

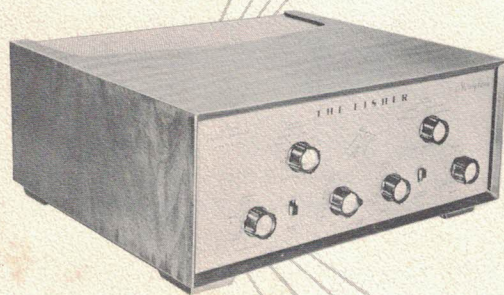
STEREOPHONIC SOUND

Paul Kalin chah
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INSTALLATION

OPERATING
INSTRUCTIONS



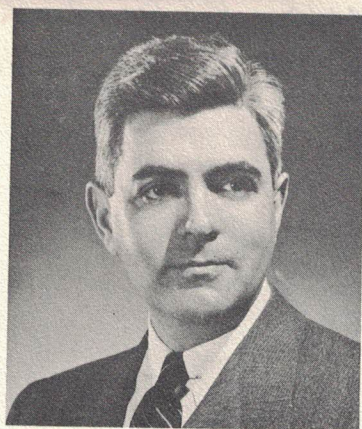
Stereophonic

**MASTER
CONTROL
AMPLIFIER**

MODEL X-101

THE FISHER





AVERY FISHER
*Founder and President,
 Fisher Radio Corporation*

The Man Behind the Product

OVER 20 YEARS AGO, Avery Fisher introduced America's first high fidelity radio-phonograph. That instrument attained instant recognition as heralding a new era in the enjoyment of reproduced music. A number of the features of that early high fidelity radio-phonograph were so basic that they are used to this day in all high fidelity equipment. The engineering achievements of Avery Fisher and the world-wide reputation of his products have been the subject of articles in *Fortune*, *Time*, *Pageant*, *The New York Times*, *Coronet*, *Life*, *High Fidelity*, *Esquire*, and other publications.

Benefit concerts for the National Symphony Orchestra in Washington and the Philadelphia Orchestra, demonstrating the great advances in reproducing equipment, used FISHER instruments to play back the recordings that had just been made in the presence of the audience. "Fascinating evening, acoustically and musically," was the *Philadelphia Inquirer's* comment, "the reproduction had remarkable fidelity." *TIME* magazine stated, "Listeners could hardly tell the difference between real and electronic."

The FISHER instrument you have just purchased has been designed to give you many years of pride and enjoyment. It is the product of a company dedicated to bringing reproduced music in its finest form, to the homes of America. If at any time you should desire information or assistance regarding the performance of your FISHER instrument, please do not hesitate to write directly to Avery Fisher, President, Fisher Radio Corporation, Long Island City 1, New York. Your communications will be welcome.

FISHER 'FIRSTS' — Milestones In Audio History...

- | | |
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| <p>1937 First high fidelity sound systems featuring a beam-power amplifier, inverse feedback, acoustic speaker compartments (infinite baffle and bass reflex) and magnetic cartridges.</p> <p>1937 First exclusively high fidelity TRF tuner, featuring broad-tuning 20,000 cycle fidelity.</p> <p>1937 First two-unit high fidelity system with separate speaker enclosure.</p> <p>1938 First coaxial speaker system.</p> <p>1938 First high fidelity tuner with amplified AVC.</p> <p>1939 First Dynamic Range Expander.</p> <p>1939 First 3-Way Speaker in a high fidelity system.</p> <p>1939 First Center-of-Channel Tuning Indicator.</p> <p>1945 First Preamplifier-Equalizer with selective phonograph equalization.</p> <p>1948 First Dynamic Range Expander with feedback.</p> <p>1949 First FM-AM Tuner with variable AFC.</p> <p>1952 First 50-Watt, all-triode amplifier.</p> <p>1952 First self-powered Master Audio Control.</p> <p>1953 First self-powered, electronic sharp-cut-off filter system for high fidelity use.</p> <p>1953 First Universal Horn-Type Speaker Enclosure for any room location and any speaker.</p> | <p>1953 First FM-AM Receiver with a Cascode Front End.</p> <p>1954 First low-cost electronic Mixer-Fader.</p> <p>1954 First moderately-priced, professional FM Tuner with TWO meters.</p> <p>1955 First Peak Power Indicator in high fidelity.</p> <p>1955 First Master Audio Control Chassis with five-position mixing facilities.</p> <p>1955 First correctly equalized, direct tape-head master audio controls and self-powered preamplifier.</p> <p>1956 First to incorporate Power Monitor in a home amplifier.</p> <p>1956 First All-Transistorized Preamplifier-Equalizer.</p> <p>1956 First dual dynamic limiters in an FM tuner for home use.</p> <p>1956 First Performance Monitor in a high quality amplifier for home use.</p> <p>1956 First FM-AM tuner with TWO meters.</p> <p>1956 First complete graphic response curve indicator for bass and treble.</p> <p>1957 First Gold Cascode FM Tuner.</p> <p>1957 First MicroRay Tuning Indicator.</p> <p>1958 First Stereophonic Radio-Phonograph with Magnetic Stereo Cartridge</p> |
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Master Audi

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HOW STER

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THE FISHER "X-101"

Stereophonic

Master Audio Control/Duplex Amplifier

In monophonic high fidelity systems, the reproduced sound has all the qualities of the original performance — with two exceptions. These are *direction* and *distance*. With the advent of stereophonic sound systems, *all* the characteristics of live sound are now capable of being reproduced in the home or auditorium. THE FISHER X-101 serves as the central component of the stereophonic installation. It is still another example of the excellence in design, construction, and performance which has earned for THE FISHER an international reputation in the field of high fidelity.



HOW STEREOPHONIC SOUND WORKS

In stereophonic reproducing systems, the live sound characteristics of direction and distance are made possible by the use of *two* sound sources and *two* sound channels. For example, two microphones are placed before an orchestra so that they "hear" the music as we would, with two ears. What is picked up by each microphone is then recorded separately and independently on record or tape, or broadcast as a stereo radio program. The stereo program is then reproduced through two separate sound channels. The sound picked up by the microphone on the left drives a speaker system on your left, and the sound picked up by the microphone on the right drives a speaker system on your right.

The effectiveness of stereophonic sound in achieving realism is much greater than might be imagined on the basis of the simple explanation just given. The stereo system actually spreads out the orchestral sound in the same manner as it would emanate from the stage. In other words, instruments located at center stage appear to be heard at a point midway between the speakers. The other orchestral instruments can be located accordingly from left to right. This results in a realism and clarity never before possible in high fidelity systems.

The following stereophonic program sources are already in use, or will be available in the very near future: FM-AM, FM-FM, and FM Multiplex radio broadcasts; commercial and home tape recordings; commercial disc recordings.

Facilities for handling all these sources are provided in THE FISHER X-101. In addition, the X-101 can handle all standard monophonic program material. For stereophonic reproduction, two complete and separate sound channels must be set up. Electrically, this is equivalent to having two separate monophonic systems. THE FISHER X-101 has two such channels with complete preamplification, equalization and audio control facilities for each, plus two power amplifiers, all on one chassis. In fact, with the X-101, all that is needed is to connect your speakers, plug in your program sources, and you have a complete high fidelity stereophonic music system.



OPERATING INSTRUCTIONS

The few moments you spend reading these instructions will bring you far greater enjoyment of the X-101 than would be possible if you plunged right in. You will find the information that follows concise, yet complete. Keep it handy, particularly during the first few weeks of operating your FISHER, and you will rapidly become familiar with its outstanding performance and flexibility.

The X-101 can be placed in any location convenient to its use; for example, on a table top or shelf near your favorite chair. It has also been designed for installation in a custom cabinet, and complete directions and mounting diagrams have been provided in the last section of this manual. If you intend to keep the X-101 on a table top or shelf, custom-crafted wood cabinets are available from FISHER, enabling you to convert the unit into an attractive member of your furniture group.

For the time being, place it in its approximate final location. Allow yourself room to get at the bottom and rear of the chassis. This arrangement permits you to determine the cable lengths necessary for the various connections to associated high fidelity equipment, as described in the following paragraphs.



THE FISHER AND YOUR HIGH FIDELITY SYSTEM

When properly connected, the X-101 becomes the electronic brain in your high fidelity installation. Speaker terminal boards for two speaker systems are provided on the rear panel, and 12 input jacks are provided on a bracket underneath the chassis. In addition, record and monitor jacks are provided at the rear of the chassis. Do not make AC powerline connections to any of your equipment until the entire system has been properly connected.

the speakers . . .

It is desirable to have the two speaker systems in a stereo installation as nearly alike as possible. Careful consideration should also be given to the position which they will occupy in your room. The correct distance between the speaker units is determined by the dimensions of the room and other acoustical factors. Position the units so as to obtain the most desirable stereophonic effects. As a rule of thumb, the best listening area will be located at a distance about twice as great as the separation between the speaker systems.

If you own two corner-type speaker systems, try placing one in a corner and the other against a flat wall, comparing this arrangement with both in corners to determine the best stereo arrangement. Wall-type speaker systems placed in the room corners may introduce undesirable effects; therefore, try placing them on the same wall a short distance from the corners of the room. If your installation is to be set up in a long narrow room, an arrangement placing the speakers along the long wall may be preferable to one placing them along the short wall.

speaker connections . . .

Important! Do not attempt to operate THE FISHER without first connecting the speakers.

Each channel of the X-101 has output terminals for connecting speakers with a voice-coil or system impedance of 4, 8, or 16 ohms. Ordinary insulated two-wire lamp cord can be used for this purpose.

Connect a 3 to 5-ohm speaker to the COM (common) and "4" terminals on each of the X-101 speaker terminal boards. If you have 6 to 10-ohm speakers, use the COM and "8" terminals. 13 to 19-ohm speakers are connected to the COM and "16" terminals.

input connections . . .

Six input jacks are provided on each channel for connecting your various program sources. These are located on a sloping panel underneath the chassis. Two cable securing brackets provide strain relief for the connectors, and keep them neatly arranged. See the next section on how to connect the recording and monitor jacks.

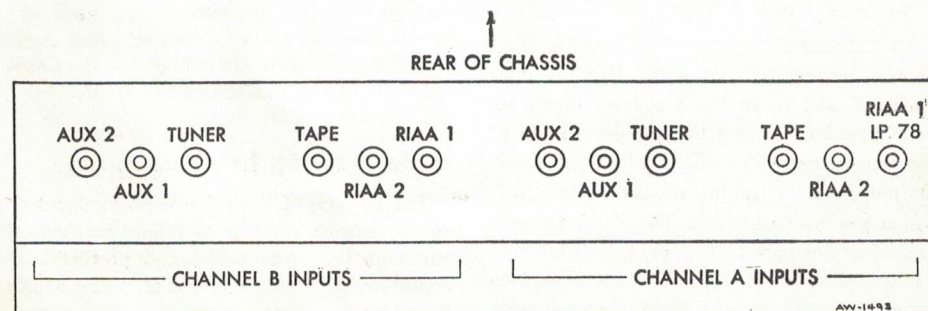
FROM RECORD PLAYERS: If you are using a *magnetic stereo* cartridge, connect the leads from the cartridge to the RIAA-1 jacks in the Channel A and Channel B inputs. A second *magnetic stereo* cartridge may be connected to the RIAA-2 input jacks in each channel. The RIAA-1 input jack has an input impedance of 50,000 ohms, the RIAA-2 jack an impedance of 100,000 ohms.

A magnetic monophonic cartridge may be connected to the RIAA 1 or the RIAA 2 input jack in either channel. However, if you intend to play 78-rpm or pre-1955 LP records, use the input jack marked RIAA 1-LP-78 which provides proper equalization for these records.

If you are using a record player with a *ceramic stereo* cartridge, connect the leads from the cartridge to the AUX 2 jacks in the Channel A and Channel B inputs. A *ceramic monophonic* cartridge may be connected to either of the AUX 2 input jacks.

FROM TAPE DECK: A tape deck, or tape transport, is a device for direct tape head playback only. Connect the output cables of a stereo tape deck to the Tape Input Jacks, *A* and *B*, on the X-101. A monaural tape deck can be connected to either the *A* or *B* Tape Input Jack. The Tape Input channels of the X-101 provide both preamplification and tape equalization.

CAUTION! If your tape equipment incorporates playback preamplifiers, do *NOT* use these inputs. Instead, use the same connections as you would for tape recorders, as described in the next section.



Input Jacks, Bottom Panel

FROM TUNERS: If you have FM and AM tuners for receiving FM-AM stereo broadcasts, or an FM-AM stereo tuner, connect the FM and AM outputs to the Tuner Input Jacks, *A* and *B*, on the *X-101*. The same jacks can be used for connecting two FM tuners, if FM-FM stereo broadcasts are available in your area. If FM Multiplex stereo broadcasts are available in your locality, connect the output of the FM tuner to the *Channel A* Tuner Input Jack, and the output of the multiplex adaptor to the *Channel B* Tuner Input Jack.

If, in addition to using two FM tuners or an FM tuner and multiplex adaptor, you wish to have an AM tuner, connect it to any of the four Aux Input Jacks not in use. If you have a monaural FM/AM tuner only, connect it to the *Channel A* Tuner Input Jack.

FROM OTHER SOURCES: If you desire, you may connect a shortwave tuner or the sound portion of your TV set to any of the *X-101* Aux Input Jacks. Be sure to consult an authorized service agency as to the best method for connecting the sound portion of a TV set. Any other additional high-level program sources can also be connected to the Aux Inputs.

recorder connections . . .

A tape recorder normally contains both recording and playback preamplifiers with tape equalization. In addition, it may contain monitoring and feedthrough facilities, with a bridging input. Read the following instructions carefully, or you may find it impossible to operate your installation properly. If you are in doubt about the facilities available on your tape recorder, read the manufacturer's instructions thoroughly, before proceeding.

TO RECORDER: If you have a stereophonic recorder, connect the two *X-101* Rcrdr Output Jacks, *A* and *B*, to the high-level inputs on your recorder. Connect the high-level input of a monaural recorder to *Channel A* or *B* Rcrdr Output Jack, depending on the source from which you wish to record. The Rcrdr Outputs are of the low-impedance type, permitting connecting leads up to 30 feet long. Use low-capacitance (25 uuf per foot) shielded cable for this purpose.

The *X-101* supplies an ideal signal for recording purposes which in no way interferes with normal listening. You may continue to set the volume, tone, loudness contour, channel balance, and output selector controls to suit your listening tastes without affecting the signals at the Rcrdr Output Jacks. On the other hand, you may use the rumble filter to eliminate low-frequency disturbances from low-level inputs appearing at the Rcrdr Output and the speaker outputs. The equalization circuits are also in use to assure a recording signal with uniform frequency response regardless of program source.

FROM RECORDER: If your tape recorder is equipped for stereophonic playback and has no monitor facilities, connect the outputs to either pair of Aux 1 or Aux 2 Input Jacks. Bear in mind that these connections can be made permanently *only* if the recorder has no feedthrough and monitor circuit arrangement. If you have a monaural recorder with stereophonic playback and feed-through monitor facilities, the feedthrough circuit must be disconnected and the playback outputs connected to the Aux 1 or Aux 2 Input Jacks, if you wish to leave the tape recorder permanently connected.

If you have a stereophonic tape recorder with stereo playback and *separate* feedthrough and monitor facilities for each channel, the feedthrough circuits must be disconnected and the playback outputs connected to the *X-101* Aux 1 or Aux 2 Inputs, for permanent connections.

If you have a monaural tape recorder with monaural playback and without monitor facilities, connect the playback output to the Aux 1 or Aux 2 Input Jack, on whichever channel is available. If your recorder has monaural record and playback, plus feedthrough and monitor facilities, connect the playback output to the *Channel A* Monitor Input Jack, with the recorder input connected to the *Channel A* Rcrdr Output Jack on the *X-101*.

cable securing brackets . . .

The purpose of the cable securing brackets on the bottom cover is to relieve mechanical strain on the input cables and prevent accidental loosening of the plugs. They also add to the neatness of your installation. If, however, there are connections which you intend to re-

move and replace frequently, we suggest you leave the particular cables involved outside the brackets.

For placement of the brackets when using THE FISHER Custom Cabinets, see the instructions provided with these cabinets. For use of the brackets in custom cabinet or shelf installation, see the last section of this manual, on custom installation.

ac receptacles . . .

There are three auxiliary AC receptacles on the rear panel of the X-101. The first receptacle on the left can supply up to 175 watts. The pair on the right can furnish up to a combined total of 350 watts. Be careful not to exceed these ratings. Use these receptacles to furnish AC power to your associated equipment. Power is supplied to all three receptacles when the X-101 AC switch is turned on.

ac power . . .

After you have made the connections described above, connect the AC power cord of the X-101 to your house current receptacle, first making certain it supplies AC between 105 and 125 volts, and from 50 to 60 cycles. If you have 50-cycle current, be sure your record player and tape equipment have been adapted for this frequency. The X-101 can also be used at other voltages with a step-up or step-down transformer.

caution . . .

If you have read this far, you have now reached a dilemma — should you plunge into using the equipment right off and trust to luck, or should you read on. Based on long experience, we urge you to resist the temptation to stop here. The next paragraphs are *the most important of all*.



USING THE CONTROLS

A glance at the front panel of the X-101 discloses a number of control knobs and switches. These have been carefully designed for clarity and ease of operation. Nevertheless, a fuller understanding of each item on the panel will increase your listening pleasure considerably.

ac off . . .

This switch is part of the Volume Control. When you have turned the knob to its extreme counterclockwise position, you will note a click which signifies that AC power has been turned off. Leave the knob in this position until you are ready to operate the X-101. Do *not* turn on the X-101 until you have connected the speakers. When the knob is rotated clockwise from the AC OFF position, it not only supplies AC power to the X-101, but also to the three auxiliary AC receptacles located on the rear panel of the chassis.

The red-jeweled pilot lamp at the center of the front panel lights when AC power is switched on. Replacement of the bulb, if necessary, can be made at the front panel. *First be*

sure to disconnect the AC cord of the X-101 from the power line. Remove all the knobs, then carefully remove the two hex nuts on the Channel Balance and Volume Control shafts. Lift away the control panel, and remove the sleeve over the bulb. Unscrew and replace the bulb with the new one. Replace the sleeve, panel, and knobs.

input selector . . .

The Input Selector is an eight-position switch for selecting any of the stereophonic or monophonic program sources you have connected to the X-101. It is also used to select the proper equalization on low-level channels. Preamplification is provided automatically for all low-level inputs.

78: This position switches in the *Channel A* 78-LP-RIAA 1 Input Jack, and provides equalization for 78 r.p.m. shellac records. If you are using a stereo record player, be sure your cartridge is equipped to play 78 r.p.m. recordings.

LP: This position also switches in the input connected to the *Channel A* 78-LP-RIAA 1 Input Jack. It is used for playing pre-1955 LP recordings on your stereo or monophonic record player.

RIAA 1: RIAA equalization is used for all present-day phonograph records, including the new stereophonic discs. It is identical with the ORTHO characteristic. In this position, the RIAA 1 inputs jacks in both *Channels A* and *B*, are connected, permitting either or both inputs to be used in monophonic or stereophonic operation.

RIAA 2: This position is used in the same manner as RIAA 1, except that it switches in the RIAA 2 Input Jacks, *Channels A* and *B*, and provides RIAA equalization only.

TAPE: Switch to this position to use the tape deck connected to the Tape Input Jacks, stereo or monophonic. Both preamplification and equalizations are automatically provided.

TUNER: This position is used to switch in the tuners, stereo or monophonic, you have connected to the Tuner Input Jacks on the *X-101*.

AUX 1: To use the equipment, stereo or monophonic, connected to the Aux 1 Input Jacks, switch to this position.

AUX 2: Switch to this position to use any equipment, stereo or monophonic, connected to the Aux 2 Input Jacks.

output selector . . .

The Output Selector, located on the upper right-hand side of the front panel, controls the outputs heard from the speaker systems. The four selector positions provide a convenient means for obtaining the proper stereo or monophonic outputs, in conjunction with your choice of inputs.

STEREO REVERSE: When listening to a stereo program source, the *Channel A* input is connected to the *Channel B* speaker output, with the *Channel B* input going to the *Channel A*

speaker output. This position provides a way for switching the speaker outputs so that the spatial arrangement of sound — from left to right — is what you desire.

STEREO: In this position, the *Channel A* input goes to the *Channel A* speaker output, and the *Channel B* input to the *Channel B* speaker output. Use this, or the STEREO REVERSE position, whichever provides the best stereo results.

CHANNEL A: With the Output Selector in this position, any *Channel A* input can be heard over both the *Channel A* and *Channel B* speakers. Thus, the full power of both channel amplifiers and the panoramic effect of two speaker systems is available for monophonic listening.

CHANNEL B: This position of the Output Selector permits any *Channel B* input to be heard over both the *Channel A* and *Channel B* speaker systems.

audio controls . . .

The audio controls on the *X-101* allow you to vary the volume and characteristics of program material. These controls are operative on both channels, and are mechanically ganged for convenience in operating your sound system.

VOLUME CONTROL: Listening level at your speakers is controlled by the setting of the Volume Control. This is the master volume control for your entire sound system. Turning the knob from MIN to MAX results in increasing sound from both speaker systems.

LOUDNESS CONTOUR: Playing a program more softly than the original performance has a definite effect on what we hear, and scientific testing has established just what this effect is. As the relative volume of sound is reduced, our natural hearing sensitivity drops off more rapidly in the bass and upper treble than it does in the middle frequency range. A great deal of the bass and some of the high frequencies seem to be missing from the music. The lower the relative volume on reproduction, the more we notice this effect. In order that we can listen at low levels without being deprived of a part of the music, a Loudness Contour Control is provided. The circuit operated by this control

automatically compensates for low-level loss of hearing sensitivity in accordance with well-established test curves, or 'contours'.

Switching the Loudness Contour Control to the ON position permits the circuit to work automatically. It increases the amount of loudness compensation as you lower the volume, and decreases the compensation as you increase the volume.

BASS TONE CONTROL: When the gold marker on this knob points straight up, the control is in the NORMAL position, and the bass tones are reproduced just as they come from the program source. Bass tone intensity can be reduced by turning the control toward the MIN position on the left, while turning it toward the MAX position on the right increases it. At high volume, however, it is best not to use extreme settings of the Bass Control, as distortion and rumble at the speakers may result.

TREBLE TONE CONTROL: When the gold marker on the knob is pointing straight up (the NORMAL position), the treble tones are unaffected by the X-101. For more intimate tonal quality, turn the control to the left toward MIN) to the desired degree. For a more brilliant tone, turn to the right (toward the MAX position).

RUMBLE FILTER: Turn this switch to the ON position if you encounter rumble or other low-frequency disturbances when using your tuner, record player or tape deck.

balance . . .

The use of two sound channels, whether from a stereophonic or monophonic program source, can result in a slight imbalance in the volume from one channel speaker system and the other. This can be due to a slight difference in level between the two sources of a stereo program, a slight difference in the amplification on each channel, a difference in speaker efficiency, or a difference in room acoustics for each speaker.

The BALANCE control is set by ear. Turning the control to the left increases the volume from the speaker on Channel A, while simultaneously decreasing the relative volume of sound coming over the speaker on Channel B. Turning the control to the right increases the volume on Channel B, while simultaneously decreasing it on Channel A. Set the control so you obtain equivalent volume from the two speaker systems.

input level adjustments . . .

Four Input Level Adjustments are provided on the X-101, two on Channel A and two on Channel B. One pair is for the Phono-Tape In-

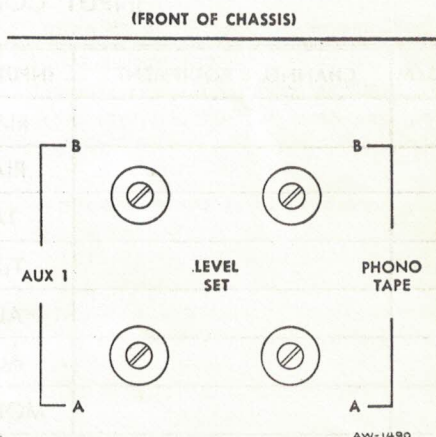
puts, the other pair for the Aux 1 Inputs. Looking at the front panel, the four adjustments are on the left-hand side of the chassis just behind the front panel.

When the Input Level Adjustments are turned completely to the right (clockwise), the full strength of the input signal is utilized by the X-101. If this level is too high, it could overload the amplifier and cause excessive distortion. For this reason the PHONO-TAPE Input Level Adjustments have been pre-set at the factory to accommodate the level of the average magnetic cartridge. The AUX 1 Input Level Adjustments have been left at maximum (fully clockwise.)

If it appears necessary to adjust any of the input level settings to avoid overloading the X-101, proceed as follows: Turn the Input Level Adjustment all the way down (counterclockwise.) Connect the lowest-level program source which you expect to use with this particular input. Set the VOLUME control on the front panel fully clockwise to maximum. Then slowly turn the Input Level Adjustment until the maximum desired volume is heard in the loudspeakers.

After adjusting the input level for the first program source, make the same adjustments for the other program sources you expect to use. Proceed in the same manner as outlined above. In those cases where there is no input level set for a particular program source on the X-101, use the output level adjustment on the associated equipment.

If one of the input levels of Channel A differs noticeably from the corresponding Channel B level, the Input Level Adjustments may be used to equalize the input levels. Make certain first, however, that the BALANCE control on the front panel is in NORMAL position. This control should be in NORMAL whenever Input Level Adjustments are made.



Input Level Set Adjustments

phase inverter balance . . .

Phase inverter balance adjustments for both *Channel A* and *Channel B* are located on the top surface of the chassis. These adjustments

have been carefully pre-set at the factory. Do not try to reset these adjustments without proper equipment. If a defect is suspected in the phase inverter stage, consult your FISHER Dealer.



SHORT GUIDE TO OPERATING THE X-101

Please bear in mind that this section is intended only as a guide, not as a substitute, for the detailed instructions preceding it. Its purpose is to serve as a checklist of the steps to follow when operating your high fidelity system.

ONE: Turn on the AC switch. This supplies power to the *X-101* chassis, and also to any equipment connected to the auxiliary receptacles on the rear panel.

TWO: Set the Input Selector to the correct position for connecting the input channel desired. If you are using the *Channel A* monitor facility with your monaural recorder-reproducer, it is not necessary to set the Input Selector for straight tape playback. Simply operate the tape recorder in accordance with instructions supplied with it.

THREE: Switch the Output Selector to the position supplying the speaker outputs desired.

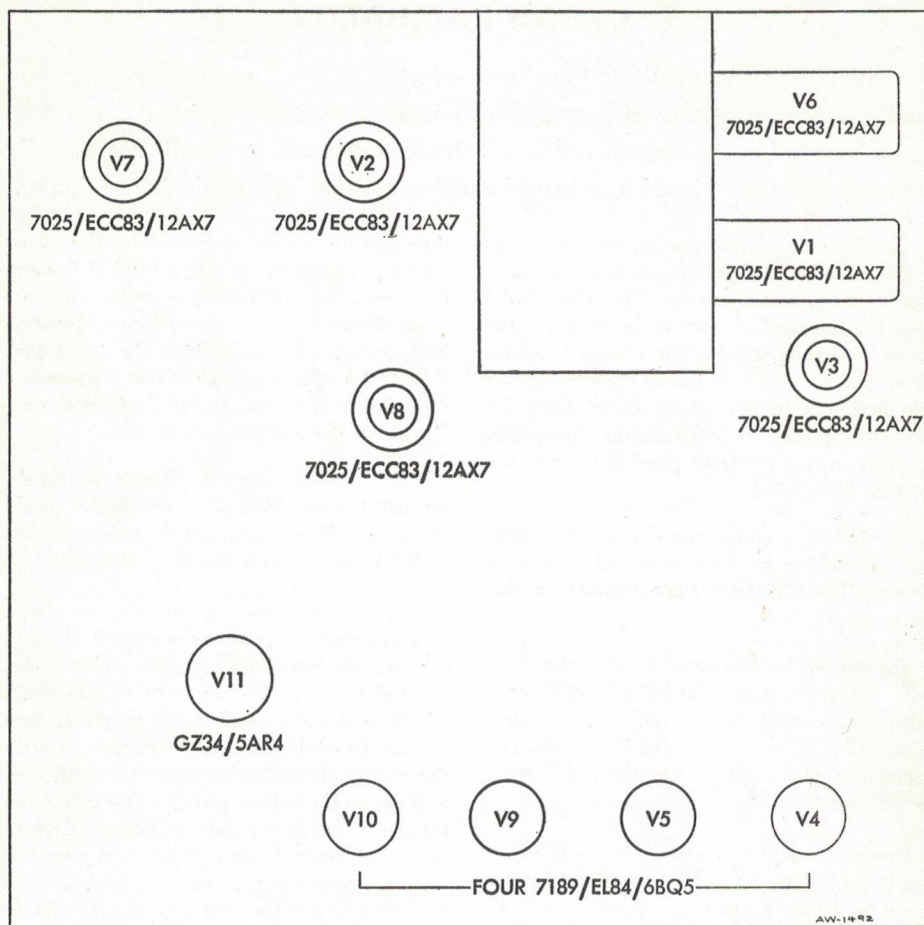
FOUR: Set the audio controls, as necessary, to obtain the sound characteristics desired. Make these adjustments in the following order: Volume, Loudness Contour, Rumble Filter, Bass and Treble Tone.

FIVE: Set the Channel Balance Control, if necessary, for proper volume balance between *Channel A* and *Channel B* in the listening area.

RECORD OF INPUT CONNECTIONS

S/M	CHANNEL B EQUIPMENT	INPUT JACKS	CHANNEL A EQUIPMENT	S/M
		RIAA 1		
		RIAA 2		
		TAPE		
		TUNER		
		AUX 1		
		AUX 2		
		MONITOR		

Write "S" for Stereo or "M" for Monaural Equipment



Tube Location Diagram

tube location and function . . .

CHANNEL A: V1, two-stage preamplifier. V2-A, 1st voltage amplifier. V2-B, tone control amplifier. V3-A, 2nd voltage amplifier. V3-B, phase inverter. V4-V5, push-pull power amplifier.

CHANNEL B: V6, two-stage preamplifier, V7-A, 1st voltage amplifier. V7-B, tone control amplifier. V8-A, 2nd voltage amplifier. V8-B, phase inverter. V9-V10, push-pull power amplifier.

CHANNELS A AND B: V11, rectifier.



CUSTOM INSTALLATION

The directions and illustrations in this section enable you to carry out a neat and attractive mounting of your FISHER in your own custom installation. Adequate ventilation is a necessity. THE FISHER must *never* be installed in a totally enclosed space, nor should it be placed too close to other heat-producing equipment.

The mounting hardware supplied with the X-101 includes 4 1-inch mounting screws, 4 flat washers, and 4 plastic legs. The plastic legs are supplied if you desire to place the X-101 on a shelf or table top without a cabinet or special mounting. If this is the case, attach the four legs to the bottom cover using the screws supplied. The legs raise the chassis sufficiently so that the front panel is clear of the surface being used.

The following paragraphs describe the method for making an installation in your own cabinet. Two illustrations are provided for this purpose.

For custom installation, the X-101 chassis is mounted on cleats. A cleat $\frac{3}{4}$ " x $\frac{3}{4}$ " x 2 feet is adequate material for this purpose. For Cleat 1 and Cleat 2, cut two pieces $5\frac{5}{8}$ " long. The remaining piece, approximately $12\frac{3}{4}$ " long, is used for Cleat 3.

Dimensions for locating the four holes marked with the letter "A" on the cleats are given in the shelf mounting diagram. Drill $\frac{1}{4}$ " holes in the cleats at these points. Countersink the holes $\frac{1}{4}$ " with a $\frac{1}{2}$ " diameter. Mount the cleats on the chassis bottom cover with the four one-inch screws and flat washers supplied.

Next, inspect the front panel cutout diagram. Note that the lower edge of the cutout is flush with the top surface of the cleats (or the bottom cover). If it is necessary to clear a decorative molding, the cutout can be raised by attaching an auxiliary mounting board to the thickness desired to the existing shelf.

If it is absolutely necessary to have the chassis sit flush on the existing shelf, then cutouts must be made in the shelf for ventilation and access to the input jack on the bottom panel. For this purpose, locate the mounting holes by using the shelf mounting diagram. Then, using the bottom cover as a template, mark the cutouts to be made. These cutouts must be made for each area in the bottom

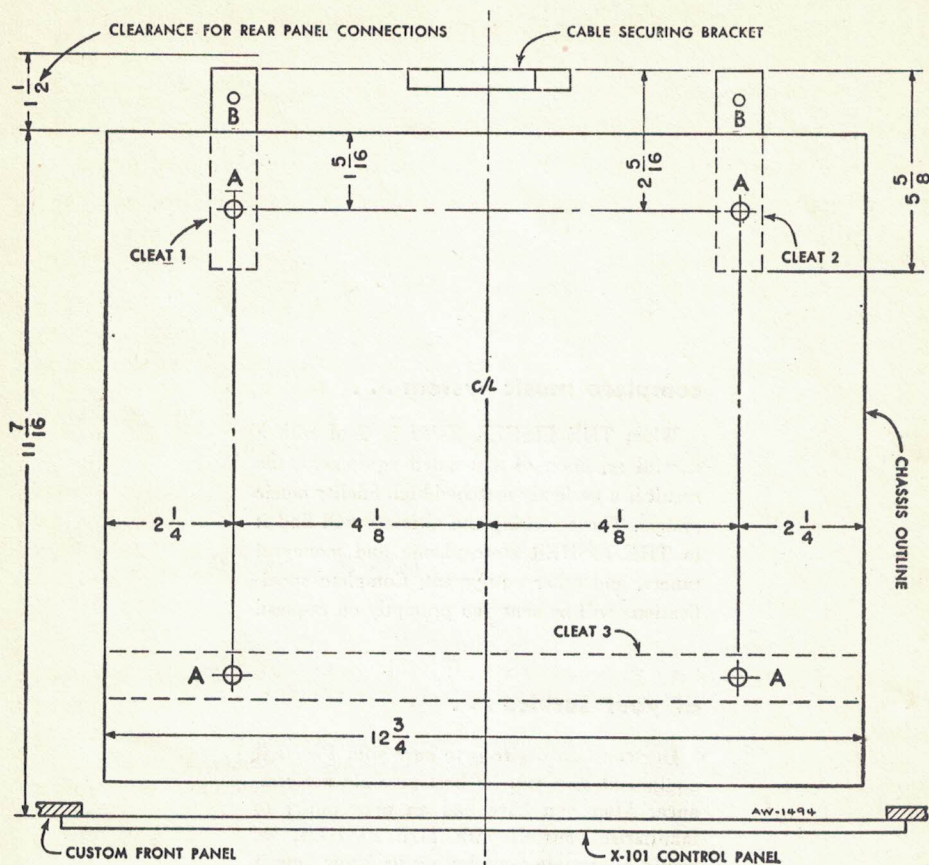
cover having ventilation holes, plus the cutout for the input jacks, making a total of five cutout areas. In making these cutouts, do not come closer than $\frac{3}{4}$ of an inch to a mounting hole center. Also, in making the input jack cutout, size it large enough so that the screened jack designations will be visible from the underside of the mounting shelf.

When flush-mounting the chassis as just described, the mounting holes are drilled in the shelf. Drill $\frac{1}{4}$ -inch holes at the points marked with "A" in the shelf mounting diagram.

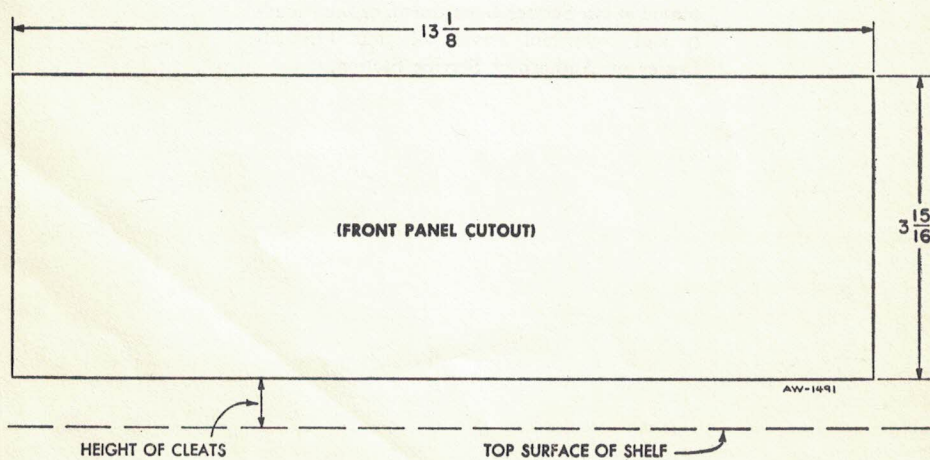
If the X-101 chassis is mounted on cleats, it is necessary to remove the control panel to complete the installation. Remove all the knobs. Carefully remove the hex nuts on the shafts which hold the control panel in place, then lift the panel free. Slide the chassis in from the rear after making all necessary cable connections to the bottom panel. (We suggest you tag the cables for easy identification.) Replace the X-101 control panel, which will now just cover the cutout in your custom panel. Replace the hex nuts and the knobs. Secure the chassis on the shelf with two 1-inch wood screws through Cleats 1 and 2. Locate the screws at the points marked with the letter "B" in the shelf mounting diagram. Use the cable securing bracket supplied in the accessory envelope to gather the cables together behind the chassis. This bracket may be attached to the shelf with two small wood screws. A suggested location for this bracket is shown in the shelf mounting diagram.

If you have decided to flush-mount the chassis as described above, it is not necessary to remove the X-101 control panel. Simply slide it into place through the custom front-panel cutout. The mounting screws are then inserted from underneath through the shelf into the bottom cover.

In order to secure the maximum amount of ventilation, we strongly recommend that the back of the cabinet remain completely open.



Shelf Mounting Diagram, Top View



Custom Front Panel Cutout Diagram

complete music system . . .

When THE FISHER X-101 is used with a careful selection of associated equipment, the result is a perfectly matched high fidelity music system. Those seeking the ultimate will find it in THE FISHER stereophonic and monaural tuners, and other equipment. Complete specifications will be sent you promptly on request.

at your service . . .

Our constant desire is to have your FISHER equipment give you its best possible performance. After you have had an opportunity to familiarize yourself with THE FISHER, we would appreciate your letting us know how it is meeting your requirements.

To keep your FISHER at peak performance over the years, may we suggest you avail yourself of the facilities and factory-trained personnel at our Service Department, or the friendly and competent service of your FISHER Dealer or Authorized Service Station.

a final word . . .

Have this booklet handy while you get acquainted with your new FISHER, then keep it in a safe place as a valuable reference to which you can turn.

If any question arises to which you cannot find the answer, please do not hesitate to write us. We'll be glad to hear from you, and a prompt reply will follow.

Avery Fisher

AVERY FISHER,
PRESIDENT



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