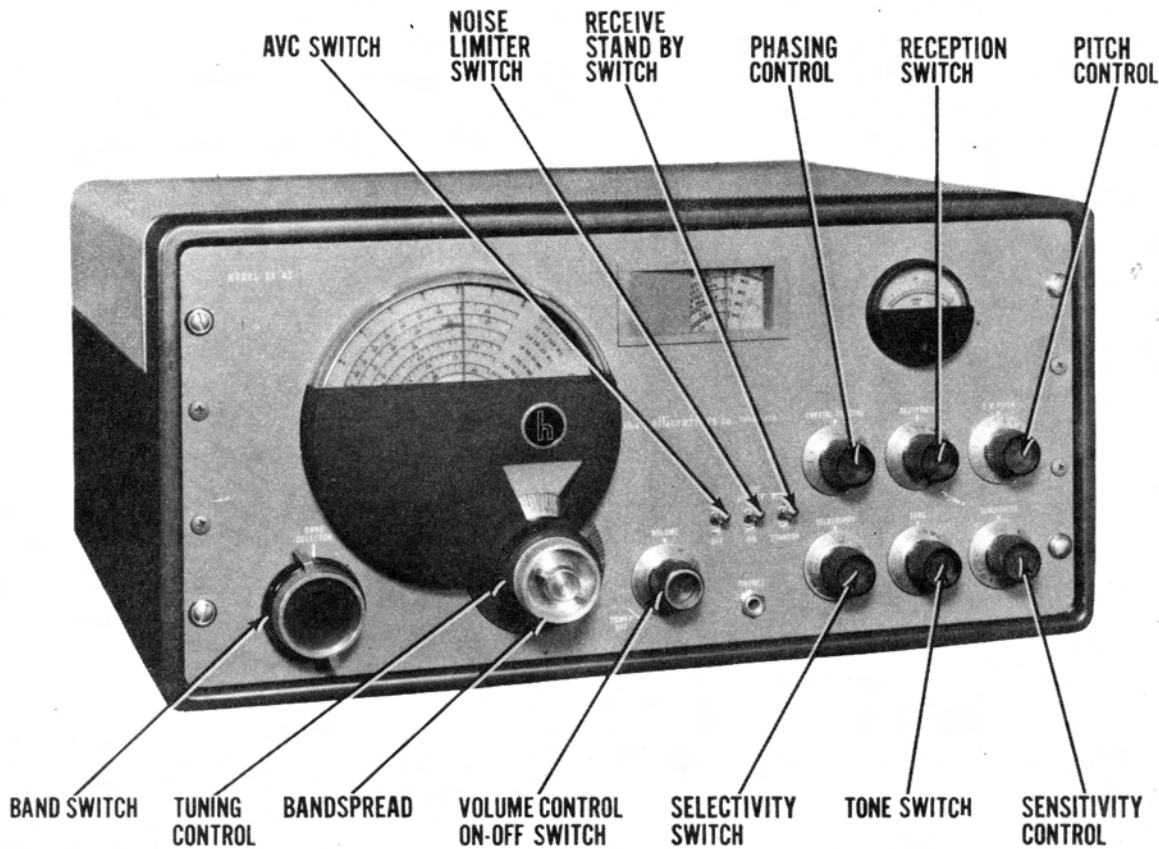


HALLICRAFTERS MODEL SX-42



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

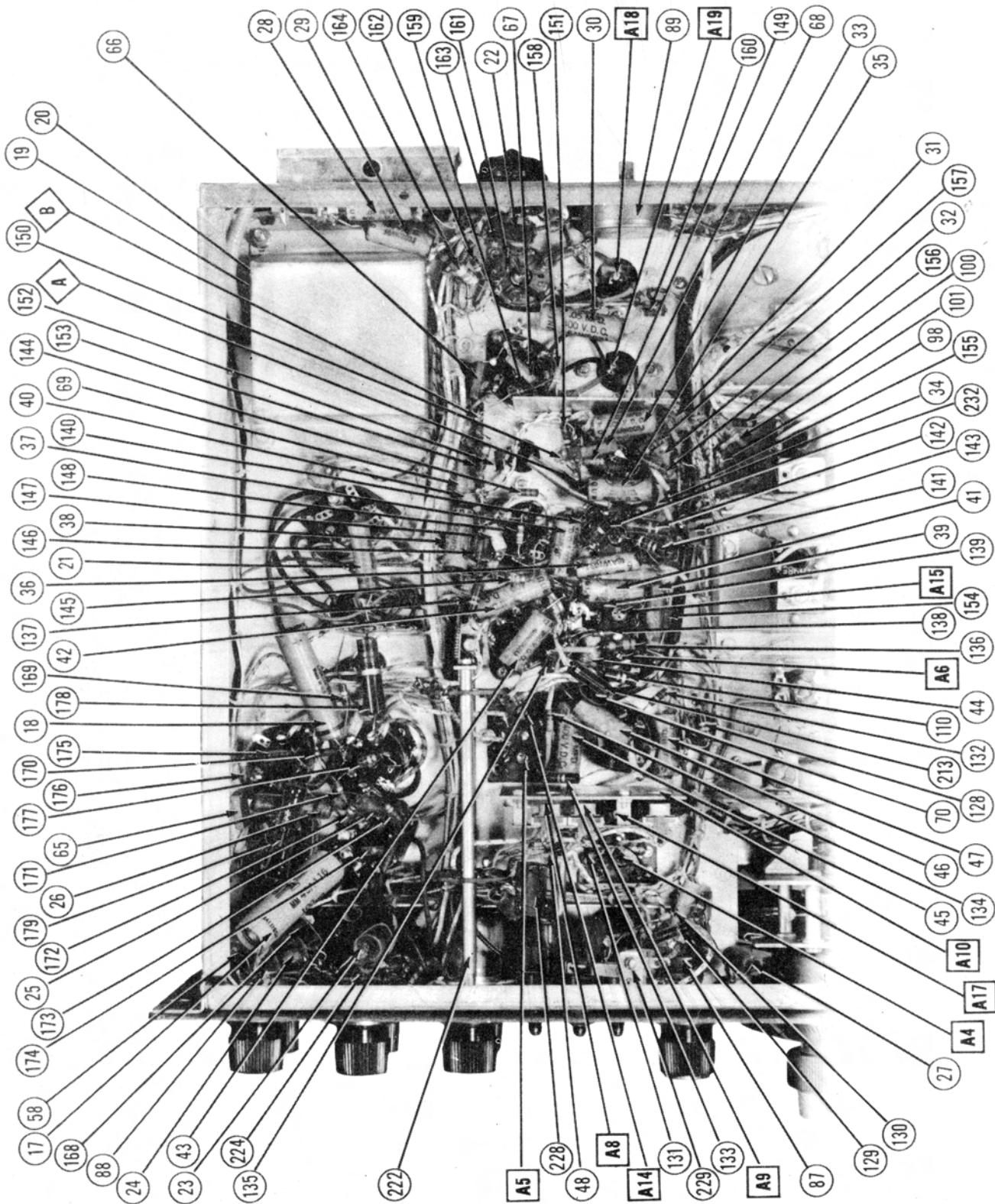
HOWARD W. SAMS & CO., INC.

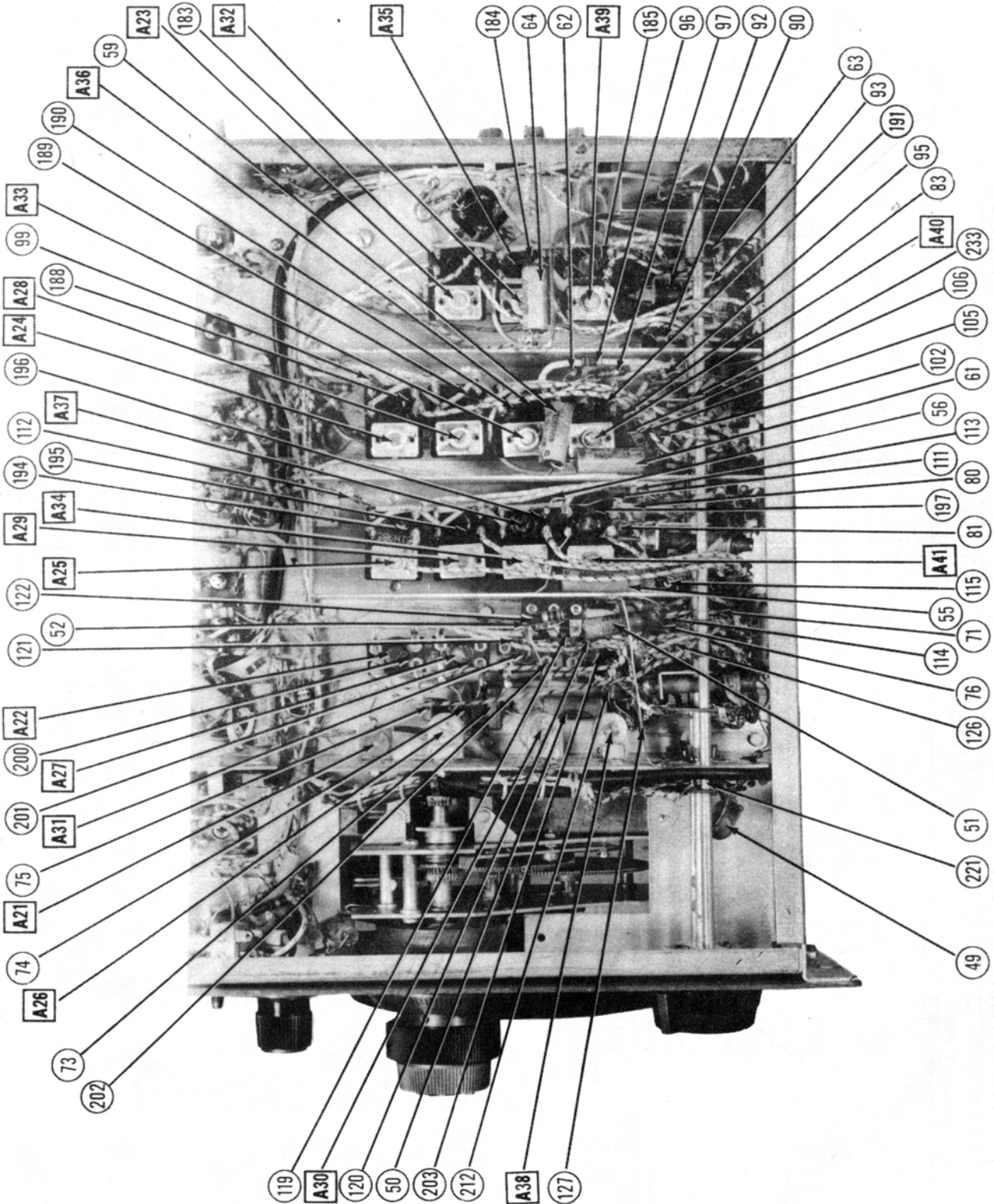
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."

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Indianapolis Indiana

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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	ITEM No.	RATING	RESISTANCE	WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
		HALLICRAFTERS PART No.	STANDARD REPLACEMENT	BMA BASE TYPE						HALLICRAFTERS PART No.	IRC PART No.	
1	1st RF	6AG5	6AG5	7BD		107	150K	470K	1	RC20AE151K	BTA-47K	Br.-Grn.-Br. 2nd RF Cathode
2	2nd RF	6AG5	6AG5	7BD		108	47K	47K	1	RC20AE473K		Yl.-Vi.-Or. 2nd RF Screen Dropping
3	Converter	7F8	7F8	8BW		109	330K	330K	1	RC20AE331K		Or.-Or.-Br. Parasitic Suppressor-See Note 2
4	1st IF Amp.	6SK7	6SK7	8N		110	100K	100K	1	RC20AE102M		Br.-Blk.-Br. 1st RF Screen Dropping
5	2nd IF Amp.	6SK7	6SK7	8BK		111	100K	100K	1	RC20AE104M		Br.-Blk.-Yl. Voltage Dropping
6	AM Det.-Noise Limiter	6H6	6H6	7Q		112	220K	220K	1	RC20AE222M		Red-Red-Red 2nd RF Plate Decoupling
7	1st Limiter	7H7	7H7	8V		113	120K	120K	1	RC20AE122K		Br.-Red-Red 2nd " " "
8	2nd Limiter	7H7	7H7	8V		114	300K	300K	1	RC20AE122K		Or.-Blk.-Red Parasitic Suppressor-See Note 3
9	Discriminator	6H6	6H6	7Q		115	15K	15K	1	RC20AE150M		Br.-Grn.-Blk. " "
10	BFO-8 Meter Amp	7A4	7A4	5AC		116	220K	220K	1	RC20AE222M		Red-Red-Red Decoupling
11	Audio Inverter	6SL7GT	6SL7GT	7AC		117	2.2 Meg.	2.2 Meg.	1	RC20AE225M		BTS-2.2 Meg.
12	Power Output	6V6GT	6V6GT	7AC		118	100K	100K	1	RC20AE102M		Br.-Blk.-Red Converter Cathode
13	Rectifier	6V6GT	6V6GT	7AC		119	470K	470K	1	RC20AE472K		Yl.-Vi.-Blk. Parasitic Cathode
14	Voltage Reg.	5U4G	5U4G	5T		120	33K	33K	1	RC20AE330M		Or.-Or.-Blk. Parasitic Suppressor
15		0B3/VRL50	0B3/VRL50	44J		121	50K	50K	1	RC20AE50K		Grn.-Blue-Blk. " "
						122	470K	470K	1	RC20AE472K		Yl.-Vi.-Red Converter Cathode
						123	15K	15K	1	RC20AE150M		Br.-Grn.-Blk. Parasitic Suppressor
						124	15K	15K	1	RC20AE150M		Br.-Blk.-Or. Oscillator Grid
						125	10K	10K	1	RC20AE103K		Grn.-Blue-Red Oscillator Plate Load
						126	500K	500K	1	RC20AE500K		Yl.-Vi.-Br. Oscillator Plate Decoupling
						127	470K	470K	1	RC20AE471M		Blue-Gray-Or. Converter Plate Decoupling
						128	68K	68K	1	RC20AE68K		Br.-Red-Br. AVC Shunt
						129	120K	120K	1	RC20AE121K		Br.-Blk.-Red AC Network
						130	100K	100K	1	RC20AE102M		Red-Vl.-Br. 1st IF Cathode
						131	1 Meg.	1 Meg.	1	RC20AE105M		Grn.-Blue-Or. 1st IF Screen Dropping
						132	270K	270K	1	RC20AE271K		Br.-Blk.-Red 1st IF Decoupling
						133	58K	58K	1	RC20AE58K		Or.-Or.-Br. 2nd IF Grid
						134	100K	100K	1	RC20AE102K		Grn.-Blue-Or. 2nd IF Cathode
						135	1.2 Meg.	1.2 Meg.	1	RC20AE125K		Br.-Red-Red 2nd IF Screen Dropping
						136	330K	330K	1	RC20AE331K		Blue-Gray-Or. 3rd IF Transformer Shunt
						137	58K	58K	1	RC20AE58K		Yl.-Vi.-Or. 3rd IF Screen Dropping
						138	120K	120K	1	RC20AE122K		Br.-Blk.-Or. 3rd IF Plate Load
						139	68K	68K	1	RC20AE68K		Red-Red-Grn. Noise Limiter Bias Network
						140	180K	180K	1	RC20AE182K		Br.-Blk.-Grn. Noise Limiter Bias Network
						141	47K	47K	1	RC20AE473K		Or.-Or.-Yl. Noise Limiter Input
						142	10K	10K	1	RC20AE103M		Yl.-Vi.-Or. Limiter Grid Filter
						143	100K	100K	1	RC20AE102M		Red-Red-Yl. Limiter Grid
						144	2.2 Meg.	2.2 Meg.	1	RC20AE225M		Red-Red-Grn. 3rd IF Decoupling
						145	470K	470K	1	RC20AE474M		Br.-Blk.-Grn. Noise Limiter Bias Network
						146	1 Meg.	1 Meg.	1	RC20AE105M		Br.-Blk.-Yl. Noise Limiter Bias Network
						147	100K	100K	1	RC20AE103M		Or.-Or.-Yl. Noise Limiter Input
						148	330K	330K	1	RC20AE330K		Yl.-Vi.-Or. Limiter Grid Filter
						149	47K	47K	1	RC20AE473K		Red-Red-Yl. Limiter Grid
						150	47K	47K	1	RC20AE473K		Red-Red-Yl. Limiter Grid
						151	220K	220K	1	RC20AE224K		Red-Red-Yl. Limiter Grid
						152	1 Meg.	1 Meg.	1	RC20AE105M		Red-Red-Grn. 3rd IF Decoupling
						153	220K	220K	1	RC20AE224K		Br.-Blk.-Red 3rd IF Decoupling
						154	2.2 Meg.	2.2 Meg.	1	RC20AE224K		Grn.-Blue-Or. Limiter Screen Dropping
						155	100K	100K	1	RC20AE102M		Or.-Or.-Br. Limiter Plate Decoupling
						156	58K	58K	1	RC20AE58K		Yl.-Vi.-Or. Discriminator Transformer Shunt
						157	330K	330K	1	RC20AE331K		Br.-Grn.-Yl. De-emphasis
						158	47K	47K	1	RC20AE473K		Br.-Red-Red. BFO Decoupling
						159	150K	150K	1	RC20AE154K		Grn.-Br.-Red BFO Cathode
						160	120K	120K	1	RC20AE122K		Br.-Blk.-Or. BFO Grid
						161	510K	510K	1	RC20AE512K		Yl.-Vi.-Or. BFO Grid
						162	10K	10K	1	RC20AE103K		Yl.-Vi.-Or. BFO Grid
						163	100K	100K	1	RC20AE102M		Br.-Blk.-Br. Parasitic Suppressor
						164	47K	47K	1	RC20AE473K		Yl.-Vi.-Or. BFO Grid
						165	100K	100K	1	RC20AE101K		Br.-Blk.-Br. Parasitic Suppressor
						166	470K	470K	1	RC20AE474M		Yl.-Vi.-Yl. Fr. Output
						167	1 Meg.	1 Meg.	1	RC20AE105M		Br.-Blk.-Grn. BFO Grid
						168	100K	100K	1	RC20AE102M		Br.-Blk.-Red Tone Compensation
						169	10K	10K	1	RC20AE103K		Grn.-Blue-Blk. Feedback
						170	56K	56K	1	RC20AE56K		Br.-Red-Red AF Cathode
						171	120K	120K	1	RC20AE122K		Red-Red-Yl. AF Plate Load
						172	220K	220K	1	RC20AE224K		Red-Red-Yl. Phase Inverter Cathode
						173	220K	220K	1	RC20AE224K		Gray-Red-Red Phase Inverter Grid
						174	120K	120K	1	RC20AE122K		Red-Red-Yl. Output Grid
						175	820K	820K	1	RC20AE822K		Red-Red-Yl. " "
						176	220K	220K	1	RC20AE224K		Red-Red-Yl. " "
						177	220K	220K	1	RC20AE224K		Red-Red-Yl. " "

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		HALLICRAFTERS PART No.	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT		AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	INSTALLATION NOTES
16A	30	450	45A041	UP4445C	DI-313	EL-330	Filter	
17	20	450						
18	20	25						
19	100	25	45A116	PR325-100	M-100-25	UHC-102	Cathode Bypass	
20	0.01	600	45A064	PR325-10	BRH251	TA-10	Sens. Control Bypass	
21	0.01	600	46AG103J	684-01	BRH102A	TC-11	Cathode Bypass	
22	0.01	600	46AG103J	684-01	DT881	MPH-6-01	Line Filter	
23	0.01	600	46AG103J	684-01	DT881	ST-6-01	RF Bypass Pwr. Supply	
24	0.01	600	46AG103J	684-01	DT881	ST-6-01	Switch Bypass	
25	0.02	600	46AY503J	684-05	DT885	TC-15	Tone Compensation	
26	0.02	400	46AM203J	484-02	DT882	TC-15	Audio Coupling	
27	0.02	400	46AM203J	484-02	DT882	TC-12	"	
28	0.02	400	46AM203J	484-02	DT881	TC-11	"	
29	0.02	400	46AM203J	484-02	DT882	TC-12	BFO Grid Filter	
30	0.02	400	46AM203J	484-05	DT885	TC-15	Decoupling	
31	0.01	400	46AM103J	484-01	DT881	TC-11	Limiter Plate Decoupl.	
32	0.02	400	46AM203J	484-02	DT882	TC-12	Limiter Screen Byp.	
33	0.02	400	46AM203J	484-02	DT882	TC-12	Limiter Decoupling	
34	0.02	400	46AM203J	484-02	DT882	TC-12	3rd If Decoupling	
35	0.02	400	46AM203J	484-02	DT882	TC-12	3rd If Screen Bypass	
36	0.01	400	46AM103J	484-01	DT881	TC-11	3rd If Cathode Bypass	
37	0.05	200	46AU503J	484-05	DT885	TC-15	Audio Coupling	
38	0.05	200	46AU503J	484-05	DT885	TC-15	Noise Limiter Bias	
39	0.01	600	46AV103J	684-01	DT881	TC-11	3rd If Grid Filter	
40	0.01	400	46AM103J	484-01	DT881	TC-11	3rd If Grid Filter	
41	0.02	400	46AM203J	484-02	DT882	TC-12	2nd If Plate Decoupl.	
42	0.05	200	46AU503J	484-05	DT885	TC-15	2nd If Screen Bypass	
43	0.05	200	46AU503J	484-05	DT885	TC-15	2nd If Cathode Bypass	
44	0.01	400	46AM103J	484-01	DT881	TC-11	AVC Filter	
45	0.05	400	46AM503J	484-05	DT885	TC-15	AVC Filter	
46	0.02	400	46AM203J	484-02	DT882	TC-12	1st If Decoupling	
47	0.02	400	46AU503J	484-05	DT885	TC-15	1st If Screen Bypass	
48	0.05	400	46AM203J	484-02	DT882	TC-12	1st If Cathode Bypass	
49	0.02	400	46AM103J	484-01	DT881	TC-11	AVC Filter	
50	0.02	400	46AM203J	484-02	DT882	TC-12	Conv. Plate Decoupl.	
51	0.01	400	46AM103J	484-01	DT881	TC-11	Osc. Plate Decoupl.	
52	0.01	400	46AM103J	484-01	DT881	TC-11	Conv. Cathode Bypass	
53	0.01	400	46AM103J	484-01	DT881	TC-11	Mixer Cathode Bypass	
54	0.01	400	46AM103J	484-01	DT881	TC-11	2nd If Screen Decoupl.	
55	0.02	400	46AM203J	484-02	DT882	TC-12	2nd If Plate Decoupl.	
56	0.02	400	46AM203J	484-02	DT882	TC-12	2nd If Plate Decoupl.	
57	0.05	200	46AU503J	484-05	DT885	TC-15	2nd If Cathode Bypass	

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.	CORNEILL-DUBILIER PART No.	SOLAR PART No.	
58	CAP. .25	46AT254J	484-25	DT2P25	ST-2-25	TC-2
59	.05	46AU503J	484-05	DT2S5	ST-4-05	TC-15
60	.01	46AB103J	484-01	DT4S1	ST-4-01	TC-11
61	.02	46AM203J	484-02	DT4S2	ST-4-02	TC-12
62	.02	46AM203J	484-02	DT4S2	ST-4-02	TC-12
63	.05	46AU503J	484-05	DT2S5	ST-4-05	TC-15
64	.05	46AU503J	484-05	DT2S5	ST-4-05	TC-15
65	.680	CM25A681K	1468-00075	1M5T7	M0.5-37	LFM-37
66	.560	CM25A561K	1468-0005	1M5T6	M0.5-36	LFM-35
67	.47	CM20A470K	1468-00005	5M5Q5	M0.5-45	LFM-45
68	.180	CM20A181K	1468-0002	5M5T2	M0.5-32	LFM-32
69	.180	CM20A181K	1468-0002	5M5T2	M0.5-32	LFM-32
70	.500	47A168	1467-005	1D5D5	M0.5-25	LFM-25
71	.110	CM25UK111J	1468-0001	5M5T1	M0.5-31	LFM-31
72	.75	CM20UK070K		1R5D15	MMS.5-215	
73	.4700	CM3003523				
74	1500	CM20A471G				
75	.470	CM25E221G				
76	.220	CM25UK111J	1468-0001	5M5T1	M0.5-31	LFM-31
77	.110	CM20A470K	1468-00005	5M5Q5	M0.5-45	LFM-45
78	.47	CM20UK150K		1D5D6	M0.5-26	LFM-26
79	.15	CM25A562M	1467-006			
80	.5600	CM25A562M				
81	.2	49A002				
82	.15	CM20UK150K				
83	.2	49A002				
84	.5600	CM25A562M	1467-006	1D5D6	M0.5-26	LFM-26
85	.500	CM20UK050D	1469-000005	5R5V5	MMS.5-55	NS-55
86	.2	49A002				

Note-Not used in some models.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		RESISTANCE	WATTS	HALLICRAFTERS PART No.	IRC PART No.	
178	220Ω	2		RC40AE221K	BW-2-220	Red-Red-Br. Output Cathode Filter
179	2000Ω	10		24BQ202J	AB-2000	Red-Red-Red 3rd IF Cathode
232	2200Ω	1		RC20AE222K	BTS-2200	Br.-Blk.-Red RF Coil Shunt
233	1000Ω	1		RC20AE102M	BTS-1000	Br.-Blk.-Br. 3rd IF Cathode
234	100Ω	1		RC20AE101K		

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 330Ω in this application. Replacement same as #94.

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				MERIT PART No.
		PRI.	SEC. 1	SEC. 2	SEC. 3	
180	117V AC 500V CT 5.0V AC 6.3V AC @ 1.07A 1.42A DC @ 3.0A @ 5.3A					

*Use universal mounting brackets.

*Add series resistor to reduce plate voltage.

FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	INDUCTANCE (1000V)	REPLACEMENT DATA				INSTALLATION NOTES
				HALLICRAFTERS PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
181	.085A	280Ω	17 Henries	56B067	C-1709	T-20C53	C-28904	*Drill one new mounting hole.

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	
87B	Switch	Not Req.	A	Not Req.	Attach to 87A per instructions	
88A	10KΩ	25A548	D16-116	SW-A	Sensitivity Control	
88B	Shaft	Not Req.	A	M-30-V	Attach to 88A per instructions	
89	500Ω	25C022	M-500	58-500	"S" Meter Adjust	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		RESISTANCE	WATTS	HALLICRAFTERS PART No.	IRC PART No.	
90	100KΩ			RC20AE104M	BTS-100K	Br.-Blk.-Yl. 1st RF Grid
91	15Ω			RC20AE150M		Br.-Grn.-Blk. Parasitic Suppressor
92	12Ω			RC20AE120K		Br.-Grn.-Blk. 1st RF Cathode
93	150Ω			RC20AE151K		Or.-Or.-Br. Parasitic Suppressor-See Note 1
94	330Ω			RC20AE331K		Br.-Grn.-Blk.
95	15Ω			RC20AE150M		Or.-Or.-Br.
96	330Ω			RC20AE331K		Br.-Red-Red 1st RF Plate Decoupling
97	2200Ω			RC20AE222M		Br.-Red-Red
98	1200Ω			RC20AE122K		Red-Red-Grn. AVC Network
99	2.2 Meg.			RC20AE225M		Grn.-Blue-Grn. "r"
100	5.6 Meg.			RC20AE565K		Yl.-Yl.-Yl.
101	470KΩ			RC20AE474M		Br.-Blk.-Yl. 2nd RF Grid
102	100KΩ			RC20AE104M		Br.-Grn.-Blk. Parasitic Suppressor
103	15Ω			RC20AE150M		Br.-Grn.-Blk.
104	15Ω			RC20AE150M		Red-Red-Red 1st RF Decoupling
105	2200Ω			RC20AE222M		

RF COILS

Band pass winding

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HALLIGRAFTER	PART No.	

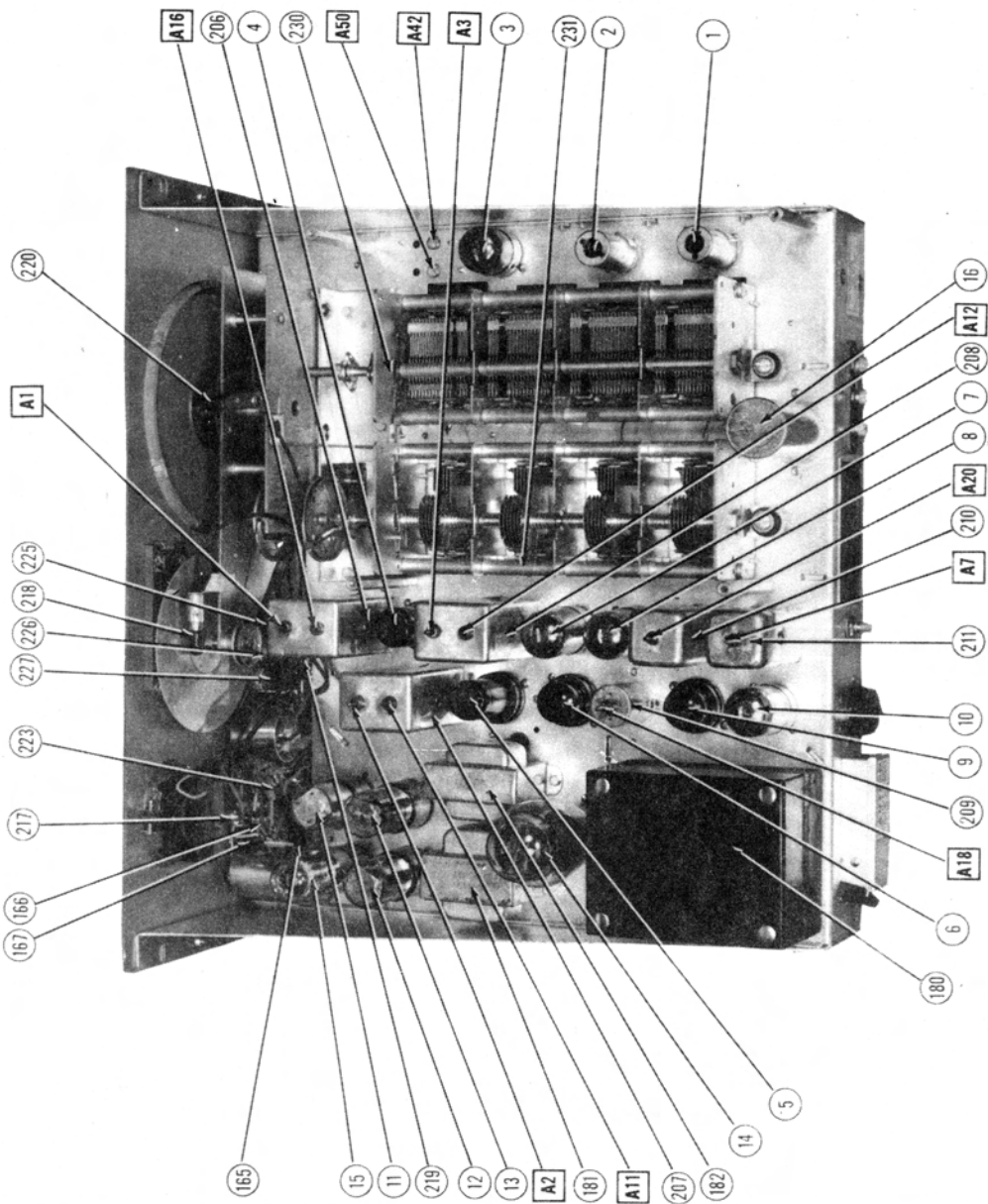
ITEM No.	PART NAME	PART No.	HALLICRAFTERS	NOTES
221	Switch	60D241	Band	
222	"	60A234	Selectivity	
223	"	60C235	Reception	
224	"	60C236	Tone	
225	"	60A138	AVC	
226	"	60A138	Noise Limiter	
227	"	60A138	Receive-Standby	
228	Crystal	15A123		
229	Phone Jack	36A029		
230	4 Gang Var. Cap.			
231	4 Gang Band Spread Cap. Trimmer	48C-153		(19MTF-387MTF) each section (12MTF-90MTF) each section
A21	"	44A076	Band 1 Osc. Adj.	
A26	"	44A077	Band 2 " "	
A30	"	44A077	Band 3 " "	
A38	"	44A347	Band 4 " "	
A42	"	44A078	Band 5 " "	
A50	Dual Trimmer		Band 6 " "	
A44	"		Band 5 Art. Adj.	
A52	Dual Trimmer	44B165	Band 6 " "	
A45	"		Band 5 1st RF Adj.	
A53	Dual Trimmer	44B165	Band 6 " "	
A46	"		Band 5 2nd RF Adj.	
A54	Dual Trimmer	44B165	Band 6 " "	
	Meter	82B100	Carrier Level	
	Dial	82C330	Main Tuning	
	"	82B328	Bandspread	
	Dial Pointer	82A110	Main Tuning	

RESTRICTING 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 screw-driver 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 CPS 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	28-35 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 $\sim$ 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 Ω 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 Ω 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.

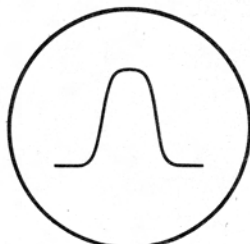


FIG. 1

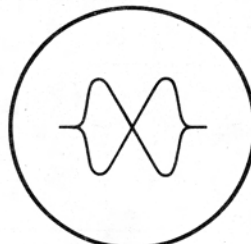


FIG. 2

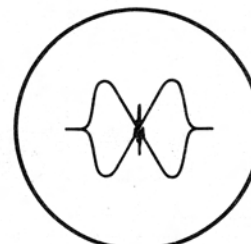
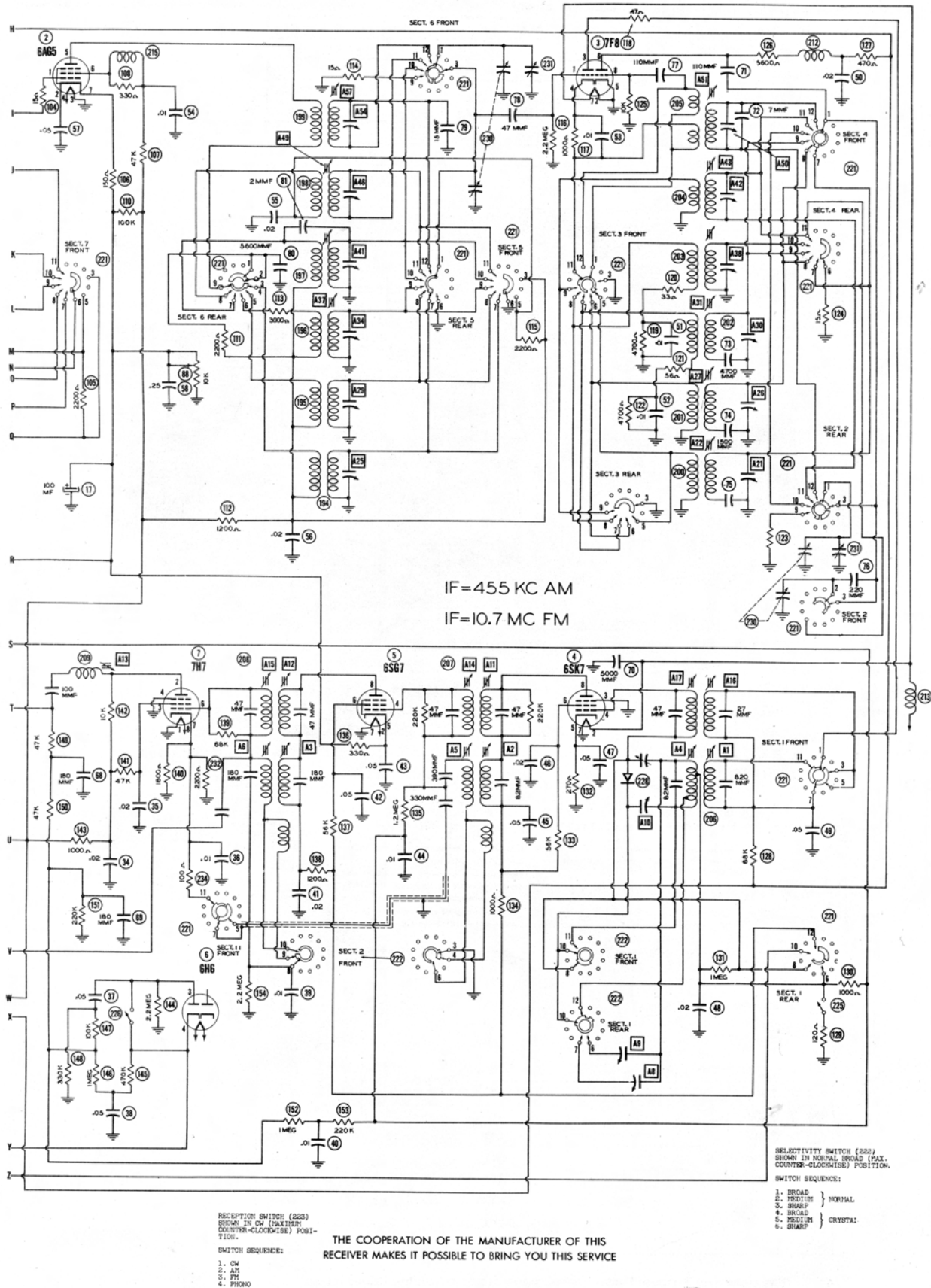


FIG. 3



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.	OV.	14VDC§	27VDC
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/VRE†	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	Ω	.05Ω	75KΩ	65KΩ	150Ω	-
2	6AG5	1.8 Meg.	150Ω	Ω	.05Ω	60KΩ	110KΩ	150Ω	-
3	7F8	2.2 Meg.	Ω	130KΩ	1KΩ	Ω	70KΩ	.05Ω	10KΩ
4	6SK7	Ω	.05Ω	Ω	1.5 Meg.	270Ω	120KΩ	Ω	60KΩ
5	6SQ7	Ω	.05Ω	330Ω	2.5 Meg.	330Ω	120KΩ	Ω	60KΩ
**	6H6	Ω	Ω	2.2 Meg.	1.6 Meg.	INF.	150KΩ	.05Ω	INF.
7	7H7	Ω	70KΩ	110KΩ	Ω	Ω	2.2 Meg.	900Ω	.05Ω
8A	7H7	Ω	INF.	INF.	Ω	Ω	250KΩ	Ω	.05Ω
†	8B	7H7	Ω	120KΩ	120KΩ	Ω	Ω	250KΩ	Ω
†	9	6H6	Ω	Ω	100KΩ	200KΩ	100KΩ	INF.	.05Ω
†*	10	7A4	Ω	60KΩ	100Ω	INF.	INF.	63KΩ	5.1KΩ
11	6SL7GT	1 Meg.	280KΩ	1.2KΩ	8.2KΩ	280KΩ	1.2KΩ	.05Ω	Ω
12	6V6GT	Ω	Ω	60KΩ	60KΩ	220KΩ	56Ω	.05Ω	220Ω
13	6V6GT	Ω	Ω	60KΩ	60KΩ	230KΩ	8.2KΩ	.05Ω	220Ω
14	5U4G	INF.	60KΩ	INF.	44Ω	INF.	47Ω	60KΩ	60KΩ
15	OD3/VRE†	60KΩ	Ω	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 $\pm 15\%$ 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.