

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 TRC-101B (21-129)

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

GC ELECTRONICS

T3, T4, MF, T5, T6, T7 #5000, 8290

ALL other tunable coils and transformers . . . #9440

REALISTIC MODEL TRC-101B

RECEIVER

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
Adjustments made with 15-volt DC input.
Adjust volume control to obtain suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
High side thru .01uF to base of TR3, low side to ground.	455kHz, 1000Hz, @ 30% modulation	Any	MF1,T5, T6,T7	Set generator to maintain a 1.0V signal across speaker voice coil. Adjust for maximum.
High side thru .01uF to External antenna jack, low side to ground.	27.085MHz, 1000Hz, @ 30% modulation, output 1uV	11	T1,T2, T3,T4	Adjust for maximum.

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

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6CX310

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF Wattmeter across speaker voice coil.
These adjustments made with 15-volt DC input.
Adjust volume Control to obtain a suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
SQUELCH RANGE High side thru .01uF to external antenna jack, low side to ground.	27.085MHz, 1000Hz, @ 30% modulation, output 500uV.	11	VR4	Set squelch control fully clockwise. Adjust so that squelch just breaks.
"S" METER High side thru .01uF to external antenna jack, low side to ground	27.085MHz, 1000Hz, @ 30% modulation, output 100uV	11	VR2	Adjust for 2/3 scale.
BATTERY CHECK		B	VR8	Adjust for meter reading between white and red scale with 12V DC input.

TRANSMITTER

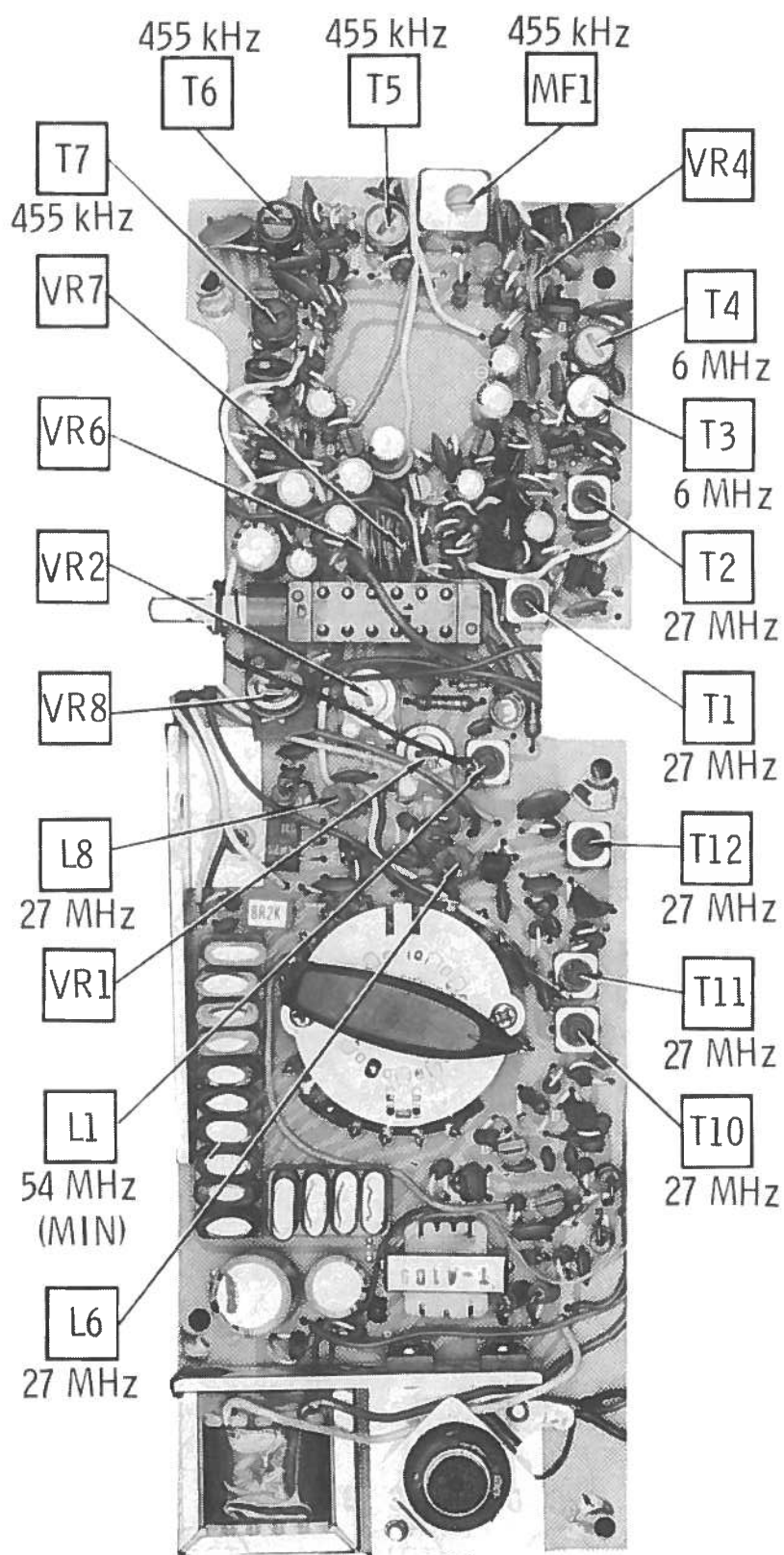
Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 15-volt DC input.

INDICATOR	ADJUST	REMARKS
OSCILLATOR, MIXER, BUFFER, DRIVER, FINAL RF Wattmeter	T10,T11, T12,L6	Channel selector to CH. 11. Key transmitter. Adjust for maximum.
TVI TRAP TV (CH. 2)	L1	Key transmitter. Adjust for MINIMUM interference on TV.
FINAL INPUT POWER Connect 0-500DC milliammeter between L7 and C70	L8	Adjust for 3-watts (Max.).

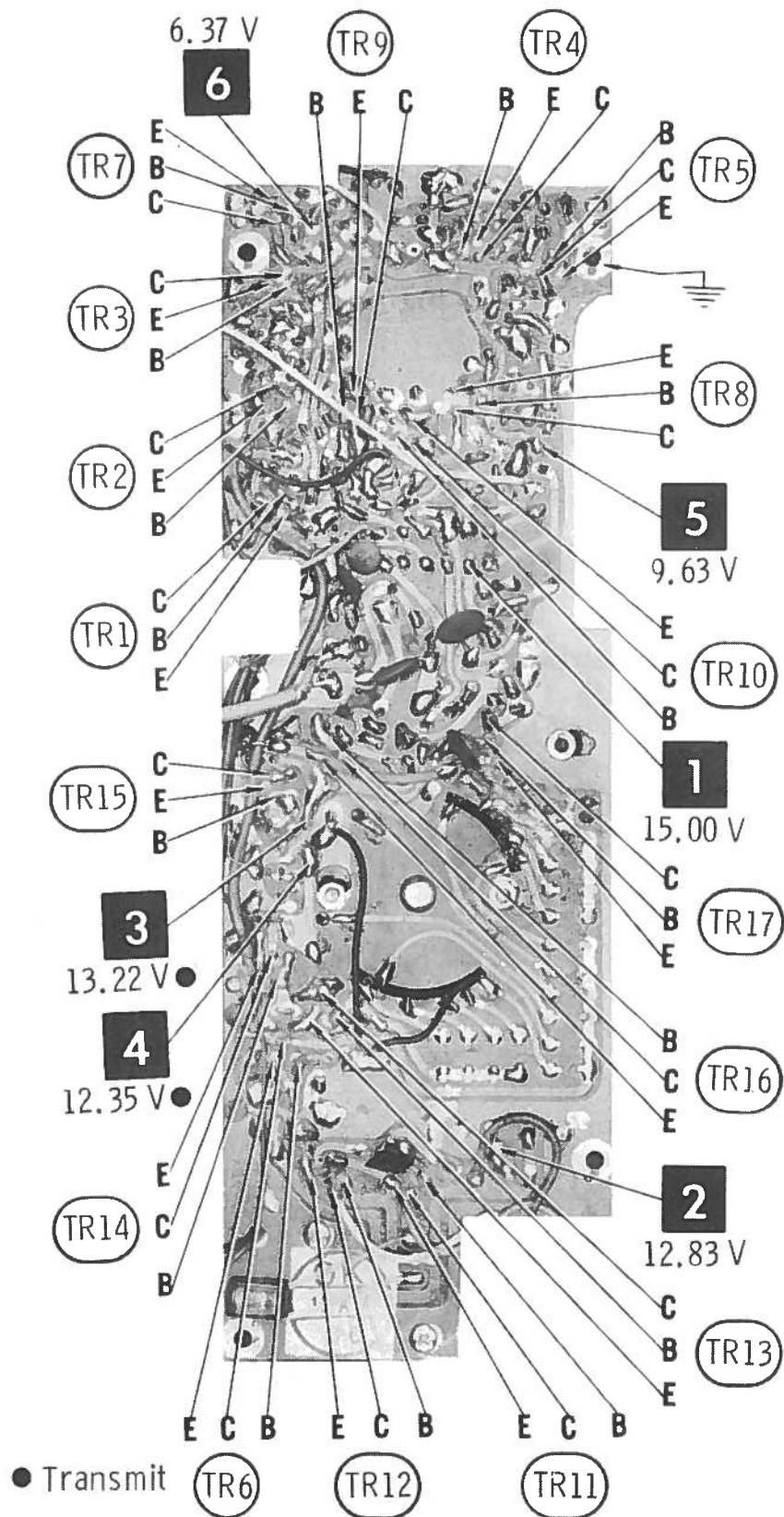
TRANSMITTER ADJUSTMENTS

Connect an RF Wattmeter or 50-ohm, 25-watt dummy load to antenna connector.
Adjustments made with 15-volt DC input.

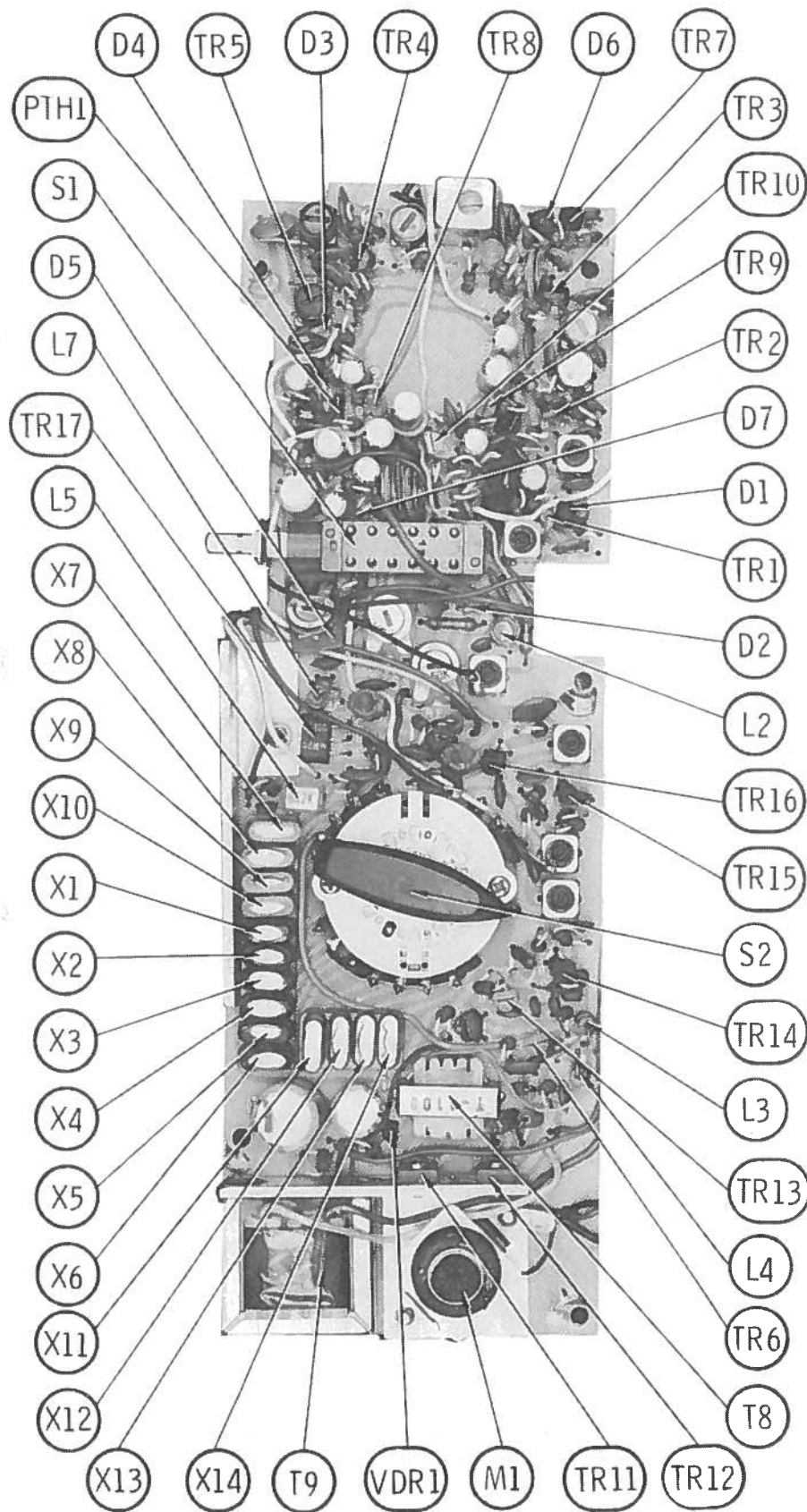
INDICATOR	ADJUST	REMARKS
HI-LO MODULATION Modulation Meter connected to external antenna jack	VR6 (Hi) VR7 (Lo)	Inject a 1000Hz 2.5mV audio signal at mic input. Key transmitter. Adjust for 100% modulation maximum.
RF PANEL METER RF Wattmeter	VR1	Key transmitter. Adjust so that panel RF meter reads 2/3 scale.



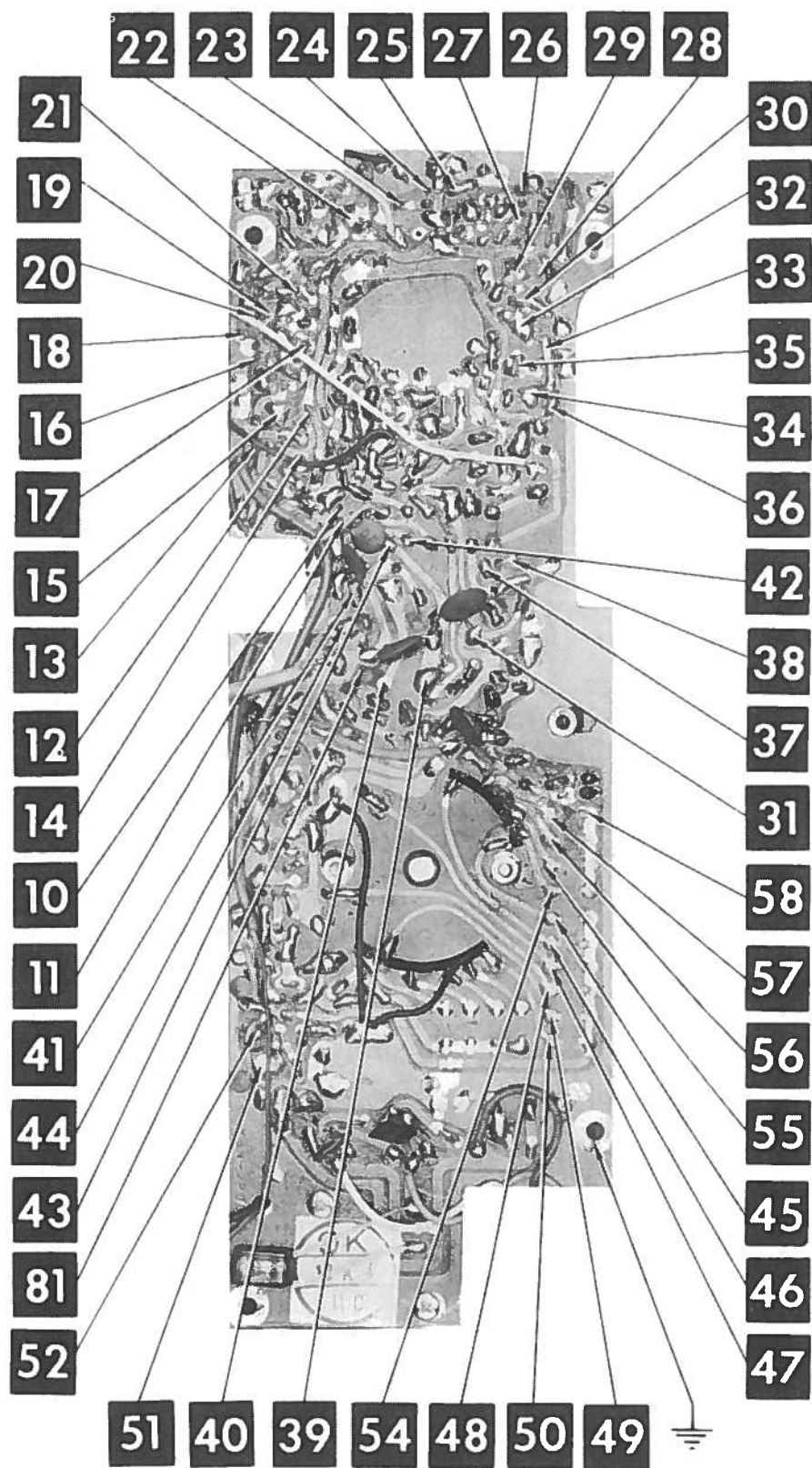
MAIN BOARD



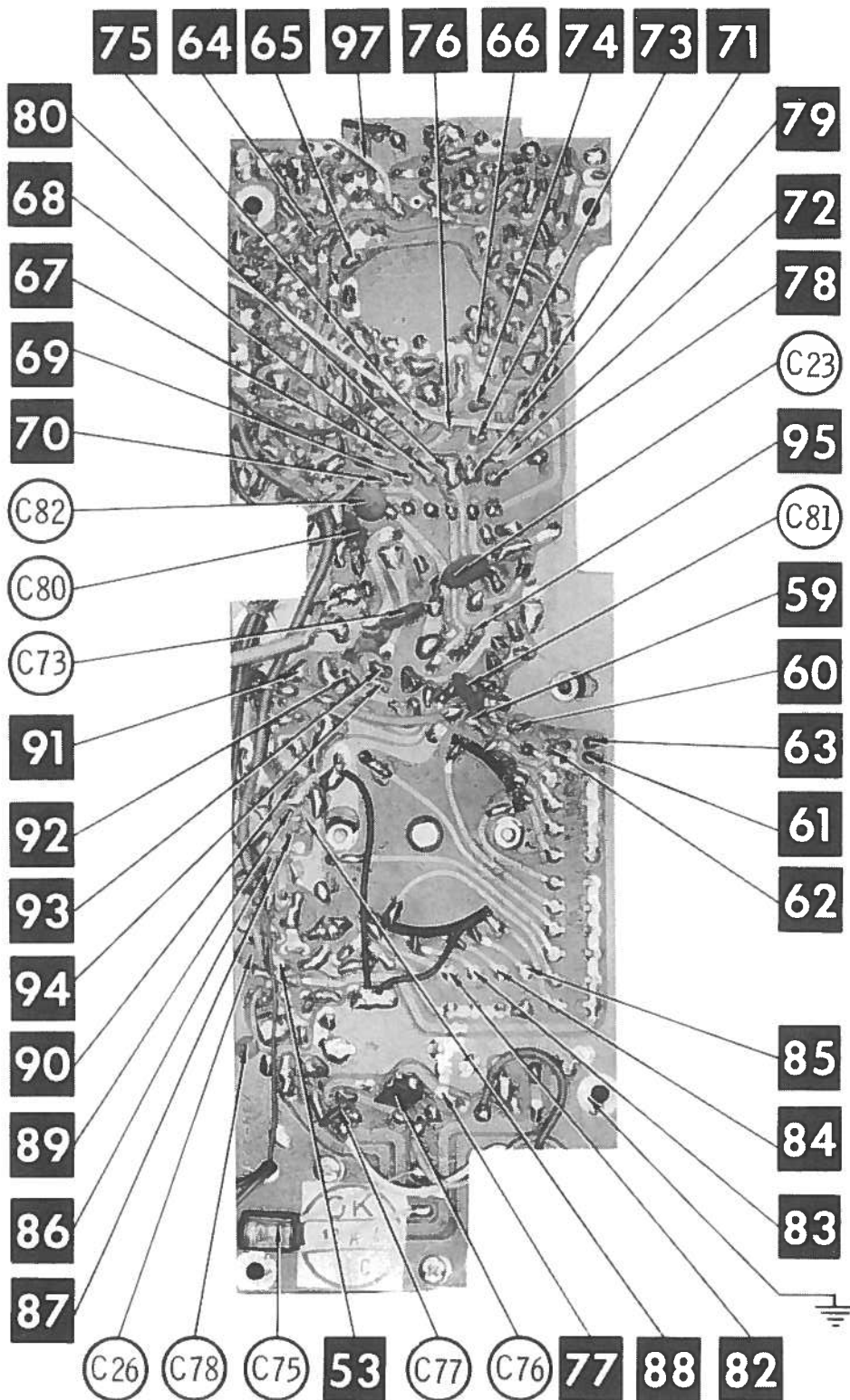
MAIN BOARD



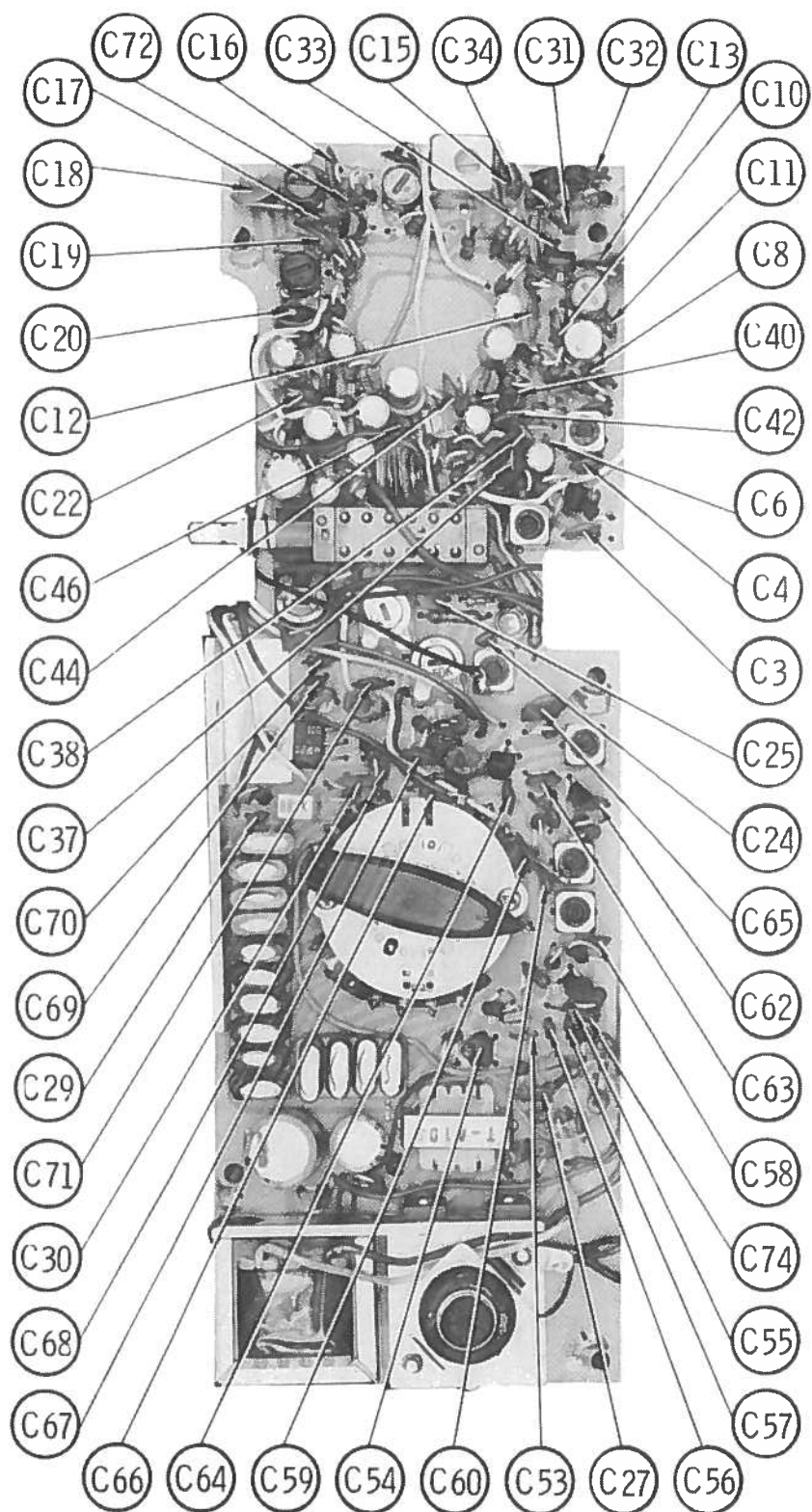
MAIN BOARD



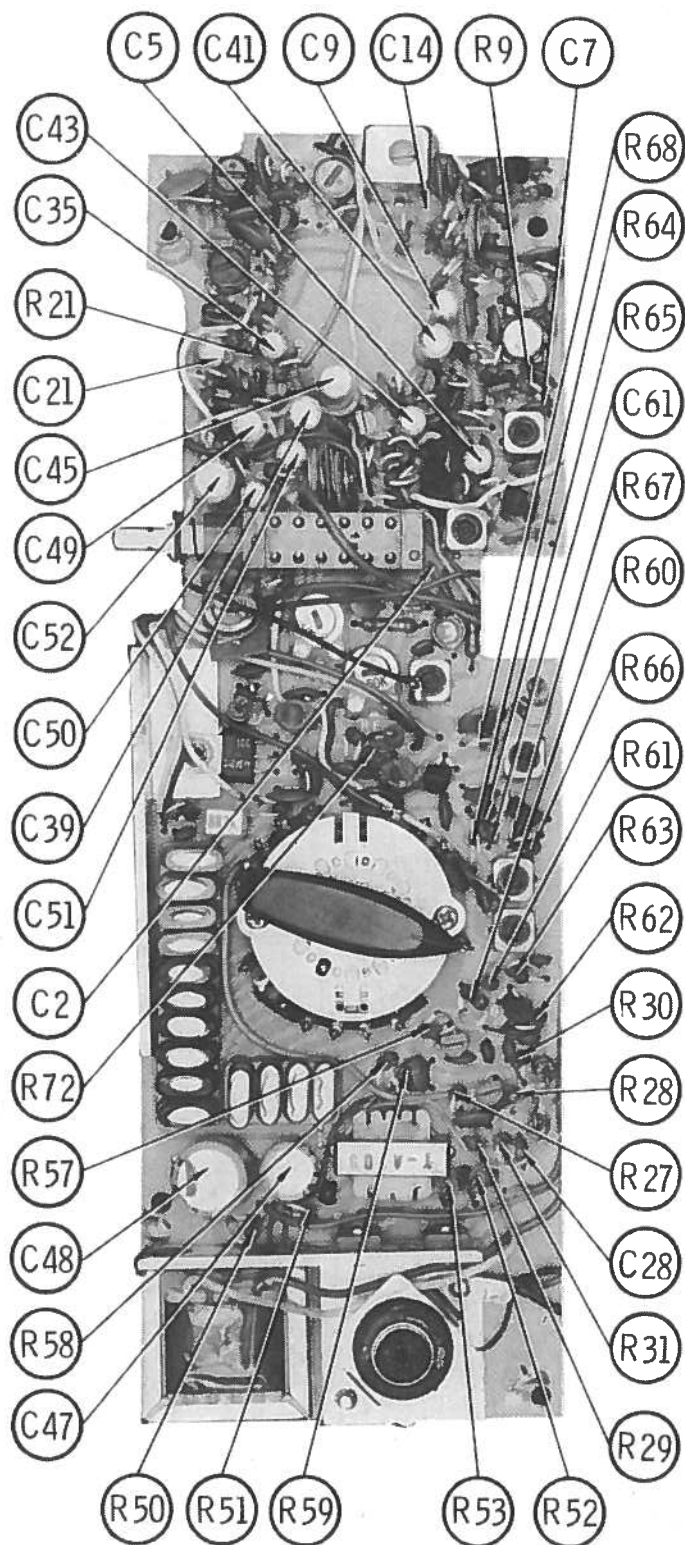
MAIN BOARD



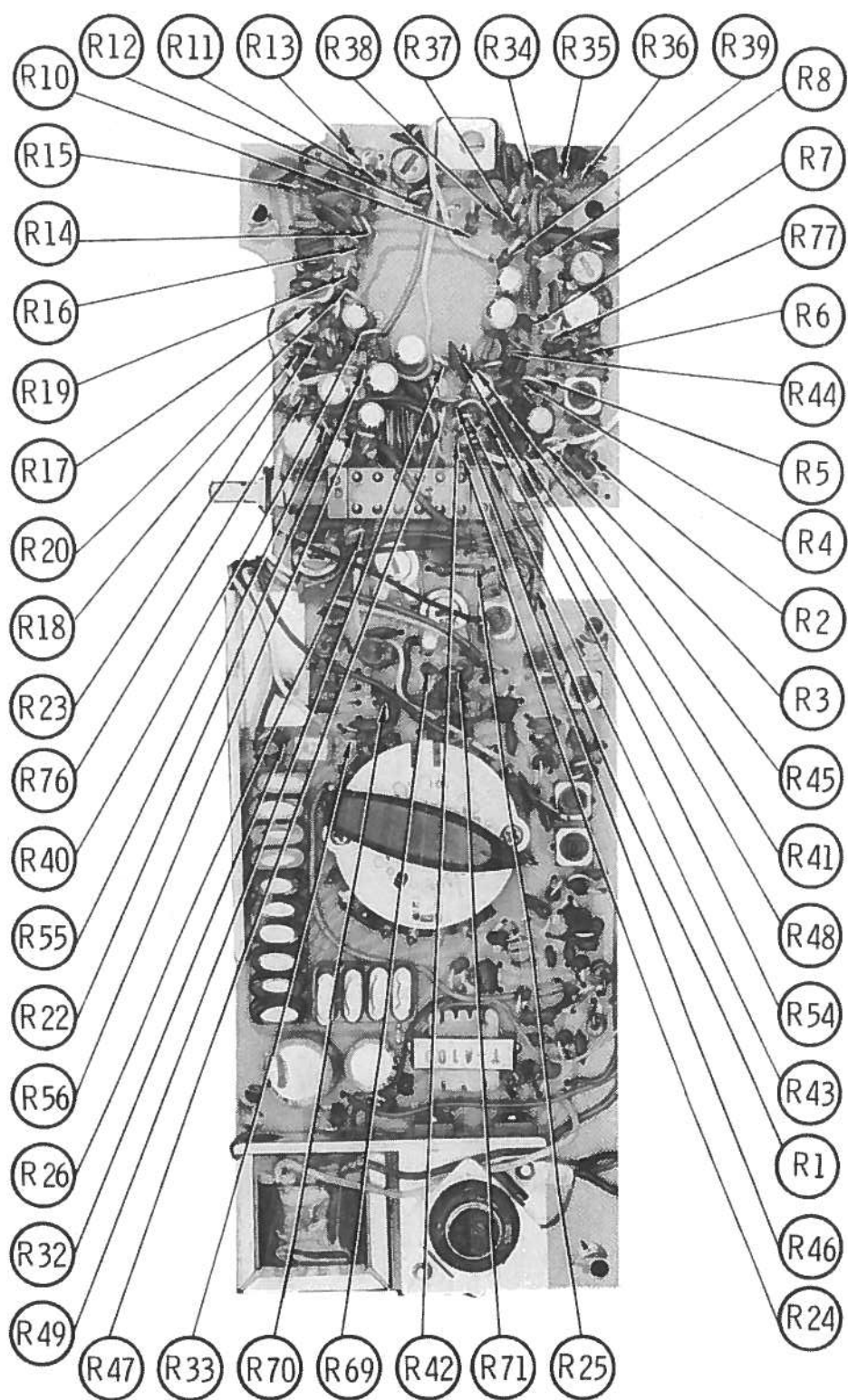
REALISTIC MODEL TRC-101B



MAIN BOARD



MAIN BOARD



MAIN BOARD

PARTS LIST AND DESCRIPTION

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

WIRING DATA

General-use Hook-up Wire	Use BELOEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELOEN No. 8240 (Solid) Miniature (RG-58/U) 8259 (Stranded) Miniature (RG-58A/U)
Shielded Cable	Use BELOEN No. 8499 Single-conductor Shielded (Neoprene)

SEMICONDUCTORS (Select replacement transistor for best results)

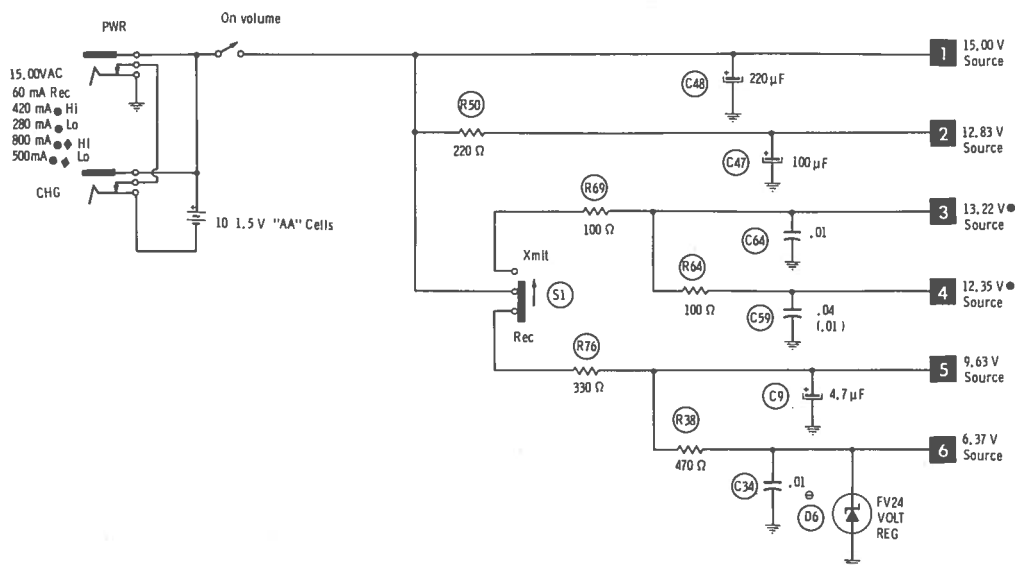
ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RAYTHEON PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
01	1K60A	(5.6 Volt Zener)	1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
02	1S2473		GE-300	0200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
03	1K60A		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
04	1K60A		1N60	1N60	PTC206	HEPR9135	RE 47	SK3088	RT-263	ECG109
05	1S2473		GE-300	D200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
06	FV-24		GEZD-5.6	Z1204	PTC502	HEPZ0407	RE 107	SK3057	RT-236	ECG136
07	1S2473	(10)	GE-300	0200	PTC214	HEPR0602	RE 52	SK3100	RT-218	ECG177
TR1	2SC460A		GE-210	TR-24	PTC136	HEPS0014	RE 9	SK3018	RT-187	ECG233
TR2	2SC460A		GE-210	TR-24	PTC136	HEPS0014	RE 9	SK3018	RT-187	ECG233
TR3	2SC460A		GE-210	TR-24	PTC136	HEPS0014	RE 9	SK3018	RT-187	ECG233
TR4	JA13508		GE-10	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG199
TR5	JA13508		GE-10	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG199
TR6	2SC839H		GE-20	TR-24	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
TR7	JA13508		GE-10	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG199
TR8	JA13508		GE-10	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG199
TR9	JA13508		GE-10	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG199
TR10	JA13508		GE-10	TR-21	PTC136	HEPS0015	RE 13	SK3122	RT-172	ECG199
TR11	MJE9400		GE-55		PTC163	HEPS5000	RE 40		RT-194	ECG182
TR12	MJE9400		GE-55		PTC163	HEPS5000	RE 40		RT-194	ECG182
TR13	2SC839H		GE-20	TR-24	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
TR14	2SC839H		GE-20	TR-24	PTC121	HEPS0015	RE 13	SK3018	RT-107A	ECG123A
TR15	MPS8001		GE-62	TR-21	PTC121	HEPS0016	RE 13	SK3124	RT-105	ECG123A
TR16	MPS8000		GE-219	TR-65	PTC158	HEPS3001	RE 79	SK3048	RT-182	ECG195A
TR17	MPS-U31								RT-186	ECG302
VR1	VO1123									

(10) Rating 1.0 watt @ 500 mA.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA					
		MFR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	10 10V		RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C9	4.7 25V		RME-A-J-005	EP30-5	PC5-50	VTT4R7A50	EV-1319
C21	10 10V		RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C35	10 10V		RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C39	22 10V		RME-0-G-025	EP15-25	PC25-25	VTT22A16	EV-1224
C41	33 10V		ME-3-0-035	EP15-25	PC30-25	VTT33A10	EV-1125
C43	1 50V		RME-A-J-001	EP50-1	PC1-50	MTV1C850	EV-1615
C45	33 10V		ME-3-0-035	EP15-25	PC30-25	VTT33A10	EV-1125
C47	100 16V		RME-E-E-100	EP15-100	PC100-16	VTT100F16	EV-1230
C48	220 25V		RME-K-G-250	EP30-250	PC250-25	VTT220H25	EV-1340
C49	33 10V		ME-3-0-035	EP15-25	PC30-25	VTT33A10	EV-1125
C50	10 10V		RME-A-D-010	EP15-10	PC10-25	VTT10A25	EV-1222
C51	1 50V		RME-A-J-001	EP50-1	PC1-50	MTV1C850	EV-1615
C52	33 25V		ME-4-G-035	EP30-25	PC30-25	VTT33025	EV-1325
C103	1 50V		RME-A-J-001	EP50-1	PC1-50	MTV1C850	EV-1615

REALISTIC MODEL TRC-101B



Terminal Guides



Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement	Chan	Crystal Complement
1	X1 X10 X14	7	X2 X8 X12	13	X4 X10 X14	19	X5 X8 X12
2	X1 X9 X13	8	X2 X7 X11	14	X4 X9 X13	20	X5 X7 X11
3	X1 X8 X12	9	X3 X10 X14	15	X4 X8 X12	21	X6 X10 X14
4	X1 X7 X11	10	X3 X9 X13	16	X4 X7 X11	22	X6 X9 X13
5	X2 X10 X14	11	X3 X8 X12	17	X5 X10 X14	23	X6 X7 X11
6	X2 X9 X13	12	X3 X7 X11	18	X5 X9 X13		

— Circuitry not used in some versions

--- Circuitry used in some versions

⊕ See parts list

✱ Nominal value

⊥ Ground

Measurements with switching as shown unless noted:

■ Squelch fully clockwise ◆ 100% modulation

● Transmit ▲ AM

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.

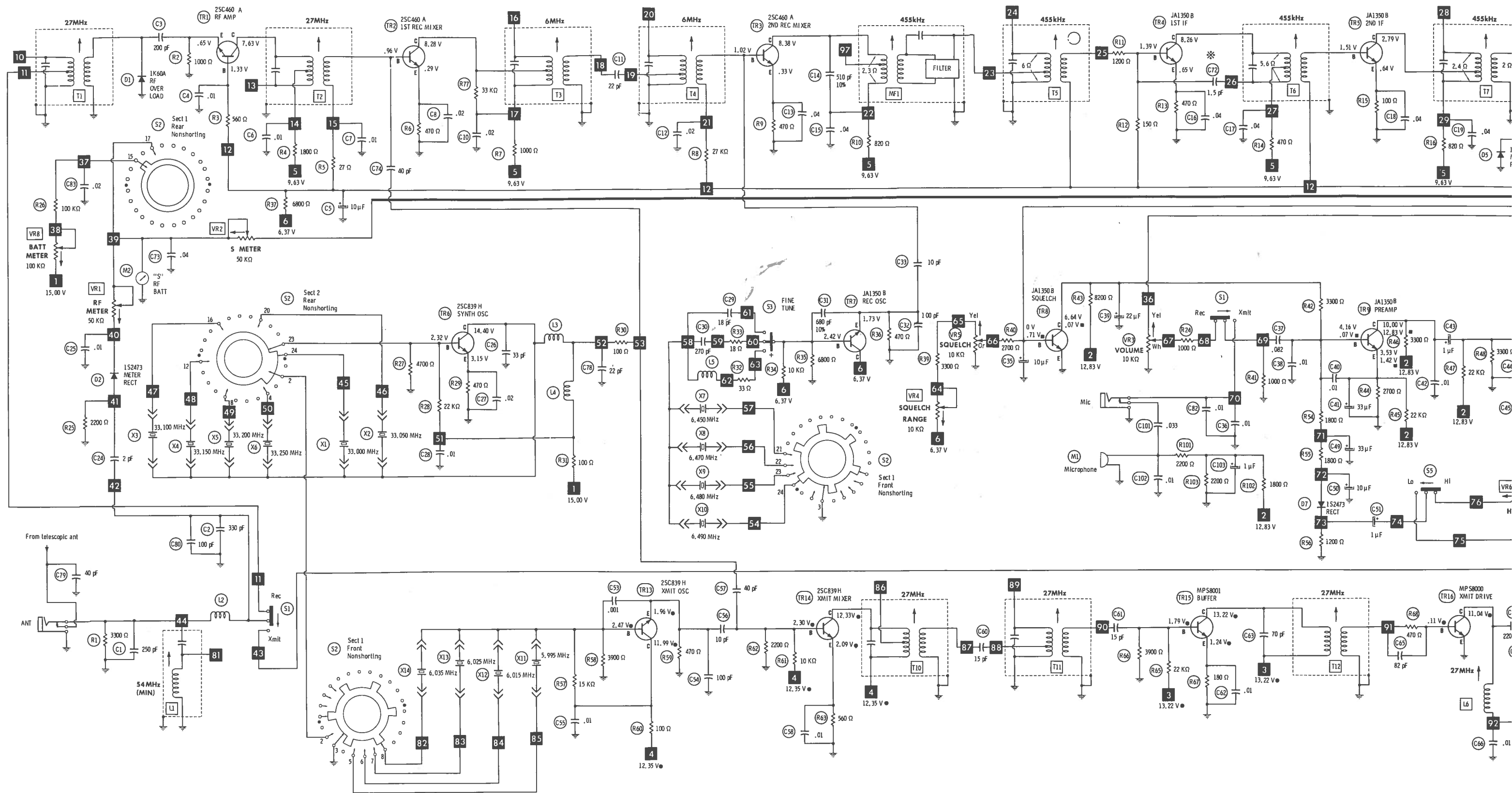
Resistors are 1/2W or less, 5% unless noted.

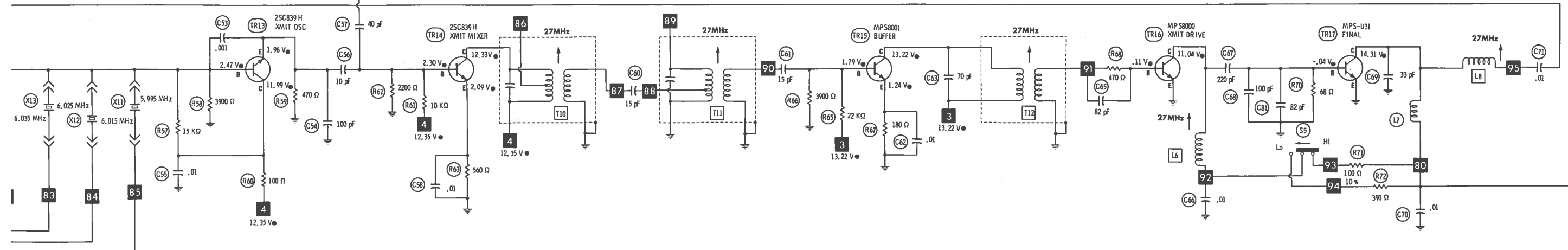
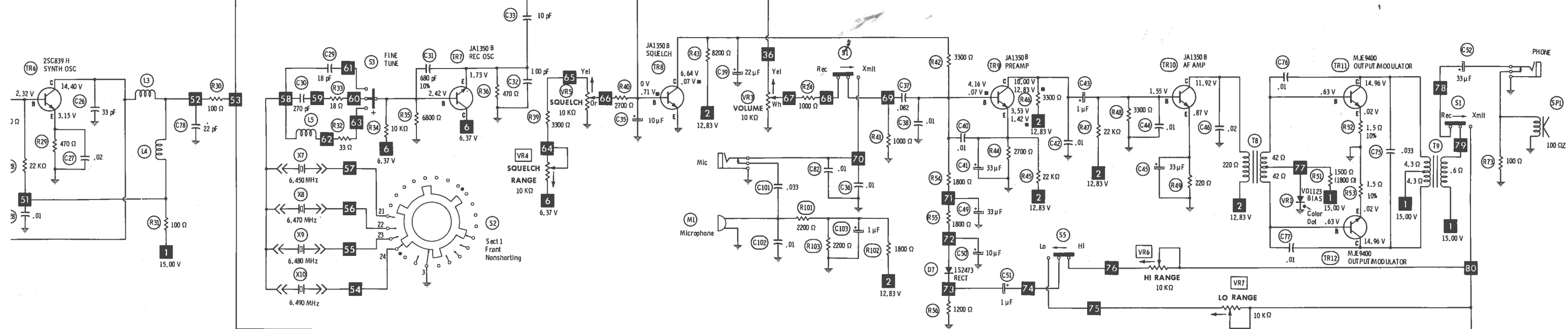
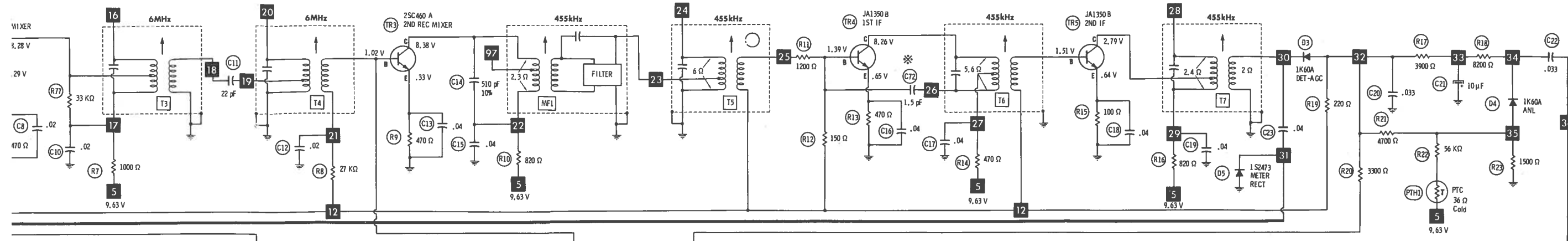
Value in () used in some versions.

A PHOTOFAC STANDARD NOTATION SCHEMATIC

WITH CIRCUITRACE[®]

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PARTS LIST AND DESCRIPTION (CONTINUED)

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

PARTS
(When orde

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.
C1	250		CCD-271	OD-271	GP270	GP327	10TS-T27
C2	330		CCD-331	DD-331	GP330	GP333	10TS-T33
C3	200		CCD-201	DD-201	GP200	GP320	10TS-T20
C4	.01		CCD-103				10TS-S10
C6	.01		CCD-103				10TS-S10
C7	.01		CCD-103				10TS-S10
C8	.02		CCD-203			GP120	5GA-S20
C10	.02		CCD-203			GP120	5GA-S20
C11	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C12	.02		CCD-203			GP120	5GA-S20
C13	.04		CCD-403			GP140	5GA-S40
C14	510 10%		DM15-511J	CPR-510J	CO15FD511J03	SX351	424ME5100J501
C15	.04		CCD-403			GP140	5GA-S40
C16	.04		CCD-403			GP140	5GA-S40
C17	.04		CCD-403			GP140	5GA-S40
C18	.04		CCD-403			GP140	5GA-S40
C19	.04		CCD-403			GP140	5GA-S40
C20	.033		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C22	.033		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C23	.04		CCD-403			GP140	5GA-S40
C24	2		CCTO-2R2	DTZ-2R2	NP02P2	CN0522	10TCC-V22
C25	.01		CCD-103				10TS-S10
C26	33		CCTO-330	DTZ-33	NP033	CN0433	10TCC-Q33
C27	.02		CCD-203			GP120	5GA-S20
C28	.01		CCD-103				10TS-S10
C29	18		CCTO-180			CN0418	10TCC-Q18
C30	270		CCD-271	DD-271	GP270	GP327	10TS-T27
C31	680 10%		CCD-681	DD-681	GP680	GP368	10TS-T68
C32	100		CCD-101	DD-101	GP100	GP310	10TS-T10
C33	10			DTZ-10	NP010	CN0410	10TCC-Q10
C34	.01		CCD-103				10TS-S10
C36	.01		CCD-103				10TS-S10
C37	.082		1MDF-3-823		DPMS6S82	EW1A182	1PB-S82
C38	.01		1MDF-1-103	CPJ-103	DPMS4S1	EW1A110	1PB-S10
C40	.01		1MDF-1-103	CPJ-103	OPMS4S1	EW1A110	1PB-S10
C42	.01		CCD-103				10TS-S10
C44	.01		CCD-103				10TS-S10
C46	.02		CCD-203			GP120	5GA-S20
C53	.001		CCD-102	OD-102		GP210	10TS-D10
C54	100		CCD-101	DD-101	GP100	GP310	10TS-T10
C55	.01		CCO-103				10TS-S10
C56	10			DTZ-10	NP010	CN0410	10TCC-Q10
C57	40		CCTO-390			CN0439	10TCC-Q39
C58	.01		CCO-103				10TS-S10
C59	.04		CCD-403			GP140	5GA-S40
C60	15		CCTO-150	DTZ-15	NP015	CN0415	10TCC-Q15
C61	15		CCTO-150	DTZ-15	NP015	CN0415	10TCC-Q15
C62	.01		CCD-103				10TS-S10
C63	70		CCTO-750	DTZ-75	NP075	CN0475	10TCC-Q75
C64	.01		CCD-103				10TS-S10
C65	82		CCD-820	DD-820		GP482	10TS-Q82
C66	.01		CCD-103				10TS-S10
C67	220		CCD-221	OD-221		GP322	10TS-T22
C68	100		CCD-101	DD-101	GP100	GP310	10TS-T10
C69	33		CCTO-330	DTZ-33	NP033	CN0433	10TCC-Q33
C70	.01		CCD-103				10TS-S10
C71	.01		CCD-103				10TS-S10
C72	1.5			DTZ-1R5	NP01P5	CN0515	10TCC-V15
C73	.04		CCD-403			GP140	5GA-S40
C74	40		CCTO-390			CN0439	10TCC-Q39
C75	.033		6DP-3-333		OPMS6S33	EW6133	6PS-S33
C76	.01		1MDF-1-103	CPJ-103	OPMS4S1	EW1A110	1PB-S10
C77	.01		1MDF-1-103	CPJ-103	OPMS4S1	EW1A110	1PB-S10
C78	22		CCTO-220	DTZ-22	NP022	CN0422	10TCC-Q22
C79	40		CCTO-390			CN0439	10TCC-Q39
C80	100		CCD-101	DD-101	GP100	GP310	10TS-T10
C81	82		CCD-820	DD-820		GP482	10TS-Q82
C82	.01		CCD-103				10TS-S10
C83	.02		CCD-203			GP120	5GA-S20
C101	.033		6DP-3-333		DPMS6S33	EW6133	6PS-S33
C102	.01		CCD-103				10TS-S10

CONTI

ITEM No.	
VR1	
VR2	
VR3	
VR4	
VR5	
VR6	
VR7	
VR8	

RESIS1

ITEM No.	
PTH	

COILS

ITEM No.	
L1	
L2	
L3	
L4	
L5	
L6	
L7	
L8	
T1	
T2	
T3	
T4	
T5	
T6	
T7	
T10	
T11	
T12	
MF1	

TRANS

ITEM No.	
T8	

TRANS

ITEM No.	
T9	22

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	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
VR1	RF Meter	50K	P-6207				
VR2	S Meter	50K	P-6207				
VR3	Volume/Switch	10K	P-1435				
VR4	Squelch Range	10K	P-6205				
VR5	Squelch	10K	P-1436				
VR6	Hi Range	10K	P-6206				
VR7	Lo Range	10K	P-6206				
VR8	Battery Meter	100K					

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.
PTH	36 Cold PTC		PTH81T04M				

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	TVI Trap (54MHz)	CA-3088	L-R326		
L2	Antenna Load	CA-3089			
L3	Synth. Osc.	CB-2210			
L4	RF Choke	CB-2210			
L5	RF Choke	CA-3091			
L6	Xmit. Drive (27MHz)	CA-3090			
L7	Xmit. Final	CB-221			
L8	Xmit. Final	CA-3090			
T1	Rec. Ant. (27MHz)	CA-3083	T-T045		
T2	Rec. RF (27MHz)	CA-3084	T-T046		
T3	Rec. Mixer (6MHz)	CA-7353			
T4	Rec. Mixer (6MHz)	CA-7354	T-M052		
T5	Interstage IF (455kHz)	CA-7355	T-M053		
T6	Interstage IF (455kHz)	CA-7356	T-M054		
T7	Output IF (455kHz)	CA-7357	T-M055		
T10	Xmit. Mixer (27MHz)	CA-3085			
T11	Harmonic Sup (27MHz)	CA-3086	T-T037		
T12	Xmit. Buffer (27MHz)	CA-3087	T-T038		
MF1	Input IF		MFH71T		

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T8	2	1		T-A109 (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.	
T9	225	100	TN-0067 T-D036 (1)			(1) Number on unit.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	2 3/4" PM, 100 Ohms	S-4503	27A05Z100	

CRYSTALS

ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL	ITEM No.	CRYSTAL FREQUENCY IN MHz	MFGR. PART No.	CTS KNIGHTS PART No.	CHANNEL
X1	33.000		HA32M33.000	1,2,3,4	X8	6.470		HC32M6.470	3,7,11,15,19
X2	33.050		HA32M33.050	5,6,7,8	X9	6.480		HC32M6.480	2,6,10,14,18,22
X3	33.100		HA32M33.100	9,10,11,12	X10	6.490		HC32M6.490	1,5,9,13,17,21
X4	33.150		HA32M33.150	13,14,15,16	X11	5.995		HBSM5.995	4,8,12,16,20,23
X5	33.200		HA32M33.200	17,18,19,20	X12	6.015		HBSM6.015	2,7,11,15,19
X6	33.250		HA32M33.250	21,22,23	X13	6.025		HBSM6.025	2,6,10,14,18,22
X7	6.450		HC32M6.450	4,8,12,16,20,23	X14	6.035		HBSM6.035	1,5,9,13,17,21

Realistic part number - HC-25H and crystal frequency

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M2	Meter	M-0243	S-RF-Batt
S1	Switch	S-7167	Xmit-Rec
S2	Switch	S-1139	Channel Selector
S3	Switch	S-2228	Fine Tuning
S5	Switch	S-2229	Hi-Low/Power
	Socket	J-6258	10 crystal socket
	Socket	J-6259	4 crystal socket
	Printed Circuit Board	XBN-2P001	Main
	Microphone	M-2237	Center Load
	Antenna	CA-0212	

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

ITEM	PART No.	ITEM	PART No.
Cabinet	Z-1887	Knob, Channel Selector	K-1607
Front Panel	Z-1888	Knob, Control	K-1608
Battery Cover	CB-0103	Knob, Push-to-talk	K-1606
Battery Case	B-0174		