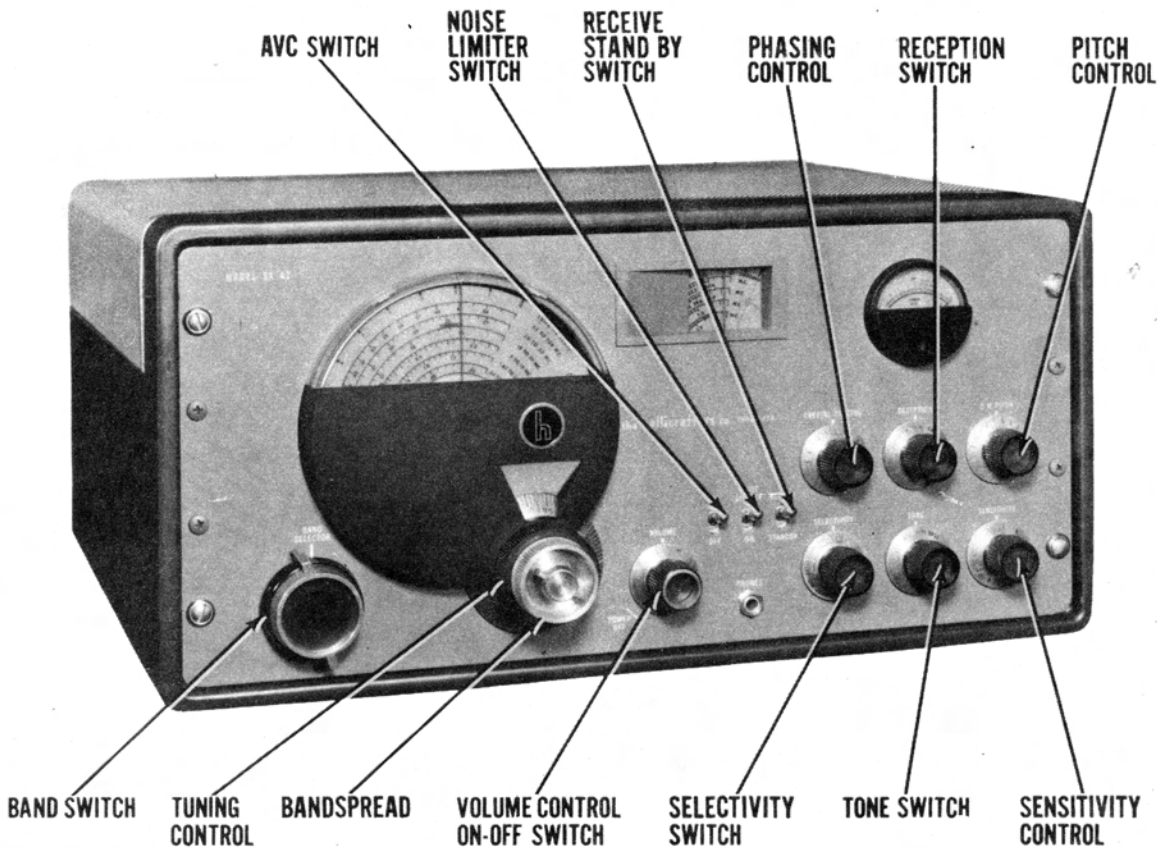


HALLICRAFTERS MODEL SX-42



HALLICRAFTERS MODEL SX-42

HALLICRAFTERS MODEL SX-42

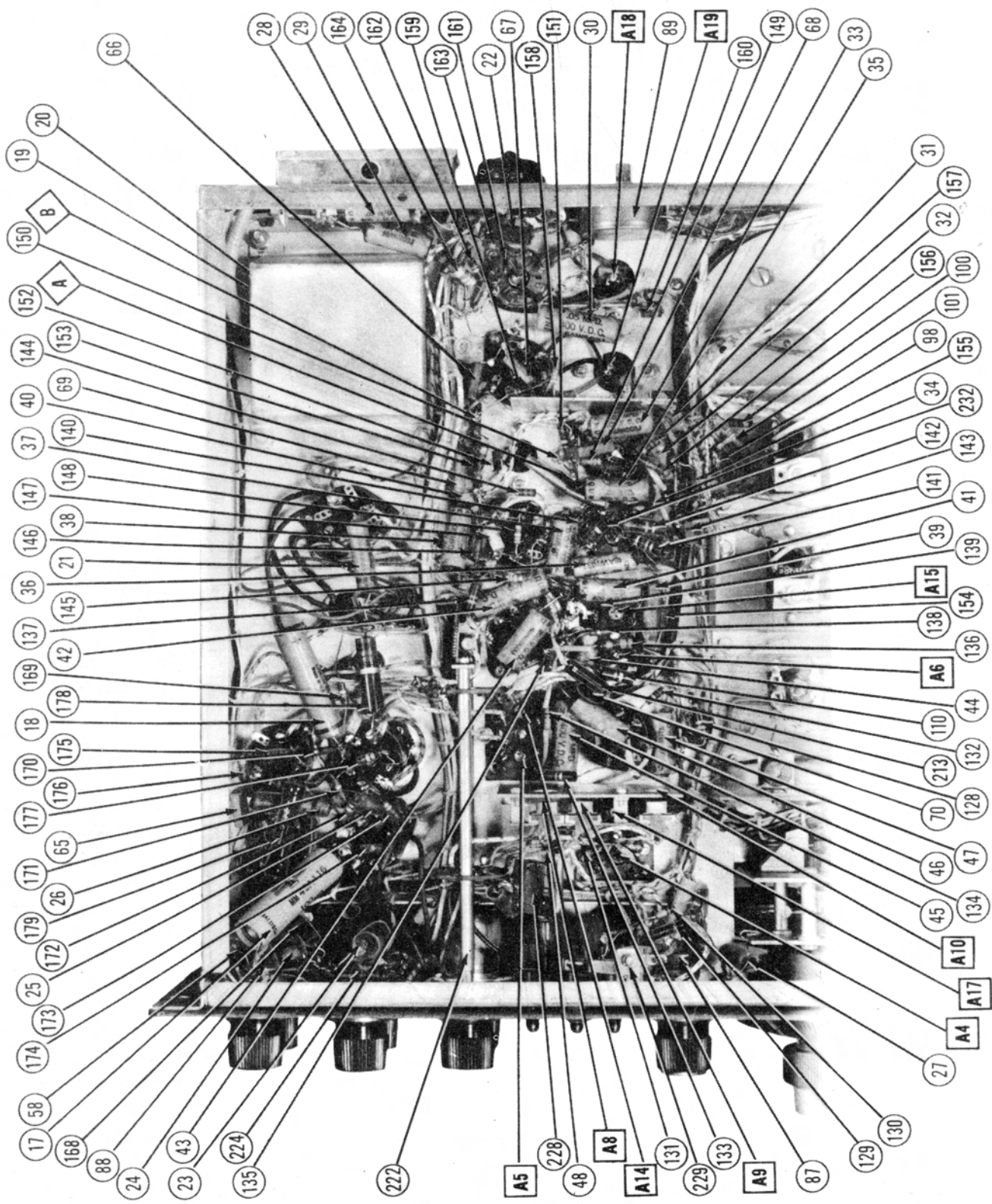
TRADE NAME	Hallicrafters, Model SX-42		
MANUFACTURER	Hallicrafters Co., 5th & Kostner Avenues, Chicago 24, Ill.		
TYPE SET	AC Operated Multi-Band Commercial Type Superheterodyne Receiver		
TUBES (FIFTEEN)	Types, 6AG5 1st RF, 6AG5 2nd RF, 7F8 Converter, 6SK7 1st IF Amp., 6SG7 2nd IF Amp., 6H6 AM Det.-Noise Limiter, 7H7 1st Limiter, 7H7 2nd Limiter, 6H6 Discriminator, 7A4 BFO-S Meter Amp., 6SL7GT Audio Inverter, (2) 6V6GT Power Output, 5U4G Rectifier, OD3/VR150 Voltage Reg.		
POWER SUPPLY	105-125 Volts AC-DC	RATING	1.07 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1620KC	SHORT WAVE	1.62-5MC, 5-15MC, 15-30MC, 27-55MC, 55-110MC
		FM	27-55MC, 55-110MC

**HOWARD W. SAMS & CO., INC.**

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# PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

# PARTS LIST AND DESCRIPTIONS (Continued) RESISTORS

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		HALLICRAFTERS PART No.	STANDARD REPLACEMENT	
1	1st RF Converter	6AG5	6AG5	
2	2nd RF Converter	7F8	7BD	
3	1st IF Amp.	6BK7	8B	
4	2nd IF Amp.	6SK7	8BK	
5	AM Det.-Noise Limiter	6H6	7Q	
6	1st Limiter	7H7	8V	
7	2nd Limiter	6H6	7Q	
8	Discriminator	7A4	5AC	
9	BFO-8 Meter Amp	6SL7GT	6SL7GT	
10	Audio Inverter	6V6GT	7AC	
11	Power Output	6V6GT	7AC	
12	Rectifier	5U4G	5T	
13		0B3/VRL50	0B3/VRL50	
14			4AJ	
15	Voltage Reg.			

## CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION NOTES
		HALLICRAFTERS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	
16A	30 CAP.	45A041		UP4445C	DY-313	EL-330
17	20 B	45A116		BRH251	N-100-25	UHC-102
18	100 C	45A064	PR325-100	BR102A	M-10-25	TA-10
19	0.1	46AG103J	684-01	DT681	MPH-6-01	TC-10
20	0.01	46AG103J	684-01	DT681	MPH-6-01	TC-11
21	0.1	46AV103J	684-01	DT681	ST-6-01	TC-11
22	0.01	46AV103J	684-01	DT681	ST-6-01	TC-11
23	0.05	46AV503J	684-05	DT685	ST-6-05	TC-15
24	0.05	46AV503J	684-05	DT685	ST-6-05	TC-15
25	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
26	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
27	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
28	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
29	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
30	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
31	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
32	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
33	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
34	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
35	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
36	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
37	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
38	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
39	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
40	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
41	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
42	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
43	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
44	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
45	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
46	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
47	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
48	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15
49	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
50	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
51	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
52	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
53	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
54	0.01	46AM103J	484-01	DT481	ST-4-01	TC-11
55	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
56	0.02	46AM203J	484-02	DT482	ST-4-02	TC-12
57	0.05	46AM503J	484-05	DT485	ST-4-05	TC-15

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		HALLICRAFTERS PART No.	STANDARD REPLACEMENT	
106	150K	RC20AE151K	BTA-47K	Br.-Grn.-Br. 2nd RF Cathode
107	470K	RC30AE473K		Yl.-Vi.-Or. 2nd RF Screen Dropping
108	330K	RC20AE331K		Or.-Or.-Br. Parasitic Suppressor-See Note 2
109	1000K	RC20AE102M		Br.-Blk.-Red 1st RF Screen Dropping
110	100K	RC30AE104H		Br.-Blk.-Yl. Voltage Dropping
111	1200K	RC20AE222M		Red-Red-Red 2nd RF Plate Decoupling
112	1200K	RC20AE122K		Br.-Red-Red 2nd RF Plate Decoupling
113	3000K	RC20AE150M		Or.-Blk.-Red Parasitic Suppressor-See Note 3
114	15K	RC20AE222M		Br.-Grn.-Blk.
115	2200K	RC20AE222M		Red-Red-Red Decoupling
116	2-2 Meg.	RC20AE225M		Red-Red-Grn. Converter Grid
117	1000K	RC20AE102M		Br.-Blk.-Red Converter Cathode
118	47K	RC20AE472K		Yl.-Vi.-Blk. Parasitic Suppressor
119	4700K	RC20AE472K		Yl.-Vi.-Red Converter Cathode
120	33K	RC20AE330M		Or.-Or.-Blk. Parasitic Suppressor
121	58K	RC20AE580K		Grn.-Blue-Blk. Parasitic Suppressor
122	4700K	RC20AE472K		Yl.-Vi.-Red Converter Cathode
123	15K	RC20AE150M		Br.-Grn.-Blk. Parasitic Suppressor
124	15K	RC20AE150M		Br.-Blk.-Or. Oscillator Grid
125	10K	RC30AE103K		Grn.-Blue-Red Oscillator Plate Lead
126	5000K	RC30AE562K		Yl.-Vi.-Br. Oscillator Plate Decoupling
127	470K	RC20AE471H		Blue-Gray-Or. Converter Plate Decoupling
128	68K	RC30AE683K		Br.-Red-Br. AVC Shunt
129	120K	RC20AE121K		Br.-Blk.-Red AVC Network
130	1000K	RC20AE102H		Red-Blk.-Grn.
131	1 Meg.	RC20AE271K		Grn.-Blue-Or. 1st IF Screen Dropping
132	270K	RC20AE102H		Br.-Blk.-Red 1st IF Decoupling
133	58K	RC20AE583K		Or.-Red-Grn. 2nd IF Grid
134	1000K	RC20AE125K		Or.-Or.-Br. 2nd IF Cathode
135	1-2 Meg.	RC20AE231K		Grn.-Blue-Or. 2nd IF Screen Dropping
136	330K	RC20AE333K		Blue-Gray-Or. 3rd IF Transformer Shunt
137	58K	RC20AE583K		Br.-Red-Red 2nd IF Plate Decoupling
138	1200K	RC20AE122K		Br.-Gray-Or. 3rd IF Transformer Shunt
139	68K	RC20AE683K		Yl.-Vi.-Or. 3rd IF Screen Dropping
140	1800K	RC20AE182K		Br.-Blk.-Or. 3rd IF Plate Lead
141	47K	RC30AE473K		Br.-Blk.-Or. 3rd IF Plate Lead
142	10K	RC30AE103K		Red-Red-Grn. Noise Limiter Diode Load
143	1000K	RC20AE102M		Br.-Blk.-Red 3rd IF Decoupling
144	2-2 Meg.	RC20AE225M		Yl.-Vi.-Yl. Noise Limiter Bias Network
145	470K	RC20AE474H		Br.-Blk.-Grn. Noise Limiter Bias Network
146	1 Meg.	RC20AE105M		Br.-Blk.-Yl. Noise Limiter Input
147	100K	RC20AE104H		Or.-Or.-Yl. Noise Limiter Input
148	330K	RC20AE330K		Yl.-Vi.-Or. Limiter Grid Filter
149	47K	RC20AE473K		Yl.-Vi.-Or. Limiter Grid Filter
150	47K	RC20AE473K		Red-Red-Yl. Limiter Grid
151	220K	RC20AE224K		Br.-Blk.-Grn. AVC Network
152	1 Meg.	RC20AE105M		Red-Red-Yl. Limiter Grid
153	220K	RC20AE224K		Red-Red-Grn. 3rd IF Decoupling
154	2-2 Meg.	RC20AE225M		Br.-Blk.-Red 3rd IF Decoupling
155	1000K	RC20AE102M		Grn.-Blue-Or. Limiter Screen Dropping
156	58K	RC20AE583K		Or.-Or.-Br. Discriminator Transformer Shunt
157	330K	RC20AE331K		Yl.-Vi.-Or. Limiter Plate Decoupling
158	47K	RC20AE473K		Br.-Grn.-Yl. De-emphasis
159	150K	RC20AE154K		Br.-Red-Red. BFO Decoupling
160	1200K	RC20AE122K		Grn.-Br.-Red BFO Cathode
161	510K	RC20AE512K		Br.-Blk.-Or. BFO Grid
162	10K	RC20AE103K		Br.-Blk.-Or. BFO Grid
163	1000K	RC20AE102H		Yl.-Vi.-Or. BFO Grid
164	47K	RC20AE473K		Br.-Blk.-Or. BFO Grid
165	100K	RC20AE101K		Yl.-Vi.-Yl. PA Output
166	470K	RC20AE474H		Br.-Blk.-Grn. BFO Grid
167	1 Meg.	RC20AE105M		Br.-Blk.-Red Tone Compensation
168	1000K	RC20AE103H		Grn.-Blue-Or. Feedback
169	10K	RC20AE103K		Br.-Blk.-Or. Feedback
170	58K	RC20AE580K		Grn.-Blue-Blk. Feedback
171	1200K	RC20AE122K		Red-Red-Yl. AP Phase Lead
172	220K	RC20AE224K		Red-Red-Yl. AP Phase Lead
173	220K	RC20AE224K		Br.-Red-Red AP Cathode
174	1200K	RC20AE122K		Red-Red-Yl. Phase Inverter Plate Lead
175	8200K	RC20AE122K		Br.-Red-Red Phase Inverter Cathode
176	220K	RC20AE224K		Gray-Red-Red Phase Inverter Grid
177	220K	RC20AE224K		Red-Red-Yl. Output Grid

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
		HALLICRAFTERS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.		
58	200 CAP. .25	46AT254J	484-25	DT2P25	ST-2-25	TC-2	Sensitivity Cont. Byp.
59	.05	46AU503J	484-05	DT2S5	ST-4-05	TC-15	AVC Filter
60	.01	46AM103J	484-01	DT4S1	ST-4-01	TC-11	1st RF Screen Decoupl.
61	.02	46AM203J	484-02	DT4S2	ST-4-02	TC-12	Decoupling
62	.02	46AM203J	484-02	DT4S2	ST-4-02	TC-12	"
63	.05	46AU503J	484-05	DT2S5	ST-4-05	TC-15	1st RF Cathode Byp.
64	.05	46AU503J	484-05	DT2S5	ST-4-05	TC-15	AVC Filter
65	.60	CM2SA681K	1468-00075	1M5T7	MO.5-37	LFM-37	Output Grid Bypass
66	.60	CM2SA681K	1468-00075	1M5T7	MO.5-36	LFM-35	De-emphasis
67	.47	CM2OA470K	1468-00005	5M5Q5	MO.5-45	LFM-45	RF Bypass
68	.180	CM2OA181K	1468-00002	5M5T2	MO.5-32	LFM-32	RF Bypass
69	.180	CM2OA181K	1468-00002	5M5T2	MO.5-32	LFM-32	Limiter Grid Filter
70	.500	CM2SUK111J	1467-005	1D5D5	MO.5-25	LFM-25	"
71	.110	CM2SUK111J	1468-0001	5M5T1	MO.5-31	LFM-31	"
72	.4700	CM2SOK70K		1R5D15	MMS.5-215		"
73	.1500	CM2OA471G					Osc. Grid Cap.
74	.75	CM2SOK111J	1468-0001	5M5T1	MO.5-31	LFM-31	RF Coupling
75	.220	CM2SOK111J	1468-00005	5M5Q5	MO.5-45	LFM-45	Fixed Pad
76	.110	CM2SOK111J		1D5D6	MO.5-26	LFM-26	RF Bypass
77	.15	CM2SOK111J					RF Coupling
78	.15	CM2SOK111J					Fixed Trimmer
79	.500	CM2SOK111J					Fixed Trimmer
80	.5600	CM2SOK111J					RF Coupling-See Note
81	.2	CM2SOK111J					
82	.15	CM2SOK111J					
83	.15	CM2SOK111J					
84	.5600	CM2SOK111J					
85	.500	CM2SOK111J					
86	.500	CM2SOK111J					

Note-Not used in some models.

## CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		HALLICRAFTERS PART No.	IRC PART No.	CLAROSTAT PART No.	
87A	1 Meg. Shaft	25A549	D12-137	M-63-Z	Volume Control
B	Switch	Not Req.	A	Not Req.	Attach to 87A per instructions
C	10K Shaft	25A548	41	SM-A	"
88A	10K Shaft	25A548	D16-116	M-30-V	Sensitivity Control
B	10K Shaft	Not Req.	A	Not Req.	Attach to 88A per instructions
89	1.500K	25C022	M-500	58-500	"g" Meter Adjust

## RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		HALLICRAFTERS PART No.	IRC PART No.	
90	100K	RC20AE104M	BTS-100K	Br.-Blk.-Yl. 1st RF Grid
91	15K	RC20AE150M		Br.-Red-Blk. Parasitic Suppressor
92	15K	RC20AE150M		Br.-Red-Blk. Parasitic Suppressor-See Note 1
93	150K	RC20AE151K		Or.-Grn.-Br. 1st RF Cathode
94	330K	RC20AE331K		Or.-Grn.-Br. Parasitic Suppressor
95	15K	RC20AE150M		Br.-Grn.-Blk. "
96	330K	RC20AE331K		Or.-Or.-Br. "
97	2200K	RC20AE222M		Red-Red-Red 1st RF Plate Decoupling
98	1200K	RC20AE122K		Red-Red-Red " "
99	2.2 Meg.	RC20AE225M		Red-Red-Red 1st RF Network
100	5.6 Meg.	RC20AE565K		Grn.-Blue-Grn. " "
101	470K	RC20AE474M		Yl.-Vi.-Yl. "
102	100K	RC20AE104M		Br.-Blk.-Yl. 2nd RF Grid
103	15K	RC20AE150M		Br.-Grn.-Blk. Parasitic Suppressor
104	15K	RC20AE150M		Br.-Grn.-Blk. "
105	2200K	RC20AE222M		Red-Red-Red 1st RF Decoupling

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		HALLICRAFTERS PART No.	IRC PART No.	
178	220K	RC40AE221K	BW-2-220	Red-Red-Br. Output Cathode
179	200K	245G202J	AB-2000	Filter
232	2200K	RC20AE222K	BTS-2200	Red-Red-Red 3rd IP Cathode
233	1000K	RC20AE102M	BTS-1000	Br.-Blk.-Red RF Coil Shunt
234	100K	RC20AE101K		Br.-Blk.-Br. 3rd IF Cathode

Note 1-Part of Item 214. See same for replacement.

Note 2-Part of Item 215. See same for replacement.

Note 3-Some models use 330K in this application. Replacement same as #94.

## TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA			STANCOR PART No.	THORADSON PART No.	MERIT PART No.
		PRI. SEC. 1	SEC. 2	SEC. 3			
180	117V AC 500V CT 5.0V AC 6.3V AC @ 1.07A 1.42ADC @ 3.0A @ 5.3A				52C141	P-6314#	122R08#

\*Use universal mounting brackets.

\*Add series resistor to reduce plate voltage.

## FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (1000V)	REPLACEMENT DATA			INSTALLATION NOTES
				HALLICRAFTERS PART No.	STANCOR PART No.	THORADSON PART No.	
181	.065A	280Ω	17 Henryes	56B067	C-1709	T-20C53	*Drill one new mounting hole.

## TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			STANCOR PART No.	THORADSON PART No.	MERIT PART No.	INSTALLATION NOTES
		IMPEDANCE	DC RES.	HALLICRAFTERS PART No.				
182	6000Ω CT	500Ω	480Ω	27Ω	55B077			

## R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HALLICRAFTERS PART No.	WEISSNER PART No.
183	Int. Coil 1	34Ω	.5Ω	51B823	
184	" 3	.75Ω	.02	51B826	
185	" 4	.1Ω	.02	51B990	
186	" 5	.02	.02	51B828	
187	" 6	.02	.02	51B829	
188	RF	1.8Ω	2.5Ω	51B824	
189	" 1	.5Ω	1Ω	51B825	
190	" 2	.4Ω	.1Ω	51B987	
191	Yl.-Vi.-Yl.	.3Ω	.02	51B989	
192	" 4	.02	.02	51B832	
193	" 5	.02	.02	51B833	
194	Conv.	1.2Ω	2.8Ω	51B985	
195	" 2	.5Ω	2.5Ω	51B986	

# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HALLICRAFTERS PART No.	MEISSNER PART No.
196	Conv. "	3	.48	51B968	
197	"	4	.38	51B989	
198	"	5	.08	51B844	
199	"	6	.08	51B833	
200	Osc.	1	1.72	51B834	
201	"	2	.59	51B835	
202	"	3	.28	51B836	
203	"	4	.18	51B991	
204	"	5	.08	51B838	
205	"	6	.08	51B839	
206A	1st IF AM	48	15.8	50C198	
206B	FM	78	.78	50C190	
207A	2nd IF AM	138†	.38†	50C220	
207B	FM	78	.78		
208A	3rd IF AM	38†	.38†		
208B	FM	78	.78		
209	FM IF Comp.			53B104	
210	Coil Trans.	.38		50C191	
211	Disc. Trans.	.38		50C062	
212	RF Choke	.28	118**	535008	
213	"	.28		535009	
214	"	.18		53A117	
215	"	.18		53A117	

†Incl. both primaries.  
‡Band pass winding

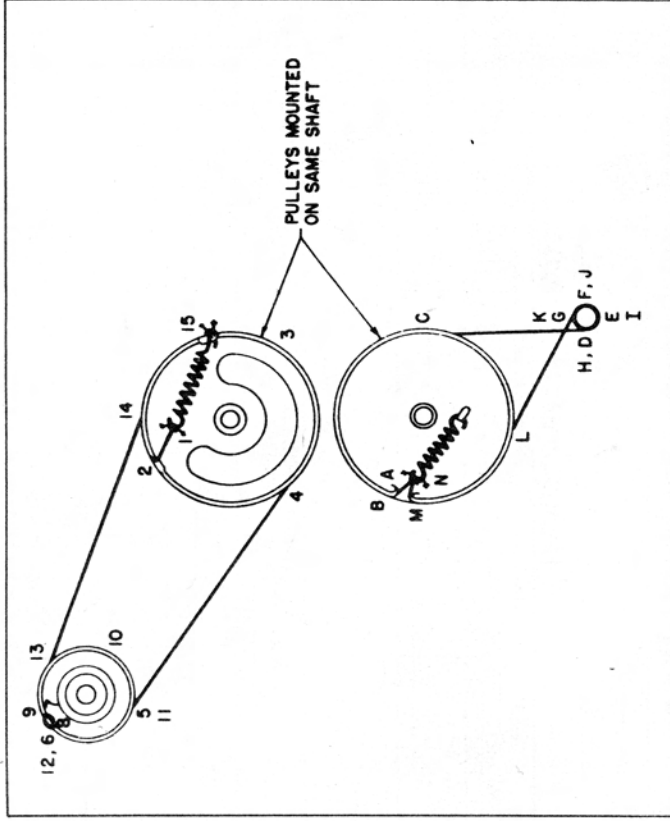
\*\*AM Osc. winding only.

## DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HALLICRAFTERS PART No.	MEISSNER PART No.	
217-	Bayonet	6-8	0.25	Blue	39A018		Type 44

## MISCELLANEOUS

ITEM No.	PART NAME	HALLICRAFTERS PART No.	NOTES
221	Switch	60D241	Band
222	"	60A234	Selectivity
223	"	60C235	Reception
224	"	60C236	Tone
225	"	60A138	AVC
226	"	60A138	Noise Limiter
227	"	60A138	Receive-Standby
228	Crystal	19A123	(19MTF-397MTF) each section
229	Phone Jack	36A029	
230	4 Gang Var. Cap.	48C-158	(12MTF-90MTF) each section
231	Spread Cap.		
A21	Trimmer	44A076	Band 1 Osc. Adj.
A26	"	44A077	Band 2 " " " "
A30	"	44A077	Band 3 " " " "
A39	"	44A347	Band 4 " " " "
A42	Dual Trimmer	44A078	Band 5 " " " "
A50	"		Band 6 " " " "
A44	Dual Trimmer	44B165	Band 5 Ant. Adj.
A52	"		Band 6 " " " "
A45	Dual Trimmer	44B165	Band 5 1st RF Adj.
A53	"		Band 6 " " " "
A46	Dual Trimmer	44B165	Band 5 2nd RF Adj.
A54	"		Band 6 " " " "
	Peter	82B100	Carrier Level
	Dial	83C330	Main Tuning
	"	83E328	Bandspread
	Dial Pointer	82A110	Main Tuning

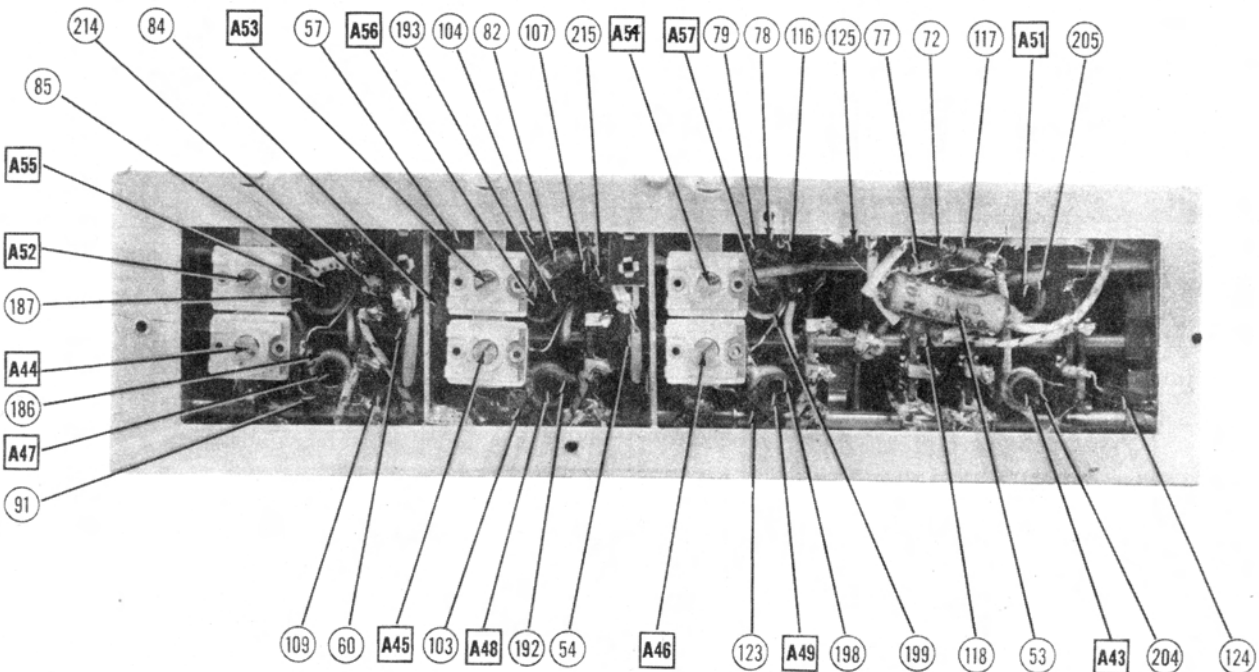
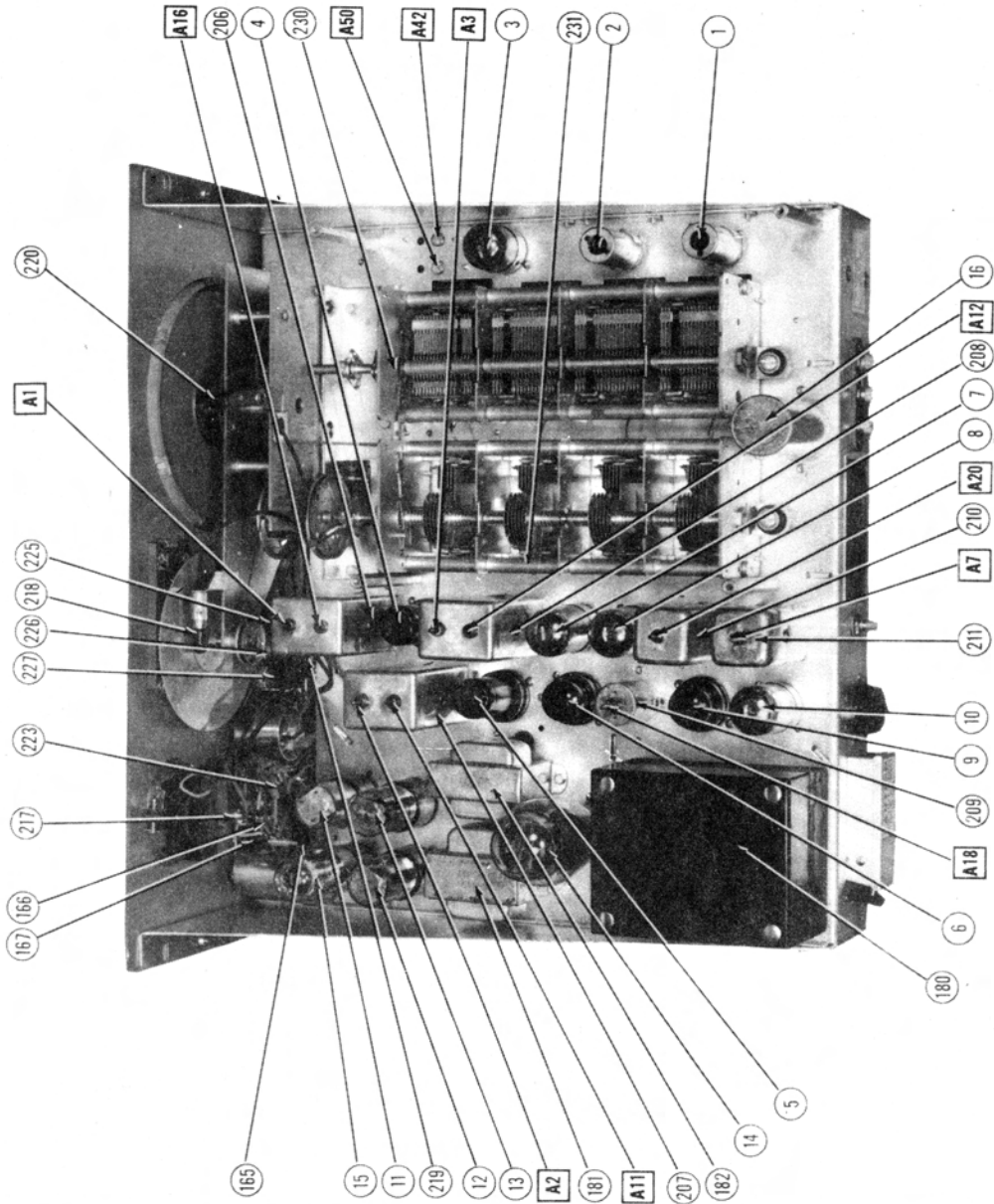


### RESTRINGING DIAL CORD

Two dial drive cords are used on the bandspread dial drive mechanism. To restring the upper dial cord, use a length of 18 lb. test cord and tie one end to the tension spring in the large pulley at position 1 in the diagram. Follow the numbers 1 through 15, stretch the tension spring and tie the cord securely. To restring the lower dial cord, tie the cord at A and follow the lettered route A through N as illustrated.

### REPLACING LAMPS

There are three dial lamps and one meter lamp. To replace the lamps, it is necessary to remove the receiver chassis from the cabinet and remove the light shield across the top of the dial drive mechanism. The chassis is fastened to the cabinet by four front panel screws and three chassis screws at the bottom rear of the cabinet. The light shield is held down by four screws, two at each end of the channel. Replace the dial lamps with 6-8 V. 250MA. #44 (Blue bead) lamps. The meter lamp is removed by pulling the socket straight out of the grommet. Replace this lamp with 6-8 V. 150MA #47 (Brown bead). Do not use a 250 MA. lamp in the meter housing as the excessive heat will discolor the meter scale.



**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.  
 Band spread dial should be at zero unless otherwise specified.  
 RMA dummy antenna consists of 200 MMFD cap. in series with a 20uh RF Choke with RF Choke shunted by a 400 MMFD cap. in series with a 400Ω carbon resistor.

**455 KC IF ALIGNMENT**

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.  
 In Step #5 it may be necessary to reduce the set gain to prevent injury to meter. This should be done only with sig. gen. attenuator or sensitivity control. Leave volume control at maximum.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Pin 1 of 7F8. Low side to chassis.	455KC	.54 - 1.62MC	1MC	Across 500Ω speaker terminals	A1,A2, A3,A4, A5,A6.	Set sensitivity control full on, noise limiter off, AVC off, standby receive switch to receive, tone control to "HI-FI", selectivity switch to sharp IF, reception switch to AM. Adjust A1,A2,A3,A4,A5 & A6 for maximum output.
2 .1 MFD.	"	455KC (Unmodulated)	"	"	"	A7	Turn reception switch to "CW". Set pitch control to zero. Adjust A7 to zero beat. Then turn pitch control until BFO note is about 1000 CFS off zero beat.
3 .1 MFD.	"	455KC	"	"	"	A4	Turn selectivity control to "broad crystal" and while slowly adjusting A4 rock signal gen. until output (as indicated on meter) decreases and then slowly increases.
4 .1 MFD.	"	Tune to weaker of two signals on either side of zero beat.	"	"	"	A4	Adjust crystal phasing control for null point. Check for correct setting of A4. Adjusting A4 in either direction should cause an increase in output. If it does not, repeat Steps 2, 3 & 4. Leave crystal phasing control at present setting for following adjustments.
5 .1 MFD.	"	455KC	"	"	"	A8	Turn selectivity switch to "Sharp Crystal" and loosen A8 to near minimum capacity. Rock signal gen. and tighten A8 slowly until maximum output is indicated. When max. output has been obtained tighten A8 until output drops about 2 DB. See prealignment notes.
6 .1 MFD.	"	Tune for max. output. Turn 400 ~ modulation in sig. gen. to on.	"	"	"	A9	Tune for maximum output & note meter reading. Turn selectivity switch to "Crystal Broad" and note drop in output. Turn selectivity switch to "crystal-medium" and with A9 near minimum capacity slowly tighten it while rocking sig. gen. until output meter reads midway between "crystal-sharp" and "crystal-broad" positions.
7 .1 MFD.	"	Tune for max. output with selectivity switch on "sharp crystal". (Do not change)	"	"	"	A1, A2, A3, A5, A6, A10	Turn selectivity switch to "crystal-sharp" and readjust A1,A2,A3,A5,A6 & A10 for maximum output.
8 .1 MFD.	"	"	"	"	"	A7	Turn reception switch to "CW" and CW pitch knob to "0". Turn modulation in sig. gen. to off. Adjust A7 for zero beat.

**10.7MC IF ALIGNMENT USING AM SIG. GEN. & OUTPUT METER.**

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9 .1 MFD.	High side to Pin 1 of 7F8. Low side to chassis.	10.7MC 400 ~ modulation	28-55 MC	41MC	Across 500Ω speaker terminals	A11,A12, A13,A14, A15,A16, A17	Turn reception switch to AM, noise limiter off, AVC off, tone control to "HI-FI", volume and sensitivity at maximum and selectivity switch to "normal-sharp". Adjust A11,A12,A13,A14 & A15 for maximum output in order given once only (do not repeat) then adjust A16 & A17 for maximum output.
10 .1 MFD.	"	10.7MC (unmodulated)	"	"	"	A18	Set pitch control to "0". Turn reception switch to "CW". Adjust A18 for zero beat. BFO adjustment is now complete.
11 .1 MFD.	"	10.7MC (400 ~ modulation)	"	"	"	A19	Turn reception switch to "FM". Adjust A19 for maximum output.
12 .1 MFD.	"	"	"	"	"	A20	Adjust for minimum output. Swing sig. gen. above and below minimum output and note value of peaks. If they are unequal adjust A19 until they are equalized. Continue with Step 13 below.



10.7 MC IF ALIGNMENT USING FM SIG. GEN. & SCOPE.

Use freq. modulated signal with 600 modulation and 450KC sweep.  
Use 120  $\wedge$  sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
9	.1 MFD. High side to Pin 4 (grid) 6SG7. Low side to chassis.	10.7MC (Freq. Modulated)	27-55MC	41MC	Vertical input to Point $\diamond$ . Ground to chassis.	A12, A15, A13	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
10	.1 MFD. High side to Pin 4 (grid) 6SK7. Low side to chassis.	"	"	"	"	A11, A14	"
11A	.1 MFD. High side to Pin 1 (grid) 7F8. Low side to chassis.	"	"	"	"	A16, A17	"
11B	.1 MFD.	"	"	"	Vertical input to Point $\diamond$ . Ground to chassis.	A18	Turn reception switch to "CW". Adjust A18 for coincidence of pip at center of peak of pattern per Fig. 3.
12	.1 MFD. High side to Pin 6 (grid) 7H7. Low side to chassis.	"	"	"	Vertical input to Point $\diamond$ . Ground to chassis.	A19, A20	Alternately adjust A19 for maximum amplitude and A20 for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2.

RF ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
13	RMA Dummy High side to ant terminal "A1". Low side to "Ground". Connect jumper from "A2" to "Ground"	1500KC	.54-1.62MC	1500KC	Across 500 $\Omega$ speaker terminals	A21	Adjust for maximum output
14	"	600KC	"	600KC	"	A22	Adjust for maximum output Repeat Steps 13 & 14 until no further improvement can be made.
15	"	1500KC	"	Tune for maximum output.	"	A23, A24, A25	Adjust for maximum output
16	"	4.5MC	1.62-5MC	4.5MC	"	A26	Adjust for maximum output
17	"	2MC	"	2MC	"	A27	Adjust for maximum output Repeat Steps 16 & 17 until no further improvement can be made.
18	"	4MC	"	Tune for maximum output.	"	A28, A29	Adjust for maximum output.
19	"	14MC	5-15MC	14MC	"	A30	"
20	"	7MC	"	7MC	"	A31	Adjust for maximum output. Repeat Steps 19 & 20 until no further improvement can be made.
21	"	14MC	"	Tune for max. output	"	A32, A33, A34	Adjust for maximum output.
22	"	7MC	"	"	"	A35, A36, A37	Adjust for maximum output. Repeat Steps 21 & 22 until no further improvement can be made.
23	"	28MC	15-30MC	28MC	"	A38	Adjust for maximum output
24	"	"	"	Tune for max. output	"	A39, A40, A41	adjust for maximum output
25	300 $\Omega$ carbon res.	50MC	28-55MC	50MC	"	A42	Adjust for maximum output
26	"	30MC	"	30MC	"	A43	Adjust for maximum output Repeat Steps 25 & 26 until no further improvement can be made.
27	"	50MC	"	Tune for maximum output.	"	A44, A45, A46	Rock tuning cap. and adjust for maximum output
28	"	30MC	"	"	"	A47, A48, A49	Rock tuning cap. and adjust for maximum output. Repeat Steps 27 & 28 until no further improvement can be made.
29	"	105MC	55-108 MC	105MC	"	A50	Adjust for maximum output.
30	"	60MC	"	60MC	"	A51	Adjust for maximum output. Repeat Steps 29 & 30 until no further improvement can be made.
31	"	105MC	"	Tune for maximum output.	"	A52, A53, A54	Rock tuning cap. and adjust for maximum output.
32	"	60MC	"	"	"	A55, A56, A57	Rock tuning cap. and adjust for maximum output. Repeat Steps 31 & 32 until no further improvement can be made.

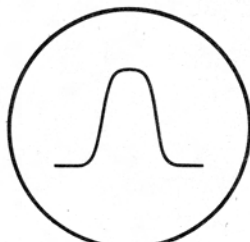


FIG. 1

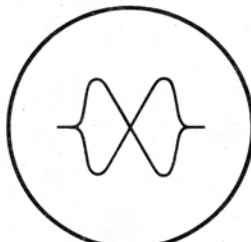


FIG. 2

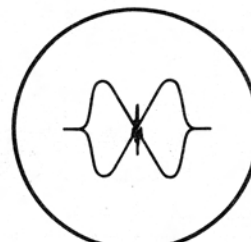


FIG. 3





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION  
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6AG5	OV.	1.4VDC	OV.	6.3VAC	225VDC	140VDC	1.4VDC	-
2	6AG5	OV.	1.5VDC	OV.	6.3VAC	240VDC	175VDC	1.5VDC	-
3	7F8	-2.5VDC§	OV.	75VDC	1.1VDC	OV.	125VDC	6.3VAC	-3VDC§
4	6SK7	OV.	6.2VAC	OV.	OV.	2.8VDC	110VDC	OV.	240VDC
5	6SQ7	OV.	6.3VAC	2.3VDC	OV.	2.3VDC	145VDC	OV.	245VDC
**	6H6	OV.	OV.	-.1VDC	OV.	OV.	-.2VDC	6.3VAC	OV.
7	7H7	OV.	200VDC	187VDC	OV.	OV.	OV.	5.4VDC	6.3VAC
8A	7H7	OV.	OV.	OV.	OV.	OV.	-.8VDC	OV.	6.3VAC
†	8B	7H7	OV.	65VDC	65VDC	OV.	OV.	-.8VDC	OV.
‡	9	6H6	OV.	OV.	-.8VDC	OV.	.8VDC	OV.	6.3VAC
†*	10	7A4	OV.	150VDC	OV.	OV.	14VDC§	27VDC	6.3VAC
11	6SL7GT	OV.	80VDC	1VDC	OV.	80VDC	1VDC	6.3VAC	OV.
12	6V6GT	OV.	OV.	280VDC	250VDC	OV.	OV.	6.3VAC	14VDC
13	6V6GT	OV.	OV.	280VDC	250VDC	OV.	OV.	6.3VAC	14VDC
14	5U4G	OV.	290VDC	OV.	250VAC	OV.	250VAC	25VDC	290VDC
15	OD3/VRE5	150VDC	OV.	150VDC	OV.	150VDC	OV.	150VDC	OV.

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6AG5	1.8 Meg.	150Ω	0Ω	.05Ω	75KΩ	65KΩ	150Ω	-
2	6AG5	1.8 Meg.	150Ω	0Ω	.05Ω	60KΩ	110KΩ	150Ω	-
3	7F8	2.2 Meg.	0Ω	130KΩ	1KΩ	0Ω	70KΩ	.05Ω	10KΩ
4	6SK7	0Ω	.05Ω	0Ω	1.5 Meg.	270Ω	120KΩ	0Ω	60KΩ
5	6SQ7	0Ω	.05Ω	330Ω	2.5 Meg.	330Ω	120KΩ	0Ω	60KΩ
**	6H6	0Ω	0Ω	2.2 Meg.	1.6 Meg.	INF.	150KΩ	.05Ω	INF.
7	7H7	0Ω	70KΩ	110KΩ	0Ω	0Ω	2.2 Meg.	900Ω	.05Ω
8A	7H7	0Ω	INF.	INF.	0Ω	0Ω	250KΩ	0Ω	.05Ω
†	8B	7H7	0Ω	120KΩ	120KΩ	0Ω	0Ω	250KΩ	0Ω
‡	9	6H6	0Ω	0Ω	100KΩ	200KΩ	100KΩ	INF.	.05Ω
†*	10	7A4	0Ω	60KΩ	100Ω	INF.	INF.	63KΩ	5.1KΩ
11	6SL7GT	1 Meg.	280KΩ	1.2KΩ	8.2KΩ	280KΩ	1.2KΩ	.05Ω	0Ω
12	6V6GT	0Ω	0Ω	60KΩ	60KΩ	220KΩ	56Ω	.05Ω	220Ω
13	6V6GT	0Ω	0Ω	60KΩ	60KΩ	230KΩ	8.2KΩ	.05Ω	220Ω
14	5U4G	INF.	60KΩ	INF.	44Ω	INF.	47Ω	60KΩ	60KΩ
15	OD3/VRE5	60KΩ	0Ω	60KΩ	220KΩ	60KΩ	INF.	60KΩ	INF.

SELECTIVITY CONTROL AT "NORMAL-SHARP" AND SENSITIVITY FULL ON.  
†\*RECEPTION SWITCH AT CW POSITION.\*\*NOISE LIMITER SWITCH ON.  
TONE CONTROL AT LOW. SEND-RECEIVE SWITCH AT RECEIVE. AVC SWITCH ON.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

STAGE GAIN MEASUREMENTS

ANTENNA TO 2nd RF GRID	25X	600KC
2nd RF GRID TO CONV. GRID	.4X	600KC
CONV. GAIN	18X	IN 600KC
		OUT 455KC
1st IF TRANS.	.01X	455KC
1st IF TUBE	200X	455KC
2nd IF TRANS.	.4X	455KC
2nd IF TUBE	150X	455KC
3rd IF TRANS.	1.5X	455KC
3rd IF TUBE	16X	455KC
COUPLING COIL	1X	455KC
AUDIO	30X	400 ~
OUTPUT	12X	400 ~

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.