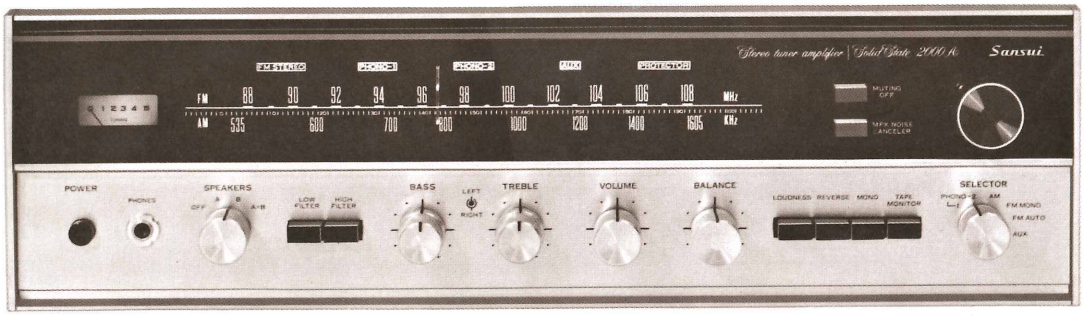
OPERATING INSTRUCTIONS

SOLID-STATE AM/FM STEREO TUNER AMPLIFIER

SANSUI 2000A



sansui

SANSUI ELECTRIC COMPANY LIMITED

Thank you for selecting the Sansui 2000A Solid-State AM/FM Stereo Tuner Amplifier. You have made an excellent choice, one that promises you years of rich stereo enjoyment.

As the world's foremost audio-only specialist, Sansui has spared no effort in making the 2000A the most powerful, most versatile and most sophisticated receiver available at its price. With an unprecedented 120 watts in power, the latest FET and IC components, functional front panel design and an ability to handle two speaker systems simultaneously or individually the 2000A considerably advances the art of stereophonic reproduction.

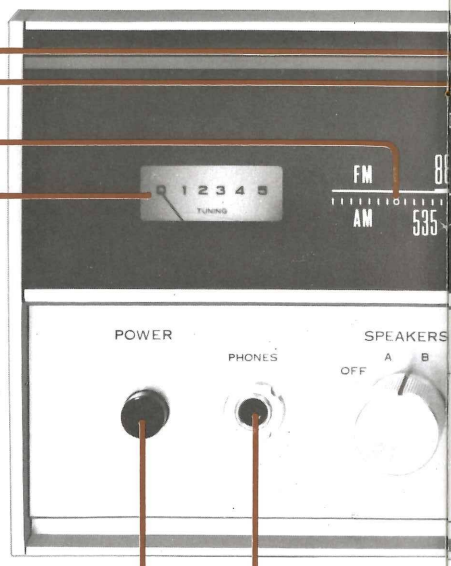
Before leaving our factory, your new 2000A was tested, inspected and certified to be in perfect operating condition. It is now up to you to keep it that way.

This manual has been prepared to guide you in installing and operating the receiver correctly. It contains some very helpful information on making antenna connections, using controls properly and operating components most effectively. Please read it carefully before operating the receiver and retain it for future reference.

CONTENTS


Stereo tuner amplifier Solid State 2000 A
Sansui
MUTING OFF
MPX NOISE CANCELLER
FM 88 90 92 94 96 98 100 102 104 106 108 MHz
AM 535 600 700 800 1000 1200 1400 1605 KHz
POWER
PHONES
SPEAKERS
A B A+B
LOW FILTER
HIGH FILTER
BASS
LEFT
RIGHT
TREBLE
VOLUME
BALANCE
LOUDNESS
REVERSE
MONO
TAPE MONITOR
SELECTOR
PHONO-2
AM
FM MONO
FM AUTO
AUX

SWITCHES AND CONTROLS



Dial Pointer

The pointer is illuminated in red when the SELECTOR switch is set to AM, FM MONO or FM AUTO.

FM Stereo Indicator

Lights up red when the dial pointer crosses a station making an FM-MPX broadcast and the receiver is properly set for stereo reception.

Dial Scales

Light up whenever the SELECTOR switch is set to a radio receiving position—AM, FM MONO or FM AUTO. The upper scale is for FM, the lower for AM.

Tuning Meter

This meter aids in pinpointing a station. When the needle moves as far to the right as possible, the station is correctly tuned.

Power Switch

Push to turn the power on; push again to turn the power off. This switch also controls the power to one of the two AC outlets on the rear panel of the amplifier.

Headphones Jack

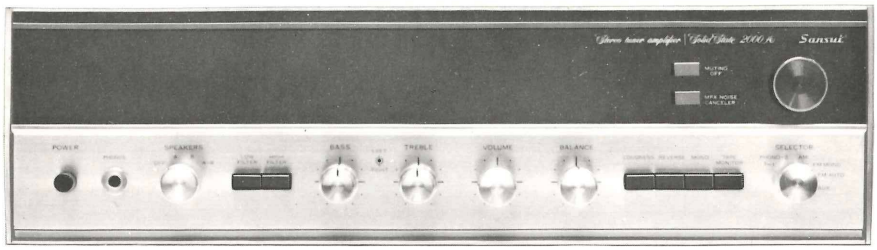
Accomodates headphones for monitoring or private listening. Before using for private listening, turn the SPEAKERS Selector to its OFF position. Dynamic type stereo headphones are recommended for use with the 2000A.

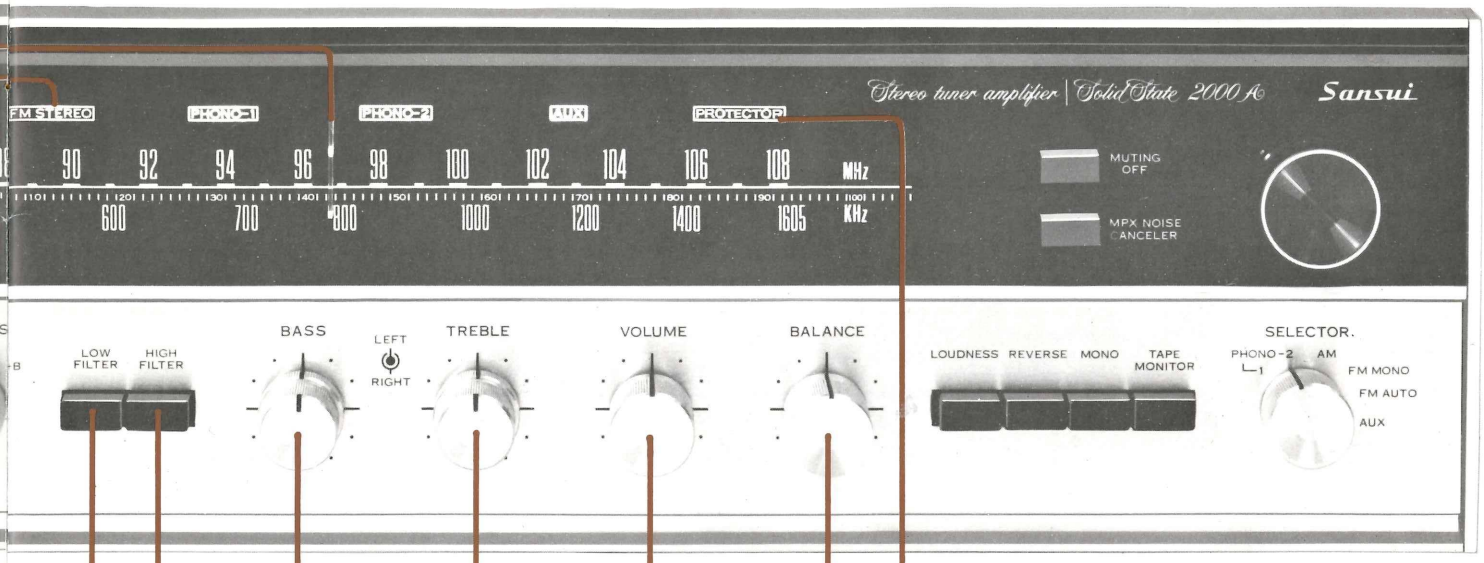
Low Filter Switch

Use to eliminate or reduce low-frequency disturbances such as turntable rumble.

High Filter Switch

Eliminates or reduces high-frequency noise such as surface noise from old or worn records, tape hiss and radio noise caused by interference from nearby electrical appliances. Use only when needed. At all other times, keep off.





Bass Tone Control

Use to boost or cut low-end frequency response according to taste and listening conditions.

To boost, turn it clockwise. To cut, turn it counterclockwise.

Designed as a friction-coupled, dualconcentric control, it is actually two controls in one.

The outer ring controls bass loudness in the right channel; the inner knob controls bass loudness in the left channel. Both outer and inner controls can be used simultaneously or independently, as required.

Treble Tone Control

Use in the same way as the BASS control to boost or cut high-end response.

Protector Indicator

Lights up when either or both Quick-Acting fuses have blown. These fuses on the rear panel protect expensive power transistors against accidental short circuit or excessive input power.

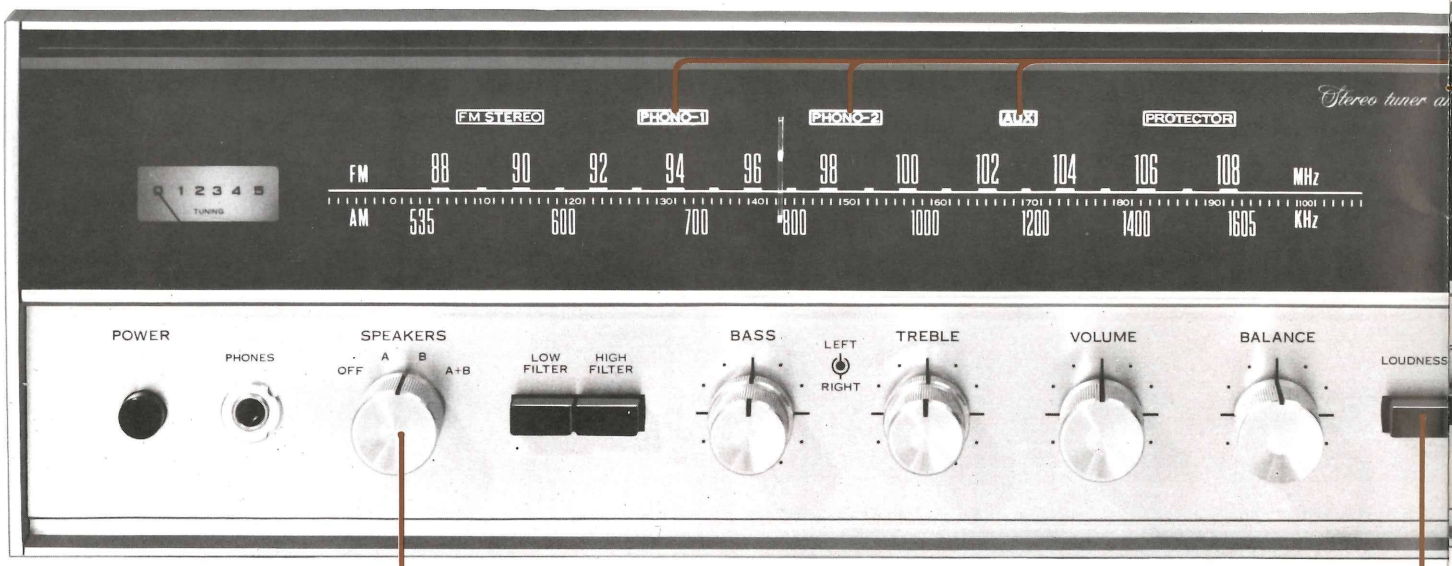
Balance Control

Use to adjust for equal sound from both left and right channels when slight imperfections in program material, variations in speaker output and the vagaries of room acoustics make this procedure necessary. Turning the control clockwise accents the right channel by reducing the left channel output.

Volume Control

Adjusts the overall sound level of both channels. Turn clockwise to increase volume, counterclockwise to decrease volume.

SWITCHES AND CONTROLS



Speakers Switch

A—Selects a speaker system connected to the SYSTEM-A outputs on the rear panel of the amplifier.

B—Selects a speaker system connected to the SYSTEM-B outputs.

A+B—Selects the two speaker systems connected to the SYSTEM-A and SYSTEM-B outputs.

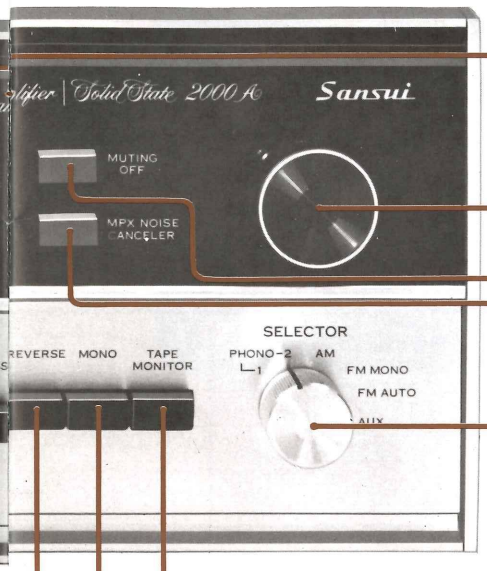
OFF—In the OFF position, the switch cuts off sound from all speaker systems for private listening with headphones connected to the PHONES jack.

Loudness Switch

Use to boost bass and treble response at low volume listening levels. Due to the sensitivity of human hearing, both bass and treble seem greatly reduced at low listening levels. This switch compensates for this apparent loss.

Reverse Switch

Use to reverse signals between left and right channels during stereo operations. Keep off for normal stereo reproduction.



Function Indicators

PHONO 1, PHONO 2 and AUX are illuminated in orange when the SELECTOR switch is set to corresponding positions.

Tuning Knob

Use to select any desired AM or FM station.

Muting Switch

Eliminates interstation tuning noise. It should be used sparingly. When tuning in a weak station, it should be kept off.

MPX Noise Canceler Switch

Eliminates noise accompanying multiplex programs transmitted by weak or distant stations.

Selector Switch

PHONO 1—Selects a record player using a 50,000-ohm cartridge connected to the PHONO 1 inputs on the rear panel of the amplifier.

PHONO 2—Selects a record player using a 100,000-ohm cartridge connected to the PHONO 2 inputs.

AM—Selects AM programs.

FM MONO—Selects monophonic FM programs.

FM AUTO—Selects automatic switching between FM monophonic and stereo programs.

AUX—Selects a component connected to the AUX inputs.

Tape Monitor Switch

The switch enables you to compare a recorded tape with the original program. When this switch is pushed on, the tape being recorded is heard from the speakers. Monitoring is possible with 3-head tape recorders only.

When you playback through the amplifier, the TAPE MONITOR switch should be in the ON position as well. In all other cases, make sure the switch is OFF.

Mono Switch

Use for reproducing either monaural or stereo program sources monaurally. For AM or FM Mono broadcasts, however, reproduction will be monaural even without the use of this switch.

SPEAKER CONNECTIONS

Connecting a Main Speaker System

Connect the speaker on your left (as viewed from the listening area) to the red terminal marked LEFT SYSTEM-A on the rear panel of the amplifier. The right speaker connections are made at the red terminal marked RIGHT SYSTEM-A. The lead from the commom speaker terminals marked (−) should be connected to corresponding black terminal marked (−) on the amplifier.

To connect to the terminals of the amplifier:

1. Depress the colored button, opening a hole in the terminal.
2. Push the stripped end of lead wire in the hole and release the button.

After connecting the speaker system, set the front SPEAKERS switch to the A position.

Connecting an Additional Speaker System

Following the same procedure indicated above, one more speaker system can be connected to the 2000A by utilizing the speaker terminals SYSTEM-B. Each of the two systems can be operated independently with the SPEAKERS switch on the front panel. In addition, the speaker systems A and B can be operated simultaneously when the SPEAKERS is set to the (A+B) position.

If Speaker Polarities Are Not Properly Matched . . .

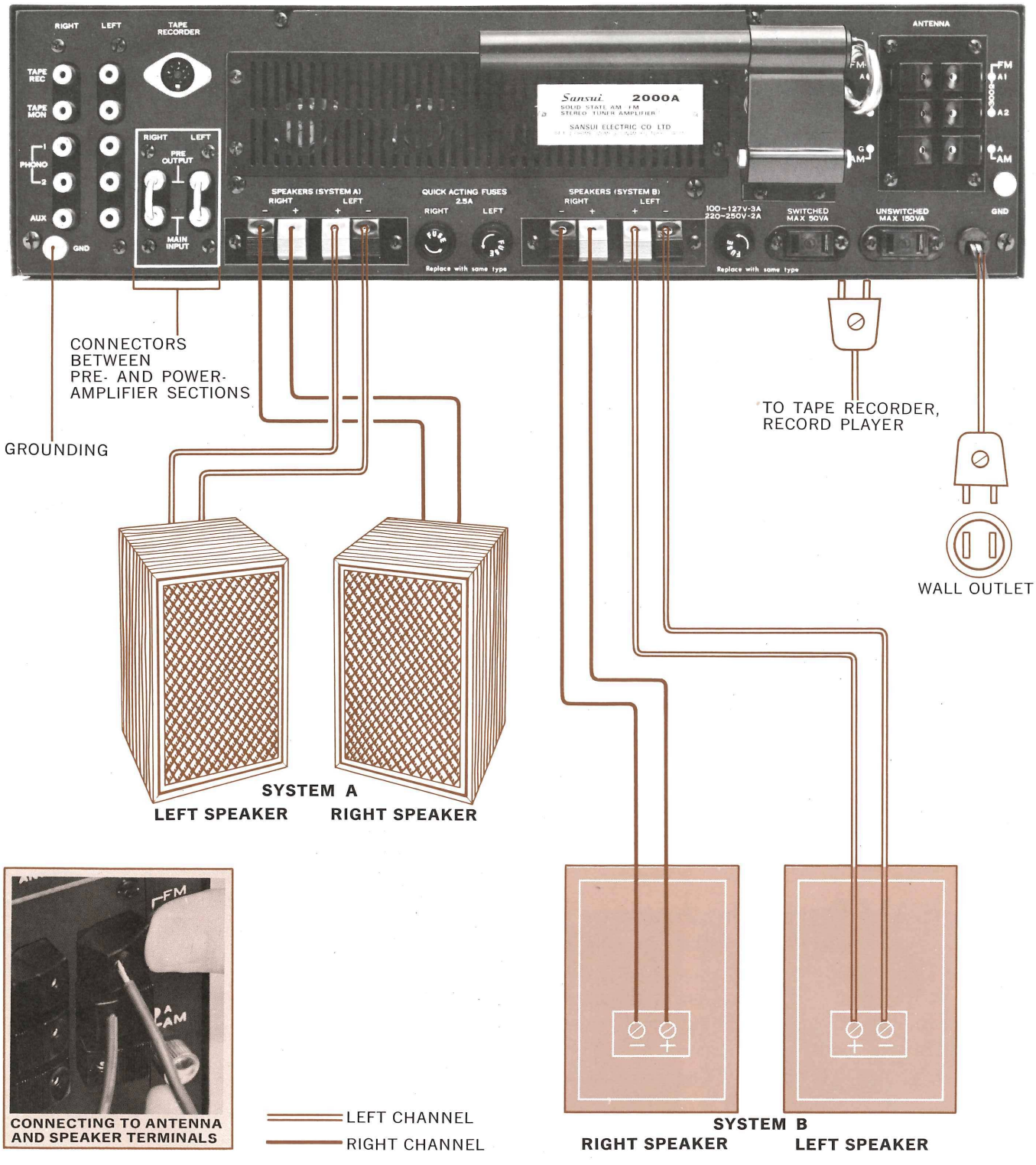
If the polarities (+ and −) of the speakers and the amplifier are not matched correctly, sound cancellation at some frequencies or in some listening position occurs. Particularly when listening to monaural reproduction, this condition is noticeable by an absence of sound at a point midway between right and left speakers. If this situation occurs, check the amplifier and speaker connections once again and reverse the connections between the amplifier and either right or left speaker.

Speaker Impedance

1. For use with a 4-ohm speaker system, connect it to either A or B speaker terminals.

CAUTION: Never attempt to use two 4-ohm speaker systems at the same time.

2. For use with the two speaker systems, the impedance must be more than 4 ohms each.
3. For use with the two speaker systems (A+B), the combined impedance of the (A+B) systems must be more than 4 ohms.



CONNECTING TO ANTENNA AND SPEAKER TERMINALS

OPERATIONS
—— RADIO RECEPTION

The quality of reception that can be expected from the 2000A is largely dependent on the correct positioning and use of antennas. The following procedures are recommended for noise-free reception.

FM Antenna

Where FM broadcasting stations are near and FM signals are strong, satisfactory FM reception can be obtained by using the feeder wire accompanying the amplifier. Connect the feeder wire to the antenna terminals marked FM-A_1 and FM-A_2 on the rear panel, then fully extend the wire to a T form and fix it to a wall or ceiling where it allows the strongest reception.

If the 2000A is used in a thick-walled building or in an area remote from FM broadcasting stations, the indoor feeder wire antenna may be inadequate for strong signal reception. An outdoor antenna designed exclusively for FM reception should then be installed.

FM antennas for the 300-ohm balanced type and 75-ohm unbalanced type can be used with the 2000A. Connect either antenna to the matching antenna terminals on the rear of the amplifier. The 300-ohm feeder wire should be connected to the FM antenna terminals A_1 and A_2. If the 75-ohm coaxial cable is used, connect the conductor to the FM antenna terminal A, and the shielding wire to the terminal G.

NOTE: FM sensitivity cannot be raised simply by lengthening the antenna. Adjust the antenna's height and direction while actually listening to a broadcast for the best reception.

Built-in AM Ferrite Bar Antenna

This sensitive antenna, located on the rear panel of the amplifier, is usually adequate for AM reception. To use, pull it down and away from the back of the tuner until it comes to a stop halfway between the top and the bottom of the amplifier. Then move it from up to down until best reception is obtained.

Outdoor AM Antenna

In ferroconcrete buildings or in areas remote from the broadcasting station, the built-in ferrite bar antenna may be inadequate for AM reception. An outdoor antenna then becomes necessary. This can be accomplished by connecting the PVC wire accompanying the amplifier to the antenna terminal marked AM-A on the back panel. Run this wire to an antenna that has been installed outdoors and away from the building. At the same time, the unit should be grounded. Adjust the outdoor antenna for maximum signal pick-up, while actually receiving a broadcast. And, for reasons of safety, be sure to attach a lightning arrester to the outdoor antenna.

Radio Reception

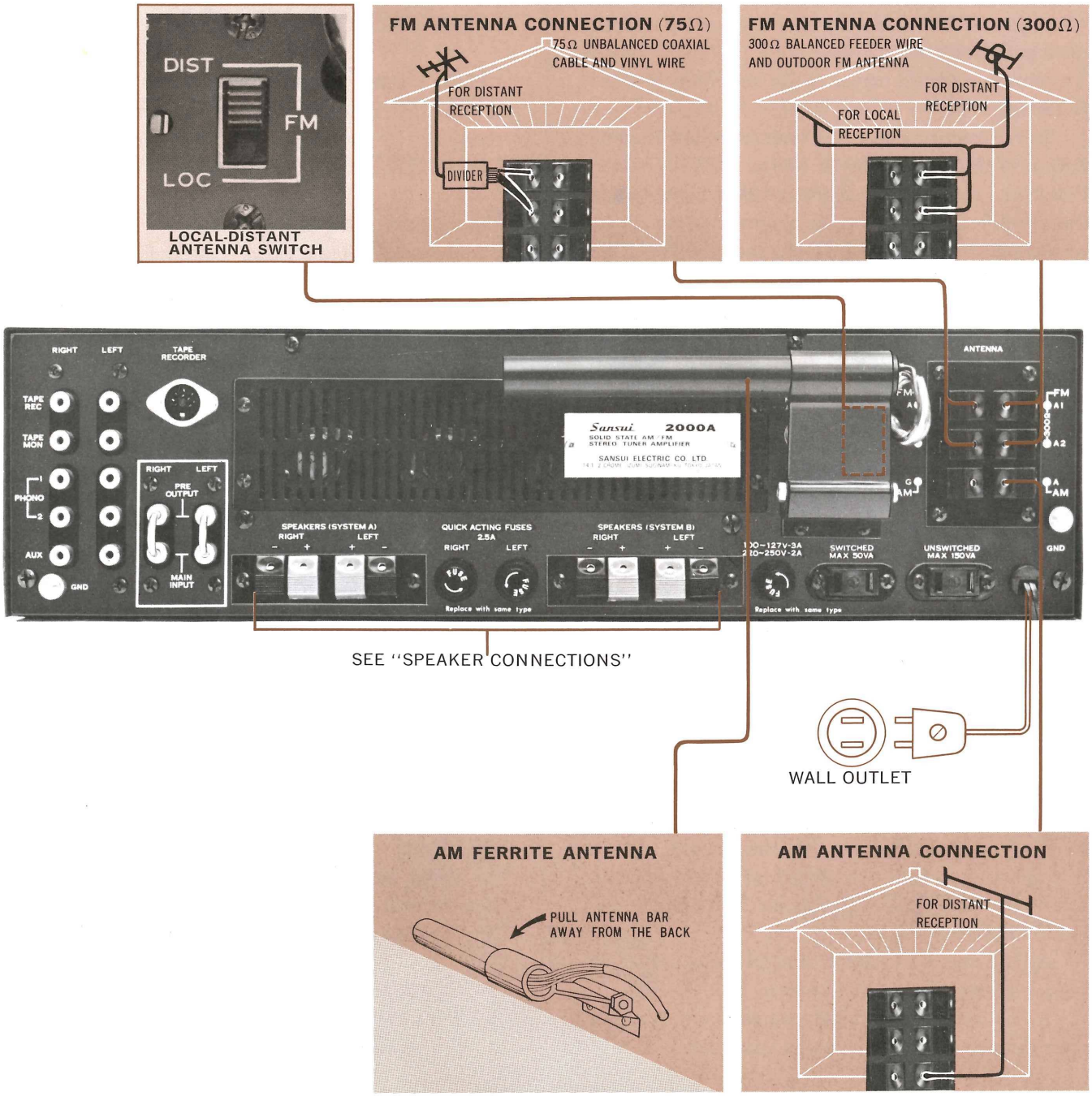
FM Programs

1. Set the SELECTOR switch to the FM MONO or FM AUTO position, the former for only monaural broadcasts and the latter for automatic switching between monaural and stereo broadcasts. If too much noise or interference accompanies a stereo broadcast with the SELECTOR switch in the FM AUTO position, turn it to the FM MONO position and listen to the same broadcast monaurally.
2. Select the desired FM station on the FM band of the tuning dial with the TUNING knob. The station is properly pinpointed when the needle in the TUNING meter moves as far to the right as possible. For all stereo broadcasts being received, the STEREO Indicator will light up in red.
3. When a stereo broadcast is being received, use the BALANCE knob to control the balance of sound for both left and right channels. Use all other controls and switches according to taste and listening conditions.

AM Programs

1. Set the SELECTOR switch to the AM position.
2. Select the desired station on the AM band of the tuning dial with the TUNING knob. The station is properly tuned when the needle in the TUNING meter moves as for to the right as possible.

3. Use all other controls and switches as required. During AM reception, the right and left speakers produce the same sounds whether the REVERSE and MONO switches are on or off.



OPERATIONS
—— RECORD PLAYING
—— TAPE PLAYBACK
—— TAPE RECORDING

Connecting Record Players

The 2000A has two sets of PHONO inputs to accommodate a pair of players or pickup arms. The inputs 1 and 2 have the input impedance of 50kΩ and 100kΩ respectively, creating different tone colors from each other. Use them according to your taste and preference.

To connect a record player to the amplifier, proceed as follows:

1. **Stereo record player**—Connect the left channel output of the record player to the LEFT channel PHONO 1 (or PHONO 2) input jack on the rear of the amplifier, and the right channel output of the record player to the RIGHT channel PHONO 1 (or PHONO 2) input jack on the rear of the amplifier.
2. **Monophonic record player**—Connect the output of the record player to either left or right channel PHONO 1 (or PHONO 2) input jack on the rear of the amplifier.

NOTE: Although it is not recommended from a standpoint of tone quality, if a player with a crystal cartridge must be used, connect the output of the player to an input jack marked AUX on the rear of the amplifier.

Listening to a Stereo (or Monophonic) Record

1. Set the SELECTOR switch to PHONO 1 or PHONO 2 depending on which inputs are being used.
2. If a monaural player is used, push the MONO switch on.
3. Make appropriate settings of controls on the record player.
4. Set the needle down on the record. When monophonic records are played on a stereo player, follow the same procedures as for stereophonic records for better results.
5. Adjust the BALANCE control for equal sound from both right and left channels.
6. Adjust other front panel controls and switches according to taste and listening conditions.

Connecting a Tape Recorder

Tape recorders can be connected to record from, and playback through, the amplifier. Tape monitoring is possible only with a tape recorder having a separate playback pre-amplifier as well as separate recording and playback heads.

DIN Plug Tape Recorder

If your tape recorder has a DIN (German Industrial Standard) 5-pin plug, plug into the TAPE RECORDER socket on the rear panel of the amplifier.

Pin-Jack Tape Recorder

To Record—Connect the recording inputs of a stereo tape recorder to the REC terminals of both channels. If a monophonic tape recorder is used, connect its input to either left or right channel REC terminal.

To Playback—Connect the playback outputs of a stereo tape recorder to the TAPE MON terminals of both channels. If a monophonic tape recorder is used, connect its output to either left or right channel TAPE MON terminals.

Monitoring

To monitor a tape while using a 3-head tape recorder, follow the same procedures as in the preceding sections. Be sure to set the TAPE MONITOR switch to the ON position.

To Record on Tapes

1. Set the SELECTOR switch to the program source to be recorded.
2. If a monophonic tape is used, push the MONO switch on.
3. Make appropriate settings of controls on the tape recorder.
4. Use other controls and switches accordingly.

To Listen to Tapes

1. Turn the TAPE MONITOR switch on.
2. If a monophonic tape is used, push the MONO switch on.

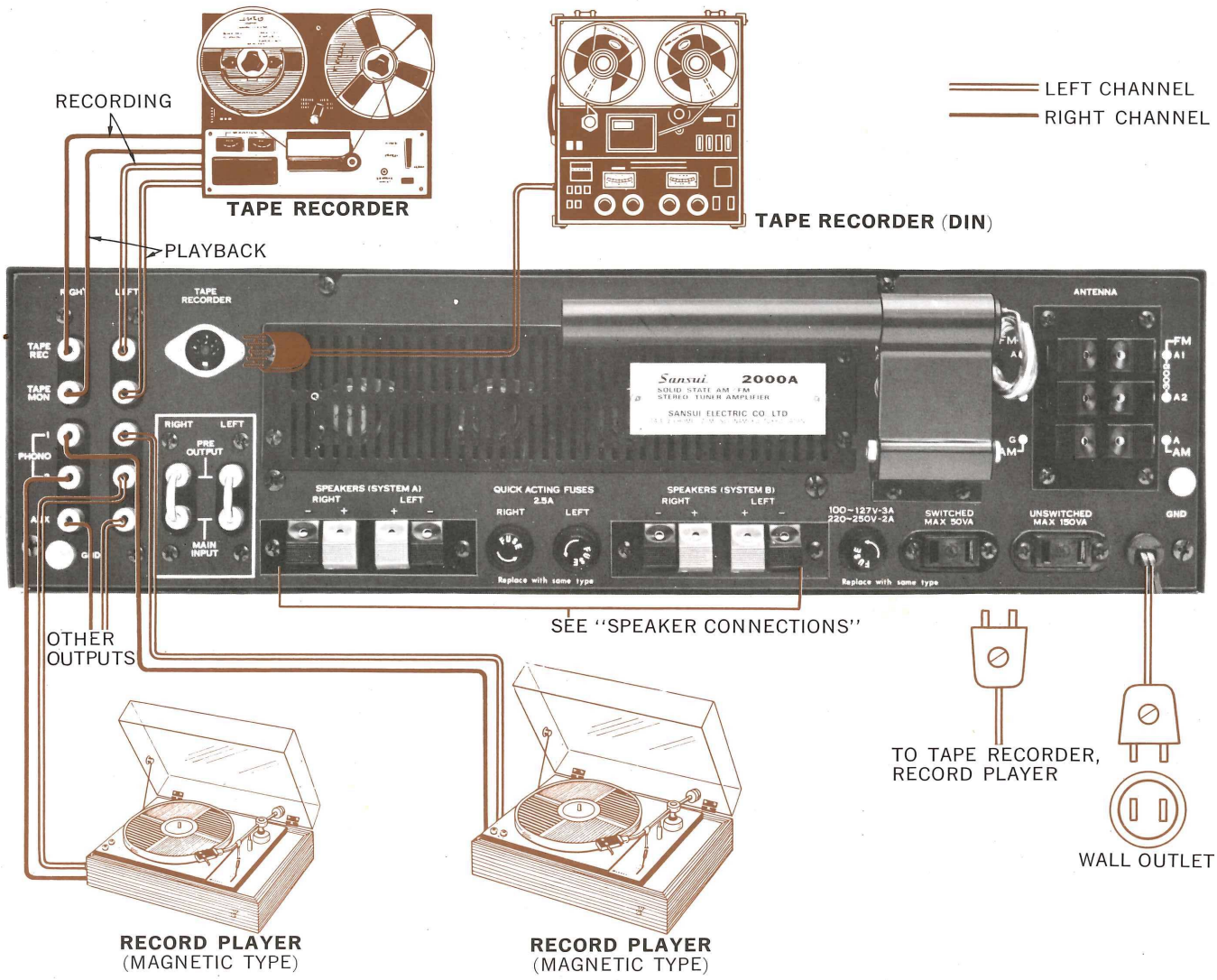
3. Make appropriate settings of controls on the tape recorder.
4. Use other controls and switches accordingly.

To Monitor Tapes

1. Push the TAPE MONITOR switch ON.
2. If a monophonic tape is used, push the MONO switch on.
3. Make appropriate settings of controls on the tape recorder.
4. Use other controls and switches accordingly.

NOTE:

1. Recorded tapes cannot be controlled by the controls and switches on the front panel of the amplifier. They control sound from the speakers only.
2. For best results, record directly through the amplifier, rather than through microphones placed in front of the speakers.
3. When not in use, the TAPE MONITOR switch must be in the OFF position.
4. To connect a tape deck without playback pre-amplifier, be sure to use an equalizer.



ELECTRONIC CROSSOVER SYSTEM

Pre- and-Main-Amplifier Sections Separately Usable

The 2000A's preamplifier section and the main or power amplifier section can be used as separate units by simply removing connectors from the jacks marked PRE OUTPUT and MAIN INPUT on the rear panel. If you want to add another power amplifier to the 2000A, connect its inputs to the PRE OUTPUT jacks. For connection of an additional preamplifier, connect its outputs to the MAIN INPUTS jacks. When the additional preamplifier is connected, only the SPEAKERS switch is usable on the front panel of the 2000A. Thus, tone and volume should be adjusted by means of corresponding controls on the additional preamplifier. When the additional power amplifier is connected, all the controls and switches on the front panel of the 2000A are usable.

Electronic Crossover System

The independent pre- and power-amplifier sections make the 2000A more versatile. One of their most exciting uses is for Electronic Crossover System. In this stereo system, the frequency separation is accomplished electronically between the preamplifier and the power amplifiers (in the conventional system, an LC crossover network is used between the amplifier and the speakers), and the tweeters, midranges and woofers are driven independently by their own power amplifiers. At the present time, this system is acknowledged as the best system for true high fidelity sound reproduction.

The features and advantages of the electronic crossover system are:

1. Speakers more freely selectable

Since the tweeters, midranges and woofers are driven by separate power amplifiers, they can be freely selected on the virture of their tone quality alone, without regard to their efficiency and impedance characteristics.

2. Better filtering characteristic

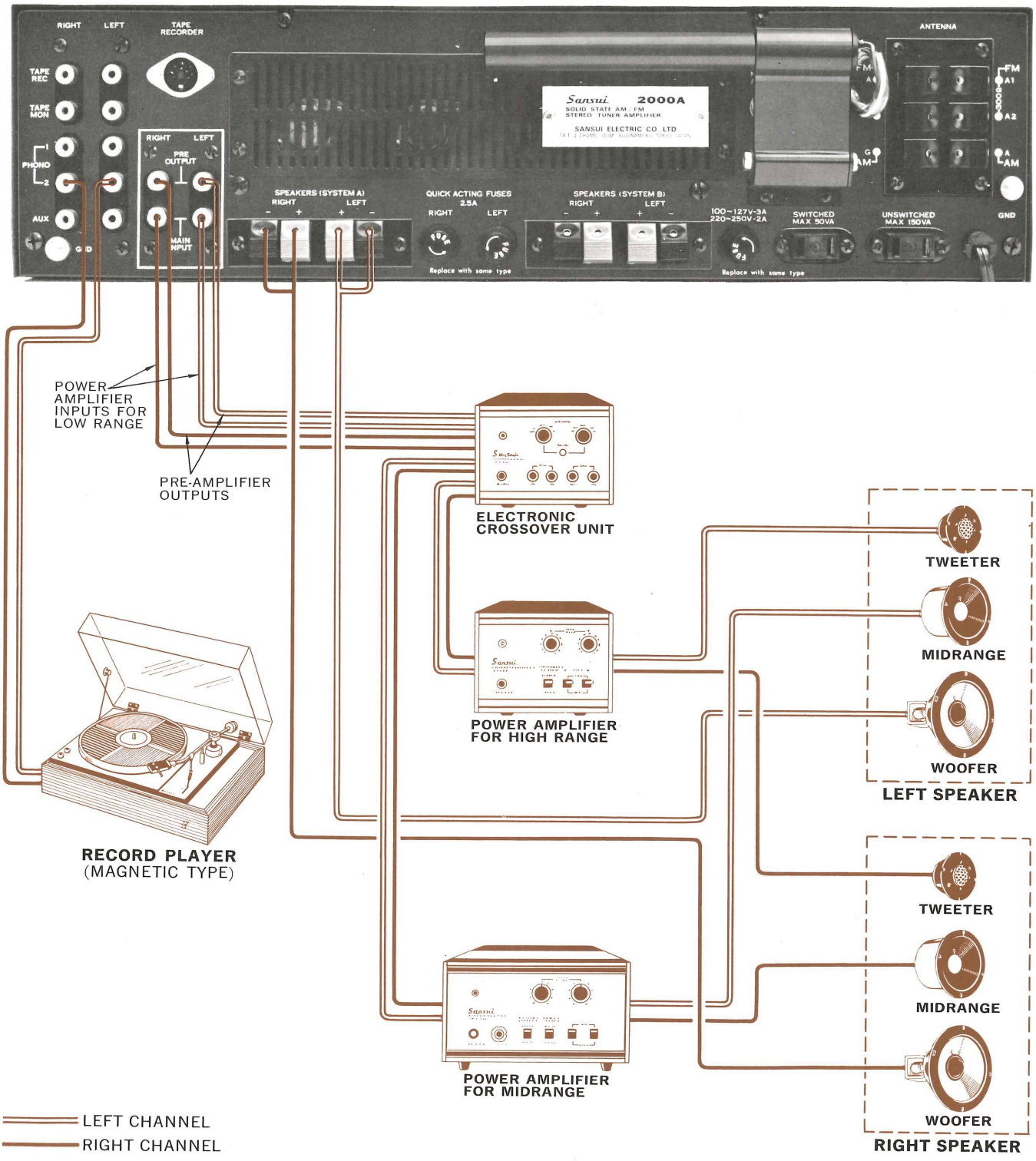
Designing a perfect LC crossover network is a highly complex job, and even the best network may fail to offer a perfect filtering characteristic. Also, as the impedance of a speaker varies with frequency, a network does not always divide the signals at the predetermined crossover points. In contrast, the electronic crossover system not only offers a much better filtering characteristic, but permits changing over the crossover frequencies and cutoff characteristics with great ease.

3. Damping factor not impaired

Amplifier's damping factor is not impaired, because there is no resistance between the amplifier and the speakers.

4. Power amplifiers used more effectively

Amplifiers best suited for each frequency band can be used. For example, an amplifier with a fairly big output is suited for driving the woofers, while amplifiers with better tone quality characteristics may be employed for driving the midranges and tweeters.


RIGHT
LEFT
TAPE RECORDER
TAPE REC
TAPE MON
PHONO 1
PHONO 2
AUX
GND
RIGHT
LEFT
PRE OUTPUT
MAIN INPUT
Sansui 2000A
SOLID STATE AM-FM STEREO TUNER AMPLIFIER
SANSUI ELECTRIC CO. LTD
SPEAKERS (SYSTEM A)
RIGHT
LEFT
QUICK ACTING FUSES
2.5A
RIGHT
LEFT
Replace with same type
SPEAKERS (SYSTEM B)
RIGHT
LEFT
100–127V-3A
220–250V-2A
Replace with same type
SWITCHED MAX 50VA
UNSWITCHED MAX 150VA
GND
ANTENNA
FM
FM-A1
FM-A2
AM
AM-A
POWER AMPLIFIER INPUTS FOR LOW RANGE
PRE-AMPLIFIER OUTPUTS
ELECTRONIC CROSSOVER UNIT
POWER AMPLIFIER FOR HIGH RANGE
POWER AMPLIFIER FOR MIDRANGE
RECORD PLAYER
(MAGNETIC TYPE)
TWEETER
MIDRANGE
WOOFER
LEFT SPEAKER
TWEETER
MIDRANGE
WOOFER
RIGHT SPEAKER
LEFT CHANNEL
RIGHT CHANNEL

MAINTENANCE

How to Eliminate Radio Noise

AM Reception

AM reception noise can often be eliminated by changing the position of the antenna. If you are located far from the broadcasting station, or in the mountains, a thick-walled building or a block of such buildings, radio waves will not be well received, resulting in unstable reception and increased noise. If reception is poor, connect a vinyl wire (supplied) to the AM antenna terminal and position it for best reception. If this does not reduce noise or improve sensitivity, erect an antenna outside the building and apart from the wall. Some noises are peculiar to a certain broadcasting frequency or a certain time of day. These result from the nature of AM signals. In some case the noise can be eliminated by grounding the amplifier or reversing the power-cord plug receptacle connections.

NOTE: If the antenna terminal marked A is touched with a finger, a hum may be heard. This is a natural phenomenon; the unit is not at fault.

FM Reception

Noise during FM reception can be generally attributed to either insufficient antenna input or interference from other electrical appliances.

Antenna input is insufficient when the antenna is not installed properly or when the station is far away. Extend and fix the attached antenna so that noise is minimized and the antenna input is at maximum. For better results, install an exclusive FM antenna in a position to receive signals most effectively.

If you use a T.V. antenna for both T.V. set and FM unit with a splitter, make sure that the television reception is not affected. To prevent noise, avoid using a long antenna wire.

FM reception is affected considerably by the transmitting conditions of certain stations; usually their power and antenna efficiency. You may receive one station quite well and another poorly. To eliminate interstation tuning noise, push the Muting switch.

Noise Common to FM and AM

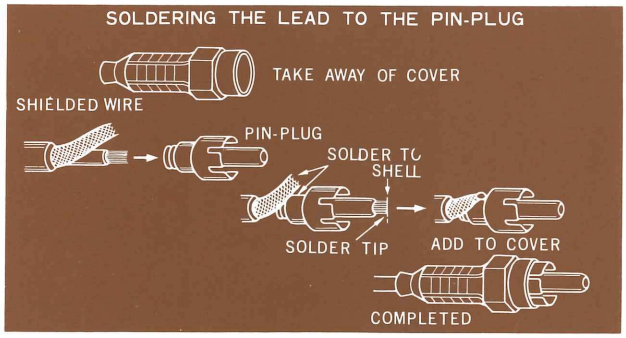
In an area with many ferroconcrete buildings, noise may occur at a particular time of day. This noise is easily distinguished from that described adove. To eliminate such noise, attach a noise arrester to the interfering electrical appliance or to the power source of the 2000A. When you are listening to a FM-MPX program, you may notice a noise not heard with monophonic FM broadcasts. The unit is not at fault, just push the High Filter switch to eliminate the noise. In some cases, you can also eliminate the noise by setting the Treble control to "flat" or lower.

Listening to FM-MPX Stereo Programs Monaurally

In areas remote from broadcasting stations, FM-MPX broadcasts may be accompanied by noise that is not noticeable with regular FM monaural broadcasts. This is because the stereo broadcast wave has a service area only half as long as the monaural wave. If the noise accompanying a stereo broadcast cannot be suppressed satisfactorily by using the HIGH filter or by adjusting the TREBLE control to a flatter level, push on MPX NOISE CANCELER or set SELECTOR to the FM MONO position and listen to the same broadcast monaurally.

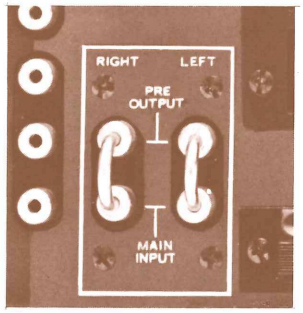
Wire Connections

When connecting tape recorders, record players or other components to the 2000A, be sure to use shielded wire. The use of an ordinary cord or vinyl wire may cause humming and buzzing. The length of the shielded wire used should be shorter than 5 feet. Be sure that all lead wires between the amplifier and components are properly connected. If the connections are loose or in touch with other parts, the amplifier will not function properly, may pickup noise, and even breakdown over a period of time. Also be sure to read the manufacturer's instructions for any component before connecting it to the 2000A.



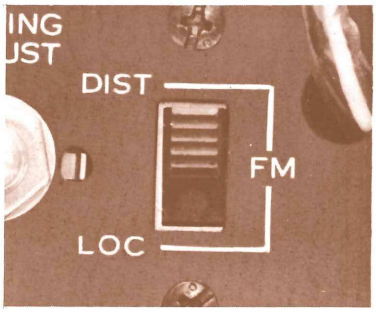
Connectors between Pre- and Main-amplifier Sections

Although the 2000A's preamplifier section and power amplifier section have been connected at the factory, you may use each section as a separate unit for the electronic crossover system, for instance, by simply removing the connectors from the jacks marked PRE OUTPUT and MAIN INPUT on the rear panel. If you want to connect another preamplifier and/or power amplifier to the 2000A, refer to the Section titled under ELECTRONIC CROSSOVER SYSTEM (p. 13). The connectors must be in place unless the additional component or components will be connected to the 2000A. **Warning:** Before connecting or disconnecting, be sure to push the Power switch off.



Local-Distant Antenna Switch

This switch adjusts the tuner to the strength of FM radio waves. It should be set to DIST if the receiver is located in an area where FM signals are weak, or to LOC if it is located near broadcasting stations and there is danger of interstation interference.



MAINTENANCE

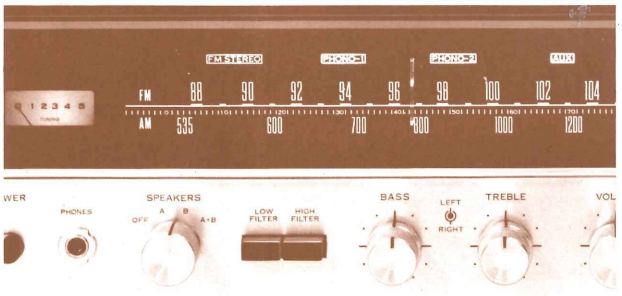
Humming and Howling

Care must be taken never to place a record player on or too near a speaker enclosure. Otherwise the vibration of the speaker enclosure is transmitted to the player and causes howling. It is best to keep these components completely separated, but if this is impossible, to place a thick cushion between them.

Humming is a phenomenon caused by incomplete or incorrect player-amplifier connection. If this occurs, check to make sure that all connections are complete and that the thickness of the connecting wire is sufficient.

Should the Function Indicator Fail to Light . . .

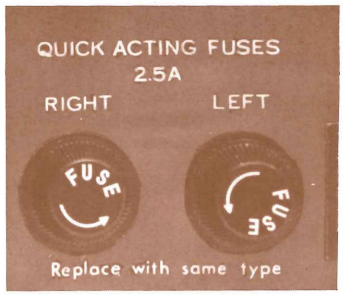
If one or more function indicators fail to light in the dial window when the SELECTOR switch is turned to the appropriate position, it is most likely one or more indicator lamps behind the window have burnt out. To replace, remove the bonnet from the amplifier (see Service Manual).



Quick-Acting Fuses

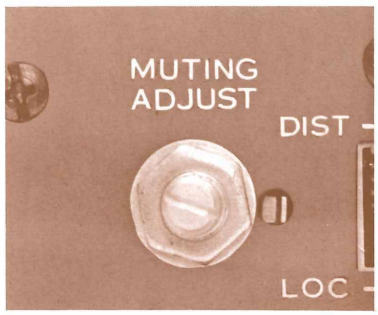
These fuses protect the power transistors by blowing instantly if shorting occurs between connections at speaker terminals or excessive input power is carried into the amplifier. When either or both fuses have blown, the PROTECTOR indicator on the front panel glows red and the sound level is markedly reduced, accompanied with distortion. As soon as this indicator is lit, push the Power switch off, eliminate the source of trouble, and replace the fuse(s).

NOTE: The indicator is not lit unless input signal is fed into the amplifier, even if the fuse or fuses have blown.



Muting Adjustor

Unless the front MUTING switch eliminates FM interstation tuning noise properly, turn this adjustor clockwise to the position at which the noise becomes unobjectionable but at which the station that you want to receive still can be heard.



If the Protector Lights up . . .

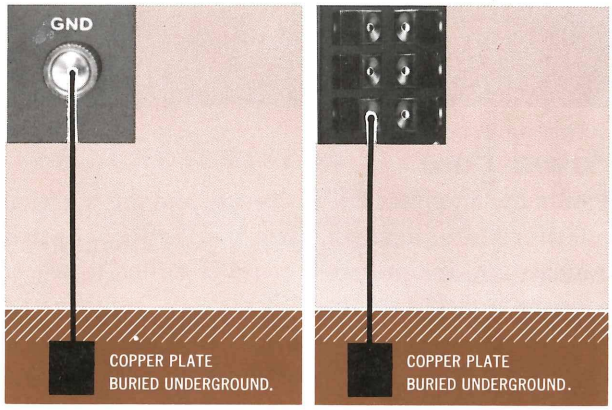
The instant shorts occur at speaker terminals or input circuits become overloaded, the Quick-Acting Fuses on the rear panel will blow to prevent the expensive silicon transistors from being damaged. Simultaneously, the Protector Indicator on the front will glow red and the sound from speakers will be distorted and reduced in volume. In this case, immediately remove the power cord from its outlet and eliminate the source of trouble that caused them to blow. Then, check for the blown fuse or fuses, and replace them with new 2.5-ampere Quick-Acting fuses (supplied). Never attempt to use fuses other than specified. Such fuses, if used, may damage the transistors.

DIN Socket

If your tape recorder has a DIN socket, it may be connected to the 2000A simply by the use of a cable with a 5-pin DIN connector on each end. Insert each connector to the DIN socket on the receiver's rear panel and into the one on the recorder. The DIN connection system, designed to simplify interconnections between the tape recorder and amplifier, is based on the German DIN Standards.

Grounding

Connect one end of vinyl or enameled wire to the terminal screw marked GND at the rear of the amplifier, attach a copper plate to the other end, and bury it underground. Whenever an outdoor AM antenna is used, grounding becomes necessary. In all cases, grounding is desireable since it allows a better S/N ratio to be obtained. To ground an entire audio system, connect the grounding wire of each component used to this terminal.



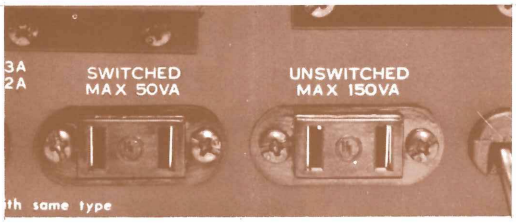
Phasing

The right and left speakers must be properly phased so that the two channels push the sound waves out together. If one pushes while the other pulls, there is sound cancellation at some frequencies or in some listening locations. Incorrect phasing is caused by improper speaker connections and is evidenced by a loss of bass when a monophonic record is listened to on a stereo player at a point halfway between the two speaker systems. If incorrect, reverse either the (+) or (−) speaker connection.

MAINTENANCE

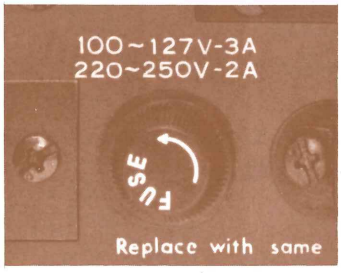
AC Outlets

Two AC outlets have been provided on the rear panel of the amplifier to serve as power supply sources for tape recorders, record players or other components used with the 2000A. The left outlet (SWITCHED) is controlled by the POWER switch on the front panel of the amplifier.



Power Fuse

Should the amplifier fail to operate and the function indicator fail to light up when the POWER switch is turned on, the probable cause is either a power stoppage or a blown fuse. To check, remove the 2000A's power supply cord from its outlet, turn the fuse holder on the rear panel counterclockwise, and remove the fuse. If it is blown, replace it with a new glass-tubed fuse of the same capacity (100~127V—3A, 220~250V—2A) after determining and eliminating the trouble source that caused the fuse to blow. Using wire or a fuse of a different capacity as a stop-gap measure is dangerous and should be avoided.



Voltage Adjustment

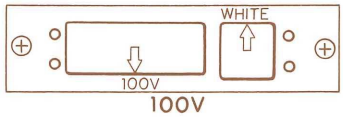
The Voltage Adjustor on the chassis enables you to operate the 2000A at correct voltage in any areas. The voltage has been pre-adjusted at the factory, but can be easily readjusted as follows:

STEP I Set arrow of main voltage selector plug to required voltage: 100, 110, 117, 127, 220, 230, 240 or 250 volts.

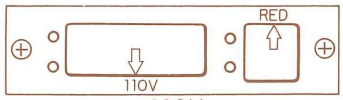
STEP II If numerals of voltage are printed in red, set arrow of adjacent sub V.S. plug to position marked red. If they are printed in white, set arrow to position marked white.

NOTE: The Voltage Adjustor can be used to eliminate the trouble caused by the considerable voltage fluctuation. In this case, it should be set to the peak voltage.

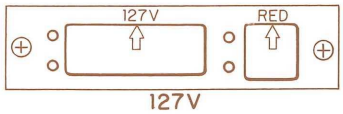
117V



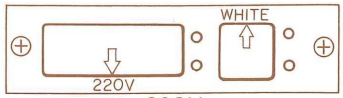
100V



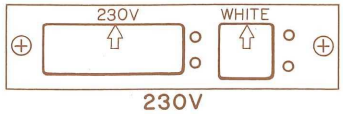
110V



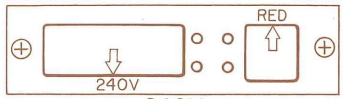
127V



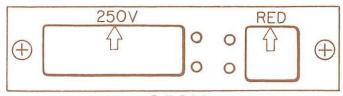
220V



230V



240V



250V

SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT
- MUSIC POWER (IHF): 120W at 4 ohms load, 90W at 8 ohms load
- CONTINUOUS POWER: 43/43W at 4 ohms load, 35/35W at 8 ohms load

TOTAL HARMONIC DISTORTION: less than 0.8% at rated output

INTERMODULATION DISTORTION (60Hz: 7,000Hz=4:1 SMPTE method): less than 0.8% at rated output

POWER BANDWIDTH (IHF): 20 to 40,000Hz at 8 ohms load

FREQUENCY RESPONSE: (at normal listning level)
- POWER AMPLIFIER SECTION: 10 to 50,000Hz ±1dB
- AUX OVER ALL: 20 to 40,000Hz ±1dB

CHANNEL SEPARATION (at rated output, 1,000Hz)
- PHONO-1 AND 2: better than 45dB
- AUX: better than 50dB

HUM AND NOISE (IHF)
- PHONO-1 AND 2: better than 70dB
- AUX: better than 75dB

INPUT SENSITIVITY (at rated output, 1,000Hz)
- PHONO-1 AND 2: 2.5mV (50k ohms)
- AUX: 150mV (100k ohms)
- TAPE MON (PIN): 150mV (100k ohms)
- TAPE RECORDER (DIN): 150mV (100k ohms)

RECORDING OUTPUT (at rated input, 1,000Hz)
- TAPE REC (PIN): 150mV
- TAPE RECORDER (DIN): 30mV

LOAD IMPEDANCE: 4 to 16 ohms

DAMPING FACTOR: 24 at 8 ohms load

EQUALIZER: PHONO RIAA NF type

TONE CONTROLS
- BASS: ±12dB at 50Hz
- TREBLE: ±12dB at 10,000Hz

LOUDNESS CONTROL: +8dB at 50Hz, +3dB at 10,000Hz (Volume Control at −30dB)

PREAMPLIFIER OUTPUT: 0.5V (at rated input), 2.5V (maximum output)

POWER AMPLIFIER INPUT: 0.5V (for rated output)

SWITCHES
- LOW FILTER: −10dB at 50Hz
- HIGH FILTER: −10dB at 10,000Hz
- MONO: STEREO, MONO
- REVERSE: NORMAL, REVERSE
- TAPE MONITOR: SOURCE, PLAY BACK
- SELECTOR: PHONO 1, PHONO 2, AM, FM, FM AUTO, AUX.
- SPEAKER SELECTOR: OFF, SYSTEM-A, SYSTEM-B, SYSTEM-A+B.

OTHER SPECIAL FEATURES

Direct Tape Monitor Switch, DIN Connector for Tape Recorder, Headphones Jack, One-touch Clip Type Antenna and Speaker Terminals.

TUNER SECTION

FM:
- TUNING RANGE: 88 to 108 MHz
- SENSITIVITY (20dB quieting): 1.4μV (IHF) 1.8μV
- TOTAL HARMONIC DISTORTION: less than 0.8%
- SIGNAL TO NOISE RATIO: better than 60dB
- SELECTIVITY: better than 40dB at 98 MHz
- CAPTURE RATIO (IHF): 1dB
- IMAGE FREQUENCY REJECTION: better than 90dB at 98 MHz
- IF REJECTION: better than 95dB at 98 MHz
- SPURIOUS RESPONSE REJECTION: better than 90dB at 98 MHz
- FM STEREO SEPARATION: better than 35dB at 1,000Hz
- SPURIOUS RADIATION: less than 34dB
- ANTENNA INPUT IMPEDANCE: 300 ohms balanced, and 75 ohms unbalanced

AM:
- TUNING RANGE: 535 to 1,605 kHz
- SENSITIVITY: 100μV at 1,000 kHz (bar antenna)
- IMAGE FREQUENCY REJECTION: better than 50dB at 1,000kHz
- IF REJECTION: better than 80dB at 1,000kHz
- SELECTIVITY: better than 20dB at 1,000kHz

CONTROLS: FM Muting Level Adjuster on rear panel

SWITCHES
- FM MUTING: ON, OFF
- MPX NOISE CANCELER: OFF, ON
- FM SENSITIVITY: DISTANT, LOCAL (rear panel)

OTHER SPECIAL FEATURES

Signal Strength Meter, Fly-wheel Tuning Knob, FM SCA Filter, FM Mono Stereo Automatic Switching, 4-stage IC IF, AM Ferrite Bar Antenna.

TRANSISTORS AND DIODES

TRANSISTORS; 45 FET; 1 IC; 4

DIODES; 28 ZENER DIODES; 2

POWER REQUIREMENTS

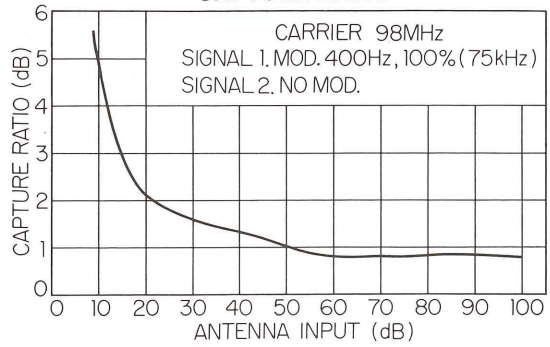
- POWER VOLTAGE: 100, 110, 117, 127, 220, 230, 240, 250V 50/60 Hz
- POWER CONSUMPTION: 180VA (max signal)

DIMENSIONS: $18\frac{7}{16}$"W, $4\frac{59}{64}$"H, $13\frac{3}{16}$"D

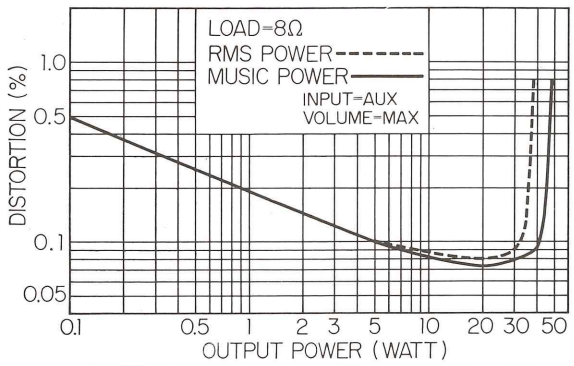
WEIGHT: 27.3 lbs

CHARACTERISTICS

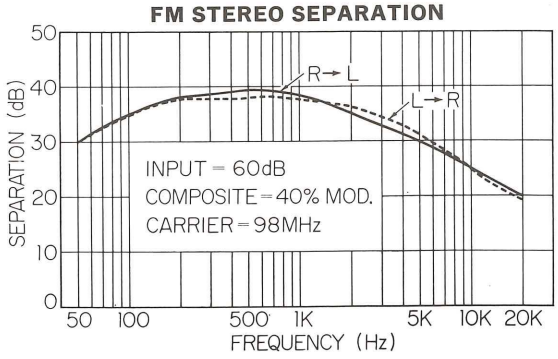
CAPTURE RATIO



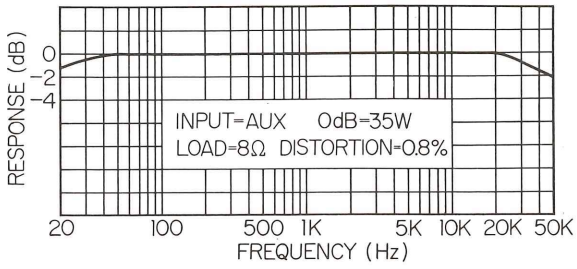
MUSIC POWER DISTORTION



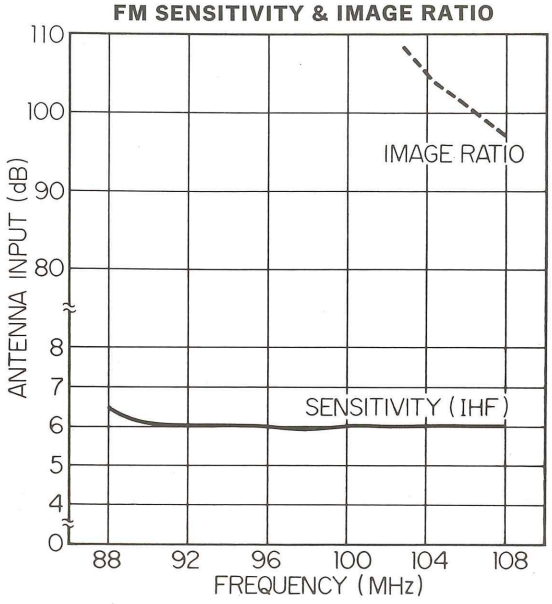
FM STEREO SEPARATION



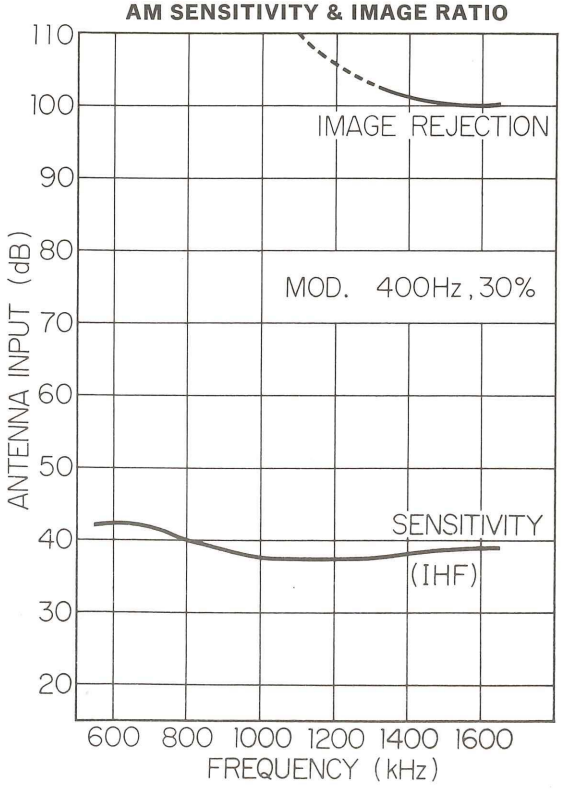
POWER BAND WIDTH



FM SENSITIVITY & IMAGE RATIO



AM SENSITIVITY & IMAGE RATIO



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