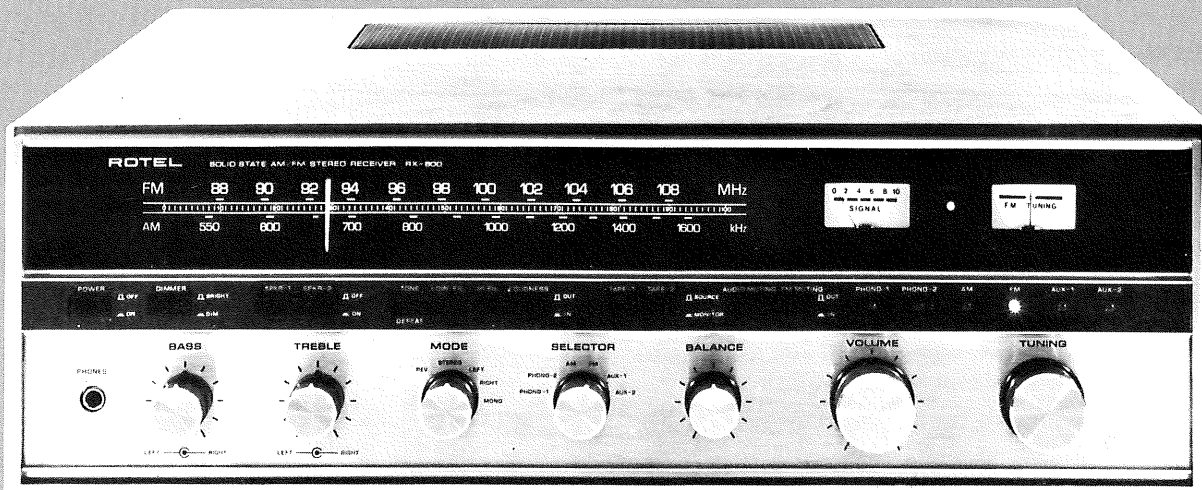


ROTEL®

RX-800

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.

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 "-". 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 8 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.

Connect both leads from your record player to the LEFT and RIGHT PHONO input receptacles on the rear chassis. 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.

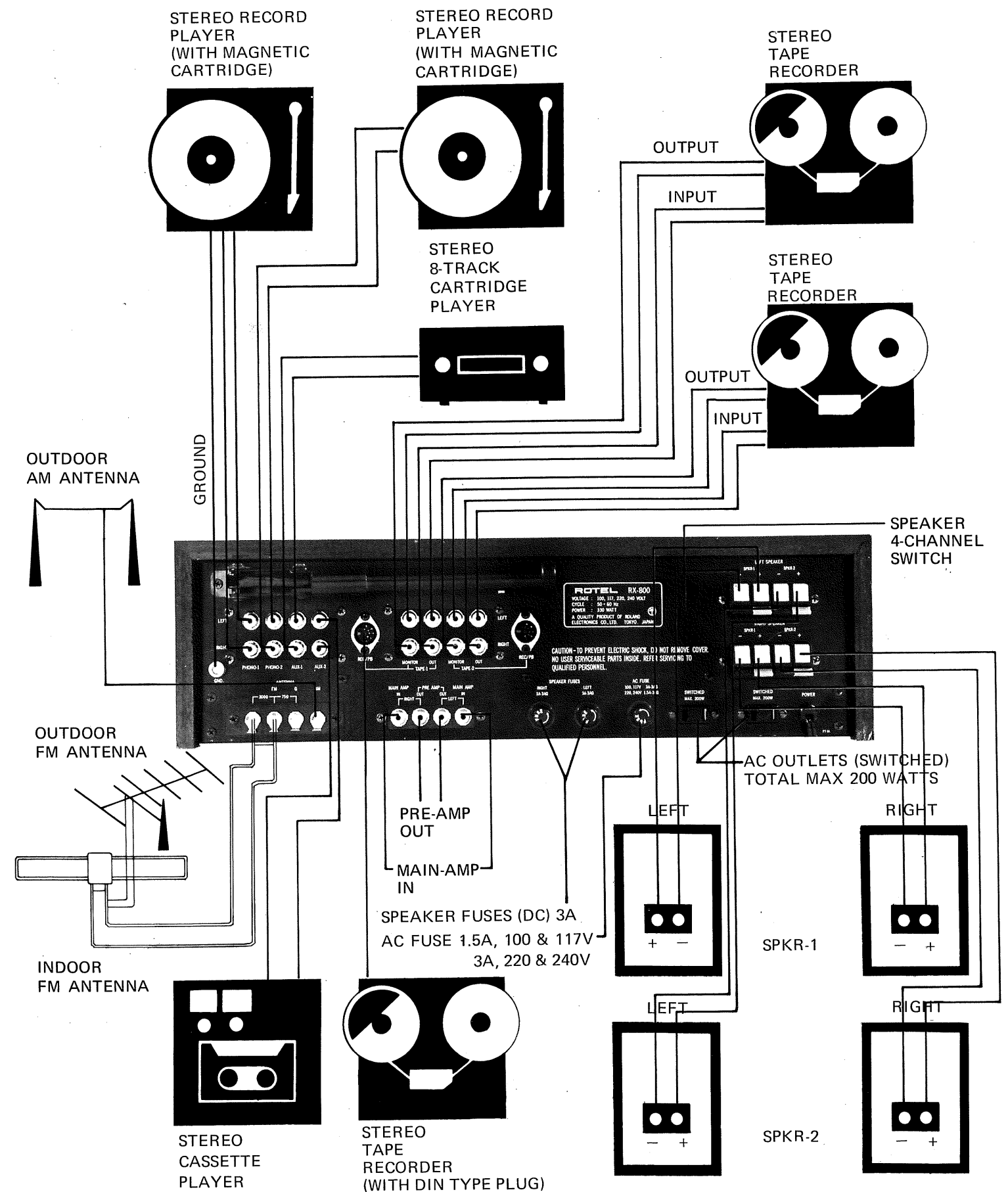
This receiver has two sets of PHONO input receptacles to accommodate two record players. The PHONO 1 is suitable for record player with regular magnetic cartridge. The PHONO 2 is for record player with magnetic cartridge of lower sensitivity than usual. PHONO 1 is rated at 2.2mV and PHONO 2 at 4mV. Use the receptacles most suitable to your magnetic cartridge.

If you wish to use ceramic cartridge, connect your record player to either of AUX input receptacles.

AUX CONNECTION

Your receiver has two pairs of AUX input receptacles for use with high level program sources: tape recorder, tuner, cassette recorder, 8-track cartridge player, TV sound or a

REAR PANEL CONNECTIONS



ceramic microphone. It should be noted that AUX is used only for the playback purpose, and for recording see TAPE RECORDER CONNECTION below.

When connecting a stereo tape recorder, connect both output cables to the AUX LEFT and RIGHT input jacks on the rear chassis. For cassette or 8-track cartridge, similar procedure is followed. When connecting a monophonic equipment, connect the single output lead to either of the AUX LEFT or RIGHT input jack.

TAPE RECORDER CONNECTION

Terminals are supplied for connecting two tape recorders (which incorporate playback preamplifier). Connect the right and left output cables of the tape recorders to the TAPE terminals marked MONITOR, and connect its right and left input cables to the TAPE terminals marked OUT. If you have tape recorder with DIN type plug, connect it to the REC/PB DIN socket in TAPE 1.

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.

SPEAKER 4-CHANNEL SWITCH

NORMAL position indicates that speaker systems SPKR-1 and SPKR-2 operate independently for main-remote operation. When switched to SPEAKER 4 CHANNEL position, SPKR-2 is activated as rear speakers in conjunction to SPKR-1 as front pair, giving simulated 4-channel effect.

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.

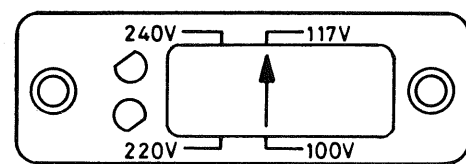
AC OUTLETS

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.

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 knobs 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.

FUNCTION SELECTOR: enables you to select the function you desire from PHONO 1, PHONO 2, AM, FM,

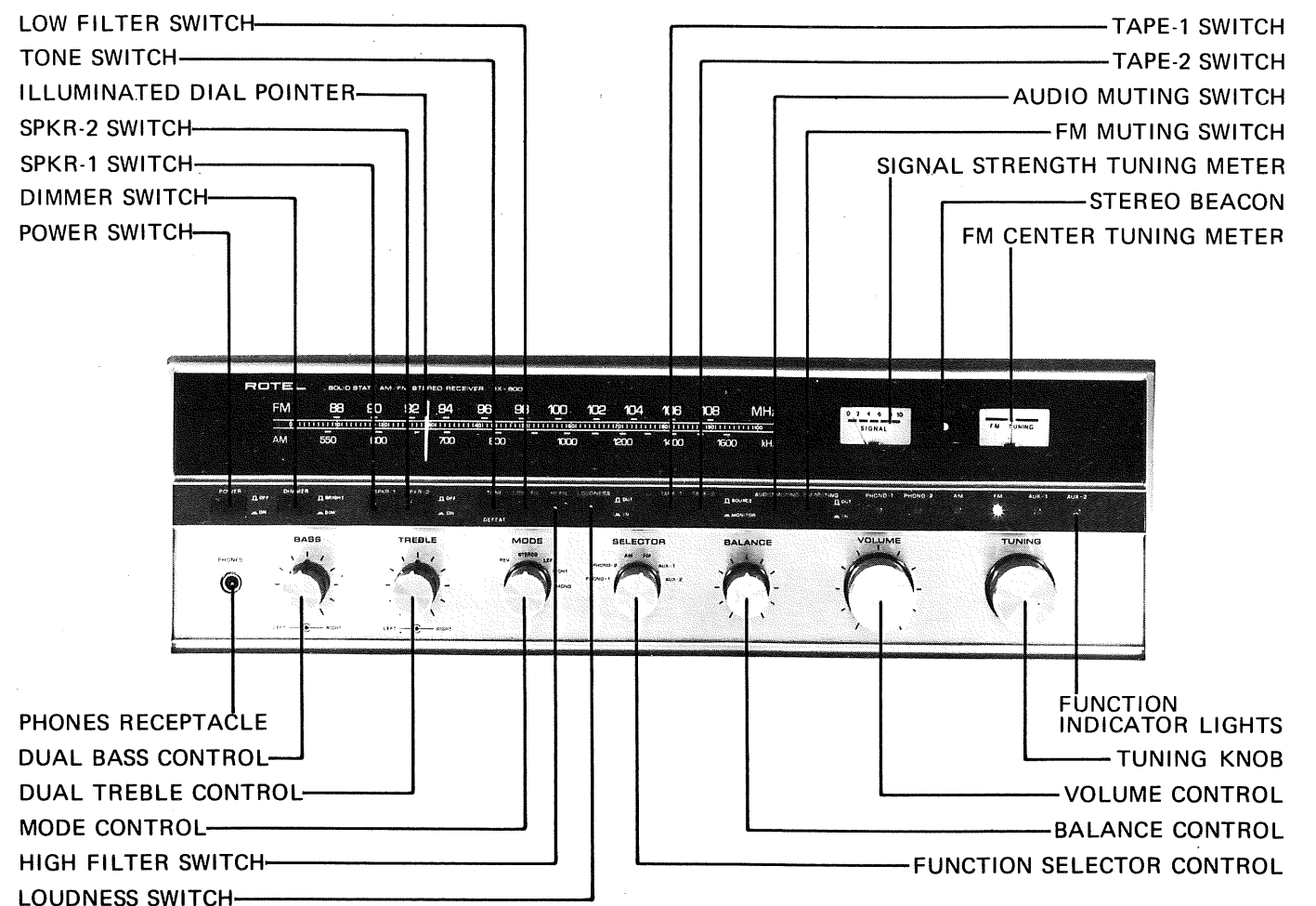
AUX1, and AUX2.

MODE CONTROL: "LEFT" to operate only the sound from the left channel coming out from both speaker systems; "RIGHT" for the right channel only. "STEREO" for stereophonic operation, and "REV" for reversing the left and right channels. "MONO" to activate monophonic operation.

"L" and "R" positions allow you to test each channel or compare each other. "REV" position allows you to change listening effect. "STEREO" and "MONO" position depends upon program source — stereophonic or monophonic.

FUNCTION INDICATOR LIGHTS: visually indicate the selected position of the function selector switch.

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 CENTER 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 BEACON: automatically lights up on the dial glass to visually indicate whenever an FM stereo broadcast is tuned.

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 de-activate 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.

HIGH FILTER: allows you to reduce the high frequency response of your amplifier whenever you wish to reduce annoying record scratches, tape hiss, FM background noise, etc.

LOW FILTER: allows you to reduce the low frequency response of your amplifier whenever you wish to reduce annoying record and tape rumbles, etc.

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

AUDIO MUTING SWITCH: allows you to reduce the level of volume by 20db for momentary quieting when you do not wish to change the volume setting but must lower volume temporarily.

FM 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 station.

TAPE-1 SWITCH: is used in conjunction with a tape recorder connected to the TAPE-1 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 SOURCE allows you to hear the program being recorded, and setting to MONITOR allows a comparison with your tape recording.

TAPE-2 SWITCH: is used in conjunction with a tape recorder connected to the TAPE-2 terminals on the rear chassis. It operates in the same manner as the TAPE-1 switch.

SPKR-1 SWITCH: in "ON" position activates main speakers connected to SPKR-1 terminals.

SPKR-2 SWITCH: in "ON" position activates remote speakers connected to SPKR-2 terminals.

DIMMER SWITCH: allows you to reduce the intensity level of dial illumination when in "DIM" position, or leave at "BRIGHT" position when you wish for brighter illumination.

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) Set the mode control to MONO.
- 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 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, push the mode switch to MONO.

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 connected to PHONO 2 terminals. PHONO 1 accommodates regular magnetic cartridge with high input sensitivity (rated 2.2mV); while PHONO 2 accommodates magnetic cartridge with lower input sensitivity (rated 4mV).

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 AUX 1 or AUX 2 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 record off (dubbing) the tape recorder connected to TAPE-1 by the tape recorder connected to TAPE-2, push the TAPE-1 switch in. 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.

WHERE TO PLACE

Since transistors are extremely susceptible to heat, the amplifier has been designed to diffuse heat through the top and rear of its case. Therefore, special consideration should be given to where it will be used before installing the system. If should not be operated in a place where it is exposed directly to the sun, near radiators or other heat generating sources, and it should never be mounted in an air-tight cabinet. Finally nothing should be placed on top of it.

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.

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 "IN" 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:

SPECIFICATIONS

FM Tuner Section

Frequency Range	88 – 108 MHz
Antenna Impedance	300 ohms balanced 70 ohms unbalanced
Sensitivity (IHF)	1.7 μ V
Harmonic Distortion	0.25%
Signal to Noise Ratio	65 db
Capture Ratio	1.5 db
Selectivity (IHF)	70 db
Stereo Separation	38 db at 1 kHz
Image Rejection	100 db
IF Rejection	100 db
Spurious Response Rejection	100 db

AM Tuner Section

Frequency Range	535 – 1605 kHz
Sensitivity (IHF)	15 μ V
Image Rejection	75 db
IF Rejection	75 db
Signal to Noise Ratio	50 db
Selectivity	45 db

Amplifier Section

Total Music Power (IHF)	260 watts at 4 ohms 175 watts at 8 ohms
Continuous Power (RMS)	70 watts/channel at 4 ohms (both channels driven at less than 0.5% THD) 55 watts/channel at 8 ohms 50 watts/channel, 20 – 20 kHz at 8 ohms and 0.2% THD
Harmonic Distortion	less than 0.3% 20 – 20 kHz at 50W/ch both driven

IM Distortion.....	0.2% at 50W/ch both driven
Frequency Response	4 – 75,000 Hz, –3 db
Power Bandwidth (IHF)	5 – 60,000 Hz

Input Sensitivity/Impedance:

PHONO 1.....	2.2 mV/45k ohms
PHONO 2.....	4 mV/45k ohms
AUX 1, AUX 2, TAPE IN	170 mV/37k ohms
MAIN AMP IN	1V/33k ohms
TAPE DIN	330mV/100K ohms

Signal to Noise Ratio:

PHONO 1, PHONO 2	65 db
AUX 1, AUX 2, TAPE IN	75 db
Residual Noise	1.5 mV

Damping Factor

Output Impedance:

Speaker Terminals	4, 8, 16 ohms
PRE AMP OUT	50 ohms
Loudness Contour	+10 db at 50 Hz, +4 db at 10 kHz
High Filter	–10 db at 10 kHz
Low Filter	–10 db at 10 kHz
Bass Control	\pm 10 db at 50 Hz
Treble Control	\pm 10 db at 10 kHz
Phono Overload	125 mV
Phono Equalizer	RIAA Standard, \pm 0.5 db

Dimensions	456mm (W) x 350mm (D) x 140mm (H) 16-1/2" x 12" x 5-1/2"
Weight	26 lbs/12 kg.

Note: Features and specifications subject to change without notice.