

OPERATING INSTRUCTIONS AND WARRANTY



THE FISHER[®]

Diplomat
MODEL D-393
Stereophonic Radio-Phonograph

PRICE \$1.00

WORLD LEADER IN STEREOGRAPHIC HIGH FIDELITY
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DIPLOMAT
MODEL D-393
Stereophonic Radio-Phonograph

Your new console is an outstanding example of the bold imagination, sound design, and care in manufacture which have made the FISHER name synonymous with leadership in high-fidelity for over a quarter-century. Combining old-world artistry in furniture design and construction with the latest advances in electronics and electro-acoustics, it exhibits the superlative FISHER performance long praised by professional musicians and musical connoisseurs.

This unit is a complete high-fidelity stereo system featuring a transistorized AM-FM-stereo receiver (with a revolutionary new FET front end, an integrated-circuit IF section, and multiplex decoder with exclusive STEREO BEACON*), a precision four-speed automatic turntable, and two matched, full-range speaker systems. The console's inherent flexibility permits you to play AM, FM, and FM-stereo broadcasts, mono and stereo phonograph records of any size and speed, and any one of a wide variety of auxiliary program sources of your choice. Whatever the program, you may shape its sound characteristics to suit your personal tastes and listening conditions with the receiver's versatile array of controls. Jacks at the rear of the console provide means for connecting a pair of FISHER WS-2 WIDE-SURROUND® speakers for enhanced stereo 'spread', if desired. Additional facilities are included for tape-recording the selected program while listening and for playing back the recording (or any prerecorded tape) through the console at your convenience.

The automatic turntable can be quickly adapted either for automatic operation with a stack of records or for single-play manual operation. In either case, accurate tracking is assured by a counterbalanced transcription-quality tone arm with stylus-pressure

and antiskating adjustments and a high-compliance diamond-stylus cartridge. The built-in cue lever may be used to lower the arm to any selected band on the record without risking stylus or record damage. If desired, the turntable will automatically shut off the console after playing the last record in a stack, permitting you to leave the set unattended when playing records.

Each of the compound speaker systems contains separate speakers for the various segments of the audible spectrum and a specially designed low-loss crossover network. All speakers—custom built to exacting standards with large-diameter voice coils and massive magnet assemblies—are precisely matched for the smoothest overall response and minimum distortion.

As with any FISHER instrument, the most important advantages of this console will become increasingly apparent with the passage of time. These are the craftsmanship in construction, the use of costly, more durable materials, and the rigid test procedures behind every FISHER unit which receives the final stamp of approval. Before leaving the factory, your set had to pass a comprehensive series of stringent examinations. In this way, we endeavor to maintain our long-established world-wide reputation for the very highest standards in performance and reliability.

*The trademark, STEREO BEACON**, signifies this model has the exclusive convenience feature that automatically switches to the stereo mode, signals the presence of the stereo broadcast, and automatically switches back to mono again—according to the type of program being received.

** U.S. Patent 3290443

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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. | 1956 First performance monitor in a high-quality amplifier. | 1962 First loudspeaker with eddy-current-damped voice coil. |
| 1937 First exclusively high-fidelity TRF tuner, featuring broad-tuning 20-20,000 cycle fidelity. | 1956 First FM-AM tuner with two meters. | 1962 First FM tuner kit with separate d'Arsonval meter for tuning and separate cathode ray stereo broadcast indicator (STEREO BEAM). |
| 1937 First two-unit high-fidelity system with separate speaker enclosure. | 1956 First complete graphic response curve indicator for bass and treble. | 1963 First power amplifier to use oscilloscope-type frequency-compensated input circuit. |
| 1938 First coaxial speaker system. | 1957 First GOLDEN CASCODE FM tuner. | 1963 First amplifier kit with STRATABALANCE® visual dynamic balancing system. |
| 1938 First high-fidelity tuner with amplified AVC. | 1957 First MicroRay tuning indicator. | 1964 First multiplex adapter with 'flywheel synchronization.' Closely approaches theoretical limit of noise rejection, and of all spurious responses. |
| 1939 First dynamic range expander. | 1958 First stereophonic radio-phonograph with magnetic stereo cartridge. | 1964 First FM Stereo Tuner with STEREOSCAN®. |
| 1939 First 3-way speaker in a high-fidelity system. | 1959 First high-quality remote control system. | 1964 First peripherally-driven tweeter with cotton, soft dome. |
| 1939 First center-of-channel tuning indicator. | 1959 First complete stereophonic FM-AM receiver (FM-AM tuner, audio control, 40-watt amplifier). | 1964 First to use TUNE-O-MATIC® circuitry in an FM tuner. |
| 1945 First preamplifier-equalizer with selective phonograph equalization. | 1959 First high-compliance plus high-efficiency Free-Piston loudspeaker system. | 1965 First All-in-One, All-Transistor 4-Gang Front-End. |
| 1948 First dynamic range expander with feedback. | 1960 First to use MicroRay for FM tuning and as a recording audio level indicator. | 1966 First F.E.T. front-end design with over 40 db of Automatic Gain Control (more than ten times that of the best prior solid-state techniques.) |
| 1949 First FM-AM tuner with variable AFC. | 1960 Smithsonian Institution, Washington, D. C., receives for its collection America's first commercially manufactured high-fidelity radio-phonograph, made by Avery Fisher in 1937. | 1966 First FM tuner with Automatic FM Antenna Signal Attenuator. |
| 1952 First 50-watt all-triode amplifier. | 1960 First reverberation device for use in high fidelity equipment—the Fisher Dynamic Spacepander®. | 1966 First FM tuner to achieve 0.6 db capture ratio—three times better than the best previous achievement. |
| 1952 First self-powered master audio control. | 1960 First stereo tuner with MicroTune. | 1966 First FM Tuner to use a 10-megacycle-wide Counter Detector, eliminating all distortion for the life of the tuner. |
| 1953 First self-powered, electronic sharp-cutoff filter system for high-fidelity use. | 1960 First front-panel antenna selector switch, 72-300 ohm, Local-Distant positions. | 1966 First FM Tuner with Clear Signal Indicator. |
| 1953 First universal horn-type speaker enclosure for any room location and any speaker. | 1961 First FM-Stereo multiplex adapter with STEREO BEACON and automatic switching, mono to stereo. | 1966 First FM Tuner to incorporate a Power Amplifier Circuit for high-quality, low-impedance headphones. |
| 1953 First FM-AM receiver with a cascode front end. | 1961 First complete FM-multiplex stereo receivers. | 1966 First time-division multiplex circuit to incorporate a Four-Diode Coincidence Circuit. |
| 1954 First low-cost electronic mixer-lader. | 1961 First FM-stereo tuners with STEREO BEACON and STEREO BEAM. | 1966 First all-transistor FM Receiver to use Overload Protection. |
| 1954 First moderately priced professional FM tuner with two meters. | 1961 First internal switching system to permit immediate tape playback with use of all controls and switches. | |
| 1955 First peak power indicator in high fidelity. | 1962 First simplified-operation control-amplifier, with infrequently used controls behind front-panel cover, yet immediately accessible. | |
| 1955 First master audio control chassis with five-position mixing facilities. | | |
| 1955 First correctly equalized, direct tape-head preamplifier with self-powered master audio control. | | |
| 1956 First all-transistor preamplifier-equalizer. | | |
| 1956 First dual dynamic limiters in an FM tuner for home use. | | |

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INSTALLING THE CONSOLE

While installation is relatively simple, certain precautions must be observed. PLEASE KEEP IN MIND THAT OUR WARRANTY DOES NOT COVER DAMAGE CAUSED BY MISHANDLING, MISUSE, EXCESSIVE LINE VOLTAGE, OR INSUFFICIENT VENTILATION. We therefore urge you to follow the instructions in this section carefully. You may then proceed directly to *OPERATING THE CONSOLE*.

1 POWER REQUIREMENTS

This console will operate safely and correctly only on 60-Hz (cps) AC power between 110 and 128 volts. If the voltage in your locality is correct but the line frequency is 50 Hz, your dealer will supply a special adapter pulley to maintain correct turntable speed. If local power is DC or if its voltage is appreciably different than that specified, your dealer or a qualified technician must make the necessary modifications to prevent damage to the set.

CAUTION: This set is fitted with a power interlock at the bottom of the rear cover to prevent electrical shock when the cover is removed for antenna and accessory connections or for fuse replacement. Do not attempt to defeat or bypass this interlock.

2 LOCATING THE CONSOLE

Place the console in any convenient location that suits both your listening requirements and room decor **but make sure that it is away from radiators, warm-air ducts, or other source of heat.** Leave at least 2 inches clearance between the rear of the set and the wall (or other obstruction) for ventilation. If the electrical power in your home satisfies the requirements in item 1, connect the console's power cord to a convenient electrical outlet.

3 PREPARING THE AUTOMATIC TURNTABLE

(a) Turn the two shipping screws (near the left-rear and right-front corners of the turntable's baseplate) clockwise as far as they will go so that the turntable bounces up and down under hand pressure. This 'floating' suspension isolates the pickup from vibrations and jolts, minimizing 'skipping' and record damage.

(b) Remove the rubber bands that hold the pickup (tone) arm and overarm in place. Normally, the pickup rest will hold the pickup arm locked in place until you start the turntable, whereupon it will automatically release it.

(c) Pull the pickup arm from its rest, raise it as high as it will go *without forcing it*, and pry the metal or plastic stylus guard from the pickup cartridge at the small rear tab. See the turntable instruction sheet for operating details.

CAUTION: Should it be necessary to reshipe this set, lock the turntable baseplate to the cabinet by turning the shipping screws counterclockwise as far as they will go. Lock the pickup arm in its rest and remove its counterbalance. Then swing the control arm to the left so that it drops down, press down on the arm's pivot, and pull the arm to the *right* until it locks in place. (The

arm may be released later by pressing down on the pivot and pushing the arm to the left.) **FAILURE TO OBSERVE THESE PRECAUTIONS WILL VOID ALL WARRANTIES.**

4 ANTENNAS

Your console's built-in FM antenna (the 'T'-shaped twin-lead dipole at the rear of the set) and AM antenna (a ferrite-core loop on the receiver chassis) should yield excellent results in most cases. However, certain urban localities with severe FM multipath interference, some steel buildings, or distant 'fringe' areas with weak-signal problems may require external antennas. If you encounter consistently poor FM or AM reception when operating the set, refer to the *ANTENNAS* section.

5 ACCESSORIES

The *ACCESSORIES* section provides instructions for connecting a pair of WS-2 WIDE-SURROUND® speakers to the console (for enhanced stereo effect) as well as an auxiliary program source and a tape recorder or tape deck. We recommend, however, that you go on to *OPERATING THE CONSOLE* and familiarize yourself with basic operations before connecting any accessories.

OPERATING THE CONSOLE

This section—keyed to Figure 1—describes the console's controls in the order in which you would normally use them. Follow the instructions in step-by-step sequence and you'll find that, in a very short time, you will have mastered operation of the unit.

1 SHUTOFF SWITCH

This switch determines whether you or the automatic turntable will control power to the console. **When playing program sources**

other than records (FM, AM, AUX), keep this switch set at MANUAL so that you can turn on and shut off the set without having to operate the turntable. Occasionally, when playing records, you may want the turntable to shut off the set after it has played the last record in a stack. In such cases, set the switch to AUTO, *but remember to set it back to MANUAL again when playing any other program source.*

2 AC POWER SWITCH AND VOLUME CONTROL

Turn this control clockwise towards MAX until it clicks. If the SHUTOFF switch (item 1) is set to MANUAL, the tuning dial and the pilot lamp near the base of the console or in the left speaker grille will light immediately to indicate that the set is on. (If, however, the SHUTOFF switch is set to AUTO, the set will not turn on until you start the automatic turntable and will shut off automatically after the turntable has played the last record in a stack.) After selecting the program source you want (item 3), adjust the VOLUME control for a comfortable listening level. To shut off the entire set manually, turn the control to AC OFF.

This control incorporates a special 'loudness' circuit that prevents apparent 'thinning out' of music and speech at low VOLUME settings by automatically emphasizing low- and high-pitched tones. This overcomes the ear's naturally reduced sensitivity to such tones at low listening levels. At normal and high VOLUME settings, the emphasis tapers off gradually.

3 SELECTOR SWITCH

Select the program source you want by setting this switch to the appropriate position:

PHONO—to play records on the console's automatic turntable. Always play LP, LP-stereo and 45-RPM records with the "S" stylus (stylus-change lever at the front of the pickup arm to your left). Use the "78" stylus (lever to your right) only when playing old 78-RPM shellac records. *Failure to observe this precaution will*

cause permanent record damage and audible distortion. (Stylus-replacement information is included in the *MAINTENANCE* section of this manual.)

FM NORMAL—to listen to most radio programs on the 88-108 MHz (Mc) FM-broadcast band. (Refer to item 5 for tuning instructions.) Broadcasts in this band are high-fidelity and—in many cases—stereophonic, and are relatively immune to natural and man-made electrical noise. They are therefore widely used for symphonic concerts, operas, and other musical and cultural programs.

FM AFC OFF—only when listening to a weak or distant FM station adjacent on the dial to a strong, local station. This will prevent the AFC (Automatic Frequency Control) circuits from ‘pulling’ towards the stronger station.

AM—to listen to radio programs on the 510-1630 kHz (kc) AM standard-broadcast band. (Refer to item 5 for tuning instructions.) Programs in this band are monophonic only and consist chiefly of news, sports, and popular music.

AUX—to play a stereo or mono auxiliary device (tape recorder or player, short-wave or multiband tuner, TV set, sound-movie projector, etc.) through the console. Refer to the *ACCESSORIES* section before connecting any such devices.

NOTE: While listening to the selected program source, you may simultaneously record it on an external tape recorder or deck connected to the console. Refer to the *ACCESSORIES* section.

4 MODE SWITCH

This switch determines whether you will hear mono or stereo sound from the speakers. **When listening to FM broadcasts (either mono or stereo), always keep the switch set at STEREO; in most cases, the set will automatically switch between mono and stereo reproduction for you to match the type of program received.** (The STEREO BEACON lamp at the right of the tuning

dial will light whenever the set is in the FM-stereo mode.) For the rare exception to this rule, refer to *TUNING* (item 5).

When listening to records, tapes, or auxiliary program sources, set the switch to STEREO if the program is stereophonic (so that you actually hear stereo sound) and to MONO if the program is monophonic (to ensure that you always hear the program through both speakers—though monophonically—and to minimize objectionable rumble from older mono records). AM broadcasts will always be heard through both speakers, whether the switch is set to MONO or STEREO.

5 TUNING

Turn the TUNING control slowly until the dial pointer indicates either the desired station on the appropriate band scale or a coinciding number on the small logging scale at the bottom of the dial. (The large numbers indicate the actual broadcasting frequencies of stations in the 88-108 MHz FM-broadcast and 510-1630 kHz AM-broadcast bands; the logging scale comprises numbers ranging from 0 through 10.) **Use whichever scale is more convenient, but always tune each station for clear, undistorted sound and minimum interference from adjacent stations.**

If the STEREO BEACON lamp starts to blink on and off during an FM-stereo broadcast, or the program sounds noisy, distorted, or erratic in quality, the station signal might be weak or marred by transmission or reception problems. In this case, set the MODE switch to MONO; the blinking and interference should stop and you can listen to the program monophonically. Should you encounter this problem with many stations, or if you hear symptoms of overload (a strong nearby station appearing at more than one point on the dial and sounding distorted), you may be in a locality that requires a change in the antenna or its connections for reliable reception. Please refer to *FM ANTENNAS* in the *ANTENNAS* section of this manual. Similarly, if you encounter consistently poor reception on the AM band, refer to *AM ANTENNAS*.

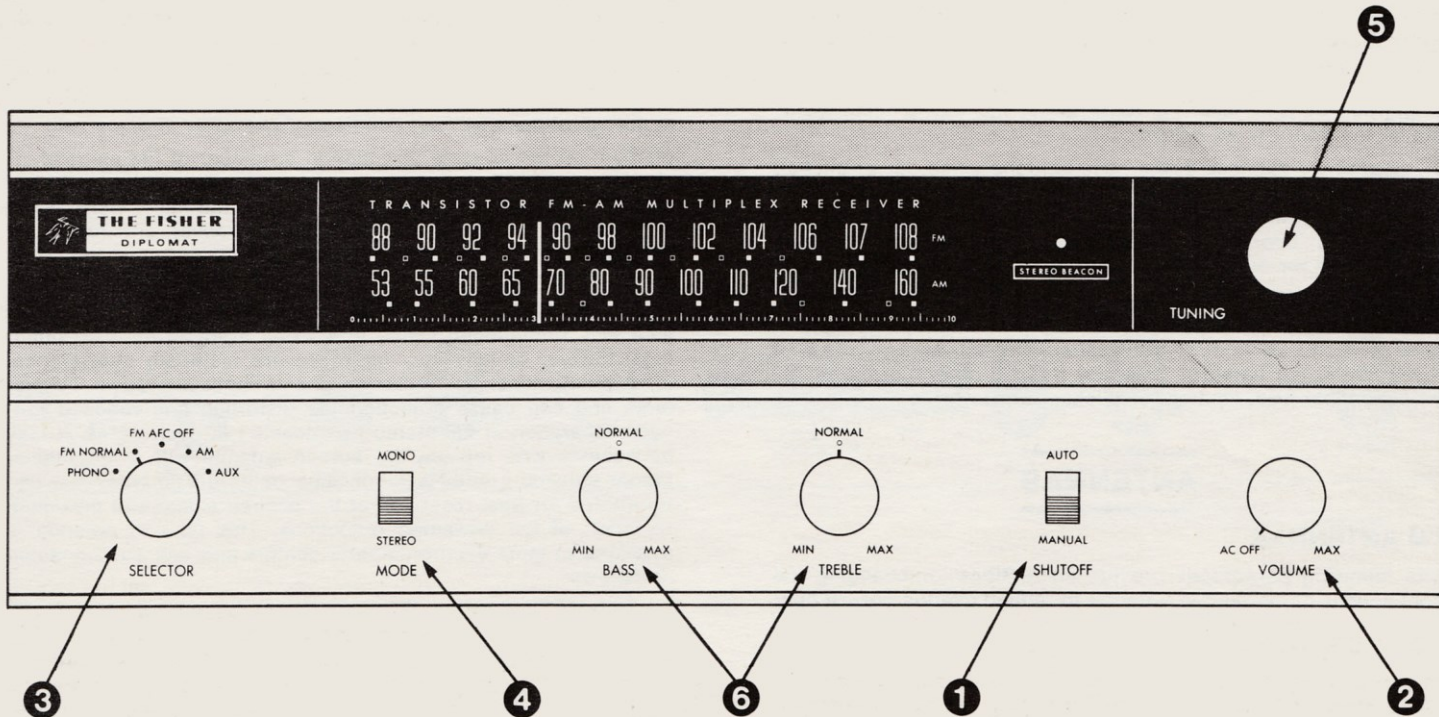


Figure 1. Control Panel of the Console

6 BASS AND TREBLE CONTROLS

In most cases—especially with modern recordings and FM broadcasts—keep both controls set at NORMAL for natural tonal quality of speech and music. If, however, a particular record, broadcast, tape, or other program source has poor tone, or if the acoustical properties of your listening room affect the sound unnaturally, adjust the controls as follows:

To correct for thinness in the bass-baritone voice, lower-pitched solo or orchestral instruments, low pedal notes of the organ, etc., turn the BASS control the desired amount towards MAX. If bass tones sound 'boomy' (or if the program material is marred by rumble, hum, or other low-pitched noise), turn towards MIN.

If speech sibilants, the soprano voice, and higher-pitched instruments (violin, piccolo, cymbals, etc.) sound 'muddy' or unclear, turn the TREBLE control the desired amount towards MAX. If these sound too harsh or 'wiry' (or if the program is marred by objectionable hiss, scratch, or clicks), turn towards MIN.

ANTENNAS

FM ANTENNAS

The following paragraphs provide instructions for changing the connections of the built-in antenna to reduce overload or—if necessary—for replacing it with other indoor or outdoor antennas to suit local reception conditions:

REDUCING OVERLOAD—If you are very close to an FM transmitter, the station signal might be strong enough to overload the receiver's FM-tuner section, causing the station to appear at more than one point on the dial and to sound distorted. In such rare cases, proceed as follows:

(1) Turn off the console, then unscrew and remove its rear cover.

(2) On the receiver's ANTENNAS terminal strip (Figure 2), switch the antenna spade lugs from the two FM NORM terminals to the two FM LOC terminals. Make sure that the lugs do not touch each other, adjacent terminals, or the receiver chassis.

(3) Carefully fit the rear cover to the console so that the interlock plug and socket mate. Lead the antenna wire through the notch at the top of the cover *but don't screw the cover in place yet.*

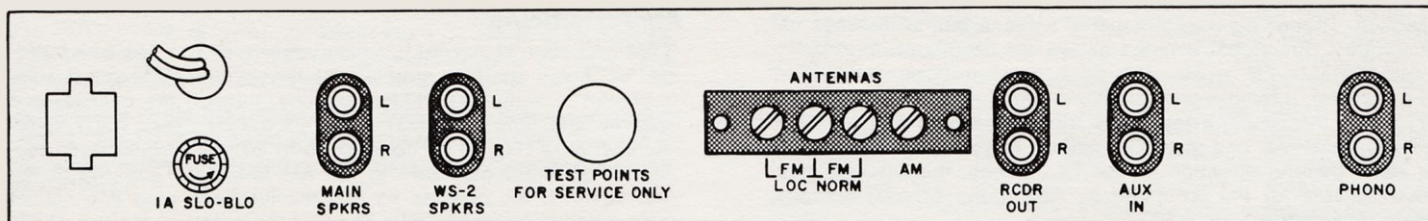
(4) Turn on the console and tune in a number of FM stations including the one that was previously overloaded. If the LOC connections adversely affect reception of many normal or weak-signal stations, turn off the set, remove the rear cover, and reconnect the spade lugs to the two FM NORM terminals. Screw the cover into place and turn on the set.

REDUCING MULTIPATH INTERFERENCE—In some strong-signal localities, pronounced signal reflections from surrounding buildings, towers, or hills may cause severe multipath interference. (This phenomenon is similar to 'ghosts' encountered in TV pictures and can cause objectionable distortion and reduced left-right separation in FM-stereo broadcasts.) In such cases, it may be necessary to replace the built-in antenna with a *directional* indoor antenna ('rabbit-ears' or telescoping dipole type) that can be rotated for best reception of the desired signal and maximum rejection of the unwanted reflections. This type of antenna is available at most electronic-parts dealers and can be connected as follows:

(1) Turn off the console, then unscrew and remove its rear cover.

(2) On the receiver's ANTENNAS terminal strip (Figure 2), disconnect the built-in antenna from the two FM NORM terminals. Connect the directional antenna in its place. Make sure that the antenna spade lugs or wires do not touch each other, adjacent terminals, or the receiver chassis.

(3) Carefully fit the rear cover to the console so that the interlock plug and socket mate. Lead the antenna wire through the notch at the top of the cover *but don't screw the cover in place yet.*



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Figure 2. Bottom-Rear View of the Receiver Chassis

(4) Turn on the console and tune in a number of FM stations while rotating the antenna for best reception in each case. If you hear symptoms of overload (a strong local station appearing at more than one point on the dial and sounding distorted), turn off the set, remove its rear cover, and connect the antenna to the two FM LOC terminals. Fit the rear cover to the console and turn on the set. If the FM LOC connections adversely affect reception of many normal or weak-signal stations, turn off the set, remove the rear cover, and reconnect the antenna to the two FM NORM terminals. Screw the cover into place and turn on the set.

IMPROVING FRINGE-AREA RECEPTION AND REDUCING ELECTRICAL INTERFERENCE—In weak-signal 'fringe' areas, an outdoor antenna may be necessary, especially for effective FM-stereo reception. Though an omnidirectional antenna may sometimes be satisfactory, directional antenna arrays are usually preferable. In localities where FM-broadcast signals come from several different directions, a remote-control antenna rotator is a useful accessory with a directional array. If you already have an outdoor VHF television antenna, and most FM stations in your area come from the same general direction as the TV stations, the antenna may prove suitable for FM reception as well. Connect your outdoor FM or TV antenna as follows:

- (1) Turn off the console, then unscrew and remove its rear cover.
- (2) On the receiver's ANTENNAS terminal strip (Figure 2), disconnect the built-in antenna from the two FM NORM terminals. Connect the outdoor antenna in its place. Make sure that the antenna spade lugs or wires do not touch each other, adjacent terminals, or the receiver chassis.
- (3) Carefully fit the rear cover to the console so that the interlock plug and socket mate. Lead the antenna wire through the notch at the top of the cover, turn on the set, and tune in a number of FM stations. (If you've connected your TV antenna, don't screw the cover into place until listening tests prove that it will work for FM. If the results are satisfactory, obtain a two-set coupler so

that you can operate both the TV set and the console from the antenna simultaneously.)

(4) If you live near a busy thoroughfare or industrial area, and the outdoor antenna is connected to the set with conventional 300-ohm twin-lead, interference from automotive ignition systems or electrical machinery may radiate into the long lead-in, causing objectional noises throughout the FM band. In such cases, replace the conventional lead-in with *shielded* 300-ohm twin-lead (available at major electronic-parts dealers). Connect the lead-in's two signal conductors to the receiver's FM NORM terminals in the usual manner; connect the shield under one of the mounting nuts that hold the chassis to the mounting board.

AM ANTENNAS

If AM reception is marred because you live in a steel-frame building, or if you want to supplement the built-in AM antenna for improved reception of weaker stations, turn off the console and unscrew and remove its rear cover. On the receiver's ANTENNAS terminal strip (Figure 2), connect 10 to 20 feet of insulated, flexible, single-conductor wire to the AM terminal. Carefully fit the rear cover to the console so that the interlock plug and socket mate. Lead the antenna wire through the notch at the top of the cover and screw the cover into place. Run the wire in a straight line along a *non-metallic* baseboard or under a rug. In some cases, reception may be further improved by draping the wire out a window or by connecting it to an outdoor whip or rod antenna.

ACCESSORIES

WIDE-SURROUND® SPEAKERS

To enhance audible left-right separation when listening to stereo program sources, you may connect a pair of FISHER WS-2 WIDE-SURROUND® speakers to the console. These speakers—working

in conjunction with the console's speaker systems—will augment the stereo sound pattern to a startling degree. (They are equally effective in monophonic operation as well.) Further details about the WS-2 speakers may be obtained from your dealer. To install WS-2 speakers, proceed as follows:

CAUTION: Use WS-2 speakers only. Do not connect WS-1's or other types of speakers. They may cause serious damage to the receiver circuits.

- (1) Turn off the console, then unscrew and remove its rear cover.
- (2) Place the speakers to the right and left of the console as described in the WS-2 Operating Instructions.
- (3) Connect the speakers to the WS-2 SPKRS jacks on the bottom-rear panel of the receiver chassis (Figure 2). Make sure that the speaker to the left of your *listening* position goes to the L jack while the speaker to your right goes to the R jack.
- (4) Carefully fit the rear cover to the console so that the interlock plug and socket mate. Lead the speaker cables through the notch at the top of the cover, screw the cover into place, and turn on the console.

AUXILIARY PROGRAM SOURCES

You may increase the versatility of your console by playing an additional mono or stereo program source through its AUX IN jacks. Moreover, if the extra source normally plays through its own low-fidelity speakers and amplifiers, playing it through the console instead will improve its sound quality noticeably. If you wish to use the playback output(s) of a tape unit as the extra source, refer to *TAPE RECORDERS, DECKS, AND PLAYERS*. For auxiliary sources such as an AM short-wave or multiband tuner or receiver, the audio output of a TV set or sound-movie projector, an electronic organ, or any similar device, use the following instructions:

- (1) The source must have at least one medium- or high-impedance output jack providing about 100 mV of signal. This type of jack

is often marked CATHODE FOLLOWER, LINE OUTPUT, EXTERNAL AMPLIFIER (*not* EXTERNAL SPEAKER), TAPE RECORDER, or the like. If the device does not have the required jack, a qualified service technician can install one and, if necessary, add provisions for switching off its built-in speakers. **If the device is an AC/DC or 'transformerless' type, make sure that the technician eliminates shock hazard and hum caused by a 'hot' (electrically unisolated) chassis. If you are in doubt about the safety characteristics of the device, do not connect it to the console.**

- (2) Turn off the console, then unscrew and remove its rear cover.
- (3) If the auxiliary device is monophonic (single channel), connect its single output jack to the AUX IN L jack on the bottom-rear of the receiver chassis; use a shielded cable with the appropriate connector at each end. If the auxiliary device is stereophonic, it will have two such output jacks, one with the additional marking LEFT, L, A, or 1 and the other with the marking RIGHT, R, B, or 2. Using two shielded cables, connect the left output to the console's AUX IN L jack and the right output to the AUX IN R jack.
- (4) Carefully fit the rear cover to the console so that the interlock plug and socket mate. Lead the shielded cables through the notch at the top of the cover, screw the cover into place, and turn on the console. Connect the auxiliary device's power cord to an electrical outlet and turn it on. Keep the power cord as far as possible from any shielded cables that connect to the console.
- (5) Set the console's SELECTOR switch to AUX. If the auxiliary device is monophonic, set the MODE switch to MONO; if the device is stereophonic, set the switch to STEREO. Adjust the console's VOLUME control for a comfortable listening level.
- (6) Turn the console's SELECTOR switch back and forth between AUX and FM NORMAL and compare the relative volume levels of the two program sources—they should be approximately equal *without you having to readjust the VOLUME control drastically each time you switch*. If the auxiliary device has any controls that affect auxiliary volume as heard through the *console*, adjust them,

if necessary, to equalize the volume levels. Adjust all other console controls in the usual manner to suit your personal tastes.

TAPE RECORDERS, DECKS, AND PLAYERS

The console has provisions for connecting an external tape recorder or tape deck so that you may record any program source to which you are listening. In addition, if there is no auxiliary program source presently connected to the console, you may also connect the recorder or deck to play *back* the recording (or any previously recorded tape) through the console. If you wish playback *only* (of commercially prerecorded tape), you may connect a tape player (having self-contained preamplifiers) instead of the recorder or deck. In any event, the tape unit may be a reel-to-reel type or a 4- or 8-track cartridge or cassette type.

CONNECTING THE TAPE UNIT—Use the following instructions and Figure 2 to connect the tape unit to the console. *When connecting a player, ignore step 2.*

- (1) Turn off the console, then unscrew and remove its rear cover.
- (2) If the recorder or deck is monophonic (single channel), it may have a single high-level recording input marked HIGH LEVEL, LINE INPUT, PHONO, P.U., GRAM, or the like. Using a shielded cable with the appropriate connector at each end, connect this input to the console's RCDR OUT L jack. If the recorder or deck is equipped to make stereo recordings, it will have *two* such high-level inputs, one with the additional marking LEFT, L, A, or 1 and the other with the marking RIGHT, R, B, or 2. Using two shielded cables, connect the left input to the console's RCDR OUT L jack and the right input to the console's RCDR OUT R jack. **Never connect the console to any input(s) on the tape unit marked MIC., MICROPHONE, RADIO, or DIODE; the resultant recordings will be severely overloaded and distorted.**
- (3) If the recorder, deck, or player is monophonic (single channel) it may have a single playback output marked CATHODE FOL-

LOWER, LINE OUTPUT, MONITOR, EXTERNAL AMPLIFIER (*not* EXTERNAL SPEAKER), or the like. Using a shielded cable with the appropriate connector at each end, connect this output to the console's AUX IN L jack. If the tape unit is equipped for stereo playback, it will have *two* such playback outputs, one with the additional marking LEFT, L, A, or 1 and the other with the marking RIGHT, R, B, or 2. Using two shielded cables, connect the left output to the console's AUX IN L jack and the right output to the console's AUX IN R jack.

NOTE: If you had to disconnect an auxiliary device from the AUX IN jacks in step 3 to accommodate the tape unit—and you wish to play both tapes *and* the auxiliary source through the console—obtain a switchbox that will permit you to feed the outputs of either the tape unit or the auxiliary device to the AUX IN jacks. This type of switch is available at many high fidelity dealers.

(4) Carefully fit the rear cover to the console so that the interlock plug and socket mate. Lead the shielded cables through the notch at the top of the cover, screw the cover into place, and turn on the console. Connect the tape unit's power cord to an electrical outlet and turn it on. Keep the power cord as far as possible from any shielded cables that connect to the console.

RECORDING—As usual, choose the desired program source with the console's SELECTOR switch; *the source to which you are listening is the source that will be recorded.* If both the program source and the tape unit are stereophonic (and you intend to make a stereo recording), set the console's MODE switch to STEREO. If the program source or tape unit (or both) are monophonic, or if you want to record a stereo source on a stereo machine *monophonically*, set the MODE switch to MONO while recording. This will blend the signal from a stereo source into a complete, balanced mono signal; it will also assure that signals from a mono source are heard through both console speaker systems. Follow the tape unit's Instruction Manual for specific recording instructions. The SELECTOR and MODE switches are the only console controls that have any effect on the recording;

you may therefore adjust all other controls in the usual manner to suit your personal tastes and listening conditions.

PLAYBACK — To play back tapes from any recorder, deck, or player that has been connected to the console's AUX IN jacks, simply set the SELECTOR switch to AUX. If the tape is stereophonic, set the console's MODE switch to STEREO; if either the tape or tape unit is monophonic, set the switch to MONO. Adjust all other console controls in the usual manner.

NOTE: If the tape unit is stereophonic and you wish to listen to a monophonic tape that has more than one track recorded on it, the tape unit must have track-selection facilities (to prevent playback of more than one track at a time); otherwise, an external track-selector switch must be used. To obtain a diagram of such a switch, write to: Mr. Richard Hamilton, Customer Relations Department, Fisher Radio Corporation, 11-40 45 Road, Long Island City, New York 11101.

MAINTENANCE

CAUTION: Turn off the console and disconnect its power cord from the electrical outlet whenever instructed to do so in the following procedures. Do not attempt any maintenance not listed in this section. For further service, consult your dealer.

PRESERVING THE CONSOLE'S FINISH

Your console's fine-grain surfaces and rich satin finish are indications of the care and craftsmanship that have gone into its construction. To preserve its appearance, we recommend that you dust the console regularly and that you polish it occasionally with a cream-type product such as OZ or GUARDSMAN.

CLEANING THE CONTROL PANEL

The beautiful multitone control panel will retain its color and bril-

liance permanently. However, it is possible that, over a period of time, a film from atmospheric contamination may dull the surfaces. Simply use a soft, *freshly laundered* cloth moistened with *plain lukewarm water* and the panel will look new again. **Do not use any household or industrial cleaning agents or any cloth that has been used to apply such agents.**

CLEANING THE DIAL GLASS

- (1) Turn off the console and disconnect its power cord from the electrical outlet.
- (2) *Gently* pull each control knob upwards and off its control shaft. **Do not remove the two slide switches.**
- (3) The control panel is held to the rest of the receiver chassis by hex nuts on some of the control-shaft bushings. Remove the hex nuts and lift off the panel.
- (4) If there are two foam-cushion strips fastened to the retaining clips at the ends of the dial glass, detach them from the clips.
- (5) Loosen (do not remove) the screws that hold the dial-glass retaining clips. Swing the clips aside and lift off the dial glass. (The glass is held from behind by adhesive rubber strips; it may therefore be necessary to apply a gentle prying force at the ends.)
- (6) Remove dust with a soft, dry, lint-free cloth. If you wish to clean more thoroughly, moisten the cloth with *plain lukewarm water* and wipe the glass back and forth gently until it is clean and free of streaks. **Do not use any household or industrial cleaning agents; they may damage the markings on the glass.**
- (7) Replace the dial glass. Make certain to reset it in its original position by placing it firmly against the *lower left-hand* corner of the plastic end frame. Swing the retaining clips back into place and tighten the retaining-clip screws.
- (8) Replace the foam-cushion strips (if removed previously), control panel, hex nuts, and control knobs by reversing the pro-

cedures in steps 2 through 4. Connect the console's power cord to the electrical outlet and turn it on.

REPLACING DIAL LAMPS

The tubular dial lamps are spring-clip mounted at the ends of the dial glass under the control panel. Should they burn out, you may obtain exact replacements (Part No. I-50441-1) from your authorized FISHER dealer or from: Parts Department, Fisher Radio Corporation, 11-40 45 Road, Long Island City, New York 11101. Remove the control panel and replace the lamps as follows:

- (1) Turn off the console and disconnect its power cord from the electrical outlet.
- (2) Gently pull each control knob upwards and off its control shaft. **Do not remove the two slide switches.**
- (3) The control panel is held to the rest of the receiver chassis by hex-nuts on some of the control-shaft bushings. Remove the hex nuts and lift off the panel.
- (4) Gently pull the burned-out lamp out of its clip and snap the replacement lamp into place. Make sure that the *unpainted* side of the lamp faces *towards* the edge of the dial glass.
- (5) Replace the control panel, hex nuts, and control knobs by reversing the procedures in steps 2 and 3. Connect the console's power cord to the electrical outlet and turn it on.

SERVICING OTHER LAMPS

The STEREO BEACON lamp under the dial glass and the pilot lamp near the base of the console are both long-life devices that should not require replacement in normal use. However, in the rare event that they should, do *not* attempt to replace them yourself; they are *not* customer serviceable. Consult your dealer or a qualified service technician.

REPLACING THE PHONO-STYLUS ASSEMBLY

Should it be necessary to replace a worn or damaged stylus assembly, you may obtain either an exact replacement (Astatic N50SD) from your dealer or its equivalent (Part No. G3512) from: Parts Department, Fisher Radio Corporation, 11-40 45 Road, Long Island City, New York 11101. Replace the assembly as follows:

- (1) If the console is on, turn down the VOLUME control to prevent objectionable noises while changing the assembly.
- (2) Pull the pickup arm from its rest and raise it as high as it will go *without forcing it*.
- (3) Turn the stylus-change lever halfway so that it points down. Gently push the lever away from you until the assembly swings out of the 'U'-shaped stirrup at the front of the cartridge and snaps free of the retaining clip at the rear. Hold the replacement assembly with *its* lever pointing down and force it into the retaining-clip hole at the rear until it snaps into place. Make sure that the assembly's narrow shank rests in the 'U'-shaped stirrup and turn the lever to its "S" position. Lock the pickup arm in its rest.

REPLACING THE POWER FUSE

The power fuse at the rear of the console protects it against abnormal power-line surges and overloads. If the set fails to operate when plugged in and turned on or if it suddenly becomes completely inoperative while playing (i.e., all dial and pilot lamps go off, turntable stops, and both channels are silent regardless of program source), the fuse may have blown.

NOTE: Before attempting to replace the fuse, make sure that other factors aren't causing these symptoms. Check that the SHUTOFF switch is set to MANUAL when you are not using the record player as the program source. Also make sure that the power cord is firmly in the electrical outlet. If these measures don't clear up the malfunction, proceed as follows:

- (1) Turn off the console, then unscrew and remove its rear cover.

(2) The power fuse is in the black receptacle marked IA SLO-BLO at the bottom-rear of the receiver chassis (Figure 2). Turn the fuseholder cap counterclockwise (in the direction of the arrow on the cap) until it disengages from the receptacle and remove the fuse from the cap.

(3) The spare fuse supplied with the console has a short spiral coil of wire inside its glass envelope (identifying it as a slow-blow type). One of its metal ends is marked **1A**. Use only this fuse (or an exact commercial equivalent) as a replacement.

(4) Insert the replacement fuse in the fuse cap. Push the cap into the receptacle and turn it clockwise (against the direction of the arrow on the cap) until it is firmly in place. Carefully fit the rear cover to the console so that the interlock plug and socket mate. Screw the cover into place and turn on the set.

CAUTION: If the console still does not operate or if it becomes inoperative within a short time, do not attempt to replace the fuse again. Consult your dealer or a qualified service technician.



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 connected to a single amplifier does not solve the problem; it only spreads the single sound source without providing the all-important different 'aural viewpoints.'

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

No attempt is made to keep the two channels 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

FM MULTIPLEX STEREO

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

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

TECHNICAL DATA

Music Power Output (IHF standard, both channels)	25 watts	AM Sensitivity	10 μ V
Instantaneous Peak Power Output	50 watts	FM-Multiplex Stereo Separation (at 400 Hz)	Better than 30 db
Total Harmonic Distortion At full rated output	Less than 1.0%	Speaker Complement (each channel)	One 8" woofer One 5" midrange unit One 2" tweeter
At normal listening levels	Less than 0.5%	Automatic Turntable	BSR
Frequency Response	Uniform throughout audible range as an integrated system	Cartridge	Astatic
Input Sensitivity for Rated Output		Power Consumption at Rated Output	50 watts, 60 VA; automatic turntable extra
AUX IN	100 mV		
FM Sensitivity (IHF)	2.5 μ V		

Hertz (Hz), Kilohertz (kHz), and Megahertz (MHz) have been used in this material to conform to the standards established by the IEEE. They replace cycles per second (cps), kilocycles (kc), and Megacycles (Mc), respectively.

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

WARRANTY TO OWNER

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

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

All parts are guaranteed for two years, except tubes, record changers and tape recorders which are guaranteed for one year. Any defective part will be repaired or replaced without charge, including parts of record changers and tape recorders. For the first ninety days there is no charge for warranty labor.

All service on FISHER Radio Phonographs will be provided by the FISHER franchised dealer from whom the unit was purchased.

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

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

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

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

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

FOR WARRANTY SERVICE, CONSULT YOUR DEALER



THE MAN BEHIND THE PRODUCT

AVERY FISHER
Founder and President,
Fisher Radio Corporation

Twenty-seven years ago, Avery Fisher introduced America's first high fidelity radio-phonograph. That instrument attained instant recognition, for it opened a new era in the faithful reproduction of records and broadcasts. Some of its features were so basic that they are used in all high fidelity equipment to this day. One of these models is now in the permanent collection of the Smithsonian Institution as an example of the earliest high fidelity instruments commercially available in this country.

The engineering achievements of Avery Fisher and the world-wide reputation of his products have been the subject of descriptive and biographical articles in *Fortune*, *Time*, *Pageant*, *The New York Times*, *Life*, *Coronet*, *High Fidelity*, *Esquire*, *The Atlantic*, and other publications. Benefit concerts for the National Symphony Orchestra in Washington and the Philadelphia Orchestra, demonstrating recording techniques, and the great advances in the art of music reproduction, used FISHER high fidelity instruments both for recording and playback, to the enthralled audiences. FISHER equipment formed the key part of the high fidelity demonstration at the American National Exposition in Moscow, July 1959. FISHER FM and FM-AM tuners are the most widely used by broadcast stations for monitoring and relay work, and by research organizations—under conditions where absolute reliability and maximum sensitivity are a 'must.'

The FISHER instrument you have just purchased was designed to give you many years of pride and enjoyment. If you should desire information or assistance on the installation or performance of your FISHER, please write directly to Avery Fisher, President, Fisher Radio Corporation, Long Island City 1, New York.