MODEL F-40

Four-Tube, Single-Band, A-C Superheterodyne Receiver

Electrical Specifications

Frequency Range ..... 530—1,720 kc
R-F Alignment Frequency ..... 600 kc (osc), 1500 kc (osc., ant.)
Intermediate Frequency ..... 460 kc

RADIOTRON COMPLEMENT

(1) Type 6A7 ..... First Detector—Oscillator
(2) Type 6B7 ..... Intermediate Amplifier I.F. Amp., Second Det., A-F Amp., and A.V.C.
(3) Type 41 ..... Audio Power Amplifier
(4) Type 1V ..... Half-Wave Rectifier

Pilot Lamp (1) ..... Mazda No. 46, 6.3 volts, 0.25 ampere

POWER SUPPLY RATINGS

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

POWER OUTPUT RATING

Undistorted ..... 1.0 watts
Maximum ..... 2.5 watts

LOUDSPEAKER

Type ..... Electrodynamic
Voice Coil Impedance ..... ohms at 400 cycles

Mechanical Specifications

Height ..... 8 13/16 inches
Width ..... 12 13/16 inches
Depth ..... 7 1/16 inches
Weight (Net) ..... 16 pounds
Weight (Shipping) ..... 18 pounds
Chassis Base Dimensions ..... 11 3/8 inches x 5 3/4 inches x 2 1/4 inches
Over-all Chassis Height ..... 6 1/2 inches
Operating Controls ..... (1) Power Switch–Volume, (2) Tuning

General Description

This receiver employs a superheterodyne circuit, the arrangement of which is shown on figure 2. Its design includes magnetite-core adjusted *i-f* transformers; automatic volume control; resistance-coupled audio system; and a 5-inch, electrodynamic loudspeaker.

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 as R1, L1, C1, etc., provide reference between the illustrations and Replacement Parts List.

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

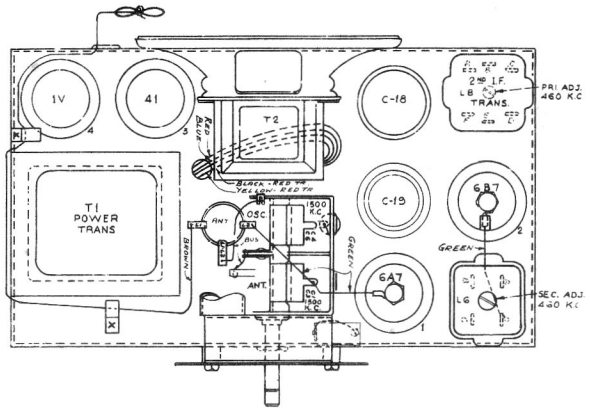

Figure 1—Radiotron, Coil, and Trimmer Locations

Model F40

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; the connections to the chassis are shown on figure 3. 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			Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols	Adjust to Obtain
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	6B7 Grid Cap	.001 Mfd.	460 kc	No Signal 550-750 kc	2nd I-F Trans.	L8	Max. (peak)
2	6A7 Grid Cap	.001 Mfd.	460 kc	No Signal 550-750 kc	1st I-F Trans.	L5 and L6	Max. (peak)
3	Ant. Lead	200 Mmfd.	1,500 kc	1,500 kc	"A" Osc.	C4	Max. (peak)
4	Ant. Lead	200 Mmfd.	1,500 kc	1,500 kc	"A" Ant.	C3	Max. (peak)
5	Ant. Lead	200 Mmfd.	600	Rock thru 600	"A" L.F. Osc.	C7	Max. (peak)

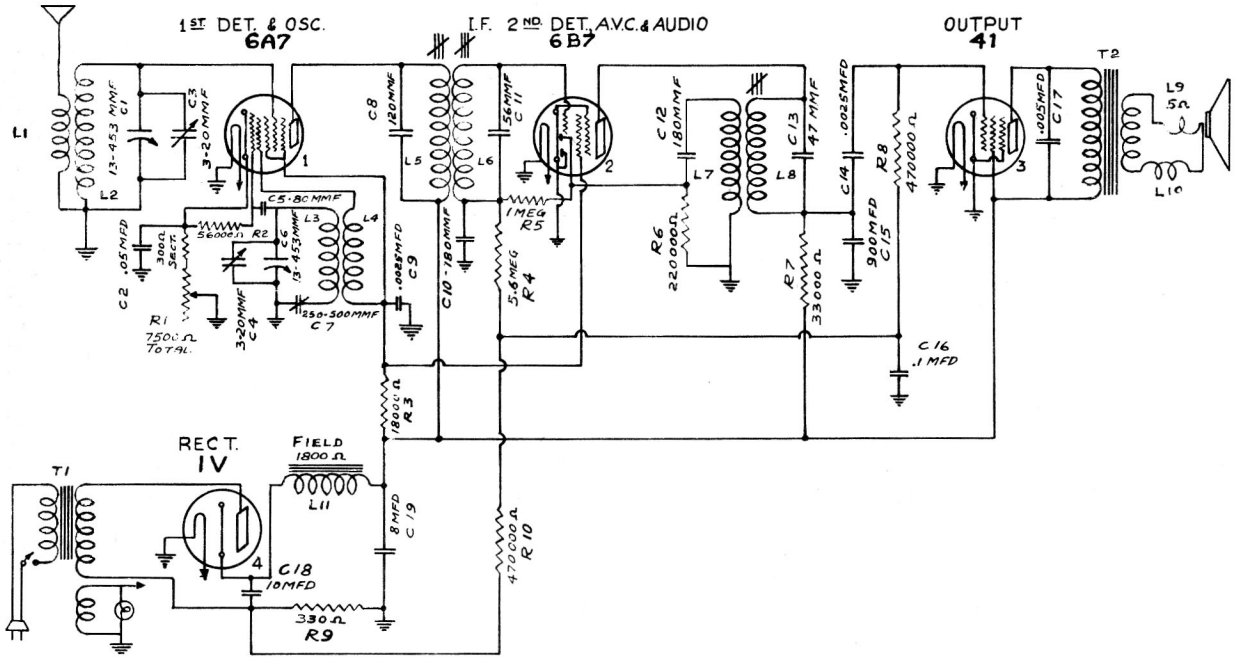

Figure 2—Schematic Circuit Diagram

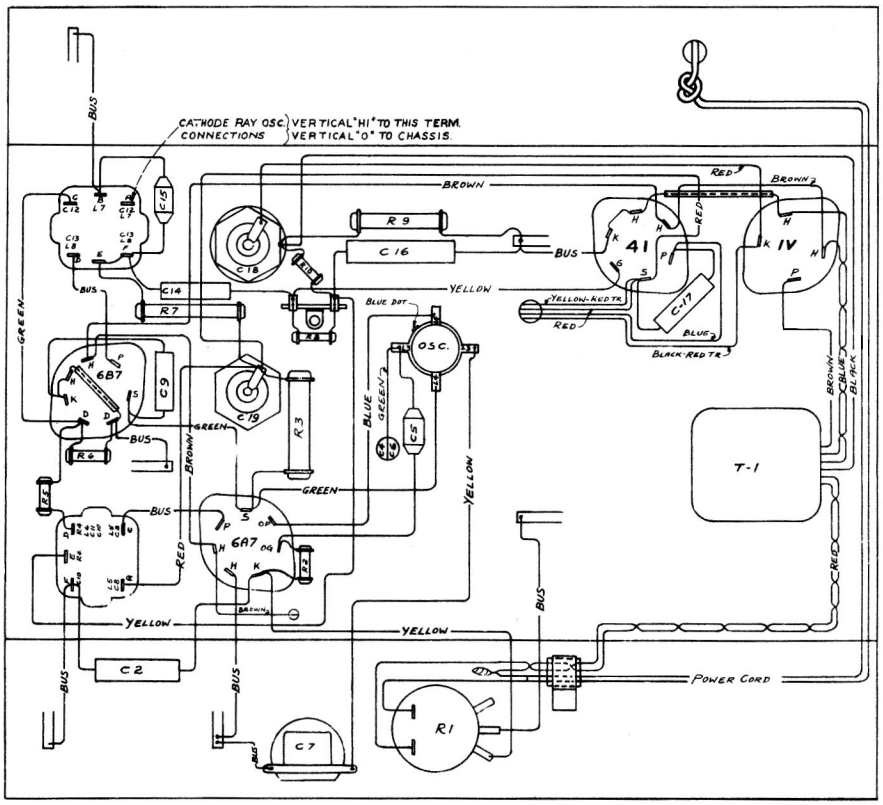

Figure 3—Chassis Wiring Diagram

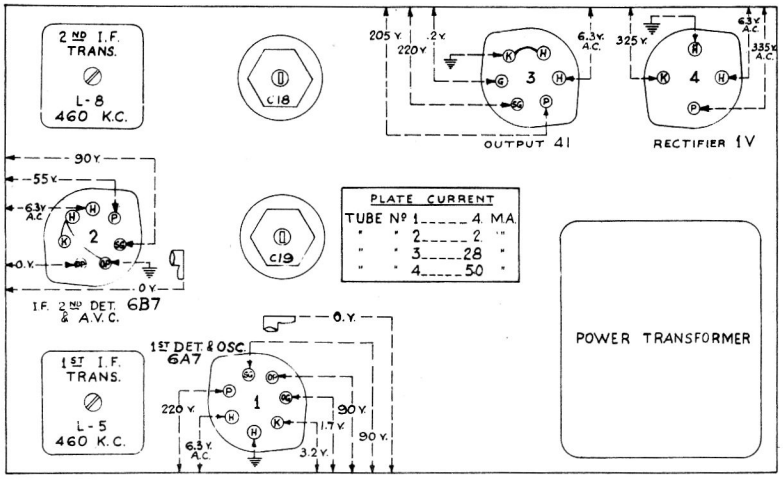

Figure 4—Radiotron Socket Voltages, Coil, and Trimmer Locations
Measured at 115 volts, 60-cycle supply—Tuned to approximately 1,000 kc ("Broadcast")—
No signal being received—Volume control maximum

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.

REPLACEMENT PARTS

STOCK No.	DESCRIPTION		STOCK No.	DESCRIPTION	
	RECEIVER ASSEMBLIES		3033	Resistor- 1 Megohm carbon type ½ watt (R5).....	
S-1664	Antenna-Indoor Antenna approximately 25 ft. long.....		S-1768	Resistor-5.6 Megohm carbon type 1/10 watt (R4).....	
S-1707	Bracket-Dial mounting bracket.....		12218	Shield-First detector,6B7 Radiotron shield.....	
12118	Cap-Grid contact cap.....		12008	Shield-1st I.F. transformer shield	
S-1710	Capacitor-Adjustable capacitor....		12581	Shield-Top for first I.F. transformer shield.....	
S-1734	Capacitor- 47 Mmfd (C13).....		5226	Lamp-Dial lamp (Pkg. of 2).....	
13307	Capacitor- 56 Mmfd (C11).....		11199	Socket-Dial lamp socket.....	
12813	Capacitor- 80 Mmfd (C5).....		4794	Socket-Four contact radiotron socket.....	
12404	Capacitor- 120 Mmfd (C8).....		4786	Socket-Six contact radiotron socket.....	
12406	Capacitor- 180 Mmfd (C10,C12)....		3572	Socket-Seven contact radiotron socket.....	
S-1764	Capacitor- 900 Mmfd (C15).....		S-1769	Transformer-First I.F. transformer (L5,L6,C8,C11,C10,R4).....	
5107	Capacitor-.0025 Mfd (C9).....		S-1770	Transformer-Second I.F. transformer (L7,L8,C12,C13).....	
3932	Capacitor-.0025 Mfd (C14).....		S-1771	Transformer-Power transformer-105-125 volt 25 cycle (T1).....	
4868	Capacitor- .005 Mfd (C17).....		S-1772	Transformer-Power transformer-105-125 volt 60 cycle (T1).....	
4836	Capacitor- .05 Mfd (C2).....		S-1773	Volume control and power switch 7500 ohms (R1,S1).....	
4791	Capacitor- .1 Mfd (C16).....				
S-1765	Capacitor- 8 Mfd (C19).....				
11240	Capacitor- 10 Mfd (C18).....				
S-1766	Coil-Antenna coil (L1,L2).....				
S-1719	Coil-Oscillator coil (L3,L4).....				
S-1720	Condenser-Two gang variable tuning condenser (C1,C3,C4,C6).....				
12006	Core-Adjustable core and stud for 1st and 2nd I.F. transformers....				
S-1722	Dial-Station selector dial scale..				
S-1728	Knob-Station selector knob.....				
S-1733	Knob-Volume control knob (Pkg.of 2)				
11670	Resistor-330 ohms-carbon type-1 watt (R9).....				
S-1767	Resistor-18,000 ohms carbon type-3 watt (R3).....				
11669	Resistor-33,000 ohms carbon type-1 watt (R7).....				
12286	Resistor-56,000 ohms Insulated type-½ watt (R2).....				
5158	Resistor-220,000 ohms carbon type-½ watt (R6).....				
11172	Resistor-470,000 ohms carbon type-½ watt (R8,R10).....				
				REPRODUCER ASSEMBLIES	
			S-1774	Coil Assembly-Comprising field magnet and cone support, less output transformer.....	
			S-1677	Cone-Reproducer cone.....	
			S-1775	Reproducer-complete.....	
			S-1676	Transformer-Output transformer (T2).....	