MODELS F-62, F-66, F-75 & F-76

Six and Seven-Tube, Three Band, A-C Superheterodyne Receivers

Electrical Specifications

FREQUENCY RANGES

"Broadcast" (A)	530- 1,720 kc
"Medium Wave" (B)	2,100- 6,800 kc
"Short Wave" (C)	6,800-22,000 kc

R-F ALIGNMENT FREQUENCIES

"Short Wave" (C)	20,000 kc (osc.)
"Medium Wave" (B)	6,000 kc (osc., ant.)
"Broadcast" (A)	600 kc (osc.), 1,500 kc (osc.)

Intermediate Frequency ..... 460 kc

RADIOTRON COMPLEMENT

(1) Type-6A8	First Detector—Oscillator
(2) Type-6K7	Intermediate Amplifier
(3) Type-6H6	Second Detector and A.V.C.
(4) Type-6F5	Audio Voltage Amplifier
(5) Type-6F6	Audio Power Amplifier
(6) Type-5W4	Full-Wave Rectifier
(7) Type-6G5 (Models F-75 and F-76 only)	Tuning Tube

Pilot Lamps (2) ..... Mazda No. 46, 6.3 volts, 0.25 amp.

POWER SUPPLY RATINGS

Rating A ..... 105-125 volts, 50-60 cycles, 80 watts
Rating B ..... 105-125 volts, 25-60 cycles, 80 watts

POWER OUTPUT

Undistorted	2.5 watts
Maximum	4.5 watts

LOUDSPEAKER

Type ..... Electrodynamic

Impedance (v.c.) .. { (RL-70E-1) 2.2 ohms; (84001-2) 2.6 ohms } at 400 cycles

Mechanical Specifications

MODELS	F-76	F-75	F-66	F-62
Height (inches)	24	40	40	12
Width (inches)	26 1/16	26 5/8	26 5/8	18 7/16
Depth (inches)	17 1/4	12	12	8 3/4
Net Weight (pounds)	52	51 1/2	46	20 1/2
Shipping Weight (pounds)	61	67 1/2	59 1/2	25

Chassis Base Dimensions F-76, F-75, F-66 ..... 14 7/8 inches x 9 3/4 inches x 3 1/4 inches
Over-all Chassis Height ..... 9 1/2 inches
Chassis Base Dimensions (F-62) ..... 15 1/4 inches x 6 1/2 inches x 2 3/4 inches
Over-all Chassis Height ..... 9 inches
Operating Controls ..... (1) Power Switch—Tone; (2) Tuning, Range Selector; (3) Volume
Tuning Drive Ratio ..... 20 to 1

General Description

These receivers employ a conventional three-band superheterodyne circuit, the arrangement of which is shown by the Schematic Circuit Diagram. Models F-75 and F-66 are console models, each employing a 12-inch electrodynamic loudspeaker. Model F-62 is a chest-type table model, employing a 6-inch electrodynamic loudspeaker. Model F-76 is an arm-chair model with the chassis mounted vertically to afford operation from the top, and includes a 12-inch electrodynamic loudspeaker. Models F-75 and F-76 incorporate a "Tuning Eye" tuning indicator.

The extensive tuning range afforded by the three tuning bands includes the "Standard broadcast" band and the important short-wave international broadcast

bands of 49, 31, 25, 19, 16, and 13 meters along with channels assigned for police, aviation, and amateur communication.

Features of design include magnetite core i-f transformers and low-frequency oscillator tracking; antenna wave trap; full automatic volume control; phonograph terminal board; aural-compensated audio volume control; variable, high-frequency tone control; dust-proof electrodynamic loudspeaker; "Tuning-Eye" tuning tube on F-75 and F-76 only; and a new index dial with band indicator and short-wave stations listed by name.

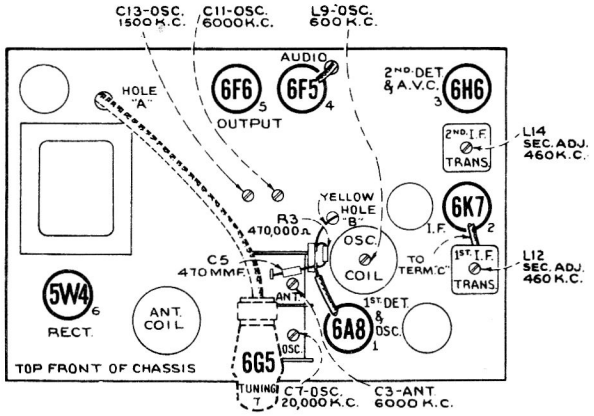


Figure 1—Radiotron, Coil, and Trimmer Locations (Models F-75, F-76, and F-66)

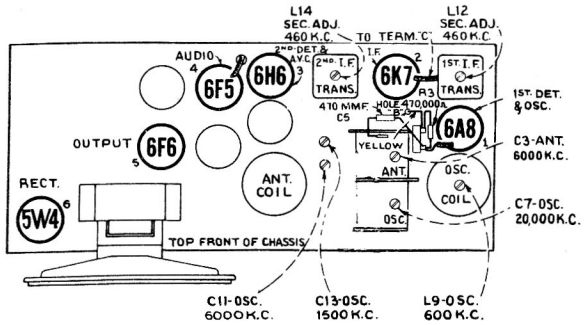


Figure 2—Radiotron, Coil, and Trimmer Locations (Model F-62)

Alignment Procedure

Calibrate the tuning dial by adjusting main dial pointer to the low-frequency (end) calibration mark on dial with the gang tuning-condenser plates in full-mesh position; then adjust the small (vernier) pointer to "O." These are friction adjustments.

Perform alignment in proper order, tabulated below, starting with No. 1 and following all operations across, then No. 2, etc. Adjustment locations are shown on figures 1, 2, 3, and 4.

Cathode-ray alignment is highly preferable; the connections to the chassis are shown on figures 6, 7, and 8. If an output indicator is used, connect it across the loudspeaker voice-coil and advance the receiver volume control to full-volume position.

Connect the "low" output terminal of the test oscillator to the receiver "G" (ground) terminal for all alignment operations. Regulate the output of the test oscillator so that minimum signal is applied to the receiver to obtain an observable output indication. This will avoid a-v-c action.

The term "Dummy antenna" means the device which must be connected between the "high" test-oscillator output and the point of connection to the receiver in order to obtain ideal alignment. "No signal, 550-750 kc" means that the receiver should be tuned to a point between 550 and 750 kc where no signal or interference is received from a station or local (heterodyne) oscillator.

Order of Alignment	Test Oscillator			Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols	Adjust to Obtain
	Connection to Receiver	Dummy Antenna	Frequency Setting					
1	6K7 I-F Grid Cap	.001 Mfd.	460 kc	"A" Left	No Signal 550-750 kc	2nd I-F Trans.	L13 and L14	Max. (peak)
2	6A8 Det. Grid Cap	.001 Mfd.	460 kc	"A"	No Signal 550-750 kc	1st I-F Trans.	L11 and L12	Max. (peak)
3	Ant. Term.	300 Ohms	20,000 kc	"C" Right	20,000 kc	"C" Osc.	C7	Max. (peak)*‡
4	Ant. Term.	300 Ohms	6,000 kc	"B" Center	6,000 kc	"B" Osc.	C11	Max. (peak)*
5	Ant. Term.	300 Ohms	6,000 kc	"B"	6,000 kc	"B" Ant.	C3	Max. (peak)
6	Ant. Term.	200 Mmfd.	600 kc	"A" Left	600 kc	"A" L-F Osc.	L9	Max. (peak)
7	Ant. Term.	200 Mmfd.	1,500 kc	"A"	1,500 kc	"A" H-F Osc.	C13	Max. (peak)
8	Ant. Term.	200 Mmfd.	600 kc	"A"	600 kc	"A" L-F Osc.	L9	Max. (peak)
9	Ant. Term.	200 Mmfd.	1,500 kc	"A"	1,500 kc	"A" H-F Osc.	C13	Max. (peak)

* Use minimum capacity peak if two peaks can be obtained.
‡ After this adjustment, check for image signal by shifting receiver dial to 19,080 kc.

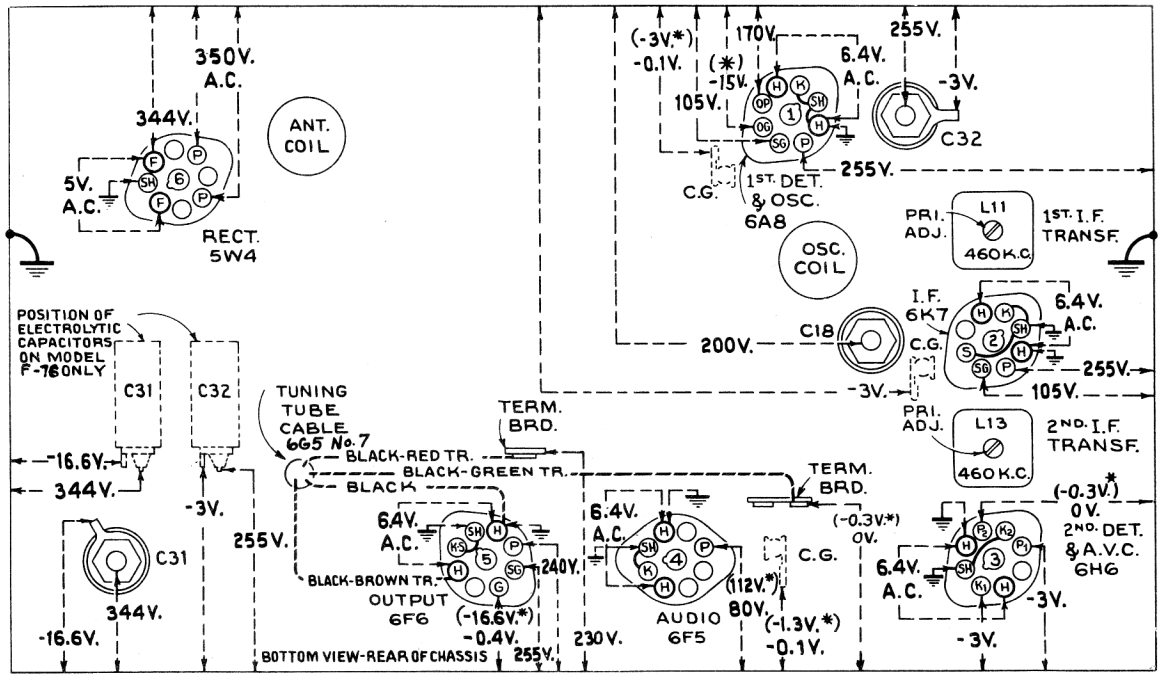


Figure 3—Radiotron Socket Voltages, Coil, and Trimmer Locations

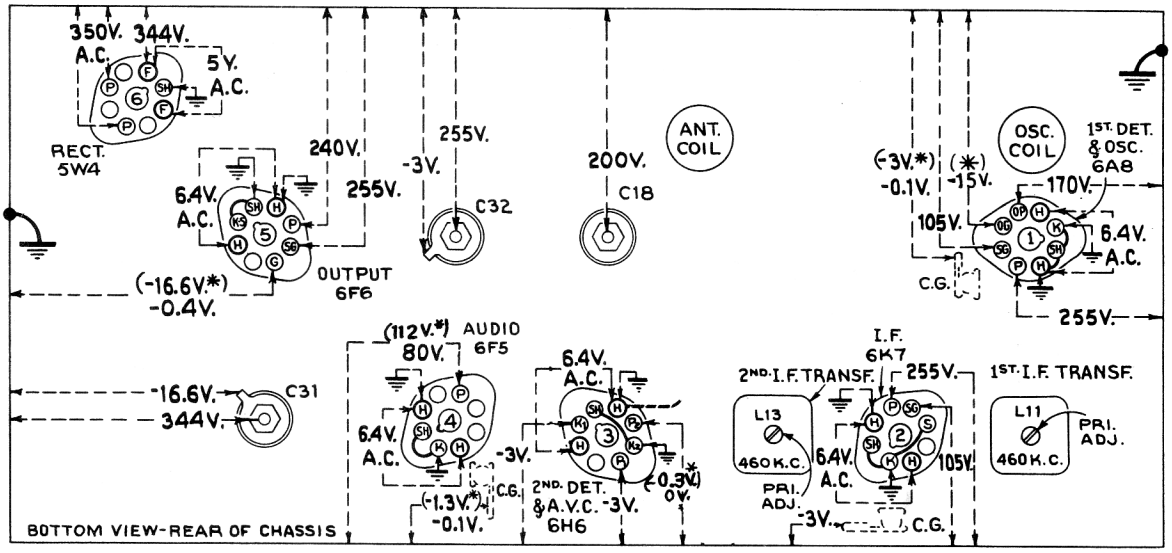
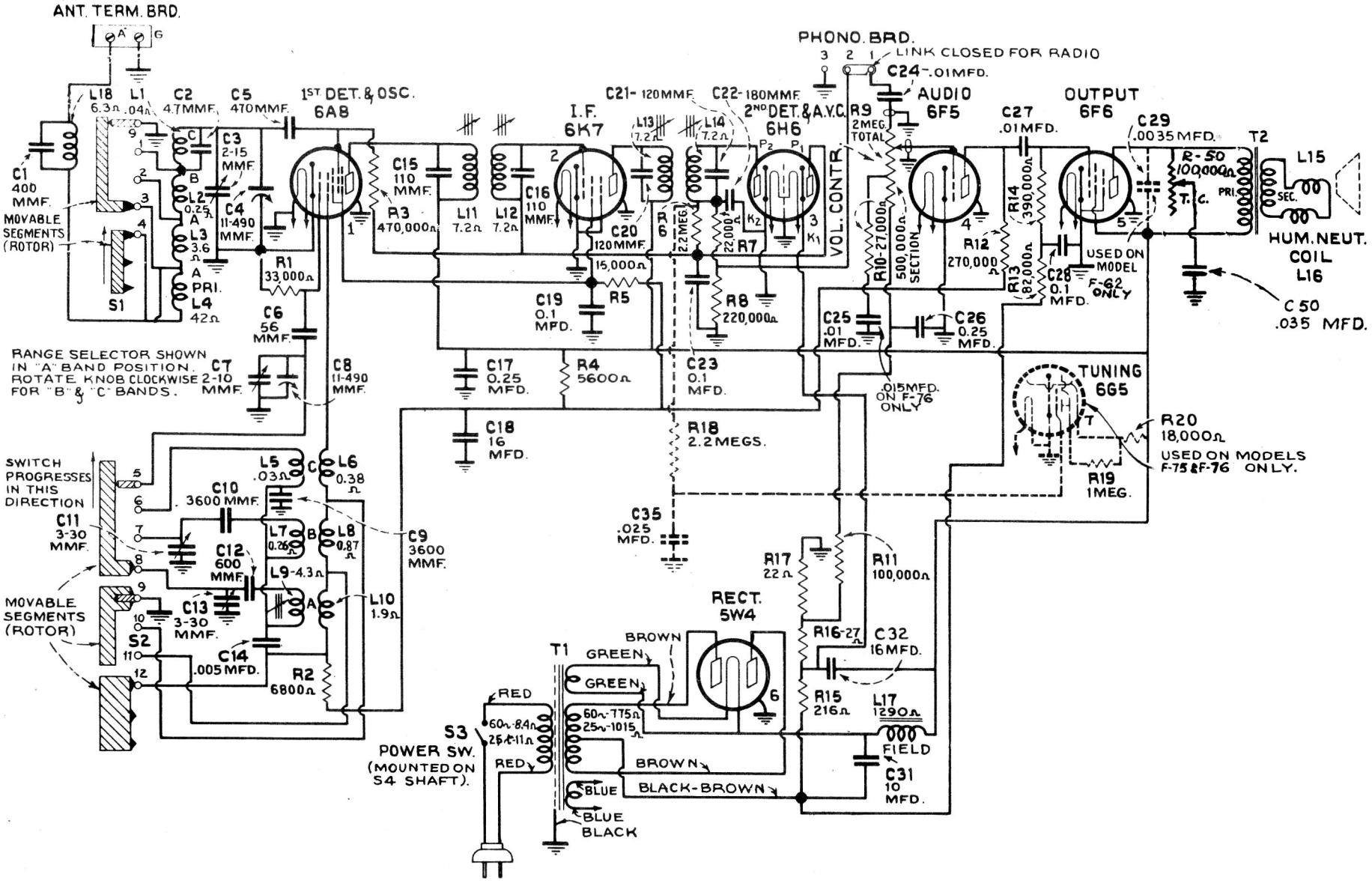


Figure 4—Radiotron Socket Voltages, Coil, and Trimmer Locations

Measured at 115 volts, 60-cycle supply—Tuned to approximately 1,000 kc ("Standard Broadcast")—No signal being received—Volume control minimum

Note: Two voltage values are shown for some readings. The value shown in parentheses with asterisk (*) indicates operating conditions without voltmeter loading. The other value (generally lower) is the actual measured voltage and differs from the value shown in parentheses because of the additional loading of the voltmeter through the high series circuit resistance.

Voltage values as specified should hold within ±20% when the receiver is normally operative at its rated line voltage. To duplicate the conditions under which the voltages were measured requires a 1,000-ohm-per-volt d-c meter, having ranges of 10, 50, 250, and 500 volts. Use the nearest range above the specified measured voltage. A-c voltages were measured with a corresponding a-c meter.



(Models F-62, F-66, F-75, F-76)

(On some instruments, R3 is connected to the junction of R18 and C35)

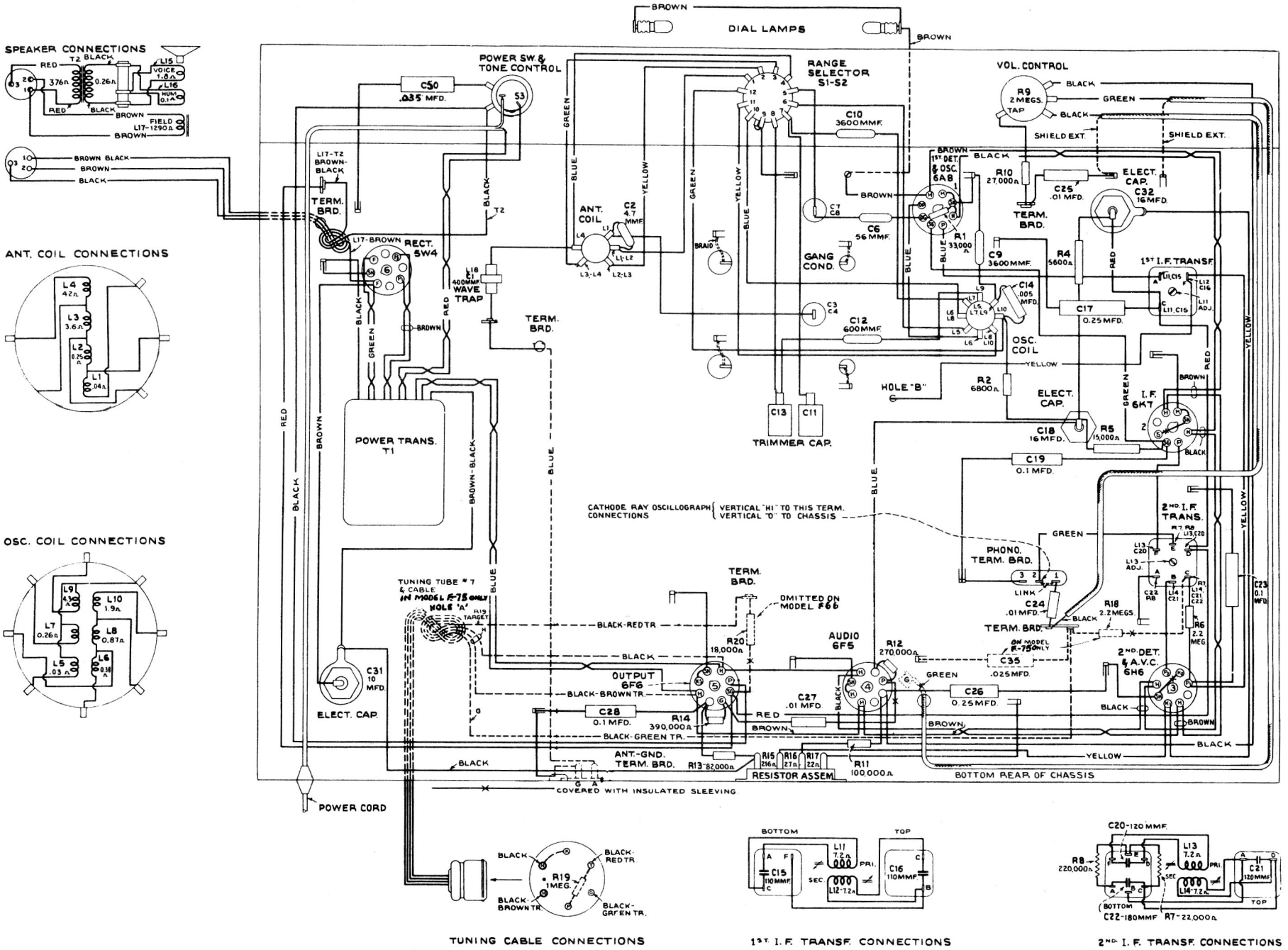


Figure 6—Chassis Wiring Diagram (Models F-66 and F-75)

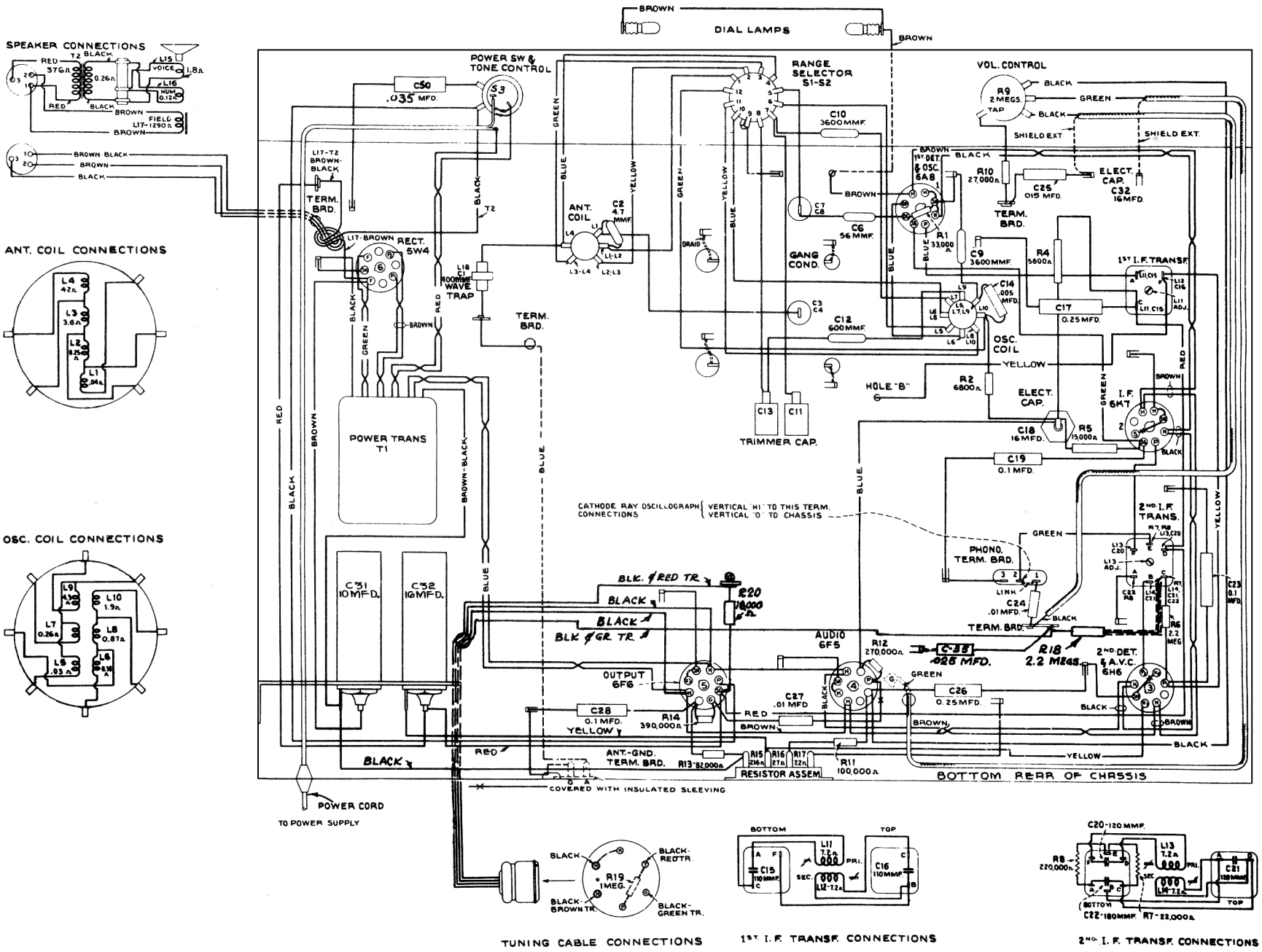


Figure 7—Chassis Wiring Diagram (Model F-76)

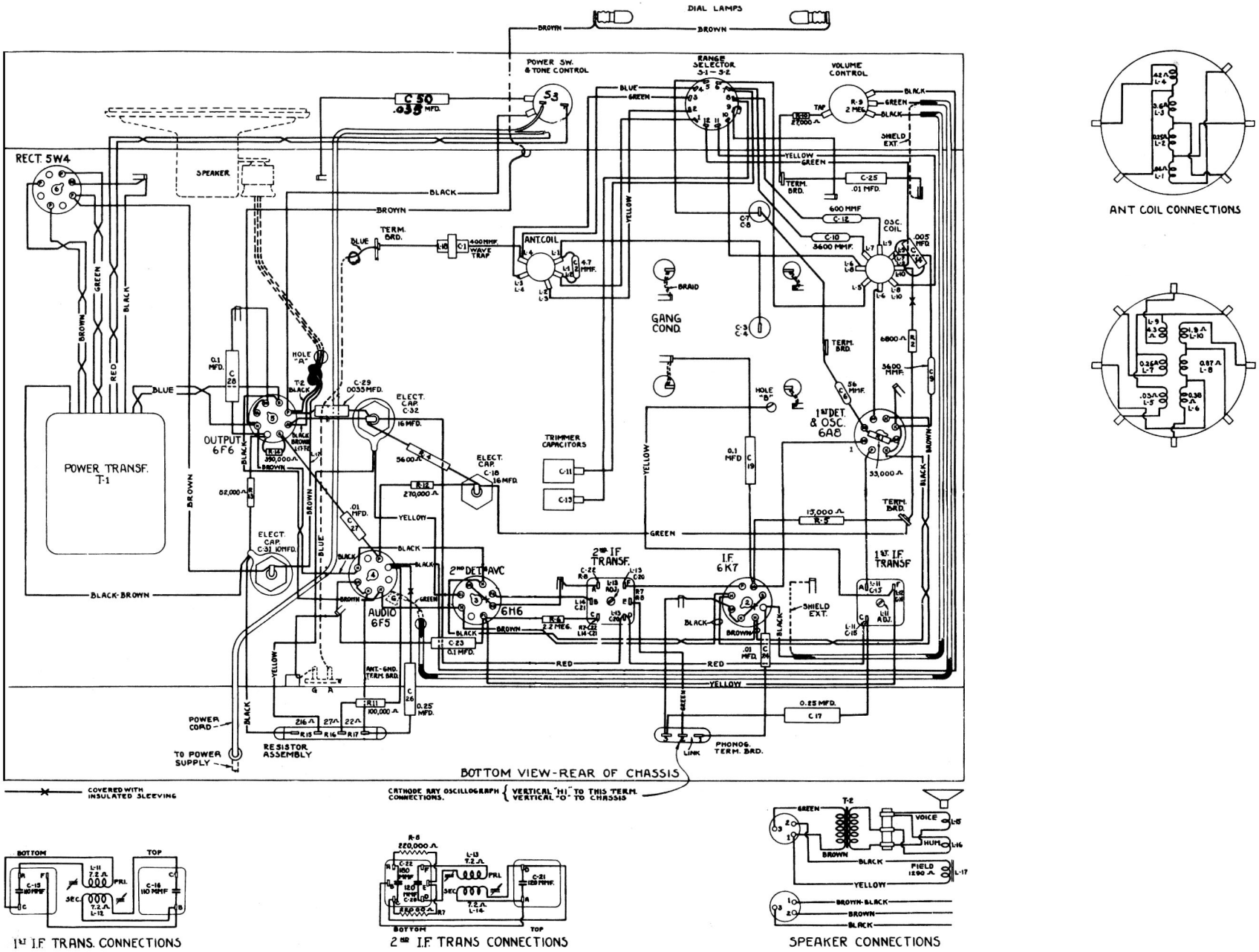


Figure 8—Chassis Wiring Diagram (Model F-62)

Service Data

The various diagrams of this booklet contain such information as will be needed to isolate causes for defective operation if such develops. The ratings of the resistors, capacitors, coils, etc., are indicated adjacent to the symbols signifying these parts on the diagrams. Identification titles such R1, L1, C1, etc., provide reference between the illustrations and Replacement Parts List. The coils, transformer windings, and reactors are rated in terms of d-c resistance to permit continuity checks.

Loudspeaker.—Centering of the loudspeaker is made in the usual manner with three narrow paper feelers after first removing the front dust cover. This may be removed by softening its cement with a light application of acetone, using care not to allow the acetone to flow into the air gap. The dust cover should be cemented back in place with ambroid upon completion of adjustment.

Phonograph Attachment.—A terminal board is provided for connecting a phonograph into the audio amplifying circuit. Model R-93 Record Player should be connected as follows: Remove link between terminals 1 and 2 on terminal board. Connect green wire in Radio-Record switch cable to terminal 1, yellow to terminal 2, and shield extension to terminal 3. Tape unused red and blue leads separately. Connect a 2-conductor twisted cable between the Record Player binding posts and the screw terminals on Radio-Record switch.

Precautionary Lead Dress (Models F-76, F-75 and F-66.)—(1) Keep bus lead from term. 9 of S1-S2 to ground lance as short as possible. (2) Bus lead from term. 6 of S1-S2 to L5 should be 4 inches long. (3) Bus lead from term. 5 of S1-S2 to C7-C8 should be 2⅛ inches long. (4)Keep bus lead from term. 1 of S1-S2 to L1-L2 as short as possible. (5) Bus lead from L1 to C3-C4 should be 3¾ inches long (6) Keep C6, C9, C10, and C12 so that broad side is perpendicular to chassis and keep their leads as short as possible. (7) Keep blue lead from "OP" of tube 1 to L6 dressed away from chassis and other leads. (8) Yellow and green leads from terms. 11 and 12 of S1-S2 to oscillator coil must be twisted and dressed under all range switch bus leads. (9) Keep green lead from term. E of 2nd i-f trans. to term. 2 of phono. board as short as possible.

Precautionary Lead Dress (Models F-62).—(1) Keep bus lead from term. 9 of S1-S2 to ground lance as short as possible. (2) Bus lead from term. 6 of S1-S2 to L5 should be 3¼ inches long. (3) Bus lead from term. 5 of S1-S2 to C7-C8 should be 2¼ inches long. (4) Keep bus lead from term. 1 of S1-S2 to L1-L2 as short as possible. (5) Bus lead from L1 to C3-C4 should be 3¼ inches long and dressed above bus lead from antenna coil to range switch. (6) Keep C6, C9, C10, and C12 so that broad side in perpendicular to chassis and keep their leads as short as possible. (7) Power cord should be dressed over C27 and under bus from C32 to "SG" of tube 5. (8) C26 from dummy term. of tube 4 must be grounded to end lug of R-17. (9) Keep green lead from term. E of 2nd i-f trans. to term. 2 of phono. board as short as possible. (10) Keep bus lead from term. 10 of S1-S2 to L6-L8 as short as possible. When necessary to replace bus leads, use only wire having same diameter as original.

Radiotron Cathode Current Readings

Measured with Milliammeter Connected at Tube Socket Cathode Terminals Under Conditions Similar to Those of Voltage Measurements

(1) Type-6A8—1st Det.—Osc.....	14.	ma.
(2) Type-6K7—I-F Amp.....	8.5	ma.
(3) Type-6H6—2nd Det. and A.V.C.....	.....	
(4) Type-6F5—Audio Driver.....	0.26	ma.
(5) Type-6F6—Power Amplifier.....	37.	ma.
(6) Type-5W4—Rectifier	63.	ma.**
(7) Type-6G5—Tuning Tube	1.2	ma.

** Cannot be measured at socket.

REPLACEMENT PARTS

STOCK No.	DESCRIPTION		STOCK No.	DESCRIPTION	
	RECEIVER ASSEMBLIES		14262	Capacitor-110 Mmfd.(C15,C16).....	
14380	Arm-Band indicator operating arm and hub-less set screw,Stock No.14350...		12404	Capacitor-120 Mmfd.(C20,C21).....	
12038	Band-Rubber band for tuning tube-Pkg.of 10.....		12406	Capacitor-180 Mmfd.(C22).....	
14384	Belt-Variable condenser drive belt for Models F76,F66 and F75 only-Pkg.of 5.....		13052	Capacitor-470 Mmfd.(C5).....	
14388	Belt-Variable condenser drive belt for Model F62-Pkg.of 5.....		14391	Capacitor-600 Mmfd.(C12).....	
13216	Board-Antenna and ground terminal board (Table).....		12811	Capacitor-3,600 Mmfd.(C9,C10).....	
14517	Board-Antenna and ground terminal board (Console).....		S-1811	Capacitor-.0035 Mfd. (C29)(Model F62)	
12717	Board-Phonograph terminal board.....		4793	Capacitor-.005 Mfd. (C14).....	
14338	Bushing-Variable condenser mounting bushing and screw assembly.....		13138	Capacitor-.01 Mfd. (C27).....	
14394	Cable-Tuning tube cable and socket complete,for Models F76 and F75 only		14393	Capacitor-.01 Mfd. (C24,C25).....	
12607	Cap-First I.F. transformer shield top		11315	Capacitor-.015 Mfd. (C25).....	
12581	Cap-Second I.F.transformer shield top		11451	Capacitor-.017 Mfd. (C30).....	
11350	Cap-Grid contact cap-Pkg.of 5.....		4870	Capacitor-.025 Mfd. (C35).....	
14383	Capacitor-Adjustable dual trimmer (C11,C13).....		12670	Capacitor-.035 Mfd. (C50).....	
14392	Capacitor-4.7 Mmfd. (C2).....		4839	Capacitor-0.1 Mfd. (C19,C23,C28)...	
12723	Capacitor-56 Mmfd. (C6).....		4840	Capacitor-0.25 Mfd. (C26).....	
			12484	Capacitor-0.25 Mfd. (C17).....	
			11240	Capacitor-10 Mfd. (C31).....	
			5212	Capacitor-16 Mfd. (C32).....	
			14377	Capacitor-16 Mfd. (C18).....	
			30105	Capacitor-16 Mfd. (C18)(Model F76) only).....	
			14372	Coil-Antenna coil and shield (L1,L2, L3,L4).....	
			14373	Coil-Oscillator coil and shield (L5, L6,L7,L8,L9,L10).....	
			14363	Condenser-2-gang variable tuning condenser (C3,C4,C7,C8).....	

REPLACEMENT PARTS—F-62, F-66, F-75 & F-76

STOCK No.	DESCRIPTION
5119	Connector-3-contact female connector for reproducer cable.....
12800	Core-Adjustable core and stud assembly for coil,Stock No.14373.....
12006	Core-Adjustable core and stud for Stock Nos.14376 and 14283.....
S-1813	Dial-Band indicator dial and mounting bracket assembly for Models F75 and F66 only.....
S-1814	Dial-Band indicator dial and mounting bracket assembly for Model F76.....
S-1815	Dial-Band indicator dial and mounting bracket assembly for Model F62.....
S-1818	Dial-Station selector dial scale for Models F66 and F62 only.....
S-1817	Dial-Station selector dial, complete, with tuning tube escutcheon assembly for Models F75 and F76 only.....
14364	Drive-Variable condenser vernier drive pinion gear and shaft.....
14345	Drum-Variable condenser drive belt drum,complete,with set screws.....
S-1795	Escutcheon-Tuning tube escutcheon for Models F75 and F76 only.....
11982	Fastener-Station selector dial scale fastener-Pkg.of 25.....
30085	Gear-Indicator drive gear and hub assembly and indicator pointer stem and gear.....
14341	Idler-Station selector drive belt idler.....
S-1784	Indicator-Station selector indicator pointer.....
S-1785	Indicator-Vernier indicator pointer...
5226	Lamp-Dial lamp-Pkg.of 2.....
14340	Pulley-Station selector drive belt pulley and knob shaft.....
14361	Reflector-Dial reflector and lamp bracket assembly for Models F66,F62 only).....
14362	Reflector-Dial reflector,lamp bracket and tuning tube bracket assembly for Models F75 and F76 only.....
14343	Retainer-Drive shaft and pulley retainer-holds tuning knob shaft and pulley on range-switch shaft-Pkg.of 10.....
11298	Resistor-5,600 ohms,carbon type,1 watt (R4).....
11726	Resistor-6,800 ohms,carbon type,½ watt (R2).....
5114	Resistor-15,000 ohms,carbon type,1 watt (R5).....
14078	Resistor-18,000 ohms,carbon type,1 watt (R20)for Models F75 and F76 only
14284	Resistor-22,000 ohms,carbon type,1/10 watt (R7).....
11400	Resistor-27,000 ohms,carbon type,½ watt (R10) for Models F66,F75 and F76.....
14390	Resistor-Resistor-27,000 ohms,carbon type,1/10 watt (R10),for Model F62...
13735	Resistor-33,000 ohms,carbon type,½ watt (R1).....
11365	Resistor-82,000 ohms,carbon type,½ watt (R13).....
5145	Resistor-100,000 ohms,carbon type,¼ watt (R11).....
11398	Resistor-220,000 ohms,carbon type,1/10 watt (R8).....
11453	Resistor-270,000 ohms,carbon type,1/10 watt (R12).....
13005	Resistor-390,000 ohms,carbon type,1/10 watt (R14).....
11452	Resistor-470,000 ohms,carbon type,1/10 watt (R3).....
12013	Resistor-1 Megohm,carbon type,1/10 watt (R19),for Models F75 and F76 only.....
11626	Resistor-2.2 Megohm,carbon type, ¼ watt (R6,R18)(R18 used in Models F75 and F76 only.....
12004	Resistor-Voltage divider resistor-comprising one 216 ohm,one 27 ohm, and one 22 ohm sections (R15,R16, R17).....
14350	Screw-No.8-32 x 3/16 square-head set-screw for gear,Stock No.30085 and drum Stock No.14345 and arm, Stock No.14380-Pkg.of 10.....
14374	Shield-Antenna coil shield.....
12008	Shield-First or Second I.F.transformer shield.....
14375	Shield-Oscillator coil shield.....
14114	Socket-Dial lamp socket.....
11195	Socket-5-contact 5W4 Radiotron socket.....
11196	Socket-8-contact 6A8,6K7,6H6,6F5, 6F6 or Radiotron socket.....
12007	Spring-Retaining spring for core, Stock Nos.12006 and 12800-Pkg.of 10.....
12907	Spring-Tension spring for indicator drive gear,Stock No.30085-Pkg.of 10.....
14342	Spring-Tension spring for idler, Stock No.14341-Pkg.of 10.....
14370	Switch-Range switch (S1,S2).....
S-1801	Switch-Tone control and power switch (S3,R50).....
14376	Transformer-First I.F.transformer (L11,L12,C15,C16).....
14283	Transformer-Second I.F.transformer (L13,L14,C20,C21,C22,R7,R8).....
14367	Transformer-Power transformer,105-125 volts,50-60 cycles (T1).....
14368	Transformer-Power transformer,105-125 volts,25-60 cycles (T1).....
13838	Trap-Wave trap,complete (L18,C1)....
14335	Volume Control (R9).....
14379	Washer-Felt washer for indicator pointer-Pkg.of 10.....
	REPRODUCER ASSEMBLIES(84001-2) Model F62 only.
S-1820	Cone-Reproducer cone (L15).....
5118	Plug-3-contact male plug for reproducer.....
S-1821	Reproducer-complete.....
S-1822	Transformer-Output transformer (T2).
	REPRODUCER ASSEMBLIES(RL-70E-1) Models F66, F75 and F76.
13866	Cap-Dust cap for cone center-Pkg.of 5.....
14354	Coil-Field coil (L17).....
11469	Coil-Hum neutralizing coil (L16)....
12667	Cone-Reproducer cone and dust cap (L15).....
5118	Plug-3-contact male plug for reproducer.....
14395	Reproducer-Reproducer complete.....
14355	Transformer-Output transformer (T2).
14357	Washer-Spring washer to hold field coil-Pkg.of 5.....
	MISCELLANEOUS ASSEMBLIES
S-1781	Escutcheon-Station selector escutcheon and crystal.....
12699	Knob-Station selector knob.....
11347	Knob-Volume control,tone control or range switch knob.....
4982	Spring-Retaining spring for knob-Stock No.12699-Pkg.of 10.....
14270	Spring-Retaining spring for knob-Stock No.11347-Pkg.of 5.....