



MASTER

RCA VICTOR

INSTRUCTIONS

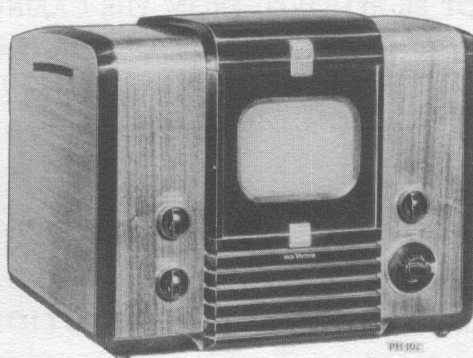
COVERING

UNPACKING, ASSEMBLY, ADJUSTMENT AND OPERATION

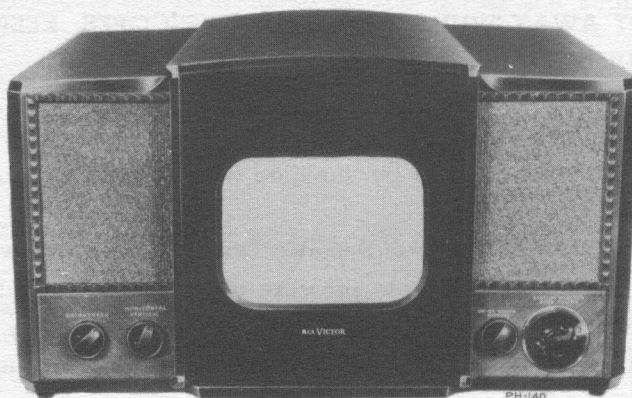
OF

MODELS 621TS AND 630TS

TELEVISION RECEIVERS



Model 621TS



Model 630TS

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION, CAMDEN, N. J., U. S. A.

TABLE OF CONTENTS

	Page
Operating Instructions for Model 621TS	4
Operating Instructions for Model 630TS	5
Unpacking and Installation Instructions for Model 621TS	17
Unpacking and Installation Instructions for Model 630TS	6
Photographs of picture faults caused by misadjustments.....	26
Photographs of picture faults caused by interference	31

HIGH VOLTAGE WARNING

MODEL 621TS AND 630TS TELEVISION RECEIVERS CAN BE SET UP WITHOUT DANGER OF SHOCK FROM THE RECEIVER HIGH VOLTAGE SUPPLIES PROVIDED THE INSTRUCTIONS ARE FOLLOWED.

THE RECEIVER CHASSIS SHOULD NOT BE REMOVED FROM THE CABINET AS THIS WILL EXPOSE THE RECEIVER WIRING FROM WHICH A DANGEROUS SHOCK CAN BE OBTAINED. IN HANDLING THE HIGH VOLTAGE LEAD TO THE KINESCOPE (FIGURES 16 AND 17 OR FIGURES 40 AND 41) THE RECEIVER POWER PLUG SHOULD BE DISCONNECTED FROM THE POWER MAINS.

KINESCOPE HANDLING PRECAUTIONS

DO NOT OPEN THE KINESCOPE SHIPPING CARTON, INSTALL, REMOVE OR HANDLE THE KINESCOPE IN ANY MANNER UNLESS SHATTERPROOF GOGGLES AND HEAVY GLOVES ARE WORN. PEOPLE NOT SO EQUIPPED SHOULD BE KEPT AWAY WHILE HANDLING KINESCOPES. KEEP THE KINESCOPE AWAY FROM THE BODY WHILE HANDLING.

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

The large end of the kinescope bulb—particularly that part at the rim of the viewing surface—must not be struck, scratched or subjected to more than moderate pressure at any time. In installation, if the tube sticks or fails to slip smoothly into its socket, or deflecting yoke, investigate and remove the cause of the trouble. Do not force the tube. Refer to the Receiver Installation section for detailed instructions on kinescope installation.

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

GENERAL DESCRIPTION

The RCA Victor Models 621TS and 630TS are table model Television Receivers. The 621TS employs a twenty-one tube receiver chassis with a seven inch kinescope (picture tube). The 630TS employs a thirty tube receiver chassis with a ten inch kinescope. Each receiver is complete in one unit and each is operated by the use of seven front panel controls.

RECEIVER LOCATION

Consideration should be given to the importance of placing the receiver in the proper location in the room.

The location should be chosen—

Away from bright windows and so that no bright light will fall directly on the screen. (Some illumination in the room is desirable however.)

To give easy access for operation and comfortable viewing.

To permit convenient connection to the antenna.

Convenient to an electrical outlet.

To allow adequate ventilation.

VIEWING DISTANCE

The receiver should be located so as to permit viewing from the proper distance. The general tendency of the spectator is to view too close to the receiver. The picture will appear clearer if observed from six to ten feet from the screen.

RECEIVER SUPPORT

A complete 621TS receiver weighs approximately 60 pounds and a 630TS receiver approximately 85 pounds. This represents a considerably greater load than can usually be placed on the average small table. Only a very sturdy table or other object should be used to support the receiver. Due to the weight of the receiver, the cabinet should not be dragged or slid across the supporting table as damage to the table finish may result.

In handling, the receivers should always be picked up from under the bottoms as lifting by the top would tend to pull the cabinets apart.

VENTILATION CAUTION

The receivers are provided with adequate ventilation holes in the bottom, back and top of the cabinet. Care should be taken not to allow these holes to be covered or ventilation impeded in any way.

INTERFERENCE

Under some conditions, interference may be present in the picture. Interference is not a receiver fault. For a discussion of interference, see page 31 and Figures 72 through 76.

OPERATING INSTRUCTIONS FOR MODEL 621TS

The following adjustments are necessary when turning the receiver on for the first time.

1. Set the STATION SELECTOR to the desired channel.

2. Turn the receiver "ON" and advance the SOUND VOLUME control to approximately mid-position.

3. Turn the PICTURE control fully counterclockwise.

4. Turn the BRIGHTNESS control clockwise, until a glow appears on the screen then counterclockwise until the glow just disappears.

5. Turn the PICTURE control clockwise until a glow or pattern appears on the screen.

6. Adjust the FINE TUNING control for best sound fidelity and SOUND VOLUME for suitable volume.

7. Adjust the VERTICAL hold control until the pattern stops vertical movement.

8. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

9. Adjust the PICTURE control for suitable picture contrast.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.

11. In switching from one station to another, it may be necessary to repeat steps number 6 and 9.

12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 6 is generally sufficient.

13. If the positions of the controls have been changed, it may be necessary to repeat steps number 1 through 9.

NOTE: If any difficulty is experienced with steps number 7 or 8, turn the PICTURE control slightly counterclockwise and repeat those adjustments.

OPERATING INSTRUCTIONS FOR MODEL 630TS

The following adjustments are necessary when turning the receiver on for the first time.

1. Set the STATION SELECTOR to the desired channel.

2. Turn the receiver "ON" and advance the SOUND VOLUME control to approximately mid-position.

3. Turn the PICTURE control fully counterclockwise.

4. Turn the BRIGHTNESS control clockwise, until a glow appears on the screen then counterclockwise until the glow just disappears.

5. Turn the PICTURE control clockwise until a glow or pattern appears on the screen.

6. Adjust the FINE TUNING control for best sound fidelity and SOUND VOLUME for suitable volume.

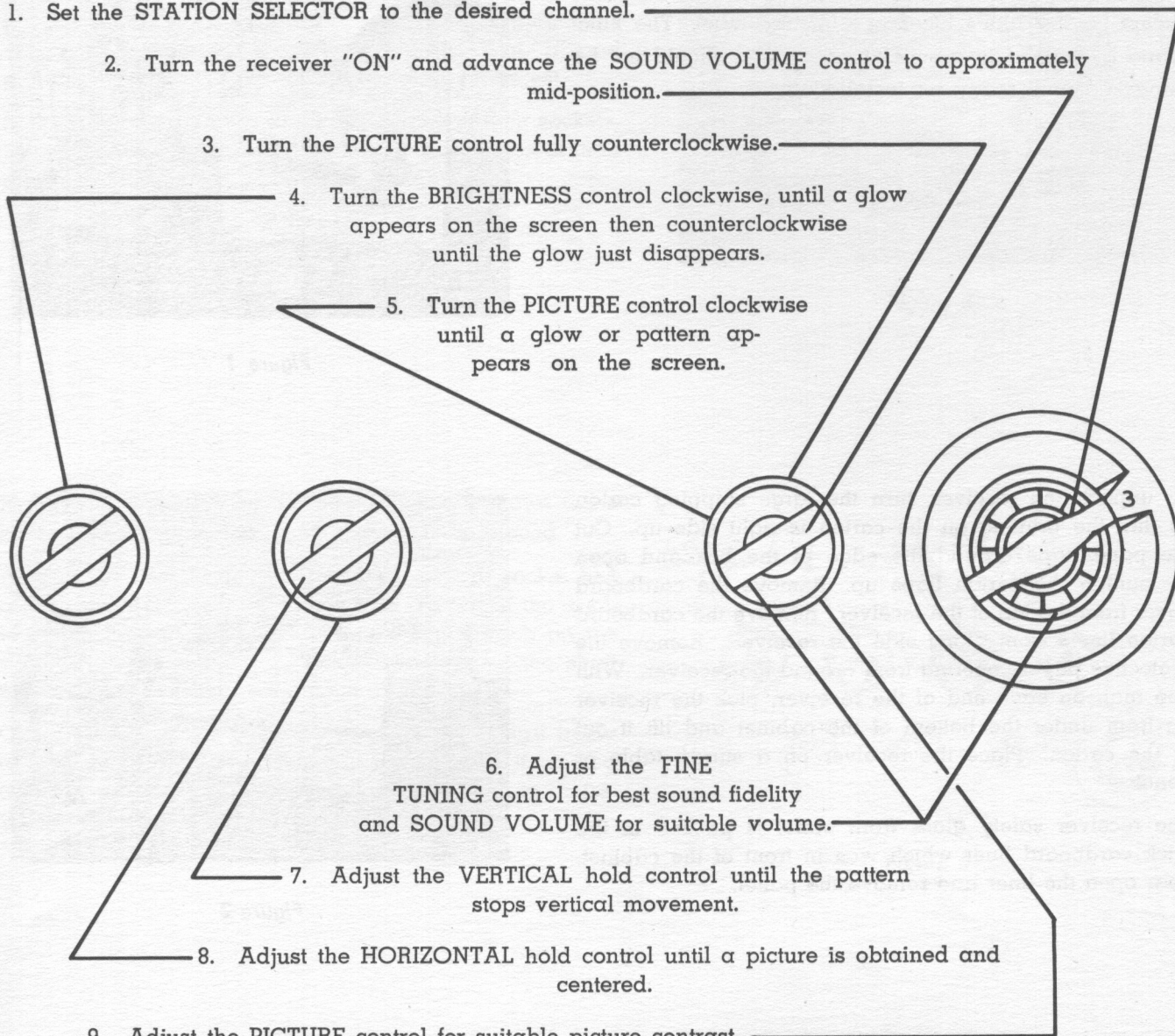
7. Adjust the VERTICAL hold control until the pattern stops vertical movement.

8. Adjust the HORIZONTAL hold control until a picture is obtained and centered.

9. Adjust the PICTURE control for suitable picture contrast.

10. After the receiver has been on for some time, it may be necessary to readjust the FINE TUNING control slightly for improved sound fidelity.
11. In switching from one station to another, it may be necessary to repeat steps number 6 and 9.
12. When the set is turned on again after an idle period, it should not be necessary to repeat the adjustments if the positions of the controls have not been changed. If any adjustment is necessary, step number 6 is generally sufficient.
13. If the positions of the controls have been changed, it may be necessary to repeat steps number 1 through 9.

NOTE: If any difficulty is experienced with steps number 7 or 8, turn the PICTURE control slightly counterclockwise and repeat those adjustments.



INSTALLATION INSTRUCTIONS FOR MODEL 630TS

The 630TS receiver is shipped complete in one carton except for the 10BP4 kinescope (picture tube). The kinescope is shipped in a special carton and should not be unpacked until ready for installation.



Figure 1

To unpack the receiver, turn the large shipping carton so that the printing on the carton is right side up. Cut the paper tape around the edge of the box and open by pulling the carton flaps up. Remove the cardboard cover from the top of the receiver. Remove the cardboard carton liners from along side the receiver. Remove the protective paper covering from around the receiver. With one man on each end of the receiver, pick the receiver up from under the bottom of the cabinet and lift it out of the carton. Place the receiver on a sturdy table or bench.

The receiver safety glass front panel is packed in the thick cardboard liner which was in front of the cabinet. Tear open the liner and remove the panel.

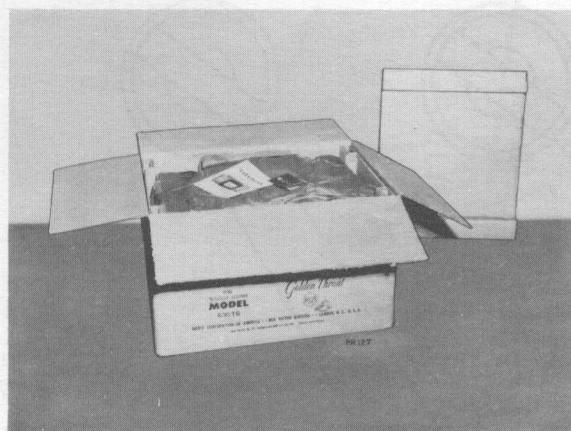


Figure 2

Remove the cabinet top by removing the two screws shown at "A" in Figure 3, sliding the top back and then lifting up. Loosen the back plate screws at "B" and remove the cardboard at "C" from under the plate. Tighten the screws at "B."

Do not move any of the back chassis controls except as instructed. These controls have been set to approximately the correct position and any movement of the controls will require additional readjustments during the setting up procedure.

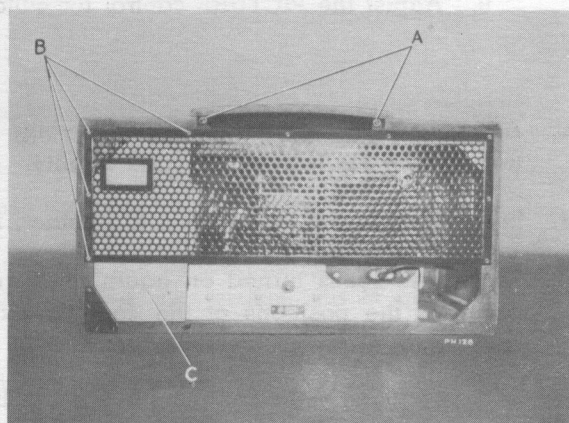


Figure 3

Remove the rubber band and unwrap the ion trap magnet and kinescope socket at "D." Remove the rectifier protective cardboard shield at "E". Remove the cord at "F". Remove the paper bag at "G" which contains the front panel control knobs and two screws used to mount the cabinet front panel. Remove the rubber band at "H" and pull the receiver power cord out the back of the set.

Make sure that all tubes are firmly seated in their sockets. However, do not wiggle the miniature glass tubes in their sockets. To seat them, press straight down.

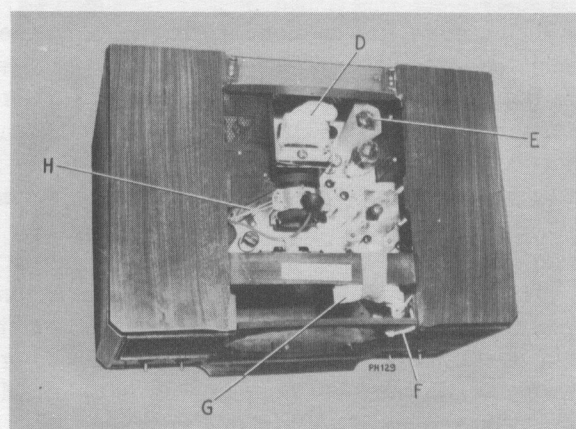


Figure 4

Remove the knobs from the bag. Figure 5 shows these knobs and the shafts on which they must be placed.

As may be seen, each shaft and knob shaft socket has a flat side. To install the knobs turn the flat of the knob to match the flat of the shaft and slide the knob on the shaft. In each case, the knob shown nearest the shaft must be installed before the outer knob.

Operate all controls to assure that the knobs turn freely and do not bind on the cabinet or each other. If binding does occur, slide the offending knob backwards or forwards on the shaft until it turns freely.

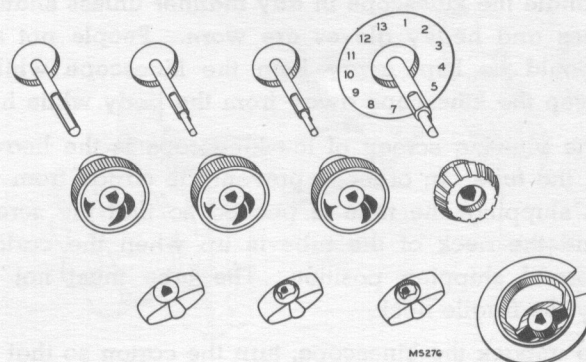


Figure 5

Loosen the two thumbscrews at "I" in Figure 6 and slide the kinescope cushion toward the rear of the cabinet.

Loosen the thumbscrew at "J," slide the deflection yoke towards the rear of the cabinet and tighten.

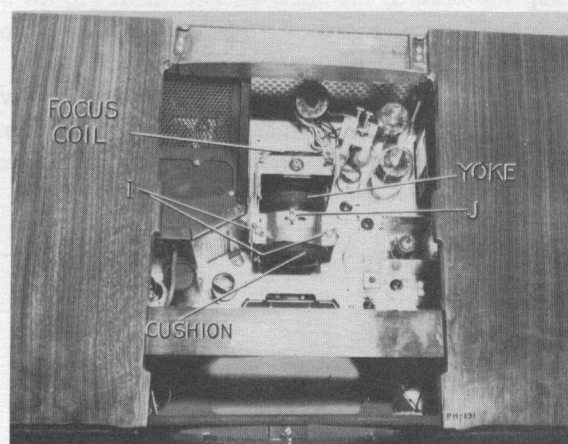


Figure 6

The kinescope has a slender, fragile glass neck which must be inserted from the front of the cabinet through the deflection yoke and the focus coil. In order to insure that the tube can be inserted with a minimum of strain placed on this glass neck, the opening in the focus coil must be lined up with the opening in the deflection coil. To check the alignment of the focus coil with the yoke, look through the front of the cabinet as shown in Figure 7. The yoke and focus coil are shown in line. If the opening is blocked by the focus coil, loosen the thumb-screws shown at "K" in Figure 8. Raise, lower or rotate the focus coil until a clear opening is obtained. Tighten the thumbscrews at "K" in this position.

Loosen the two screws at "L," raise the kinescope centering slides at "M" to approximately mid-position and tighten the screws.

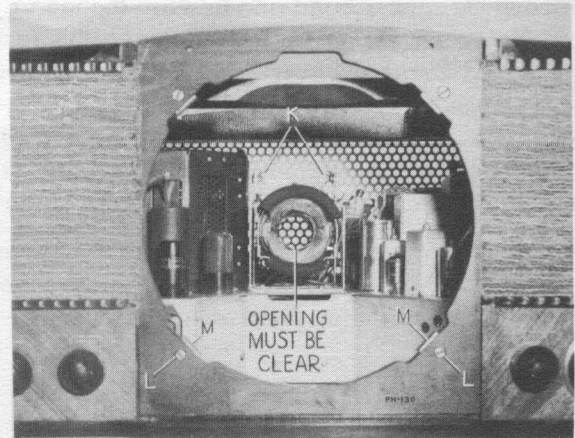


Figure 7

Do not open the kinescope shipping carton, install, remove or handle the kinescope in any manner unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away from the kinescope while handling. Keep the kinescope away from the body while handling.

The viewing screen of the kinescope is the heaviest portion of the tube. In order to prevent the carton from tipping over in shipping, the tube is packed so that the screen is down and the neck of the tube is up when the carton is in the normal shipping position. The tube must not be handled by the fragile neck.

To unpack the kinescope, turn the carton so that the lettering on the carton is upside down, cut the paper tape along the edges and tear open the carton flaps. Remove the cardboard covering from the face of the tube. The tube will then be seen as shown in Figure 8.

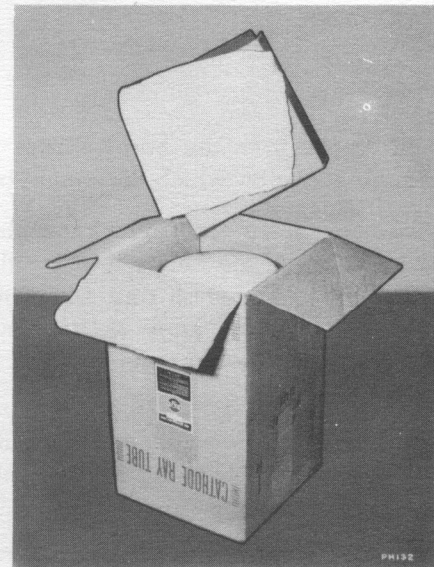


Figure 8

Grasp the side of the tube as shown in Figure 9 and remove the tube from the carton. Place the tube face down on a clean piece of paper on a table.

The kinescope second anode connector (shown at "N" in Figure 9) is a small recessed well in the side of the bulb. The tube must be installed with this connector on top as shown in Figure 10.

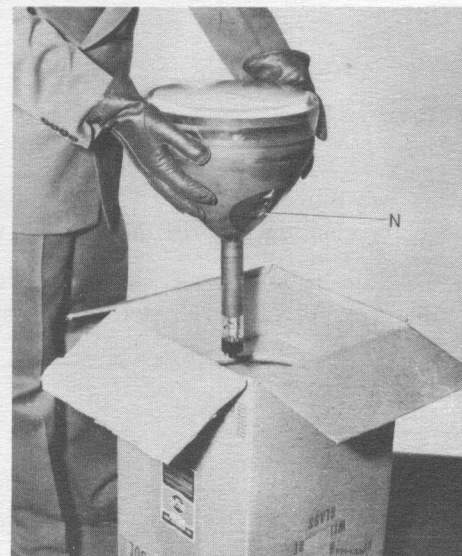


Figure 9

Insert the neck of the kinescope through the deflection and focus coils as shown in Figure 10 until the base on the neck of the tube protrudes approximately 2 inches beyond the focus coil. If the tube sticks or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

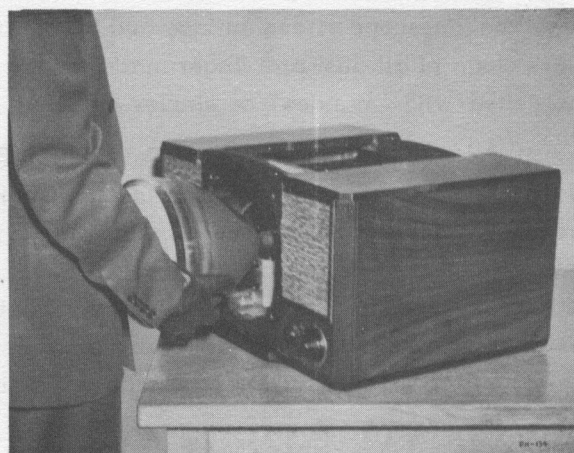


Figure 10

Loosen the thumbscrews at "O" on the ion trap magnet and slip the magnet over the neck of the tube as shown in Figure 11.

The large coil must be towards the rear of the cabinet.

Attach the kinescope socket at "P" to the tube base.

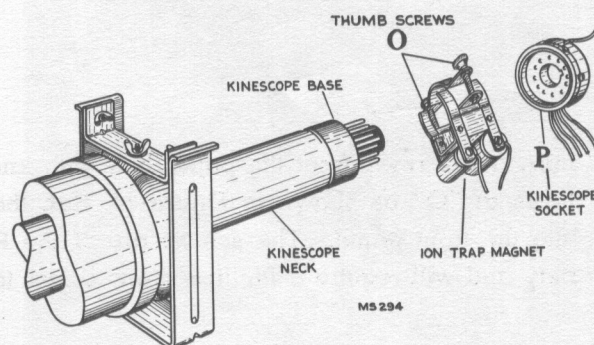


Figure 11

Insert the kinescope until the face of the tube protrudes approximately one-quarter of an inch outside the front of the cabinet.

Adjust the four centering slides at "M" until the face of the kinescope is in the center of the cabinet opening as shown in Figure 12.

Tighten the four screws at "L" securely.

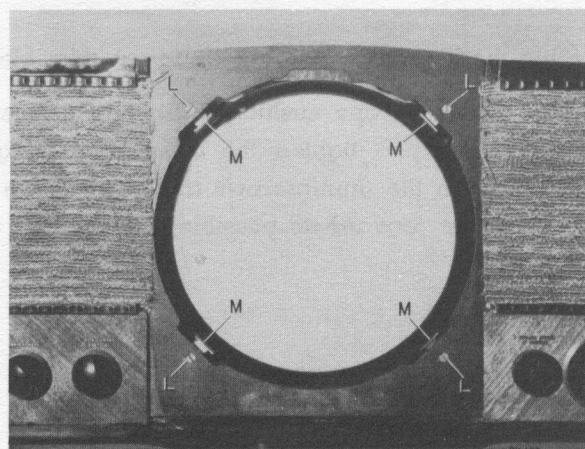


Figure 12

630TS

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks with a soft cloth moistened with "Windex" or similar cleaning agent.

Install the cabinet front panel as shown in Figure 13. Place the tongue on the bottom of the front panel in the groove in the ledge of the cabinet, and "hinge" the panel towards the front of the cabinet. If the panel does not swing smoothly into place, it may be necessary to slightly readjust the kinescope centering slides in order to center the screen of the tube in the recess on the inside of the panel.

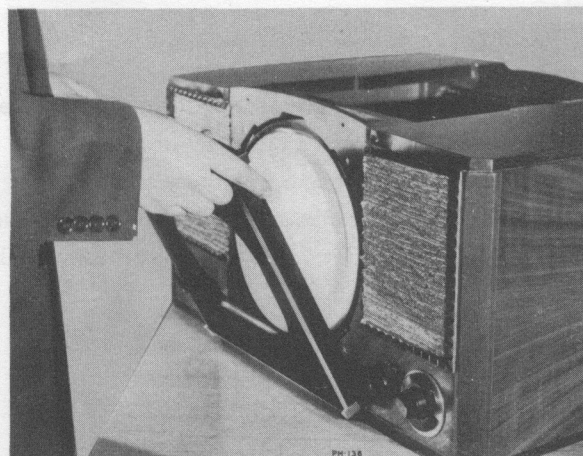


Figure 13

Do not put any pressure on the kinescope while installing the front panel. If the panel does not fit smoothly into place, investigate and remove the cause of the trouble.

Insert the screws (from the paper bag with knobs) in the holes at "Q" as shown in Figure 14. Run these screws into the front panel. The screws are of the Phillips variety and will require a Phillips screw driver to insert.

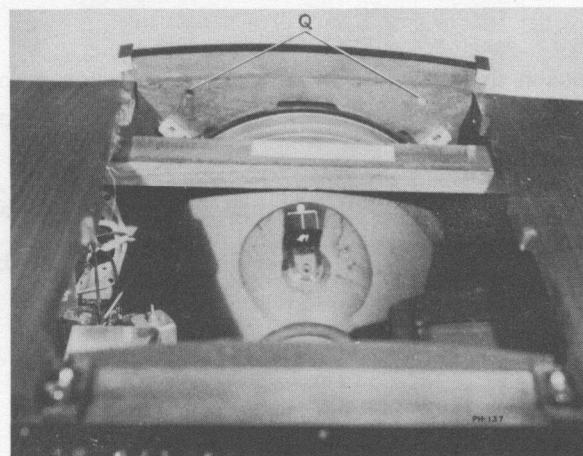


Figure 14

Slide the kinescope forward as far as possible.

Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wingscrews at "I." Loosen the thumbscrews at "J," slide the deflection yoke as far forward as possible and tighten.

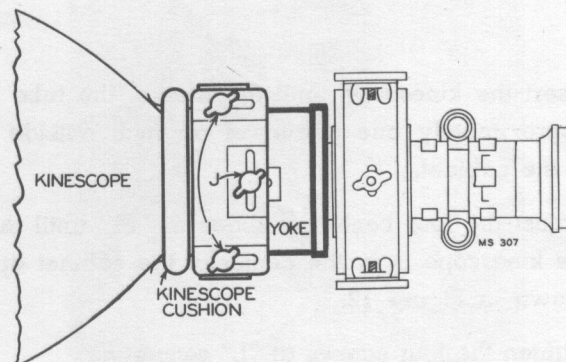


Figure 15

Figure 16 shows a sketch of the kinescope second anode connector and the clip on the high voltage lead. The clip must be inserted into the connector.

The glass to metal seal of this connector is very delicate and care should be used in making the connection. Only a small amount of pressure should be applied to the connector when inserting the clip. If appreciable pressure is applied, the seal may be fractured, permitting air to leak in the tube thus ruining the kinescope.

If the clip does not slip easily into place, take a pair of pliers and bend the fingers of the clip together slightly in order to facilitate connection.

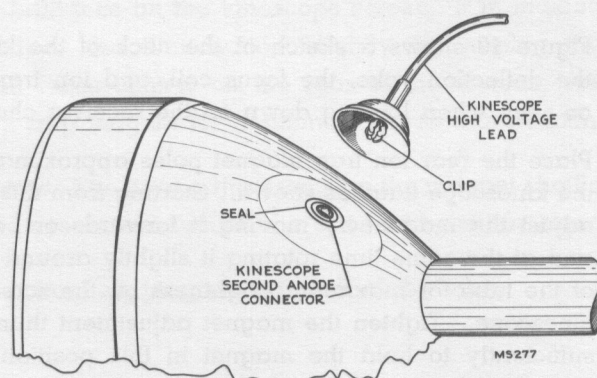


Figure 16

Insert the clip of the high voltage lead into the kinescope second anode connector as shown in Figure 17 observing the precaution mentioned above.

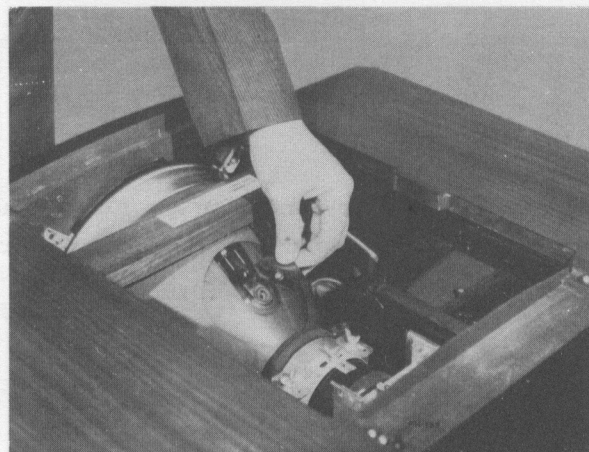


Figure 17

Plug the receiver power cord into a 115 volt, 60 cycle power supply outlet. Turn the power switch to the "on" position, the brightness control fully clockwise and picture control counterclockwise.

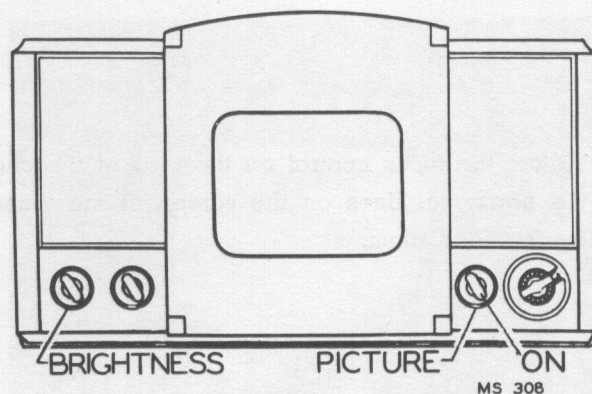


Figure 18

Figure 19 shows a sketch of the neck of the kinescope, the deflection yoke, the focus coil, and ion trap magnet as seen when looking down on the receiver chassis.

Place the rear ion trap magnet poles approximately over the kinescope flags as shown. Starting from this position, adjust the magnet by moving it forwards or backwards and at the same time rotating it slightly around the neck of the tube for maximum brightness on the screen of the kinescope. Tighten the magnet adjustment thumbscrews sufficiently to hold the magnet in this position but still free enough to permit further adjustment.

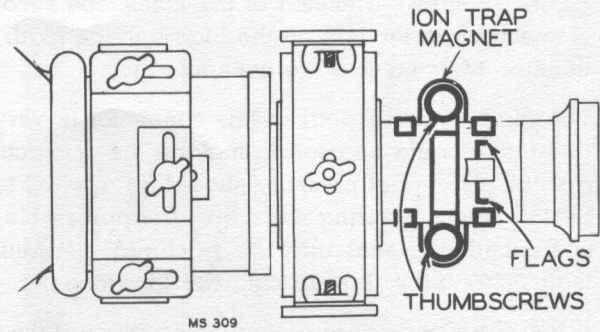


Figure 19

Turn the brightness control on the front of the receiver counterclockwise slightly until the illumination on the screen of the kinescope begins to decrease.

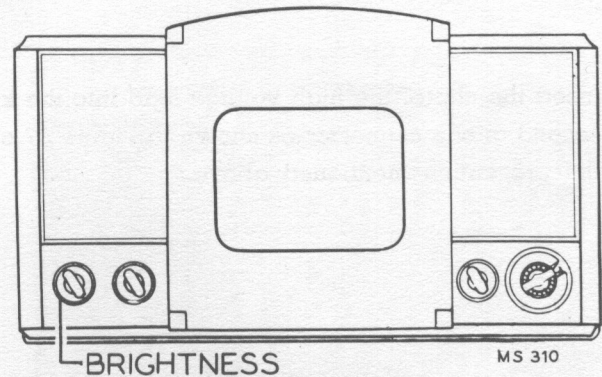


Figure 20

Adjust the focus control on the rear of the chassis until the horizontal lines on the screen of the kinescope are clear and distinct.

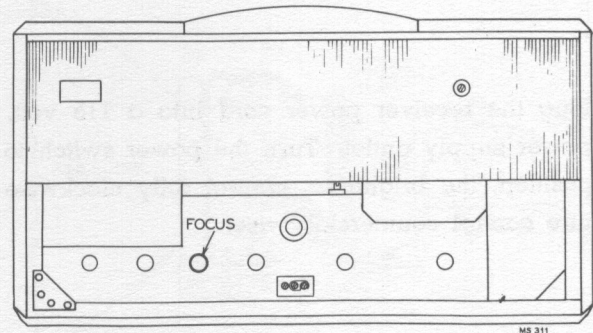


Figure 21

Readjust the ion trap magnet (see Figure 19) for maximum brilliance on the kinescope screen. If in making this adjustment, the lines on the screen become blurred, reduce the illumination slightly by turning the brightness control slightly counterclockwise and readjust the focus control on the rear of the chassis (see Figure 21) until the lines are again clear. Readjust the ion trap magnet for maximum screen illumination.

It may be necessary to repeat the above process several times. The final adjustments on the magnet should be made with the maximum amount of illumination on the screen with which the lines still remain clear.

Tighten the magnet thumbscrews firmly enough to prevent it from slipping on the neck of the tube.

Turn the vertical and horizontal centering controls to the center of their range.

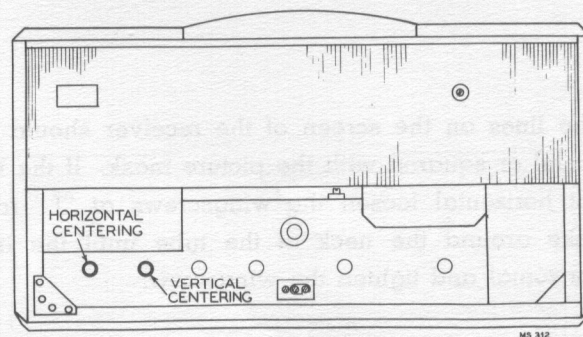


Figure 22

If the illumination on the screen is dark in one of the corners as shown in Figure 23, it is due to misadjustment of the focus coil.

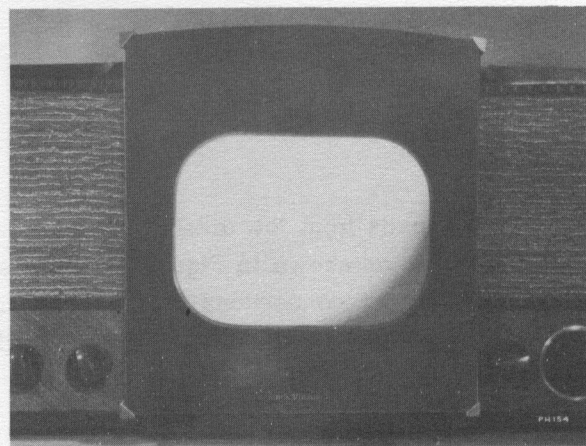


Figure 23

If the kinescope illumination is shadowed as in Figure 23, loosen the three wingnuts at "K" and raise, lower or rotate the focus coil until the shadow on the illumination is removed. When the focus coil is correctly adjusted, the entire screen should be illuminated. If the illumination does not cover the screen, the edges of the illuminated area should be straight and the illuminated area should be approximately centered on the screen.

When the above condition is obtained, tighten the wingnuts with the focus coil in this position.

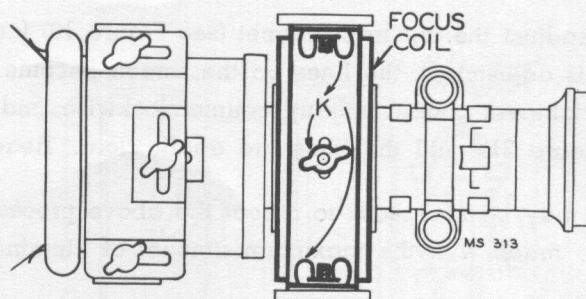


Figure 24

The lines on the screen of the receiver should be horizontal or squared with the picture mask. If the lines are not horizontal loosen the wingscrews at "J," rotate the yoke around the neck of the tube until the lines are horizontal and tighten the wingscrew.

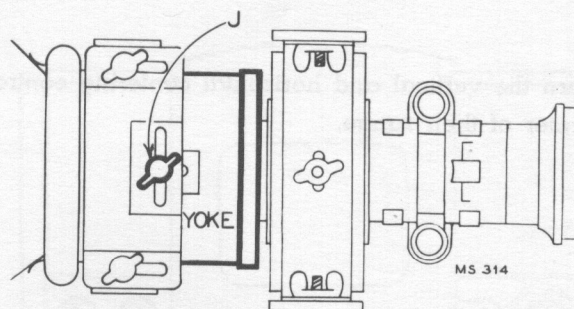


Figure 25

It will now be necessary to obtain a test pattern picture in order to make further adjustments.

Connect the leads from the antenna to the receiver antenna terminals as shown in Figure 26. Care should be taken to make the connections tight and to insure that the leads are not shorted together or to the grill.

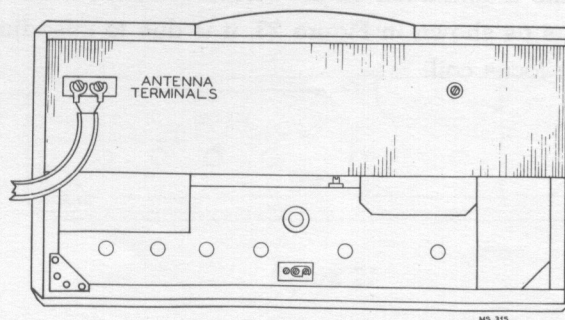


Figure 26

Tune in a television station as follows:

1. Set the **STATION SELECTOR** to the desired channel.
2. Turn the **SOUND VOLUME** to approximately mid-position.
3. Turn the **PICTURE** control fully counterclockwise.
4. Turn the **BRIGHTNESS** control clockwise until a glow appears on the screen then counterclockwise until the glow just disappears.
5. Turn the **PICTURE** control clockwise until a glow or pattern appears on the screen.
6. Adjust the **FINE TUNING** control for best sound fidelity and **SOUND VOLUME** for suitable volume.
7. Adjust the **VERTICAL** hold control until the pattern stops vertical movement.
8. Adjust the **HORIZONTAL** hold control until a picture is obtained and centered.
9. Adjust the **PICTURE** control for suitable picture contrast.

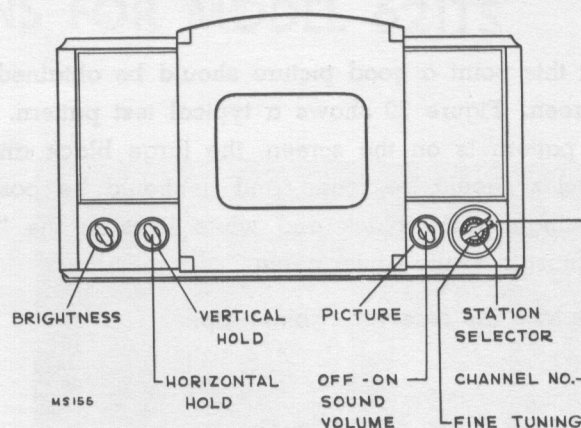


Figure 27

If the **PICTURE** control is properly adjusted, it should be possible in step 8 to obtain a picture regardless of the position of the horizontal hold control.

Turn the **HORIZONTAL** hold control to the extreme counterclockwise position. The picture should remain on the screen. Turn the **HORIZONTAL** hold control to the extreme clockwise position. Again the picture should remain on the screen. If the picture tears out as shown in Figure 71 when the control is at either extreme, turn the control to that extreme and adjust the horizontal frequency adjustment on the rear of the chassis until the picture reappears.

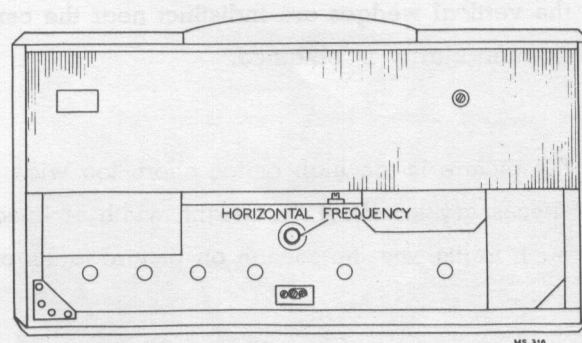


Figure 28

If the picture on the screen is off center vertically as shown in Figure 65, adjust the vertical centering control on the rear of the chassis.

If the picture is off center horizontally as shown in Figure 64, adjust the horizontal centering control on the rear of the chassis.

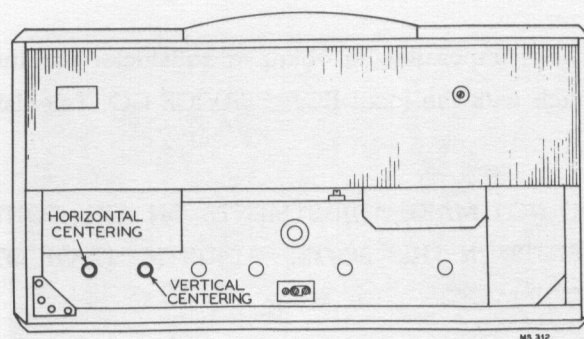


Figure 29

At this point a good picture should be obtained on the screen. Figure 30 shows a typical test pattern. If such a pattern is on the screen, the large black and white circles should be round and it should be possible to distinguish the black and white lines in the "wedge" almost in to the center circle.

Replace the receiver cabinet top.

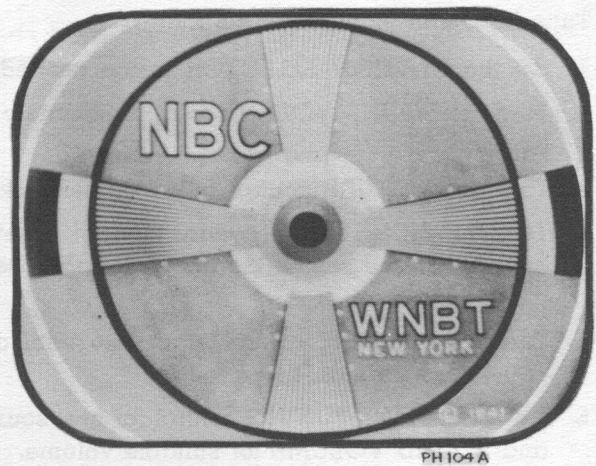


Figure 30

If the vertical wedges are indistinct near the center, adjust the focus control on the rear of the chassis until maximum clarity is obtained.

If the picture is too high or too short, too wide or too narrow, or if the large circles are not round, it will be necessary to adjust the height, width or linearity controls on the rear of the chassis. For the correction of such faults, see the section on picture faults on pages 28 through 30.

Tune in all the television stations operating in the area.

Set the STATION SELECTOR to the desired channel.

Adjust the FINE TUNING control for best sound fidelity.

Adjust the PICTURE control for suitable picture contrast.

If it is impossible to obtain a satisfactory picture on all available stations with these adjustments, get in touch with the local RCA SERVICE CO. Television Shop.

DO NOT MAKE ADJUSTMENTS ON ANY CONTROL UNLESS THAT ADJUSTMENT IS SPECIFICALLY DIRECTED IN THIS BOOK. ADJUSTMENT OF OTHER CONTROLS REQUIRES THE USE OF SPECIAL TEST EQUIPMENT.

INSTALLATION INSTRUCTIONS FOR MODEL 621TS

The 621TS receiver is shipped complete in one carton except for the 7DP4 kinescope (picture tube). The kinescope is shipped in a special carton and should not be unpacked until ready for installation.



Figure 31

To unpack the receiver, turn the large shipping carton so that the printing on the carton is right side up. Cut the paper tape around the top edge of the carton and open the box by pulling the flaps up. Remove the cardboard cover from the top of the receiver. Remove the cardboard carton liners from along side the receiver. Remove the protective paper covering from around the receiver. With one man on each end of the receiver, pick the receiver up from under the bottom of the cabinet and lift it out of the carton. Place the receiver on a sturdy table or bench.

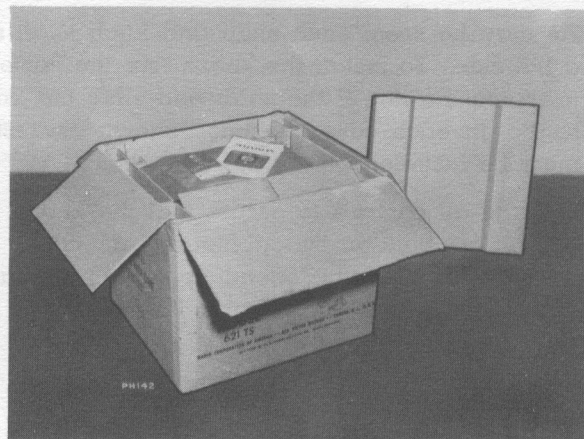


Figure 32

Remove the metal grill from the back of the cabinet by removing the screws shown at "B" in Figure 33.

Do not move any of the back chassis controls except as instructed. These controls have been set to approximately the correct position and any movement of the controls will require additional readjustments during the setting up procedure.

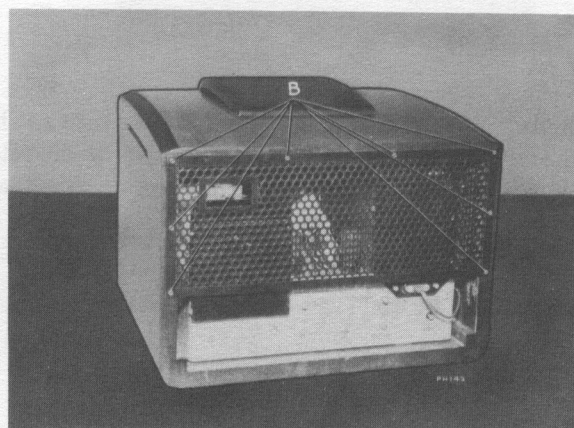


Figure 33

Remove the rubber band and unwrap the ion trap magnet and kinescope socket at "D." Remove the rectifier protective cardboard shield at "E." Remove the paper bag at "G" containing the front panel control knobs.

Make sure that all tubes are firmly seated in their sockets. However, do not wiggle the miniature glass tubes in their sockets. To seat them press straight down.

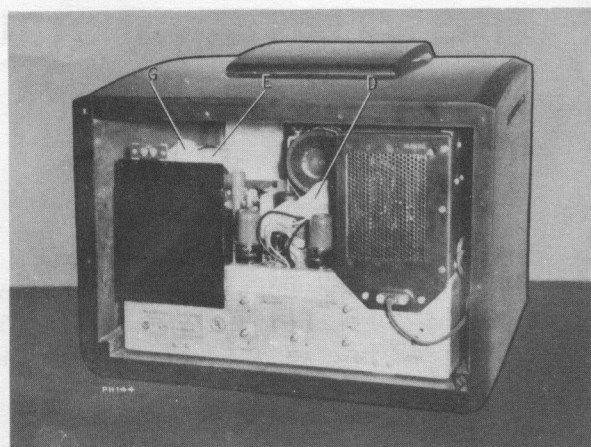


Figure 34

Remove the knobs from the bag. Figure 35 shows these knobs and the shafts on which they must be placed.

As may be seen, each shaft and knob shaft socket has a flat side. To install the knobs turn the flat of the knob to match the flat of the shaft and slide the knob on the shaft. In each case, the knob shown nearest the shaft must be installed before the outer knob.

Operate all controls to assure that the knobs turn freely and do not bind on the cabinet or each other. If binding does occur, slide the offending knob backwards or forwards on the shaft until it turns freely.

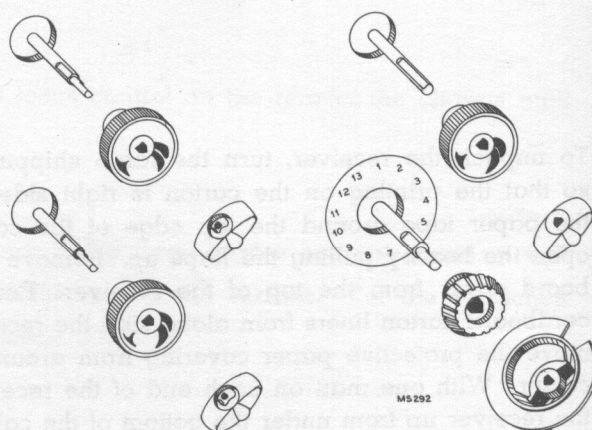


Figure 35

Remove the slides in the ornamental bracket by slipping them to one side as shown in Figure 36. Remove the two Phillips screws at "Q" under each slide. Remove the cabinet front panel.

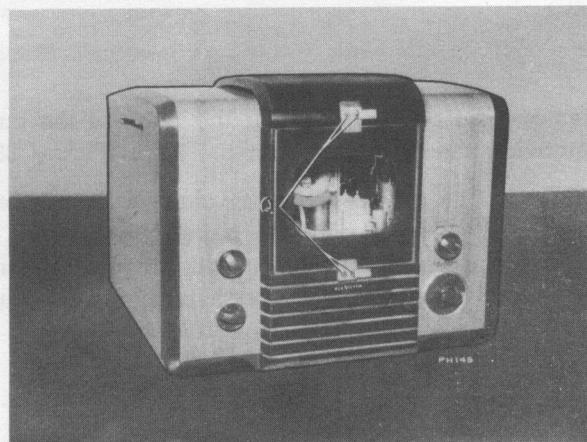


Figure 36

The kinescope has a slender, fragile glass neck which must be inserted from the front of the cabinet through the deflection yoke. In order to insure that the tube can be inserted with a minimum of strain placed on this glass neck, the opening in the center of the deflection yoke must be free of obstructions. From the front of the cabinet look through the yoke to make sure that the opening is clear.

Loosen the two thumbscrews at "T" and slide the kinescope cushion toward the rear of the cabinet.

Loosen the thumbscrews at "J," slide the deflection yoke towards the rear of the cabinet and tighten.

Loosen the screws at "L," raise the kinescope centering slides at "M" to mid-position and tighten the screws.

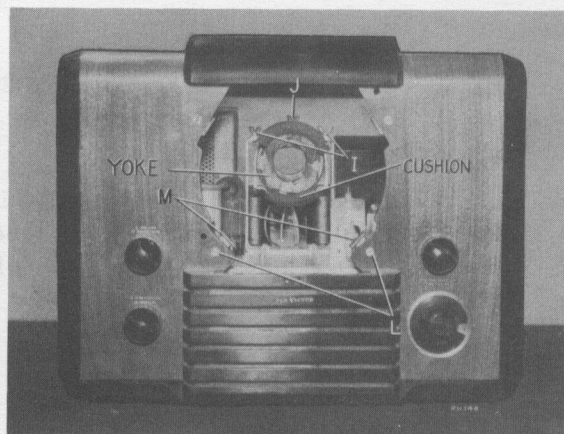


Figure 37

Do not open the kinescope shipping carton, install, remove or handle the kinescope in any manner unless shatterproof goggles and heavy gloves are worn. People not so equipped should be kept away from the kinescope while handling. Keep the kinescope away from the body while handling.

The viewing screen of the kinescope is the heaviest portion of the tube. In order to prevent the carton from tipping over in shipping, the tube is packed so that the screen is down and the neck of the tube is up when the carton is in the normal shipping position. The tube must not be handled by the fragile neck.

To unpack the kinescope, turn the carton so that the lettering on the carton is upside down, cut the paper tape around the edges and tear open the carton flaps. Remove the cardboard covering from the face of the tube. The tube will then be seen as shown in Figure 38.

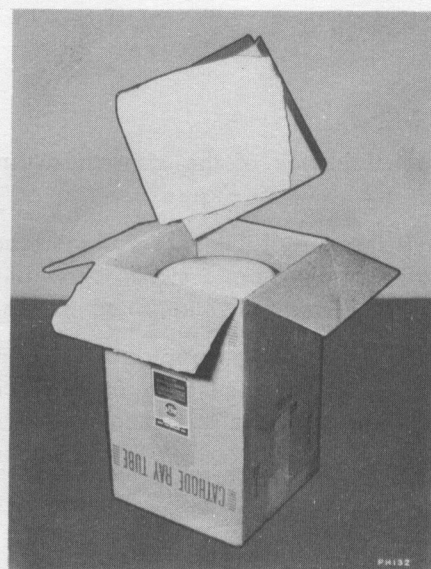


Figure 38

Grasp the side of the tube as shown in Figure 39 and remove the tube from the carton. Place the tube face down on a clean piece of paper on a table.

The kinescope second anode shown at "N" is a small recessed well in the side of the bulb. The tube must be installed with this connector on top as shown in Figure 41.

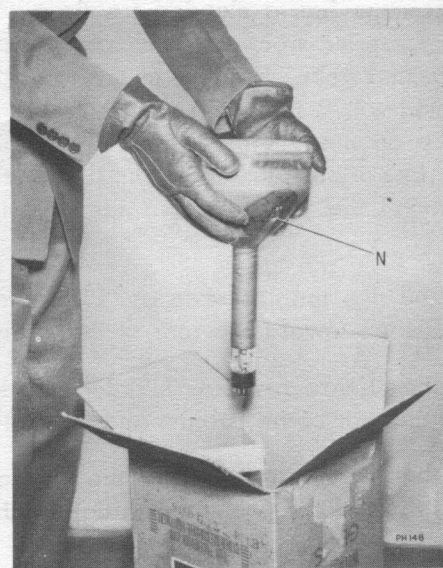


Figure 39

Figure 40 shows a sketch of the kinescope second anode connector and the clip on the high voltage lead. The clip must be inserted into the connector.

The glass to metal seal of this connector is very delicate and care should be used in making the connection. Only a small amount of pressure should be applied to the connector when inserting the clip. If appreciable pressure is applied, the seal may be fractured, permitting air to leak in the tube thus ruining the kinescope.

If the clip does not slip easily into place, take a pair of pliers and bend the fingers of the clip together in order to facilitate connection.

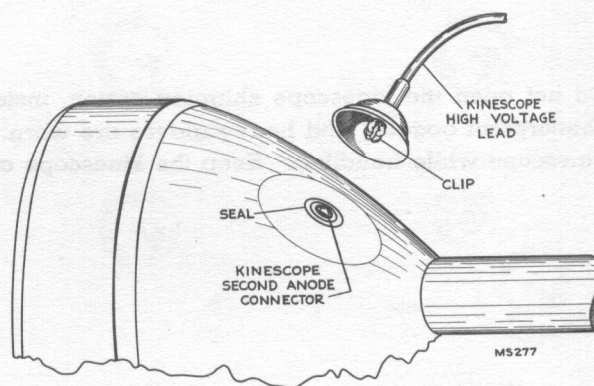


Figure 40

Insert the neck of the kinescope through the deflection coil as shown in Figure 41.

Insert the clip of the high voltage lead into the kinescope second anode connector as shown in Figure 41 observing the precaution mentioned above.

Insert the kinescope until the screen of the tube protrudes approximately one-eighth of an inch from the front of the cabinet. If the tube sticks or fails to slip into place smoothly, investigate and remove the cause of the trouble. Do not force the tube.

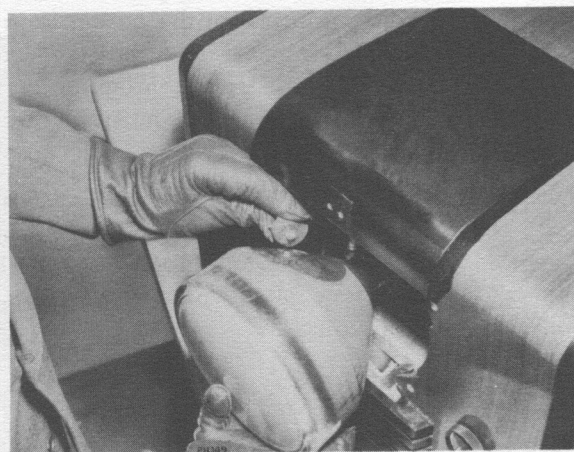


Figure 41

Adjust the four centering slides shown at "M" until the face of the kinescope is in the center of the cabinet opening as shown in Figure 42.

Tighten the four screws at "L" securely.

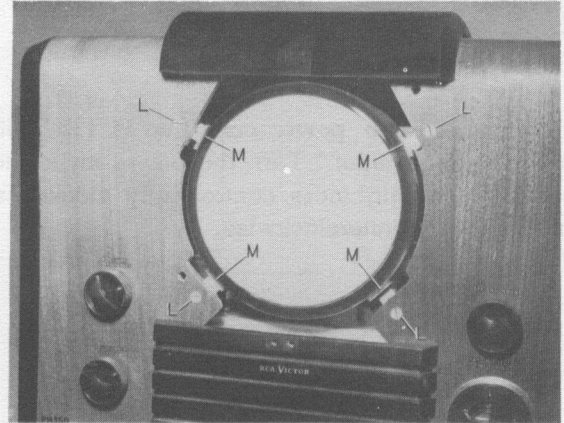


Figure 42

Wipe the kinescope screen surface and front panel safety glass clean of all dust and finger marks with a soft cloth moistened with "Windex" or similar cleaning agent.

Replace the cabinet front panel, safety glass and ornamental brackets. If the panel does not swing smoothly into place, it may be necessary to slightly readjust the kinescope centering slides in order to center the screen of the tube in the recess on the inside of the panel.

Do not put any pressure on the kinescope while installing the front panel. If the front panel does not slip smoothly into place, investigate and remove the cause of the trouble.

Slide the kinescope forward as far as possible. Slide the kinescope cushion firmly up against the flare of the tube and tighten the adjustment wingscrews shown at "I" in Figure 37. Loosen the thumbscrew at "J" in Figure 37, slide the deflection yoke as far forward as possible and tighten.

Loosen the thumbscrews on the ion trap magnet (shown at "O") and slip the magnet over the neck of the kinescope. The large magnet coil must be towards the rear of the cabinet.

Attach the kinescope socket (shown at "P") to the tube base.

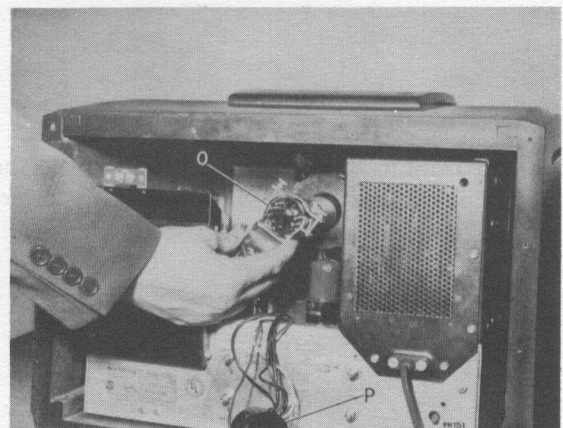


Figure 43

Plug the receiver power cord into a 115 volt, 60 cycle power supply outlet. Turn the power switch to the "on" position, the brightness control fully clockwise and picture control counterclockwise.

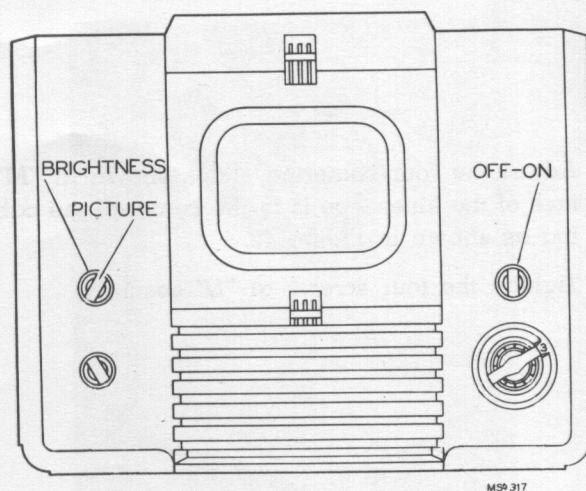


Figure 44

Figure 45 shows a sketch of the neck of the kinescope, the deflection yoke, and ion trap magnet as seen when looking down on the receiver chassis.

Place the rear ion trap magnet poles approximately over the kinescope flags as shown. Starting from this position, adjust the magnet by moving it forwards or backwards and at the same time rotating it slightly around the neck of the tube for maximum brightness on the screen of the kinescope. Tighten the magnet adjustment thumbscrews sufficiently to hold the magnet in this position but still free enough to permit further adjustment.

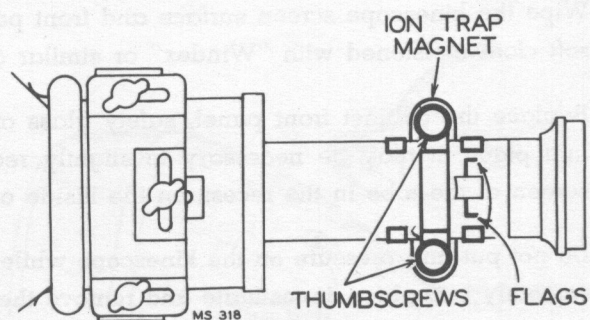


Figure 45

Turn the brightness control on the front of the receiver counterclockwise slightly until the illumination on the screen of the kinescope begins to decrease.

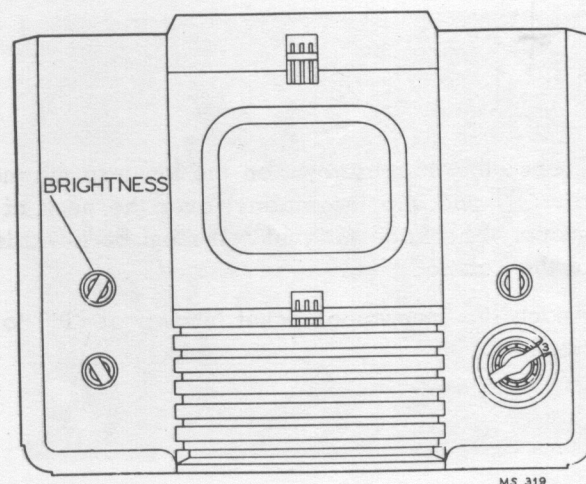


Figure 46

Adjust the focus control on the rear of the chassis until the horizontal lines on the screen of the kinescope are clear and distinct.

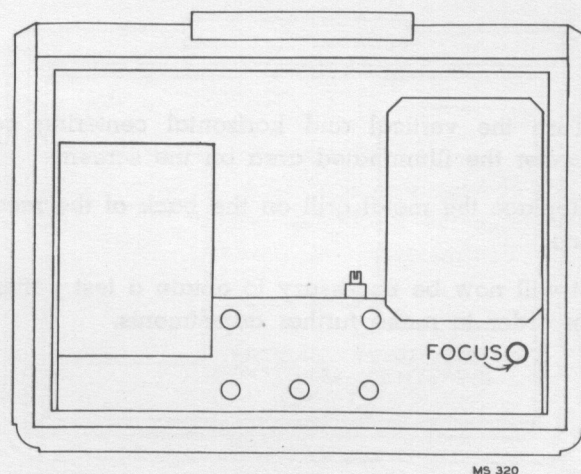


Figure 47

Readjust the ion trap magnet (see Figure 45) for maximum brilliance on the kinescope screen. If in making this adjustment, the lines on the screen become blurred, reduce the illumination slightly by turning the brightness control slightly counterclockwise and readjust the focus control on the rear of the chassis (see Figure 47) until the lines are again clear. Readjust the ion trap magnet for maximum screen illumination.

It may be necessary to repeat the above process several times. The final adjustments on the magnet should be made with the maximum amount of illumination on the screen with which the lines still remain clear.

Tighten the magnet thumbscrews firmly enough to prevent it from slipping on the neck of the tube.

The lines on the screen of the receiver should be horizontal or squared with the picture mask. If the lines are not horizontal loosen the wingscrew at "J," rotate the yoke around the neck of the tube until the lines are horizontal and tighten the wingscrew.

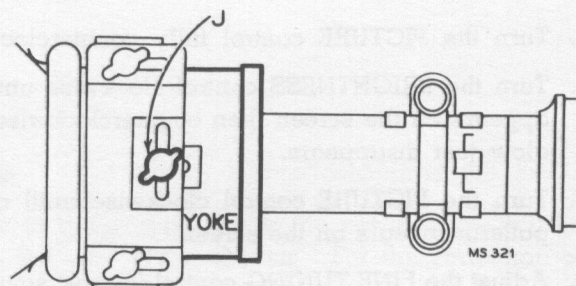


Figure 48

Turn the vertical and horizontal centering controls to center the illuminated area on the screen.

Replace the metal grill on the back of the receiver cabinet.

It will now be necessary to obtain a test pattern picture in order to make further adjustments.

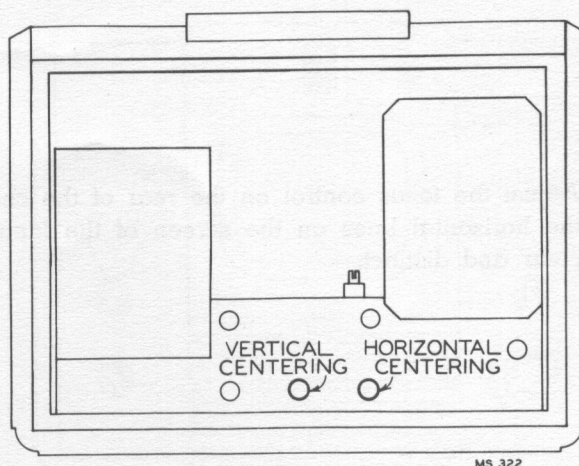


Figure 49

Connect the leads from the antenna to the receiver antenna terminals as shown in Figure 50. Care should be taken to make the connections tight and to insure that the leads are not shorted together or to the metal grill.

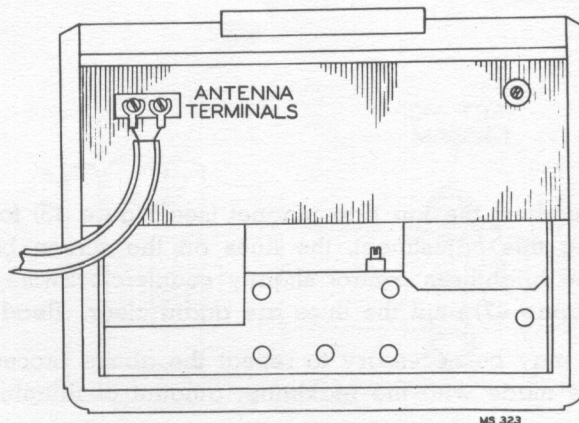


Figure 50

Tune in a television station as follows:

1. Set the STATION SELECTOR to the desired channel.
2. Turn the SOUND VOLUME to approximately mid-position.
3. Turn the PICTURE control fully counterclockwise.
4. Turn the BRIGHTNESS control clockwise until a glow appears on the screen then counterclockwise until the glow just disappears.
5. Turn the PICTURE control clockwise until a glow or pattern appears on the screen.
6. Adjust the FINE TUNING control for best sound fidelity and SOUND VOLUME for suitable volume.
7. Adjust the VERTICAL hold control until the pattern stops vertical movement.
8. Adjust the HORIZONTAL hold control until a picture is obtained and centered.
9. Adjust the PICTURE control for suitable picture contrast.

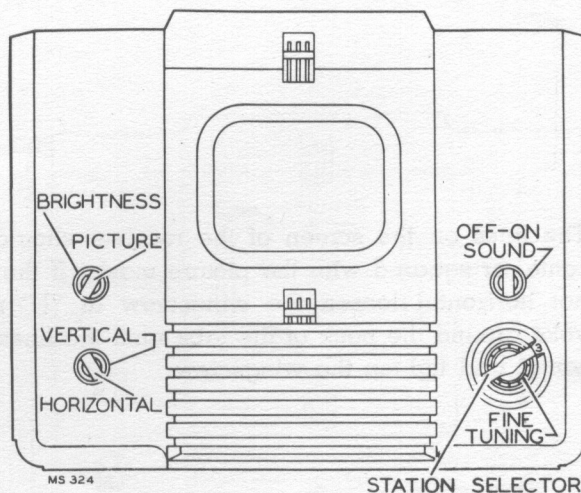


Figure 51

If the picture on the screen is off center vertically as shown in Figure 65, adjust the vertical centering control on the rear of the chassis.

If the picture is off center horizontally as shown in Figure 64, adjust the horizontal centering control on the rear of the chassis.

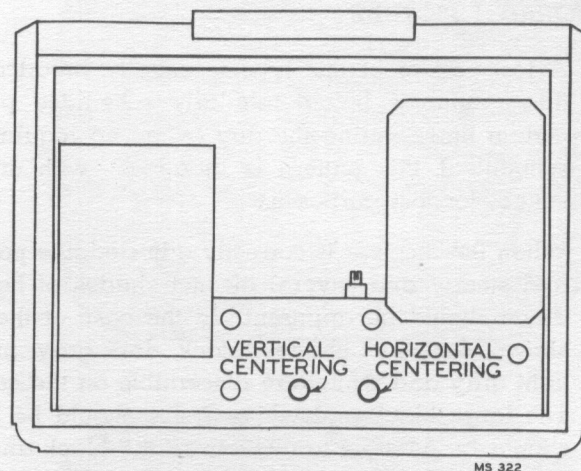


Figure 52

At this point a good picture should be obtained on the screen. Figure 53 shows a typical test pattern. If such a pattern is on the screen, the large black and white circles should be round and it should be possible to distinguish the black and white lines in the "wedge" almost in to the center circle.



Figure 53

If the vertical wedges are indistinct near the center, adjust the focus control on the rear of the chassis until maximum clarity is obtained.

Tune in all the television stations operating in the area.

Set the **STATION SELECTOR** to the desired channel.

Adjust the **FINE TUNING** control for best sound fidelity.

Adjust the **PICTURE** control for suitable picture contrast.

If the picture is too high or too short, too wide or too narrow, or if the large circles are not round, it will be necessary to adjust the height, width or linearity controls on the rear of the chassis. For the correction of such faults, see the section on picture faults on pages 28 through 30.

If it is impossible to obtain a satisfactory picture on all available stations with these adjustments, get in touch with the local **RCA SERVICE CO. Television Shop**.

DO NOT MAKE ADJUSTMENTS ON ANY CONTROL UNLESS THAT ADJUSTMENT IS SPECIFICALLY DIRECTED IN THIS BOOK. ADJUSTMENT OF OTHER CONTROLS REQUIRES THE USE OF SPECIAL TEST EQUIPMENT.

TEST PATTERN PHOTOGRAPHS

CORRECT PICTURE

A test pattern of this type is usually broadcast for about fifteen minutes before regularly scheduled programs. At certain times during the day (when no regular program is scheduled), this pattern is broadcast, with accompanying sound, for test purposes.

When the receiver is correctly adjusted, the pattern is clear and steady and several distinct shades of light and dark areas should be apparent. In the case of the test pattern shown, 5 distinct shades (black, dark gray, medium gray, light gray and white) are discernible on the central circles. The large black and white circles should be round and it should be possible to distinguish the black and white lines in the "wedge" almost in to the center circle.

The following photographs apply to both receivers except where otherwise indicated. The conditions shown on pages 26 and 27 are due to misadjustment of controls on the front of the receiver cabinet.

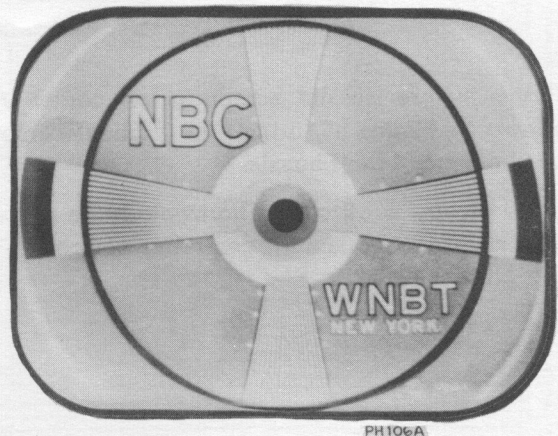


Figure 54

PICTURE, OR ACTIVITY MOVING SIDEWAYS, "OR SCRAMBLED" (FOR 621TS ONLY)

When the picture shows a scrambled image of constantly moving or stationary lines across the screen, or if stationary or moving multiple overlapping images of picture or pattern occur, or if bend in picture or "tear away" at top appears, adjust the HORIZONTAL control to bring the picture to its correctly centered stationary position on the screen.

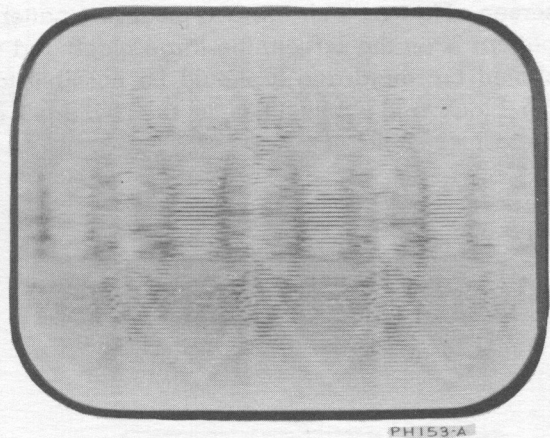


Figure 55

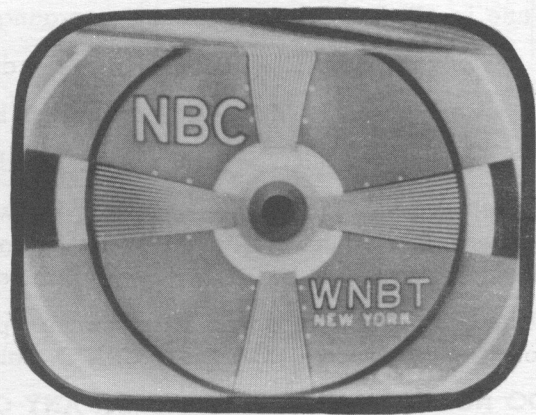
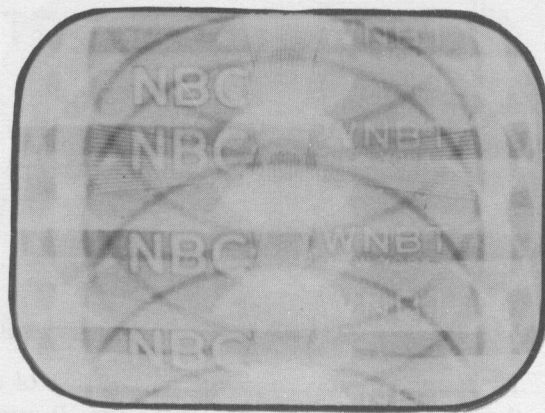


Figure 56

PICTURE MOVING UP OR DOWN (ROLLING)

When this condition is encountered, adjust the VERTICAL control until there is a single image without vertical movement.



PH104B

Figure 57

PICTURE SHOWS TOO MUCH CONTRAST

To make the picture lighter and show less contrast, adjust the PICTURE control. A slight readjustment of the BRIGHTNESS control may also be necessary.

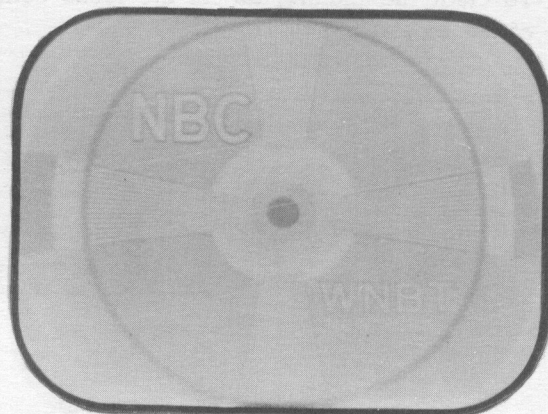


PH104C

Figure 58

PICTURE TOO LIGHT

To make the picture darker and show more contrast, adjust the BRIGHTNESS control. A slight adjustment of the PICTURE control may also be necessary.



PH104D

Figure 59

BARS IN PICTURE—DISTORTED SOUND

When the sound is distorted, or if bars flicker across the picture in step with the speech or music, adjust the FINE TUNING control so that the bars disappear and the sound is clear.



PH105C

Figure 60

TEST PATTERN PHOTOGRAPHS

The following pictures of a test pattern show picture faults that are caused by misadjustment of one or more of the controls on the back or on top of the receiver chassis. Although some of these faults can be corrected on a program picture, it is recommended that whenever possible these adjustments be made on a test pattern of the type indicated. Conditions apply to both receivers except where otherwise indicated.

CORNER OF PICTURE SHADOWED (FOR 630TS ONLY)

To correct, adjust the focus coil on top of the receiver until the corners of the picture are clear. It may then be necessary to readjust the centering controls in the back of the receiver. It may also be necessary to readjust the focus control to provide the clearest picture.

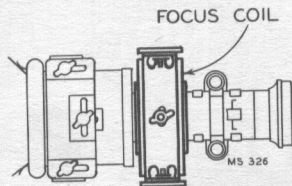


Figure 61

PICTURE BLURRED AND INDISTINCT

To clear the picture, adjust the focus control in the back of the receiver.

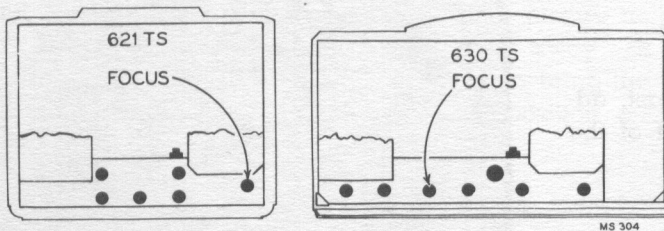


Figure 62

PICTURE COCKED AT AN ANGLE

To correct, rotate the deflection yoke on top of the chassis.

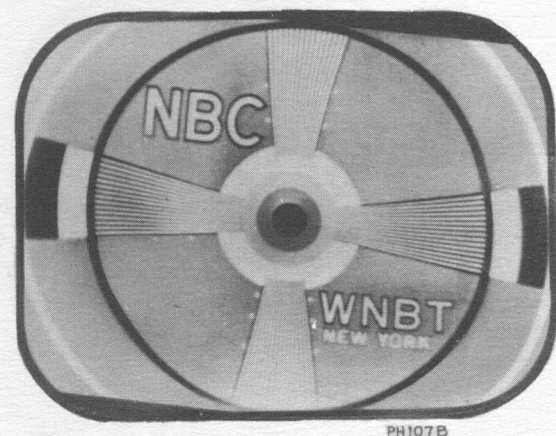
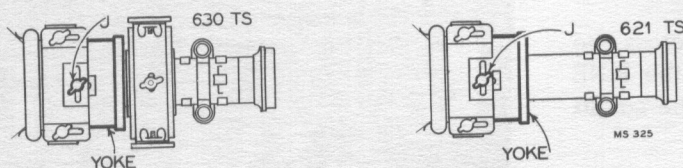
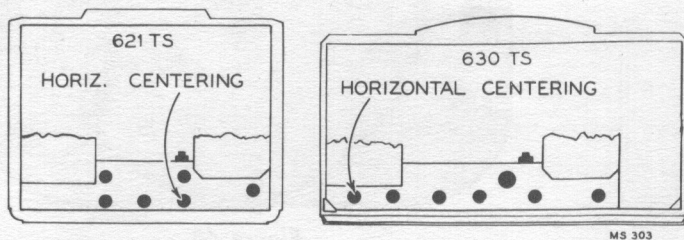


Figure 63

PICTURE OFF-CENTER HORIZONTALLY

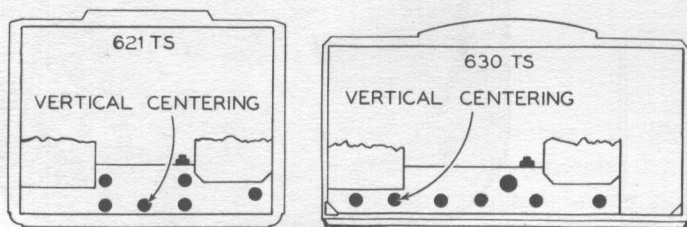
To correct, adjust the horizontal centering control in the back of the receiver.



MS 303

PICTURE OFF-CENTER VERTICALLY

To correct, adjust the vertical centering control in the back of the receiver.



MS 305



Figure 64

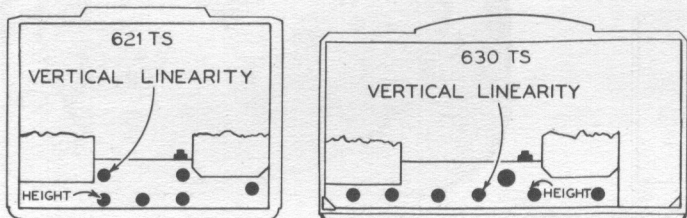


PH 107A

Figure 65

PICTURE CROWDED (OR STRETCHED) AT TOP

To correct, adjust the vertical linearity control in the back of the receiver. It may also be necessary to readjust the height control.



MS 306

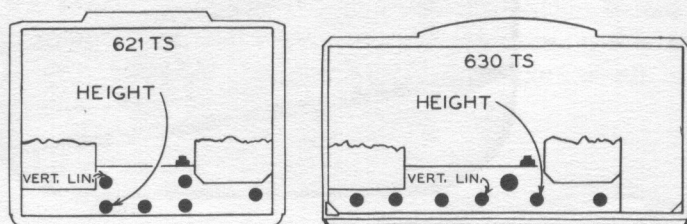


PH 107C

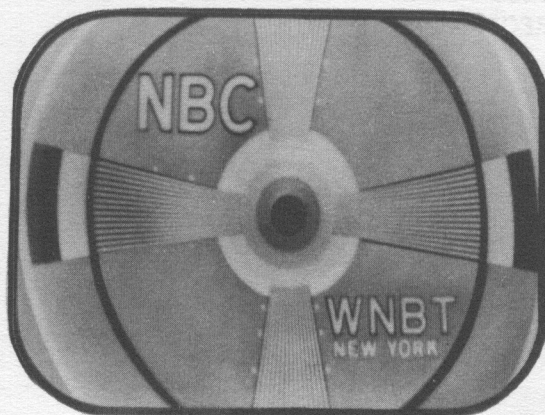
Figure 66

PICTURE TOO HIGH (OR TOO SHORT)

To correct, adjust the height control in back of the receiver. It may also be necessary to readjust the vertical linearity control.



MS 302



PH 107D

Figure 67

PICTURE CRAMPED (OR STRETCHED) IN THE MIDDLE

To correct, adjust the horizontal linearity control on top of the chassis. It may also be necessary to readjust the width control and horizontal drive control.

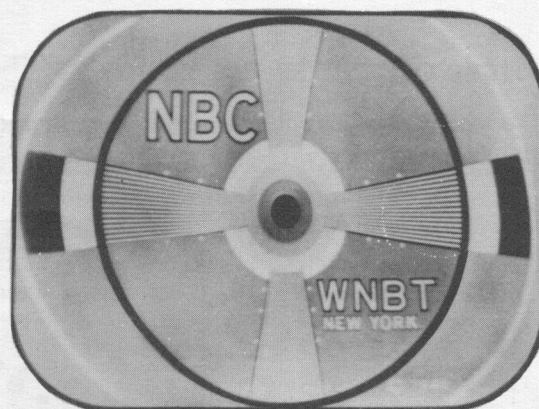
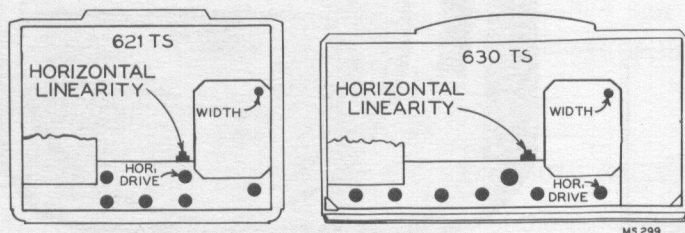


Figure 68

PICTURE TOO WIDE (OR TOO NARROW)

To correct, adjust the width control at the back of the receiver. It may also be necessary to readjust the horizontal linearity and horizontal drive controls.

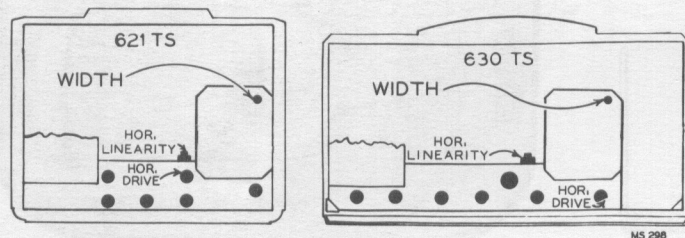


Figure 69

PICTURE CRAMPED (OR STRETCHED) ON RIGHT

To correct, adjust the horizontal drive control in the back of the receiver. It may also be necessary to readjust the width control and horizontal linearity control.

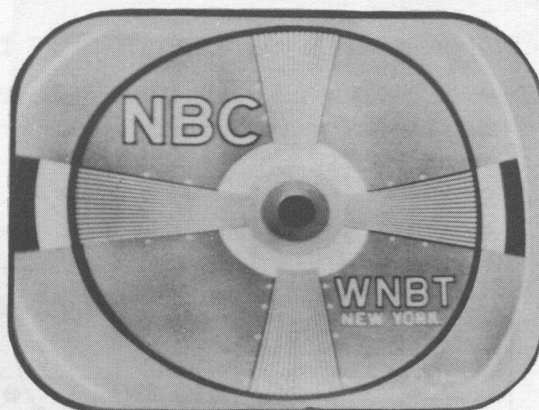
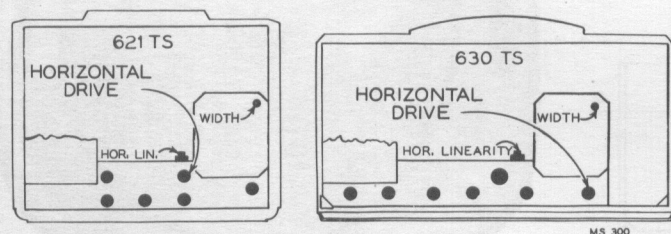


Figure 70

PICTURE CANNOT BE SYNCED IN HORIZONTAL DIRECTION (FOR 630TS ONLY)

To correct, adjust the horizontal frequency control in the back of the receiver.

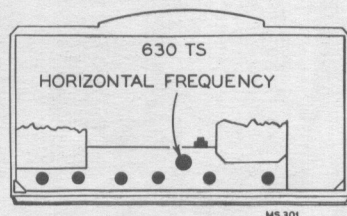


Figure 71

INTERFERENCE

While every known means of suppressing interference has been engineered into RCA Victor Television Receivers, and Antenna Systems, some interference may be occasionally encountered during the reception of television programs. The types of interference most likely to be encountered are shown below.

AUTOMOBILE IGNITION AND SIMILAR INTERFERENCES

Automobiles in the vicinity may cause speckles on the picture or, when their effect is severe, may cause vertical picture movement. Electrical motor-driven appliances cause similar effects.

WEAK PICTURE

When the installation is near the limit of the area served by the transmitting station, the picture may be speckled, having a "snow" effect, and may not hold steady on the screen. This condition is due to lack of signal strength from the transmitter.

REFLECTIONS

Multiple images, sometimes known as echoes or ghosts, are caused by the signal arriving at the antenna by two or more routes. The second or subsequent image occurs when a signal arrives at the antenna after being reflected off of a building, a hill or other object. In severe cases of reflections, even the sound may be distorted.

Depending upon the circumstances, it may be possible to eliminate the reflections by rotating the antenna or by moving it to a new location. In extreme cases, it may be impossible to eliminate the reflection.

RADIO FREQUENCY SIGNALS

Short-wave radio transmitting and receiving equipment may cause interference in the picture in the form of moving ripples.

In some instances it may be possible to eliminate the interference by the use of a trap. However, if the interfering signal is on the same frequency as the television station, a trap will provide no improvement.

DIATHERMY

Electrically operated medical equipment such as diathermy apparatus, will produce a herring-bone pattern across the picture. When severe, due to close proximity, this effect is very marked and may even obliterate part, or all, of the picture.

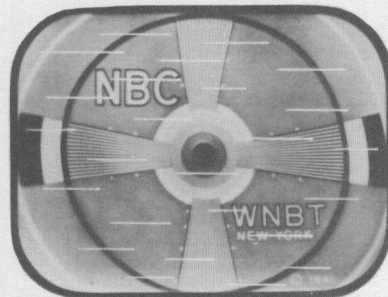


Figure 72

PH153-C

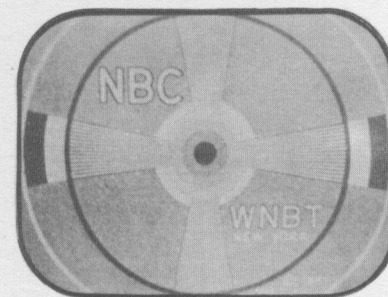


Figure 73

PH105A

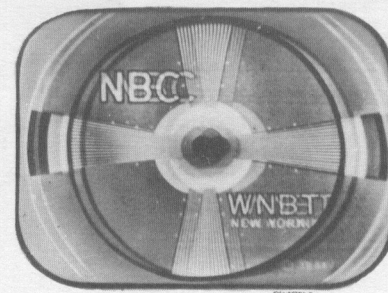


Figure 74

PH109A

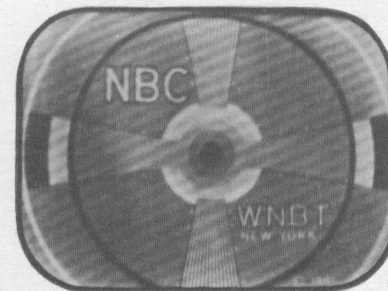


Figure 75

PH105B

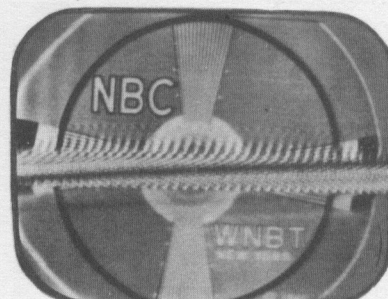


Figure 76

PH105D