

OPERATING INSTRUCTIONS AND WARRANTY



THE FISHER

Custom Electra IV

MODEL E44

STEREOPHONIC RADIO-PHONOGRAPH

WORLD LEADER IN HIGH FIDELITY

RECORD CHANGER CAUTION

The Record Changer furnished with this equipment has been designed to play up to ten records continuously. However, stacking this changer to its full capacity may exceed the allowable stylus pressure, which is extremely critical when stereo cartridges are used. The pickup arm has been adjusted at the factory for optimum stylus pressure with a maximum of five records. It is recommended that not more than this number be stacked on the changer for the best sound reproduction.

N-80172

E22R35C-90

PRICE \$1.00

www.fisherconsoles.com

Congratulations!

WITH your purchase of a FISHER instrument you have completed a chain of events that began many months ago, in our research laboratories. For it is there that the basic concept of the equipment you have acquired came into being—its appearance, its functions, its quality of performance.

But the end step—your purchase—is merely a beginning. For you and your family, it will provide years of musical pleasure. The FISHER is from its inception designed to give long and trouble-free service. Some of the instruments we made twenty-three years ago are still in use today!

It is our continuing desire that your FISHER give you always the best performance of which it is capable. If you need our assistance at any time toward that objective, please keep in mind that we are always at your service.

IN CLOSING —

Many hours have been spent by our engineers and technical writers to create this instruction book for your guidance and enjoyment. If you want the most out of your FISHER, there is only *one* way to obtain it. With the equipment before you, *please read this booklet carefully*. It will be time well-spent.

Avery Fisher

Fisher Firsts Milestones In Audio History

- 1937 America's first high fidelity sound systems. Featured a beam-power amplifier, inverse feedback, acoustic speaker compartments (infinite baffle and bass reflex) and magnetic cartridges.
- 1937 First exclusively high fidelity TRF tuner, featuring broad-tuning 20,000 cycle fidelity.
- 1937 First two-unit high fidelity system with separate speaker enclosure.
- 1938 First coaxial speaker system.
- 1938 First high fidelity tuner with amplified AVC.
- 1939 First Dynamic Range Expander.
- 1939 First 3-Way Speaker in a high fidelity system.
- 1939 First Center-of-Channel Tuning Indicator.
- 1945 First Preamplifier-Equalizer with selective phonograph equalization.
- 1945 First logging scale for simple and accurate location of station frequencies.
- 1948 First Dynamic Range Expander with feedback.
- 1949 First FM-AM Tuner with variable AFC.
- 1952 First 50-Watt, all-triode amplifier.
- 1952 First self-powered Master Audio Control.
- 1953 First self-powered, electronic sharp-cut-off filter system for high fidelity use.
- 1953 First Universal Horn-Type Speaker Enclosure for any room location and any speaker.
- 1953 First FM-AM Receiver with a Cascode Front End.
- 1954 First low-cost electronic Mixer-Fader.
- 1954 First moderately-priced, professional FM Tuner with TWO meters.
- 1955 First Master Audio Control Chassis with five-position mixing facilities.
- 1955 First Peak Power Indicator in high fidelity.
- 1955 First correctly equalized, direct tape-head master audio controls and self-powered preamplifier.
- 1956 First to incorporate Power Monitor in a home amplifier.
- 1956 First All-Transistorized Preamplifier-Equalizer.
- 1956 First dual dynamic limiters in an FM tuner for home use.
- 1956 First Performance Monitor in a high quality amplifier for home use.
- 1956 First FM-AM tuner with TWO meters.
- 1956 First complete graphic response curve indicator for bass and treble.
- 1957 First Golden Cascode FM Tuner.
- 1957 First MicroRay Tuning Indicator.
- 1958 First Stereophonic Radio-Phonograph with Magnetic Stereo Cartridge.
- 1959 First high-quality Stereophonic Remote Control System.
- 1959 First complete Stereophonic FM-AM Receiver (FM-AM tuner, audio control, 40-watt amplifier.)
- 1960 First complete stereophonic FM-AM receiver with 60-watt power amplifier.
- 1960 First stereophonic receiver to use the new, revolutionary Type-7591 power output tube. (Featured in the FISHER 800.)
- 1960 Smithsonian Institution, Washington, D.C., accepts for its collection America's first commercially manufactured high fidelity radio-phonograph, made by Avery Fisher in 1937.

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THE FISHER CUSTOM ELECTRA IV MODEL E44

Stereophonic

Radio-Phonograph

Advanced electronic engineering has been combined with old-world cabinet craftsmanship to create the new FISHER Custom *Electra* — a musical instrument that meets the most exacting criteria. Each unit in the *Electra* has been designed to meet the laboratory standards that distinguish all FISHER components. The unusually sensitive tuning sections can be used separately for the reception of monophonic FM or AM broadcasts, or simultaneously to receive FM-AM stereophonic broadcasts. The renowned Garrard Record Changer, containing a professional magnetic cartridge with a diamond stylus, will faithfully convey every musical nuance of your most treasured stereophonic or monophonic record selections. Located on the operating panel of the *Electra* are seven controls which will enable you to select any program source instantly, and adjust the volume and tonal characteristics of sound to your most critical listening tastes. Thirty-six watts of music power, free of all audible distortion, is supplied by a dual-channel Power Amplifier which can reproduce the most complex symphonic passage as easily as the softest notes of an oboe. Lastly, two acoustically-balanced speaker enclosures, each containing a three-way speaker system, provide the full orchestral sweep that only stereophonic sound makes possible.

Flawless circuitry, the use of costly, durable materials, and unhurried manufacture — essential ingredients that are often lost in mass production — all of these will contribute to years of trouble-free operation and your greater listening pleasure. These are the qualities that have for over two decades won for the FISHER a world-wide reputation.

A NOTE ON STEREOPHONIC SOUND

The development of stereophonic sound has brought us close to achieving "Concert Hall" realism in the home. This dual-channel system offers a distinct advantage over monophonic (single-channel) systems by virtue of two important audio characteristics: the dimensions of *direction* and *depth*. These live sound qualities are for the most part missing in monophonic systems because recordings are made and reproduced over a single channel. This is somewhat analogous to listening to music with one ear. Stereophonic recording techniques, however, utilize two separate banks of microphones which are positioned in the left and right sections of the orchestra. In this arrangement, the microphones receive the musical sounds in much the same manner as the two ears of a listener. The sound picked up by each bank of microphones is then fed to independent channels and recorded on disks or tape, or transmitted over separate channels of a stereophonic broadcast.

To reproduce a stereophonic recording or broadcast in the home, two separate sound channels are required. The stereophonic sound output of a record player, tape recorder or tuner is fed to two separate amplifier channels, which in turn drive two separate speaker systems. Thus, instruments located on the left and right sides of the orchestra are heard predominantly in the left and right speakers, respectively; while instruments located in the center appear to be heard mid-way between the two speaker systems. The result is a startling sense of *presence* heretofore realized only at a live orchestral performance.

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INSTALLING THE ELECTRA

The Electra operates on *AC only*. Connect the power cable extending from the back of the cabinet to a wall outlet supplying 105 to 120 volts AC, at 50 to 60 cycles. Maximum power consumption is 165 watts. (Where line voltage is too high or too low, a step-down or step-up transformer will be necessary. For 50-cycle current, a special adaptor pulley is required for the Record Changer turntable. In each case, see your FISHER dealer).

Note: We suggest you read the information in this booklet carefully. Proper installation together with a good knowledge of the controls are essential for deriving the fullest enjoyment from your FISHER.

The Record Changer . . .

During transit, the Record Changer is held in place with screws which are fastened to the base beneath the metal rim. These screws are identified by white tags and should be removed first. When this is done, the Changer will ride freely on springs which act as shock absorbers. Depress each side of the Changer to determine whether it rides freely on its spring mounts. If it does not move downward and back under hand pressure, consult your FISHER dealer. Make certain also to remove the protective cover which guards the diamond stylus (needle) on the cartridge in the tone arm. Hold the

tone arm with one hand and gently pull the cover off from the bottom of the cartridge.

The Antennas . . .

The *Electra* is equipped with two antennas, one to receive FM broadcasts and one for AM broadcasts. These should provide good reception in all cases except extreme fringe areas, or where special local conditions result in high signal loss. (Buildings constructed of steel girders, for example, can cause a loss of signal strength.) If reception is weak or poor, see the instructions on page 7 to rectify the condition.

HOW TO USE THE CONTROLS

The operation of all controls is explained in this section. Referring to Figure 1 while reading will be helpful. If you wish to connect additional components to the sound system of the *Electra*, such as a Tape Recorder, for example, full information is provided on page 5. Before attempting to operate the Record Changer, read the instruction booklet accompanying this unit.

AC and Volume . . .

The AC Switch, which supplies power to the *Electra*, is combined with the Volume Control. Turning this switch slightly clockwise until it clicks, turns on the power and lights the dial scale.

The Volume Control is used to adjust the level of sound for both channels. Turning this control in a clockwise direction will increase the volume simultaneously at both speaker systems.

Note: Although only stereophonic programs require the use of two speaker systems to achieve the necessary sound separation, the two speaker systems of the *Electra* are in operation for monophonic programs as well. This use of both systems provides a superior monophonic effect.

Selector Switch . . .

This eight-position switch selects the program you wish to hear, whether a radio broadcast, a record selection, or some other program source you may have connected to the sound system of the *Electra*. The positions have the following functions:

PHONO MONO: Use this position to play regular LP or 45 RPM records on the Record Changer. The stereophonic cartridge in the

Tone Arm will accommodate monophonic as well as stereophonic records. In addition, all verticle rumble and noise characteristics of LP monophonic records will be completely eliminated, resulting in superior monophonic sound.

NOTE: To play 78 RPM records, a special cartridge is required. You can obtain one from your FISHER dealer.

PHONO STEREO: Play all stereophonic records in this position.

AM: This position selects the AM Tuner for reception of AM broadcasts.

FM: This position selects the FM tuner for reception of FM broadcasts.

FM-AM: In this position both Tuners are selected for the reception of a stereophonic FM-AM broadcast. The FM sound will be heard on the left speaker system; the AM on the right. (Consult your newspaper for the station to which each Tuner must be set.)

FM-FM: You can listen to an FM-FM stereophonic broadcast in this position, provided an additional FM Tuner is connected to the *Electra* sound system as described on page 5.

AUX MONO: Use this position to select any additional *monophonic* component you may have connected to the *Electra* — a monophonic tape recorder, record turntable, etc.

AUX STEREO: On this position you can select any additional *stereophonic* component connected to the *Electra*.

FM and AM Tuning . . .

The FM Tuning knob selects stations in the 87.5 to 108 megacycle band, while the AM Tuning knob selects stations in the 535 to 1620 kilocycle band. Turning either knob will move the corresponding pointer along the dial scale

to the station you wish to hear. A *logging scale*, numbering 0 to 100 is included on the dial glass between the FM and AM scales. By using this scale as a reference, you can tune in your favorite stations more easily — the numerical order is linear, and the gradations are equal.

Bass and Treble Controls . . .

These controls permit you to adjust the tonal qualities of sound to your personal listening requirements. The Bass Control varies the intensity of the low frequency bass tones, while the Treble Control varies the intensity of the high frequency treble tones. Each Control varies the tones for both channels simultaneously. To increase or decrease bass or treble intensity, turn these knobs toward MAX or MIN, as desired.

To listen to program material exactly as it originates from a broadcasting studio, set these controls to NORMAL. This is "flat" position, and is equivalent to RIAA equalization. If you leave these controls at NORMAL while playing an LP or stereophonic record, RIAA equalization will be provided automatically. (A Tape Recorder is provided with NARTB equalization within its own circuitry. Leaving the Bass and Treble Controls in NORMAL position will maintain this equalization.) It should be remembered, however, that these controls may be set to any position dictated by personal listening preferences.

Balance Control . . .

This control enables you to obtain equal sound levels from each speaker system. Balanced separation is important when you are listening to stereophonic program material, since each section of an orchestra must be heard in its true perspective; that is, neither section should come through any louder than it normally would in relation to the other.

With the Balance Control pointing to NORMAL, the volume at the left and right speaker systems should be the same. However, any slight imbalance that may exist — due to record characteristics, differences in room acoustics etc. — can be corrected with this control. Simply turn the knob slightly toward MAX A or MAX B to increase the volume at the left or right

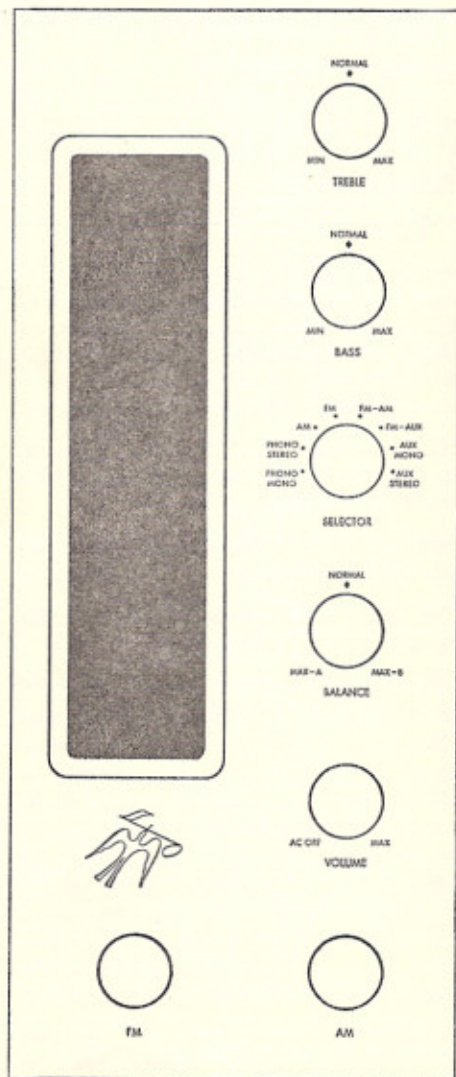


Figure 1. Front Panel Of The Electra.

speaker systems, as required. You can also use this control when you are listening to monophonic program material, since both speaker systems are also in use. In this case, of course, balanced sound output is not very critical.

It should be pointed out that the Balance

Control is *not* a volume control; for, as the level of sound is increased on one speaker system, it is decreased on the other, maintaining approximately the same overall sound output. (NOTE: you can cut off the sound at either loudspeaker system by moving the control to its extreme MAX A or MAX B position.)

CONNECTING ADDITIONAL COMPONENTS TO THE SOUND SYSTEM OF THE ELECTRA

In addition to listening to radio broadcasts and playing the Record Changer, you can connect other program sources to the sound system of the *Electra*. These can include a tape recorder, the sound output from your TV set, or some other instrument providing sound source material. The information that follows describes how to connect additional equipment, and also gives the necessary control settings for proper operation. The input and output jacks to which connections are made are located on the Tuner and Amplifier chassis, as illustrated in Figures 2 and 3.

Tape Recorders . . .

A monophonic or stereophonic tape recorder can be connected to the *Electra* to perform two functions: 1—to play back tape recordings through the sound system of the *Electra*; 2—to make tape recordings of records or radio broadcasts. Permanent cable connections can be made for these purposes.

PLAYBACK CONNECTIONS: Connect cables from the A and B (left and right) output jacks on the stereophonic recorder to the respective AUX input jacks located at the rear of the Tuner chassis.

Connect a cable from the output jack of a monophonic recorder to the AUX MONO input jack at the side of the Tuner chassis.

To listen to a *stereophonic* tape recording, set the Selector Switch to AUX STEREO and adjust the audio controls as desired.

To listen to a *monophonic* tape recording, set the Selector Switch to AUX MONO and adjust the audio controls as desired.

RECORDING CONNECTIONS: Connect cables from the RCRDR OUT jacks on the rear panel of the Tuner chassis to the respective A and B (left and right) input jacks on a *stereophonic* recorder.

Connect a cable from *either* of the RCRDR OUT jacks on the rear panel of the Tuner chassis to the input jack of a *monophonic* recorder.

To make recordings from the record player, set the Selector Switch to either PHONO MONO or PHONO STEREO, depending upon whether the record you are playing is monophonic or stereophonic.

To make recordings from the Tuners, set the Selector Switch to AM, FM, or FM-AM, depending upon whether you want to make monophonic AM or FM recordings or an FM-AM stereophonic recording.

NOTE: These connections are made directly from the Record Changer and Tuners; consequently, the audio controls on the front panel will have no effect on the sound. To regulate the volume or tone, use the controls on your recorder.

FM-FM Stereo . . .

In some parts of the country, stereophonic broadcasts are made by two FM stations operating simultaneously to transmit a musical program. To listen to this type of stereophonic broadcast, it is necessary to use two FM

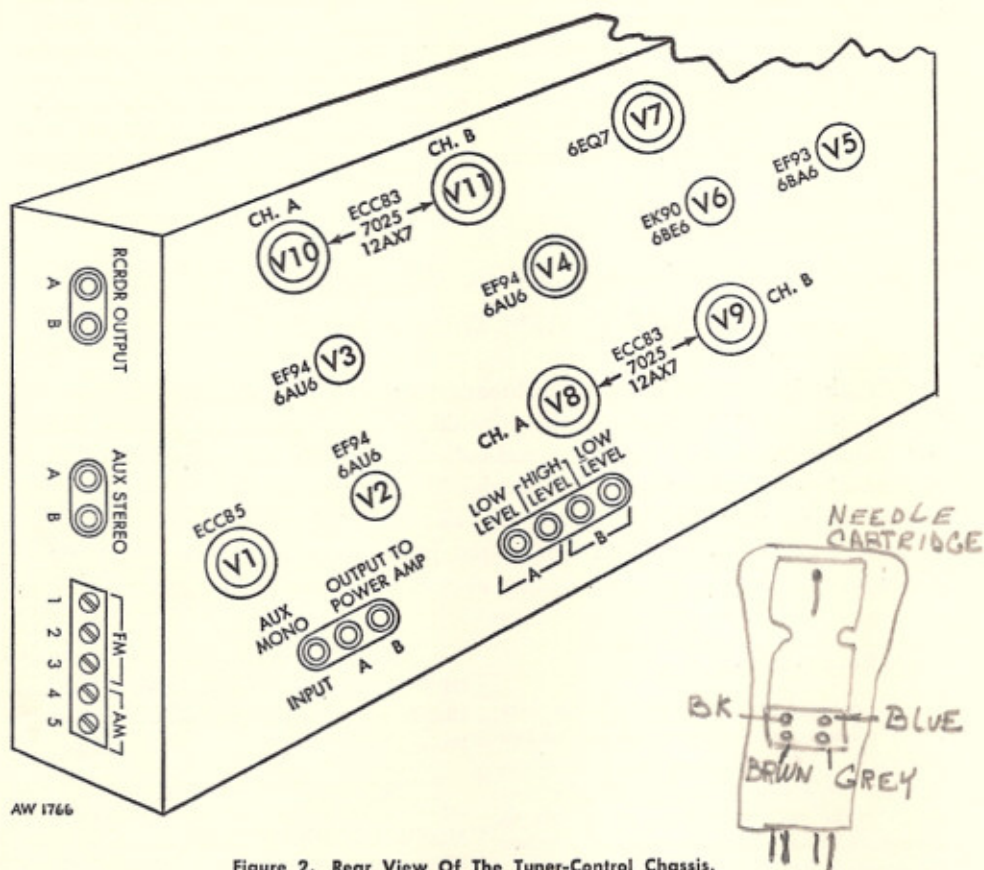


Figure 2. Rear View Of The Tuner-Control Chassis.

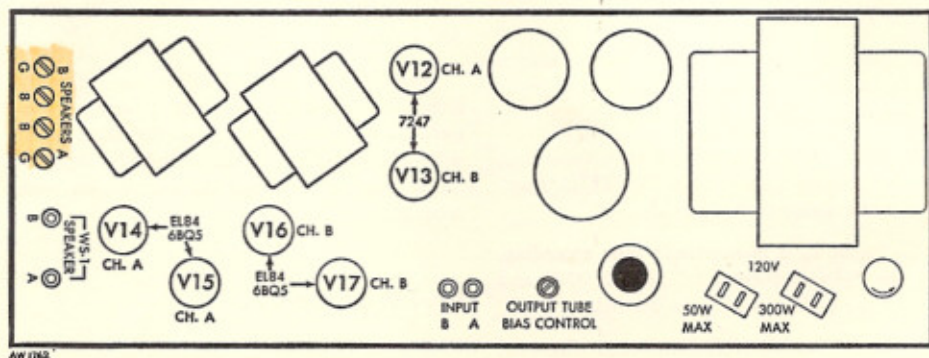


Figure 3. Top View Of The Power Amplifier Chassis.

Tuners. The FM Tuner of the *Electra* can be used to receive the broadcast from the left side of the orchestra. An auxiliary FM tuner must be connected to the *Electra* to receive the broadcast from the right side of the orchestra. Connect the output cable from the auxiliary tuner to the AUX MONO input jack at the side of the *Electra* Tuner chassis. Make certain also to adjust the signal output of this tuner to the same level at that of the FM tuner of the *Electra*.

To listen to an FM-FM stereophonic broadcast, turn the Selector Switch to FM-AUX. Consult your newspaper for information regarding the individual station settings.

TV Sound . . .

Because television receivers differ widely in circuit design, it is advisable to consult your serviceman before attempting to connect the sound output of your TV set to the sound system of the *Electra*. However, once the method of connection had been determined, the cable from the TV set should be connected to the AUX MONO input jack on the side of the Tuner chassis. Set the Selector Switch to AUX MONO and adjust the audio controls as desired.

WS-1 Speakers . . .

Jacks are provided on the Amplifier chassis of the *Electra* for the connection of two FISHER WS-1 Speakers as adjuncts to the two speaker systems. With the addition of the WS-1 system, the stereophonic as well as monophonic sound pattern can be augmented to a startling degree. Simply connect the WS-1 cables to the WS-1 jacks. Place the speaker connected to the A

jack on the left side of the room, and the speaker connected to the B jack on the right side of the room, (as viewed from the listening area.)

High Level Magnetic Cartridge . . .

The Record Changer of the *Electra* is equipped with a magnetic stereo cartridge. The output cables from this cartridge are connected to the LOW LEV PHONO input jacks located on the side of the Tuner chassis. A second pair of jacks, located between the first pair, can be used for connecting a record player with a high level stereo magnetic cartridge. However, because these two sets of jacks are connected internally, only one pair of jacks may be used at a time; otherwise, the input circuit will be overloaded. Make connections of the A and B (left and right) cables from the high level magnetic cartridge to the respective HI LEV PHONO input jacks. Turn the Selector Switch to PHONO STEREO when playing stereophonic records, or PHONO MONO for monophonic records.

Ceramic Cartridge . . .

To connect a record player equipped with a stereo ceramic cartridge to the sound system of the *Electra*, connect the A and B (left and right) cables to the respective AUX input jacks on the Tuner Chassis. Turn the Selector switch to AUX STEREO.

To connect a record player equipped with a monophonic ceramic cartridge, connect the output cable to the AUX MONO input jack on the Tuner chassis. Turn the Selector Switch to AUX MONO.

THE FM AND AM ANTENNAS

Separate FM and AM antennas are supplied with the *Electra* for the two types of radio reception. These antennas should be adequate in all cases except extreme fringe area conditions. If reception is weak, the connection of a roof antenna may be necessary to increase the strength of the radio signals. The following information refers to the Antenna Terminal strip at the rear of the Tuner chassis (see Figure 2).

FM Antenna . . .

A folded dipole antenna for FM reception is stapled to the rear of the cabinet along the edges. The leads from this antenna are connected to FM terminals 2 and 3. To increase

signal strength, remove these two leads and connect the leads from a roof antenna in their place (see Fig. 4). Consult your serviceman about a proper FM antenna for your area.

NOTE: In areas where reception is too strong, the signal may overload the Tuner input circuit. To cut down on excessive signal strength, transfer the leads of the FM antenna to FM Terminals 1 and 2. (See Fig. 5.)

AM Antenna . . .

The built-in Ferrite Loop Antenna that provides AM reception is connected to the AM Tuner when the metal link connects AM Terminals 4 and 5. If reception is weak on some stations because of fringe area conditions, a roof antenna will provide greater signal

strength. Disconnect the link from Terminal 4 and connect the AM roof antenna to this terminal, as shown in Fig. 6.

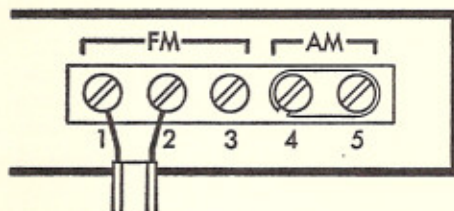


Figure 5. FM Antenna connections for strong signal areas.

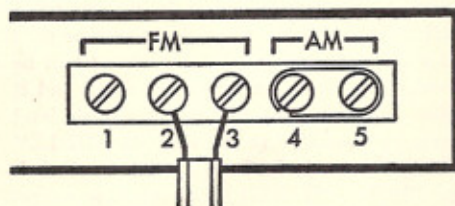


Figure 4. Antenna connections (dipole or roof type) for normal or fringe signal areas.

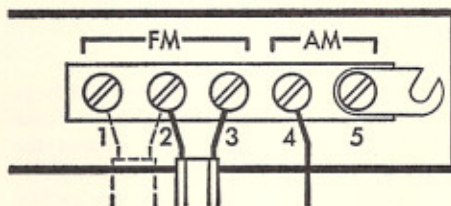


Figure 6. AM Roof Antenna connections (link disconnected.)

SERVICE NOTES

Bias Adjust Control . . .

The control on the Power Amplifier chassis marked OUTPUT TUBE BIAS ADJUST is used to maintain the proper operating voltage on the power output tubes. The procedure for the adjustment of this control is contained in the Service Manual for the *Electra*. This control should be adjusted only by a qualified service man.

Cleaning the Dial Glass . . .

The dial glass can be removed for cleaning purposes by following these simple steps:

- 1—Remove all of the control knobs from the front panel by pulling them up.
- 2—Remove the screws from the wooden panel, then lift off the panel.
- 3—Loosen the screws that retain the clips to the dial glass, swing the clips aside, then, lift off the glass. (When you replace the dial glass, make certain it is set in the same position it

occupied before removal.)

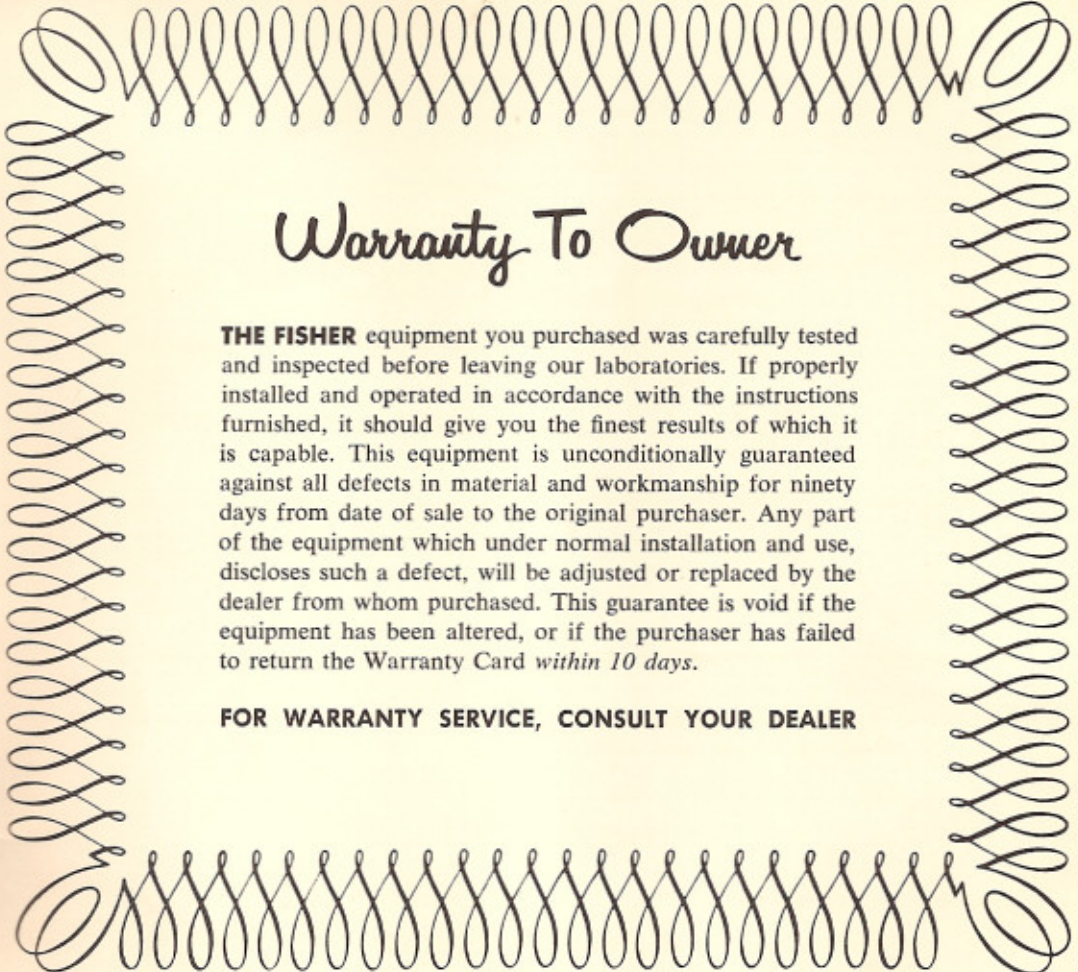
4—Remove dust with a dry cloth. For more thorough cleaning, use a soap and water solution *only*. If you use any stronger cleaning agent, you may damage the markings on the glass.

At Your Service . . .

It is our desire that THE FISHER operates to your complete satisfaction. We solicit your correspondence on any special problems that may arise. After you have had an opportunity to familiarize yourself with THE FISHER, we would appreciate hearing from you concerning how it is meeting with your requirements.

Your Fisher Dealer . . .

Be sure to consult your FISHER dealer promptly if any defect is indicated. Your FISHER dealer stands ready to assist you at any time.



Warranty To Owner

THE FISHER equipment you purchased was carefully tested and inspected before leaving our laboratories. If properly installed and operated in accordance with the instructions furnished, it should give you the finest results of which it is capable. This equipment is unconditionally guaranteed against all defects in material and workmanship for ninety days from date of sale to the original purchaser. Any part of the equipment which under normal installation and use, discloses such a defect, will be adjusted or replaced by the dealer from whom purchased. This guarantee is void if the equipment has been altered, or if the purchaser has failed to return the Warranty Card *within 10 days*.

FOR WARRANTY SERVICE, CONSULT YOUR DEALER



The Man Behind the Product

AVERY FISHER
*Founder and President,
Fisher Radio Corporation*



TWENTY-THREE YEARS AGO, Avery Fisher introduced America's first high fidelity radio-phonograph. That instrument attained instant recognition, for it opened a new era in the faithful reproduction of records and broadcasts. Some of its features were so basic that they are used in all high fidelity equipment to this day. One of these models is now in the permanent collection of the Smithsonian Institution as an example of the earliest high fidelity instruments commercially available in this country.

The engineering achievements of Avery Fisher and the world-wide reputation of his products have been the subject of descriptive and biographical articles in *Fortune*, *Time*, *Pageant*, *The New York Times*, *Life*, *Coronet*, *High Fidelity*, *Esquire*, *The Atlantic*, and other publications. Benefit concerts for the National Symphony Orchestra in Washington and the Philadelphia Orchestra, demonstrating recording techniques, and the great advances in the art of music reproduction, used FISHER high fidelity instruments both for recording and playback, to the enthralled audiences. FISHER equipment formed the key part of the high fidelity demonstration at the American National Exposition in Moscow, July 1959. FISHER FM and FM-AM tuners are the most widely used by broadcast stations for monitoring and relay work, and by research organizations—under conditions where absolute reliability and maximum sensitivity are a 'must.'

The FISHER instrument you have just purchased was designed to give you many years of pride and enjoyment. If you should desire information or assistance on the performance of your FISHER, please do not hesitate to write directly to Avery Fisher, President, Fisher Radio Corporation, Long Island City 1, New York.