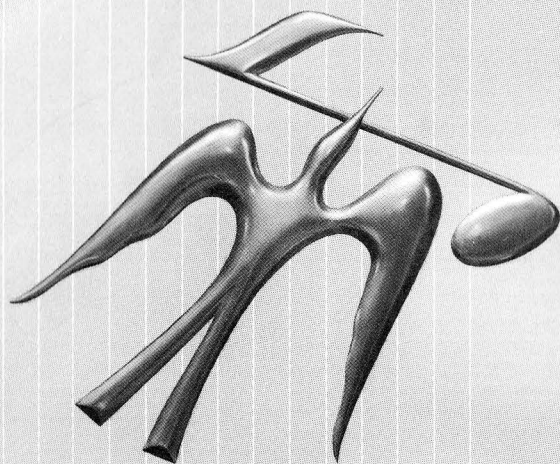


OPERATING INSTRUCTIONS AND WARRANTY



# THE FISHER

**500-B**

STEREOPHONIC

**FM Multiplex Receiver**

PRICE \$1.00

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-five 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. | 1955 | First correctly equalized, direct tape-head master audio controls and self-powered preamplifier.   | 1960 | First reverberation device, for use in high fidelity equipment—The Fisher Dynamic Spaceexpander.                                    |
| 1937 | First exclusively high fidelity TRF tuner, featuring broad-tuning 20,000 cycle fidelity.   | 1956 | First to use Power Monitor in a home amplifier.  | 1960 | First stereo tuner with MicroTune.  |
| 1937 | First two-unit high fidelity system with separate speaker enclosure.   | 1956 | First All-Transistorized Preamplifier-Equalizer.   | 1960 | First FM tuner with six IF stages.  |
| 1938 | First coaxial speaker system.  | 1956 | First dual dynamic limiters in an FM tuner for home use.   | 1960 | First FM tuner with five limiters.  |
| 1938 | First high fidelity tuner with amplified AVC.  | 1956 | First Performance Monitor in a high quality amplifier for home use.  | 1960 | First front panel antenna selector switch, 72-300 ohm, Local-Distant positions.   |
| 1939 | First 3-Way Speaker in a high fidelity system.   | 1956 | First FM-AM tuner with TWO meters.   | 1961 | First Multiplex units with STEREO BEACON and automatic switching, mono to stereo.   |
| 1939 | First Center-of-Channel Tuning indicator.  | 1956 | First complete graphic response curve indicator for bass and treble.   | 1961 | First complete receivers with Multiplex.  |
| 1945 | First Preamplifier-Equalizer with selective phonograph equalization.   | 1957 | First Golden Cascode FM Tuner.   | 1961 | First FM-Stereo-Multiplex tuners with STEREO BEAM.  |
| 1948 | First Dynamic Range Expander with feedback.  | 1957 | First MicroRay Tuning Indicator.   | 1961 | First loudspeaker system with frameless woofer cone, eliminating all parasitic resonance.   |
| 1949 | First FM-AM Tuner with variable AFC.   | 1958 | First Stereophonic Radio-Phonograph with Magnetic Stereo Cartridge.  | 1961 | First internal switching system to permit immediate tape playback with use of all controls and switches.                            |
| 1952 | First 50-Watt, all-triode amplifier.   | 1959 | First high-quality Stereo Remote Control System.   | 1962 | First simplified-operation Control-Amplifier, with infrequently used controls behind front-panel cover, yet immediately accessible. |
| 1952 | First self-powered Master Audio Control.   | 1959 | First complete Stereophonic FM-AM Receiver (FM-AM tuner, audio control, 40-watt amplifier).  | 1962 | First loudspeaker with eddy-current-damped voice coil.  |
| 1953 | First self-powered, electronic sharp-cut-off filter system for high fidelity use.  | 1959 | First high-compliance plus high-efficiency free-piston speaker system.   | 1962 | First bass speaker with combined serrated-aluminum and fiber cone.  |
| 1953 | First Universal Horn-Type Speaker Enclosure for any room location and any speaker.   | 1960 | First to use MicroRay for FM tuning and as a Recording Audio Level Indicator.  | 1962 | First FM Tuner Kit with separate d'Arsonval meter for tuning and separate cathode ray stereo broadcast indicator (STEREO BEAM).     |
| 1953 | First FM-AM tuner with a Cascode Front End.  | 1960 | First complete stereo FM-AM receiver with 60-watt power amplifier and new 7591 output tubes.   | 1962 | First Stereophonic FM Tuner with TUNE-O-MATIC Motor Tuning.   |
| 1954 | First low-cost electronic Mixer-Fader.   | 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. | 1962 | First Supersonic Wireless Remote Control in a high fidelity component.  |
| 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.   |      |  |      |   |



**THE FISHER 500-B**  
STEREOPHONIC  
**FM Multiplex Receiver**

**T**HE VERY LATEST TECHNIQUES in audio engineering design have been incorporated in the FISHER 500-B, resulting in a stereophonic receiver of truly outstanding quality which is virtually *obsolescence-proof*. With the addition of a pair of speakers and a record player, the 500-B, with 65 watts of Music Power, becomes the nucleus of a complete high-fidelity system unsurpassed in scope of features and quality of performance. The 500-B is capable of reproducing the new FM multiplex stereo—*without the need for adding external adaptors of any kind*. The tuning indicator can also be used as a Stereo Beam indicator, signalling instantly when the station tuned to broadcasts a multiplex stereo program. A special noise filter is included, which has no effect on the frequency range of the multiplex program. The highly sensitive tuner utilizes wide-band design throughout to achieve unparalleled freedom from distortion and superb performance on FM multiplex programs. The Master Audio Control of the 500-B includes the full range of functions found on elaborate professional installations, including such features as sharp cut-off Low and High filters, Tape Monitor facilities, and a Phase Reverse switch. The final link in this chain of superbly engineered, integrated

audio components is the dual-channel 65-watt power amplifier, capable of driving the most inefficient loudspeakers to full room volume with ease.

The remarkable performance of the 500-B is assured for many years to come by the craftsmanship and careful attention to every detail of manufacture which have made FISHER quality famous. We are sure that your appreciation of the 500-B will grow with time, as it handles every musical assignment with that degree of perfection that only a top-quality electronic instrument can provide.

### **A NOTE ON STEREOPHONIC SOUND**

**S**TEREOPHONIC SOUND is a giant step forward in the history of high fidelity music reproduction. This unique dual-channel system offers a distinct advantage over monophonic (single-channel) systems because of two important audio characteristics: the dimensions of *direction* and *depth*. These live sound qualities are for the most part missing in monophonic systems because recordings are made and reproduced over a single channel. This is somewhat analogous to listen-

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ing to music with one ear. Stereophonic recording techniques, however, utilize two separate banks of microphones, positioned in the left and right sections of the orchestra. In this arrangement, the microphones detect the musical sounds in much the same manner as the two ears of a listener. The sound picked up by each bank of microphones is then fed to independent channels and recorded on disks or tape, or transmitted over separate channels of a stereophonic broadcast.

To reproduce stereophonic realism in the home, two separate sound channels are required to achieve the stereophonic effect. The stereo sound output of a record player, tape recorder or tuner is fed to two separate amplifier channels, which in turn drive two separate speaker systems. Thus, instruments located on the left side of the orchestra are heard predominantly in the speaker to your left; instruments on the right side of the orchestra are heard predominantly in the speaker to your right; while instruments located in the center appear to be heard midway between the two speaker systems. The result is a startling sense of *presence* such as is normally experienced only at a live orchestral performance.

### FM MULTIPLEX STEREO

**F**M BROADCASTING has a frequency range far in excess of the normal hearing range. For example, Fisher wide-band tuners have a frequency range which extends to 75 kc, while the normal hearing range does not exceed 17 kc. This extra "space" in the frequency response has now been put into service for the transmission of a second and third signal simultaneously with the main carrier. The third (and highest) signal is used in commercial applications (for background music) and will not be received on home high fidelity equipment. The other two signals, however, are used for the reception of stereo programs. During multiplex broadcasts, the main carrier, which can be picked up by any FM tuner or receiver, contains the sum or blended signal from both stereo channels (left plus right). The second, supersonic signal contains the information necessary for

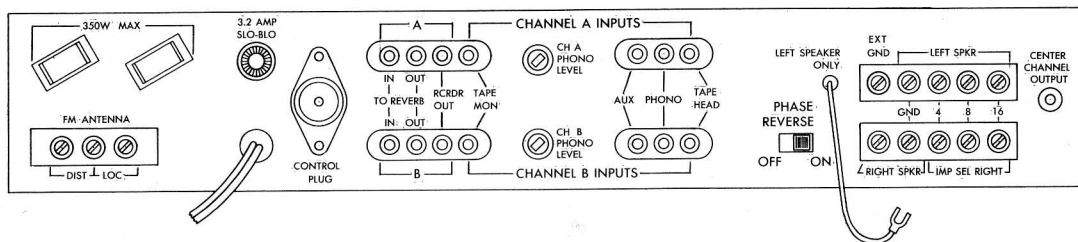


FIGURE 1. Rear panel of the 500-B.

stereo. This system makes it possible for an ordinary FM set to receive a fully balanced monophonic program during multiplex transmission. At the same time, however, the matrix circuits of the 500-B separate the two stereo channels from the main and stereo transmissions, thus providing you with all the added benefits of full stereo sound.

Because FM multiplex requires new equipment and new techniques at FM broadcasting stations, it is to be expected that not all programs will be of the same high technical calibre during the first few months. Such occasional problems as may arise initially will no doubt be solved quickly, as the stations gain experience with the new procedures. It is important to keep in mind, however, that the stereo subcarrier is inherently more noisy than the main carrier. In order to receive weak or distant stations with acceptably low noise levels, you may find it necessary to change to an antenna with higher gain, or to relocate your present antenna in a more favorable position.

## INSTALLING THE 500-B

THE FISHER 500-B operates on 105-120 volts, AC only. Two auxiliary power outlets are provided on the rear panel for connection of the power cord from the record player and other associated equipment. The 500-B should be mounted on a horizontal surface *only* and should be provided with adequate space around the chassis

to assure proper ventilation. If it is mounted in a custom installation, the rear of the enclosure should be left open and *at least* four inches above and two inches to each side of the chassis should be left free for the circulation of air. The 500-B should never be placed directly above, or in contact with other heat-producing equipment.

## Loudspeakers

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 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 speaker and the listening area. In a stereo system the speakers should be approximately equidistant from the listening area. The distance between the speakers should be approximately two-thirds the distance separating the speakers from the listening area. It has been found that the aural effect of stereophonic sound is enhanced when two identical speaker systems are used. Although these principles can serve as a general starting point in placing your loudspeakers, we strongly recommend that you experiment with several different arrangements before deciding on a final placement. The unpredictable effects resulting from furniture arrangement and irregularities in room dimensions may make unorthodox placement of the loudspeakers necessary.

After the initial location of the loudspeakers has been decided upon, make the following connections:

**ONE SPEAKER:** If you are using only one speaker temporarily, connect the short wire protruding from the chassis to the IMP SEL RIGHT terminal lug marked "4", and connect an 8- to 10-ohm resistor, rated at a minimum of 10 watts, between the RIGHT SPKR terminals. Connect your loudspeaker to the LEFT SPKR terminals using ordinary power cord or heavy-duty TV antenna twinlead up to 50 feet in length. Connect one speaker lead to the terminal lug marked "GND" and the other lead to the "4", "8", or "16" lug, depending on the impedance of the speaker.

**TWO SPEAKERS:** Connect the speaker on your right (as viewed from the listening area) to the RIGHT SPKR terminal lugs. Connect the short wire protruding from the chassis to the IMP SEL RIGHT terminal lug marked "4", "8", or "16", depending on the impedance of the speaker. Connect the speaker on your left to the LEFT SPKR terminals; one speaker lead to the terminal lug marked "GND", the other lead to the "4", "8", or "16" lug, depending on the impedance of the speaker. Ordinary power cord or heavy-duty TV antenna twinlead up to 50 feet in length may be used for these connections.

## The Antenna

A folded dipole FM antenna is included with the 500-B. The two arms of this antenna should be horizontal and away from all large metal objects and electrical wiring for best results. If the 500-B is used in close proximity to one or more powerful FM stations, the two wires from this antenna should be connected to the LOC terminals on the FM Antenna terminal strip on the rear panel. This will prevent such stations from overloading the sensitive input stages of the 500-B FM tuner. If an FM station is not located nearby, the DIST terminals should be used. After the antenna has been connected and the 500-B put in operation, the antenna should be rotated horizontally, to determine the orientation for best reception. In apartment buildings and other buildings using steel structural sup-

ports, reception can be improved by placing the antenna close to a window. If tacks or staples are used to fasten the antenna in place, be sure that they do not contact the two conductors running along each edge of the antenna wire and avoid fastening the antenna directly to a wall. If necessary, the antenna may be placed under a carpet, but as a general rule, reception improves as the height of the antenna is increased. The antenna should never be folded or coiled.

FM multiplex requires stronger signals for low noise levels than ordinary monophonic programs. You may find, therefore, that placement of the antenna may have to be improved for good multiplex reception. In some cases, especially in fringe areas, an outdoor rooftop antenna or even a highly directional yagi type may be needed for multiplex reception, even though the indoor antenna suffices for monophonic transmissions. Outdoor antennas should be connected to the DIST terminals.

## Record Players and Changers

Magnetic or ceramic phonograph cartridges can be played through the 500-B. The PHONO input jacks are used for a magnetic cartridge and the AUX inputs are used for a ceramic cartridge. If you cannot ascertain which of the two leads from the record player is the Channel A output and which is the Channel B output, connect them to the 500-B and listen for normal placement of the instruments on a symphonic stereo record. If the violin section appears to be located on the right, reverse the leads from the phonograph. The Channel Reverse switch may be used to check this listening test. The instruments should be properly placed with the Channel Reverse switch in the OFF position. (Special test records may also be obtained from your record dealer.)

**PHONO LEVEL SETS:** If you are using the PHONO input jacks, the volume level from each channel can be adjusted by means of the two Phono Level sets located on the rear panel. This is done in the following manner:

1—Play a monophonic record with the Mono-Stereo switch in the STEREO position, and the Balance Control at NORMAL.

2—Turn the Selector switch between PHONO and FM, and adjust the Phono Level Sets so that the volume level for both positions is the same.

3—The Phono levels for each channel can now be equalized by adjusting the Level Sets for equal volume levels.

## Tape Recorders

Tape recorders can be connected to play through and to record from the 500-B. If the recorder has separate record and playback heads, the Tape Monitor system will permit you to listen to your tapes while they are being recorded, and to have the full use of all the audio control facilities of the 500-B during ordinary playback of previously recorded tapes. Connections are as follows:

### STEREOPHONIC TAPE RECORDER:

1—Connect the Channel A output of the tape recorder to the A TAPE MON jack on the rear panel.

2—Connect the Channel B output of the tape recorder to the B TAPE MON jack on the rear panel.

3—Connect the Channel A input of the tape recorder to the A RCRDR OUT jack.

4—Connect the Channel B input of the tape recorder to the B RCRDR OUT jack.

### MONOPHONIC TAPE RECORDER:

1—Connect the output of the tape recorder to the Channel A TAPE MON jack on the rear panel of the 500-B.

2—Connect the input of the tape recorder to the A RCRDR OUT jack on the rear panel.

NOTE: During playback of your tapes, place the Mono-Stereo switch in the MONO position for sound from both speaker systems. To monitor tapes through both speakers as the tapes are being recorded

(on recorders with separate record and playback heads *only*), the output of the recorder must be connected to *both* TAPE MON input jacks. This can easily be done by obtaining a “Y” connector or by splicing together two shielded cables.

## Tape Decks

A tape deck is the tape transport mechanism without the electronic preamplifiers found in tape recorders. Such tape decks may be played through the 500-B by connecting the Channel A (or Left) output on the tape deck to the jack on the 500-B marked Channel A TAPE HEAD. The Channel B (or Right) output from the tape deck should be connected to the Channel B TAPE HEAD jack. A monophonic tape deck should be connected to the Channel A TAPE HEAD jack.

## Spacexpander

The FISHER *Spacexpander*, Model K-10 can be connected to the 500-B by using the special *Spacexpander* jacks on the rear panel. Before installing the *Spacexpander*, remove the two jumper wires between the *Spacexpander* jacks but retain the jumpers for possible future use. *These jumpers must be inserted when the Spacexpander is not connected or the 500-B will be completely inoperative. Make the following connections to the Spacexpander:*

1—Channel A TO REVERB OUT jack on the 500-B to the Channel A OUTPUT jack on the *Spacexpander*.

2—Channel B TO REVERB OUT jack on the 500-B to the Channel B OUTPUT jack on the *Spacexpander*.

3—Channel A TO REVERB IN jack on the 500-B to the Channel A INPUT jack on the *Spacexpander*.

4—Channel B TO REVERB IN jack on the 500-B to the Channel B INPUT jack on the *Spacexpander*.

## Center Channel

A center channel speaker and separate power amplifier may be

added to the sound system of your *500-B* by connecting the additional amplifier to the CENTER CHANNEL OUTPUT jack on the rear panel. Such an amplifier should have a volume or input level control, but tone controls are not necessary since these are provided by the *500-B*. After an initial adjustment of the center channel volume on the additional power amplifier, the Volume control on the front panel of the *500-B* can be used to vary the volume level of all three speaker systems simultaneously. If the left and right speakers must be placed far apart in your listening room, resulting in an apparent "hole-in-the-middle" of the stereophonic sound pattern, a center channel speaker will be found particularly effective in restoring a naturally balanced curtain of sound.

### System Grounding

The EXT. GND screw terminal lug on the upper (Left Speaker) terminal strip may be used to ground the motor and tone arm of your record player in order to reduce hum. The chassis ground of other components may also be connected to this terminal if desired.

### Speaker Phasing

After having read the section on operation of the *500-B*, perform the following speaker phasing adjustment:

- 1—Play a monophonic record with prominent bass material.
- 2—Slide the Phase Reverse switch (on the rear panel) to ON and then to OFF, and compare the sound of the bass tones under each condition. You may find it helpful to turn the Bass controls clockwise and the Treble controls counterclockwise during this test.
- 3—If the bass sounds fuller and richer with the Phase Reverse switch ON, turn off the power to the *500-B* and reverse the leads to the left speaker. Then place the Phase Reverse switch in the OFF position.
- 4—If the bass sound is fuller with the Phase Reverse switch OFF, your speakers are already in phase and no further adjustments are necessary. Return the Phase Reverse switch to the OFF position.

5—If you are using a Center Channel speaker, perform the same listening test while reversing the center speaker leads. The Phase Reverse switch has no effect on the center speaker.

This adjustment will assure that the speakers in your system "push" and "pull" in unison, instead of in opposition—an important consideration in achieving the maximum stereo effect and good low frequency sound.

## OPERATING THE 500-B

**Y**OUR *500-B* is now ready for operation, but like any other fine piece of electronic equipment, it must be operated correctly in order to deliver its full capabilities. We urge you to read these instructions carefully in order to achieve optimum results.

### Volume Control

The Volume control regulates the total volume of sound from the speakers. The AC Power switch is combined with this control, and the power is turned off at the extreme left position. This switch also controls the two power outlets on the rear panel. The Volume control changes the sound level from both channels simultaneously, thus making it unnecessary to balance the channels each time you change the volume.

### Loudness Contour Switch

The Loudness Contour switch is used to add compensation for the natural deficiency of the human ear in the extreme bass and treble ranges at low volumes. With this switch in the ON position, 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.

### Selector Switch

The six positions of the Selector switch perform the following functions:



**TAPE HEAD:** Selects a tape deck connected to the TAPE HEAD jacks and provides correct equalization for tapes played at a speed of  $3\frac{3}{4}$  and  $7\frac{1}{2}$  inches per second.

**PHONO:** Selects a record player connected to the PHONO jacks and provides correct equalization (RIAA) for all records made since 1954.

**MPX STEREO:** This position is used for listening to multiplex broadcasts. The Stereo Beam also operates with the Selector in this position.

**FM:** This position is used for listening to monophonic FM broadcasts and for tuning in an FM station.

**AUX:** This position selects a component connected to the AUX jacks on the rear panel.

**TAPE:** Selects a tape recorder for playback of previously recorded tapes. This position is *not* used while making a recording.

### Balance Control

This control is used to equalize the sound levels from both speaker systems to achieve the optimum stereo effect. If the Channel A and Channel B inputs are exactly balanced, you will hear equal sound levels from the left and right speakers with the control in the NORMAL position. If, however, there is an imbalance in the program levels, you can re-balance the sound levels by turning the Balance control either clockwise (to increase the sound level on the right and decrease the sound level on the left) or counterclockwise (to increase the left and decrease the right). The Balance control is not a volume control since the same over-all 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 in operation.

### Bass and Treble Controls

The Bass controls increase or decrease the amount of bass tones heard in the sound output. With the Bass controls in the NORMAL position, the bass tones will sound exactly as they were recorded at

the program source. If you wish to increase the bass emphasis because of a bass deficiency in the record, tape or radio broadcast you have selected, simply turn the Bass controls the desired amount toward the MAX position. To decrease the prominence of the bass tones, turn the Bass controls toward MIN. Normally, the Bass controls for Left and Right Speaker systems rotate together, but if you wish to adjust the Bass separately for each channel, hold one of the knobs while turning the other.

The Treble controls adjust the intensity of the treble tone heard in the sound output. As with the Bass controls, the NORMAL position will result in the same degree of treble tone as exists in the program source. The relative amount of treble tone can be increased, resulting in a more brilliant and crisp sound, by turning the Treble controls toward MAX; and it can be decreased, resulting in a more mellow and intimate tone, by turning the control toward MIN. The Treble controls may also be adjusted individually for each channel by holding one knob while rotating the other.

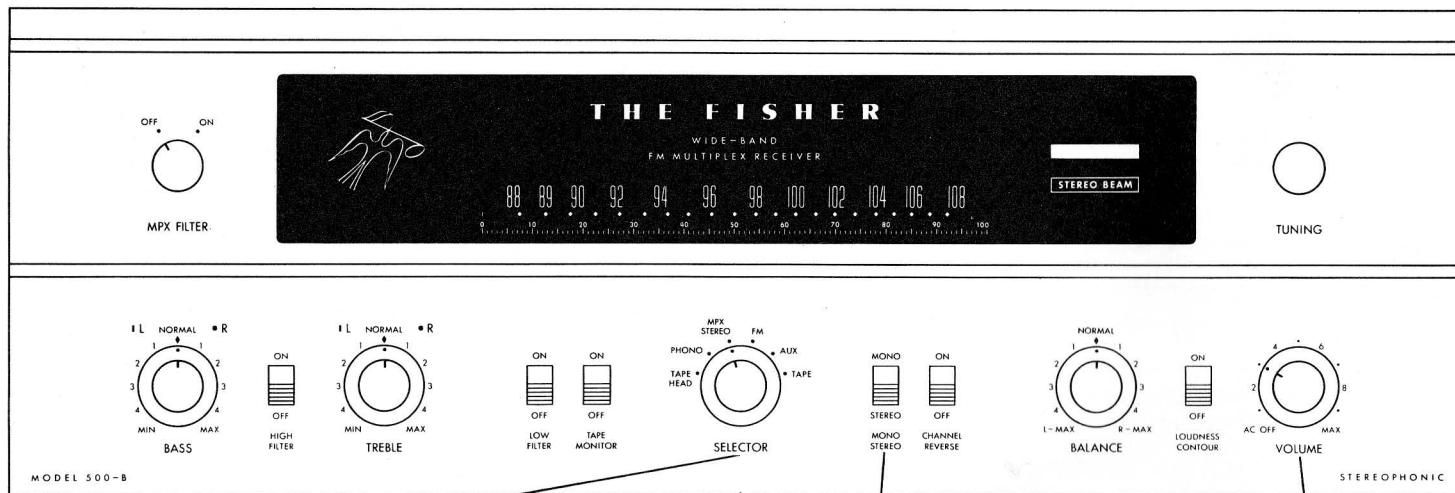
### High and Low Filters

The High Filter is a sharp cut-off circuit designed to remove annoying record scratch, hiss and other high frequency noise without dulling the treble portion of the musical program. The Low Filter is similarly designed to remove low frequency noise such as turntable rumble, without weakening bass tones in the musical signal.

### Mono-Stereo Switch

The MONO position of this switch is used to blend together the two input channels and to send this blended signal to both loudspeakers. It is normally used when listening to monophonic records with a stereo phono cartridge. When used in this manner, any possible vertical rumble or noise present in the record, or in the turntable, will be electrically cancelled. This position should also be used to play a monophonic component connected to the AUX inputs (or a monophonic tape recorder or tape deck) through both speaker systems. The STEREO position is used for all stereophonic programs on records, tape or radio.

## A SHORT OPERATING GUIDE FOR THE 'MAN IN A HURRY'



### STEP 2

Set **SELECTOR** switch to the program source you wish to hear.  
**PHONO** to listen to a record.  
**MPX STEREO** to listen to a multiplex FM program.  
**FM** for monophonic FM programs.  
**TAPE** to listen to a tape recorder.

### STEP 3

Set **MONO-STEREO** switch to **MONO** for monophonic programs.  
**STEREO** for stereo programs.

### STEP 1

Turn on power by turning **VOLUME** control slightly clockwise until it clicks. Adjust later for desired volume.

**NOTE:** Set all other switches and controls in the position shown.

## Tape Monitor Switch

The Tape Monitor switch is used only with stereophonic tape recorders *with separate record and playback heads*. Sliding this switch to the ON position permits listening to the tape while it is being recorded. You can compare the quality of your tapes with the original program source by switching between ON and OFF while recording. The Tape Monitor switch is not used for playback of previously recorded tapes, and should always be left in the OFF position when a recording is not being made.

## Channel Reverse Switch

The Channel Reverse switch will be found useful when the channels of the programs source have, through some error, been inadvertently crossed. This situation might arise, for example, during a multiplex stereo program due to a mistake at the broadcasting studio. In such cases, simply place the switch in the ON position to restore the channels to their proper position (Channel A on the left and Channel B on the right). Be sure to return the Channel Reverse switch to OFF for normal listening.

## Phase Reverse Switch

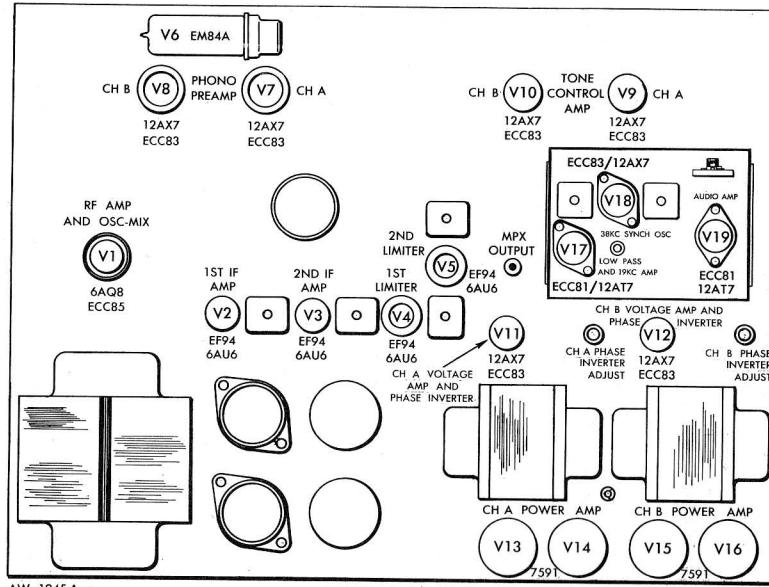
After performing the test on page 6, the sound from your speakers will be properly phased unless an out-of-phase record, radio program or tape is played through the *500-B*. In such a case, the program to which you are listening may not seem to produce a full, solid tone, especially in the bass region. To restore correct phasing, slide the Phase Reverse switch (on the rear panel) to ON. If the bass tone improves, leave the switch in the ON position until the end of the program, but be sure to return it to OFF afterwards.

## FM Tuning

The Tuning knob selects FM stations in the 88 to 108 megacycle band. Turning the knob will move the pointer across the dial scale and vary the tuning indicator, when the Selector switch is in the FM position.

## AT-A-GLANCE OPERATING GUIDE

To Listen To A:	Turn Selector To:	Mono-Stereo Switch To:
FM Multiplex Stereo Program	MPX STEREO (If noisy, turn MPX Filter switch to ON.)	STEREO
FM Monophonic Program	FM	MONO
Stereo Record	PHONO (AUX for ceramic cartridge)	STEREO
Monophonic Record	PHONO (AUX for ceramic cartridge)	MONO
Stereo Tape Recorder	TAPE	STEREO
Monophonic Tape Recorder	TAPE	MONO
Stereo Tape Deck	TAPE HEAD	STEREO
Monophonic Tape Deck	TAPE HEAD	MONO



AW 1945 A

FIGURE 2. Tube layout.

The Tuning Indicator has a logarithmic response to the strength of broadcast signals; that is, it responds with greatest sensitivity to weak signals, and with less sensitivity to strong signals, thus guarding against overloading. Each station should be tuned for minimum width of the dark band in the center of the indicator. When this point is reached, optimum reception is assured. For your added convenience, a logging scale with linear divisions from 0 to 100 is included under the tuning dial. By making a note of the location of your favorite stations on this linear scale, you will be able to tune to them more quickly and accurately.

In addition to its function as an FM Tuning Indicator, the Micro-Ray tube is also used as the Stereo Beam indicator for FM multiplex reception. With the Selector switch in the MPX STEREO position, the dark area in the center of this indicator will become considerably narrower whenever a multiplex stereo program is broadcast. During ordinary monophonic transmissions, only the left and right edges of the indicator will be bright.

To find a multiplex program, place the Selector switch in the MPX STEREO position and tune across the band until the two bright portions of the Stereo Beam widen, indicating a multiplex

program. For fine tuning, turn the Selector to FM and turn the Tuning knob until the dark band on the MicroRay Indicator is narrowest. When this has been done, turn the Selector back to the MPX STEREO position to receive the multiplex program stereophonically.

Due to the nature of the multiplex system, the noise level of a *monophonic* program will be somewhat higher when the Selector is turned to MPX STEREO. For this reason, we suggest that you do not leave the Selector in the MPX position when listening to a monophonic FM broadcast.

### MPX Filter Switch

The MPX Filter switch is turned to ON when the noise level on a multiplex program becomes objectionable. You should encounter this condition only when listening to multiplex programs from weak or distant stations. The MPX filter is of a special type which greatly decreases the noise without affecting the frequency response of the music signal.

## CUSTOM MOUNTING INSTRUCTIONS

THE *500-B* Receiver may be mounted in a special custom cabinet, Model 30-U (walnut or mahogany), 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 *500-B*. Never install the chassis vertically, or above other heat-producing equipment. The enclosure for the *500-B* 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 *500-B* for air circulation.

The *500-B* is shipped with four plastic mounting feet attached to the bottom of the chassis. To install the *500-B* in a custom cabinet, these mounting feet must first be removed.

### Installation with Cleats

To provide adequate ventilation to the underside of the chassis, it is advisable to mount the *500-B* on wooden cleats which are fastened to the floor of the cabinet. For this installation, proceed as follows:

- 1—Obtain a strip of wood  $\frac{3}{4}$  inch square and 26 inches long. Cut this strip in half to form two 13-inch cleats.
- 2—Fasten the two cleats to the top of the mounting board with wood screws in the position shown in Figure 3. 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 4. 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 *500-B* 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.

### Flush Installation

If the height of the custom cabinet will not permit you to mount the *500-B* by means of cleats, as described in the preceding section, the chassis may be mounted directly on the cabinet shelf. If the chassis is mounted in this way, however, it is essential that cutouts be made in the shelf as shown in Figure 3, and that the back of the cabinet remain completely open, in order to provide proper ventilation. For a flush-mounted installation, proceed as follows:

- 1—Locate and drill the four  $\frac{1}{4}$ -inch holes in the bottom shelf of the custom cabinet as indicated in Figure 3.

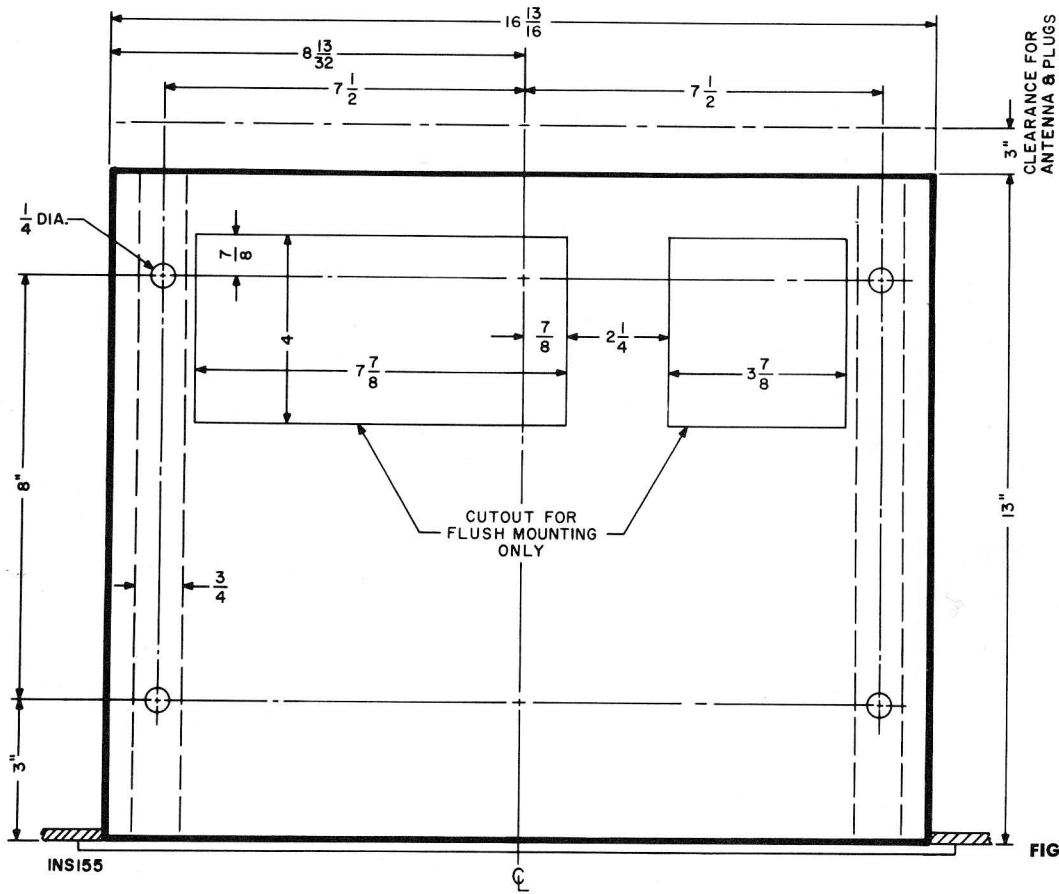


FIGURE 3. Top view of custom installation.

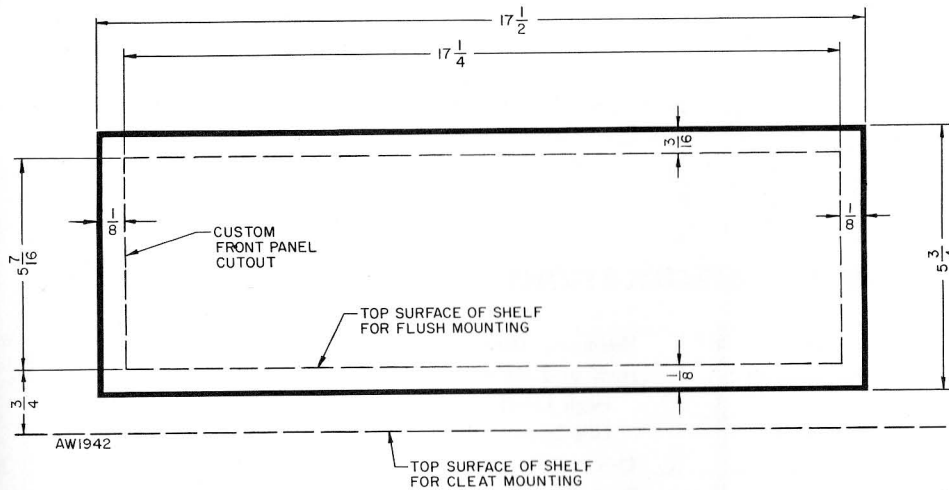


FIGURE 4. Front panel cutout.

2—Saw cutouts in the bottom shelf following the outlines shown in Figure 3. It is absolutely essential that these cutouts be made as indicated so that the necessary ventilation will be supplied to the 500-B chassis.

3—Saw a rectangular cutout through the front panel of your custom cabinet to the dimensions shown in Figure 4. Note that the bottom of the cutout coincides with the top of the mounting shelf, since cleats are not used in this installation.

4—Insert the chassis through the custom cabinet front panel cutout. Slide the chassis in all the way so that the rear of the 500-B control panel fits tightly against the front of the custom panel.

5—Fasten the chassis to the shelf by means of four mounting screws and flat washers. The screws are inserted from the underside of the

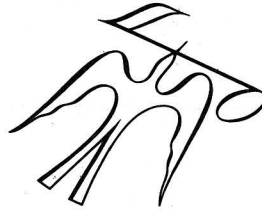
shelf, through the holes and into the four mounting holes formerly used for attaching the plastic mounting feet. Use the four 1-inch screws and washers furnished in the accessories bag for this purpose.

### At Your Service

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

### Your Fisher Dealer

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



## TECHNICAL SPECIFICATIONS

### THE TUNER

<b>Sensitivity:</b>	0.7 microvolt for 20 db quieting (72-ohm antenna) 2.2 microvolts (IHFM Standard)
<b>Hum and Noise:</b>	70 db below 100% mod. signal
<b>Selectivity</b>	55 db (alternate channel)
<b>IF Rejection:</b>	72 db (at 100 Mc)
<b>Distortion:</b>	0.5% (75 kc., 400 caps modulation)
<b>Frequency Response:</b>	30—75,000 cps (before de- emphasis)
<b>FM Channel Separation:</b>	35 db (at 1 kc.)

### THE AUDIO SECTION

<b>Music Power:</b>	65 watts total
<b>Frequency Response:</b>	
<b>Over-all</b>	25—25,000 cps $\pm 1.5$ db
<b>Power Amplifier Section</b>	5—45,000 cps +0, -2 db

### Harmonic Distortion:

0.5% (at rated output)

### Hum and Noise:

#### High Level Input

80 db below rated output

#### Low Level Input

66 db below rated output

### Channel Separation:

50 db

### Bass Controls:

23 db total variation at 50 cps

### Treble Controls

23 db total variation at 10 kc

### Low Filter:

12 db per octave below 35 cps

### High Filter:

12 db per octave above 6 kc

### Input Sensitivity:

#### PHONO

3.3 mv for rated output

#### TAPE

2.5 mv for rated output

#### AUX

230 mv for rated output

### POWER REQUIREMENTS

105-120 volts at 50 to 60 cycles

Power Consumption: 175 watts



## LOGGING CHART

STATION	MPX	LOGGING SCALE NUMBER	STATION	MPX	LOGGING SCALE NUMBER

**NOTE:** This chart may be used as a handy guide for quick tuning to the stations in your area.

# Warranty To Owner

The FISHER equipment you purchased was carefully tested and inspected before leaving our laboratories. If properly installed and operated in accordance with the instructions furnished, it should give you the finest results of which it is capable. This equipment is unconditionally guaranteed against all defects in material\* and workmanship for ninety days from date of sale to the original purchaser. Any part of the equipment which discloses such a defect, under normal installation and use, will be adjusted or replaced, without charge for labor or materials, by the dealer from whom purchased. To protect your warranty, and to register your ownership, be sure to mail this card within 10 days from date of purchase.

**FOR WARRANTY SERVICE, CONSULT YOUR DEALER**

## \*SPECIAL NOTICE

The warranty on parts has been increased to one year. Warranty labor is furnished without charge during the first 90 days.



Please complete and return this

## WARRANTY CARD

PLEASE PRINT

USER'S LAST NAME		FIRST NAME	INITIAL
USER'S HOME ADDRESS			
CITY		STATE	
DATE OF PURCHASE	MODEL NO.	SERIAL NO.	

Name of Dealer \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

I heard of the FISHER through  Friend  Dealer  Advertising

If purchased because of advertising, please give name of publication: \_\_\_\_\_

I chose THE FISHER because: \_\_\_\_\_

What I think of my FISHER equipment: \_\_\_\_\_

I also own these additional hi-fi units and speakers: \_\_\_\_\_

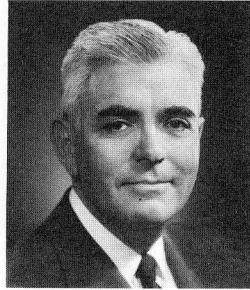
Please send copies of your literature to:

Name \_\_\_\_\_

Address \_\_\_\_\_

**WARRANTY VOID UNLESS COMPLETED AND RETURNED  
WITHIN 10 DAYS AFTER DATE OF PURCHASE**

## The Man Behind the Product

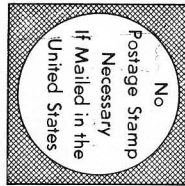
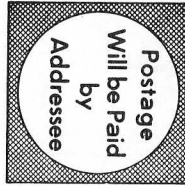


**AVERY FISHER**  
*Founder and President,  
Fisher Radio Corporation*

**T**WENTY-FIVE 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, New York.



**BUSINESS REPLY CARD**  
FIRST CLASS PERMIT No. 45377, NEW YORK, N. Y.

**FISHER RADIO CORPORATION**

**21-21 44th Drive**

**Long Island City 1, N. Y.**

