

*RCA Victor*  
**TELEVISION**  
**CONSOLE MODEL TRK 9**



**RCA MANUFACTURING COMPANY, INC.**  
**CAMDEN, N. J., U. S. A.**



# *Information for the Owner*

## ***RCA Victor***

### **TELEVISION RECEIVER**

FOR

**Pictures, Accompanying Sound, and All Wave Radio**

**MODEL TRK 9**

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**CONGRATULATIONS:** An RCA Victor Television receiver in your home is a cause for feeling justly proud as you go "all the way with RCA" into the new enchantment of seeing as well as hearing by the turn of a knob.

The RCA Victor Model TRK 9 produces a high definition picture with detail and brilliance. The picture is viewed directly on the screen on the front panel of the cabinet.

The dealer who sold you the instrument will be pleased to arrange for its unpacking and installing by a competent television technician who will instruct you in its use and explain the controls and best method of operation. However, we advise the careful reading of this booklet so that you may be able to understand the important points wherein Television differs from Radio Broadcast reception, and how to always obtain the best pictures.

### **GUARANTEE AND REGISTRATION**

In the envelope together with this instruction book are four cards:

1. A card for your own record, which should be properly filled in by your television technician at the time of installation and should be kept by you in case of change of location or need for adjustments or repairs.
2. The guarantee registration card, addressed to the RCA Manufacturing Co., Inc., Camden, New Jersey. *This card must be filled in and returned to RCA Manufacturing Co. in order to validate the guarantee which is printed on the instrument label located inside the cabinet.*
3. A registration card for the dealer, which will be retained by him for his records.
4. A card similar to No. 3, to be filled in and mailed to the RCA distributor by the dealer who serves you.

### **WARNING**

The Manufacturer's guarantee is valid only in the event that the Guarantee Registration card is filled in and mailed to the RCA Manufacturing Co. Also the unpacking and installation must be carried out by a competent television technician, and no unauthorized person, at any time, may tamper with the assembly, wiring, adjustments or circuits.

This Television Receiver is a precision instrument and its installation with an effective antenna for best picture reception is a matter of involved detailed knowledge and experience. When your authorized television technician has made the installation and demonstrated the receiver to your satisfaction in your home, it is a perfectly safe and reliable instrument for your entertainment, easy to operate and should only require very occasional servicing or readjustment.



However, if you have any trouble or difficulty with the operation, immediately turn off the power, call in your dealer and do not attempt to make any adjustments which you were not definitely advised to do at the time of installation. Also, if you wish the instrument to be moved, call your dealer, as readjustments may be necessary.

This Television Receiver contains apparatus producing high voltages. No one but a trained television technician should make repairs or adjustments to the television apparatus.

*A good ground connection from the terminal "G" on the antenna terminal board to a cold water pipe or equivalent "good ground" is absolutely necessary to avoid possible danger from electric shock.*

The receiver is equipped with two safety lock-in switch devices and when the back is removed power is cut off from all the high voltage television apparatus. The two switches are toward the bottom of the cabinet on the inside of the two side panels. No danger is possible from the high voltage television apparatus unless these two switches are simultaneously pushed in. Under no circumstances should anyone tamper with these switches.

## HOW YOU RECEIVE TELEVISION PICTURES

Television reception follows the laws governing high frequency wave transmission and reception. Television waves act in many respects like light waves. This means that there are problems of reflection, diffusion, intensity and interference, all of which affect the reproduction of the picture.

The receiver antenna should preferably be at a good height, without interruption in direct "line of sight" of the transmitter antenna, of the correct type, and correctly installed. Buildings and other structures may obstruct and reflect the television waves, automobile ignition systems, diathermy apparatus in hospitals and airplanes flying low may all cause effects to be overcome.

The scanning device and associated apparatus of the Television Transmitter transform the original scene into a myriad of electric impulses and radiate these in succession, as formed, through the air. The receiver takes the myriad electric impulses and rebuilds the original picture with sufficient rapidity and synchronization to appear smooth and complete to the human eye.

Television pictures may be compared in certain ways with motion pictures. The illumination in the room should be dimmed—no light close to or falling on the screen. During the day it will usually suffice to draw the curtains. In motion pictures, approximately 24 successive still pictures are flashed on the screen per second and the eye sees these as a continuous motion picture. In television the pictures are reproduced at 30 per second by reassembling the whole sequence of elements for each picture is assembled in one-thirtieth of a second.

## FEATURES AND ACCESSORIES

The RCA Model TRK 9 Television and All Wave Sound Receiver is designed for operation on the present Television Broadcast Bands between 44 and 90 megacycles to reproduce both picture and sound transmissions, and to receive Radio Broadcasts on the three standard major radio bands between 550 and 22,000 kilocycles.

The RCA Victor TRK 9 reproduces clear television pictures of excellent brightness and fine detail with the accompanying television sound. In addition, the TRK 9 incorporates a Radio Receiver with reception on Standard Broadcast and Medium and Short Waves, Push Button Electric Motor Tuning for your nine favorite Standard Broadcast Stations, Magic



Eye Tuning indicator, Range indicator, Victrola plug connector, and all the modern RCA sound developments. The cabinet is a specially styled console with the operating controls on the front panel.

### Antenna

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) At the short wave lengths employed, intervening obstacles have a pronounced shielding effect, causing low intensity signals, and often severe trouble with multi-path transmissions; these produce blurring and multi-images.

(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) The discernment of the eye is much more critical than that of the ear.

Three RCA Television picture and sound antennas are available, the Double "V" Type, the Double Dipole, and the Double Dipole with Reflector. For best results, it is essential that the installation be made by a competent television technician. See Appendix C for instructions on Antennas.

### RCA Victrola Attachment

An RCA Victrola attachment will convert your new television receiver at will to a combination all-electric instrument, capable of playing Victor "Higher Fidelity" records through the radio loudspeaker. The pin plug on the connector cord of your Victrola Attachment simply plugs into the Victrola connector on the radio receiver chassis in the back of the TRK 9. See Figure 14. The power cord on the Victrola Attachment connects to an ordinary house outlet socket. Then turning the Fidelity Selector knob on your television receiver makes the conversion from television or radio to phonograph so that you may enjoy "the music you want when you want it."

### RCA Furniture Polish

The fine finish of your TRK 9 cabinet may best be preserved by the application of a little RCA Furniture Polish at regular intervals, by means of a soft cloth. Buy a bottle from your dealer. It also gives excellent results on other furniture.

## INSTALLATION

The correct installation of both receiver and antenna is most important for the reception of satisfactory pictures. A trained television technician representing your dealer should be employed. High frequency electric discharges reaching the antenna or receiver will spoil the picture. Such discharges are caused by ignition systems on gasoline and oil engines and by high frequency electrical apparatus such as X-ray generators and similar devices used for medical and other purposes. The effect of aircraft passing overhead is to slightly reduce the brightness according to their proximity. Automobiles near at hand may produce slashes of light and in certain cases destroy synchronization in the picture. Medical electrical equipment is apt to cause speckled and herringbone bands across the picture.

The necessity of the best possible installation of both receiver and antenna, with a good permanent receiver ground connection and with full consideration of all local conditions, thus becomes apparent and we therefore emphasize the advisability of having a trained television technician make the installation.

Additional notes on installation are given under Appendix "B," page 12.

# TELEVISION

Once your TRK 9 is installed and giving good reception, the controls on the front panel are all that are necessary for satisfactory pictures and sound. If the instrument is moved to another location in the home, the screwdriver operated controls in the side, and also the Kinescope yoke, may have to be reset by a competent technician. *The ground connection to the antenna terminal board must always be connected before plugging the power cord into the electric outlet.*

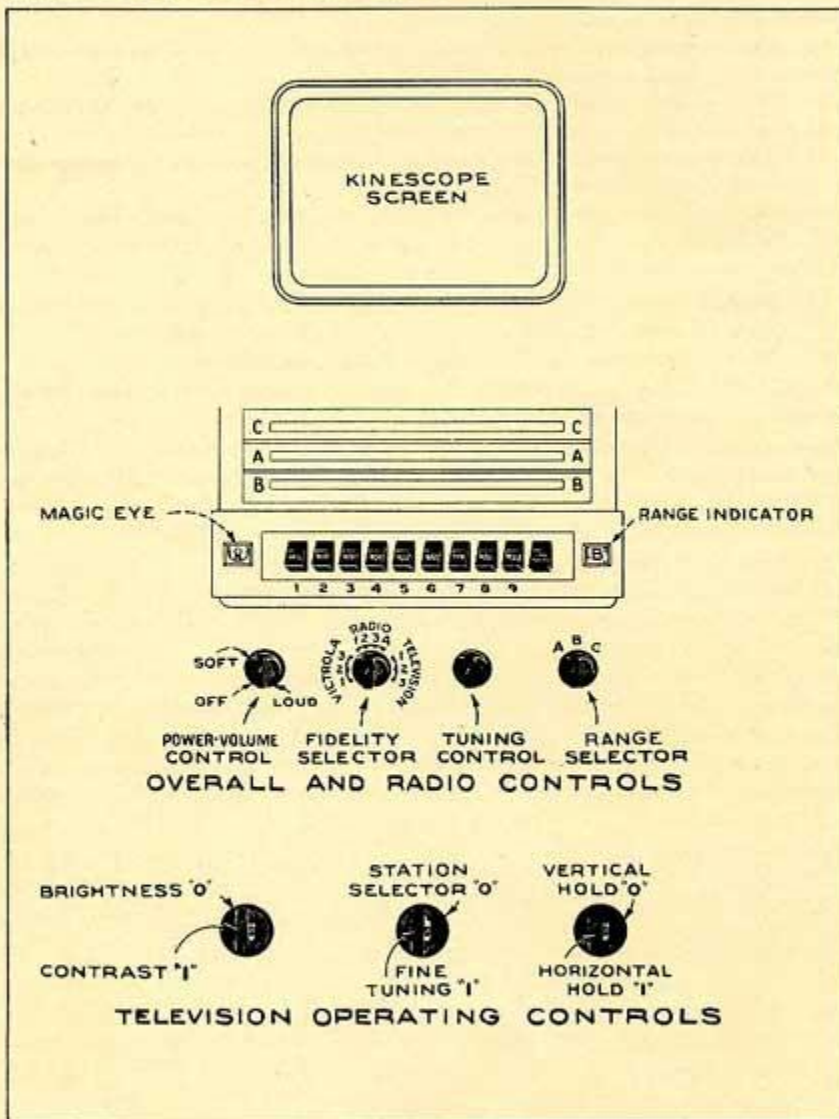


Figure 1—Operating Controls

## Controls

Immediately beneath the Television picture screen is the Radio dial with Magic Eye, Push Buttons and Range Indicator for Radio operation. Then follows a row of four single control knobs. Two of these are all purpose controls and are used on Television, Radio and Phonograph reproductions. Below these is a row of three dual Television Control knobs. See Figure 1.



**Power-Volume Control.**—The single knob on the left of the upper row turns on the power to the receiver when rotated clockwise from its extreme "Off" position. Rotating it further increases sound volume for Television, Radio, or Phonograph (when a Victrola Attachment is used).

**Fidelity-Selector.**—The second knob from the left in the upper row selects the type of entertainment you wish, *i. e.* "Victrola," "Radio" or "Television."

Turned to the position marked "Victrola" it provides for operation of a Victrola Attachment such as the RCA R-100 or R-93-C. There are three variations of tone possible.

(1) Fully counterclockwise modifies tone, reducing surface noise on old recordings and emphasizing low tones.

(2) The middle Victrola point minimizes bass response, thus emphasizing higher tones.

(3) The next point in a clockwise direction sets the instrument for full tone phonograph reproduction.

The position, marked "Radio," sets the instrument for Radio reception and provides four variations of radio tone control. Turning clockwise these are:

(1) Reduction of static and circuit hiss, and emphasis on low tones.

(2) Speech position with a modification of low tones.

(3) Full tone reception for normal reproductions.

(4) High Fidelity reception for special musical programs giving all the tone values possible.

The position marked "Television" sets the instrument for Television sound reception. The first and second points, give modified tones as for the "Victrola" position, points (1) and (2), and the third point (3) gives full tone reception.

**Contrast and Brightness Controls.**—The dual knob at the left of the lower row is the one most frequently used for picture reception. The inner "I" Contrast section regulates the intensity of the picture, varying 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 it all half-tones or grays. Turning clockwise increases contrast from grays, to black and white. See Figures 4 and 5.

The outer ring "O" is the Brightness Control and affects the average illumination of the picture. Turning clockwise increases the brightness. See Figures 4 and 5.

**Station Selector and Fine Tuning.**—The outer ring "O" section of the central dual control knob selects the station from which it is desired to receive television transmission. The range covers five television channels:

(1) 84 to 90 M.C.

(2) 78 to 84 M.C.

(3) 66 to 72 M.C.

(4) 50 to 56 M.C.

(5) 44 to 50 M.C.

Set your selector to the number corresponding to the station from which you wish to receive Television Broadcasts.

The inner "I" section of this knob is used to obtain best picture reception by elimination of distortion resulting from interfering radio signals. These interfering signals show as a moving ripple in the picture and adjustment of this knob will often eliminate the interference. A slight inward pressure must be exerted on the knob while turning.

**Horizontal and Vertical Hold Controls.**—The dual knob on the right controls 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. Figure 6 shows the effect of incorrect setting of the control.

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. See Figure 7.

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

**Focusing Control.**—This is a screwdriver operated control for adjustment of the picture focus. It is located on the right-hand side of the cabinet at the bottom and is accessible through a flanged hole in the cabinet. This adjustment affects the sharpness (detail observable) of the picture and must be carefully made when the receiver is first placed in operation. It may be checked occasionally to insure continuous best focusing. See Figure 3.

**Pilot Light.**—A little jewel pilot light at the bottom of the front of the cabinet tells when current is on to your Television Receiver.

**Other Controls.**—There are five other controls on the television chassis. All of these will be adjusted by your television technician at the time the TRK 9 is installed, but may require occasional resetting. Call on your dealer when you think resetting is advisable. These controls are accessible from the side of the cabinet. See Figure 15. They are adjustable by means of a long, slender screwdriver through a row of holes in the right side of the cabinet. They should be adjusted only by a trained television technician. See Appendix F.

## Receiving the Picture

To obtain picture reception:

1. Turn the Fidelity-Selector Control to "Television," fully clockwise.
2. Turn Power-Volume Control clockwise and advance about half way.
3. Set the Station Selector on the Television Control panel to the desired station 1-2-3-4- or 5.
4. Turn the Contrast Control fully counterclockwise and then turn Brightness Control slowly until illumination of the screen almost disappears. Advance the Contrast Control until the picture appears at its best. The Contrast Control turned too far clockwise causes blurring. Make final adjustment for best picture by adjusting both the Contrast and Brightness Controls. A little practice at operating these controls will soon enable you to obtain the best picture. The illustrations shown in Figures 2, 4 and 5 give an idea of the effect of the Brightness and Contrast Controls. Incorrect setting has effects somewhat similar to under and over exposure on photographic prints.
5. If the picture is not steady, the "Hold" controls will require slight readjustment. If the picture is moving sideways the Horizontal Hold (inner "H" section of the knob) requires readjustment. If the picture is moving up or down or is off position, then the outer ring "O" of the knob, Vertical Hold Control, requires readjustment. See Figures 6 and 7.
6. Adjust the Volume Control and the Tone Control (Fidelity-Selector knob) for best sound reception.
7. If an interfering ripple is observed in the picture, adjustment of the Fine Tuning knob may reduce or eliminate the distortion. If it does not, call on your dealer.



8. If the picture appears out of focus, carefully turning the Focusing Control with a screwdriver through the hole in the side at the bottom of the cabinet will remedy the condition. If not call on your dealer.

As long as the Television Receiver is not moved in any way, only an occasional setting of the other controls will be required. Their functions and operation are explained in Appendix F. Call on your dealer at any time resetting of these controls becomes necessary.

A spot in the center and also a slight discoloration of the television screen may gradually appear as the Kinescope ages. This is normal and in no way affects good picture reproduction.

The installation technician, when installing the TRK 9, will be pleased to demonstrate and explain fully the use of all the different controls.

## RADIO

### The Range

A wide variety of radio programs is available on your new instrument as shown by the following table.

TYPE OF PROGRAM	KILOCYCLES
<b>On Broadcast Scale—</b>	
<b>“A” Band</b>	
Standard American Broadcast.	540 to 1,600
Police Calls .....	1,600 to 1,720
<b>On Medium Scale—</b>	
<b>“B” Band</b>	
Police Calls .....	2,300 to 2,500
Aircraft Calls .....	2,700 to 3,300
<b>Tropical Broadcasts—</b>	
120-Meter Band .....	2,300 to 2,500
90-Meter Band .....	3,300 to 3,500
Amateur Communications .....	3,900 to 4,000
Short-Wave Broadcasts .....	4,000 to 5,400
60-Meter Band (Tropical) .	4,770 to 4,970
Aircraft Calls .....	5,400 to 5,900
Short-Wave Broadcasts .....	5,700 to 7,000
49-Meter Band .....	6,000 to 6,200
<b>On Short-Wave Scale—</b>	
<b>“C” Band</b>	
Short-Wave Broadcasts .....	7,000 to 22,000
40-Meter Band (Eastern Hemisphere) .....	7,200 to 7,300
31-Meter Band .....	9,500 to 9,700
25-Meter Band .....	11,700 to 11,900
Amateur Band .....	14,000 to 14,400
19-Meter Band .....	15,100 to 15,350
16-Meter Band .....	17,750 to 17,850
13-Meter Band .....	21,450 to 21,750

### When to Tune for Foreign Stations

All the thrills of foreign reception can be had with this RCA Victor Model. Experience is the best guide as to the most likely time to tune for foreign short wave stations. Radio magazines and daily newspapers also publish helpful information.



The great majority of short-wave broadcasts of an entertaining type will be found in the 49- 40- 31- 25- 19- 16- and 13-meter bands, which are indicated on the dial. Stations in the 49- and 40-meter bands are best heard after nightfall; those in the 19- 16- and 13-meter bands are best heard during the day. Stations in the 31- and 25-meter bands can be heard equally well day or night. Between the short-wave broadcast bands will be found code, ship, amateur communications and telephone signals.

## The Dial

There are three scales, marked "A," "B" and "C" on the RCA Victor Straight Line Dial. A sliding pointer moves across the scales and indicates the frequencies of the stations.

Below the dial scales are ten piano-key push buttons with an indicator window at each end. The window at the left shows the Magic Eye and the one at the right shows the major frequency band on which you are tuning—"A" Broadcast, "B" medium wave, or "C" short-wave.

## Push Buttons

The push button at the extreme right of the row, labeled "Dial Tuning," prepares the instrument for manual dial tuning. The other nine push buttons are for radio Electric Tuning and after "Adjustments for Electric Tuning" are made as described in Appendix "E," the call letters of your nine favorite Standard Broadcast Stations will be visible in the recesses on the piano-key push buttons.

Pressing any one of the ten push buttons releases all others. Pressing more than one at a time or turning any of the radio controls during "Electric" Operation will not do any damage to your receiver.

## Magic Eye

At the left of the radio panel, in line with the push buttons, is the Magic Eye. When the receiver is turned on for Radio reception, the Magic Eye becomes a green light on a circular screen with a sector darker than the rest. Stations are tuned in most accurately when this sector is at its narrowest possible width for the station being tuned in. The Magic Eye is used for Radio Dial Tuning.

## Reading the Scales

The dial scales are marked off in frequencies, the Broadcast "A" Scale in kilocycles (kc), and the Medium "B" and short-wave "C" scales in megacycles (mc). Multiply megacycle readings by 1,000 to obtain kilocycles. Thus, 9.58 mc = 9,580 kc.

Note that the important short-wave bands and short-wave stations are named in their positions on the dial.

## Controls

There are four control knobs below the row of push buttons. These are shown in the diagram, Figure 1.

1. **The Power-Volume Control.**—See "Television" "Controls."
2. **The Fidelity-Selector Control.**—See "Television" "Controls."

The position No. 4 ("High Fidelity," see Figure 1) provides High Fidelity Full Range reception. All available sound waves that the receiver can reproduce, including low and high notes that are usually lost, are brought through in this position. However, there are limitations to the use of



High Fidelity reception of which the owner should be aware in order to make the best use of the TRK 9. On weak stations, and at times on strong stations, atmospheric and other conditions may be such as to cause interfering sound waves from external sources, including adjacent channel stations, to mar your enjoyment of the program with the control on "High Fidelity." At such times, turning the knob back (counterclockwise) will lessen the interference by offering three successive positions for varying control of tone and selectivity. Adjustment of this knob thus enables you to obtain clear and uninterrupted pleasing reception under almost any circumstances.

3. **The Tuning Control.**—The third knob from the left operates the sliding pointer on the dial scales and brings in your station on manual dial tuning when the "Dial Tuning" push button is pressed down.

4. **The Range Selector.**—The knob at the right selects the major frequency band for dial tuning and operates the range indicator at the right of the push buttons, thus indicating on which major frequency band your receiver is set for tuning—"A" broadcast, "B" medium, or "C" short-wave.

## Tuning

The method of bringing in stations is extremely simple. First turn Fidelity-Selector Control to "Radio" and advance to its third point—Full Tone. (See Figure 1). Then turn on power with the Power-Volume Control, advance about half way and allow a few minutes warm-up period.

**For Electric Tuning.**—Turn Range Selector to "A." "Push a button—there's your station." Regulate Volume and Tone Controls for best reception.

**For Dial Tuning.**—Press the Dial Tuning push button—the one at the right. Set your Range Selector to show in the Range Indicator the major frequency band you require—"A," "B" or "C."

Turn the Tuning Control to bring the pointer on the scale to the correct frequency. Then very slowly and carefully adjust this control until the Magic Eye shows the darker sector at exactly its narrowest width.

Regulate Volume and Tone Controls for best reception. Use the "High Fidelity" point whenever conditions permit.

Tune very slowly for short-wave stations; otherwise, stations will be passed over without being heard. To bring in foreign stations, first turn the Range Selector to show the major frequency band required ("B" or "C") in the indicator. Then move pointer to the station's "band" with the Tuning knob. Bands are indicated on the scale as 49M, 31M, etc. Then tune slowly through the band with the Tuning knob. For silent tuning the volume may be turned low and the Magic Eye followed, turning volume up when the Magic Eye indicates that a station has been brought in.

**Example of Short-Wave Dial Tuning.**—It is desired to tune in London during the early evening hours. Experience will indicate on which band London broadcasts will be heard best at the particular period of the year. In general, the 31-meter band stations will be found to give satisfactory reception in the early evening.

With power turned on and Fidelity-Selector on the third point in the "Radio" Sector, press down Dial Tuning push button and set Range Selector to show "C" on the indicator.

Turn Tuning knob to bring the pointer on the short-wave scale to 31M—London. Turn up Volume Control and make a slow and careful adjustment of the Tuning knob until a London station is heard. Finally, obtain the ideal tuning point by observing the Magic Eye and tune till the darkened sector is at its narrowest for that station. Set Volume and Tone Controls for best reception.



## SERVICE

Tubes age so gradually that unless your instrument is checked over at least once a year you may not obtain the best performance that it is capable of giving, without your knowing exactly why. Have your dealer give this instrument a "check-up" at least once every year, and call him if any difficulty is encountered. In the event that the picture tube should fail to give you satisfactory service in this receiver, notify immediately the dealer from whom the tube or the receiver was purchased.

## APPENDIX

### A. Power Rating

If your new Television Receiver is plugged into an incorrect current supply, it will not operate properly and it may be seriously damaged.

Your dealer or power company can tell you what type of current you have and its source.

The TRK 9 will only operate on 105 to 125 volts, 60 cycle current. Make sure your current supply is correct for the instrument before you plug it into the house outlet socket.

### B. Unpacking and Installing

The unpacking and installing of your TRK 9 together with the correct antenna for same should only be attempted by a trained television technician. Your dealer will be pleased to handle all details of unpacking and installation.

The Kinescope is packed in a separate carton and all labels on the carton should be read and observed. It is a high vacuum device and is hazardous for handling by anyone not familiar with such apparatus. Moreover, the Kinescope is the most expensive and easily damaged part of the Television Receiver. So if you receive your instrument and Kinescope before the technician arrives to make the installation, keep them both in their cases in a location where they will be safe and no one will be likely to open or attempt to examine or tamper with them.

A location should be carefully planned for the TRK 9 where it can be installed by your technician in a level position, convenient to an electrical outlet, and where no light will shine on the screen in daytime or night time, and the illumination can always be conveniently dimmed for picture reception.

Provision should also be made for locating the antenna at a good height above the roof with as direct a path as possible for the transmission line and easy access to the receiver. *A good ground connection to a cold water pipe or the equivalent is indispensable and should be made prior to plugging the power cord into an electric outlet.*

At the time of installation your dealer or technician will make Adjustments for Electric Tuning on the Radio chassis for your nine favorite Standard Broadcast Stations. There are four chassis in the back of the receiver which your dealer will indicate to you if you wish. Looking in the back, the Kinescope or picture tube is at the top with the plug and socket end projecting, and the radio chassis is on the top shelf with the push button Electric Tuning device visible. The Television Receiver chassis is on the second shelf with fixed controls and antenna terminal board visible on the side. Two power chassis are on the bottom shelf. The Focusing Control is on the Television Power Chassis. The two interlock safety switches on the side panels, making contact when the back is correctly secured in place, will also be pointed out by your dealer.



When the installation is complete the knobs will be attached on their shafts on the front and the push buttons all labeled with station markers, the antenna and ground leads attached and extending out the back, the back properly secured in place and the instrument plugged into your house outlet socket and operating for your first demonstration.

Your dealer or television technician will demonstrate the use and effect of all controls under the lid and on the back if you so desire.

**The High Voltage power for the Kinescope is on, only when the back is "locked-in" and properly attached, the Power-Volume Control turned on, and the Fidelity Selector Knob turned to "Television."**

### C. Antenna

Only an RCA Television Antenna which has been designed for your particular instrument should be used with TRK 9 to insure best results. Three types are available.

1. The Double "V" Type, Stock No. 9870.
2. The Double Dipole, Stock No. 9871.
3. The Double Dipole, Stock No. 9871, with Reflector, Stock No. 9872.

Under favorable conditions, good pictures may be obtained with the Double "V" Wire Type. In areas of weak signals or where interference or double images mar the picture a Double Dipole or Double Dipole and Reflector become necessary.

Full instructions accompany all RCA Television Antennas and these instructions must be followed implicitly. The correct antenna installed in the best possible location and position for your particular installation is an essential requirement for satisfactory television reception.

The two leads from the antenna transmission line are for connection to the terminals A1 and A2 on the television chassis in the back of the cabinet of your Television Receiver. *Terminal C must be connected to a good ground such as a cold water pipe.* Terminals A3 and G are connected to the Radio chassis and the circuit is designed so that the Television Antenna is also used for Standard Broadcast and Short-Wave Radio Reception.

An RCA Radio Antenna such as the RCA Magic Wave or RCA Spiderweb may be installed if you wish. The connection from "A" on the terminal board on the radio chassis to "A3" on the terminal board on the Television chassis must then be removed and the leads from the radio antenna connected to the Radio chassis in accordance with the instructions accompanying the antenna. The connection from "G" on the Radio chassis to "G" on the Television chassis must not be removed.

Good television and radio reception depend upon a correctly designed antenna, properly installed. **Your television technician should make the installation.** Read carefully the instructions that accompany the antenna.

### D. Electrical Specifications

**CIRCUIT.—Television—**High frequency superheterodyne with separate Video and Sound I.F. channels, separate detectors and automatic volume controls, station selector with fine tuning, double purpose antenna coupling, Video circuit with automatic background, interlaced scanning, magnetic deflection circuit, and electrostatic focusing.

**Radio.—**Superheterodyne with automatic volume control, Fidelity Control, Magic Eye indicator, Electric Push Button motor tuning and Class A-B push-pull pentode output system with inverse feedback.

**TUBES.—Television Chassis—**RCA-6J5 (2), RCA-1852 (3), RCA-1853 (5), RCA-6H6 (3), RCA-6F8G (1), RCA-6N7 (4), RCA-6Y6G (1), RCA-6L6 (1), RCA-5V4G (1), RCA-6SK7 (1).



**Television Power Chassis**—RCA-2V3G (1), RCA-5T4 (1).

**Kinescope**—RCA-1804 P4.

**Radio Chassis**—RCA-6K7 (3), RCA-6J7 (1), RCA-6A8 (1), RCA-6J5 (2), RCA-6F6 (2), RCA-6R7 (1), and Magic Eye RCA-6U5 (1).

**Radio Power Chassis**—RCA-5U4G (1).

See diagrams on labels inside cabinet for locations of tubes and grid cap wires.

**LOUDSPEAKER**—Electrodynamic 12 inch.

## E. Adjustment for Electric Tuning of All-Wave Radio Receiver

Any nine Standard Broadcast Stations may be chosen for Electric Tuning. The stations are identified by means of the call letter tabs supplied for insertion in the recesses on the push buttons. A sheet of tabs, on which are printed the call letters of U. S., Canadian and Mexican stations, accompanies the set. Call letters of the nine stations selected should be pressed out and arranged in order of their frequencies in kilocycles, as is used in the following example:

- |                  |                    |
|------------------|--------------------|
| 1. WFIL (560 kc) | 6. WABC (860 kc)   |
| 2. WIP (610 kc)  | 7. KYW (1,020 kc)  |
| 3. WEAJ (660 kc) | 8. WBAL (1,160 kc) |
| 4. WOR (710 kc)  | 9. WCAU (1,170 kc) |
| 5. WJZ (760 kc)  |                    |

In addition, a sheet of clear celluloid tab covers is included. Insert a marker tab and celluloid cover on each of the nine Electric Tuning push buttons. This is easily accomplished by curving the tabs lengthwise, ends downward, and sliding the two ends into the recesses.

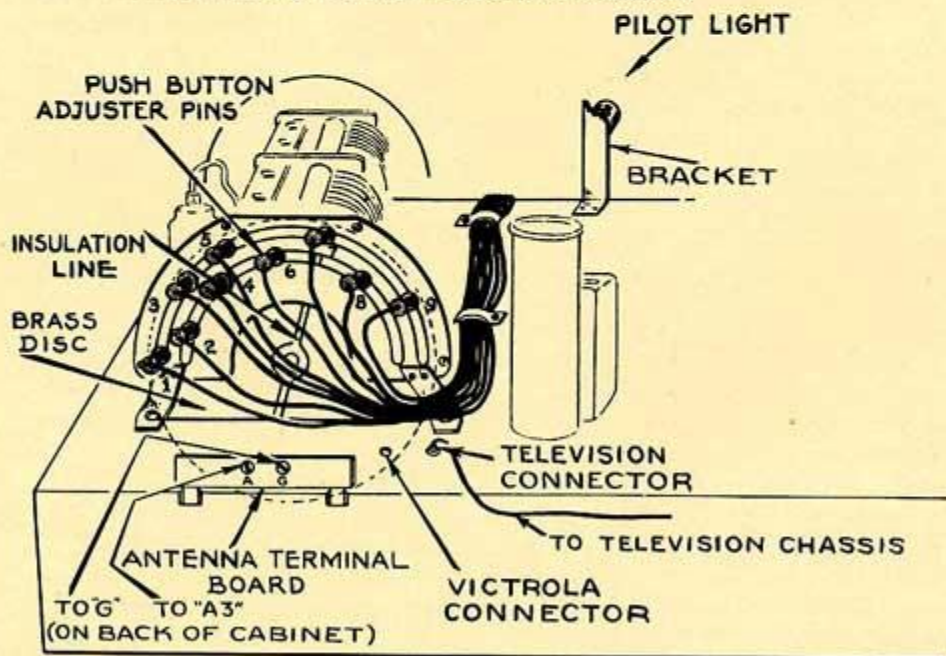


Figure 14—Electric Tuning Device

Now turn off power, turn Fidelity-Selector Control to "Radio"—third position—Full Tone, and remove the back from the cabinet. 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 minutes' warm-up period and proceed to set up for Electric Tuning.

1. Press down "DIAL TUNING" button.
2. Tune in your first station by Manual Dial Tuning (WFIL, 560 kc. in example). Tune exactly by means of the Magic Eye.
3. Now look in the back of the instrument and on the Radio chassis; you will see two semicircular slots in which are nine adjusting pins, as shown numbered 1 to 9 in the sketch, Figure 14. These correspond with the numbered push buttons in Figure 1, page 6. Behind and showing through these slots is a brass disc, which revolves as the Tuning knob is turned. On the disc is a strip of insulating material. Move adjusting pin No. 1 to the center line of this insulation strip.
4. Hold Dial Tuning button down and press button No. 1 on the control panel. Both buttons will stay down, and the central dial pilot light should go out. If not, make very careful adjustment of the adjusting pin No. 1 until it just does. If moved too much a pin point of light shows at the apex of the filament. Station No. 1 (WFIL, 560 kc) is now tuned in.
5. Press another button. Button No. 1 and the Dial Tuning button are released.
6. Press button No. 1 again. The central dial pilot light stays on and your station will be heard. If not heard properly, repeat the above procedure as your tuning was not sufficiently accurate.

Proceed similarly for the other eight push buttons, and any one of your nine favorite Standard Broadcast Stations may then be obtained by simply pressing the button on which are the call letters of the desired station. Turn off power, replace the back on the cabinet, carefully making the interlock attachments.

To change a station at any time, simply follow the same procedure and remember to replace the tab on the push button with the new call letter marker.

## F. Television Fixed Controls

### Information for Television Technician

1. **Horizontal Centering.**—This is a screwdriver adjustment at the left of the row. It serves to center the picture horizontally on the Kinescope screen and is made at the time of installation of the receiver. It may require resetting, due primarily to the earth's magnetic field, if the receiver location is changed, the cabinet turned around, or the Kinescope replaced. Figure 8 shows the effect of incorrect setting of this control.

2. **Width.**—The next screwdriver control determines the width of the picture and is adjusted when the receiver is installed. Further adjustment may occasionally be necessary in order to compensate for the gradual reduction in horizontal deflection with tube life. See Figure 10.

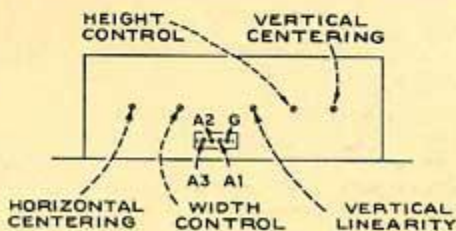


Figure 15—Fixed Television Controls



**PICTURE  
CORRECTIONS**





Figure 2—CORRECT PICTURE

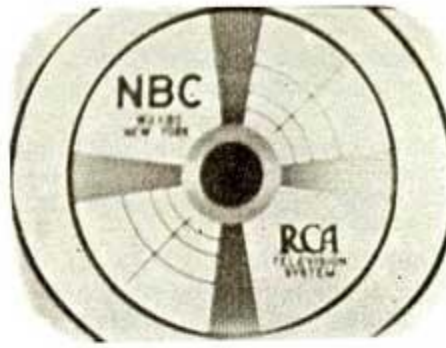


Figure 3—INCORRECT FOCUS  
To correct—Adjust Focusing Control for sharpest image

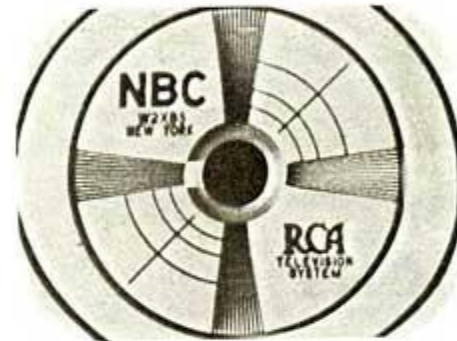


Figure 4—TOO MUCH CONTRAST  
To correct—Turn Contrast Control counterclockwise and Brightness Control clockwise



Figure 5—TOO LITTLE CONTRAST  
To correct—Turn Contrast Control clockwise and Brightness Control counterclockwise

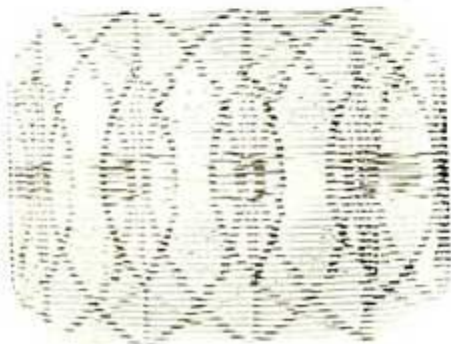


Figure 6—INCORRECT HORIZONTAL HOLD  
To correct—Adjust Horizontal Hold Control until picture "locks in"



Figure 7—INCORRECT VERTICAL HOLD  
To correct—Adjust Vertical Hold Control until picture "locks in"

The adjustments shown above may be made by the customer when necessary see page 7.





**Figure 8—INCORRECT HORIZONTAL CENTERING**  
*To correct—Adjust Horizontal Centering Control (screwdriver adjustment) to center picture horizontally*



**Figure 9—INCORRECT VERTICAL CENTERING**  
*To correct—Adjust Vertical Centering Control (screwdriver adjustment) to center picture vertically*



**Figure 10—INCORRECT WIDTH**  
*To correct—Adjust Width Control (screwdriver adjustment) for correct width of picture*



**Figure 11—INCORRECT HEIGHT**  
*To correct—Adjust Height Control (screwdriver adjustment) for correct height of picture*



**Figure 12—INCORRECT VERTICAL LINEARITY**—(Circles flattened at bottom)  
*To correct—Turn Vertical Linearity Control counterclockwise and Height Control clockwise (screwdriver adjustments)*



**Figure 13—INCORRECT VERTICAL LINEARITY**—(Circles flattened at top)  
*To correct—Turn Vertical Linearity Control clockwise and Height Control counterclockwise (screwdriver adjustments)*

The adjustments shown above should be made at time of installation by television technician—see page 15.



3. **Vertical Linearity.**—The third control is operated in conjunction with the Height Control, No. 4, to give the correct vertical proportions to the picture. It may require readjustment due to changing of the Height Control and due to the gradual ageing of the tubes. See Figures 12 and 13. If the picture fills the frame but is crowded near the top, turn Vertical Linearity control clockwise and Height Control counterclockwise. If crowded towards the bottom, turn these two controls in the reverse directions.

4. **Height.**—The fourth control determines the height of the picture and is adjusted in conjunction with Vertical Linearity when the receiver is installed. Further adjustment will occasionally be necessary in order to compensate for the gradual reduction in vertical deflection with tube life. See Figure 11.

5. **Vertical Centering.**—The screwdriver adjustment at the right of the row serves to center the picture vertically on the Kinescope screen and is made at the time of installation. It will require resetting whenever the receiver location is changed, the cabinet turned around, or the Kinescope replaced. See Figure 9.