

A. R. Ausimay



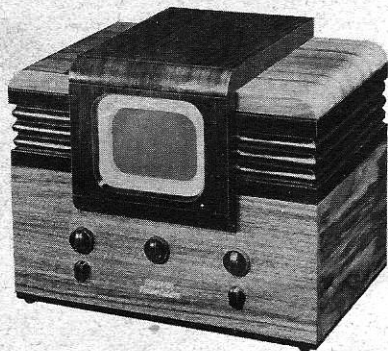
RCA Victor

MODEL TRK-5 and MODEL TT-5

Seventeen-Tube, AC, Superheterodyne, Five-Television-Channel Receiver
with
Eight-Tube, Three-Band, AC, Superheterodyne, Broadcast Receiver
AND
Seventeen Tube, AC, Superheterodyne, Five-Television-Channel
Table Model Attachment

TECHNICAL INFORMATION AND SERVICE DATA

RCA VICTOR DIVISION OF RADIO CORPORATION OF AMERICA, • CAMDEN, N. J., U. S. A.



Model TT-5

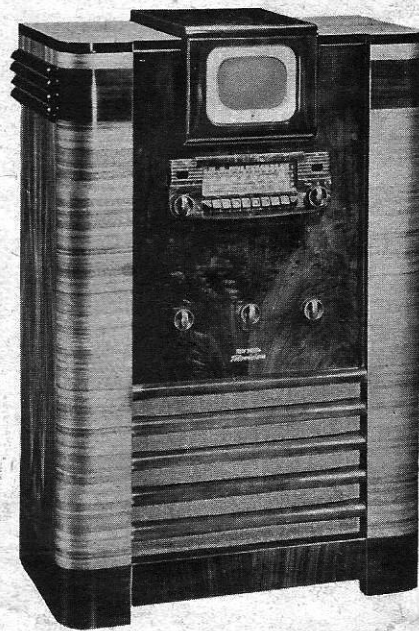
Chassis Numbers and Power Supply Ratings

Model TT-5:

Chassis KC-3, 105-125 volts, 60 cycles..... 190 watts
Chassis KC-3B, 105-125 volts, 50-60 cycles..... 190 watts

Model TRK-5:

Chassis KC-3A, RC-429, RS-89A, 105-125
volts, 60 cycles..... 275 watts (total)
Chassis KC-3C, RC-429, RS-89A, 105-125
volts, 50-60 cycles..... 275 watts (total)



Model TRK-5

General Description

Model TRK-5 consists of a console-type, seventeen-tube, direct-viewing, five-channel, Television receiver; and an eight-tube, three-band, broadcast radio receiver enclosed in a modern styled cabinet. Features of the Television Receiver include: Five-inch Kinescope; Styrol (humidity-resisting) i-f and r-f transformer forms; single-station-selector switch; temperature compensated condensers; iron core i-f and r-f tuning; double safety switch protection; safety glass viewing

window; automatic brightness control; and automatic volume control.

Model TT-5 is a seventeen-tube, direct-viewing, five-channel, table model Television receiver (picture only), which may be easily connected to any modern broadcast radio receiver for the accompanying sound reproduction. Television features for the Model TT-5 receiver are the same as in the Model TRK-5.

TELEVISION RECEIVER

Electrical Specifications

RCA TUBE COMPLEMENT

In KC-3, KC-3B (TT-5) and KC-3A, KC-3C (TRK-5)
Television Chassis:

- (1) RCA-6AC7/1852..... 1st Det.
- (2) RCA-6J5..... Oscillator
- (3) RCA-6AB7/1853..... 1st Pix. I.F.
- (4) RCA-6AC7/1852..... 2nd Pix. I.F.
- (5) RCA-6AC7/1852..... 3rd Pix. I.F.
- (6) RCA-6H6..... Pix. 2nd Det. Sync. Sep.
- (7) RCA-6V6..... Video Amp.
- (8) RCA-5BP4/1802-P4..... Kinescope
- (9) RCA-6AB7/1853..... 1st Sound I.F.
- (10) RCA-6B8..... Sound 2nd Det. AVC
- (11) RCA-6N7..... Sync. Amp.
- (12) RCA-6N7..... Vert. Osc. Discharge
- (13) RCA-6N7..... Vert. Output
- (14) RCA-6N7..... Hor. Osc. Discharge
- (15) RCA-6F8-G..... Hor. Output
- (16) RCA-5U4-G..... Low Voltage Rect.
- (17) RCA-2X2/879..... High Voltage Rect.

TELEVISION CHANNELS (Selector Switch Positions)

- | | |
|---------------------|---------------------|
| 1..... 50 to 56 mc. | 3..... 66 to 72 mc. |
| 2..... 60 to 66 mc. | 4..... 78 to 84 mc. |
| 5..... 84 to 90 mc. | |

Over-all Band Width (approx.)..... 2.5 mc.

Scanning..... Interlaced, 525 Line

Horizontal (Line) Scanning Frequency
(Sawtooth Wave)..... 15,750 cps.

Vertical (Field) Scanning Frequency
(Sawtooth Wave)..... 60 cps.

Frame Frequency..... 30 cps.

Picture Size (approximate mask dimensions).. 3 $\frac{3}{8}$ x 4 $\frac{3}{8}$ in.

Chassis Base Dimensions..... 13 x 18 in. Max.; height 9 in.

IMPORTANT PRECAUTIONS

CAUTION: These instruments contain high voltage (3,000 volts). Interlock switches are provided for high voltage protection. Do not attempt to service these instruments until you have studied these Service Notes thoroughly, and are familiar with the precautions necessary when servicing these instruments.

Do not attempt to measure the high voltage (2,000 volts). ALWAYS replace the red can over the 2X2/879 high voltage rectifier. The most dangerous portion of the H.V. supply is the plate lead of the 2X2/879 tube.

Do not eliminate the protection afforded by the interlock switches or measure any voltages on the

video chassis unless the gray secondary plate lead of the high voltage transformer has been unsoldered, a rubber tube Stock No. 34096 slipped over the lead, and taped to the lead.

Use only one hand when working on the high voltage portion of the chassis, and always connect a shorting lead first to ground; then to the high side of the first high voltage filter capacitor.

Always wear gloves and goggles when handling Kinescopes.

A good ground should be connected to the receiver at all times.

Precautions in Handling Kinescopes

The Kinescope bulb encloses a high vacuum and due to its large surface area, is subjected to considerable air pressure. For these reasons, Kinescopes must be handled with more care than an ordinary receiving tube.

The large end of the Kinescope bulb — particularly that part at the rim of the viewing surface — must not be struck, scratched or subjected to more than moderate pressure at any time. If the tube sticks, or fails to slip into its socket or shield smoothly, investigate and remove the cause of trouble. Do not force the tube.

All RCA Kinescopes are shipped in special cartons and should always be left in the cartons until ready for installation in the receiver. Keep the carton for future use.

CAUTION: Do not open the shipping carton, install or handle the Kinescope in any manner unless shatter-proof goggles and heavy gloves are worn. People not so equipped should be kept away while handling Kinescopes. Keep Kinescope away from body when handling.

Notes

1. This service note includes all changes that have been incorporated since initial production, including deletion of the 44-50 mc. channel and addition of the 60-66 mc. channel.
2. Detailed explanation of the receiver circuit operation

may be found in the booklet: *Practical Television* by RCA.

3. **Alignment.** — Because of the special equipment and procedure necessary for the proper alignment of these receivers, the alignment will not be covered in this service note.

Operation Model TRK-5

The power-volume control on the broadcast radio receiver turns on the power for the complete receiver. Pushing the button marked "Television" on the push button panel turns on the Television receiver, if the above power control is "On." The volume control of the broadcast receiver also controls the Television sound volume level.

Station Selector and Fine Tuning.—The outer ring "O" section of the central dual control knob on the Television panel selects the station from which it is desired to receive television transmission.

Five television channels are covered as follows:

- (1) 50 to 56 M.C.
- (2) 60 to 66 M.C.
- (3) 66 to 72 M.C.
- (4) 78 to 84 M.C.
- (5) 84 to 90 M.C.

Set the station selector to the number corresponding to the frequency of the station from which it is desired to receive Television Broadcasts.

The inner section "I" of this knob is used for fine tuning and may eliminate moving ripples or distortion if due to interfering radio signals.

Before the Television portion of the receiver is turned "ON" it is advisable to turn the Brightness and Contrast controls completely counter-clockwise to reduce the illumination of the spot which appears on the Kinescope before the sweep circuits have started functioning.

Contrast and Brightness Controls.—The inner "I" section of the "Contrast" - "Brightness" controls is the "Contrast" control and varies the black and white tones of the picture being received. Too little contrast makes the picture all half-tones or grays. Turning clockwise increases contrast from grays, to black and white. See Operating Instructions for this receiver.

The outer ring "O" is the Brightness Control and affects the average illumination of the picture. Turning clockwise increases the brightness. See Operating Instructions for this receiver.

Hold Controls.—The dual knobs on the Television panel marked "Horizontal" and "Vertical" Hold, control the picture stability. The inner section designated by a "I" is the Horizontal Hold Control and when being set should be turned slowly to the point at which the picture "locks in" horizontally. See Operating Instructions for this receiver.

The outer ring section designated by "O" is the Vertical Hold Control and when being set should be turned to the point where the picture "locks in" vertically.

These two controls on this dual knob should not ordinarily require readjustment after good picture reception has once been obtained. An occasional resetting may be necessary due to changing to a different station, and to the gradual aging of the tubes.

Focus Control.—This control is located on the rear of the Video chassis, and controls the electron beam focus of the Kinescope. Ordinarily, after once being focused the Kinescope should not require re-focusing for a considerable length of time.

Operation Model TT-5

The operation of Model TT-5 is the same as that for the Model TRK-5 except that there is a separate "ON-OFF" switch, and a separate sound volume control because the broadcast radio receiver is not included in this model. When Model TT-5 is connected to a broadcast receiver for the Television sound reproduction, the broadcast receiver volume control should be turned to maximum and the Television sound volume controlled with the control on the Television Receiver.

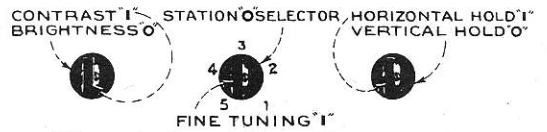
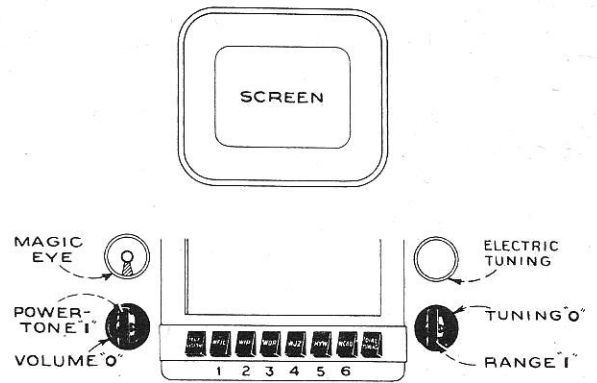


Figure 1—Control Panel Model TRK-5

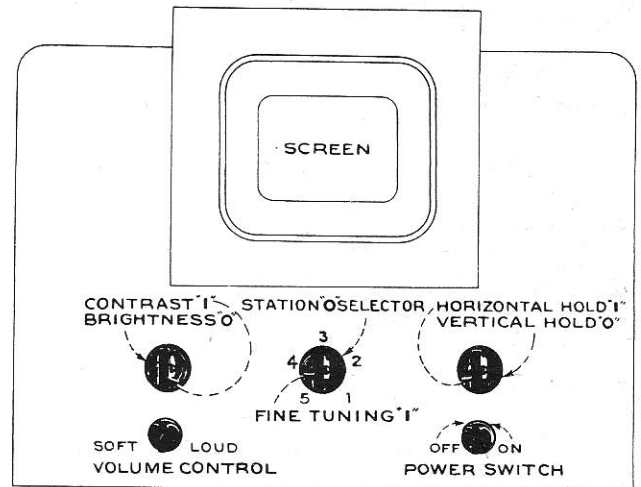


Figure 2—Control Panel Model TT-5

SERVICE DATA

Kinescope Installation Models TRK-5, TT-5: Refer to figure 3.

1. Remove back cover from cabinet.
2. Remove Kinescope mounting shield from shipping carton.
3. Using gloves and goggles remove Kinescope from shipping carton and place in the cone-shaped mounting shield.
4. Guide the Kinescope and mounting shield carefully into the cabinet, placing the Kinescope firmly up against the mask and viewing window. Fasten the mounting shield firmly in place with the thumb screw provided, so that it holds the Kinescope firmly against the mask. If the Kinescope does not line up properly with the mask, loosen the screws "A" and nut "B" and adjust in the direction desired.
5. After the receiver is operating, the Kinescope may be rotated to properly square up the picture with the mask.

CAUTION: When rotating tube the power should be turned "OFF."

Adjustments.—There are a series of screwdriver slot adjustments at the rear of the Video chassis used to obtain the proper picture size and centering. These adjustments are explained fully in the receiver operating instructions, and also in the booklet: **Practical Television by RCA.**

When the receiver is moved from one location to another, some readjustment of these controls may be necessary.

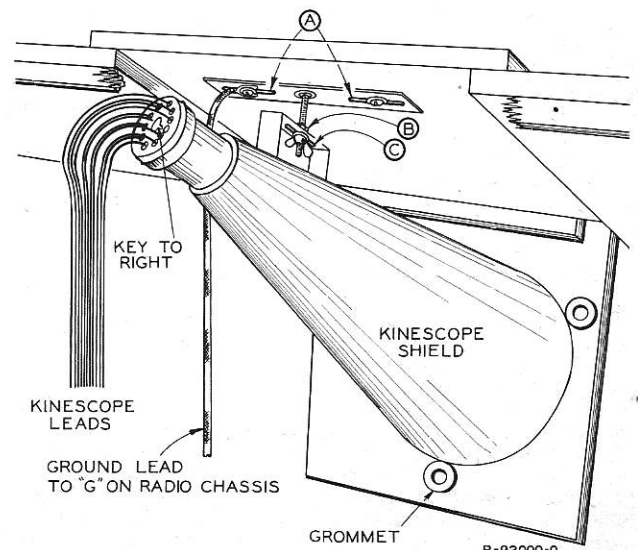


Figure 3—Kinescope Installation

antenna rods or pickup wires proper at least 1/4 wave length (at least 6 feet) away from other antennas, metal roofs and gutters or metal objects.

Under certain extremely unusual conditions, it may be possible to rotate or position the antenna so it receives the cleanest picture over a reflected path. If such is the case, the antenna should be so positioned. However, such a position may give variable results as the nature of reflecting surfaces may vary with weather conditions, as a wet surface has been known to have different reflecting characteristics than a dry surface.

In short, a television receiving antenna and its installation must conform to much higher standards than an antenna for reception of International Short Wave and Standard Broadcast signals because:

(1) Intervening obstacles have a pronounced shielding effect on the ultra-high frequency waves producing low intensity signals. Severe trouble with multi-path transmissions may be experienced, especially in congested city areas.

(2) The picture signal is comprised of a very wide band or range of frequencies, all of which must be received with good efficiency.

(3) It must be continually remembered that the discernment of the eye is much more critical than that of the ear.

For further information on antennas and antenna installation, see RCA Booklet entitled: "Practical Television by RCA" as well as the specific instructions accompanying the RCA Television antennas.

Television Service Suggestions

1. **Intensely bright round spot; no deflection.** If an intensely bright round spot appears on the Kinescope, and cannot be dimmed with the brightness control, turn the set off immediately. This indicates lack of deflection and lack of voltage across the brightness control. (Note that a bright spot may appear for several seconds if the receiver is turned on again too soon after it has been shut off. Avoid doing this.)

2. **Thin vertical line; no horizontal deflection.** If only a thin vertical line appears on the Kinescope when the brightness control is advanced, it indicates lack of horizontal deflection. Check the 6N7 horizontal oscillator and the 6F8-G horizontal output tube.

3. **Thin horizontal line; no vertical deflection.** If only a thin horizontal line appears, it indicates failure of vertical deflection. Check the 6N7 vertical oscillator and the 6N7 vertical output tube.

4. **Excessive hum; defective high-voltage filter.** Turn contrast control fully counter-clockwise and adjust the brightness control to secure faint illumination of the raster. "Lock in" any residual hum by adjusting the vertical hold control. Normally the hum should be scarcely discernible. Excessive

hum may be caused by a defective (low value) filter resistor (R91, R92), which in turn may be caused by a shorted 2X2/879 high-voltage rectifier. Observe necessary precautions before checking the filter.

5. **No focus; off-value high-voltage resistors.** Adjust the focus control to secure sharpest lines on the raster. The individual lines can be seen most readily by turning the horizontal hold control to the lowest frequency (counter-clockwise). The lines should be in sharpest focus at one setting of the focus control. Inability to pass through a definite point of focus indicates incorrect voltages, which may be caused by off-value high-voltage resistors. Inability to focus may also be due to a defective Kinescope.

6. **Failure to lock-in; sync trouble.** Turn band switch to a channel that is in operation. Adjust the fine-tuning control for clearest sound, which should be at approximately half-capacity position. Turn contrast control full counter-clockwise. Turn brightness control until the Kinescope is faintly illuminated. Turn contrast control clockwise until the picture signal is evident. Lock in the picture horizontally and vertically. Adjust the contrast and brightness controls for best contrast.

If the picture will not lock in horizontally or vertically, change the 6N7 sync tube. Interchanging 6N7's may correct

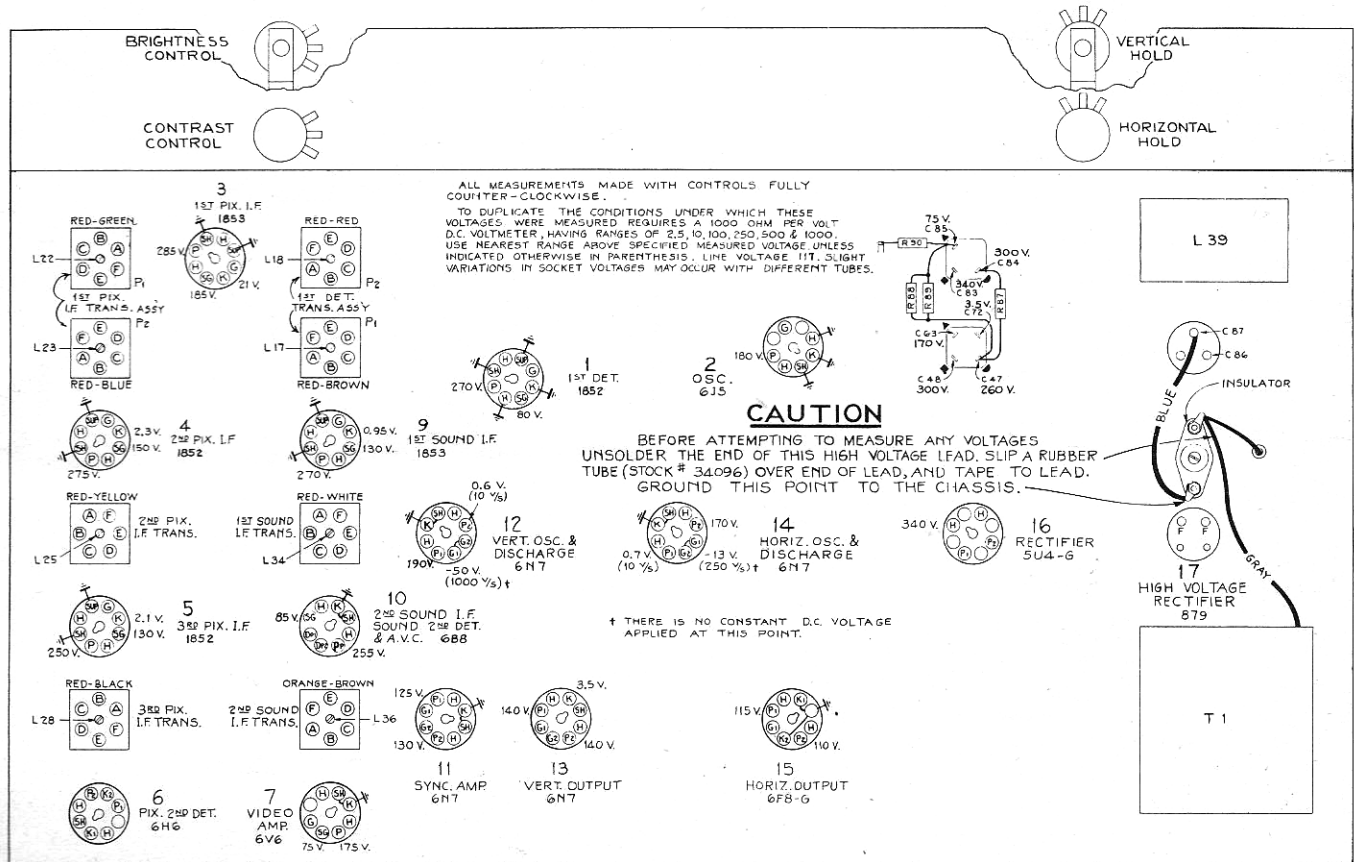


Figure 7—Voltage Diagram Television Chassis

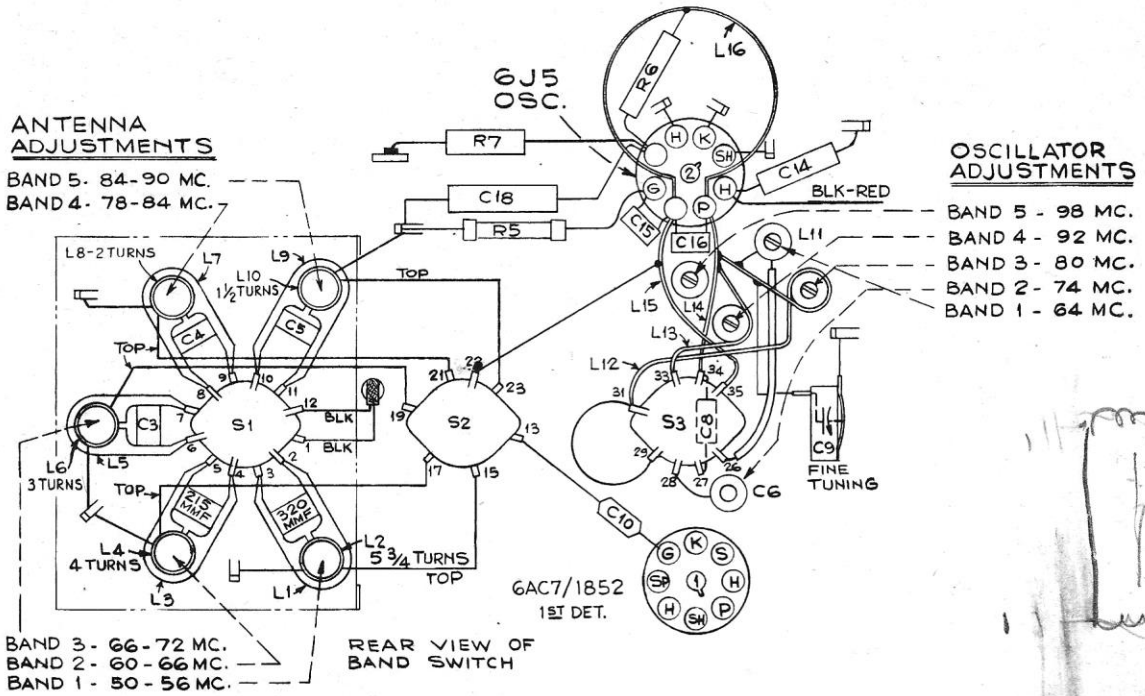


Figure 10—R. F.-Oscillator Unit Wiring and Adjustments

Television Service Suggestions (Continued from Page 5)

the trouble. Otherwise check the resistors, capacitors and voltages in the sync circuits. The capacitors should be checked for opens and leakage. Do not forget that advancing the contrast control too far on a strong signal will cause the picture to "tear" out of horizontal sync.

7. **Weak picture; insensitive receiver.** A simple sensitivity check can be made by removing the antenna from the receiver and turning the contrast control full clockwise with brightness control at normal position. This should produce some evidence of tube noise which will appear as speckles on the Kinescope raster. When the antenna is connected to the receiver, there should be more pronounced speckles due to random noise, streaks due to ignition interference from passing cars, and possibly hum lines that can be locked in vertically, due to sparking in 60-cycle circuits, diathermy, etc. Sensitivity can be estimated in this way, just as with an ordinary radio receiver, by observing the amount of noise and the strength of the weaker stations. Check each band for sensitivity. Noise conditions vary from band to band. Certain types of interference, such as diathermy, may exist in only one band and may be seen but not heard, or vice versa.

If the receiver is insensitive, check all tubes in the picture-IF amplifier and the 1st-detector by substituting a good tube in each socket. If the trouble is not due to tubes, it may be necessary to check the gain of each picture stage.

8. **Small picture size.** Adjust picture size and centering. Inability to secure a full-sized picture may be due to low-voltage on the 300-volt bus. Check the low-voltage rectifier.

9. **Inability to center picture.** This may be due to low voltage across the centering controls caused by a defective rectifier or capacitor, or low line voltage. Another possibility is that the elements in the Kinescope may be tilted. This can be checked as follows:

With the brightness control at normal setting, turn the receiver on and observe the position of the illuminated spot during the few seconds before the horizontal and vertical deflection voltages start operating. The illuminated spot should be in the center of the Kinescope (its position during these few seconds is not affected by the centering controls). If the spot is off center, it is a definite indication that the Kinescope "gun" is tilted.

10. **Distorted sound or sound in picture.** An open in one side of the antenna transmission line can cause distorted sound. Other possibilities include:

(a) If the sound-IF response curve is not linear for 75 kilocycles on each side of 8.25 mc., distortion will result.

(b) Inaccurate adjustment of the oscillator frequency on any channel may result in no sound or distorted sound, due

to the fact that the sound-IF beat frequency will not be 8.25 mc. If the oscillator frequency is too low, the beat note, instead of falling on the high-frequency slope of the sound-IF response curve, may fall on the low-frequency slope. In this case, the sound may be satisfactory, but operation on this side of the curve should be avoided. In some localities, it results in sound image interference from other channels.

A quick and definite method to check the oscillator frequency is as follows:

- (a) Tune in a television station.
- (b) Turn the fine tuning trimmer to minimum capacity. This should produce some evidence of sound in the picture. The sound usually appears as horizontal bars of varying density, and these vary in step with the speech or music. The bars disappear when the voice or music stops.
- (c) Turn the trimmer for best sound quality. This should correspond to approximately half-capacity of the trimmer.
- (d) Turn the trimmer toward maximum capacity. If the slope of the sound-IF response curve is narrow, this will move the beat on to the peak of the response curve, producing low volume and severe distortion.

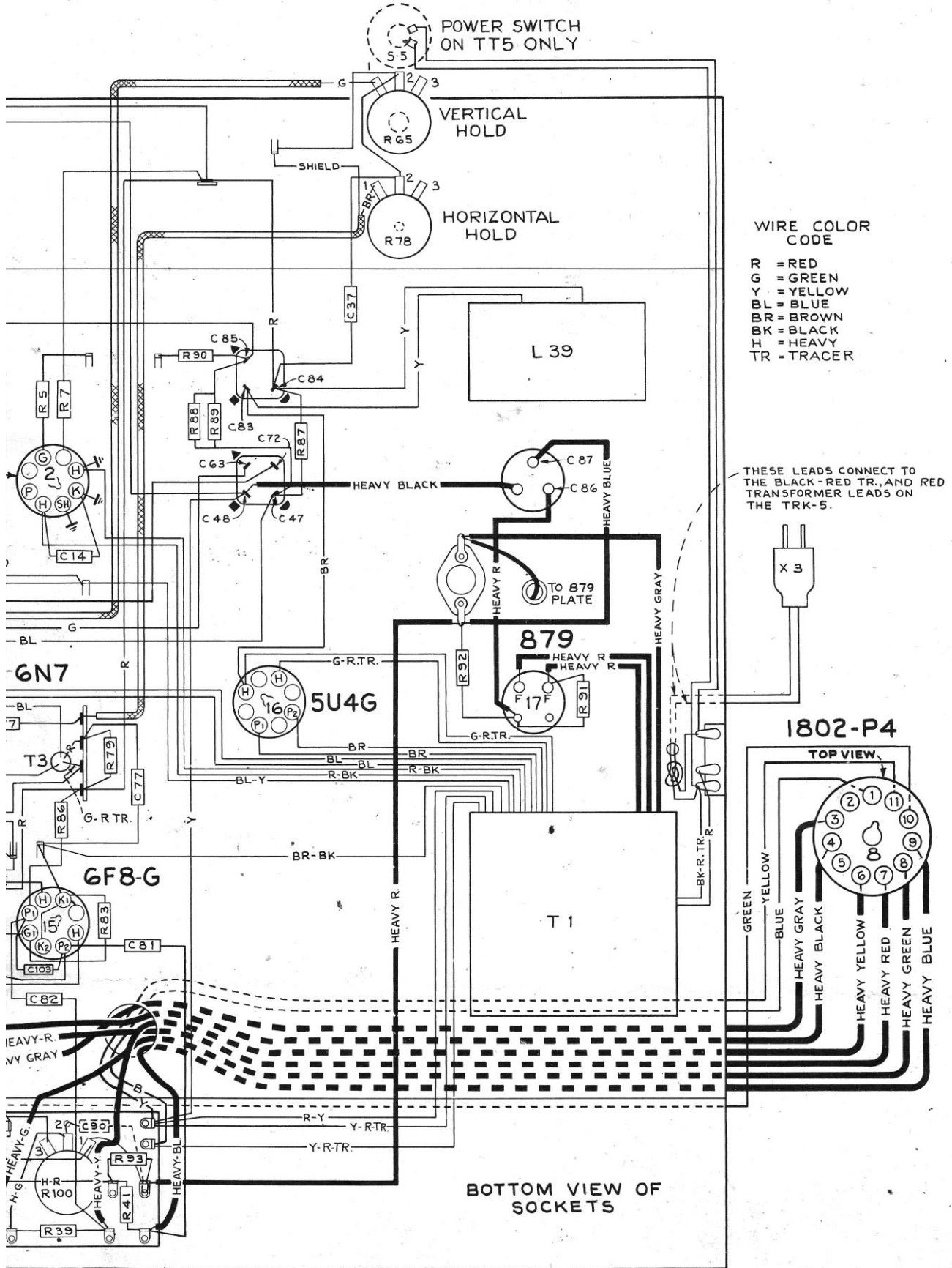
On service work in the home or where test equipment is not available, if one or more of the oscillator frequencies require re-adjustment, the recommended procedure is as follows:

- (a) Tune in the television station on the channel which requires re-adjustment of the oscillator frequency.
- (b) Turn the fine-tuning trimmer to minimum capacity.
- (c) Turn the magnetite-core for the particular oscillator coil toward the highest frequency position (core moved away from the coil). This will definitely put sound in the picture. Turn the core in the opposite direction, to lower the oscillator frequency, until the sound is barely perceptible in the picture. Leave the core in this position.

(d) Now, by turning the fine-tuning trimmer to half-capacity, it should be possible to secure good tone quality with no trace of sound in the picture.

If the sound-IF is deliberately moved into the picture-IF by adjusting the oscillator core to produce the highest frequency, the effect of the sound-IF interference will produce a "reversed" image, somewhat like a film negative.

The customer should be instructed to adjust the fine-tuning control for best sound quality, at which point there is no sound in the picture. If the set is turned on in a cold room, it may be necessary for the customer to readjust the fine-tuning trimmer to compensate for the slight drift in oscillator frequency during the warm-up period.



WIRE COLOR CODE

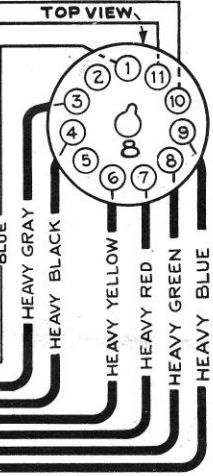
- R = RED
- G = GREEN
- Y = YELLOW
- BL = BLUE
- BR = BROWN
- BK = BLACK
- H = HEAVY
- TR = TRACER

THESE LEADS CONNECT TO THE BLACK-RED TR., AND RED TRANSFORMER LEADS ON THE TRK-5.

HORIZONTAL CENTERING

BOTTOM VIEW OF SOCKETS

1802-P4
TOP VIEW



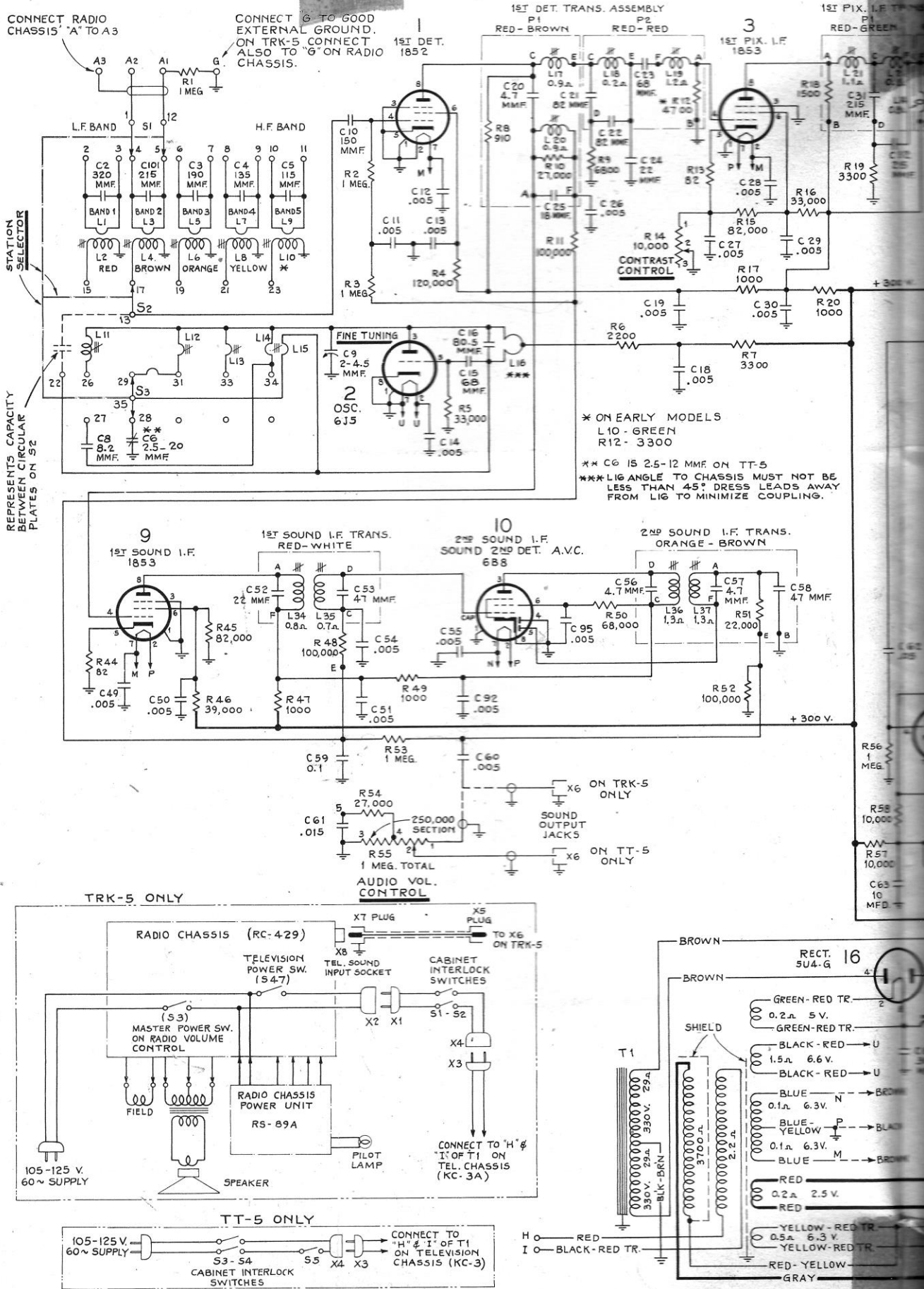
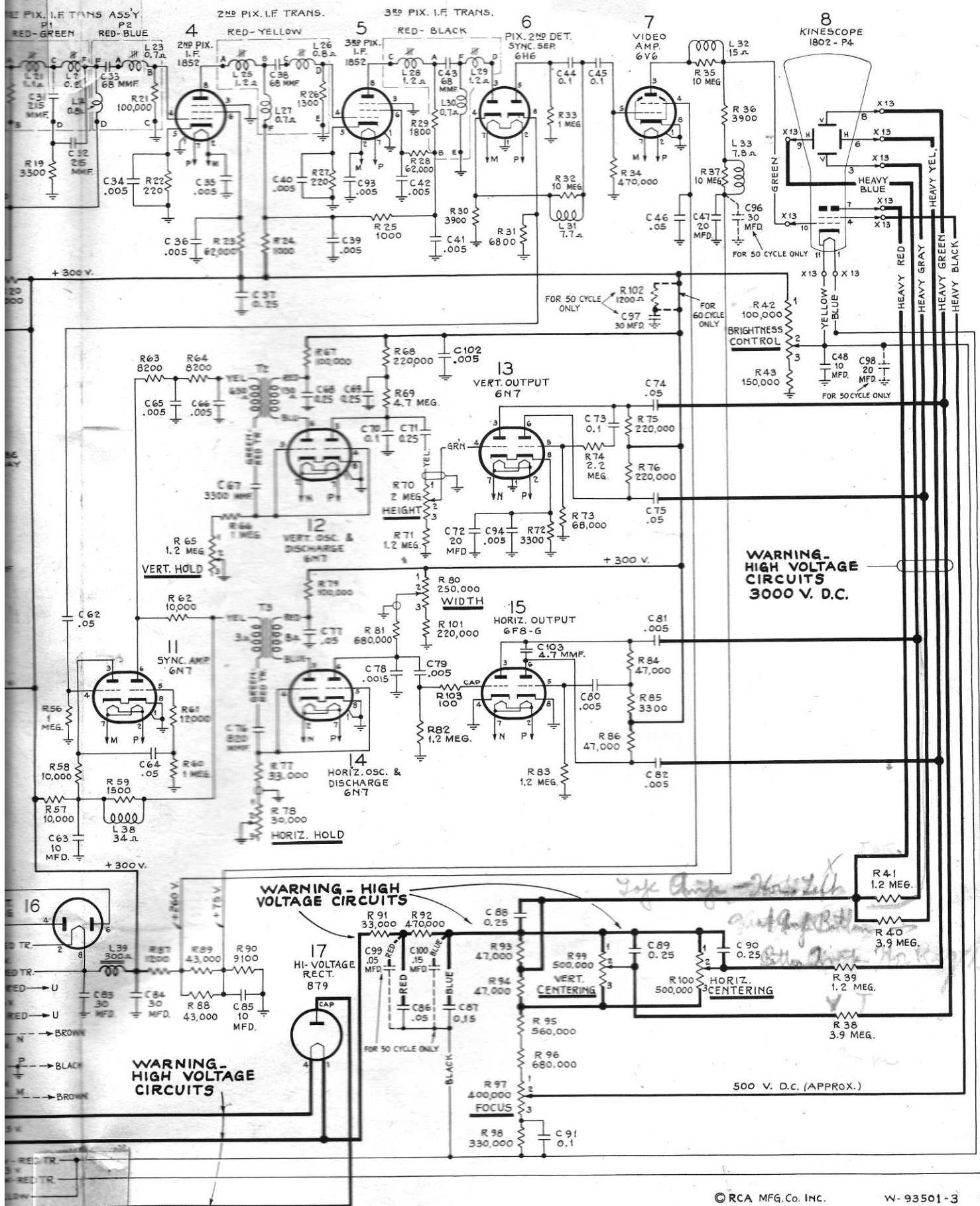


Figure 8—Schematic



OF AMERICA

MODEL TRK-5, CHASSIS KC-3A, RC-429, RS-89A
MODEL TT-5, CHASSIS KC-3

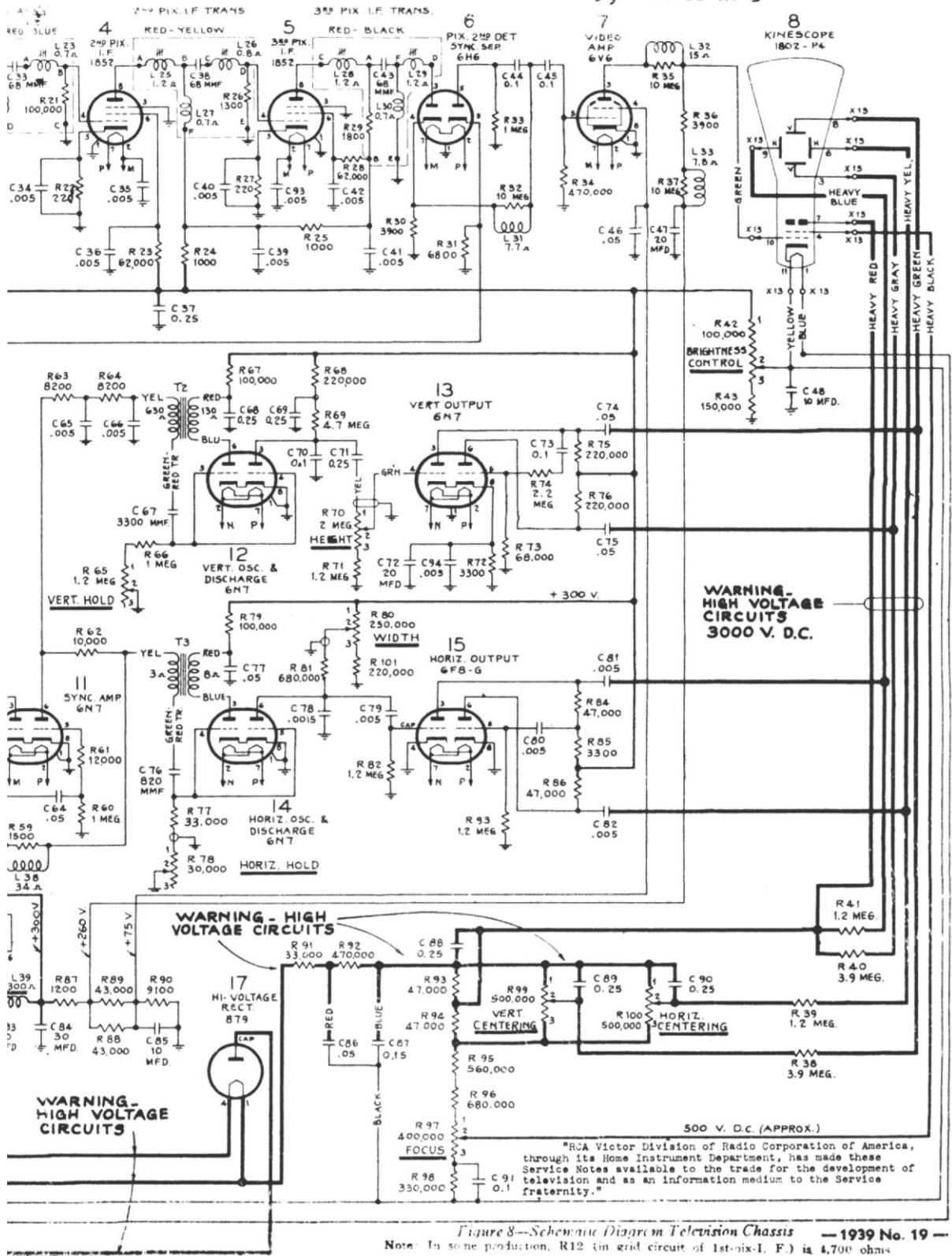


Figure 8—Schematic Diagram Television Chassis — 1939 No. 19 —
Note: In some production, R12 (in grid circuit of 1st-ix-1. F.) is 4,700 ohms

This image is copied from a PDF of the Rider's manual. It is less blurry than the RCA one. It may also differ slightly from the same circuit in a few places.

Radio Receiver Chassis No. RC-429 and Socket Power Unit No. RS-89A

Eight-Tube, Three-Band, Electric-Tuning, A-C, Superheterodyne Receiver

Electrical Specifications

FREQUENCY RANGES	
Standard Broadcast ("A" band).....	540-1720 kc
Intermediate Frequency.....	455 kc
TUBE COMPLEMENT	
(1) RCA-6A8-G.....	1st-Det., and Osc.
(2) RCA-6K7.....	I-F Amplifier
(3) RCA-6Q7.....	2nd-Det., A.V.C., 1st Audio
(4) RCA-6J5.....	Phase Inverter
(5) RCA-6K6-G.....	Power Output
(6) RCA-6K6-G.....	Power Output
(7) RCA-6U5.....	"Magic Eye"
(8) RCA-5Y3-G (in SPU RS-89A)....	Full-Wave Rectifier
Dial Lamps.....	Mazda No. 44, 6.3 volts, .25 amp.
Power Supply Rating.....	105-125 volts, 50-60 cycles, 75 watts
POWER OUTPUT	
Undistorted.....	5 watts
Maximum.....	5.5 watts
ELECTRIC TUNING RANGES	
Two stations between approximately.....	550-950 kc
Medium Wave ("B" band).....	2.3-7.0 mc
Short Wave ("C" band).....	7.0-22 mc
LOUDSPEAKER (RL-70H-5)	
Type.....	12-inch electrodynamic
Voice-Coil impedance.....	2.2 ohms at 400 cycles
Two stations between approximately.....	690-1,225 kc
Two stations between approximately.....	890-1,500 kc

Mechanical Specifications

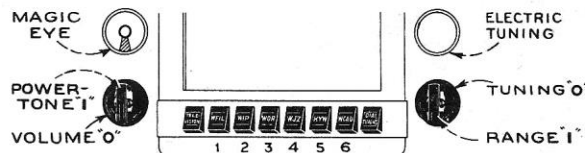
RC-429 CHASSIS BASE DIMENSIONS	
Height.....	2-1/2 inches
Width.....	13 inches
Depth.....	6-1/2 inches
Over-all Chassis Height.....	6-1/2 inches
Tuning Drive Ratio.....	12 to 1

General Description

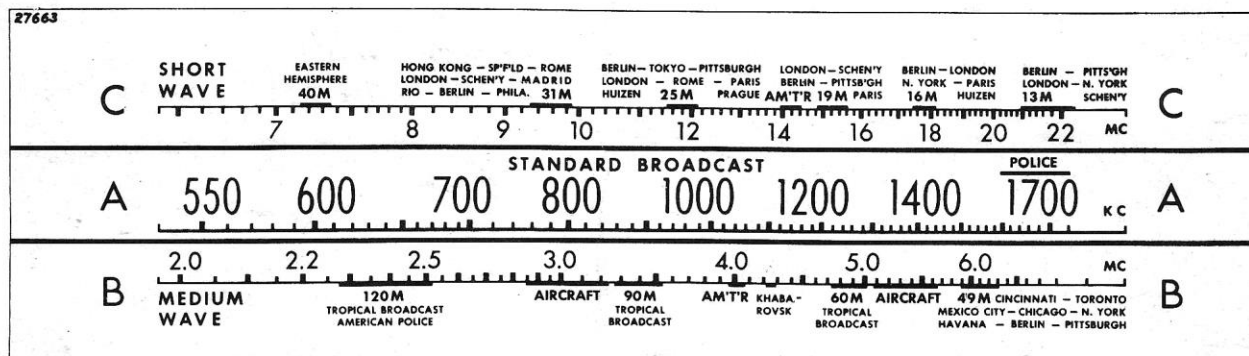
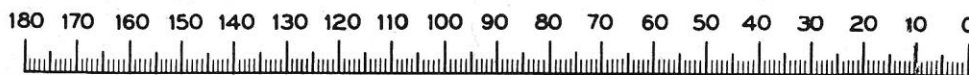
Radio receiver chassis No. RC-429 is used in RCA Victor Television console Model TRK-5.

The audio output of the television chassis is connected to the audio input of the RC-429 chassis by means of jack X-8 and the left-hand push-button switch (S44, S45, S46).

A separate plug-in power supply unit, RS-89A, is used to supply heater and plate voltage to the RC-429 chassis. Service data and diagrams for the power unit are contained in the following pages.



Location of Controls (Radio)



Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example, 28° on the calibration scale corresponds to 1,500 kc on "A" band. Read instructions under "Alignment Procedure."

Alignment Procedure (RADIO CHASSIS)

Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown in the chassis drawing.

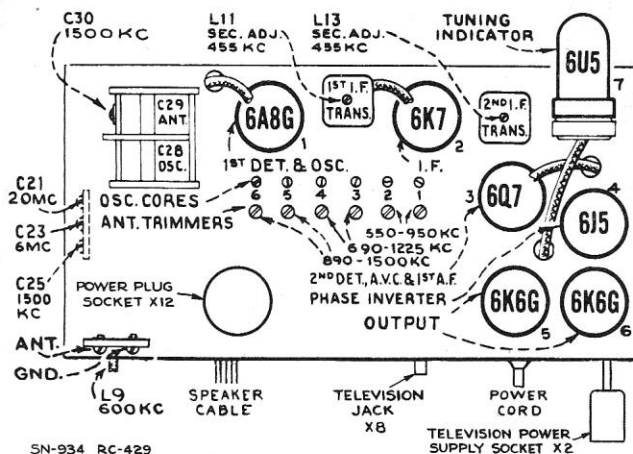
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver ground terminal (G), and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The distance from the front of the chassis to the drum must not exceed 3/8-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-



condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 530 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional details, refer to booklet "RCA Victor Receiver Alignment."

Step	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	6K7 I-F grid cap, in series with .01 mfd.	455 kc	"A" band, Quiet Point between 550-750 kc	L12 and L13 (2nd I-F Trans.)
2	6A8-G 1st-Det. grid cap, in series with .01 mfd.			L10 and L11 (1st I-F Trans.)
3	Antenna terminal, in series with 200 mmfd.	600 kc	600 kc 150.5°	L9 (osc.)
4		1,500 kc	1,500 kc 28°	C25 (osc.) C30 (ant.)
5	Repeat steps 3 and 4.			
6	Antenna terminal, in series with 300 ohms	6 mc	6 mc 26.5°	C23 (osc.)*
7		20 mc	20 mc 22°	C21 (osc.)*
8	Follow "Adjustments for Electric Tuning."			

* Use minimum capacity peak if two peaks can be obtained, and check for image by tuning radio approximately 910 kc lower.
Note: The oscillator tracks above the signal on all bands.

Adjustments for Electric Tuning

These models have eight push buttons. The left-hand button is a Television switch. The right-hand button connects the gang condenser for manual tuning. The other six buttons are for electric tuning of six different stations in the standard-broadcast range. The station buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the desired six stations, arranged in order from low to high frequencies.
2. Push in the dial-tuning button, and manually tune in the first station on the list.

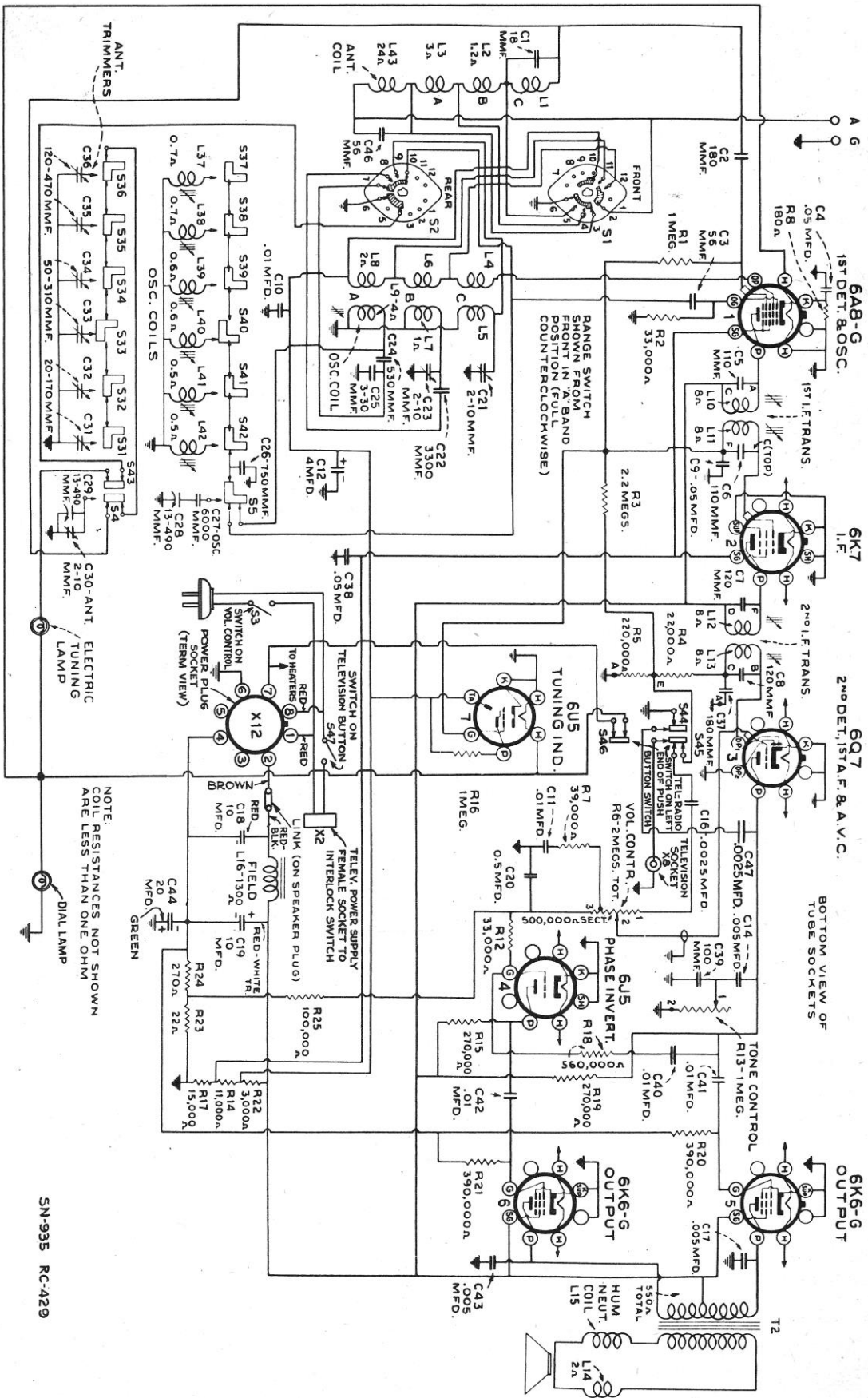
3. Push in station button No. 1 (second from left) and adjust No. 1 oscillator core (L37) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.

4. Adjust No. 1 antenna trimmer (C36) for maximum output on this station.

Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

5. Adjust for each of the remaining five stations in the same manner.

6. Make a final careful adjustment of the oscillator cores and antenna trimmers. Use the "Magic Eye" to ensure sharp peaking.

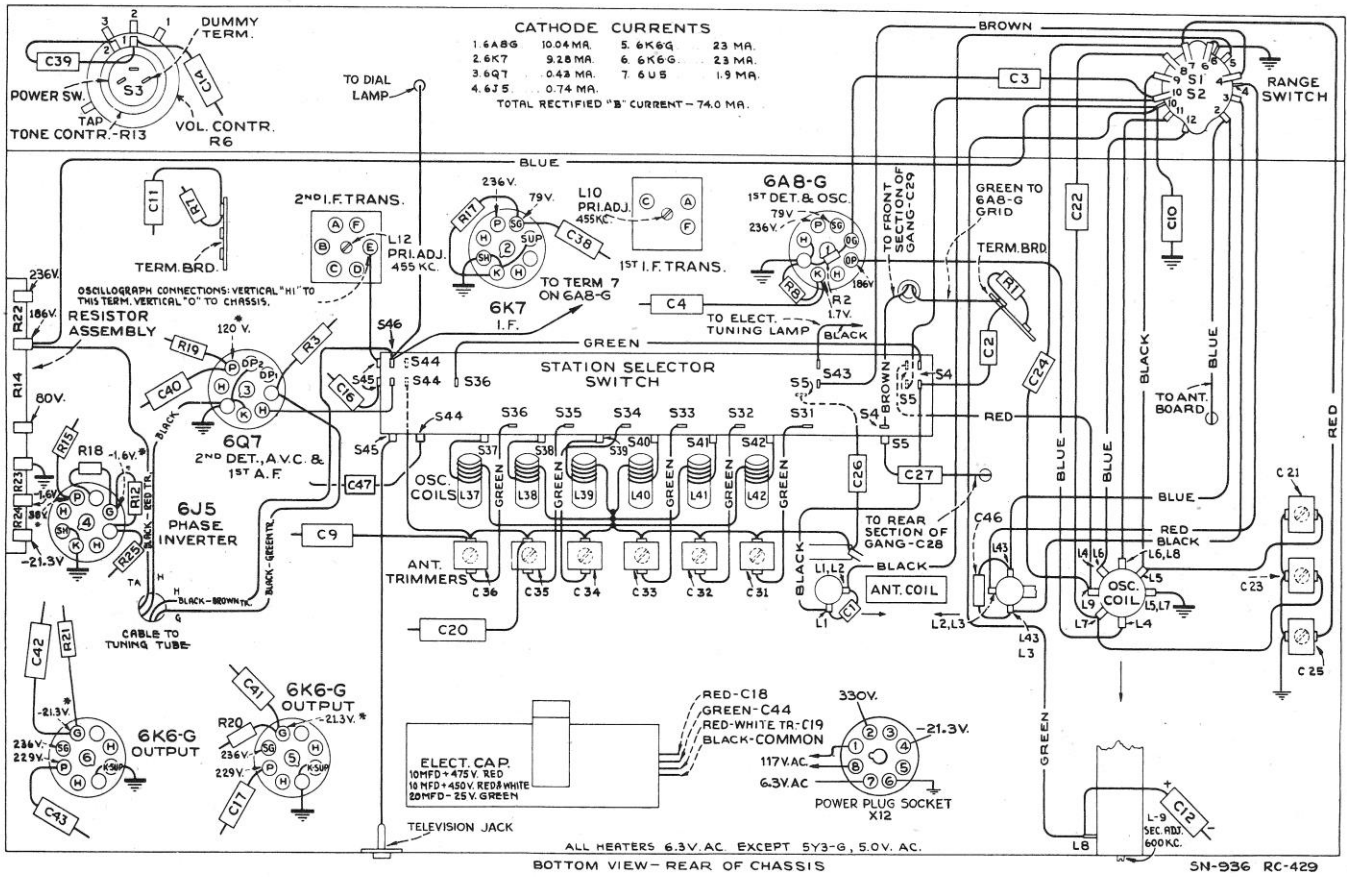


Schematic Circuit Diagram, Chassis No. RC-429

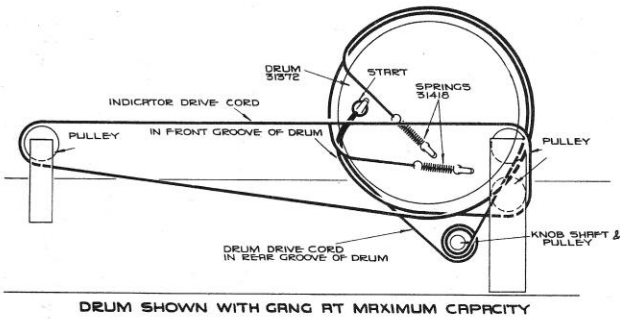
- Precautionary Lead Dress:**
1. Electric tuning lamp leads to S43 must be dressed in front of the range switch.
 2. Dress leads away from antenna coil.
 3. Leads across back of chassis must be dressed away from television jack (X8).
 4. C26 (750 mmfd.) on push-button switch assembly must be dressed carefully to prevent shorts.

SN-935 RC-429

TRK-5
TT-5



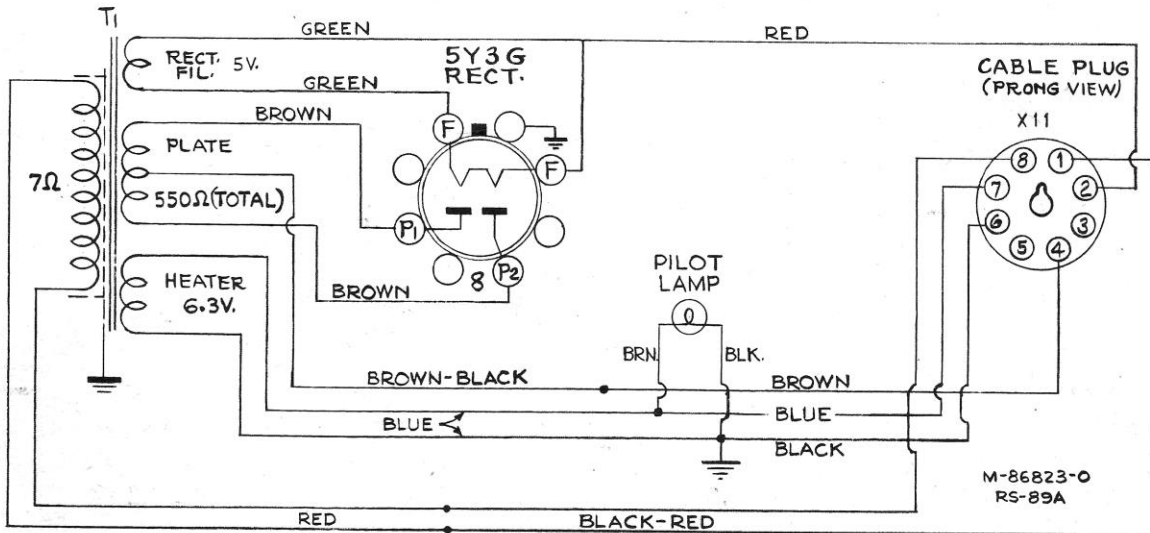
R-F Wiring Diagram, Chassis No. RC-429



At Left—Dial Mechanism

Measurements made to chassis unless otherwise indicated, with set tuned to quiet point and volume control at minimum. Values should hold within approximately $\pm 20\%$ with 117-volt a-c supply.

NOTE: Values with star () are operating voltages in circuits with high series-resistance. The actual measured voltages will be lower, depending on the voltmeter loading.



SPU Schematic Diagram, RS-89A

REPLACEMENT PARTS

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

STOCK No.	DESCRIPTION	Unit List Price	STOCK No.	DESCRIPTION	Unit List Price
	TELEVISION CHASSIS ASSEMBLIES				
	TRK-5—KC-3A (60 cycles), KC-3C (50-60 cycles)		33280	Control—Audio volume control—1 meg. (Model TT-5 only) (R55)	1.50
	TT-5—KC-3 (60 cycles), KC-3B (50-60 cycles)		33274	Control—Dual contrast and brightness control 10,000 ohm and 100,000 ohm (R14, R42)	2.00
33387	Adjuster—Magnetite core and stud in tube for high frequency oscillator circuit adjustment. (Used with L11, L12, L14, L15)	.55	33275	Control—Dual horizontal and vertical holding control—30,000 ohm and 1.2 meg. (R78, R65)	2.00
33835	Adjuster—Magnetite core and stud in tube for high frequency oscillator circuit adjustment. (Used with L13)	.55	33278	Control—250,000 ohm "Width" control (R80)	1.00
31253	Board—Antenna ground terminal board	.25	33276	Control—400,000 ohm "focus" control (R97)	1.00
12884	Capacitor—Plunger type air-trimmer—2½ to 20 mmfd. (Model TRK-5 only) (C6)	.60	33277	Control—500,000 ohm "Vert. cent."—"Hor. cent." control (R99, R100)	1.00
12714	Capacitor—Plunger type air-trimmer—2½ to 12 mmfd. (C6) (Model TT-5 only)	.50	33279	Control—2 megohm "Height" control (R70)	1.00
33097	Capacitor—4.7 mmfd. 500 volts (neg. temp. coeff.) (C20, C56, C57, C103)	.35	33015	Insulator—Stand-off porcelain insulator—less hardware	.30
33476	Capacitor—8.2 mmfd., 500 volts (neg. temp. coeff.) (C8)	.40	4449	Knob—"Focus" control knob	.15
33100	Capacitor—18 mmfd., 500 volts (neg. temp. coeff.) (C25)	.40	33225	Nut—Speed nut for use with high frequency coil assemblies (Pkg. of 10)	.01
33101	Capacitor—22 mmfd., 500 volts (neg. temp. coeff.) (C24, C52)	.40	14278	Receptacle—Television sound output receptacle (X6)	.25
33102	Capacitor—47 mmfd., 500 volts (neg. temp. coeff.) (C53, C58)	.45	14074	Resistor—82 ohms, ¼ watt (R13, R44)	.20
33103	Capacitor—68 mmfd., 500 volts (neg. temp. coeff.) (C15, C23, C33, C38, C43)	.35	14439	Resistor—100 ohms, ¼ watt (R103)	.20
33477	Capacitor—80.5 mmfd., 500 volts (neg. temp. coeff.) (C16)	.45	14561	Resistor—220 ohms, ¼ watt (R27, R22)	.20
33104	Capacitor—82 mmfd., 500 volts (neg. temp. coeff.) (C21, C22)	.45	11352	Resistor—910 ohms, ¼ watt (R8)	.20
33106	Capacitor—115 mmfd. (C5)	.30	14720	Resistor—1,000 ohms, ¼ watt (R17, R25, R49)	.20
33107	Capacitor—135 mmfd. (C4)	.30	30152	Resistor—1,000 ohms, 1 watt (R20, R24, R47)	.22
12725	Capacitor—150 mmfd. (C10)	.35	30731	Resistor—1,200 ohms, ¼ watt (R102) (KC-3B and KC-3C, 50 cycle, only)	.20
33108	Capacitor—190 mmfd. (C3)	.30	33318	Resistor—1,200 ohms, 2 watts (R87)	.25
33105	Capacitor—215 mmfd., 500 volts (neg. temp. coeff.) (C31, C32)	.45	11351	Resistor—1,300 ohms, ¼ watt (R26)	.20
33760	Capacitor—215 mmfd. (C101)	.30	14499	Resistor—1,500 ohms, ¼ watt (R18)	.20
33109	Capacitor—320 mmfd. (C2)	.30	12194	Resistor—1,800 ohms, ¼ watt (R29)	.20
12536	Capacitor—820 mmfd., 400 volts (C76)	.45	13486	Resistor—2,200 ohms, 1 watt (R6)	.22
4881	Capacitor—3,300 mmfd., 400 volts (C67)	.60	13031	Resistor—3,300 ohms, 1/10 watt (R12 in early production)	.15
33806	Capacitor—.0015 mfd., 1,500 volts (C78)	.25	12312	Resistor—3,300 ohms, ¼ watt (R19)	.20
33584	Capacitor—.005 mfd., 1,200 volts (C11, C12, C13, C14, C18, C19, C26, C27, C28, C29, C30, C34, C35, C36, C39, C40, C41, C42, C49, C50, C51, C54, C55, C60, C65, C66, C79, C80, C92, C93, C94, C95, C102)	.25	30150	Resistor—3,300 ohms, 1 watt (R7, R72, R85)	.22
33340	Capacitor—.005 mfd., 3,000 volts (C81, C82)	.50	12955	Resistor—3,900 ohms, ¼ watt (R30)	.20
11315	Capacitor—.015 mfd., 400 volts (C61) (Model TT-5 only)	.20	33566	Resistor—3,900 ohms, 2 watts (R36)	.25
32787	Capacitor—.05 mfd., 400 volts (C46, C64)	.20	11650	Resistor—4,700 ohms, 1/10 watt (R12 in later production)	.15
4886	Capacitor—.05 mfd., 400 volts (C62, C77)	.20	12265	Resistor—6,800 ohms, ¼ watt (R31, R9)	.20
33341	Capacitor—.05 mfd., 3,000 volts (C74, C75)	.50	14075	Resistor—8,200 ohms, ¼ watt (R63, R64)	.20
32786	Capacitor—.1 mfd., 300 volts (C45, C44)	.25	3155	Resistor—9,100 ohms, 1 watt (R90)	.22
4839	Capacitor—.1 mfd., 400 volts (C59, C91, C70, C73)	.30	3078	Resistor—10,000 ohms, ¼ watt (R58, R62)	.20
33020	Capacitor—.15 mfd., 2,500 volts (C87) (C100—KC-3B and KC-3C, 50 cycles, only) .05 mfd., 3,000 volts (C86) (C99—KC-3B and KC-3C, 50 cycles only)	2.65	8043	Resistor—10,000 ohms, 2 watts (R57)	.25
30965	Capacitor—.25 mfd., 200 volts (C68, C71)	.30	30128	Resistor—12,000 ohms, ¼ watt (R61)	.20
12484	Capacitor—.25 mfd., 350 volts (C37, C69, C88, C89, C90)	.30	14284	Resistor—22,000 ohms, 1/10 watt (R51)	.15
33195	Capacitor—10 mfd., 450 volts; 10 mfd., 450 volts; 20 mfd., 450 volts; 20 mfd., 25 volts (C63, C48, C47, C72)	2.20	14390	Resistor—27,000 ohms, 1/10 watt (R10)	.15
33190	Capacitor—30 mfd., 450 volts; 30 mfd., 450 volts; 10 mfd., 150 volts (C83, C84, C85)	2.50	12738	Resistor—27,000 ohms, ¼ watt (R54) (Model TT-5 only)	.20
34599	Capacitor—30-30 mfd., 450 volts (C96, C97); 20 mfd., 350 volts (C98) (KC-3B and KC-3C, 50 cycle, only)	2.70	35945	Resistor—33,000 ohms, ¼ watt (R5, R77)	.20
33120	Choke—Filter choke (L39)	2.50	33639	Resistor—33,000 ohms, 1 watt (R91)	.20
33243	Coil—High frequency oscillator coil with core and stud (L11)	.65	30683	Resistor—33,000 ohms, 1 watt (R16)	.22
33234	Coil—1½-turn antenna coil, core, stud and capacitor assembly (C5, L9, L10) (green)	1.10	30434	Resistor—39,000 ohms, 1 watt (R46)	.22
33233	Coil—2-turn antenna coil, core, stud and capacitor assembly (C4, L7, L8) (yellow)	1.10	33182	Resistor—43,000 ohms, 2 watts (R88, R89)	.25
33232	Coil—3-turn antenna coil, core, stud and capacitor assembly (C3, L5, L6) (orange)	1.15	12412	Resistor—47,000 ohms, ¼ watt (R93, R94)	.20
33231	Coil—5½-turn antenna coil, core, stud and capacitor assembly (C2, L1, L2) (red)	1.20	30495	Resistor—47,000 ohms, 1 watt (R84, R86)	.22
33230	Coil—4-turn antenna coil, core, stud and capacitor assembly (C101, L3, L4) (brown)	1.25	33567	Resistor—62,000 ohms, ¼ watt (R28, R23)	.20
33538	Coil—Peaking coil and 10 meg., ¼ watt resistor assembly (L33, R37)	.55	13715	Resistor—68,000 ohms, ¼ watt (R73)	.22
33539	Coil—Peaking coil and 10 meg., resistor assembly (L31, R32)	.55	30679	Resistor—68,000 ohms, 1 watt (R50)	.22
33540	Coil—Peaking coil and 10 meg., ¼ watt resistor assembly (L32, R35)	.55	8064	Resistor—82,000 ohms, ¼ watt (R15, R45)	.20
33541	Coil—Peaking coil and 1,500 ohm, ¼ watt resistor assembly (L38, R59)	.55	11281	Resistor—100,000 ohms, 1/10 watt (R21)	.15
33228	Condenser—Adjustable oscillator tuning condenser mounted on band switch (C9)	2.10	14560	Resistor—100,000 ohms, ¼ watt (R11, R48, R52, R67, R79)	.20
33385	Connector—Insulated plate connector and lead (Use with 879 Rectifier Tube)	.35	30180	Resistor—120,000 ohms, ¼ watt (R4)	.20
			30493	Resistor—150,000 ohms, ¼ watt (R43)	.20
			12264	Resistor—220,000 ohms, ¼ watt (R68, R75, R76, R101)	.20
			33501	Resistor—330,000 ohms, 1 watt (R98)	.20
			12285	Resistor—470,000 ohms, ¼ watt (R34)	.20
			33502	Resistor—470,000 ohms, 1 watt (R92)	.20
			33593	Resistor—560,000 ohms, 1 watt (R95)	.22
			12413	Resistor—680,000 ohms, ¼ watt (R81)	.20
			33598	Resistor—680,000 ohms, 1 watt (R96)	.22
			13730	Resistor—1 meg. ¼ watt (R1, R2, R3, R33, R53, R60, R56, R66)	.20
			30208	Resistor—1.2 meg., ¼ watt (R39, R82, R83, R71, R41)	.20
			12679	Resistor—2.2 meg., ¼ watt (R74)	.20
			13167	Resistor—3.9 meg., ¼ watt (R38, R40)	.20
			30931	Resistor—4.7 meg., ¼ watt (R69)	.20
			33229	Roller—Rubber friction roller for use on band switch for adjustment of oscillator trimmer	.10
			3682	Shield—Tube shield for "Hor. out" tube	.22
			33211	Socket—4-prong rectifier tube socket	1.00
			31251	Socket—Octal base wafer tube socket	.25
			33001	Socket—11-prong magnal Kinescope socket (X13)	1.20
			18008	Socket—6J5 oscillator tube socket	.25
			33226	Switch—Band switch complete—less tuning condenser and friction roller	4.60
			33281	Switch—Rotary type power switch (S5) (Model TT-5 only)	.65
			33519	Transformer—"1st Det. P1" I-F transformer (R8, C20, L17, L20, R10, C25) (red and brown)	2.70
			33520	Transformer—"1st Det. P2" I-F transformer (L18, C21, C22, C23, L19, R12) (red and red)	2.70

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REPLACEMENT PARTS (Continued)

STOCK No.	DESCRIPTION	Unit List Price	STOCK No.	DESCRIPTION	Unit List Price
33523	Transformer—"1st pix P1" I-F transformer (L21, L22, R18, C31) (red and green)....	2.20	31639	Socket—Dial lamp socket, one wire non-insulated .....	.25
33524	Transformer—"1st pix P2" I-F transformer (L23, L24, C33, R21) (red and blue).....	2.00	31364	Socket—Dial lamp socket, two wire insulated..	.20
33526	Transformer—"1st Sound" I-F transformer (L34, L35, C52, C53) (red and white)....	2.50	13871	Socket—Magic eye socket .....	.45
33522	Transformer—"2nd Picture" I-F transformer (L25, L26, L27, C38, R26) (red and yellow)	2.00	31251	Socket—Octal type tube socket .....	.25
33527	Transformer—"2nd Sound" I-F transformer (L36, L37, C56, C57, R51) (brown and orange)	2.40	31418	Spring—Indicator or drive cord tension spring..	.05
33525	Transformer—"3rd Picture" I-F transformer (L28, L29, L30, C43, R29) (red and black)	2.00	33496	Switch—Range switch (S1, S2)	1.15
42899	Transformer—Horizontal oscillation transformer (T3)	1.75	33498	Switch—Station selector push button switch (S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S4, S5, S44, S45, S46)	3.10
33390	Transformer—Plate and filament power transformer (T1)	13.50	33499	Switch—Television power switch and cover (S47) .....	.45
32898	Transformer—Vertical oscillation transformer (T2)	1.75	14376	Transformer—1st I. F. transformer complete (L10, L11, C5, C6)	2.45
3 BAND RADIO RECEIVER					
No. RC-429 Used with Model TRK-5					
14517	Board—Antenna—Ground terminal board.....	.25	14283	Transformer—2nd I. F. transformer complete (L12, L13, C7, C8, C37, R4, R5)	3.80
30752	Bracket—"Magic Eye" bracket .....	.25	POWER SUPPLY UNIT		
30766	Cap—Rubber cap for "Magic Eye" .....	.15	RS-89-A		
32486	Capacitor—Antenna coil trimmer capacitor bank (C31, C32, C33, C34, C35, C36)	1.40	USED WITH RC-429		
31400	Capacitor—Triple adjustable trimmer, two sections, 2-10 mmfd., one section 3-30 mmfd. (C21, C23, C25) .....	.50	33606	Plug—8 prong plug for power supply cable (X11) .....	.45
12722	Capacitor—18 mmfd. (C1) .....	.35	31251	Socket—Octal base tube socket .....	.25
12723	Capacitor—56 mmfd. (C3, C46) .....	.35	33224	Transformer—Power transformer (T1)	5.25
12720	Capacitor—100 mmfd. (C39) .....	.35	SPEAKER ASSEMBLIES		
14262	Capacitor—109 mmfd. (C5, C6) .....	.30	TRK-5		
12404	Capacitor—120 mmfd. (C7, C8) .....	.30	RL-70-H-5		
14712	Capacitor—180 mmfd. (C37) .....	.30	31825	Cap—Speaker cone dust cap .....	.05
30232	Capacitor—200 mmfd. (C2) .....	.35	11469	Coil—Hum bucking coil (L15) .....	.30
32492	Capacitor—530 mmfd. (C24) .....	.40	12012	Coil—Speaker field coil (L16)	2.90
31435	Capacitor—750 mmfd. (C26) .....	.40	31275	Cone—Speaker cone and voice coil (L14)	1.75
4881	Capacitor—3,300 mmfd. (C22) .....	.60	31539	Plug—5 prong male speaker plug with link (X9) .....	.25
31405	Capacitor—6,000 mmfd. (C27) .....	.75	32146	Speaker—Speaker complete	12.10
5107	Capacitor—.0025 mfd., 700 volt (C16, C47) ..	.20	14534	Transformer—Output transformer (T2)	2.10
4838	Capacitor—.005 mfd., 1,000 volt (C14, C17, C43) .....	.25	MISCELLANEOUS ASSEMBLIES		
14393	Capacitor—.01 mfd., 300 volt (C11) .....	.30	MODEL TRK-5		
30882	Capacitor—.05 mfd., 200 volt (C4, C9, C38) ..	.20	MODEL TT-5		
4858	Capacitor—.01 mfd., 500 volt (C10, C40, C41, C42) .....	.25	31397	Button—Station selector push button (Model TRK-5 only) .....	.15
30867	Capacitor—.5 mfd., 200 volt (C20) .....	.30	33597	Cap—Pilot lamp "bull's eye" (Model TRK-5 only) .....	.20
32145	Capacitor—4 mfd., 450 volt (C12) .....	.70	33480	Cable—38-inch shielded cable with two male plugs. Used between Radio and television chassis (Model TRK-5 only) (X5, X7)	1.30
32142	Capacitor—10-10-20 mfd. (C18, C19, C44) ..	1.90	33479	Cable—61-inch audio connection cable with two male connectors (Model TT-5 only) (X5, X7) ..	1.60
31382	Clip—Push button coil and core mounting clip ..	.04	33363	Connector—2 prong female plug for interlock cable (X2) .....	.45
32493	Coil—Antenna coil assembly A, B, and C band (L1, L2, L3, L43)	1.35	4573	Connector—2 prong female connector used on television power cable (X4) .....	.30
31385	Coil—Push button oscillator coil, "A" band (L37, L38) (550-950KC) .....	.30	31456	Cover—Package of eight protective push button covers .....	.08
32487	Coil—Push button oscillator coil, "A" band (L39, L40) (690-1225KC) .....	.35	38305	Decalcomania—"1-2-3-4-5" decal .....	.20
31383	Coil—Push button oscillator coil, "A" band (L41, L42) (890-1,500KC) .....	.30	32673	Dial—3-band glass dial scale .....	.60
31951	Coil—Oscillator coil assembly for A, B, and C bands (L4, L5, L6, L7, L8, L9)	1.40	33481	Escutcheon—Dial escutcheon and scale (Model TRK-5 only)	3.60
31369	Condenser—2 gang variable tuning condenser (C28, C29, C30)	2.65	33518	Glass—Safety protective glass for kinescope ..	2.90
33497	Control—Dual volume and tone control and switch (R6, R13, S3)	3.00	33506	Knob—Band switch knob (Model TRK-5 only) ..	.25
32634	Cord—Drive cord with clamping clips .....	.10	33471	Knob—"Brightness", "Vert. hold" or "volume" knob .....	.25
12800	Core—Adjustable core and stud for oscillator coil	.35	33470	Knob—"Contrast", "Hor. hold", "Fine tuning" or "Tone control" knob .....	.20
31372	Drum—Variable condenser drive cord drum and calibration dial .....	.65	33469	Knob—"Off-on" control knob (Model TT-5 only)	.20
11891	Lamp—6.3 volt dial lamp (Mazda No. 44) .....	.17	33505	Knob—Radio tuning knob (Model TRK-5 only)	.30
32670	Plate—Dial plate assembly .....	.75	33472	Knob—"Station selector" control knob (white dot) .....	.25
12493	Plug—Female speaker cable plug (X10) .....	.30	33468	Knob—"Volume" control knob .....	.15
32552	Pointer—Dial pointer .....	.20	11891	Lamp—6.3 volt, Pilot indicator lamp (Mazda No. 44) .....	.17
31373	Pulley—Pointer drive cord pulley .....	.08	31458	Marker—"Dial tuning" marker tab (Model TRK-5 only) .....	.01
14278	Receptacle—Television sound input socket (X8)	.25	33596	Marker—"Television" marker tab (Model TRK-5 only) .....	.01
32143	Resistor—Voltage divider comprising one 11,000 ohm, one 3,000 ohm, one 22 ohm and one 270 ohm section (R14, R22, R23, R24) .....	.90	31589	Marker—Complete set of station call letter markers (TRK-5 only) .....	.35
30545	Resistor—180 ohms, 1/2 watt (R8) .....	.20	33225	Nut—"Speed nut" for high frequency coil assembly (Pkg. of 10) .....	.01
5114	Resistor—15,000 ohms, 1 watt (R17) .....	.22	4577	Plug—2 prong male connector used on television power cable (X3) .....	.45
14284	Resistor—22,000 ohms, 1/10 watt (R4) .....	.15	33244	Plug—2 prong male connector used on interlock cable (X1) .....	.45
12454	Resistor—33,000 ohms, 1/2 watt (R2, R12) .....	.20	12493	Plug—5 prong female speaker connector plug (Model TRK-5 only) .....	.30
12266	Resistor—39,000 ohms, 1/2 watt (R7) .....	.20	11210	Screw—1/2x20x1 in. chassis mounting screw, washer and lock washer (5 req'd) .....	.05
14560	Resistor—100,000 ohms, 1/2 watt (R25) .....	.20	4560	Screw—1/2x20x1 1/2 chassis mounting screw, washer and lock washer (6 req'd) .....	.06
11398	Resistor—220,000 ohms, 1/10 watt (R5) .....	.15	14270	Spring—Knob spring for stock No. 33468, 33471, 33472 and 33469 knobs .....	.05
12199	Resistor—270,000 ohms, 1/2 watt (R15, R19) ..	.20	30330	Spring—Knob spring for stock No. 33470 knob	.02
13479	Resistor—390,000 ohms, 1/2 watt (R20, R21) ..	.20	4982	Spring—Knob spring for stock No. 33505 knob	.05
12486	Resistor—560,000 ohms, 1/2 watt (R18) .....	.20	33384	Switch—Interlock switch and cover (S1, S2, TRK-5, S3, S4, TT-5) .....	.55
12013	Resistor—1 meg., 1/10 watt (R16) .....	.15			
13730	Resistor—1 meg., 1/2 watt (R1) .....	.20			
12679	Resistor—2.2 meg., 1/2 watt (R3) .....	.20			
14343	Retainer—Retainer for stock No. 33500 tuning shaft .....	.03			
14887	Retainer—Retainer spring for stock No. 31373 pulley .....	.01			
33500	Shaft—Tuning shaft .....	.30			
12581	Shield—I-F transformer shield top25			
31319	Socket—8 prong socket for power supply plug (X12)25			

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