MODELS F-52, F-52A, F-57 & F-57A

Five-Tube, Two-Band, A-C Superheterodyne Receivers

Electrical Specifications

FREQUENCY RANGES

"Broadcast" (A) ..... 540-1,720 kc
"Short Wave" (C) ..... 5,800-18,000 kc

R-F ALIGNMENT FREQUENCIES

"Broadcast" (A) ..... 600 kc (osc.)
"Short Wave" (C) ..... 15,000 kc (osc., ant.)

Intermediate Frequency ..... 460 kc

RADIOTRON COMPLEMENT

(1) Type 6A7 ..... First Detector—Oscillator
(2) Type 6D6 ..... Intermediate Amplifier
(3) Type 75 .... Second Det., A-F Amp. and A.V.C.
(4) Type 41 ..... Audio Power Amplifier
(5) Type 80 ..... Full-Wave Rectifier

POWER SUPPLY RATINGS

Rating A ..... 105-125 volts, 50-60 cycles, 75 watts
Rating B ..... 105-125 volts, 25-60 cycles, 75 watts

POWER OUTPUT RATING

Undistorted ..... 2.0 watts
Maximum ..... 4.0 watts

LOUDSPEAKER

Type ..... Electrodynamic
V.C. Impedance ..... 3.6 ohms at 400 cycles

Mechanical Specifications

	F-52	F-52A	F-57	F-57A
Height	9 3/4	9 3/4	38 11/16	38 11/16 inches
Width	17 1/8	17 1/8	24	24 inches
Depth	7 1/4	7 1/4	11 3/16	11 3/16 inches
Weight (Net)	19	19	49	44 lbs.
Weight (Shipping)	21	21	54	54 lbs.

Chassis Base Dimensions ..... 9 13/16 inches, x 3 inches x 6 3/4 inches
Over-all Chassis Height ..... 6 1/2 inches
Operating Controls ..... (1) Power Switch—Volume, (2) Range Selector, (3) Tuning

General Description

These receivers employ a conventional superheterodyne circuit, the arrangement of which is shown by the Schematic Circuit Diagram. Models F57 and F57A are console models, each employing an 8 inch electrodynamic loudspeaker. Models F52 and F52A are chest-type table models, each employing a 6 inch electrodynamic loudspeaker. Teledial Tuning is incorporated in the Models F-52A and F-57A.

Features of design include magnetite core i-f transformers and low-frequency oscillator tracking; automatic volume control; phonographic terminal board; variable high frequency tone control and resistance-coupled audio system.

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 and capacitors, are indicated adjacent to the symbols signifying these parts on the diagrams. Identification titles such as R1, L1, C1, etc., provide reference between the illustrations and Replacement Parts List.

Precautionary Lead Dress—(1) Dress power line leads to the on-off switch away from grid connection terminal on volume control to reduce hum pick-up. (2) Keep leads of capacitor C3 as short as possible. (3) Bus lead from range selector (ter. 6) to

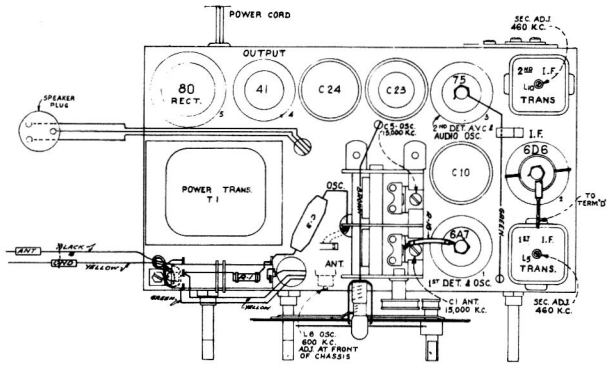

Figure 1—Radiotron, Coil, and Trimmer Locations

oscillator coil tap L6L8 should be maintained 1¾ inches long for proper alignment. (4) Capacitor C25 should be dressed free of adjacent parts to maintain correct alignment at high-frequency end of "A" band. (5) Bus lead from range selector (ter.3) to antenna coil L1 should be maintained 2¼ inches long for proper alignment. (6) The Type 6A7 grid-cap lead (55-ohm resistor R 18) to top of tuning capacitor C2 should be dressed properly to prevent shorts and should be maintained flexible to prevent acoustic howl.

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 the link from the phonograph terminal board. Connect green wire in Radio-Record switch cable to terminal 1; yellow to terminal 2; shield to terminal 3; and tape up the red and blue. Connect a 2-conductor twisted cable between the Record Player binding posts and the screw-terminals on Radio-Record switch.

Loudspeaker.—Centering of the loudspeaker voice coil is made in the usual manner with three narrow paper feelers.

Alignment Procedure

Calibrate the tuning dial by adjusting dial pointer to the center horizontal line with the gang tuning-condenser plates in full-mesh position. This is a screw-driver adjustment.

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 and 4.

Cathode-ray alignment is preferable. 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 chassis 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	6D6 I-F Grid Cap	.001 Mfd.	460 kc	"A" Left	No Signal 550-750 kc	2nd I-F Trans.	L9 and L10	Max. (peak)
2	6A7 Det. Grid Cap	.001 Mfd.	460 kc	"A" Left	No Signal 550-750 kc	1st I-F Trans.	L4 and L5	Max. (peak)
3	Ant. Lead	300 Ohms	15,000 kc	"C" Right	15,000 kc	"C" Osc.	C5	Max. (peak)†
4	Ant. Lead	300 Ohms	15,000 kc	"C" Right	Rock Through 15,000 kc	"C" Ant.	C1	Max. (peak)*‡
5	Ant. Lead	200 Mmfd.	600 kc	"A" Left	600 kc	"A" Osc.	L8	Max. (peak)

† Use maximum capacity peak if two peaks can be obtained.
* Use minimum capacity peak if two peaks can be obtained.
‡ After this adjustment, check for image signal by shifting receiver dial to 15,920 kc.

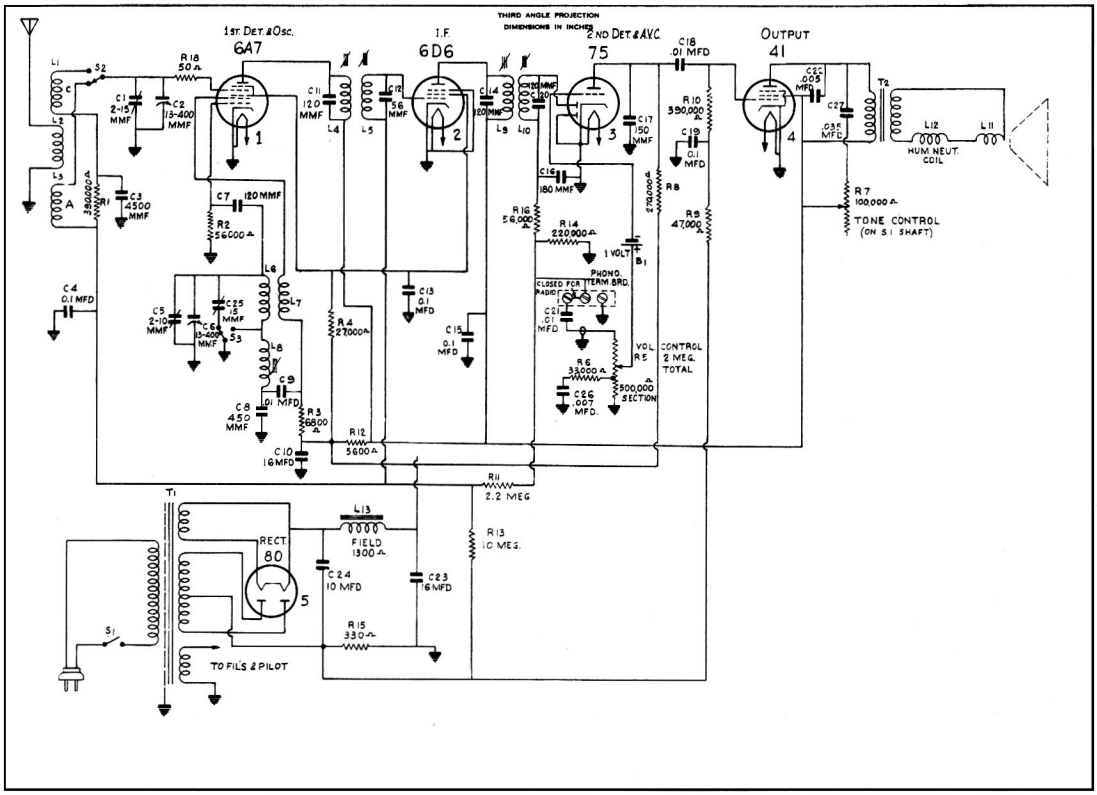

Figure 2—Schematic Circuit Diagram

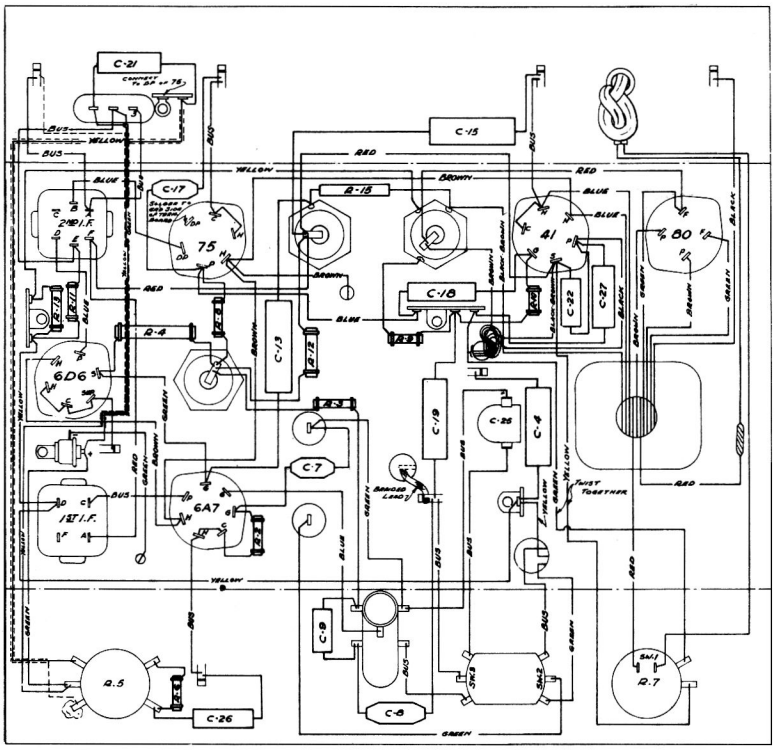

Figure 3—Chassis Wiring Diagram

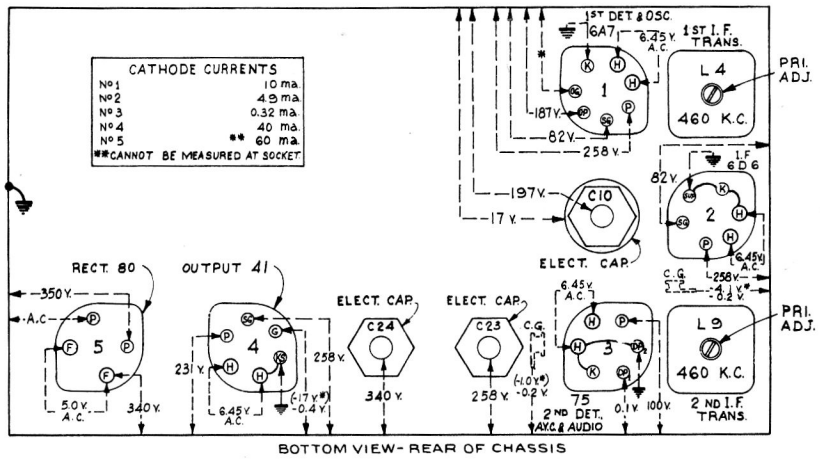

Figure 4—Radiotron Socket Voltages, Coil, and Trimmer Locations
Measured at 115 volts, 60-cycle supply—Tuned to approximately 1,000 kc ("Broadcast")—
No signal being received—Volume control minimum

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.

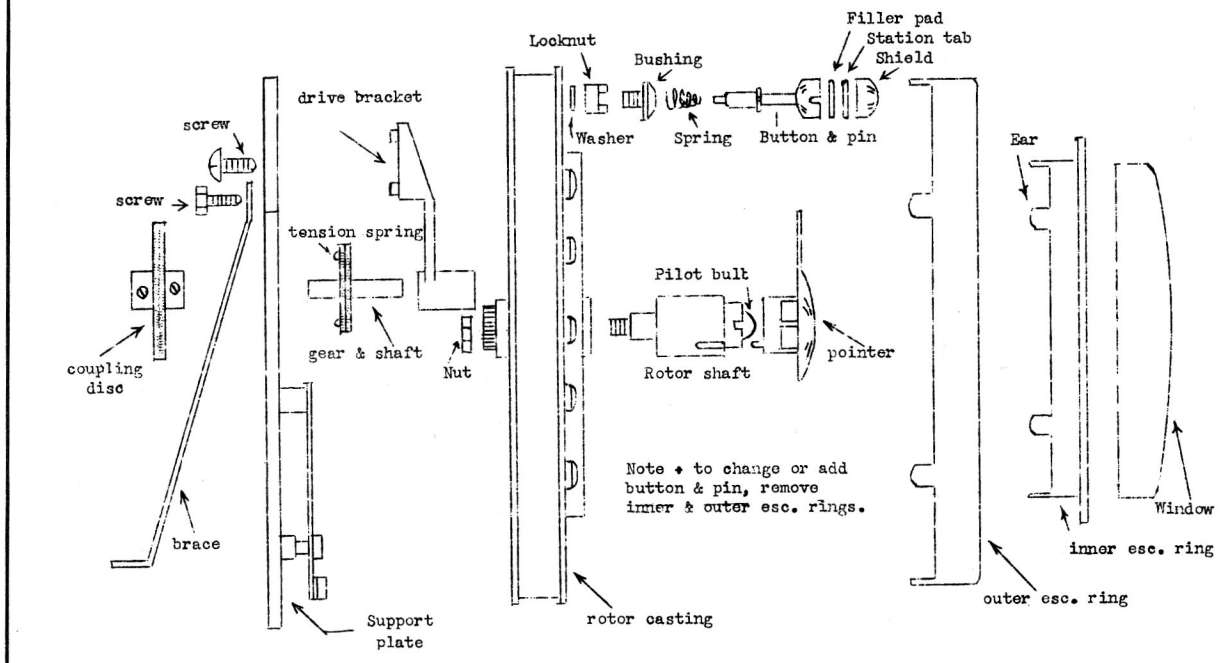

Figure 5—Exploded View of Teledial

REPLACEMENT PARTS—F-52, F-52A, F-57 & F-57A

STOCK No.	DESCRIPTION
	RECEIVER ASSEMBLIES
12717	Board-Phonograph terminal board.....
12118	Cap-Grid contact cap-Pkg.of 5.....
S-1843	Capacitor-Adjustable capacitor(C25)...
13307	Capacitor- 56 Mmfd. (C12).....
12724	Capacitor- 120 Mmfd. (C7).....
12404	Capacitor- 120 Mmfd. (C11,C14,C20)....
12725	Capacitor- 150 Mmfd. (C17).....
11500	Capacitor- 180 Mmfd. (C16).....
12812	Capacitor- 450 Mmfd. (C8).....
12728	Capacitor-4500 Mmfd. (C3).....
4793	Capacitor- .005 Mmfd.(C22).....
5148	Capacitor- .007 Mfd. (C26).....
4883	Capacitor- .01 Mfd. (C18).....
13138	Capacitor- .01 Mfd. (C9,C21).....
5196	Capacitor- .035 Mfd. (C27).....
4839	Capacitor- 0.1 Mfd. (C4,C19).....
4841	Capacitor- 0.1 Mfd. (C13,C15).....
11240	Capacitor- 10 Mfd. (C24).....
5212	Capacitor- 16 Mfd. (C23).....
14377	Capacitor- 16 Mfd. (C10).....
12681	Cell-Bias Cell.....
14648	Core-Adjustable core and stud for oscillator coil.....
12006	Core-Adjustable core and stud for I.F. transformer.....
S-1834	Coil-Antenna coil (L1,L2,L3).....
14647	Coil-Oscillator coil (L6,L7,L8).....
S-1838	Holder-Bias Cell Holder.....
14653	Resistor-55 ohms-Flexible type, 1 watt (R18).....
14652	Resistor-330 ohms-Wire wound, insulated 1 watt (R15).....
S-1839	Resistor-5,600 ohms, insulated, ½ watt (R12).....
30400	Resistor-6,800 ohms, insulated, ½ watt (R3).....
12011	Resistor-27,000 ohms, carbon type, 1 watt (R4).....
11300	Resistor-33,000 ohms, carbon type, 1/10 watt (R6).....
5132	Resistor-47,000 ohms, carbon type, 1/10 watt (R9).....
11282	Resistor-56,000 ohms, carbon type, 1/10 watt (R16).....
12286	Resistor-56,000 ohms, insulated, ½ watt (R2).....
11398	Resistor-220,000 ohms, carbon type, 1/10 watt (R14).....
12199	Resistor-270,000 ohms, insulated, ½ watt (R8).....
13005	Resistor-390,000 ohms, carbon type, 1/10 watt (R1,R10).....
S-1840	Resistor-2.2 Megohm, carbon type, 1/10 watt (R11).....
13601	Resistor-10 Megohm, insulated, ½ watt (R13).....
12008	Shield-First or second I.F. transformer shield.....
12607	Shield-First I.F. transformer shield top.....
12581	Shield-Second I.F. transformer shield top.....
11265	Shield-Radiotron shield.....
4794	Socket-4-contact 80 Radiotron socket..
4785	Socket-6-contact 6D6,41 or 75 Radiotron socket.....
4787	Socket-7-contact 6A7 Radiotron socket.
12007	Spring-Retaining spring for core Stock Nos.12006 & 14648-Pkg.of 10...
S-1831	Switch-Range switch (S2,S3,) Models F52 & F57 only).....
S-1826	Switch-Range switch (S2,S3,) Models F52A & F57A only).....
12801	Transformer-First I.F. transformer (L4,L5,C11,C12).....
12653	Transformer-Second I.F. transformer (L9,L10,C14,C16).....
S-1832	Transformer-Power transformer, 105-125 volts,50-60 cycles.....
S-1833	Transformer-Power transformer, 105-125 volts,25-60 cycle.....
S-1836	Tone control and operating switch Models F52 & F57.....
S-1827	Volume control (Models F52A and F57A only).....
S-1835	Volume control (Models F52 and F57 only).....
S-1828	Tone Control and operating switch (Models F52A & F57A only).....
	CONDENSER AND DRIVE ASSEMBLIES Models F52 and F57 only
14634	Belt-Variable condenser drive belt.
14632	Bracket-Dial mounting bracket.....
5237	Bushing-Variable condenser rubber mounting bushing-Pkg.of 3.....
14633	Condenser-2 gang variable tuning condenser (C1,C2,C5,C6).....
S-1842	Dial-Station selector dial.....
14651	Drive-Variable condenser vernier drive and pinion gear.....
14635	Indicator-Station selector indicator pointer.....
5226	Lamps-Dial lamps-Pkg.of 2.....
14636	Pulley-Idler pulley-less spring....
14639	Pulley-Variable condenser drive pulley located on condenser shaft
4389	Screw-No.6 - 32x3/16 headless set screw for pulley,Stock No.14639-Pkg.of 10.....
14638	Shaft-Station selector knobs shaft and pulley.....
14637	Spring-Idler pulley tension spring-Pkg.of 5.....
14658	Socket-Dial lamp socket.....
S-1829	Escutcheon-Station selector escutcheon and crystal.....
12673	Knobs-Station selector,volume control or tone control knobs-Pkg. of 2.....
S-1845	Knobs-Range switch knob-Pkg.of 2...
	CONDENSER AND DRIVE ASSEMBLIES Models F52A & F57A
S-1846	Coupling-Coupling disk.....
S-1847	Drive-Drive string,clip and spring.
S-1848	Lamp Socket.....
S-1850	Indicator-Station selector Indicator pointer.....
S-1852	Button and Pin assembly complete...
S-1853	Lamp-Dial lamp-Pkg.of 2.....
S-1854	Gear and Shaft assembly complete with tension spring.....
S-1837	Ring-Outer escutcheon ring.....
S-1858	Ring-Inner escutcheon ring.....
S-1859	Window-Escutcheon window.....
S-1861	Dial-Station selector dial scale...
S-1856	Knob-Range switch knob-Pkg.of 2....
S-1830	Knob-Station selector volume control or tone control knob-Pkg.of2
S-1863	Card-Call.lettercards for Station Selector.....
	REPRODUCER ASSEMBLIES-Models F52 & F52A
S-1820	Cone-Reproducer cone.....
S-1825	Reproducer complete.....
S-1822	Transformer-Output transformer.....
	REPRODUCER ASSEMBLIES-Models F57 & 57A
13866	Cap-Cone center dust cap-Pkg.of 5..
14354	Coil-Field coil.....
11469	Hum neutralizing coil.....
12642	Cone-Reproducer cone and dust cap..
5118	Plug-3-contact male plug for reproducer.....
14360	Reproducer-Reproducer complete.....
14355	Transformer-Output transformer.....
14357	Washer-Spring washer to hold field coil-Pkg. 5.....