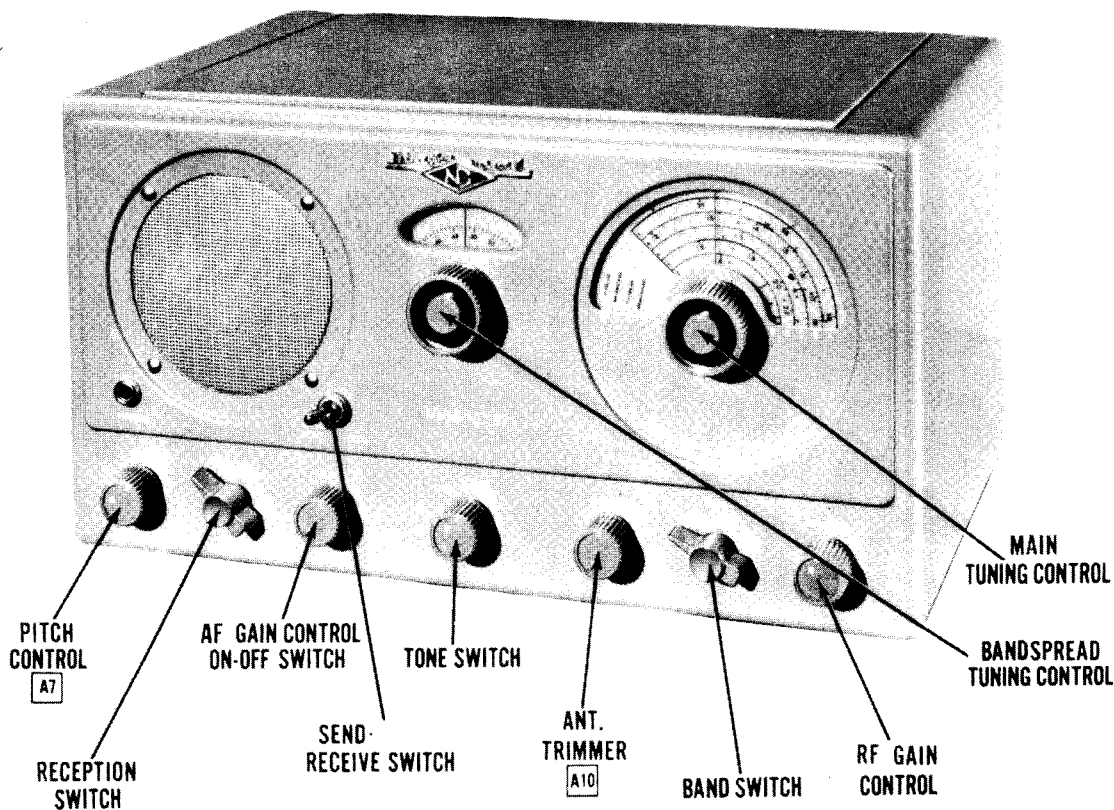


NATIONAL MODEL
NC-57



NATIONAL MODEL NC-57

NATIONAL MODEL
NC-57

TRADE NAME	National, Model NC-57
MANUFACTURER	National Co., Inc., 61 Sherman St., Malden, Mass.
TYPE SET	AC or Battery Operated Multi-Band Commercial Type Superheterodyne Receiver
TUBES (NINE)	Types, 6SG7 RF Amp., 6SB7Y Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6H6 Det.-AVC-ANL, 6SL7GT AF Amp.-BFO, 6V6GT Power Output, OD3/VR-150 Voltage Reg., 5Y3GT Rectifier.
POWER SUPPLY	105-130 Volts AC or 6.3 Volts & 250 Volts DC RATING .67 Amp. @ 117V AC
TUNING RANGE-BROADCAST	560-1550KC SHORT WAVE Band "A" 35.0-54.0MC, Band "B" 12.0-35.0MC, Band "C" 4.4-12.0MC, Band "D" 1.55-4.4MC

DISASSEMBLY INSTRUCTIONS

1. Remove the top and back piece of the cabinet by releasing the ten drive screws at the back which fasten the piece to the chassis and cabinet wrap around.
2. Remove the bottom cover of the receiver which is held in place by four drive screws.
3. Remove the four mounting feet at the bottom of the receiver. These feet are fastened by means of a screw and speed nut arrangement.
4. Unsolder the two loudspeaker leads to the output tube (6V6GT/G). A red lead is soldered to Pin 4 and a blue lead to Pin 3.
5. Remove all knobs from the front of the Receiver. All knobs, with the exception of the main tuning and bandspread tuning knobs, are mounted on flatted shafts by set screws. Replacing the knobs to their original position is assured by use of the flatted shafts.
6. Remove the retaining nuts on the control switch, BAND switch, bandspread tuning control, main tuning control and the SEND-REC switch.

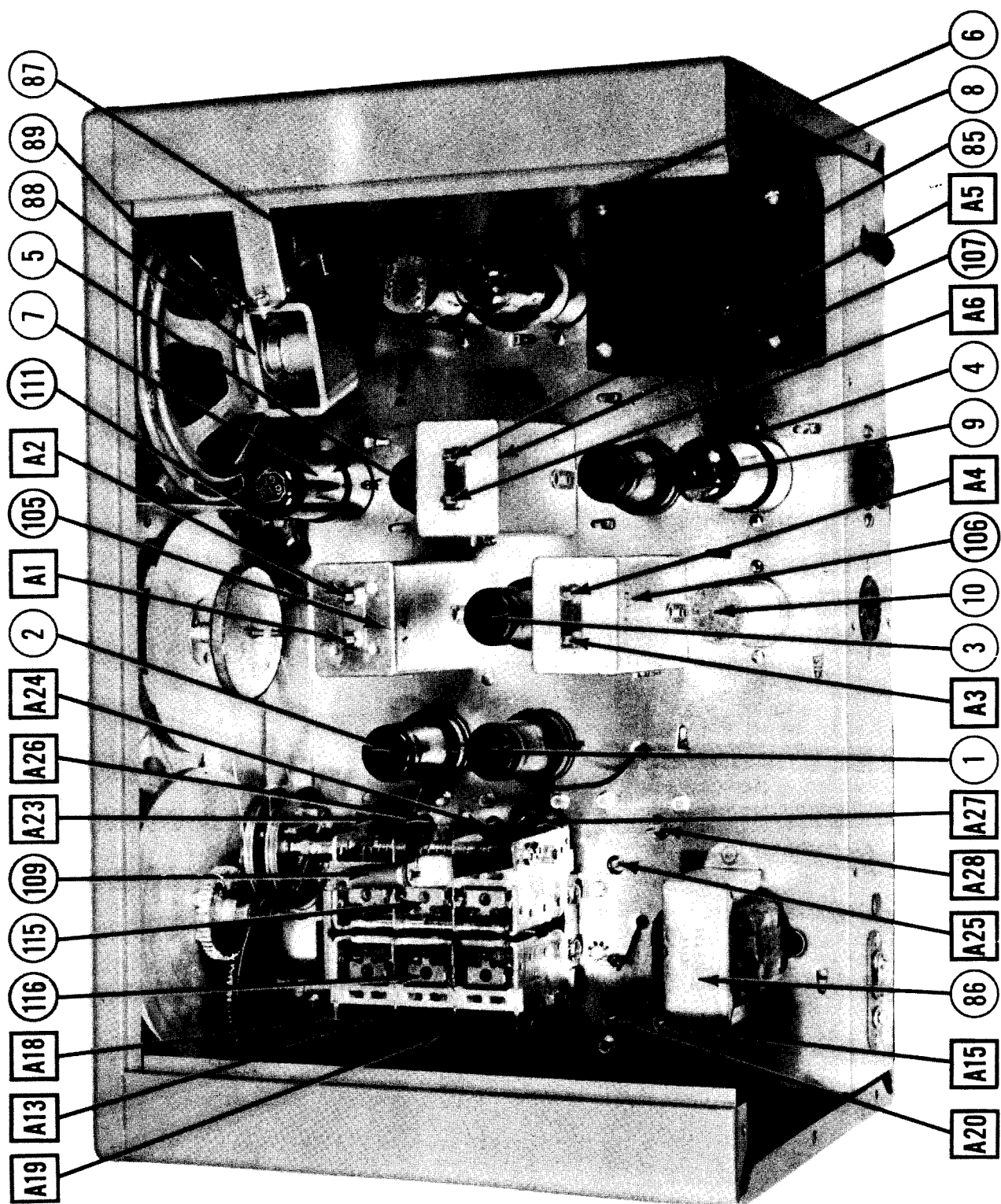
After completing the six steps above, the chassis can be withdrawn from the cabinet. Reassembly of the receiver can be accomplished by following the disassembly procedure in reverse order.

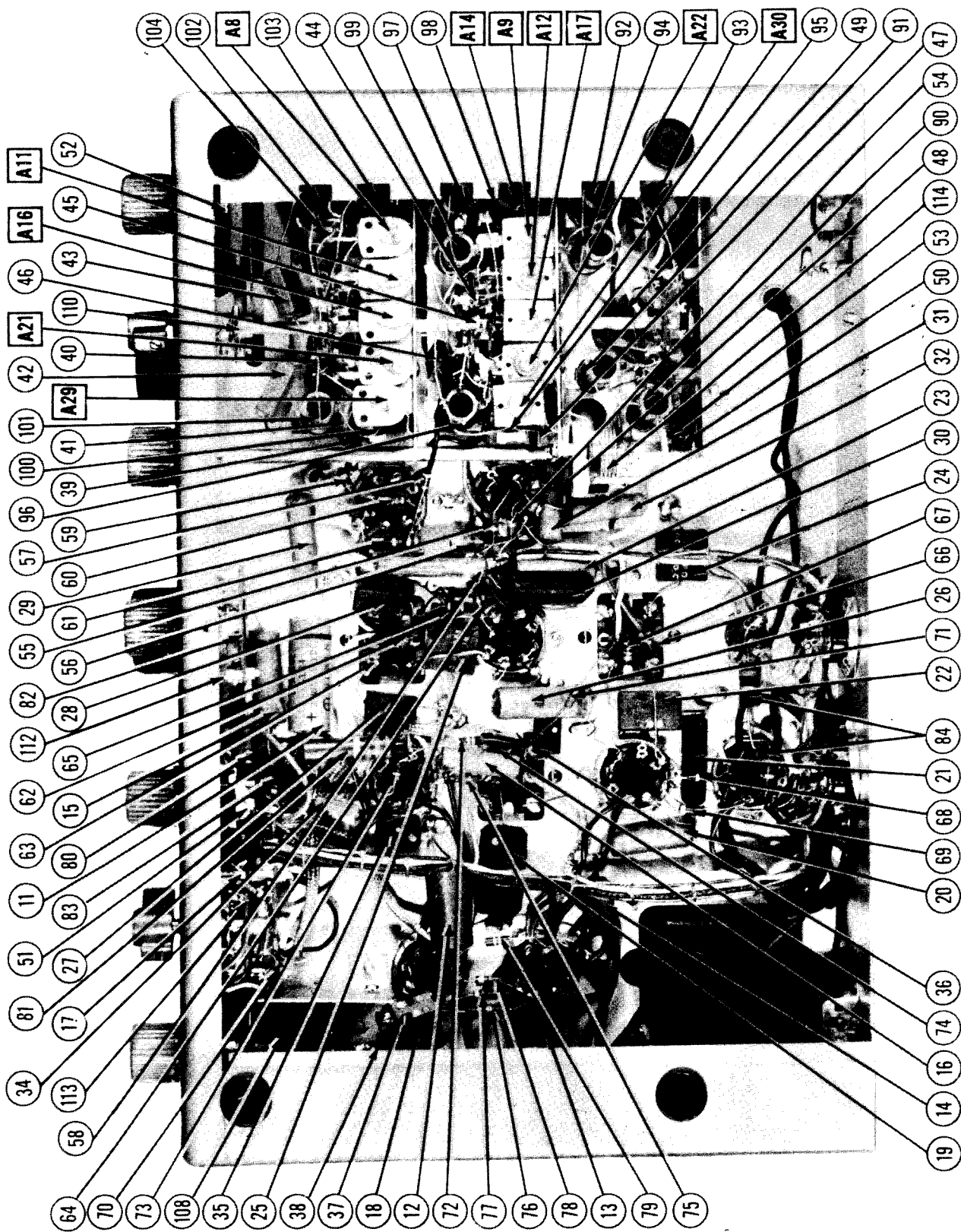
HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 7, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		NATIONAL PART No.	STANDARD REPLACEMENT	RNA BASE TYPE	
1	RF Amp.	68G7	68G7	8-K	
2	Converter	68F7Y	68F7Y	9-K	
3	1st IF Amp.	68G7	68G7	8BK	
4	2nd IF Amp.	68G7	68G7	8BK	
5	Det.-AVC-ANL	6H6	6H6	7Q	
6	AF Amp.-BFO	6SL7GT	6SL7GT	8BD	
7	Power Output	6V6GT	6V6GT	7AC	
8	Voltage Reg.	OD3/VR-150	OD3/VR-150	44J	
9	Rectifier	5Y3GT	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.	CORNUELL DUBILIER PART No.	SOLAR PART No.	
10A	10 450		AF22J	UP1145	DY-2X10-450	EL-210 A Filter
11	10 25	FRS50/25		BR255	M-25-50	Cathode Bypass
12	12 20	FRS25/25		BR202A	M-25-25	"
13	12 .01	634-01		DT4S1	TPH-6-01	Line Filter
14	14 .01	484-01		DT4S1	ST-4-01	Voltage Reg. Bypass
15	14 .01	484-01		DT4S1	ST-4-01	Tone Comp.
16	16 .01	484-01		DT4S1	ST-4-01	Audio Coupling
17	17 .01	634-01		DT4S1	ST-4-01	"
18	18 .01	484-01		DT4S1	ST-4-01	BFO Coupling
19	19 .01	484-01		DT4S1	ST-4-01	Limiting Filter
20	20 .01	484-01		DT4S1	ST-4-01	2nd IF Screen Bypass
21	21 .01	484-01		DT4S1	ST-4-01	AVC Filter
22	22 .01	484-01		DT4S1	ST-4-01	"
23	23 .01	634-01		DT4S1	ST-4-01	1st IF Plate Decoupling
24	24 .01	634-01		DT4S1	ST-4-01	1st IF Cathode Bypass
25	25 .01	634-01		DT4S1	ST-4-01	AVC Filter
26	26 .01	634-01		DT4S1	ST-4-01	"
27	27 .01	634-01		DT4S1	ST-4-01	1st IF Plate Decoupling
28	28 .01	634-01		DT4S1	ST-4-01	1st IF Cathode Bypass
29	29 .01	634-01		DT4S1	ST-4-01	AVC Filter
30	30 .01	484-01		DT4S1	ST-4-01	Conv. Plate Decoupling
31	31 .01	484-01		DT4S1	ST-4-01	RF Bypass
32	32 .01	484-01		DT4S1	ST-4-01	RF Screen Bypass
33	33 2200	1467-002		1WSD2	IM-5-22	Output Plate Bypass
34	34 1000	1467-001		1WSD1	IM-5-21	Audio Coupling
35	35 300	1468-003		SW5T3	M-5-33	AF Plate Bypass
36	36 100	1468-001		SW5T1	M-5-31	Diode RF Filter
37	37 270	1468-002		SW5T2	M-5-32	BFO Grid Cap.
38	38 220	1468-001		SW5T1	M-5-31	Fixed Tripler
39	39 100	1468-001		SW5T1	M-5-31	Osc. Grid Cap.
40	40 100	1468-001		SW5T1	M-5-31	Fixed Padder
41	41 510	1468-001		SW5T1	M-5-31	"
42	42 1300	1468-001		SW5T1	M-5-31	"
43	43 4300	1468-001		SW5T1	M-5-31	"
44	44 5	1468-00005		SW5V5	M-5-55	RF Coupling-Car.
45	45 5	1468-00005		SW5V5	M-5-55	"
46	46 100	1468-00005		SW5V5	M-5-55	Fixed Padder
47	47 1000	1467-001		1WSD1	IM-5-21	RF Plate Decoupling
48	48 100	1468-001		SW5T1	M-5-31	RF Coupling
49	49 100	1468-001		SW5T1	M-5-31	Fixed Padder
50	50 10000	1467-01		1D3S1	IM-3-11	AVC Filter

Note-Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		NATIONAL PART No.	IRC PART No.	CLAROSTAT PART No.	
51A	500K		D13-133	P-60-Z	AF Gain Control
51B	500K		A	Not Req.	A-tach to 51A per instructions.
52	10K		41	SW-A	"
53	10K		41	43-10M	RF Gain Control

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	REPLACEMENT DATA		
		NATIONAL PART No.	MEISSNER PART No.	DC RES.
90	Ant. Coil	E		2.5Ω
91	"	D		1Ω
92	"	C		1.5Ω
93	"	B		0Ω
94	"	A		0Ω
95	RF Coil	E		5.2Ω
96	"	D		26.2Ω
97	"	C		1.5Ω
98	"	B		0Ω
99	"	A		2.2Ω
100	Osc. Coil	E		0Ω
101	"	D		5Ω
102	"	C		0Ω
103	"	B		0Ω
104	"	A		0Ω
105	1st IF			2.2Ω
106	2nd IF			2Ω
107	3rd IF			2Ω
108	B.F. Osc. Coil			4.8Ω

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					NATIONAL PART No.	Type #47	
109	Rayonet	6-B	0.15	Brown			

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
110	Switch		Band
111	"		Send-Receive
112	"		Tone
113	"		Control
114	Var. Cap.		ALO
115	3 Gang Var. Cap.		Band Spread
116	"		Main Tuning

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	NATIONAL PART No.	IRC PART No.	
53	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
54	150K Ω			BTS-150K	Br.-Grn.-Yl. RF Grid
55	220 Ω			BTS-1000	Red-Red-Br. RF Cathode
56	1000 Ω			BTS-4700	Br.-Blk.-Red RF Screen
57	4700 Ω			BT-2-68K	Yl.-VI.-Red RF Plate Decoup.
58	68K Ω				Blue-Gray-Or. Voltage Dropping
59	33 Ω				Or.-Or.-Blk. Parasitic Suppressor
60	47K Ω			BTS-47K	Yl.-VI.-Or. Osc. Grid
61	3500 Ω			BTS-3500	Or.-White-Red Conv. Screen
62	1000 Ω			BTS-470K	Br.-Blk.-Red Conv. Plate Decoup.
63	470K Ω			BTS-470K	Yl.-VI.-Yl. AVC Network
64	1200 Ω			BTS-1200	Br.-Red-Red 1st IF Cathode
65	470K Ω			BTS-470K	Yl.-VI.-Yl. 1st IF Screen
66	1000 Ω			BTS-1000	Br.-Blk.-Red 1st IF Plate Decoup.
67	470K Ω			BTS-470K	Yl.-VI.-Yl. AVC Network
68	220 Ω			BTS-2200	Red-Red-Or. 2nd IF Cathode
69	2200 Ω			BTS-2200	Red-Red-Red 2nd IF Screen
70	2.2 Meg.			BTS-100K	Red-Red-Grn. AVC Network
71	100K Ω			BTS-220K	Br.-Blk.-Yl. Diode Load
72	220K Ω			BTS-1 Meg.	Red-Red-Yl. " "
73	1 Meg.			BTS-10K	Br.-Blk.-Grn. ANL Network
74	10K Ω			BTS-10K	Br.-Blk.-Grn. " "
75	1 Meg.			BTS-10K	Br.-Blk.-Or. CWO Osc. Plate
76	10K Ω			BTS-2700	Br.-Blk.-Or. CWO Osc. Grid
77	2700 Ω			BTS-100K	Red-VI.-Red AF Cathode
78	100K Ω			BTS-470K	Br.-Blk.-Yl. AF Plate Load
79	470K Ω			BW-2-350	Yl.-VI.-Yl. Output Grid
80	470K Ω			Or.-Or.-Br.	Output Cathode
81	330 Ω			Yl.-VI.-Red	Tone Comp.
82	4700 Ω			Red-Red-Or.	Output Trans. Primary Shunt
83	22K Ω				Voltage Dropping-See Note
84	3500 Ω	10		AB-4000	

Note-Some models use two 1800 Ω 2 W. resistor in series in this application.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	NATIONAL PART No.	STANCOR PART No.	MERIT PART No.
85	117V AC 620W CT 5.3V AC 6.8V AC @ .67A 1.1A DC @ 2.0A @ 2.35A			K-316	P-6335	T22R04

#Drill new mounting holes

FILTER CHOKE

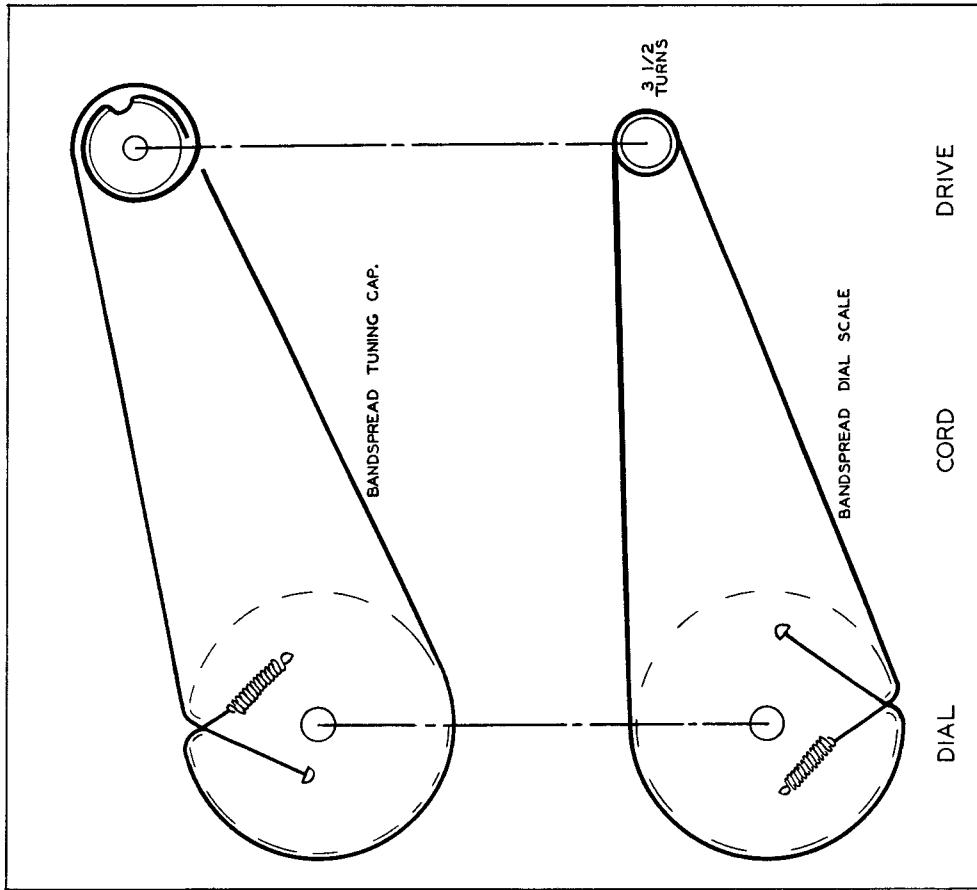
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (10 HENRIES)	NATIONAL PART No.	
86	.1 A.	255 Ω	8	K-317	

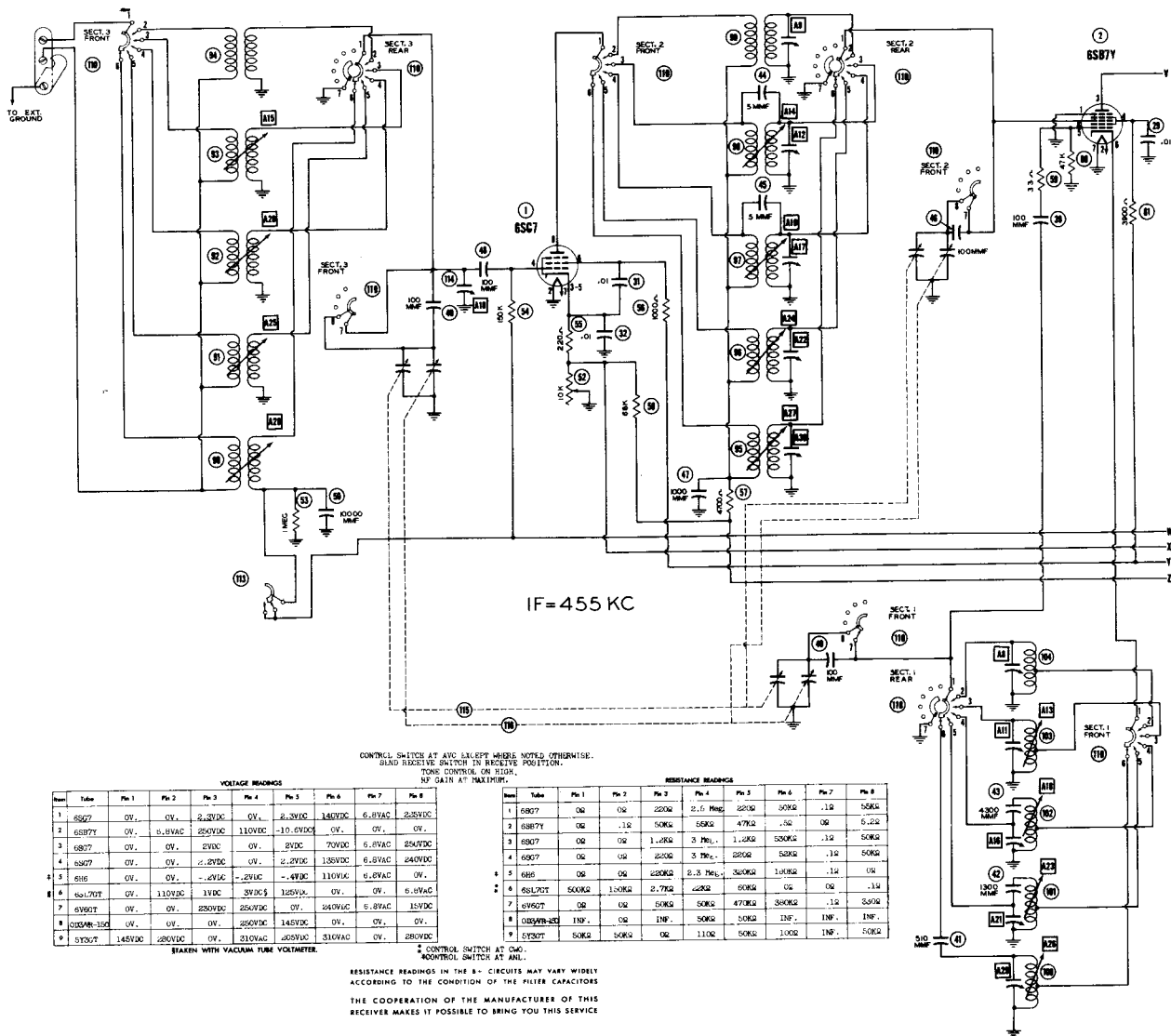
TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	PRI. SEC.	DC RES.	NATIONAL PART No.	STANCOR PART No.	MERIT PART No.
87	4000 Ω	3.4 Ω	600 Ω	NE-189	A-3850	T22846

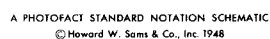
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PM	VC DIA.	NATIONAL PART No.	JENSEN PART No.	
88	4-5/8"	9/16"		ST-107	
89				Mod. PS-V	





1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 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 $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
Controls should be set as follow, except where otherwise noted: Bandsread dial to "Set", Control switch to "MVC", RF Gain at maximum, Tone switch to "High", & AF Gain at "Maximum". Attenuate output of sign. gen. to just obtain an output reading. Use an insulated alignment screwdriver for all adjustments. To set dial turn tuning cap. fully closed and loosen the set screw in coupling on tuning cap. shaft. Turn dial until last line at low frequency end of dial is under the pointer and tighten set screw.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 Direct	High side to center stator of tuning cap. Low side to chassis.	455KC	Band "E"	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4, A5, A6.	Adjust for maximum output.
2 "	"	455KC (Unmodulated)	"	"	"	A7	Control switch to "CWO". Loosen set screw on collar of "Pitch" control shaft, and remove knob and shaft from cabinet. Adjust A7 for zero beat thru hole in cabinet. Replace knob with white dot at midscale. Place collar with set screw directly opposite stop and tighten making certain that position of pitch control does not change from midscale.
3 300Ω carbon res.	High side to left ant. terminal. Low side to center ant. terminal with link disconnected.	54.0MC	Band "A"	54MC	"	A8	Adjust for maximum output. Tune sig. gen. to 53.1MC. If signal is not heard retune sig. gen. to 54MC and close A8 to next peak. Adjust for maximum output and recheck for image.
4 "	"	"	"	Tune for maximum output.	"	A9, A10	Rock tuning cap. and adjust for maximum output.
5 "	"	34.0MC	Band "B"	34MC	"	A11	Adjust for maximum output. Tune sig. gen. to 33.1MC. If signal is not heard, retune sig. gen. to 34MC and close A11 to next peak. Adjust for maximum output and recheck for image.
6 "	"	"	"	Tune for maximum output.	"	A12, A10	Rock tuning cap. and adjust for maximum output.
7 "	"	12.0MC	"	12MC	"	A13, A14, A15	Adjust for maximum output. Repeat Steps 5, 6 & 7 until no further improvement can be made.
8 "	"	"	Band "C"	"	"	A16	Adjust for maximum output. Tune sig. gen. to 12.9MC. If signal is not heard, retune sig. gen. to 12MC and open A16 to next peak. Adjust for maximum output and recheck for image.
9 "	"	"	"	Tune for maximum output.	"	A17, A10	Rock tuning cap. and adjust for maximum output.
10 "	"	4.4MC	"	4.4MC	"	A18, A19, A20	Adjust for maximum output. Repeat Steps 8, 9 and 10 until no further improvement can be made.
11 "	"	"	Band "D"	"	"	A21	Adjust for maximum output. Tune sig. gen. to 5.3MC. If signal is not heard, retune sig. gen. to 4.4MC and open A21 to next peak. Adjust for maximum output and recheck for image.
12 "	"	"	"	Tune for maximum output.	"	A22, A10	Rock tuning cap. and adjust for maximum output.
13 "	"	1.6MC	"	1.6MC	"	A23	Adjust for maximum output.
14 "	"	"	"	Tune for maximum output.	"	A24, A25	Bandsread dial to "Zero". Adjust A24 & A25 for maximum output. Return bandsread dial to "Set". Repeat Steps 11, 12, 13 & 14 until no further improvement can be made.
15 "	"	.6MC	Band "E"	.6MC	"	A26, A27, A28	Bandsread dial to "Zero". Adjust A26, A27 & A28 for maximum output. Return bandsread dial to "Set".
16 "	"	1.5MC	"	1.5MC	"	A29	Adjust for maximum output.
17 "	"	"	"	Tune for maximum output.	"	A30, A10	Rock tuning cap. and adjust for maximum output. Repeat Steps 15, 16 & 17 until no further improvement can be made.

STAGE GAIN MEASUREMENTS

ANTENNA TO RF GRID	2X	600KC
RF GRID TO CONVERTER GRID	5X	600KC
CONVERSION GAIN	14X	IN 600KC OUT 455KC
1st IF TRANSFORMER	.4X	455KC
1st IF TUBE	30X	455KC
2nd IF TRANSFORMER	.5X	455KC
2nd IF TUBE	150X	455KC
3rd IF TRANSFORMER	.7X	455KC
AUDIO	25X	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 by connecting negative (-) 3 volts to the AVC line.