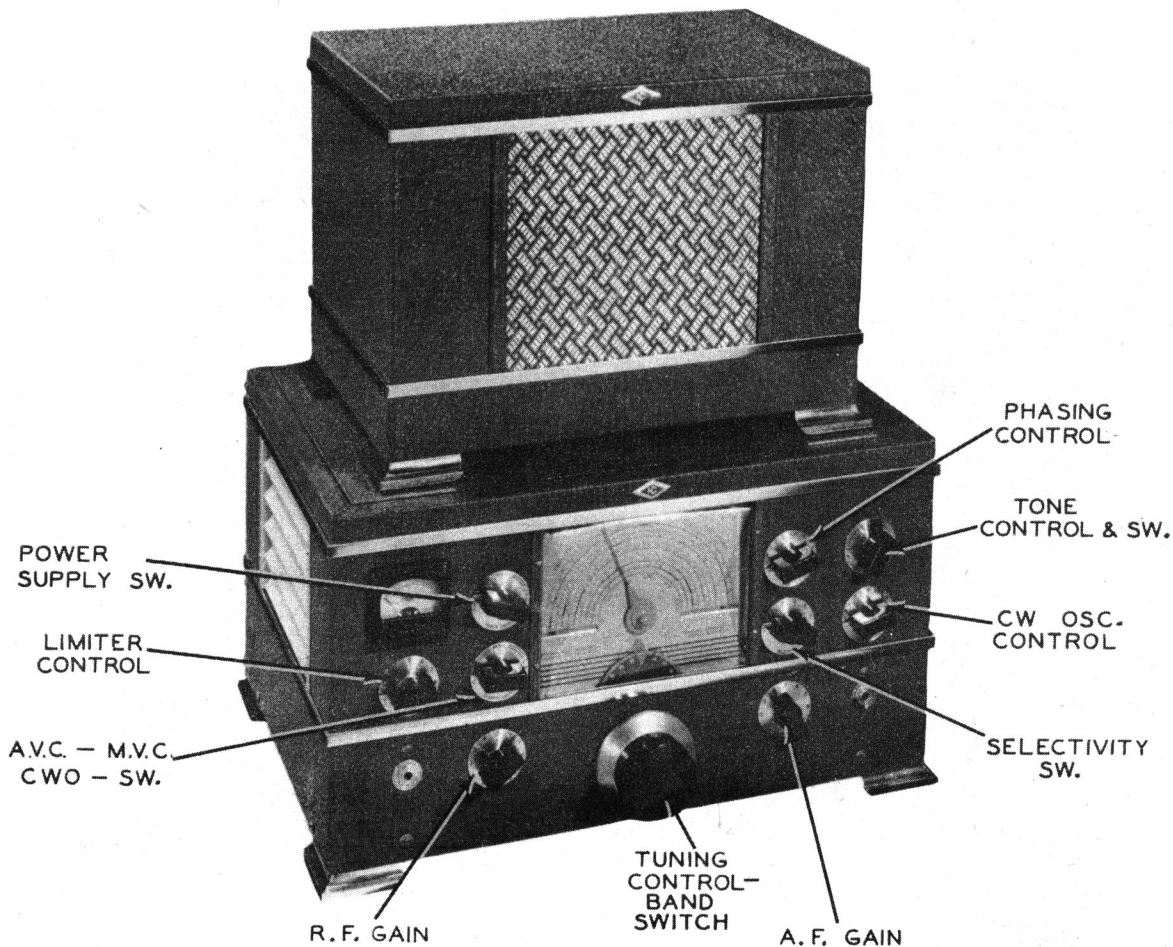


NATIONAL MODELS
NC-2-40DR, NC-2-40DT



NATIONAL MODELS
NC-2-40DR, NC-2-40DT

NATIONAL MODEL NC-2-40DR

TRADE NAME	National, Model NC-2-40DR, NC-2-40DT
MANUFACTURER	National Co., Inc., 61 Sherman St., Malden, Mass.
TYPE SET	AC Operated Communication Six Band Superheterodyne Receiver
TUBES (TWELVE) Types,	6SK7 RF Amp., 6K8 Mixer, 6J5 Osc., 6K7 1st IF Amp., 6SK7 2nd IF Amp., 6SL7GT 2nd Det.-Limiter, 6SJ7 CW-Osc., 6V6GT AVC, 6SN7GT AF-Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts or 220-240 Volts AC RATING .75 Amp. @ 117 Volts AC
TUNING RANGE	480-1040KC, 920-2100KC, 1.68-4.05MC, 3.4-4.05MC, 3.4-7.4MC, 6.9-7.35MC, 6.65-14.6MC, 13.8-14.46MC, 13.9-31MC, 26.9-30.05MC.

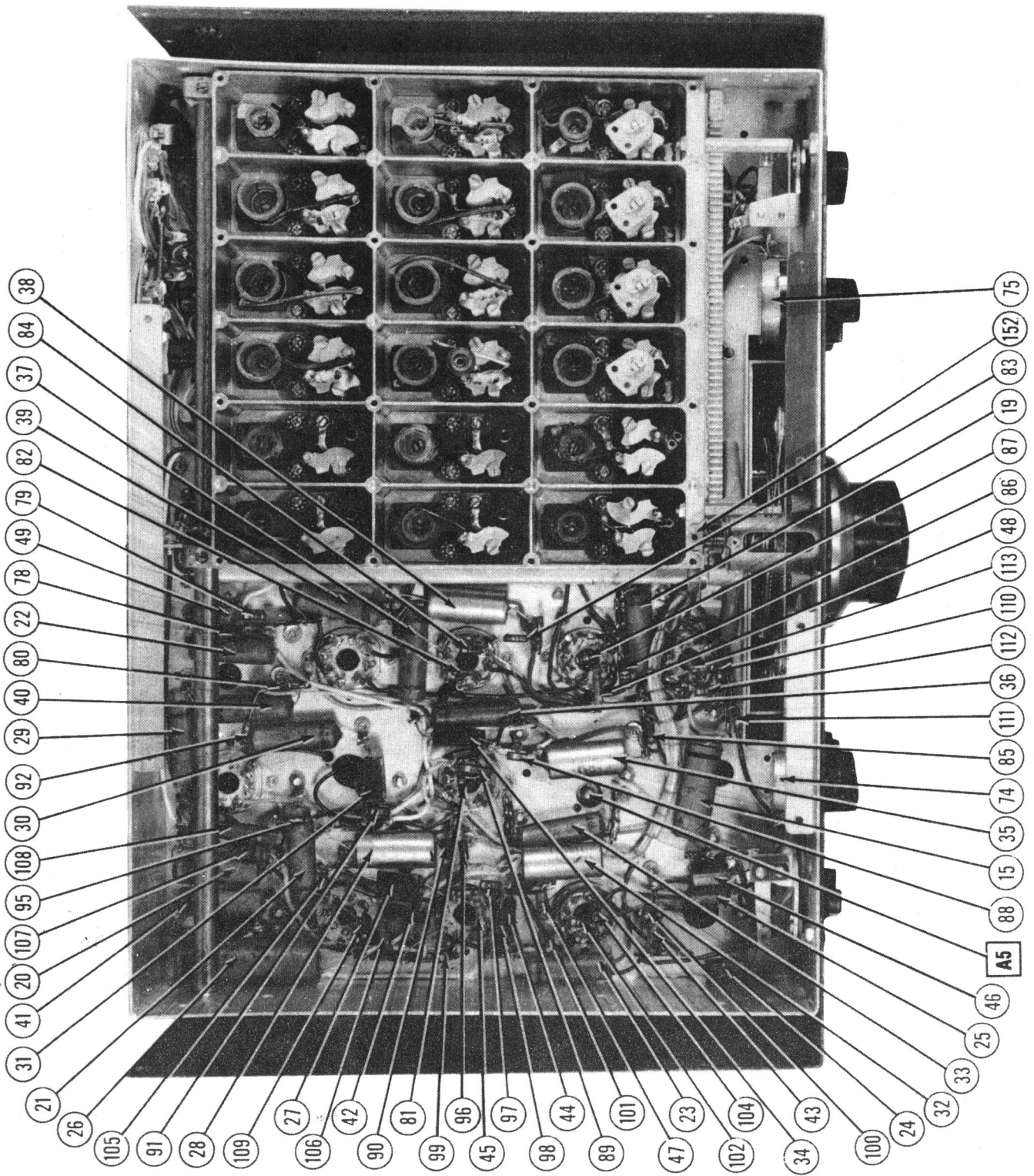
HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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DATE 5/48-#4811-16

SET #41-FOLDER #16



- 21
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- 105
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- 92
- 30
- 108
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- 31

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	TOTAL CURRENT	D. C. RESISTANCE	INDUCTANCE (0.000-0.7)	REPLACEMENT DATA			INSTALLATION NOTES
				NATIONAL PART No.	STANCOR PART No.	THORBARSON PART No.	
118	1.093A	280Ω	12.5 Henrys	C-2305*	T20054*	C-3153*	*Drill new mounting holes.
119	0.963A	280Ω	12.5 "	C-2305*	T20054*	C-3153*	*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMP. SEC.	DC RES.	NATIONAL PART No.	STANCOR PART No.	THORBARSON PART No.	MERT PART No.	
120	9600Ω	7.5Ω	480Ω	.42	A-3831	T-22856	A-2901

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	NATIONAL PART No.	JENSEN PART No.	QUAM PART No.				
121	FIELD	VC IMP.	ST-120	1046			
122	9-3/4"	7/8"	Mod. P10-S				

R F COILS

ITEM No.	USE	BAND	DC RES.		REPLACEMENT DATA	
			PRI.	SEC.	NATIONAL PART No.	MEISSNER PART No.
123	Ant. Coill	F	.7Ω	3.4Ω		
124	"	E	1.6Ω	.7Ω		
125	"	D	.6Ω	.3Ω		
126	"	C	.3Ω	.2Ω		
127	"	B	.2Ω	.2Ω		
128	"	A	.1Ω	.1Ω		
129	RF Coill	F	32.2Ω	2.9Ω		
130	"	E	14.4Ω	1.4Ω		
131	"	D	7.7Ω	.7Ω		
132	"	C	2.9Ω	.3Ω		
133	"	B	2.0Ω	.2Ω		
134	"	A	.2Ω	.1Ω		
135	Osc. Coill	F	1.2Ω	1.4Ω		
136	"	E	.7Ω	.7Ω		
137	"	D	.3Ω	.2Ω		
138	"	C	.2Ω	.2Ω		
139	"	B	.6Ω	.6Ω		
140	"	A	12.3Ω	9.5Ω		
141	Input IF	F	7.8Ω	7.8Ω		
142	Inter IF	F	7.8Ω	7.8Ω		
143	Output IF	F	7.8Ω	7.8Ω		
144	Osc. Trans	F	1.2Ω	1.2Ω		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					NATIONAL PART No.	QUAM PART No.	
145	SCREW	6-8	0.15	Brown	No. 40	Type 40	
146-147	Bayonet	6-8	0.15	"	No. 47	Type 47	

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
148	Switch		On-Off
149	"		B* On-Off
150	"		AVC-MVC-CMO
151	"		Selectivity
152	"		Band
153	Fuse		2 Amp.
154	"		1 Amp.
155	3 Gang Var. Cap		Line Voltage (110-120V to 220-240V)
156	Switch		

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		NATIONAL PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6X5	6X5	8N	
2	Mixer	6X6	6X6	6K	
3	1st IF	6X7	6X7	6Q	
4	2nd IF	6X7	6X7	7R	
5	2nd Det.-Lim	6SL7GT	6SL7GT	8N	
6	Ch Osc.	6SU7	6SU7	8BD	
7	AP Phase Inv.	6V6GT	6V6GT	7AC	
8	AP Phase Inv.	6SN7GT	6SN7GT	7AC	
9	Power Output	6V6GT	6V6GT	7AC	
10	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.	CORNELL-DUBILIER PART No.	
134	8 CAP.	DL-475-8-8	DY-228-450	EL-1	Filter-Red
135	8	GL450-40	DY-50-350	M8-8	-Red-White
14	40	FR550-10	M-10-50	EL-42	Bias Filter
15	10	684-1	ST-6-1	TA-510	Inverter Cathode Bypass
16	1	684-1	ST-6-1	TC-1	Power Supply Bypass
17	1	484-1	ST-4-1	TC-1	Audio Coupling
18	1	484-1	ST-4-1	TC-1	"
19	1	484-1	ST-4-1	TC-1	Bias Network
20	1	484-1	ST-4-1	TC-1	AVC Filter
21	1	484-1	ST-4-1	TC-1	Ch Osc.
22	1	484-1	ST-4-1	TC-1	Screen Bypass
23	1	484-1	ST-4-1	TC-1	Audio Coupling
24	1	484-1	ST-4-1	TC-1	Tone Comp.
25	1	484-1	ST-4-1	TC-1	Det. IF Plate Bypass
26	1	484-1	ST-4-1	TC-1	2nd IF Plate Decoupl.
27	1	484-1	ST-4-1	TC-1	Screen Bypass
28	1	484-1	ST-4-1	TC-1	2nd IF Cathode Bypass
29	1	484-1	ST-4-1	TC-1	AVC Filter
30	1	484-1	ST-4-1	TC-1	1st IF Plate Decoupl.
31	1	484-1	ST-4-1	TC-1	1st IF Cathode Bypass
32	1	484-1	ST-4-1	TC-1	AVC Filter
33	1	484-1	ST-4-1	TC-1	Conv. Plate Decoupl.
34	1	484-1	ST-4-1	TC-1	Conv. Screen Bypass
35	1	484-1	ST-4-1	TC-1	Conv. Cathode Bypass
36	1	484-1	ST-4-1	TC-1	RF Plate Decoupling
37	1	484-1	ST-4-1	TC-1	Screen Bypass
38	1	484-1	ST-4-1	TC-1	RF Cathode Bypass
39	1	484-1	ST-4-1	TC-1	RF Bypass
40	1	484-1	ST-4-1	TC-1	AVC Filter
41	1	1463-001	M4-5-21	1M-21	AVC Filter
42	1000	1467-0025	M0.5-25	1M-25	AVC Bypass-Cer.
43	250	1487-001	M0.5-25	1M-25	"
44	1000	1487-001	M0.5-25	1M-25	"
45	250	1469-001	M0.5-25	1M-25	"
46	1000	1469-001	M0.5-25	1M-25	"
47	250	1469-001	M0.5-25	1M-25	"
48	250	1469-001	M0.5-25	1M-25	"
49	5000	1467-005	M0.5-25	1M-25	Tone Comp. -Cer.
50	750	1467-005	M0.5-25	1M-25	Osc. Grid Cap. -Cer.
51	3000				AVC Filter
52	1700				"
53	900				"
54	1500				"
55	250				"
56	250				"
57	12				"
58	18				"
59	35				"
60	10				"
61	10				"
62	10				"
63	29				"
64	38				"

PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING	RESISTANCE	WATTS	CLAROSTAT PART No.	INSTALLATION NOTES
35	15.5	500			"B" " " " " " "
66	21	500			"C" " " " " " "
67	38.5	500			"D" " " " " " "
68	16	500			"A" " " " " " "
69	38	500			"A" " " " " " "
70	15.5	500			"B" " " " " " "
71	21	500			"C" " " " " " "
72	38.5	500			"D" " " " " " "
73	900	500			"A" " " " " " "

CONTROLS

ITEM No.	NATIONAL PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
74A	500KΩ	D13-133	R-60-Z	AF Gain Control Attach to 74A per instructions
75	10KΩ	A	Not Req.	RF Gain Control Limiter Control
76	10KΩ	D11-133	M-58-S	Tone Control Attach to 77A per instructions
77A	500KΩ	A	Not Req.	
78	500KΩ	41	SW-A	

RESISTORS

ITEM No.	REPLACEMENT DATA		IRC PART No.	IDENTIFICATION CODES
	RATING	NATIONAL PART No.		
78	1.5 Meg.		BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network
79	470KΩ		BTS-470K	Y1.-VI.-Y1. AVC Network
80	470Ω		BTS-470	Y1.-VI.-Br. AVC Cathode
81	47KΩ		BTS-47K	Y1.-VI.-Or. Voltage Dropping
82	220Ω		BW-2-220	Red-Red-Br. Converter Cathode
83	47KΩ		BTS-47K	Y1.-VI.-Or. Converter Screen Dropping
84	100KΩ		BTS-100K	Br.-Blk.-Y1. Bleeder
85	2200Ω		BTS-2200	Red-Red-Red Decoupling
86	47KΩ		BTA-47K	Y1.-VI.-Or. Voltage Dropping
87	47KΩ		BTA-47K	Y1.-VI.-Or. Converter Grid
88	22KΩ		BTS-22K	Aed-Red-Or. AVC Network
89	1500Ω		BTS-2200	Br.-Grn.-Red 1st IF Cathode-See Note
90	470KΩ		BTS-470K	Red-Red-Red 1st IF Decoupling
91	470KΩ		BTS-470K	Y1.-VI.-Y1. AVC Network
92	1000Ω		BTS-1000	Br.-Blk.-Red 2nd IF Cathode-See Note
93	22KΩ		BTS-22K	Red-Red-Or. Bleeder
94	22KΩ		BTS-22K	Red-Red-Or. Voltage Dropping
95	1000Ω		BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
96	2200Ω		BTS-2200	Red-Red-Red Detector Cathode
97	4700Ω		BTS-4700	Y1.-VI.-Red Detector Cathode
98	22KΩ		BTS-22K	Red-Red-Or. Detector Output Load
99	100KΩ		BTS-100K	Br.-Blk.-Y1. Limiter Cathode
100	47KΩ		BTS-47K	Y1.-VI.-Or. Limiter Grid
101	220KΩ		BTS-220K	Red-Red-Y1. BFO Plate Load
102	100KΩ		BTS-100K	Br.-Blk.-Y1. BFO Screen Dropping
103	220Ω		BW-2-220	Red-Red-Br. Output Cathode
104	100KΩ		BTS-100K	Br.-Blk.-Y1. Bleeder
105	470KΩ		BTS-470K	Y1.-VI.-Y1. AVC Network
106	15KΩ		BTS-15K	Br.-Grn.-Or. " "
107	2700Ω		BT-2-2700	Red-VI.-Red Bias Network
108	820Ω		BT-2-820	Gray-Red-Br. " "
109	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. " "
110	47KΩ		BTS-47K	Y1.-VI.-Or. AF Plate Load
111	1000Ω		BTS-1000	Br.-Blk.-Red AF Cathode
112	470KΩ		BTS-47K	Y1.-VI.-Or. Phase Inverter Plate Load
113	470KΩ		BTS-47K	Y1.-VI.-Or. Phase Inverter Grid
114	220KΩ		BTS-220K	Red-Red-Y1. Output Grid
115	220KΩ		BTS-220K	Red-Red-Y1. " "
116	220KΩ		BTS-220K	Red-Red-Y1. " "

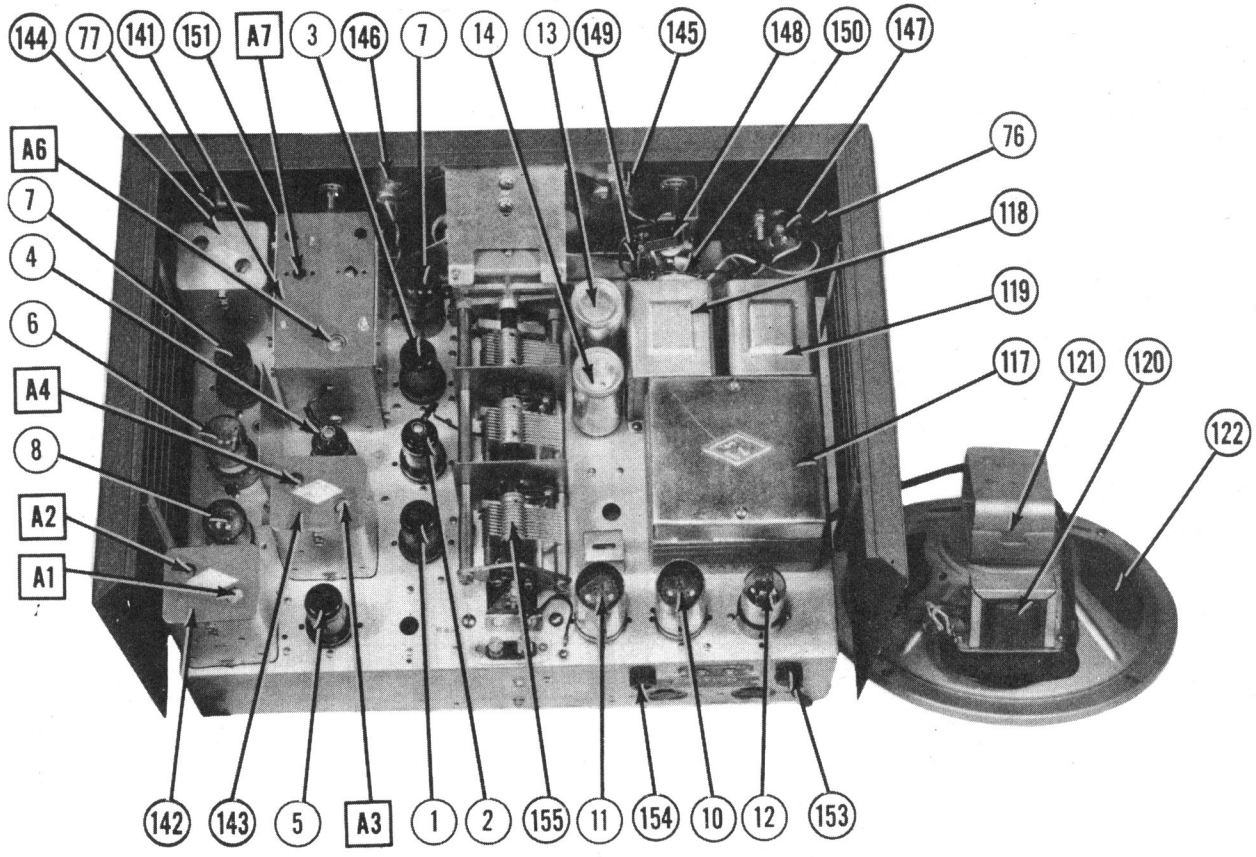
Note—This resistor is selected individually for each receiver and should be replaced according to the value used.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	NATIONAL PART No.	STANCOR PART No.	THORNDARSON PART No.
117	117V AC @ .75A	800V CT @ .093A	5.0V AC @ 2.0A		P-6185F	

#This replacement for 117V AC only.

CHASSIS—TOP VIEW



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SK7	0V.	64VAC	2.2VDC	0V.	2.2VDC	60VDC	0V.	200VDC	-
2	6K8	0V.	0V.	197VDC	47VDC	-8VDC§	0V.	6.4VAC	.5VDC	0V.
3	6J5	0V.	0V.	72VDC	117VDC	-8VDC§	0V.	6.4VAC	0V.	-
4	6K7	0V.	0V.	190VDC	60VDC	3.2VDC	0V.	6.4VAC	3.2VDC	0V.
5	6SK7	0V.	0V.	3VDC	0V.	3VDC	60VDC	6.4VAC	190VDC	-
6	6SL7GT	-52VDC	200VDC	-47VDC	-.2VDC	0V.	.3VDC	6.4VAC	0V.	-
7	6SJ7	0V.	0V.	0V.	-3VDC§	0V.	15VDC	6.4VAC	50VDC	-
8	6V6GT	0V.	0V.	0V.	0V.	-25VDC	0V.	6.4VAC	-35VDC	-
9	6SN7GT	0V.	110VDC	4VDC	0V.	90VDC	4VDC	6.4VAC	0V.	-
10	6V6GT	0V.	0V.	182VDC	190VDC	-60VDC§	0V.	6.4VAC	-48VDC	-
11	6V6GT	0V.	0V.	182VDC	190VDC	-60VDC§	-5.5VDC	6.4VAC	-48VDC	-
12	5Y3GT	0V.	240VDC	0V.	400VAC	0V.	400VAC	0V.	240VDC	-

§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	Cap
1	6SK7	0Ω	.1Ω	470Ω	1 Meg.	470Ω	13KΩ	0Ω	30KΩ	-
2	6K8	0Ω	0Ω	32KΩ	50KΩ	47KΩ	0Ω	.1Ω	240Ω	1.4Ω
3	6J5	0Ω	0Ω	80KΩ	80KΩ	47KΩ	INF.	.1Ω	0Ω	-
4	6K7	0Ω	0Ω	32KΩ	13KΩ	1.5KΩ	0Ω	.1Ω	1.5KΩ	520KΩ
5	6SK7	0Ω	0Ω	1KΩ	1 Meg.	1KΩ	13KΩ	.1Ω	31KΩ	-
6	6SL7GT	3KΩ	30KΩ	30KΩ	47KΩ	0Ω	100KΩ	.1Ω	0Ω	-
7	6SJ7	0Ω	0Ω	0Ω	47KΩ	.2Ω	85KΩ	.1Ω	110KΩ	-
8	6V6GT	0Ω	0Ω	15KΩ	0Ω	1.2 Meg.	15KΩ	.1Ω	2.7KΩ	-
9	6SN7GT	500KΩ	80KΩ	1KΩ	470KΩ	80KΩ	1KΩ	.1Ω	0Ω	-
10	6V6GT	0Ω	0Ω	30KΩ	30KΩ	480KΩ	INF.	.1Ω	2.9KΩ	-
11	6V6GT	0Ω	0Ω	30KΩ	30KΩ	480KΩ	250KΩ	.1Ω	2.9KΩ	-
12	5Y3GT	INF.	30KΩ	INF.	3KΩ	INF.	3KΩ	INF.	30KΩ	-

LIMITER CONTROL ON FULL, RF GAIN ON FULL, B+ ON, AF GAIN ON FULL, SELECTIVITY AT #5, TONE CONTROL AT LOW.

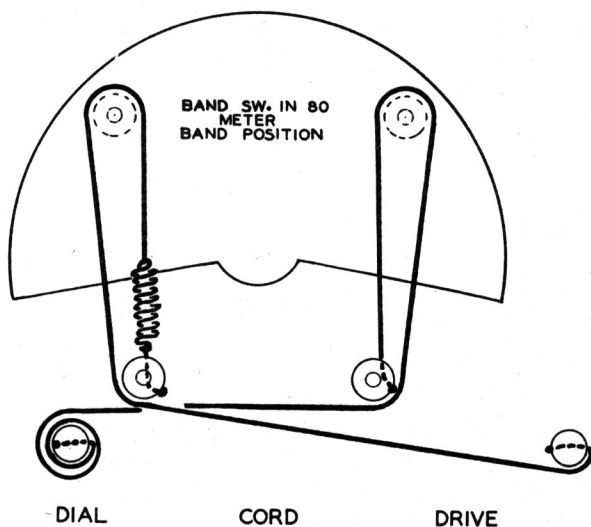
TUBES 10, 11 & 12, VOLTAGE AND RESISTANCE READINGS TAKEN IN 10 METER BAND.

*AVC-MVC-CWO SWITCH IN CWO POSITION.

TUBES 1 through 9, VOLTAGE AND RESISTANCE READINGS TAKEN IN BAND E.

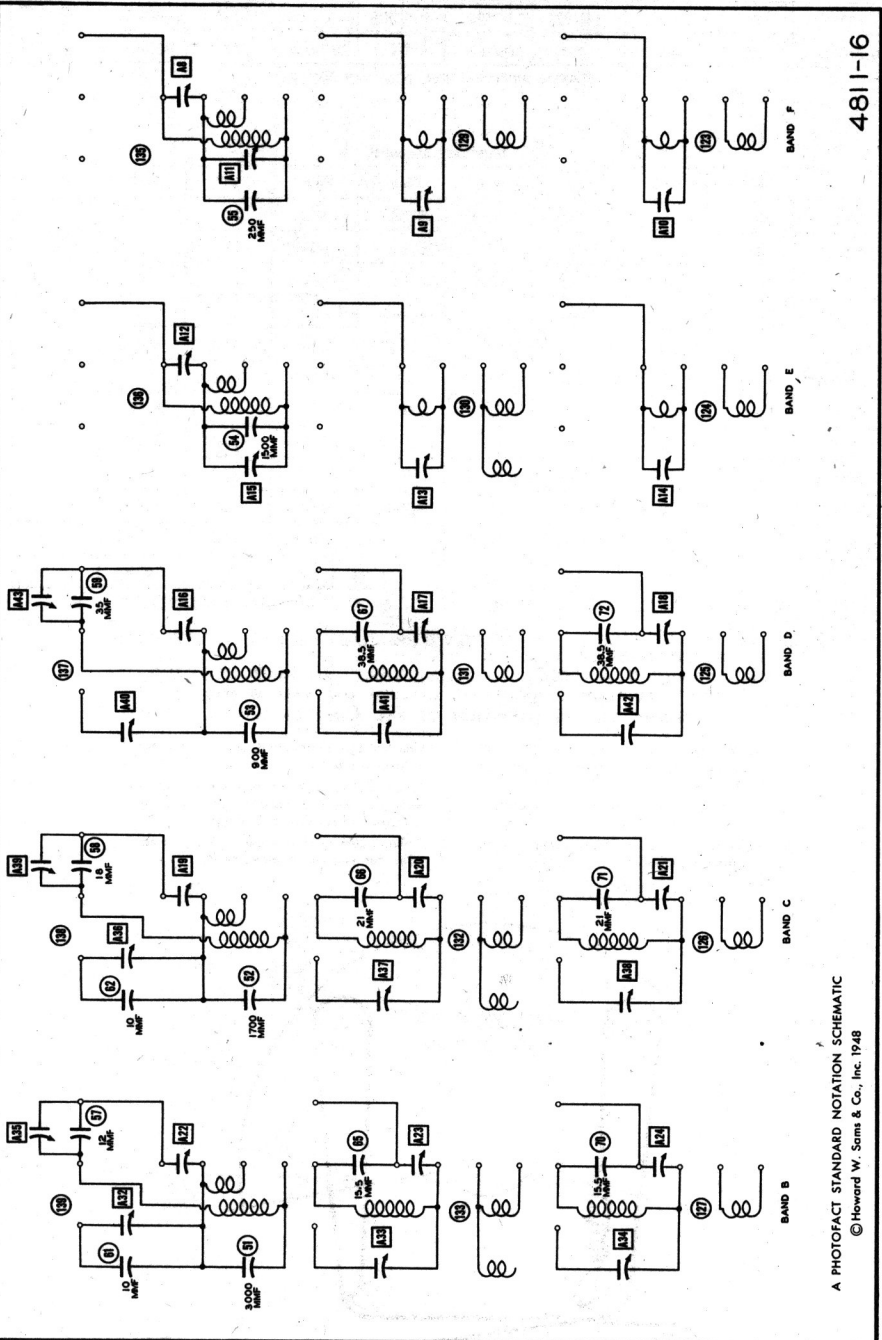
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 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 RF GRID	14X	600KC
RF GRID TO CONV. GRID	1.5X	600KC
CONVERSION GAIN	25X	IN 600KC OUT 455KC ± 2%
1st IF TRANSFORMER	.1X	455KC ± 2%
1st IF TUBE	100X	455KC ± 2%
2nd IF TRANSFORMER	.6X	455KC ± 2%
2nd IF TUBE	45X	455KC ± 2%
3rd IF TRANSFORMER	.3X	455KC ± 2%
AUDIO	30X	400 ~
OUTPUT	20X	400 ~



4811-16

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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The stage gain measured values listed above 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.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

RMA Dummy consists of 200 MF_{FD} cap. in series with 20 microhenry choke with choke shunted by 400 MF_{FD} cap. in series with 400Ω carbon resistor.
 Use 400 V amp. modulated signal in all Steps of RF Alignment.
 In Steps 4, 7, 10, 12, 14 and 16 it is necessary for correct alignment that the oscillator work above the incoming signal. To check this tune signal generator 910KC above the dial reading of receiver. If image signal is not heard, return signal generator to original frequency and open oscillator trimmer to next peak. Adjust for maximum output and recheck for image.
 RF Gain control and AF Gain control should be at maximum (setting at 10) and output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for all adjustments.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 Direct	High side to grid cap. 6K9. Low side to chassis.	Tune for maximum output between 453 & 457KC (unmodulated signal)	F	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4, A5.	Limiter control should be set at "0" power. Control switch to "B+ ON". RF gain control to "10", AF gain control to "10", selectivity control to "5", phasing control to "0", tuning control to "0". Adjust C ₁₀ control to note about 400 V. After sig. gen. is tuned to maximum output, adjust A1, A2, A3, A4 & A5 for maximum output. Use minimum signal input in order to avoid overloading.
2 Direct	See Remarks.					A6	Set selectivity switch to "1". Detune signal gen. 3 or 4 KC. Adjust A6 for maximum output. Retune sig. gen. for maximum output. (Setting of Step 1).
3 Direct						A7	Set selectivity switch to "Off". Tune for maximum output and adjust A7 for maximum output. Turn phasing control to 0, selectivity switch to "5" and tune sig. gen. for maximum output. Note meter reading. Turn selectivity switch to "Off". Meter reading should decrease slightly. If an increase is noted Steps 1, 2 & 3 should be repeated as this is an indication of improper IF adjustment.
4 RMA Dummy	High side to ext. ant. post. Low side to chassis. (400Ω Amp. mod.)	1.0MC		1.0MC		A8	Set control switch "MVC" to "Off". Adjust A8 for maximum output. Check for image per prealignment instructions.
5				Tune for maximum output.		A9, A10	Adjust for maximum output
6		500KC		500KC		A11	Adjust for maximum output. Repeat Steps 4, 5 & 6 until no further improvement can be made.
7		2.0MC	E	2.0MC		A12	Adjust for maximum output. Check for image per prealignment instructions.
8				Tune for maximum output.		A13, A14	Adjust for maximum output
9		1.0MC		1.0MC		A15	Adjust for maximum output. Repeat Steps 7, 8 & 9 until no further improvement can be made.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO SETTING	OUTPUT METER	ADJUST	REMARKS
10	"	4.0MC	D	4.0MC	"	A16	Adjust for maximum output. Check for image per prealignment instructions.
11	"	"	"	Tune for maximum output.	"	A17, A18	Adjust for maximum output
12	"	7.2MC	C	7.2MC	"	A19	Adjust for maximum output. Check for image per prealignment notes.
13	"	"	"	Tune for maximum output.	"	A20, A21	Rock tuning cap. and adjust for maximum output.
14	"	14.0MC	B	14.0MC	"	A22	Adjust for maximum output. Check for image per prealignment notes.
15	"	"	"	Tune for maximum output.	"	A23, A24	Rock tuning cap. and adjust for maximum output.
16	"	30.0MC	A	30.0MC	"	A25	Adjust for maximum output. Check for image per prealignment notes.
17	"	"	"	Tune for maximum output.	"	A26, A27	Rock tuning cap. and adjust for maximum output.
18	"	50.0MC	"10" Meter Band-spread	30.0MC	"	A28	Adjust for maximum output. Check for image per prealignment notes.
19	"	"	"	Tune for maximum output.	"	A29, A30	Rock tuning cap. and adjust for maximum output.
20	"	27.0MC	"	27.0MC	"	A31	Adjust for maximum. Repeat Steps 19, 19 & 20 until no further improvement can be made.
21	"	14.4MC	"20" Meter Band-spread	14.4MC	"	A32	Adjust for maximum output. Check for image per prealignment notes.
22	"	14.4MC	"	Tune for maximum output.	"	A33, A34	Rock tuning cap. and adjust for maximum output.
23	"	14.0MC	"	14.0MC	"	A35	Adjust for maximum output. Repeat Steps 21, 22 & 23 until no further improvement can be made.
24	"	7.3MC	"40" meter band-spread	7.3MC	"	A36	Adjust for maximum output. Check for image per prealignment notes.
25	"	7.3MC	"	Tune for maximum output.	"	A37, A38	Rock tuning cap. and adjust for maximum output.
26	"	7.0MC	"	7.0MC	"	A39	Adjust for maximum output. Repeat Steps 24, 25 & 26 until no further improvement can be made.
27	"	4.0MC	"50" meter band-spread	4.0MC	"	A40	Adjust for maximum output. Check for image per prealignment notes.
28	"	"	"	Tune for maximum output.	"	A41, A42	Rock tuning cap. and adjust for maximum output.
29	"	3.5MC	"	3.5MC	"	A43	Adjust for maximum output. Repeat Steps 27, 28 & 29 until no further improvement can be made.