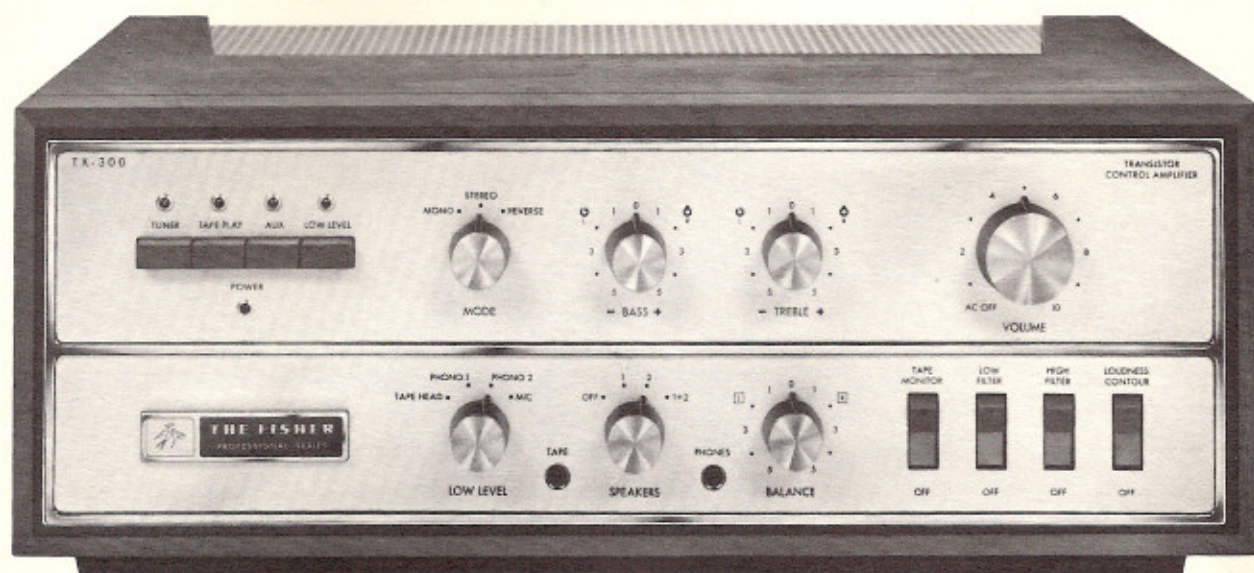




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**OPERATING INSTRUCTIONS
AND WARRANTY**



THE FISHER®

TX-300
STEREOPHONIC
Master-Control Amplifier

WORLD LEADER IN 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 TX-300 Transistor Master Control amplifier 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 amplifier performance.

In developing the TX-300, our advanced engineering groups were determined to combine a versatile preamplifier with unusually low distortion and noise, and a power amplifier capable of exceptionally clean reproduction at all levels. This combination of designs results in a master control amplifier capable of precisely reproducing the most delicate nuances of a violin solo, or of meeting the huge power demands of an orchestral crescendo.

Three main design goals were established for the TX-300. First and foremost was performance. In every respect, the amplifier 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 amplifier. The results are everywhere, from the extreme freedom of the preamplifier from noise and hum to the vital, effortless and 'transparent' sound of the power amplifier section.

Secondly, we required that the amplifier be able to maintain its superior performance over long periods of the most demanding continuous use. This was assured by designing the TX-300 for operating conditions many times more severe than those it is likely to encounter in normal use. Here, again, transistors provided 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 TX-300 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 amplifier. 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, which were the cause of many previous limitations in amplifier performance. In spite of its tremendous power capabilities, the TX-300 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 master control preamplifier-power amplifier with a power bandwidth extending from 12 to 50,000 cps, and a power rating of 100 watts. Twenty-one controls and switches make possible virtually complete control of sound by the listener. A front-panel jack is provided for the connection of headphones, and tape recorders can be connected to the amplifier via jacks on both front and rear panels. The famous FISHER DIRECT TAPE MONITOR* permits monitoring of tape recordings with full simultaneous use of all tone controls.

The most important ingredients of any FISHER component, however, are not so obvious. They are the careful design, the use of costly, more 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 TX-300 had to pass a long series of stringent examinations. In this way, we endeavor to protect our long-standing, world-wide reputation for the 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 supersonic signal, in addition to the main signal. By combining these two signals in a multiplex converter, 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.

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.

FOR THE MAN IN A HURRY

It is not difficult to guess that you are most anxious to connect a pair of speakers and a turntable, tuner, or tape deck to the TX-300, to turn the amplifier on, and *then* read the instructions as you listen to your favorite selections. Although this method doubtless seems a pleasant one, we advise against it, since certain precautions *must* be observed during installation. For this reason, we suggest that you read the paragraphs of the following section which are applicable to *your* installation — reading time is but a few minutes — before proceeding to connect the unit.

Although we recommend that you read the section entitled *Operation* before using the TX-300, you may use Table 2 on page 8 as a quick guide to amplifier operation. However, Table 2 should not be considered a substitute for detailed information. Since maximum pleasure can only be derived from a unit through full knowledge of its capabilities, we urge you to read the *entire* chapter at your earliest convenience.

INSTALLATION OF THE TX-300

1. GENERAL

This section of the manual covers the major points you need to know to install your TX-300 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 amplifier. We also suggest that you keep this section open for reference as you connect the TX-300.

A note of caution: Because transistors cannot bear large overloads without being destroyed, we have protected the output circuits of the TX-300 with special fuses. To avoid the needless inconvenience of a blown fuse in one or both channels, please read this entire section, and make all connections applicable to your system before plugging the unit into your wall outlet.

2. POWER REQUIREMENTS AND CONNECTIONS FOR ADDITIONAL COMPONENTS

The FISHER TX-300 operates on 105-120 volts, 50-60 cycles *only*, and consumes 170 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 one of these outlets, its power is turned on and off by the power switch on the Volume control.

The TX-300 may be installed in two different ways. The most usual is the 'open-shelf' installation, where the TX-300 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 TX-300 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 50-U custom cabinet, especially designed for the TX-300, is available from your dealer.

A second method is mounting in a custom cabinet. Again, the usual position of the amplifier 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 making any installation other than the 'open-shelf' type described above.

For open-shelf installation with or without the 50-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 TX-300 on soft or yielding material, since this could impede proper ventilation.

3. LOUDSPEAKERS

a. Placement — Placement of loudspeakers 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 the Customer Service 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 below, it is especially important that the speaker terminals and speaker leads not be shorted. If shorting occurs while the amplifier is being played at moderate to high power levels, the fuses protecting the shorted output stage will

blow, silencing that channel. This shorted condition is also approximated when speakers with considerably less than 4-ohm impedance are connected to the speaker terminals and played at high volume. The fuse may also blow in such situations. If this occurs, refer to page 13.

In connecting speakers to the amplifier, 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 by a tack, staple or other fastener.

In order to simplify connection, we suggest that you use wire which will enable you to distinguish between the two conductors, such as a type of cable 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 SPKR 1 terminals on the terminal strip marked LEFT SPKRS (see Figure 1). Next, set the switch marked IMPEDANCE SELECTOR, which is used to match the output impedance of the TX-300 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 position 4. The Balance control should be turned to the maximum *counterclockwise* position until a speaker is attached to the RIGHT SPKRS output terminals. If only one speaker is used, the Mode switch should always be in the MONO position. This will combine the signals from the left and right channels of stereo program sources into a full monophonic signal. (If the Mode switch is set to STEREO or REVERSE, only the left channel will be heard if the source is stereophonic.)

NOTE: Do not parallel both channels into one speaker, since this may blow the fuses protecting the output stages of both channels. (Do not 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 SPKR 1 terminals of the LEFT SPKRS and RIGHT SPKRS terminal strips, respectively. *Do not attach one of the main speakers to the SPKR 1 terminal in one channel and the other main speaker to the SPKR 2 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 SPKRS 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 amplifier are unmarked), you may check speaker phasing in one of the following ways.

If you have an FM tuner connected to the TUNER inputs of the TX-300, proceed as follows:

1. Temporarily place both speakers next to each other, with their fronts facing you.

2. Turn the Bass and Treble controls on the TX-300 to their maximum clockwise positions, and turn the Loudness Contour switch on. If the tuner has interstation muting, disable the muting.

3. Turn on the tuner and amplifier, depressing the TUNER pushbutton on the TX-300. Tune to a point on the tuner dial where only noise can be heard, and advance the Volume control of the TX-300 until a high volume level is reached.

4. Stand directly in front of the speakers, about three feet away. Listen to the high- and low-pitched components of the noise. If the highs seems 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 area of the speaker grilles, the speakers are incorrectly phased. To correct this, turn the Volume control to the AC OFF position, and interchange the leads to one of the speakers only.

If you are not using a tuner with your TX-300, depress the LOW LEVEL pushbutton, and set the Low Level selector switch to one of the inputs to which no component is connected (if you are using all of them, unplug one pair of connectors from a set of input jacks, e.g., PHONO 2), and set the Selector switch to that position). Turn the Bass and Treble controls to their maximum clockwise positions, and the Loudness Contour switch ON. Advance the Volume control to the point where a high sound level is produced. Check speaker phasing according to the procedure outlined in step 4 above.

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 SPKR 2 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 are 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 Customer Service Department, including the type, model, and impedance of the speaker or speaker systems you will use.

4. CONNECTING ADDITIONAL COMPONENTS

The TX-300 is designed to be the center of the home high fidelity system. By adding other components, such as the ones listed below, many 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 TX-300. The PHONO input jacks should be used for all types of magnetic cartridges, and ceramic cartridges with adaptors for magnetic inputs. Use the low-level controls (page 10 paragraph 11), if necessary, to set the correct playback level.

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 amplifier, and listen for normal placement of instruments on a symphonic record. If the violin section appears to be located on the right, interchange 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. Tuners — Tuners of all types may be connected to the TX-300. The TUNER inputs of the amplifier will accept signals from either high- or low-impedance tuner outputs, although if the tuner has a high-impedance output, cable length should be restricted to five feet or less.

The output of monaural tuners should be connected to the left channel TUNER input. For mono tuners, the Mode switch should always be in the MONO position. The left (A) channel output of stereophonic tuners should be connected to the left channel TUNER input of the TX-300, and the right channel (B) output to the right channel input of the amplifier. If your tuner has an output level control, or a volume control, you should adjust the output so that the program material is reproduced at the same level as other sources, for equal settings of the Volume control. This adjustment may be accomplished by switching the tuner from tape, or any other program source to the tuner, without changing the setting of the Volume control. If the program material from each source is reproduced at the same level, the tuner is set properly.

c. Tape Recorders — Tape recorders can be connected to record from and play back through the TX-300, 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 TX-300 under 'Playback Deck'. Instructions 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.'

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 TX-300. However, once the connection has been made, the cable from the TV set should be connected to the left channel AUX jack.

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

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 TX-300.	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 TX-300, 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 TX-300, 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 TX-300, 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 TX-300, 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: During the tape monitoring process (i.e., when the Tape Monitor switch is ON), the TAPE MON inputs have less gain, so a decrease in volume will usually be apparent during monitoring. However, full gain is restored during tape playback, when the TAPE PLAY button is depressed.

e. Spacepander® — The FISHER SPACEPANDER®, Model K-10, can enlarge the acoustic dimensions of your listening room to those of a great concert hall. It is easily connected to the TX-300 by using the special SPACEPANDER® jacks on the rear of the unit.

Before installing the SPACEPANDER®, remove the two jumper wires between the SPACEPANDER® jacks, retaining them for possible future use. *These jumpers must be inserted when the SPACEPANDER® is not connected, or the TX-300 will be completely inoperative.* Make the following cable connections.

1. From the left TO REV OUT jack on the TX-300 to the channel A OUTPUT jack on the SPACEPANDER®.
2. From the right TO REV OUT jack on the TX-300 to the channel B OUTPUT jack on the SPACEPANDER®.
3. From the left TO REV IN jack on the TX-300 to the channel A INPUT jack on the SPACEPANDER®.
4. From the right TO REV IN jack on the TX-300 to the channel B INPUT jack on the SPACEPANDER®.

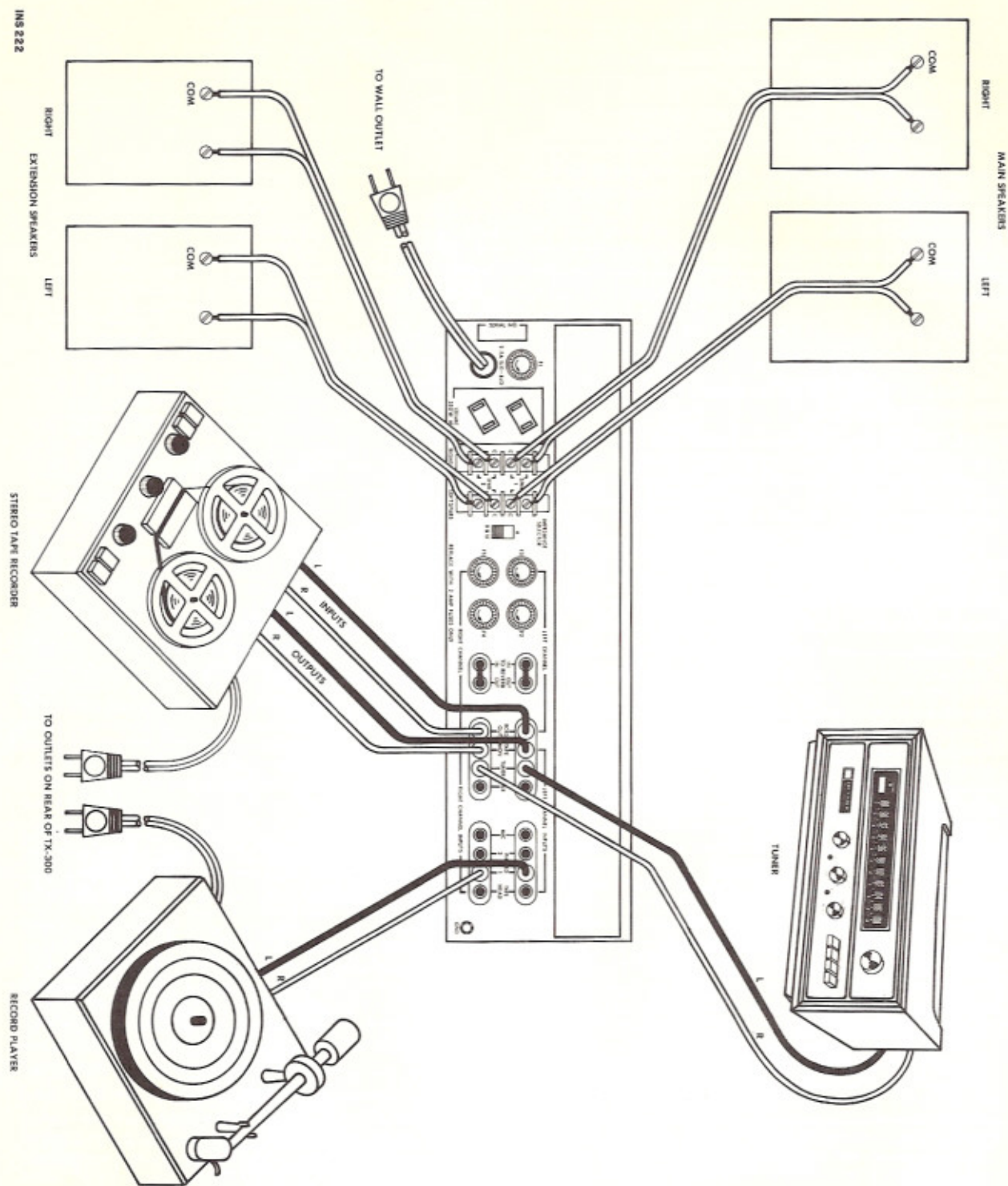


Figure 1. Component connections to the TX-300

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 TX-300 by connecting the speaker used to the left of the listening area to the SPKR 2 terminals of the left channel, and the remaining one to the SPKR 2 terminals of the right channel. *The WS-1 speakers should not be attached to the SPKR 1 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 amplifier. If hum persists, connect a wire from the GND screw to a grounded metal conductor, such as a water pipe.

OPERATING THE TX-300

We know from experience that you are naturally most anxious to operate your new amplifier. 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 TX-300. 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 TX-300 (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 the TX-300 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 TX-300 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. PUSHBUTTON SELECTOR SWITCH

The pushbutton selector switch determines which program source will be amplified.

NOTE: No matter which program source is selected, the amplifier's mode of operation is always governed by the Mode switch (see 4, below).

The functions of the pushbuttons are as follows:

a. Tuner — Selects a tuner connected to the TUNER jacks on the rear panel.

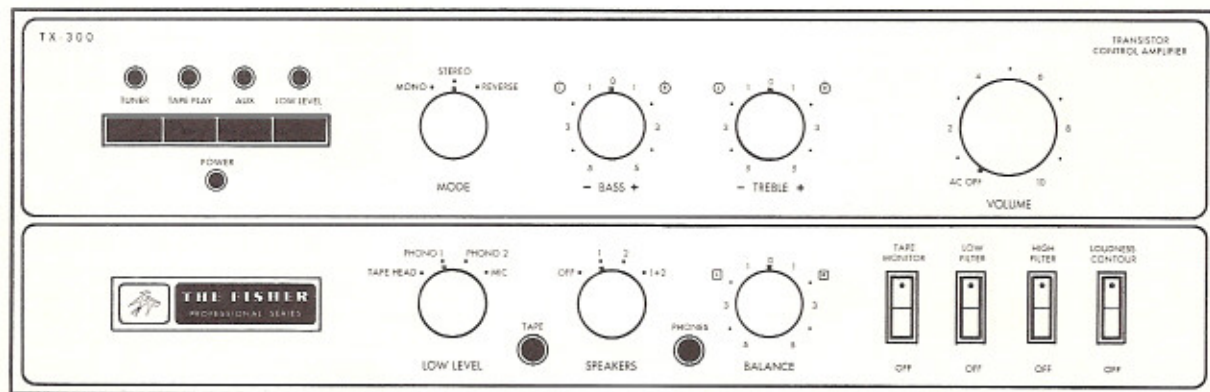


Figure 2. Front panel of the TX-300

b. Tape Play — Selects a recorder or tape deck with built-in preamplifiers connected to the TAPE MON input jacks on the rear of the TX-300.

c. Aux — Selects a component connected to the AUX jacks on the rear panel.

d. Low Level — Selects a low-level source, which is determined by the position of the LOW LEVEL switch (see 3, below).

3. LOW LEVEL SWITCH

The Low-Level switch selects one of the low-level sources for amplification, when the LOW LEVEL push-button (see 2, above) is depressed.

a. Tape Head — Selects a tape recorder or deck *without preamplifiers* which is connected to the TAPE HEAD inputs on the rear panel.

b. Phono 1 — Selects a changer or turntable connected to the PHONO 1 inputs on the rear of the TX-300.

c. Phono 2 — Selects a changer or turntable connected to the PHONO 2 inputs.

d. Mic — Selects a microphone or microphones connected to the MIC inputs on the rear of the amplifier.

Table 2

Set controls as shown in Figure 2.

To Play:	Mode*	Set Selector Switch To:	Set Low Level Switch To:	And These Additional Controls To:
AM or FM broadcast		Tuner	—	Use tuning controls to reach desired station. Make appropriate settings of controls on tuner. Set Mode switch to STEREO or MONO, as required. (If tuner is automatic, keep Mode switch in STEREO position.)
Records	M	Low Level	Phono 1 or 2	Turn Mode switch to MONO position
	S	Low Level	Phono 1 or 2	Turn Mode switch to STEREO position
Tape (Recorder or deck with playback preamplifiers)	M	Tape Play	—	Turn Mode switch to MONO position
	S	Tape Play	—	Turn Mode switch to STEREO position
Tape (Recorder or deck without playback preamplifiers)	M	Low Level	Tape Head	Turn Mode switch to MONO position
	S	Low Level	Tape Head	Turn Mode switch to STEREO position
Microphone	M	Low Level	Mic	Turn Mode switch to MONO position
	S	Low Level	Mic	Turn Mode switch to STEREO position
Other sources connected to AUX input	M	Aux	—	Turn Mode switch to MONO position
	S	Aux	—	Turn Mode switch to STEREO position

*M = Mono
S = Stereo

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 those where additional vacuum tube components are involved, the unit will play immediately. Wait until the FM program material can be heard before setting the final volume level for the first time.

4. MODE SWITCH

a. Mono — Use this position for all monophonic programs, or if you have only one speaker connected to the TX-300. When a record is played, the MONO position of the Mode switch causes the amplifier to cancel the vertical components of the signal, thus eliminating the possibility of rumble, which is sometimes produced when a monophonic record is played with a stereo cartridge.

b. Stereo — Use this position for all stereophonic programs.

c. Reverse — Occasionally, the channels of a stereo record or FM program are reversed i.e., the left channel plays through the right speaker, and the right channel plays through the speaker on the left. Use this position to correct such a condition, but be sure to return the Mode switch to STEREO for normal stereophonic programs.

5. 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, or your speaker systems have different sensitivities, 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.

6. 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 determines 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. As with the Bass control, the two channels may be individually adjusted.

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. If this occurs, 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 TX-300.

7. 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 TX-300 (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 turning the unit off.

1: This position is used to listen to the main speakers connected to the SPKR 1 terminals on the rear panel. If you have only one set of speakers (no additional speakers in other rooms which are connected to the TX-300), use this position except when you desire private listening with headphones.

2: This position selects additional speakers connected to the SPKR 2 terminals on the rear panel, and permits you to listen to these speakers, while silencing the speakers connected to the SPKR 1 terminals.

1 + 2: This position is used to listen to both your main speakers (connected to the SPKR 1 terminals) and your additional, remotely-located speakers (connected to the SPKR 2 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 SPKR 2 terminals.

8. PHONES JACK

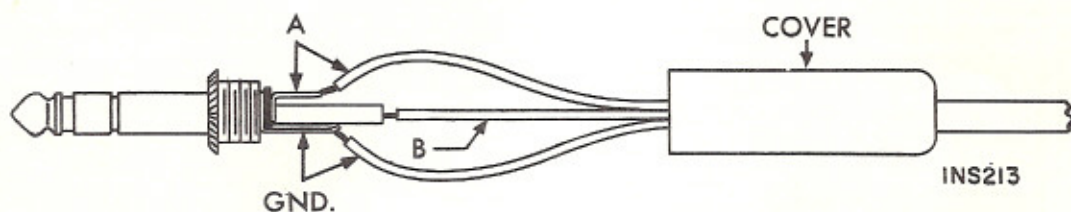
The Phones jack is conveniently located between the Balance control and the *Speakers* switch. It will accept any standard stereo phone plug. If your stereo headphones do not have a phone plug, attach one which is wired as shown in Figure 3.

When using your headphones 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 switch to position 1, and compare the sound level of 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.

NOTE: The headphones are connected to the output of the amplifier in all positions of the *Speakers* switch, to enable you to listen with the headphones while keeping your main or additional speakers on.

9. TAPE JACK

The Tape Jack is electrically in parallel with the RCDR OUT jacks on the rear panel. It is designed to be used for tape recording when only a temporary connection to the amplifier is desired, or when two recorders must be connected in parallel. To connect a recorder to the jack on the front of the TX-300, the cables from both channels should terminate in a three-pole plug which is wired as shown in Figure 4.



CONNECT GND TO COMMON OR GROUND TERMINAL OF HEADPHONES; A TO HOT TERMINAL OF LEFT CHANNEL; B TO HOT TERMINAL OF RIGHT CHANNEL.

Figure 3. Headphone plug wiring

NOTE: If your recorder has a high-impedance input, the cable(s) connecting the amplifier and recorder should be kept less than 5 feet long, to avoid high-frequency losses due to capacitance in the cable.

10. ROCKER SWITCHES

The remaining controls are rocker switches, and occupy the lower right-hand portion of the control panel. These switches are on when the upper portion (the end with the dot) is pressed until it is almost flush with the front panel, and off when the lower portion of the switch is depressed in a similar fashion.

a. Tape Monitor — This switch enables you to monitor (or 'check') the quality of tape recordings made from the TX-300 *while actually making recordings*. When the switch is on, the TX-300 is set 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 in either position of the switch. During the tape monitoring process, playback volume is often reduced. When the switch is restored to the OFF position, normal playback from the source is restored.

b. Low Filter — The Low Filter is a sharp-cutoff circuit designed to remove low-frequency noise without weakening the bass tones in the music being played. The Low 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.

c. High Filter — The High Filter, operating in a fashion similar to the Low Filter, removes 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 transmitted by weak or distant stations. Like the Low Filter, it is also effective on signals fed to the recorder.

d. Loudness Contour — The Loudness Contour switch is used to add compensation for the natural hearing deficiency of the human ear in the extreme bass and treble ranges at low volumes. When this switch is on, 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.

11. LOW-LEVEL CONTROLS

The low-level controls are located beneath the FISHER nameplate. Because low-level associated components, such as record players, and high-level components, such as tuners, produce signals differing greatly in strength, additional amplification must be provided within the TX-300. In order to obtain equal sound levels from both low- and high-level sources for the same setting of the Volume control, two low-level controls have been provided to adjust the amount of extra amplification which the low-level sources receive.

To reach the low-level controls, pull the FISHER nameplate out towards you. The leftmost control beneath the nameplate is for the left channel; the other adjusts the right. Use the controls as follows:

1. Select a high- and low-level monaural signal source, such as a tuner and a monaural record, to be used in the adjustment. The program material from the two sources should be as alike as possible.
2. Depress the appropriate pushbutton for the high-level source you have selected.
3. Turn the Balance control to the extreme counterclockwise position.
4. Turn the Volume control clockwise until the sound reaches a comfortable level.
5. Using a screwdriver, turn both low-level controls to the extreme counter-clockwise position.
6. Without changing the setting of the Volume control, turn the Low-Level switch to the appropriate position for the low-level source you selected, and advance the *leftmost* low-level control to the position which produces the same level as the high-level source played previously. (You may find it necessary to switch back and forth several times, before achieving equal levels.)
7. Advance the Balance control to mid-position. Now turn the low-level control on the *right clockwise*, until the sound seems to come from a point half-way between the speakers. This completes the low-level adjustment.
8. Replace the FISHER nameplate.

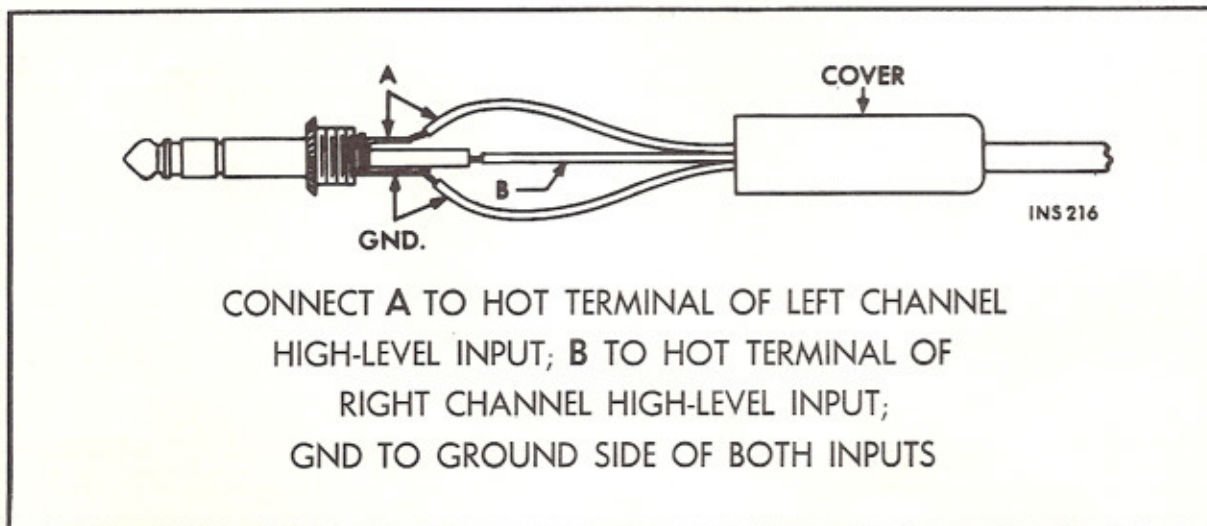


Figure 4. Tape output plug wiring

CUSTOM MOUNTING

The TX-300 Amplifier may be mounted in a special custom cabinet, Model 50-U, or it may be mounted in your own custom cabinet by following the directions and illustrations in this section. It is important to remember that adequate ventilation is absolutely essential for proper operation of the TX-300. For horizontal mounting, the enclosure should be open at the rear, and should provide at least four inches of free space above, and two inches to each side of the TX-300 for air circulation.

If you desire to mount the TX-300 vertically, follow the paragraph below entitled 'Vertical Mounting'.

The TX-300 is shipped with four plastic mounting feet attached to the bottom of the chassis. To install it in a custom cabinet, these mounting feet must first be removed.

a. Horizontal Installation — To provide adequate ventilation to the underside of the chassis, the TX-300 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 $\frac{3}{4}$ 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 wood screws in the position shown in Figure 6. Screw heads should be flush with the top of the cleats. Then locate and drill four $\frac{1}{4}$ -inch holes through the mounting board and cleats as indicated.
- (3) Saw a cutout through the front panel of your cabinet to the dimensions shown in Figure 5. The distance between 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 TX-300 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 the four $1\frac{1}{2}$ -inch screws supplied in the accessories bag through the holes in the bottom of the mounting board and fasten the chassis into place.

NOTE: For additional ventilation, you may make the optional cutouts shown as shaded areas in Figure 6. These cutouts are desirable, but not necessary.

b. Vertical Mounting — In order to mount your TX-300 vertically, the cabinet must have an open back, and have a two-inch minimum clearance from the wall. In addition, you will need a fan capable of delivering a minimum of 10 cubic feet per minute. Follow the mounting procedure outlined below.

- (1) Determine the position in which you wish to mount the amplifier. After checking beneath the top panel of the cabinet for any obstruction, make a cutout in the top panel of the cabinet, as shown in Figure 5.
- (2) Cut the mounting board shown in Figure 7 from a piece of $\frac{3}{4}$ -inch plywood. The width of the mounting board should be $\frac{1}{4}$ inch less than the inside width of the cabinet, to allow for the clearance of $\frac{1}{8}$ inch as shown in Figure 7. Cut the holes indicated as shaded areas in Figure 7.
- (3) Cut two cleats $8\frac{3}{8}$ inches long (cleats 1 and 2) from a piece of $\frac{3}{4}$ by $\frac{3}{4}$ -inch stock.
- (4) Cut two cleats $12\frac{3}{4}$ inches long (cleats 3 and 4) from a piece of 1 by 1-inch stock.

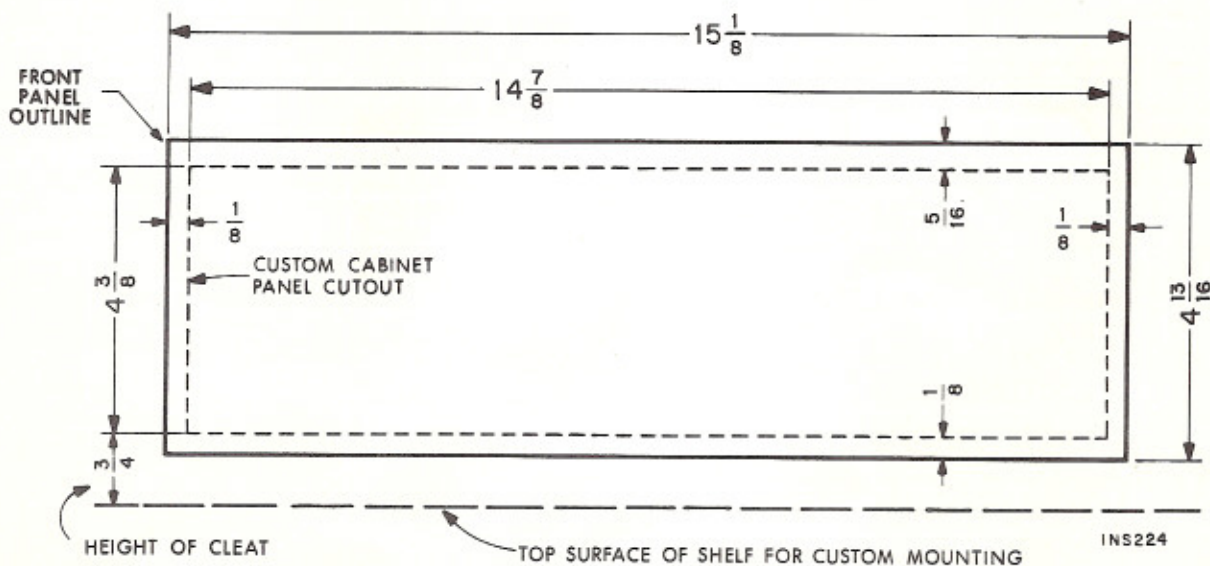


Figure 5. Panel cutout for custom mounting

(5) Drill a $\frac{1}{4}$ -inch hole 1 inch from one end of cleats 1 and 2. Drill a second $\frac{1}{4}$ -inch hole space $6\frac{3}{8}$ inches from the first hole on both cleats.

(6) Drill $\frac{3}{8}$ -inch holes in cleats 3 and 4 as shown in Figure 7.

(7) Mount cleats 3 and 4 on the inside of the cabinet as shown in Figures 5 and 7. Drill $\frac{1}{8}$ -inch pilot holes for each screw, about $\frac{1}{4}$ inch deep.

(8) Mount the fan in place, as shown in Figure 7. The axis of the fan should be pointed toward the spot on the mounting board marked 'X'. The fan must be no more than 4 inches away from the bottom of the mounting board, and should blow air towards the chassis.

(9) Fasten the TX-300 and cleats 1 and 2 to the mounting board with the four $1\frac{3}{4}$ -inch screws provided.

(10) Secure the mounting board to cleats 3 and 4 as shown, using #8 $1\frac{1}{4}$ -inch round head screws.

(11) Plug the fan into the receptacle on the rear of the TX-300. If the fan has a switch, it should be left permanently in the ON position.

NOTE: The fan *must* be connected in such a manner as to be always *on* whenever the unit is on. For this reason, only the receptacle on the rear of the TX-300 should be used to furnish power to the fan. *The fan must blow the air towards the chassis.*

HOME MAINTENANCE

1. REPLACING THE POWER FUSE

To protect against line surges and other adverse conditions sometimes encountered by electronic equipment, the TX-300 is fused at strategic locations. If the amplifier appears to be inoperative, check to see if the pilot lamp lights when the Volume control is turned clockwise from the AC OFF position. If the lamp does not light, the power fuse may have blown.

To replace the fuse, which is located in a black receptacle labelled F1, on the lower left-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.

2. REPLACING SPEAKER FUSES

If the power lamp 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 next to 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 distortion is still present after the second replacement, consult your dealer or authorized Fisher Service Station.



TECHNICAL SPECIFICATIONS

Music Power (8 ohms) (IHF Standard at 0.5% Harmonic Distortion)	100 watts total
RMS Power (0.5% Harmonic Distortion at 1 kc)	36/36 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
Power amplifier section	5-30,000 cps +0, -1 db
Power Bandwidth (IHF)	12-50,000 cps
Hum and Noise	
Volume at Minimum	-86 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	2.8 mV
TAPE HEAD	1.8 mV
MICROPHONE	2.2 mV
AUX	200 mV
MONITOR	800 mV
Power Line Requirements	105-120 volts, 50/60 cycles
Total Power Consumption (at 117 volts)	
Idling	30 watts, 41 VA
At full power output	170 watts, 210 VA

WARRANTY TO OWNER

The warranty on a product fully reflects the confidence of its maker in the validity of the design, and the quality of materials and workmanship that go into that product. The truest index to the reliability of the FISHER instrument you have just purchased will be found in the unique FISHER warranty:

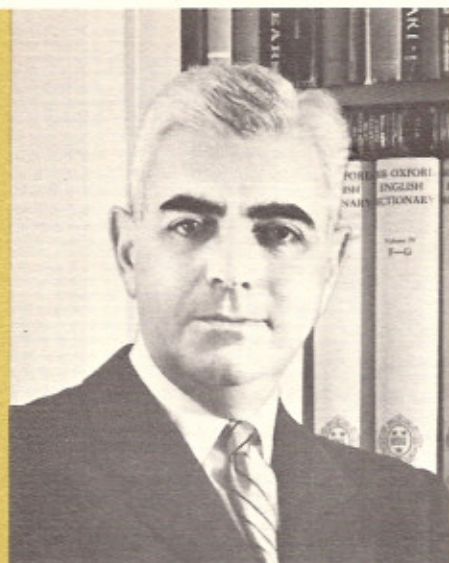
This equipment is unconditionally guaranteed against all defects in materials and workmanship. All parts and semiconductor devices are guaranteed for two years from the date of sale to the original purchaser. Tubes are guaranteed for one year (four times the industry practice). There will be no charge for part replacement or warranty labor during the first ninety days. Parts replacement and labor, under the above warranty, will be supplied by the dealer from whom the purchase was made. To protect your warranty, and to register your ownership, mail this card within 10 days from date of purchase.

IMPORTANT NOTE:

This warranty is void, for the equipment it covers, unless the equipment has been installed and used in accordance with our Operating Instruction Manual.

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

