @ 2700mA AC	13-098022 ETP-73 (1)			(1) Number on unit.

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T301	4	1		13-096175 ETA-55 (1)			(1) Number on unit.

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
OPT	256	16	13-096176 ETA-0053W (1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP	3" PM, 16 Ohms	13-060084	30A05RZ16	

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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	2.5 Amp. Fast Acting	13-159145		AGC2 1/2	HDJ	31202.5	150145		
FH	3/4 Amp. Fast Acting			MDL3/4	HPK	312750	342001AL		
F401	2.5 Amp. Fast Acting			GJV1/2		31802.5			

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CR1	Component Combination	13-130004	Power, On/Off Channel Selector Mode CB-PA/ANL-BLK/CAL
XF	Crystal Filter	13-179030	
M1	Meter	13-200043	
M2	Meter	13-200043	
	Clock, Digital	13-079005	
RY-301	Relay	13-105023	
SW1	Switch	13-183160	
SW2	Switch	13-180074	
SW3	Switch	13-180075	
SW4	Switch	13-183187	
thru SW6			
X101	Crystal	13-128258	7.776666MHz
X102	Crystal	13-128251	7.793333MHz
X103	Crystal	13-128252	7.810000MHz
X104	Crystal	13-128253	7.826666MHz
X105	Crystal	13-128254	7.843333MHz
X106	Crystal	13-128255	7.860000MHz
X107	Crystal	13-128260	14.907MHz
X108	Crystal	13-128261	14.917MHz
X109	Crystal	13-128262	14.927MHz
X110	Crystal	13-128263	14.947MHz
X111	Crystal	13-128279	14.904MHz
X112	Crystal	13-128280	14.914MHz
X113	Crystal	13-128281	14.924MHz
X114	Crystal	13-128282	14.944MHz
X115	Crystal		11.275MHz
X116	Crystal		11.272MHz
X117	Crystal	13-128266	11.730MHz
	Socket	13-105024	Relay

MIDLAND MODEL 13-898B

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

ITEM	PART No.	ITEM	PART No.
Cabinet Assembly	13-010262	Knob, Channel	13-115075
Plate Rear	13-013114	Knob, Volume	13-110138
Plate Bottom	13-013115	Push Button, Switch	13-110141
Plate Channel	13-020604	Push Button, Power	13-110142
Knob, Clock-1	13-110140	Escutcheon	13-011020
Knob, Clock-2	13-110143		

ACCESSORIES

ITEM	MFGR. PART No.	REMARKS
Microphone	13-038050	
Power Cord, DC	13-034077	
Power Cord, AC	13-034059	

INDEX

THIS INDEX LISTS ALL RADIOS APPEARING IN
"CITIZENS BAND MANUALS" AND "PHOTOFACT CB RADIO SERIES"

KEY------(REV) REVISED (EP) EARLY PRODUCTION (LP) LATE PRODUCTION

AIRCRAFT	VOL.	CHANNEL MASTER	VOL.	DEMCO (CONT.)	VOL.	GONSET (CONT.)	VOL.	JOHNSON (CONT.)	VOL.
JE321	15	6423	40	Satellite CB-1A	7	G-14 (3430), (3433) ..	3	Messenger 109	
23-02	38	7553	9	Satellite Deluxe	19	G-15 (3428), (3429) ..	4	(242-109)	26
		6554	13	Satellite M-10A, R-101A, T-110A, VW-12-120	7			Messenger 110	
AIRLINE				Travelier (Series B) ..	8	HALLICRAFTERS		(242-0110)	19
GAS-587	4	CITI-FONE				BC-8	10	Messenger 120	
		CD-5/6/-5/12.....	1	DEWALD		CB-1	1	(242-0120)	41
ALLIED		CD-5A/6, CD-5A/12 ..	9			CB-3	3	Messenger 121	
A-2507 (17B6790X)	20	CD-6/6, CD-6/12	3	TR-6/-12/910	2	CB-3A	5	(242-0121)	40
A-2533 (17B6825X)	19	CD11/6, CD11/12	12	DUO COM		CB-4 (Littlefone)	3	Messenger 122	
A-2533 (17B6440X)	22	SS	9	100	2	CB-5A	5	(242-0122)	45
A-2543 (17-9801S)	21	19	26	DYNASCAN		CB-5 Mark II, HA-14, P-5-120	6	Messenger 123	
A-2544 (17B9802S)	23	99/6, 99/12	12	(See Cobra)		CB-7	7	(242-0123A & B)	24
A-2545 (17B9803S)	18	CLARICON		EICO		CB-8	10	Messenger 123	
A-2559 (21B5559U)	34			712	13	CB-9	8	(242-123) (Rev.) ..	42
A-2561 (21B5561)	35	II (1103-01)	15	740	4	CB-10	9	-C/-D/-E/-F/-G	42
A-2564 (17A6966U)	29	14-523	27	760/61W/62/62W	2	CB-12	11	Messenger 123A	
A-2567 (17B6435X)	22	15-200	16	770/W	3	CB-14/-17	12	(242-0123)	47
A-2568 (17A6965U)	29	15-410	14	771W, 772W	4	CB-19	13	Messenger 124	
A-2569 (17C6469U)	24	15-500	23	777	7	CB-20	14	(242-124)	28
		15-600	33	779A	9	CB-21	20	Messenger 124-M	
ALLSTATE		COBRA		7923 (Nova 23)	18	CB-24	22	(242-0134)	39
832.62270	7			ELECTRONIC 2000		PS-20	20	Messenger 125	
893.62910/11/21/31/41.	6	CAM-88	9	Contact CB-23CH	56			(242-125)	28
		CAM-89	58	FANON		HALLMARK		Messenger 130	
AMPHENOL		V	13	CHB-3	35	512	5	(242-0130)	63
C-75	12	20	49	CHB-4	37	1250B	10	Messenger 132	
80	22	21	51	Fanfare 100	54			Messenger 223	
600, 625	11	23, PAC-V	16	Fanfare 700	53	HAMMARLUND		(242-223)	23
650	13	24	26	FCB-9	4	CB-SIX (CB-6)	7	Messenger 250	
675	14	25	33	IC-3000	24			(242-0250)	60
725	15	27	23	IC-5000	25	HEATHKIT (HEATH)		Messenger 250A/B (Rev)	
750	19	28, PAC-24	43	L-1000	18	CB-1	1	(See Page 39)	60
777	18	28A	72	L-2000	17	GRS-65A	14	Messenger 300	
APELCO		98	23	SFT-400	35	GW-10A/D, GWW-10A/D ..	3	(242-0149), 323	
AR-9	1	130	44	SFT-500	35	GW-11A/-11D, GWW-11A/ -11D	4	(242-0153-002)	17
AR-10.....	7	131	45	SFT-600	31	GW-12A/-12D, GWW-12A/ -12D	5	Messenger 320	
ARKAY		132 (EP & LP)	54	SFT-800A	34	GW-14, GWA-14-1, GWW-14. 11	11	(242-320)	21
SQ-9/-9W	2	135 (EP & LP)	54	SFT-900	37	GW-14A, GWW-14A/14AS ..	29	Messenger 323-M	
		138	57	(Guardsman)	37	GW-21, GWW-21	4	(242-0158-001)	40
ARVIN		139	59	T-606	41	GW-22A/-22D, GWW-22A/ -22D	5	Messenger 350	
20Y33-19 (1.45501) ...	27	880	47	T-707	43	GW-30	2	(242-0154)	14
20Y55-19 (1.45601) ...	29	CONCORD		T-808	38	GW-31, GWW-31	4	Messenger 351	
		TG-132B	12	T-909	40	GW-32A, GWW-32A/D, ..	6	Personal Messenger	
AUTOMATIC		COURIER (E.C.I.)		T-1000	45	GW-42, GWW-42	6	(242-101-1)	2
MCE-6510	25	Cadet 23	46	FIELDMASTER		MW-34, MWW-34	8	239-0125	
MCR-6450	17	Caravelle	38	MF-1001	60			(Power Supply)	15
PCR-6452	22	CCT-2 W/CHB-3	35	Micro Mini 3	55	HY-GAIN		239-0125 (Rev.)	25
PCR-6452	25	CCT-3	37	Micro Mini 6	58	623	71	KAAR	
TRC-6448	17	CCT-4	36	Micro Mini 23	56	670 (Hy-Range I)	63	TR327/A/B	5
TRE-6500	25	Centurion	52	TR-18M	57	671 (Hy-Range II)	63	TR336 (SkyLark I) ..	18
TRR-6454/A	17	Chief 23	35	GENERAL ELECTRIC		672 (Hy-Range III)	65	TR337 (Skyhawk II) ..	20
		Citation	34	Y7050A	16	673 (Hy-Range IV)	64	6/117R333/B, 12/	
BENDIX		Classic	25	GENERAL RADIO & TELEPHONE		674 (Hy-Range V)	70	117R333/B, 32/TR333B. 8	
CB-6/-12	2	Classic II	30	MC-6	7	675 (Hy-Range VI)	64	12TR335 (Skyhawk) ..	10
		Classic III	67	Super MC-8	13	ITT		KNIGHT	
BROWNING		Comet 23	48	Super MC-9	16	320	3	KN-2500 (90SU413)	7
Eaglette	20	Conqueror	38	VS-6, VS-7	11			KN-2520 (17A6810X/	
Eaglette 2	29	Courier Clipper 23 ..	26	GLOBE		JCPenney		KN-2522 (17A6812X) ..	15
LTD	66	Courier Royale	14	CB-100	1	981-6051		KN-2526 (86SX568)	8
Mark II Series B, SSB-115	39	Courier TR-5	16	CB-100A	3	(Golden Pinto)	28	KN-2550 (90SU456),	
R-27, S-23	10	Courier TR-23S	13	CB-200	2	981-6075		KN-2560 (90SX467)	7
SST	37	Courier 1M, 23	8	Globe Master 65-220 ..	6	(Pinto SSB)	47	KN-2565 (86SX568)	8
69R, 69T (Golden Eagle Mark II)	27	Courier 23 Plus	18	X-90 (Pocketphone) ...	1	981-6200	51	KN-2567 (17B6435X) ..	22
		Rebel - 23+	54	65-228		985-6050 (Pinto 23) ..	27	KN-2580 (86SX625)	9
CADRE		Reball	72	(President VIII)	7	985-6055 (Pinto Jr.) ..	30	KN-2585 (86SU774)	14
C-75	11	Spartan SSB	56	GONSET		985-6060 (Pinto-23B) ..	28	KN-2590 (86RU515MU) ..	11
500/C	3	Traveller (ML-100) ..	24	G-11-3303/04/-05,		JOHNSON		24SC180	9
510	4	Traveller II	31	G-12 (3316), (3329) .	1	Messenger II (242-162/ -163, 250-180/-811) ..	5	LAFAYETTE	
510A, 515	6	DEMCO				Messenger III	8	Comstat 19 (99-3067WX)	14
525 (500-1, 520)	7	CH-300	11			Messenger III		Comstat 23	12
CAPITOL		Chalet, DMT-110	14			(242-143) (Rev.)	30	Comstat 23 Mark V	
ND-309	3	Ravelle	11			Messenger 100	12	(99-3160WX)	23
		Ravelle 23	15			Messenger 102		Comstat 23 Mark VI	
						(242-102)	32	(99-3223WX)	47
						Messenger 108		Comstat 25A (99-3130WX)	20
						(242-108)	50	Comstat 25B	
								(99-32146WX)	33