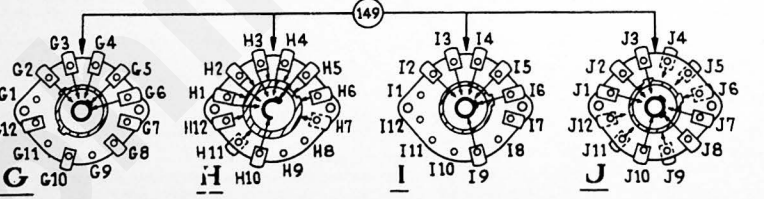
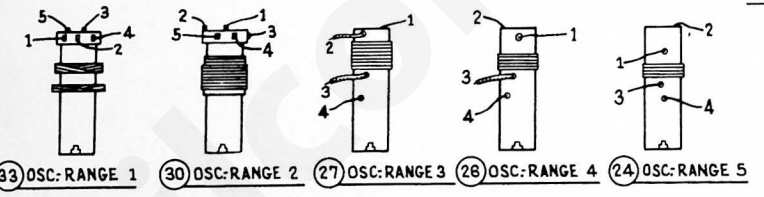
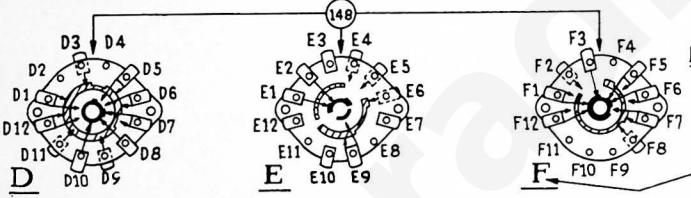
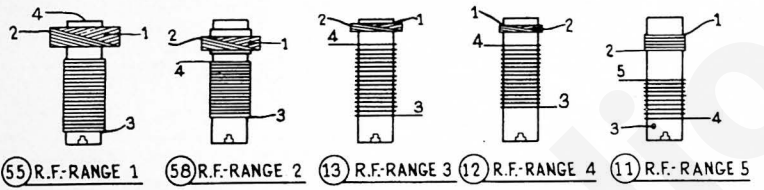
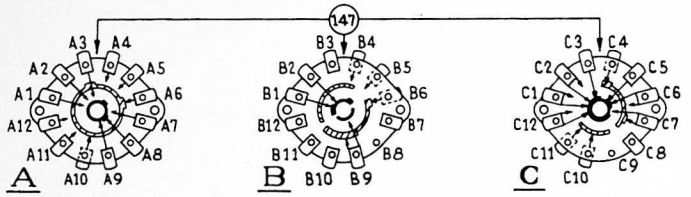
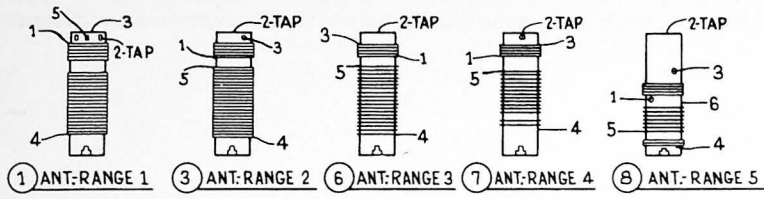


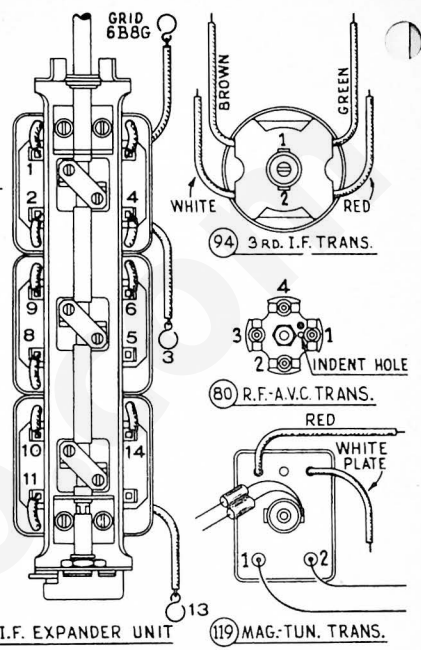
Coil and Range Switch Connections



Hum Adjustment and Elimination

Adjust compensator (185) for minimum hum with volume control retarded.

If abnormal hum develops with bass compensation control at maximum, change the 6K7G bass amplifier tube. It also may be necessary to interchange the 6B4G output tubes for perfect balance.



NOTE— ALL SWITCHES SHOWN IN POSITION No.1— (BROADCAST.)
 SOLID AREA INDICATES REAR OF SWITCH WAFER.
 SHADED AREA INDICATES FRONT OF SWITCH WAFER.
 LETTERS INDICATE POSITION OF SWITCH WAFERS FROM REAR UNDERSIDE VIEW OF CHASSIS.
 THE NUMBERS ON THE COILS AND RANGE SWITCH WAFERS, CORRESPOND TO THOSE SHOWN ON THE SCHEMATIC DIAGRAM.

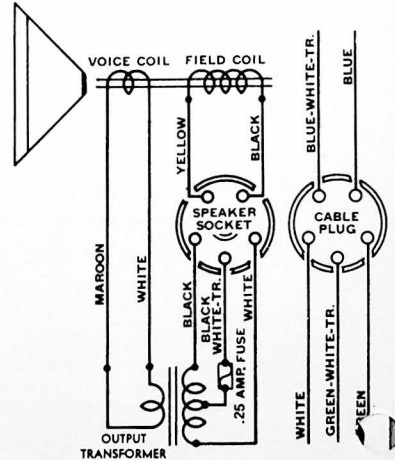


Fig. 3. Speaker Wiring W2

ALIGNMENT OF COMPENSATORS

EQUIPMENT REQUIRED: (1) Signal Generator: Philco Model 088 (fundamental frequency 110 to 20000 K. C.) is the correct instrument for this purpose; (2) Output Meter. Philco Model 025 Circuit Tester incorporates a sensitive output meter and is recommended; (3) Fibre handle screw driver (Philco Part No. 27-7059); (4) Special variable condenser (Philco Part No. 45-2325).

OUTPUT METER

The 025 Output Meter is connected to the plate and cathode terminals of the 6F6G driver tube. Adjust the meter to use the (0-30) Volt Scale.

See Dial Calibration Page 1.

INTERMEDIATE FREQUENCY CIRCUIT

- Adjust the hum control (185) for minimum hum with volume control (counter-clockwise).
- Set controls as follows:
 - Selectivity-fidelity control (clockwise)
 - Bass Amplifier at minimum (counter-clockwise)
 - Volume Control full (clockwise)
 - Magnetic Tuning "off"
 - Range Switch position one (broadcast)
 - Receiver dial at 580 K. C.
 - Signal Generator at 470 K. C.
- Adjust the I. F. compensators for maximum with signal generator output lead connected through a .1 mfd. condenser to the grid of tubes as follows:

Input Point	Compensators in Order
6K7G—2nd I. F.	(94S) and (94P)
6K7G—1st I. F.	(85S), (85P), (81S) and (81P)
6L7G—1st Det.	(73S) and (73P)
6L7G—1st Det.	(94S) and (94P). See Note A. Check for two equal peaks. (Fidelity control in expanded position)

- Turn the fidelity-selectivity control clockwise (selective position) and set the signal generator attenuator for maximum output. Now adjust compensator (119P) for minimum output. Retard the receiver volume control, if the output reading goes off scale.

RADIO FREQUENCY CIRCUIT

Tuning Range 11.5 to 18.2 M. C.

- Set controls as follows:
 - Connect the signal generator output lead through a .1 mfd. condenser to terminal 1 and generator ground to terminal 3 on aerial input panel. Terminals 2 and 3 must be connected with the shorting link provided on the aerial panel.
 - Other controls set as given under Intermediate Frequency Circuit (a, b, c, d).

Adjust compensators for maximum as follows:

Range Switch	Signal Generator	Receiver Dial	Compensators in Order
Range 5	18.0 M. C.	18.0 M. C.	(28D) (see Note C below) check image at 17.06 M. C.
Range 5	12.0 M. C.	12.0 M. C.	(28E)
Range 5	18.0 M. C.	18.0 M. C.	(28D)
Range 5	18.0 M. C.	18.0 M. C.	(15D), (5D) (Note B) Use shunt condenser on (28D) first contact from left rear underside view of R. F. Unit
Range 5	12.0 M. C.	12.0 M. C.	(28E), (15E), (5E)
Range 5	18.0 M. C.	18.0 M. C.	(28D) (Note C) check image at 17.06 M. C.
Range 5	18.0 M. C.	18.0 M. C.	(15D), (5D) (Note B)

Tuning Range 7.35 to 11.6 M. C.

Adjust compensators for maximum as follows:

Range Switch	Signal Generator	Receiver Dial	Compensators in Order
Range 4	11.0 M. C.	11.0 M. C.	(28B)
Range 4	11.0 M. C.	11.0 M. C.	(15B) and (5B) Use shunt condenser on (28B) (see Note B) Third contact from left underside view of R. F. Unit
Range 4	7.5 M. C.	7.5 M. C.	(28C), (15C) and (5C)
Range 4	11.0 M. C.	11.0 M. C.	(15B), (5B) Use shunt condenser on (28B) (see Note B)

Tuning Range 4.7 to 7.4 M. C.

Adjust compensators for maximum as follows:

Range Switch	Signal Generator	Receiver Dial	Compensators in Order
Range 3	7.0 M. C.	7.0 M. C.	(28)
Range 3	5.0 M. C.	5.0 M. C.	(28A)
Range 3	7.0 M. C.	7.0 M. C.	(28), (15) and (5)
Range 3	5.0 M. C.	5.0 M. C.	(28A), (15A) and (5A)
Range 3	7.0 M. C.	7.0 M. C.	(28), (15) and (5)

Tuning Range 1.58 to 4.75 M. C.

Adjust compensators for maximum as follows:

Range Switch	Signal Generator	Receiver Dial	Compensators in Order
Range 2	4.5 M. C.	4.5 M. C.	(35B), (51A), (2A)
Range 2	1.7 M. C.	1.7 M. C.	(35C) roll tuning condenser when adjusting this condenser
Range 2	4.5 M. C.	4.5 M. C.	(35B), (51A) and (2A)

Tuning Range 530 to 1600 K. C.

Adjust compensators as follows:

Range Switch	Signal Generator	Receiver Dial	Compensators in Order
Range 1	1500 K. C.	1500 K. C.	(35), (51), (2)
Range 1	580 K. C.	580 K. C.	(35A), Osc. Series—Roll Tuning Condenser
Range 1	1500 K. C.	1500 K. C.	(35)
Range 1	1400 K. C.	1400 K. C.	(51), (2)

10 K. C. AUDIO FILTER

If an audio oscillator is at hand adjust it for 10,000 cycles and connect the output lead to the volume control arm of the receiver. Compensator (159) is then adjusted for minimum output.

If, however, an audio oscillator is not available, the 088 Signal Generator may be used with the following procedure:

Tune the dial of the receiver very accurately to a local station on the broadcast band. Then connect the signal generator output lead to the 6L7G Mixer grid and set the indicator for 470 K. C. A heterodyne whistle will be produced when these two signals mix.

Now tune the signal generator dial about the 470 K. C. frequency until a zero beat note is obtained. Then turn the signal generator to 10 K. C. above the point at which zero beat is obtained and adjust compensator (159) for minimum output.

MAGNETIC TUNING ADJUSTMENT

Set the range switch in position one (530 to 1600 K. C.). Turn the fidelity-selectivity control clockwise (selective position), and the magnetic tuning switch in the "out" position. Now turn the signal generator and receiver dial to any frequency in the Broadcast band. The receiver dial must be adjusted very accurately for maximum output.

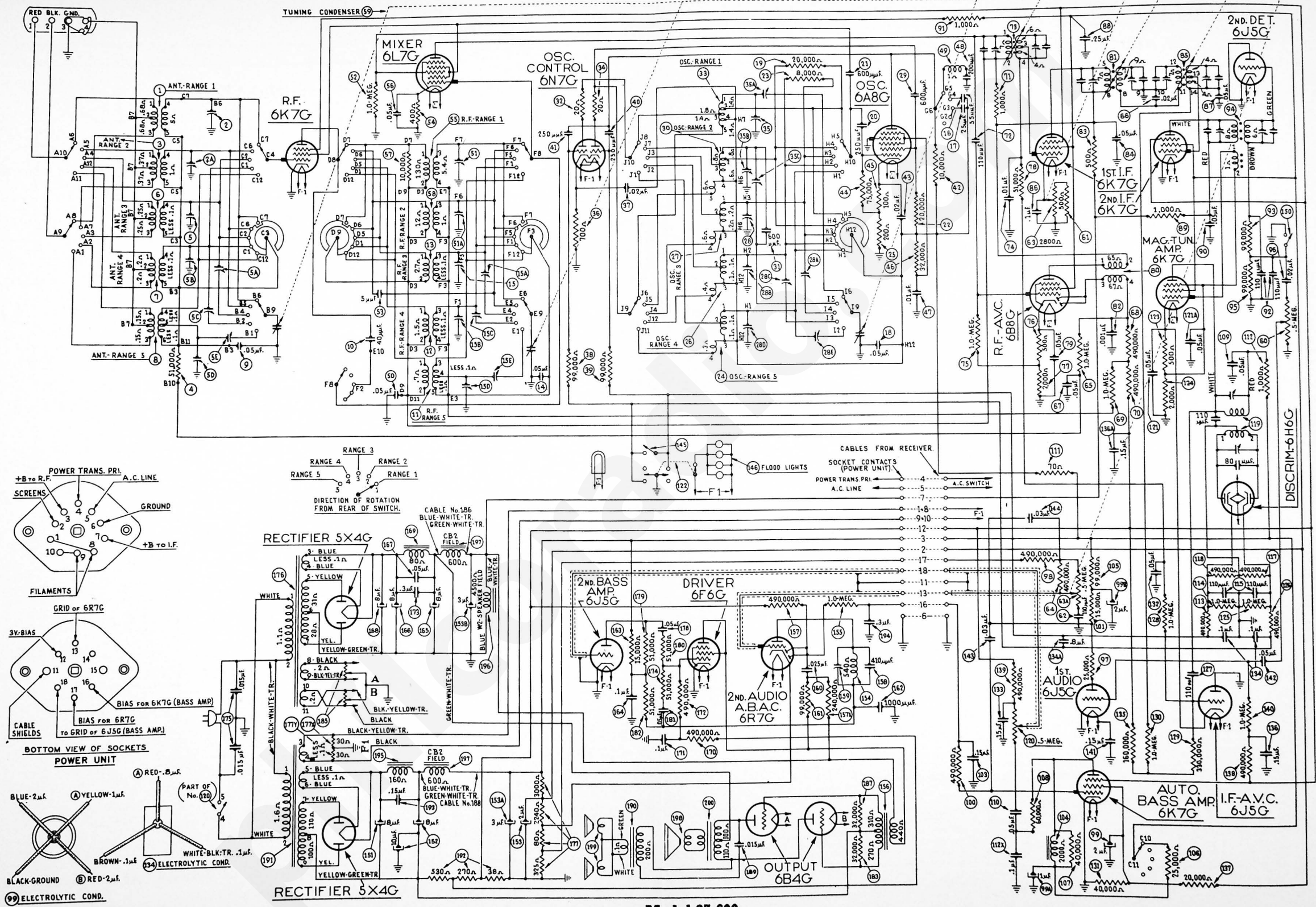
Set the magnetic tuning control in the "on" position (clockwise). Compensator (119S) of the magnetic tuning transformer is now adjusted for maximum output.

The above adjustment is now checked for accuracy, by turning the magnetic tuning control "off" and "on". When this is done, there should be no change in the tone of the received signal. If a change of tone or hiss develops, it indicates a shift in frequency and the adjustment must be made again.

NOTE "A"—Slowly shift signal generator indicator between 460 and 480 K. C. As the indicator is turned, two peaks will be noted on the Output Meter; one about 465 K. C. and the other about 475 K. C. These peaks should give the same deflection or reading on the output meter. If they are unequal, compensator (94P) primary only, must be slightly readjusted to the right or left until they are equalized. Each time the compensator is set in another position, rotate the signal generator through the 460 or 480 K. C. range and note the reading of each peak. Continue adjusting the compensator until the peaks are equal.

NOTE "B"—To eliminate the effect of the R. F. compensators detuning the Osc. circuit, a variable tuning condenser, 350 mmfd. Philco Part No. 45-2325 is connected from the oscillator compensators to ground when designated in the padding instruction above. Tune the added condenser until the second harmonic of the receiver oscillator beats against the signal from the generator, resulting in a maximum indication on the output meter. Then adjust compensators as noted for maximum output.

NOTE "C"—To accurately adjust the compensator to the fundamental and not the image signal, turn the oscillator compensator to the maximum capacity position clockwise. Then slowly turn the compensators counter-clockwise until a second maximum peak is obtained on the output meter. The first peak is the image signal and the receiver must not be adjusted to it. If the above procedure is correctly performed, the image signal will be found 940 K. C. below the frequency being used on any high frequency band.



Model 37-690
Fig. 4. Schematic Diagram

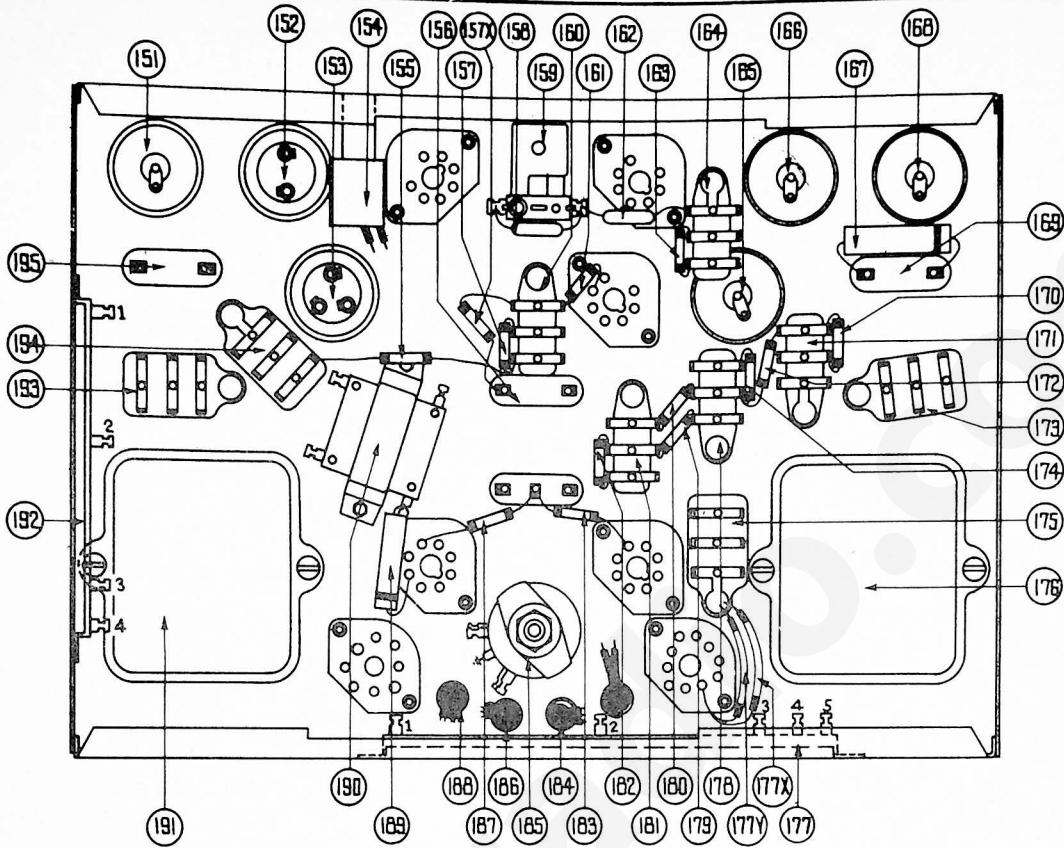


Fig. 6. Underside View of Power Unit

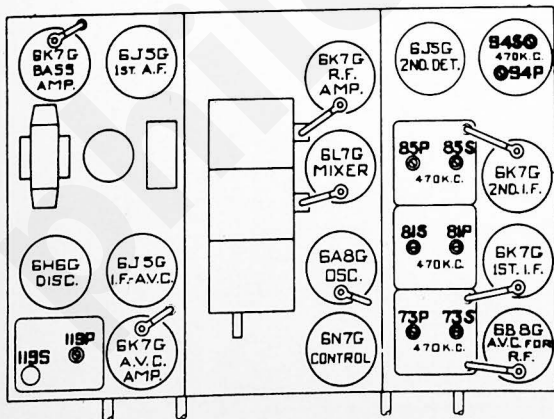


Fig. 7. I. F. Compensators

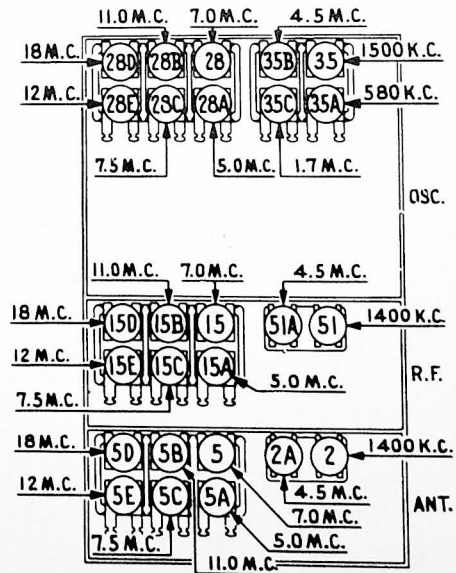


Fig. 8. R. F. Compensators
Underside of Chassis View

Replacement Parts—Model 37-690

Schem. No.	Description	Part No.	List Price	Schem. No.	Description	Part No.	List Price	Schem. No.	Description	Part No.	List Price
1	Antenna Transformer (Range 1)	32-2108	\$1.60	87	Condenser (.02 mfd. tubular)	30-4113	\$0.20	185	Hum Control	33-5176	\$1.80
2	Compensator (two section)	31-6093	.40	88	Resistor (25,000 ohms, 1/2 watt)	33-328339	.20	186	Cable CB2 Speaker	41-3245	
3	Antenna Transformer (Range 2)	32-2145	1.20	89	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20	187	Resistor (52,000 ohms, 1/2 watt)	33-335339	.20
4	Resistor (51,000 ohms, 1/2 watt)	33-31339	.20	90	Electrolytic Condenser (2, 1 mfd.)	30-2177	1.40	188	Cable CB1 Speaker	41-3245	
5	Compensator (six section)	31-6112	1.40	100	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20	189	Condenser (.015 mfd. tubular)	30-4226	.20
6	Antenna Transformer (Range 3)	32-2183	1.20	101	Resistor (15,000 ohms, 1/2 watt)	33-315339	.20	190	CB2 Speaker Transformer	32-7663	1.00
7	Antenna Transformer (Range 4)	32-2185	1.20	102	Audio Cable	41-3233	2.00	191	Power Transformer	32-7728	6.50
8	Antenna Transformer (Range 5)	32-2175	1.20	103	Condenser (.15 mfd. tubular)	30-4191	.25	192	Power Transformer (25 to 40 cycles)	32-7728	
9	Condenser (.05 mfd. tubular)	30-4090	.20	104	Audio Choke (base unit)	32-7253	1.35	193	Condenser (wiredound two taps)	33-3301	.60
10	Condenser (40 mfd. mica)	30-1076	.20	105	Resistor (99,000 ohms, 1/2 watt)	33-399339	.20	194	Condenser (.15 mfd. bakelite)	6287-SU	.40
11	R. F. Transformer (Range 5)	32-2176	1.20	106	Resistor (25,000 ohms, 1/2 watt)	33-328339	.20	195	Condenser (.3 mfd. bakelite)	6287-DG	.40
12	R. F. Transformer (Range 4)	32-2178	.70	107	Resistor (40,000 ohms, 1/2 watt)	33-340339	.20	196	Filter Choke	32-7115	1.80
13	R. F. Transformer (Range 3)	32-2177	.70	108	Resistor (50,000 ohms, 1/2 watt)	33-390339	.20	197	Field W-2 Speaker	36-3782	
14	Condenser (.05 mfd. tubular)	30-4090	.20	109	Condenser (.05 mfd. tubular)	30-4123	.20	198	Field Coil (High Audio Frequency)	36-3782	
15	Condenser (55 mfd. mica)	30-1045	.20	110	Condenser (.05 mfd. tubular)	30-4123	.20	199	CB2	36-3739	3.50
16	Condenser (.05 mfd. tubular)	30-1067	.20	111	Resistor (70 ohms, 1/2 watt)	33-070339	.20	200	Cone Voice Coil W-2 Speaker	36-3647	2.25
17	Resistor (20,000 ohms, 1/2 watt)	33-320339	.20	112	Resistor (1,000 ohms, 1/2 watt)	33-210339	.20	199	Cone Voice Coil (Speaker, CB2)	36-3654	.80
18	Condenser (250 mfd. mica)	30-1032	.25	112X	Condenser (.008 mfd. tubular)	30-4453	.20	200	Output Transformer W-2, Speaker	32-7753	1.70
19	Condenser (800 mfd. mica)	30-1049	.25	113	Resistor (490,000 megohms, 1/2 watt)	33-449339	.20				
20	Resistor (20,000 ohms, 1/2 watt)	33-320339	.20	114	Resistor (1 megohm, 1/2 watt)	33-510339	.20				
21	Resistor (8,000 ohms, 1/2 watt)	33-280339	.20	115	Condenser (110 mfd. dual bakelite)	8035-DG	2.5				
22	Oscillator Transformer (Range 5)	32-2199	.70	116	Power Cable (Chassis)	41-3232	4.00				
23	Resistor (200 ohms, wiredound)	721	.20	117	Resistor (490,000 megohms, 1/2 watt)	33-449339	.20				
24	Oscillator Transformer (Range 4)	32-2198	.70	118	Resistor (490,000 megohms, 1/2 watt)	33-449339	.20				
25	Oscillator Transformer (Range 3)	32-2197	.70	119	Magnetic Tuning Transformer	32-4003	1.00				
26	Compensator (Osc. six section)	31-6117	1.20	120	Base Amplifier Control & A. C. Switch	33-5182	.90				
27	Condenser (500 mfd. mica)	30-1042	.25	121	Condenser (.05 mfd. bakelite)	3615-DG	.40				
28	Oscillator Transformer (Range 2)	32-2194	1.00	122	Magnetic Tuning Switch (Manual)	42-1216	.75				
29	Condenser (.02 mfd. tubular)	30-4481	.20	123	Resistor (500 ohms, 1/2 watt)	33-150339	.20				
30	Resistor (20 ohms, 1/2 watt)	33-020339	.20	124	Resistor (2000 ohms, 1/2 watt)	33-510339	.20				
31	Oscillator Transformer (Range 1)	32-2191	1.00	125	Resistor (1 megohm, 1/2 watt)	33-510339	.20				
32	Resistor (20 ohms, 1/2 watt)	33-020339	.20	126	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20				
33	Compensator (Four section)	31-6124	1.00	127	Condenser (110 mfd. mica)	30-1031	.20				
34	Resistor (700 ohm wiredound)	33-170339	.20	128	Resistor (1 megohm, 1/2 watt)	33-510339	.20				
35	Condenser (.02 mfd. tubular)	30-4482	.20	129	Resistor (330,000 ohms, 1/2 watt)	33-533339	.20				
36	Resistor (99,000 ohms, 1/2 watt)	33-399339	.20	130	Resistor (1 megohm, 1/2 watt)	33-510339	.20				
37	Resistor (99,000 ohms, 1/2 watt)	33-399339	.20	131	Resistor (40,000 ohms, 1/2 watt)	33-340339	.20				
38	Condenser (250 mfd. mica)	30-1032	.25	132	Condenser (.05 mfd. tubular)	30-4123	.20				
39	Condenser (250 mfd. mica)	30-1032	.25	133	Condenser (.15 mfd. tubular)	30-4191	.25				
40	Resistor (10,000 ohms, 1/2 watt)	33-310339	.20	134	Condenser (1, 1, 3 mfd.)	30-4466	1.40				
41	Condenser (.02 mfd. tubular)	30-4481	.20	135	Resistor (150,000 ohms, 1/2 watt)	33-418339	.20				
42	Resistor (75,000 ohms, 1/2 watt)	33-375339	.20	136	Condenser (.15 mfd. bakelite)	6287-DG	.40				
43	Resistor (100 ohms, 1/2 watt)	33-3023	.25	137	Resistor (20,000 ohms, 1/2 watt)	33-320339	.20				
44	Resistor (32,000 1/2 watt)	33-322339	.20	138	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20				
45	Condenser (.01 mfd. tubular)	30-4169	.20	139	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20				
46	Condenser (200 mfd. mica)	30-1047	.25	140	Resistor (1 megohm, 1/2 watt)	33-510339	.20				
47	Plate Coil 648G	32-2242	.30	141	Condenser (.15 mfd. tubular)	30-4191	.25				
48	Condenser (.05 mfd. tubular)	30-4123	.20	142	Condenser (.05 mfd. tubular)	30-4444	.20				
49	Compensator (two section)	31-6093	.40	143	Part of 144 (.03 mfd.)	8318-DU					
50	Resistor (1 megohm, 1/2 watt)	33-510339	.20	144	Condenser (.03 mfd. bakelite)	8318-DU					
51	Resistor (400 ohms flexible)	33-3016	.20	145	Magnetic Tuning Switch (Automatic Dial)	45-2330					
52	R. F. Transformer (Range 1)	32-2105	1.00	146	Flood Lamp Assembly	38-8210	2.40				
53	Condenser (.05 mfd. tubular)	30-4444	.20	147	Antenna Range Switch	42-1211	1.60				
54	Resistor (10,000 ohms, 1/2 watt)	33-310339	.20	148	R. F. Range Switch	42-1255	1.60				
55	R. F. Transformer (Range 2)	32-2147	.70	149	Oscillator Range Switch	42-1217	2.00				
56	Tuning Condenser	31-1892	3.50	150	Switch (auto shorting auto dial)	45-2550					
57	Volume Control	33-5183	1.00	151	Electrolytic Condenser (8 mfd.)	30-2025	1.35				
58	Resistor (500 ohms flexible)	33-150439	.20	152	Electrolytic Condenser (8 mfd.)	30-2176	1.40				
59	Condenser (110 mfd. mica)	30-1031	.25	153	Electrolytic Condenser (2, 3, 3 mfd.)	30-2159	1.80				
60	Potentiometer (Expander Unit)	33-5178	1.50	154	Coil (10 K. C. Filter)	32-7764	.80				
61	Resistor (490,000 ohms)	33-449339	.20	155	Resistor (1 megohm, 1/2 watt)	33-510339	.20				
62	Resistor (1 megohm, 1/2 watt)	33-510339	.20	156	Audio Transformer (Interstage)	32-7725	3.20				
63	Condenser (.02 mfd. tubular)	30-4113	.20	157	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20				
64	Condenser (.05 mfd. bakelite)	3615-SG	.35	157X	Resistor (240,000 ohms, 1/2 watt)	33-24339	.20				
65	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20	158	Condenser (410 mfd. mica)	30-1000	.25				
66	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20	159	Compensator (10 K. C. Filter)	04000-0	.35				
67	Resistor (1000 ohms, 1/2 watt)	33-210339	.20	160	Condenser (.025 mfd. bakelite)	7653-SU	.35				
68	Condenser (110 mfd. mica)	30-1031	.25	161	Resistor (99,000 ohms, 1/2 watt)	33-399339	.20				
69	1st I. F. Transformer (Expander)	32-2288	1.80	162	Condenser (1000 mfd. mica)	30-1007	.30				
70	Condenser (.01 mfd. tubular)	33-510339	.20	163	Resistor (15,000 ohms, 1/2 watt)	33-315339	.20				
71	Resistor (500 ohms, 1/2 watt)	33-150339	.20	164	Condenser (1 mfd. bakelite)	4989-SG	.35				
72	Resistor (2000 ohms, 1/2 watt)	33-220339	.20	165	Electrolytic Condenser (8 mfd.)	30-2024	1.10				
73	Condenser (.05 mfd. tubular)	30-4444	.20	166	Electrolytic Condenser (8 mfd.)	30-2025	1.35				
74	Resistor (500 ohms, 1/2 watt)	33-150339	.20	167	Condenser (.05 mfd. tubular)	30-4020	.20				
75	Resistor (9,000 ohms, 1/2 watt)	33-351339	.20	168	Electrolytic Condenser (8 mfd.)	30-2025	1.35				
76	Condenser (.05 mfd. tubular)	30-4444	.20	169	Filter Choke	32-7056	2.20				
77	Resistor (500 ohms, 1/2 watt)	33-150439	.20	170	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20				
78	Condenser (.05 mfd. tubular)	30-4123	.20	171	Condenser (.1 mfd. bakelite)	4989-SG	.35				
79	3rd I. F. Transformer (Expander)	32-2293	1.58	172	Resistor (490,000 ohms, 1/2 watt)	33-449339	.20				
80	Condenser (.05 mfd. tubular)	30-4134	.25	173	Condenser (3 mfd. bakelite)	6287-DU	.40				
81	Condenser (1000 ohms, 1/2 watt)	33-10339	.20	174	Resistor (51,000 ohms, 1/2 watt)	33-351339	.20				
82	Condenser (.05 mfd. bakelite)	3615-SG	.35	175	Condenser (.015 mfd. bakelite)	3793-DG	.40				
83	Resistor (100 ohms, 1/2 watt)	33-10339	.20	176	Power Transformer	32-7731	7.50				
84	Condenser (110 mfd. dual bakelite)	8035-DG	.25	177	Resistor (wiredound three taps)	33-3302	1.00				
85	Resistor (99,000 ohms, 1/2 watt)	33-399339	.20	177X	Resistor (30 ohm flexible)	33-3119					
86	4th I. F. Transformer	32-2302	2.20	178	Condenser (.08 mfd. bakelite)	33-3119					
87	Resistor (99,000 ohms, 1/2 watt)	33-399339	.20	179	Resistor (51,000 ohms, 1/2 watt)	33-351339	.20				
				180	Resistor (51,000 ohms, 1/2 watt)	33-351339	.20				
				181	Condenser (.05 mfd. bakelite)	3615-SU	.35				
				182	Resistor (51,000 ohms, 1/2 watt)	33-351339	.20				
				183	Resistor (32,000 ohms, 1/2 watt)	33-322339	.20				
				184	Cable Speaker	41-3342	.90				

DIAL PARTS

Brace (Drive Mtg.)	28-4119	.05
Bracket Assembly	45-2349	
Coupling Assembly (tuning condenser)	31-1961	
Coupling (range switch)	28-7198	.15
Cover (Handle)	28-4077	.25
Dial	27-5207	.80
Dial Screen Holder Assembly	31-1958	
Dial Guide	27-5580	.03
Dial Escutcheon Assembly	45-2324	.40
Gasket (Dial Scale)	27-8398	.01
Gear No. 1 (front)	45-2347	
Gear No. 2 (rear)	45-2348	
Flood Lamp Assembly (4 unit)	38-2210	2.40
Flood Lamp Assembly (single)	38-7937	