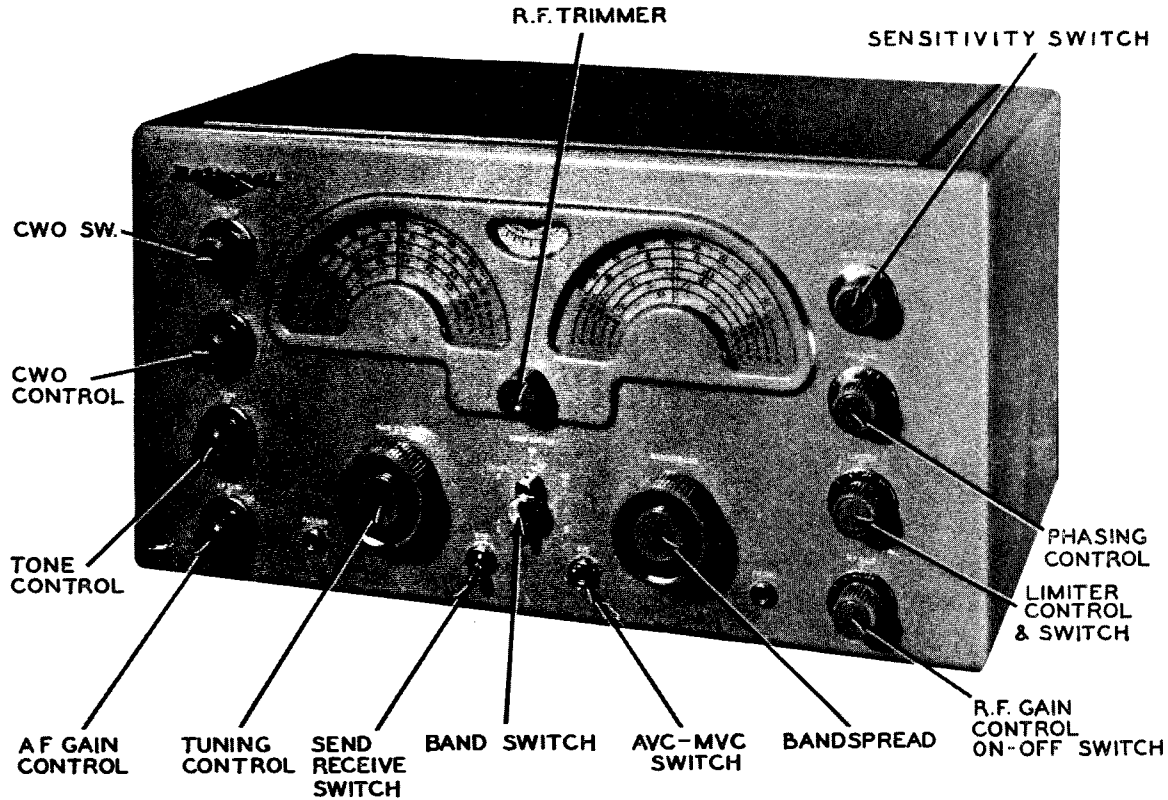


NATIONAL MODELS
NC-173R, NC-173T



NATIONAL MODELS
NC-173R, NC-173T

NATIONAL MODEL NC-173T

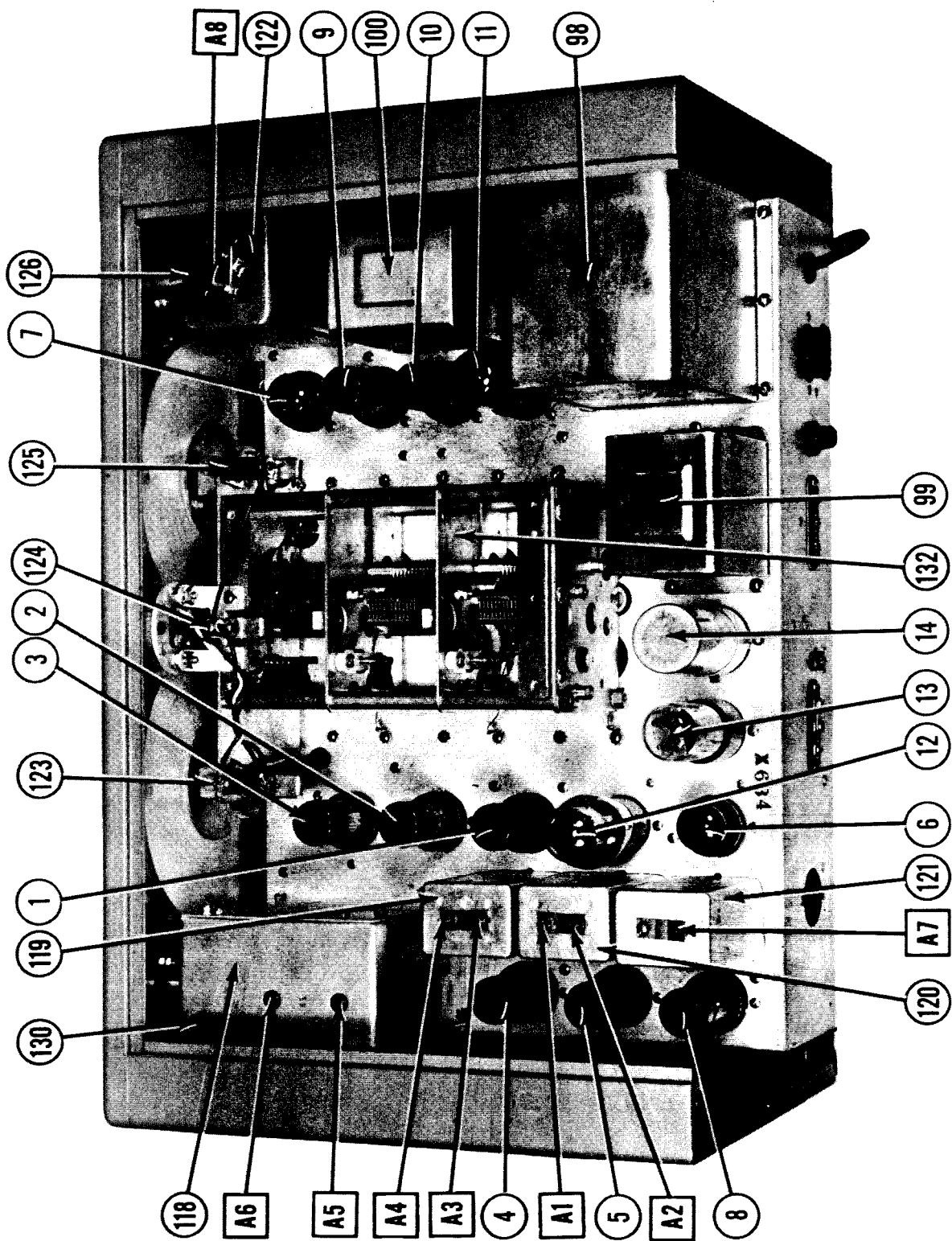
TRADE NAME	National, Model NC-173R, NC-173T		
MANUFACTURER	National Co., Inc., 61 Sherman St., Malden, Mass.		
TYPE SET	AC Operated Five Band Superheterodyne Commercial Type Radio Receiver		
TUBES (THIRTEEN)	Types, 6SG7 RF Amp., 6SA7 Mixer, 6J5 Osc., 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6H6 Det.-AVC, 6H6 Limiter, 6AC7 AVC Amp., 6SJ7 BFO, 6SJ7 AF Amp., 6V6GT Power Output, OD3/VRI50 Voltage Regulator, 5Y3GT Rectifier.		
POWER SUPPLY	110-120 Volts AC or 220-240 Volts AC		
RATING	.68 Amp. @ 117 Volts AC		
TUNING RANGE-BROADCAST	540-1600KC	SHORT WAVE	1.6-4.3MC, 4.3MC-12MC, 12MC-31MC, 48-56MC

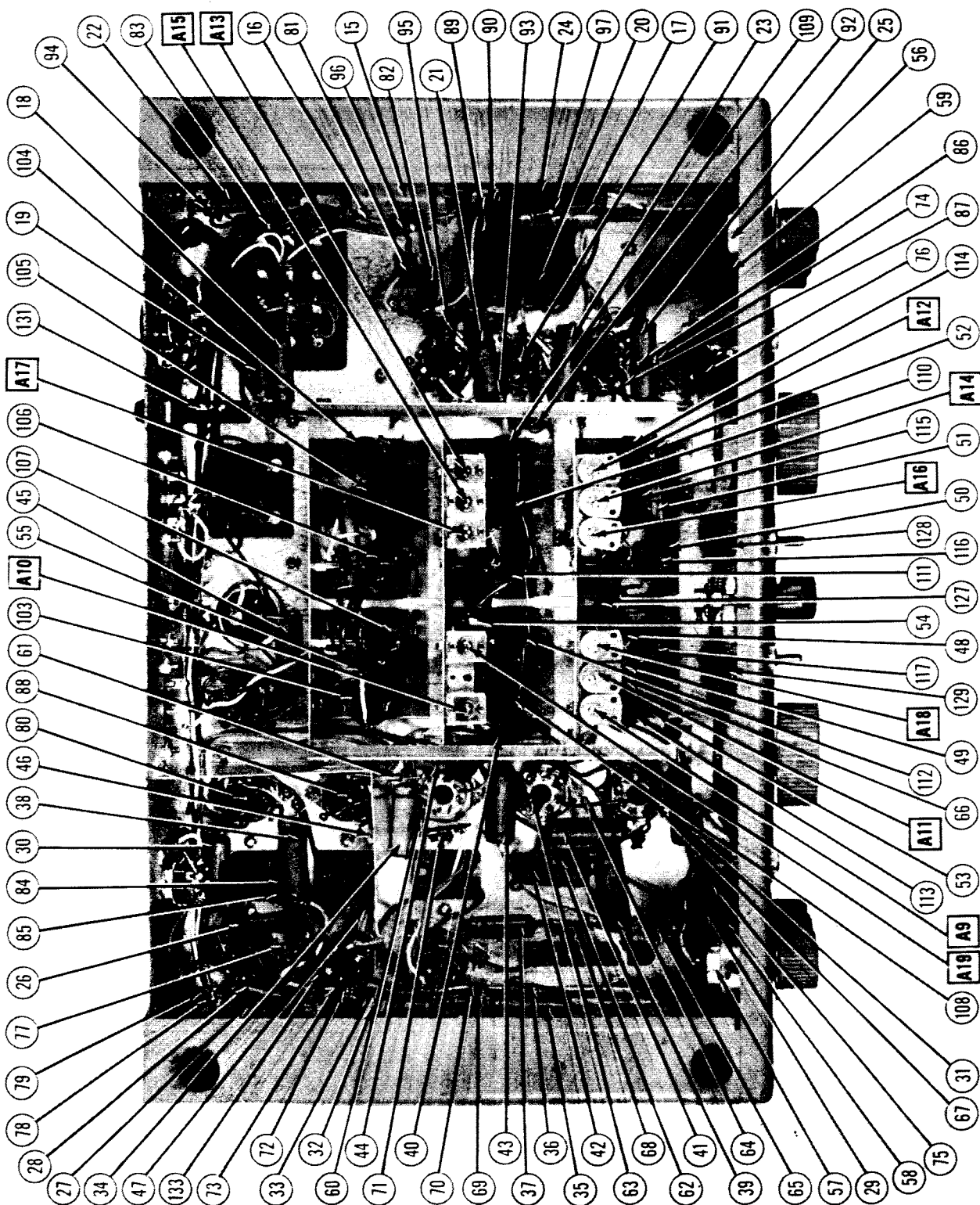
HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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DATE 5/48-#4810-13 SET #40-FOLDER #13.





PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		NATIONAL PART No.	RMA BASE TYPE	
1	RF Amp.	6S87	8BK	
2	Mixer	6SA7	8R	
3	Oscillator	6J5	8Q	
4	1st IF Amp.	6SG7	8BK	
5	2nd IF Amp.	6SG7	8BK	
6	Det.-AFC	6H6	7Q	
7	Limiter	6H6	7Q	
8	AVC Amp.	6AC7	7Q	
9	5FO	6SV7	8N	
10	AF Amp.	6SV7	8N	
11	Power Output	6V6GT	7AC	
12	Voltage Reg.	0X3/TR150	4AJ	
13	Rectifier	5Y3GT	5T	

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
		NATIONAL PART No.	AEROVOX PART No.	CORNEIL DUBILIER PART No.	
14	8	GL475-8-8	GL475-8-8	KRC588	Filter-Orn.
15	8			DL-8-525	" -Red
16	25	PR550-25	PR550-25	BR255	Bias Filter
17	25	PR550-25	PR550-25	BR255	Cathode Bypass
18	25	PR550-25	PR550-25	BR255	"
19	.01	884-01	884-01	D76S1	Line Filter
20	.005	884-005	884-005	D76D6	Output Plate Bypass
21	.1	484-1	484-1	D74P1	AF Plate Decoupling
22	.1	484-1	484-1	D74P1	AF Screen Bypass
23	.1	484-1	484-1	D74P1	"
24	.005	884-005	884-005	D76D6	Tone Comp.
25	.1	484-1	484-1	D74P1	CW Osc. Screen Bypass
26	.01	884-01	884-01	D76S1	S-Meter Bypass
27	.05	884-05	884-05	D76S5	AVC Amp. Decoupling
28	.01	884-01	884-01	D76S1	AVC Amp. Screen Bypass
29	.01	884-01	884-01	D76S1	Audio Coupling
30	.1	484-1	484-1	D74P1	Bias Filter
31	.1	484-1	484-1	D74P1	Limiter Stabilizing
32	.05	884-05	884-05	D76S5	2nd IF Decoupling
33	.01	884-01	884-01	D76S1	2nd IF Screen Bypass
34	.1	484-1	484-1	D74P1	AVC Filter
35	.05	884-05	884-05	D76S5	1st IF Decoupling
36	.01	884-01	884-01	D76S1	1st IF Screen Bypass
37	.01	884-01	884-01	D76S1	AVC Filter
38	.1	484-1	484-1	D74P1	Conv. Plate Decoupling
39	.05	884-05	884-05	D76S5	Conv. Screen Bypass
40	.01	884-01	884-01	D76S1	RF Cathode Bypass
41	.1	484-1	484-1	D74P1	RF Plate Decoupling
42	.1	484-1	484-1	D74P1	RF Screen Bypass
43	.05	884-05	884-05	D76S5	RF Screen Bypass
44	.01	884-01	884-01	D76S1	RF Osc. Coupling-Cer.
45	.1	484-1	484-1	D74P1	RF Bypass
46	10	1468-00001	1468-00001	5W501	Osc. Plate Coupling
47	270	1468-0003	1468-0003	5W503	Osc. Plate Coupling
48	100	1468-001	1468-001	1W5D1	Fixed Pad
49	100	1468-001	1468-001	1W5D1	"
50	8500	1468-0001	1468-0001	5W501	"
51	4200	1468-0001	1468-0001	5W501	"
52	1250	1468-0001	1468-0001	5W501	RF Coupling-Cer.
53	420	1468-0001	1468-0001	5W501	"
54	10	1468-0001	1468-0001	5W501	"
55	1000	1468-0001	1468-0001	5W501	IF Coupling-Cer.
133	47			5W501	"

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT	RATINGS		REPLACEMENT DATA		
		D. C. RESISTANCE	INDUCTANCE (1000 μ)	NATIONAL PART No.	STANCOR PART No.	THORDARSON PART No.
99	.095A	290 Ω	12 Henries		C-1001*	T20054*

INSTALLATION NOTES: *Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	IMPEDANCE	RATING		REPLACEMENT DATA		
		PRI. SEC.	DC RES.	NATIONAL PART No.	STANCOR PART No.	THORDARSON PART No.
100	5800 Ω	500 Ω	300 Ω		A-3310*	T22569*

INSTALLATION NOTES: *Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		NATIONAL PART No.	JENSEN PART No.	
101	FIELD PM			
102	8"			

R F COILS

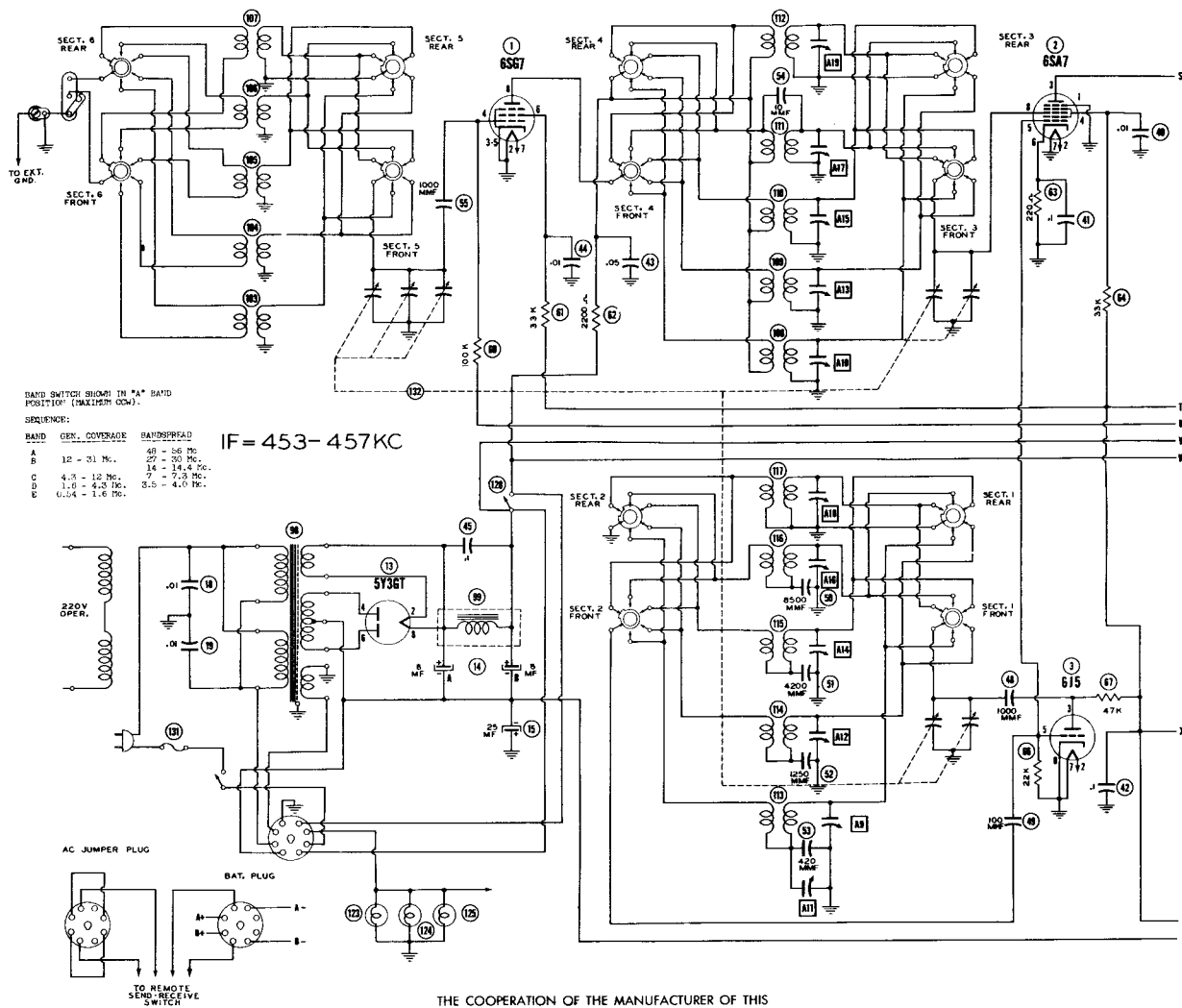
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	NATIONAL PART No.	WEISSNER PART No.
103	Ant. Coil E	2.2 Ω	3.8 Ω		
104	" " " " " "	1 Ω	1.2		
105	" " " " " "	.5 Ω	1.2		
106	" " " " " "	.1 Ω	1.2		
107	RF Coil E	.1 Ω	4.5 Ω		
108	" " " " " "	.1 Ω	1.2		
109	" " " " " "	.1 Ω	1.2		
110	" " " " " "	.1 Ω	1.2		
111	" " " " " "	.1 Ω	1.2		
112	" " " " " "	.1 Ω	1.2		
113	Osc. Coil E	.1 Ω	2.2 Ω		
114	" " " " " "	.1 Ω	1.2		
115	" " " " " "	.1 Ω	1.2		
116	" " " " " "	.1 Ω	1.2		
117	Input IF	.1 Ω	1.5 Ω		
118	Inter. IF	2 Ω	1.5 Ω	SA3363	
119	Output IF	1.8 Ω	1.5 Ω	SA3363	
120	AVC Trans.			SA3673	
121	AVC Trans.			SA3673	
122	Osc. Trans.			SA3638	

DIAL LIGHT

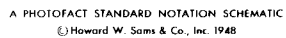
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	NATIONAL PART No.	
123	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
125	Switch		
126	"		CWO Switch
127	"		Band
128	"		Send-Receive
129	"		AVC-MVC
130	"		Selectivity
131	Fuse		2 Amp.
132	3 Gang Var. Cap.		(15-374TT) each section



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



4810-13

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	6SG7	0V.	0V.	0V.	-.6VDC	0V.	90VDC	6.2VAC	185VDC
2	6SA7	0V.	6.2VAC	190VDC	60VDC	-11VDC	1VDC	0V.	0V.
3	6J5	0V.	6.2VAC	55VDC	0V.	-11VDC	150VDC	0V.	0V.
4	6SG7	0V.	0V.	0V.	-.6VDC	0V.	110VDC	6.2VAC	175VDC
5	6SG7	0V.	0V.	0V.	-.6VDC	0V.	75VDC	6.2VAC	180VDC
6	6H6	0V.	0V.	-.7VDC	0V.	-1.7VDC	0V.	6.2VAC	-1.3VDC
7	6H6	0V.	0V.	-.4VDC	0V.	-.2VDC	0V.	6.2VAC	0V.
8	6AC7	0V.	0V.	0V.	-.7VDC	0V.	99VDC	6.2VAC	168VDC
9	6SJ7	0V.	0V.	0V.	-.1VDC	0V.	15VDC	6.2VAC	36VDC
10	6SJ7	0V.	0V.	0V.	0V.	1.6VDC	35VDC	6.2VAC	55VDC
11	6V6	0V.	0V.	180VDC	195VDC	-23VDC	0V.	6.2VAC	-30VDC
12	OD3/VR15C	0V.	0V.	150VDC	0V.	150VDC	36VDC	150VDC	0V.C
13	5Y3GT	225VDC	225VDC	0V.	300VAC	0V.	300VAC	0V.	225VDC

STAKEN 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	6SG7	0Ω	0Ω	0Ω	700KΩ	0Ω	100KΩ	.1Ω	70KΩ
2	6SA7	0Ω	.1Ω	70KΩ	100KΩ	22KΩ	220Ω	0Ω	4.5Ω
3	6J5	0Ω	.1Ω	110KΩ	INF.	22KΩ	70KΩ	0Ω	0Ω
4	6SG7	0Ω	0Ω	0Ω	600KΩ	0Ω	100KΩ	.1Ω	70KΩ
5	6SG7	0Ω	0Ω	0Ω	600KΩ	0Ω	170KΩ	.1Ω	70KΩ
6	6H6	0Ω	0Ω	170KΩ	0Ω	33KΩ	INF.	.1Ω	330Ω
7	6H6	0Ω	0Ω	68KΩ	800KΩ	340KΩ	INF.	.1Ω	800KΩ
8	6AC7	0Ω	0Ω	0Ω	470KΩ	0Ω	100KΩ	.1Ω	70KΩ
9	6SJ7	0Ω	0Ω	0Ω	47KΩ	1Ω	80KΩ	.1Ω	180KΩ
10	6SJ7	0Ω	0Ω	0Ω	500KΩ	2.2KΩ	580KΩ	.1Ω	210KΩ
11	6V6	0Ω	0Ω	70KΩ	70KΩ	470KΩ	INF.	.1Ω	1KΩ
12	OD3/VR15C	0Ω	0Ω	70KΩ	INF.	70KΩ	180KΩ	70KΩ	INF.
13	5Y3GT	70KΩ	70KΩ	INF.	120Ω	INF.	125Ω	INF.	70KΩ

- ** CWO SWITCH ON POSITION. REC.-SEND SWITCH IN RECEIVE.
 BAND SWITCH AT E. AVC-MVC SWITCH AT AVC POSITION.
 SELECTIVITY CONTROL OFF. LIMITER CONTROL FULL ON POSITION.
 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 ± 15% in voltage and resistance readings.
 6 - RF Gain, AF Gain and Tone Control at maximum, no signal applied for voltage measurements.

STAGE GAIN MEASUREMENTS

ANTENNA TO RF GRID	10X	600KC
RF GRID TO CONVERTER GRID	3X	600KC
CONVERTER GAIN	11X	IN 600KC OUT 453-457KC
INPUT IF	.25X	453-457KC
1st IF TUBE	130X	453-457KC
INTER. IF	.8X	453-457KC
2nd IF TUBE	80X	453-457KC
OUTPUT IF	.55X	453-457KC
AUDIO	35X	400 ~
OUTPUT	20X	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 by connecting negative (-) 3 volts to the AVC line. AVC-MVC switch on MVC position.