

INSTALLATION NOTES RHMJ-185

GENERAL  **ELECTRIC**

TELEVISION RECEIVER

MODEL HM-185



INSTALLATION NOTES

GENERAL ELECTRIC COMPANY

RADIO AND TELEVISION DEPARTMENT, BRIDGEPORT, CONNECTICUT

INSTALLATION INSTRUCTION FOR TELEVISION RECEIVER

MODEL HM-185

UNPACKING

The unpacking and installation adjustments should be performed only by a competent television service engineer. This service will either be furnished or recommended by your local dealer.

The picture tube and its metal shield are packed in separate cardboard cartons which in turn are packed in the speaker baffle section of the cabinet. Special care must be exercised when unpacking the picture tube. It is a high-vacuum tube and requires special handling by someone familiar with such apparatus. The large end of the picture-tube bulb—particularly that part at the rim of the viewing surface—must not be struck, scratched, or subjected to more than a moderate pressure. Such damage is most likely to occur when the tube is being mounted in the set or when the socket is being attached.

Picture-tube Installation

To reach the picture tube remove the cabinet back cover and take out the two cartons containing the picture tube and shield. Continue with the unpacking by removing all shipping material, cloth tape, the envelope containing the instruction pamphlet and television registry card, and the carton containing the 879-2X2 rectifier tube and knobs. Unscrew the bolts which hold the upper semicircular picture-tube clamp in position and set clamp and screws to one side while getting the picture tube ready to mount. Unpack the metal shield jacket from its separate packing carton and remove the black rubber spacing ring from the narrow end. Next very carefully unpack the picture tube. Gloves and goggles should be worn while handling this tube. Pick up the metal shield and slip the large end of the shield very carefully over the narrow end of the picture tube so that the picture tube comes to rest on all of the rubber cushions. Now slip the black rubber spacing ring over the narrow neck of the tube and slide it along until it fits securely into the end of the metal shield. Lift the picture-tube and shield assembly into mounting position with the face of the tube resting in the cushion and the neck of the shield resting in the supporting clamp. Place the semicircular portion of the clamp previously removed on the shield neck over the supporting clamp and fasten the complete assembly into place with the bolts. When the bracket has been partially tightened down, adjust the picture tube and shield so that the face of the bulb fits snugly against the rubber gasket of the window. Complete the tightening operations.

Lightly press the picture-tube socket on the base of the tube. If the socket sticks and fails to slip on the tube base, the cause of the trouble should be investigated and removed. The socket should never be forced. The picture tube will probably have to be revolved

to give an upright image after a test picture has been received. In general, the green cloth-covered wire running from the rear of the picture-tube socket should be slightly to the right of top center.

Tubes

Unpack the 879-2X2 high-voltage rectifier tube from the cardboard carton which was removed from the inside of the cabinet in a previous step. Place the rectifier in the proper socket as shown on the label. Make sure the molded grid cap is securely clipped in place on top of the tube. Make certain that all tubes are in place and pressed down firmly in their sockets; also that the spring connectors of the short flexible grid leads are securely attached to the dome terminals of the proper tubes.

Control Knobs

Place the knobs (found in an envelope in the rectifier-tube packing carton) on the control shafts as shown in Fig. 1. These knobs are easily attached to the control shafts by merely pushing them on.

Replace the back cover on the receiver.

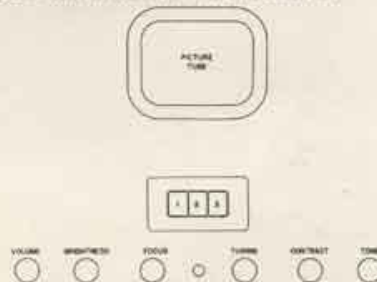


Fig. 1. Front Panel Control Location

LOCATION OF RECEIVER

The best location for this receiver is determined by the following three factors:

1. Locate so that antenna lead-in is as short as possible.
2. Locate conveniently near an a-c. outlet.
3. Locate so that the room illumination in daytime or nighttime can be controlled easily.

If the daylight illumination cannot be controlled easily, do not place the receiver in such a position that the light from a window falls directly on the picture-tube screen. For nighttime use, it is unnecessary to turn out all lights when viewing; however, experimenting with shaded lamps in the background to give the best effect without eyestrain will be necessary.

Make sure the receiver has at least a five-inch air space in back so that adequate ventilation will be assured.

GROUND CONNECTION

At no time should the receiver power be turned on unless a good ground connection is made to the "G" terminal on the antenna-ground terminal board (see Fig. 2). This is absolutely necessary to avoid possible harm from an electric shock. It should be as short and direct as possible, and should preferably be made to a cold-water pipe or to a 5-ft length of pipe driven in moist ground.

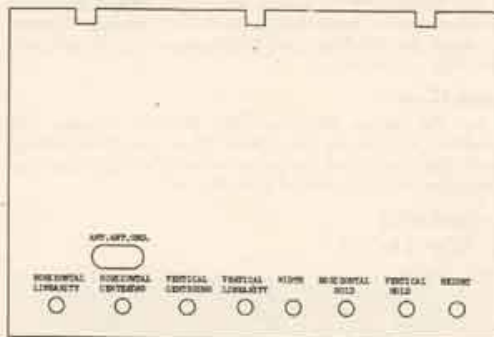


Fig. 2. Rear Cover Terminal and Control Location

ANTENNA INSTALLATION

Unlike the ordinary broadcast receiver, the proper selection and installation of the antenna is the most important item in assuring good pictures. For this purpose General Electric has developed a television antenna, Model HT-8, which has been designed to insure maximum results with the Model HM-185 television receiver.

Full instructions accompany each antenna and these instructions should be followed very carefully. In general the dipole should be erected with arms parallel to the ground and at right angles to the direction of the television station. If noise or reflection interference exist, it may be better to point the dipole arms in the direction of the interference.

While for the great majority of cases the use of the Model HT-8 television dipole antenna should be entirely adequate, under certain conditions a greater directivity and gain may be required. This may occur when the signal is low or when the effect of some local electrical interference has to be reduced. In this case a special reflector Model HT-8R should be used in conjunction with the dipole. The addition of this reflector gives the antenna directional properties, by increasing the signal pick-up in one direction and decreasing it in the other. The reflector therefore can be used to increase signal voltage to the receiver, and to reduce interference. This applies even in cases where the signal strength is so great that an antenna pad has to be used with the receiver. Increasing the signal strength as much as possible then reducing it with pads, will naturally increase the signal-to-noise ratio.

The transmission line is connected to terminals 1 and 2 on the antenna terminal board. Terminal "G" as mentioned previously should be connected to a good ground.

After a picture is being received the antenna should be turned until the best picture is noted; then fastened for a permanent installation.

Antenna Pads

In regions of very high signal strength it is often desirable to use an antenna pad to cut down the signal strength and prevent receiver overloading. General Electric antenna pads are available with the following attenuation characteristics:

- General Electric HM-10 . . . 10 db
- General Electric HM-20 . . . 20 db
- General Electric HM-30 . . . 30 db
- General Electric HM-40 . . . 40 db

These are installed by merely connecting them between the antenna twisted lead-in wires and the receiver 1 and 2 terminals.

CONTROLS

There are two sets of controls used for adjusting the picture details on this receiver. They are the normal operating controls (see Fig. 1), and the preset or occasional adjustment controls (see Fig. 2).

OPERATING CONTROLS

Immediately beneath the picture tube are the operating controls necessary to tune this receiver to the frequency band desired and to adjust the vision receiver for maximum results. These controls consist of six knobs and three television channel keys. The location and names of the controls are shown in Fig. 1.

Power Control

Power is turned "on" by turning the brightness control in the clockwise direction. To turn power "off," merely turn this control to the extreme counterclockwise position.

Volume Control

When this control is in the extreme counterclockwise position, the volume of the sound receiver will be at a minimum. By clockwise rotation, volume may be increased to any degree until the full output of the sound receiver is obtained.

Tone Control

This control changes the audio response of the sound receiver and is continuously variable from bass (counterclockwise) to full range.

Program Keys

Each of the three station keys tune to a separate television program channel. The keys are numbered in Fig. 1 and the assigned channel frequency is as follows:

KEY NUMBER	FREQUENCY BAND
1	44-50 M.C.
2	50-56 M.C.
3	66-72 M.C.

To tune for a particular program channel, merely press the desired station key until it clicks into position. (Note—each key, when pressed, locks in a depressed position until another key is pressed.) This tuning operation sets the tuned circuits approximately. For final adjustment, the vernier tuning adjustment, described in the following paragraph, must be properly made.

Tuning Control

The program keys select the television frequency band and tune the receiver approximately. Correct tuning is essential for good picture detail and tonal reproduction. Therefore, a tuning control is provided for final adjustment.

Turn the volume control about halfway on. Adjust the tuning control to that point where the tonal response of the sound output is the clearest. This tuning point automatically insures a best vision adjustment of tuning. Should adjustment of the tuning control produce excessive sound volume, reduce the volume control—never reduce volume by detuning.

Contrast Control

As the name suggests this control adjusts the black and white shades of the picture being received by changing the sensitivity of the receiver. Turn this control up until the picture remains still on the screen. Too much contrast is apparent when the picture is lacking in detail in black and white. Too little contrast is apparent when the picture appears faded, being composed entirely of grays. See Figs. 4 and 5.

Brightness Control

This control regulates the brilliancy of the received picture. Turning clockwise increases the brightness. A too brilliantly lit screen will often result in a loss of detail and it is advisable to strike a proper balance between the contrast and brightness-control settings. See Figs. 4 and 5.

Focus Control

As the name implies, this control focuses the received picture on the screen. It is merely necessary to set the control at the point which gives the sharpest definition in the picture (see Fig. 6).

PICTURE ADJUSTMENTS WITH OPERATING CONTROLS



FIG. 3. CORRECT ADJUSTMENTS



FIG. 5. LOW CONTRAST, EXCESSIVE BRIGHTNESS



FIG. 4. EXCESSIVE CONTRAST, LOW BRIGHTNESS

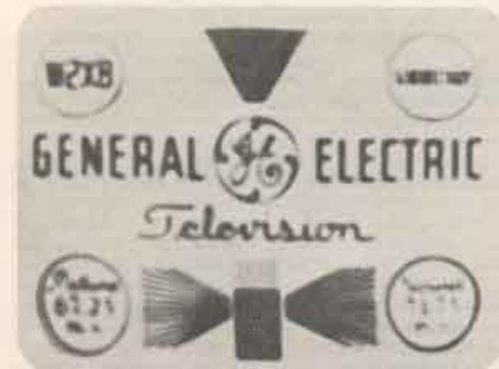


FIG. 6. INCORRECT FOCUS ADJUSTMENT

PICTURE ADJUSTMENTS WITH PRESET CONTROLS

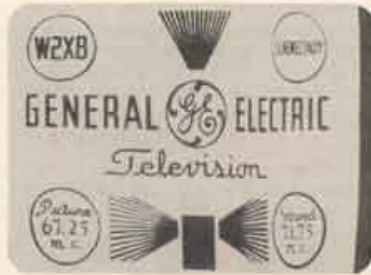


FIG. 7. INCORRECT SETTING OF HORIZONTAL LINEARITY CONTROL



FIG. 11. INCORRECT SETTING OF WIDTH CONTROL



FIG. 8. INCORRECT SETTING OF HORIZONTAL CENTERING CONTROL

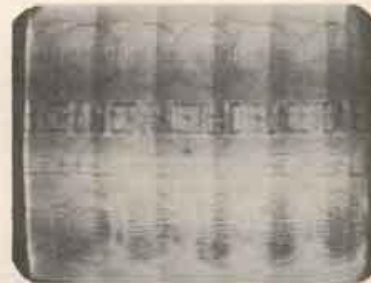


FIG. 12. INCORRECT SETTING OF HORIZONTAL HOLD CONTROL



FIG. 9. INCORRECT SETTING OF VERTICAL CENTERING CONTROL



FIG. 13. INCORRECT SETTING OF VERTICAL HOLD CONTROL



FIG. 10. INCORRECT SETTING OF VERTICAL LINEARITY CONTROL



FIG. 14. INCORRECT SETTING OF HEIGHT CONTROL

PRESET (Occasional Adjustment) CONTROLS

The preset controls are located on the rear of the receiver chassis (identity shown in Fig. 2) and are available through holes provided in the protective cover. Slotted control shafts allow ease in adjustment by means of a screw driver.

These controls are adjusted for maximum performance at the factory and should require very little attention over a long period of time. Study the illustrations on page 5 for maladjustments and means of remedy.

Horizontal Linearity

The extreme left-hand control (from back) adjusts the picture for correct horizontal proportions. A maladjustment shows up as either crowding of the right or left side of the picture. The adjustment of this control should be made along with the width control as they have a tendency to react on each other (see Fig. 7).

Horizontal Centering

The horizontal-centering control moves the picture either to the left or right in a horizontal direction. Proper adjustment is indicated when the picture is centered on the screen. Fig. 8 shows the effect of an incorrect setting of this control.

Vertical Centering

This control moves the picture either up or down in a vertical direction. Proper adjustment is indicated when the picture is centered in a vertical direction on the screen. An improper adjustment of this control is shown in Fig. 9.

Vertical Linearity

The fourth control from the left gives the proper vertical proportions to the picture. Improper adjustment will either crowd the lower or upper half of the picture (see Fig. 10). This adjustment will throw off the height so as to necessitate the adjustment of the height control.

Width

The width control changes the horizontal size of the picture (see Fig. 11). Adjust the width of the picture so that it just fills up the mask of the picture tube in the horizontal direction.

Horizontal Hold

The horizontal hold, or horizontal speed control, locks the picture in synchronism with the transmitted picture. Improper adjustment will either result in the loss of intelligence of the received picture or will cause it to "tear out" in a horizontal direction (see Fig. 12).

Vertical Hold

The vertical hold, or vertical speed control, locks the received picture in synchronism with the transmitted picture in the vertical direction. Incorrect adjustment of this control will cause the picture to lose frame or flicker badly (see Fig. 13).

Height

The height of the picture is changed by extreme right-hand control. Correct adjustment is indicated when the borders of the picture just fill up the picture-tube mask in the vertical direction (see Fig. 14).

