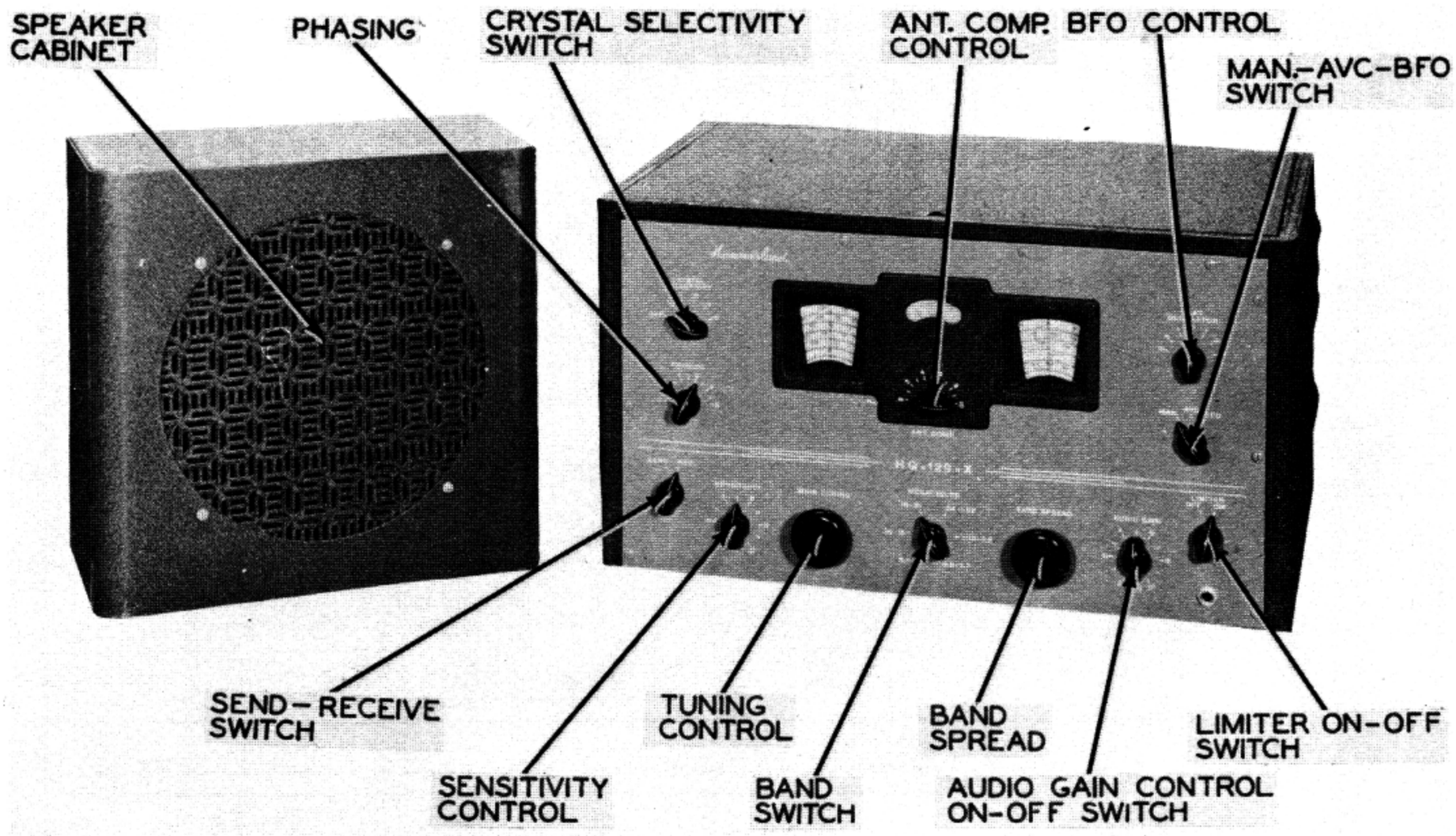


HAMMARLUND
MODEL HQ-129-X PAGE 1

HAMMARLUND MODEL HQ-129-X

TRADE NAME	Hammarlund Model HQ-129-X
MANUFACTURER	Hammarlund Mfg. Co., 460 W. 34th Street, New York, N.Y.
TYPE SET	AC Operated 6 Band Superheterodyne Communications Receiver
TUBES (ELEVEN)	Types, 6SS7 RF Amp., 6K8 Converter, 6SS7 1st IF Amp., 6SS7 2nd IF Amp., 6SS7 3rd IF Amp., 6H6 Det.-Noise Limiter, 6SN7GT AF-"S" Meter Tube, 6V6GT Power Output, 6SJ7 BFO, 5U4G Rectifier, 0C3/VR105 Voltage Regulator.
POWER SUPPLY	105-125 Volts AC
RATING	.750 Amps. @ 117V AC
TUNING RANGE	Broadcast - 540-1320KC, 1.32-3.2MC Short Wave- 3.2-5.7MC, 5.7-10MC, 10-18MC, 18-31MC.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: HAMMARLUND PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SS7	6SS7	8N	
2	Converter	6K8	6K8	8K	
3	1st IF Amp.	6SS7	6SS7	8N	
4	2nd IF Amp.	6SS7	6SS7	8N	
5	3rd IF Amp.	6SS7	6SS7	8N	
6	Det.-Noise Lim.	6H6	6H6	7Q	
7	AF-"S" Meter Tube	6SN7GT	6SN7GT	8BD	
8	Power Output	6V6GT	6V6GT	7AC	
9	BFO	6SJ7	6SJ7	8N	
10	Rectifier	5U4G	5U4G	5T	
11	Voltage Reg.	OC3/VR105	OC3/VR105	4AJ	

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: CAP.	RATING: VOLT	REPLACEMENT DATA: HAMMARLUND PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
12A	10	450	23840-1	FP424	DY-3x10-450/20-25	EL-431	AF2222J	UP7DJ51	♠ Filter
B	10	450							■ "
C	10	450							▲ "
D	20	25					PRS25-10*		Cath. Bypass
13	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	Line Bypass
14	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	" "
15	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	Voice Coil Bypass
16	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	6SJ7 Plate Decoupling
17	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	6SJ7 Screen Bypass
18	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	Audio Coupling
19	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	" "
20	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	Noise Lim. Bias. Bypass
21	.01	200	23912-4	TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
22	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	3rd IF Plate Bypass
23	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	Osc. Plate Decoupling
24	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	3rd IF Screen Bypass
25	.1	500	23912-3	TP418	S-6-1	TC-1	684-.1	DT6P1	3rd IF Cath. Bypass
26	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	2nd IF Plate Bypass
27	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	2nd IF Screen Bypass
28	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	2nd IF Supp. Bypass
29	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	AVC Filter
30	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	1st IF Plate Bypass
31	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	1st IF Screen Bypass
32	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	AVC Filter
33	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	1st IF Cath. Bypass
34	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	Conv. Plate Bypass
35	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	Conv. Screen Bypass
36	.05	500	23912-2	TP415	S-6-05	TC-15	684-05	DT6S5	Conv. Cath. Bypass
37	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	RF Screen Bypass
38	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	RF Cath. Bypass
39	.02	500	23912-1	TP412	S-6-02	TC-12	684-02	DT6S2	AVC Filter
40	5	500	23002-1D	MCB205	MOS.5-55	MS-55	1469-00000	5R5V5	BFO Coupling
41	300	500	23001-75D	MC241	MO.5-33	MS-33	1468-0003	5W5T3	6V6 Grid Bypass
42	100	500	23001-48B	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
43	100	500	23001-48B	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" "
44	100	500	23001-48D	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	6H6 Diode Plate Bypass
45	673	500	6061						Fixed Padder
46	300	500	23003-105D	MC241	MO.5-33	MS-33	1468-0003	5W5T3	" "
47	1000	500	23015-40B	MC255	MO.3-21	1FM-21	1468-001	1W5D1	" "
48	1500	500	23015-20B	MC256	MW.5-215	1FM-215	1467-0015	1W5D15	" "
49	6	500	23023-34						Fixed Trimmer Cer.
50	5100	500	23015-16B						RF Plate Decoupling
51	620	500	23005-86B						RF Coupling
52	50	500	23002-11D	MCB225	MOS.5-45	MS-45	1469-00005	5R5Q5	Osc. Grid Capacitor
53	4700	500	23015-5B						Conv. Cath. Bypass
54	620	500	23005-86B						RF Coupling

*Parallel with one section of AF to obtain bypass section.

PARTS LIST AND DESCRIPTIONS (Continued)

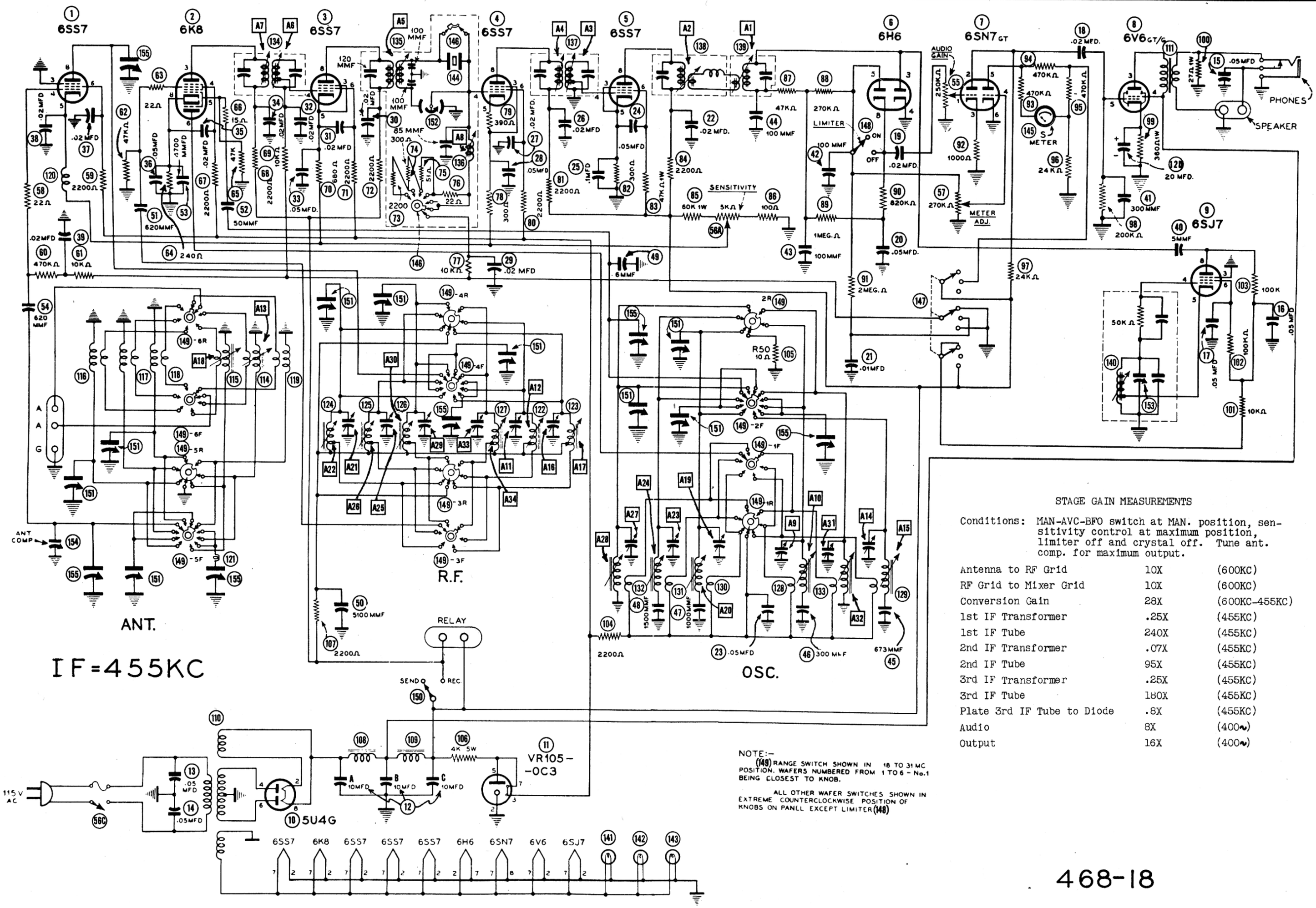
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HAMMARLUND PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
55A	250KΩ	1	15356-1	MR44	D13-130	M-64-Z	Audio Gain Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 55A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
56A	5000Ω	1	15305-4	MR14	D11-114	M-19-S	Sensitivity Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 56A per instructions
57A	270KΩ	1	15357-1	UM149	D11-130	AM-55-S	Meter Adjustment Control
B	Shaft		Not Req.	SS12	E #	KSS-3#	Attach to 57A per instructions

#Split in knurled shaft may be used as screwdriver slot.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HAMMARLUND PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
58	22Ω	½	19302-9	BW-½-22	Red-Red-Blk. Parasitic Suppressor
59	2200Ω	½	19301-40	BTS-2200	Red-Red-Red RF Screen Dropping
60	470KΩ	½	19301-96	BTS-470K	Yl.-Vi.-Yl. AVC Network
61	10KΩ	½	19301-56	BTS-10K	Br.-Blk.-Or. AVC Network
62	47KΩ	½	19301-72	BTS-47K	Yl.-Vi.-Or. Converter Grid
63	22Ω	½	19302-9	BW-½-22	Red-Red-Blk. Parasitic Suppressor
64	240Ω	½	19302-34	BW-½-270	Red-Yl.-Br. Converter Cathode
65	47KΩ	½	19301-72	BTS-47K	Yl.-Vi.-Or. Osc. Grid
66	15Ω	½	19302-5	BW-½-15	Br.-Grn.-Blk. Parasitic Suppressor
67	2200Ω	½	19301-40	BTS-2200	Red-Red-Red Converter Screen Dropping
68	2200Ω	½	19301-40	BTS-2200	Red-Red-Red Converter Plate Filter
69	10KΩ	½	19301-56	BTS-10K	Br.-Blk.-Or. AVC Network
70	680Ω	½	19301-28	BTS-680	Blue-Gray-Br. 1st IF Cathode
71	2200Ω	½	19301-40	BTS-2200	Red-Red-Red 1st IF Screen Dropping
72	2200Ω	½	19301-40	BTS-2200	Red-Red-Red 1st IF Plate Filter
73	2200Ω	½	19301-40	BTS-2200	Red-Red-Red Selectivity Control
74	300Ω	½	19301-196	BW-½-270	Or.-Blk.-Br. Selectivity Control
75	51Ω	½	19301-187	BW-½-47	Grn.-Br.-Blk. Selectivity Control
76	22Ω	½	19302-9	BW-½-22	Red-Red-Blk. Selectivity Control
77	10KΩ	½	19301-56	BTS-10K	Br.-Blk.-Or. AVC Network
78	300Ω	½	19301-196	BW-½-270	Or.-Blk.-Br. Bias
79	390Ω	½	19301-22	BW-½-390	Or.-White-Br. 2nd IF Cathode
80	2200Ω	½	19301-40	BTS-2200	Red-Red-Red 2nd IF Screen Dropping
81	2200Ω	½	19301-40	BTS-2200	Red-Red-Red 2nd IF Plate Filter
82	300Ω	½	19301-196	BW-½-270	Or.-Blk.-Br. 3rd. IF Cathode
83	47KΩ	1	19303-61	BTA-47K	Yl.-Vi.-Or. 3rd. IF Screen Dropping
84	2200Ω	½	19301-40	BTS-2200	Red-Red-Red 3rd IF Plate Filter
85	62KΩ	1	19310-231	BTA-68K	Blue-Red-Or. Sensitivity Limit
86	100Ω	½	19301-8	BW-½-100	Br.-Blk.-Br. Sensitivity Limit
87	47KΩ	½	19301-72	BTS-47K	Yl.-Vi.-Or. IF Filter
88	270KΩ	½	19301-90	BTS-270K	Red-Vi.-Yl. Limiter Plate Load
89	1 Meg.	½	19301-104	BTS-1 Meg.	Br.-Blk.-Grn. Limiter RF Blocking
90	820KΩ	½	19301-102	BTS-820K	Blue-Red-Yl. Limiter Cathode
91	2 Meg.	½	19301-169	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
92	1000Ω	½	19301-32	BTS-1000	Br.-Blk.-Red 1st AF Cathode
93	470KΩ	½	19301-96	BTS-470K	Yl.-Vi.-Yl. Meter Bridge
94	470KΩ	½	19301-96	BTS-470K	Yl.-Vi.-Yl. Meter Bridge
95	470KΩ	½	19301-96	BTS-470K	Yl.-Vi.-Yl. Meter Bridge
96	24KΩ	½	19301-213	BTS-22K	Red-Yl.-Or. Meter Bridge
97	24KΩ	1	19301-187	BTA-22K	Red-Yl.-Or. 1st AF Plate Load
98	200KΩ	½	19301-220	BTS-220K	Red-Blk.-Yl. Output Grid
99	390Ω	1	19305-38	BTA-390	Or.-White-Br. Output Cathode
100	27Ω	1	19305-11	BW-1-27	Red-Vi.-Blk. Output Transformer Shunt
101	10KΩ	½	19301-56	BTS-10K	Br.-Blk.-Or. BFO Decoupling
102	100KΩ	½	19301-80	BTS-100K	Br.-Blk.-Yl. BFO Screen Dropping
103	100KΩ	½	19301-80	BTS-100K	Br.-Blk.-Yl. BFO Plate Load
104	2200Ω	½	19301-40	BTS-2200	Red-Red-Red Osc. Plate Decoupling
105	10Ω	½	19302-1	BW-½-10	Br.-Blk.-Blk. Unused Osc. Coil Shunt
106	4000Ω	5	19380-47	AB-4000	Filter
107	2200Ω	½	19301-40	BTS-2200	Red-Red-Red RF Plate Decoupling



NOTE:-
(149) RANGE SWITCH SHOWN IN 18 TO 31 MC POSITION. WAFERS NUMBERED FROM 1 TO 6 - No.1 BEING CLOSEST TO KNOB.

ALL OTHER WAFER SWITCHES SHOWN IN EXTREME COUNTERCLOCKWISE POSITION OF KNOBS ON PANEL EXCEPT LIMITER (148)

STAGE GAIN MEASUREMENTS

Conditions: MAN-AVC-BFO switch at MAN. position, sensitivity control at maximum position, limiter off and crystal off. Tune ant. comp. for maximum output.

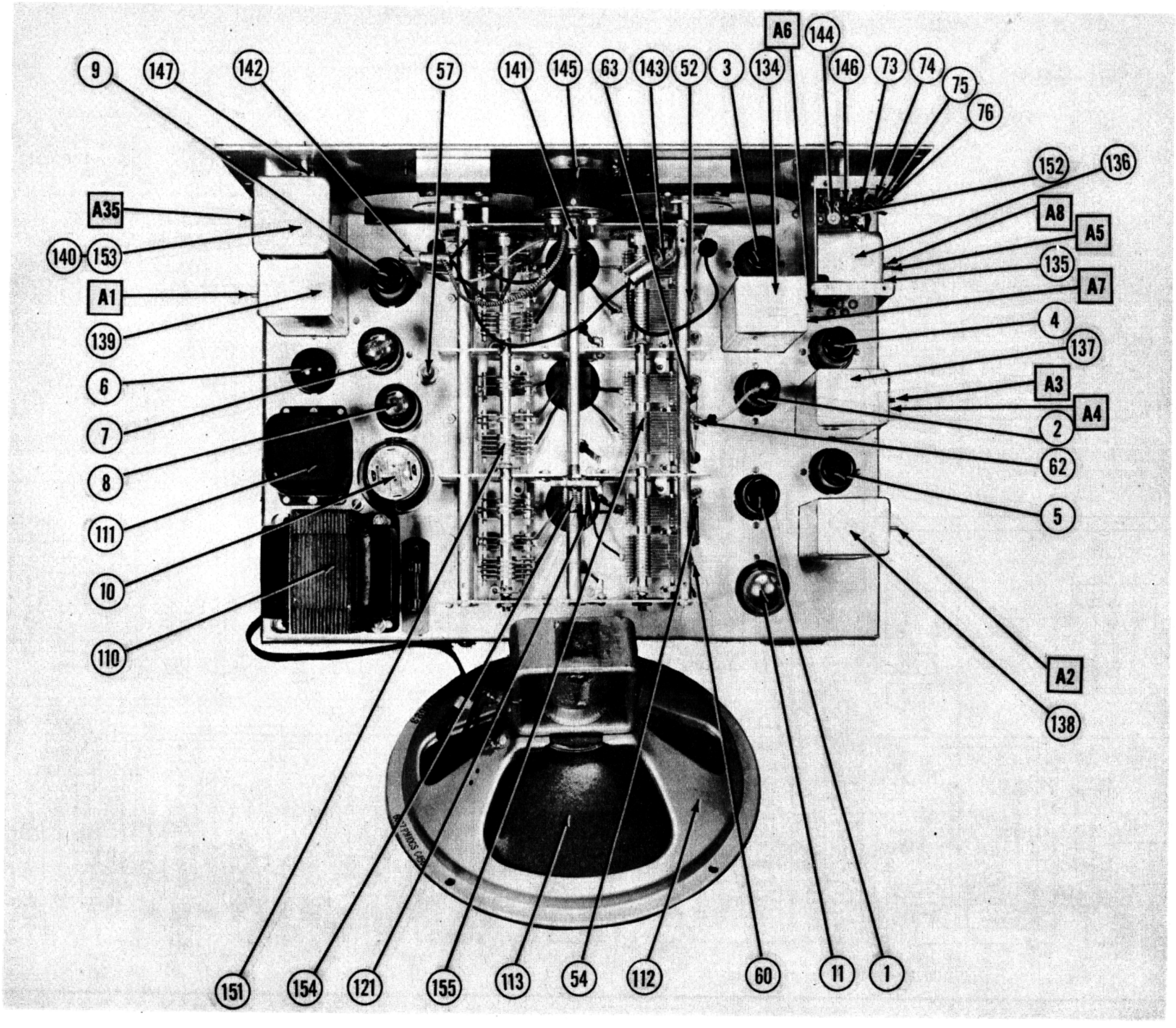
Antenna to RF Grid	10X	(600KC)
RF Grid to Mixer Grid	10X	(600KC)
Conversion Gain	28X	(600KC-455KC)
1st IF Transformer	.25X	(455KC)
1st IF Tube	240X	(455KC)
2nd IF Transformer	.07X	(455KC)
2nd IF Tube	95X	(455KC)
3rd IF Transformer	.25X	(455KC)
3rd IF Tube	180X	(455KC)
Plate 3rd IF Tube to Diode	.8X	(455KC)
Audio	8X	(400~)
Output	16X	(400~)

468-18

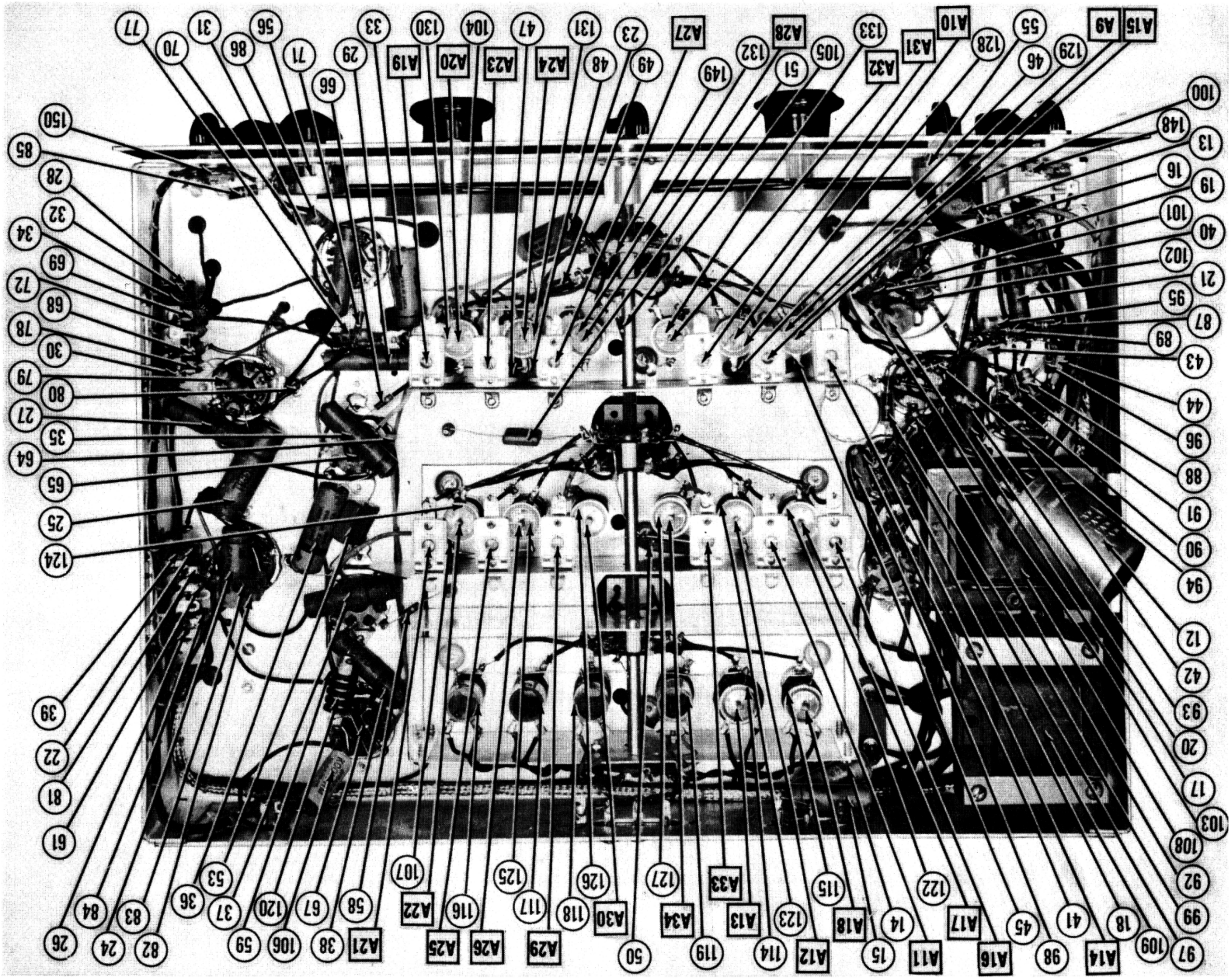
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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.

CHASSIS—TOP VIEW



HAMMARLUND
MODEL HQ-129-X PAGE 5



CHASSIS—BOTTOM VIEW

NOTE. 1. VOLTAGE AND RESISTANCE READINGS TAKEN WITH AUDIO GAIN AND SENSITIVITY CONTROLS AT MAXIMUM LIMITER AND CRYSTAL SWITCHES OFF.

2. READINGS ON 6SJ7 TAKEN WITH SWITCH IN BFO POSITION.

3. READINGS ON 6SN7GT TAKEN SWITCH IN AVC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SS7	0V.	0V.	0V.	0V.	3.2V.DC	107V.DC	6.35VAC	182V.DC	
2	6K8	0V.	0V.	200V.DC	97V.DC	0V.	103V.DC	6.35VAC	3.4V.DC	0V
3	6SS7	0V.	0V.	6.8V.DC	0V.	6.8V.DC	110V.DC	6.35VAC	195V.DC	
4	6SS7	0V.	0V.	4.6V.DC	0V.	6.8V.DC	110V.DC	6.35VAC	195V.DC	
5	6SS7	0V.	0V.	3.7V.DC	0V.	3.7V.DC	113V.DC	6.35VAC	184V.DC	
6	6H6	0V.	6.35VAC	-2V.DC	0V.	-.3V.DC	-.05V.DC	0V.	-.3V.DC	
7	6SN7GT	0V.	120V.DC	3.8V.DC	-.4V.DC	12V.DC	0V.	6.35VAC	0V.	
8	6V6GT	0V.	0V.	275V.DC	275V.DC	0V.	204V.DC	6.35VAC	15V.DC	
9	6SJ7	0V.	0V.	0V.	-7.8V.DC	0V.	72V.DC	6.35VAC	32V.DC	
10	5U4G	204V.DC	310V.DC	204V.DC	295V.AC	0V.	295V.AC	204V.DC	310V.DC	
11	0C3/VR105	97V.DC	0V.	112V.DC	112V.DC	112V.DC	28V.DC	112V.DC	112V.DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SS7	0Ω	0Ω	0Ω	2.6MEG.	125Ω	64KΩ	.25Ω	64KΩ	
2	6K8	0Ω	0Ω	60KΩ	64KΩ	45KΩ	64KΩ	.25Ω	220Ω	46KΩ
3	6SS7	0Ω	0Ω	750Ω	2.1MEG.	750Ω	64KΩ	.25Ω	60KΩ	
4	6SS7	0Ω	0Ω	390Ω	2.1MEG.	740Ω	64KΩ	.25Ω	60KΩ	
5	6SS7	0Ω	0Ω	300Ω	1Ω	300Ω	105KΩ	.25Ω	60KΩ	
6	6H6	0Ω	.25Ω	510KΩ	0Ω	230KΩ	23KΩ	0Ω	230KΩ	
7	6SN7GT	275KΩ	82KΩ	1KΩ	115KΩ	265KΩ	0Ω	.25Ω	0Ω	
8	6V6GT	0Ω	0Ω	58KΩ	58KΩ	200KΩ	58KΩ	.25Ω	360Ω	
9	6SJ7	0Ω	0Ω	0Ω	47KΩ	.75Ω	168KΩ	.25Ω	168KΩ	
10	5U4G	58KΩ	58KΩ	58KΩ	50Ω	INF	47Ω	58KΩ	58KΩ	
11	0C3/VR105	64KΩ	0Ω	62KΩ	62KΩ	62KΩ	90Ω	62KΩ	62KΩ	

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000)	HAMMARLUND PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
108	.097A	270Ω	16 Henries	6083	C-1001†	T-20C53†	†Mount vertically beneath chassis.
109	.055A	900Ω	35 Henries	6084	C-1708	T-20C52‡	‡Drill two new mounting holes

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	HAMMARLUND PART No.	STANCOR PART No.	THORDASON PART No.	
110	117VAC @ .750A	600VCT @ .097A	5.2VAC @ 2.9A	6.5VAC @ 3.0A	26012	P-6313§	T-22R04§	§Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		HAMMARLUND PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
111	8500Ω	7Ω	310Ω	.75Ω	6086	A-3890	T-22S87		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			HAMMARLUND PART No.	JENSEN PART No.		
112	FIELD	VC IMP.		ST-121 Mod. P10-R		
	PM	7Ω				
	CONE DIA.	VC DIA.				
113	9-3/8"	15/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HAMMARLUND PART No.	MEISSNER PART No.	
114	5.4-1.32MC Ant.	21Ω	5Ω	26051-G1		
115	1.32-3.2MC Ant.	9Ω	1.5Ω	26051-G2		
116	3.2-5.7MC Ant.	.2Ω	.5Ω	6013		
117	5.7-10MC Ant.	0Ω	.1Ω	6016	14-1044	
118	10-18 MC Ant.	.1Ω	0Ω	6019	14-1046	
119	18-31 MC Ant.	0Ω	0Ω	6022		
120	RF Choke	38Ω		6181		
121	RF Choke	0Ω		26054-1		
122	.54-1.32MC RF	5Ω		26047-G2		
123	1.32-3.2MC RF	2Ω		26047-G1		
124	3.2-5.7MC RF	.5Ω		26047-G6		
125	5.7-10MC RF	.1Ω		26047-G5		
126	10-18MC RF	0Ω		26047-G4		
127	18-31MC RF	.1Ω		26047-G3		
128	.54-1.32MC RF	.2Ω	4Ω	26030-G2		

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HAMMARLUND PART No.	MEISSNER PART No.	
129	1.32-3.2MC Osc.	.1Ω	1.5Ω	26030-G1		
130	3.2-5.7MC Osc.	.1Ω	.5Ω	26030-G2		
131	5.7-10MC Osc.	.1Ω	.1Ω	26030-G5		
132	10-18MC Osc.	.1Ω	.1Ω	26030-G4		
133	18-31MC Osc.	.1Ω	.1Ω	26030-G3		
134	1st IF	4.5Ω		6335		
135	2nd IF Output	5.5Ω	1Ω	SA785		Items 135, 136 are included in crystal filter assembly SA785
136	2nd IF Grid Coil		7Ω	SA785		
137	3rd IF	4.5Ω		6335		
138	4th Output IF	6Ω		SA797		
139	Diode Input IF		6.5Ω	SA799		
140	BFO Osc.			26021-G1		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HAMMARLUND PART No.		
141	Bayonet	6-8	0.15	Brown	16004		Type 47
142	Bayonet	6-8	0.15	Brown	16004		Type 47
143	Bayonet	6-8	0.15	Brown	16004		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	HAMMARLUND PART No.	NOTES
144	Crystal	6338	Quartz
145	"S" Meter	4903	
146	Crystal Switch		
147	Switch	6097	Manual AVC-BFO
148	Limiter Switch	6333	
149	Band Switch	Assembly	
	A-H.F.Osc.Plate	6331	
	B-H.F. Osc.Grid	6332	
	C-Det.Grid Tap	6064	
	D-RF Plate	6063	
	E-RF Grid	6063	
	F-Antenna	6062	
150	Switch	6333	Send-Receive
151	Band Spread		(Part of SA-610)
152	Tuning Cap.	SA-604	Crystal Phasing
153	Tuning Cap.	SA-681	(Part of BFO Assby. 26021-G1)
154	Tuning Cap.	SA-617	(Part of SA-610
155	Tuning Cap.		" " "
	Trimmer Cap.	6189-G2	A19,A21,A27,A29
	Trimmer Cap.	6055-G1	A9,A11,A14,A16,A23,A25,A31,A33

ALIGNMENT INSTRUCTIONS

A cathode-ray oscilloscope and a frequency-modulated signal generator are required for proper alignment. Sychronize the scope externally with the signal generator. Set Send-Receive switch to Receive, the Limiter "off", the MAN-AVC-BFO switch to MAN. position and the crystal selectivity switch to "off" position. Set band spread dial at 200, gain and sensitivity controls at maximum and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
.1 MFD.	High side to pin #4 (grid) of the third IF tube (5) Low side to chassis.	455KC	.54-1.32 MC	.54MC	High side to pin 5 of 6H6. Low side to chassis	A1,A2,	Adjust for maximum amplitude, symmetry and pattern coincidence on the scope.
"	High side to pin #4 (grid) of the second IF tube (4). Low side to chassis.	"	"	"	"	A3,A4	Adjust to obtain symmetrical, coinciding curve with as much amplitude as possible without disturbing the pattern.
"	High side to pin #4 (grid) of the first IF tube (3) Low side to chassis.	"	"	"	"	A5	Adjust for maximum amplitude at center of curve.
"	High side to grid cap of 6K8. Low side to chassis.	"	"	"	"	A6,A7.	Adjust to obtain symmetrical coinciding curve with as much amplitude as possible without disturbing the pattern. This should result in a tall selectivity curve with a slightly flattened peak. Pin 5 (osc grid) should be grounded to obtain clearer pattern.
"	"	"	"	"	"	A8	Turn crystal selectivity switch to position #1, set crystal phasing pointer on arrow. Keep input signal low to prevent overloading. Adjust A8 for maximum amplitude and symmetry.
Switch crystal selectivity to position #2 and adjust phasing control slightly from the arrow position, if necessary, to obtain identical images. Adjust the signal generator frequency to obtain coincidence of the images, and if complete coincidence is not obtained, alternately make slight adjustments of the phasing control and the signal generator frequency, until images coincide. These last steps have determined the exact frequency of the quartz crystal and the frequency setting of the signal generator should be left undisturbed. turn crystal "off" and repeat carefully the complete IF alignment proceedure with signal generator at this setting The BFO may be adjusted if necessary by adjusting A35 for zero beat with beat oscillator setting at zero.							
The following adjustments should not be made unless it is positive that readjustment is necessary.							
200 MMF.	High side to ext. ant. Low side to chassis.	1.25MC	.54-1.32 MC	1.25MC	Connect output meter across voice coil.	A9	Adjust for maximum output.
"	"	.6MC	"	.6MC	"	A10	Adjust for maximum output. Repeat last two steps until no further increase is obtained.
"	"	1.25MC	"	1.25MC	"	A11	Adjust for maximum output.
"	"	.6MC	"	.6MC	"	A12	Adjust for maximum output. Repeat last two steps until no further increase is obtained.
"	"	.6MC	"	.6MC	"	A13	Adjust for maximum output.
400 ohms	"	3.0MC	1.32-3.2 MC	3.0MC	"	A14	" " " "
"	"	1.4MC	"	1.4MC	"	A15	Adjust for maximum output. Repeat last two steps until no further increase is obtained.
"	"	3.0MC	"	3.0MC	"	A16	Adjust for maximum output.
"	"	1.4MC	"	1.4MC	"	A17	Adjust for maximum output. Repeat last two steps until no further increase is obtained.
"	"	1.4MC	"	1.4MC	"	A18	Adjust for maximum output.
"	"	5.5MC	3.2-5.7 MC	5.5MC	"	A19	" " " "
"	"	3.5MC	"	3.5MC	"	A20	Adjust for maximum output. Repeat last two steps until no further increase is obtained.
"	"	5.5MC	"	5.5MC	"	A21	Adjust for maximum output.
"	"	3.5MC	"	3.5MC	"	A22	Adjust for maximum output. Repeat last two steps until no further increase is obtained.
"	"	10.0MC	5.7-10.0 MC	10.0MC	"	A23	Adjust for maximum output.
"	"	6.0MC	"	6.0MC	"	A24	Adjust for maximum output. Repeat last two steps until no further increase is obtained.
"	"	10.0MC	"	10.0MC	"	A25	Adjust for maximum output.
"	"	6.0MC	"	6.0MC	"	A26	Adjust for maximum output Repeat last two steps until no further increase is obtained.
" "	"	18.0MC	10.0-18.0 MC	18.0MC	"	A27	Adjust for maximum output
"	"	10.0MC	"	10.0MC	"	A28	Adjust for maximum output Repeat last two steps until no further increase is obtained.
"	"	18.0MC	"	18.0MC	"	A29	Adjust for maximum output
"	"	10.0MC	"	10.0MC	"	A30	Adjust for maximum output Repeat last two steps until no further increase is obtained.
"	"	30.0MC	18.0-31.0 MC	30.0MC	"	A31	Adjust for maximum output
"	"	18.0MC	"	18.0MC	"	A32	Adjust for maximum output Repeat last two steps until no further increase is obtained.
"	"	30.0MC	"	30.0MC	"	A33	Rock tuning capacitor and output for maximum output
"	"	18.0MC	"	18.0MC	"	A34	Adjust for maximum output Repeat last two steps until no further increase is obtained.