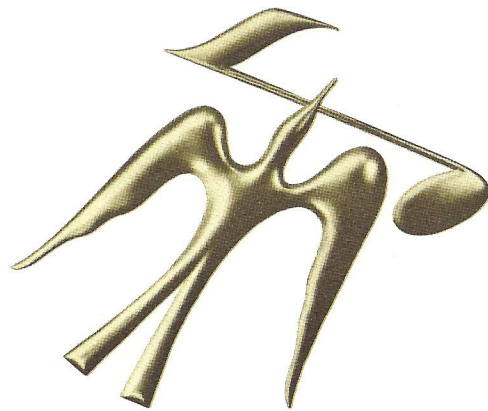


OPERATING INSTRUCTIONS AND WARRANTY



THE FISHER[®]

600-T
STEREOPHONIC
FM-Multiplex Receiver

PRICE: \$2.00

**WORLD LEADER IN
STEREOPHONIC HIGH FIDELITY**

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 just acquired came into being—its appearance, its functions, its quality of performance, its convenience of use.

But the end step—your purchase—is merely a beginning. A door has now opened, for you and your family, on virtually unlimited years of musical enjoyment. Recognizing that one of the keys to pleasurable ownership is reliability, we have designed this instrument to give long and trouble-free service. In fact, instruments we made over twenty-seven years ago are still in use today.

Remember always that we want this equipment to give you the best performance of which it is capable. Should you at any time need our assistance toward that objective, please write me personally.

AN IMPORTANT SUGGESTION

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

Founder and President

FISHER FIRSTS

Milestones In the History of High Fidelity Reproduction

- 1937 First high-fidelity sound systems featuring 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 3-Way Speaker in a high fidelity system.
- 1939 First Center-of-Channel Tuning indicator.
- 1945 First Preamplifier-Equalizer with selective phonograph equalization.
- 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 Peak Power Indicator in high fidelity.
- 1955 First Master Audio Control Chassis with five-position mixing facilities.
- 1955 First correctly equalized, direct tape-head master audio controls and self-powered preamplifier.
- 1956 First to use 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 Stereo Remote Control System.
- 1959 First complete Stereophonic FM-AM Receiver (FM-AM tuner, audio control, 40-watt amplifier).
- 1959 First high-compliance plus high-efficiency free-piston speaker system.
- 1960 First to use MicroRay for FM tuning and as a Recording Audio Level Indicator.
- 1960 First complete stereo FM-AM receiver with 60-watt power amplifier and new 7591 output tubes.
- 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.
- 1960 First reverberation device, for use in high fidelity equipment—The Fisher Dynamic Spacepander.
- 1960 First stereo tuner with MicroTune.
- 1960 First FM tuner with six IF stages.
- 1960 First FM tuner with five limiters.
- 1960 First front panel antenna selector switch, 72-300 ohm, Local-Distant positions.
- 1961 First Multiplex units with STEREO BEACON and automatic switching, mono to stereo.
- 1961 First complete receivers with Multiplex.
- 1961 First FM-Stereo-Multiplex tuners with STEREO BEAM.
- 1961 First loudspeaker system with frameless woofer cone, eliminating all parasitic resonance.
- 1961 First internal switching system to permit immediate tape playback with use of all controls and switches.
- 1962 First simplified-operation Control-Amplifier, with infrequently used controls behind a front-panel cover, yet immediately accessible.
- 1962 First loudspeaker with eddy-current-damped voice coil.
- 1962 First bass speaker with combined serrated-aluminum and fiber cone.
- 1962 First FM Tuner Kit with separate d'Arsonval meter for tuning and separate cathode ray stereo broadcast indicator (STEREO BEAM).
- 1962 First Stereophonic FM Tuner with TUNE-O-MATIC Motor Tuning.
- 1962 First Supersonic Wireless Remote Control in a high fidelity component.
- 1963 First to use 8417 tubes with unique cavity-anode design.
- 1963 First power amplifier to use oscilloscope-type, frequency compensated input circuit.
- 1963 First amplifier kit with STRATABALANCE, visual dynamic balancing system.
- 1964 First multiplex adaptor with 'flywheel synchronization.' Closely approaches theoretical limit of noise rejection, and of all spurious responses.
- 1964 First AFC with strong locking on weak signals, with no pull-in from adjacent strong signals.

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The elegant and exciting appearance of your new FISHER 600-T FM-multiplex receiver is an indication of the thrill which awaits you when you hear it play for the first time, for behind its sculptured, gold-plated panel is circuitry which represents the latest in solid-state technology, and the ultimate in receiver performance.

In developing the 600-T, our advanced engineering groups were determined to create an extremely sensitive FM-multiplex tuner, a versatile preamplifier with unusually low distortion and noise, and a power amplifier capable of exceptionally clean and powerful reproduction — all on one extremely compact chassis. This combination of sophisticated designs results in a receiver capable of pulling in the weakest of signals and powerful enough to drive the most inefficient of speaker systems to their full rated power.

Three main design goals were established for the 600-T. First and foremost was performance. In every respect, the receiver was to meet or exceed the performance of all available comparable units. Using several newly-developed transistor types, we were able to make significant improvements in almost every circuit of the receiver. The results are everywhere, from the superior pull-in power of the FM front-end and the extreme separation of the multiplex section to the vital, effortless and 'transparent' sound of the amplifier section.

Secondly, we required that the receiver be able to maintain its superior performance over long periods of the most demanding continuous use. This was assured by designing the receiver for operating conditions many times more severe than those it is likely to encounter in normal use. Here again, transistors provide a singular improvement. The practically indefinite operating life and very low operating temperatures of solid-state circuitry make possible greatly extended component life, and maintain peak performance over indefinitely long periods of time.

Last of all, the 600-T was to be compact in size. Again, due to our use of transistors, with their inherently smaller size, we were able to markedly reduce the dimensions of the receiver. This was also possible because the other components in the circuit could be made smaller, and because our design eliminates the need for bulky output transformers. In spite of its tremendous power capabilities, the 600-T is less than twelve inches deep!

To describe the performance of this revolutionary unit in every particular would be to compile a lengthy list of superlatives. Contained in its compact metal cabinet is a tuner with a 1.8 microvolt IHF sensitivity,

an amplifier with a frequency response extending from 5 to 35,000 cps and power rating of 120 watts (IHF music power) – yet the entire unit is small enough to fit on every shelf, or even into the smallest of cabinets.

Incorporating the famous STEREO BEACON* automatic stereo-mono switching system and an improved version of the outstanding GOLDEN SYNCHRODE* front-end, the FM-tuner section of the 600-T sets a new standard of excellence – even for FISHER. The remarkable IHF sensitivity of the 600-T, *which makes it the most sensitive receiver ever produced*, is assured by the exclusive Nuvistor-GOLDEN SYNCHRODE* front end and five IF stages (incorporating five limiters). The IF strip has extremely wide bandpass while the front end combines the highest sensitivity with an overload rejection unattainable with most all-transistor circuits. A wide-band ratio detector follows the limiters, and assures optimum detection of multiplex signals, in addition to an unusually good capture ratio. The multiplex section is of the superior time-division type, utilizing a frequency-doubler circuit and a balanced-diode ring demodulator. This circuit reduces noise to the theoretical minimum, and achieves significantly better stereo separation: more than 40 db – an industry first. All manual switching between stereo and monophonic operation is eliminated by the STEREO BEACON circuit, which uses a transistor switch for silent, trouble-free operation. The tuner section also incorporates AUTOSCAN*, which enables one to tune across the band for the selection of stereo stations *only*, muting mono stations and inter-station noise.

The audio control center of the 600-T possesses a full range of operating features, including separate, friction-lock bass and treble controls for each channel, and full tape recording and playback facilities, incorporating the FISHER DIRECT TAPE MONITOR* system. High and low sharp cut-off filters, as well as a front-panel headphone jack, are also provided. A four-position speaker selector switch enables the 600-T to act as the control center for remote speaker installations, in addition to the main set of speakers. This switch can also be used to silence all speakers for private listening with headphones, if desired. There is even a control to adjust the brightness of the meter and STEREO BEACON lamps to your taste.

The powerful dual channel transistor power amplifier has no output transformers, enabling the reproduction of sound with unsurpassed clarity and freedom from distortion. Through the use of new design techniques, and careful selection of transistors, a new performance standard has been established.

The most important ingredients of any FISHER component, however, are not so obvious. They are the careful design, the use of costly, durable materials, the craftsmanship in construction, and the rigid test procedures behind every FISHER unit which receives the final stamp of approval. Before leaving the factory, your 600-T had to pass a long series of stringent examinations. In this way, we endeavor to protect our long-standing, world-wide reputation for the very highest standards in performance and reliability.

WHAT IS STEREOPHONIC SOUND?

Stereophonic sound (stereo) is a method of reproducing sound by means of two independent channels, left and right, so that a spatial feeling of direction and depth is recreated. It is the extension of high fidelity sound into three dimensions. In fact, it offers the closest approach to true high fidelity yet achieved because it comes closest to the ultimate aim of all high fidelity systems – a perfect recreation of the original live sounds. Thus, good stereophonic sound *is* high fidelity in the truest sense of the term.

This feeling of dimension is lost with monophonic (single channel) reproduction, because our ears help determine the relative position of separate instruments in an ensemble only if each hears a slightly different version of the sound, just as visual depth perception depends on the two separate, slightly different pictures received by the eyes. Merely using two or more speakers on a single amplifier does not solve the problem; it only spreads the single sound source without providing the all-important different “aural viewpoints.”

True stereo sound, then, requires the use of two independent sound paths from the origin to your ears, kept separate at all times during recording, transmission and reception. This requires the use of two separate sets of recording amplifiers, a means of keeping the channels apart during recording and radio broadcasting, and finally, two independent amplifier and speaker systems in the home. For optimum stereo, it is best to have the equipment used in each channel as alike as possible. In a stereo record, each wall of the groove contains a separate signal, and the stereo cartridge is designed to pick up each of these two channels separately. The new system of FM stereo broadcasting (known as “multiplex”) utilizes a separate ultrasonic signal in addition to the main signal. By combining these two signals in a multiplex decoder, the original left and right channels are recovered. Stereo tape recordings are made by impressing the two channels on separate parallel tracks running along the length of the tape.

* Patent Pending.

The two channels are not kept completely separate acoustically. In a live performance, your left ear hears many of the sounds on your right, and vice versa. Thus, keeping the channels totally apart from the original recording session to the final playback in your home would result in an unnatural effect. But enough separation is maintained so that a definite feeling of direction occurs as you listen to the reproduced sound. The result is a remarkably vivid illusion of great depth and spaciousness, such as is normally obtained only at a live performance.

FM MULTIPLEX STEREO

FM broadcasting has a frequency range far in excess of the normal hearing range. For example, Fisher wide-band tuners have a frequency range which extends to 75 kc, while the normal hearing range does not exceed 17 kc. This extra "space" in the frequency range has now been put into service for the transmission of a second and third signal simultaneously with the main signal. The third (and highest frequency) signal is used in commercial applications (for background music) and will not be received on home high fidelity equipment. The other two signals, however, are used for the reception of stereo programs. During stereo multiplex broadcasts, the main signal, which can be received by any FM tuner or receiver, contains the sum or blended signal from both stereo channels (left plus right). The second, ultrasonic signal contains the additional information necessary to recreate the stereophonic sound. This "compatible" system makes it possible for an ordinary FM set to receive a fully balanced monophonic program even during a stereo multiplex broadcast. At the same time, however, the multiplex circuits of the 600-T derive the left and right stereo channels from the main and ultrasonic signals, thus providing you with all the added realism of full stereo sound.

Because FM stereo multiplex broadcasts require new equipment and new techniques at FM stations, it is to be expected that not all programs will be of the same technical calibre during the first few months of their operation. Such occasional problems as may arise initially will no doubt be solved quickly, as the stations gain experience with the new procedures.

INSTALLATION OF THE 600-T

1. GENERAL

This section of the manual covers the major points you need to know to install your 600-T properly. Although installation itself is a very simple matter, it is important that you read this section thoroughly *before* you attempt to connect your new receiver. We also suggest that you keep this section open for reference as you connect the 600-T.

CAUTION: *BECAUSE TRANSISTORS CANNOT BEAR LARGE OVERLOADS WITHOUT BEING DESTROYED, WE HAVE PROTECTED THE OUTPUT CIRCUITS OF THE 600-T WITH SPECIAL FUSES, AND DEvised A SPECIAL HOOK-UP PROCEDURE. PLEASE READ THIS ENTIRE SECTION, AND MAKE ALL CONNECTIONS APPLICABLE TO YOUR UNIT. THEN, BEFORE ATTEMPTING TO PLAY THE SET, PERFORM THE PROCEDURE OUTLINED ON THE CARD TO WHICH THE FUSES ARE ATTACHED.*

2. POWER REQUIREMENTS AND CONNECTIONS FOR ADDITIONAL COMPONENTS

The FISHER 600-T operates on 105-120 volts, 50-60 cycles *only*, and consumes 210 watts at full power output. Two auxiliary power outlets for other components are provided on the rear panel. When an automatic turntable, tape recorder or other equipment is plugged into these outlets, its power is turned on and off by the power switch on the Volume control.

The 600-T may be installed in two different ways. The most usual is the 'open-shelf' installation, where the 600-T is simply placed on a free-standing shelf, or a shelf in a bookcase or other cabinet, and connected to the other components in your system. Since the 600-T has its own integral metal cabinet, its appearance is elegant enough to complement your finest furniture. Should you desire a wood cabinet, the FISHER Model 100-U custom cabinet, especially designed for the 600-T, is available from your dealer.

A second method is mounting in a custom cabinet. Again, the usual position of the receiver is horizontal, although vertical mounting is also possible. However, custom mounting requires that special considerations be given to ventilation. Please refer to the section of this manual entitled *Custom Mounting* before attempting to make any installation other than the 'open-shelf' type described above.

For open-shelf installation with or without the 100-U cabinet, leave a minimum of two inches of open space on all three sides of the unit, and about four inches above the unit, to provide adequate ventilation. In addition, do not place the 600-T on soft or yielding material, since this could impede proper ventilation.

NOTE: The 600-T is designed to be always used with its integral metal cabinet, regardless of where or how it is mounted. If the perforated cover is removed from the cabinet, the AC interlock switch will make the set inoperative, to eliminate the possibility of shock.

3. ANTENNAS

a. General — A folded dipole antenna is packed with the 600-T. The two arms (the horizontal portion of the antenna shown in Figure 1) should be mounted horizontally, and away from all electrical wiring and large metal objects. The best procedure is to first tack the antenna to a length of wood, making sure that the tacks do not contact the conductors running along each edge of the cable. Next, rotate the antenna in the horizontal plane, until the antenna is pointed in the direction which yields best reception. In buildings using steel structural supports, reception can generally be improved by placing the antenna close to a window. To permit placing the antenna further from the receiver, the lead of the antenna which connects to the set can be extended by splicing on an additional length of 300-ohm twinlead, which is available from your dealer, and from most radio supply stores. Once the antenna is positioned for best reception, the length of wood may be fastened to the wall, or to the rear of a cabinet. Avoid fastening the antenna directly to the wall, since a loss of signal strength could result. In a strong signal area, the antenna may be placed under a carpet, although reception of weaker stations improves greatly as the height of the antenna is increased. Never fold or coil the antenna, since this will impair reception of weak stations.

FM multiplex reception generally requires stronger signals to achieve the same low noise levels you have come to expect from monophonic programs. You may therefore find that an antenna which proved to be satisfactory for monophonic reception might require moving to obtain good multiplex reception. In some cases, especially in fringe areas, an outdoor rooftop antenna, or even a highly directional yagi-type antenna (with a rotor, if necessary), may be needed for multiplex reception, even though the indoor suffices for monophonic transmissions.

Besides providing a stronger signal to the receiver, a directional antenna is also very effective in preventing multipath distortion, caused by simultaneous reception of the *direct* signal from the station and one or more *reflected* and *delayed* signals, bounced off buildings or other large vertical surfaces.

b. Connecting the Antenna — Connect the antenna to the DIST terminals on the ANTENNA terminal strip. If you live very close to an FM transmitter with an unusually strong signal, there is a possibility that it will appear at several places along the dial, and perhaps interfere with weaker stations. If this should occur, simply reconnect the antenna to the LOC terminals of the ANTENNA terminal strip. This will prevent receiver overload (the cause of stations appearing more than once on the dial) by reducing the input signal.

For further information regarding the reception of weak stations, see page 10, paragraph 9b.

4. SPEAKERS

a. Placement — Placement of the speakers has a significant effect on the sound quality of a high fidelity system. Most speakers will give better results in the bass range when placed on the floor and in a corner, although there are exceptions to this rule. Speakers should generally be placed along a wall, in such a position that no large objects block the sound path between the speakers and listening area. In a *stereo* system, the speakers should be equidistant from the listening area. As a rough rule-

of-thumb, the distance between the listening area and the speakers should be approximately $1\frac{1}{2}$ to 2 times the distance separating the speakers.

Although the above principles can serve as a guideline for the placement of your speakers, we recommend that you experiment with several different arrangements before deciding on the *final* positions of the speakers. The unpredictable effects resulting from particular furniture arrangements or irregularities in room dimensions may sometimes make unorthodox placement of the loudspeakers necessary. Should you have trouble in placing your speakers for optimum sound, write our Mr. Richard Hamilton, in care of Customer Relations Department, enclosing a sketch of the room containing the installation, an indication of the furniture (including draperies) in the room, and the place where you normally sit. You will receive a prompt and authoritative reply. After the initial location of the loudspeakers has been decided, all that remains is to connect the loudspeakers.

b. Connection — A general word of caution is in order before the speakers are connected. As explained previously, it is especially important that the speaker terminals and speaker leads not be shorted. TO PREVENT SHORTS, AND THE INCONVENIENCE OF BLOWN FUSES, FOLLOW THE HOOK-UP PROCEDURE OUTLINED ON THE CARD TO WHICH THE FUSE BAG IS STAPLED, AFTER ALL OTHER CONNECTIONS TO THE RECEIVER HAVE BEEN MADE. Output fuses will also blow if speakers with considerably less than 4-ohm impedances are connected to the 600-T and played at high volume. If fuses blow, refer to page 14, paragraph 5.

In connecting speakers to the receiver, it is best to use ordinary lamp cord or antenna twinlead for distances of up to 50 feet. Heavier wire should be used for greater distances, to prevent power losses in the cable. No more than a half-inch of insulation should be removed from either end of the speaker cable, since any greater length of exposed wire is likely to cause shorts at either the terminals on the rear panel of the receiver or those on the speakers, and can cause the output fuses to blow. Twist all exposed strands of wire tightly, so that the ends of the wires become easy to handle. If the wiring is tacked to the wall or baseboard, care should be taken that the wires are not cut or shorted together when fastened.

In order to simplify connection, we suggest that you use wire which will enable you to distinguish between the two leads, such as a type with a ridge on one side of the insulation, or a colored thread under the insulation of one lead.

ONE SPEAKER: If you are using only one speaker, it should be connected to the MAIN SPKR terminals on the strip marked LEFT SPEAKERS (see Figure 1). Next, set the switch marked IMPEDANCE SELECTOR, which is used to match the output impedance of the 600-T to that of your speaker. For speakers with a 4-ohm impedance, slide the switch to the upper (4) position. If the speaker has an 8- or 16-ohm impedance, slide it to the lower (8 & 16) position. If you are unsure of your speaker's impedance, slide the Impedance Selector to the 4 position. The Balance control should be turned to the maximum *counterclockwise* position until a speaker is attached to the RIGHT SPEAKER output terminals. If only one speaker is used, the MONO pushbutton should *always* be depressed. This will combine the signals from the left and right channels of stereo program sources

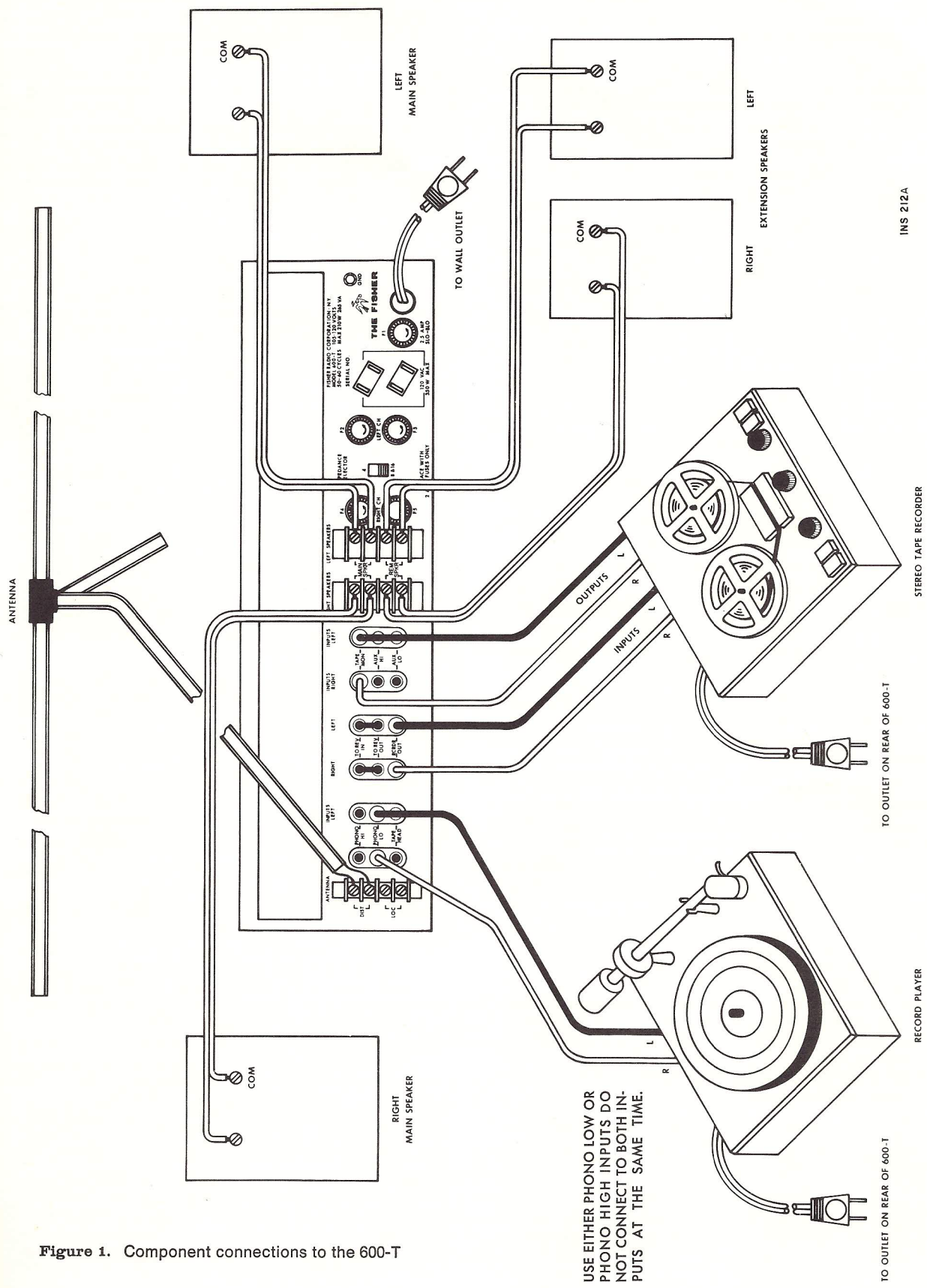


Figure 1. Component connections to the 600-T

USE EITHER PHONO LOW OR PHONO HIGH INPUTS DO NOT CONNECT TO BOTH INPUTS AT THE SAME TIME.

INS 212A

STEREO TAPE RECORDER

RECORD PLAYER

THE FISHER 600-T

into a full monophonic signal. (If the MONO pushbutton is undepressed, only the left channel will be heard if the source is stereophonic.)

CAUTION: Do not parallel both channels into one speaker, since this may blow the fuses protecting the output stages of both channels. (It is not necessary to attach a load resistor across the output terminals of the unused channel.)

TWO SPEAKERS: In a normal stereo installation, two speakers (one for the left channel and one for the right) are connected to the MAIN terminals of the LEFT SPEAKERS AND RIGHT SPEAKERS terminal strips, respectively. *Do not attach one of the main speakers to the Main terminal in one channel and the other main speaker to the REMOTE terminal of that channel, since this connects both speakers to one channel only.*

If you are using two speakers with different impedances, set the impedance Selector to the value of the lower impedance. (For example, if you use a 4-ohm speaker and an 8-ohm speaker, set the impedance Selector to 4.) If you are uncertain of the speaker impedance, set the impedance Selector to 4.

c. Phasing of Speakers — To ensure proper speaker phasing, connect the inner screws (marked C) on the LEFT and RIGHT SPEAKERS terminal strips to the same conductor as the common terminal (marked C, COM, G, GND) of your loudspeaker. This will cause them to 'push' and 'pull' in unison, resulting in more natural sound.

If you are uncertain whether the speakers are correctly phased (e.g., if your speaker terminals or the wires connecting speakers and receiver are unmarked), you may check speaker phasing in the following way:

1. Temporarily place both speakers next to each other, with the fronts facing you.
2. With the MUTING pushbutton on the front panel released, set the Balance control to the center position.
3. Turn the Selector switch to the FM AUTOMATIC position.
4. Turn the Volume control clockwise until it clicks.
5. Turn the Bass and Treble controls to their maximum clockwise position, and depress the LOUDNESS CONTROL pushbutton.
6. Tune to a spot on the dial where nothing but noise can be heard, advancing the Volume control until a high sound level is reached.
7. Stand about three feet away from the fronts of the speakers. Listen to the high- and low-pitched components of the noise. If the highs seem to come from between the speakers, and a low, rumbling sound is also audible, the speakers are correctly phased. If the high-pitched noise seems to come from somewhere outside the speaker grilles, the speakers are incorrectly phased. If they are not phased properly, turn the Volume control to the AC OFF position, and reverse the leads to one of the speakers only.

d. Extension Speakers— If you wish to place extension speakers in other rooms of your home, in addition to the main set of speakers in your listening room, connect them to the REMOTE terminals of each channel. The inner terminal on the terminal strip of each channel should be connected to the common terminal (marked C, COM, G, GND GROUND, etc.) of your loudspeakers, to ensure proper phasing.

If more than one pair of extension speakers is used, the question of speaker impedance again becomes important. In some cases, for instance, it may be more desirable to place the extension speakers in series. To be more precise, the total impedance of the extension speakers in each channel must exceed 3 ohms. Should you decide to use more than one pair of extension speakers, keep this requirement in mind. If you are not technically inclined, it would be wise to consult your dealer as to the best arrangement, or to write our Technical Service Department, including the type, model number and impedance of the speaker or speaker systems you will be using.

5. ADDITIONAL COMPONENTS

The 600-T is designed to be the center of the home high fidelity system. By adding other components, such as the ones listed below, more sources of music may be incorporated into the system.

a. Record Players and Changers — Turntables, automatic turntables and changers using magnetic or ceramic phonograph cartridges can be played through the 600-T. The PHONO LO input jacks should be used for all types of magnetic cartridges, and the PHONO HI inputs for ceramic cartridges with adaptors for magnetic inputs.

If you cannot ascertain which of the two leads from the record player is the channel A (left) output, and which is the channel B (right) output, connect them to the receiver, and listen for normal placement of instruments on a symphonic record. If the violin section appears to be located on the right, reverse the leads from the phonograph. Another method of determining the correct connection is to use one of the many test records available on the market.

NOTE: If the sound you hear is weak and distorted, the two channels of your phono cartridge may be connected out-of-phase. To correct this condition, simply interchange the connections of the leads from *one channel* at the cartridge.

b. Connecting Components to AUX Inputs — For your convenience, we have provided two pairs of AUX inputs, each pair with a different sensitivity. Determine whether to use the AUX HI or AUX LO input(s) as follows:

1. Connect the component you wish to play to the AUX HI jack(s).
2. Play an FM station of average strength (see Table 2). Listen to the volume level.
3. Without changing the setting of the Volume control, turn the Selector switch to the AUX position, and listen to the volume level which results from playing the unit (e.g., tape recorder, television, etc.) through the AUX HI input of the 600-T.
4. If the resultant volume level is lower than that of the FM station, reconnect the cables from the auxiliary source to the AUX LO jack(s).

NOTE: Since the AUX LO and AUX HI jacks are electrically paralleled, only *one* pair can be used for connection. The unused pair of jacks should not be terminated.

c. Tape Recorders — Tape recorders can be connected to record from and play back through the 600-T, as shown in Table 1. If the tape unit only has facilities for playback of prerecorded tapes, you will find instructions for connection to the 600-T under 'Playback Deck'. In-

structions for the connection of all other types of tape recorders and tape decks will be found under the heading Tape Recorder or Record-Playback Deck.

Table 1

Tape Mechanism	Type of Mechanism	With Playback Preamplifier	Without Playback Preamplifier
Playback Deck	Monaural	Connect deck output to left channel TAPE MON input jack of 600-T.	Connect deck output to left channel TAPE HD input jack.
	Stereo	Connect left channel (A) output of deck to left channel TAPE MON input jack, and right channel (B) output of deck to right channel TAPE MON input jack.	Connect left channel (A) output of deck to left channel TAPE HD input jack of the 600-T, and right channel (B) output of deck to right channel TAPE HD input jack.
Tape Recorder or Record-Playback Deck	Monaural	Connect output of deck or recorder to left channel TAPE MON input of 600-T, and high-level deck input to left channel RCDR OUT jack.	Connect output of deck to left channel TAPE HD input. Connect high-level deck input to left channel RCDR OUT jack.
	Stereo	Connect left channel (A) output of tape deck to the left channel TAPE MON input of the 600-T, and the right channel (B) output of the tape deck to the right channel TAPE MON input. Connect the left channel high-level input of the deck to the left RCDR OUT jack, and the right channel high level input to the right channel RCDR OUT jack.	Connect the left channel (A) output of the deck to the left channel TAPE HD input of the 600-T, and the right channel (B) output of the deck to the right channel TAPE HD input. Connect the left high level input of the deck to the left RCDR OUT jack, and the right high level input of the deck to the right RCDR OUT jack.

NOTE: Because the TAPE MON inputs have less gain than the other inputs, you may prefer to utilize the AUX inputs for playback. If the AUX inputs are connected in this manner, the circuit cannot be set to monitor the tape during the recording process by using the TAPE MONITOR pushbutton.

d. Television 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 television to the 600-T. However, once the connection has been made, the cable from the TV set should be connected to the left channel AUX jack. (See paragraph b above.)

NOTE: If you have an AC-DC television set, be sure that adequate precautions are taken to prevent shock due to a 'hot' chassis.

e. Spacexpander – The FISHER Model K-10 DYNAMIC SPACEXPANDER® can enlarge the acoustic dimensions of your listening room to those of a concert hall. Special jacks are provided on the 600-T for connecting this exciting reverberation device.

Before installing the SPACEXPANDER, remove the two jumper wires between both sets of TO REV IN and TO REV OUT jacks; keep them for possible future use. These wires must be reinserted when the SPACEXPANDER is disconnected or the 600-T will be completely silenced. Make the following cable connections:

1. From the left TO REV OUT jack on the 600-T to the channel A OUTPUT jack on the SPACEXPANDER.
2. From the right TO REV OUT jack on the 600-T to the channel B OUTPUT jack on the SPACEXPANDER.
3. From the left TO REV IN jack on the 600-T to the channel A INPUT jack on the SPACEXPANDER.
4. From the right TO REV IN jack on the 600-T to the channel B INPUT jack on the SPACEXPANDER.

f. WS-1 Wide Surround® Speaker Systems – The FISHER WS-1 Wide-Surround speaker systems prevent the restriction of the listening area, caused by the 'point-source' effect, thus making any area within the listening room the 'best' listening position. They may easily be attached to the 600-T by connecting the speaker used to the left of the listening area to the REMOTE terminals of the *left* channel, and the remaining one to the REMOTE terminals of the *right* channel, and turning the *Speakers* switch to MAIN + REMOTE. The WS-1 speakers should not be attached to the MAIN terminals.

g. System Grounding – The GND screw on the right-hand side of the rear panel may be used to ground the motor and tone arm of your record player, in order to eliminate the possibility of hum. The chassis ground of other components may also be connected to this terminal, if desired. Use a *separate* wire for connection to the system ground; do *not* use the shield of any cable which carries a signal to the receiver.

OPERATING THE 600-T

Your 600-T is now ready for operation, but like any fine electronic equipment, it must be operated correctly to deliver its best performance. We urge you to read the following instructions carefully, so that you may achieve optimum results.

We know from experience that you are naturally most anxious to operate your new receiver. Although we recommend that you read this entire section carefully before operating the unit, we have compiled the guide in Table 2 for the 'man in a hurry'. This table and the accompanying text contains the *absolute minimum* of information you must have to operate the 600-T. If you use Table 2, we suggest that you read this *entire* section at your first opportunity, since you can only use the controls to their full advantage through a *complete* understanding of what each control can do.

NOTE: Refer to Figure 2 for rapid identification of the following controls and switches.

1. VOLUME CONTROL AND POWER SWITCH

The Volume control regulates the total volume of sound from both speakers, changing the sound level from both channels equally, and making it unnecessary to balance the two channels each time you change the volume. For your convenience, the Volume control and power switch have been combined. In the maximum counterclockwise position (AC OFF), all power to the 600-T (and any components connected to the AC outlets on the rear of the set) is shut off. As the control is turned clockwise, the switch clicks, and power is applied to the set and the rear AC outlets. In all positions of the Selector switch (except the FM positions) the 600-T plays immediately. By starting with the Volume control in the minimum (fully counterclockwise) position, we have eliminated the possibility of uncomfortably high initial volume levels, or damage to the speakers due to the tremendous power available at high settings of the Volume control. With a separate Volume control and power switch, this might occur if a very high volume level had been used the last time the 600-T was operated, or if someone had accidentally set the control to maximum.

Once you have established the volume level you desire, simply note the number opposite the knob pointer, and use it to conveniently reset the volume.

2. SELECTOR SWITCH

The Selector switch determines which program source will be heard, and selects manual or automatic stereo-mono switching in the case of FM.

NOTE: For all positions of the Selector switch, the mode of receiver operation is governed by the MONO pushbutton on the front panel. When the MONO pushbutton is in the normal (undepressed) position, the 600-T is set for stereophonic operation (except in the FM AUTOMATIC position of the Selector, when you are tuned to a *monophonic* broadcast, and the STEREO BEACON is not lit). Depressing the MONO pushbutton switches the receiver into the monophonic mode of operation. *If the MONO pushbutton is depressed while the Selector switch is in the FM AUTO or STEREO positions and the STEREO BEACON is lit, the stereo program which is re-*

ceived will be played back monophonically. For further details on the operation of the MONO pushbutton, see paragraph 8, section F.

The following are the switch positions and their functions:

a. Tape Head — Selects a tape deck (without preamplifiers) connected to the TAPE HEAD jacks, and provides correct equalization for tapes played at a speed of 7 1/2 inches per second. When playing tapes at 3 3/4 inches per second, advance the Treble control to the 'three o'clock' position for correct equalization.

b. Phono — This position is used to listen to records played on a turntable or changer connected to the PHONO HI or PHONO LO jacks on the rear panel.

c. FM Automatic — This position is used for all FM broadcasts, both monophonic and stereo. The STEREO BEACON (to the left of the tuning scale on the dial glass) will light when a stereo program is being transmitted on the station to which the 600-T is tuned, and the set will automatically switch to the stereo mode of operation. At the conclusion of the program, or when you tune to a station not broadcasting stereophonically, the STEREO BEACON lamp is extinguished, and the set returns to the monophonic mode of operation. For noisy stereo signals, or signals which cause intermittent operation of the STEREO BEACON, use the FM MONO position of the Selector, as described below.

d. FM Stereo — This position of the switch permits only stereo stations to be heard. All other stations, as well as interstation noise, will remain muted. When you tune to a stereo station, the STEREO BEACON lamp will light, and the station's signal will emerge from a silent background. Use this position when you wish to tune stereo stations *only*.

e. FM Mono — This position locks the 600-T in the monophonic mode of operation. Use this position to receive stereo signals which are too noisy for enjoyable stereo reception.

f. Aux — This position selects a component connected to the AUX HI or AUX LO jacks on the rear panel.

g. Tape Play — This position selects a recorder connected to the TAPE MON input jacks on the rear of the receiver.

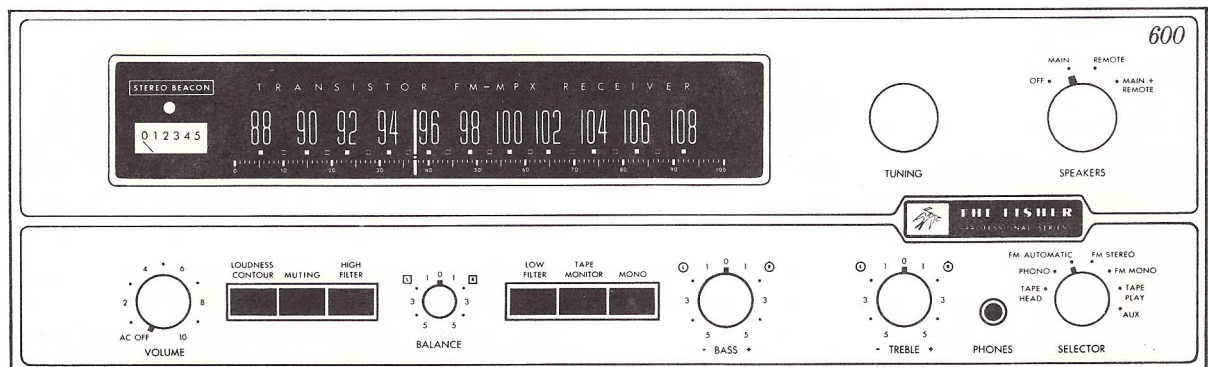


Figure 2. Front panel of the 600-T

Table 2

Set controls as shown in Figure 2.

To Play:	Set Selector Switch To:		And These Additional Controls To:
FM mono or stereo broadcast	FM Automatic		Use tuning controls to reach desired station
Records	Mono	Phono	Depress MONO pushbutton
	Stereo	Phono	MONO pushbutton should not be depressed
Tape (Recorder or deck with playback preamplifiers)	Mono	Tape Play	Depress MONO pushbutton
	Stereo	Tape Play	MONO pushbutton should not be depressed
Tape (Recorder or deck without playback preamplifiers)	Mono	Tape Head	Depress MONO pushbutton
	Stereo	Tape Head	MONO pushbutton should not be depressed
Other sources connected to Aux input	Mono	Aux	Depress MONO pushbutton
	Stereo	Aux	MONO pushbutton should not be depressed

Advance the Volume control from the AC OFF position, and leave it at the setting which produces a comfortable sound level. For all program sources except FM, the unit will play immediately. Wait until the FM program material can be heard before setting the final volume level for the first time.

3. TUNING

The tuning knob enables you to select FM stations in the 88 to 108 megacycle band. When tuning in the station of your choice, set the dial pointer to the position which results in a maximum indication on the tuning meter. When tuning across the band, with the Selector at FM AUTOMATIC, the STEREO BEACON will signal whenever you reach a station broadcasting in stereo. For your added convenience, a logging scale with linear divisions from 0 to 100 is included under the FM band. By making a note of the location of your favorite stations, as indicated on this linear scale, you will be able to tune to them more quickly and accurately.

4. BALANCE CONTROL

This control is used to equalize the sound levels from both speaker systems, to achieve the optimum stereo effect. If the left and right inputs are exactly balanced, you will hear equal sound levels from the left and right speakers with the control in mid-position (marked 0). If, however, there is an imbalance in the program levels, you can re-balance the sound levels by turning the balance control either clockwise (to increase the sound level on the right and decrease the sound level on the left) or counterclockwise (to increase the left and decrease the right). The Balance control is not a substitute for the Volume control, since the same overall volume is maintained as it is adjusted. With the Balance control fully counterclockwise, only the left speaker will be heard; with the control fully clockwise, only the right speaker will be audible.

5. BASS AND TREBLE CONTROLS

The Bass and Treble controls each consist of two concentric knobs. The knob nearest the front panel affects the right channel, and the other one, the left.

The bass control increases the amount of bass tones (such as those of tuba or bass viol) that you hear. With the bass control in the mid-position (marked 0), the bass tones will sound exactly as they did when they were recorded or picked up for broadcast. If you wish to emphasize the bass, simply turn the Bass control clockwise. To decrease the prominence of the bass tones, turn the bass control counterclockwise. Normally, the entire Bass control rotates as one unit, but if you wish to adjust the bass separately for each channel (as you might, for instance, if you are using a different type of speaker in each channel), hold one of the knobs in place while adjusting the other.

The Treble control adjusts the intensity of the treble tones (such as the highest notes of the violin or piccolo) that you hear. As with the Bass control, the mid-position (marked 0) will result in the reproduction of treble tones exactly as they appear in the program source. The relative strength of the treble tones (with respect to the rest of the program material) can be increased by rotating the Treble control clockwise. Turning the control counterclockwise decreases the relative amount of treble tones. The Treble controls may also be individually adjusted for each channel by holding one knob while rotating the other.

NOTE: Excessive use of bass boost when playing records may result in acoustic feedback (a low, rumbling sound), caused by the close proximity of your speakers and record player. To eliminate this condition, move your speakers and record changer further apart, or use a lower (more counterclockwise) setting of the Bass control.

The tone control settings have no effect upon recordings made from the 600-T.

6. SPEAKERS SWITCH

The Speakers switch is designed for installations which employ more than one pair of speakers. The four positions have the following functions:

OFF — This position is used for personal listening with headphones. All speakers are silenced, thus permitting you to listen to the 600-T (via stereo headphones plugged into the PHONES jack on the front panel) without disturbing others. Be sure to return the switch to one of the other positions before disconnecting the headphones.

MAIN — This position is used to listen to the main speakers connected to the MAIN terminals on the rear panel. If you have only one set of speakers (no additional speakers in other rooms which are connected to the unit), use this position except when listening through headphones.

REMOTE — This position selects additional speakers connected to the REMOTE terminals on the rear panel, and permits you to listen to these speakers, while silencing the speakers connected to the MAIN terminals.

MAIN + REMOTE — This position is used to listen to both your main speakers (connected to the MAIN terminals) and your additional, remotely-located speakers (connected to the REMOTE terminals) at the same time.

NOTE: Because of safety features incorporated in the output circuit switching network, you may encounter lower sound levels with the speakers which are connected to the REMOTE terminals.

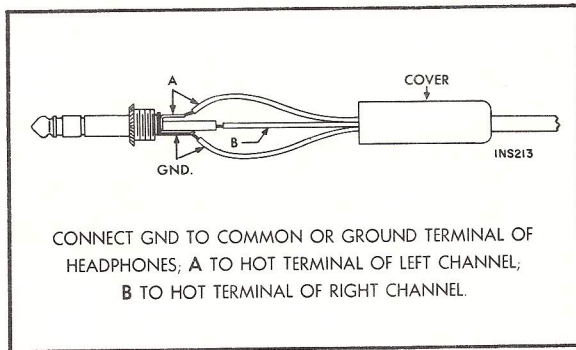


Figure 3. Headphone plug wiring

7. PHONES JACK

The Phones jack is conveniently located between the Treble control and the Selector switch. It will accept any standard stereo phone plug. If your stereo headphones do not have a phone plug, attach a stereo phone plug as shown in Figure 3.

When using your earphones for the first time, turn the Volume control to minimum before connecting them. Turn the *Speakers* switch to the OFF position and advance the volume control until you reach the level you prefer. Next, turn the *Speakers* switch to MAIN position, and compare the sound level to the headphones with that of the speakers. This test will enable you to set the correct volume level for the earphones before plugging them in, thus avoiding the annoyance of high volume levels.

CAUTION: Do not leave the headphones plugged in when using the speakers at high volume levels. The large amounts of audio power required by the speakers at these levels can overload and permanently damage the headphones.

8. PUSHBUTTON CONTROLS

The remaining controls are pushbuttons, which are grouped at either side of the Balance control. They are of the push-on, push-off type. To operate them, simply depress the appropriate button(s), and release. The button will remain partially depressed when the switch is actuated. To turn the switch off, simply push the button lightly, and then release. The button will pop out to its original position, and the switch will shut off.

a. Loudness Contour — The Loudness Contour switch is used to add compensation for the natural deficiency of the human ear in the extreme bass and treble ranges at low volumes. When this switch is on (depressed), an increasing emphasis of low bass and high treble tones is added as the Volume control is turned counterclockwise, resulting in a more natural sound at low volume levels.

b. Muting — When depressed, this pushbutton activates the muting. See paragraph 9b for a complete explanation of muting.

c. High Filter — The High Filter is a sharp-cutoff circuit designed to remove annoying record scratch, hiss, and other high-frequency noise, without dulling the treble portion of the musical program. It may also be used to eliminate noise on multiplex programs for very weak stations. The High Filter is designed to affect the signal

at the recorder output, as well as the one fed to the speakers, thus enabling 'cleaner' recordings to be made.

d. Low Filter — The Low Filter, operating in a fashion similar to the High Filter, removes low-frequency noise without weakening bass tones in the music being played. Like the High Filter, it is also effective on signals fed to the recorder.

NOTE: If either the high or low filters has been used while recording from program material played on the 600-T, these filters should not be used when the recordings are played back through the receiver, since their action may then result in an undue emphasis of mid-frequencies.

e. Tape Monitor — This pushbutton enables you to monitor (or 'check') the quality of tape recordings made from the 600-T *during the process of recording*. When the button is depressed, the 600-T is switched to play the sound from the tape as it passes the playback head, a moment after it is recorded. The recording process continues as usual while the button is depressed. During the tape monitoring process, the volume is normally reduced. When the button is returned to the undepressed position, normal playback from the source is restored.

NOTE: The process described above can be used to full advantage *only* with tape recorders having separate playback and recording circuits and heads. If you use any other type of recorder, you may interrupt the monitor process or cause feedback. In such cases, play the tape only after you have completed making the recording.

f. Mono — This switch controls the mode of receiver operation. In any position of the Selector switch, depressing the Mono pushbutton switches the 600-T from the stereophonic into the monophonic mode of operation. When the Selector switch is in the PHONO position, depressing the Mono pushbutton cancels the vertical components of the signal, thus eliminating the rumble which is sometimes produced when a monophonic record is played with a stereo cartridge. In the FM positions of the Selector switch, depressing the Mono pushbutton switches the amplifier section to monophonic operation. When the button is in the normal (undepressed) position and the Selector is in one of the FM positions, the *amplifier section* is switched into the stereophonic mode of operation.

NOTE: The Mono pushbutton should not be depressed when the Selector switch is in the FM AUTO or STEREO position, because if it is depressed when the STEREO BEACON is lit, the amplifier section will be switched to the monophonic mode of operation, preventing stereophonic playback of a stereophonic broadcast.

9. AUXILIARY CONTROLS

These controls are usually adjusted once, to the listener's taste, and then left in the desired position. They are located behind the FISHER nameplate, and can be reached by depressing the left side of the nameplate (over the FISHER bird). The right side of the nameplate will swing out, revealing the controls.

a. Lamp Intensity — The leftmost control is the lamp intensity control, and is used to set the meter lamp and STEREO BEACON indicator lights for the degree of illumination you desire. Turning the control clockwise increases the level of illumination.

b. Muting Threshold — The right-hand control behind the FISHER nameplate is the muting threshold control, and is used to eliminate the irritating noise which would

normally be heard when tuning between stations. It can also be used to discriminate against stations that are so weak and noisy that you prefer not to listen to them. To eliminate interstation noise only, depress the muting pushbutton, and turn the muting threshold control to the maximum *counterclockwise* position. Tune to a point on the dial where you hear nothing but noise. Next, turn the muting threshold control slowly clockwise to a position just a bit beyond the point where noise can no longer be heard. To eliminate weaker stations *in addition* to interstation noise, turn the muting threshold control to the

maximum counterclockwise position and tune in a weak, noisy station. Next, turn the control until this station can no longer be heard. *Do not turn the control too far clockwise, since you will prevent the reception of stations which are weak, but not objectionably noisy.*

NOTE: If you wish to remove muting completely, leave the MUTING pushbutton on the front panel undepressed. If the MUTING pushbutton is depressed, some degree of muting will still be present, even in the maximum counterclockwise position of the muting threshold control.

CUSTOM MOUNTING

This instrument may be mounted in a special component cabinet, Model 100-U, or may be mounted in your own custom cabinet or enclosure by following the directions and illustrations in this section. Remember that heat is the greatest enemy of electronic equipment. It is important to provide enough ventilation. The heat build-up generated by some portions of the circuitry can be enough to ruin the instrument or, at least, cause premature part failure. **Your warranty does not cover damage caused by excessive heat.** The enclosure must be open at the rear—*DO NOT* cover it with perforated hardboard—*DO NOT* push the cabinet back, close against a wall. If the back must be protected use 1/4-inch hardware cloth (wire screening)—a smaller mesh (like window screening) impedes the normal air flow (convection) and can clog up with dust eventually. **DO NOT** use cloth (even grill cloth) or air filter mesh unless forced-air (fan or blower) cooling is used. Remember, too much heat will ruin *your* pleasure. If you have any doubts about your installation write to Richard Hamilton of the FISHER Customer Service Department. If possible, send a detailed drawing or plan of your cabinet or enclosure.

This unit is shipped with four plastic feet attached to the bottom of the chassis. To install the unit in another cabinet, these feet must first be removed. **DO NOT** discard the screws—they are used to hold the chassis in place in the cabinet. Too-long screws can cause internal short circuits. **DO NOT** use screws that are any longer than necessary.

Horizontal Installation — To provide adequate ventilation to the underside of the chassis, the tuner must be mounted on wooden cleats which are fastened to the mounting board. For this installation, proceed as follows:

(1) Obtain a strip of wood 3/4 inch square and 20 inches long. Cut this strip in half to form two 10-inch cleats.

(2) Fasten the two cleats to the top of the mounting board with *flat-head* wood screws at the points labeled A in Figure 5. Screw heads should be countersunk below the top surfaces of the cleats. Next, locate and drill four 1/4-inch holes through the mounting board and cleats at B.

(3) Saw a cutout through the front panel of your cabinet to the dimensions shown in Figure 4. The distance be-

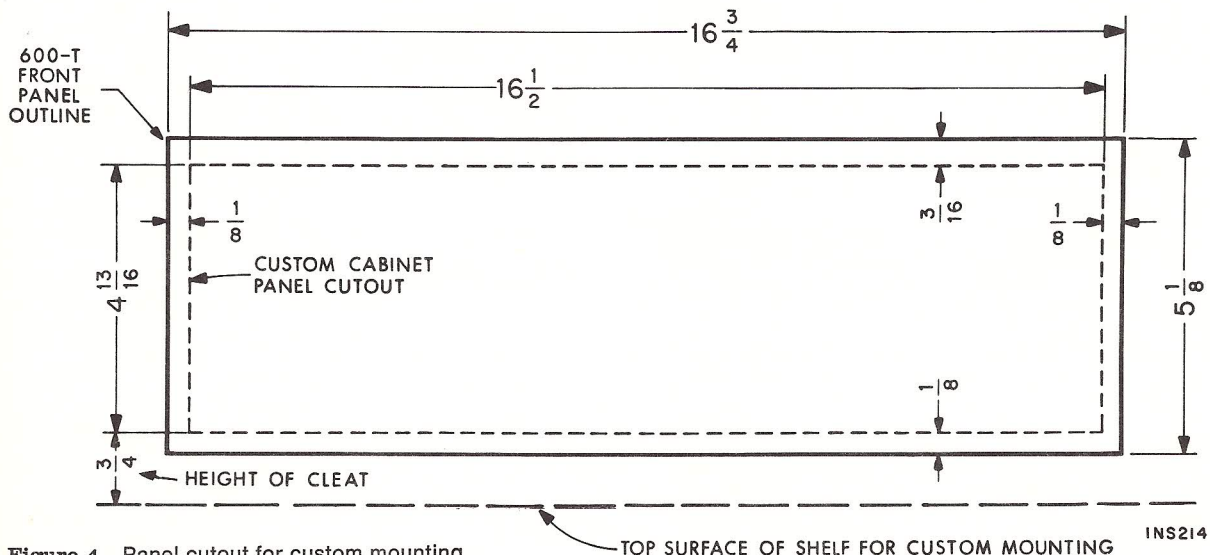


Figure 4. Panel cutout for custom mounting

TOP SURFACE OF SHELF FOR CUSTOM MOUNTING

INS214

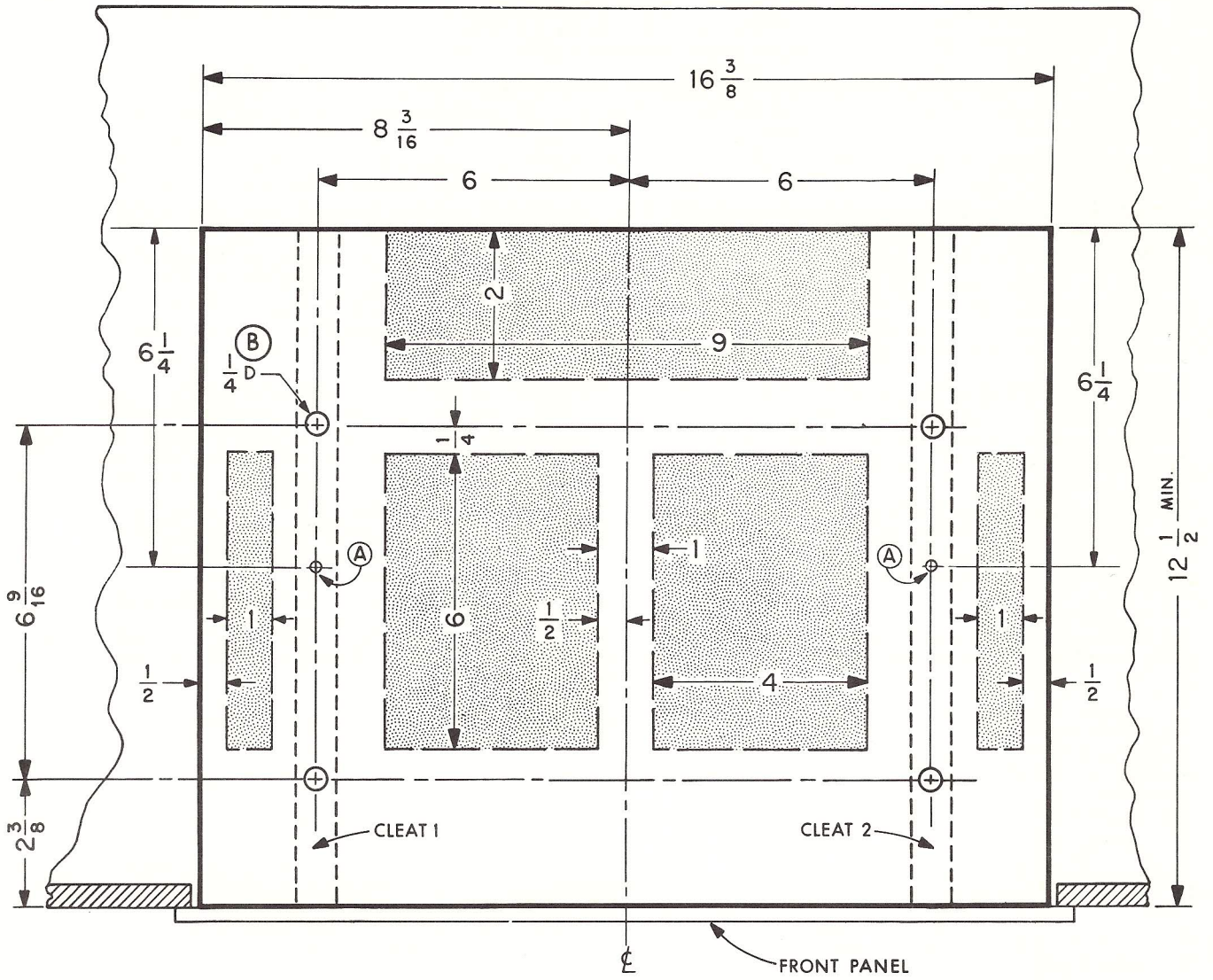


Figure 5. Top view of custom cabinet installation (horizontal mounting)

tween the top surface of the mounting board and the bottom of the cutout must be the same as the height of the cleats.

(4) Insert the chassis through the front of the panel cutout. Slide the chassis into the cabinet until the back of the control panel is tight against the panel of the cabinet.

(5) Insert four of the screws supplied in the accessories bag through the holes in the bottom of the mounting board and fasten the chassis into place. Use the 1½-inch screws for ½-inch mounting boards, and the 1¾-inch screws for boards of ¾-inch thickness.

NOTE: For maximum ventilation, you may make the

cutouts shown as shaded areas in Figure 5.

Vertical Mounting — Remember that heat is the greatest enemy of electronic equipment. To mount your component vertically the cabinet *must* have an open back and be separated from the wall behind it by several inches. It may be necessary to use forced ventilation. The heat build-up from a tuner and power amplifier can be enough to ruin one or both units. Your warranty does not cover damage caused by excessive heat. A fan or blower may be needed to prevent heat build-up. Write to Richard Hamilton of the Customer Service Department for specific mounting instructions.

HOME MAINTENANCE

1: CLEANING THE DIAL GLASS

(1) Remove the front panel. Disconnect the set from AC power as a precaution. Remove all knobs, but not the pushbuttons. Remove the three hex nuts located at the points occupied by the Volume control, the Selector switch and the Speakers switch. Then lift off the front panel.

(2) Loosen the screws that retain the clips to the dial glass. (When you replace the dial glass, make certain to reset it by placing it firmly against the lower left-hand corner.) Swing the clips aside, and then lift off the glass.

(3) Remove dust with a dry rag. If you wish to clean more thoroughly, *use a soap and water solution only*; if you use any stronger cleaning agent, you may damage the markings on the glass.

2. REPLACING DIAL LAMPS

First, disconnect the AC power cord as a precaution. Remove the front panel as described above. The lamps are held in place by spring clips and can be removed

with the fingers. Replace with a new lamp from your FISHER Dealer (Part Number I-50441-1).

3. REPLACING THE DIAL POINTER LIGHT

(1) Remove the screws that secure the top cover to the rest of the unit and then lift off the cover.

(2) Remove the front panel and dial glass as described in the paragraph above. Unclip the wires of the dial-pointer light from the two terminals on the top side of the chassis, behind the front panel. Disengage the wires from the small hook clip on the rear of the pointer carriage. (See Figure 6 for carriage and pointer details.)

(3) Remove the dial pointer (bulb plus metal guard), by unbending the tab and sliding the pointer downward.

(4) Slide the new pointer (Part No. AS50451-2) upward, while pressing down on the carriage, until the pointer reaches its upper limit and its tab mates with the carriage slot. Secure the pointer by bending the tab.

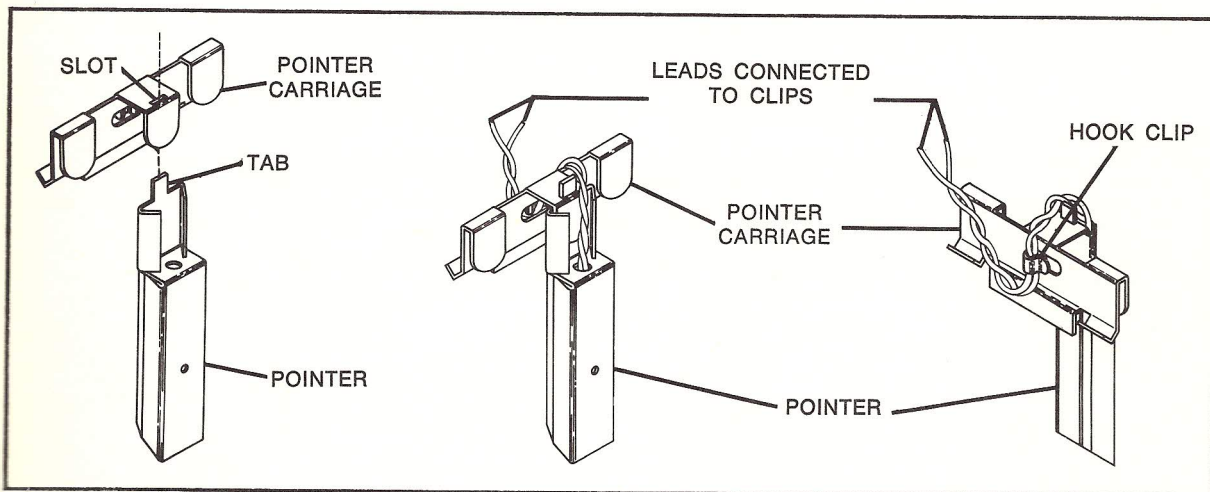


Figure 6. Dial pointer detail

(5) Twist the two wires together and slip them through the hook clip on the rear of the pointer carriage. *Be sure to avoid leaving any slack in the wires above the pointer.* (See Figure 6 for details.)

(6) Secure the clip ends of the two wires to the chassis terminals by pressing the clips over the terminals.

(7) Replace the dial glass, front panel, and cabinet top.

4. STEREO BEACON LAMP

This lamp is a long-life device which should not require replacement in normal use. Do not attempt to replace it yourself; consult your authorized FISHER dealer or serviceman for further information.

5. REPLACING FUSES

a. Power Fuse — To protect against line surges and other adverse conditions sometimes encountered by electronic equipment, the 600-T is fused at strategic locations. If the receiver appears to be inoperative, check to see if the dial lamps light when the Volume control is turned clockwise from the AC OFF position. If the lamps do not light, the unit may have a blown power fuse.

To replace the fuse, which is located in a black receptacle labelled F1, on the lower right-hand side of the rear panel, proceed as follows:

1. Turn the Volume control to the AC OFF position.
2. Disconnect the power cord from the wall receptacle.
3. Push the cap of the fuseholder in, and turn it counterclockwise. The cap will disengage, and you can pull it out, with the fuse remaining in its clip. Replace the fuse with a 2.5-amp Slo-Blo fuse only. Return the cap and fuse to the receptacle, and restore power to the set.

NOTE: If the power fuse replacement fails to restore normal operation, or if a replaced fuse blows immediately, call your authorized FISHER serviceman.

b. Speaker Fuses — If the dial is lit, yet the set does not play, *no matter what program source* (e.g., tuner, turntable, tape recorder, etc.) *is used*, it may be the result of a blown fuse in the output stage of the Power Amplifier. Power transistors could easily be destroyed if the speaker terminals were accidentally shorted to each other, or to the chassis. To protect the transistors, as well as the speakers, each output stage uses two fuses, which are located around the impedance selector switch, in receptacles labelled F2 through F5. Fuses F2 and F3 are used in the left channel; F4 and F5 protect the right channel. These fuses are precisely rated, and manufactured to function within extremely narrow tolerances. These fuses must be replaced only with fuses rated at 2 amperes. Replacement with any other type of fuse, or with Slo-Blo fuses of the same value may result in damage to the unit, and voids the warranty. If either channel (or both) is inoperative, pull the power plug from the wall receptacle and remove both fuses used in that channel. Simply push the cover of each fuseholder down, rotate it counterclockwise, and lift it from its receptacle. Replace the fuse(s) with a known good fuse (two spare speaker fuses are supplied with your set.) Additional fuses are available from your dealer as Fisher part No. F755-145 (2 amp), or from your local radio supplier. Next, plug the set in, and turn it on. If the channel(s) remain inoperative, consult your dealer or authorized Fisher Service Station.

Should distortion become apparent in either channel, replace one of the fuses in that channel as described above. If distortion is still apparent after restoring power to the set, replace the other fuse in the channel with the fuse removed. If restoration of power after the second replacement is not accompanied by cessation of distortion, consult your dealer or authorized Fisher Service Station.

If your dealer is out of stock, replacement parts may be ordered directly from the FISHER Parts Department. To order these parts, write to:

Parts Department
Fisher Radio Corporation
21-21 44th Drive
Long Island City 1, New York



TECHNICAL SPECIFICATIONS

THE FM TUNER:

IHF Usable Sensitivity	1.8 microvolts
Signal-to-noise-and-hum ratio (100% modulation)	70 db
Selectivity (alternate channel)	55 db
IF Rejection (at 100 Mc)	90 db
Spurious Response Rejection (at 100 Mc)	90 db
Image Rejection (at 100 MC)	65 db
Capture Ratio	2.0 db
FM Harmonic Distortion (400 cps, 100% mod.)	0.4%
Calibration Accuracy	0.2%
FM Stereo Channel Separation (at 400 cps)	40 db

THE AUDIO SECTION:

Music Power (8 ohms) (IHF Standard at 0.5% Harmonic Distortion)	120 watts total
RMS Power (0.5% Harmonic Distortion at 1 kc)	45/45 watts
IM Distortion (60/7000 cps, 4:1) Each channel (at rated power)	0.5%

Frequency Response Over-All	20-25,000 cps ± 1 db
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Power amplifier section

Power Bandwidth (IHF)	5-35,000 cps +0, -1db
Hum and Noise Volume at Minimum	12-35,000 cps -90 db
Channel Separation (at 1 kc)	55 db
Bass Controls (total variation at 50 cps)	32 db
Treble Controls (total variation at 10 kc)	26 db
Low Filter (-3 db at 50 cps)	12 db per octave below 40 cps
High Filter (-3 db at 5 kc)	14 db per octave above 6 kc
Input Sensitivity (for rated output)	
PHONO - Low	3.8 mV
 - High	8.5 mV
TAPE HEAD	2.5 mV
AUX - Low	300 mV
 - High	580 mV
MONITOR	650 mV
Power Line Requirements	105-120 volts, 50/60 cycles
Total Power Consumption (at 117 volts)	50 watts, 62 VA (at low volume) 210 watts, 265 VA (at full audio output)

Because its products are subject to continuous improvement, Fisher Radio Corporation reserves the right to modify any design or specification without notice and without incurring any obligation.

FM STATIONS I HAVE RECEIVED

LOGGING CHART

STATION	CITY	MC	LOGGING SCALE NO.	ROTATOR POSITION	STEREO MULTIPLEX	REMARKS

WARRANTY TO OWNER

The warranty on a product reflects the confidence of its maker in the quality of materials and workmanship that go into it. The unique FISHER warranty has been established to protect your investment. Please read it carefully.

All FISHER equipment is fully guaranteed to the original using purchaser against defects in materials and workmanship, subject to the following:

All parts (except tubes) are guaranteed for two years. Tubes are guaranteed for one year. Any defective part will be repaired or replaced without charge. During the first ninety days there is no charge for warranty labor.

Defective parts or equipment must be returned properly packed, transportation prepaid, to the FISHER dealer from whom it was originally purchased, or to a FISHER Authorized Service Center, or, after written authorization, to the FISHER plant. All warranty service is F.O.B. the dealer, service center, or FISHER plant.

The warranty is void if our inspection shows that the equipment has been tampered with, or installed, altered or repaired at variance with factory-designated procedures, subjected to negligence, misuse or accident, damaged by excessive line voltage or insufficient ventilation, or had its serial number altered, defaced or removed.

This warranty is in lieu of all other warranties, express or implied, and all other obligations or liabilities on the part of FISHER. No person, including any dealer, agent or representative of FISHER, is authorized to assume for FISHER any liability on its behalf or in its name except to refer purchasers to this warranty.

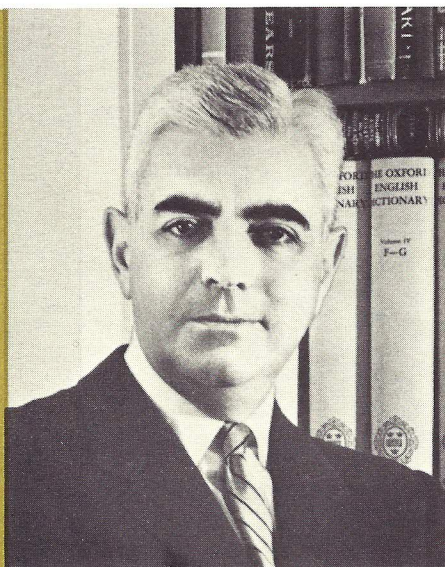
This warranty takes effect only if the warranty-registration card has been fully and properly filled out and returned to FISHER RADIO CORPORATION within ten (10) days from the date of purchase.

Be Sure to Register Your FISHER Equipment and Enjoy the Following Advantages:

- Full benefits of the FISHER warranty.
- Prompt handling of correspondence with our Customer Service Department.
- Assistance in finding your equipment or establishing its value in case of loss through theft, fire, etc.
- Receipt of FISHER news bulletins on important developments in high fidelity equipment.

FOR WARRANTY SERVICE, CONSULT YOUR DEALER

THE MAN BEHIND THE PRODUCT



AVERY FISHER

Founder and President,
Fisher Radio Corporation

Twenty-seven 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 installation or performance of your FISHER, please write directly to Avery Fisher, President, Fisher Radio Corporation, Long Island City 1, N. Y.



FISHER RADIO CORPORATION
LONG ISLAND CITY 1 • NEW YORK



SPECIAL NOTE

In earlier production runs of the 600-T, a muting level-set control was located on the front panel, behind the FISHER nameplate, and was intended for the convenience of those living in areas of particularly noisy reception. This was in addition to the muting On-Off XXXXXXXXXX switch on the front panel. Our experience has shown, however, that owners who are not technically inclined tended to adjust the muting level-set control improperly, with a resulting loss of sensitivity.

For this reason, we have, in current production, eliminated the muting level-set control from the front panel. It is now located internally, and is properly set by trained technicians, during production. There is no longer any need to adjust this control. The muting On-Off switch, however, remains on the front panel. The dial light dimmer control has been eliminated and the FISHER nameplate is now non-movable.