INTRODUCTION

We would like to take this opportunity to congratulate you on your purchase of our audio component. With the latest technology and workmanship that goes into making this equipment, you can be assured of its high quality performance for many years to come.

We have fitted a comprehensive range of controls and features for your convenience. 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, allowing you to experience true high fidelity. Its full and natural sound reproduction offers you musical entertainment approaching that of live performances. We sincerely hope you will treasure this professional type component. In order to obtain the maximum use out of your equipment, we urge you to read the following pages of this Owner's Manual carefully.

WARNING – TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
System Connections

POWER SUPPLY CONNECTION
For power the unit requires the normal house electrical current (110V). Simply plug the power cord into a wall outlet.

LOCATING THE UNIT
Although the unit normally does not develop high heat, it should be placed in such a way that its ventilation system will not be impeded. Place the unit on a hard surface - an attractively located shelf or table where not affected by heat or moisture. Leave at least 5 cm (2 inches) clearance on each side and in the rear of the unit, and about 10 cm (4 inches) above the unit. Never directly place an object on the top of the unit.

SPEAKERS PLACEMENT NOTE
- Check speakers' rated impedance as instructed on this page.

1. MAIN SPEAKERS - Referred to a pair of speakers connected to the SPEAKER 1 terminals on the unit's rear panel. Place the main speakers against a wall or on a shelf so that they face your selected listening position and are equal distance from you. For optimum stereo effect, they should be 3 to 4 meters (10 to 15 feet) apart and, if possible, at about ear level height. You may determine best locations to suit your personal tastes and living conditions.

2. REMOTE SPEAKERS - If you wish to enjoy stereo sound in another room, you can connect another pair of speakers to the SPEAKER 2 terminals. Though you may require long cables between the unit and the remote speakers, make sure they are not longer than 15 to 20 meters (50 to 60 feet) in length and that they are of heavy duty shielded type in order to prevent loss of volume level. Following the procedure described in the item 1 above for placing the remote speakers.

SPEAKER CONNECTION
Caution: Do not apply power to the unit until the speakers are connected properly as described below.

As shown in Fig. 2, the speaker terminals are quick-connect push-insert type, and are arranged into two boards, one for SPEAKER 1 (main) and the other for SPEAKER 2 (remote). Push back the tab on each terminal, slip the bare wire at the free end of the speaker lead into the opened jaw of the terminal, and release the tab to grip the bare wire in the jaw. (Note: if necessary, after stripping each end of speaker leads to obtain a bare wire, twist the bare strands together so that it will be easy to insert and also prevent shorting among stray strands.) Make sure the positive (+) lead of each speaker is connected to the (+) terminal and the ground (-) lead to the (-) terminal, and right to RIGHT and left to LEFT.

GROUND (EARTH)
The GROUND screw terminal is provided on the rear panel to provide means for all equipment chassis to be at the same potential in a Hi-Fi installation.

CONVENIENCE AC OUTLET
The outlets marked SWITCHED on the rear panel provide power and switching control to whatever component you may wish to connect to the unit. For example, if you connect the power cord of your record player to the outlet, the record player will be activated and deactivated by the power switch on the unit.

Caution: Do not connect components whose total power consumption exceeds maximum power rating marked on the outlets.
**Specifications**

**POWER AMPLIFIER SECTION:**
- Continuous Power Output: 35 watts per channel, min. RMS, both channels driven into 8 ohms from 20 to 20,000 Hz with no more than 0.5% total harmonic distortion.
- Intermodulation Distortion: Less than 0.2% at rated output.
- Frequency Response: 5 to 95,000 Hz, ±3 dB at 1 watt per channel.
- Square Wave Rise Time: 5 microseconds.
- Damping Factor: 50 at 1 kHz.
- Input Sensitivity/Impedance: 900 mV/33 kOhms.

**PRE-AMPLIFIER SECTION:**
- Output Voltage (rated): 900 mV (rated), 1.8 V (maximum).
- Harmonic Distortion: Less than 0.03% at rated output voltage.
- Frequency Response: 10 to 50,000 Hz, ±1 dB.
- Signal-to-Noise Ratio (HF, 'A' circuit, network):
  - Phone 1, 2: 75 dB
  - Tape, Aux, Tuner: 94 dB
  - Residual: 0.5 mV

**Input Sensitivity/Impedance:**
- Phone 1, 2: 2 mV/47 kOhms
- Tape: 150 mV/50 kOhms
- Aux, Tuner: 500 mV/33 kOhms

**Output Level:**
- Tape out (RCA jack): 350 mV/33 kOhms
- Tape out (lojack): 60 mV/10 kOhms
- Phone Overload: 130 mV
- Phone Equalization: 0.1 A.A. STD ± 0 dB
- Bass Control: 0 dB at 100 Hz
- Treble Control: ±10 dB at 10 kHz
- Loudness Control: 0 dB at 100 Hz, +10 dB at 10 kHz
- High Filter: ±25 dB at 10 kHz
- Low Filter: ±25 dB at 40 Hz
- Crosstalk: 45 dB (Overall)

**GENERAL INFORMATION:**
- Power Consumption: MAX 389 W
- Dimensions (overall): 14.25 x 14 x 14.5 in
- Weight (net): 10.3 Kg/24 lbs

---

**Features & Function Controls**

**SPEAKERS CONTROL** - allows you to select your speaker systems for activation. OFF disconnects all speaker systems when such as listening to your headphones privately.

**TREBLE CONTROL** - regulates high frequency sounds, and operates in the same manner as the BASS CONTROL.

**HEADPHONES JACK** - simply plug in your stereo headphones lead to the receptacle for private listening. Turn to OFF the speakers control. If you are listening to the headphones only.

**POWER SWITCH** - performs the function as its name denotes. It supplies power to the unit and to any switched AC outlets. When the switch is ON the pilot light will be illuminated.

**NOTE:** Sound will not come out for about 10 seconds due to the relay protection circuit used to prevent loud pop noise when the switch is pushed ON.

**BASS CONTROL** - regulates low frequency sounds, as desired, to suit personal taste, speaker characteristics, etc. The center position gives normal (flat) frequency response. Rotating clockwise increases the bass, and counterclockwise reduces the bass. You may adjust the bass control for each channel simultaneously or individually. The outer ring adjusts the left channel and the inner knob adjusts the right channel. In order to adjust both channels turn both knobs together. In order to adjust one channel only, simply hold one knob while turning the other.

**MONITOR CONTROL** - allows you to playback, monitor, and dub (record the other) two tape recorders. "1 - 2" to dub the tape recorder connected to MONITOR 1 by the tape recorder connected to MONITOR 2, "2 - 1" to dub the other way around. "1" to playback the tape recorder connected to MONITOR 1, and "2" to playback the tape recorder connected to MONITOR 2. Set to "SOURCE" position whenever tape recorder is not being played but other material is being played.

**VOLUME CONTROL** - regulates the volume level of all channels simultaneously. Rotate the knob clockwise to increase the volume and counterclockwise to decrease.

**LOUDNESS SWITCH** - in ON position activates a circuit which boosts low and high frequency sounds at low volume control settings. This compensates for the ears loss of sensitivity to bass and treble notes at low listening levels. However, leave the switch OFF at normal and high volume settings to prevent booming noise or overload on some speakers.

---

**Block Diagrams**

[Circuit diagram of the Rotel RA-612 amplifier]
COMPONENTS CONNECTIONS
This unit is designed to handle two record players with magnetic cartridges, two stereo tape recorders and two additional auxiliary components such as 8-track cartridge deck.

We recommend that you familiarize yourself with basic operations before connecting any such units. Refer to the ADDITIONAL COMPONENTS section provided in this manual for connections and operations of these components.

TURNTABLE
Connection
Make sure your turntable comes with a regular magnetic cartridge.
If your turntable comes with RCA-type plugs on output cables, connect them correctly to corresponding RIGHT and LEFT jacks of PHONO inputs. If there is ground (earth) cable emerging from the turntable besides the output cables, connect it to the ground screw terminal marked GND or -.
If your turntable comes with a DIN plug on output cable, simply plug in to the DIN socket marked PHONO 1.

NOTE: To avoid loss of high frequency response due to excessively long output cables, shielded cables not exceeding 10 feet (3 meters) in length should be used to connect your turntable. Usually, cables supplied with your turntable are sufficient.

Operation
Turn the function selector control to PHONO 1 if you wish to operate the turntable connected to the PHONO 1 terminal, or set to PHONO 2 if you wish to operate the turntable connected to the PHONO 2 terminal.

TAPE RECORDER
Connection
A facility for tape recorder is referred to as TAPE MONITOR and is used in conjunction with the monitor control on the front panel. It is also used when your tape recorder has a separate playback head (i.e., tape recorder normally equipped with two heads).
Your tape recorder can be a reel-to-reel deck, a cassette recorder deck or a 8-track cartridge recorder deck.
If the tape recorder comes with RCA-type plugs, connect input cables to corresponding TAPE MONITOR 1 inputs.
If the tape recorder comes with DIN plug, connect input cables to the DIN socket marked REC/PH or PHONO 1.

TAPE PLAYBACK
To listen to a playback of pre-recorded tape, turn the monitor control to 1 or 2, depending on which TAPE MONITOR terminal the tape recorder is connected. The setting of the function selector control is irrelevant in this case and may be left at any position.

TAPE RECORDING
You may record your tape recorder onto programs that can be played through this unit. Turn the function selector control to TUNER, PHONO 1, PHONO 2, AUX 1 and AUX 2 depending on which program you wish to record, and operate the tape recorder while listening to the program.

Always leave the monitor control at SOURCE if your tape recorder has no separate playback head (for example, if the tape recorder is equipped with separate playback and recording heads).
If your tape recorder is equipped with a separate playback head, turning the monitor control to 1 or 2 will cause the input source to be bypassed and will permit you to listen to the recording being made on the tape.

Setting at the SOURCE position will permit you to listen to the input source. Thus, with the monitor control you may monitor or compare the recording being made with the

ALERT CONTROL — regulates the relative sound outputs from each channel.
Normally the control is adjusted to provide the effect of mono signal coming from a point midway between the speakers. When balanced in this way, the optimum stereo effect will be achieved. Rotate clockwise for increase in sound level from the right channel, and counter-clockwise for the left channel.

Additional Components

TO SEE INSIDE PAGES ALL ABOUT RA-612

SIMULATED 4-CHANNEL OPERATION
2 pairs of speakers are required to be set in one room for the simulated 4-channel operation, made possible by use of a special speaker matrix circuit built into this unit.
Place the pair of speakers connected to the SPEAKER 1 terminals in the same manner as described above for the main speakers.

PRE AMP OUT AND MAIN AMP IN
These pin terminals are referred to as the FRONT speakers. Placement of the other pair of speakers connected to the SPEAKER 2 terminals, referred to as the BACK speakers, may vary with your room size, seating arrangement and acoustic conditions. It may be convenient to provide allowance on the length of speaker cables as later on you may want to locate the BACK speakers differently from the initial position. We have suggested a common way of placing the BACK speakers as illustrated in Fig. 3, but you may arrange them in any way suit your tastes and listening conditions. Try some experiments to locate optimum positions for best sound dispersion and ambiance.

Fig. 3
HUM AND NOISE
In any high fidelity installation, hum may be caused by the interconnection of a record player, tuner and amplifier, and speakers as result of the cables, different grounds or locations of components. If hum is experienced with your unit, disconnect everything but the speakers from the unit. If the hum persists, reverse the power plug at the power source. Plug in the record player and if hum or howling appears, reverse the record player power plug or re-mount the record player away from the speakers as much as possible. Note hum may also be induced by defective connecting cables or by running these cables too close to a strong AC field.

When your unit picks up noises during the reception of broadcasts, causes are mostly due to external objects such as fluorescent lamps and house appliances using motor or thermostat, or others that may induce the noises. Either relocating the unit away from the noise sources or using an improved outdoor antenna may readily solve the problem. In the event you cannot find causes, consult your dealer or a qualified electrician.

PROTECTION
This equipment is protected by a special automatic resettable protection circuit and the fuses installed inside the chassis. If the unit fails to operate when plugged in and turned on or if it suddenly becomes completely inoperative while playing (i.e., one or both speakers are silent regardless of speaker switches and function selector control position), the protection circuit is probably activated due to an overload condition such as shorting by stranded speaker wires at the speaker terminals. Once the fault is found and corrected, the protection circuit will be deactivated automatically and the unit will work.

Caution: If the unit does not operate, or if it becomes inoperative within a short time, consult your dealer or a ROTEL service center.

EXCLUSIVE NOTE FOR U.K.
If your unit comes with a 3-core cable without a plug, make certain live, neutral and (where appropriate) earth leads are connected to the proper terminals. Check that the terminals are screwed down firmly and no loose strands of wire are present.

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT: The wires in the mains lead are coloured in accordance with the following code:
GREEN/YELLOW: EARTH
BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
The wire which is coloured GREEN/YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol , or coloured GREEN or GREEN/YELLOW.
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLUE or BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured BROWN or RED. The apparatus must be protected by a 3 Amp fuse if a 13 Amp (BS 1363) plug is used. If another type of plug is used a 5 Amp fuse or lower must be used, either in the plug or adapter or at the distribution board.