

owner's manual

TABLE OF CONTENTS

INTRODUCTION	1
REAR PANEL CONNECTIONS	1
INSTALLATION	2
FRONT PANEL CONTROLS	3
OPERATION	4
MULTIPLE PLAYBACK APPLICATIONS	6
SPECIFICATION	7

EX

INTRODUCTION

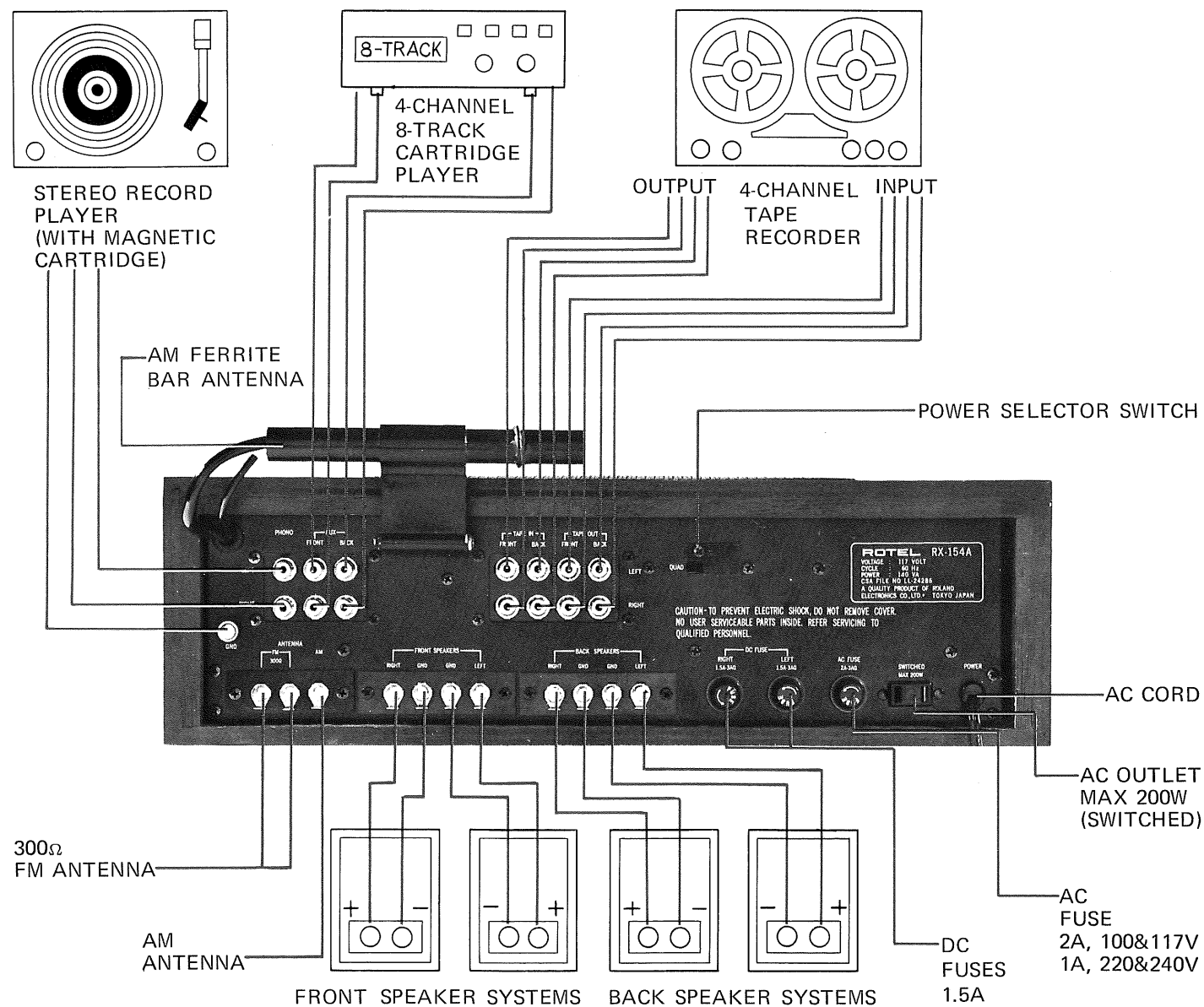
We would like to take this opportunity to thank you for purchasing our 4-Channel Receiver. With the high quality design and workmanship that goes into making this equipment, you can be assured of its flawless performance for many years to come.

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 Operating 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. When using an external antenna, connect both leads of the antenna to the two 300 ohm FM antenna terminal posts on the rear chassis.

SPEAKER CONNECTION

This unit is equipped with terminals for connecting two sets of speakers. Connect your main pair of speakers to their terminals marked FRONT SPEAKERS. Ensure that your right speaker is connected to the terminal marked RIGHT, and that the ground (-) terminal on the right speaker is connected to the terminal marked GND. Similarly, connect your left speaker between the adjacent terminals marked LEFT and GND. Connect a second pair of speakers to BACK SPEAKERS 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.

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.

AUX CONNECTION

Your receiver has pairs of AUX input receptacles for use with high level program sources: tape recorder, cassette recorder, 8-track cartridge player, TV sound or a 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 4-channel tape recorder, connect four output cables to the AUX FRONT and BACK input jacks on the rear of the receiver. For 4-channel 8-track cartridge, similar procedure is followed. When connecting a stereophonic equipment, connect the two output leads to the AUX FRONT input jacks.

TAPE RECORDER CONNECTION

Terminals are supplied for connecting a 4-channel tape recorder (which incorporate playback preamplifier). Connect its right and left front and back output cables to the TAPE IN terminals and connect its right and left front and back input cables to the TAPE OUT terminals.

POWER SELECTOR SWITCH

Your receiver has 4 amplifier sections with same power output for 4-channel use. However, when in stereo only 2 amplifiers are required. In order to utilize fully the power capability of this receiver, ROTEL has incorporated a specially designed circuit to "bridge" 2 amplifiers to drive one channel each when in stereo (2-channel). Not only all 4 amplifiers are put on work all the time, but also the power per channel will be doubled when in stereo as compared to 4-channel.

Set the POWER SELECTOR switch to STEREO position when playing stereo, or to QUAD when playing 4-channel.

Caution: Remove the safety latch from the switch when using the POWER SELECTOR, but be sure to screw back the panel on place when not using the switch frequently. ALWAYS TURN OFF THE UNIT BEFORE USING THE SWITCH.

AC OUTLET

Your receiver is equipped with an AC Outlet (switched) to provide power and switching control to whatever component you may wish to connect to the unit. However, the total load of equipment connected to the AC Outlet must not exceed 200 watts.

VOLTAGE SELECTION (NOT USED IN U.S.A./ CANADIAN MODEL)

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 and schematic diagram). 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 2 amp fuse in the AC input circuit. In addition, two 1.5 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.

VOLUME CONTROL: regulates the sound levels of the front channels and the back channels simultaneously or individually. The black ring adjusts the level of the front channels, and the inner knob the level of the back channels. In order to adjust all channels turn either knob together. In order to adjust front or back channels only, simply hold one knob while turning the other.

BALANCE CONTROL: regulates the relative outputs from the channels. The black ring adjusts the level between the right and the left front channels, and the inner knob adjusts the level between the right and the left back channels. Turn both knobs together will regulates between the right and the left, but turning separately will regulate all four channels.

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.

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 AM, FM, FM STEREO, PHONO and AUX.

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

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

TUNING METER: provides indication of optimum reception on both AM and FM. Tune for maximum deflection to the right.

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

SQ DECODE SWITCH: in "ON" position activates the matrix circuit allowing you to listen to SQ-encoded record discs or FM programs in full 4-channel or to stimulated 4-channel "surround" effect with regular stereophonic sources.

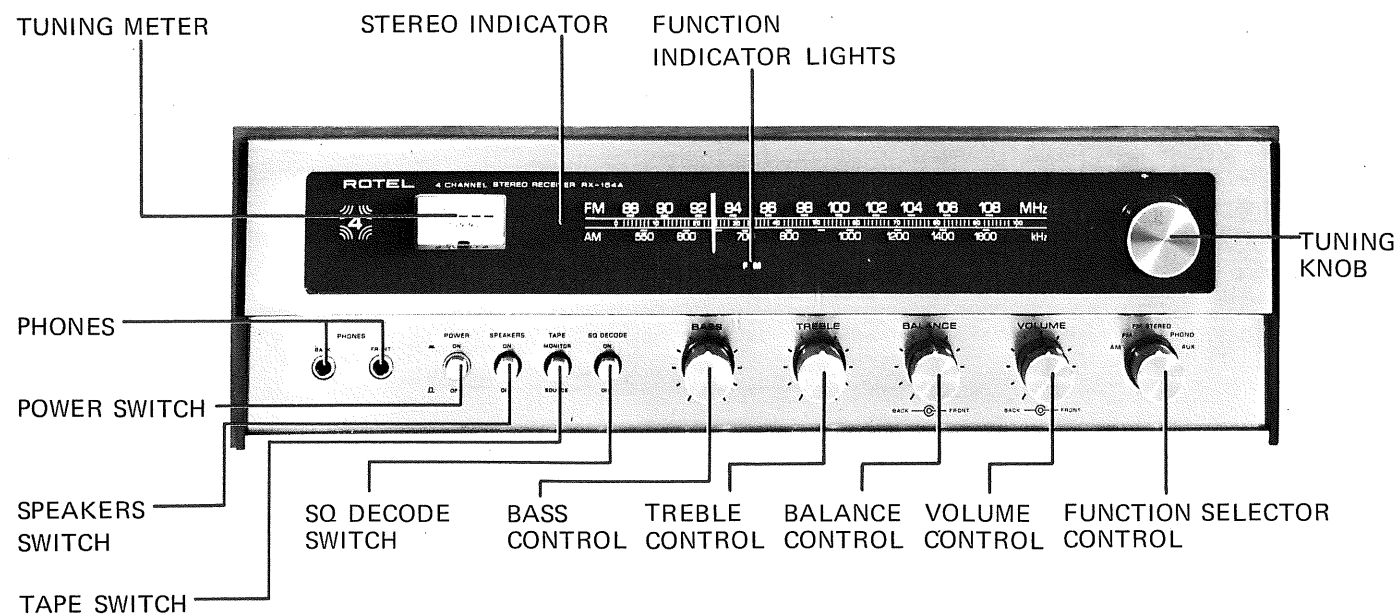
SPEAKER SWITCH: in "ON" Position activates the speakers, and in "OFF" position deactivates the speakers for such as private listening with headphones.

TAPE SWITCH: is used in conjunction with a tape recorder connected to the TAPE MONITOR 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.

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 RECEPTACLES: Simply plug in your headphone lead and switch off unwanted speakers for private listening. For stereo headphones, plug to FRONT receptacle, and for 4-channel headphones plug to the both receptacles.

FRONT PANEL CONTROLS



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.

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. In a stereophonic music reproducing system, the two speakers must be properly connected to assure complementary functioning. Make sure that the terminals on the speakers are connected to the corresponding

terminals. If the two speakers are out of phase with each other, the stereo effect will suffer and the low frequency response will be particularly poor. Check to make sure that your speakers are in phase.

1. Set the function selector to AM or FM.
2. Make sure that the DECODE button is in the OFF position.
3. Turn "ON" the SPEAKER button.
4. Play a monophonic source with solo singing or instrument.
5. If the speakers are in phase, the sound will appear to come from the exact center between the two speakers, but if they are out of phase, the sound will appear to come from the two speakers separately.
6. If the speakers are out of phase, reverse the connections of the two speaker leads (from only one of the speakers, although it may be either one) at the FRONT speaker terminals. The front pair of speakers will then be in phase with each other.

To assure the optimum 4 Channel effect, the back pair of speakers must also be in phase with each other. Repeat the above procedure with the following exceptions.

2. Push the DECODE button "IN".
6. If the speakers are out of phase, reverse the connections of the two speaker leads at the BACK speaker terminals.

Note: Make sure that the volume control for the front speakers is turned all the way down, so that the front speakers will be deactivated and will not confound the phase check for the back speakers.

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 the 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 SPEAKER switch to ON if you wish to activate the speakers. Push the SQ DECODE switch OFF if only the front pair of speaker systems is necessary for stereophonic listening. If a FM station is broadcasting 4-channel encoded stereo signal, set the SQ DECODE switch to ON to activate the decoder circuit and the back

pair of 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 function selector control to the PHONO position. If you wish to play 4-channel encoded stereo disc, push ON the SQ DECODE button.

PLAYBACK OF TAPE RECORDING

1. When using AUX inputs

Turn the function selector control to the AUX position.

2. When using TAPE IN inputs

To listen to a playback of pre-recorded tape, push the TAPE button "IN". 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, FM or FM Stereo, and to record off phono records, set to PHONO. To "dub" off another tape recorder, set to AUX. (The back panel connections should 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.

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.

MULTIPLE PLAYBACK APPLICATIONS

SOURCE PROGRAM	INPUT CONNECTION	SWITCH POSITIONS			RESULTS		
		POWER SELECTOR STEREO-QUAD	FUNCTION	SQ DECODE	HOW REPRODUCED IN SPEAKERS	NUMBER OF OPERATING SPEAKERS	POWER AVAILABLE AT EACH SPKR
SQ Record Disc	Phono	Quad	Phono	In	4-Channel	4	Normal
	Phono	Stereo	Phono	Out	Stereo	2	Double
RCA or CD-4 Discrete Disc	All Aux	Quad	Aux	Out	4-Channel	4	Normal
4 Channel Tape	All Aux	Quad	Aux	Out	Discrete 4-Channel	4	Normal
Stereo Tape	Front Aux	Stereo	Aux	Out	Stereo	2	Double
Stereo Tape (SQ)	Front Aux	Quad	Aux	In	4-Channel	4	Normal
Stereo Record	Phono	Quad	Phono	In	Synthesized "4-Channel"	4	Normal
		Quad		Out	Stereo	2 Front	Normal
		Stereo		Out	Stereo	2 Front	Double
FM Stereo	Antenna	Quad	FM	In	Synthesized "4-Channel"	4	Normal
		Quad		Out	Stereo	2 Front	Normal
		Stereo		Out	Stereo	2 Front	Double
AM/FM Mono	Antenna	Quad	AM/FM	In	Synthesized "4-Channel"	4	Normal
		Quad		Out	Mono	2 Front	Normal
		Stereo		Out	Mono	2 Front	Double

SPECIFICATIONS

Amplifier Section:

Total Music Power (IHF)	80W at 4 Ω (2ch)
Continuous Power (RMS)	10Wx4ch, 20Wx2ch
Harmonic Distortion	0.5%
IM Distortion	0.7%
Frequency Response	20–50,000Hz
Power Bandwidth (IHF)	30–30,000Hz
Hum and Noise, Phono	60db
Aux	70db
Residual	1.5mV
Damping Factor	30 at 8 Ω
Bass Control	\pm 12db at 50Hz
Treble Control	\pm 12db at 10KHz
Speaker Impedance	4, 8, 16 Ω
Power Voltage	AC117V, 50/60Hz

Tuner Section:

FM Sensitivity (IHF)	4 μ V
Harmonic Distortion	1%
Signal to Noise Ratio	60db
Capture Ratio (IHF)	7db
Image Rejection	40db
IF Rejection	60db
Selectivity	30db
Stereo Separation	32db
Spurious Response Rejection	30db
AM Sensitivity (IHF)	30 μ V
Image Rejection	40db
IF Rejection	40db
Selectivity	25db
Dimensions ...	16-3/4(W)x13-3/8(W)x 5-5/16(H) inch
Weight	17.2 lbs.

Note: Features and Specifications subject to change without notice.