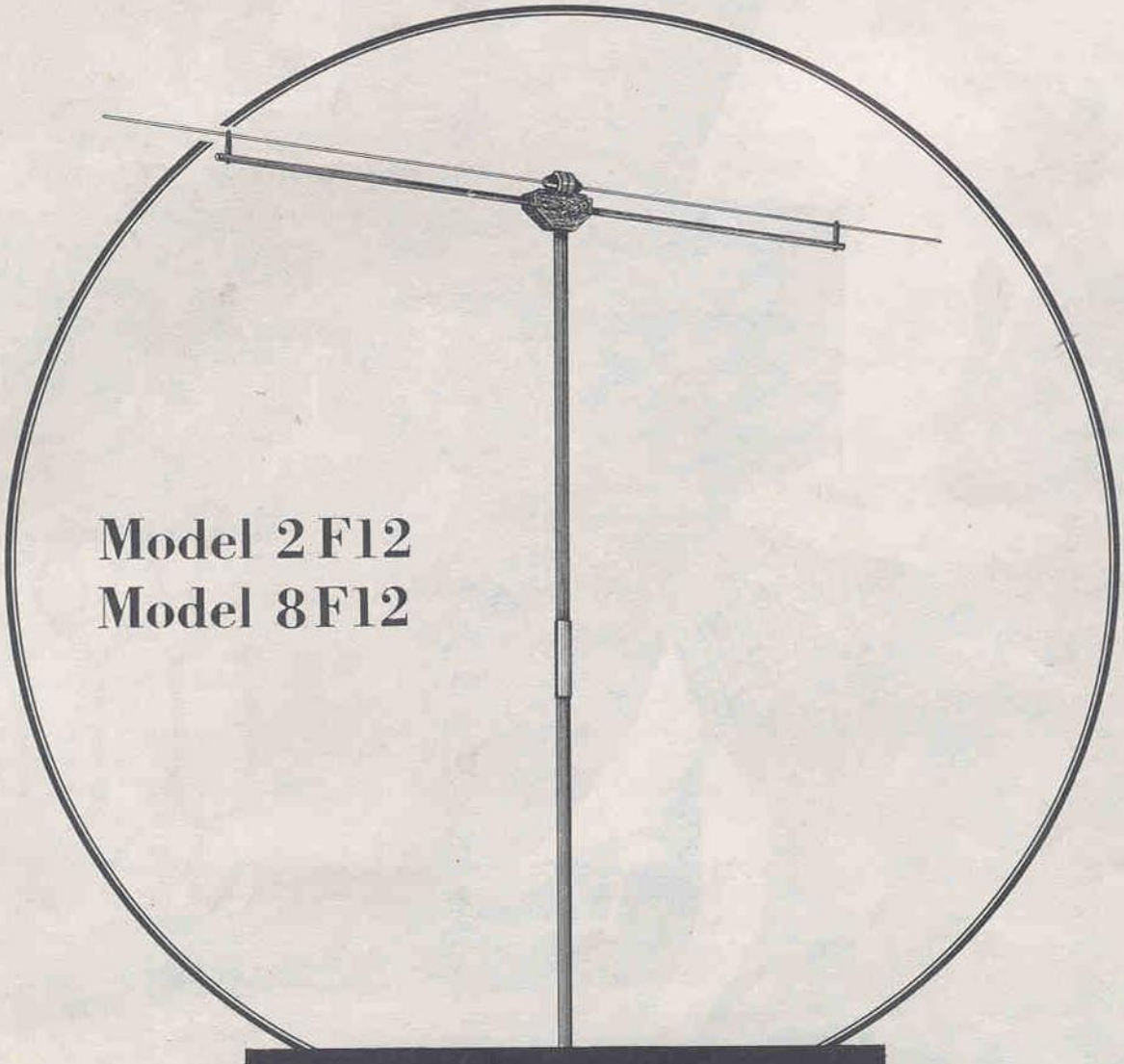
Andrea

"SHARP FOCUS" TELEVISION

INSTRUCTIONS



Model 2F12
Model 8F12

Andrea
"SHARP-FOCUS" TELEVISION

Manufactured by

ANDREA RADIO CORP.

48-20 48th Avenue, Woodside, L. I., N. Y.

RADIO and TELEVISION ENGINEERS and MANUFACTURERS

Renowned throughout the world for engineering that delivers Peak Performance

Model 8F12

- ANDREA SHARP-FOCUS TELEVISION RECEIVERS -

OPERATING INSTRUCTIONS

FOR

TELEVISION SIGHT AND SOUND AND ALL WAVE & STANDARD BROADCAST RECEPTION

MODELS 2F12-8F12

GUARANTEE & REGISTRATION — Three months' factory guarantee: This ANDREA RADIO set is covered by the Standard Factory Guarantee adopted by the Radio Manufacturers' Association,Inc. Defects of material or workmanship not due to misuse, abuse, or alterations will be remedied by your dealer within 90 days after date of purchase.

No responsibility is accepted by the company for any ~~changes~~ CHARGES made by service agents or dealers for fitting replacement parts supplied free of charge under Guarantee by the company or for any other work.

In the envelope containing the instruction sheets are the registration cards which must be made out by you to validate the Manufacturers' Guarantee.

1. The card marked "Owner's Copy" must be filled in by the television technician making the installation. This copy is for your records. Be sure it is signed.
2. The card marked "Dealer's Copy" - is a duplicate of the above and must be retained by the dealer who served you.
3. The card bearing the return address of ANDREA RADIO CORP. must be filled in and mailed to the manufacturer by you.
4. This card marked "Distributor's Copy", is to be sent by the dealer to his distributor to validate his Guarantee.

WARNING — The Manufacturers' Guarantee is valid only in the event that the Guarantee Registration card #3 is filled in and mailed to the ANDREA RADIO CORP. 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 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 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.

UNPACKING & INSTALLING — The unpacking and installing of your 2F12 or 8F12 receiver, together with the installation of a correct antenna for it, should be attempted only by a trained television technecian. Your dealer will be pleased to handle all details of unpacking and installation.

The picture tube is packed in a separate carton and all labels on the carton should be read and all instructions carefully followed. It is a high vacuum device and is hazardous if handled by anyone not familiar with such apparatus. Moreover, the picture tube is a very expensive part of the television receiver and is easily damaged by inexperienced or careless handling. Should you receive your instrument and picture tube before the technician arrives to make the installation, keep them both in their cases in a location where they will be safe, and do not permit anyone to open or examine or tamper with them.

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

Provision should be made for locating the antenna at a good height above the roof with as direct a path and as easy access as possible for the antenna transmission line to the receiver.

In the event the set is moved to another location, a slight readjustment of the controls in the rear may be necessary. For such cases only, the sketches in figure 2 give the location and use of each control.

When your receiver is installed and giving good reception, have the service engineer, before he leaves, give you a practical demonstration of how the various controls function.

FEATURES & ACCESSORIES

ANDREA Sharp-Focus television models 2F12 and 8F12 are designed for operation on the present television picture and approximate sound bands between 44 and 90 megacycles, and to receive radio broadcast reception on the standard broadcast band plus the medium and short wave bands, consisting of all international foreign short wave channels from 540 to 24,000 kilocycles, plus automatic station tuning of 6 of your favorite stations on the standard broadcast band, and mystic ray indicator for accurate manual tuning. All these and many more advanced engineering design features are incorporated in a beautifully styled period cabinet in which all operating controls are concealed. Model 8F12 also has an automatic phonograph.

POWER RATING

If your 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.

The ANDREA 2F12 and 8F12 receivers operate only on 110 to 125 volt, 60 cycle AC current. Make sure your current supply is correct for the instrument before you plug it into the house outlet or socket.

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 ultra short wave lengths employed in television, intervening obstacles have a pronounced shielding effect, causing low intensity signals, and often severe trouble with multi-path transmissions. These produce blurring and multi-image pictures. See picture chart - figure 20 - for effect.
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.

The special ANDREA Teleceptor - picture and sound antenna - Model 66 - is available. FOR BEST RESULTS, IT IS ESSENTIAL THAT THE INSTALLATION BE MADE BY A COMPETENT TELEVISION TECHNICIAN.

High frequency electric discharges reaching the antenna or receiver will spoil the picture. Such discharges reaching the antenna or receiver or 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 WITH GOOD PERMANENT GROUND CONNECTION OF BOTH RECEIVER AND ANTENNA, WITH FULL CONSIDERATION OF ALL LOCAL CONDITIONS, THUS BECOMES APPARENT AND WE EMPHASIZE THE DESIRABILITY OF HAVING A TRAINED TELEVISION TECHNICIAN MAKE THE INSTALLATION.

A GOOD GROUND NECESSARY

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

This receiver is equipped with two safety lock-in switch devices and when the back is removed, power is cut off from all apparatus. The two switches are 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 these switches be tampered with.

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 interuption 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 have an adverse effect.

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 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 continous picture. In television, the pictures are reproduced at 30 per second by reassembling the whole sequence of elements for each picture in 1/30th of a second.

TELEVISION OPERATION

CAUTION

Before the reveiver is turned on at any time, turn wave band Selector control knob (Fig.1) to either the S, I, M, A or P position, and rotate counter-clockwise contrast and brightness controls (Fig.1) all the way.

HOW TO TURN RECEIVER ON AND OFF AND CONTROL TONE

Turn master Off-on Tone Control knob clockwise (Fig.1) to switch power "on". Further rotation varies the tone of the television sound - full tone reproduction being with the knob turned fully counter-clockwise. This knob is the master control knob for turning the entire instrument "off" or "on". After about 30 seconds, turn the Wave Band Selector knob (Fig.1) to position "T". This turns the television section of the instrument "on" and automatically removes the dial illumination. Allow sufficient time for the tubes to heat before proceeding further.

HOW TO CONTROL TELEVISION SOUND VOLUME

Turning Volume Control knob (Fig.1) clockwise increases the television sound volume; counter-clockwise decreases volume.

TELEVISION CHANNEL SELECTOR CONTROL SWITCH

The television Channel Selector Control (Fig.1) selects automatically, the desired station and accompanying sound from which it is desired to receive television programs. This knob is marked 1,2,3,4,5 - representingthe first,second, third, etc. television channel:

CHANNEL 1 - 44-50 MC
" 2 - 50-56 MC
" 3 - 66-72 MC
" 4 - 78-84 MC
" 5 - 84-90 MC

Set the knob to the channel corresponding to the television station desired.

FINE TUNING CONTROL

This control is used to obtain best picture reception by eliminating possible distortion from interfering signals which show a moving ripple in the picture. Should the control be incorrectly set, picture distortion will result. In most cases this control should be adjusted for each television channel by listening to the accompanying sound until maximum volume is obtained, using a medium or low level and noting that the picture is not distorted at this setting. See picture chart - (Fig.5) illustrates the test chart picture when all controls are correctly adjusted. (Fig.9) shows the effect on the picture of extraneous interference that in some cases can be eliminated by a slight readjustment of the fine tuning control. (Fig.10) shows what also may occur when the fine tuning control is incorrectly set.

CONTRAST CONTROL The contrast knob, located in the top panel (Fig.1), regulates the

contrast level of the picture. Turning this control slowly clockwise increases the picture contrast from grays to black and white. Excessive contrast gives blurred or feathered outline to the images which lack half tones, while too little contrast results in an extremely gray image without character or depth. The correct adjustment is to set the controls (both Contrast and Brightness) where black objects appear on the screen as a very dark gray. See picture chart - (Fig.5) shows the received test chart picture with the controls set correctly. (Fig.6) illustrates the picture with the contrast advanced too far.

BRIGHTNESS CONTROL — For controlling brightness level of picture, observe the difference between operating this control and the Contrast control. Both controls should be operated together. For example, if the contrast is adjusted correctly and the picture illumination is too low or too bright, and the Brightness control readjusted for more or less illumination, the picture contrast will change. Hence, the Contrast control must be readjusted. Therefore, whenever the Contrast control is turned clockwise, the Brightness control must be turned counter-clockwise. (See picture chart - (Fig.7 and Fig.8).

NOTE FIG.8 — If the Brightness control is operated too high and the Contrast control too low, white diagonal lines will be seen across the picture, which indicates that the Brightness control must be reduced. In some cases, if the antenna pickup is insufficient, the same results will occur.

Always remember to turn the Brightness and Contrast controls completely counter-clockwise when viewing is over.

(Fig.7) indicates what occurs to the picture when the Brightness control is advanced too far. The picture is thin and lacks blacks.

HOW TO RECEIVE THE PICTURE — Before turning the receiver on, proceed as follows:

1. Turn Brightness and Contrast controls (Fig.1) completely counter-clockwise.
2. Open doors of radio panels (Fig.1). Turn wave band Selector knob marked S-I-M-A-P-T to any position but "T".
3. Turn master OFF-ON Control (Fig.1) clockwise until click is heard.
4. Turn Volume Control (Fig.1) 1/4 turn clockwise.
5. Turn Wave Band Selector knob S-I-M-A-P-T to position "T".
6. Turn Television Selector switch to correct position.
7. Turn Contrast control fully counter-clockwise and then turn Brightness Control clockwise slowly until a slight illumination appears on the screen. Then turn counter-clockwise until illumination just disappears.
8. Advance the Contrast Control until the picture appears at its best. Then advance Brightness Control clockwise slowly, if necessary, and readjust both controls for most suitable picture. A little practice of these adjustments will enable you to easily obtain the correct setting. Incorrect control settings give similar results to under or over exposed photograph prints.
9. If an interfering ripple is observed in the picture, adjustment of the fine tuning knob (Fig.1) may reduce or eliminate the trouble.
10 Readjust the sound volume and tone controls (Fig.1) to your liking.
11 Always turn wave band Selector knob (Fig.1) to any position but that marked "T" before turning receiver "off".

RADIO OPERATION

THE DIAL AND CONTROLS — In Fig.1 is shown the cabinet front, incorporating the controls necessary for correct operation.

Turn Master Power OFF-ON Tone Control clockwise to apply power to receiver. Should tuning scale fail to light, then the Wave Band Selector knob is in position "T". Turning to another position will light the scale.

There are three scales on the Tuning Dial, marked M-I-S. Scale "M" is for the Standard Broadcast and police calls. "I" is for the Intermediate Short Waves covering police, aircraft, amateur, and the 120,90, 60, 49 meter tropical and international broadcasting stations. "S" scale covers ships, amateur, transoceanic telephone, aircraft, as well as the 31, 25, 19, 16 and 13 meter international foreign short wave bands.

As an aid in identifying the wave band position upon which the receiver is functioning, the center of each scale, plus the markings on the lower dial, become individually illuminated in a different color for each position of the Wave Range Selector Control knob. This automatically shows which wave band is in use or whether the

Automatic position (designating push-button tuning) or Phonograph are cut in.

PHONOGRAPH — Model 8F12 contains an Automatic Record Changer which plays either eight 10" records or seven 12" records automatically. In Figure 3 is illustrated the method of operation. Your dealer will instruct you on the proper use of this part of the receiver.

Model 2F12 can be used with an external phonograph pickup of 4000 ohms or more by plugging into the phono jacks provided on the rear of the radio chassis.

WAVE RANGE SELECTOR CONTROL — The Wave Range Selector controls the type of service you intend to use. The knob is marked S-I-M-A-P-T.

"S" position - short wave reception.
"I" position - intermediate short wave reception.
"M" position - manual tuning of standard broadcast.
"A" position - automatic push-button tuning of your six favorite Standard Broadcast stations.
"P" position - phonograph operation.
"T" position - television and accompanying sound.

HOW TO TUNE IN STATIONS MANUALLY — Turn wave band selector control (Fig.1) to position "M". Rotate manual tuning control to desired station's kilocycle reading on the dial until the station is heard. Rotate control back and forth about station for best quality. Adjust Volume and Tone Control to taste.

HOW TO USE AUTOMATIC PUSH-BUTTON SELECTION OF FAVORITE STATIONS — Turn wave band selector control (Fig.1) to position "A". Press in button the markings of which correspond to desired station. Adjust Volume and Tone control to your liking.

At the time of installation, your dealer or technician will make adjustments for electric push-button tuning on the radio chassis for your six favorite Standard Broadcast stations. (Instructions for setting buttons are contained in the Radio Service Notes).

SHORT WAVE TUNING — What you can hear on short waves: Short wave programs from distant countries can be heard readily on this set. In fact, because of the world-wide sale of ANDREA receivers, the ANDREA RADIO CORP. has taken the lead in perfecting high-efficiency short wave receivers for use throughout the world and in those parts of the globe where listeners are almost entirely dependent upon short wave programs.

ANDREA engineers have succeeded in overcoming many of the peculiarities of the short wave reception. However, there are some effects, due to natural phenomena, for which allowances must be made. For example, unusual fading may occur on one station while others are practically steady; or a station which has been heard consistantly may disappear for a time. These and some other effects are normally associated with short wave reception and are not due to any fault in the receiver.

DAY & NIGHT RECEPTION — Different broadcasting bands are used for different hours: By international agreement, certain channels have been assigned to short wave broadcast stations. The ANDREA receiver, in both Model 2F12 and 8F12 is capable of bringing in programs transmitted on the 13, 16, 19, 25, 31, 49, 60, and 90 meter bands, as well as the new 120 meter band assigned to Central America. In addition, this set covers the bands used by amateur, commercial telephone, airplane and ship telephone transmitters.

The wave bands are easily identified on the tuning scale by the heavy lines marked 16M, 19M etc. Each channel is used for only a fews hours a day. In general, the 13, 16 and 19 meter bands are used when daylight covers the area between the station and the listener. When there is both daylight and darkness in the path, the stations shift to the 25-31 meter bands. The 49 meter band is used when darkness covers the entire path. Seasonal variations affect the usefulness of these channels somewhat change the reception period of these bands.

WORLD TIME — The time is different in different parts of the world: Bear in mind the time differences when you tune for distant short wave stations. For example, when the people in California sit down at 8:00 P.M. to listen to their radio sets, Londoners are already in deep slumber, for their clocks show that it is 4:00 A. M. in England. However, many international programs now being broadcast are timed for

LOCATION OF CONTROLS

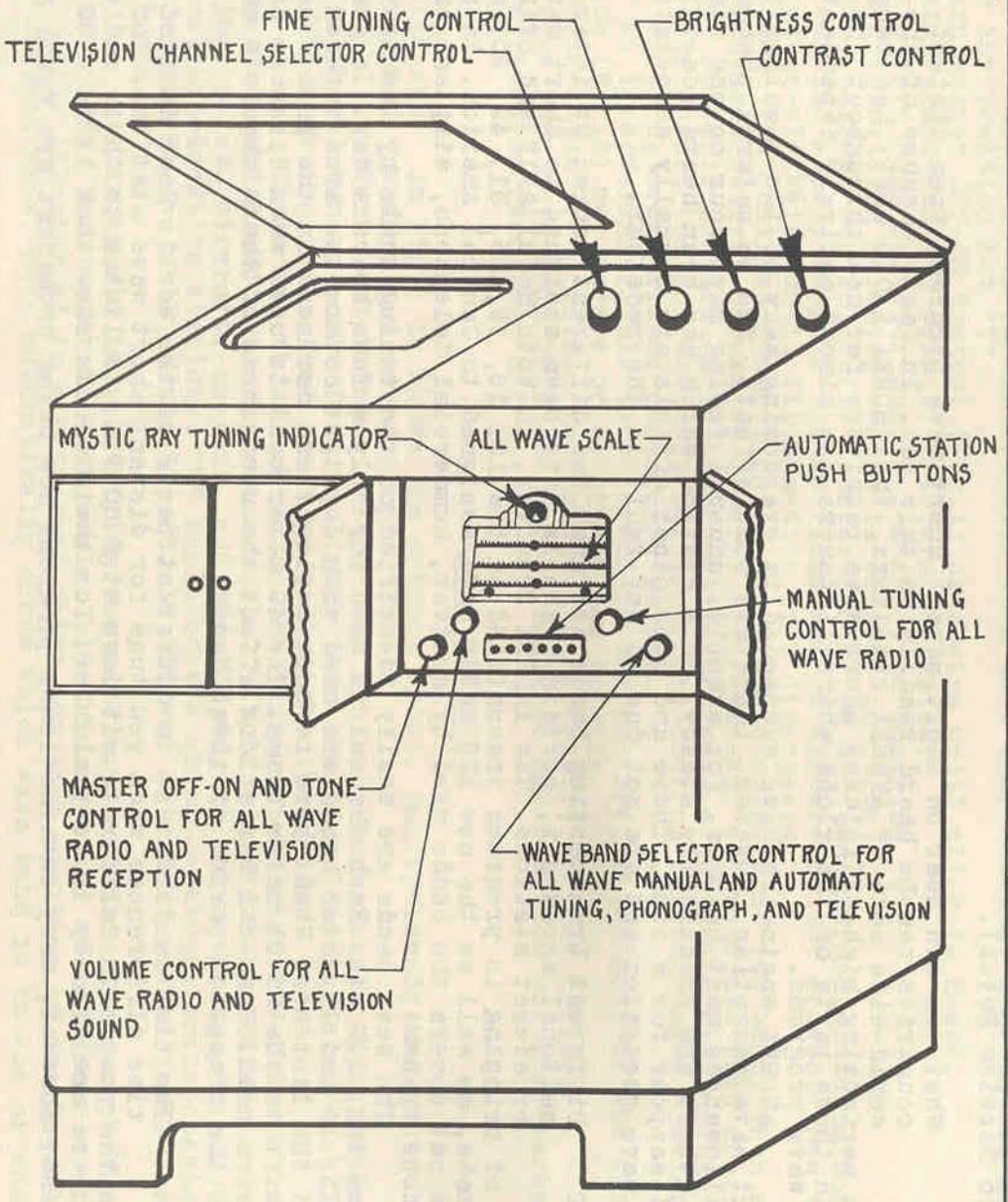


FIG. 1

REAR VIEW OF CABINET SHOWING CONTROLS

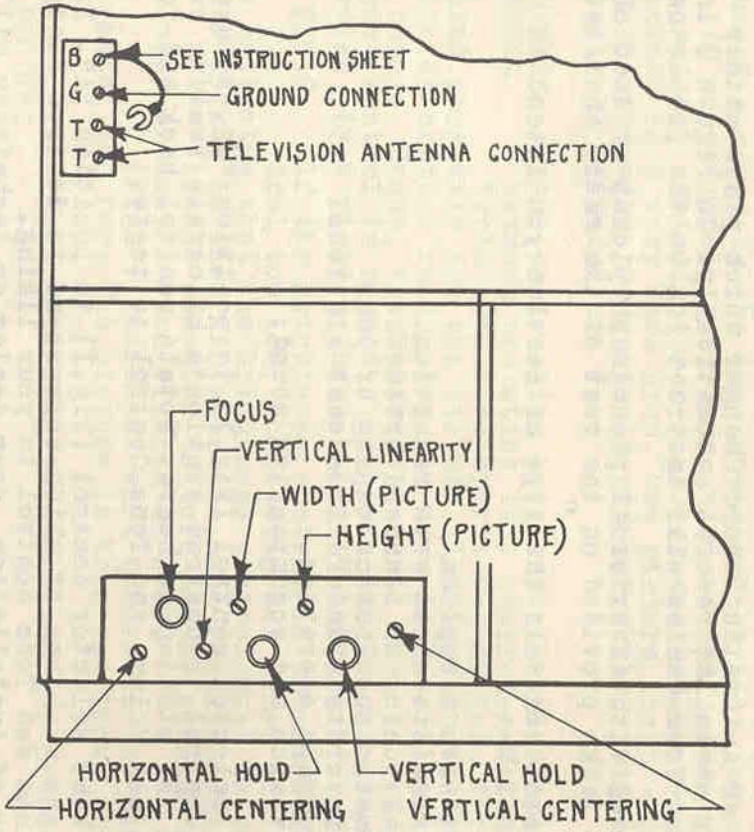


FIG. 2

TOP VIEW OF AUTOMATIC RECORD CHANGER

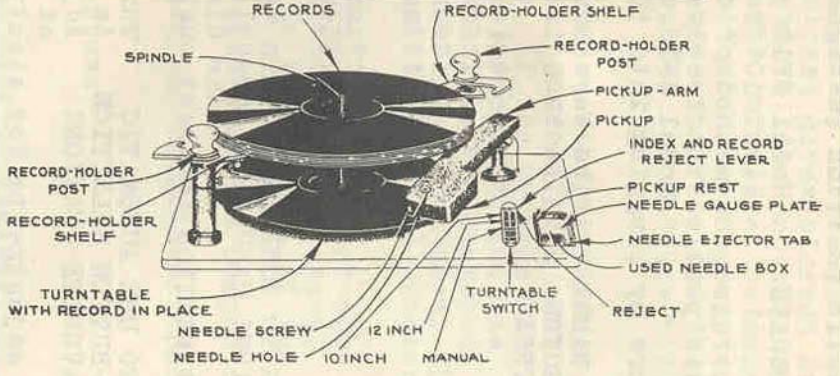


FIG. 3

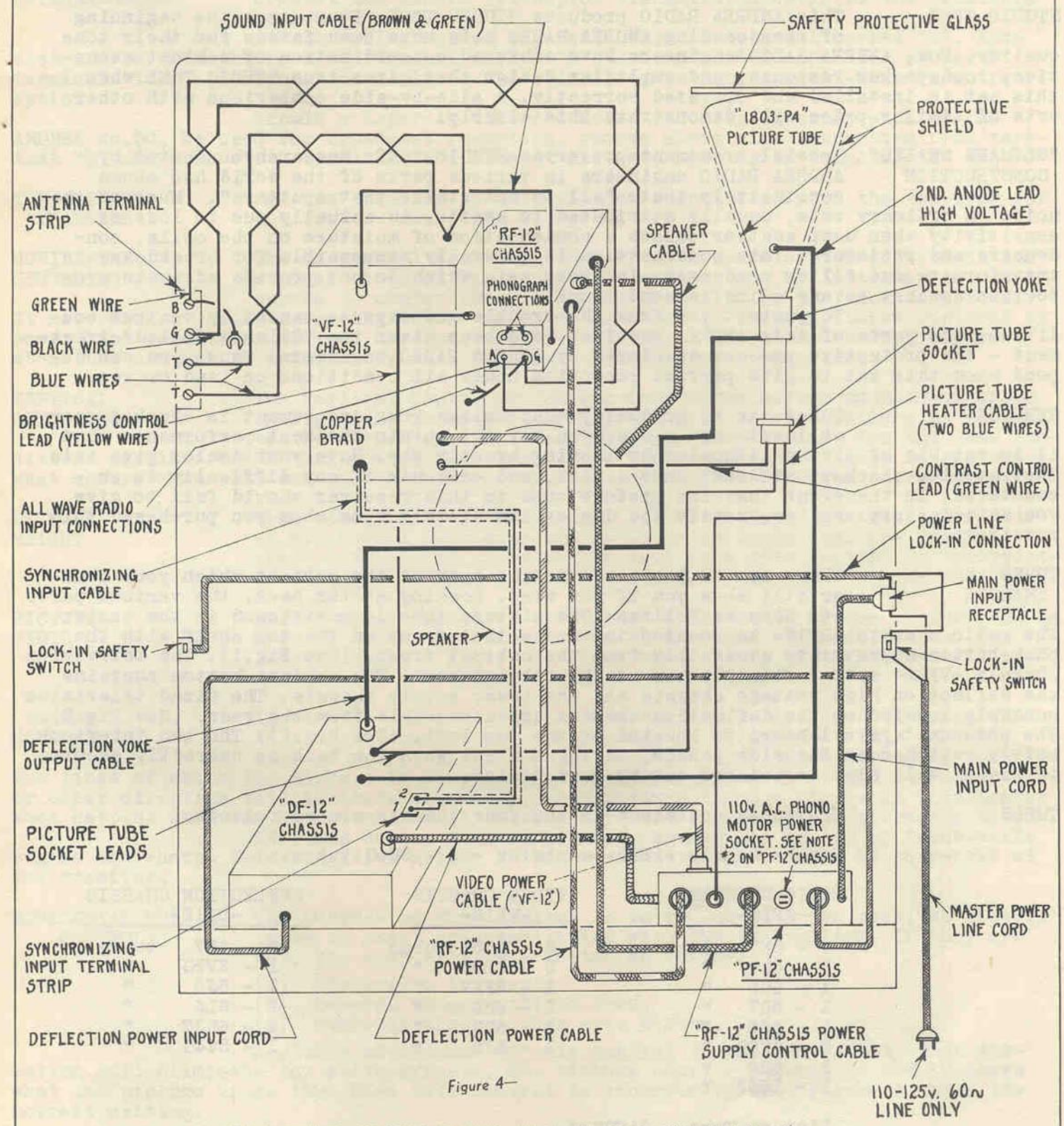


Figure 4—

REAR VIEW OF CABINET CHASSIS ASSEMBLY- MODELS "2F12" AND "8F12"

the especial benefit of people in other lands and take into account these time diferences.

OFF-ON TONE CONTROL & VOLUME CONTROL — The operation of these controls is the same as explained under "Television".

STUDIO TONE — This ANDREA RADIO produces STUDIO TONE: Ever since the beginning of broadcasting ANDREA RADIO sets have been famous for their tone quality. Now, ANDREA RADIO engineers have achieved a coordination of cabinet acoustics, loudspeaker response, and amplifier design that gives true STUDIO TONE when this set is installed and operated correctly. A side-by-side comparison with other sets of similar price will demonstrate this clearly.

"CLIMATE SEALED" CONSTRUCTION — Special treatment preserves STUDIO TONE: Research conducted by ANDREA RADIO engineers in various parts of the world has shown conclusively that: "all is not static that sputters". Much of the noise on ordinary sets, usually attributed to static, is actually due to loss of sensitivity when damp weather causes a condensation of moisture on the coils, condensers and resistors. This condensation is generally responsible for breakdowns in transformers and filter condensers in those sets which do not provide adequate protection against severe climatic conditions.

To protect you from the trouble and expense caused by weather conditions the parts of this ANDREA receiver have been given the "Climate Sealed" treatment - the protective process developed by ANDREA RADIO engineers. Thus, you can depend upon this set to give perfect reception under all conditions on land or sea.

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 a year, and call him if any difficulty is encountered. In the event that the picture tube in this receiver should fail to give you satisfactory service, notify the dealer immediately from whom you purchased this receiver.

TUBES AND CHASSIS — There are four chassis in the back of the cabinet which your dealer will show you if you wish. Looking at the back, the various parts are seen as follows: The picture tube is positioned in the center. The radio chassis -RF12- is located in the cabinet front on the top shelf with the push-button adjustments accessible from the cabinet front. (See Fig.1). The television chassis -VF12- sets vertically toward the cabinet rear. The cabinet bottom contains the deflection high voltage chassis and the power supply chassis. The fixed television controls located on the deflection chassis are accessible from the rear. (See Fig.2). The antenna terminal board is located on the top left. (See Fig.2). 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.

TUBES — The tubes contained in the four chassis are as follows:

Power Chassis -PF12- contains - 2 - 5U4G tubes.

RADIO CHASSIS -RF12-	VIDEO CHASSIS -VF12-	DEFLECTION CHASSIS -DF12-
2 - 6K7 tubes	2 - 1852 tubes	3 - 6N7 tubes
1 - 6K8 "	5 - 1853 "	1 - 2V3G "
1 - 6U5 "	1 - 6SK7 "	1 - 6J5 "
1 - 6Q7 "	2 - 6H6 "	1 - 6L6 "
1 - 6C5 "	1 - 6N7 "	1 - 6SJ7 "
2 - 6V6G "	1 - 6J5 "	1 - 5V4G "
1 - 6H6 "		
1 - 1852 "		

Picture Tube - #1803P4 -

Charts showing the tube position for each chassis are located inside the cabinet.

EXTERNAL INTERCONNECTING OF COMPONENTS

Figure 4 illustrates the interconnecting of the parts in the cabinet chassis assembly.

INFORMATION FOR TELEVISION-RADIO TECHNICIANS

ANTENNA-GROUND

Connect the ANDREA Teleceptor transmission cable to the terminals marked "T" - "T".

Attach well-grounded insulated wire to terminal marked "G". Note that a wire from the rear of terminal marked "B" is connected to one side of screw terminal "T". This connection utilizes the Teleceptor antenna for all-wave radio reception.

Should a separate all-wave noise reducing antenna, such as the ANDREA No.50, be used for broadcast reception, remove above wire connection from terminal "T" and connect to terminal "B". Connect all-wave coupler to terminal "B" and "G".

THE ANTENNA TRANSFER

Antenna transfer is accomplished automatically in the receiver for the various reception services.

HORIZONTAL CENTERING

The horizontal centering control is a screw driven adjustment located as shown in Fig.2 and made at the time of installation. It serves to center the picture horizontally on the picture screen. It may require slight resetting if the receiver location is changed, tubes replaced or power line conditions varied. See picture chart - Figure 11 indicates what occurs when this control is incorrectly set. Figure 5 is the correct position.

VERTICAL CENTERING

The Vertical Centering control is a screw driver adjustment shown in Fig.2 and is used to center the picture vertically with respect to the screen opening. Resetting may be necessary for the same conditions outlined under "Horizontal Centering". See picture chart - Figure 12 indicates what occurs when this control is incorrectly adjusted. Figure 5 is the correct position.

PICTURE HEIGHT

This control varies the height of the picture and is a screw driver adjustment made when the receiver is installed. See picture chart - Figure 13 shows what occurs when this control is incorrectly adjusted. Figure 5 is the correct position.

PICTURE WIDTH

This control increases or decreases the width of the picture and is a screw driver adjustment made at the time of installation. See picture chart - Figure 14 shows what occurs when this control is incorrectly set. Figure 5 is the correct picture.

FOCUS CONTROL

Located as shown in Fig.2, this control is designed to bring the television images into sharp focus or definition. This control, once adjusted, should not be tampered with. When correctly focused the lines of which the picture is composed are sharply defined. A slight rotation one or other direction will indicate defocusing. See picture chart - Figure 15 illustrates what happens when the focus control is incorrectly set. Figure 5 when correctly set.

At times during a given program, scenes may be out of focus while others are sharp. This condition arises at the transmitter and cannot be corrected at the receiver.

HORIZONTAL HOLD CONTROL

The purpose of this control is to reconstruct the receiver picture lines in exact synchronization with the transmitter. If they are not, the scan will be affected as follows:

(a) Distortion in shape.
(b) Several images will be seen.
(c) Numerous black dashes over screen.

A slight adjustment of this control in the one or the other direction will eliminate the above effects. See picture chart - Figures 16 and 17 shows what the picture looks like when this control is incorrectly set. Figure 5 shows the correct setting.

VERTICAL HOLD CONTROL

This control synchronizes the pictures at the receiver vertically with the transmitter. When out of adjustment, the picture may slip or revolve upwards or downwards at either a slow or fast rate.

Turn the control in one direction. If the revolving motion is faster, then turn in other direction until the picture "locks in" as a single complete scene. See picture chart - Figure 18 illustrates the effect on the picture when this control is incorrectly set. Figure 5 shows the correct picture setting.

VERTICAL LINEARITY — This is controlled by means of a screw driver adjustment. The adjustment must be correct and in conjunction with the Height control to give the correct Vertical proportions to the picture. It may require readjustment if the Vertical Centering control is reset. See picture chart - Figure 19 indicates the unbalance in Vertical Height of the picture when this control is incorrectly set. Figure 5 shows the correct setting.

RADIO SERVICE NOTES

SETTING RADIO STATION BUTTON CONTROLS — The simplicity of the ANDREA RADIO push-button controls, requiring only the use of a thin-blade screw driver, makes it easy to set them accurately. This essential, for unless the controls are set exactly, the tone quality will be destroyed.

CHOOSING YOUR STATIONS — Make a list of the desired six stations to operate on the push-buttons. Set down their call letters and put them in the order of their kilocycle rating, the highest at the left to correspond to station 1 selecting button at the left. The kilocycle tuning ranges of the button controls are as follows:

Extreme Left	Station 1 - 1100 to 1600 KC.
	Station 2 - 800 to 1450 KC.
	Station 3 - 700 to 1250 KC.
	Station 4 - 700 to 1250 KC.
	Station 5 - 580 to 1050 KC.
Extreme Right	Station 6 - 530 to 1000 KC.

It is necessary to choose stations whose kilocycle ratings come within these push-button tuning ranges. The ranges given in the list above are conservative. Consequently, it may be possible to tune in a station which is just outside the range of any particular push-button control. For example, on Station 3, although the range is shown as 700-1250 KC., it may be possible to tune in a station on 660 KC., or one on 1300 KC. Select the proper markers for the stations on your list, insert the markers in the same order as your kilocycle list, starting with Station 1 on the first button on the left. Do not attempt to glue the markers in place. In the event you want to change a marker, you can pry it out with the point of a pin.

ADJUSTING THE PUSH-BUTTON STATION CONTROLS — Remove push-button escutsheon cover plate (Fig.1). All station adjustment screws and switch are now accessible for station adjustment from the front of the cabinet.
Remember to set the push-button adjusting switch: Located in the right hand corner of the push-button opening is a small lever. When adjusting the station controls, and only at that time, the lever should be turned to upper position, designated by red dot. Put wave band Selector switch in the "M" position for dial tuning.
Tune in the station manually, using call letters you have put on the first push-button. Then turn the Band switch to position "A". Push in the push-button you are going to adjust, and turn the volume control to maximum. When the set has been turned "ON" for at least 10 minutes so that it has become thoroughly warm, you will be ready to make the push-button adjustments. The adjusting screws can be reached easily. Each push-button has two adjustment controls marked "ANT" and "OSC", in pairs. The pair corresponding to Station 1 on your list at the extreme left. This set is so designed that the tuning indicator operates with the push-buttons as well as with manual tuning. Therefore, you can adjust the controls with absolute accuracy by watching the opening and closing of the indicator.
The exact setting for each adjustment is obtained when the Mystic Ray indicator is closed as far as possible.
Use a thin-blade screw driver to adjust the screws: Do not force a thick blade into the slots. First adjust the oscillator screw for Station 1, turning it until you hear the station you tuned in previously on the dial. If the speaker breaks into a howl during this adjustment, turn the Station 1 antenna screw to the right or left until the howl stops.
After you have an accurate setting of the oscillator screw, adjust the corresponding

antenna screw for maximum volume. The final adjustment should be made by turning the oscillator screw while you watch the opening of the Mystic Ray indicator. Then, in the same way, get a final adjustment for the antenna screw.
Repeat the same routine adjustments for Station 2 by tuning the station on the dial first with Wave Selector switch in "M" position, then changing "OSC" screws. Continue this method for each station and button.
To check the accuracy of the settings, turn the Wave Band switch to position "M". The station should sound practically the same whether the switch is in the "A" or "M" position. If there is considerable difference, the station is not tuned accurately with the dial, or else the corresponding push-button controls were not set correctly.
To change any button to another station, if the station's kilocycle rating is within the range of the corresponding controls, it is only necessary to put in a new button marker, and to reset the controls in accordance with the preceding instructions.

CAUTION This is very important: When all adjustments have been made, it is necessary to touch up each one again, to assure absolute accuracy. After this has been done, turn the push-button adjusting lever down to black dot marked normal operation. Otherwise, loss of efficiency and quality will result. Replace push-button escutscheon cover plate, taking care that the holes in cover align with buttons.

Model 2F12

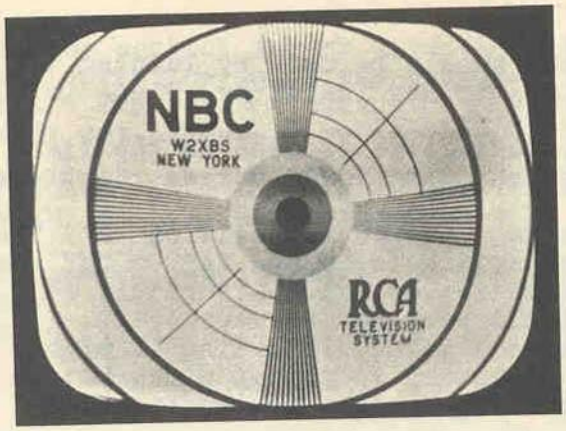


Figure 5—

Figure 6—

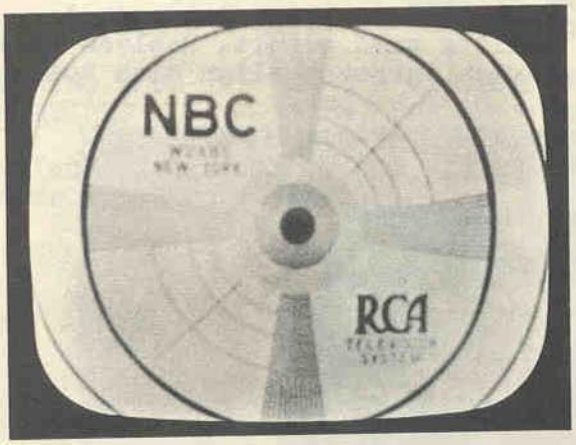


Figure 7—

Figure 8—

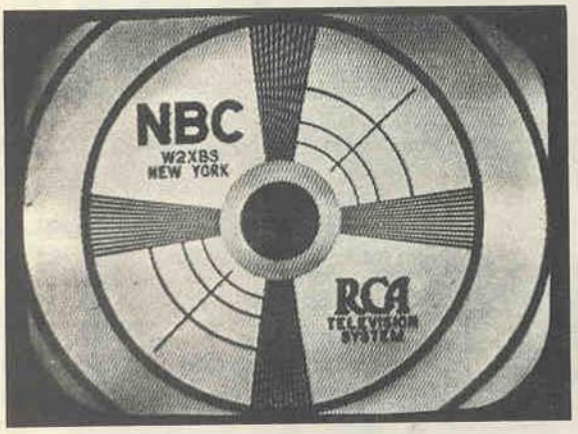


Figure 9—

Figure 10—

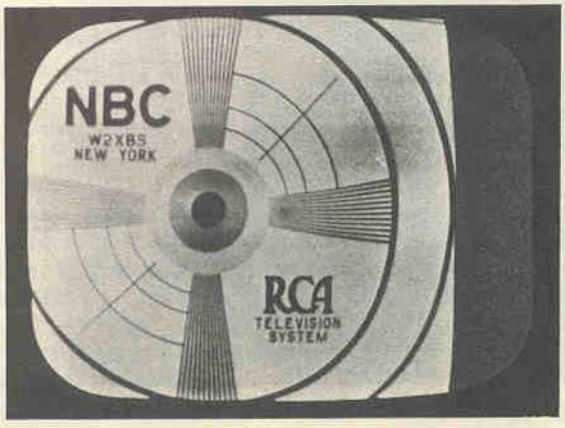


Figure 11—

Figure 12—

Andrea Radio