

PHOTOFACT[®] with

CIRCUITRACE[®]

For Supplier Address See PHOTOFACT Index

NOTE

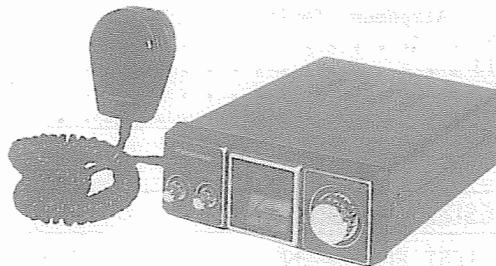
Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.

(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 RJ-3050

MANUFACTURER'S SPECIFICATIONS

Receiver Section

Frequency Range:

26.965 MHz to 27.405 MHz

Sensitivity:

Less than -6 dB (0.5 mV)
for 10 dB S/N at 1 kHz, 30% modulation

Selectivity:

Bandwidth 5 kHz min. for 6 dB

Adjacent Channel Rejection:

55 dB

Audio Distortion at 1 kHz:

Less than 10% at 2 W

Cross Modulation Rejection:

Better than 40 dB

Squelch Sensitivity:

2 dB, Approx.

ANL (Automatic Noise Limiter):

Series Diode Gate

Transmitter Section

Frequency Range:

26.965 MHz to 27.405 MHz

Power Output at 13.8 V, DC:

4 W

Modulation:

Less than 100%

Emission (Class D Operation):

6A3

Spurious Emission:

-60 dB

Frequency Tolerance:

$\pm 0.005\%$

Antenna Impedance:

50 Ω

Switching:

Non-Contact

Modulation Distortion:

Less than 10% at 1 kHz at 80% modulation

Speaker:

3" (8 cm) PM Dynamic speaker

Dimensions:

6 $\frac{7}{8}$ " (Wide) \times 2 $\frac{9}{16}$ " (High) \times 10 $\frac{1}{2}$ " (Deep). (175 \times 65 \times 267 mm)

Weight:

4 lb. 7 oz.

Impedance:

Without microphone & car bracket

Speaker 8 Ω

Microphone Jack 600 Ω

EXT speaker Jack 8 Ω

Antenna Jack 50 Ω

PANASONIC MODEL RJ-3050

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
 C69, C134 8276, 5000
 T1, T2, T3 5009, 8728-A, 8728
 L14, L16, L25, FL1 9304, 9300, 9302
 L1 thru L6, L8, L9, L10, L12, L13 9440

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (Junction C44 & C43).	Ch. 19		Check for 10.240MHz.
Input of DC meter to TP5 (Junction R55 and R141)	Ch. 19	L6	Adjust for 3.5volts +.1 volt. Check for voltage greater than 2 volt on Ch. 1, and less than 5.9 volts on Ch. 40.
	Ch. 19, XMT	C134	Adjust for 3.5 volts +.1 volt.
Input of frequency counter thru 5pF to TP3 (TR25 Emitter)	Ch. 19	L9	Adjust for 18.820MHz +100Hz.
Input of frequency counter to TP10 (TR24 Collector)	Ch. 19		Check for 16.270MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP2 (L8 Secondary)	Ch. 19, XMT	L8	Adjust for maximum then turn core 1/4 turn clockwise.
Input of frequency counter to TP2 (L8 Secondary)	Ch. 19, XMT	C69	Adjust for 29.515MHz +250Hz.
Input of frequency counter to TP11 (TR31 Collector)	Ch. 1, XMT		Check for 26.965MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP12 (IC1 pin 2)	Ch. 1		Check for 2.550MHz. 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 output low enough to prevent AGC limiting. Squelch MINIMUM.

TEST EQUIPMENT	TRANSCIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP7 (L5 Secondary) 455kHz, 1000Hz @ 30% modulation	Ch. 19	T3, T2, T1	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation	Ch. 19	L5, L4, L3, L2, L1	Adjust for maximum output. If necessary readjust T1, T2 and T3.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
Squelch MINIMUM, Delta Tune 0, ANL Off.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19 Squelch Max	R99	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 100uV.	Ch. 19	R130	SIGNAL METER Adjust for 9 on SIGNAL scale of meter.

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	L10,L12,L13, L14,L16,FL1, L25	Adjust for maximum.
Input of RF wattmeter to antenna input.	Ch. 19	L16	Adjust for 4 watts maximum.

TRANSMITTER ADJUSTMENTS

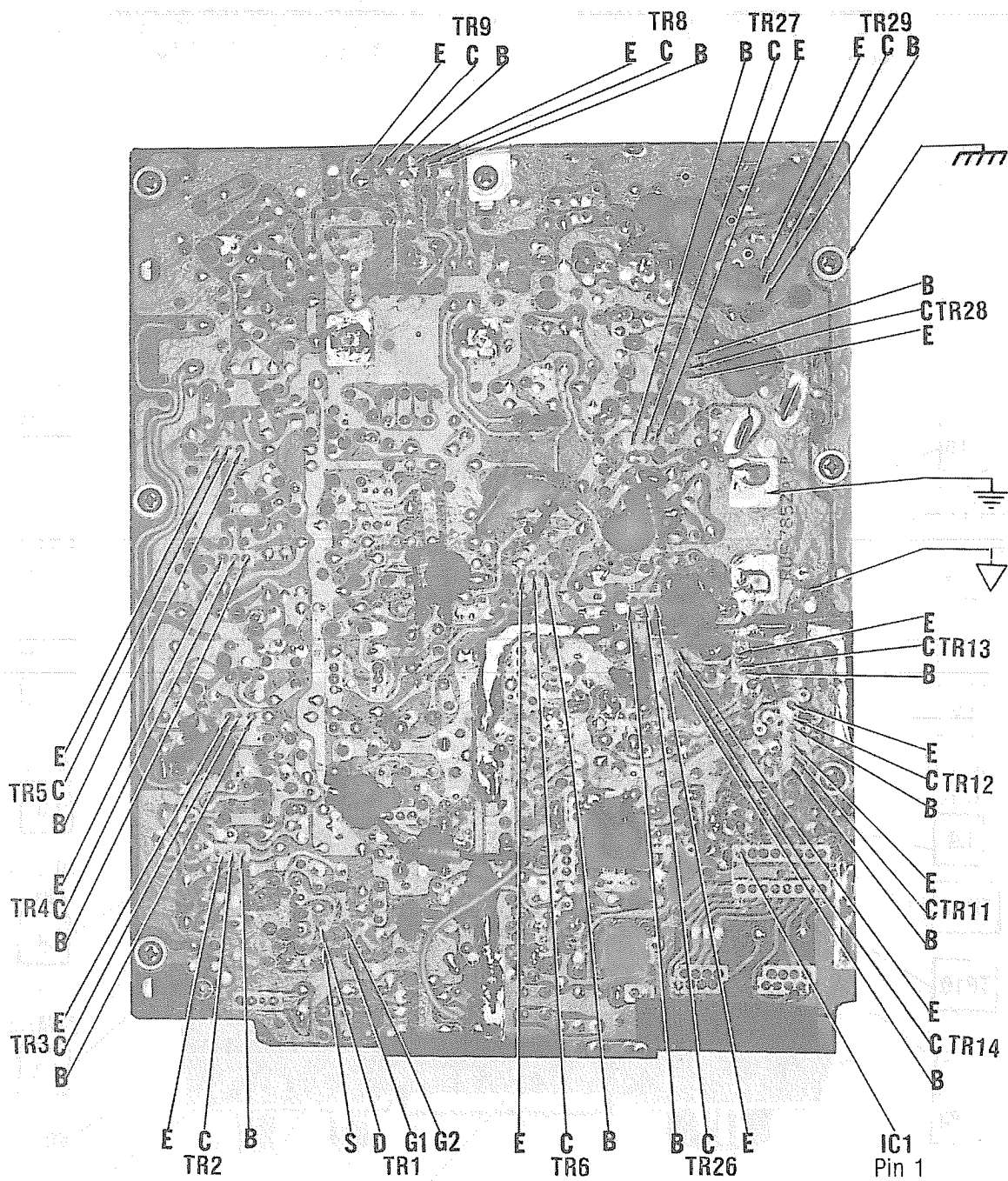
Connect a 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of DC meter to TP9.	Ch. 19	R117	AMC This adjustment made in receive mode. Adjust R117 for 0.75 volts +0.05 volts.
Input of RF wattmeter to antenna input.	Ch. 19	R129	RF POWER METER Adjust so RF POWER meter reads in the center of the red on RF POWER scale of meter.

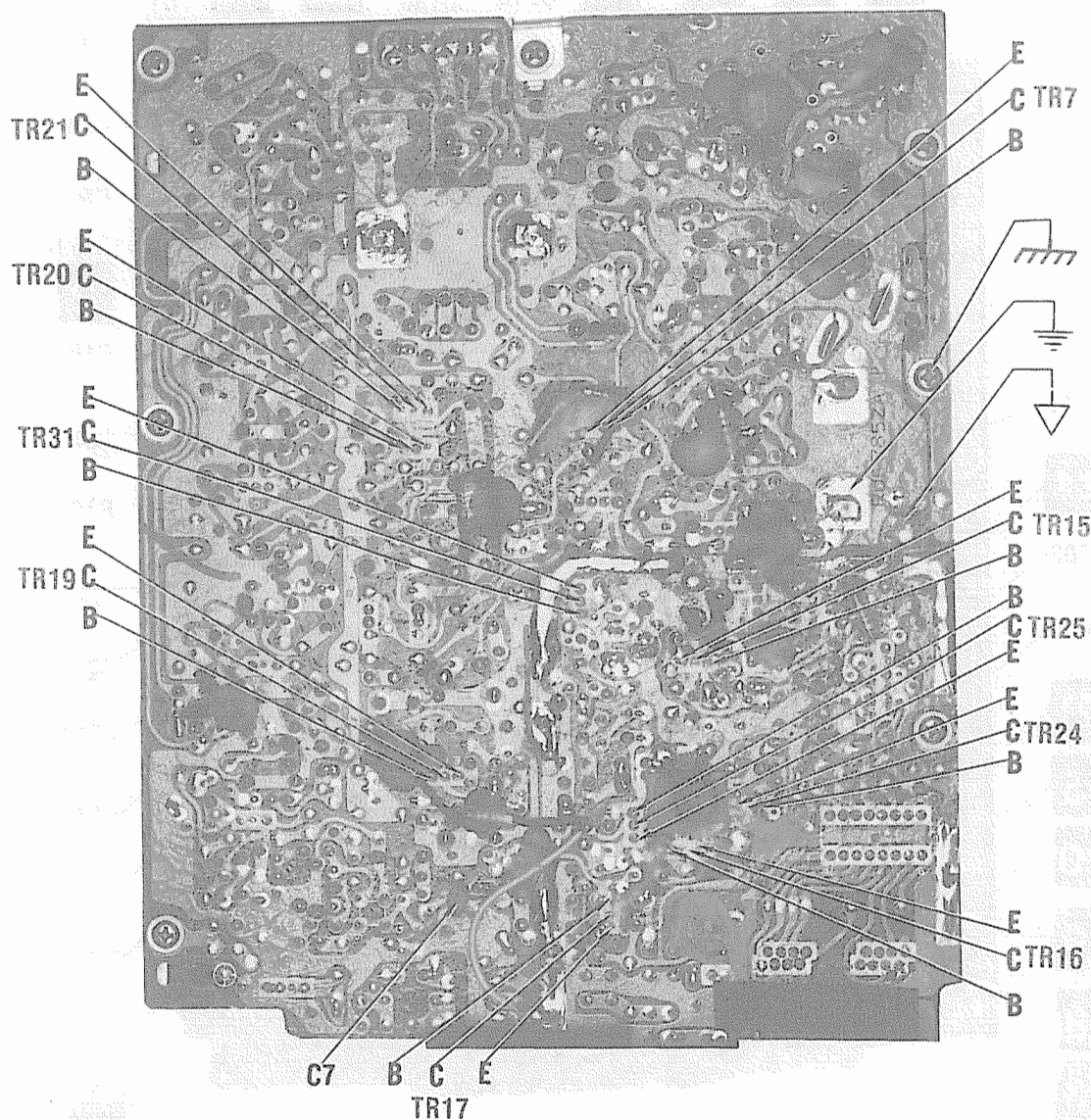
PANASONIC MODEL RJ-3050

TRUTH CHART

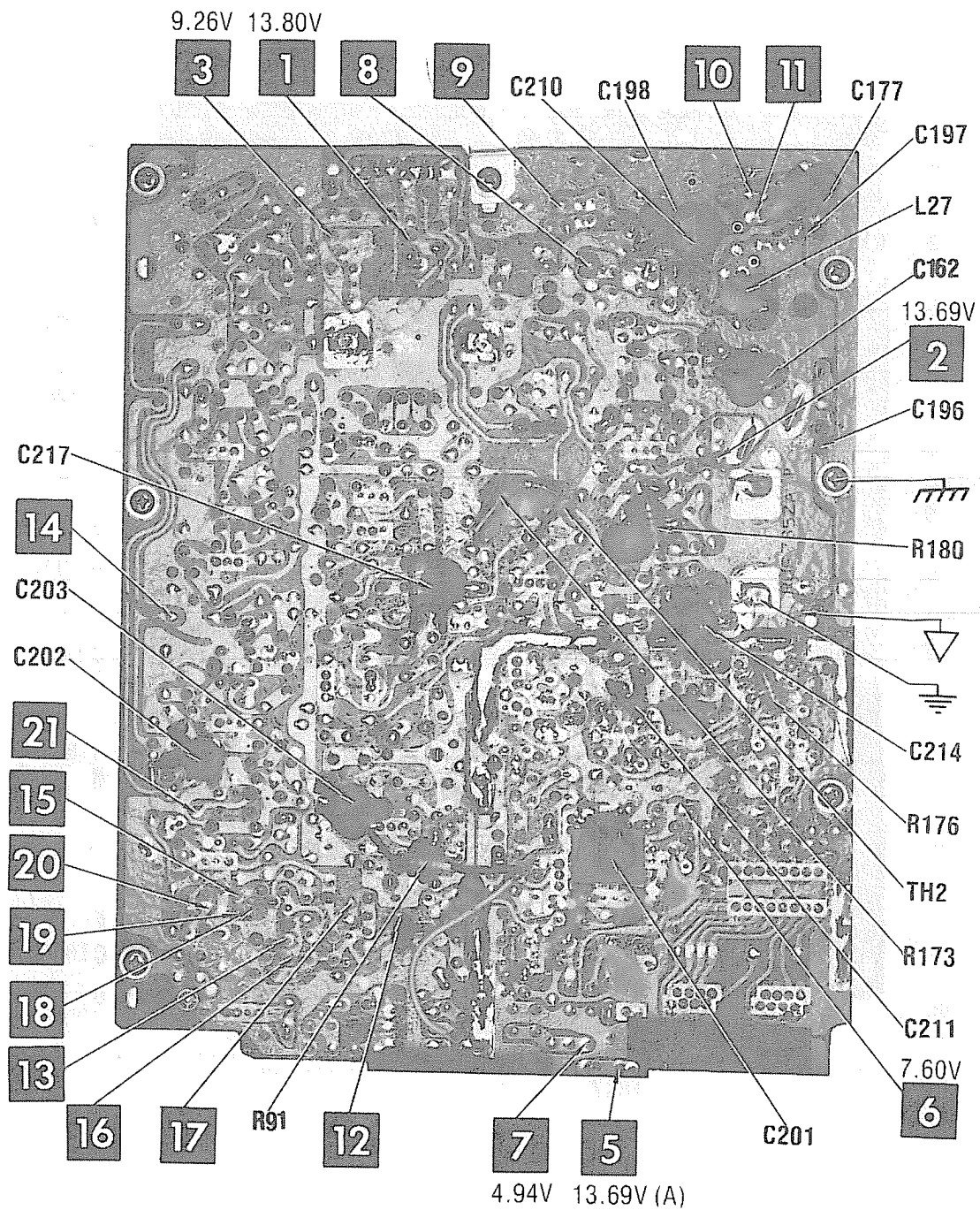
CHANNEL	1 = 4.94 Volts 0 = 0 Volts IC1 PROGRAM DIVIDER								REC OUTPUT IN MHz AT TP10 (TR2Y, Collector)	REC & XMT DIVIDER INPUT IN. MHz AT TP12 (IC1,pin 2)	XMT SYNTHESIZER OUTPUT IN MHz AT TP11 (TR3, Collector)
	PINS										
			10	11	12	13	14	15			
1			1	1	1	1	1	1	16.270	2.550	26.465
2			1	1	1	1	1	0	16.280	2.540	26.975
3			1	1	1	1	0	1	16.290	2.530	26.985
4			1	1	1	0	1	1	16.310	2.510	27.005
5			1	1	1	0	1	0	16.320	2.500	27.015
6			1	1	1	0	0	1	16.330	2.490	27.025
7			1	1	1	0	0	0	16.340	2.480	27.035
8			1	1	0	1	1	0	16.360	2.460	27.055
9			1	1	0	1	0	1	16.370	2.450	27.065
10			1	1	0	1	0	0	16.380	2.440	27.075
11			1	1	0	0	1	1	16.390	2.430	27.085
12			1	1	0	0	0	1	16.410	2.410	27.105
13			1	1	0	0	0	0	16.420	2.400	27.115
14			1	0	1	1	1	1	16.430	2.390	27.125
15			1	0	1	1	1	0	16.440	2.380	27.135
16			1	0	1	1	0	0	16.460	2.360	27.155
17			1	0	1	0	1	1	16.470	2.350	27.165
18			1	0	1	0	1	0	16.480	2.340	27.175
19			1	0	1	0	0	1	16.490	2.330	27.185
20			1	0	0	1	1	1	16.510	2.310	27.205
21			1	0	0	1	1	0	16.520	2.300	27.215
22			1	0	0	1	0	1	16.530	2.290	27.225
23			1	0	0	0	1	0	16.560	2.260	27.255
24			1	0	0	1	0	0	16.540	2.280	27.235
25			1	0	0	0	1	1	16.550	2.270	27.245
26			1	0	0	0	0	1	16.570	2.250	27.265
27			1	0	0	0	0	0	16.580	2.240	27.275
28			0	1	1	1	1	1	16.590	2.230	27.285
29			0	1	1	1	1	0	16.600	2.220	27.295
30			0	1	1	1	0	1	16.610	2.210	27.305
31			0	1	1	1	0	0	16.620	2.200	27.315
32			0	1	1	0	1	1	16.630	2.190	27.325
33			0	1	1	0	1	0	16.640	2.180	27.335
34			0	1	1	0	0	1	16.650	2.170	27.345
35			0	1	1	0	0	0	16.660	2.160	27.355
36			0	1	0	1	1	1	16.670	2.150	27.365
37			0	1	0	1	1	0	16.680	2.140	27.375
38			0	1	0	1	0	1	16.690	2.130	27.385
39			0	1	0	1	0	0	16.700	2.120	27.395
40			0	1	0	0	1	1	16.710	2.110	27.405



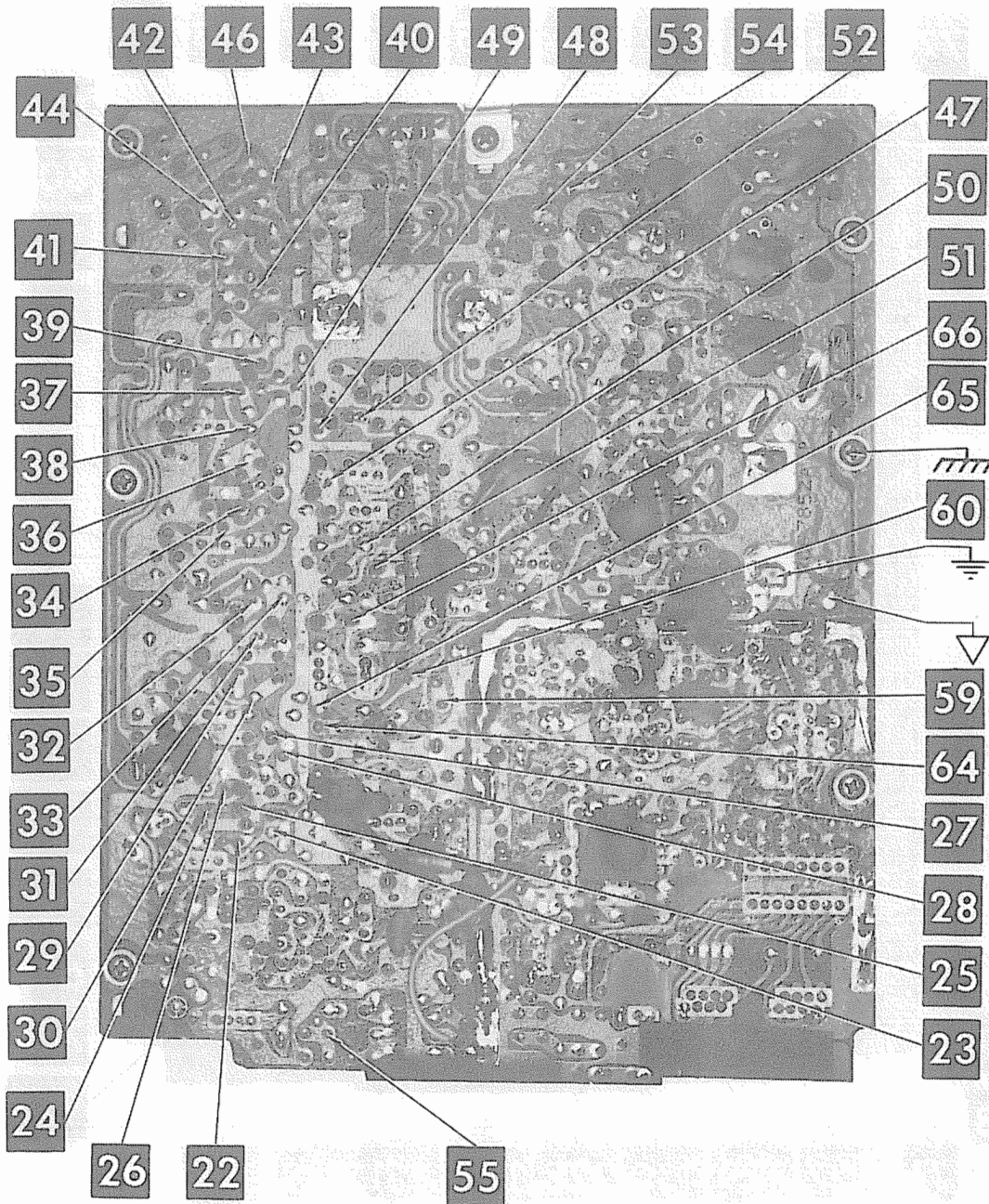
MAIN BOARD



MAIN BOARD

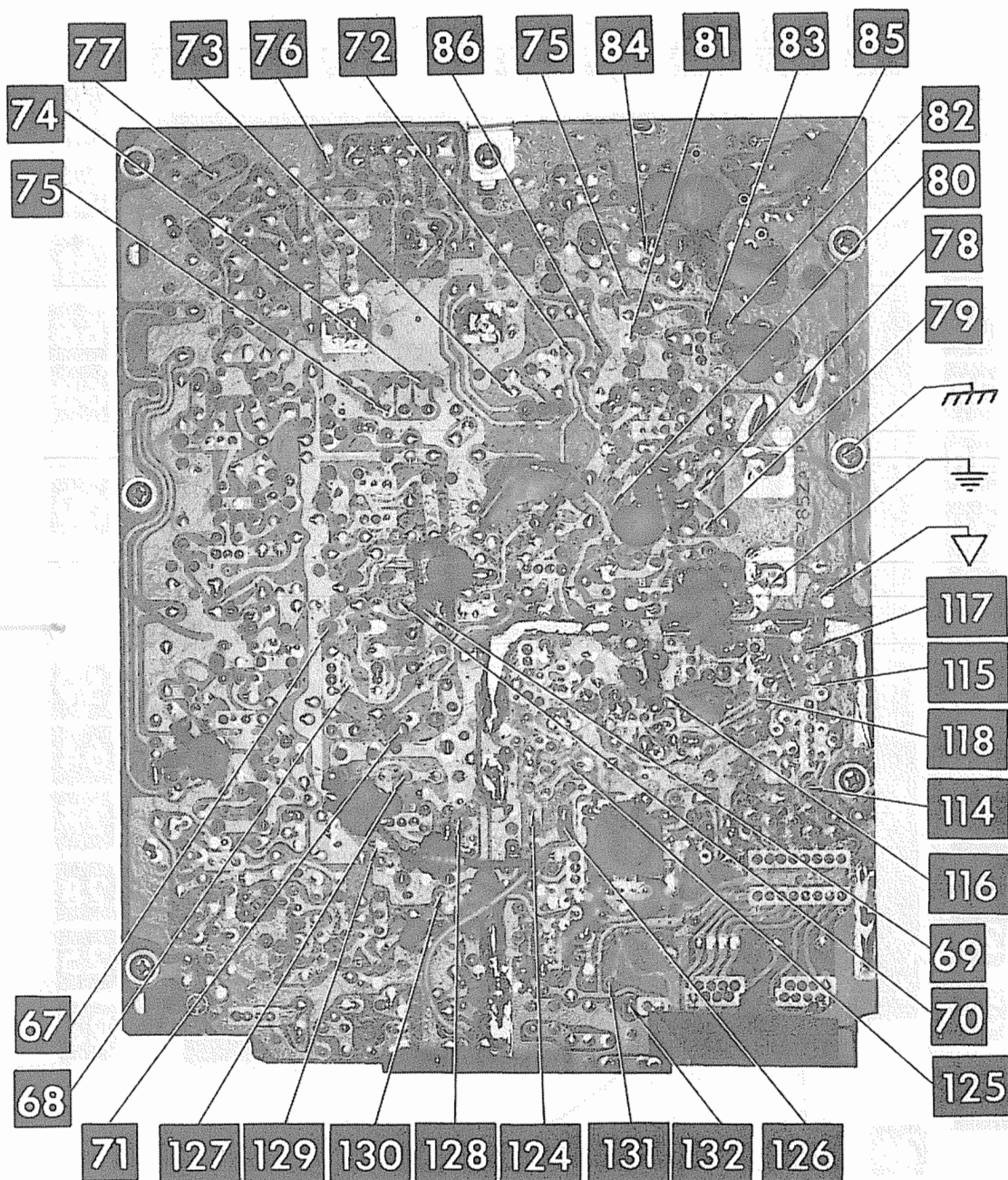


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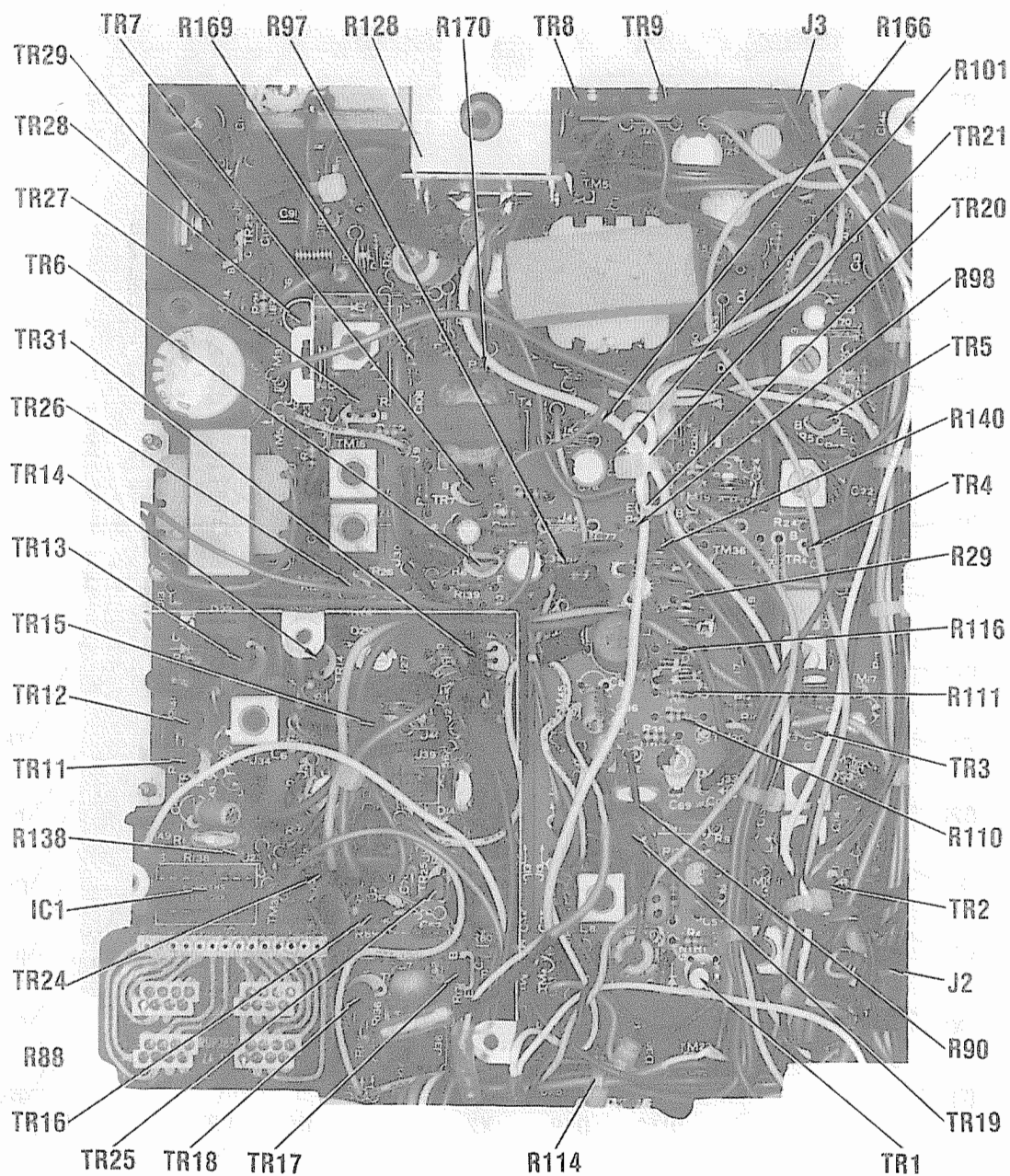


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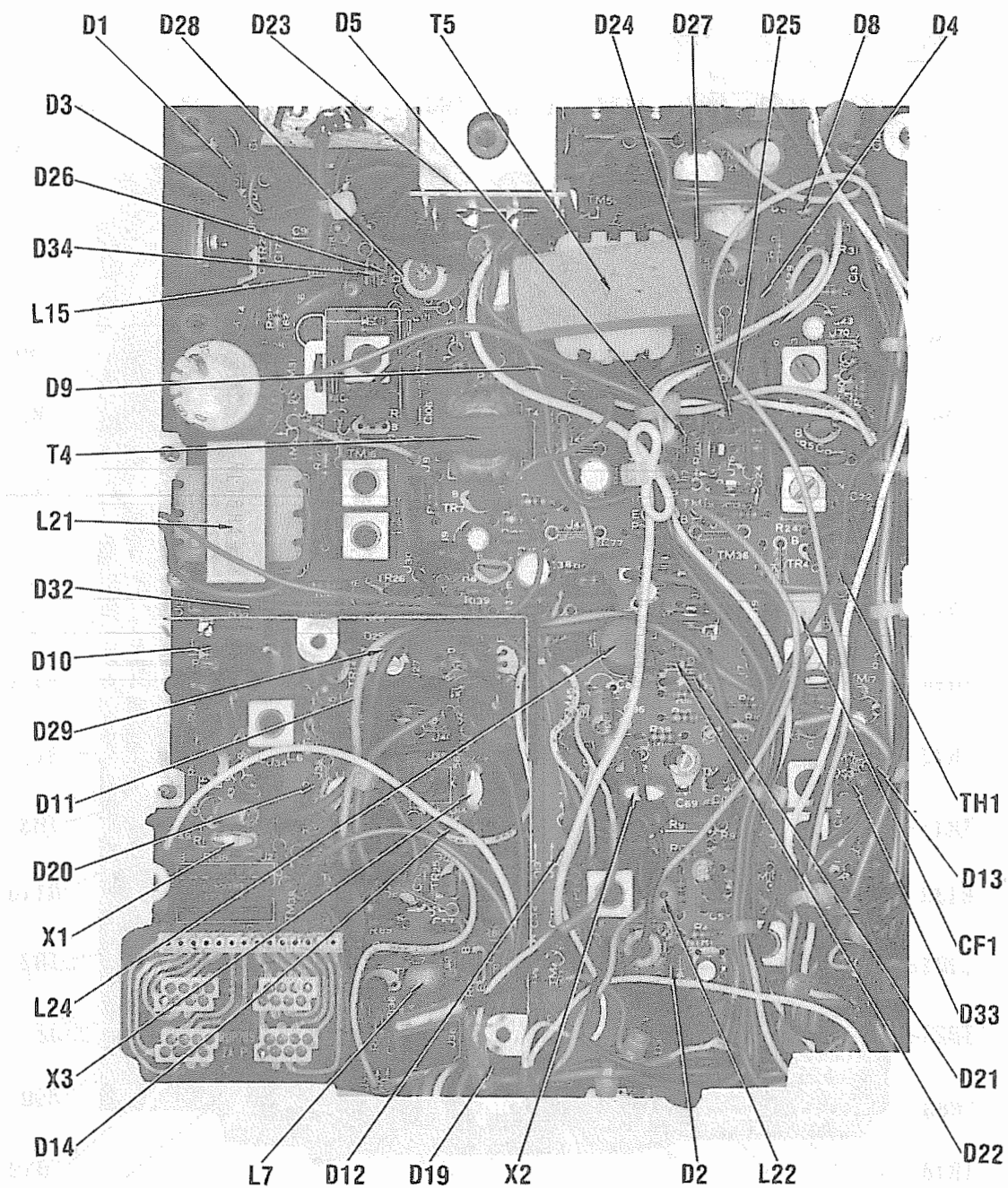
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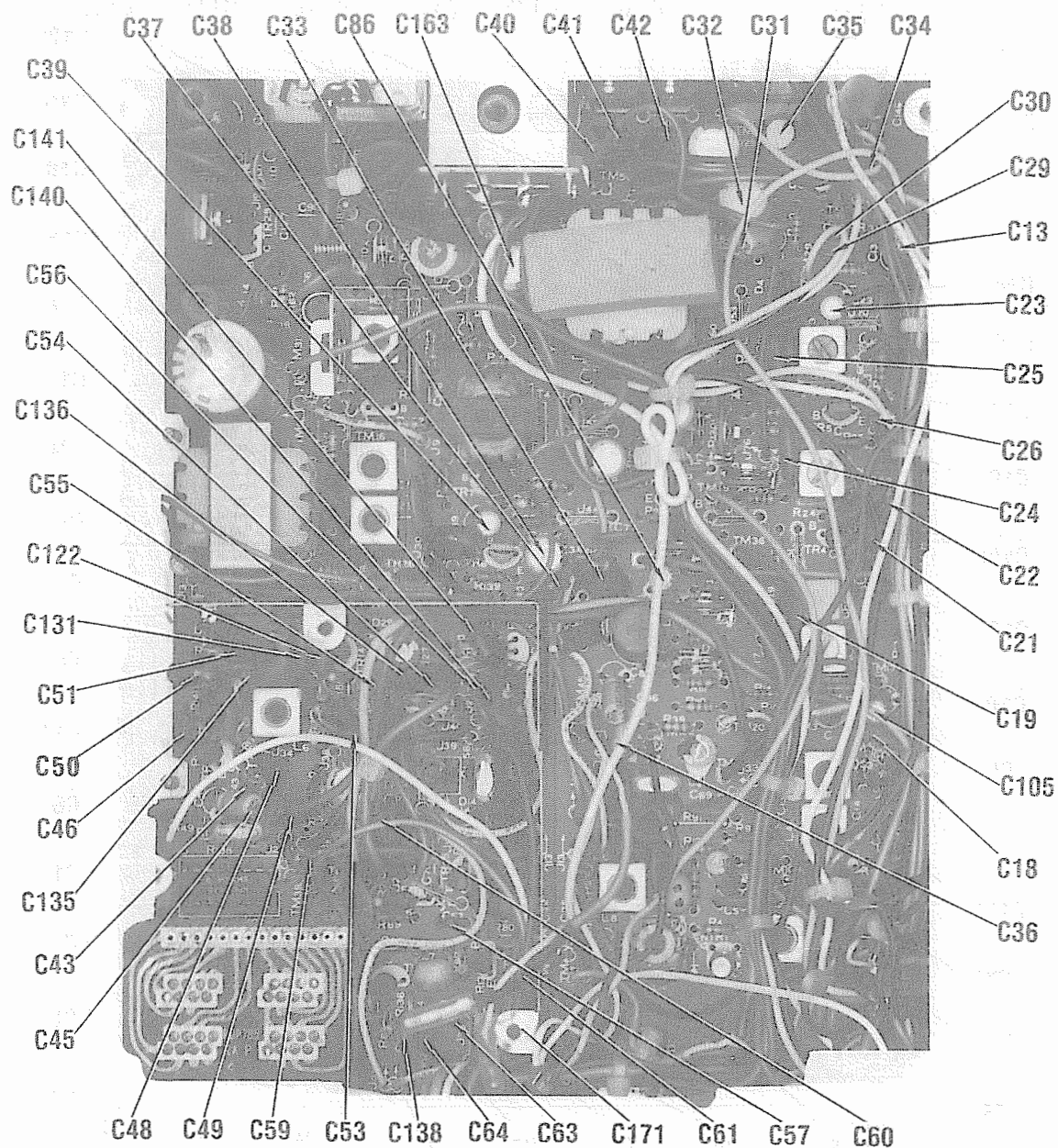
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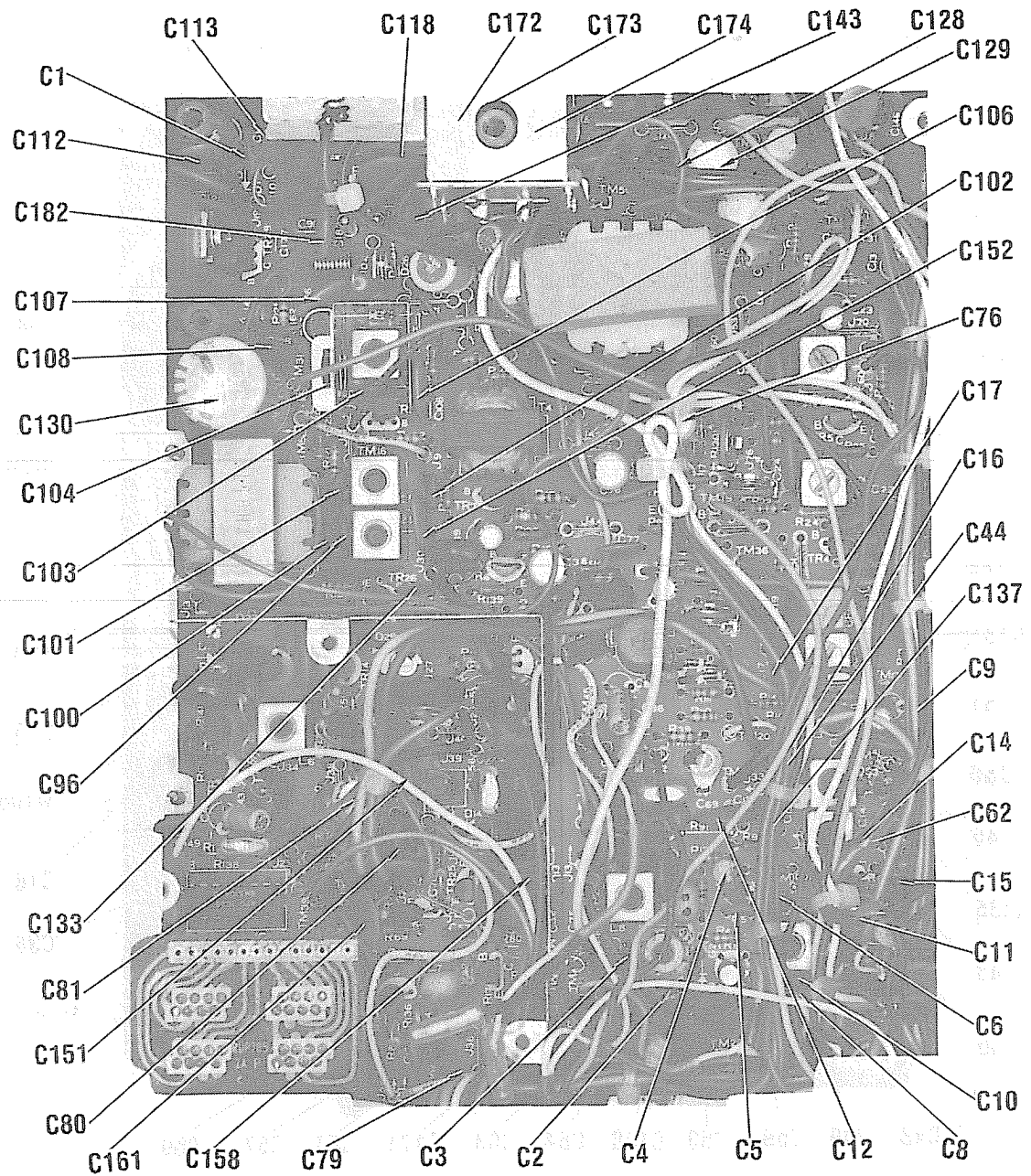
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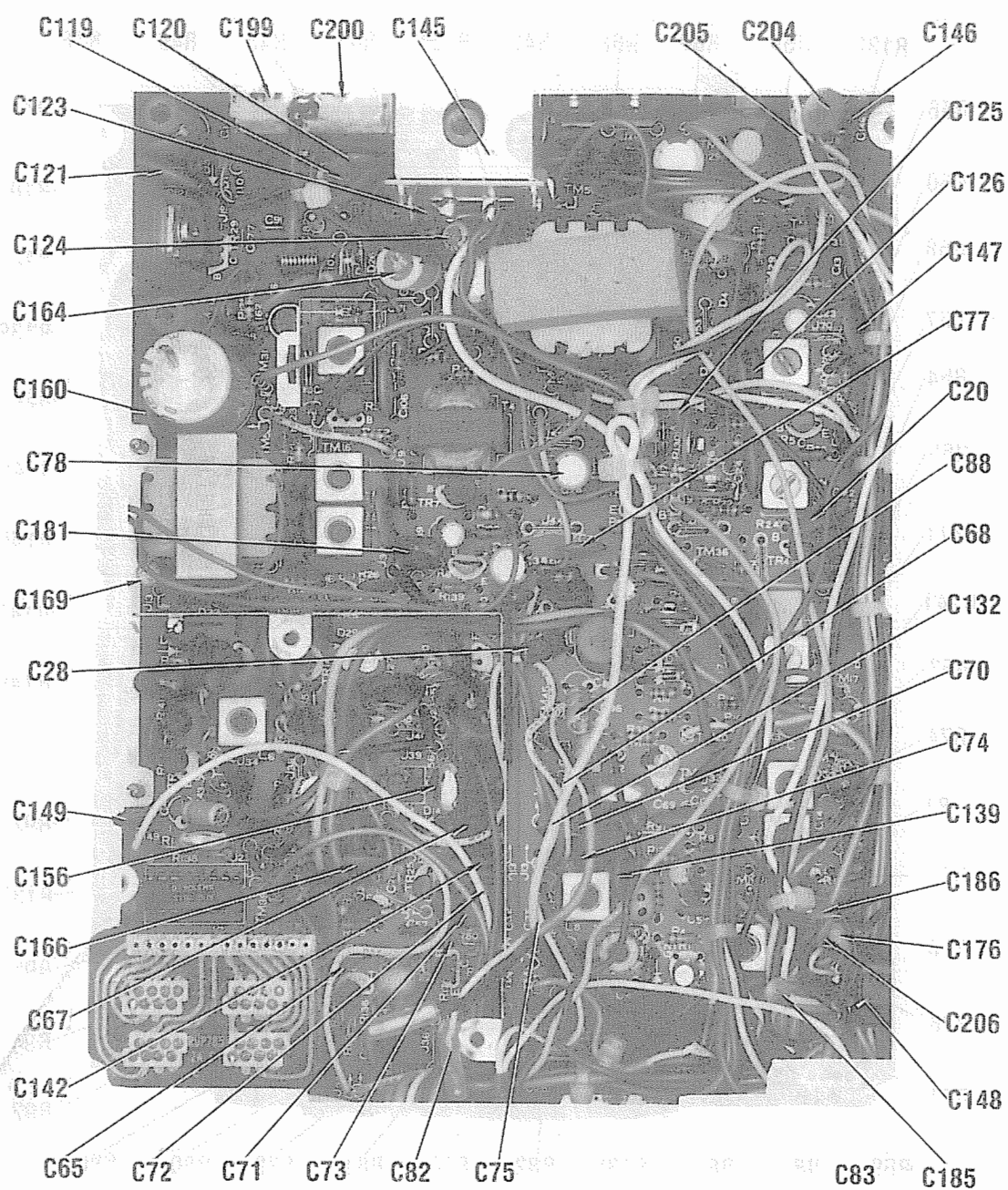
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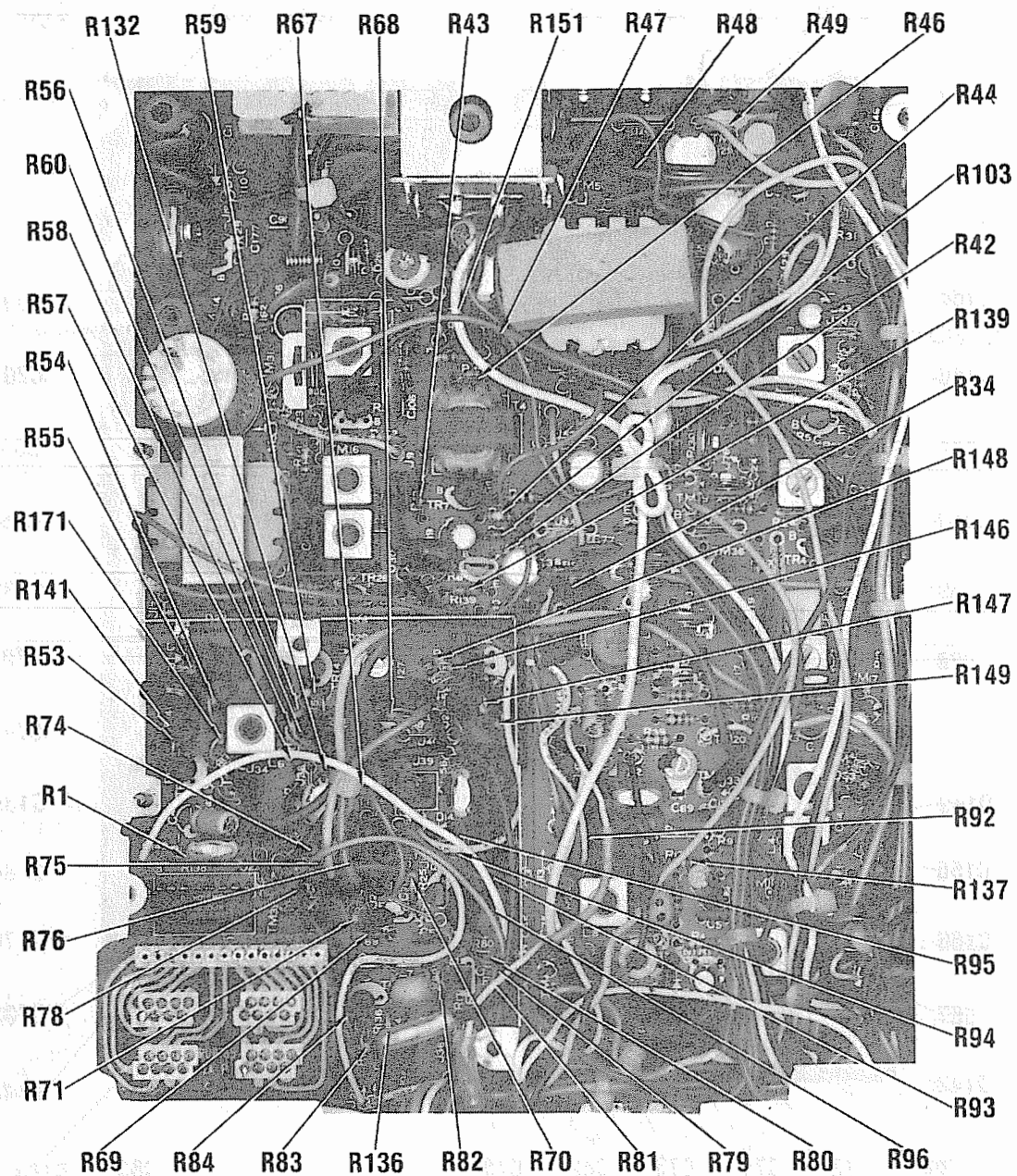
MAIN BOARD



MAIN BOARD



MAIN BOARD



MAIN BOARD

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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.	
L21	660mA	.256	1mH	RLT6H4-W RLT6H4-T(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.	
T4	1	1		RLT3F33-W RLT3F33-T(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.	
T5	13.52	1/8 20.48	RLT412-V			

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP	3" PH 8 Ohms	EASBP65G BP65G(1)	30A05ZBR	(1) Number on unit.

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	XBA1E20NR5		AGC(2)	HRK	312 002	150145	FG2-2	

For SAFETY use only equivalent replacement part.

PANASONIC MODEL RJ-3050

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
MIC	RJM131Z-H	18-032	18-034	18-010		1	2	3	4	NC	2

MISCELLANEOUS

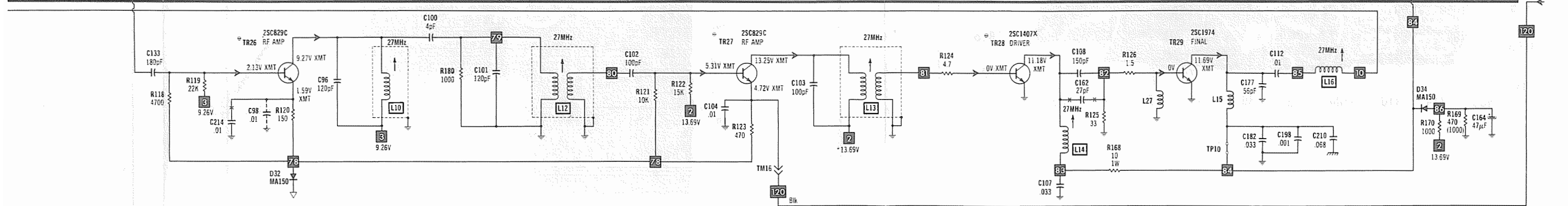
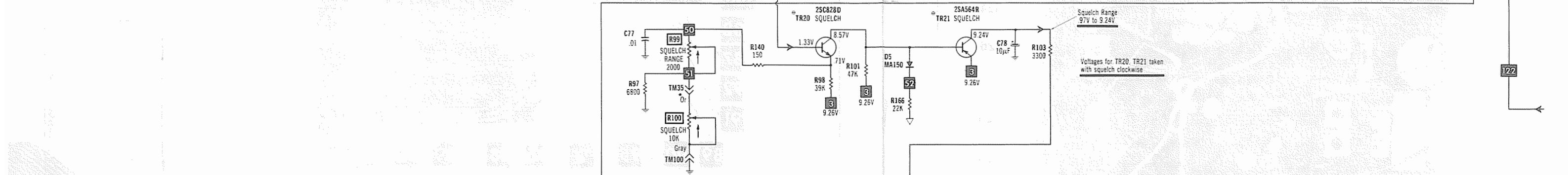
ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	EFCL455K40B1	455kHz
FL1	Filter	RLE5006	27MHz
J1	Jack	RJS258Y	Antenna (Connector)
J2	Jack	RJS263Z-H	Microphone (5 pin)
J3	Jack	RJJ110Z-C	External Speaker
LED1	LED	RA0301ZE	Tens & Units (Each segment of LED1 supplied 1.68V @ 12.4mA)
M1	Meter	RSM2524Z-K	Signal/Rf Power
PL1	Lamp	XAMQ24S150	Meter (13.80V @ 80mA)
P2	Plug		Microphone (5 pin)
S1	Switch	RSRX002Z-A	Channel Selector
S5	Switch		Power On/Off (Part of Volume Control)
X1	Crystal	RVCX10240Q4Z	10.240MHz
X2	Crystal	RVCX29515Q4Z	29.515MHz
X3	Crystal	RVCX18820Q4Z	18.820MHz
	Cord	RXEJ3150M	DC Assembly
	Printed Circuit Board	RUP784Z	Channel Display
	Socket	RJS265Z	16 Pin

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

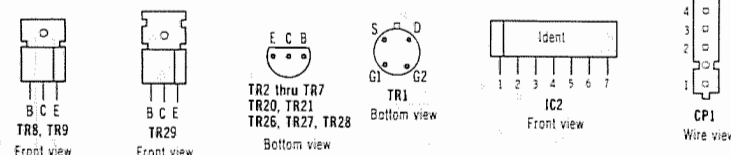
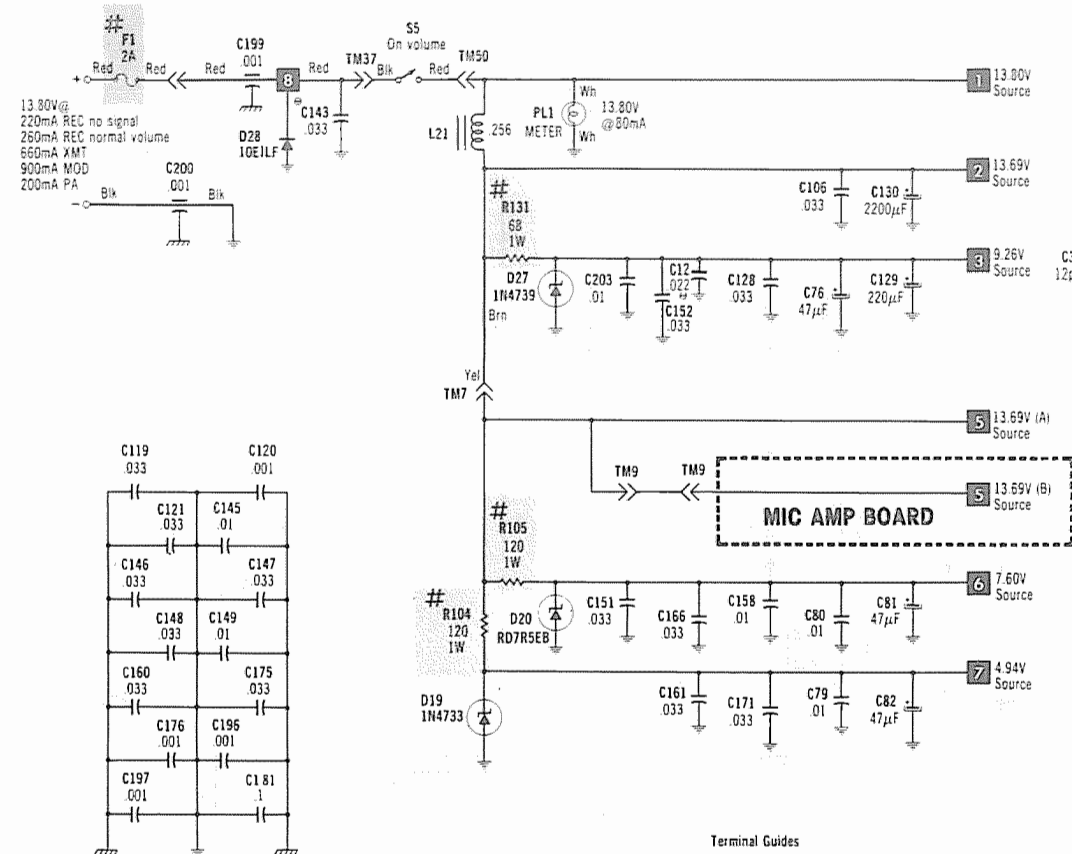
ITEM	PART No.	ITEM	PART No.
Cabinet Assembly, Bottom	RKF345Y	Knob, Selector	RBN402Z
Cabinet Assembly, Top	RYFJ3050M	Knob, Control	RBN401Z
Front Panel Assembly	RYPJ3050M		

WIRING DATA

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



PANASONIC MODEL RJ-3050



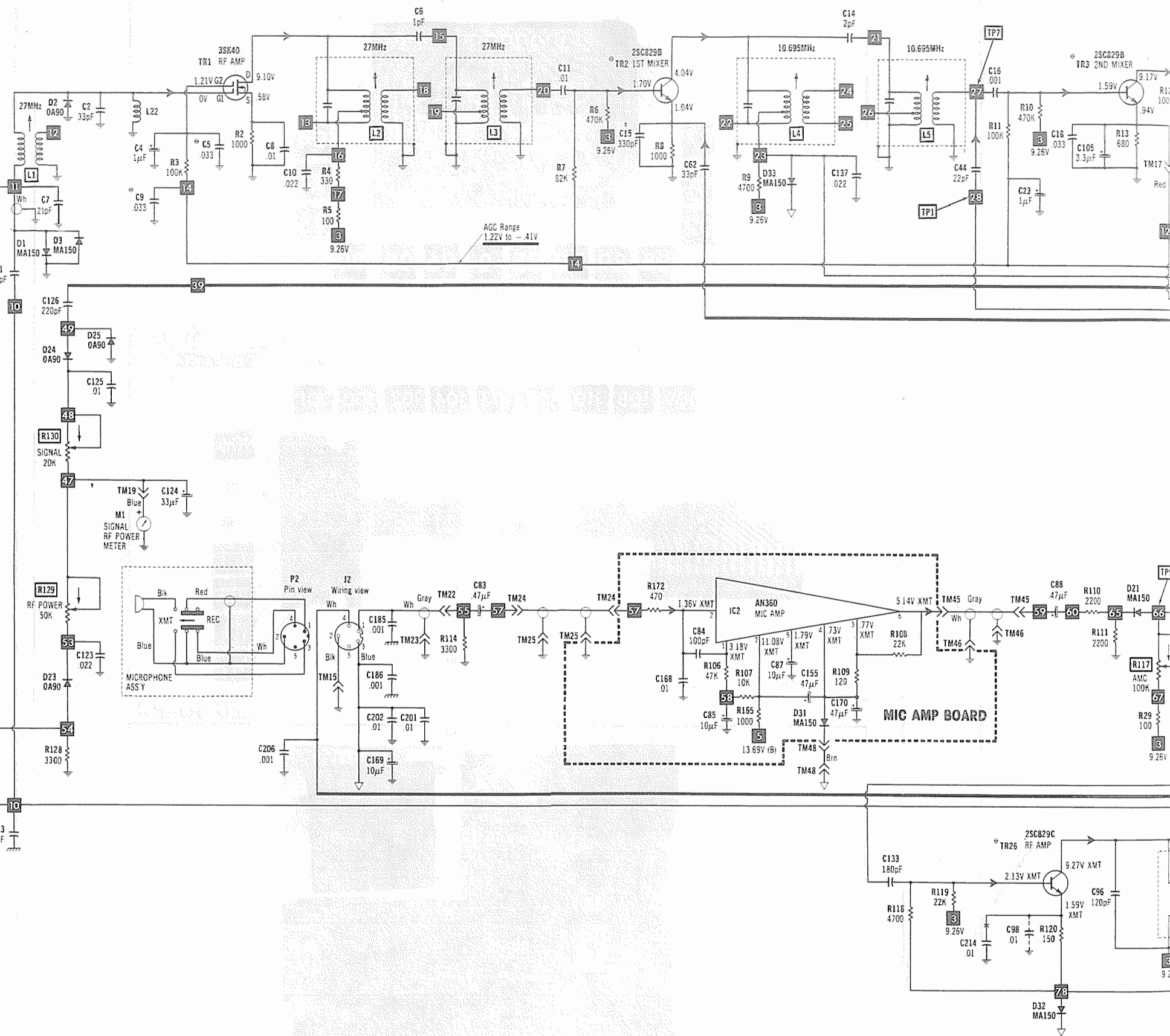
For SAFETY use only equivalent replacement part.

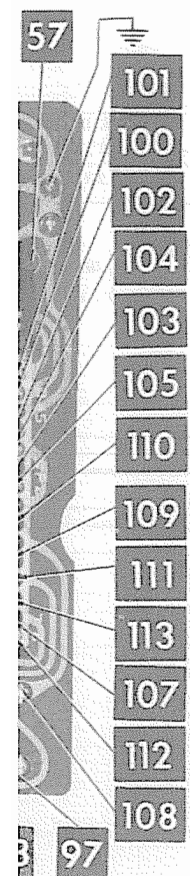
- Circuitry not used in some versions
- - - Circuitry used in some versions
- ⊙ See parts list
- * Nominal value
- ⊥ Ground
- Chassis
- Common tie point
- Signal path
- Voltage path

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.

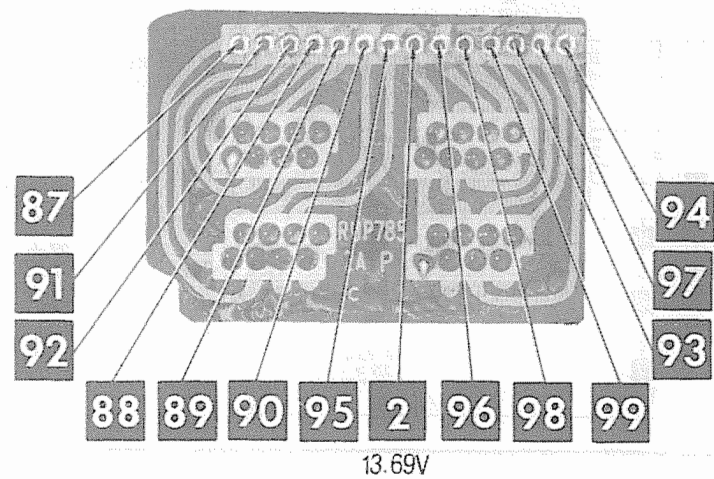
A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH **CIRCUITACE**
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POWER SUPPLY SCHEMATIC

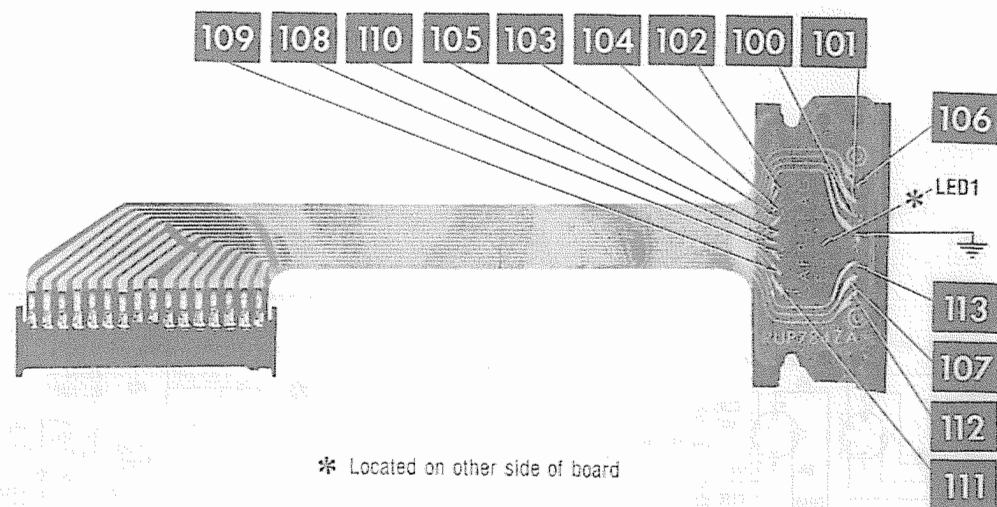




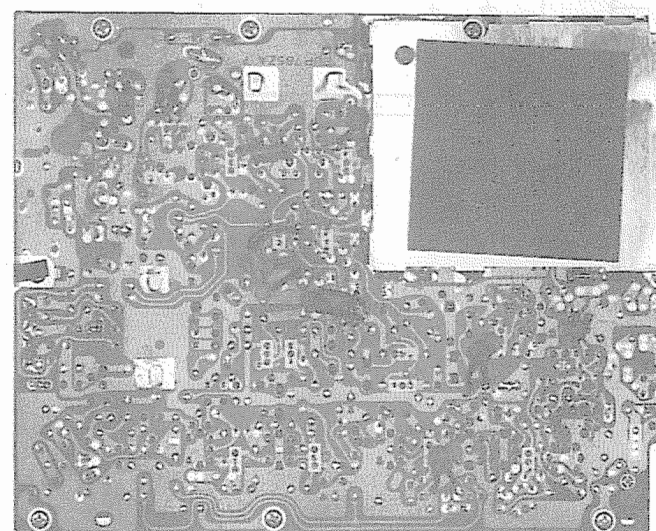
MIC AMP BOARD



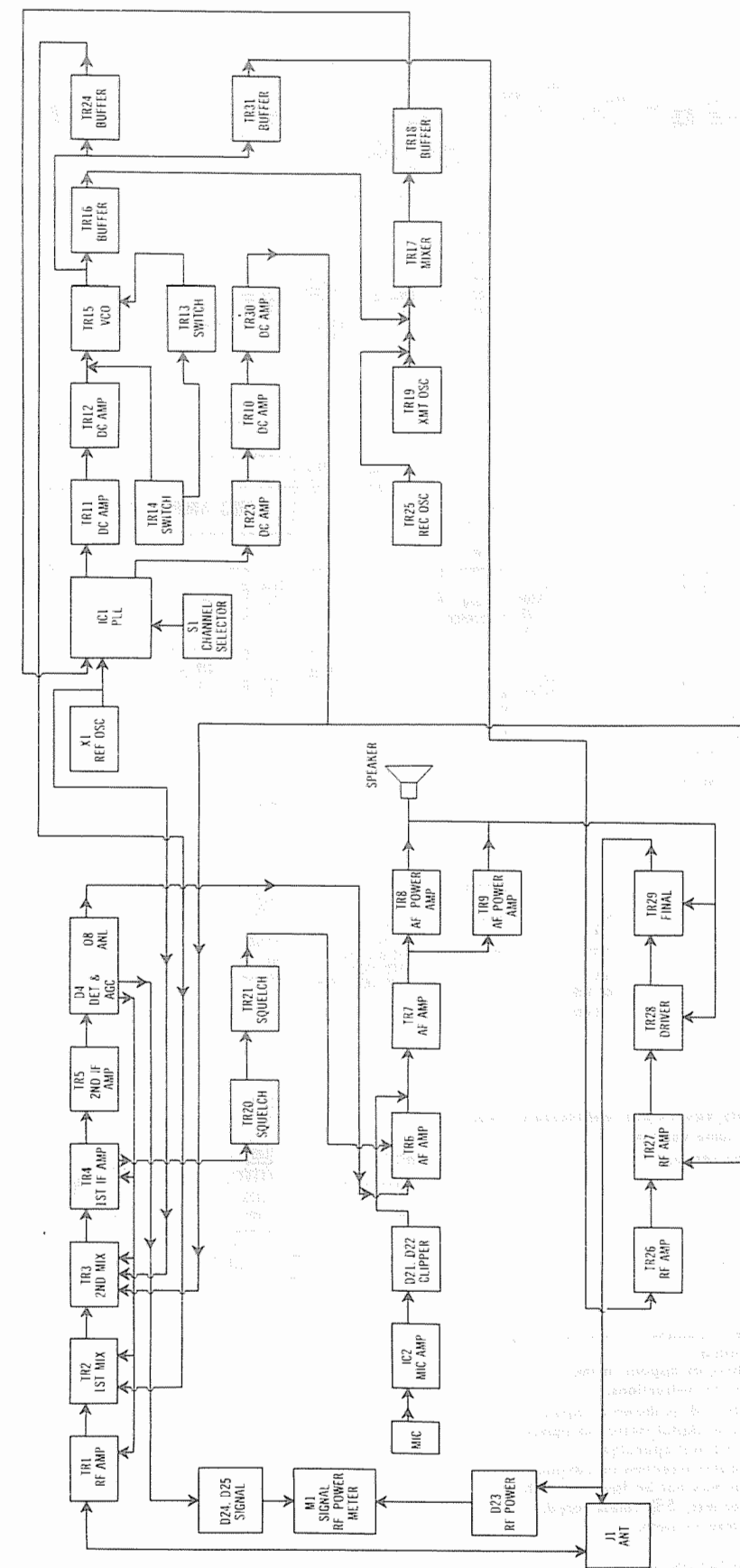
SWITCH BOARD



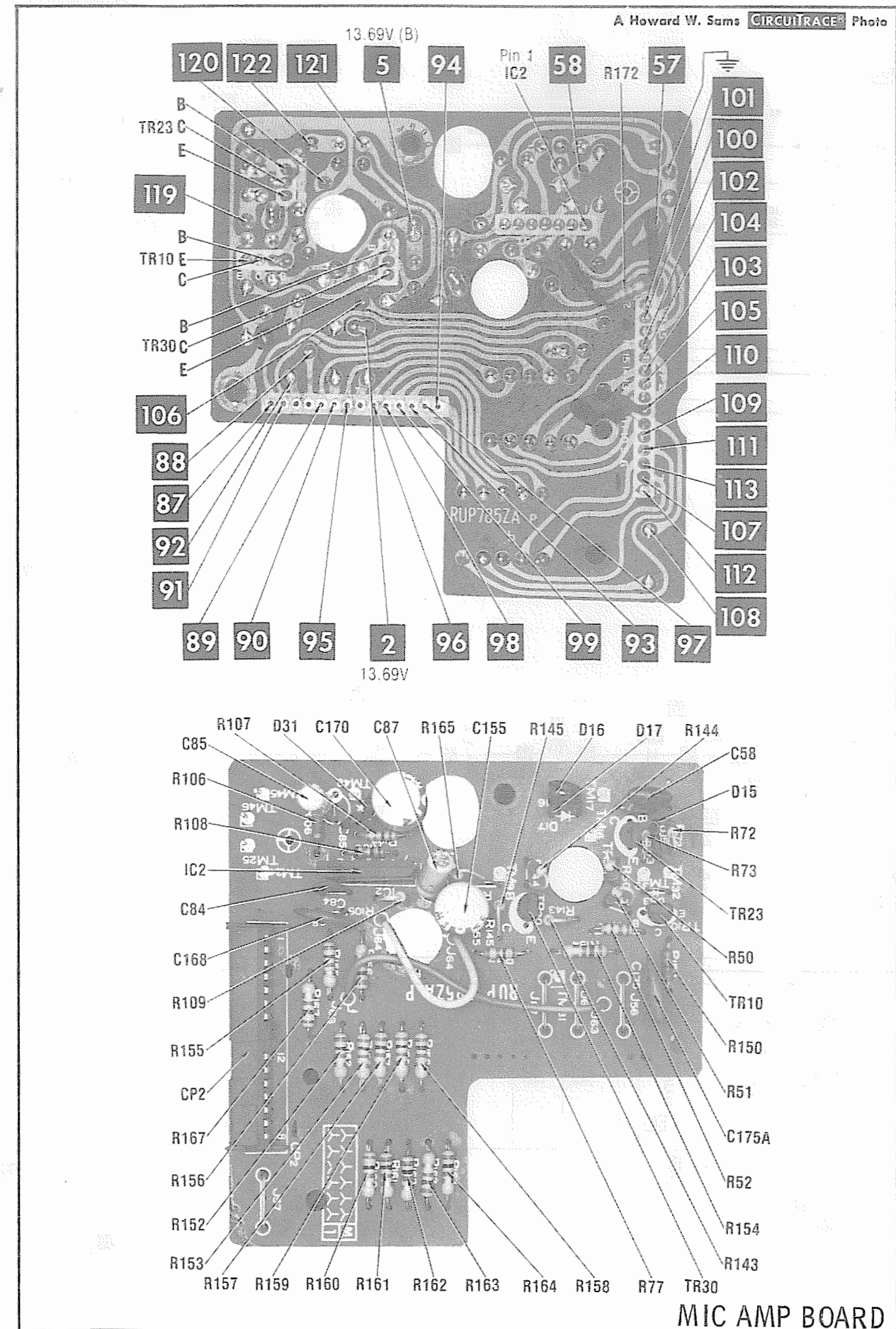
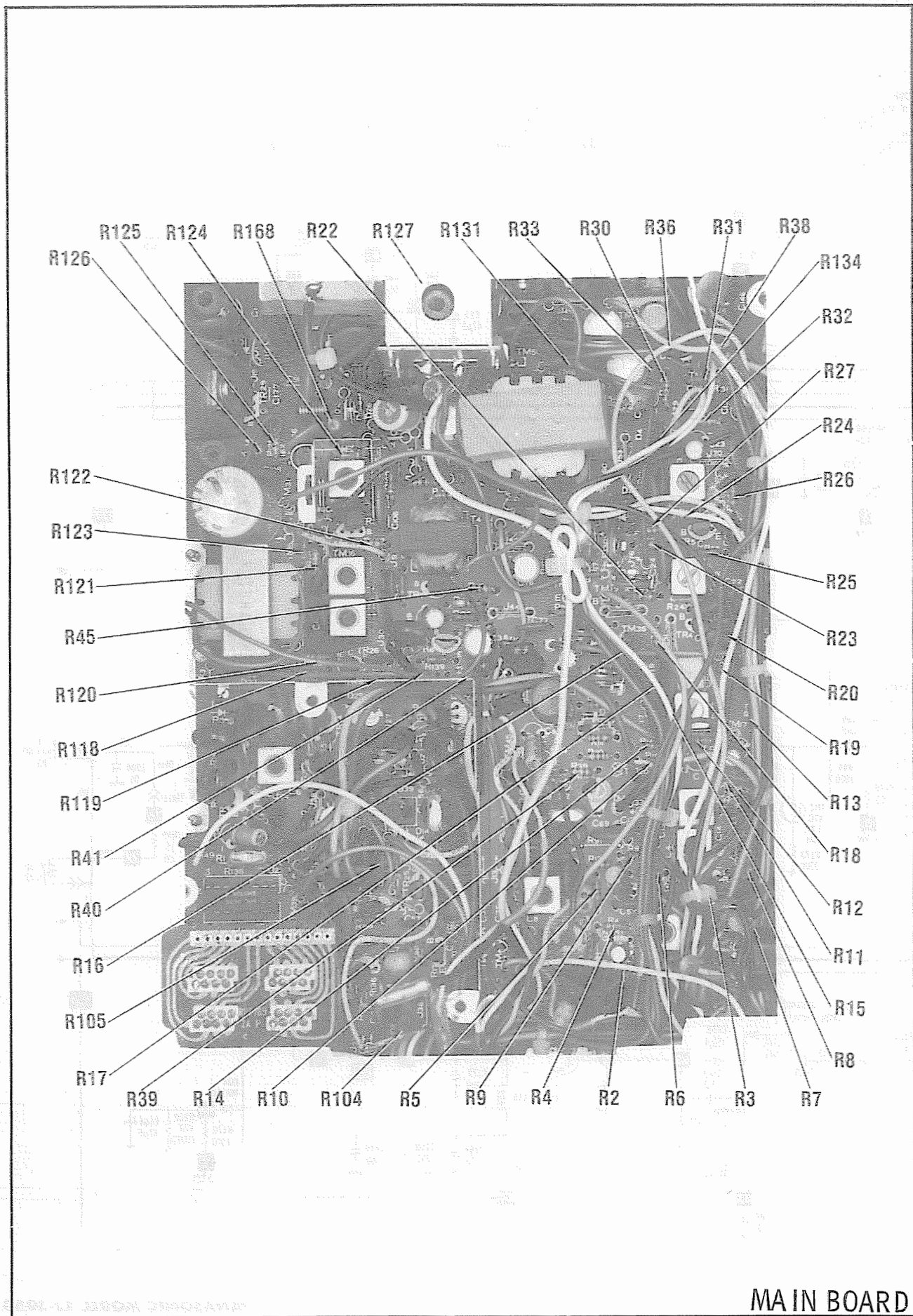
LED BOARD



SHIELD LOCATION



BLOCK DIAGRAM



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
C65	15 NPO 50V 10%		DTZ-15	NP015	CN0415		10TCC-Q15
C67	27 NPO 50V 10%				CN0427		10TCC-Q27
C68	3 NPO 50V ±.25		DTZ-3R3	NP03P3	CN0533		10TCC-Y33
C70	100 50V 5%			CD15FD101J03	SX310	QW1-27	MMA-101
C71	470 125V 5%			CD15FD471J03	SX347	QW1-42	MMA-471
C72	68 50V 10%	ECCD1H020C		CD15ED680J03	SX468	QW1-23	MMA-680
C73	2 50V ±.25			CD15FD121J03	SX312	QW1-29	MMA-121
C74	120 50V 5%	ECCD1H040C					
C75	4 50V ±.25						
C77	.01 50V		UK50-103		MAG5011		
C79	.01 50V		UK50-103		MAG5011		
C80	.01 50V		UK50-103		MAG5011		
C84	100 50V 10%		DD-101	GP100	GP310		10TS-T10
C96	120 50V 5%		UK50-103	CD15FD121J03	SX312	QW1-29	MMA-121
C98	.01 50V				MAG5011		
C100	4 50V ±.25	ECCD1H040C					
C101	120 50V 5%			CD15FD121J03	SX312	QW1-29	MMA-121
C102	100 50V 5%			CD15FD101J03	SX310	QW1-27	MMA-101
C103	100 50V 5%			CD15FD101J03	SX310	QW1-27	MMA-101
C104	.01 50V		UK50-103		MAG5011		
C106	.033 50V		UK50-333		MAG50133		
C107	.033 50V		UK50-333		MAG50133		
C108	150 50V 5%			CD15FD151J03	SX315	QW1-31	MMA-151
C112	.01 50V		UK50-103		MAG5011		
C113	82 50V 10%		DD-820		GP482		10TS-Q82
C118	4 50V ±.25	ECCD1H040C					
C119	.033 50V		UK50-333		MAG50133		
C120	.001 50V		DD-102		GP210		10TS-D10
C121	.033 50V		UK50-333		MAG50133		
C122	.01 50V		UK50-103		MAG5011		
C123	.022 50V	ECKT1H223ZF					
C125	.01 50V		UK50-103		MAG5011		
C126	220 50V 5%			CD15FD221J03	SX322	QW1-35	MMA-221
C128	.022 50V	ECKT1H223ZF					
C131	.01 50V		UK50-103		MAG5011		
C132	.01 50V		UK50-103		MAG5011		
C133	180 50V 10%		DD-181		GP318		10TS-T18
C134	10pF						
C135	22 N750 50V 10%		DTN-22	N22	CN7422		10TCU-Q22
C136	39 N750 50V 10%				CN7439		10TCU-Q39
C137	.022 50V	ECKT1H223ZF					
C138	.01 50V		UK50-103		MAG5011		
C139	.01 50V		UK50-103		MAG5011		
C140	7 NPO 50V ±.5	ECCD1H070DC					
C141	.001 50V		DD-102		GP210		10TS-D10
C142	.01 50V		UK50-103		MAG5011		
C143	.022 50V	ECKT1H223ZF					
	.033 50V		UK50-333		MAG50133		
C145	.01 50V		UK50-103		MAG5011		
C146	.033 25V		UK25-333		MAG25133		HY-730
C147	.033 25V		UK25-333		MAG25133		HY-730
C148	.033 25V		UK25-333		MAG25133		HY- 30
C149	.01 50V		UK50-103		MAG5011		
C151	.033 25V		UK25-333		MAG25133		HY-730
C152	.033 25V		UK25-333		MAG25133		HY-730
C156	10 NPO 50V 10%		DTZ-10	NP010	CN0410		10TCC-Q10
C158	.01 50V		UK50-103		MAG5011		
C160	.033 25V		UK25-333		MAG25133		
C161	.033 25V		UK25-333		MAG25133		
C162	18 NPO 10%				CN0418		
	27 NPO 10%				CN0427		
C166	.033 25V		UK25-333		MAG25133		
C168	.01 50V		UK50-103		MAG5011		
C171	.033 50V		UK50-333		MAG50133		
C172	82 50V 10%		DD-820		GP482		10TS-Q82
C173	10 NPO 50V 10%		DTZ-10	NP010	CN0410		10TCC-Q10
C174	82 50V 10%		DD-820		GP482		10TS-Q82
C175	.033 25V		UK25-333		MAG25133		HY-730
C176	.001 50V		DD-102		GP210		10TS-D10
C177	56 50V 10%		DD-560		GP456		10TS-Q56
C181	.1 50V 10%			WMF05P1	EMF05010	QFT2-215	1FT-P10
C182	.033 50V		UK50-333		MAG50133		
C185	.001 50V		DD-102		GP210		10TS-D10
C186	.001 50V		DD-102		GP210		10TS-D10
C195	.001 50V	ECKD1H102PF					
C197	.001 50V	ECKD1H102PF					
C198	.001 50V	ECKD1H102PF					
C199	.001 50V	ECKD1H102PF					
C200	.001 50V	ECKL1H102PF					
C201	.01 50V		UK50-103		MAG5011		
C202	.01 50V		UK50-103		MAG5011		
C203	.01 50V		UK50-103		MAG5011		
C204	.01 50V		UK50-103		MAG5011		
C205	.01 50V		UK50-103		MAG5011		
C206	.001 50V		DD-102		GP210		10TS-D10
C210	.068 25V		UK25-683		MAG25168		HY-740
C211	3 NPO 50V ±.25		DTZ-3R3	NP03P3	CN0533		10TCC-Y33
C217	.033 50V 10%			OPMS6S33	M192P3339R8	QFT2-149	1FT-S33

PANASONIC MODEL RJ-3050

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA			
			MFR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
R37	Volume/Power Switch	10K	RVV14D61-A			
R99	Squelch Range	2000	EVLTOAA00823	T-2500(2)	MTC231(2)	X201R2538(2)
R100	Squelch	10K	RVV14C62-A			
R117	AMC	100K	EVLTOAA00815	T-100K(2)	MTC151(2)	X201R1048(2)
R129	RF Meter	50K	EVLTOAA00854	T-50K(2)	MTC541(2)	X201R5038(2)
R130	Signal	20K	EVLTOAA00824	T-20K(2)	MTC241(2)	X201R2538(2)

(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.	MFR. PART No.			WORKMAN PART No.	MFR. PART No.
R48	.47 1W ±5%		ERXIANJR47	R131	68 1W ±5%		ERGIANJ680
R104	120 1W ±5%		ERGIANJ121	TH1	3.6K Cold NTC		ART103
R105	120 1W ±5%		ERGIANJ121	TH2	3.6K Cold NTC		ART103

For SAFETY use only equivalent replacement part.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	RF (27MHz)	RLA7R41-Z			
L2	RF Amp (27MHz)	RLA7C27-Z			
L3	RF Amp (27MHz)	RLA7C27-Z			
L4	Mixer (10.695MHz)	RLD7C8-Z			
L5	Mixer (10.695MHz)	RLD7C8-Z			
L6	PLL VCO	RLQ7R21-Z			
L7	RF Choke	RLQ24701-D			
L8	XMT Oscillator (29.515MHz)	RLA7C28-Z			
L9	Oscillator (18.820MHz)	RLA7N18-0			
L10	RF Amp (27MHz)	RLA7C29-Z			
L12	RF Amp (27MHz)	RLA7C28-Z			
L13	RF Amp (27MHz)	RLA7R43-Z			
L14	Driver (27MHz)	RLA7Q10-M			
L15	Final	RLQY3052-0			
L16	Loading Final (27MHz)	RLA7Q10-M			
L22	RF Choke	RLQ21002-D			
L24	RF Choke	RLQ21541-Y			
L25	Antenna Matching	RLA7Q10-M			
L27	RF Choke	RLQZ6851-Y			
T1	1F (455kHz)	RL12C246-M			
T2	1F (455kHz)	RL12C246-M			
T3	1F (455kHz)	RL12C446-M			

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
C4	1 50V	ECEA50V1	PC1-50	VTT1A50	QV1-11	EV-1615
C13	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C22	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C23	1 50V	ECEA50V1	PC1-50	VTT1A50	QV1-11	EV-1615
C31	1 50V	ECEA50ZR1(1)		TDCT04M50EL	QDT1-2	SD50-R109
C32	100 6.3V		PC100-10	VTT100E10	QV1-93	EV-1030
C35	10 16V	ECEA16V10	PC10-25	VTT10B25	QV1-41	EV-1222
C36	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
C38	4.7 25V		PC5-50	VTT4R7B50	QV1-27	EV-1319
	10 25V		PC10-25	VTT10B25	QV1-43	EV-1322
C39	1 50V	ECEA50V1	PC1-50	VTT1A50	QV1-11	EV-1615
C45	47 50V	ECEA50ZRA7	PC1-50	VTT47A63	QV1-3	EV-1610
C76	47 16V	ECEA16V47	PC50-16	VTT47D16	QV1-73	EV-1226
C78	10 16V	ECEA16V10	PC10-25	VTT10B25	QV1-41	EV-1222
C81	47 16V	ECEA16V47	PC50-16	VTT47D16	QV1-73	EV-1226
C82	47 10V		PC50-16	VTT47D16	QV1-73	EV-1226
C83	47 50V	ECEA50ZRA7	PC1-50	VTT47A63	QV1-3	EV-1610
C85	10 16V	ECEA16V10	PC10-25	VTT10B25	QV1-41	EV-1222
C86	1 50V	ECEA50V1	PC1-50	VTT1A50	QV1-11	EV-1615
C87	10 16V	ECEA16V10	PC10-25	VTT10B25	QV1-41	EV-1222
C88	47 50V	ECEA50ZRA7	PC1-50	VTT47A63	QV1-3	EV-1610
C105	3.3 25V		PC5-50	VTT3R3A50	QV1-23	EV-1318
C124	33 6.3V		PC30-25	VTT33B10	QV1-61	EV-1125
C129	220 16V	ECEA16V220	PC250-25	VTT220H16	QV1-117	EV-1240
C130	2200 16V	ECEA16V2200	AA00B0A			TVLU-1125
C155	47 16V	ECEA16V47	PC50-16	VTT47D16	QV1-73	EV-1226
C163	100 16V	ECEA16V100	PC100-16	VTT100F16	QV1-95	EV-1230
C164	47 16V	ECEA16V47	PC50-16	VTT47D16	QV1-73	EV-1226
C169	10 16V	ECEA16V10	PC10-25	VTT10B25	QV1-41	EV-1222
C170	47 16V	ECEA16V47	PC50-16	VTT47D16	QV1-73	EV-1226

(1) Tantalum used as a lytic.

CAPACITORS

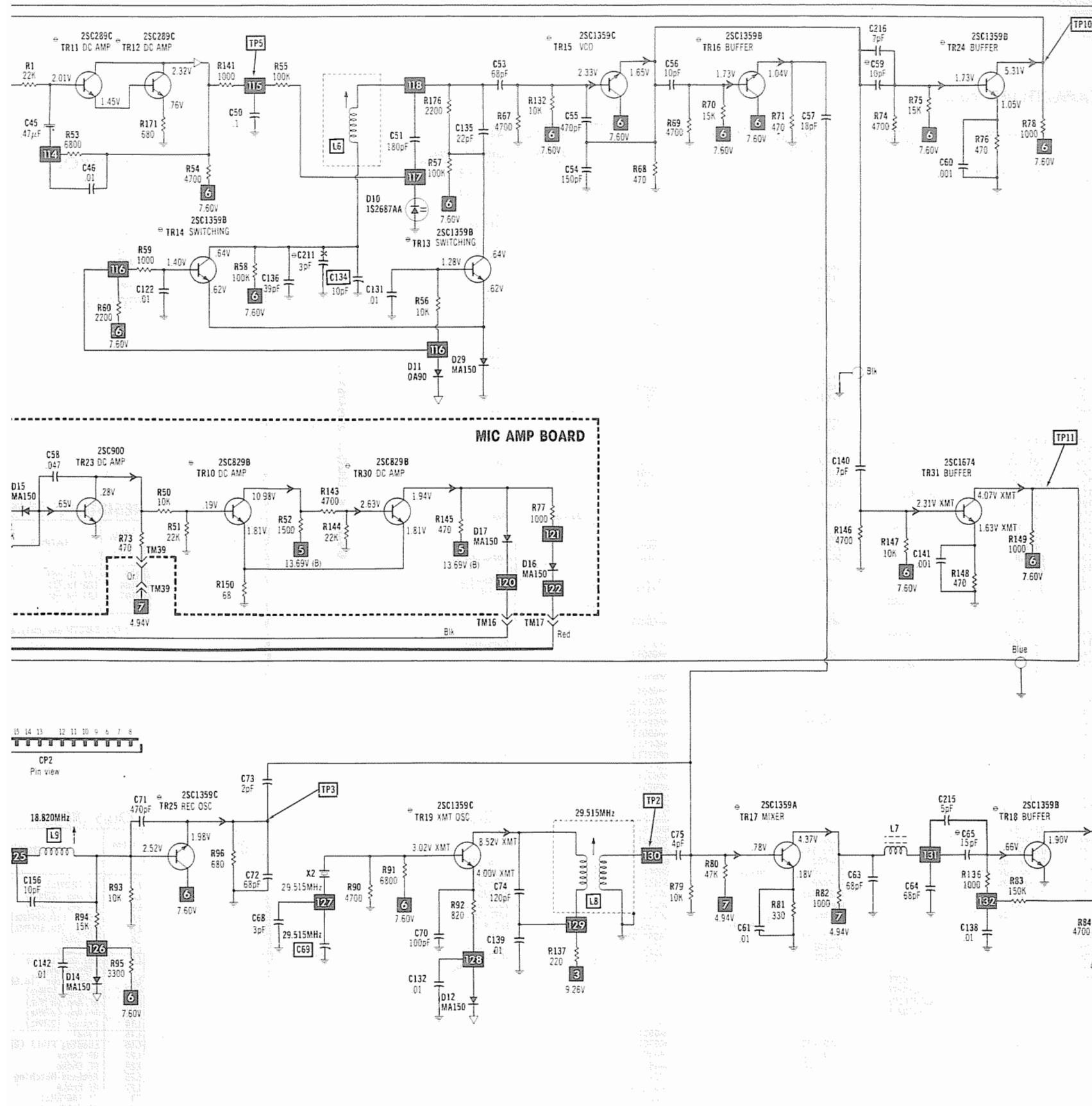
ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA					
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
						Q-LINE	GENERAL LINE	
C1	82 50V 10%	ECRT1H223ZF	DD-820	NP033	GP482		10TS-Q82	
C2	33 NPO 50V 10%		DTZ-33		CN0433		10TCC-Q33	
C3	12 NPO 50V 10%				CN0412		10TCC-Q12	
C5	.022 50V		ECCD1H010C	UK50-333	MAG50133			
	.033 50V							
C6	1 50V ±.25							
C7	21 NPO	ECKT1H223ZF	DTZ-22	NP022	CN0422		10TCC-Q22	
C8	.01 50V		UK50-103		MAG5011			
C9	.022 50V							
	.033 50V	ECKV1H223ZF	UK50-333		MAG50133			
C10	.022 50V							
C11	.01 50V			UK50-103	MAG5011			
C12	.022 50V	ECKT1H223ZF						
C14	2 50V ±.25		ECCD1H020C					
C15	330 50V 10%			DD-331	GP330	GP333		10TS-T33
C16	.001 50V		DD-102	GP210			10TS-D10	
C17	.033 50V		UK50-333	MAG50133				
C18	.033 50V		UK50-333		MAG50133			
C19	.022 50V	ECKT1H223ZF	UK50-333					
	.033 50V					MAG50133		
C20	.022 50V		ECKT1H223ZF	UK50-333		MAG50133		
	.033 50V		UK50-333		MAG50133			
C21	.033 50V	ECKT1H223ZF	UK50-333		MAG50133			
C24	.022 50V			UK50-333		MAG50133		
	.033 50V		ECKT1H223ZF	UK50-333		MAG50133		
C25	.022 50V		UK50-333					
	.033 50V			DPMS2S47	MAG50133			
C26	.047 50V 10%			DPMS6D1	ENF1A147	QFT2-171	1FT-547	
C28	.001 50V 10%				ENF1A210	QFT2-1	1FT-D10	
C29	.001 50V		DD-102		GP210		10TS-D10	
C30	.001 50V		DD-102		GP210		10TS-D10	
C33	.068 50V 10%			WMF1S60	ENF1A168	QF1-195	1PB-568	
	.01 50V			WMF1S1	ENF1A110	QFT2-91	1FT-S10	
C34	.033 50V 10%			DPMS6S33	M192P3339R8	QFT2-149	1FT-S33	
C37	.033 50V 10%			DPMS6S33	M192P3339R8	QFT2-149	1FT-S33	
C40	.01 50V		UK50-103		MAG5011			
C41	.022 50V 10%			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22	
C42	.022 50V 10%			DPMS2S22	M192P2239R8	QFT2-127	1FT-S22	
C43	10 NPO 50V 10%		DTZ-10	NP010	CN0410		10TCC-Q10	
C44	22 NPO 50V 10%		DTZ-22	NP022	CN0422		10TCC-Q22	
C46	.01 50V 10%			WMF1S1	ENF1A110	QFT2-91	1FT-S10	
C48	18 NPO 50V 10%				CN0418		10TCC-Q18	
C49	47 NPO 50V 10%		DTZ-47	NP047	CN0447		10TCC-Q47	
C50	1 50V			WMF05P1	ENF05010	QFT2-215	1FT-P10	
C51	180 50V 5%			CD15FD181J03	SX318	QW1-33	MMA-181	
C53	68 50V 5%			CD15ED680J03	SX468	QW1-23	MMA-680	
C54	150 50V 5%			CD15FD151J03	SX315	QW1-31	MMA-151	
C55	470 125V 5%			CD15FD471J03	SX347	QW1-42	MMA-471	
C56	10 NPO 50V 10%		DTZ-10	NP010	CN0410		10TCC-Q10	
C57	18 NPO 50V 10%				CN0418		10TCC-Q18	
C58	.047 50V 10%			DPMS2S47	ENF1A147	QFT2-171	1FT-547	
C59	10 NPO 50V 10%		DTZ-10	NP010	CN0410		10TCC-Q10	
C60	.001 50V		DD-102		GP210		10TS-D10	
C61	.01 50V		UK50-103		MAG5011			
C62	33 NPO 50V 10%		DTZ-33	NP033	CN0433		10TCC-Q33	
C63	68 50V 10%			CD15ED680J03	SX468	QW1-23	MMA-680	
C64	68 50V 10%			CD15ED680J03	SX468	QW1-23	MMA-680	

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
C65	15 NPO 50V 10%		DTZ-15	NP015	CND415		10TCC-Q15
C67	27 NPO 50V 10%				CND427		10TCC-Q27
C68	3 NPO 50V ±.25		DTZ-3R3	NP03P3	CND533		10TCC-V33
C70	100 50V 5%			CD15FD101J03	SX310	QW1-27	MMA-101
C71	470 125V 5%			CD15FD471J03	SX347	QW1-42	MMA-471
C72	68 50V 10%			CD15ED680J03	SX468	QW1-23	MMA-680
C73	2 50V ±.25	ECCD1H020C					
C74	120 50V 5%			CD15FD121J03	SX312	QW1-29	MMA-121
C75	4 50V ±.25	ECCD1H040C					
C77	.01 50V		UK50-103		MAG5011		
C79	.01 50V		UK50-103		MAG5011		
C80	.01 50V		UK50-103		MAG5011		
C84	100 50V 10%		DD-101	GP100	GP310		10TS-T10
C96	120 50V 5%		UK50-103	CD15F0121J03	SX312	QW1-29	MMA-121
C98	.01 50V				MAG5011		
C100	4 50V ±.25	ECCD1H040C					
C101	120 50V 5%			CD15FD121J03	SX312	QW1-29	MMA-121
C102	100 50V 5%			CD15FD101J03	SX310	QW1-27	MMA-101
C103	100 50V 5%			CD15FD101J03	SX310	QW1-27	MMA-101
C104	.01 50V		UK50-103		MAG5011		
C105	.033 50V		UK50-333		MAG50133		
C107	.033 50V		UK50-333		MAG50133		
C108	150 50V 5%			CD15FD151J03	SX315	QW1-31	MMA-151
C112	.01 50V		UK50-103		MAG5011		
C113	82 50V 10%		DD-820		GP482		10TS-Q82
C118	4 50V ±.25	ECCD1H040C					
C119	.033 50V		UK50-333		MAG50133		
C120	.001 50V		DD-102		GP210		10TS-D10
C121	.033 50V		UK50-333		MAG50133		
C122	.01 50V		UK50-103		MAG5011		
C123	.022 50V	ECKT1H223ZF					
C125	.01 50V		UK50-103		MAG5011		
C126	220 50V 5%			CD15FD221J03	SX322	QW1-35	MMA-221
C128	.022 50V	ECKT1H223ZF					
C131	.01 50V		UK50-103		MAG5011		
C132	.01 50V		UK50-103		MAG5011		
C133	180 50V 10%		DD-181		GP318		10TS-T18
C134	10pF						
C135	22 N750 50V 10%		DTN-22	N22	CN7422		10TCU-Q22
C136	39 N750 50V 10%				CN7439		10TCU-Q39
C137	.022 50V	ECKT1H223ZF					
C138	.01 50V		UK50-103		MAG5011		
C139	.01 50V		UK50-103		MAG5011		
C140	7 NPO 50V ±.5	ECCD1H0700C					
C141	.001 50V		DD-102		GP210		10TS-D10
C142	.01 50V		UK50-103		MAG5011		
C143	.022 50V	ECKT1H223ZF					
	.033 50V						
C145	.01 50V		UK50-103		MAG5011		
C146	.033 25V		UK25-333		MAG25133		HY-730
C147	.033 25V		UK25-333		MAG25133		HY-730
C148	.033 25V		UK25-333		MAG25133		HY-30
C149	.01 50V		UK50-103		MAG5011		
C151	.033 25V		UK25-333		MAG25133		HY-730
C152	.033 25V		UK25-333		MAG25133		HY-730
C155	10 NPO 50V 10%		DTZ-10	NP010	CND410		10TCC-Q10
C158	.01 50V		UK50-103		MAG5011		
C160	.033 25V		UK25-333		MAG25133		HY-730
C161	.033 25V		UK25-333		MAG25133		HY-730
C162	18 NPO 10%				CN0418		10TCC-Q18
	27 NPO 10%				CN0427		10TCC-Q27
C166	.033 25V		UK25-333		MAG25133		HY-730
C168	.01 50V		UK50-103		MAG5011		
C171	.033 50V		UK50-333		MAG50133		
C172	82 50V 10%		DD-820		GP482		10TS-Q82
C173	10 NPO 50V 10%		DTZ-10	NP010	CND410		10TCC-Q10
C174	82 50V 10%		DD-820		GP482		10TS-Q82
C175	.033 25V		UK25-333		MAG25133		HY-730
C176	.001 50V		DD-102		GP210		10TS-D10
C177	56 50V 10%		DD-560		GP456		10TS-Q56
C181	.1 50V 10%			WMF05P1	ENF05010	QFT2-215	1FT-P10
C182	.033 50V		UK50-333		MAG50133		
C185	.001 50V		DD-102		GP210		10TS-D10
C186	.001 50V		DD-102		GP210		10TS-D10
C196	.001 50V	ECKD1H102PF					
C197	.001 50V	ECKD1H102PF					
C198	.001 50V	ECKD1H102PF					
C199	.001 50V	ECKD1H102PF					
C200	.001 50V	ECKL1H102PF					
C201	.01 50V		UK50-103		MAG5011		
C202	.01 50V		UK50-103		MAG5011		
C203	.01 50V		UK50-103		MAG5011		
C204	.01 50V		UK50-103		MAG5011		
C205	.01 50V		UK50-103		MAG5011		
C206	.001 50V		DD-102		GP210		10TS-D10
C210	.068 25V		UK25-683		MAG25168		HY-740
C211	3 NPO 50V ±.25		DTZ-3R3	NP03P3	CND533		10TCC-V33
C217	.033 50V 10%			DPMS6533	M192P3339R8	QFT2-149	1FT-S33



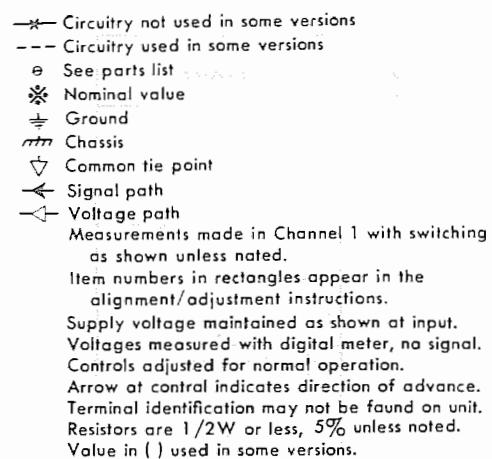
PLL SCHEMATIC

PANASONIC MODEL RJ-3050

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.
D1	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D2	0A90		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D3	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D4	0A90		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D5	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D8	VD1150L	RVDVD1150L	PTC301		HEPR0602	REN 601	SK3463	RT-218	ECG601	TM177	WEP1062	103-131
D9	VD1150L	RVDVD1150L	PTC301		HEPR0602	REN 601	SK3463		ECG601			
D10	1S2687AA				HEPR2502	REN 612	SK3056		ECG612			103-176
D11	0A90		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D12	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D13	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D14	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D16	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D16	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D17	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D19	1N4733		GEZD-5.1		HEPR0406	REN 177	SK3056	RT-235	ECG177	TM177	WEP1062	103-131
D20	RD7R5EB	RVD07R5EB	GEZD-7.5	ZB7.5B		REN 138	SK3059	RT-239	ECG138A	TM138/**	WEP1107	103-Z9002
D21	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D22	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D23	0A90		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D24	0A90		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D25	0A90		1N60	PTC206	HEPR9135	REN 109	SK3088	RT-263	ECG109	TM109/**	WEP134	103-Z9001
D26	10E1LF		GE-504A	PTC201	HEPR0052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
D27	1N4739		GEZD-9.1	ZB9.1A	HEPR0412	REN 139	SK3060	RT-240	ECG139	TM139/**	WEP1109	103-272
D28	10E1LF		GE-504A	PTC201	HEPR0052	REN 116	SK3311	RT-213	ECG116	TM116	WEP156	212-76-02
D29	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D31	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D32	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D33	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
D34	MA150		GE-300	PTC214	HEPR0602	REN 177	SK3100	RT-218	ECG177	TM177	WEP1062	103-131
IC1	SM5104G				HEPR0602	REN 177	SK3100		ECG177			
IC2	AN360		GEIC-295				SK3493		ECG1223			
TR1	2SC829B		GE-20*	PTC182	HEPF2007	REN 222	SK3065	RT-181	ECG222	TM222	WEP905	121-826
TR2	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR3	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR4	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR5	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR6	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR7	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR8	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR9	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR10	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR11	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR12	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR13	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR14	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR15	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR16	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR17	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR18	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR19	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR20	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR21	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR22	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR23	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR24	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR25	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR26	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR27	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR28	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR29	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR30	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*
TR31	2SC829B		GE-20*	PTC139*	HEPS0015*	REN 229*	SK3444	RT-308	ECG229*	TM229*/**	WEP829	121-Z9021*

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



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