RCA Victor

MODEL 5T1

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

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA MANUFACTURING COMPANY, INC. • CAMDEN, N. J., U. S. A.
A Service of the Radio Corporation of America

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A)..... 540-1,820 kc
"Short Wave" (B)..... 1,820-6,600 kc

ALIGNMENT FREQUENCIES

"Standard Broadcast" (A)..... 600 kc (osc.), 1,700 kc (osc., ant.)
"Short Wave" (B)..... None required

Intermediate Frequency..... 460 kc

RADIOTRON COMPLEMENT

(1) RCA-6A7..... First Detector—Oscillator
(2) RCA-6D6..... Intermediate Amplifier
(3) RCA-75..... Second Det., A-F Amp. and A.V.C.
(4) RCA-42..... Audio Power Amplifier
(5) RCA-80..... Full-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, 80 watts
Rating B..... 105-125 volts, 25-60 cycles, 80 watts
Rating C..... 100-130/140-160/195-250 volts, 40-60 cycles, 80 watts

POWER OUTPUT RATING

Undistorted..... 2.0 watts
Maximum..... 4.5 watts

LOUDSPEAKER

Type..... Electrodynamic
Voice Coil Impedance..... 3.2 ohms at 400 cycles

Mechanical Specifications

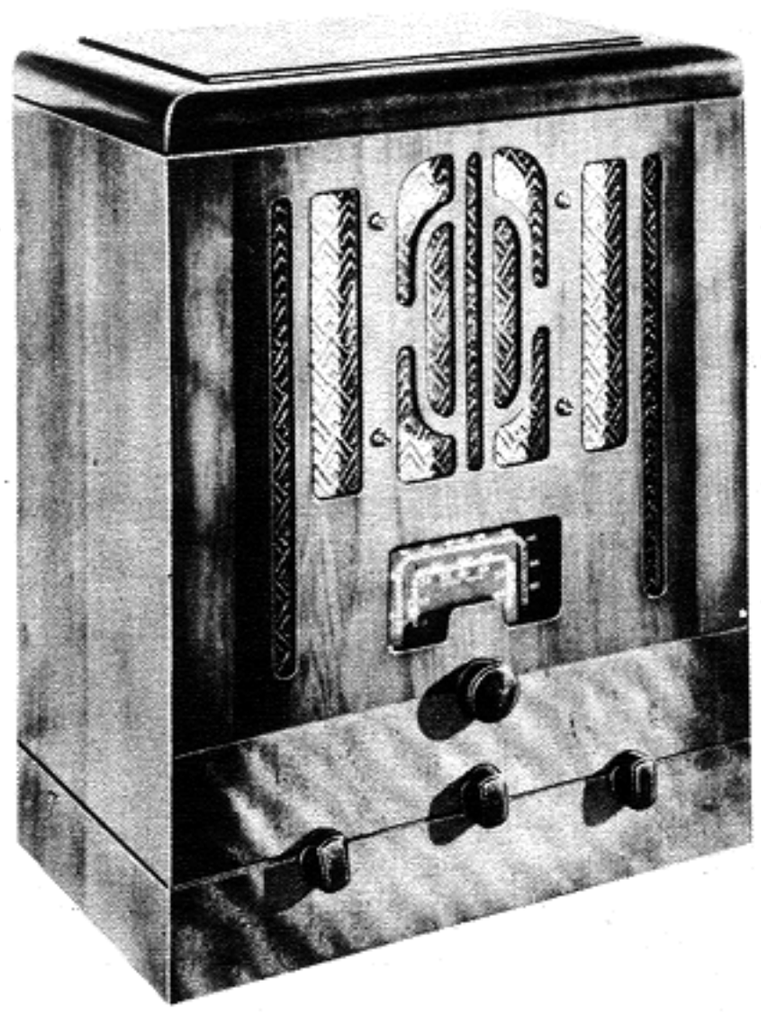
Height..... 17½ inches
Width..... 13¼ inches
Depth..... 8 inches
Weight (Net)..... 17½ pounds
Weight (Shipping)..... 19½ pounds
Chassis Base Dimensions..... 12 inches x 7 inches x 2½ inches
Over-all Chassis Height..... 7½ inches
Operating Controls..... (1) Power Switch—Tone, (2) Tuning, (3) Volume, (4) Range Selector
Tuning Drive Ratio..... 10 to 1

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 and wave-trap; aural-compensated volume control; two-point, high-frequency tone control; automatic volume control; resistance-coupled audio system; phonograph terminal board; and a six-inch, dust-proof, 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. The coils, transformer windings, and reactors are rated in terms of d-c resistance to permit continuity checks.



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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. RCA Victor Models R-93, R-93-2, R-93-A, or R-94 Record Players should be connected as follows: Remove link between terminals 1 and 2 on receiver. 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.

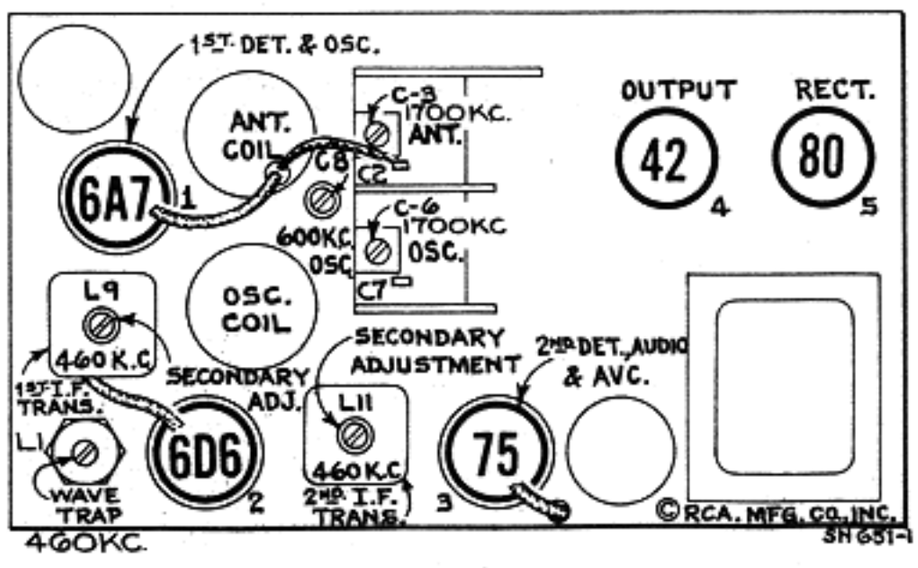

Figure 1—Radiotron, Coil, and Trimmer Locations

Alignment Procedure

Calibrate the tuning dial by adjusting dial pointer to the extreme low-frequency end calibration mark on the "Standard broadcast" dial scale with the two-gang tuning condenser in full-mesh position.

Perform alignment in proper order tabulated below, starting with No. 1 and following all operations across, then No. 2, etc.

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 is received from a station or the local (heterodyne) oscillator.

For further details on alignment, refer to booklet "RCA Victor Receiver Alignment."

Order of Alignment	Test Oscillator			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	No signal 550-750 kc	2nd i-f Trans.	L10 and L11	Max. (peak)
2	6A7 Det. Grid Cap	.001 Mfd.	460 kc	No signal 550-750 kc	1st i-f Trans.	L8 and L9	Max. (peak)
3	Ant. Post	200 Mmfd.	460 kc	No signal S. W. Band	Wave Trap	L1	Minimum Output
4	Ant. Post	200 Mmfd.	600 kc	600 kc	L-F Osc.	C8	Max. (peak)
5	Ant. Post	200 Mmfd.	1,700 kc	1,700 kc	H-F Osc.	C6	Max. (peak)
6	Ant. Post	200 Mmfd.	600 kc	Rock thru 600 kc	L-F Osc.	C8	Max. (peak)
7	Ant. Post	200 Mmfd.	1,700 kc	1,700 kc	H-F Osc.	C6	Max. (peak)
8	Ant. Post	200 Mmfd.	1,700 kc	1,700 kc	Ant.	C3	Max. (peak)

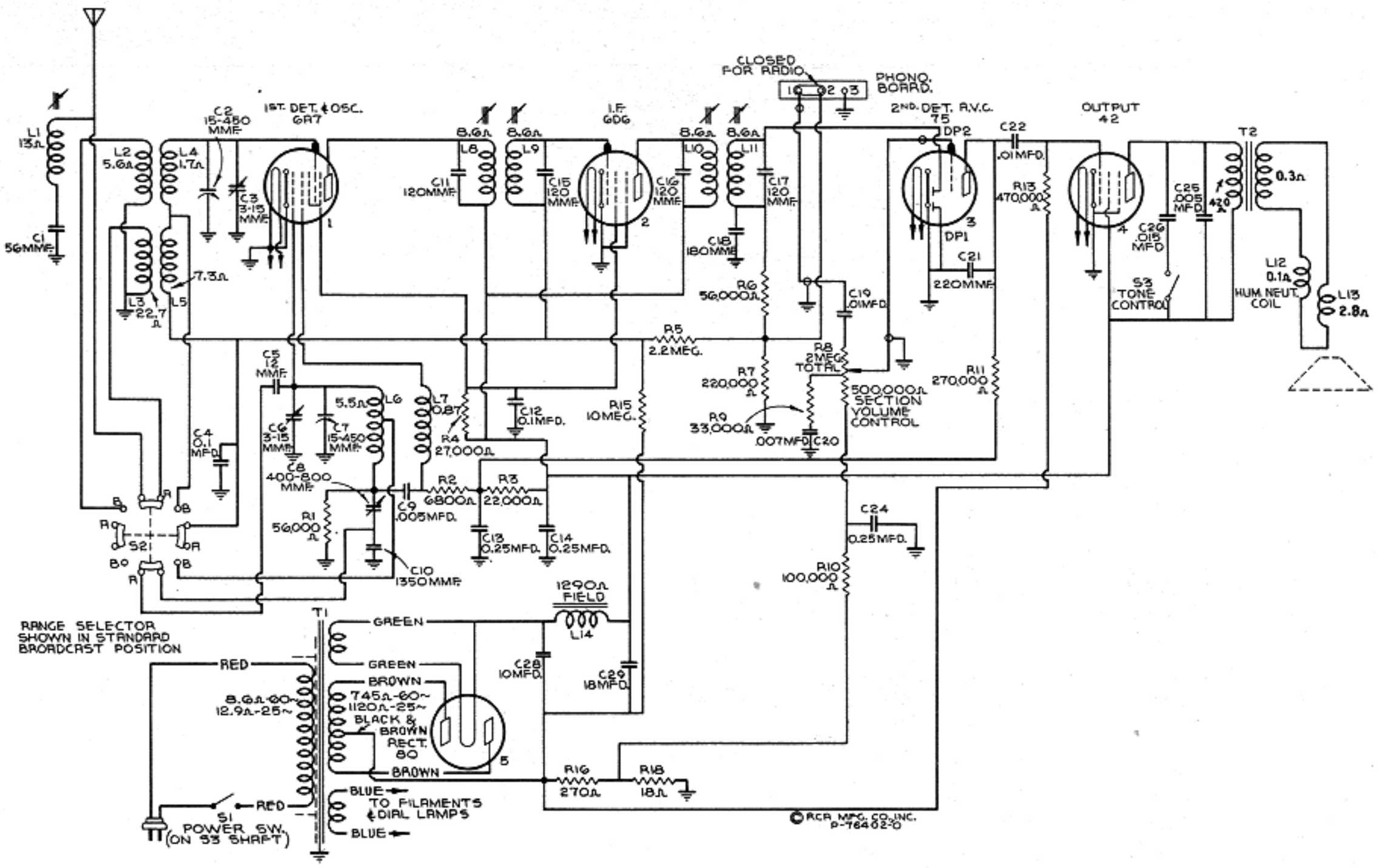

Figure 2—Schematic Circuit Diagram

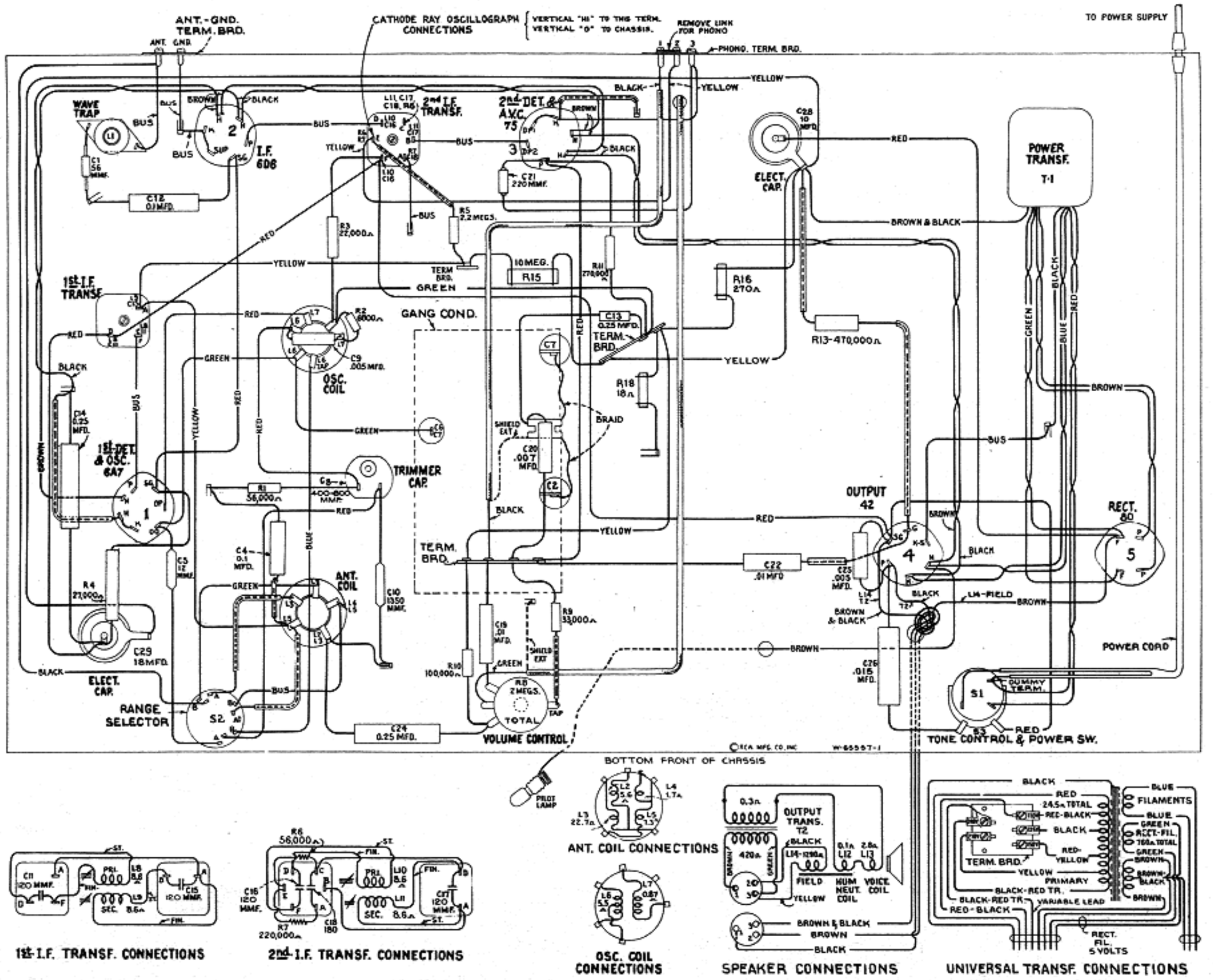

Figure 3—Chassis Wiring Diagram

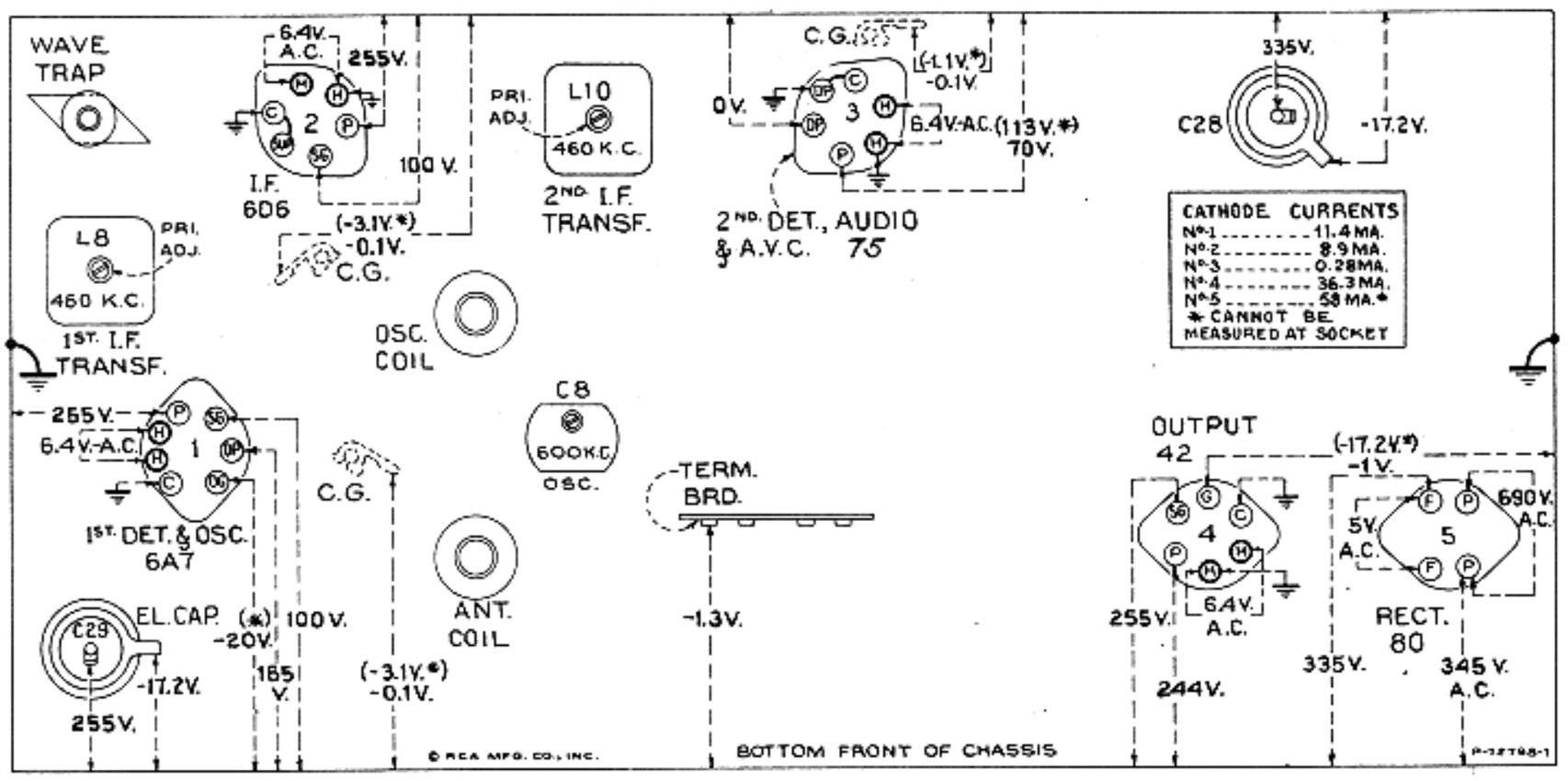

Figure 4—Radiotron Socket Voltages, Coil, and Trimmer Locations

Measured at 115 volts, 60-cycle supply—Tuned to approximately 1,000 kc ("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.

REPLACEMENT PARTS

Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION
	RECEIVER ASSEMBLIES
12930	Board—Antenna and ground terminal board
5237	Bushing—Variable condenser mounting bushing assembly
11591	Button—Chassis plug button
12118	Cap—Grid contact cap
11465	Capacitor—Adjustable capacitor (C8)
12659	Capacitor—12 Mmfd. (C5)
12661	Capacitor—56 Mmfd. (C1)
12946	Capacitor—133 Mmfd. (C11, C15, C16, C17)
12406	Capacitor—180 Mmfd. (C18)
12662	Capacitor—220 Mmfd. (C21)
12660	Capacitor—1,350 Mmfd. (C10)
4868	Capacitor—.005 Mfd. (C9, C25)
5148	Capacitor—.007 Mfd. (C20)
4858	Capacitor—.01 Mfd. (C22)
13138	Capacitor—.01 Mfd. (C19)
11315	Capacitor—.015 Mfd. (C26)
4841	Capacitor—.1 Mfd. (C4, C12)
4840	Capacitor—.25 Mfd. (C13, C24)
5170	Capacitor—.25 Mfd. (C14)
11240	Capacitor—10 Mfd. (C28)
5212	Capacitor—18 Mfd. (C29)
12648	Coil—Antenna coil—less shield (L2, L3, L4, L5)
12649	Coil—Oscillator coil—less shield (L6, L7)
13662	Condenser—2-gang variable tuning condenser (C2, C3, C6, C7)
5119	Connector—3-contact female speaker cable connector
12006	Core—Adjustable core and stud assembly for I-F transformer, Stock Nos. 12652 and 12653
12664	Core—Adjustable core and stud assembly for wave trap, Stock No. 12654
13666	Dial—Station selector dial
13663	Drive—Variable condenser drive shaft and pinion
12657	Indicator—Station selector indicator
5226	Lamp—Dial lamp
13665	Range Switch (S2)
13674	Resistor—18 ohms, carbon type, ½ watt (R18)
13675	Resistor—270 ohms, carbon type, 1 watt (R16)
8070	Resistor—22,000 ohm, carbon type, ½ watt (R3)
12011	Resistor—27,000 ohm, carbon type, 1 watt (R4)
11364	Resistor—33,000 ohms, carbon type, ½ watt (R9)
11282	Resistor—56,000 ohm, carbon type, 1/10 watt (R6)
5029	Resistor—56,000 ohm, carbon type, ½ watt (R1)
11454	Resistor—6,800 ohm, carbon type, ½ watt (R2)
5145	Resistor—100,000 ohm, carbon type, ½ watt (R10)
11398	Resistor—220,000 ohm, carbon type, 1/10 watt (R7)
11323	Resistor—270,000 ohm, carbon type, ½ watt (R11)
12285	Resistor—470,000 ohm, insulated, ½ watt (R13)
11626	Resistor—2.2 megohm, carbon type, ½ watt (R5)
13673	Resistor—10 megohm, carbon type, ½ watt (R15)
12650	Shield—Antenna coil shield
12607	Shield—First I-F transformer shield top
12008	Shield—First or second I.F. transformer shield
12651	Shield—Oscillator coil shield
12581	Shield—Second I.F. transformer shield top
3950	Shield—6D6 Radiotron shield
3682	Shield—6A7 or 75 Radiotron shield
4794	Socket—4-contact rectifier Radiotron socket
4786	Socket—6-contact 42, 75 and 6D6 Radiotron socket
4787	Socket—7-contact 6A7 Radiotron socket
11199	Socket—Dial lamp socket
12007	Spring—Retaining spring for core, Stock Nos. 12006 and 12664
13664	Tone Control and Switch (S1, S3)
13106	Transformer—First I.F. transformer, complete (L8, L9, C11, C15)
13107	Transformer—Second I.F. transformer, complete (L10, L11, C16, C17, C18, R6, R7)
12644	Transformer—Power transformer, 115 volt, 60 cycle (T1)
12645	Transformer—Power transformer, 115 volt, 25 cycle (T1)
12646	Transformer—Power transformer, 240-210-150-125-110 volts, 60 cycle (T1)
12654	Trap—Wave trap (L1)
13144	Volume Control (R8)
	REPRODUCER ASSEMBLIES
13676	Coil—Field coil (L14)
13677	Cone—Reproducer cone and dust cap (L13)
5118	Connector—3-contact male speaker cable connector
9798	Reproducer, complete
13678	Transformer—Output transformer (T2)
	MISCELLANEOUS ASSEMBLIES
13872	Crystal—Station selector crystal
12638	Knob—Station selector knob
11347	Knob—Tone control, volume control or range switch knob
11456	Screw—Chassis mounting screw assembly
11349	Spring—Retaining spring for knob, Stock Nos. 11347 and 12638