



# PHOTOFACT<sup>®</sup> with

# CIRCUITRACE<sup>®</sup>

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 77-861

MIDLAND MODEL 77-861

## MANUFACTURER'S SPECIFICATIONS

### GENERAL

- Circuitry : 2 ICs, 25 transistors, 2 squelch transistors, 10 diodes, 1 Zener diode
- Frequency Control : PLL (Phase Locked Loop) Synthesizing System
- Channels : 40, all supplied
- Controls : On/off/volume, variable squelch, channel selector, hi/lo power switch, push-to-talk (on speaker/ mike), "Check Lite" button
- Jacks and Connections : Mobile antenna, mobile power, external power (coaxial), battery charger (in case), external speaker, universal portable antenna
- Power Sources : 13.8 volts DC (mobile) positive or negative ground, 12 volts DC (portable)
- Unit Size : 54 m/m(H) x 114 m/m(W) x 184 m/m(D)
- Overall Size (In Case) : 82.5 m/m(H) x 115.6 m/m(W) x 190.6 m/m(D)
- Unit Weight : 1.1 kg (2.4 LBs)
- Accessories Included : Texon carry case with removable strap and shoulder pad, battery compartment and connector, battery charger jack, belt loop, metal microphone clip, removable universal mount, center coil loaded telescopic antenna, antenna filter for telescopic antenna, mobile mounting bracket.

### RECEIVER

- Receiving System : Dual conversion superheterodyne with tune RF, AGC, built-in ANL
- Sensitivity : 0.5 $\mu$ V for 10 db (S+N)/N
- Selectivity : 8 kHz at 6 db down
- Spurious Rejection : More than 60 db
- Audio Output : 2.8 watts (EXT. SP at 8 ohms)
- Squelch Range : 0.5 ~ 300 $\mu$ V
- Intermediate Frequencies : 1st IF: 10.695 MHz  
2nd IF: 455 kHz

### TRANSMITTER

- Modulation : High level
- RF Output Power : Mobile: 4 watts (FCC Maximum)  
Portable: hi-3 watts  
lo-1 watts
- Frequency Tolerance :  $\pm$ 0.005%

Courtesy of the Manufacturer

**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 T6, T101, T102, T103..... 9440  
 T9, T10..... 9440  
 T11, T12, T13, T14, T104..... 5000, 5009, 8276, 8728, 8728A  
 L4, L5..... 5009, 8728, 8728A  
 VC1, VC2..... 5000, 8276

## SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope to TP1 (T104 secondary).	Ch. 19	T104	Adjust for maximum RF output.
Input of frequency counter to TP1 (T104 secondary).	Ch. 19	VC102	Adjust for 10.240MHz +30Hz.
Input of oscilloscope to TP2 (T101 secondary).	Ch. 19	T101	Adjust for maximum RF output.
Input of frequency counter to TP2 (T101 secondary).	Ch. 19	VC101	Adjust for 36.380MHz +30Hz.
Input of DC meter to TP3 (Junction of R130 and R129).	Ch. 19	T103	Adjust for 2.60 volts.
Input of frequency counter to TP4 (IC101 pin 2).	Ch. 1		Check for 1.280MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP5 (T102 secondary).	Ch. 19	T102	Adjust for maximum RF output.
Input of frequency counter to TP5 (T102 secondary).	Ch. 1		Check for 37.660MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP6 (TR1 emitter).	Ch. 19 XMT		Check for 10.695MHz.

## 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	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP7 (TR17 Base). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T14, T13, T12	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T11, T10, T9	Adjust for maximum output. If necessary readjust T12, T13 and T14 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	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 300uV.	Ch. 19 Squelch Maximum	VR5	SQUELCH RANGE Adjust so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19 Squelch MINIMUM	VR3	S METER Adjust so that meter needle rests on the third mark from the left end of the S scale on the panel 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.

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TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of spectrum analyzer or harmonic meter to antenna jack.  Field strength meter located near portable telescopic antenna.	Ch. 19 HI/LOW HI	T1,T2,T3,T4 T5	Adjust for maximum RF output.
	Ch. 19 HI/LOW HI	L4,L5	Adjust for 4.0 watts RF output maximum.
	Ch. 19 HI/LOW HI	T6	Adjust for MINIMUM at 54MHz (2nd harmonic).
	Ch. 19	L13	Adjust for maximum indication on field strength meter.

## TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.

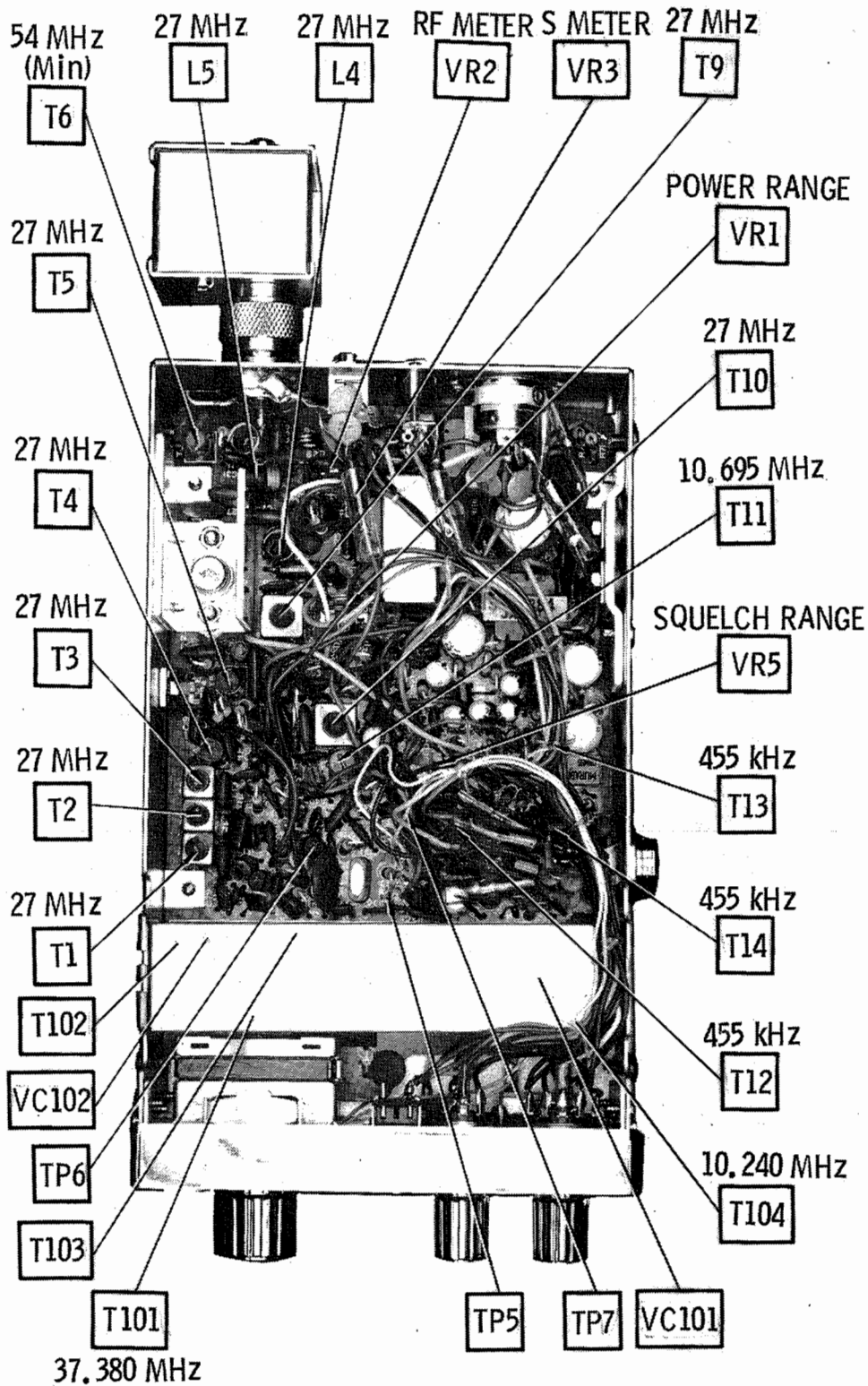
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.

See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter and 50 ohm, 25 watt dummy load to antenna jack.	Ch. 19 HI/LOW LOW	VR1	LO POWER Adjust for 1.0 watt RF output.
Input of RF wattmeter and 50 ohm, 25 watt dummy load to antenna jack.	Ch. 19 HI/LOW HI	VR2	RF METER Adjust so that meter needle rests over the last red mark from the left end on the P scale of the panel meter.

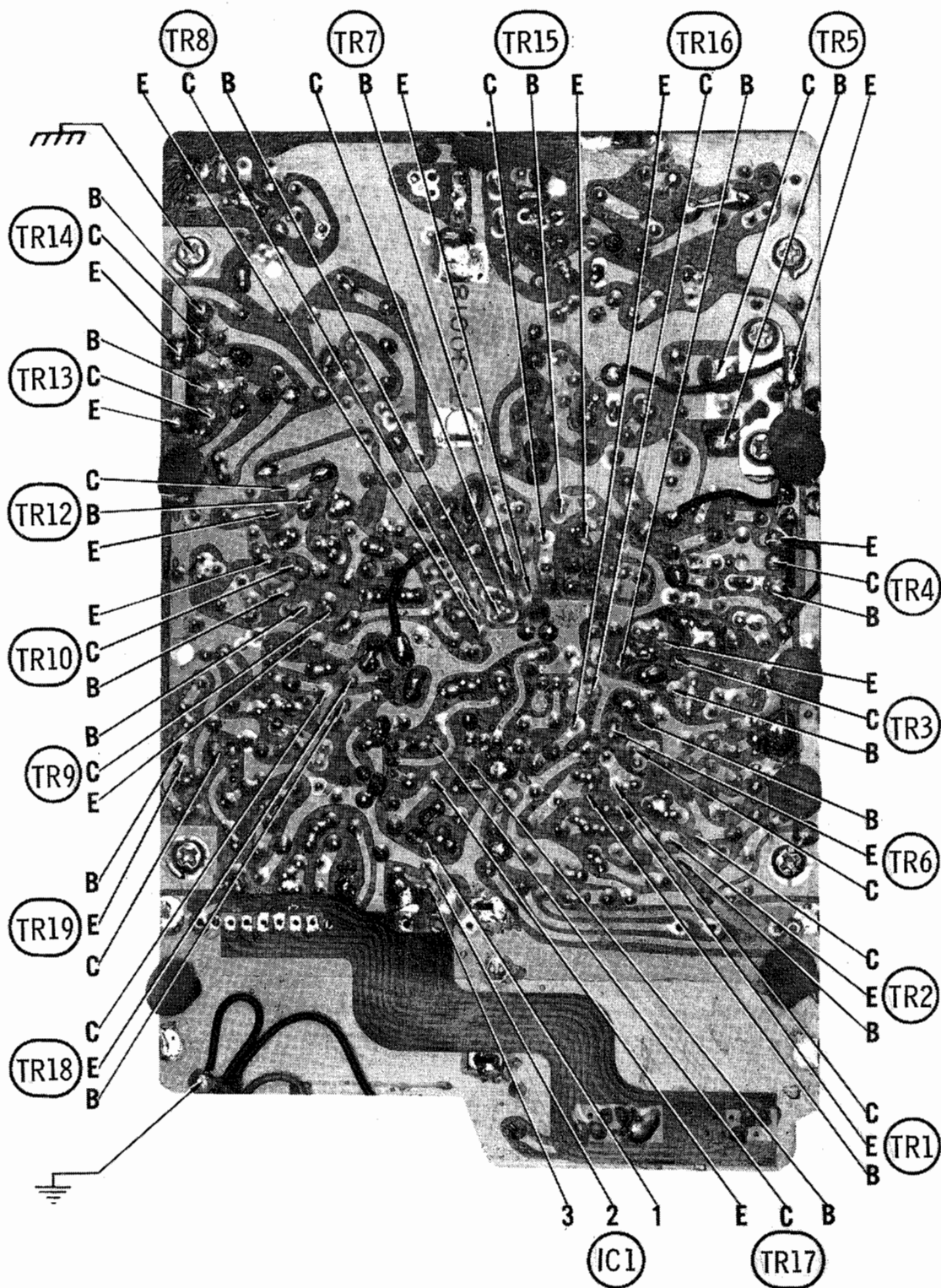
# TRUTH CHART

CHANNEL	1 = 4.70 Volts      0 = 0 Volts							REC & XMT VCO OUTPUT IN MHz AT TP5	DIVIDER INPUT IN MHz AT TP4
	IC101 PROGRAM DIVIDER								
	PINS								
	10	11	12	13	14	15			
1	0	0	0	0	0	0		37.660	1.280
2	0	0	0	0	0	1		37.670	1.290
3	0	0	0	0	1	0		37.680	1.300
4	0	0	0	1	0	0		37.700	1.320
5	0	0	0	1	0	1		37.710	1.330
6	0	0	0	1	1	0		37.720	1.340
7	0	0	0	1	1	1		37.730	1.350
8	0	0	1	0	0	1		37.750	1.370
9	0	0	1	0	1	0		37.760	1.380
10	0	0	1	0	1	1		37.770	1.390
11	0	0	1	1	0	0		37.780	1.400
12	0	0	1	1	1	0		37.800	1.420
13	0	0	1	1	1	1		37.810	1.430
14	0	1	0	0	0	0		37.820	1.440
15	0	1	0	0	0	1		37.830	1.450
16	0	1	0	0	1	1		37.850	1.470
17	0	1	0	1	0	0		37.860	1.480
18	0	1	0	1	0	1		37.870	1.490
19	0	1	0	1	1	0		37.880	1.500
20	0	1	1	0	0	0		37.900	1.520
21	0	1	1	0	0	1		37.910	1.530
22	0	1	1	0	1	0		37.920	1.540
23	0	1	1	1	0	1		37.950	1.570
24	0	1	1	0	1	1		37.930	1.550
25	0	1	1	1	0	0		37.940	1.560
26	0	1	1	1	1	0		37.960	1.580
27	0	1	1	1	1	1		37.970	1.590
28	1	0	0	0	0	0		37.980	1.600
29	1	0	0	0	0	1		37.990	1.610
30	1	0	0	0	1	0		38.000	1.620
31	1	0	0	0	1	1		38.010	1.630
32	1	0	0	1	0	0		38.020	1.640
33	1	0	0	1	0	1		38.030	1.650
34	1	0	0	1	1	0		38.040	1.660
35	1	0	0	1	1	1		38.050	1.670
36	1	0	1	0	0	0		38.060	1.680
37	1	0	1	0	0	1		38.070	1.690
38	1	0	1	0	1	0		38.080	1.700
39	1	0	1	0	1	1		38.090	1.710
40	1	0	1	1	0	0		38.100	1.720

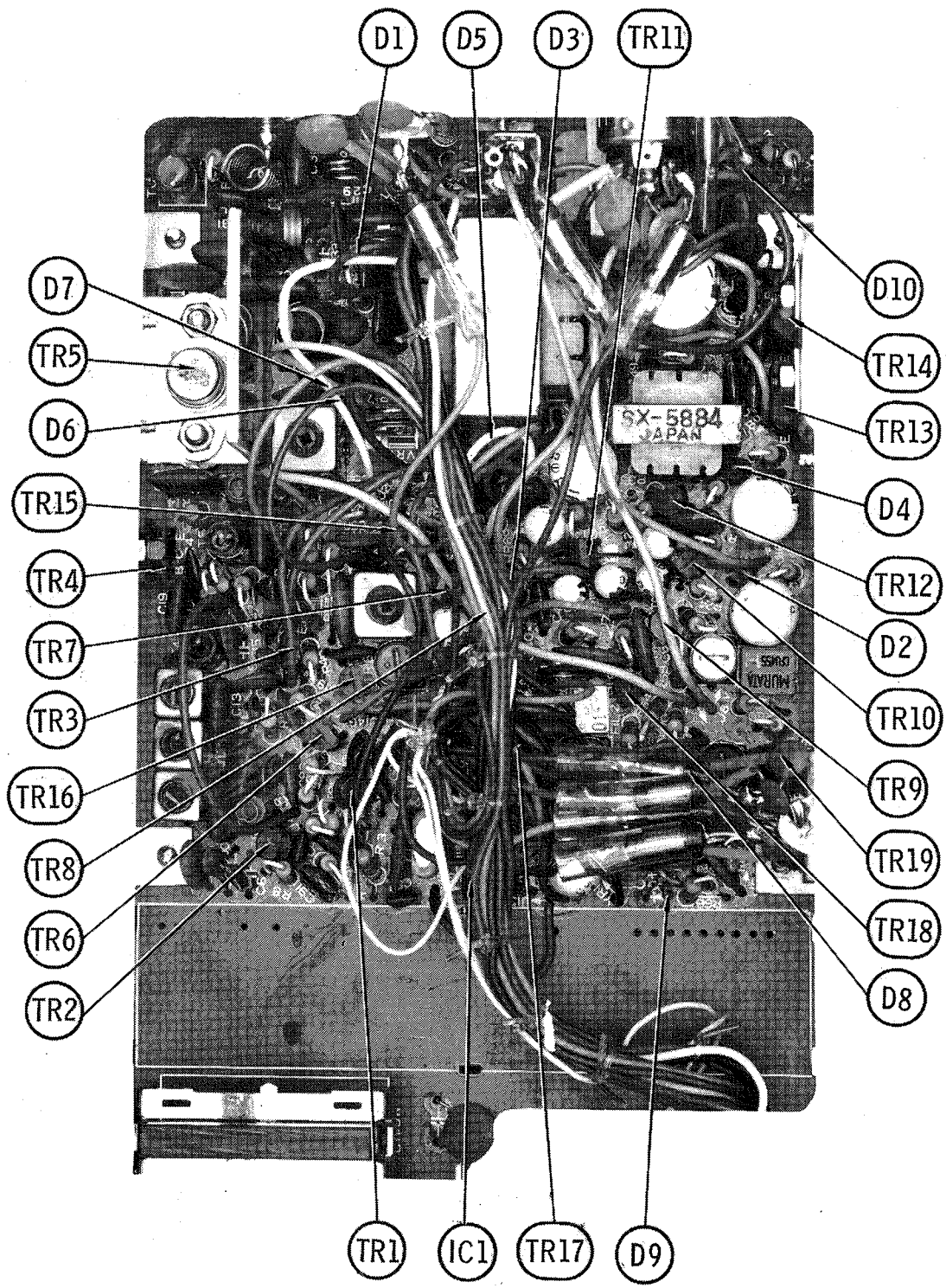


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CHASSIS-BOTTOM



MAIN BOARD

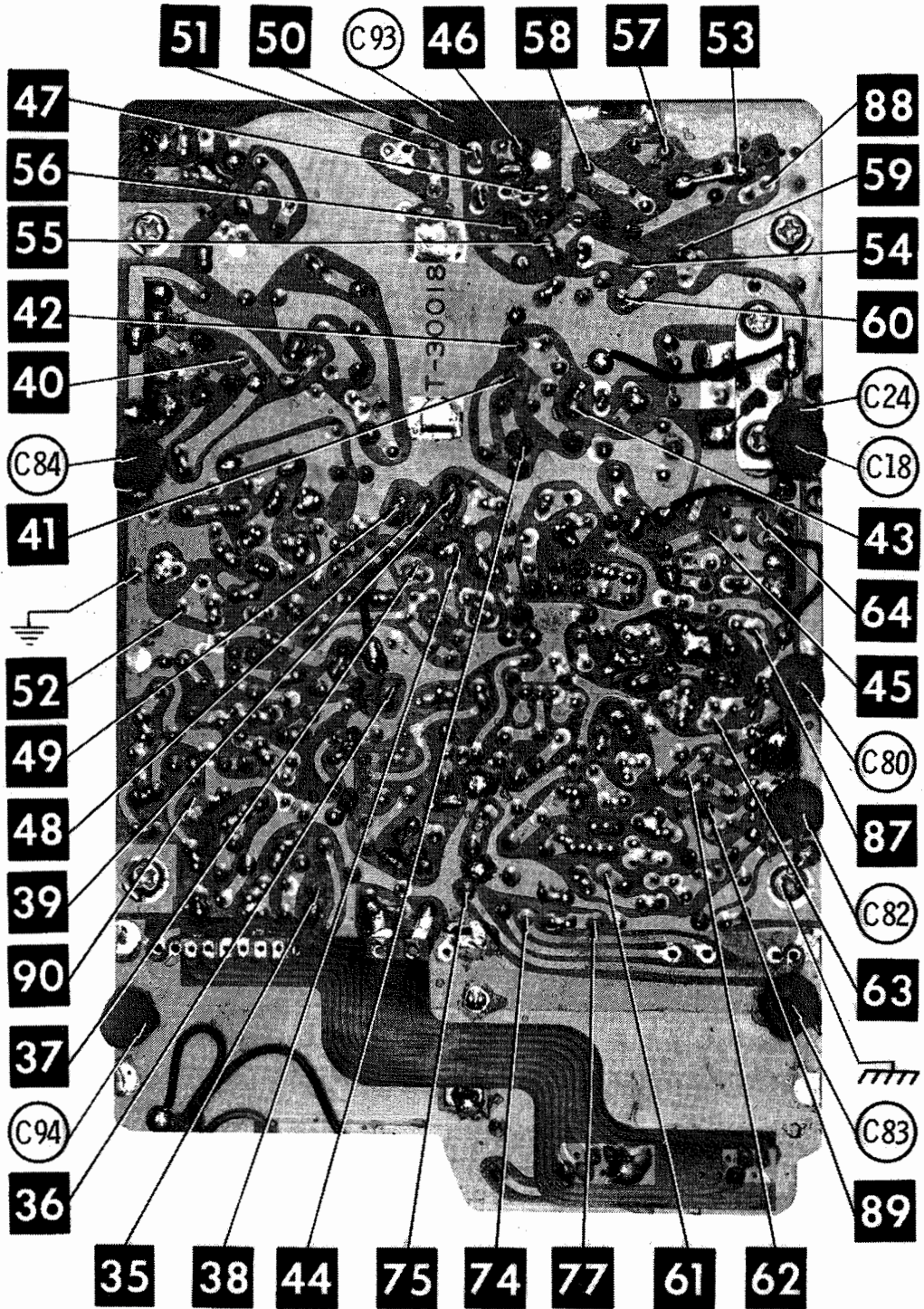


MAIN BOARD



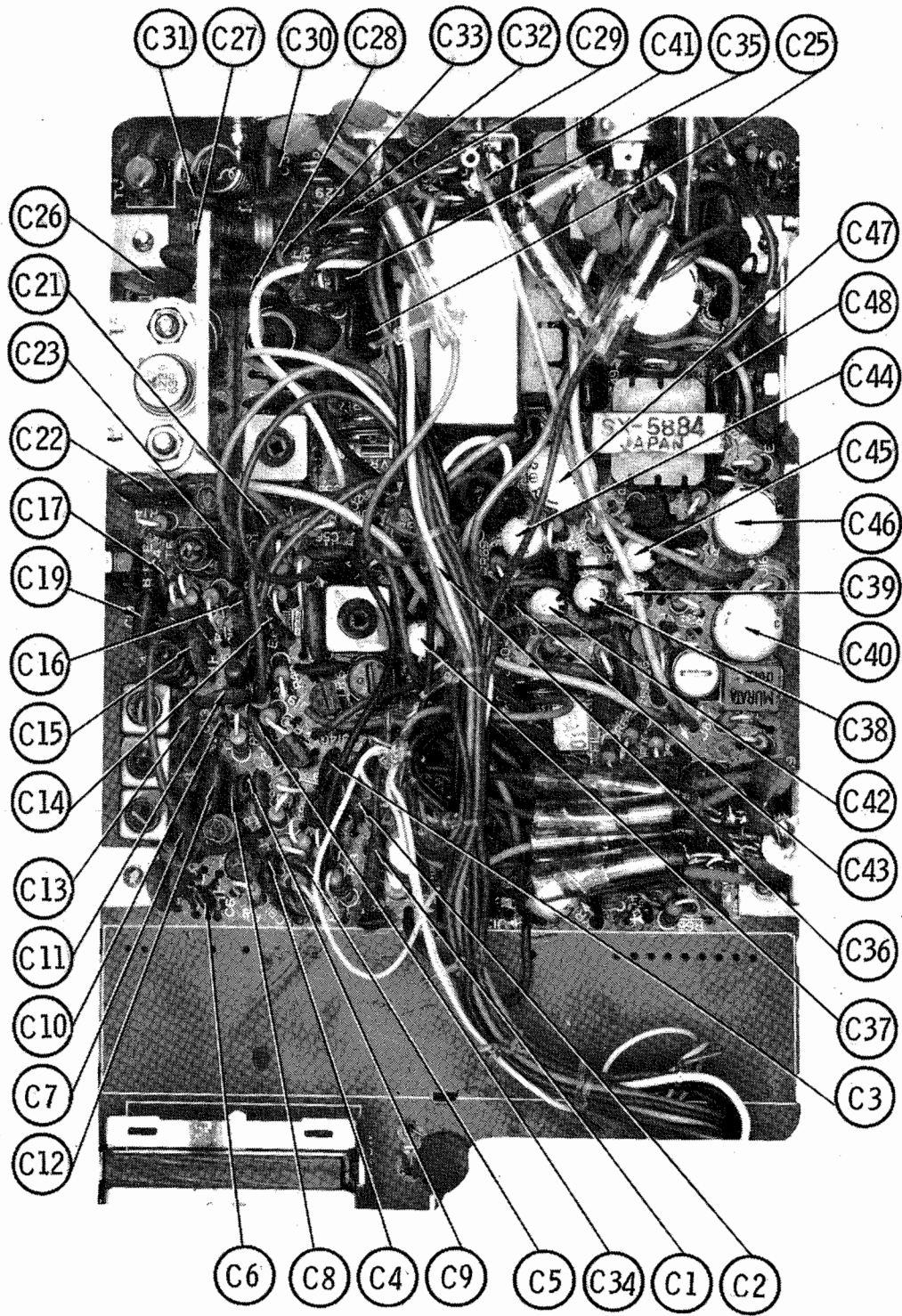
MAIN BOARD



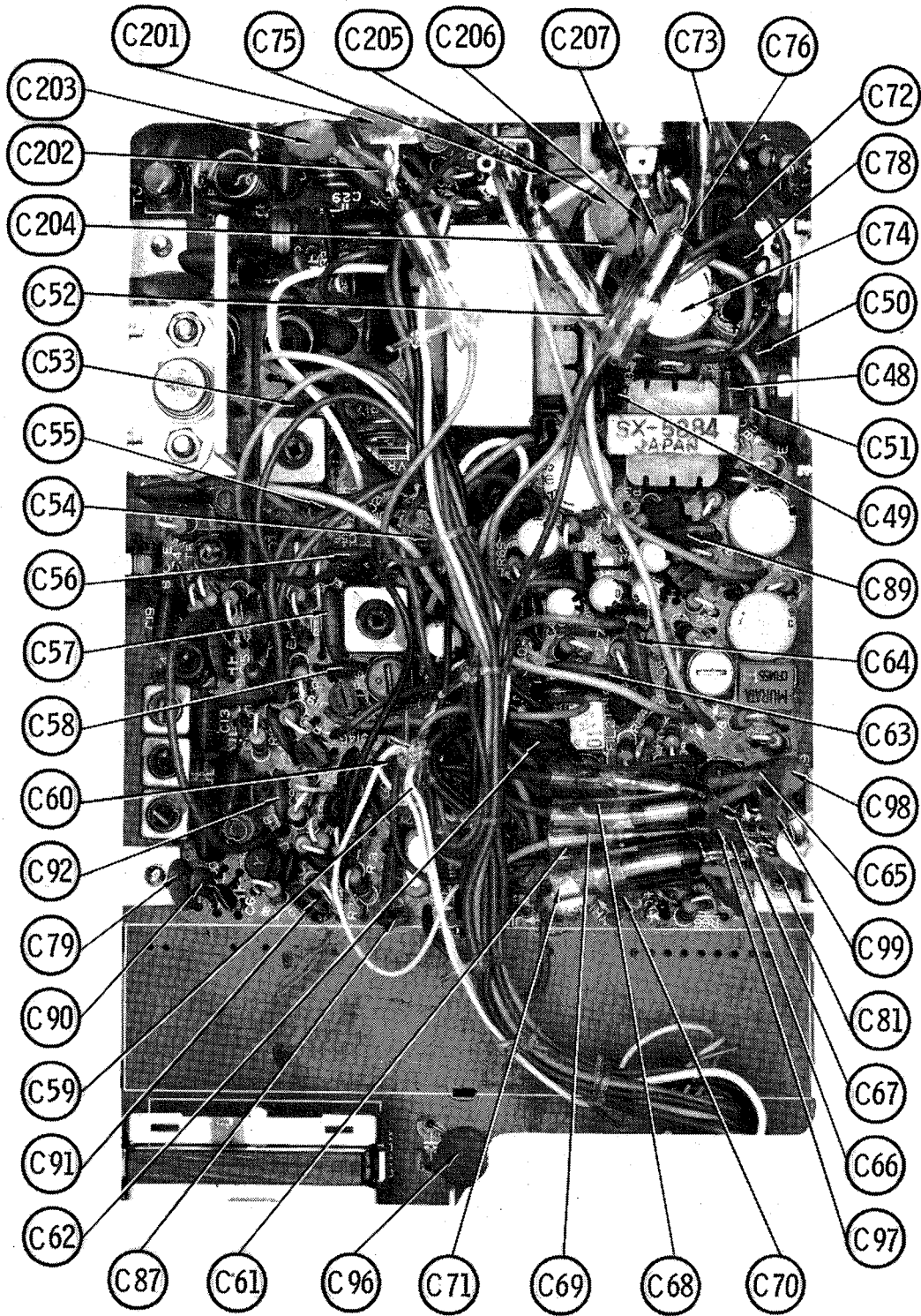


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MAIN BOARD

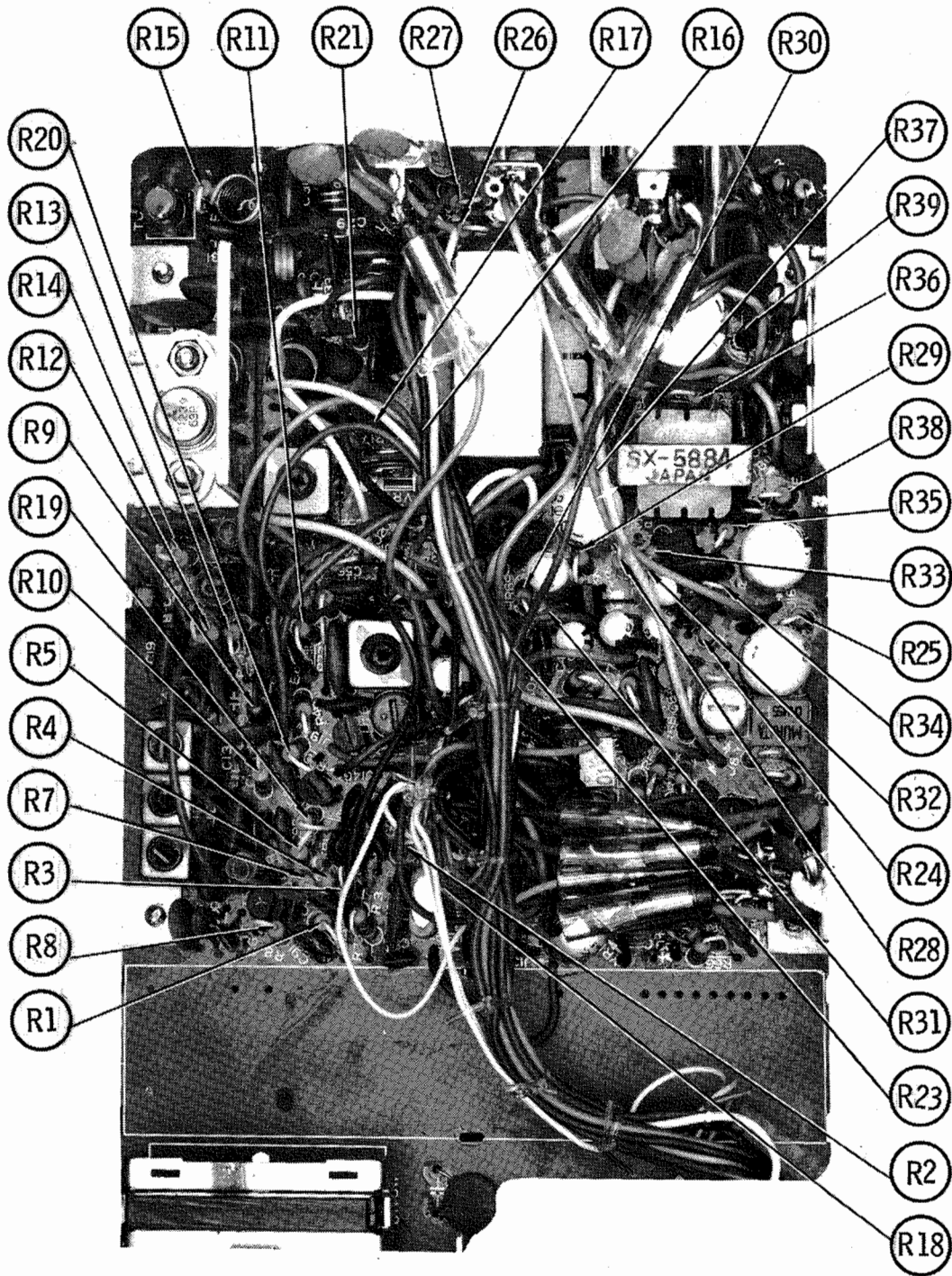


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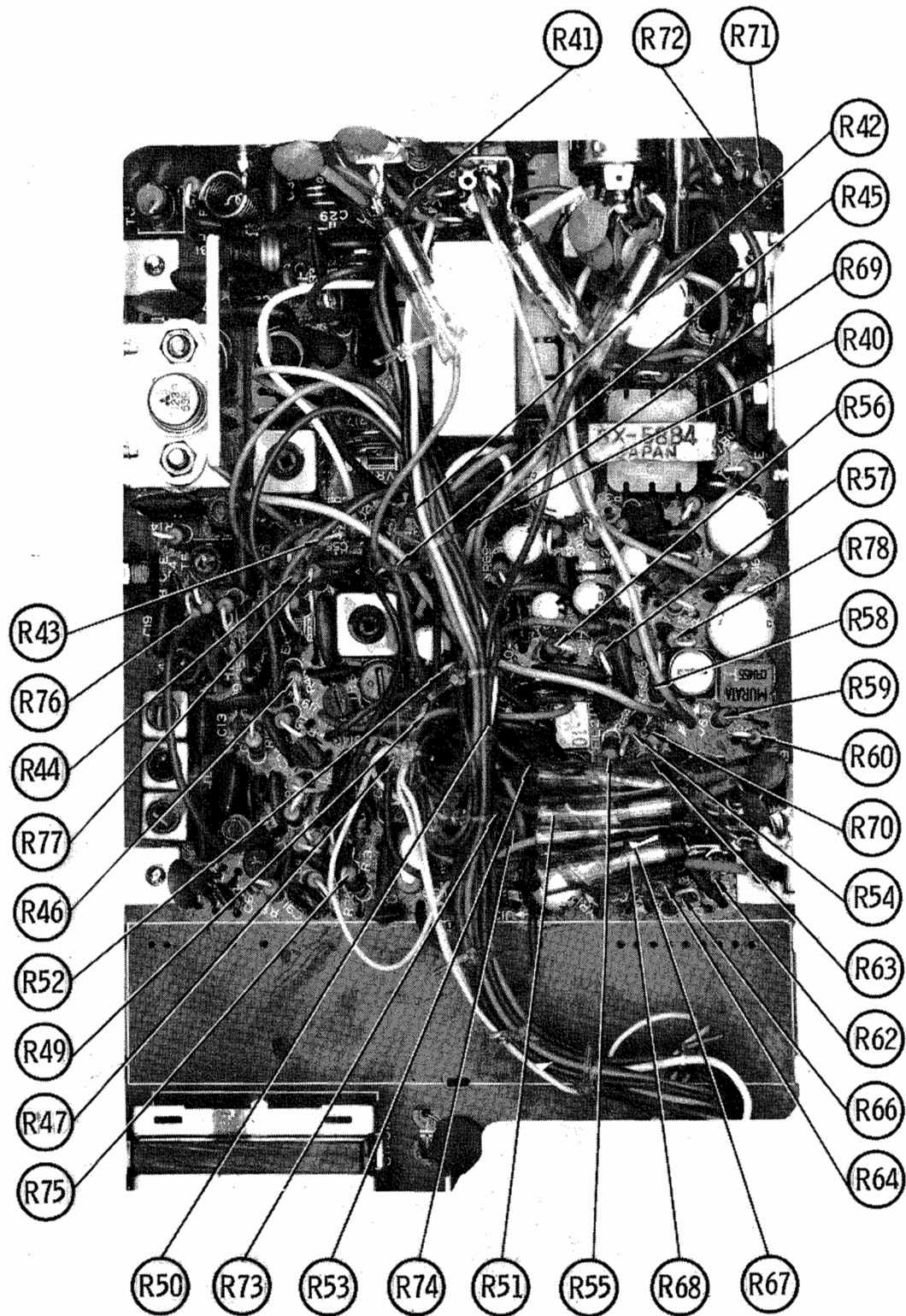


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MAIN BOARD

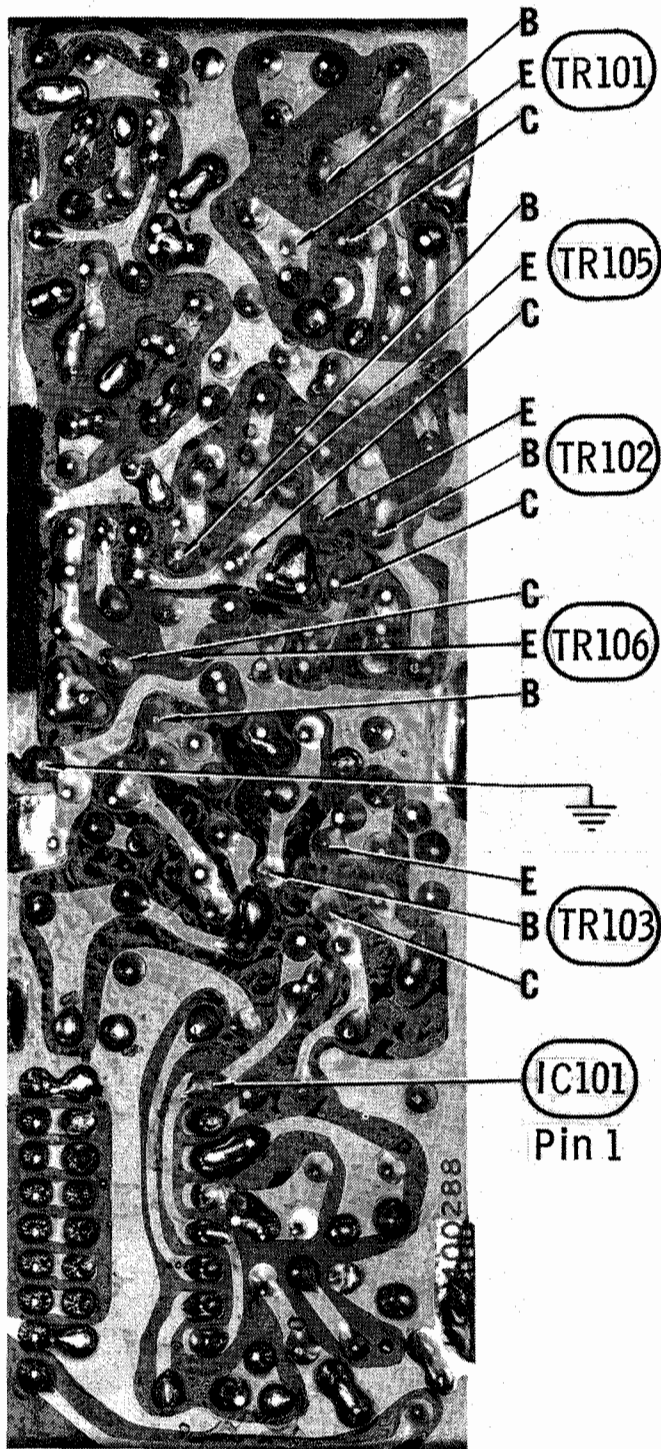


MAIN BOARD

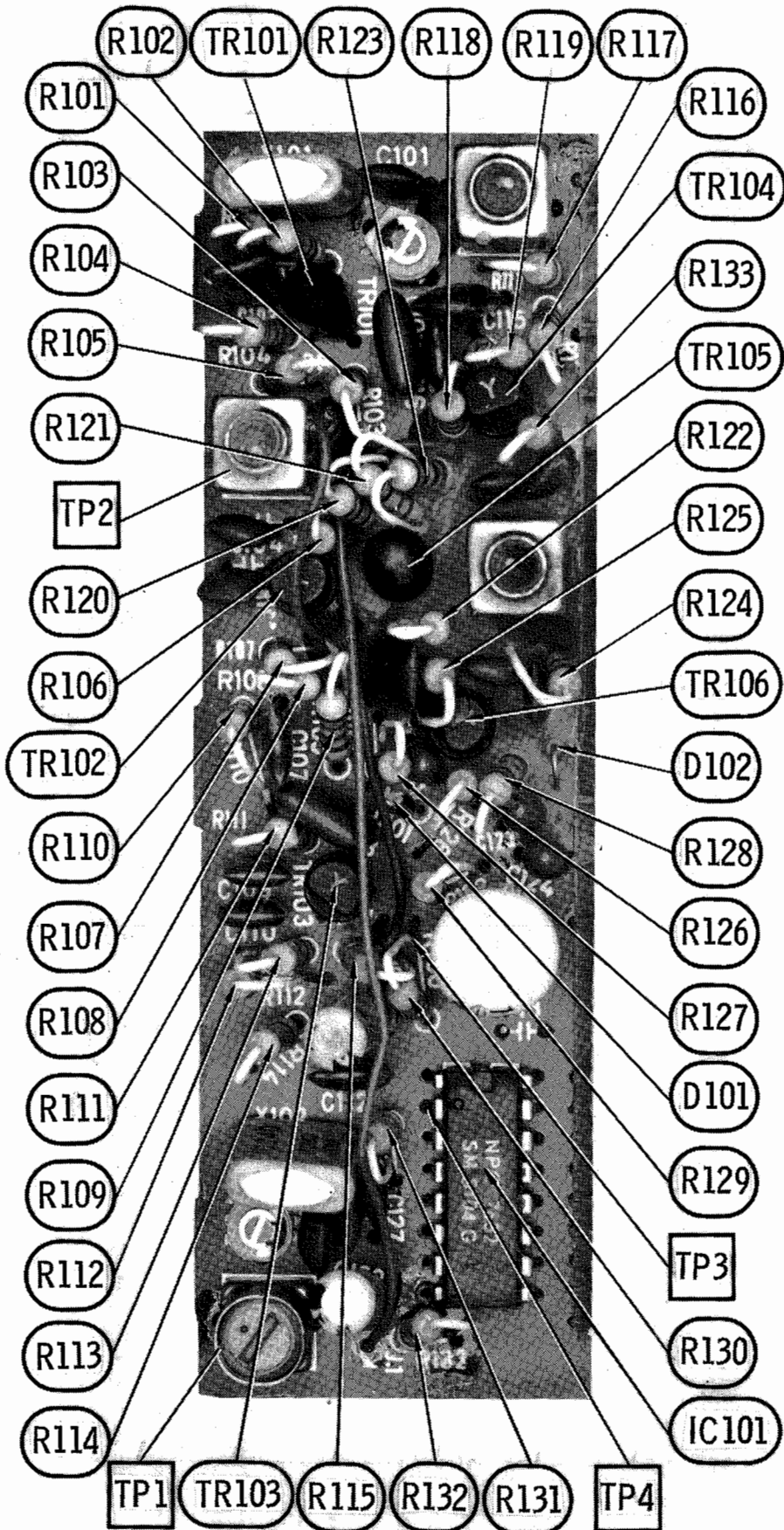


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MAIN BOARD

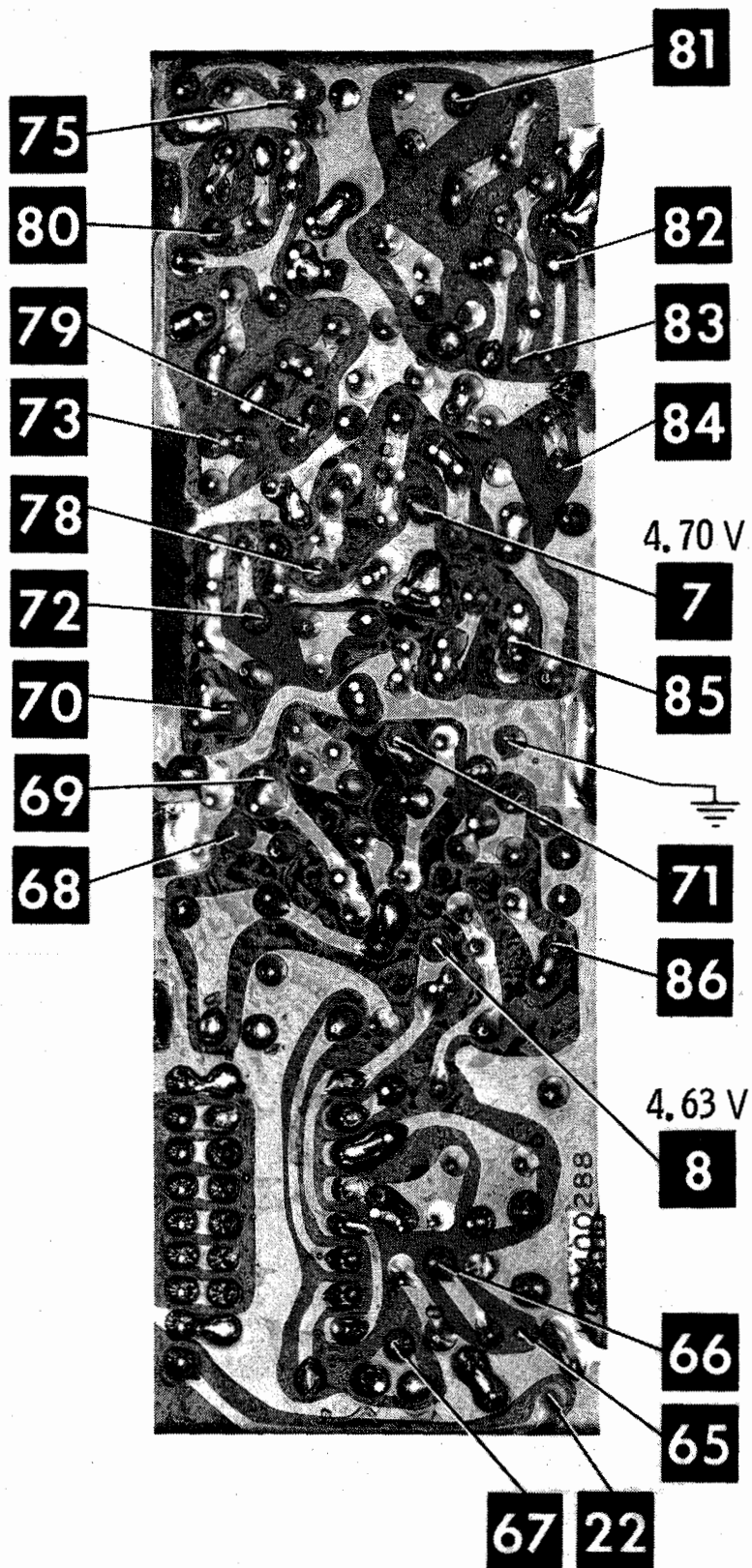


PLL BOARD



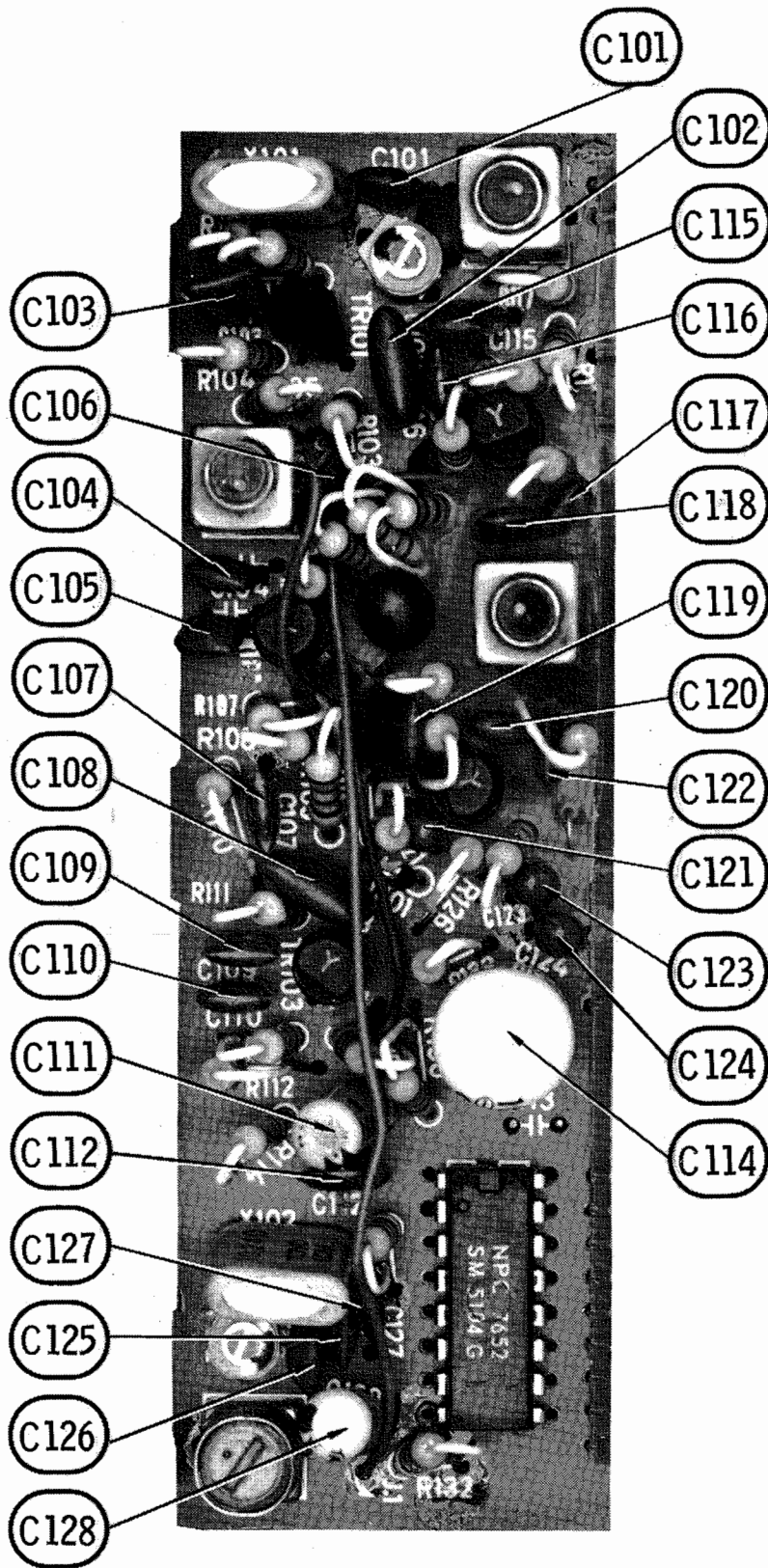
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PLL BOARD

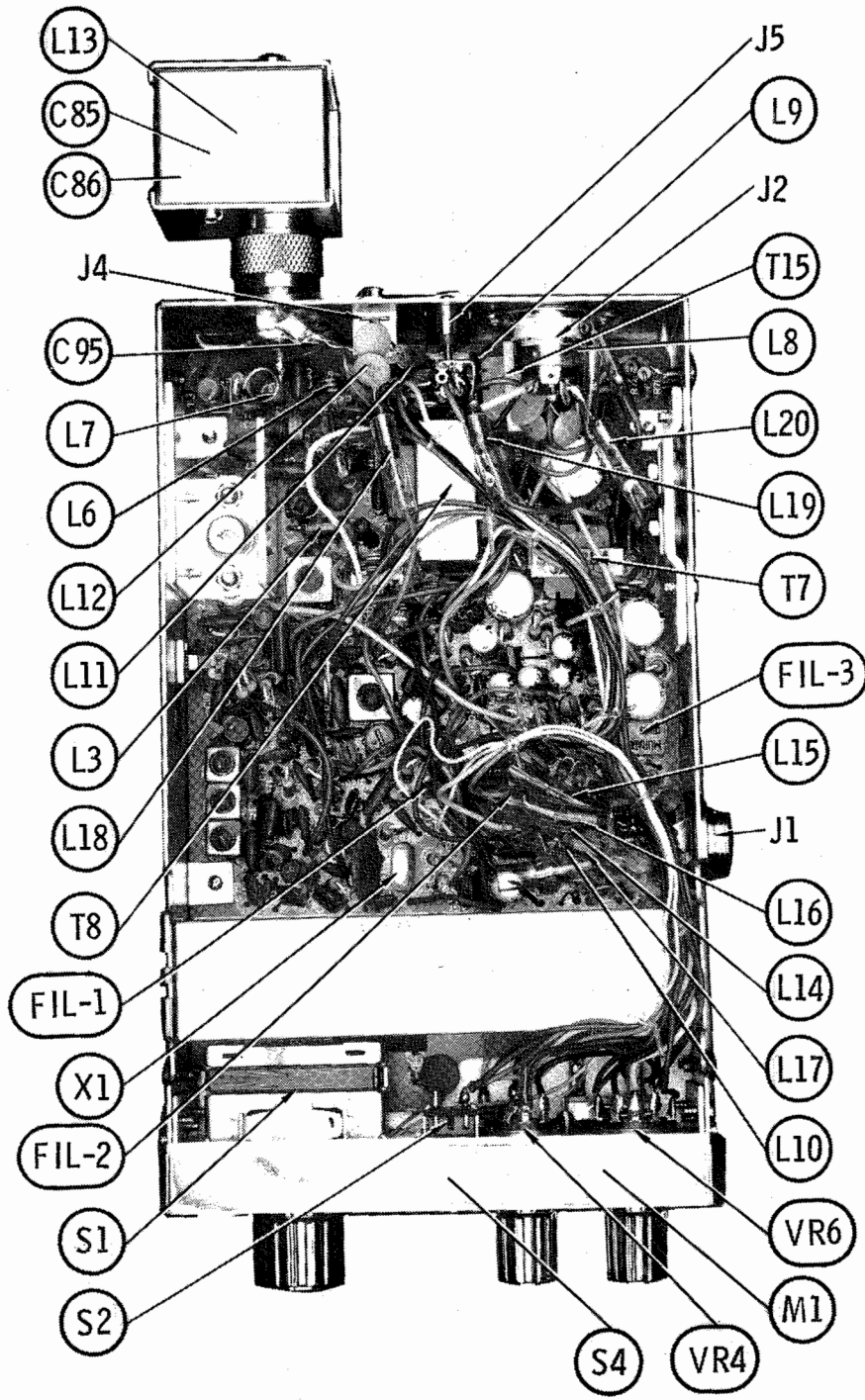


PLL BOARD

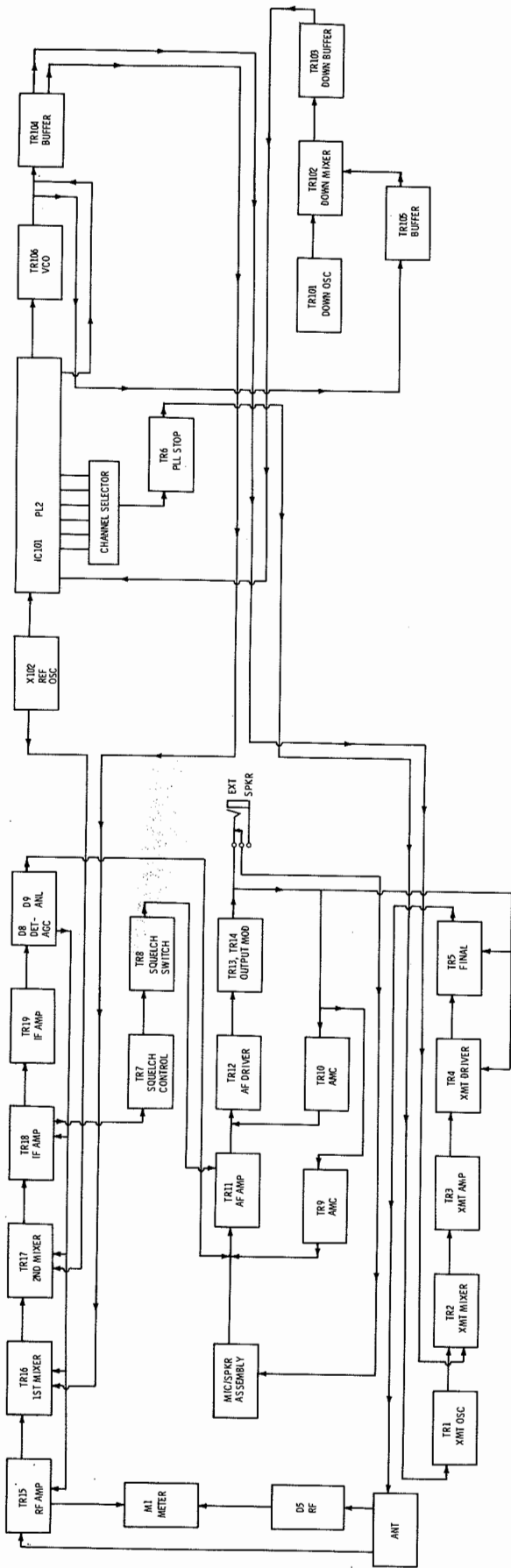




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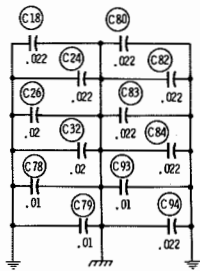
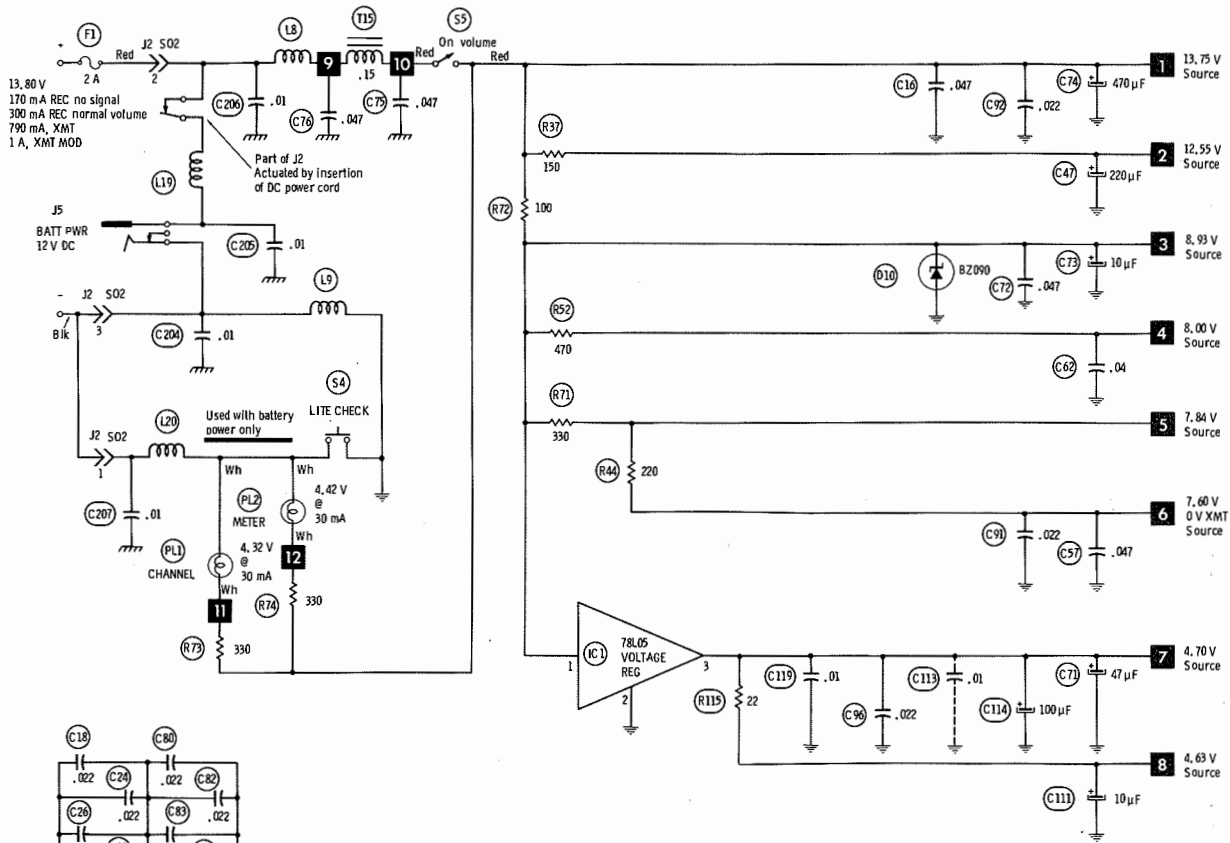


CHASSIS-BOTTOM



BLOCK DIAGRAM

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Terminal Guides



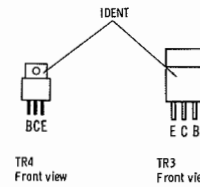
TR1, TR2 Bottom view



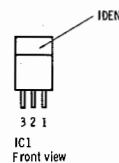
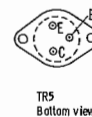
TR9 thru TR12  
TR15, TR16 Bottom view



TR7, TR8  
TR17 thru TR19 Bottom view



TR13, TR14 Front view

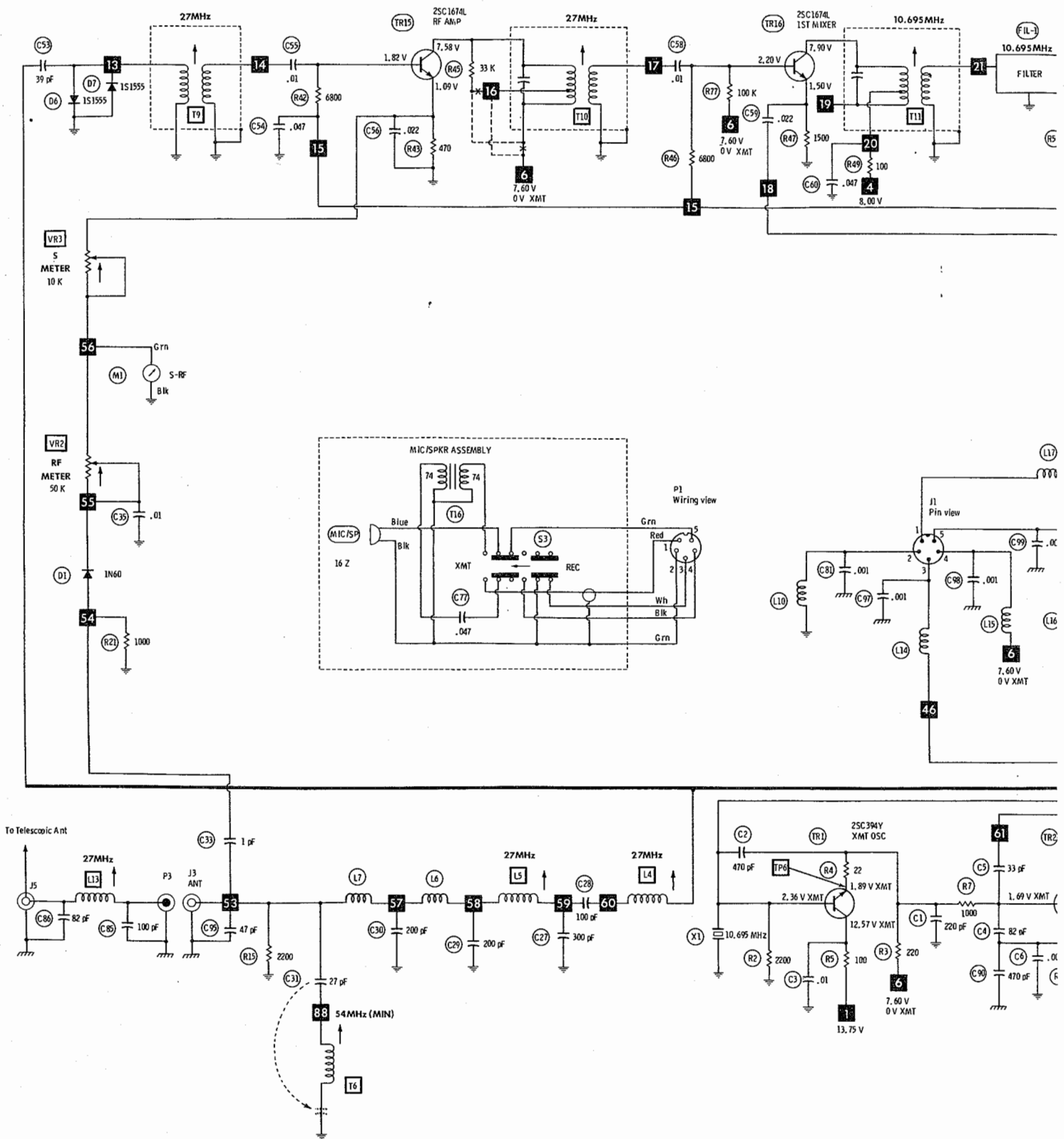


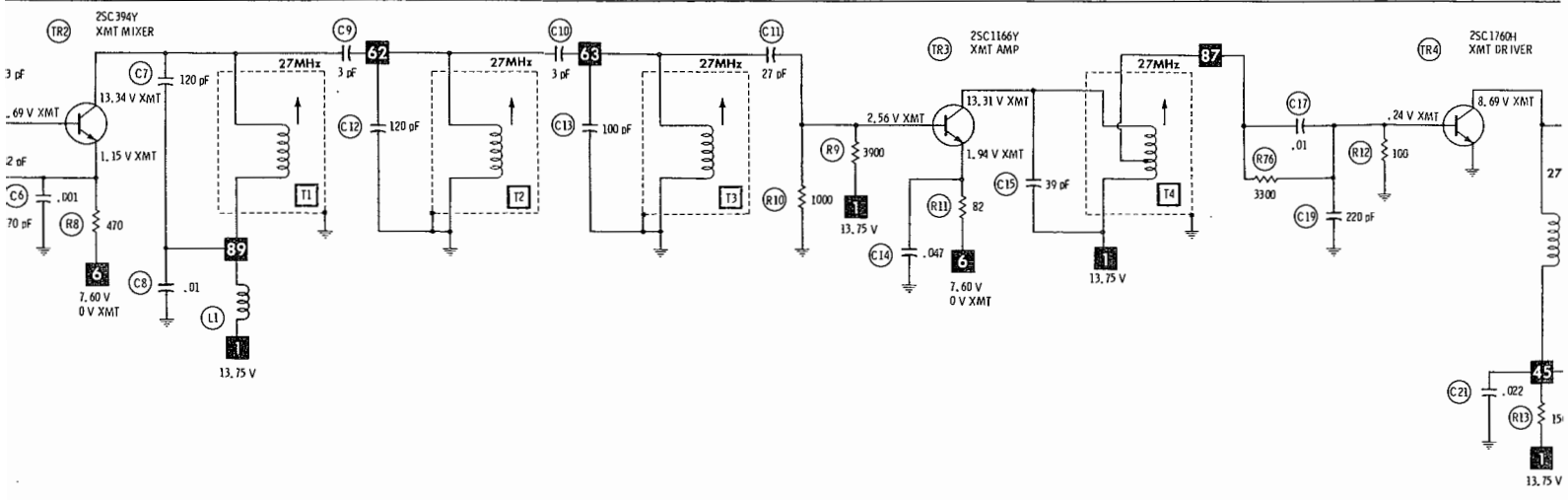
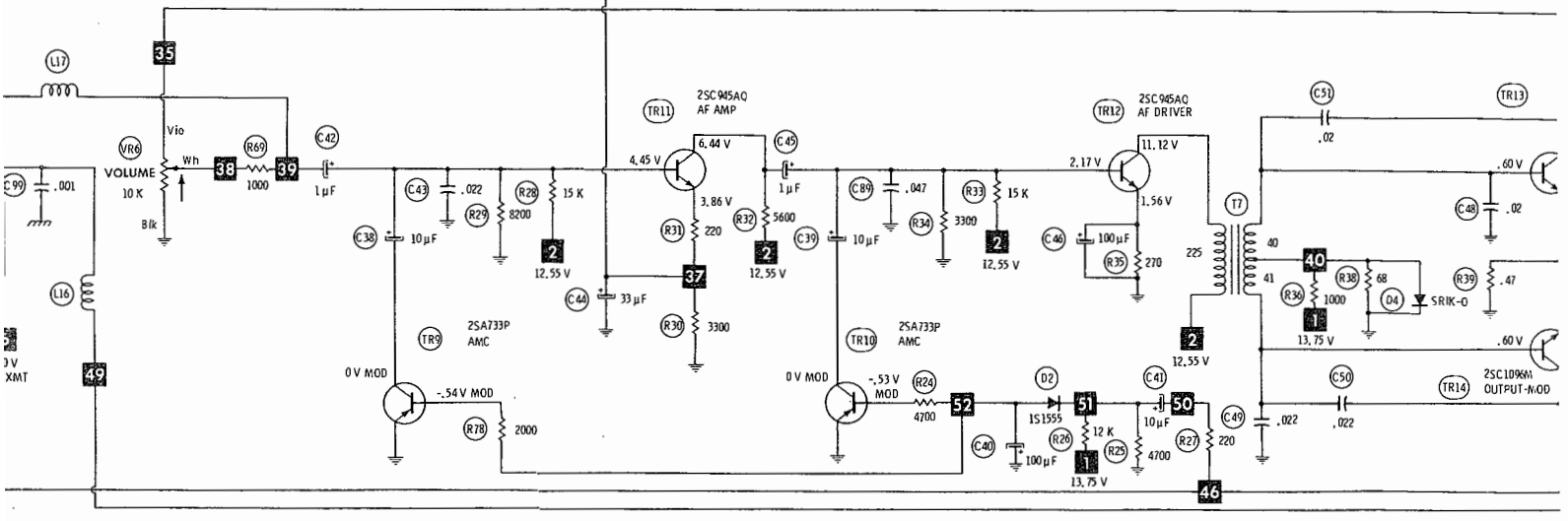
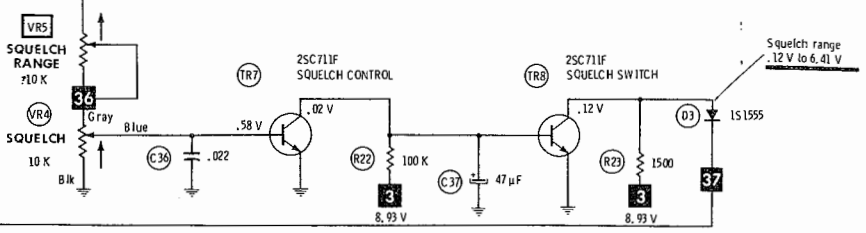
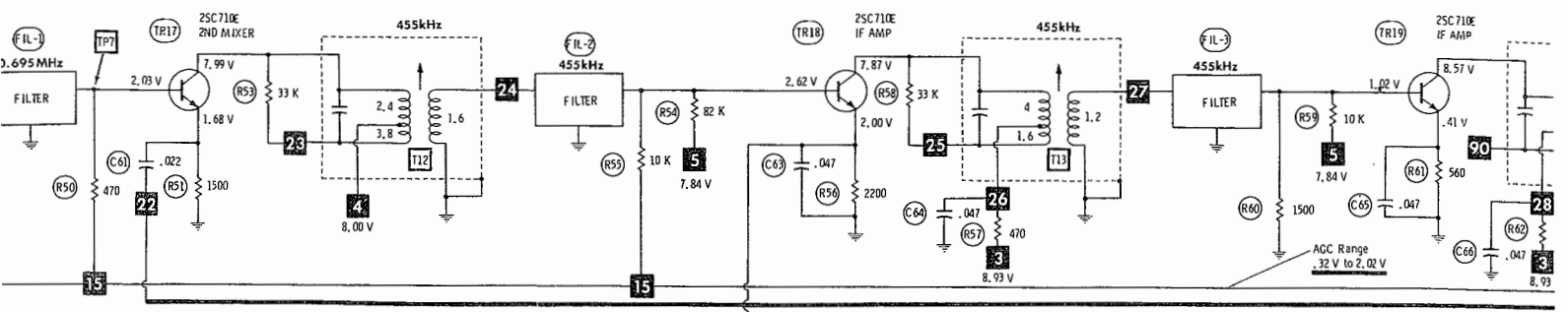
- \* Circuitry not used in some versions
  - - - Circuitry used in some versions
  - ⊙ See parts list
  - \* Nominal value
  - ⊕ Ground
  - ⊔ Chassis
  - ▽ Common tie point
- Measurements made in Channel 1 with switching as shown unless noted.  
Item numbers in rectangles appear in the alignment/adjustment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

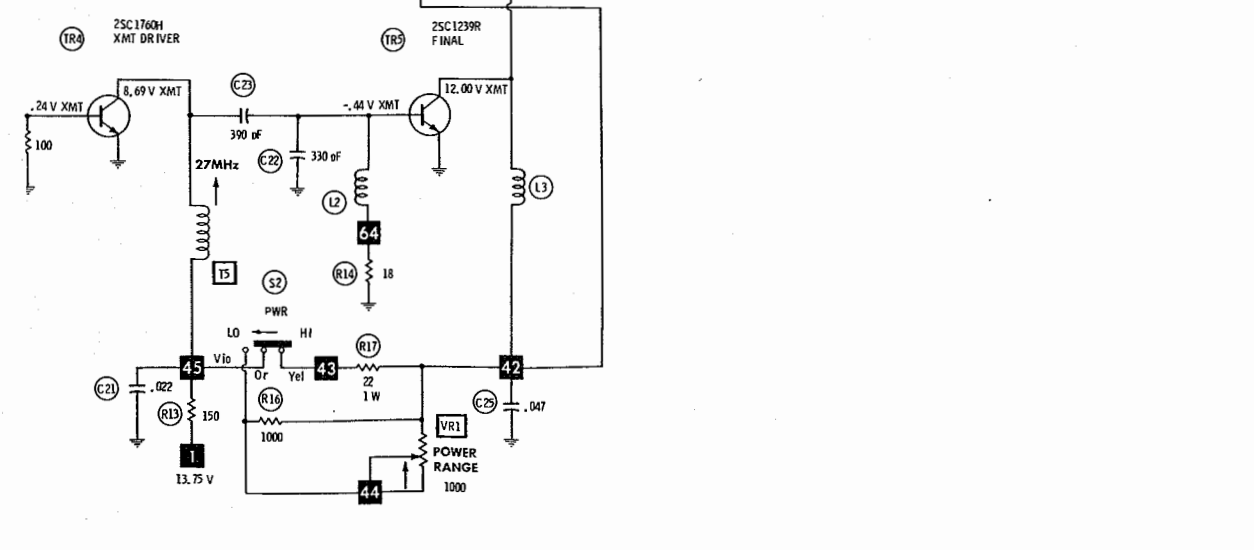
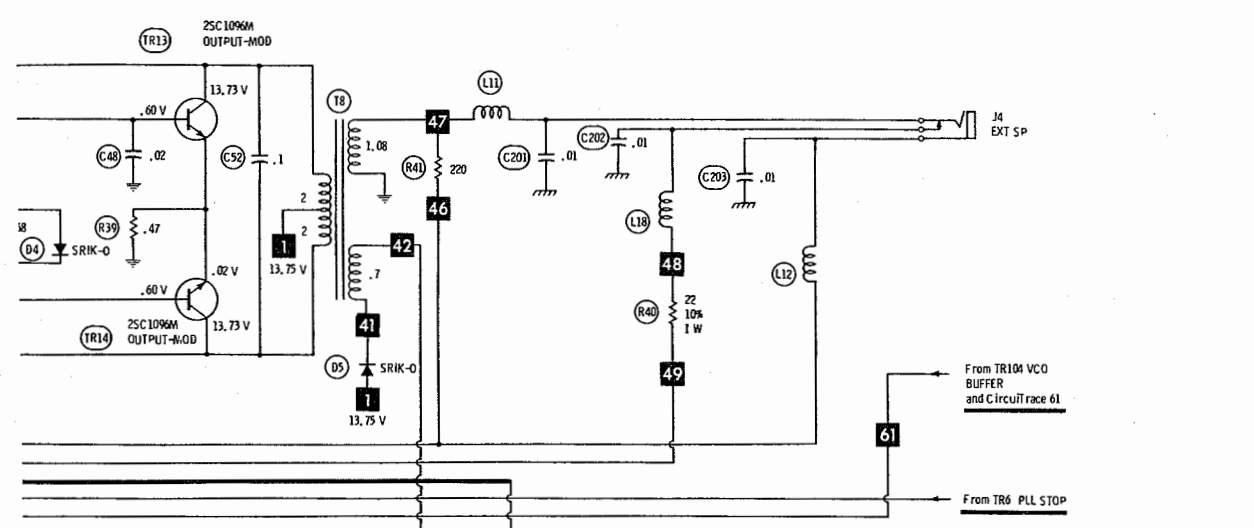
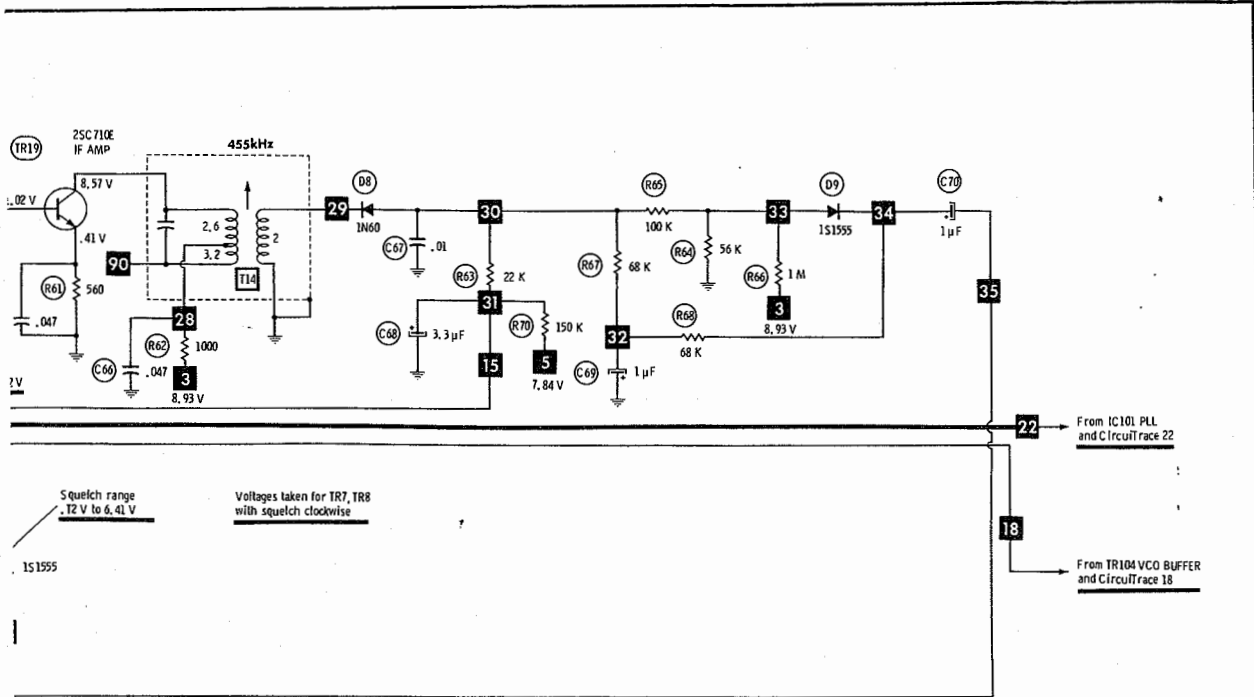
A PHOTOFACIT STANDARD NOTATION SCHEMATIC

WITH **CIRCUITRACE**

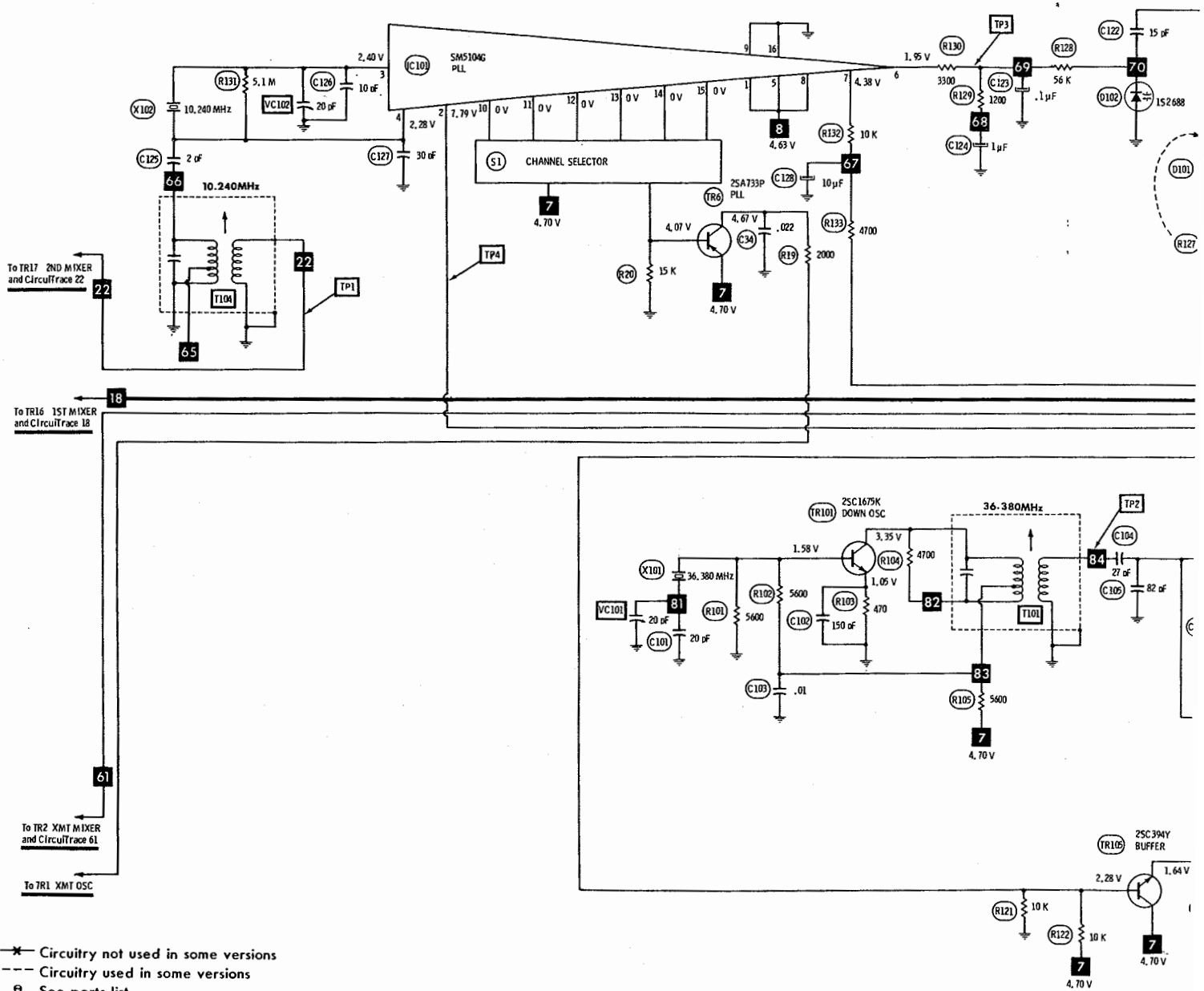
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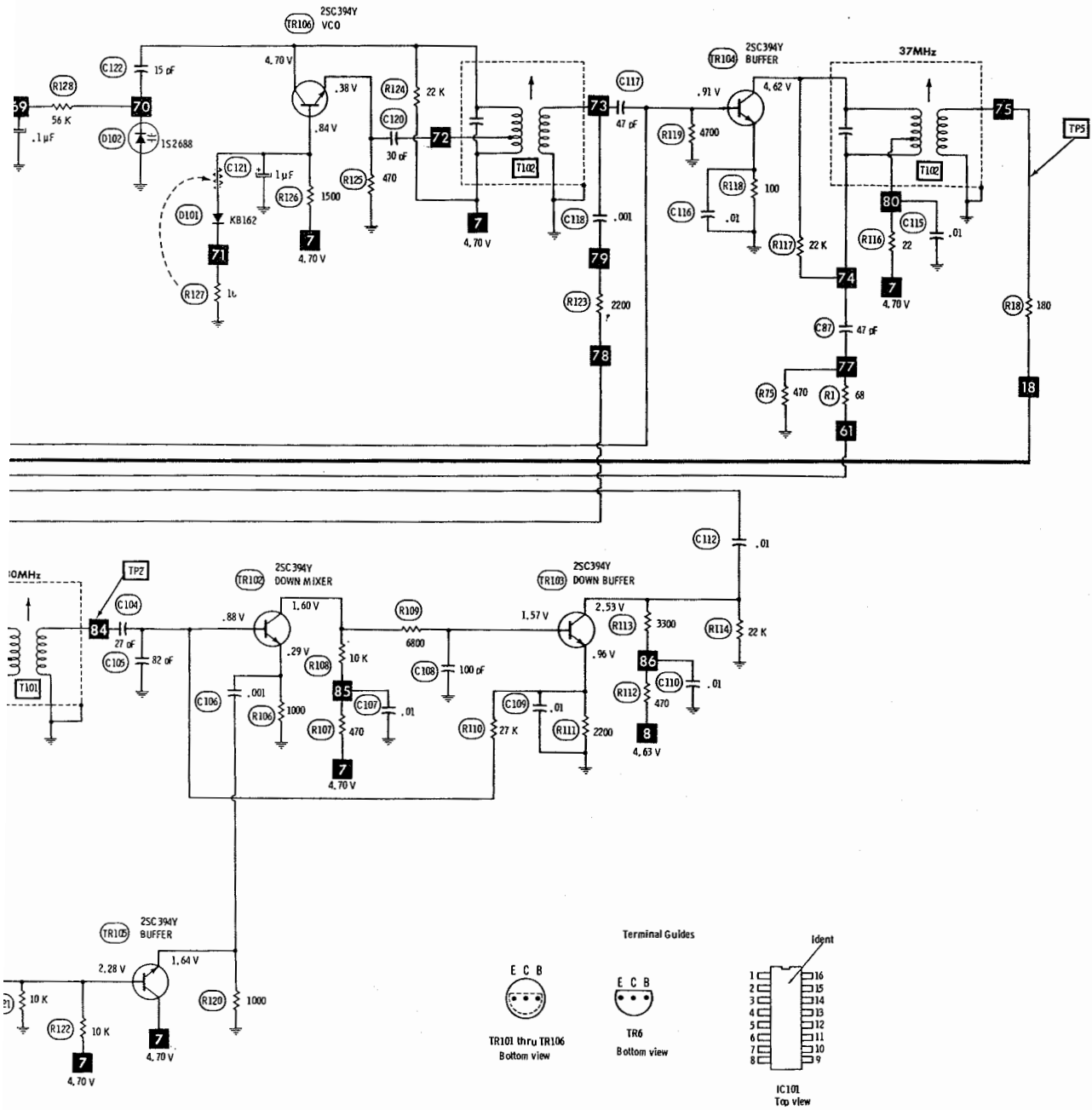
See truth chart for IC101



- ✖ Circuitry not used in some versions
  - Circuitry used in some versions
  - ⊙ See ports 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 PHOTOFACIT STANDARD NOTATION SCHEMATIC WITH **CIRCUITRACE**







# 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	
C37	47 10V		PC50-16	VTT47D16		QV1-73	EV-1226
C38	10 16V		PC10-25	VTT10B25		QV1-41	EV-1222
C39	10 16V		PC10-25	VTT10B25		QV1-41	EV-1222
C40	100 16V		PC100-16	VTT100F16		QV1-95	EV-1230
C41	10 16V		PC10-25	VTT10B25		QV1-41	EV-1222
C42	1 50V		PC1-50	VTT1A50		QV1-11	EV-1615
C44	33 16V		PC30-25	VTT33D25		QV1-63	EV-1325
C45	1 50V		PC1-50	VTT1A50		QV1-11	EV-1615
C46	100 16V		PC100-16	VTT100F16		QV1-95	EV-1230
C47	220 16V		PC250-25	VTT220H16		QV1-117	EV-1240
C68	3.3 50V		PC5-50	VTT3R3A50		QV1-25	EV-1618
C69	1 50V		PC1-50	VTT1A50		QV1-11	EV-1615
C70	1 50V		PC1-50	VTT1A50		QV1-11	EV-1615
C71	47 16V		PC50-16	VTT47D16		QV1-73	EV-1226
C73	10 16V		PC10-25	VTT10B25		QV1-41	EV-1222
C74	470 16V		PC500-16	VTT470K16		QV1-151	EV-1250
C111	10 16V		PC10-25	VTT10B25		QV1-41	EV-1222
C114	100 16V		PC100-16	VTT100F16		QV1-95	EV-1230
C121	1 25V			TDC105M035EL		QDT1-2	SD35-19
C123	.1 35V			TDC104M050EL			SD50-R109
C124	1 25V			TDC105M035EL			SD35-19
C128	10 16V		PC10-25	VTT10B25		QV1-41	EV-1222

## 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	220 NPO 10%		DTZ-220				10TCC-T22
C2	470		DD-471				10TS-T47
C3	.01 50V 10%			GP470	GP347		1FT-S10
C3	82			WMF1S1	EWFA110	QFT2-91	MWA-820
C5	33			CD15ED820J03	SX482	QW1-25	MWA-330
C6	.001 50V 10%			CD15ED330J03	SX433	QW1-15	1FT-D10
C7	120 10%			DPMS6D1	EWFA1210	QFT2-1	MWA-121
C8	.01 50V 10%			CD15FD121J03	SX312	QW1-29	1FT-S10
C9	3 NPO		DTZ-3R3	WMF1S1	EWFA1110	QFT2-91	10TCC-V33
C10	3 NPO		DTZ-3R3	NP03P3	CN0533		10TCC-V33
C11	27 NPO 10%			NP03P3	CN0427		10TCC-Q27
C12	120 10%			CD15FD121J03	SX312	QW1-29	MWA-121
C13	100 10%			CD15FD101J03	SX310	QW1-27	MWA-101
C14	.047 50V 10%			DPMS2S47	EWFA147	QFT2-171	1FT-S47
C15	39 NPO 5%				CN0439		10TCC-Q39
C16	.047 50V 10%			DPMS2S47	EWFA147	QFT2-171	1FT-S47
C17	.01 50V 10%			WMF1S1	EWFA110	QFT2-91	1FT-S10
C18	.022		UK25-223				HY-725
C19	220 10%			CD15FD221J03	SX322	QW1-35	MWA-221
C21	.022		UK50-223		MAG5012		
C22	330 10%			CD15FD331J03	SX333	QW1-39	MWA-331
C23	390 10%			CD15FD391J03	SX339	QW1-41	MWA-391
C24	.022		UK25-223				HY-725
C25	.047 50V 10%			DPMS2S47	EWFA147	QFT2-171	1FT-S47
C26	.02		UK25-223				HY-725
C27	300 10%			CD15FD301J03	SX330	QW1-38	MWA-301
C28	100 10%			CD15FD101J03	SX310	QW1-27	MWA-101
C29	200 10%			CD15FD201J03	SX320	QW1-34	MWA-201
C30	200 10%			CD15FD201J03	SX320	QW1-34	MWA-201
C31	27				CN0427		10TCC-Q27
C32	.02		UK25-223				HY-725
C33	1				CN0510		10TCC-V10
C34	.022		UK50-223		MAG5012		
C35	.01 50V 10%			WMF1S1	EWFA110	QFT2-91	1FT-S10
C36	.022 50V 10%			DPMS2S2	PVC212		2PS-S20
C43	.022 50V 10%				MI 92P2239R8	QFT2-127	1FT-S22
C48	.02 50V 10%						
C49	.022 50V 10%				MI 92P2239R8	QFT2-127	1FT-S22
C50	.022 50V 10%			DPMS2S2	PVC212		2PS-S20
C51	.02 50V 10%			DPMS2S2	PVC212		2PS-S20
C52	.1 50V			WMF0SP1	EWFO5010	QFT2-215	1FT-P10
C53	39 NPO 5%				CN0439		10TCC-Q39
C54	.047 50V 10%			DPMS2S47	EWFA147	QFT2-171	1FT-S47
C55	.01		UK50-103		MAG5011		
C56	.022		UK25-223				
C57	.047						HY-725
C58	.01		UK50-103		GP140		5GA-S40
C59	.022		UK25-223		MAG5011		
C60	.047						HY-725
C61	.022		UK25-223		GP140		5GA-S40
C62	.047						HY-725
C63	.047				GP140		5GA-S40
C64	.047				GP140		5GA-S40
C65	.047				GP140		5GA-S40
C66	.047				GP140		5GA-S40
C67	.01 50V 10%			WMF1S1	EWFA110	QFT2-91	1FT-S10
C72	.047				GP140		5GA-S40
C75	.047 50V 10%			DPMS2S47	EWFA147	QFT2-171	1FT-S47

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# 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
C76	.047 50V 10%			DPMS2S47	EWF1A147	QFT2-171	1FT-S47
C78	.01		UK50-103		MAG5011		
C79	.01		UK50-103		MAG5011		
C80	.022		UK25-223				HY-725
C81	.001		DD-102		GP210		10TS-D10
C82	.022		UK25-223				HY-725
C83	.022		UK25-223				HY-725
C84	.022		UK25-223				HY-725
C85	100 10%			CD15F0101J03	SX310	QW1-27	MWA-101
C86	82			CD15ED820J03	SX482	QW1-25	MWA-820
C87	47			CD15E0470J03	SX447	QW1-19	MWA-470
C89	.047 50V 10%			DPMS2S47	EWF1A147	QFT2-171	1FT-S47
C90	470		DD-471	GP470	GP347		10TS-T47
C91	.022 50V 10%				M192P2239R8	QFT2-127	1FT-S22
C92	.022		UK25-223				HY-725
C93	.01		UK50-103		MAG5011		HY-725
C94	.022		UK25-223				MWA-470
C95	47			CD15ED470J03	SX447	QW1-19	HY-725
C96	.022		UK25-223				MWA-470
C97	.001		DD-102		GP210		HY-725
C98	.001		DD-102		GP210		10TS-D10
C99	.001		DD-102		GP210		10TS-D10
C101	20			CD15E0200J03	SX420	QW1-10	10TS-D10
C102	150 10%			CD15FD151J03	SX315	QW1-31	MWA-200
C103	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	MWA-151
C104	27			CD15E0270J03	SX427	QW1-13	1FT-S10
C105	82			CD15ED820J03	SX482	QW1-25	MWA-270
C106	.001 50V 10%			DPMS6D1	EWF1A210	QFT2-1	MWA-820
C107	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-010
C108	100 10%			CD15FD101J03	SX310	QW1-27	1FT-S10
C109	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	MWA-101
C110	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C112	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C115	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C116	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-S10
C117	47			CD15ED470J03	SX447	QW1-19	1FT-S10
C118	.001 50V 10%			DPMS6D1	EWF1A210	QFT2-1	MWA-470
C119	.01 50V 10%			WMF1S1	EWF1A110	QFT2-91	1FT-D10
C120	30	77-123001		CD15ED300J03	SX430	QW1-14	1FT-S10
C122	15	77-123001		CD15CD150J03		QW1-8	MWA-300
C125	2			CD15CD010D03		QW1-1	MWA-150
C126	10			CD15CD100J03		QW1-6	MWA-010
C127	30			CD15ED300J03	SX430	QW1-14	MWA-100
C201	.01		UK50-103		SX430		MWA-300
C202	.01		UK50-103		MAG5011		
C203	.01		UK50-103		MAG5011		
C204	.01		UK50-103		MAG5011		
C205	.01		UK50-103		MAG5011		
C206	.01		UK50-103		MAG5011		
C207	.01		UK50-103		MAG5011		
VC101	20						
VC102	20						

## 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.
VR1	Power Range	1000	13-164138	T-1000 (2)	C-102 (2)	MTC13L1 (2)	X201R102B (2)
VR2	RF Meter	50K	13-164110	T-50K (2)	C-503 (2)	MTC54L1 (2)	X201R503B (2)
VR3	S Meter	10K	13-164109	T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)
VR4	Squelch	10K	13-166073				
VR5	Squelch Range	10K	13-164109	T-10K (2)	C-103 (2)	MTC14L1 (2)	X201R103B (2)
VR6	Volume/Switch	10K	13-160133				

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

# 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	77-178017			
L2	Final	77-178017			
L3	RF Choke	77-178014			
L4	Loading (27MHz)	77-178018			
L5	Pi Filter (27MHz)	77-176021			
L6	Pi Filter	77-176020			
L7	Pi Filter	77-178019			
L8	Pi Filter	77-178009			
L9	RF Choke	77-178014			
L10	RF Choke	77-178012			
L11	RF Choke	77-178014			
L12	RF Choke	77-178014			
L13	RF Choke	77-176022			
L14	RF Choke	77-178012			
L15	RF Choke	77-178012			
L16	RF Choke	77-178012			
L17	RF Choke	77-178012			
L18	RF Choke	77-178012			
L19	RF Choke	77-178012			
L20	RF Choke	77-178012			
T1	Xmt Mixer (27MHz)	77-170003			
T2	Xmt Mixer (27MHz)	77-170003			
T3	Xmt Mixer (27MHz)	77-170003			
T4	Xmt Amp (27MHz)	77-176017			
T5	Xmt Driver (27MHz)	77-093001			
T6	TVI Trap (54MHz)	77-176018			
T9	Antenna (27MHz)	13-176418			
T10	REC RF (27MHz)	13-176416			
T11	IF (10.695MHz)	13-090297			
T12	IF (455kHz)	13-090298			
T13	IF (455kHz)	13-090299			
T14	IF (455kHz)	13-090300			
T101	Down Osc (36.380MHz)	77-093004			
T102	Buffer (37MHz)	77-093003			
T103	VCO	77-170002			
T104	PLL Reference (10.240MHz)	13-090297			

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## 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.	
T15	1A	.15	225mA	77-178013			

## TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T7	2	1		77-096003 SK-5884 (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.	
T8	32	1 11.64	2 8	77-096004			

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

### SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
SP	2" PM 16 Ohms	13-060113	2A05Z16	

### 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	13-204013	13-159218	AGC-2	HDJ	312002	150145	FGZ-2

### MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA							
	MFR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black	
MIC	13-038079											

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
FIL1	Filter	13-179029	10.695MHz (CFS-107B)
FIL2	Filter	77-179004	455kHz (LF A10)
FIL3	Filter	13-179044	455kHz CFU-455H2
J1	Jack	13-159295	Microphone
J2	Jack	13-159187	Mobile Power
J3	Jack	13-159123	Antenna
J4	Jack	13-153081	External Speaker
J5	Jack	13-153107	Battery Power 12V DC
PL1	Lamp	13-201057	Channel 4.32 @ 30mA
PL2	Lamp	13-201057	4.42V @ 30mA
M1	Meter	13-200071	S/R/F
P1	Plug	13-159294	Microphone
S1	Switch	77-180005	Channel Selector
S2	Switch	13-180087	Hi/Low Power
S3	Switch	13-183221	XMT/REC
S4	Switch	13-183222	Lite Check
S5	Switch	13-160133	Power
S02	Socket	13-159127	Mobile Power
X1	Crystal	77-128003	10.695MHz
X101	Crystal	77-128004	36.380MHz
X102	Crystal	77-128005	10.240MHz
	Antenna	13-040087	Telescopic
	Antenna	77-040001	Adaptor
	Antenna	13-159297	Base
	Case	13-030117	Battery
	Cord	13-034091	Mobile Power, Complete
	Plug	13-159216	Battery Power

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

ITEM	PART No.	ITEM	PART No.
Case Bottom	77-016001	Knob, Volume/Squelch	13-110168
Case Top	77-010013	Knob, Channel Selector	13-115102
Panel Front	77-010012		