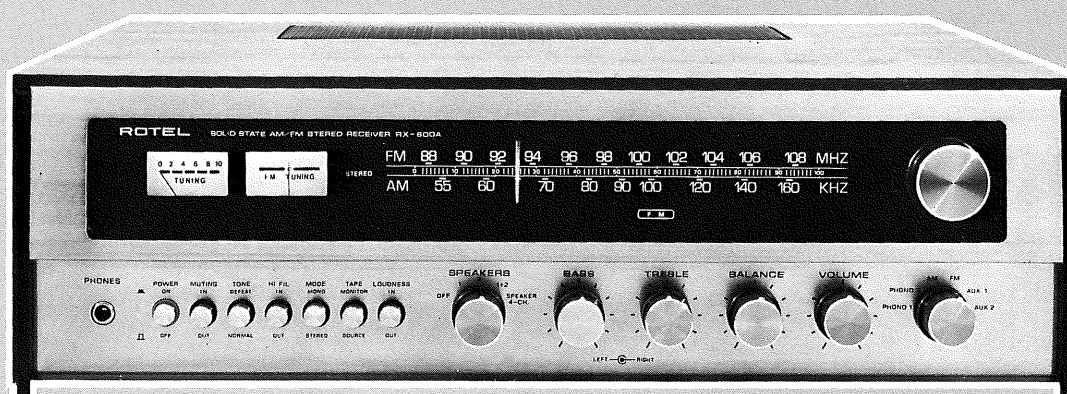


# ROTEL®

## RX-600A

AM/FM STEREO RECEIVER



## owner's manual

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ROTEL®

## INTRODUCTION

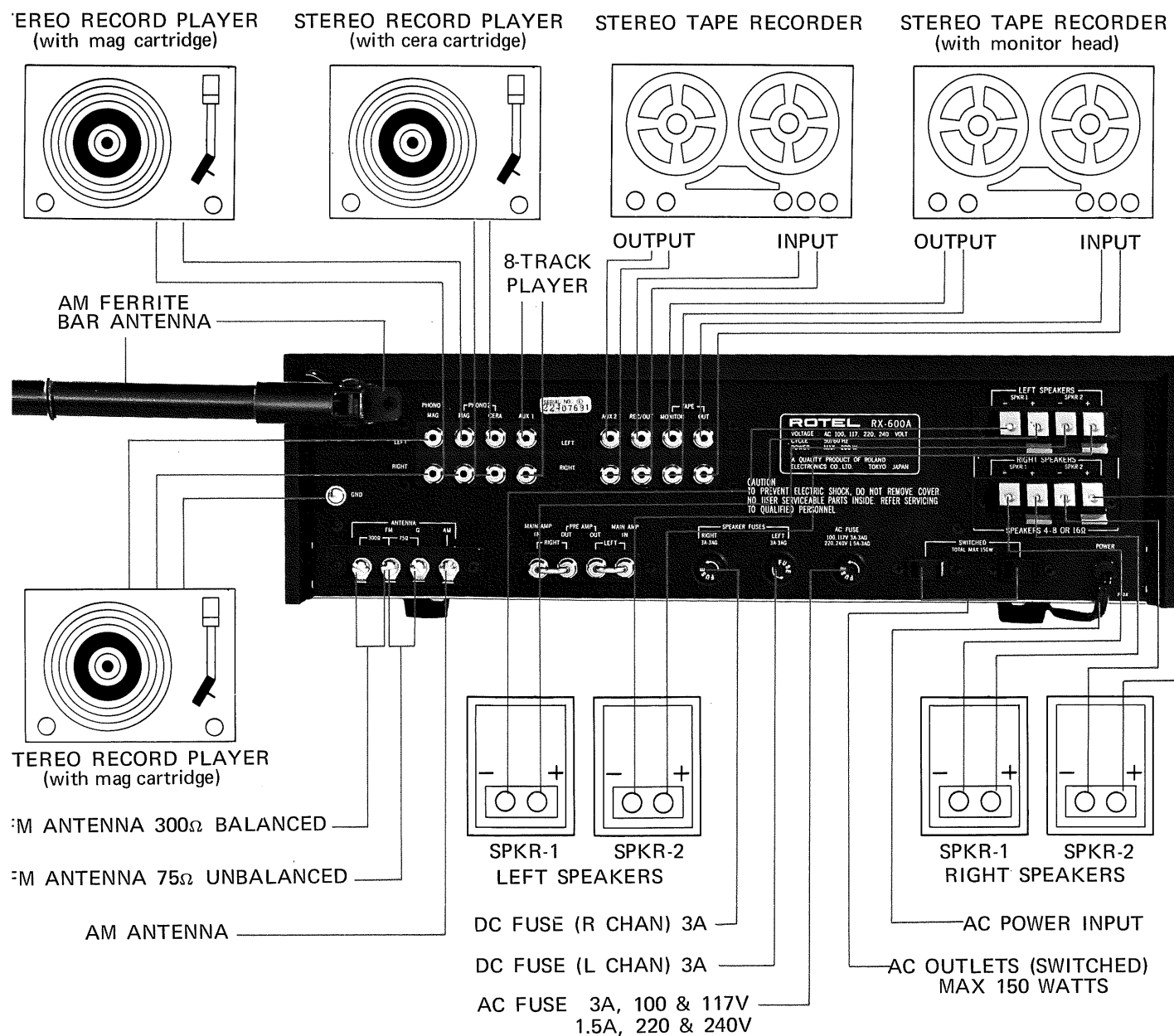
We would like to take this opportunity to thank you for purchasing our Stereo Receiver. With the high quality design and workmanship that goes into making this equipment, you can be assured of its flawless performance for many years to come.

We have fitted every control and feature you could conceivably need. Designed for both versatility and ease of operation, this piece of equipment will add professional studio flexibility to your Hi-Fi sound center. The performance is exceptional; it will allow you to experience

true high fidelity as never before. Its full and natural stereophonic reproduction offers you musical entertainment approaching that of live performances. We sincerely hope you will treasure this professional equipment. In order to obtain the maximum use out of your unit, Please read the following pages of this Owner's Manual carefully.

Do not attempt to operate the unit until you have made all the necessary connections.

## REAR PANEL CONNECTIONS



## INSTALLATION

**IMPORTANT:** Do not apply power to this unit without first making sure that speakers are connected properly and all the other necessary connections are made.

### AM ANTENNA CONNECTION

No external antenna will generally be required for AM, since a ferrite loopstick antenna is supplied at the rear of the receiver. For best reception, extend the loopstick fully out from the receiver chassis.

If you live in a difficult reception area, the use of an external wire antenna may be desirable. Connect the antenna lead to the terminal marked AM on the rear panel. The wire antenna should be as long as possible, and oriented for best reception. It must be kept away from large metal objects, power lines or electrical machinery to insure reception without extraneous noise.

### FM ANTENNA CONNECTION

Owing to the high sensitivity of the FM tuner section of the receiver, the wire antenna supplied is sufficient for most locations. Connect this to either FM antenna terminal marked 300 ohms, and mount horizontally, for instance by tacking to the shelf on which the receiver is mounted. In difficult reception areas, the use of an outdoor antenna may prove necessary. Follow its instructions for proper connection. 300 ohm balanced and 75 ohm unbalanced terminals are supplied. When using an external antenna, connect both leads of the antenna to the two 300 ohm FM antenna terminal posts on the rear chassis. When using a 75 ohm unbalanced coaxial cable for antenna, connect between 75 ohm and G terminal posts with the outer conductor or shield of the cable connected to the G terminal.

### SPEAKER CONNECTION

This unit is equipped with terminals for connecting two sets of speakers. Connect your main pair of speakers to the terminals marked SPKR-1. Ensure that your right speaker is connected to the SPKR-1 terminal marked "+", and that the ground (—) terminal on the right speaker is connected to the terminal marked "—" on the extreme right of the terminal block. Similarly, connect your left speaker between the adjacent SPKR-1 terminals marked "+" and "—".

If you wish to connect a second pair of speakers, connect them to SPKR-2 terminals in the manner described above.

**Caution:** Ensure that the speaker leads are fastened securely to the proper terminals, and that there are no stray strands which may cause shorting between terminals. If 2 sets of speakers are played simultaneously, the impedance of each unit should not be less than 6 ohms.

### PHASING:

When all connections have been made, and the unit is operating, a check on correct speaker phasing should be made. This is described in a later section.

### RECORD PLAYER CONNECTION

The shielded cables from your stereo record player should be terminated with RCA type phono plugs. To avoid loss in the high frequencies, the cables should not exceed 10 feet (3 m) in length.

This unit is equipped with terminals for connecting up to three record players. If your record player has a magnetic cartridge, connect its left and right leads to the corresponding LEFT and RIGHT terminals marked PHONO 1, and if you have another record player with a magnetic cartridge, connect its leads to the PHONO 2 terminals marked MAG. If your record player has a ceramic or crystal cartridge, connect its leads to the PHONO 2 terminals marked CERA.

If your record player has a ground cable emerging besides two input cables, connect this ground cable to the ground terminal post marked GND on the rear chassis.

### TAPE RECORDER CONNECTION

Terminals are supplied for connecting two tape recorders (which incorporate playback preamplifier). For a recorder with a separate playback head (i.e. Monitor facilities), connect its right and left output cables to the TAPE terminals marked MONITOR, and connect its right and left input cables to the TAPE terminals marked OUT. If you have another tape recorder or one without the monitor head, connect its input leads to the terminals marked REC/OUT, and connect its output leads to the terminals marked AUX2. If you wish to connect a tape recorder, 8 track cartridge player, cassette, TV sound or a ceramic microphone for playback purpose only, connect its output leads to the terminals marked AUX1.

### PRE AMP OUT AND MAIN AMP IN RECEPTACLES

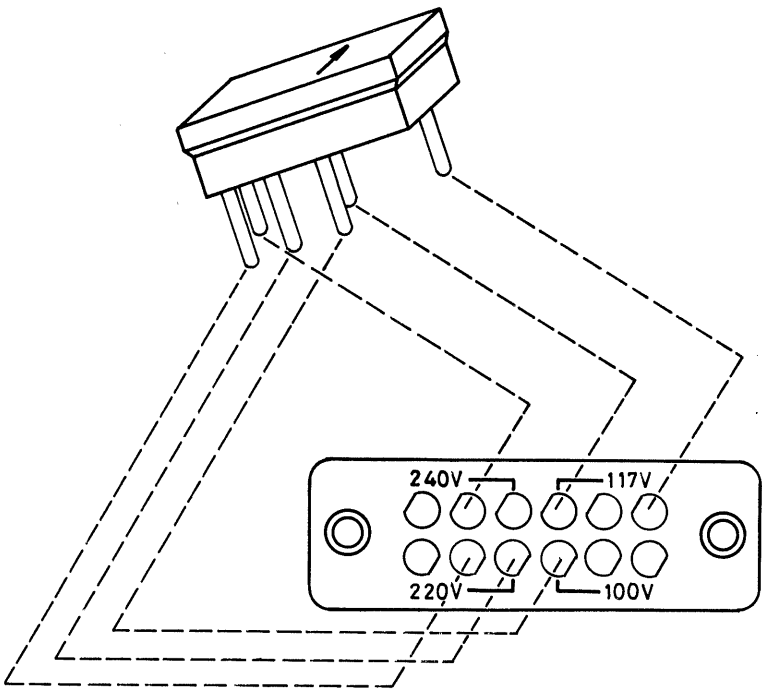
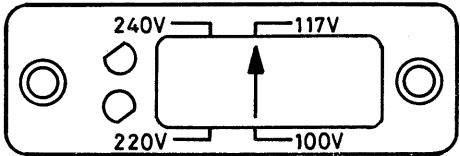
There are pairs of terminals marked PRE AMP OUT and MAIN AMP IN, connected with a pair of jumper pins on the rear chassis. Normally with the pins in place, your receiver is the combined equipment of integrated pre-amplifier and main-amplifier sections. However, by removing the jumper pins, your unit in essence becomes two independent components consisting of one pre-amplifier and one main-amplifier.

These receptacles are intended for use with any necessary equipment designed to be installed between the pre-amplifier and the main-amplifier or for separate use of either section alone. Such equipment as electronic audio equalizer or reverberation unit can be used; or, another pre-amplifier or main-amplifier may be hooked up. Simply

disconnect the jumper pins and follow the instructions supplied with the accessory equipment. When no auxiliary equipment is being used, the jumper pins **MUST** be installed in place in order to use your receiver.

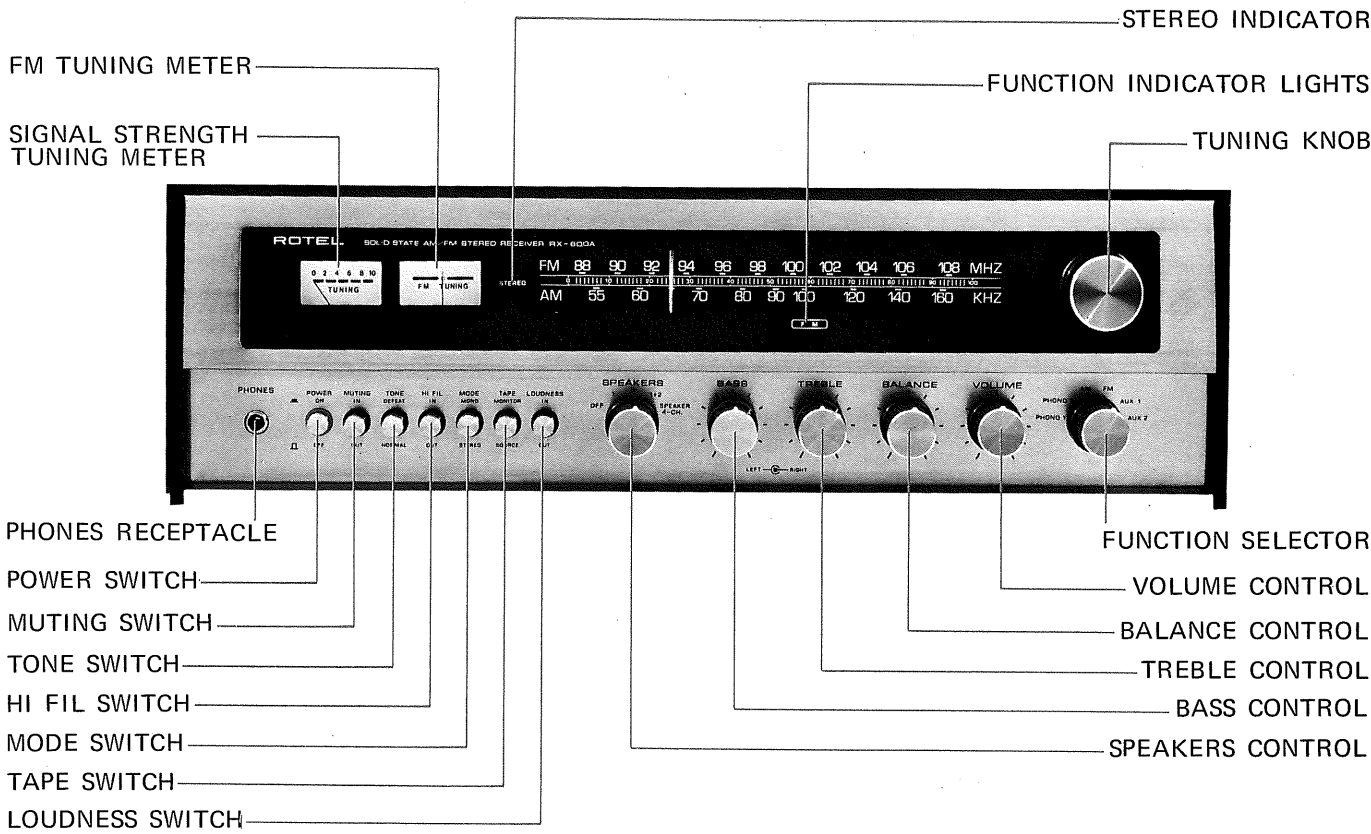
**AC OUTLETS**  
Your receiver is equipped with two AC Outlets (switched) to provide power and switching control to whatever components you may wish to connect to the unit. However, the total load of equipments connected to the AC Outlets must not exceed 150 watts.

**VOLTAGE SELECTION**  
The receiver is a variable voltage equipment that can run on 100V, 117V, 220V or 240V power supply. Your unit comes already preset at the proper voltage for use in your area; however, if you move to an area where the power supply voltage is different, the voltage setting can be manually changed. **BE SURE THAT YOUR UNIT IS NOT CONNECTED TO THE POWER SOURCE BEFORE ATTEMPTING TO MAKE THIS CHANGE.**  
To change the voltage setting, remove the cabinet and locate the **VOLTAGE SELECTOR** (see figure below). Pull up the Voltage Selector plug which has a white arrow on its top. Reinsert the Plug to the Selector Base so that the head of the arrow lines up with the pointer line of the voltage you desire.



**CONNECTING TO POWER SUPPLY**  
Before connecting up ensure that the voltage selector is set correctly for your supply, and a suitable plug fitted. If you need to fit a plug, ensure live, neutral and (where appropriate) earth leads are connected to the proper terminals. Ensure the terminals are screwed down firmly, and no loose strands of wire are present.  
The unit is protected with a 3 amp fuse in the AC input circuit. In addition, two 3 amp fuses protect the DC circuits. When replacing a fuse, be sure to use a fuse of the same rating. **DO NOT** replace with a fuse of higher rating. Protection will be lost, and severe damage to the unit may result.  
If in any doubt about connecting to the power supply, consult a qualified electrician.

**FRONT PANEL CONTROLS**



**VOLUME CONTROL:** regulates the sound level of any program material fed into the receiver. The control affects both channels equally, eliminating regular balancing. Rotate clockwise for increase in sound level.

**BALANCE CONTROL:** regulates the relative outputs from the two channels. Normally the balance control is adjusted to provide the effect of a mono signal coming from a point midway between the speakers. When balanced in this way, the maximum stereo effect will be achieved. Rotate clockwise for increase in sound level from the right channel, and counterclockwise for the left channel.

**TREBLE CONTROL:** regulates high frequency sounds, as desired, to suit personal taste, speaker characteristics, etc. The center position gives normal (flat) frequency response. Rotating clockwise increases the treble, and counterclockwise reduces the treble.  
You may adjust the treble control for each channel simultaneously or individually. The black ring adjusts the left channel and the inner knob adjusts the right channel.

In order to adjust both channels turn either knob together. In order to adjust one channel only, simply hold one knob while turning the other.

**BASS CONTROL:** regulates low frequency sounds, and operates in the same manner as the treble control.

**SPEAKERS CONTROL:** allows you to select your speaker systems for activation. "OFF" to deactivate all speaker systems when such as listening to your headphones privately; "1" to activate your speaker systems connected to SPKR-1 terminals on the rear chassis; "2" to activate your systems connected to SPKR-2; "1+2" to activate both systems SPKR-1 and SPKR-2; "SPEAKER 4-CH." to activate both systems SPKR-1 and SPKR-2 and a special speaker matrix circuit to give a simulated 4-channel sound effect.

**FUNCTION SELECTOR:** enables you to select the function you desire from PHONO 1, PHONO 2, AM, FM, AUX1, and AUX2.

**FUNCTION INDICATOR LIGHTS:** visually indicate the selected position of the function selector switch, and are located behind the dial glass.

**SIGNAL STRENGTH TUNING METER:** shows the level of the incoming signal. When used in the AM position, tune for maximum deflection to the right for best possible reception. When used in the FM position, also tune for maximum indication but operate in conjunction with the FM tuning meter.

**FM TUNING METER:** designed to operate on a null or "zero" center principal. Tune for the dead center position for best possible reception and minimum distortion.

**STEREO INDICATOR:** automatically lights up "STEREO" on the dial glass to visually indicate whenever an FM stereo broadcast is tuned.

**TUNING KNOB:** heavy flywheel action allows easy and precise tuning on both AM and FM stations.

*The push button switches used are all of the PUSH/PUSH type; that is push in to activate the circuit and push again to release or deactivate the circuit. In describing these switches we will consider the "IN" position to be "ON" and the "OUT" position to be "OFF".*

**LOUDNESS SWITCH:** in "ON" position activates a circuit which boosts low frequency sounds at low volume control settings. This compensates for the ears loss of sensitivity to bass notes at low listening levels.

**MODE SWITCH:** selects between stereophonic and monophonic operation depending upon the program source. In "MONO" position the program will be heard monophonic, and in "STEREO" position it will be stereophonic.

## OPERATION

Having made all connections according to the preceding instructions and become familiar with the functions of the receiver, you are ready to operate the equipment. Apply power by plugging into the power source and pushing "ON" the POWER button. Select the speakers you wish to use by turning "ON" either SPKR-1 or SPKR-2 switch, or both according to requirements.

### PRELIMINARY CHECKS:

1. If the receiver dial light has failed to illuminate, remove and check the AC fuse.
2. If no sound is heard when all switches and controls are correctly positioned, remove and check the DC fuse. If a fuse is blown, check possible reasons for the blow-out (e.g. short at speaker leads, etc.) and replace the fuse.
3. The phasing of the speakers should be checked. If the two speakers are out of phase, the stereophonic effect will suffer. Check as follows:
  - a) Set the mode switch to MONO.

**HI FIL SWITCH:** is a high cut filter switch designed to reduce the high frequency response of your receiver whenever you wish to reduce annoying record scratch, tape hiss, FM background noise, etc.

**TONE SWITCH:** permits you to deactivate the tone control circuit to provide an absolutely linear response when in "DEFEAT" position.

**MUTING SWITCH:** in "IN" position activates a circuit which reduces audible interstation noise when tuning from station to station in FM band. Since very weak signals may be muted at the same time, leave the switch in "OUT" position when you wish to pick up a very weak signal.

**TAPE SWITCH:** is used in conjunction with a tape recorder connected to the TAPE terminals on the rear panel, and serves a dual function. For playback, set the switch to MONITOR. This overrides the function selected on the function switch. For recording on a machine with a separate playback head, setting the switch to MONITOR allows you to hear the program being recorded, and setting to SOURCE allows a comparison with your tape recording.

**POWER SWITCH:** performs the function as its name denotes. It supplies power to the receiver and to the switched AC outlet. When the switch is "ON", function dial scale will be illuminated.

**PHONES RECEPTACLE:** Simply plug in your headphone lead and switch off unwanted speakers for private listening.

- a) Tune in a program with a distinct solo part (e.g. voice).
- b) Tune in a program with a distinct solo part (e.g. voice).
- c) If the speakers are in phase (correct connection) the solo will appear to come from the center point between the speakers. If they are not in phase, the sound will appear to come from the two speakers separately.
- d) If the phasing is wrong, reverse the "+" and "-" speaker connections.

### RECEIVING FM AND AM BROADCASTS

Under normal use for all FM broadcasts the function selector control should be placed in the FM STEREO position.

Your receiver is equipped with a stereo sensing circuit which will automatically determine whether your unit is receiving monophonic or stereophonic broadcasts, and then automatically adjust the mode of operation.

If the station is transmitting stereo, your receiver will automatically switch on the multiplex section and you will hear the broadcast in full stereo. Should the station

conclude broadcasting in stereo, your receiver will automatically switch back to monophonic reception.

Should you receive a weak stereo signal whose quality has been degraded by noise or poor signal conditions, and you wish to listen to this stereo broadcast monophonically, place the function selector control in the FM position.

For AM broadcasts the function selector control should be placed in the AM position.

Set the SPKR-1 switch to "ON" if you wish to activate the speaker system that is connected to the terminals marked 'SPKR-1' on the rear panel, or set the SPKR-2 switch to "ON" if you wish to activate the speaker system that is connected to the terminals marked 'SPKR-2'. Set both switches to "ON" if you wish to activate both speaker systems.

Tune for the desired station with the Tuning knob, using the Tuning Meter to assure the strongest possible reception.

### RECORD PLAYER

Set the SELECTOR to PHONO 1 if you wish to operate the record player that is connected to the PHONO 1 terminals, or set to PHONO 2 if you wish to operate the record player that is connected to either MAG or CERA of PHONO 2 terminals. If you have two record players connected to the PHONO 2 terminals, the output from whichever record player that you are operating will be amplified by the receiver.

**NOTE:** If your phono disc is very old or of poor quality, it may cause scratching noises out of the speakers. Should such noises occur to the extent of detracting from your listening pleasure, push "IN" the HI-FIL (HIGH FILTER) button — it will effectively remove the noises without affecting the overall quality of the recording.

### PLAYBACK OF TAPE RECORDING

#### 1. When using AUX inputs

Turn the function selector control to the AUX1 or AUX2 position, and set the MODE to your choice.

#### 2. When using TAPE inputs

To listen to a playback of pre-recorded tape, push the TAPE button to MONITOR. The setting of the function selector control is irrelevant in this case and may be left at any position.

### MAKING TAPE RECORDINGS

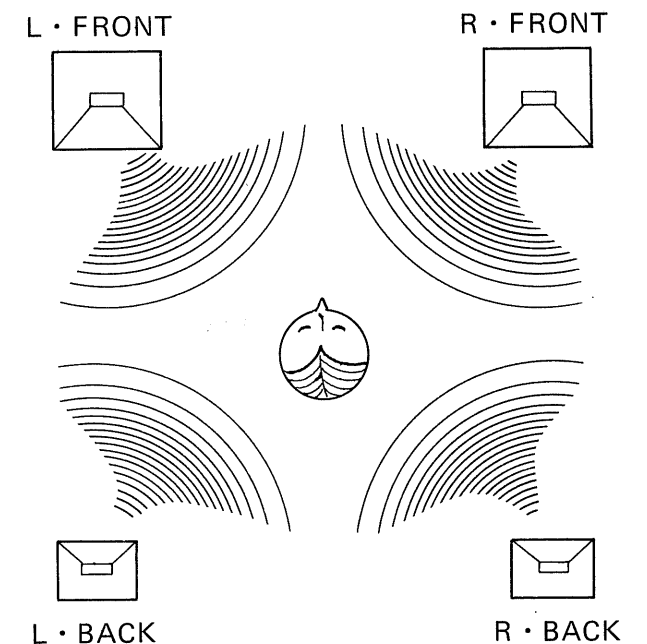
To make off-the-air recordings, turn the function selector to AM or FM and to record off phono records, set to PHONO 1 or PHONO 2. To "dub" off another tape recorder, set to AUX2. (The back panel connections be made so that the "recording" tape recorder is connected to the TAPE IN and TAPE OUT jacks and the "playback" tape recorder to the AUX jacks.) Same procedure applies for recording off cassette or 8-track cartridge.

If your tape recorder is equipped with a separate playback head, pushing "IN" the TAPE button will cause the input source to be bypassed and will permit you to listen to the recording being made on the tape. Leaving the TAPE button "OUT" will permit you to listen to the input source. Thus, with the TAPE button you may "monitor" or compare the recording being made with the source being recorded.

### SPEAKER MATRIX 4-CHANNEL

If you wish to listen to simulated 4-channel sound, set the function selector to the SPEAKER 4Ch position and use your remote pair of speakers (SPKR-2) as the rear speakers of 4-channel system.

You will be certain to enjoy a "surround effect" of this simulated 4-channel, placing the speakers as suggested below.



### HUM AND NOISE

In any high fidelity installation, hum may be caused by the interconnection of a record player, tuner and amplifier, as a result of the cables and different grounds. If hum is experienced with your receiver, disconnect everything but the speakers from the receiver. If hum persists, reverse the AC line cord. Plug in the record player and if hum appears, reverse the record player power plug and connect a single lead from the record player chassis to the ground post on the rear of the receiver chassis. Connect your other devices in this manner.

**Caution:** Hum may also be induced by defective connecting cables or by running these cables too close to a strong AC field.



## SPECIFICATIONS

### AMPLIFIER SECTION

Total Music Power (IHF) .....	140W at 4 ohms 100W at 8 ohms
Continuous Power (RMS) .....	45W/Ch at 4 ohms 30W/Ch at 8 ohms, 0.2% THD both channels driven
Harmonic Distortion .....	0.2% at 30W/Ch.
IM Distortion .....	0.2% at 30W/Ch
Frequency Response .....	9 — 100,000 Hz
Power Bandwidth (IHF) .....	15 — 45,000 Hz
Input Sensitivity/Impedance	
PHONO MAG .....	2.5mV/45k ohms
PHONO 2 (MAG) .....	4mV/80k ohms
PHONO CERAMIC .....	160mV/100k ohms
AUX .....	130mV/31k ohms
TAPE IN .....	130mV/31k ohms
MAIN IN .....	800mV/33k ohms
Hum and Noise	
PHONO .....	67 db
AUX .....	80 db
RESIDUAL .....	1mV
Damping Factor .....	35 at 8 ohms
Bass Control .....	±12 db at 50 Hz
Treble Control .....	±12 db at 10,000 Hz
Loudness Control .....	+10 db at 50 Hz, +6 db at 10k Hz
Speaker Impedance .....	4, 8, 16 ohms

### TUNER SECTION

FM: Antenna Impedance .....	300 ohms balanced 75 ohms unbalanced
Sensitivity (IHF) .....	2.2 $\mu$ V
Harmonic Distortion .....	0.5%
Signal to Noise Ratio .....	65 db
Capture Ratio .....	2 db
Image Rejection .....	60 db
IF Rejection .....	70 db
Spurious Response .....	80 db
Selectivity .....	50 db
Stereo Separation .....	38 db at 1kHz
AM: Sensitivity (IHF) .....	25 $\mu$ V
Image Rejection .....	45 db
IF Rejection .....	45 db
Selectivity .....	35 db
POWER VOLTAGE .....	100, 117, 220, 240V 50/60 Hz
DIMENSIONS ...	17-11/12"(W) x 5"(H) x 12-1/2"(D)
WEIGHT .....	19.6 lbs/8.9 kg