

# the hallicrafters co.

## SERVICE BULLETIN FOR MODEL S-51

OCTOBER, 1948  
94X287  
REV. NO. 2.  
SEE CHASSIS  
STAMP

### GENERAL

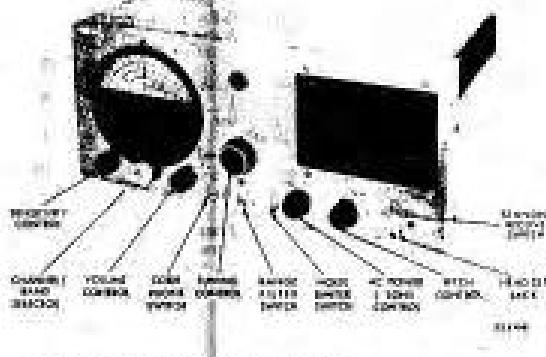
Tubes . . . . .	One glass rectifier	
Speaker . . . . .	5-inch P.M.	
Speaker V.C. Impedance . . . . .	3.2 ohms	
Headset Output . . . . .	Low Impedance	
Antenna . . . . .	Provides for external antenna	
Tuning . . . . .	Manual	
Tuning Range . . . . .		
Range . . . . .	Frequency . . . . .	Reception . . . . .
A . . . . .	200 kc - 300 kc	Fixed Frequency
B . . . . .	2.0 mc - 3.0 mc	-
C . . . . .	2.0 mc - 3.0 mc	-
1 . . . . .	132 kc - 405 kc	General Coverage
2 . . . . .	405 kc - 1520 kc	-
3 . . . . .	1450 kc - 4550 kc	-
4 . . . . .	4.2 mc - 13.8 mc	-
Intermediate Frequency . . . . .	.445 kc	
Power Supply . . . . .	.105-125 V. DC or 60 cycles A.C. Provision for 6 V., 12 V., 22 V. DC operation.	
Power Consumption . . . . .	30 Watts	

### 6 V., 12 V., AND 32 V. OPERATION

The Model S-51 Receiver may be operated from a 6 V., 12 V., or 32 V. source by inserting the correct power supply adapter unit. This adapter unit is plugged into the dual socket located on the top of the receiver chassis. Remove the jumper plug before inserting the low voltage adapter unit. One adapter unit is available for each of the above source voltages.

DC Source	Adapter	Identification	Use	Fuse
Voltage	Unit	Stamp	Cable No.	Rating
6 Volts	IX523	6 VOLTS	8785861	10 amperes
12 Volts	IX520	12 VOLTS	8785861-1	5 amperes
32 Volts	IX521	32 VOLTS	8785861-2	2 amperes

When operating the receiver with the adapter, the power cable normally used for 117 V. AC/DC operation is replaced with the power cable supplied with the adapter unit and plugged into the same receptacle on the receiver. Connect the fitted power cable lead to the "hot" side of the DC source and the unused lead to the ground or "cold" side of the supply. Disregard polarity of the DC supply as this is taken care of by a reversing switch located on the back side of the adapter unit.



### RESTRINGING DIAL CORD

To restring the general coverage tuning dial cord, cut a 24-inch length of 20 lb. test dial cord and tie one end to the tension spring of the main tuning capacitor drive pulley at position "1" on the diagram. Follow the numbers "1" through "7" and at position "7" stretch the tension spring and tie the cord securely.

### REPLACING LAMPS

Refer to Fig. 2 for location of the two dial lamps used in the receiver. Defective lamps may be replaced through the cabinet cover. Replace defective lamps with 6-1/2 V. Mazda #47 (brown lead) lamps or equivalent.

### REPLACING FUSES

A fuse fuse protects the receiver when operating from a 105-125 V. AC/DC source. This fuse is accessible at the rear apron of the receiver chassis. Replace defective fuses with type 3AG fuses with a one ampere rating.

Protective fuses for 6 V., 12 V., and 32 V. operation are located in the power cable. Refer to the paragraph on low voltage operation for fuse ratings. Replace defective fuses with the type 3AG body size.

CAUTION - Do not replace defective fuses with one of higher current rating than specified. Use the correct fuse and avoid costly repairs.

### FIXED FREQUENCY CHANNEL ADJUSTMENTS

Adjustment of the fixed frequency channels for code and radio telephone reception in the 200 kc to 300 kc or 2000 kc to 3000 kc ranges is accomplished as described below. A total of three fixed frequency channels are available, one channel in the 200 kc to 300 kc range and two channels in the 2000 kc to 3000 kc range.

Set the band or range switch at "A" for a channel in the 200 kc to 300 kc band or either "B" or "C" for a channel in the 2000 kc to 3000 kc band.

Lift the hinged cabinet cover and with a small screwdriver, adjust the screws identified as "M", "M'", and "A'" for the "A" band or "B", "B'", and "B'" for the "B" band, etc. Refer to Fig. 2. Make the adjustments in the order "O" "M" "A" (Oscillator, Mixer and Antenna).

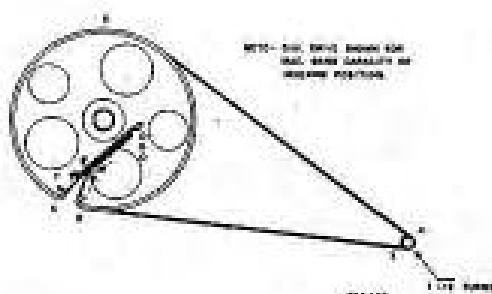


FIG. 2. DIAL CABLE STRINGING PROCEDURE.

adjusting the oscillator screw ("O") as you would normally have in a station and adjusting the "M" and "A" screws for maximum volume. When setting up a channel for code reception, set the PITCH CONTROL at mid position and take the "G" adjustment for zero beat. The PITCH CONTROL may then be set for the desired pitch when copying code signals on the particular fixed frequency channel.

### ALIGNMENT PROCEDURE

Set the following controls before alignment:

SENSITIVITY	Set at maximum
VOLUME	Set at maximum
CW/AM switch	Set at CW (see step 2)
RANGE FILTER	Set at OFF
NOISE LIMITER	Set at OFF

TONE	Set at HIGH
STANBY-RECEIVE	Set at RECEIVE

For the settings of the remaining controls, refer to the alignment chart.

It will be necessary to remove the receiver chassis from the cabinet to make some of the alignment adjustments. The chassis is held in the cabinet by three screws along both the bottom edge of the front panel and the rear of the cabinet, and two screws on either side of the front panel.

The standard RMA dummy specified in the alignment chart consists of a 200 mfd. condenser in series with a 20 ohm p-t choke which is shunted by a 400 mfd condenser in series with a 400 ohm carbon resistor.

### ALIGNMENT CHART

Step	Dummy Antennas	Signal Generator Coupling	Signal Generator Frequency	Read Switch Setting	Receiver Dial Setting	Adjust	Remarks
1	.1 mfd. If an isolation transformer is not used, change dummy ant. to .001 mfd. to reduce hum modulation.	High side to center point of two antenna wires; low side to chassis.	445 kc	*2*	Tuning cap. fully open	S1, S3, S4, S	Adjust for maximum audio output at speaker voice coil. Use just enough signal generator output to obtain a 50 mw audio level.
2	See step 1.	See step 1	445 kc (No modulation)	*2*	See step 1	S2	With the CW/AM switch set at CW remove the pitch control knob and adjust S-3 for zero beat. Replace the knob with the dot in the center position.
3	Std. RMA dummy	High side to "A1" on antenna strip; low side to chassis. Jumper connected between "A2" and "D2".	350 kc	*1*	350 kc	*A,B,C	Maximum output as in step 1.
4	Std. RMA dummy	See step 3	1400 kc	*2*	1400 kc	*E,F,G	Maximum output as in step 1.
5	Std. RMA dummy	See step 3	800 kc	*3*	800 kc	*H	Maximum output as in step 1.
6	Std. RMA dummy	See step 3	4 mc	*3*	4 mc	*I,J,K	Maximum output as in step 1.
			1800 kc		1800 kc	*L	
			12 mc	*4*	12 mc	*L,M,N	Maximum output as in step 1.
			8 mc		8 mc	*O	

\*Note - Calibration adjustments.

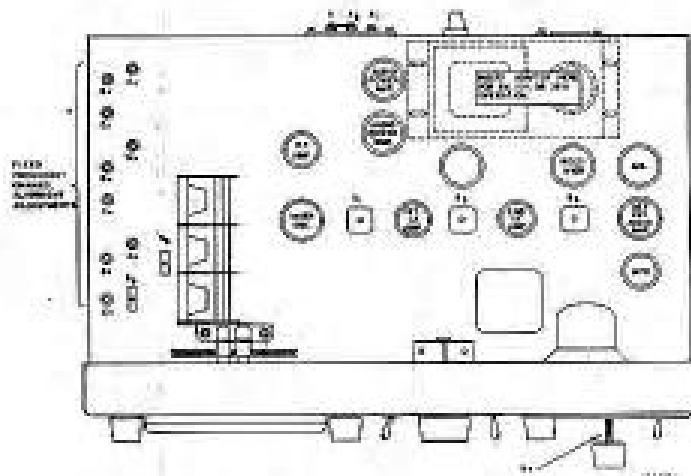


FIG. 2. Alignment adjustments - top view.

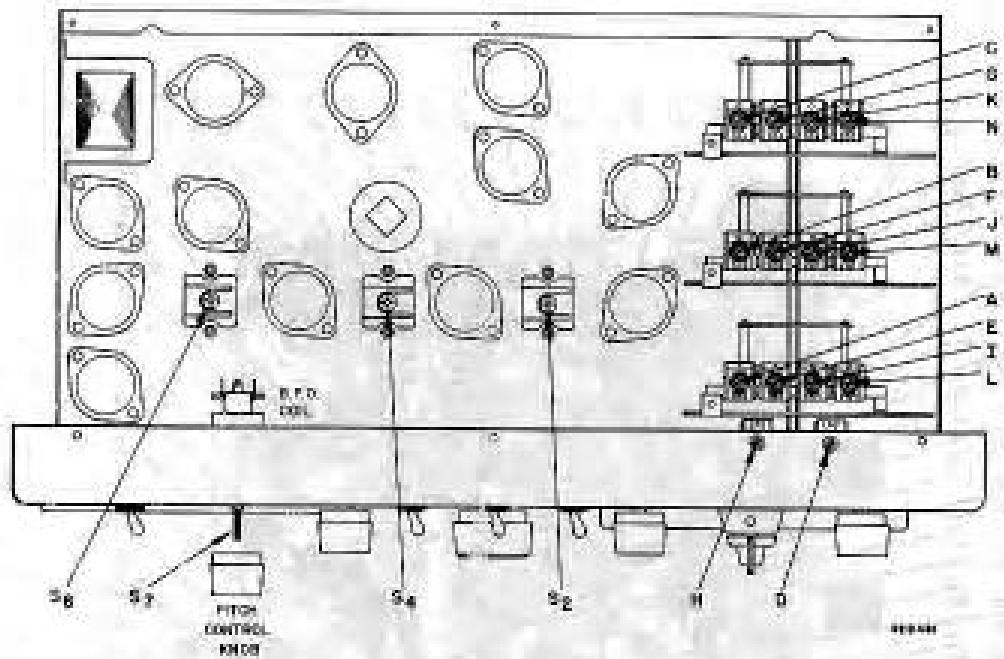


FIG. 3. ALIGNMENT ADJUSTMENTS, BOTTOM VIEW.

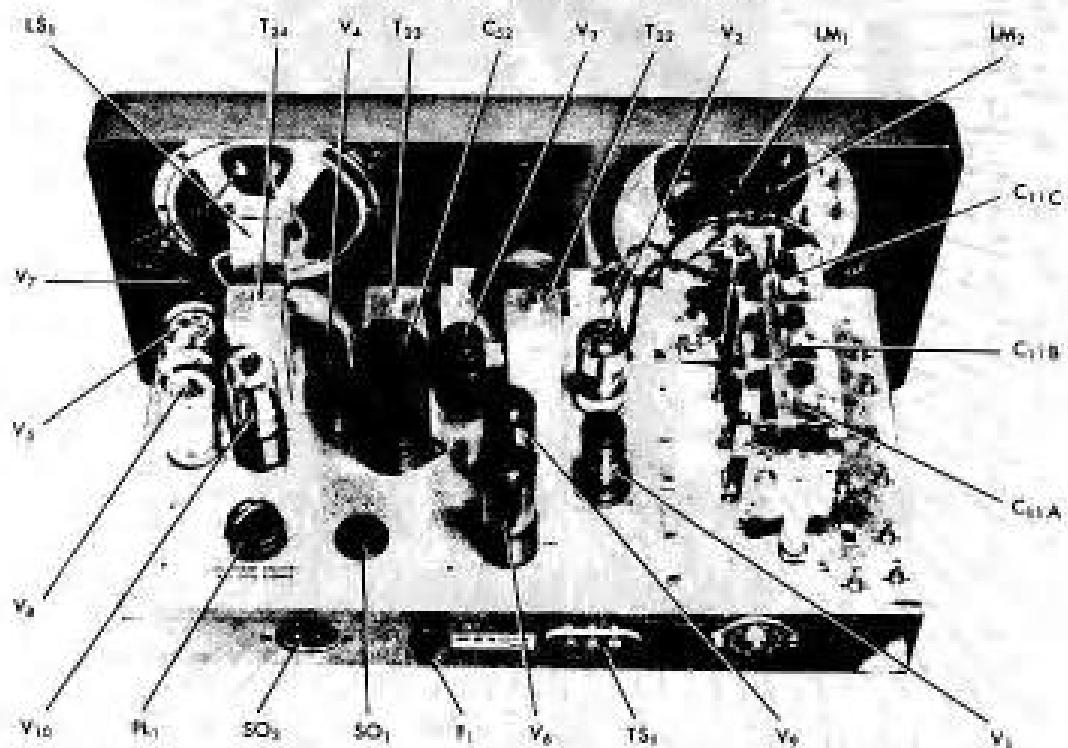
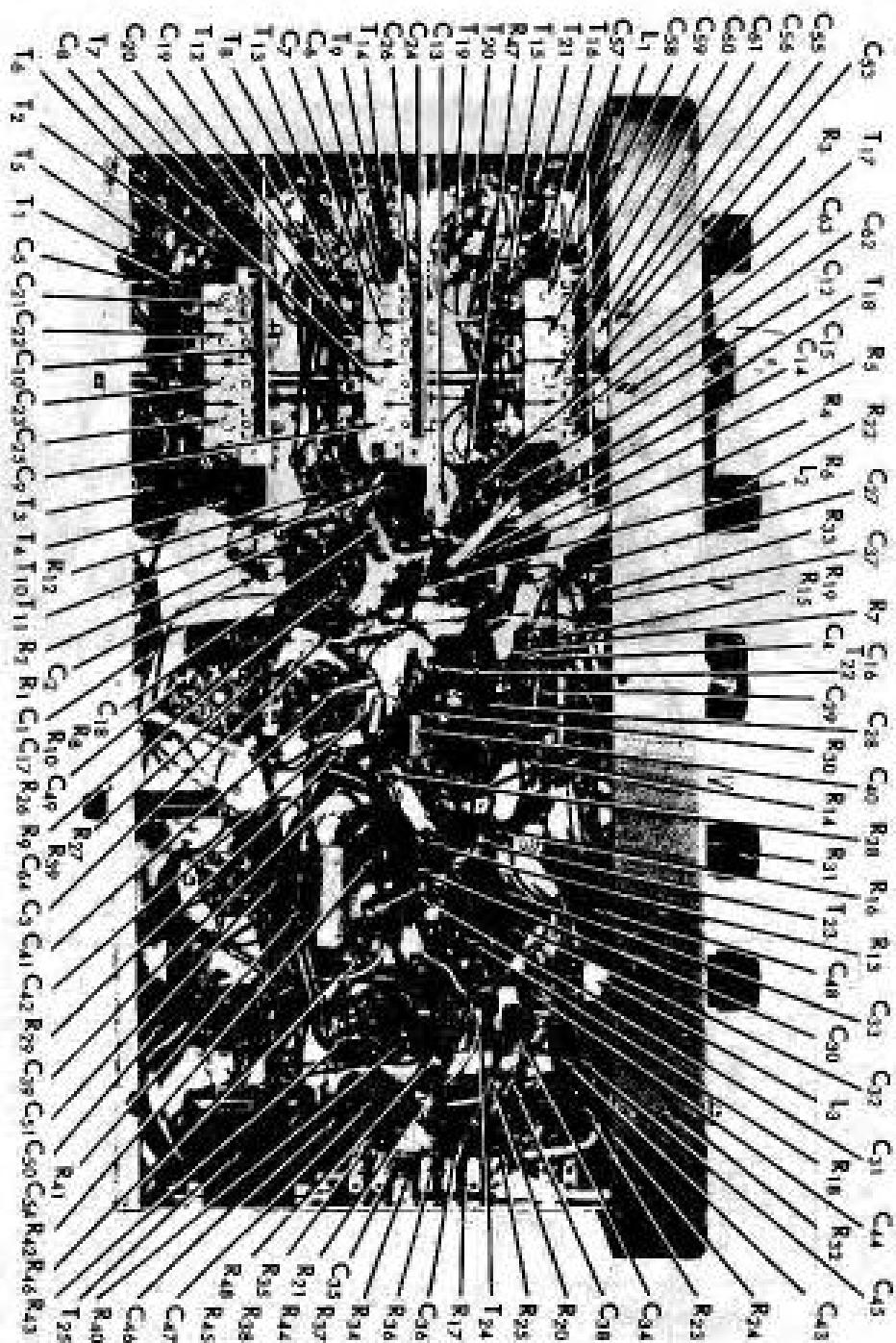


FIG. 4. COMPONENT LOCATION, TOP VIEW.

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P. G. — CHAPITRE II. — MÉTAMORPHISME

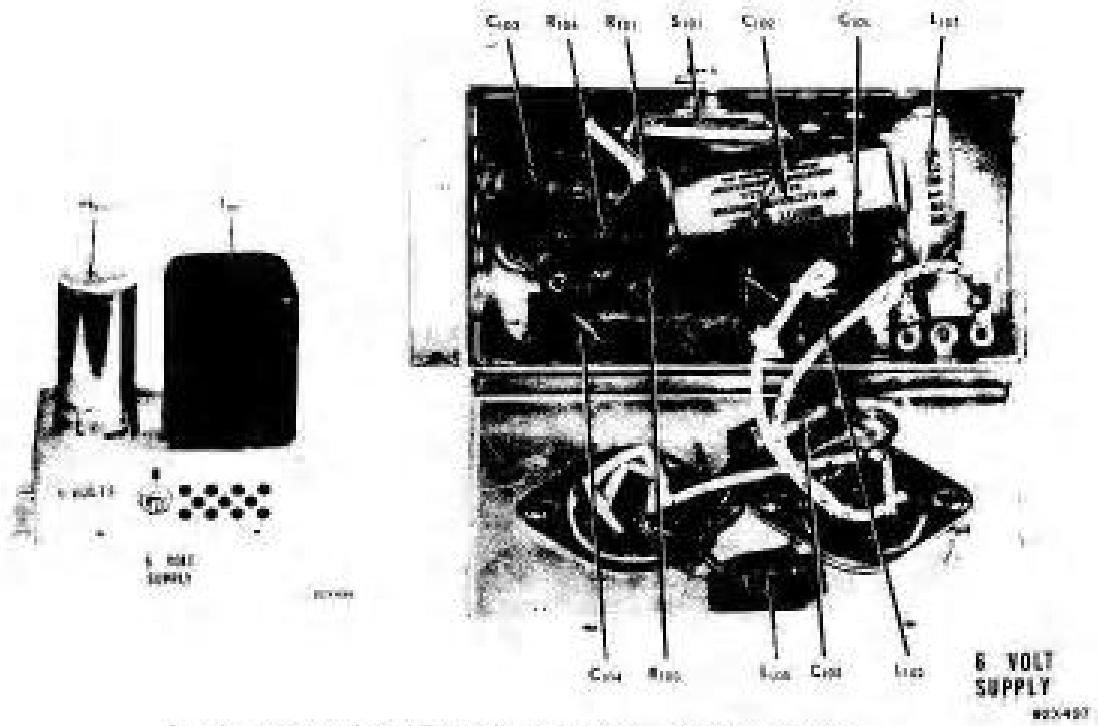


FIG. 6. COMPONENT LOCATION, 6-VOLT adapter unit. (820490 = 822497)

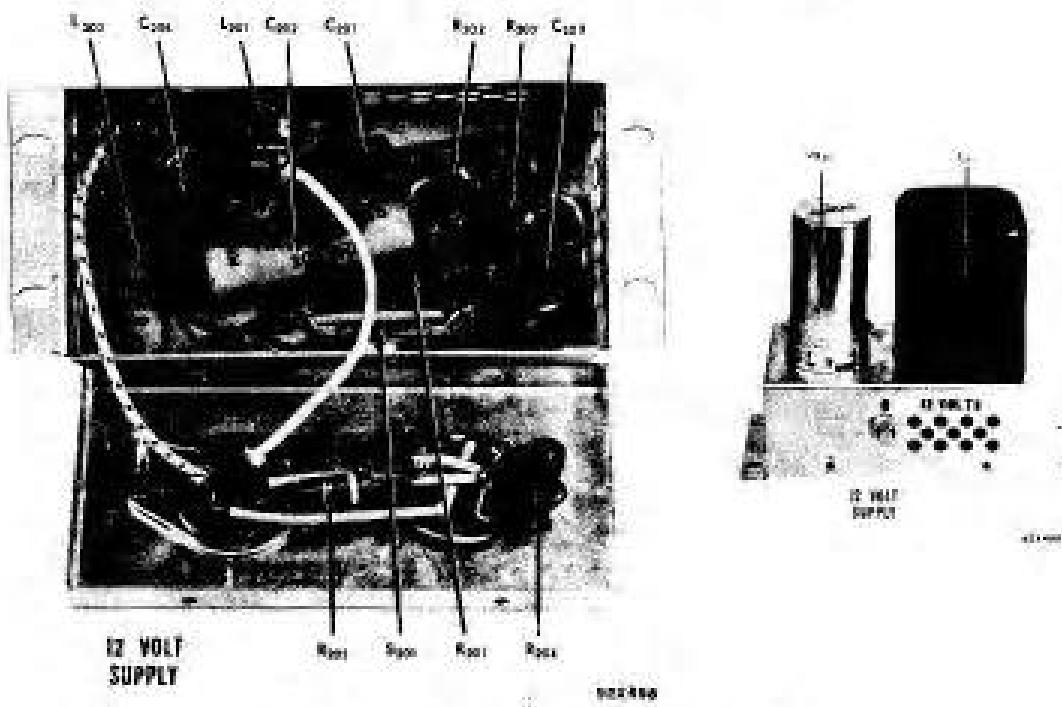


FIG. 7. Component location, 12-volt adapter unit.

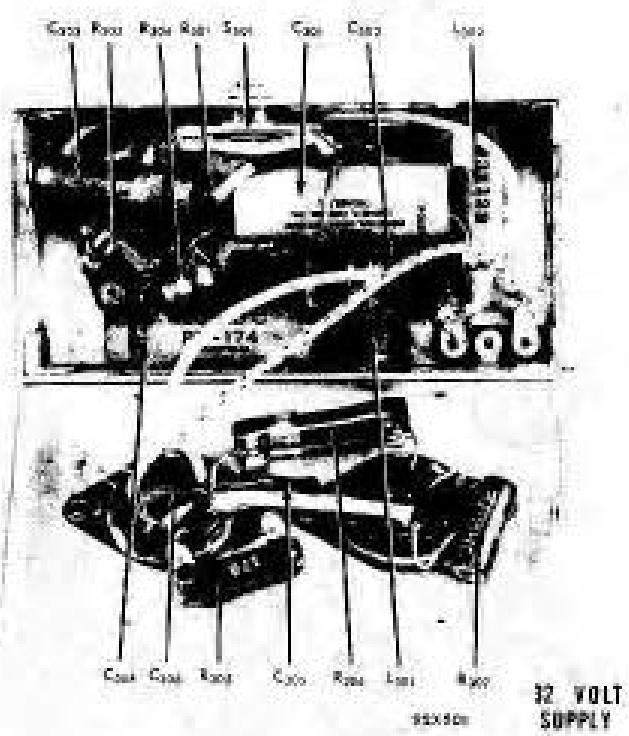
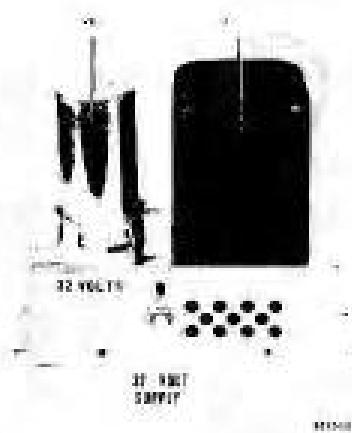
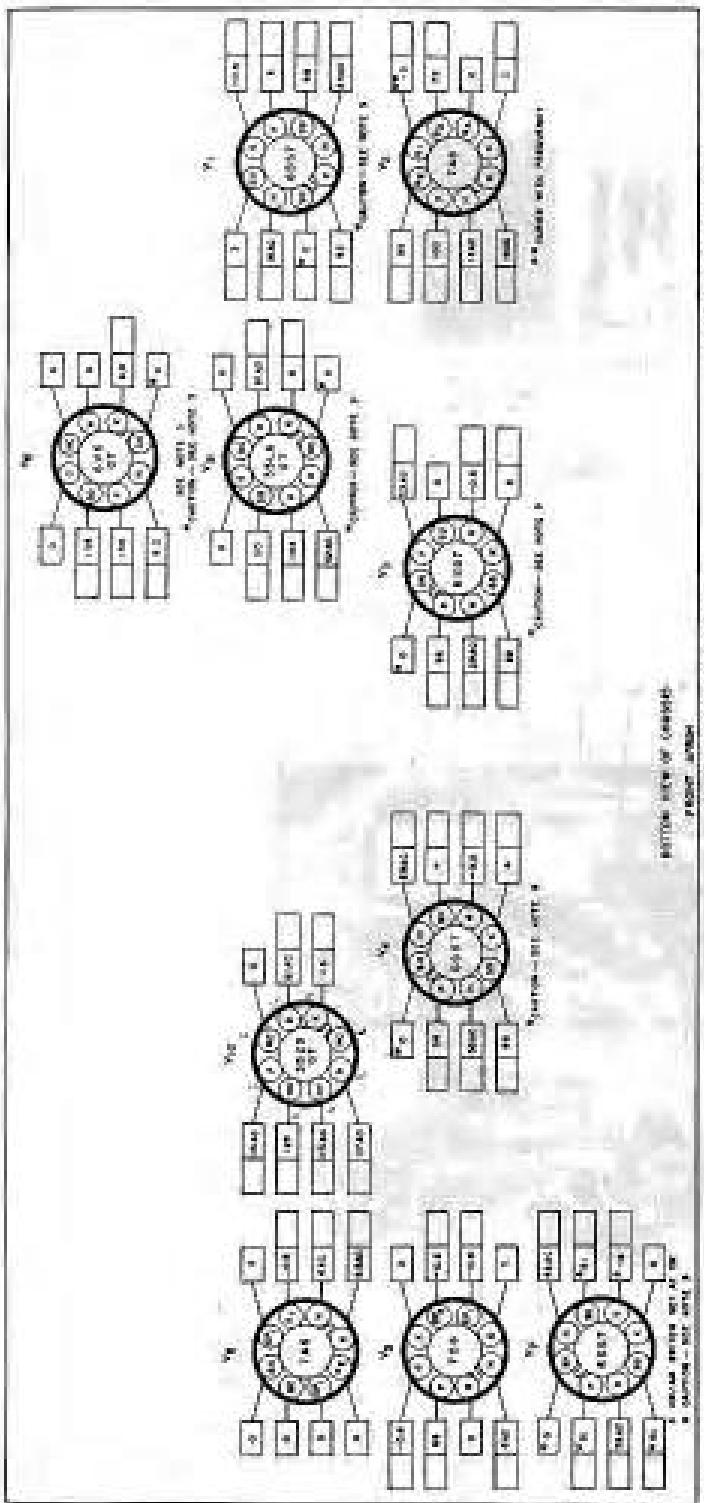
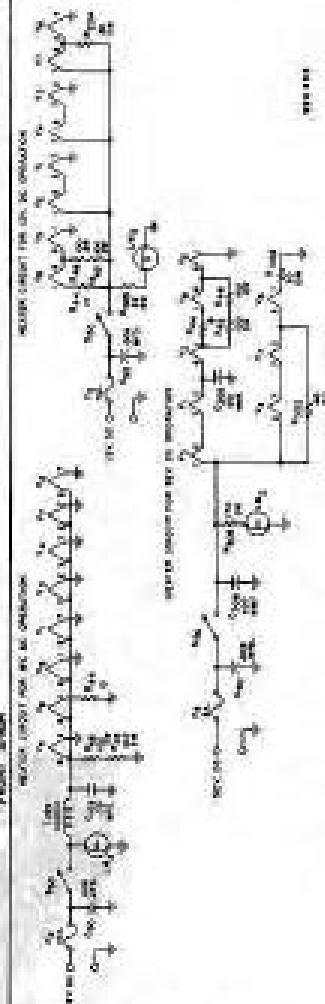


FIG. 8 Component locations, 32-volt adapter unit.

FIG. 9. - *Tracheobronchial tree*.

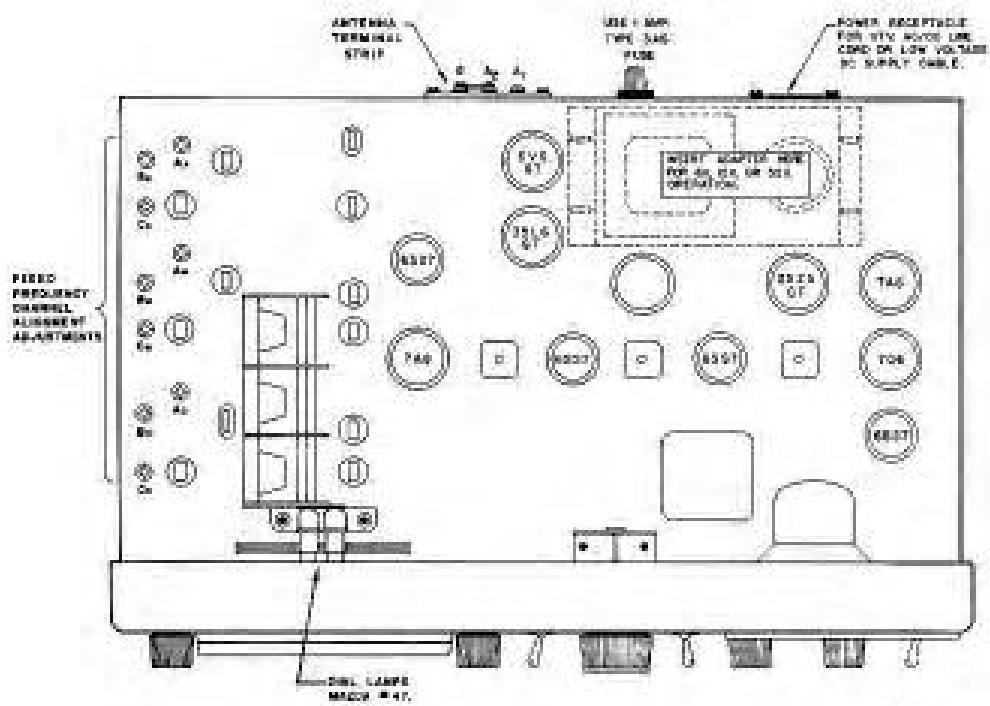


FIG. 10. Location of tubes, fuses and other parts.

### SERVICE PARTS LIST

H.I. No.	Description	Model/Pattern Part Number	H.I. No.	Description	Model/Pattern Part Number
<b>CONDENSERS</b>					
C-113.04.07	10 mil. 800 F., variable paper	NA1010	T-14	Transformer, audio stage, band A.	NA1009
C-113.05			T-15	Transformer, oscillator stage, band A.	NA1008
C-113.06	1000 mil. 160 F., carbon	NA1011	T-16	Transformer, oscillator stage, band A.	NA1007
C-113.07	20 mil. 200 F., variable paper	NA1012	T-17	Transformer, oscillator stage, band B.	NA1006
C-113.08	21 mil. 200 F., variable paper	NA1013	T-18	Transformer, oscillator stage, band B.	NA1005
C-113.09	80 mil. 800 F., variable paper	NA1014	T-19	Transformer, oscillator stage, band B.	NA1004
C-113.10	10 mil. 200 F., carbon paper	NA1015	T-20	Transformer, oscillator stage, bands B & C.	NA1003
C-113.11	20 mil. 200 F., carbon paper	NA1016	T-21	Transformer, oscillator stage, band C.	NA1002
C-113.12	3 mil. 160 F., ceramic	NA1017	T-22	Transformer, 160 F.	NA0202
C-113.13	Transformer, oscillator, 4 sections, variable, 1000 F.	NA1018	T-23	Transformer, 200 F.	NA0201
C-113.14	100 mil. 21. 160 F., fixed capacitors	NA1019	T-24	Transformer, diode detector	NA0200
C-113.15	Testing condenser, 4 sections	NA1020	T-25	Transformer, audio output	NA0209
C-113.16	100 mil. 160 F., ceramic	NA1021	T-26	Transformer, oscillator supply 6 volts	NA0208
C-113.17	1 mil. 160 F., variable	NA1022	T-27	Transformer, oscillator supply 12 volts	NA0207
C-113.18	Transformer, oscillator, 4 sections, variable	NA1023	T-28	Transformer, oscillator supply 12 volts	NA0206
C-113.19	10 mil. 160 F., variable paper	NA1024	T-29	F.T. diode	NA0205
C-113.20	100 mil. 160 F., variable paper	NA1025	L-1	F.T. diode	NA0211
C-113.21	100 mil. 160 F., variable paper	NA1026	L-2	Coil, H.F.O. 800 ft.	NA0210
C-113.22	100 mil. 160 F., variable paper	NA1027	L-3	H.F. reactor, low core	NA0212
C-113.23	100 mil. 160 F., variable paper	NA1028	L-4	H.F. reactor, low core	NA0213
C-113.24	100 mil. 160 F., variable paper	NA1029	S-1	Band switch assembly, antenna position	NA0214
C-113.25	100 mil. 160 F., variable paper	NA1030	S-2	Band switch assembly, filter & tone, antenna	NA0215
C-113.26	Transformer, oscillator, variable, 1000 F., variable, 1000 F.	NA1031	S-3	Power supply, 2 watts	NA0216
C-113.27	1000 mil. 160 F., ceramic	NA1032	S-4	Switch, single, SPST-ON/OFF	NA0217
C-113.28	1000 mil. 160 F., ceramic	NA1033	S-5	Switch, single, SPST-ON/ON/ON/ON	NA0218
C-113.29	1000 mil. 160 F., ceramic	NA1034	S-6	Switch, power by three diodes, variable power supply	NA0219
C-113.30	Transformer, oscillator, variable, 1000 F.	NA1035			
C-113.31	100 mil. 160 F., variable paper	NA1036			
C-113.32	100 mil. 160 F., variable paper	NA1037			
C-113.33	100 mil. 160 F., variable paper	NA1038			
C-113.34	100 mil. 160 F., variable paper	NA1039			
C-113.35	100 mil. 160 F., variable paper	NA1040			
C-113.36	100 mil. 160 F., variable paper	NA1041			
C-113.37	100 mil. 160 F., variable paper	NA1042			
C-113.38	100 mil. 160 F., variable paper	NA1043			
C-113.39	100 mil. 160 F., variable paper	NA1044			
C-113.40	100 mil. 160 F., variable paper	NA1045			
C-113.41	100 mil. 160 F., variable paper	NA1046			
C-113.42	100 mil. 160 F., variable paper	NA1047			
C-113.43	100 mil. 160 F., variable paper	NA1048			
C-113.44	100 mil. 160 F., variable paper	NA1049			
C-113.45	100 mil. 160 F., variable paper	NA1050			
C-113.46	100 mil. 160 F., variable paper	NA1051			
C-113.47	100 mil. 160 F., variable paper	NA1052			
C-113.48	100 mil. 160 F., variable paper	NA1053			
C-113.49	100 mil. 160 F., variable paper	NA1054			
C-113.50	100 mil. 160 F., variable paper	NA1055			
C-113.51	100 mil. 160 F., variable paper	NA1056			
C-113.52	100 mil. 160 F., variable paper	NA1057			
C-113.53	100 mil. 160 F., variable paper	NA1058			
C-113.54	100 mil. 160 F., variable paper	NA1059			
C-113.55	100 mil. 160 F., variable paper	NA1060			
C-113.56	100 mil. 160 F., variable paper	NA1061			
C-113.57	100 mil. 160 F., variable paper	NA1062			
C-113.58	100 mil. 160 F., variable paper	NA1063			
C-113.59	100 mil. 160 F., variable paper	NA1064			
C-113.60	100 mil. 160 F., variable paper	NA1065			
<b>TRANSFORMERS AND COILS</b>					
T-1	Transformer, antenna stage, band A.	NA1004			
T-2	Transformer, antenna stage, band A.	NA1005			
T-3	Transformer, antenna stage, band B.	NA1006			
T-4	Transformer, antenna stage, band B.	NA1007			
T-5	Transformer, oscillator stage, bands B & C.	NA1008			
T-6	Transformer, oscillator stage, band B.	NA1009	P-1	Transformer, 100 F., variable	NA0212
T-7	Transformer, oscillator stage, band B.	NA1010	P-2	Power supply, 100 F., variable	NA0211
T-8	Transformer, oscillator stage, band B.	NA1011	P-3	Power supply, 100 F., variable	NA0210
T-9	Transformer, oscillator stage, band B.	NA1012	P-4	Power supply, 100 F., variable	NA0209
T-10	Transformer, oscillator stage, band B.	NA1013	P-5	Power supply, 100 F., variable	NA0208
T-11	Transformer, oscillator stage, band B.	NA1014	P-6	Power supply, 100 F., variable	NA0207
T-12	Transformer, oscillator stage, bands B & C.	NA1015	P-7	Power supply, 100 F., variable	NA0206

### SERVICE PARTS LIST (Cont.)

H.I. No.	Description	Model/Pattern Part Number	H.I. No.	Description	Model/Pattern Part Number
<b>TRANSFORMERS AND COILS (Cont.)</b>					
T-13	Transformer, oscillator stage, band B.	NA1016	T-14	Transformer, oscillator stage, band B.	NA1009
T-15	Transformer, oscillator stage, band B.	NA1017	T-16	Transformer, oscillator stage, band B.	NA1008
T-17	Transformer, oscillator stage, band B.	NA1018	T-18	Transformer, oscillator stage, band B.	NA1007
T-19	Transformer, oscillator stage, band B.	NA1019	T-20	Transformer, oscillator stage, bands B & C.	NA1006
T-21	Transformer, oscillator stage, band B.	NA1020	T-22	Transformer, oscillator stage, band C.	NA1005
T-23	Transformer, oscillator stage, band C.	NA1021	T-24	Transformer, diode detector	NA0200
T-25	Transformer, audio output	NA1022	T-26	Transformer, audio output	NA0209
T-27	Transformer, oscillator supply 6 volts	NA1023	T-28	Transformer, oscillator supply 12 volts	NA1008
T-29	Transformer, oscillator supply 12 volts	NA1024	T-30	F.T. diode	NA0205
T-31	F.T. diode	NA0206	T-32	F.T. diode	NA0211
T-33	Search, power and T.V.	NA0207	T-34	Search, single, SPST-ON/OFF	NA0210
T-35	Search, single, SPST-ON/ON/ON/ON	NA0211	T-36	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0212
T-37	Search, power and T.V.	NA0213	T-38	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0213
T-39	Search, power and T.V.	NA0214	T-40	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0214
T-41	Search, power and T.V.	NA0215	T-42	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0215
T-43	Search, power and T.V.	NA0216	T-44	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0216
T-45	Search, power and T.V.	NA0217	T-46	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0217
T-47	Search, power and T.V.	NA0218	T-48	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0218
T-49	Search, power and T.V.	NA0219	T-50	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0219
T-51	Search, power and T.V.	NA0220	T-52	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0220
T-53	Search, power and T.V.	NA0221	T-54	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0221
T-55	Search, power and T.V.	NA0222	T-56	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0222
T-57	Search, power and T.V.	NA0223	T-58	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0223
T-59	Search, power and T.V.	NA0224	T-60	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0224
T-61	Search, power and T.V.	NA0225	T-62	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0225
T-63	Search, power and T.V.	NA0226	T-64	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0226
T-65	Search, power and T.V.	NA0227	T-66	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0227
T-67	Search, power and T.V.	NA0228	T-68	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0228
T-69	Search, power and T.V.	NA0229	T-70	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0229
T-71	Search, power and T.V.	NA0230	T-72	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0230
T-73	Search, power and T.V.	NA0231	T-74	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0231
T-75	Search, power and T.V.	NA0232	T-76	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0232
T-77	Search, power and T.V.	NA0233	T-78	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0233
T-79	Search, power and T.V.	NA0234	T-80	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0234
T-81	Search, power and T.V.	NA0235	T-82	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0235
T-83	Search, power and T.V.	NA0236	T-84	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0236
T-85	Search, power and T.V.	NA0237	T-86	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0237
T-87	Search, power and T.V.	NA0238	T-88	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0238
T-89	Search, power and T.V.	NA0239	T-90	Search, single, SPST-ON/ON/ON/ON/ON/ON	NA0239
T-91	Search, power and T.V.	NA0240	T-92	Power supply, 111 F., AC, DC, operation	NA0240
T-93	Search, power and T.V.	NA0241	T-94	Power supply, 111 F., AC, DC, operation	NA0241
T-95	Search, power and T.V.	NA0242	T-96	Power supply, 111 F., AC, DC, operation	NA0242
T-97	Search, power and T.V.	NA0243	T-98	Power supply, 111 F., AC, DC, operation	NA0243
T-99	Search, power and T.V.	NA0244	T-100	Power supply, 111 F., AC, DC, operation	NA0244
T-101	Search, power and T.V.	NA0245	T-102	Power supply, 111 F., AC, DC, operation	NA0245
T-103	Search, power and T.V.	NA0246	T-104	Power supply, 111 F., AC, DC, operation	NA0246
T-105	Search, power and T.V.	NA0247	T-106	Power supply, 111 F., AC, DC, operation	NA0247
T-107	Search, power and T.V.	NA0248	T-108	Power supply, 111 F., AC, DC, operation	NA0248
T-109	Search, power and T.V.	NA0249	T-110	Power supply, 111 F., AC, DC, operation	NA0249
T-111	Search, power and T.V.	NA0250	T-112	Power supply, 111 F., AC, DC, operation	NA0250
T-113	Search, power and T.V.	NA0251	T-114	Power supply, 111 F., AC, DC, operation	NA0251
T-115	Search, power and T.V.	NA0252	T-116	Power supply, 111 F., AC, DC, operation	NA0252
T-117	Search, power and T.V.	NA0253	T-118	Power supply, 111 F., AC, DC, operation	NA0253
T-119	Search, power and T.V.	NA0254	T-120	Power supply, 111 F., AC, DC, operation	NA0254
T-121	Search, power and T.V.	NA0255	T-122	Power supply, 111 F., AC, DC, operation	NA0255
T-123	Search, power and T.V.	NA0256	T-124	Power supply, 111 F., AC, DC, operation	NA0256
T-125	Search, power and T.V.	NA0257	T-126	Power supply, 111 F., AC, DC, operation	NA0257
T-127	Search, power and T.V.	NA0258	T-128	Power supply, 111 F., AC, DC, operation	NA0258
T-129	Search, power and T.V.	NA0259	T-130	Power supply, 111 F., AC, DC, operation	NA0259
T-131	Search, power and T.V.	NA0260	T-132	Power supply, 111 F., AC, DC, operation	NA0260
T-133	Search, power and T.V.	NA0261	T-134	Power supply, 111 F., AC, DC, operation	NA0261
T-135	Search, power and T.V.	NA0262	T-136	Power supply, 111 F., AC, DC, operation	NA0262
T-137	Search, power and T.V.	NA0263	T-138	Power supply, 111 F., AC, DC, operation	NA0263
T-139	Search, power and T.V.	NA0264	T-140	Power supply, 111 F., AC, DC, operation	NA0264
T-141	Search, power and T.V.	NA0265	T-142	Power supply, 111 F., AC, DC, operation	NA0265
T-143	Search, power and T.V.	NA0266	T-144	Power supply, 111 F., AC, DC, operation	NA0266
T-145	Search, power and T.V.	NA0267	T-146	Power supply, 111 F., AC, DC, operation	NA0267
T-147	Search, power and T.V.	NA0268	T-148	Power supply, 111 F., AC, DC, operation	NA0268
T-149	Search, power and T.V.	NA0269	T-150	Power supply, 111 F., AC, DC, operation	NA0269
T-151	Search, power and T.V.	NA0270	T-152	Power supply, 111 F., AC, DC, operation	NA0270
T-153	Search, power and T.V.	NA0271	T-154	Power supply, 111 F., AC, DC, operation	NA0271
T-155	Search, power and T.V.	NA0272	T-156	Power supply, 111 F., AC, DC, operation	NA0272
T-157	Search, power and T.V.	NA0273	T-158	Power supply, 111 F., AC, DC, operation	NA0273
T-159	Search, power and T.V.	NA0274	T-160	Power supply, 111 F., AC, DC, operation	NA0274
T-161	Search, power and T.V.	NA0275	T-162	Power supply, 111 F., AC, DC, operation	NA0275
T-163	Search, power and T.V.	NA0276	T-164	Power supply, 111 F., AC, DC, operation	NA0276
T-165	Search, power and T.V.	NA0277	T-166	Power supply, 111 F., AC, DC, operation	NA0277
T-167	Search, power and T.V.	NA0278	T-168	Power supply, 111 F., AC, DC, operation	NA0278
T-169	Search, power and T.V.	NA0279	T-170	Power supply, 111 F., AC, DC, operation	NA0279
T-171	Search, power and T.V.	NA0280	T-172	Power supply, 111 F., AC, DC, operation	NA0280
T-173	Search, power and T.V.	NA0281	T-174	Power supply, 111 F., AC, DC, operation	NA0281
T-175	Search, power and T.V.	NA0282	T-176	Power supply, 111 F., AC, DC, operation	NA0282
T-177					

