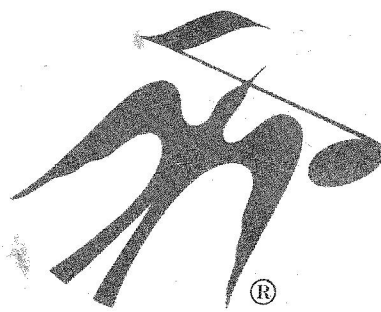
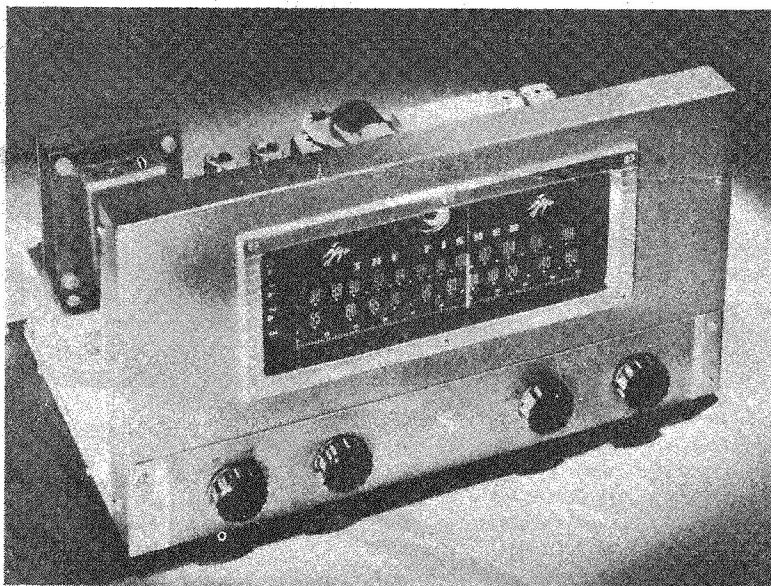


THE FISHER[®]



FM-AM TUNER



MODEL 50-R-2

INSTALLATION and OPERATING
INSTRUCTIONS

PRICE: \$1.00

FISHER RADIO CORPORATION
NEW YORK, N. Y.

THE FISHER FM-AM TUNER

MODEL 50-R-2

GENERAL INFORMATION

THE FISHER FM-AM Tuner, Model 50-R is designed to meet the requirements of the most exacting user, having been planned from its inception to professional standards. It incorporates a two-band superheterodyne circuit with completely independent RF channels for FM and AM. The FM section comprises a dual triode, cascode, tuned RF stage (for maximum signal-to-noise ratio,) and two IF stages followed by two cascaded limiters. These are combined with a Foster-Seeley discriminator to produce a genuine Armstrong system, universally recognized as the ultimate in FM reception. The Automatic Frequency Control (AFC) on FM assures accurate tuning and freedom from drift. The range of lock-in is adjustable and the AFC can be switched out of the circuit from the front panel.

A tuned RF stage and two adjustable band-width IF stages are incorporated in the AM section. Because of the adjustable band-width, selectivity can be varied to achieve the maximum fidelity possible under the reception conditions prevailing at the time. The diode detector has been designed for minimum distortion under all operating conditions. The FISHER Model 50-R has a sharply tuned, 10 Kc filter for rejection of adjacent channel heterodyne whistle on AM. There are dual antenna inputs on both AM and FM, affording maximum flexibility in antenna matching. An electron-ray tuning indicator permits accurate tuning on both AM and FM. A dual volume control is used to obtain maximum signal-to-hum ratio, regardless of the setting of the control. A cathode-follower output, preceded by one stage of triode audio amplification, assures low distortion as well as independence from output load characteristics and cable length.

The carefully designed flywheel tuning mechanism offers extreme ease and simplicity of station selection. The edge-lighted, glass slide-rule dial scale has large, easy-to-read numerals as well as a 0-100 logging scale for convenient spotting of desired stations. Individual panel indicator lights show the channel in use. The dial panel is cased in an attractive, baked enamel enclosure, which also provides support for the etched brass control designation plate, and the brass dial escutcheon. There are two auxiliary AC receptacles on the rear apron of the chassis for associated equipment. Two auxiliary inputs are furnished for leads from the audio section of a TV receiver, crystal phonograph pickup, microphone preamplifier, etc.

INSTALLATION INSTRUCTIONS

THE FISHER Model 50-R is supplied with the following:

- 1-AM Loop Antenna, with plug attached
- 1-FM Folded Dipole, with plug attached
- 4-Mounting Screws and Flat Washers
- 1-Shielded Cable
- 2-Mounting Templates

MECHANICAL INSTALLATION

THE FISHER Model 50-R is constructed with a complete dial mechanism enclosure. It can thus be installed on a shelf, in complete view, or the dial mechanism enclosure can be removed and the tuner mounted in the conventional manner, behind a 1/4" plywood panel, or metal plate. The necessary cut-out should be made in accordance with TEMPLATE No. 1. The mounting holes should be drilled in accordance with TEMPLATE No. 2. To remove the dial mechanism enclosure:

1. Remove the four control knobs by pulling forward.
2. Remove the four felt washers under the knobs.
3. With a Phillips-head screw driver, remove the two brass screws on each side of the dial mechanism enclosure. Then pull the enclosure forward at the bottom until the control shafts are cleared. Finally, lift the enclosure upward.
4. Remove the dial escutcheon and the brass control designation plate for remounting on the new panel.
5. TEMPLATE No. 1 illustrates the size, location, and dimensions of the required cut-outs. When remounting the dial escutcheon and control designation plates on a wood panel, substitute wood screws for the original machine screws.
6. Reassemble the four felt washers and four knobs on the control shafts, making certain that the knob *without* the white dot is placed on the *tuning* shaft.

PROPER VENTILATION

In any of the installations described above, it is imperative that adequate ventilation be provided. The tuner should never be mounted in a totally enclosed cabinet of small dimensions. In cases where a completely enclosed cabinet cannot be avoided, cut air slots at the rear edge of the shelf on which the tuner rests, as well as at the top rear of this compartment (either in the rear wall, or the shelf above.) This is especially necessary where an amplifier or other heat-producing equipment will be placed in the same space with the tuner.

ELECTRICAL INSTALLATION

Antenna Requirements: Both the FM and AM antenna connections are made with four-prong plugs (attached to the antennas furnished.) A folded dipole is supplied for FM use and is generally adequate, except in extreme fringe areas, or where there is a high noise level. The folded dipole can be affixed to the rear surface of the tuner compartment or under an adjacent carpet. Check for the best positioning of the dipole, for maximum signal, before laying it under the carpet. The lead-in portion of the dipole antenna can be extended if necessary, by adding 300-ohm, twin-lead. Should an external FM antenna be desired, it will be found that the FM antenna inputs have been designed to accommodate either a 300-ohm balanced system or a 72-ohm unbalanced, coaxial system. Connections for both types are shown in FIGURE 3.

A low impedance Loop Antenna is supplied for use on AM. This is generally adequate in most installations, except in weak signal areas, or extremely noisy locations. This antenna can be affixed to the rear wall of the tuner compartment or any other location conveniently close to the tuner. *Never shorten or lengthen the connecting lead from this antenna.* If an external AM antenna is desired, disconnect the Loop Antenna and connect the external system in accordance with FIGURE 2. Because of the extreme sensitivity of THE FISHER FM-AM Tuner, Model 50-R, the length of an external AM antenna, exclusive of lead-in, should be kept as short as possible — generally less than twenty-five feet.

Power Requirements: THE FISHER Model 50-R is designed to operate on 105 to 125 volts, 50 to 60 cycles. It consumes approximately 70 watts. The two auxiliary AC receptacles on the rear apron of the chassis are controlled by the main POWER SWITCH on the front panel and can be used for associated equipment, such as the power amplifier, preamplifier-equalizer, etc. The total power drawn from both receptacles must not exceed 250 watts.

Connection to Associated Equipment: THE FISHER Model 50-R supplies sufficient audio output voltage to operate into any control chassis and conventional amplifiers. Inasmuch as the performance of the Model 50-R will be limited only by the quality

of the associated equipment, best results will be obtained with its companion units, THE FISHER Master Audio Control, Model 50-C, and THE FISHER Laboratory Standard Amplifier, Model 50-A, acclaimed by *High Fidelity Magazine* as "of the very best." Used as a group, these three units comprise a perfectly matched high fidelity system of extreme flexibility. Where a control chassis is not required, the Model 50-R can be connected directly to the amplifier. Because of the low output impedance of the Model 50-R, the shielded connecting cable can be made any length up to 200 feet.

The PHONO INPUT located on the rear apron of the Model 50-R can be used for connection of a crystal phonograph cartridge. If a low-level, magnetic cartridge is to be used, it will be necessary to provide a phonograph preamplifier. The TV input can be utilized for connection of a lead from the detector output of a TV receiver.

OPERATING INSTRUCTIONS

Frequency Modulation: First turn the VOLUME CONTROL to zero (fully counterclockwise.) Then turn the Power Switch clockwise to the ON position, and the Selector Switch to the FM position for the most accurate tuning of FM stations. Allowing sufficient time for tube warm-up, proceed to tune in the desired station and then adjust the Volume Control to the preferred listening level. The Selector Switch can then be turned to FM-AFC.

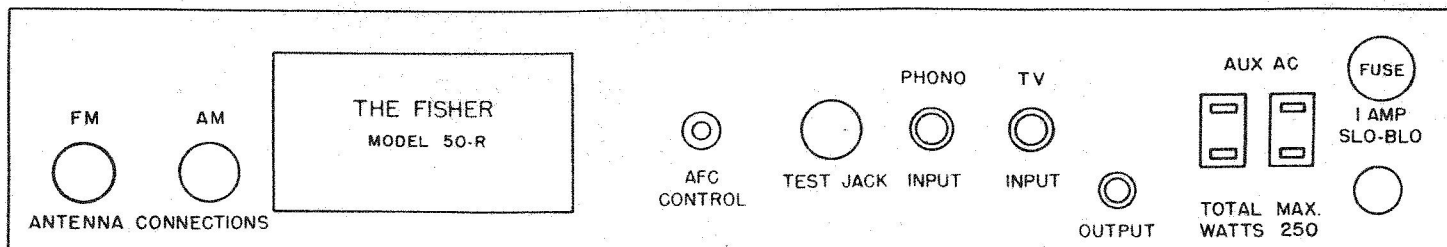
In this position, it will be found that the station will automatically lock-in and remain correctly tuned when the dial pointer is moved to the vicinity of the desired channel. Under ordinary conditions, the Model 50-R can be used in the FM-AFC position at all times. Note that the red channel indicator light is bright in the FM-AFC position, and dimmer in the FM position. The amount of dial pointer travel over which the FM lock-in feature operates for a

given channel can be adjusted by means of the AFC control on the rear apron of the Model 50-R. This control is preset in our laboratories for typical operating conditions. In some locations, however, where a weak station is separated from a strong station by only two channels, the latter will tend to operate the control circuit and make it difficult to bring in the weaker of the two stations. Where this condition prevails, turn the AFC control (on the rear apron of the Model 50-R) counter-clockwise to the amount necessary for normal reception of the weaker station. Where additional lock-in range is desired (dial pointer travel within which a desired channel will lock in), turn the AFC control clockwise the necessary amount.

Amplitude Modulation: Turn the Selector Switch to the AM SHARP position and proceed to tune in a station, as shown by the closure of the tuning indicator. Adjust the Volume Control to the desired listening level.

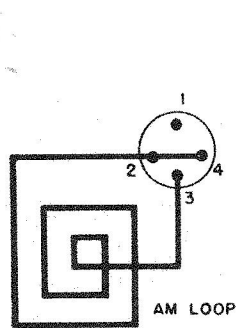
For maximum fidelity from a given station, within the reception conditions prevailing at the location, use the AM BROAD position of the Selector Switch. When using this position, tune in the station on AM SHARP first, for accuracy. Then switch to AM BROAD. (The red dial indicator light is *dimmer* in the AM BROAD position, than the AM SHARP position.) Because of the increased IF band width in the AM BROAD position, it should be used only where stations are reasonably strong and free of interference. The AM SHARP position offers selectivity equivalent to that of a good communications receiver and therefore produces excellent reception even under difficult receiving conditions. The 10 Kc heterodyne filter is in the AM circuit at all times, to eliminate objectionable adjacent channel "whistle."

Logging Scale: THE FISHER Model 50-R dial glass carries a logging scale consisting of linear divisions from 0-100. With this, location of your favorite and frequently used stations is reduced to its simplest form.

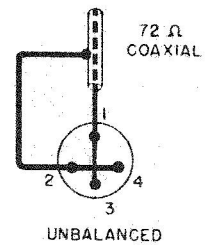
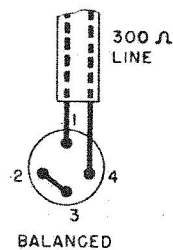
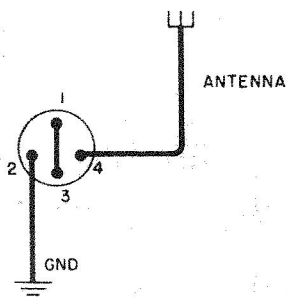


FOR ANTENNA PLUG CONNECTIONS SEE FIG. 2 AND FIG. 3

FIG. 1



AM ANTENNA CONNECTIONS
FIG. 2

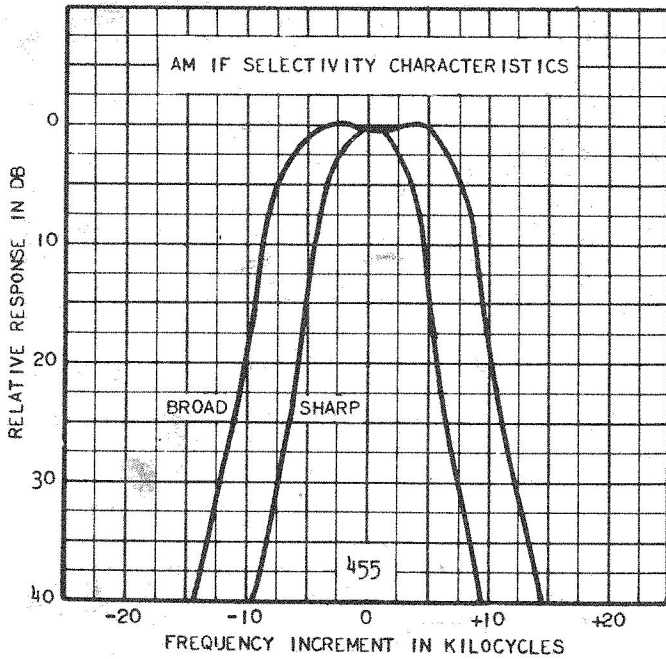


FM ANTENNA CONNECTIONS
FIG. 3

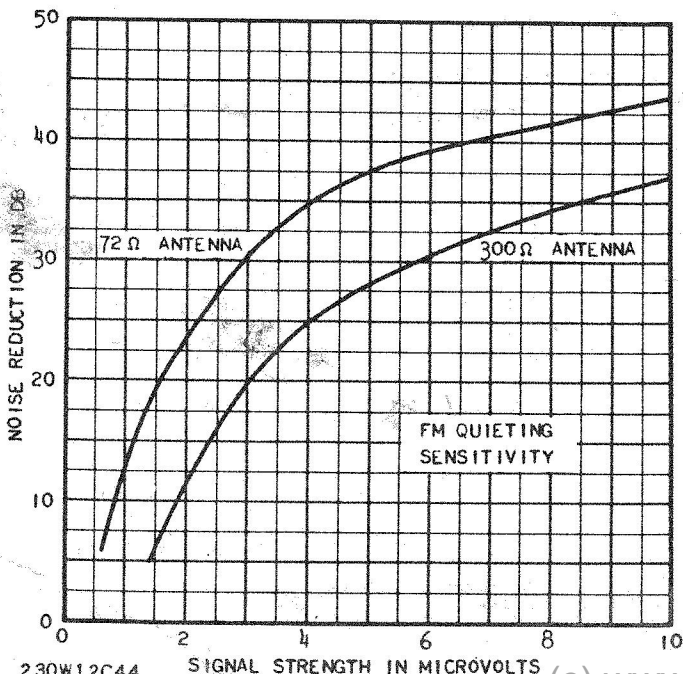
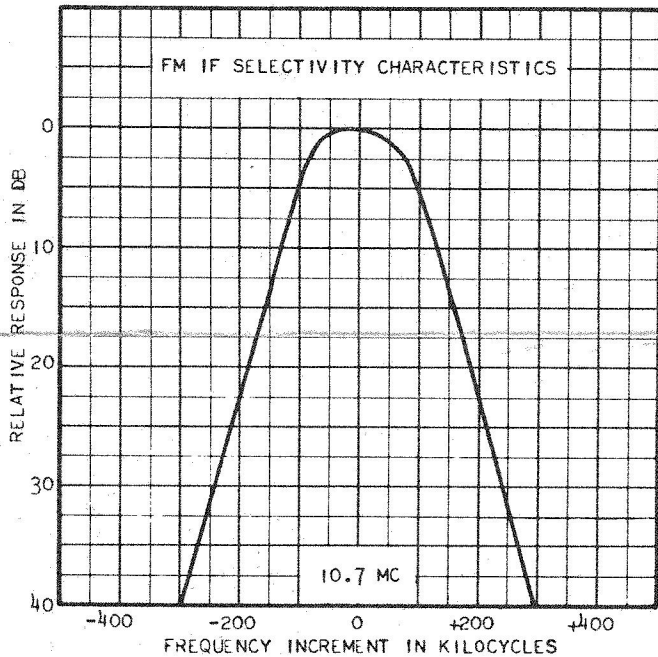
FISHER RADIO CORPORATION · NEW YORK

GENERAL SPECIFICATIONS

AM IF SELECTIVITY CHARACTERISTICS



FM IF SELECTIVITY CHARACTERISTICS



FREQUENCY MODULATION. Armstrong system, two IF stages, dual limiters, cascade RF stage, dual antenna inputs; either 72 ohm, or 300 ohm balanced. Full limiting on signals as low as one microvolt. Sensitivity on 72-ohm antenna input: 1½ microvolts for 20 db of quieting and 2½ microvolts for 30 db of quieting. On 300-ohm antenna input: 3 microvolts for 20 db of quieting and 5 microvolts for 30 db of quieting. Frequency response is uniform from 20 to 20,000 cycles, ± 1 db. Exclusive, variable automatic frequency control; can be switched out of circuit from front panel.

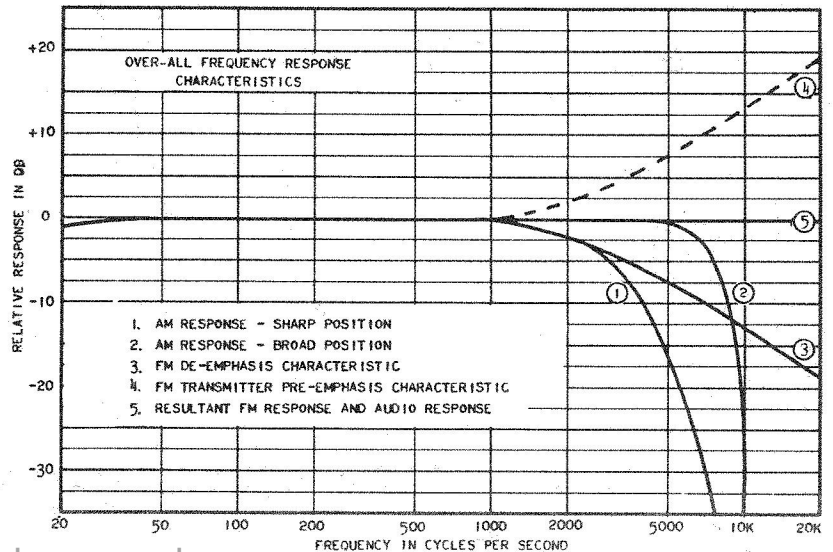
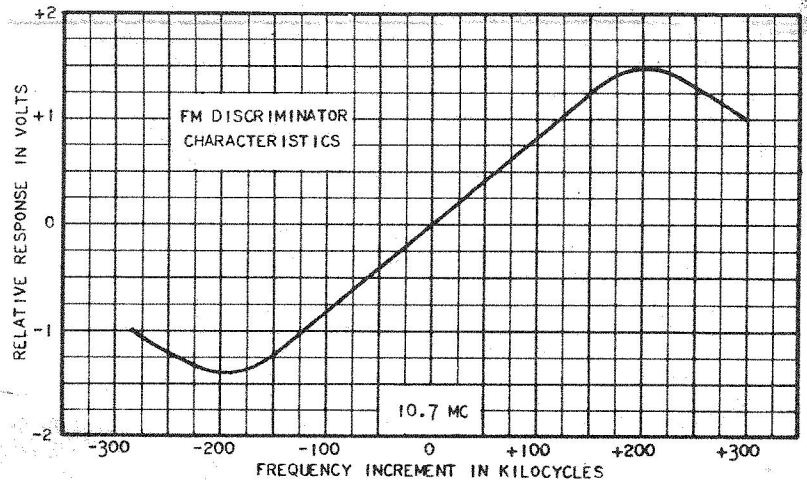
AMPLITUDE MODULATION. Two IF stages and one tuned RF stage. IF bandwidth is adjustable from the front panel. Frequency response: ± 2 db to 6000 cycles (—3 db at 7000 cycles) in broad-tuning position. Bandwidth in sharp-tuning position is 6 Kc wide at 6 db down. Sensitivity: less than one microvolt input for one volt output. Dual antenna inputs: one for high impedance, conventional antenna; one for loop antenna. Built-in 10 Kc filter.

AUDIO. Frequency response is uniform from 20 to 20,000 cycles, ± 1 db. Distortion is less than 0.8% for 10 volts output; 0.04% for 1 volt output. Hum level, with volume control at minimum, is more than 100 db below two volts output. With volume control on full, hum level is more than 90 db below two volts output. Cathode follower output permits use of this tuner with any amplifier, and at distances up to 200 feet from the amplifier.

CONTROLS. Total of four: On-off Switch, Volume, Six-Position Selector Switch (AM-Broad, AM-Sharp, FM, FM-AFC, Phono, TV) and Tuning.

GENERAL FEATURES. Fourteen tubes, including rectifier and tuning eye. Self-powered. Completely shielded construction including a bottom plate and variable capacitor cover. Six-gang variable capacitor. Flywheel tuning. Separate front ends for AM and FM. Both main chassis and front-end sub-chassis are of etched aluminum and individually shock-mounted. Attractive metal front panel finished in brown hammertone. Brushed brass control designation plate. AM loop and FM dipole antennas supplied. Two power outlets at rear of chassis for connection of auxiliary equipment. Two high impedance auxiliary inputs. Tube complement: 2-6BQ7A, 1-6CB6, 1-6BE6, 3-6BA6, 2-6AU6, 2-6AL5, 1-12AU7, 1-5Y3, and 1-6U5.

PHYSICAL DATA. Overall dimensions: 14¾" wide, 8½" high, 9¼" deep. Shipping weight: 19 pounds.



1. AM RESPONSE - SHARP POSITION
2. AM RESPONSE - BROAD POSITION
3. FM DE-EMPHASIS CHARACTERISTIC
4. FM TRANSMITTER PRE-EMPHASIS CHARACTERISTIC
5. RESULTANT FM RESPONSE AND AUDIO RESPONSE