A new Decalcomania was placed on the cabinet to indicate the new channels.
A shield was placed between the 2nd Pix I.F. and the 2nd Sound I.F. in Models TRK-9, 12, 90 and 120.
The modified antenna and oscillator circuits are shown in the diagrams below.

SLOPE DETECTION

In all of the old RCA television receivers where the sound channel was a-m, the i-f transformers were detuned so that detection of f-m signal could be attained. Due to the detuning a new response curve resulted with a fairly linear slope on the lower frequency end of the curve. The frequency at the center of this slope was the center frequency of the produced f-m i-f signal. Consequently, the incoming f-m i-f signal would be sweeping an equal amount on either side of the center of this linear slope. The sloping characteristic of this linear section of the i-f response was such that the f-m i-f signal would not deviate or sweep into the non-linear portion of the curve. By this arrangement, detection of an f-m signal is possible. This process is known as slope detection and is discussed in greater detail in the television "How it Works" book.
Models TRK-12, TRK-120

Chassis Numbers and Power Supply Ratings

Model TRK-12:
- Chassis KC-4, KK-7, RC-47, RS-83E, 105-125 volts, 60 cycles, 420 watts (total)
- Chassis KC-4B, KK-7D, RC-47, RS-83E, 105-125 volts, 50-60 cycles, 420 watts (total)

Model TRK-120:
- Chassis KC-4E, KK-7F, RC-47F, RS-83E, 105-125 volts, 60 cycles, 420 watts (total)
- Chassis KC-4J, KK-7J, RC-47F, RS-83E, 105-125 volts, 50-60 cycles, 420 watts (total)

General Description

Models TRK-12 and TRK-120 are console-type, high-picture-definition, mirror-viewing, five channel, television receivers and three-band broadcast radio receivers enclosed in handsomely styled modern cabinets. Features of the television receiver include: twelve-inch Kinescope, Styrol (humidity-resistant) r-f and r-f transformer: forms: black and white pictures; single station selector switch; temperature compensated condensers; iron core r-f and r-f tuning; double safety switch protection: safety-glass viewing shield; and extra-large viewing mirror for wide angle viewing.

Models TRK-9 and TRK-90 are direct viewing, high-picture-definition, console-type, five channel, television receivers and three-band broadcast radio receivers in deluxe upright modern cabinets. Television features of these receivers are the same as for the TRK-12 and TRK-120, except that a nine-inch Kinescope is used.

Electrical Specifications

RCA TUBE COMPLEMENT

In KC-4, KC-4B (TRK-12) and KC-4A, KC-4C (TRK-9) Video Chassis:

(1) RCA-6AC7/1853 .......................... 1st Det.
(2) RCA-6J1 ......................... Oscillator
(3) RCA-6AB7/1853 .............. 1st Pix. I.F.
(4) RCA-6AB7/1853 .............. 2nd Pix. I.F.
(5) RCA-6AB7/1853 .......................... 3rd Pix. I.F.
(6) RCA-6AB7/1853 .............. 4th Pix. I.F.
(7) RCA-6AC7/1852 .............. 5th Pix. I.F.
(9) RCA-6F6 ......................... Pix. 2nd Det.
(9) RCA-6F8-G ......................... AVC or Limiter
(10) RCA-6AC7/1852 .............. Video Amp.
(11) RCA-6H6 ......................... D.C. Restorer
(12) RCA-12AP4/1804-P4 (TRK-12) or RCA-9AP4/1804-P4 (TRK-9) .................. Kinescope
(13) RCA-6SK7 ......................... 1st Sound I.F.
(14) RCA-6AB7/1853 .............. 2nd Sound I.F.
(15) RCA-6H6 ......................... Sound 2nd Det.-AVC
(16) RCA-6N7 ......................... 1st Sync. Sep.-Amp.
(17) RCA-6Y6-G ......................... 2nd Sync. Sep.
(18) RCA-6N7 ......................... Sync. Amp.
(19) RCA-6N7 ......................... Hor. Osc.-Discharge
(20) RCA-6L6 ......................... Hor. Output
(21) RCA-5V4G (60 cycles) or RCA-21Z6 (30 cycles) .... Hor. Damping
(22) RCA-6N7 ......................... Vert. Osc.-Discharge
(23) RCA-6J5 ......................... Vert. Output

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RADIO CORP. OF AMERICA MODELS TRK-9, TRK-12, TRK-90, TRK-120

ELECTRICAL SPECIFICATIONS (CONTINUED)

In KK-7, KK-7D (TRK-12) and KK-7A, KK-7E (TRK-9) Television Socket Power Units:
(24) RCA-7T4.................. Low Voltage Rectifier
(25) RCA-2V3-G................ High Voltage Rectifier

In KC-4F, KC-4J (TRK-120) and KC-4H (TRK-90) Video Chassis:
(1) RCA-6A/C7/852................ 1st Det.
(2) RCA-6J7.................. Oscillator
(3) RCA-6AB7/1853............. 1st Pix. I.F.
(4) RCA-6AB7/1853............. 2nd Pix. I.F.
(5) RCA-6AB7/1853............. 3rd Pix. I.F.
(6) RCA-6AB7/1853............. 4th Pix. I.F.
(7) RCA-6A/C7/852............. 5th Pix. I.F.
(8) RCA-6H6.................. Pix. 2nd Det.
(9) RCA-6S67.................. Limiter
(10) RCA-6A/C7/852............. Video Amp.
(11) RCA-12AF4/1803-10 (TRK-120) or RCA-9AP4/1804-10 (TRK-90)........... Kinescope
Note: An RCA-6H6 D.C. Restorer is added in some TRK-120, TRK-90.

In KK-7P, KK-7J (TRK-120) and KK-7M (TRK-90) Television Socket Power Units:
(23) RCA-5U4G (60 cycles, without D.C. Restorer), RCA-7T4 (60 cycles, with D.C. Restorer), or RCA-7T4 (50 cycles)............. Low Voltage Rectifier

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.
3. 84 to 90 mc.

PICTURE SIZE (Approximate Mask Dimensions)

TRK-9, TRK-90 ................ 3⅝ x 7⅛ in.
TRK-12, TRK-120................ 7⅝ x 9⅝ in.

Note: 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.

**Operation**

Figure 1—Operating Controls, TRK-9, TRK-90

The "Power-Volume" control on the radio receiver turns on the power for the complete receiver. The "Virtola, Radio, Television" control selects the type of operation desired. There are three Virtola fidelity positions, four radio fidelity positions and three Television sound fidelity positions on this switch. The further clockwise position being the highest fidelity position for Television sound.

Television Operation:

Station Selector and Fine Tuning.—The outer ring "O" section of the central dual control knob on the Television

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Contrast and Brightness Controls.—The inner "1" section of the "Contrast""Brightness" controls is the "Contrast" control and varies the black and white tones of the picture being received. Too much contrast gives blurred details and a lack of half-tones, while too little contrast makes all half-tones or grays. Turning clockwise increases contrast from gray to black and white. See Operating Instructions for this receiver.

The outer ring "0" is the Brightness Control and affects the average illumination of the picture. Turning clockwise increases the brightness. See Operating Instructions for this receiver.

An approximate adjustment for proper contrast is to turn the "Contrast" control fully counter-clockwise, then turn the "Brightness" control until the screen is slightly illuminated. Then reduce the Brightness control just sufficient to make the screen dark, then bring up the Contrast Control until the picture appears. A slight further adjustment of the Brightness or Contrast control may be necessary in some cases. A slight readjustment of the contrast control may aid synchronizing of the picture.

Hold Controls.—The dual knobs on the Teletro panel marked "Horizontal" and "Vertical" Hold control the picture stability. The inner section designated by a "1" 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 section designated by "0" 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 readjustment may be necessary due to changing to a different station, and to the gradual aging of the tubes.
Kinescope Installation (TRK-9, TRK-90).

1. Remove back cover of cabinet.
2. Remove the two screws which secure the wooden block, on which the yoke is mounted, to the upper shell, and drop this block and yoke away from the shell.
3. Loosen the thumb screw in the center of the slotted block of wood on the top shelf, pull this block of wood towards the rear of the cabinet and turn it so that the "V" slot on the front end of the block is to your right.
4. Wearing gloves and goggles, carefully slide the Kinescope on the "V" block in the box, and turn both the block and the Kinescope so that the Kinescope faces the viewing window. Slide the Kinescope up to the mask in the window and fasten loosely in place by sliding the "V" block up to the bottom of the Kinescope face, and fastening it with the thumb screw.
5. Place the yoke and the wooden block on which it is mounted, on the Kinescope neck, rotate the block 90° from its original mounting position in order to have it clear the top of the cabinet and slide it into position on the Kinescope neck. DO NOT FORCE YOKE. In some cases where the yoke lead is too short it may be necessary to loosen the "V" block and swing the Kinescope neck to the left in order to be able to place the yoke on the Kinescope neck without forcing.
6. Fit the upper part of the wooden yoke mounting block into the slot on the underside of the cabinet top and fasten the lower end of the block securely by means of the two screws. The Kinescope should be mounted loosely in place, so that the yoke is not forced on the Kinescope neck at any time.
7. Loosen the wing nuts on the yoke mounting bracket, and move the yoke forward on the neck of the Kinescope so that it pushes the Kinescope against the mask. Tighten the wing nuts to hold the Kinescope and yoke securely in this position.
8. It may be necessary to rotate the Kinescope, within the limits allowed by the high voltage second anode lead, with respect to the mask in order to obtain proper masking of the edges on the Kinescope screen. Before rotating the Kinescope, the screws holding the yoke mounting block should be loosened, so that the Kinescope neck will not be forced.
9. Move the "V" block forward so that it holds the bottom of the Kinescope in place. Tighten the thumb screw.
10. Place the second anode lead on the second anode cap at the side of the Kinescope.
11. After the receiver is operating, and if the picture is not squared with the mask, using a screw driver loosen the clamping screws on the band around the yoke and rotate the yoke until the picture is squared with the mask, then tighten these clamping screws securely.

CAUTION: When removing the back cover of the cabinet, after the screws have been removed do not allow the cover to slide down on the neck of the Kinescope, or the neck of the Kinescope may be snapped off.

Kinescope Installation (TRK-12, TRK-120).—Refer to figure 4.

1. Remove back cabinet cover.
2. Remove the top safety glass cover by removing the three wing nuts "E" at the two front corners and right rear corner of the cover and loosening the wing nut "E" at the left rear corner of the cover.
3. Lift the cover straight upwards, taking care not to scratch the cabinet finish with the protruding screws or the cover itself.
4. Loosen the two wing nuts "F" on the yoke holding frame, and allow the yoke to drop down as far as possible.
5. Using gloves and goggles, open the Kinescope shipping carton and remove the top cover on the Kinescope.
6. Remove the Kinescope from the shipping carton (do not remove the close fitting cardboard shield from the Kinescope), and insert the Kinescope into the cabinet, guiding the neck of the Kinescope into the yoke. Do not force the neck of the Kinescope into the yoke, or the tube may break. Let the Kinescope down slowly so that it finally rests on the yoke.

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SERVICE DATA (CONTINUED)

7. Rotate the Kinescope and cardboard container (but not the yoke), so that the second anode cap at the side of the tube is towards the front of the cabinet.

8. Place the white rubber mask on the face of the Kinescope, with the ribs on the mask facing upwards toward the mirror. Line up the mask so that it masks the edges on the Kinescope face. Then, if necessary, lift the Kinescope and rotate it so the mask is approximately squared up with the cover opening. The second anode cap should be kept towards the front of the cabinet.

9. Replace the safety glass cover and wing nuts. Tighten wing nuts to hold the cover securely.

10. Loosen the wing nuts "F" on the yoke mounting bracket and push the two metal brackets, on which the bottom of the yoke rests, upward, until the rubber mask rests against the top cover. If the mask and the cover opening do not line up, rotate the cone-shaped Kinescope shield until they do. Tighten the wing nuts to hold the yoke and tube in this position. In some cases it may be necessary to loosen the four screws holding the yoke support to the wooden frame and shift the yoke support to make the mask and Kinescope line up symmetrically with the cover opening.

11. Place the second anode lead on the second anode cap at the side of the Kinescope.

12. After the receiver is operating, and if the picture is not squared up with the cover opening, the two screws "H" on the band around the yoke should be loosened, and the yoke rotated to square up the picture, then these screws should be tightened with a screwdriver.

FOCUSBNG CONTROL.—This is a screwdriver adjustment located on the outside of the cabinet near the base. On early production receivers, a knob located at the bottom, rear of the cabinet is the focus control.

Adjustments.—There are a series of screwdriver slot adjustments at the rear of the TRK-12 and TRK-120 (at the side of the TRK-9 and TRK-90), used to obtain the proper picture size, centering, and vertical distribution. 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 realignment of these controls may be necessary.

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Video Chassis

When it is desired to measure any voltages on this chassis, the primary leads of the high voltage transformer T6 (T9—50 cycle models) should be disconnected and taped together.

When any changes have to be made in the Video chassis, the lead and part locations should be replaced as closely as possible to the original positions.

Service Hints:

1. Poor Horizontal Distribution of the picture elements may be due to a 6L6 tube. RCA-6L6 tubes of known recent manufacture are the only tubes recommended for the Horizontal sweep output circuit. By careful scrutiny, these tubes can be identified by the three "rings" or sections welded together at the base ring of the tube, as shown in Figure 6. If any other 6L6 tube is used in this position it will break down in a very short time.

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Figure 6—Recommended Type 6L6 Identification
VIDEO CHASSIS (CONTINUED)

2. If the picture "tears out" when the receiver is jarred it may be due to microphonic 6AB7/1855, 6AC7/1852 or 6J3 tubes.
3. The 6J5 oscillator tube should be removed without rocking it in its socket to loosen it, as the rocking motion may cause the 80.5 nfd capacitor to break off.
4. The coils in oscillator circuit should not be touched or moved or the alignment of the receiver will be disturbed.
5. The insulator on the filter capacitors may become dirty and break down to short out the high voltage.
6. The Video coupling capacitors C30, 53, 59 should be kept clear of chassis.
7. A gassy 2V3-G tube may cause resistor R-117 to burn. Replace 2V3-G tube, and resistor, if necessary.
8. Changing the position of the oscillator shield plate will disturb the alignment.

Television Socket Power Units

4. Use only one hand at a time. It is advisable to keep the other hand in one's pocket.
5. Connect a shorting lead between ground (first) and the high voltage side of C-113 and C-114 (C-121 and C-122 in 50 cycle models).
6. Whenever working with the oil-filled capacitors, keep a constant short across the capacitor, as these capacitors do not completely lose their charge after being discharged a single or several subsequent times.
7. Only one person at a time should work on the unit to prevent any misunderstanding which may result in an accident.

Antenna Installation

In mounting any antenna, care must be taken to keep the 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 closest picture over a reflected path. If such is the case, the antenna should be so positioned.

(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 for the eye is much more critical than that of the ear.

ANTENNA ADJUSTMENTS

BAND 5: 84-90 MC
BAND 4: 78-84 MC

Oscillator Adjustments

BAND 5: 96 MC
BAND 4: 92 MC
BAND 3: 80 MC
BAND 2: 78 MC
BAND 1: 64 MC

Figure 7—R.F.—Oscillator Unit Wiring and Adjustments

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Figure 8—Partial Schematic Diagram TRK-9 and TRK-12 With Picture AVC. Otherwise same as Figure 9.
9 and TRK-12 Without Picture AVC.

For test patterns see back of Manual
Figure 10—Schematic Diagram TRK-90 and TRK-1
TELEVISION SERVICE

SUGGESTIONS

10. Picture folded back at left-hand side. If the picture is lapped-over, or folded back on the left-hand side, change the horizontal damper tube.

11. No picture; weak picture. If the station's sound is received, it is an indication that the oscillator and first detector are functioning. Run an RF sweep into the antenna and check with a CRO for overall response at the picture 2nd-detector load resistor. If there is no response, check the picture-IF tubes and circuits. If response at the load resistor is normal, remove the sweep and feed a 10 mc, 400-cycle modulated signal into the 1st-detector grid. Note the amplitude of 400-cycle signal at the load resistor, and then shift the CRO back through the video stage to localize the point at which the signal disappears.

12. Picture signal too strong; contrast control ineffective. In sets where the contrast control is a manual bias control, set the picture-IF amplifier on TRK-9 and TRK-12 without AVC. All TRK-90 and TRK-1201, a grid short in one of the picture-IF tubes will cause the tubes to operate near full gain regardless of the setting of the contrast control. The defective tube can be found by using the VoltOhmyst to check voltages throughout the picture-IF amplifier. First turn the contrast control counter-clockwise and measure the voltage from the arm of the contrast control to the chassis ground. This should be approximately 17 volts for TRK-90 and TRK-120, or +2 volts for TRK-9 and TRK-12 without AVC. Normally, this voltage should be zero. Then check each picture-IF grid and at the 1st-detector grid. (The last picture-IF tube has fixed bias.)

The same trouble can exist in TRK-9 and TRK-12 receivers with AVC on the picture-IF amplifier, but in this case the contrast control is the picture 2nd-detector load resistor and the amount of picture signal into the video amplifier can be controlled. In both types of receivers, in normal signal areas, the absence of bias on the picture-IF amplifier will cause over-loading of the last picture-IF tube with high grid current and distortion in this tube which will produce a voltage across the grid resistor of this tube. In normal operation, there should be no voltage across this resistor. The VoltOhmyst can be used to check for presence of voltage.

Grid shorts can usually be located by tapping each tube very gently, or by changing one tube at a time. Shorts in 52 or 53 tubes can sometimes be cleared by tapping the base of the tube on a table, holding the tube in an upright position.

13. 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 which can be locked in vertically, due to sparking in 60-cycle circuits, dieharry, etc. 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. 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.

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.

14. Small picture size. Adjust picture size, centering, and vertical linearity. Inability to secure a full-sized picture may be due to low-voltage on the 315-volt bus. Check the low-voltage rectifier. (On an improvised Kinescope mounting in a service shop, another cause for small picture size is due to placing the deflection yoke too far back on the neck of the Kinescope.)

15. Insufficient width. In case of insufficient width on 9-inch and 12-inch receivers, check voltage on the 315-volt bus that feeds the 6L6 horizontal output tube. If the voltage is low, change the low-voltage rectifier (5J4G or 5T4) and check heater voltage of this rectifier. Also check the 6L6.

With low line voltage, if the picture width is not sufficient,
Television Service Suggestions (Continued)

16. Picture compressed on left-hand side. Shrinking of the picture on the left-hand side may be caused by a defective 6L6 horizontal output tube. Also check 6L6 cathode resistor.

17. Inability to center picture. This may be due to low voltage across the centering control caused by a defective low-voltage rectifier 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.

18. 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 best 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.

On all converter receivers, the fine-tuning trimmer is permanently fastened to the fine-tuning control, so that it is not necessary to press in on the control knob. ("C" washers are slipped between the end of the shaft and the rubber drive and cement is used between the rubber drive cone and the cup on the fine-tuning trimmer.)

19. Insufficient sound. In locations remote from the transmitter, additional sound volume can be obtained in the 9-inch and 12-inch receivers by eliminating the inverse feedback in the audio amplifier of the radio chassis.
Television Service Suggestions (Continued)

To do this, strip away a section of the insulation on the two leads from the radio chassis to the two-prong feedback plug. Twist the leads together, solder and tape. Remove the feedback plug from the speaker socket and tape it out of the way.

In Models TRK-9 and TRK-12, leave the feedback switch on radio chassis in the "with feedback" position (counter-clockwise).

20. Interference on Picture. If the interference can not be definitely identified as coming from an external source such as diathermy, ignition, etc., check to see if it is present on the remaining channels and then remove the antenna from the television receiver to see if the interference continues.

The various forms of interference may be classified as follows:

(a) Microphonic streaks. Tap the video chassis. If this produces severe streaking or affects picture brightness, check for microphonic tubes and intermittent tubular capacitors and connections in the picture-IF and video stages. If the picture smears completely, check for intermittent grid shorts in the picture-IF tubes. If the tapping produces noise in the sound channel, as well as picture streaking, check for a microphonic oscillator or 1st-detector tube.

If tapping does not affect picture strength or sound, but does upset horizontal or vertical sync, check the sync and deflection tubes.

(b) Electrical interferences. This is caused by sparking or arcing contacts in electrical equipment. If the equipment is a-c operated, there may be horizontal bars or lines that can be locked in vertically. Turn on and off the lights, motors, etc., in the building to determine if the interference is coming from these sources. Occasionally a defective light bulb will arc and radiate interference in a definite frequency band.

(c) Diathermy. This varies in intensity (depending on proximity) from a faint horizontal herringbone streak to a solid black bar. If the diathermy equipment is on the same power supply as the television transmitter, the interference will be stationary. Otherwise it will travel up or down on the picture. In the latter case, if the interference is severe, the vertical oscillator may lock in occasionally on the diathermy, and the picture will then move up or down.

On remote pickup or chain telecasts, diathermy or other interference may be picked up on one of the remote links, and of course in this case nothing can be done at the receiver to reduce this interference.

(d) RF Interference. This can be produced by:

1. Harmonics of a local short-wave station falling in the television channel.

2. A station operating in the instruction-frequency band (which is approximately 8 to 14 mc higher than the oscillator frequency for any band).

3. Strong signals in the picture-IF band (8.75 to 14 mc) leaking through to the grid of the 1st picture-IF tube.

RF interference patterns will alter in step with the modulation of the transmitter (dots and dashes or speech and music).

Orientation of the antenna and use of standard antenna reflectors are helpful in reducing the effects of RF interference. If the transmission line is a spaced type, a matching section at the receiver end may reduce interference due to (1) and (2) above.

The nature or source of RF interference can sometimes be determined by listening in on the output of the picture-IF channel. To do this, connect the input lead of an audio amplifier to the cathode of the picture 2nd-detector load resistor through an .01 mfd. capacitor. Connect the ground of the amplifier to the television chassis. This connection will spoil the picture but permits listening to the audio component in the picture channel. The sound will be a composite of picture, blanking, and sync signals, together with any audio modulation on the interfering station, making it somewhat difficult to pick out and identify the interference. A better method is to use the RCA Chorastyl UHF Converter. Place the input probe on the picture 2nd-detector load resistor and tune the converter through the picture-IF band width.
Figure 12—Video Chassis Wiring TRK-9 and TRK-12 Without Picture AVC.
MODELS TRK-9, TRK-12, TRK-90, TRK-120
RADIO CORP. OF AMERICA

TELEVISION SERVICE SUGGESTIONS (CONTINUED)

6.75 to approximately 14 mc. The RF interference can thus be picked out and identified.

(To gain experience in recognizing the visual aspect of various forms of interference, it is possible to produce the interference locally and study the results. Sparking motors and similar devices can be operated near the television receiver. A test oscillator can be coupled to the receiver input while a television program is being received. Tune the oscillator to the picture carrier frequency and then shift it up several megacycles to produce a range of best frequencies with the picture carrier. The oscillator output can be increased and decreased, and modulation can be turned on and off to note the effects.)

21. Failure to operate when installed in cabinet.
(a) Check for grid shorts in '52 and '53 tubes.
(b) Check for bent-over pins on the octal plug from video chassis to SPU.

TRK-9, TRK-12, TRK-120 for 105-125 Volts—50-60 Cycle Power Supply

22. Interference from harmonics of horizontal deflecting circuits. In 19-production 9-inch and 12-inch receivers, harmonics of the horizontal deflecting frequency (15.75 kc.) may cause interference on nearby radio receivers. In this case, install the following:

(1) A shielded yoke (RCA Stock No. 9857N). This has a metal pigtail at plug end of cable for grounding under one of the mounting screws on the horizontal output transformer. Unshielded yokes do not have this pigtail.
(2) A tube shield (RCA Stock No. 12181) on the 5V4G horizontal damper tube. Ground the tube shield to chassis with a pigtail.
(3) Remove the external ground connection from the television receiver.

General differences are as follows:

Chassis KC-48, KC-4C, KC-4J
1. Horizontal Damping tube, formerly RCA-5V4G, changed to RCA-2526 and socket wiring revised.
2. TRK-9, TRK-12 only: Capacitor C-61 not connected.
3. Rectifier function is performed by an added capacitor C117 (4 mfd. —450 volts).

Chassis KK-7D, KK-7E, KK-7J
1. Capacitors C-118 (80 mfd.) and C-119 (10 mfd.) added in parallel with C-110.
2. Capacitor G-128—TRK-120 or C-120—TRK-9, TRK-12 (0.25 mfd.) added in parallel with resistor R-166—TRK-120 without D.C. Restorer, or R-126—TRK-9, TRK-12, TRK-120 with D.C. Restorer.
3. Capacitors C-113, C-114, C-115 (0.03 mfd.) and C-121, C-122, C-112, C-111, C-110, C-119, C-118, C-117 (10 mfd.)
4. Power transformer (T-5) changed to (T-8) having a 25v. heater winding to supply the RCA-2526 horizontal damping tube.
5. High voltage power transformer (T-6) changed to (T-9).
6. Resistor R-165 is added (TRK-120 only).
7. Inductance L-50 is 100 ohms in these models.
8. An RCA-5T4 is used in these models as low voltage rectifier.

In addition Kinescope shielding is provided as follows:
1. A metallic conical section is installed in the cabinet to shield the Kinescope bulb.
2. A double metallic cylindrical section is installed with the deflecting yoke mounting assembly to shield the deflecting yoke properly. The accompanying illustration shows its assembly.

CAUTION: The conical shield is of the proper size to permit installing the 11AP4/1803-P4 Kinescope with its protective cardboard sleeve. The latter should never be removed.

To prevent Kinescope breakage, when installing a Kinescope, the deflecting yoke and shield assembly must be in place. To prevent breakage of Kinescope when removing the deflecting yoke and shield assembly the Kinescope must be removed first.

Replacing or orienting deflecting yoke:
1. Remove Kinescope.
2. Loosen yoke support bracket wing nuts and remove complete yoke and shield assembly.
3. Remove outer shield. Loosen yoke clamp screws to permit removal or orientation of yoke. If it is necessary to orient yoke, pull yoke out so it extends about one inch. Tighten screws just enough to hold yoke but not too tight as it may be necessary to turn it in this extended position. Replace the inner shield and yoke in the yoke mounting brackets.
4. Replace Kinescope and protective glass cover.
5. Move the inner shield and yoke assembly vertically until yoke is gently touching Kinescope bulb. Tighten yoke bracket wing nuts.

Figure 18—Assembly Details, Showing Kinescope and Deflecting Yoke Shielding

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

Electrical Specifications

<table>
<thead>
<tr>
<th>Frequency Ranges</th>
<th>Medium Wave (&quot;B&quot; band)</th>
<th>Short Wave (&quot;C&quot; band)</th>
<th>2.3-7.0 mc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Broadcast (&quot;A&quot; band)</td>
<td>540-1,720 kc</td>
<td>7.0-22 mc</td>
<td>455 kc</td>
</tr>
<tr>
<td>Intermediate Frequency</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tube Complement</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) RCA-6X7</td>
<td>RF Amplifier</td>
<td>(7) RCA-615</td>
<td>2nd A-F Amplifier</td>
</tr>
<tr>
<td>(2) RCA-6A8</td>
<td>1st Detector</td>
<td>(8) RCA-615</td>
<td>Phase Inverter</td>
</tr>
<tr>
<td>(3) RCA-6B</td>
<td>Oscillator</td>
<td>(9) RCA-6F6</td>
<td>Power Output</td>
</tr>
<tr>
<td>(4) RCA-6X7</td>
<td>1st IF Amplifier</td>
<td>(10) RCA-6F6</td>
<td>Power Output</td>
</tr>
<tr>
<td>(5) RCA-6X7</td>
<td>2nd IF Amplifier</td>
<td>RC-417 and RC-427A only: RCA-6US, Magic Eye</td>
<td></td>
</tr>
<tr>
<td>(6) RCA-6R7</td>
<td>2nd Det., A.F., A.V.C., and Muting</td>
<td>(11) RCA-5U4G (In RS-83E SPU)</td>
<td>Full-Wave Rectifier</td>
</tr>
</tbody>
</table>

Dial Lamps

Two Mazda No. 44, 6.3 volts, .25 amp.
One Mazda No. 47, 6.3 volts, .15 amp.

(The Mazda No. 47 is the electric tuning set-up lamp, located at center of dial.)

Power Supply Rating: 105-125 volts, 50-60 cycles, 120 watts

Power Output

Undistorted: 10 watts
Maximum: 12 watts

Type: 12-inch electrodynamic
Voice-Coil Impedance: 2.2 ohms at 400 cycles

General Description

Radio receiver chassis No. RC-427 is used in RCA Victor Television Console Model TRK-12; RC-427A in TRK-9; RC-427F in TRK-120; and RC-427G in TRK-90.

The audio output of the television chassis is connected to the audio input of the radio chassis by means of jack X-17 and section S7 of the fidelity switch. The functions of this switch are tabulated on a following page.

A separate plug-in power unit, RS-83E, is used to supply heater and plate voltages to the radio chassis. Service data and diagram for this power unit are shown below.

Figure 20—Schematic Diagram Radio SPU, RS-83E

Figure 19—Operating Controls (Radio)

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Electric Tuning Mechanism

The brass selector disc is fastened to the rear shafts of the tuning condenser by means of two set-screws. When the condenser is at maximum (plates fully meshed) the insulation line should be horizontal, with the operating-end at the left (viewed from rear). The brass is beveled at this end.

The selector disc should be set so that the contact-tip plungers in the station-setting contacts project not more than 1/16-in. from the body of the contacts.

LUBRICATION

Motor bearings and gear bearings; use light machine oil.

Gear faces; use "Pure Oil No. 611" or petroleum jelly.

Dial-Indicator pulleys and rails; use "Castor" or petroleum jelly.

Selector disc; apply thin film of petroleum jelly.

Adjustments for Electric Tuning

With power turned off, disconnect the antenna transmission line and ground connection, turn fidelity control to radio (3rd radio position — 6th position from full counterclockwise). Remove the back from the cabinet and reconnect the antenna transmission line and ground connection. The two interlock switches on the side panels should not be touched and care should be taken not to press on them when making the push-button set-up. Then turn on power, set range selector to "A," allow a few moments warm-up period and proceed as follows:

1. Make a list of the desired nine stations, arranged in order from low to high frequencies.
2. Turn on power-volume control, turn range selector to "A," and allow a few minutes for warming up.
3. Press down the "dial-tuning" (right-hand) button.
4. Manually tune in the first station on the list.
5. Hold down the "dial-tuning" button and press down station button No. 1 (left-hand). Both buttons will stay down. Move station adjuster contact pin No. 1 to the insulating line on the disc at rear of gang. When the pin is correctly centered on the insulating line, the central dial lamp will go out completely.
6. Press down any other button in order to release the dial-tuning button and station button No. 1. Tune to some other section on the dial, and then press down station button No. 1 again, the electric tuning mechanism will function to tune in the first station, and the central dial lamp will stay on.
7. Repeat this process for the remaining stations.
Figure 35 - Timing Diagram (R.F. and Switches) and Selected Voltages (Radio Class A)

Measurements made to chassis unless otherwise indicated.
- NOTE: Values with ( ) are operating voltages in circuits with high series resistance, and when measured will read lower depending on the voltmeter loading.
# Fidelity Switch (S4, S5, S6, S7)

<table>
<thead>
<tr>
<th>Switch Position</th>
<th>For</th>
<th>I-F Amp.</th>
<th>Audio Amp.</th>
<th>110-V. Supply for Tele Chassis*</th>
<th>Osc. + B Supply</th>
<th>Dial Lamps**</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1 (Counterclockwise)</td>
<td>Victrola</td>
<td>—</td>
<td>Min. Highs</td>
<td>Off</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>No. 2</td>
<td>Victrola</td>
<td>—</td>
<td>Max. Highs Reduced Lows</td>
<td>Off</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>No. 3</td>
<td>Victrola</td>
<td>—</td>
<td>Full Range</td>
<td>Off</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>No. 1</td>
<td>Radio</td>
<td>Sharp</td>
<td>Min. Highs Max. Lows</td>
<td>Off</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>No. 2</td>
<td>Radio</td>
<td>Sharp</td>
<td>Max. Highs Reduced Lows</td>
<td>Off</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>No. 3</td>
<td>Radio</td>
<td>Sharp</td>
<td>Max. Highs Full Lows</td>
<td>Off</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>No. 4</td>
<td>Radio</td>
<td>Broad</td>
<td>Full Range</td>
<td>Off</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>No. 1</td>
<td>Television</td>
<td>—</td>
<td>Min. Highs</td>
<td>On</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>No. 2</td>
<td>Television</td>
<td>—</td>
<td>Med. Highs Reduced Lows</td>
<td>On</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>No. 3</td>
<td>Television</td>
<td>—</td>
<td>Full Range</td>
<td>On</td>
<td>Off</td>
<td>Off</td>
</tr>
</tbody>
</table>

* Controlled by switch (S12) on rear of fidelity switch.
** The 1st I-F heater is opened on television positions 1, 2 and 3.

Figure 27—Functions of Fidelity Switch

## Calibration Scale

![Calibration Scale](image)

## Standard Broadcast

![Standard Broadcast](image)

## Tuning Dial, and Corresponding 0-180° Calibration Scale

The corresponding dial setting for any reading of the calibration scale can be determined by drawing a line straight up from this point. For example, 151° on the calibration scale corresponds to a dial reading of 1,800 kc on "A" band. Read instructions under "Alignment Procedure."

©John F. Rider
Alignment Procedure
(RADIO CHASSIS)

Figure 2—At Right—Tube and Trimmer Locations

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 chassis, and keep the output as low as possible to avoid a-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 indicator-drive-cord 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 "O" 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 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.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with O-180° calibration scales drawn at top and bottom.

Point for Calibration Scale.—Improvis 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 "O" 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 approximately 1/16 inch above end dots at low-frequency ends of bands with gang condenser fully meshed. See that pointer does not rub background screen or dial face. The indicator has a spring clip for attachment to the cable.

<table>
<thead>
<tr>
<th>Steps</th>
<th>Connect the high side of test-osc. to</th>
<th>Tune test-osc. to</th>
<th>Set tuning gang to</th>
<th>Adjust the following</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Turn fidelity switch to No. 3 radio (sharp).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6K7 2nd I-F grid cap, in series with .01 mfd.</td>
<td></td>
<td>455 kc</td>
<td>L15, L16 (3rd I-F Trans.)</td>
<td>Coincidental images on cathode-ray oscilloscope, or max. output on output meter</td>
</tr>
<tr>
<td>3</td>
<td>6K7 1st I-F grid cap, in series with .01 mfd.</td>
<td></td>
<td></td>
<td>L13, L14 (2nd I-F Trans.)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6A8 1st Det. grid cap, in series with .01 mfd.</td>
<td></td>
<td></td>
<td>L11, L12 (1st I-F Trans.)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Turn fidelity switch to No. 4 radio (broad). The curve on CRO should broaden out to a double peak and reduce gain nearly 50%.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Turn fidelity switch to No. 3 radio for the following adjustments. Back out the &quot;B&quot; and &quot;C&quot; oscillator trimmers, C5 and C4. Preset &quot;A&quot; band oscillator trimmer, C9, approximately an inch out.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Antenna terminal, in series with 100 mfd.</td>
<td>600 kc</td>
<td>600 kc (31°) &quot;A&quot; band</td>
<td>L10 (osc.)</td>
<td>Max. Output</td>
</tr>
<tr>
<td>8</td>
<td>1,500 kc</td>
<td>1,500 kc (151°) &quot;A&quot; band</td>
<td>C9 (osc.)</td>
<td>Max. Output</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>600 kc</td>
<td>600 kc &quot;A&quot; band</td>
<td>L10 (osc.)</td>
<td>Rock in for Max. Output</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Repeat Step No. 8.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Antenna terminal, in series with 300 ohms</td>
<td>6,100 kc</td>
<td>6,100 kc (140°) &quot;B&quot; band</td>
<td>C5 (osc.)</td>
<td>Max. Output</td>
</tr>
<tr>
<td>12</td>
<td>20 mc (146°) &quot;C&quot; band</td>
<td>20 mc (146°) &quot;C&quot; band</td>
<td>C4 (osc.)</td>
<td>Rock in for Max. Output</td>
<td></td>
</tr>
</tbody>
</table>

Follow "Adjustments for Electric Tuning."* Use minimum capacitance peak if two peaks can be obtained.

Notes: The oscillator tracks 45 kc above the signal on all bands.

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RADIO CORP. OF AMERICA
MODELS TR-9, TR-12,
TRK-90, TRK-120

REPLACEMENT PARTS

Table 3—Factory-tested parts, which are readily identifiable and may be purchased from authorized dealers.

<table>
<thead>
<tr>
<th>STOCK No.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>35877</td>
<td>65 19k (50) w (pack of 10)</td>
</tr>
<tr>
<td>35878</td>
<td>65 22k (50) w (pack of 10)</td>
</tr>
<tr>
<td>35879</td>
<td>65 27k (50) w (pack of 10)</td>
</tr>
<tr>
<td>35880</td>
<td>65 33k (50) w (pack of 10)</td>
</tr>
<tr>
<td>35881</td>
<td>65 47k (50) w (pack of 10)</td>
</tr>
<tr>
<td>35882</td>
<td>65 100k (50) w (pack of 10)</td>
</tr>
</tbody>
</table>

Miscellaneous Data for Radio Chassis
Feedback Switch (S8 and S9)
(3K-9 and TRK-12 only)

- Counter-clockwise position (with feedback)
- Clockwise position (without feedback)

1. Provides inverted feedback by connecting part of secondary of output transformer in cathode of 6J5 2nd-audio tube.
2. Disconnects compensating network (R26, C43, C54, C60) from plate circuit of output tubes.
3. Disconnects grid of 2nd audio to high side of 1st A-F plate resistor R17, for maximum input.
4. Disconnects C165 from plate of 2nd audio to chassis.

Figure 31—Functions of Feedback Switch (TR-9 and TRK-12 only)

Precautionary Lead Dress

1. All A.C. leads should be twisted together and dressed away from parts in chassis to prevent hum pickup.
2. Keep pilot light leads away from 687 2nd.
3. Yellow, green, and black leads from feedback switch to 1st of transformer must be twisted together and dressed away from chassis.
4. Yellow, green, and black leads from feedback switch to 2nd of transformer must be twisted together and dressed away from chassis.

Victrola Attachment

A jack (X-16) is located near the antenna terminal board for convenience in plugging in a Victrola Attachment. The cable from the Victrola Attachment should be terminated in a Stock No. 31048 plug to fit the jack.

Figure 32—Connections and Colors of Loudspeaker and Cable

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**RADIO CORP. OF AMERICA**

**MODELS TKR-9, TKR-12, TKR-90, TKR-120**

**Replacement Parts (Continued)**

<table>
<thead>
<tr>
<th>STOCK NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>32096</td>
<td>Disc—Fraction disc and pinion gear</td>
</tr>
<tr>
<td>32097</td>
<td>Drive—Fraction drive gear assembly</td>
</tr>
<tr>
<td>31971</td>
<td>Drive—Variable condenser drive drum</td>
</tr>
<tr>
<td>31239</td>
<td>Gear—Knob shaft gear and knob</td>
</tr>
<tr>
<td>31522</td>
<td>Indicator—Rind indicator (Model TKR-12)</td>
</tr>
<tr>
<td>31064</td>
<td>Inductor—Inducting strip (Model TKR-9 and TKR-90)</td>
</tr>
<tr>
<td>31490</td>
<td>Lamp—5.8 volt electric tuning set-up lamp Maeda</td>
</tr>
<tr>
<td>11851</td>
<td>Lamp—0.2 volt dual lamp Maeda No. 44</td>
</tr>
<tr>
<td>31905</td>
<td>Lockwash—Push button switch locknut comprising 10 contact locks in 1 strip</td>
</tr>
<tr>
<td>32005</td>
<td>Motor—Electric tuning drive motor complete (3N)</td>
</tr>
<tr>
<td>31728</td>
<td>Plane—Station selector contact plate—less plungers</td>
</tr>
<tr>
<td>31227</td>
<td>Plane—Station selector mounting plate—mounts on rear of variable condenser</td>
</tr>
<tr>
<td>32492</td>
<td>Plug—Female connector for speaker cable (XK)</td>
</tr>
<tr>
<td>31271</td>
<td>Pulley—Drive pulley fastens on station selector knob shaft</td>
</tr>
<tr>
<td>31868</td>
<td>Pulley—Inductor pulser drive pulley</td>
</tr>
<tr>
<td>31272</td>
<td>Pulley—Range switch pulley</td>
</tr>
<tr>
<td>12670</td>
<td>Resistor—1,000 ohms; 1 watt (KT)</td>
</tr>
<tr>
<td>12687</td>
<td>Resistor—2,000 ohms; 1 watt (KT)</td>
</tr>
<tr>
<td>12693</td>
<td>Resistor—3,000 ohms; 1 watt (KT)</td>
</tr>
<tr>
<td>14560</td>
<td>Resistor—10,000 ohms; 0.1 watt (R16)</td>
</tr>
<tr>
<td>13066</td>
<td>Resistor—15,000 ohms; 0.1 watt (R14)</td>
</tr>
<tr>
<td>12708</td>
<td>Resistor—25,000 ohms; 0.1 watt (R15)</td>
</tr>
<tr>
<td>12477</td>
<td>Resistor—100,000 ohms; 0.1 watt (R11)</td>
</tr>
<tr>
<td>12459</td>
<td>Resistor—470,000 ohms; 1 watt (R17)</td>
</tr>
<tr>
<td>31638</td>
<td>Resistor—5 ohm; 0.5 watt (R72)</td>
</tr>
<tr>
<td>31695</td>
<td>Resistor—1 meg; 0.5 watt (R60)</td>
</tr>
<tr>
<td>12707</td>
<td>Resistor—2 ohm; 0.5 watt (R59)</td>
</tr>
<tr>
<td>31614</td>
<td>Resistor—Variable resistor containing one 1,000, one 2,900, one 3,409, one 30 and one 3,160 ohm section (R42, R27, R28, R29)</td>
</tr>
<tr>
<td>14487</td>
<td>Resistor—Drive cord pulley retainer</td>
</tr>
<tr>
<td>31660</td>
<td>Rolls—Ribbon station selector roll for front end of motor shaft</td>
</tr>
<tr>
<td>31332</td>
<td>Rotary—Station selector rotor disc—mounts on variable condenser shaft</td>
</tr>
<tr>
<td>31616</td>
<td>Screw—No. 6-32 square head screw for motor disc, Stock No. 31223</td>
</tr>
<tr>
<td>31635</td>
<td>Shaft—Drive drum shaft</td>
</tr>
<tr>
<td>31234</td>
<td>Socket—Dual or electric tuning set-up lamp socket</td>
</tr>
<tr>
<td>31971</td>
<td>Socket—Light socket (TKR-9 and TKR-12 only)</td>
</tr>
<tr>
<td>31231</td>
<td>Socket—Dual or electric tuning set-up lamp socket</td>
</tr>
<tr>
<td>31488</td>
<td>Switch—Push button switch (JS, JS2)</td>
</tr>
<tr>
<td>31477</td>
<td>Switch—Pin type control panel/television and power switch (S1, S5, S6, S7, S12)</td>
</tr>
<tr>
<td>31979</td>
<td>Switch—Range switch (S1, S2, S3)</td>
</tr>
<tr>
<td>31965</td>
<td>Switch—Station selector push button switch</td>
</tr>
<tr>
<td>31565</td>
<td>Transformer—1st I F transformer complete (L11, L12, C13, C14, C15)</td>
</tr>
<tr>
<td>31545</td>
<td>Transformer—2nd I F transformer complete (L12, L13, C15, C16)</td>
</tr>
<tr>
<td>31540</td>
<td>Transformers—2nd I F transformer (L10, L11, C13, C14)</td>
</tr>
<tr>
<td>31464</td>
<td>Transformers—1st I F transformer (L1-1)</td>
</tr>
<tr>
<td>32093</td>
<td>Damper—Flywheel for rear end of motor shaft</td>
</tr>
</tbody>
</table>

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