

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 Messenger 132

ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:	GC ELECTRONICS
T3, T4, Z1A, Z1B	5000, 8290
L6, L7, T12, T13	9300
T1, T2, T7, T8, T9, T10, T11	9440

JOHNSON MODEL MESSENGER 132

SYNTHESIZER

INDICATOR	CHANNEL	ADJUST	FREQUENCY	REMARKS
HF OSC				
RF Voltmeter	23	T7		Connect meter between CR14 and CR15. Adjust 1/8 turn beyond peak RF voltage point.
MIXER	12	T8, T9, T10, T11		Connect meter to case of Q15. Adjust for maximum.

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

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RECEIVER

Connect an AC VTVM or AF Wattmeter across speaker voice coil. NOTE: L6 and L7 should be adjusted before receiver is aligned. (See Transmitter Alignment). Adjustments are made with 14-volt DC input. Adjust volume control to obtain suitable reading.

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
High side thru a .01uF capacitor to Base of Q2, low side to ground.	Set to 455kHz, 1000Hz, @ 30% Modulation Output MINIMUM uV.	Any	Z1A, Z1B, T3, T4	Adjust for maximum.
High side thru a .01uF capacitor to Antenna Jack, low side to ground.	Set to 27.105MHz, 1000Hz @ 30% modulation output 0.5uV.	12	T1, T2	Adjust for maximum.

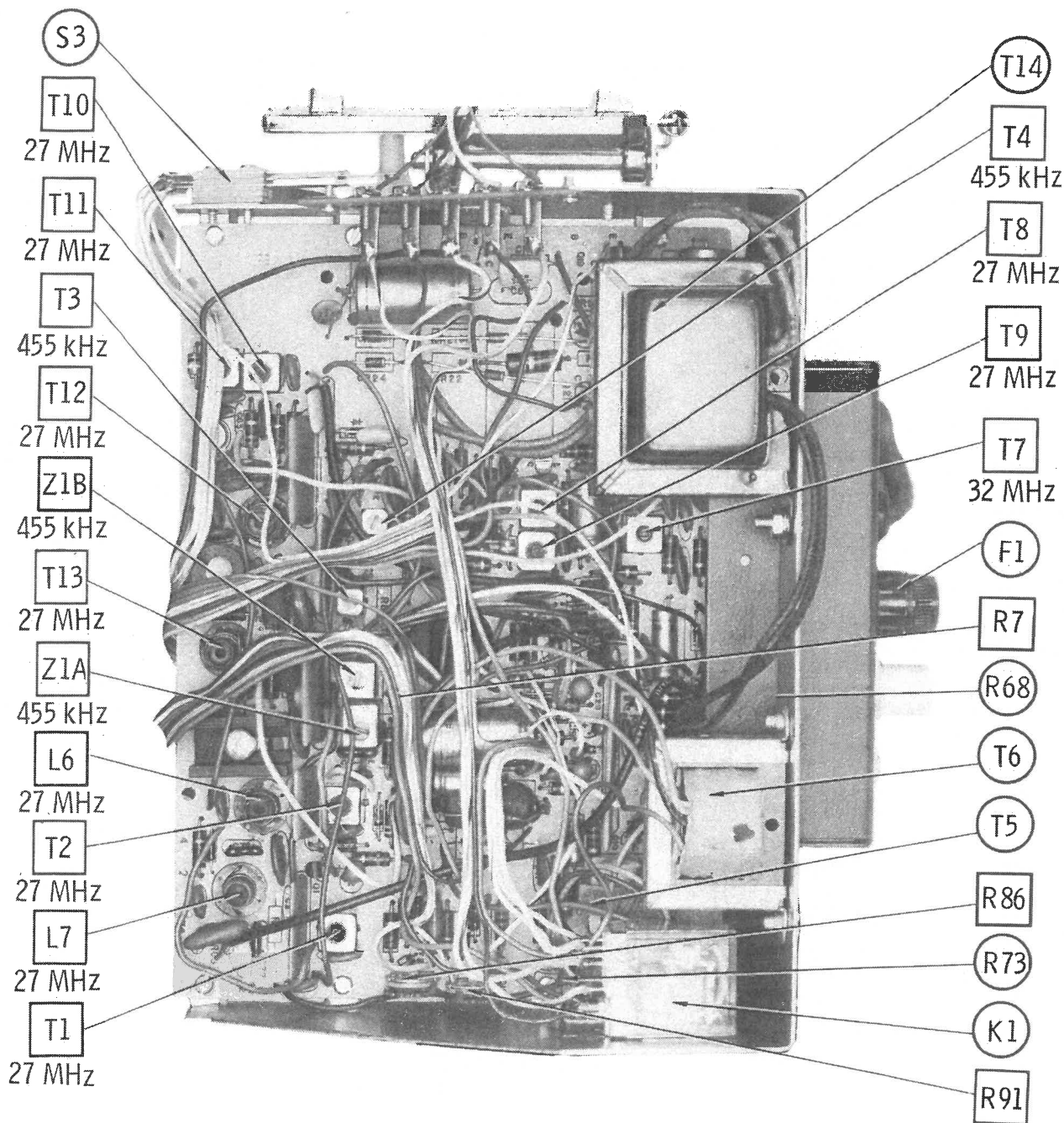
RECEIVER ADJUSTMENTS

SIGNAL GENERATOR	GEN FREQ	CHANNEL	ADJUST	REMARKS
AGC High side thru a .01uF capacitor to antenna jack, low side to ground.	Set to 27.085MHz, 1000Hz @ 300% Mod. Output 500uV	11	R7	Adjust volume control to obtain 0dB. Decrease generator to 0.5uV. Adjust so that signal does not drop more than 17dB.
S-METER ZERO High side thru a .01uF capacitor to antenna jack, low side to ground.	Set to 27.085MHz, 1000Hz @ 300% Mod. Output .5uV	11	R86	Adjust for S1 on panel meter.
S-METER High side thru a .01uF capacitor to antenna jack, low side to ground.	Set to 27.085MHz, 1000Hz @ 300% Mod. Output 50uV	11	R91	Adjust for S9 on panel meter.

TRANSMITTER

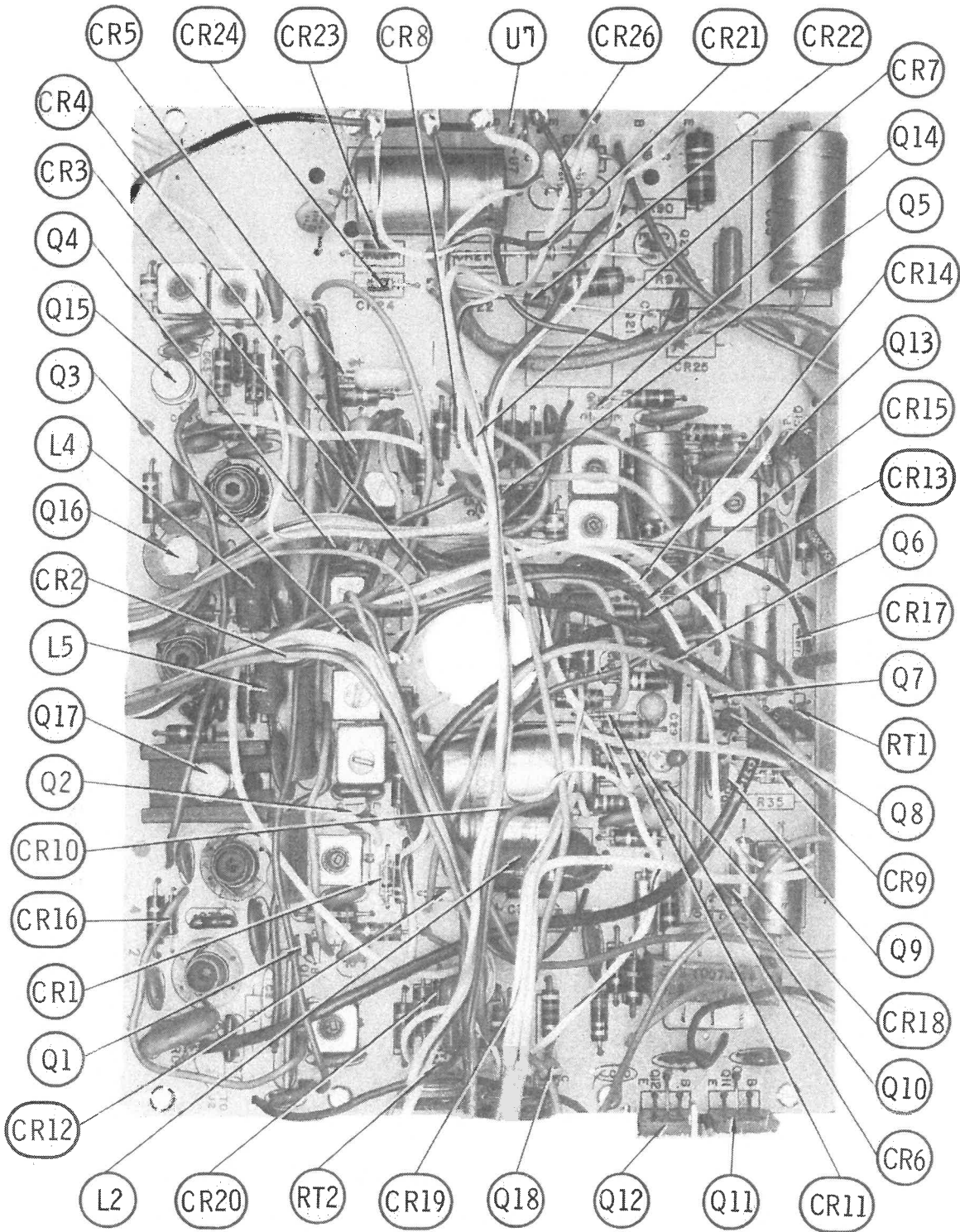
Connect an RF Wattmeter or 50-ohm 25-watt dummy load to antenna connector. Adjustments are made with 14-volt DC input.

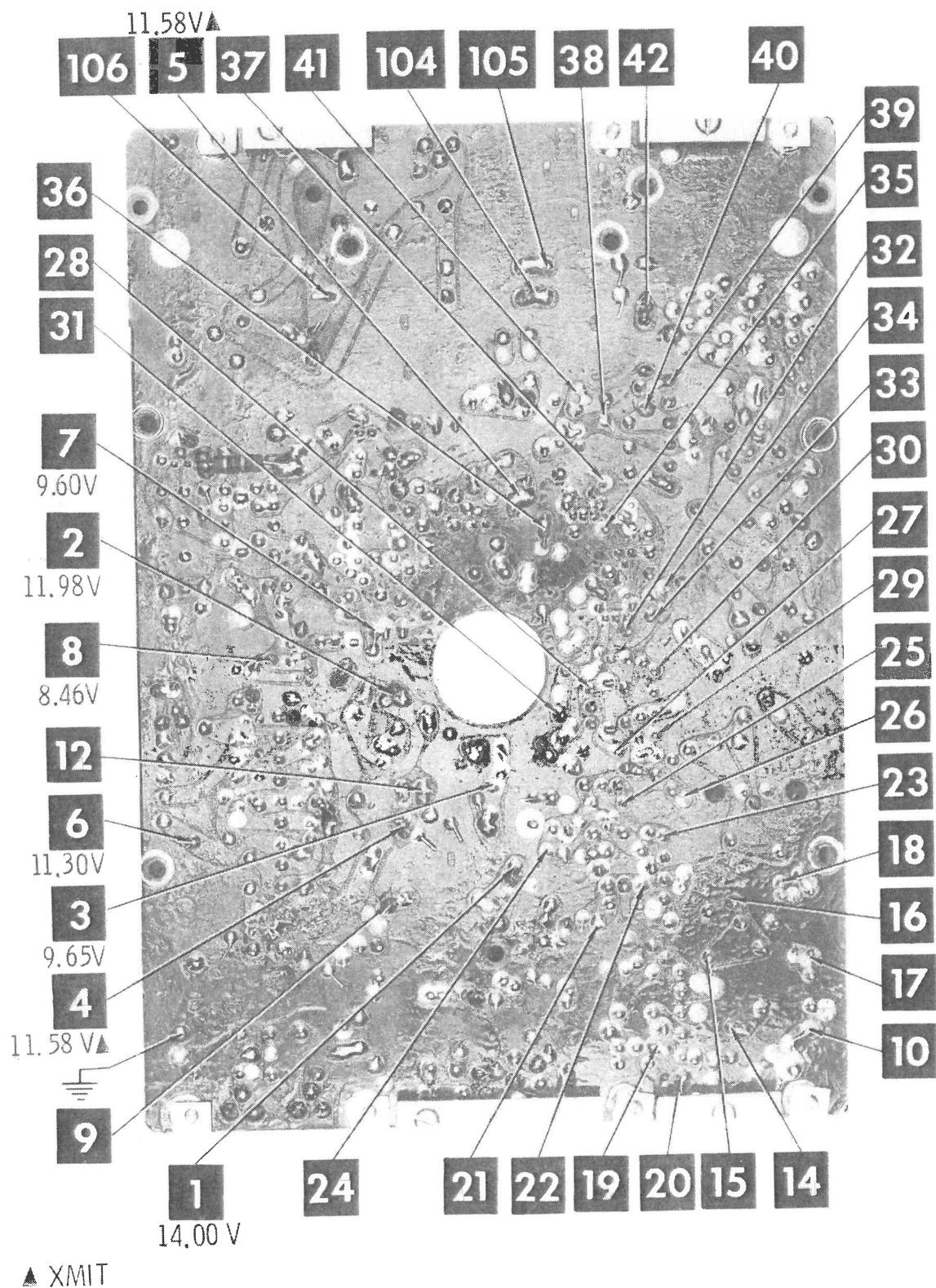
INDICATOR	ADJUST	REMARKS
BUFFER, DRIVER, FINAL RF Wattmeter or dummy load and RF VTVM.	T10, T11, T12, T13	Connect wattmeter to antenna connector. Channel Selector to Ch. 12. Key transmitter. Adjust for maximum.
FINAL INPUT POWER 0-1 A DC Milliammeter	L6, L7	Insert meter between emitter of Q17 and ground. Key transmitter. Adjust for no more than 5 watts DC input. Adjust L6 for MINIMUM current.

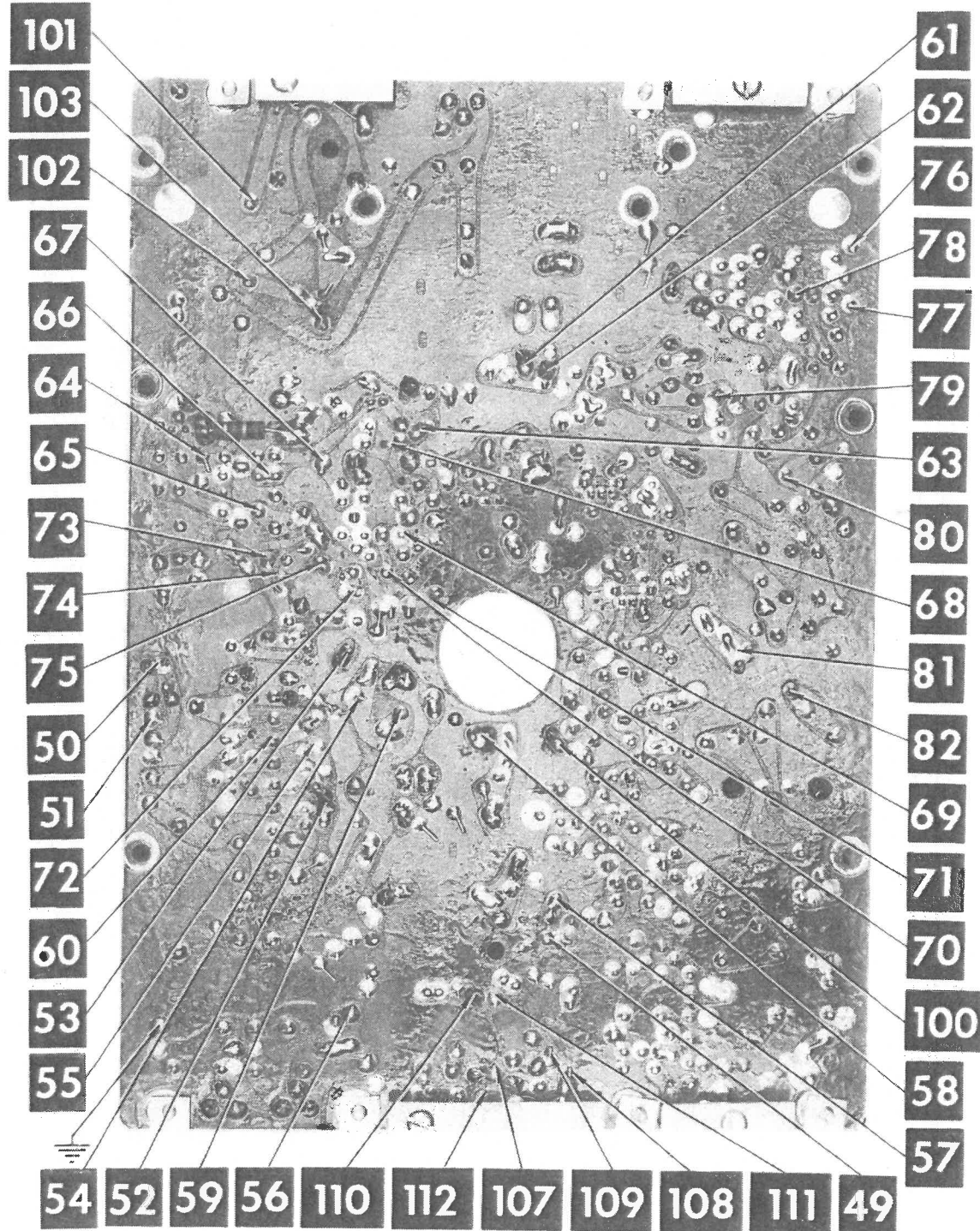


JOHNSON MODEL MESSENGER 132

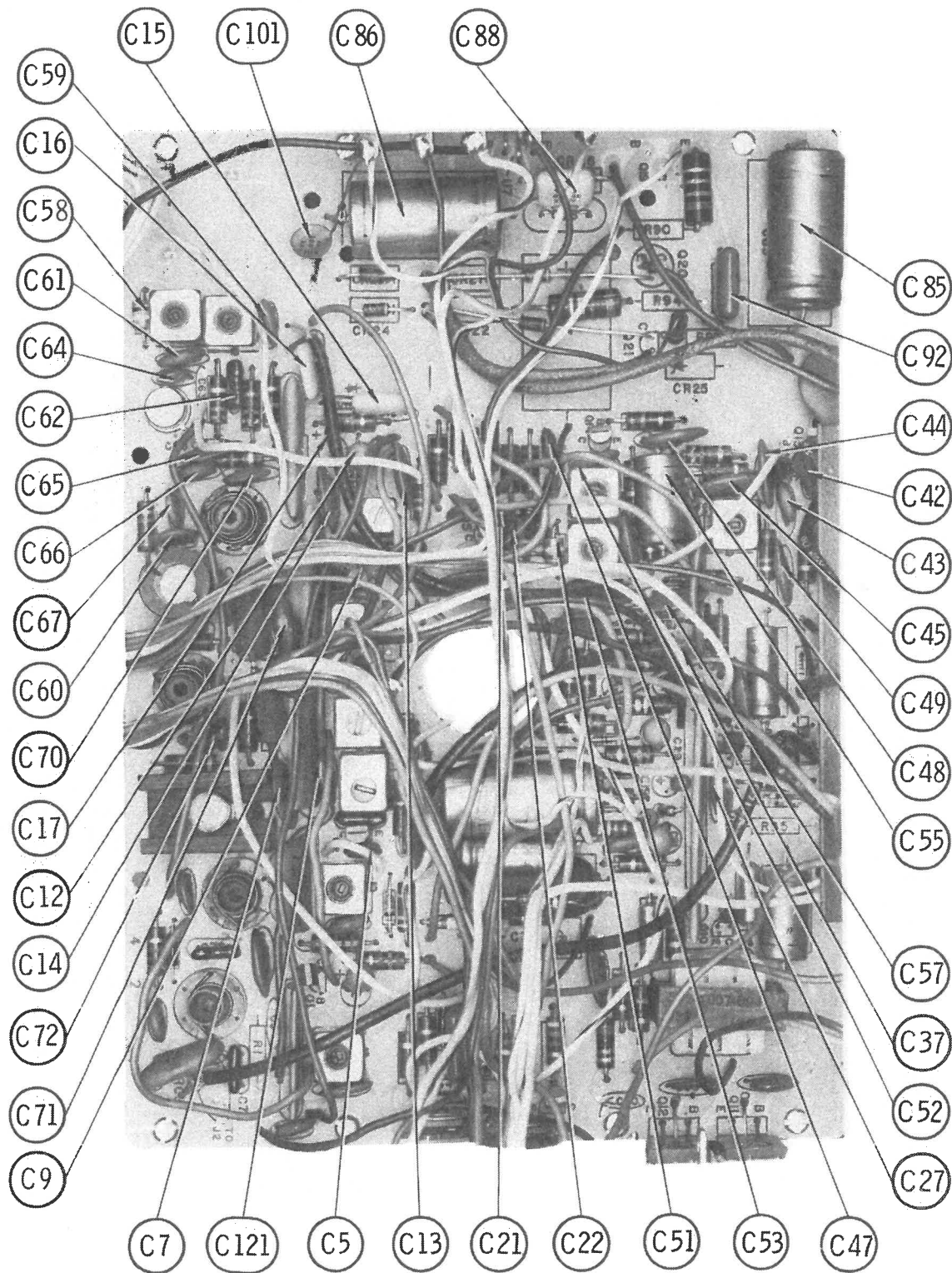




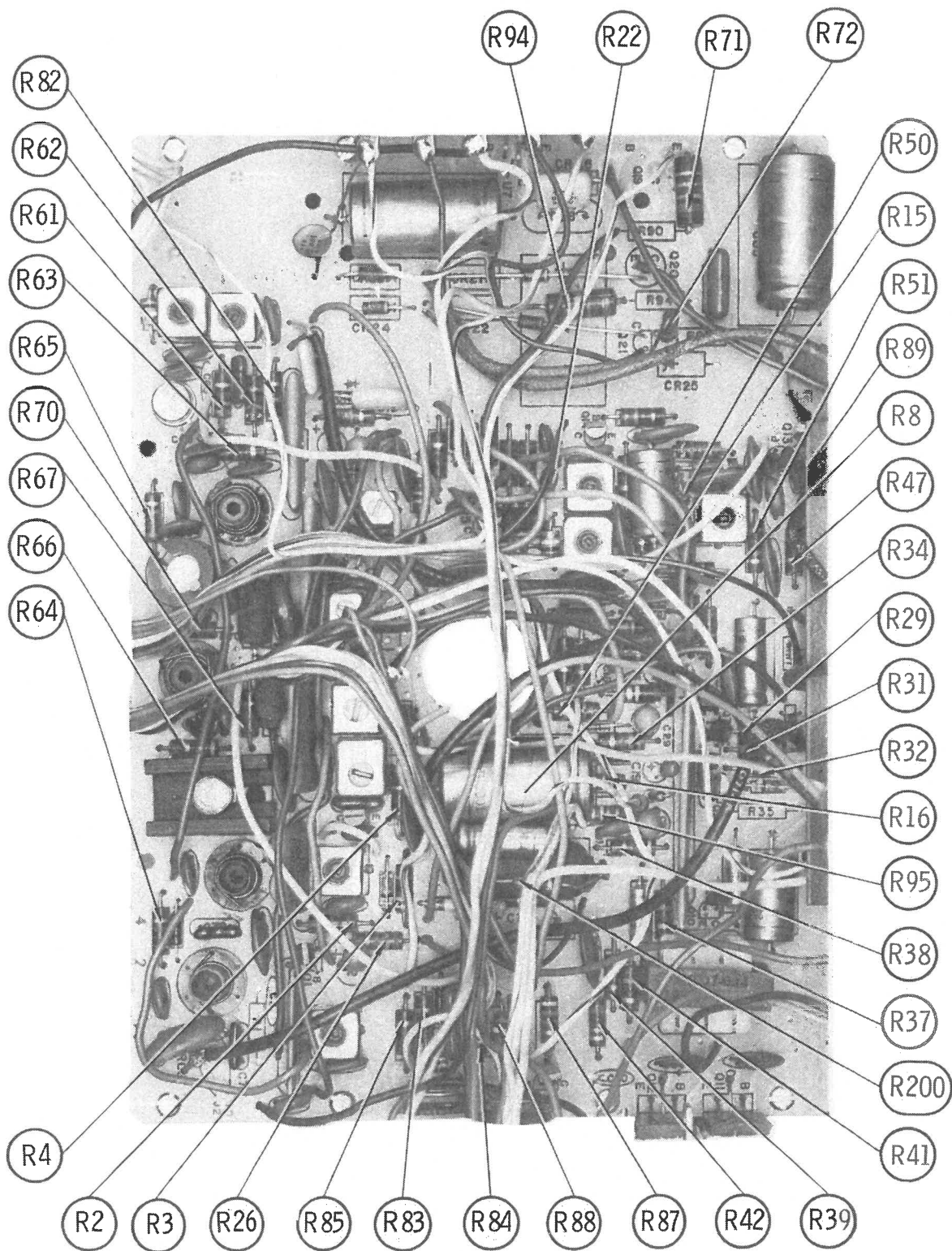


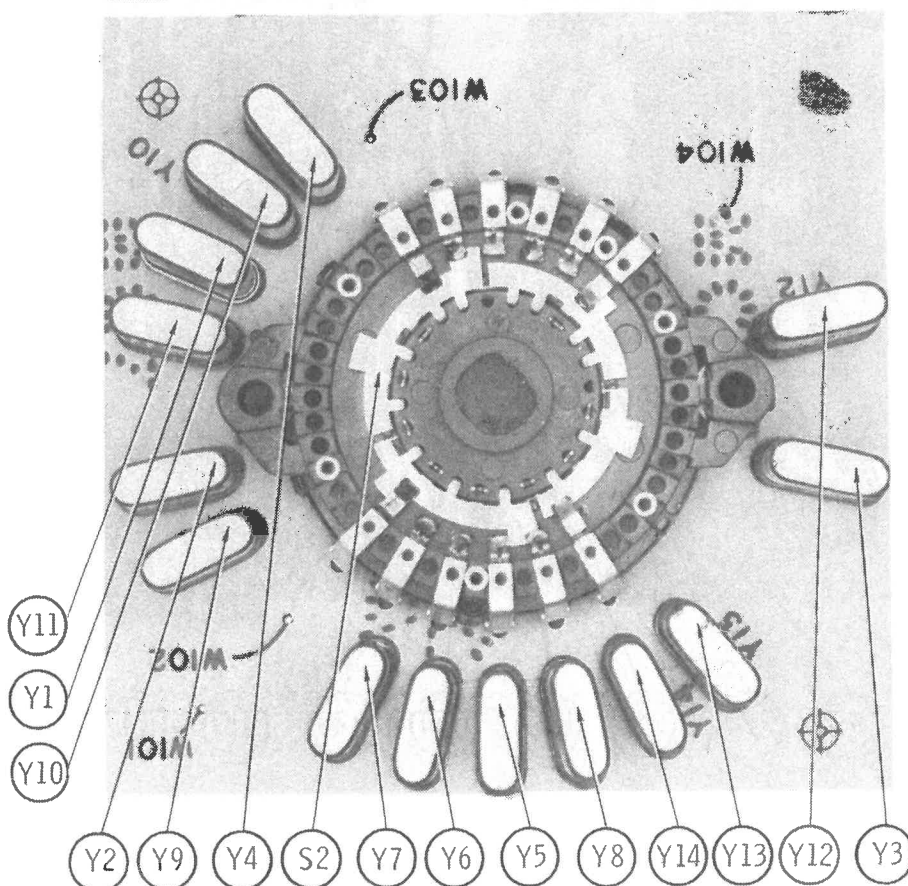
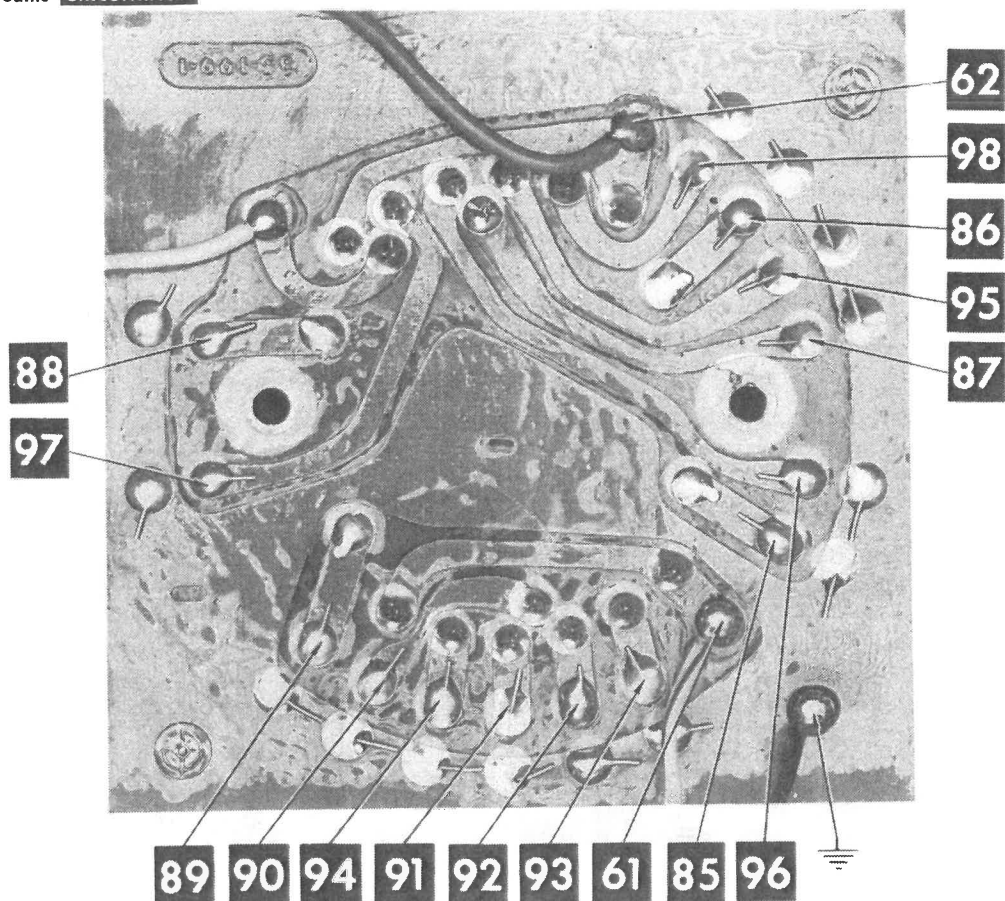


JOHNSON MODEL MESSENGER 132

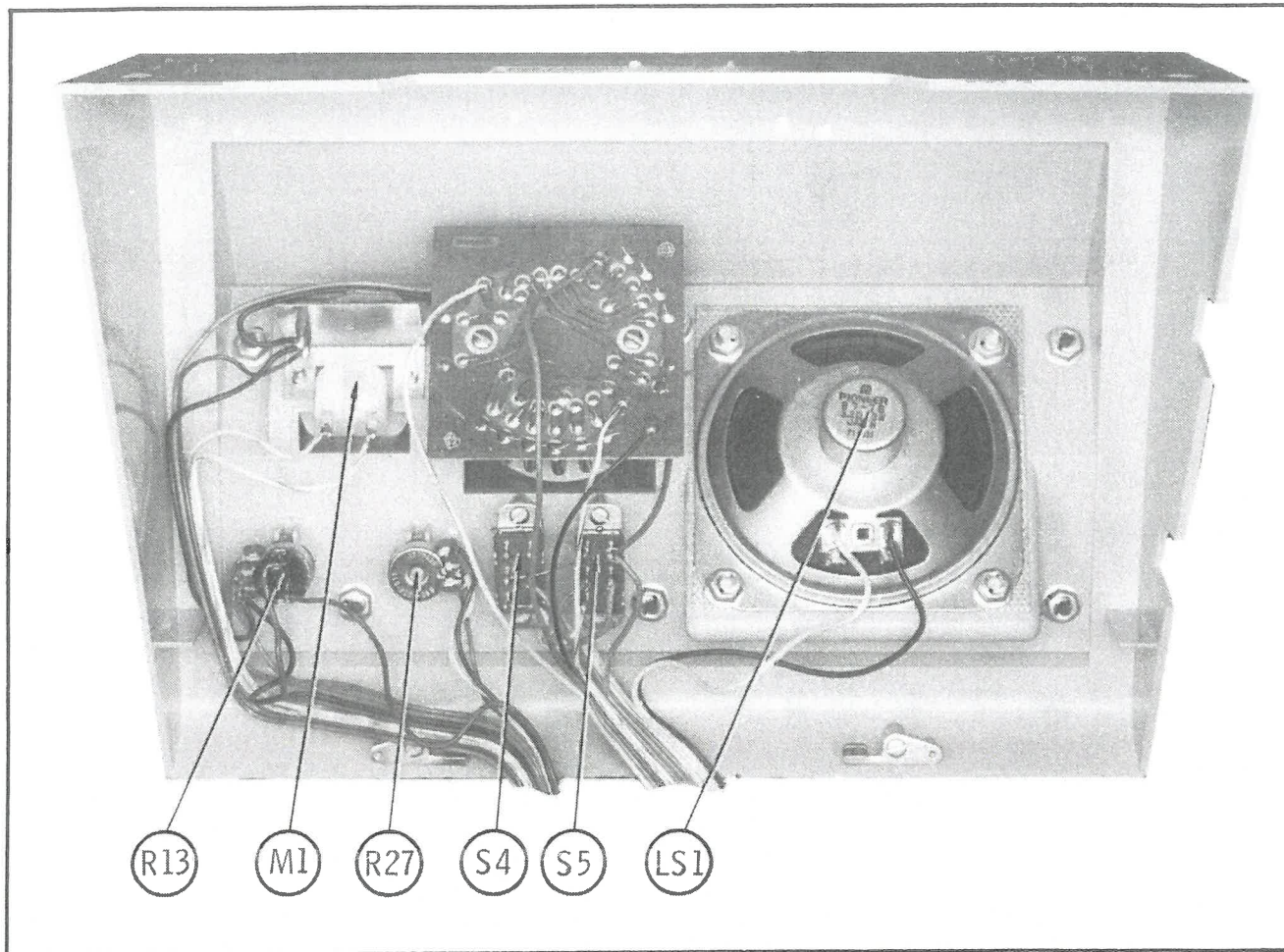








SWITCH & CRYSTAL BOARD



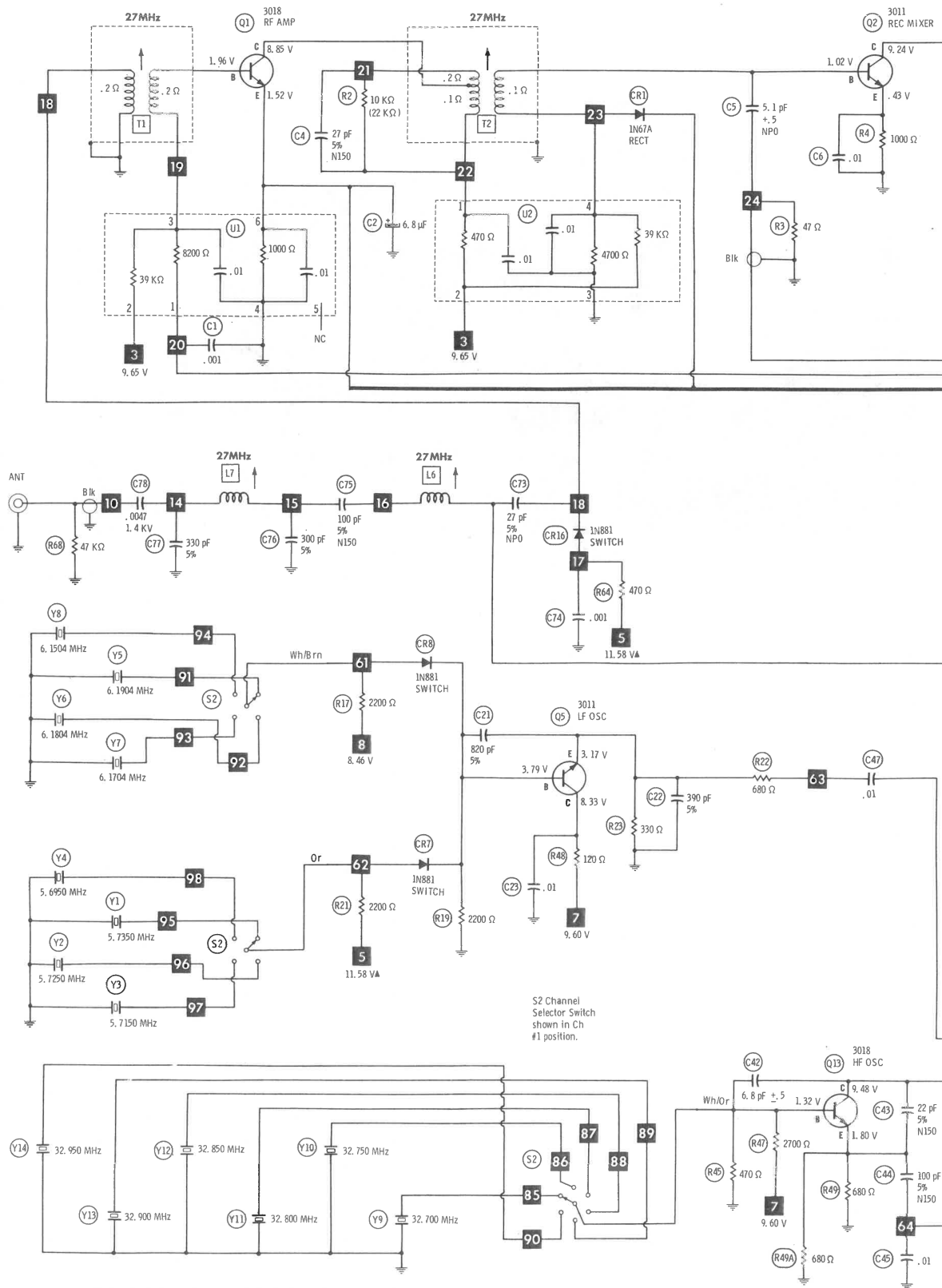
PARTS LIST AND DESCRIPTION

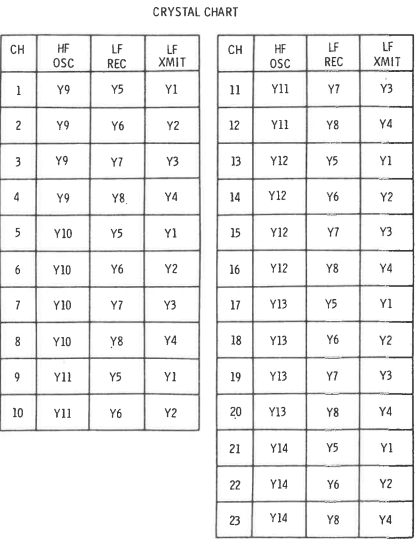
(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE / MFG. No./PART No.	REPLACEMENT DATA						
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
CR1	1N67A/523-1500-067	1N60	1N60	PTC206	HEPR9135	SK3088	RT263	ECG 109
CR2	1N4148/523-1500-883	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR3	1N67A/523-1500-067	1N60	1N60	PTC206	HEPR9135	SK3088	RT263	ECG 109
CR4	1N67A/523-1500-067	1N60	1N60	PTC206	HEPR9135	SK3088	RT263	ECG 109
CR5	1N4148/523-1500-883	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR6	1N881/523-1500-881	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR7	1N881/523-1500-881	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR8	1N881/523-1500-881	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR9	1N67A/523-1500-067	1N60	1N60	PTC206	HEPR9135	SK3088	RT263	ECG 109
CR10	10V J/523-2503-100	GEZD-10	Z-1210	PTC506	HEPZ0413	SK3061	RT241	ECG 140
CR11	1N4148/523-1500-883	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR12	1N4003/523-0001-002	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR13	10V J/523-2503-100	GEZD-10	Z-1210	PTC506	HEPZ0413	SK3061	RT241	ECG 140
CR14	1N4148/523-1500-883	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR15	1N4148/523-1500-883	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR16	1N881/523-1500-881	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR17	1N4148/523-1500-883	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR18	1N881/523-1500-881	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR19	1N881/523-1500-881	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR20	1N881/523-1500-881	GE-300	D200	PTC214	HEPR0602	SK3100	RT218	ECG 177
CR21	1N4818/523-0013-201	GE-504A	8D4	PTC201	HEPR0052	SK3030	RT213	ECG 116
CR22	1N4818/523-0013-201	GE-504A	8D4	PTC201	HEPR0052	SK3030	RT213	ECG 116
CR23	1N4818/523-0013-201	GE-504A	8D4	PTC201	HEPR0052	SK3030	RT213	ECG 116
CR24	1N4818/523-0013-201	GE-504A	8D4	PTC201	HEPR0052	SK3030	RT213	ECG 116
CR26	1N4818/523-0013-201	GE-504A	8D4	PTC201	HEPR0052	SK3030	RT213	ECG 116
Q1	3018/576-0003-018	GE-11	TR-24	PTC115	HEPS0016	SK3018	RT107	ECG 107
Q2	3011/576-0003-001	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q3	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q4	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q5	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q6	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q7	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q8	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q9	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A

(CONTINUED ON PAGE 22)





JOHNSON MODEL MESSENGER 132

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 / MFGR. No. / PART No.	REPLACEMENT DATA						
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	MOTOROLA PART No.	RCA PART No.	SPRAGUE PART No.	SYLVANIA PART No.
Q10	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q11	MJE2480/576-0002-026	GE-69			HEPS5004		RT194	
Q12	MJE2480/576-0002-026	GE-69			HEPS5004		RT194	
Q13	3018/576-0003-018	GE-11	TR-24	PTC115	HEPS0016	SK3018	RT107	ECG 107
Q14	3011/576-0003-011	GE-20	TR-24	PTC139	HEPS0015	SK3038	RT102	ECG 123A
Q15	4004/576-0004-004		TR-64		HEPS3013	SK3047	RT100	ECG 195
Q16	4004/576-0004-004		TR-64		HEPS3013	SK3047	RT100	ECG 195
Q17	4005/576-0004-005		TR-65	PTC158	HEPS3001	SK3048	RT114	ECG 195
Q18	3017/576-0003-017	GE-21	TR-30	PTC103	HEPS0019	SK3118	RT126	ECG 106
U7	MC7815CP/544-2003-005				HEPC6114P			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA					
		MFGR. PART No.	ARCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	6.8 35V	510-2045-689					
C12	6.8 35V	510-2045-689				TDC685M035FL	SD35-6R89
C17	1 35V	510-2045-109				TDC685M035FL	SD35-6R89
C18	1 35V	510-2045-109				TDC105M035EL	SD35-19
C19	1 35V	510-2045-109				TDC105M035EL	SD35-19
C25	100 10V	510-4003-005	RME-E-D-100	EP15-100	PC100-10	TDC105M035EL	SD35-19
C26	47 25V	510-4006-012	ME-4-G-050	EA30-50	WBR50-25	MTV100CB10	EV-1130
C28	22 15V	510-2003-220				MTA50E25	TVA-1206
C29	6.8 35V	510-2045-689					
C31	6.8 35V	510-2045-689				TDC685M035FL	SD35-6R89
C32	1 35V	510-2045-109				TDC685M035FL	SD3506R89
C33	150 25V	510-4006-006				TDC105M035EL	SD35-19'
C34	56 6.3V	510-2001-560	ME-2-B-050	EA30-150	PC150-25	TT25X150	EV-1235
C39	1000 16V	510-4006-005	ME-G1000	EA6-50	WBR50-25	MTA50D6	TVA-1100
C45	220 16V	510-4006-005	RME-J-E-250	EA15-1000	WBR1000-16	MTA1000G25	TVA-1163
C55	1000 16V	510-4006-004	ME-G1000	EP15-250	PC250-25	MTV250DE15	EV-1245
C86	470 40V	510-4009-001	ME-J500	EA15-1000	WBR1000-16	MTA1000G25	TVA-1163
				EA50-500	WBR500-50	MTA500G50	TVA-1315

CAPACITORS

ITEM No.	RATING	MFG. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCO PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.001	510-3216-270	CCD-821	DD-821	GP820	GP382	10TS-T82
C4	27 5% N150		*			*	10TCP-Q27
C5	5.1 $\pm$.5 NPO		CCT0-050				10TCC-V50
C6	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C7	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C8	1 5%					CN0510	10TCC-V10
C9	1 5%					CN0510	10TCC-V10
C10	.0047		CCD-472	DD-472	GP4700	GP247	2SS-D47
C11	150 5%		DM10-151J	CPR-150J	CD7FD151J03	SX315	424MC1500J501
C13	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C14	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C15	.047		CCT0-220	DTZ-22	NPO22	CN0422	10TCC-Q22
C16	.01 5%		1MDF-1-103	CPJ-103	DPMS4S1	EFW1A110	1PB-S10
C21	820 5%		DM19-821J	CPR-820J	CD19FD821J03	SX382	424ME8200J501
C22	390 5%		DM15-391J	CPR-390J	CD15FD391J03	SX339	424ME3900J501
C23	.01	CCD-103	DC-103	GP10000	MAG5011	2SS-S10	
C24	.01	CCD-103	DC-103	GP10000	MAG5011	2SS-S10	
C27	.047	CCD-403			GP140	5GA-S40	
C30	.001	CCD-102	DD-102	GP1000	GP210	2SS-D10	
C35	.022	CCD-203			GP120	5GA-S20	
C36	.022	CCD-203			GP120	5GA-S20	
C37	.01	CCD-103	DC-103	GP10000	MAG5011	2SS-S10	
C41	.01	CCD-103	DC-103	GP10000	MAG5011	2SS-S10	
C42	6.8 $\pm$.5	510-3216-270 510-3216-101		DTZ-6R8	NPO6P8		10TCC-V68
C43	22 5% N150		*			*	10TCP-Q22
C44	100 5% N150		*			*	10TCP-T10
C45	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C46	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C47	.01	CCD-103	DC-103	GP10000	MAG5011	2SS-S10	
C48	180 5% N750		DTN-180			10TCU-T18	
C49	.01	CCD-103	DC-103	GP10000	MAG5011	2SS-S10	
C51	1 5%				CN0510	10TCC-V10	
C52	33 5% N150	510-3216-330 510-3216-330	*			*	10TCP-Q33
C53	33 5% N150		*			*	10TCP-Q33
C54	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C56	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10

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.
C57	.01	510-3216-330	CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C58	1					CN0510	10TCC-V10
C59	33 5% N150		*			*	10TCP-Q33
C60	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C61	33 5% N750			DTN-33	N33	CN7433	10TCU-Q33
C62	.001 5%		DM19-102J	CPR-1000J	CD19FD102J03	SX210	424ME1001J501
C64	22 5% NPO			DTZ-22	NPO22	CNO422	10TCC-Q22
C65	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C66	12 5% N750					CN7412	10TCU-Q12
C67	.001 1KV			CCD-102	DD-102	GP210	10TS-D10
C69	.0047		CCD-472			10TS-D47	
C70	.047		CCD-503	DC-503	MGP05	TGL-S50	
C71	.047 50V		CCD-503	DC-503	MGP05	MAG5015	
C72	.001 5%		DM19-102J	CPR-1000J	CD19FD102J03	SX210	
C73	27 5% NPO					CNO427	
C74	.001		CCD-102	DD-102	GP1000	GP210	
C75	100 5% N150	510-3216-101	*			*	
C76	300 5%		DM15-301J	CPR-300J	CD15FD301J03	SX330	
C77	330 5%		DM15-331J	CPR-330J	CD15FD331J03	SX333	
C78	.0047 1.4KV	510-3001-472		C1-502	AC-5000	VAC50	
C82	.22		1MDF-4-224		DPMS2P22	EW1A022	
C83	.0047 1.4KV	510-3001-472		C1-502	AC-5000	VAC50	
C88	.1				DPMS2P1	EW1A010	
C90	470		1MDF-3-104	CPR-470J	CD15FD471J03	SX347	
C91	.001		DM15-471J				
C92	.22		CCD-102	DD-102	GP1000	GP210	
C101	.001		1MDF-4-224		DPMS2P22	EW1A022	
C121	.01		CCD-102	DD-102	GP1000	GP210	
			CCD-103	DC-103	GP10000	MAG5011	2SS-S10

* 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	RESISTANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
R7	IF Gain	1000	562-0019-102	TSV-1K or T-1000	C-102	MTC13L1	X201R102B
R13	Volume/Switch	10K	562-0016-004				
R27	Squelch	5000	562-0002-011				
R86	"S" Meter Zero	2000	562-0004-202	TSV-2.5K or T-2500	C-252	MTC23L1	X201R252B
R91	"S" Meter Adj.	25K	562-0004-253	TSV-25K or T-25K	C-253	MTC253L1	X201R253B

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.
RT1	8000 Co1d NTC		569-3001-001	RT2	8000 Co1d NTC		569-3001-001

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L2	Audio Choke (20mH)	542-8001-011		6308	
L3	RF Choke (20uH)	542-3002-002		T300	
L4	RF Choke (13uH)	542-3003-001		4624	
L5	RF Choke (13uH)	542-3003-001		4624	
L6	Final Tank (27MHz)	542-1005-010			
L7	Pi Network (27MHz)	542-1005-004			
L8	RF Choke (6.8uH)	542-3004-689			
T1	Rec. Ant. (27MHz)	592-5015-001			
T2	Rec. RF (27MHz)	592-5015-002			
T3	Input IF (455kHz)	592-5020-004			
T4	Output IF (455kHz)	592-5020-004			
T7	Xmit. Osc. (32MHz)	592-5015-006			
T8	Synth. Mixer (27MHz)	592-5015-005			
T9	Synth. Mixer (27MHz)	592-5015-005			
T10	Synth. Mixer (27MHz)	592-5015-005			
T11	Synth. Mixer (27MHz)	592-5015-005			
T12	Xmit RF (27MHz)	592-5014-001			
T13	Xmit Driver (27MHz)	592-5014-002			
Z1	Bandpass Filter (455kHz)	532-1004-001			

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T5	2	1		592-1007-004 989-7438 (1)				(1) Number on unit.

PARTS LIST AND

(When ordering par

TRANSFORMER

ITEM No.	IMPEDANCE	
	PRI.	SEC.
T6	20	3.2

TRANSFORMER

ITEM No.	RATING	
	PRI.	SEC.
T14	120V AC @ 340mA AC	24V 14

SPEAKER

ITEM No.	TYPE
LS1	3 1/2 PM, 3.2 oh

FUSE DEVICES

ITEM No.	DESCRIPTION
F1	.05A Slow Blow

MISCELLANEOUS

ITEM No.	PART NAME
M1	Meter
K1	Relay
S2	Switch
S2	Switch
S4	Switch
S5	Switch
U1	Component Comb
U2	Component Comb
U3	Component Comb
U4	Component Comb
U5	Component Comb
U6	Component Comb
U7	Component Comb
Y1	Crystal
Y2	Crystal
Y3	Crystal
Y4	Crystal
Y5	Crystal
Y6	Crystal
Y7	Crystal
Y8	Crystal
Y9	Crystal
Y10	Crystal
Y11	Crystal
Y12	Crystal
Y13	Crystal
Y14	Crystal
	Printed Circuit
	Printed Circuit

CABINETS & C

ITEM
Cabinet
Cover, Bottom
Cradle, Handset

PARTS LIST AND DESCRIPTION (CONTINUED)

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

PARTS LIST AND DESCRIPTION (CONTINUED)

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

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T6	20	3.2	592-1013-001 606436 (1)			(1) Number on unit.

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T14	120V AC @ 340mA AC	24V AC @ 1400mA AC	592-3001-001 606-4-38 (1)			(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
LS1	3 1/2 PM, 3.2 ohms	589-1013-001	3A050T	

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	.05A SLOW BLOW	534-0002-014	534-1002-001	MDL1/2	HKP	313.500	145150	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	Meter	554-0017-001	"S"/RF
K1	Relay	567-0020-001	160 ohms Xmit/Rec
S2	Switch	583-9004-012	Channel Selector
S2	Switch	583-1002-001	Handset
S4	Switch	583-3004-003	Handset/Speaker
S5	Switch	583-3004-003	PA-CB
U1	Component Combination	544-0003-011	Rec RF
U2	Component Combination	544-0002-011	Rec RF
U3	Component Combination	544-0003-043	Rec IF
U4	Component Combination	544-0002-014	Rec IF
U5	Component Combination	544-0002-015	Rec Det
U6	Component Combination	544-0002-026	AF Amp
U7	Component Combination	544-2003-005	Voltage Regulator
Y1	Crystal	519-0023-104	5.735MHz HC-18/U
Y2	Crystal	519-0023-103	5.725MHz HC-18/U
Y3	Crystal	519-0023-102	5.715MHz HC-18/U
Y4	Crystal	519-0023-101	5.695MHz HC-18/U
Y5	Crystal	519-0023-108	6.1904MHz HC-18/U
Y6	Crystal	519-0023-107	6.1804MHz HC-18/U
Y7	Crystal	519-0023-106	6.1704MHz HC-18/U
Y8	Crystal	519-0023-105	6.1504MHz HC-18/U
Y9	Crystal	519-0024-001	32.700MHz 3 OT HC-18/U
Y10	Crystal	519-0024-002	32.750MHz 3 OT HC-18/U
Y11	Crystal	519-0024-003	32.800MHz 3 OT HC-18/U
Y12	Crystal	519-0024-004	32.850MHz 3 OT HC-18/U
Y13	Crystal	519-0024-005	32.900MHz 3 OT HC-18/U
Y14	Crystal	519-0024-006	32.950MHz 3 OT HC-18/U
	Printed Circuit Board	035-0181-003	Main Board
	Printed Circuit Board	023-3266-001	Channel Switch & Crystal

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

ITEM	PART No.
Cabinet	032-0386-001
Cover, Bottom	017-1860-001
Cradle, Handset	537-9026-001

CAPACITORS (cont)

ITEM No.	RATING	MFG. PART No.	REPLACEMENT DATA				
			ARCO/ELMENCOPART No.	CENTRALABPART No.	CORNELL-DUBILIERPART No.	MALLORYPART No.	SPRAGUEPART No.
C57	.01	510-3216-330	CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C58	1		*			CN0510	10TCC-V10
C59	33 5% N150					*	10TCP-Q33
C60	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C61	33 5% N750			DTN-33	N33	CN7433	10TCU-Q33
C62	.001 5%		DM19-102J	CPR-1000J	CD19FD102J03	SX210	424ME1001J501
C64	22 5% NPO			DTZ-22	NP022	CN0422	10TCC-Q22
C65	.01		CCD-103	DC-103	GP10000	MAG5011	2SS-S10
C66	12 5% N750					CN7412	10TCU-Q12
C67	.001 1KV		CCD-102	DD-102		GP210	10TS-D10
C69	.0047	510-3216-101	CCD-472				10TS-D47
C70	.047		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C71	.047 50V		CCD-503	DC-503	MGP05	MAG5015	TGL-S50
C72	.001 5%		DM19-102J	CPR-1000J	CD19FD102J03	SX210	424ME1001J501
C73	27 5% NPO					CN0427	10TCC-Q27
C74	.001		CCD-102	DD-102	GP1000	GP210	2SS-D10
C75	100 5% N150		*			*	10TCP-T10
C76	300 5%		DM15-301J	CPR-300J	CD15FD301J03	SX330	424ME3000J501
C77	330 5%		DM15-331J	CPR-330J	CD15FD331J03	SX333	424ME3300J501
C78	.0047 1.4KV			C1-502	AC-5000	VAC50	12SL-D50
C82	.22	510-3001-472	1MDF-4-224		DPM52P22	EMF1A022	1PB-P22
C83	.0047 1.4KV	510-3001-472		C1-502	AC-5000	VAC50	12SL-D50
C88	.1		1MDF-3-104		DPM52P1	EMF1A010	1PB-P10
C90	470		DM15-471J	CPR-470J	CD15FD471J03	SX347	424ME4700J501
C91	.001		CCD-102	DD-102	GP1000	GP210	2SS-D10
C92	.22		1MDF-4-224		DPM52P22	EMF1A022	1PB-P22
C101	.001			CCD-102	GP1000	GP210	2SS-D10
C121	.01		CCD-103	DD-102	GP10000	MAG5011	2SS-S10
				DC-103			

* 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				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.	TRW PART No.
R7	IF Gain	1000	562-0019-102	TSV-1K or T-1000	C-102	MTC13L1	X201R102B
R13	Volume/Switch SqueIch "S" Meter Zero	10K	562-0016-004	TSV-2.5K or T-2500	C-252	MTC23L1	X201R252B
R27		5000	562-0002-011				
R86		2000	562-0004-202				
R91	"S" Meter Adj.	25K	562-0004-253	TSV-25K or T-25K	C-253	MTC253L1	X201R253B

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.
RT1	8000 Col'd NTC		569-3001-001

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L2	Audio Choke (20mH)	542-8001-011		6308	
L3	RF Choke (20uH)	542-3002-002		7300	
L4	RF Choke (13uH)	542-3003-001		4624	
L5	RF Choke (13uH)	542-3003-001		4624	
L6	Final Tank (27MHz)	542-1005-010			
L7	Pi Network (27MHz)	542-1005-004			
L8	RF Choke (6.8uH)	542-3004-689			
T1	Rec. Ant. (27MHz)	592-5015-001			
T2	Rec. RF (27MHz)	592-5015-002			
T3	Input IF (455kHz)	592-5020-004			
T4	Output IF (455kHz)	592-5020-004			
T7	Xmit. Osc. (32MHz)	592-5015-006			
T8	Synth. Mixer (27MHz)	592-5015-005			
T9	Synth. Mixer (27MHz)	592-5015-005			
T10	Synth. Mixer (27MHz)	592-5015-005			
T11	Synth. Mixer (27MHz)	592-5015-005			
T12	Xmit RF (27MHz)	592-5014-001			
T13	Xmit Driver (27MHz)	592-5014-002			
Z1	Bandpass Filter (455kHz)	532-1004-001			

TRANSFORMER (Driver)

ITEM No.	TURNS RATIO			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD Part No.	
T5	2	1		592-1007-004 989-7438 (1)				(1) Number on unit.

rt)

SPRAGUE PART No.	SYLVANIA PART No.
RT102	ECG 123A
RT194	
RT194	
RT107	ECG 107
RT102	ECG 123A
RT105	ECG 195
RT100	ECG 195
RT114	ECG 195
RT126	ECG 106

MALLORY PART No.	SPRAGUE PART No.
DC685M035FL	SD35-6R89
DC685M035FL	SD35-6R89
TC105M035EL	SD35-19
TC105M035EL	SD35-19
TC105M035EL	SD35-19
TV100CB10	EV-1130
TA50E25	TVA-1206
DC685M035FL	SD35-6R89
DC685M035FL	SD3506R89
TC105M035EL	SD35-19 ¹
725X150	EV-1235
TA50I66	TVA-1100
TA100G25	TVA-1163
TV250DE15	EV-1245
TA100G25	TVA-1163
TA50G650	TVA-1315

MALLORY PART No.	SPRAGUE PART No.
GP382	10TS-T82
*	10TCP-Q27
	10TC-V50
MAG5011	2SS-S10
MAG5011	2SS-S10
CN0510	10TCU-V10
CN0510	10TCU-V10
GP247	2SS-D47
SX315	424MC1500J501
MAG5011	2SS-S10
MAG5011	2SS-S10
CN0422	10TCU-Q22
EW1A110	1PB-S10
SX382	424ME8200J501
SX339	424ME3900J501
MAG5011	2SS-S10
MAG5011	2SS-S10
GP140	56A-S40
GP210	2SS-D10
GP120	56A-S20
GP120	56A-S20
MAG5011	2SS-S10
MAG5011	2SS-S10
	10TCU-V68
*	10TCP-Q22
*	10TCP-T10
MAG5011	2SS-S10
MAG5011	2SS-S10
MAG5011	2SS-S10
	10TCU-T18
MAG5011	2SS-S10
CN0510	10TCU-V10
*	10TCP-Q33
*	10TCP-Q33
MAG5011	2SS-S10
MAG5011	2SS-S10