R.C.A. Victor Co., Inc.

Model: 10T	Chassis:	Year: Pre October 1936
Power:	Circuit:	IF:
Tubes:		
Bands:		

Resources
Riders Volume 7 - RCA 7-130
Riders Volume 7 - RCA 7-131
Riders Volume 7 - RCA 7-132
Riders Volume 7 - RCA 7-133
Riders Volume 7 - RCA 7-134
Riders Volume 7 - RCA 7-135
Riders Volume 7 - RCA 7-136

MODELS 10T,10K
Schematic

RCA MFG. CO., INC.

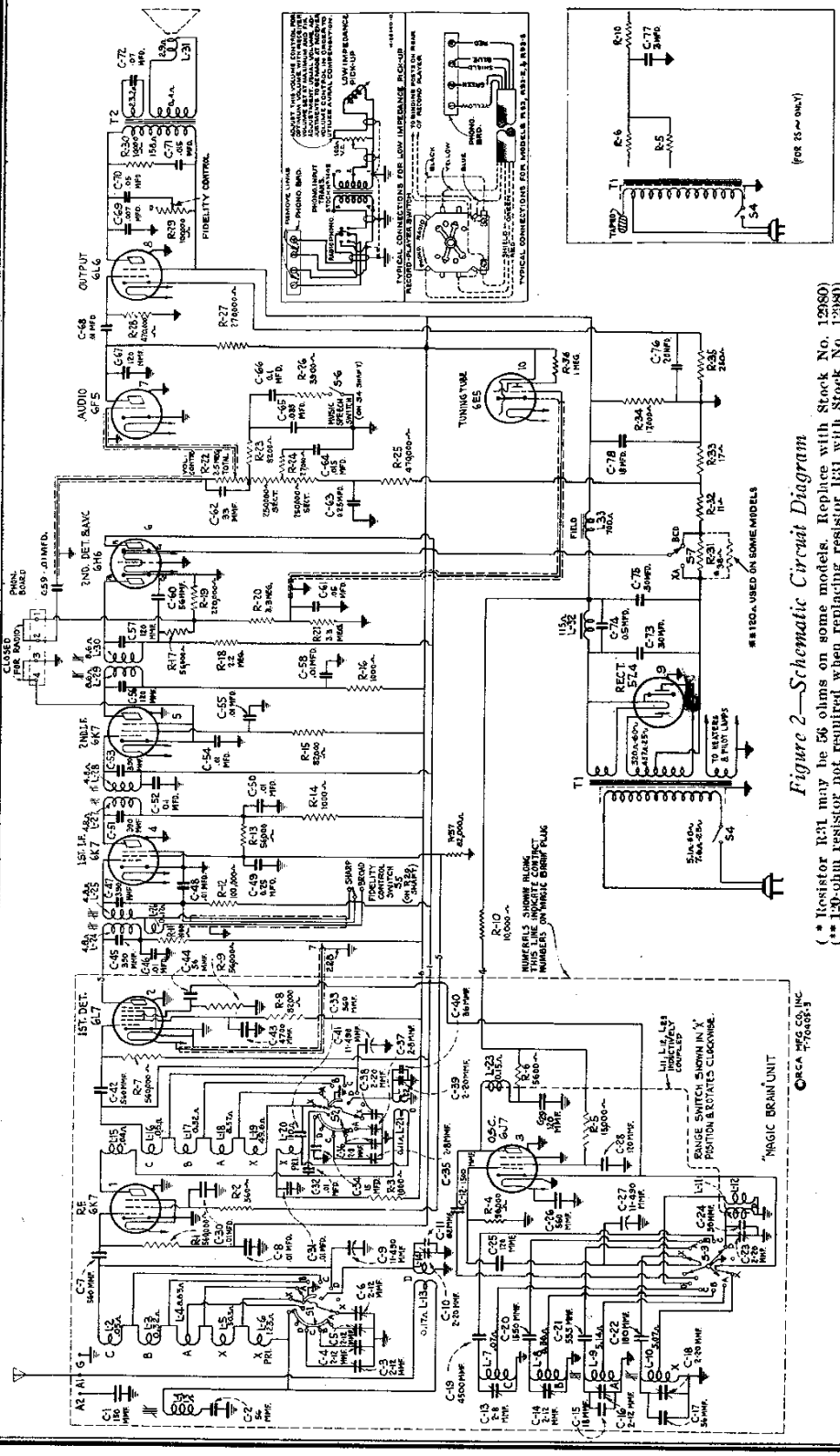


Figure 2—Schematic Circuit Diagram

(* Resistor R31 may be 56 ohms on some models. Replace with Stock No. 12980)
(** 120-ohm resistor not required when replacing resistor R31 with Stock No. 12980)

FREQUENCY RANGES

"Long Wave" (X)	150-410 kc
"Standard Broadcast" (A)	530-1,800 kc
"Medium Wave" (B)	1,800-6,400 kc
"Short Wave" (C)	6,400-23,000 kc
"Ultra Short Wave" (D)	23,000-60,000 kc

ALIGNMENT FREQUENCIES

"Long Wave" (X)	175 kc (osc.), 350 kc (osc., det., ant.)
"Standard Broadcast" (A)	600 kc (osc.), 1,500 kc (osc., det., ant.)
"Medium Wave" (B)	6,000 kc (osc., det., ant.)
"Short Wave" (C)	20,000 kc (osc., det., ant.)
"Ultra Short Wave" (D)	57,000 kc (osc., det., ant.)
Intermediate Frequency	460 kc

RCA MFG. CO., INC.

MODELS 10T, 10K
Chassis Wiring

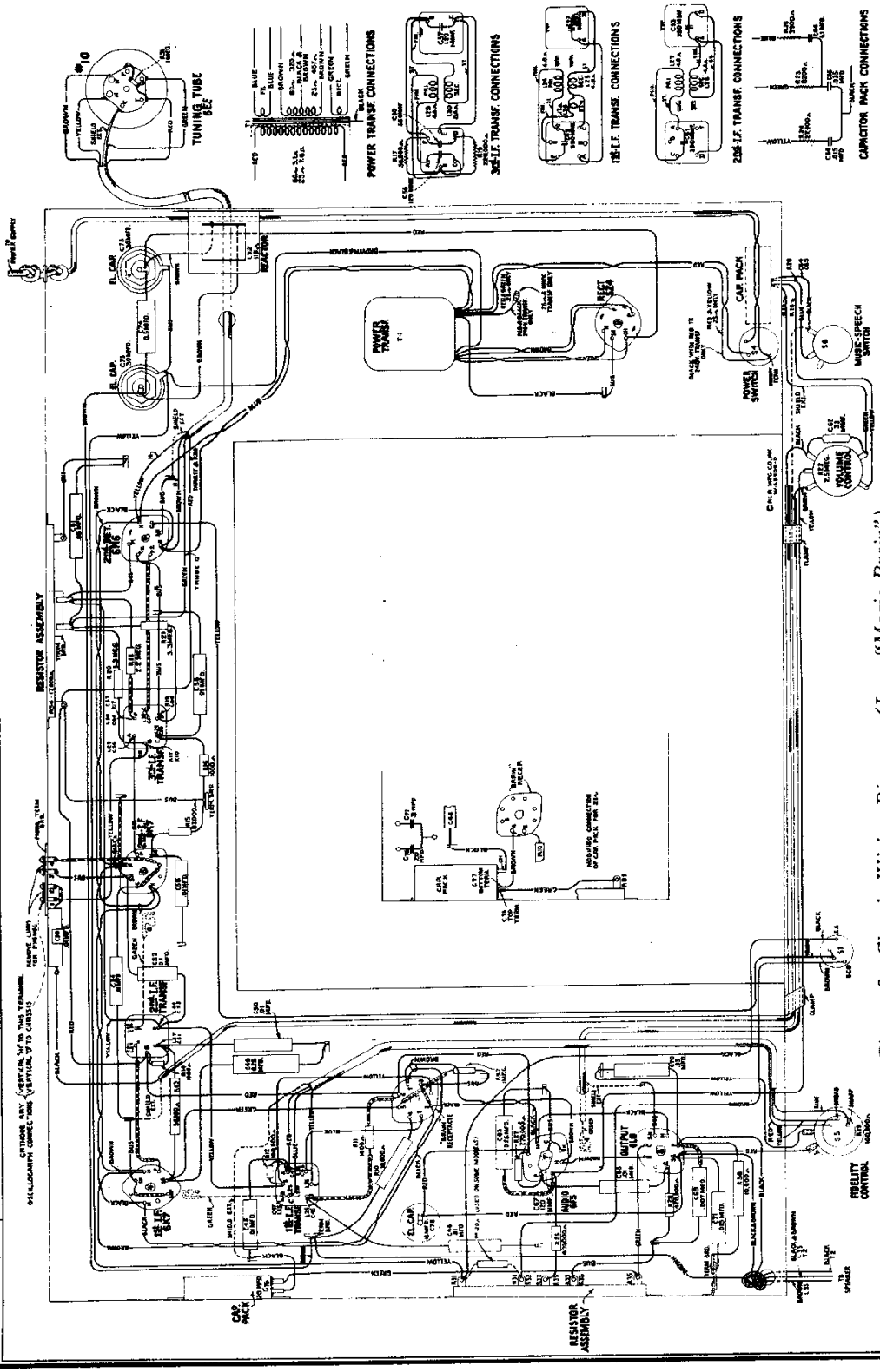


Figure 3—Chassis Wiring Diagram (Less "Magic Brain")

Pilot Lamps (4)..... Mazda No. 46, 6.3 volts, 0.25 ampere

Power Supply Ratings

Rating A..... 105-125 volts, 50-60 cycles, 120 watts
Rating B..... 105-125 volts, 25-60 cycles, 120 watts
Rating C..... 100-130/140-160/195-250 volts, 40-60 cycles, 120 watts

MODELS 10T,10K
"Magic Brain"
Chassis Wiring

RCA MFG. CO., INC.

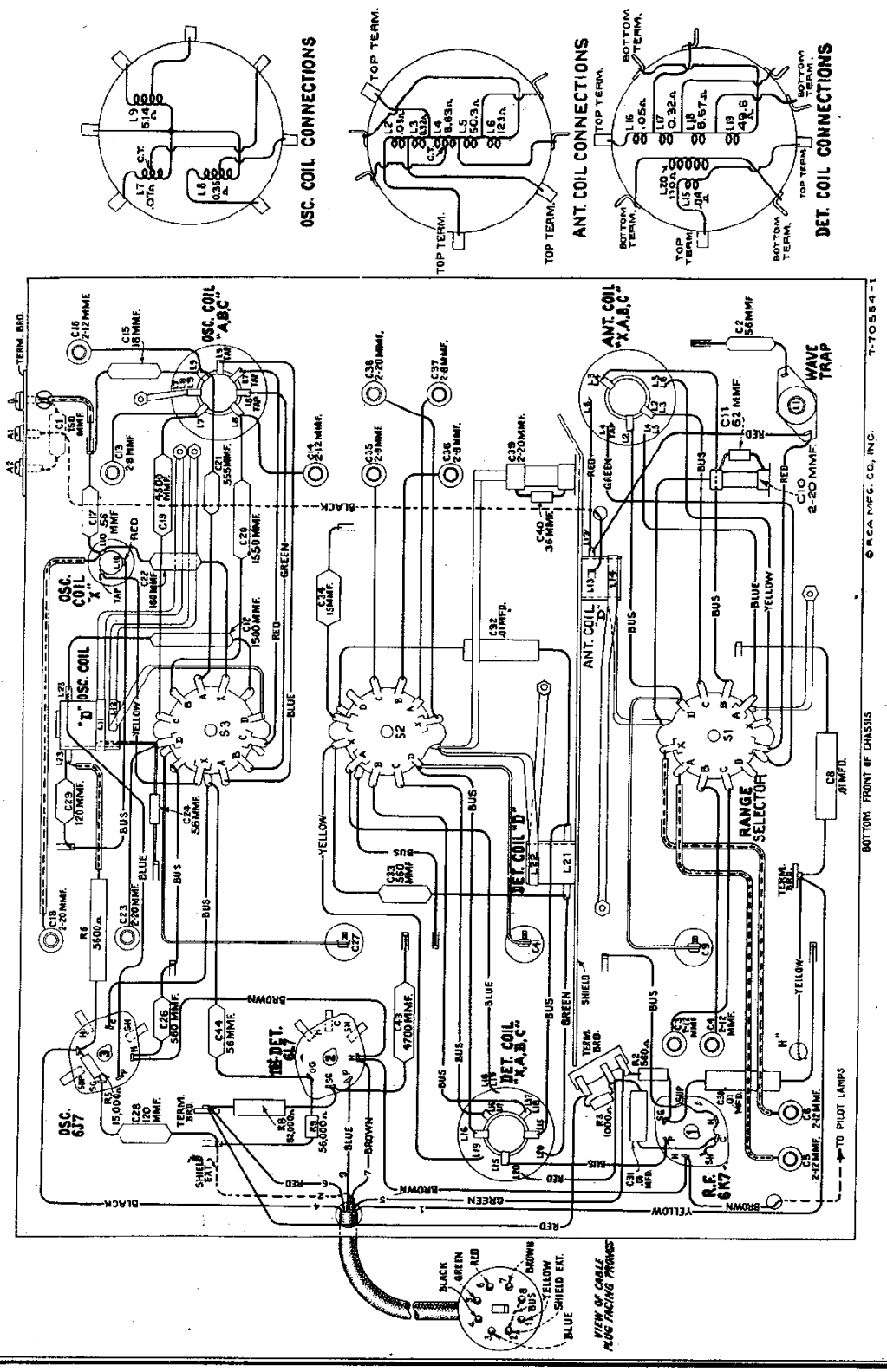


Figure 4—"Magic Brain" Wiring Diagram

POWER OUTPUT
Undistorted..... 5 watts
Maximum..... 9 watts

LOUDSPEAKER
Type..... Electrodynamic
Impedance (v.c.)..... 3.4 ohms at 400 cycles

For Fig. 5- Alignment Apparatus Connections see Fig. 5 Model 9T & 9K2

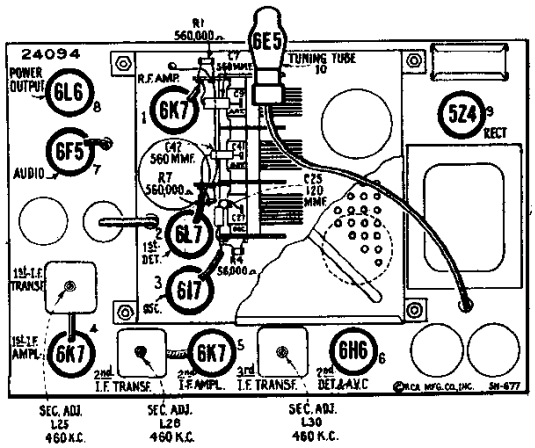


Figure 1—Radiotron and I-F Trimmer Locations

Selector Dial

Figure 11 illustrates the relation of the various parts of the dial mechanism when in its "Standard broadcast" position with the range switch likewise turned to its "Standard broadcast" position. In re-assembling the dial after repairs, see that the gears are meshed in accordance with the diagram, at the same time noting that the range switch is in its "Standard broadcast" position and the lever attached to the range-switch shaft placed in the position shown.

To adjust the dial mechanism, set the range switch to its "Standard broadcast" position. Place a straight-edge across the center of the dial so that its edge is even with the lower (end) marking at both the low-frequency and high-frequency ends of the dial. Under such conditions the straight-edge should be parallel with the top of the chassis base. If the straight-edge is not parallel with the top of the chassis base, loosen the nut on the rear of the roller link pivot stud and move the stud up or down until the link roller moves the dial to the desired position so that the end calibration marks obtain the position mentioned above. Tighten the nut on the roller link pivot stud.

Set the gang tuning condenser to its maximum capacity position. Adjust the dial pointer to the low-frequency (end) mark on "Standard broadcast" scale. This is a friction adjustment.

With the gang tuning condenser plates still in full mesh, loosen the two set screws on the vernier-dial hub. Rotate the vernier dial until the "0" marking is in a vertical plane above the center of the shaft. Tighten set screws.

Antenna and Ground Terminals

These receivers are equipped with an antenna-ground terminal board having three terminals. These terminals are marked "A2," "A1," and "G," the latter being the ground terminal and should always be connected to a good external ground. The transmission-line leads of the RCA RK-40A antenna system should be connected to terminals "A2" and "A1." The receiver coupling units of the RCA RK-40 and the RCA Spider-Web antenna systems should be connected to terminals "A1" and "G." Connect a single-wire antenna to terminal "A1."

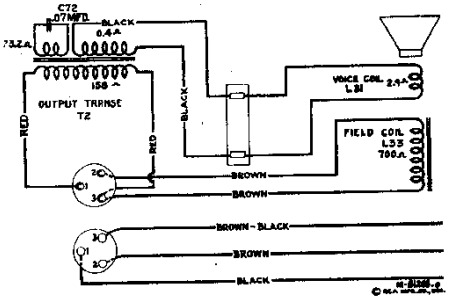


Figure 10—Loudspeaker Wiring

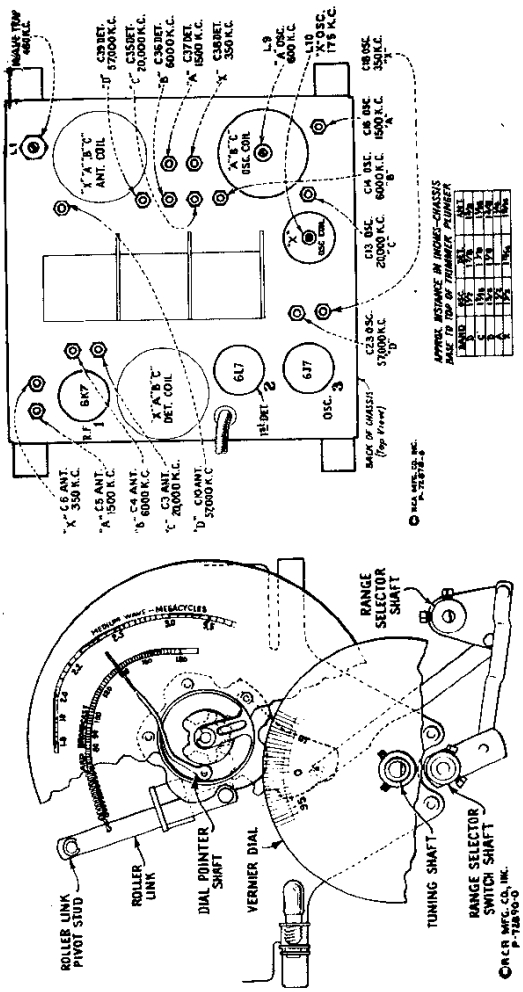


Figure 11—Selector Dial Change Mechanism Figure 6—"Magic Brain" Trimmer Locations

MODELS 10T, 10K
Resistance
Voltage, Transformer

RCA MFG. CO., INC.

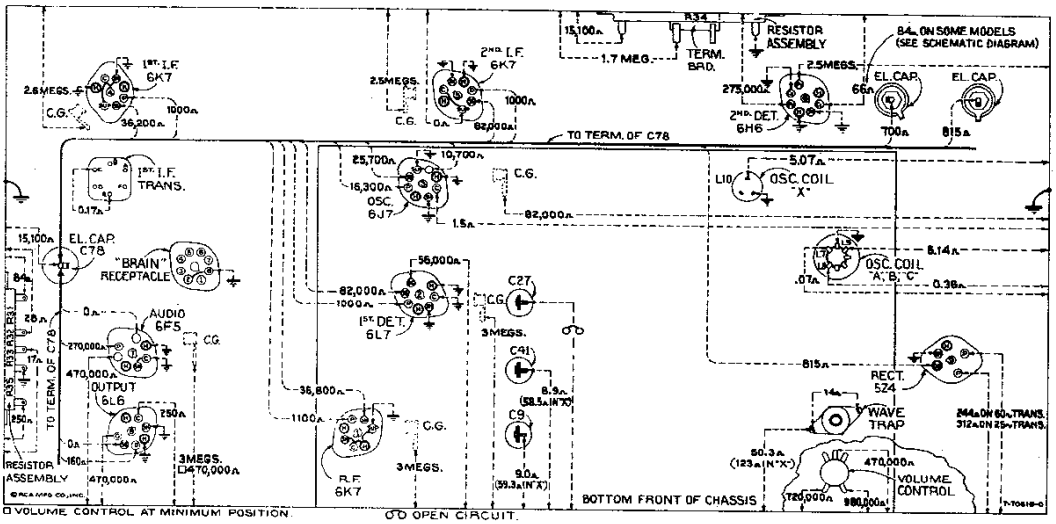


Figure 7—Resistance Diagram

Power supply disconnected—Radiotrons in sockets—Tuning condenser in full-mesh—Range selector in "Standard broadcast" position—Volume control maximum—Fidelity control counter-clockwise

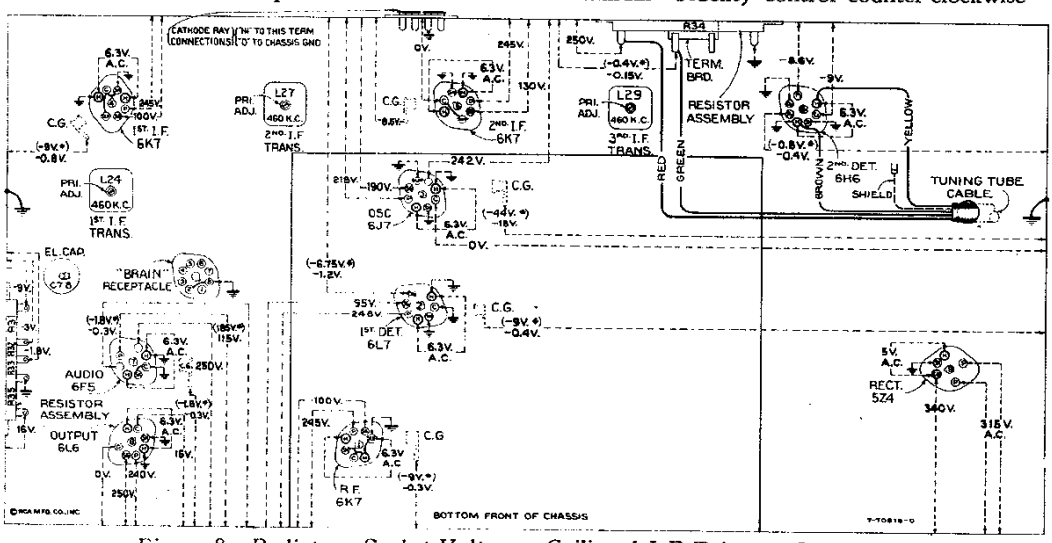


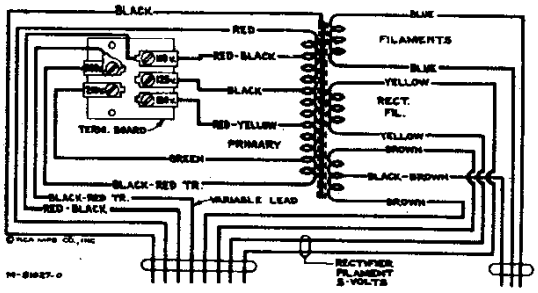
Figure 8—Radiotron Socket Voltages, Coil, and I-F Trimmer Locations

Measured at 115 volts, 60-cycle supply—Tuned to approximately 1,000 kc—No signal being received—Volume control minimum—Fidelity control counter-clockwise

Radiotron Cathode Current Readings
Measured with Milliammeter Connected at Tube Socket Cathode Terminals under Conditions Similar to Those of Voltage Measurements

(1)	RCA-6K7—R-F	4.6 ma.
(2)	RCA-6L7—1st Det.	3.0 ma.
(3)	RCA-6J7—Osc.	6.0 ma.
(4)	RCA-6K7—1st I.F.	5.0 ma.
(5)	RCA-6K7—2nd I.F.	7.0 ma.
(6)	RCA-6H6—2nd Det.–A.V.C.	—
(7)	RCA-6F5—A.F.	0.3 ma.
(8)	RCA-6L6—Power	65 ma.
(9)	RCA-5Z4—Rect.	110 ma.*
(10)	RCA-6E5—Eye	3.0 ma.

(* Cannot be measured at socket)



Primary resistance—10.1 ohms total
Secondary resistance—226 ohms total

—Universal Transformer

NOTE: Two voltage values are shown for some readings. The value shown in parenthesis (*) indicates operating conditions without voltmeter loading. The other value (generally lower) is the actual measured voltage

RCA MFG. CO., INC.

MODELS 10T,10K
Circuit Data
Aligrment,Part 1

General Description

These receivers represent the result of thorough development, design, and substantial manufacture. Noteworthy technical improvements have been applied in achieving marked advantages of operation, and efficiency of performance.

Model 10T is a ten-tube, table-type, "Magic Brain" superheterodyne receiver with an eight-inch electrodynamic loudspeaker. Model 10K employs an identical radio chassis, in of the console-type, has a twelve-inch electrodynamic loudspeaker, and incorporates the newly developed "Magic Voice." Design features incorporated in these receivers include built-in doublet antenna coupler, "Magic Brain", improved plunger-type air-dielectric adjustable trimming capacitors in the antenna, detector, and oscillator coil circuits, tuned r-f amplifier; high-efficiency first detector (converter) with separate oscillator; two-stage i-f amplifier beam-type power amplifier, magnetite core adjusted i-f transformers, low-frequency oscillator tracking, and wave-trap; range-selector sensitivity control; fidelity control; two-point aural compensated volume control; music-speech switch; automatic volume control; phonograph terminal board, new selector dial; and a dust-proof electrodynamic loudspeaker.

Service convenience has been a controlling factor in the layout of the chassis parts and wiring. The assembly of these various elements is such that the number of conductors is minimized, with all important connections being readily accessible. Trimming adjustments are located at accessible points. A variable tuning-knob arrangement permits the choice of either a twenty-to-one or a hundred-to-one dial drive ratio. The latter permits ease of tuning, especially in the "Medium wave", "Short wave", and "Ultra short wave" bands.

Circuit Arrangement

The conventional type of superheterodyne circuit is used. It consists of an r-f amplifier stage, first-detector (converter) stage, separate oscillator stage, two i-f amplifier stages, a diode-detector—automatic-volume-control stage, an audio voltage-amplifier stage, a beam-type power-amplifier stage, a tuning indicator "Magic Eye", and a full-wave rectifier.

"Magic Brain"

The new "Magic Brain" is constructed as a separate, self-contained, completely shielded, five-band, oscillator- detector- antenna-tuning unit which plugs into the main chassis.

A single-wire antenna, or a doublet antenna, when connected to the proper input terminals of the receiver, is coupled to the control grid of the RCA-6K7 r-f amplifier tube through the tuned r-f transformer consisting of L6, L5, L4, L3, and L2 (except when range selector is in "Ultra short wave" position). The primary coil L13 of the "Ultra short wave" (D) band tuned r-f transformer remains in the antenna circuit at all times. A unique method of switching is used. In the "Long wave" (X) band, L6 becomes the primary with L5, L4, L3, and L2 as secondary. In the "Standard broadcast" (A) band, L5 becomes the primary with L4, L3, and L2 as secondary (L6 shorted out). In the "Medium wave" (B) band, L4 becomes the primary with L3 and L2 as secondary (L6 and L5 shorted out). In the "Short wave" (C) band, L3 becomes the primary with L2 as secondary (L6, L5, L4, and tap on L4 shorted out). The tap on L4 is provided to prevent interaction with L3 and L2 when operating receiver in "Short wave" band. In the "Ultra short wave" (D) band, L6, L5, L4, and L3 are shorted out and grounded, and secondary L14 is placed in shunt with L2. The latter connection prevents undesirable interaction of L2 with L14. This method of switching reduces the total number of coils and leads, and results in having a low-loss primary and secondary winding for each band with high efficiency of operation.

The band switching of the detector circuits is similar to that of the antenna circuits. Coils L15, L21, and L20 are always connected in series with the plate circuit of the RCA-6K7 r-f amplifier tube. In the "Long wave" (X) band, L19, L17, and L16 are connected in series as the sec- ary coil system. The ground of the coil system is at the low end of L19. L20 acts as the primary which transfers energy to the secondary L19. Capacitor C33 resonates primary L20 at the proper frequency. In the "Standard broadcast" (A) band, L18, L17, and L16 are connected in series as the secondary circuit. The ground of the coil system is now between L18 and L19. L19 is used as the primary and is resonated at the proper frequency by capacitors C34 and C35 which are in shunt with this coil. Capacitor C33 is connected to transfer energy to the primary coil L19. In the "Medium wave" (B) band, L17 and L16 are connected in series as the secondary. The ground of the coil system is now between L19 and L18. L18 is used as the primary and is resonated at the proper frequency by capacitor C34 which is in shunt with this coil. L19 is shorted by the range selector. Capacitor C33 transfers the r-f energy from the plate circuit to the primary L18. In the "Short wave" (C) band, L16 is the secondary. The ground of the coil system is now between L16 and L17. L17 is used as the primary and is resonated to the proper frequency by capacitor C34. In addition, L19 acts as a high-frequency primary which resonates above 20 mc and improves the gain at the high-frequency end of the "Short wave" band. Coils L19 and L18 are shorted by the range selector. L21 is effectively r-f bypassed in this position by capacitor C32. In the "Ultra short wave" (D) band, L22 is the secondary, or grid coil, and consists of approximately a single turn of silver plated strap around a 7/8-inch coil form. The primary coils L21 and L15 are in series on this band, with L21 acting as a low-frequency primary and L15 as a high-frequency primary. L16 is shunted by L22 instead of being shorted directly by the range selector. Any inductive effect of L16 is thus eliminated. L19, L18, and L17 are shorted directly by the range selector.

Separate windings, with the exception of L23, are employed in the oscillator stage for each position of the range selector. L23 (inductively coupled to L11 and L12) is placed in the oscillator plate circuit to provide additional feed-back when operating receiver on the "Ultra short wave" (D) band. This coil is effectively r-f bypassed by capacitor C12, when range selector is in the "Short wave" (C) position, to prevent undesirable reactions. Its effect on the remaining bands is negligible. The inherent stability of the oscillator circuit provides minimum frequency drift which is especially advantageous for high-frequency reception. The locally-generated signal is capacitance coupled to grid No. 3 of the RCA-6L7 first detector.

The output of the "Magic Brain" is fed to the r-f amplifier through the plug-in cable. This cable also supplies all power required by the "Magic Brain" unit.

I-F Amplifier

The intermediate-frequency amplifier consists of two RCA-6K7 tubes in a two-stage, transformer-coupled circuit. The windings of all three i-f transformers are resonated by fixed capacitors, and are adjusted by molded magnetite cores (both primary and secondary) to tune to 460 kc. A third winding L26, in the first i-f transformer, is placed in series with the main secondary L25 when the fidelity control switch S8 is thrown to "broad" position (see figure 2), thereby increasing the coupling between the primary and secondary circuits with consequent broadening of the band width of the i-f amplifier. The increased band width of the i-f amplifier therefore causes less attenuation of the higher audio modulation side-band frequencies, permitting higher fidelity reception.

Detector and A.V.C.

The modulated signal, as obtained from the output of the last i-f stage, is detected by an RCA-6H6 twin-diode tube (No. 2 diode). The audio frequency secured by this process is transferred to the r-f system for amplification and final reproduction. The d-c voltage which results from detection of the signal is used for automatic volume control. This voltage, which develops across resistors R17 and R19, is applied as automatic control-grid bias to the r-f, first-detector, and i-f tubes. The No. 1 diode of the RCA-6H6 is used to supply residual bias to the controlled tubes under conditions of little or no signal. This diode, under such conditions, draws current which flows through resistors R18, R17, and R19, thereby maintaining the desired operating bias on such tubes. On application of signal energy above a certain level, however, the auxiliary bias diode ceases to draw current and the avc diode takes over the biasing function. The sensitivity of the receiver is increased in the "Ultra short wave" (D), "Short wave" (C), and "Medium wave" (B) bands by reducing the residual bias on the above mentioned controlled tubes with switch S7 which is operated by the range selector control.

Audio System

The manual volume control consists of an acoustically tapered potentiometer in the audio circuit between the output of the detector-diode and the input grid of the RCA-6F5 audio voltage-amplifier tube. This control has a two-point tone-compensating filter connected to it so that the correct aural balance will be obtained at different volume settings. Phonograph terminals are provided to feed the output of an external phonograph pickup to the control grid of the audio amplifier through this aurally compensated volume control.

The output of the voltage amplifier is resistance-capacitance coupled to the control grid of the RCA-6L6 power-output tube. The output of this stage is transformer coupled to the voice coil of the electro-dynamic speaker.

The "Music-speech" control consists of a switch S6 which, in the "Speech" position, places an additional capacitor C66 and resistor R26 in shunt with the capacitor C65 in one of the tone compensating filters. This reduces the low-frequency response of the amplifier and provides maximum intelligibility of the voice frequencies.

Fidelity Control

The fidelity control consists essentially of the combination of a conventional high audio-frequency tone control, including capacitor C70 and variable resistor R29 in shunt with the plate circuit of the output tube, and means for changing the band width of the i-f amplifier. It performs in the following manner:

When the fidelity control is in its extreme counter-clockwise position, the resistance of R29 is a minimum, and wending L26 is disconnected from the i-f circuit (S5 in sharp position, see figure 2). Capacitor C70 is most effective at this point causing maximum attenuation of the higher audio frequencies. As the control is turned clockwise, placing more resistance in series with capacitor C70, the capacitor becomes less and less effective, and the upper frequency range of the audio amplifier is extended. When the fidelity control nears its extreme clockwise position, resistor R29 is disconnected and switch S5, operated by fidelity control shaft, places winding L26 (first i-f transformer) in series with L25 (S5 in broad position).

"Magic Eye"

An RCA-6E5 cathode-ray tuning tube is used as a means of visually indicating when the receiver is accurately tuned to the incoming signal. This tube consists of an amplifier section and a cathode-ray section built in the same glass envelope. A portion of the signal voltage developed across resistor R19 is used to actuate the grid of the amplifier section. Maximum voltage is applied to this grid when the receiver is tuned to resonance with an incoming carrier. This condition is evidenced by the minimum width of the dark sector on the fluorescent screen.

"Magic Voice" (Model 10K)

Model 10K is designed with a cabinet incorporating the "Magic Voice." This is accomplished by having the rear of the speaker compartment completely enclosed by a tight-fitting back.

Five metal open-end pipes of equal diameter but of three different lengths are inserted in holes in the cabinet base and extend upward in the speaker compartment. The effect is to cause the lower-frequency waves, reaching the front of the cabinet through the pipes, to arrive approximately in-phase giving extended low-frequency response without boominess, or cabinet resonance.

SERVICE DATA

The various diagrams in this booklet contain such information as will be needed to locate causes for defective operation if such develops. The values of the various resistors, capacitors, coils, etc., are indicated adjacent to the symbols signifying these parts on the diagram. Identification titles, such as C1, L2, R1, etc., are provided for reference between the illustrations and the Replacement Parts List. The coils, reactors, and transformer windings are rated in terms of their d-c resistance only. Resistance values of less than one ohm are generally omitted.

Alignment Procedure

There are seventeen adjustments required for the alignment of the oscillator, first-detector, and antenna-tuned circuits; one adjustment for the wave-trap, and six adjustments for the i-f system. Fifteen of these adjustments are made with plunger-type air trimming capacitors and require the use of an RCA Stock No. 12636 Adjusting Tool. Each of these capacitors has a lock nut for securing the plunger in place after adjustment. The remaining nine adjustments are made by means of screws attached to molded magnetite cores. These cores change the inductance of the particular coils in which they are inserted to provide exact alignment. All of these adjustments are accurately made during manufacture and should remain in proper alignment unless affected by abnormal conditions of climate or purported alterations for servicing, or unless altered by other means. Loss of sensitivity, improper tone quality, and poor selectivity are the usual indications of improper alignment. Such conditions will usually exist simultaneously. Correct performance of this receiver can only be obtained when these adjustments have been made by a skilled service engineer with the use of adequate and reliable test equipment. The manufacturer of this receiver has such test equipment available for sale through its distributors and dealers.

The extensive frequency range of these receivers necessitates a more or less involved method of alignment. However, if the following directions are carefully applied in the sequence given, normal performance of the instruments will be obtained.

The plunger-type air trimming capacitors have their approximate plunger settings tabulated on figure 6. If the plungers have been disturbed from their original adjustments, they may be roughly set to the specified dimensions prior to alignment.

In performing services on the "Magic Brain", the leads should be restored to their original positions, since the lead-dress is important for proper operation and dial calibration.

Precautionary Dressing of Leads for "Magic Brain" Alignment
(Refer to Figure 4)

Band "X"

1. Keep blue lead A of S1 to antenna coil L6 dressed away from chassis, and from yellow lead X of S1 to antenna coil L5-6.
2. Bus lead from C10 to S1 should be as short as possible.
3. Keep blue lead A of S2 to detector coil L18-19 clear of chassis, coil shield, coil, and other leads.
4. Keep spaghetti lead C6 to X of S1 apart from spaghetti lead C5 to A of S1, and from chassis.

Band "A"

1. Keep green lead terminal S1 to antenna coil tap L4 away from chassis, coil shield, and coil.
2. Keep spaghetti lead C5 to A of S1 apart from spaghetti lead C6 to X of S1 and from chassis.

Band "C"

Lead from C19 to oscillator coil L7 should be maintained as short and straight as possible.

For alignment, the test-oscillator frequency should be quite accurate. A convenient and reliable means of accurately checking the frequency of test oscillators, receivers, etc., is the RCA Stock No. 9572 Crystal Calibrator.

If the test-oscillator signal cannot be heard as the receiver (heterodyne) oscillator air-trimmer plunger is changed from its minimum-capacity to maximum-capacity position (receiver dial and test oscillator set to the specified frequency, and the correct oscillator air-trimmer used) it may be an indication that the test-oscillator frequency is outside the range covered by the air-trimmer. Under such conditions, when a more accurate setting of the test oscillator cannot be determined, the oscillator air-trimmer plunger is to the approximate settings given on figure 6. Tune the test oscillator until the signal is heard in the speaker. Each of two test-oscillator settings (the fundamentals or the harmonics of which are 920 kc apart) produce a signal. The lower-frequency test-oscillator setting should be used as this places the test oscillator (signal) frequency 460 kc below the frequency of the receiver heterodyne oscillator.

Holes are provided in the top of the r-f and antenna coil cans on some models to enable a tuning check with the RCA Stock No. 6679 Tuning Wand. The hole in the top of the detector coil can has a cinch button which must be removed before insertion of the tuning wand. When the brass end of the wand is inserted in the coil, the inductance of the coil is decreased. If this results in an increase of output, the respective air-trimmer capacitance should be decreased (plunger pulled out). If inserting the metal end of the tuning wand causes an increase in output, resulting from an increase of inductance of the coil, the respective air-trimmer capacitance should be increased (plunger pushed in). If the range of the air trimmer is not sufficient to give the desired results, the lead-dress may be changed in the particular circuit being aligned, so as to cause the circuit to resonate within the range of the trimmer. An increase in the capacity-to-ground of the circuit will be required if the iron end of the tuning wand causes an increase of signal output when the air-trimmer plunger is full-in, while a decrease in the capacity-to-ground will be required if the brass end of the tuning wand causes an increase in signal output when the air-trimmer plunger is full-out.

Two methods of alignment are applicable—one requires use of the cathode-ray oscillograph, and the other requires a voltmeter or glow-type indicator. The cathode-ray alignment method is advantageous in that the indication provided is in the form of a wave-image which represents the resonance characteristics of the circuit being tuned. This method is preferred because of the r-f characteristics of these receivers. This type of alignment is possible through use of apparatus such as the RCA Stock No. 9558 Frequency Modulator and the RCA Stock No. 9545 Cathode-Ray Oscillograph. If this equipment is not available, an approximate alignment may be performed by the output-indicator method with an instrument such as the RCA Stock No. 4317 Neon Glow Indicator attached across the loudspeaker voice coil. Alignment by this method is similar to the cathode-ray method outlined below except that the receiver volume control should be at maximum, the trimmers adjusted to peak response and the test-oscillator sweeping operations omitted. Either of these methods require the use of a reliable test oscillator such as the RCA Stock No. 9595.

Cathode-Ray Alignment

Make alignment apparatus connections shown on figure 5. Remove the plug of the frequency-modulator cable from the test-oscillator jack. Connect the receiver chassis to a good external ground. Connect oscillograph "Vertical" input terminals as indicated on figure 5. Set oscillograph power switch to "On" and adjust "Intensity" and "Focus" controls to give a clearly defined spot, or line, on the screen. Set oscillograph "Ampl. A" switch to "On," "Vertical gain" control full-clockwise, "Ampl. B" switch to "Trimg.," "Range" switch to No. 2 position, and "Timing" switch to "Int." Place the "Sync." control, "Freq." control, and "Horizontal gain" control to about their mid-positions. For each of the following adjustments, the test-oscillator output must be regulated so that the image obtained on the oscillograph screen will be of the minimum size for accurate observation. The receiver volume-control setting is optional.

I-F Adjustments

(a) Set fidelity control to counter clockwise position. Connect the "Ant." output of the test oscillator to the grid cap of RCA-6K7 second i-f tube (with grid lead in place) through a .001-mfd. capacitor, with "Gnd." to receiver chassis. Tune the test oscillator to 460 kc and place its modulation switch to "On" and its output switch to "Hi."

(b) Turn on the receiver and test oscillator. Increase the output of the test oscillator until a deflection is noticeable on the oscillograph screen. The figures obtained represent several waves of the detected signal, the amplitude of which may be observed as an indication of output. Cause the wave-image formed (400-cycle waves) to be spread completely across the screen by adjusting the "Horizontal gain" control. The image should be synchronized and made to remain motionless by adjusting the "Sync." and "Freq." controls.

(c) Adjust the two magnetite core screws L30 and L29 (see figures 1 and 8) of the third i-f transformer (one on top and one on bottom) to produce maximum vertical deflection of the oscillographic image. This adjustment places the transformer in exact resonance with the 460-kc signal.

(d) The sweeping operation should follow using the frequency modulator. Shift the oscillograph "Timing" switch to "Ext." Insert plug of frequency-modulator cable in test-oscillator jack. Turn the test-oscillator modulation switch to "Off." Turn on the frequency modulator and place its sweep-range switch to "Hi."

(e) Increase the frequency of the test oscillator by slowly turning its tuning control until two separate, distinct, and similar waves appear on the screen. If only one wave appears, increase the "Freq." control on the oscillograph to obtain two waves. These waves will be identical in shape, totally disconnected, and appear in reversed positions. They will have a common base line, which is discontinuous. Adjust the "Freq." and "Sync." controls of the oscillograph to make them remain motionless on the screen. Continue increasing the test-oscillator frequency until these forward and reverse curves move together and overlap, with their highest points exactly coincident. This condition will be obtained at a test-oscillator setting of approximately 575 kc.

(f) With the images established as in (e), re-adjust the two magnetite core screws L30 and L29 on the third i-f transformer so that these curves on the oscillograph screen to become exactly coincident throughout their lengths and have maximum amplitude.

(g) Without altering the adjustments of the apparatus, shift the "Ant." output of the test oscillator to the grid cap of the RCA-6K7 first i-f tube (with grid lead in place), through a .001-mfd. capacitor. Regulate the test-oscillator output so that the amplitude of the oscillographic image is approximately the same as used for adjustment (f) above.

(h) The two second i-f transformer magnetite core screws L28 and L27 (one on top and one on bottom) should then be adjusted so that they cause the forward and reverse curves to become coincident throughout their lengths and have maximum amplitude.

(i) Without altering the adjustments of the apparatus, shift the "Ant." output of the test oscillator to the input of the i-f system, i.e., to the grid cap of the RCA-6K7 first detector, (with grid lead in place) through a .001-mfd. capacitor. Regulate the test-oscillator output so the amplitude of the oscillographic image is approximately the same as used for adjustment (h) above.

(j) The two first i-f transformer magnetite core screws L25 and L24 (one on top and one on bottom) should then be adjusted so that they cause the forward and reverse waves to become coincident throughout their lengths and have maximum amplitude.

(k) Note width of oscillographic image at a point which is 50% of maximum amplitude. Turn receiver fidelity control to extreme clockwise position. Note width of oscillograph image at a point which is 50% of maximum amplitude. Under normal conditions the latter measurement should be approximately 60% greater in width than the former measurement. The image should also appear slightly double-humped. If conditions indicate proper broadening of the band width of the i-f amplifier. Turn range selector to "Medium wave" (B) band and note increase of amplitude. The amplitude should increase several times. It may be necessary to decrease output of test oscillator to keep image on screen. Turn receiver fidelity control to extreme counter-clockwise position and proceed to "R-F Adjustments."

R-F Adjustments

Make receiver dial adjustments as outlined by "Selector dial," figure 11. Alignment must be made in sequence of "Wave-trap," "Ultra short wave" band, "Short wave" band, "Medium wave" band, "Standard broadcast" band, and "Long wave" band.

"Wave-Trap" Adjustment

(a) Connect the "Ant." output of the test oscillator to the antenna terminal "A1" through a 200-mmfd. (important) capacitor. Remove the plug of the frequency-modulator cable from the test-oscillator jack. Turn test-oscillator modulator switch to "On." Shift the oscillograph "Timing" switch to "Int." Place receiver range selector in "Standard broadcast" position. Set the receiver dial to a position of no extraneous signals near 600 kc. Tune the test oscillator to 460 kc. Adjust the wave-trap magnetite core screw L1 to the

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point which causes minimum amplitude of output (maximum suppression of signal) as shown by the waves on the oscillograph. An increase of the test-oscillator output may be necessary before this point of minimum amplitude, obtained by correct adjustment of wave-trap screw, becomes apparent on oscillograph screen.

"Ultra Short Wave" Band

(b) Connect the "Ant." output of the test oscillator to the antenna terminal "A1" of the receiver through a 300-ohm resistor. Set the receiver range selector to its "Ultra short wave" position and its dial pointer to 57,000 kc. Adjust the test oscillator to 19,000 kc. The third harmonic of 19,000 kc is used for this adjustment. If the indication on the oscillograph screen is not sufficient for the following adjustments at 57,000 kc, the vertical input terminals of the cathode-ray oscillograph may be connected thus: "Hi" to the plate contact of the RCA-6L6 power-output tube socket with the "0" terminal to chassis-ground. The receiver should be turned off while making this connection since the plate potential is impressed across the oscillograph input and a severe shock will result if contact is made between these two points. If this connection is made, advance the receiver volume control to its maximum position.

Adjust oscillator air-trimmer C23 for maximum (peak) output. Two positions, each producing maximum output, may be found. The position of minimum capacitance (plunger near out) should be used. This places the receiver heterodyne oscillator 460 kc higher in frequency than the incoming signal. Tighten lock nut. Adjust the detector air-trimmer C39, while slightly rocking the gang tuning condenser back and forth through the signal, for maximum (peak) output. Two peaks may be found on this trimmer. The peak of maximum capacitance (plunger near in) should be used. Tighten lock nut. Adjust the antenna air-trimmer C10 for maximum (peak) output while slightly rocking the gang tuning condenser back and forth through the signal. Two peaks may be found on this trimmer which produce maximum output. The peak with maximum capacitance (plunger near in) should be used. Tighten lock nut. Check the image frequency by changing the receiver dial setting to 56,080 kc. If the image signal is received at this position, the adjustment of the oscillator air-trimmer C23 has been correctly made. No adjustments should be made while checking for the image signal.

(c) Re-tune receiver for maximum response to 57,000 kc (not image response) without disturbing test-oscillator adjustments. Change test oscillator to 6,800—14,000 kc range. Tune test oscillator until signal is heard in speaker (should occur at approximately 14,250 kc, fourth harmonic of test oscillator used). Two test-oscillator settings (230 kc apart) will produce a signal at this point. The lower frequency test-oscillator setting should be used, as this places the test oscillator harmonic 460 kc below the frequency of the receiver heterodyne oscillator. Tune receiver for maximum response at a dial setting of approximately 28,500 kc (image should run at a dial setting approximately 27,580 kc) without altering test-oscillator adjustment. Test-oscillator second harmonic of 14,250 kc is used for the following check. Check calibration of receiver dial. A receiver-dial reading of less than 28,500 kc indicates that the inductance of the oscillator secondary coil L11 is too low and should be increased. If the receiver dial reading is greater than 28,500 kc, the inductance of L11 is too high and should be decreased. If it is necessary to change the inductance of L11, first remove bottom cover of "Magic Brain" and then set receiver dial pointer to 28,500 kc. To decrease inductance, move the grounded end (strap) of L11 and L12 (see figure 4) nearer chassis. Do not allow straps to touch chassis except where connected. To increase inductance, move the straps farther away from chassis. Adjust position of straps until maximum (peak) output results. The alignment of the detector tuned circuit should next be checked at 28,500 kc without changing either the receiver or test oscillator adjustments. An increase of output when the brass end of a tuning wand is brought near L22 indicates that L22 is too high in inductance, while an increase when the iron end is brought near the coil indicates that the inductance is too low. The inductance of L22 may be varied by changing the spacing between the grounded end (strap) of L22 and the strap connected from C41 to contact on S2 (figure 4). An increase of spacing will increase the inductance, while a decrease of spacing will decrease the inductance. Adjust the spacing until maximum (peak) output results. Replace "Magic Brain" bottom cover and repeat adjustments in (b) prior to those of "Short wave" band.

"Short Wave" Band

(d) Set the receiver range selector to its "Short wave" position and its dial pointer to 20,000 kc. Adjust the test oscillator to 20,000 kc. If the vertical input cathode-ray connections were changed for adjustment (b) above, they should be restored to their original position as shown on figure 3. Adjust oscillator air-trimmer C13 until maximum (peak) output is reached. Two peaks may be found with this circuit. The peak with minimum capacitance (plunger near out) should be used. Tighten lock nut. Adjust detector air-trimmer C35 until maximum (peak) output is reached, while slightly rocking the gang tuning condenser back and forth through the cut. The peak with maximum capacitance (plunger near in) should be used. Tighten lock nut. Adjust antenna air-trimmer C3 until maximum (peak) output is reached while slightly rocking the gang tuning condenser back and forth through the signal. Two peaks may be found with this circuit. The peak with maximum capacitance (plunger near in) should be used. Tighten lock nut. Check the image frequency by changing the receiver dial setting to 19,080 kc. The image signal should be received at this position indicating that the adjustment of C13 has been correctly made. No adjustments should be made while checking for the image signal.

"Medium Wave" Band

(e) Place receiver range selector to its "Medium wave" position with its dial pointer set to 6,000 kc. Tune the test oscillator to 6,000 kc. Adjust oscillator air-trimmer C14 to produce maximum (peak) output as shown by the waves on the oscillograph. Two peaks may be found with this circuit. The peak with minimum capacitance (plunger near out) should be used. Tighten lock nut. Adjust the detector air-trimmer C36 for maximum (peak) output while slightly rocking the gang tuning condenser back and forth through the signal. Two peaks may be found with this circuit. The peak with maximum capacitance (plunger near in) should be used. Tighten lock nut. Adjust antenna air-trimmer C4 to produce maximum (peak) output. Tighten lock nut.

"Standard Broadcast" Band

(f) Remove the 300-ohm resistor from between the test-oscillator "Ant." post and receiver antenna terminal "A1" and insert a 200-mmfd. capacitor in its place. Place receiver range selector to "Standard broadcast" position with receiver dial pointer set to 600 kc. Tune the test oscillator to 600 kc. Adjust oscillator magnetite core screw L9 (top of large oscillator coil can) for maximum (peak) output as shown by the waves on the oscillograph screen.

(g) Set receiver dial pointer to 1,500 kc. Tune test oscillator to 1,500 kc (1,500–3,100-kc range) and increase its output to produce a registration on the oscillograph screen. Carefully adjust the oscillator, detector, and antenna air-trimmers C16, C37, and C5, respectively, to produce maximum (peak) output as shown by the waves on the oscillograph screen. Shift the oscillograph "Timing" switch to "Ext." Place the frequency-modulator sweep-range switch to its "Lo" position and insert plug of the frequency-modulator cable in test-oscillator jack. Turn test-oscillator modulation switch to "Off." Re-tune the test oscillator (increase frequency) until the forward and reverse waves show on the oscillograph screen and become coincident at their highest points. This will occur at a test-oscillator setting of approximately 1,680 kc. Adjust trimmers C16, C37, and C5 again, setting each to the point which produces the best concordence and maximum amplitude of the images.

(h) Remove the plug of the frequency-modulator cable from the test-oscillator jack. Turn test-oscillator modulation switch to "On." Set oscillograph "Timing" switch to "Int." Tune test oscillator to 200 kc (200–400-kc range). Tune receiver for maximum response to this signal at a dial reading of approximately 600 kc. The third harmonic of the 200-kc signal is used for this adjustment. Shift oscillograph "Timing" switch to "Ext." Insert the plug of the frequency modulator cable in test-oscillator jack. Turn test-oscillator modulation switch to "Off." Re-tune the test oscillator (increased frequency) until the forward and reverse waves show on the oscillograph screen. This will occur at a test-oscillator setting of approximately 230 kc. Disregarding the fact that the two images may or may not come together, adjust the oscillator magnetite core screw L9 (top of large oscillator coil can) to produce maximum (peak) amplitude of the images. Shift the oscillograph "Timing" switch to "Int." Remove the plug of the frequency-modulator cable from the test-oscillator jack. Turn the test-oscillator modulation switch to "On." Repeat adjustments in (g) above to compensate for any changes caused by the adjustment of L9 core, tightening lock nuts on C16, C37, and C5, respectively, after each is adjusted.

"Long Wave" Band

(i) Shift the oscillograph "Timing" switch to "Int." Remove the plug of the frequency-modulator cable from the test-oscillator jack. Turn the test-oscillator modulation switch to "On." Place receiver range selector to its "Long wave" position. Set the receiver dial pointer to 175 kc. Tune the test oscillator to 175 kc and increase its output until a deflection is noticeable on the oscillograph screen. Adjust oscillator magnetite core screw L10 (located on top of small oscillator coil can) so that maximum (peak) amplitude of output is shown on the oscillograph screen.

(j) Set receiver dial pointer to 350 kc. Tune test oscillator to 350 kc. Adjust the oscillator, detector, and antenna air-trimmers C18, C38, and C6 to produce maximum (peak) output as shown by the waves on the oscillograph screen. Without disturbing the connections, shift the oscillograph "Timing" switch to "Ext." Place the frequency-modulator sweep-range switch to its "Hi" position and insert plug of frequency-modulator cable in test-oscillator jack. Turn test-oscillator modulation switch to "Off." Re-tune the test oscillator (decrease frequency) until the forward and reverse waves show on the oscillograph screen and become coincident at their highest points. This will occur at a test-oscillator setting of approximately 198 kc. This setting places the test-oscillator frequency to 175 kc. The second harmonic is now used for the 350 kc adjustment. Adjust air-trimmers C18, C38, and C6, again, to produce maximum amplitude of the images and best coincident throughout their lengths.

(k) Re-tune the receiver to approximately 175 kc so that the forward and reverse waves appear on the oscillograph screen. Adjust the oscillator magnetite core screw L10 to produce maximum (peak) amplitude of the waves, disregarding the fact that the two images may or may not come together.

(l) Shift the receiver dial setting to 350 kc without altering any other adjustments (frequency modulator still in operation). Adjust air-trimmers C18, C38, and C6, respectively, to produce maximum amplitude and best coincidence of the waves. These adjustments compensate for any changes caused by the adjustment of the magnetite core screw L10. Tighten lock nuts on C18, C38, and C6, respectively, after each is adjusted.

Loudspeaker

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

Phonograph Terminal Board

A terminal board is provided for connecting a phonograph into the audio amplifying circuit. Typical methods of connecting a low-impedance pickup, or the RCA Victor Models R-93, R-93-2, and R-93-8 Record Players are shown on the Schematic Diagram (figure 2).

Stock No.	Description	List Price
	RECEIVER ASSEMBLIES	
12863	Board—Phonograph input terminal board	$0.25
4437	Bracket—Volume control mounting bracket	.18
12907	Bracket—Band changer cover mounting bracket	.15
12985	Cable—Tuning lamp cable and socket	1.50
12991	Cable—3-conductor shielded fidelity control cable, approximately 7½ inches long	.50
12511	Cap—Grid contact cap—Package of 5	.15
12948	Capacitor—33 Mmfd. (C63)	.20
12629	Capacitor—56 Mmfd. (C60)	.20
12404	Capacitor—120 Mmfd. (C58, C59)	.26
12324	Capacitor—120 Mmfd. (C67)	.28
13021	Capacitor—390 Mmfd. (C45, C47, C51, C53)	.25
3148	Capacitor—.007 Mfd. (C69)	.20
4858	Capacitor—.01 Mfd. (C46, C48, C50, C54, C55, C58, C68)	.25
4624	Capacitor—.01 Mfd. (C39)	.54
12313	Capacitor—.015 Mfd. (C71)	.20
4886	Capacitor—.015 Mfd. (C70)	.20
4836	Capacitor—.05 Mfd. (C61)	.30
4841	Capacitor—0.1 Mfd. (C52)	.22
5170	Capacitor—0.2 Mfd. (C49)	.25
4840	Capacitor—0.25 Mfd. (C62)	.30
12741	Capacitor—0.5 Mfd. (C74)	.30
3213	Capacitor—1.0 Mfd. (C72)	1.16
12872	Capacitor—10 Mfd.—Used in 60-cycle model only (C76)	.90
12467	Capacitor—30 Mfd. (C73, C75)	1.40
12873	Capacitor Pack—Comprising one 10-Mfd. and one 3-Mfd. capacitor, 25-cycle model only (C76, C77)	1.20
12978	Compensator Pack—Comprising one .015-Mfd., one .035-Mfd., and one 0.1-Mfd. capacitor and one 1,900-ohm, one 8,300-ohm and one 27,000-ohm resistor (C64, C65, C66, R25, R24, R26)	1.25
12006	Core—Core and stud assembly for intermediate frequency transformer	.22
12866	Foot—Chassis foot assembly—Package of 3	.75
3226	Lamp—Pilot lamp—Package of 5	.70
12868	Link—Link mechanism on band indicator operating bar	.45
12871	Reactor—Filter reactor (L22)	1.50
4669	Screw—Set screw for flexible coupling or gear, Stock Nos. 12905 and 12906—Package of 10	.25
12901	Shaft—Direct drive shaft and pinion gear for planetary drive	.75
12900	Shaft—Vernier drive shaft for planetary drive	.25
12903	Spring—Tension spring for planetary drive bearing—Package of 10	.20
12907	Spring—Tension spring for gear, Stock No. 12906—Package of 10	.20
8032	Spring—Tension spring for link, Stock No. 8051—Package of 5	.32
	REPRODUCER ASSEMBLIES	
12914	Board—Reproducer terminal board	.25
12640	Bracket—Output transformer mounting bracket and clamp	.18
12912	Coil—Reproducer field coil (L33)	1.70
13290	Cone—Reproducer cone and dust cap (L31) (Model 10T)	1.35
13291	Cone—Reproducer cone and dust cap (L31) (Model 10K)	2.55
5118	Connector—Socket connector for speaker leads	.25
9757	Reproducer, complete (Model 10T)	8.70
11222	Socket—Upper right or lower left hand dial lamp socket	.18
11381	Socket—Tuning tube socket and cover	.45
11196	Socket—Voltage supply or 6F5 Radiotron socket	.15
12907	Spring—Retaining spring for core in I.F. transformer—Package of 10	.36
12986	Stud—Band indicator operating arm stud —Package of 5	.65
12860	Switch—Low frequency tone control switch (S4, S6)	1.50
12988	Switch—Band changer switch (S1, S2, S3)	.65
12919	Tone Control—High frequency tone and fidelity control (R29, S5)	1.60
12981	Transformer—First inter-frequency transformer (L24, L25, L26, C45, C47)	2.15
12990	Transformer—Second inter-frequency transformer (L27, L28, C51, C53)	1.85
12987	Transformer—Third intermediate frequency transformer (L29, L30, C56, C57, C60, R17, R19)	2.25
12856	Transformer—Power transformer, 105-125 volts, 50/60 cycles (T1)	5.35
12857	Transformer—Power transformer, 105-125 volts, 25/60 cycles	7.10
12858	Transformer—Power transformer, 110-125-150-210-240 volts, 50/60 cycles	8.75
12861	Volume Control (R22)	1.00
	MAGIC BRAIN UNIT ASSEMBLIES	
12806	Board—3-contact antenna and ground terminal board	.25
5227	Bushing—Variable condenser mounting bushing assembly—Package of 3	.45
12886	Cable—Shielded power cable, approximately 4 inches long, complete with 8-contact male plug	1.50
12511	Cap—Grid contact cap—Package of 5	.15
12714	Capacitor—Adjustable trimmer capacitor (C3, C4, C5, C9, C14, C35)	.38
12884	Capacitor—Adjustable trimmer capacitor (C10, C18, C23, C38, C39)	.40
12807	Capacitor—Adjustable trimmer capacitor (C13, C35, C36, C37)	.35
12896	Capacitor—15 Mmfd. (C34)	.20
12722	Capacitor—18 Mmfd. (C15)	.20
12691	Capacitor—36 Mmfd. (C40)	.20
12639	Capacitor—56 Mmfd. (C44)	.20
12895	Capacitor—56 Mmfd. (C17)	.20
12725	Capacitor—56 Mmfd. (C2, C64)	.20
13107	Capacitor—66 Mmfd. (C11)	.20
12724	Capacitor—120 Mmfd. (C25, C28, C29)	.28
12725	Capacitor—150 Mmfd. (C1)	.28
12894	Capacitor—180 Mmfd. (C22)	.20
12727	Capacitor—555 Mmfd. (C21)	.20
12537	Capacitor—560 Mmfd. (C7, C26, C33, C42)	.20
12898	Capacitor—1,500 Mmfd. (C12)	.20
12729	Capacitor—3,350 Mmfd. (C20)	.26
12728	Capacitor—4,500 Mmfd. (C19)	.40
12897	Capacitor—4,700 Mmfd. (C43)	.25
4858	Capacitor—.01 Mfd. (C8, C30, C31, C32)	
12879	Coil—Antenna coil and shield, XABC bands (L2, L3, L4, L5, L6)	1.90
12888	Coil—Antenna coil, "D" band (L11, L14)	.60
12880	Coil—Detector coil and shield, XABC bands (L15, L16, L17, L18, L19, L20)	2.05
12980	Resistor—Voltage divider resistor—Comprising one 750-ohm, one 7-ohm, one 11-ohm and one 38-ohm sections (R31, R32, R33, R35)	.55
12311	Resistor—1,000 ohms—insulated, ½ watt (R11, R16)—Package of 5	1.00
11935	Resistor—1,000 ohms—carbon type, 1/10 watt (R14)—Package of 5	.75
13097	Resistor—10,000 ohms—insulated, 1 watt (R30)	.22
12876	Resistor—10,000 ohms—wire wound (R10)	.55
12864	Resistor—17,000 ohms—wire wound resistor (R34)	.70
11282	Resistor—36,000 ohms—carbon type, 1/10 watt (R17)—Package of 5	.75
12875	Resistor—36,000 ohms—carbon type, 1 watt (R13)—Package of 5	1.50
11365	Resistor—82,000 ohms—carbon type, ½ watt (R15)—Package of 5	1.00
8064	Resistor—82,000 ohms—carbon type, ½ watt (R37)—Package of 5	1.00
11281	Resistor—100,000 ohms—carbon type, 1/10 watt (R12)—Package of 5	.75
11398	Resistor—220,000 ohms—carbon type, 1/10 watt (R19)—Package of 5	.75
11323	Resistor—270,000 ohms—carbon type, ½ watt (R27)—Package of 5	1.00
11172	Resistor—470,000 ohms—carbon type, ½ watt (R25, R28)—Package of 5	1.00
12013	Resistor—1.0 megohm—carbon type, 1/10 watt—Located in tuning tube socket (R11)—Package of 5	.75
11676	Resistor—2.2 megohm—carbon type, ½ watt (R18)—Package of 5	1.00
12874	Resistor—3.3 megohm—carbon type, ½ watt (R20, R21)—Package of 5	1.00
12870	Socket—Vernier dial scale	.65
12008	Shield—Intermediate frequency transformer shield	.28
12607	Shield—1st or 2nd I.F. transformer shield top	.30
12581	Shield—3rd I.F. transformer shield top	.36
11195	Socket—5-contact 5Z4 Radiotron socket	.15
11198	Socket—7-contact 6K7, 6L6 or 6H6 Radiotron socket	.15
13095	Socket—Upper left or lower right hand dial lamp socket	.25
9758	Reproducer, complete (Model 10K)	9.40
13289	Transformer—Output transformer (T2)	2.90
11886	Washer—Spring washer to hold field coil securely—Package of 5	.20
	MISCELLANEOUS ASSEMBLIES	
11906	Bracket—Tuning lamp bracket and clamp	.22
12915	Escutcheon—Station selector escutcheon and crystal	1.30
12742	Escutcheon—Tuning lamp escutcheon	.22
12699	Knob—Large station selector knob—Package of 5	.68
12700	Knob—Small (vernier) station selector knob—Package of 5	.58
11347	Knob—Music-speech and power switch—volume control—range selector or fidelity control knob—Package of 5	.75
11377	Screw—Chassis mounting screw assembly—Package of 4 (Model 10T)	.32
11210	Screw—Chassis mounting screw assembly—Package of 4 (Model 10K)	.28
12916	Shield—Complete rf unit top shield	.90
4982	Spring—Holding spring for station selector or volume control knob, Stock No. 11699—Package of 10	.50
11349	Spring—Retaining spring for knob, Stock Nos. 12700 and 11347—Package of 5	.25
12709	Coil—Oscillator coil and shield, ABC bands (L7, L8, L9)	2.02
12881	Coil—Oscillator coil and shield, X band	.80
12890	Coil—Oscillator coil, "D" band (L21, L22, L23)	.70
12889	Coil—R.F. coil, "D" band (L21, L22)	.65
12877	Condenser—3-gang variable tuning condenser (C9, C27, C41)	5.10
12887	Connector—6-contact male connector and cover for power cable, Stock No. 12886	.40
12664	Core—Adjustable core and stud for Stock No. 12654	.22
12800	Core—Adjustable core and stud for Stock No. 12709	.20
12882	Core—Adjustable core and stud for Stock No. 12881	.20
11324	Resistor—360 ohms—carbon type, ½ watt (R2)—Package of 5	1.00
5112	Resistor—1,000 ohms—carbon type, ½ watt (R3)—Package of 5	1.00
11298	Resistor—5,600 ohms—carbon type, 1 watt (R6)	.22
3998	Resistor—15,000 ohms—carbon type, ½ watt (R5)—Package of 5	1.00
11282	Resistor—36,000 ohms—carbon type, 1/10 watt (R4, R9)—Package of 5	.75
8064	Resistor—82,000 ohms—carbon type, ½ watt (R8)—Package of 5	1.00
11397	Resistor—360,000 ohms—carbon type, 1/10 watt (R1, R7)—Package of 5	.75
12651	Shield—Coil shield for Stock Nos. 12879, 12880	.22
12710	Shield—Coil shield for Stock No. 12709	.28
12883	Shield—Coil shield for Stock No. 12881	.20
11198	Socket—7-contact 6K7 Radiotron socket	.15
11279	Socket—7-contact 6L7 Radiotron socket	.20
12885	Socket—8-contact 6J7 Radiotron socket	.20
12009	Spring—Retaining spring for core, Stock Nos. 12664, 12800, 12882—Package of 10	.36
12878	Switch—Range switch and mounting nut (S1, S2, S3)	3.60
12654	Trap—Wave-trap, complete (L1)	.35
	DRIVE ASSEMBLIES	
10705	Ball—5/32-inch diameter steel ball for planetary drive—Package of 20	.25
10941	Ball—⅛-inch diameter steel ball for planetary drive bearing—Package of 20	.25
12904	Bushing—Plate and bushing assembly for planetary drive mounting	.20
12905	Coupling—Flexible coupling and shaft assembly, complete	.50
12909	Dial—Band indicating dial and cam assembly	1.05
12899	Drive—Variable tuning condenser drive, complete, including mounting bracket drives, dial scale and indicator, less vernier dial, Stock No. 12870 and link, Stock No. 12868	4.40
12906	Gear—Anti-lash drive gear, complete	.75
12910	Gear—Sector gear and link assembly for band selector	.20
12908	Indicator—Station selector indicator pointer	.20
8051	Link—Link and roller assembly, complete with spring	.30
12911	Screen—Dial lamp screen and light diffuser	.20