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PHOTOFACT®

TRADE NAME : Sonar Model E (Revised)
 SUPPLIER : Sonar Radio Corp.
 73 Wortman Avenue, Brooklyn, N. Y.
 TYPE SET : 9 Tube Transceiver
 POWER SUPPLY : 110 - 120 Volts AC, 60 Cycles (or)
 6 (or) 12 Volt Storage Battery
 RATING : 52 Watts, .5 Amp. @117VAC
 8 Amp. @ 6.3VDC
 4.1 Amp. @12.6VDC
 TUNING RANGE : Any 8 CB Channels 1 thru 23
 Receiver may be continuously tuned.



ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:

A1 thru A6.....GENERAL CEMENT #5097, 8727..... WALSCO #2515
 A7 thru A10.....GENERAL CEMENT #8282, 8606, 8606-L..... WALSCO #2526, 2543, 2544
 All and A13..... GENERAL CEMENT #5000, 5003, 5066..... WALSCO #2512, 2525, 2528
 A12..... GENERAL CEMENT #8721, 8722..... WALSCO #2519

RECEIVER ALIGNMENT

SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
High side thru .1mf to pin 6 (grid) of V2 (Mixer), common to chassis. (Tune to 455KC, 400% Mod.)	Center Channel Used.	A1, A2, A3, A4, A5, A6	Output meter across voice coil. Adjust for maximum deflection.
High side to antenna input, common to chassis (Tune to Channel Frequency.)	Center Channel Used.	A7, A8, A9	Tune-Crystal switch in Tune position. Output meter across voice coil. Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

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 19, Subpart D, Section 19.71)

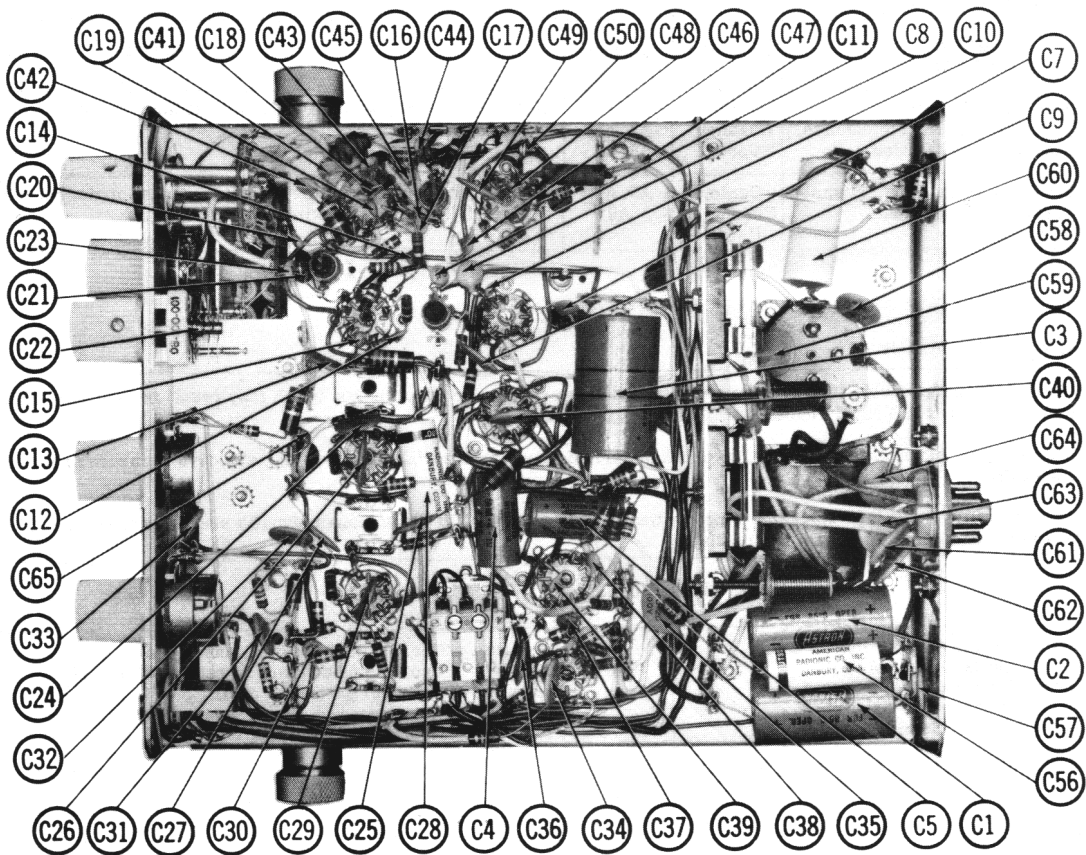
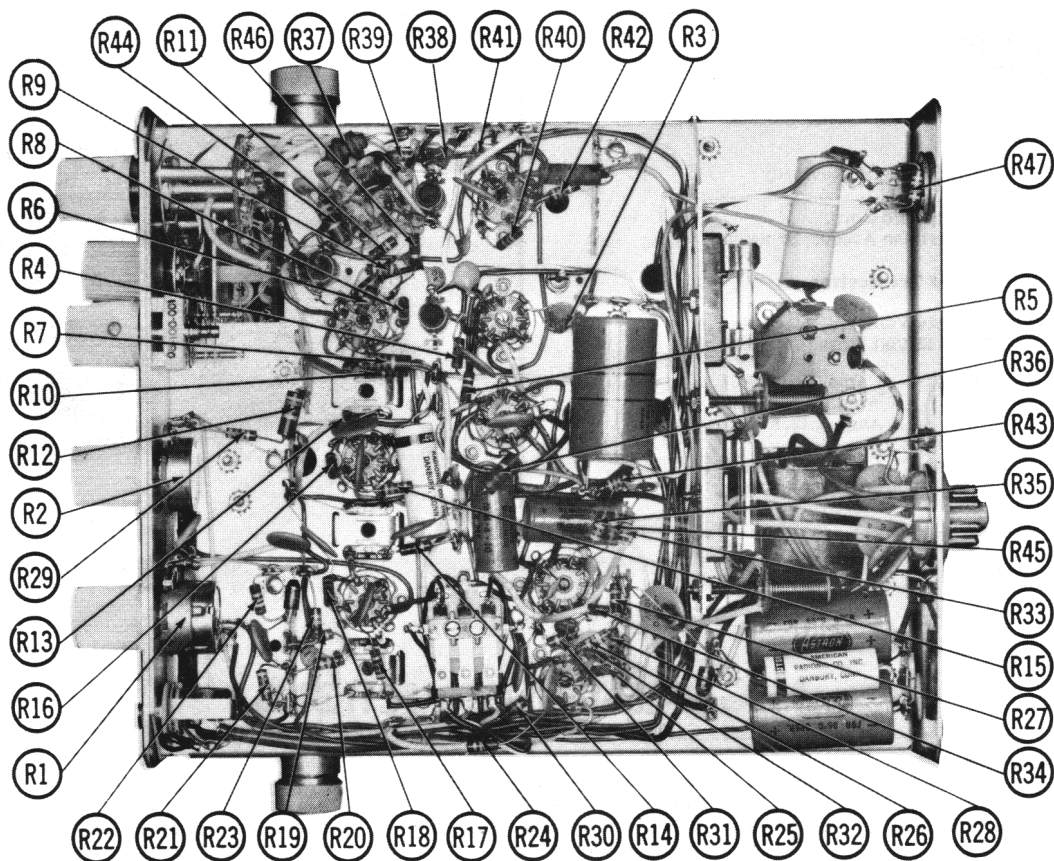
The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

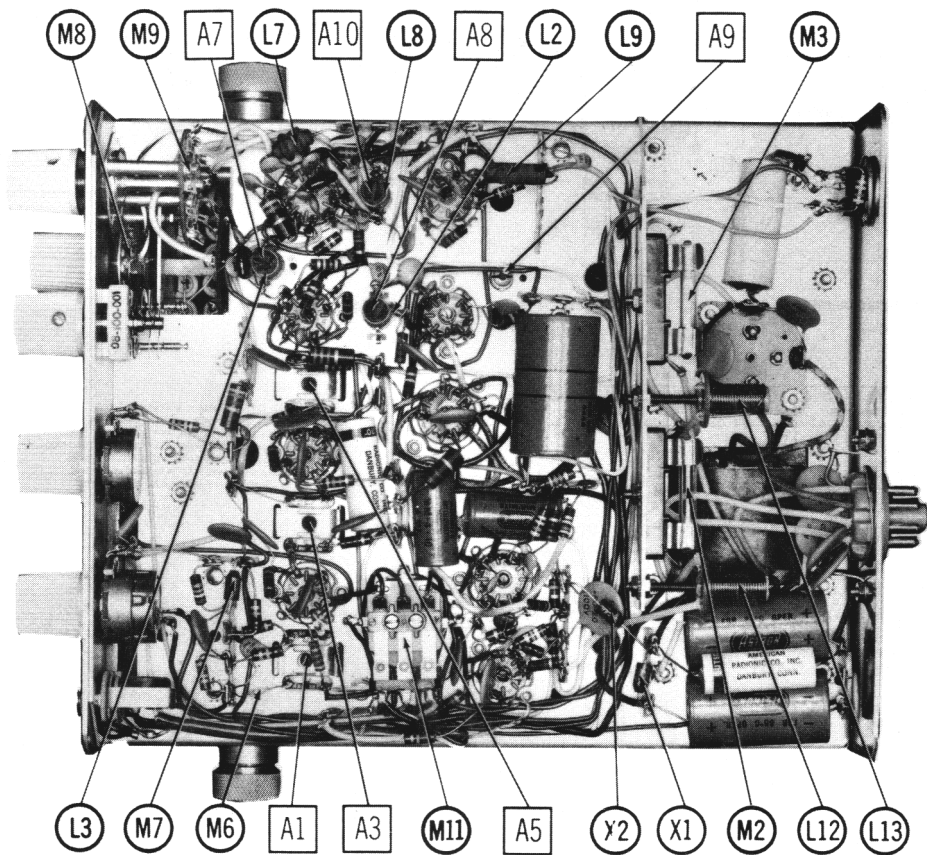
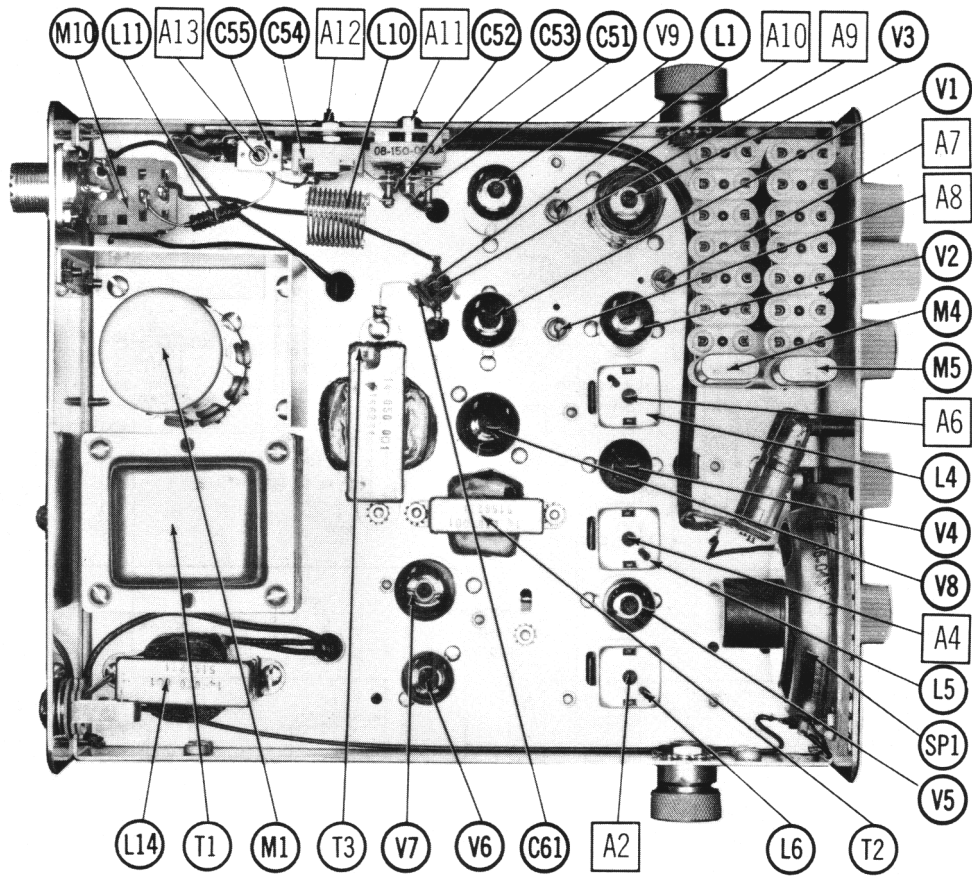
Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

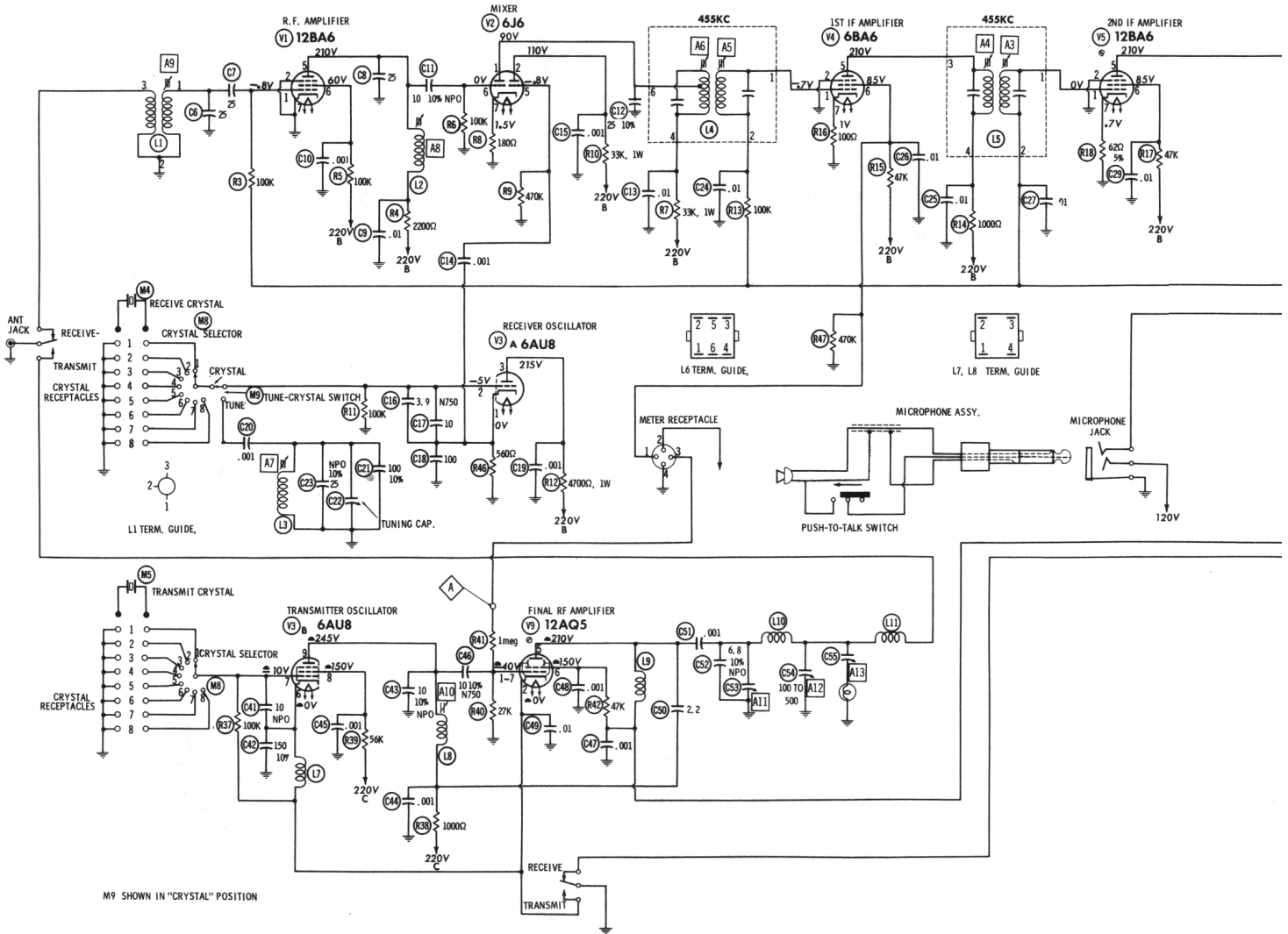
	CHANNEL	ADJUST	REMARKS
Connect antenna or dummy load. Connect DC probe of VTVM to point Δ . Common to chassis.		A10	Key transmitter. Adjust for maximum deflection. Note rate of dropoff on each side of peak and set just below peak on side of gradual dropoff.
Connect antenna or dummy load.		All, A12, A13	Adjust for maximum brilliance of front panel lamp.

SONAR MODEL E (Revised)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana







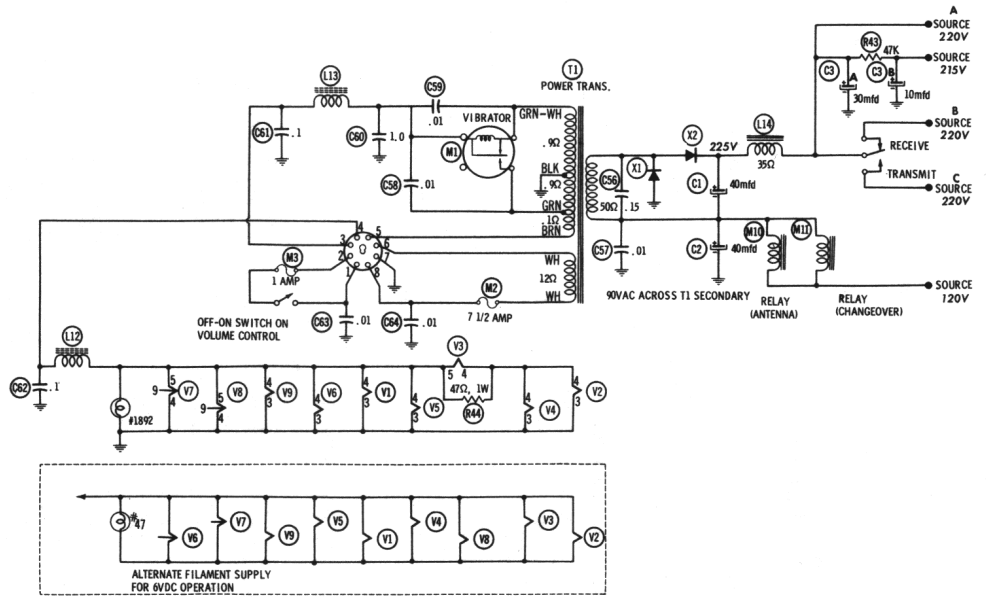
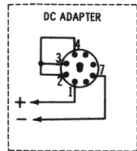
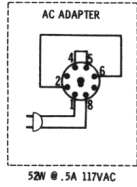
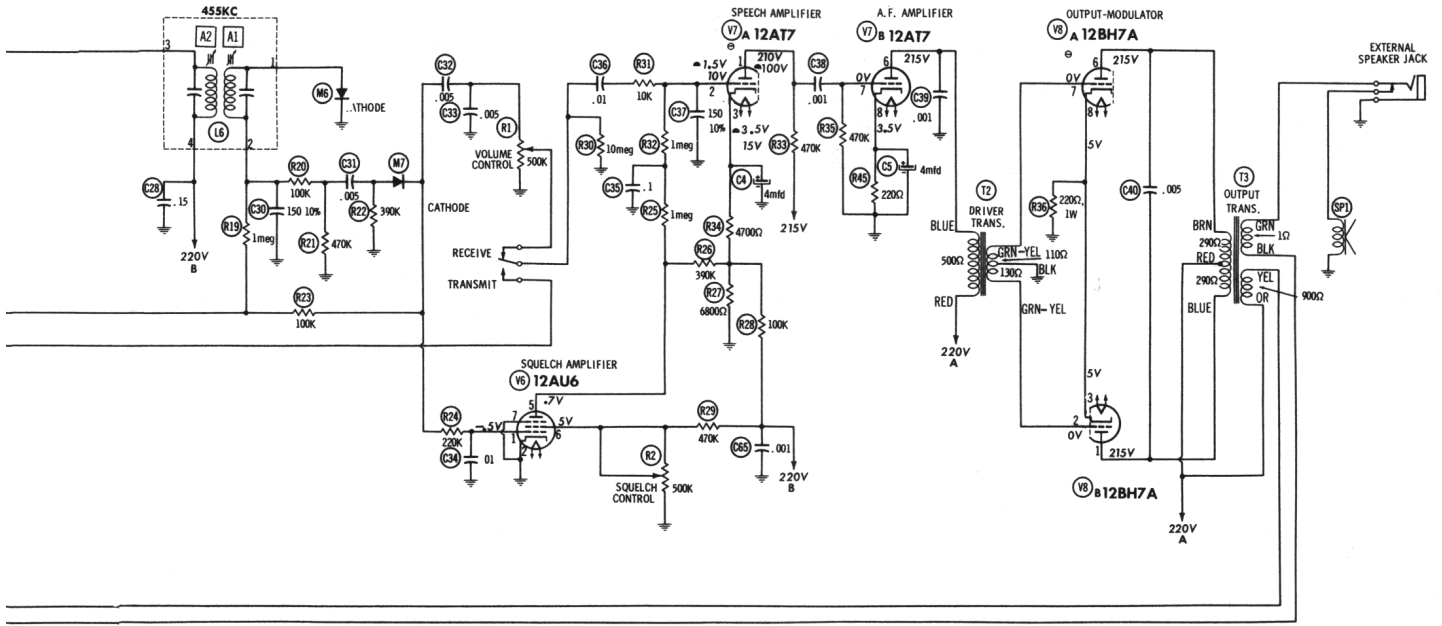
M9 SHOWN IN "CRYSTAL" POSITION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	1.6meg	0Ω	FIL	FIL	12200Ω	†100K	0Ω		
V2	6J6	135K	135K	FIL	FIL	470K	100K	180Ω		
V3	6AU8A	560Ω	100K	14700Ω	FIL	FIL	≈ 8Ω	≈ 100K	≈ 5K	≈ 1000Ω
V4	6BA6	1.6meg	0Ω	FIL	FIL	11000Ω	147K	100Ω		
V5	12BA6	1.6meg	0Ω	FIL	FIL	135Ω	147K	62Ω		
V6	12AU6	1.8meg	0Ω	FIL	FIL	1500K	1470K	0Ω		
V7	12AT7	1520K	2.3meg	11.5K	FIL	FIL	1535Ω	470K	220Ω	FIL
V8	12BH7	1345Ω	130Ω	220Ω	FIL	FIL	1325Ω	110Ω	220Ω	FIL
V9	12AQ5	27K	≈ 0Ω	FIL	FIL	≈ 195Ω	≈ 147K	27K		

ALL MEASUREMENTS TAKEN IN "RECEIVE" POSITION, UNLESS NOTED.
 † MEASURED FROM OUTPUT OF X2.
 ≈ MEASURED IN "TRANSMIT" POSITION.

- ⊙ See parts list for alternate value or application.
- 1. Voltage measurements taken with vacuum tube voltmeter.
- 2. All controls set for normal operation, no signal applied.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. All terminals viewed from bottom unless otherwise designated.
- 5. Numbers assigned to terminals may not be found on the unit.
- 6. Supply voltage maintained at rated value for voltage readings.



SONAR MODEL E (Revised)

PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	AMPEX		GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
	USE	TYPE	USE	TYPE	USE	TYPE	USE	TYPE
V1	RF Amplifier	12BA6	2nd IF Amplifier	12BA6 (8BA6)*				
V2	Mixer	6J6	Squeech Amplifier	12AU6 (6AU6)*				
V3	Receive Oscillator-Transmit Oscillator	6AU6A	Speech Amp. -AF Amp.	12AT7				
V4	1st IF Amplifier	6BA6	Output-Modulator	12BH7A				
			Final RF	12AQ5 (6AQ5)*				

* 6 Volt Versions.

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS	
			MALLORY PART No.	RAYTHEON PART No.
X1	.080A	19-040-004	INI763	SARKES TARZIAN
X2	.080A	19-040-004	INI763	40H

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP. VOIT.	REPLACEMENT DATA			
		AEROVOX PART No.	CORNELL-DUBIER PART No.	GENERAL INSTRUMENT PART No.	SPRAGUE PART No.
C1	250	PR1580	BR4095	TD 40-250	TVA-1511
C2	30	PR1560	BR4025	TD 40-250	TC58
C3A	30	PR2410	BRRD2245	TDLD-30	TCD-65
C4	4	PR1400	BRR4-150	TD-4-25	TT50X4
C5	4	PR1400	BRR4-150	TD-4-25	TT50X4

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL-DUBIER PART No.	ELMENCO PART No.	SPRAGUE PART No.
C6	25 NPO 10%		NPO-DI 25	C10Q25C	CC TO-270	10TCC-Q25
C7	25 NPO 10%		NPO-DI 25	C10Q25C	CC TO-270	10TCC-Q25
C8	25 NPO 10%		NPO-DI 25	C10Q25C	CC TO-270	10TCC-Q25
C9	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C10	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C11	10 NPO 10%		NPO-DI 10	C10Q10	CC TO-100	10TCC-Q10
C12	25 NPO 10%		NPO-DI 25	C10Q25C	CC TO-270	10TCC-Q25
C13	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C14	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C15	.01		BPD-01	BYA10S1	CC F-102	10TCC-Q10
C16	3.9 N750		NPO-DI 10	C10VAC	CC TO-100	10TCC-Q10
C17	100 NPO 10%		DI 100	L10T10	CCD-101	10TTS-T10
C18	100 NPO 10%		EF-001	MFT-1000	CC F-102	10TCC-Q10
C19	.01		EF-001	MFT-1000	CCD-102	10TCC-Q10
C20	.01		DI 100	L10T10	CCD-102	10TCC-Q10
C21	100 NPO 10%		DI 100	L10T10	CCD-101	10TTS-T10
C22	25 NPO 10%	#08-100-001	NPO-DI 25	C10Q25C	CC TO-270	10TCC-Q25
C23	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C24	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C25	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C26	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C27	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C28	.15 200V		P288N-15	CUB2P15	2DP-3-154	2TM-P15
C29	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C30	150 NPO 10%		DI 150	L10T15	CCD-151	10TTS-T15
C31	.005		BPD-005	BYA10D5	CCD-502	5HK-D50
C32	.005		BPD-005	BYA10D5	CCD-502	5HK-D50
C33	.005		BPD-005	BYA10D5	CCD-502	5HK-D50
C34	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C35	.01		P488N-1	CUB4P1	4DP-3-104	4TM-P10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			
			AEROVOX PART No.	CORNELL-DUBIER PART No.	ELMENCO PART No.	SPRAGUE PART No.
C36	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C37	150 10%		DI 150	L10T15	CCD-151	10TTS-T15
C38	.001		EF-001	MFT-1000	CC F-102	10TCC-Q10
C39	.001		EF-001	MFT-1000	CC F-102	10TCC-Q10
C40	.005		BPD-005	BYA10D5	CCD-502	5HK-D50
C41	10 NPO		NPO-DI 10	C10Q10	CC TO-100	10TCC-Q10
C42	150 10%		DI 150	L10T15	CCD-151	10TTS-T15
C43	10 NPO 10%		NPO-DI 10	C10Q10	CC TO-100	10TCC-Q10
C44	.001		EF-001	MFT-1000	CC F-102	10TCC-Q10
C45	.001		EF-001	MFT-1000	CC F-102	10TCC-Q10
C46	10 N750 5%		NPO-DI 10	C10Q10	CC TO-100	10TCC-Q10
C47	.001		EF-001	MFT-1000	CC F-102	10TCC-Q10
C48	.001		EF-001	MFT-1000	CC F-102	10TCC-Q10
C49	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C50	2.2		NPO-SI 2.2	C10V3C	CCTO-2R2	10TCC-V22
C51	.001		EF-001	MFT-1000	CC F-102	10TCC-V22
C52	6.8 NPO 10%	#08-150-003	NPO-DI 6.8	C10V68C	CCTO-6R8	10TCC-V88
C53	100-500	#09-210-001				
C54	100-500	#09-110-011				
C55	.15 200V		P288N-15	CUB2P15	2DP-3-154	2TM-P15
C56	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C57	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C58	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C59	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C60	1.0 50V		P288N-1.0	CUB2P1	IDP-5-105	2TM-M1
C61	.1 200V		P488N-1	CUB4P1	4DP-3-104	4TM-P10
C62	.1 200V		P488N-1	CUB4P1	4DP-3-104	4TM-P10
C63	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C64	.01		BPD-01	BYA10S1	CCD-103	5HK-S10
C65	.001		EF-001	MFT-1000	CC F-102	5HK-S10

Sonar Part Number.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA			
			SONAR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1	Volume & Switch	500K	03-504-018	B-60-S, or (F2-500K, SU204, KR-2)	A47-500K-Z/RS-2, SWE-20	Q13-133, 76-2, or U48, US-27 or (U48, US55A, SF1000, US42)
R2	Squelch	500K	03-504-003	B-60, or (F1-500K, SU204)	A47-500K-Z/RS-2	Q13-133 or (BU1, U48, or (UA55A, C F25, SSI, DC1)* SF1000)

* "SNAPTROL"

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		SONAR PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.
L1	Antenna	22-030-001	SW-609	6250	RTC-8669
L2	RF	22-050-001	SW-608	6171-A	RTC-8609
L3	Oscillator Grid	22-040-001	BC-352	12-C1	RTC-8632
L4	1st IF	22-010-014	BC-353	12-C2	RTC-8633
L5	2nd IF	22-010-002	BC-353	12-C2	RTC-8633
L6	3rd IF	22-010-002	BC-353	12-C2	RTC-8633
L7	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598
L8	Transmit Osc. Plate	22-040-002	SW-608	6171-A	RTC-8609
L9	RF Choke (21uh)	21-060-005			
L10	Final	22-070-001			
L11	Antenna Loading	22-090-003			
L12	FLI Choke (10uh)	22-100-003	BC-537	5220	RTC-8182
L13	Hash Choke (10uh)	22-100-003	BC-537	5220	RTC-8182

NOTES

PARTS LIST AND DESCRIPTION (CONTINUED)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L14	.080A	35Ω	1HY	14-070-001					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ .48A (or) 12.6VDC @4.1A	90VAC @ .080A DC		14-010-017 *					* Part #14-010-018 used in 6VDC version

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	1	1	14-020-001					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SONAR PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
		SEC. 2						
T3	16K CT		14-050-001					

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		SONAR PART No.	QUAM PART No.	
SP1	3" PM	36-043-001		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA			NOTES
				SONAR PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
M1	Interrupter Interrupter	12.6	115v	29-030-001	6301	G-1601	12 Volt Versions 6 Volt Versions
		6.3	115v	29-030-002	5301	1601	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SONAR PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	7½A 32V	42-010-014		31107.5 (3AG 7½A 32V)	357001	AGC 7½	4405
		10A 32V	42-010-008		311010 (3AG 10A 32V)	357001	AGC 10	4405
		6A 32V	42-010-009		311006 (3AG 6A 32V)	357001	AGC 6	4405
M3	3AG	1A 250V	42-010-016		312001 (3AG 1A 250V)	357001	AGC 1	4405
		2A 250V	42-010-006		312002 (3AG 2A 250V)	357001	AGC 2	4405

MISCELLANEOUS

ITEM No.	PART NAME	SONAR PART No.	NOTES
M4	Crystal		Receive (order by freq. & channel desired)
M5	Crystal		Transmit (order by freq. & channel desired)
M6	Diode	19-050-001	Detector (IN295)
M7	Diode	19-040-003	Squelch
M8	Switch	10-030-002	Crystal Selector (Rotary Wafer Type)
M9	Switch	10-030-001	Crystal-Manual Tune (Rotary Wafer Type)
M10	Relay	16-030-002	Antenna (SPDT)
M11	Relay	16-010-002	Change-over (3PDT)
	Microphone Assy.	43-010-011	Includes Plug, Cable, and Push-to-talk Switch

WIRING DATA

General-use Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No. 8214 Lowest Loss (RG-8/U Type) 8237 Low Loss (RG-8/U) 8240 (Solid) Miniature (RG-58/U) 8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No. 8497 3 Conductor-1 Shielded for Press-to-Talk (Neoprene) 8496 3 Conductor-1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No. 8661 (3/8 In.)

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