

FREED-EISEMANN, MODEL NO. 46

TRADE NAME	Freed-Eisemann Model No. 46
MANUFACTURER	Freed Radio Corp., 200 Hudson Street, New York, N.Y.
TYPE SET	AC Operated Multiband Superheterodyne Receiver for AM & FM Operation with Automatic Phonograph.
TUBES (TWENTY)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SL7GT Det.-AVC-AF, 6J5GT Bass Amp., 6J5GT AF Amp.-Phase Inv., (2) 6Y6GT Power Output, 5U4G Rectifier, 6AG5 RF Amp., 6AG5 1st Converter, 6AG5 HF Osc., 6SA7 SW Osc.-2nd Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SH7 1st Limiter, 6SH7 2nd Limiter, 6H6 Discriminator, 6J5GT Noise Suppressor, 6U5 Tuning Indicator.
POWER SUPPLY	105-125 Volts AC
RATING	1.3 Amp. @ 117 Volts AC
FREQUENCY RANGES	STANDARD BROADCAST 540 - 1600 KC SHORT WAVE (BAND #1) 12 - 17.5 MC SHORT WAVE (BAND #2) 6.2 - 9.9 MC FREQUENCY MODULATION 88 - 108 MC

HOWARD W. SAMS & CO., INC.

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PARTS LIST AND DESCRIPTIONS

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.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PLACEMENT	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	6N	
2	Converter	6SK7	6SK7	6N	
3	IF Amp.	6SK7	6SK7	6N	
4	Det.-AVC-AP	6SL7GT	6SL7GT	6BD	
5	Base Amp.	6SL7GT	6SL7GT	6Q	
6	AF Amp-Phase Inv.	6SL7GT	6SL7GT	6Q	
7	Power Output	6SL7GT	6SL7GT	7AC	
8	Power Output	6SL7GT	6SL7GT	7AC	
9	Rectifier	5Y4G	5Y4G	5T	
10	RF Amp.	6AG5	6AG5	7BD	
11	1st Converter	6AG5	6AG5	7BD	
12	HF Osc.	6AG5	6AG5	7BD	
13	6.4 MC Osc.-2nd Converter	6SA7	6SA7	8R	
14	1st IF amp.	6SG7	6SG7	8BK	
15	2nd IF amp.	6SG7	6SG7	8BK	
16	1st Limiter	6SH7	6SH7	8BK	
17	2nd Limiter	6SH7	6SH7	8BK	
18	Discriminator	6HG	6HG	7Q	
19	Noise Suppressor	5Y5GT	5Y5GT	6Q	
20	Tuning Indicator	6Y5	6Y5	6R	

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		EXTENSION PART No.	REPLACEMENT DATA			CORNELL SUBSTITUTION PART No.	MALLERY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	Cap.	VOLT		SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.			
21	8	450	W-8-450	UT-8	PR5450-8	BR945	TC-71	Filter	
22	40	450	W-8-450	UT-8	AF4444-8	UF95439	PR536	Filter	
23	40	450	W-8-450	UT-8	PR5450-8	BR945	TC-71	Filter	
24	40	450	W-8-450	UT-8	PR5450-8	BR945	TC-71	Filter	
25	80	450	W-8-450	UT-8	PR5450-8	BR945	TC-71	Filter	
26	25	50	W-25-50	TA-525	PR550-25	BR525	TC-36	Output Cath. bypass	
27	25	50	W-25-50	TA-525	PR550-25	BR525	TC-36	Audio Cath. bypass	
28	25	50	W-25-50	TA-525	PR550-25	BR525	TC-36	Filter	
29	25	50	W-25-50	TA-525	PR550-25	BR525	TC-36	1st Audio Cath. bypass	
30	36	500	W-36-500	TC-15	484-36	D7436	TC-426	Line Filter	
31	36	500	W-36-500	TC-15	484-36	D7436	TC-426	Speaker Crossover	
32	36	500	W-36-500	TC-15	484-36	D7436	TC-426	Audio Coupling	
33	36	500	W-36-500	TC-15	484-36	D7436	TC-426	Tone Compensation	
34	5	200	W-5-200	AP-50	484-5	D7436	TC-408	"	
35	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
36	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
37	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
38	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
39	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
40	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
41	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
42	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
43	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
44	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
45	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
46	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
47	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
48	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
49	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
50	36	500	W-36-500	TC-15	484-36	D7436	TC-426	"	
51	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
52	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
53	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
54	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
55	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
56	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
57	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
58	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
59	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
60	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
61	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
62	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
63	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
64	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
65	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
66	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
67	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
68	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
69	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
70	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
71	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
72	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
73	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
74	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
75	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
76	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
77	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
78	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
79	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
80	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
81	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
82	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
83	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
84	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
85	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
86	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
87	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
88	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
89	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
90	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
91	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
92	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
93	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
94	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
95	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
96	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
97	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
98	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
99	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	
100	2000	500	W-2000-500	TC-15	484-36	D7436	TC-426	"	

CONTROLS

Parallel 2-20 MFD. sections to obtain 40 MFD.

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST. ANCE	WATTS	FUSED ELEMENT	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
97A	500W	1	RVC-11	ME31	D19-133X	T-80	Volume Control.
97B	500W	1	RVC-11	ME31	Not Req.	Not Req.	Attach to #4 per instructions
98A	500W	1	RVC-11	ME31	D11-116	M-27-S	Pass Control.
98B	500W	1	RVC-11	ME31	Not Req.	Not Req.	Attach to 98A per instructions

RESISTORS

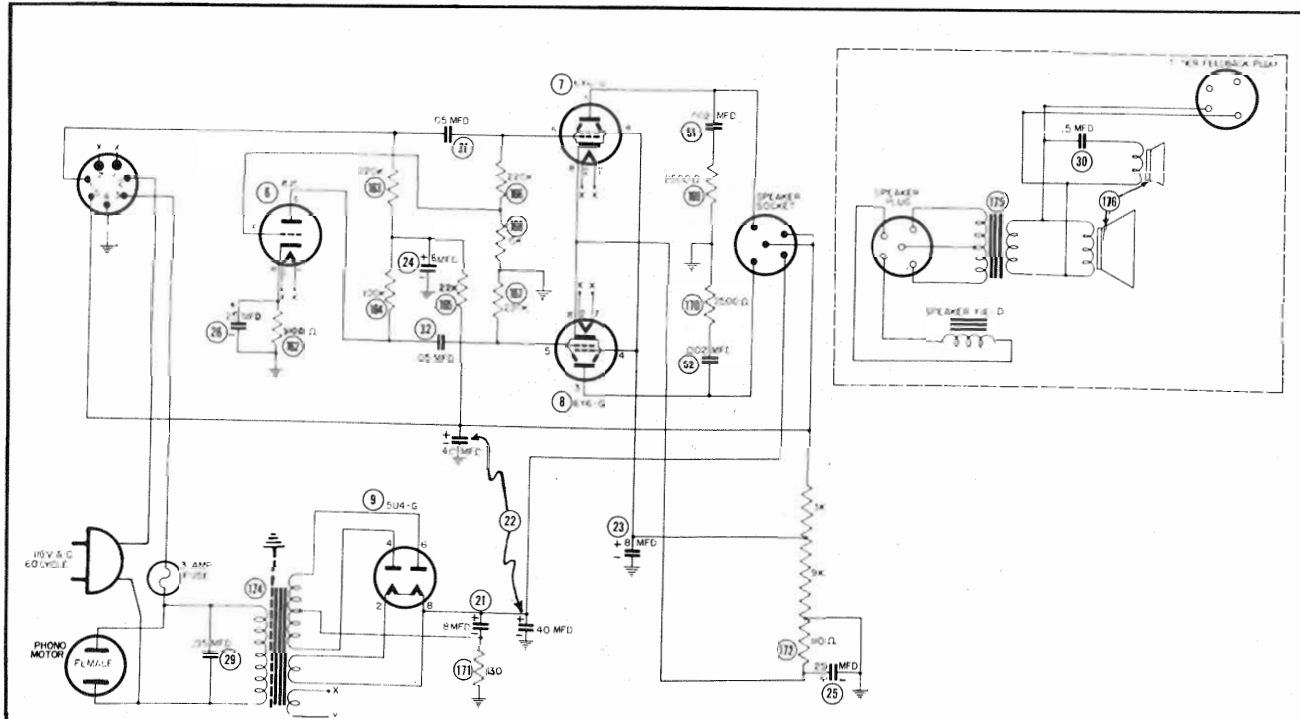
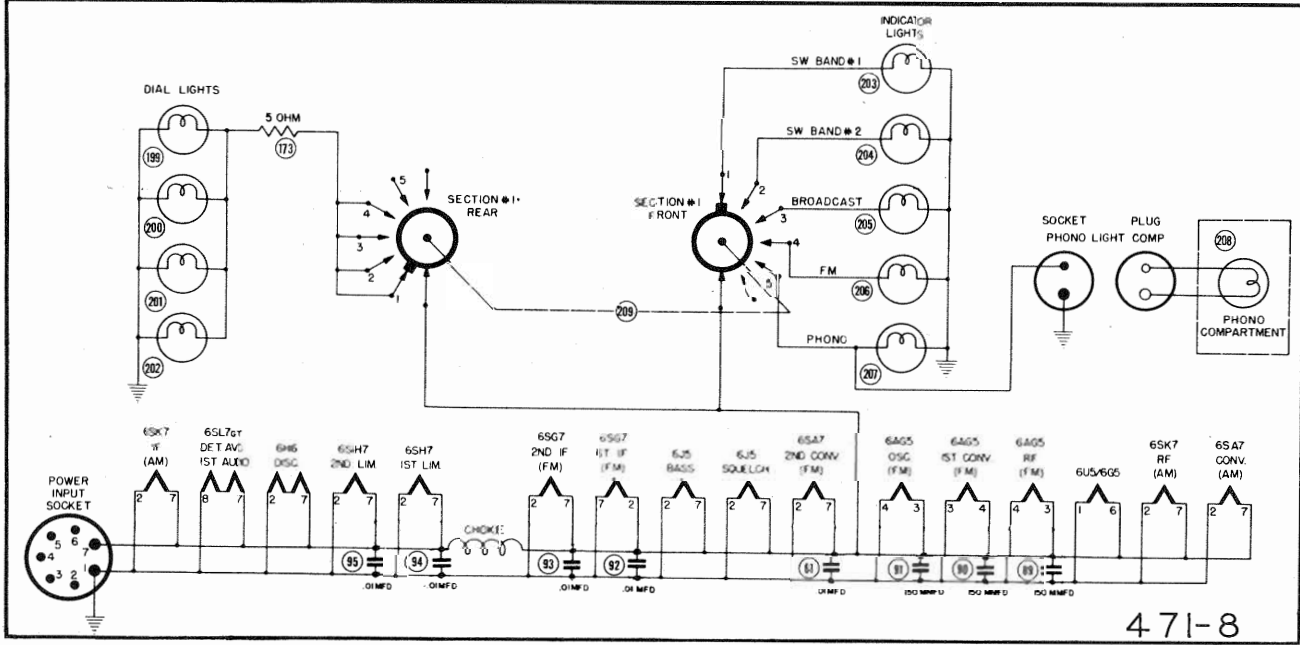
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FREEDMAN PART No.	IRC PART No.	
100	200Ω	1	IR-1-200	IR-1-200	Red-51k-ohm, 1W-5W Screen Bumping
101	68Ω	1	IR-1-68	IR-1-68	Blue-500Ω-ohm, 1W-5W Plate Load
102	100Ω	1	IR-1-100	IR-1-100	Br-51k-ohm, 1W-5W Plate Converter Cathode
103	2700Ω	1	IR-1-2700	IR-1-2700	Red-51k-ohm, 1W-5W 1st Converter Screen Bumping
104	100Ω	1	IR-1-100	IR-1-100	Br-51k-ohm, 1W-5W 1st Converter Plate Encapsulating
105	300Ω	1	IR-1-300	IR-1-300	Or-51k-ohm, 1W-5W 1st Oscillator Grid
106	300Ω	1	IR-1-300	IR-1-300	Or-51k-ohm, 1W-5W 1st Oscillator Grid
107	220Ω	1	IR-1-220	IR-1-220	Red-500Ω-ohm, 1W-5W 1st Transformer
108	500Ω	1	IR-1-500	IR-1-500	Red-500Ω-ohm, 1W-5W 1st Transformer

ALIGNMENT INSTRUCTIONS

For dial pointer adjustment, rotate both variables to the fully closed position and adjust pointers to index mark at low ends of the dial scales. If adjustment is needed, make sure that the motor carriage is to the dial cord. Before attempting to align set allow it and signal generator to warm up for at least 30 minutes with it across resistor #13 in the discriminator control for Step 4. Then set the 50KΩ resistor in series with it across resistor #13 in the discriminator control for Step 4 and across the entire discriminator load (from Pin 4 of 6MS discriminator tube to Grid 4) for Step 5. The discriminator control should be at maximum, base control at minimum, and output of signal generator no higher than necessary to obtain an output signal. Use insulated all-glass screwdriver for adjustment.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO FREQUENCY SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 4 of 6B7 and IF side to ground lug of same tube socket.	4.0KC unmodulated	FM	FM variable fully open	WPM a-cross last limiter resistor #123	A1, A2.	Remove noise suppresser 6B7 tube #10. Adjust for maximum output
.1 MFD.	High side to pin 4 of 6B7 1st IF Tube #14 and low side to ground lug of same tube socket.	"	"	"	"	A3, A4.	Adjust for maximum output. Do not repeat any of the above adjustments.
.1 MFD.	High side to pin #8 of 6B7 2nd Converter tube #13 and low side to ground lug of same tube socket.	"	"	"	"	A5, A6.	Adjust for maximum output. Do not repeat any of the above adjustments.
.1 MFD.	"	"	"	"	Across resistor #131 (See prealignment instructions)	A7	"
.1 MFD.	"	"	"	"	Pin 4 of 6B6 (#15) to ground (See prealignment instructions)	A9	Adjust for zero output. Swing signal generator 75KC above and 75KC below IF frequency and record both readings. If not equal, repeat last two steps and check again. It may be necessary to adjust slightly to get these readings equal. This adjustment is very critical as misadjustment will cause distortion of FM reception.
.1 MFD.	"	Unmodulated 10.7MC	"	"	WPM across last limiter resistor #123. Microammeter same as in last step	A10	Adjust for maximum output on WPM.
.1 MFD.	"	"	"	"	"	A10, A11	Adjust for maximum output on WPM making certain that peaking occurs when the microammeter connected from pin 4 of 6B6 disc tube #15 to ground, reads zero. If it does not, repeat last two steps.
150K	High side to FM ant. post and low side to chassis.	Unmodulated 90KC	"	90KC	"	A12	Adjust for maximum output on WPM and zero on the microammeter. If the latter does not read zero, rock tuning mark slightly and adjust A12.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
150Ω	"	150K	"	150K	"	A13	Adjust for maximum output on VTVM and zero on microammeter, rocking the tuning coil. If latter does not read zero, repeat last two steps.
150Ω	"	"	"	"	"	A14	Adjust for maximum output on the VTVM and zero on the microammeter.
150Ω	"	"	"	"	"	A15	Adjust for maximum output on the VTVM and zero on the microammeter. Replace noise suppressor tube G-19.
.1 MFD.	High side to pin #4 (grid) of 6SK7. If tube #3 and low side to ground lag or pass tube socket.	455KC modulated	BC	Tuning coil fully open.	earrce voice ccm	A16, A17	Adjust for maximum output.
.1 MFD.	High side to stator of center section of A1 variable and low side to chassis.	"	"	"	"	A18, A19	Adjust for maximum output. Do not repeat any of the above adjustments.
200Ω	High side to A1 ant. binding post.	100KC modulated	BC ant. switch to out.	100KC	"	A20	Adjust for maximum output.
200Ω	"	60KC modulated	BC ant. switch to out.	60KC	"	A21	"
200Ω	"	100KC modulated	"	100KC	"	A22, A23	"
200Ω	"	"	"	"	"	A24	"
200Ω	"	"	"	"	"	A25, A26	Adjust for maximum output. If receiver was badly out of alignment check the last 5 steps.
"	Picometer	"	BC ant. switch to loop	BC station near 1400KC	"	A27	Adjust for maximum output.
400 Ω	High side to A1 ant. binding post. Low side to ground.	9.0MC modulated	BC band switch to out.	9.0MC	"	A28	"
400 Ω	"	"	BC ant. switch to out.	"	"	A29, A30	Rock variable and adjust for maximum output.
400 Ω	"	17.8KC modulated	BC band switch to out.	17.8K	"	A31	Adjust for maximum output.
400 Ω	"	"	"	"	"	A32, A33	Rock variable and adjust for maximum output.
200 MFD	High side to A1 ant. binding post. Low side to chassis.	455KC strong signal modulated	BC	1000K	"	A34	Adjust for minimum output.



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA	IDENTIFICATION CODES
	RESISTANCE	FREED-EISEMANN PART No.	
108	15K	6SK7	6SK7
109	15K	6SL7	6SL7
110	15K	6X6	6X6
111	15K	6SH7	6SH7
112	15K	6SA7	6SA7
113	15K	6AG5	6AG5
114	15K	6AG6	6AG6
115	15K	6AG7	6AG7
116	15K	6AG8	6AG8
117	15K	6AG9	6AG9
118	15K	6AG10	6AG10
119	15K	6AG11	6AG11
120	15K	6AG12	6AG12
121	15K	6AG13	6AG13
122	15K	6AG14	6AG14
123	15K	6AG15	6AG15
124	15K	6AG16	6AG16
125	15K	6AG17	6AG17
126	15K	6AG18	6AG18
127	15K	6AG19	6AG19
128	15K	6AG20	6AG20
129	15K	6AG21	6AG21
130	15K	6AG22	6AG22
131	15K	6AG23	6AG23
132	15K	6AG24	6AG24
133	15K	6AG25	6AG25
134	15K	6AG26	6AG26
135	15K	6AG27	6AG27
136	15K	6AG28	6AG28
137	15K	6AG29	6AG29
138	15K	6AG30	6AG30
139	15K	6AG31	6AG31
140	15K	6AG32	6AG32
141	15K	6AG33	6AG33
142	15K	6AG34	6AG34
143	15K	6AG35	6AG35
144	15K	6AG36	6AG36
145	15K	6AG37	6AG37
146	15K	6AG38	6AG38
147	15K	6AG39	6AG39
148	15K	6AG40	6AG40
149	15K	6AG41	6AG41
150	15K	6AG42	6AG42
151	15K	6AG43	6AG43
152	15K	6AG44	6AG44
153	15K	6AG45	6AG45
154	15K	6AG46	6AG46
155	15K	6AG47	6AG47
156	15K	6AG48	6AG48
157	15K	6AG49	6AG49
158	15K	6AG50	6AG50
159	15K	6AG51	6AG51
160	15K	6AG52	6AG52
161	15K	6AG53	6AG53
162	15K	6AG54	6AG54
163	15K	6AG55	6AG55
164	15K	6AG56	6AG56
165	15K	6AG57	6AG57
166	15K	6AG58	6AG58
167	15K	6AG59	6AG59
168	15K	6AG60	6AG60
169	15K	6AG61	6AG61
170	15K	6AG62	6AG62
171	15K	6AG63	6AG63
172	15K	6AG64	6AG64
173	15K	6AG65	6AG65
174	15K	6AG66	6AG66
175	15K	6AG67	6AG67
176	15K	6AG68	6AG68
177	15K	6AG69	6AG69
178	15K	6AG70	6AG70
179	15K	6AG71	6AG71
180	15K	6AG72	6AG72
181	15K	6AG73	6AG73
182	15K	6AG74	6AG74
183	15K	6AG75	6AG75
184	15K	6AG76	6AG76
185	15K	6AG77	6AG77
186	15K	6AG78	6AG78
187	15K	6AG79	6AG79
188	15K	6AG80	6AG80
189	15K	6AG81	6AG81
190	15K	6AG82	6AG82
191	15K	6AG83	6AG83
192	15K	6AG84	6AG84
193	15K	6AG85	6AG85
194	15K	6AG86	6AG86
195	15K	6AG87	6AG87
196	15K	6AG88	6AG88
197	15K	6AG89	6AG89
198	15K	6AG90	6AG90
199	15K	6AG91	6AG91
200	15K	6AG92	6AG92
201	15K	6AG93	6AG93
202	15K	6AG94	6AG94
203	15K	6AG95	6AG95
204	15K	6AG96	6AG96
205	15K	6AG97	6AG97
206	15K	6AG98	6AG98
207	15K	6AG99	6AG99
208	15K	6AG100	6AG100

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA	THORDARSON PART No.	INSTALLATION NOTES
	PRI	SEC. 1	SEC. 2	
174	117V AC 640V CT 1SV AC 6.4V AC 1.3A 1.3A 1.3A	1.3A 1.3A 1.3A	1.3A 1.3A 1.3A	Use driver - see mounting brackets.

ITEM No.	RATING	REPLACEMENT DATA	THORDARSON PART No.	INSTALLATION NOTES
	IMPEDANCE	DC RES.	THORDARSON PART No.	
175	2500 2.5 400 400 400	400 400 400	400 400 400	* Drill one new mounting hole.

ITEM No.	RATINGS	REPLACEMENT DATA	JENSEN PART No.	INSTALLATION NOTES
	DC RES.	THORDARSON PART No.		
176	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
177	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
178	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
179	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
180	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
181	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
182	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
183	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
184	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
185	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
186	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
187	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
188	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
189	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
190	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
191	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
192	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
193	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
194	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
195	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
196	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
197	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
198	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	

ITEM No.	USE	DC RES.	REPLACEMENT DATA	MEISSNER PART No.	INSTALLATION NOTES
		PRI	SEC.		
179	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
180	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
181	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
182	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
183	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
184	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
185	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
186	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
187	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
188	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
189	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
190	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
191	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
192	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
193	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
194	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
195	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
196	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
197	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	
198	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	1.5 1.5 1.5	

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA	INSTALLATION NOTES
				REPLACEMENT DATA	
179	Bayonet	0-3	0.25	Blue	Type 44

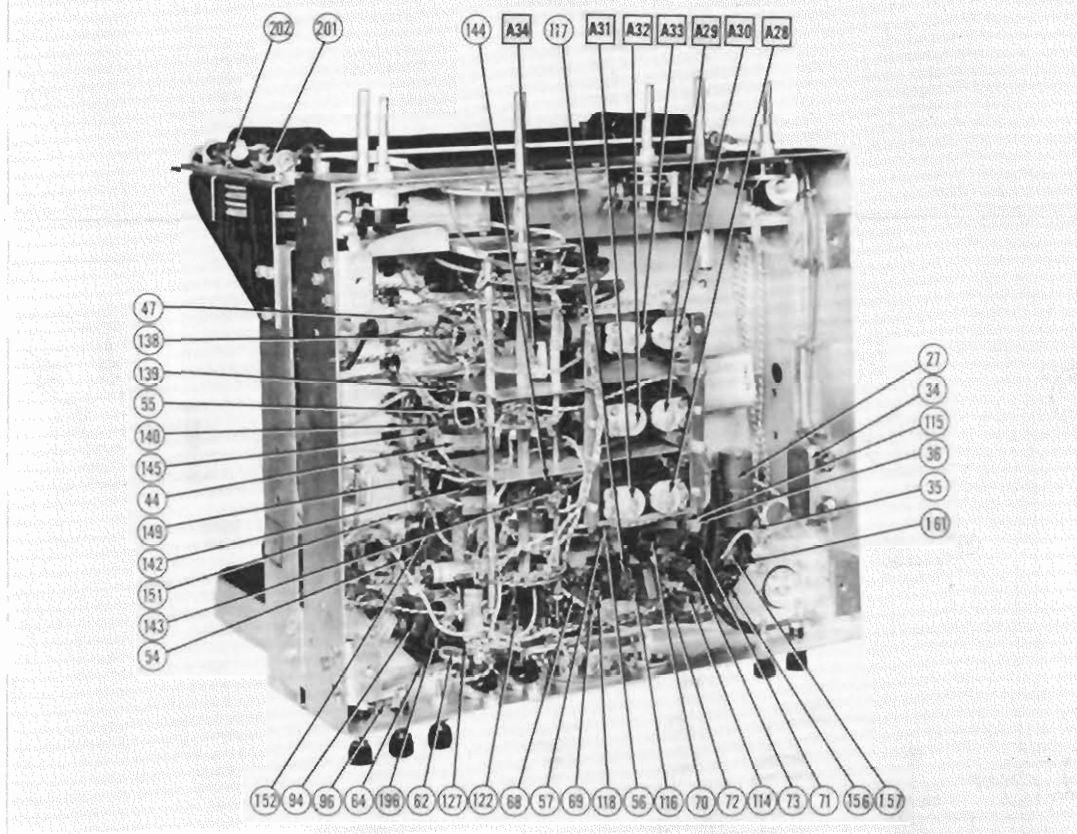
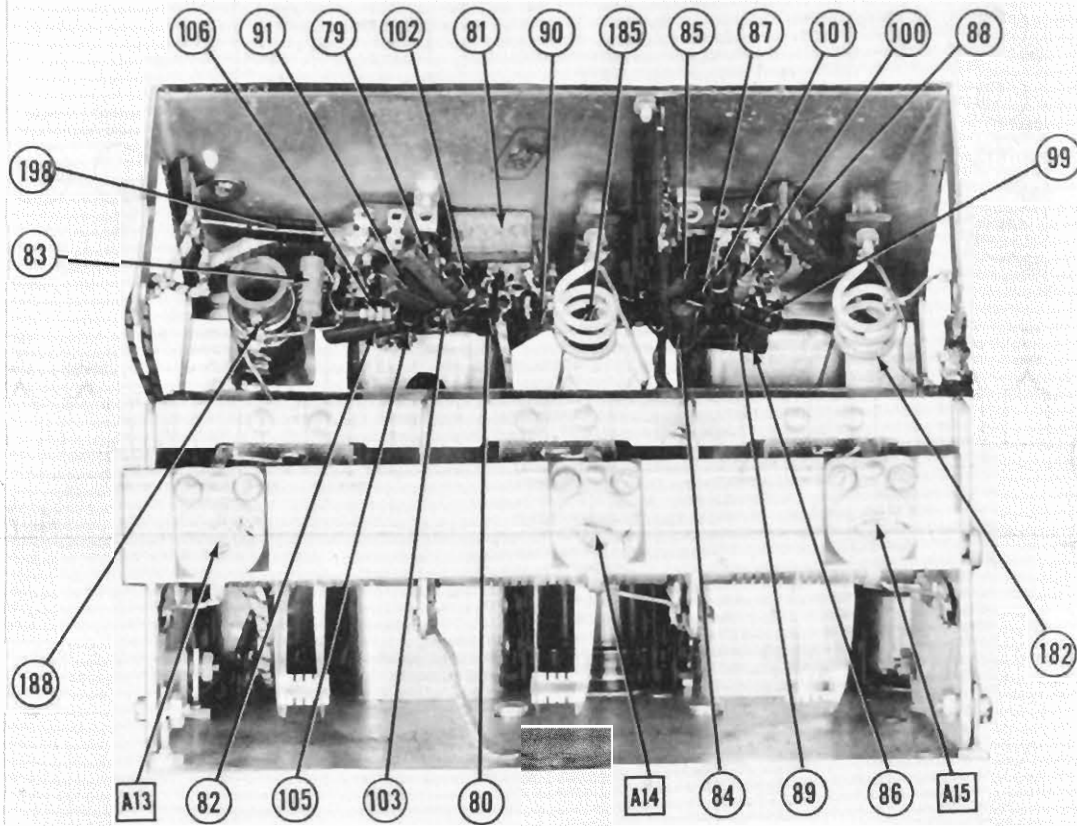
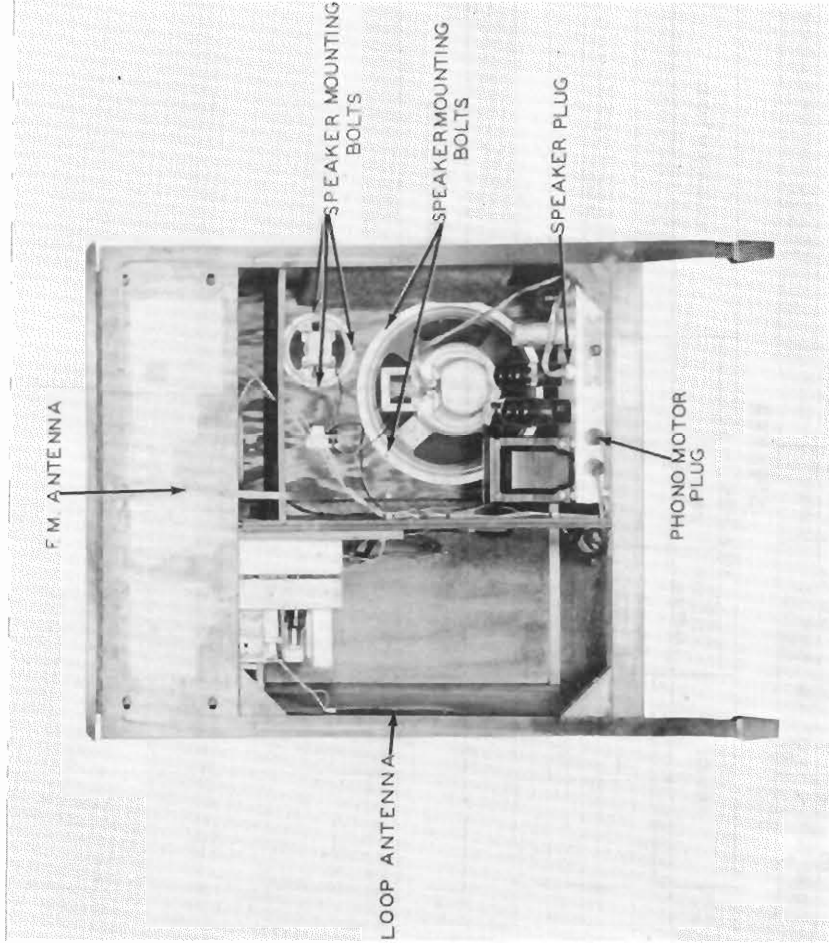
PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

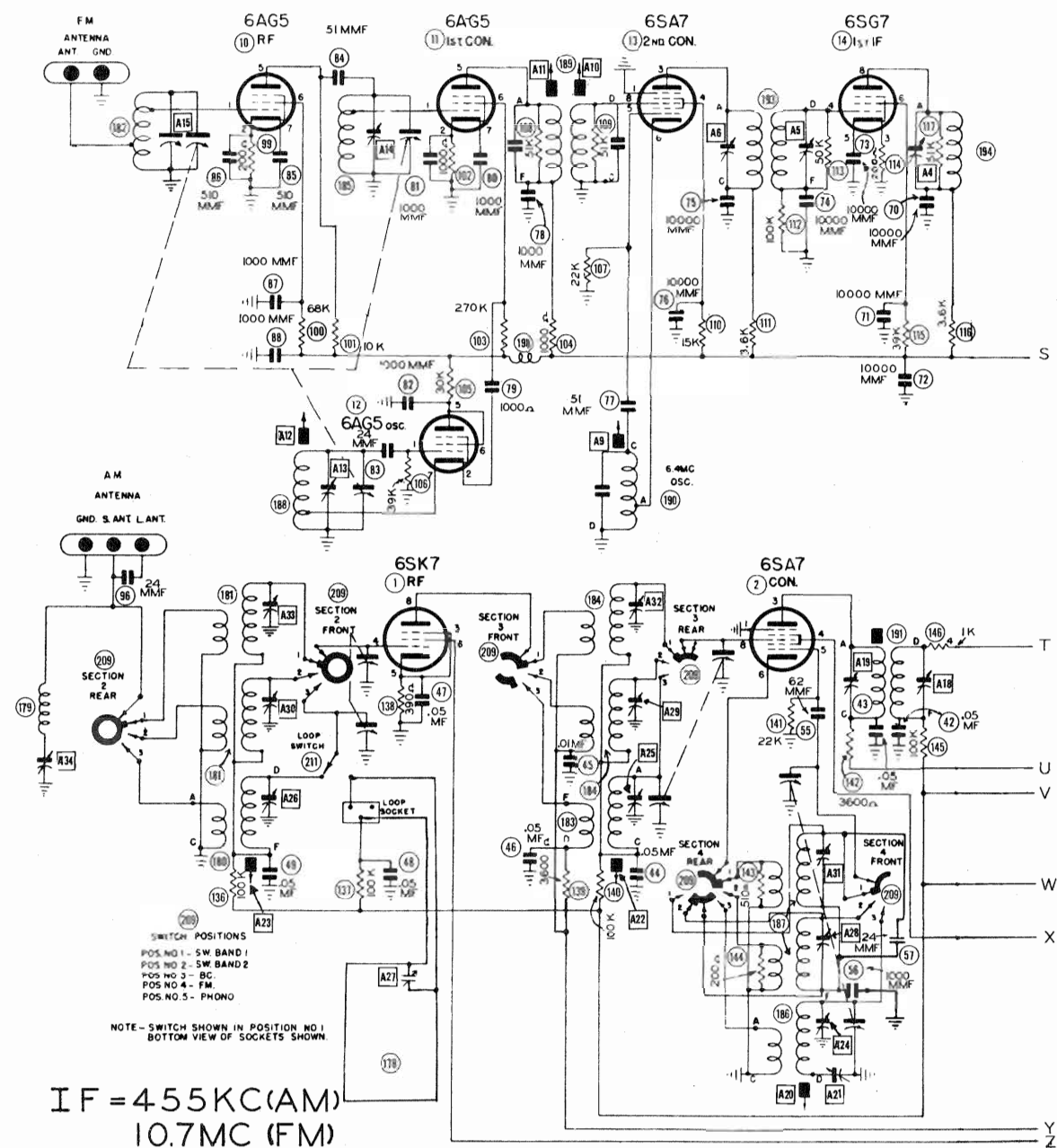
ITEM No.	PART NAME	FREED-EISEMANN PART No.	NOTES
200	Switch	SR-131	Wave band
210	Switch	SR-42	Treble Control
211	Switch	SR-43	Ant. Loop

DISASSEMBLY INSTRUCTIONS

1. Remove the six push-on type control knobs.
2. Disconnect AC line cord from power supply.
3. Disconnect AC phono-motor plug to power supply.
4. Remove the set screw from speaker plug and remove plug from socket on power supply.
5. Disconnect power supply cable from power supply and receiver chassis.
6. Disconnect plug from high frequency speaker assembly bracket.
7. Disconnect speaker plug from receiver chassis.
8. Disconnect the phono-cabinet light plug from chassis.
9. Disconnect the phono-pickup plug from receiver chassis.
10. Disconnect the FM antenna leads from the receiver chassis.
11. Disconnect loop antenna plug from receiver chassis.
12. Remove four machine bolts and lock washers from power supply. Remove power supply.
13. Remove twelve hex head self tapping screws from cover plate of power supply. Remove plate.
14. Remove three machine screws from chassis board.
15. Remove five wood screws from dial cabinet board.
16. Remove two wood screws from cabinet lid support. (Lay lid back.)
17. Lift dial board and chassis through top of cabinet.
18. Remove four machine screws and washers holding chassis to chassis board. Remove chassis.
19. Remove four hex nuts and lock washers from large speaker posts. Remove speaker.
20. Remove four hex nuts and lock washers from high frequency speaker posts.
21. Remove three Phillips head screws from high frequency speaker bracket assembly. Remove speaker and assembly.
22. Remove two Phillips head screws from loop antenna. Remove loop antenna.



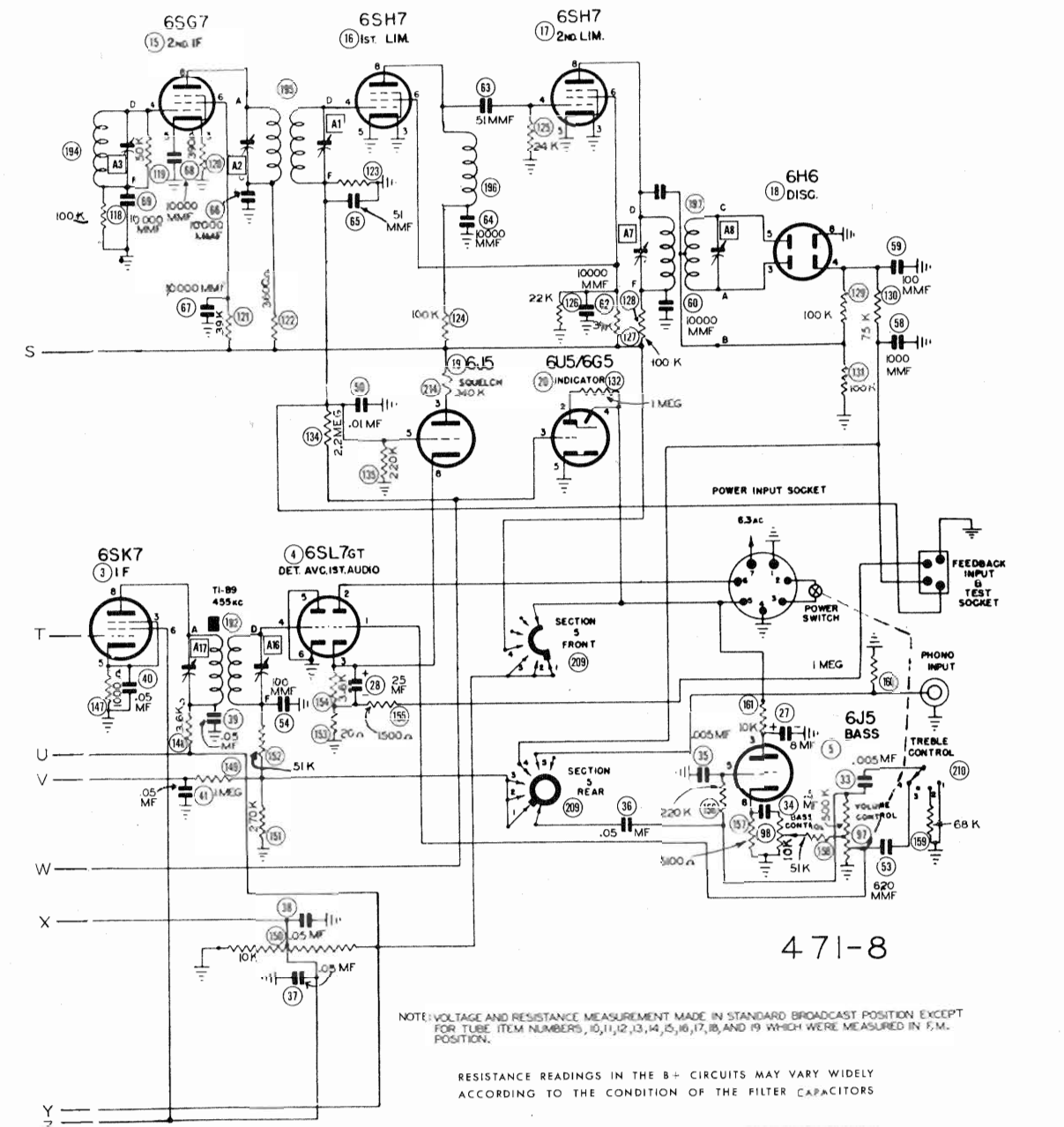
CHASSIS—BOTTOM VIEW



IF = 4.55 KC (AM)
10.7 MC (FM)
4.3 MC (FM)

STAGE GAIN MEASUREMENTS		
ANT. to RF GRID	6K	600K
RF GRID to CONV. GRID	10X	600K
CONVERSION GAIN	40X	600K to 455K
1st IF TRANS	1X	455K
IF TUBE	170X	455K
2nd IF TRANS	1X	455K
AUDIO	25X	400 CFS
PHASE INV. (Grid to Plate)	10X	400 CFS
OUTPUT (Grid to Plate)	15X	400 CFS

471-8



471-8

VOLTAGE READINGS										RESISTANCE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V	0V	262V.DC	-4V.DC	262V.DC	82V.DC	6.4VAC	183V.DC	1	6SA7	0V	0V	380V	800K	380V	3.3K	1.1K	8.2K
2	6SA7	0V	0V	192V.DC	82V.DC	-4V.DC	0V	6.4VAC	-45V.DC	2	6SA7	0V	0V	8.2K	3.3K	192K	3.3K	1.1K	800K
3	6SK7	0V	0V	3.9V.DC	-4V.DC	3.9V.DC	82V.DC	6.4VAC	183V.DC	3	6SK7	0V	0V	90V	80K	90V	3.3K	1.1K	8.3K
4	6SL7GT	0V	112V.DC	168V.DC	-7V.DC	0V	0V	6.4VAC	0V	4	6SL7GT	255K	211K	5K	260K	0V	0V	1.1K	0V
5	6J5GT	0V	0V	182V.DC	199V.DC	0V	0V	6.4VAC	187V.DC	5	6J5GT	0V	0V	146K	49K	460K	258K	1.1K	4.8K
6	6J5GT	0V	0V	92V.DC	177V.DC	0V	0V	6.4VAC	42V.DC	6	6J5GT	0V	0V	120K	24K	171K	11K	1.1K	4.5K
7	6Y6G	0V	0V	185V.DC	145V.DC	0V	0V	6.4VAC	149V.DC	7	6Y6G	0V	0V	5K	4.7K	225K	2.2K	1.1K	98V
8	6Y6G	0V	0V	185V.DC	145V.DC	0V	0V	6.4VAC	149V.DC	8	6Y6G	0V	0V	5K	4.7K	195K	2.1K	1.1K	98V
9	5U4G	0V	255V.DC	0V	320VAC	0V	320VAC	0V	255V.DC	9	5U4G	INF	500K	INF	132V	INF	132V	INF	5K
10	6AG5	0V	125V.DC	6.4VAC	0V	167V.DC	102V.DC	125V.DC	0V	10	6AG5	0V	190V	1.1K	0V	125K	76K	190V	0V
11	6AG5	0V	18V.DC	0V	6.4VAC	193V.DC	87V.DC	18V.DC	0V	11	6AG5	0V	920V	0V	1.1K	105K	270K	320V	0V
12	6AG5	-35V.DC	0V	6.4VAC	0V	92V.DC	92V.DC	0V	0V	12	6AG5	35.5K	0V	1.1K	0V	36K	36K	0V	0V
13	6SA7	0V	0V	187V.DC	86V.DC	33V.DC	0V	6.4VAC	0V	13	6SA7	0V	0V	12.5K	23K	21.2K	0V	1.1K	1.1K
14	6SG7	0V	6.4VAC	18V.DC	0V	1.8V.DC	113V.DC	0V	169V.DC	14	6SG7	0V	0V	190V	86K	190V	45K	0V	12.8K
15	6SG7	0V	0V	182V.DC	0V	182V.DC	124V.DC	6.4VAC	176V.DC	15	6SG7	0V	0V	0V	350V	96K	350V	46K	1.1K
16	6SH7	0V	0V	0V	-4V.DC	0V	101V.DC	6.4VAC	100V.DC	16	6SH7	0V	0V	0V	46K	0V	14K	1.1K	100K
17	6SH7	0V	0V	0V	-53V.DC	0V	101V.DC	6.4VAC	82V.DC	17	6SH7	0V	0V	0V	26K	0V	14K	1.1K	100K
18	6H6	0V	0V	-2.2V.DC	-3V.DC	-122V.DC	26V.DC	6.4VAC	0V	18	6H6	0V	0V	93K	190K	93K	260K	1.1K	0V
19	6J5GT	0V	0V	167V.DC	-8V.DC	38V.DC	193V.DC	6.4VAC	655V.DC	19	6J5GT	0V	0V	345K	730K	780K	9.3K	1.1K	5K

- 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 $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

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.