

ROTEL[®] *hi fi*

RA971

Stereo Integrated Amplifier

OWNERS MANUAL

Please write the serial number, date of purchase and the name of **Rotel hi fi** *Authorized Dealer* in the spaces provided for your future reference.

Serial number _____ . Purchase date _____ .

Rotel hi fi Authorized Dealer _____ .

SAFETY INSTRUCTIONS

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER(OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		

• Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

- 1. Read Instructions** - All the safety and operating instructions should be read before the appliance is operated
- 2. Retain Instructions** - The safety and operating instructions should be retained for future reference.
- 3. Read Warnings** - All warnings on the appliance and in the operating instructions should be adhered to.
- 4. Follow Instructions** - All operating and other instructions should be followed.
- 5. Water and Moisture** - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimmingpool, etc.
- 6. Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

PORTABLE CART WARNING



S3125A

- 7. Wall or Ceiling Mounting** - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 8. Ventilation** - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9. Heat** - The appliance should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.

APPLICABLE FOR USA, CANADA OR WHERE APPROVED TO THE USAGE

CAUTION : TO PREVENT ELECTRIC SHOCK, MATCH
WIDE BLADE PLUG TO WIDE SLOT, INSERT FULLY .

ATTENTION : POUR EVITER LES CHOCS
ELECTRIQUES, INTRODUIRE LA LAME LA PLUS
LARGE DE LA FICHE DANS LA BORNE
CORRESPONDANTE DE LA PRISE ET POUSSER
JUSQU'AU FOND.

- 10. Power Source** - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
- 11. Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 12. Cleaning** - The appliance should be cleaned only as recommended by the manufacturer.
- 13. Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
- 14. Object and Liquid Entry** - Care should be taken so that objects do not fall into and liquids not spilled into the inside of the appliance.
- 15. Damage Requiring Service** - The appliance should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the cabinet damaged.
- 16. Servicing** - The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17. Grounding or Polarization** - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

A WORD FROM ALL OF US AT ROTEL

We take this opportunity to thank you for purchasing a RA 971 stereo integrated amplifier. Rotel is committed to making quality products to enhance your life. We have been designing and manufacturing high quality, high performance audio electronics for more than 35 years. This integrated amp was designed to offer lifelike sound and is a natural extension of our love for music. Our passion for good sound and our love of music is well known. We believe that the music played through the RA 971 will be a source of enjoyment to you for many years to come. We designed this amp to be durable; easy to use and to have *high fidelity to the original sound*. Please read this owners manual to ensure that the amp is properly installed and able to offer optimum performance. We appreciate being a part of your life.

FEATURES

This stereo integrated amplifier has been designed with symmetrical circuit paths in the printed circuit boards. These are utilized to ensure absolutely identical timing between the two channels of the amplifier. We do this to ensure that the original source material remains intact as it is amplified in the RA 971.

The power supply derives from a large, powerful toroidal power transformer manufactured by ROTEL and custom designed slit foil capacitors made to ROTEL specifications. We utilize these to improve the speed, dynamic capability and damping factor of the amplifier. We believe in highly regulated power supplies and use these in all of our products. We feel the extra expense is worthwhile because *it is good for the music*.

INSTALLATION

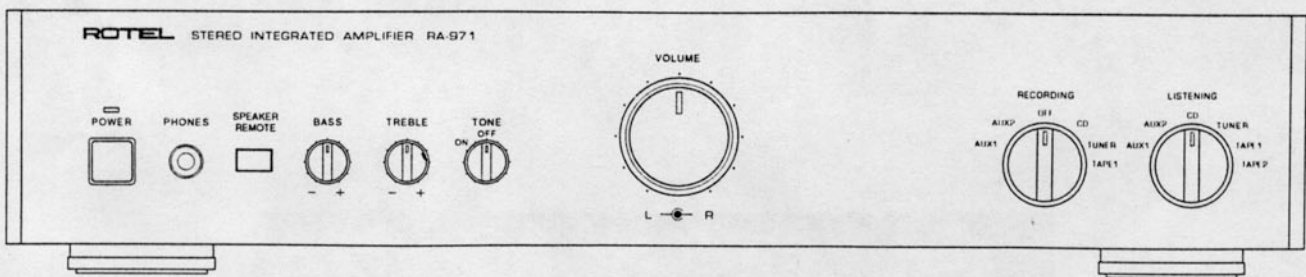
Please place the unit on a **DRY**, level surface away from direct sunlight. *Please do not place any objects on top of the amplifier that will block the cooling vents, as they may cause the amplifier to overheat.* If the amplifier is mounted inside a cabinet, then please be certain that there is adequate airflow to ensure proper cooling. *Do not allow water or objects to fall into the amplifier, as these will damage the circuitry.* Avoid installing the amplifier in a location where excessive humidity, vibration or moisture will be a problem.

We recommend installing the amplifier in furniture designed to house Hi Fi components. This will allow the amp to be on its own shelf with nothing stacked on top of it. This will minimize heat and potential interference from other components in your system. Component furniture will also reduce or suppress vibration and all audio components will provide improved sound when free from vibration. Ask your **ROTEL hi fi Authorized Dealer** for advice about component furniture and proper installation of audio components.

ELECTRICAL REQUIREMENTS

This amplifier is designed to work on AC voltage and the correct voltage is displayed on the back panel. Do not attempt to operate the amplifier on incorrect voltage as this will damage the circuitry and will void your warranty. If you are in doubt about the correct voltage for this amplifier we suggest that you please read the label on the back panel or consult your **ROTEL hi fi Authorized Dealer** for confirmation of the correct voltage. Connect the power cord to your wall socket for AC power. When you wish to disconnect the power cord from the wall always hold the plug firmly and then pull it out of the wall socket. *Do not unplug the power cord from the wall by pulling the cord only. This may damage the power cord and create a hazardous condition.* We strongly recommend that the amplifier be connected to the mains wall socket, not to an extension cord.

If you wish to clean the cabinet, we suggest that you clean it with a soft, DRY cloth. *Never use cleaning compounds or solvents to clean the cabinet as they may damage the finish or remove the labels.* They could also damage the circuitry if any residue falls inside the amplifier. There are **NO** user serviceable parts inside this amplifier. **Please do not open the cabinet, as this will expose you to the risk of potentially dangerous high voltage and the risk of shock.** This could also damage the circuits and possibly void your warranty.



Please refer to this drawing of the front panel when reading the section about controls on the RA 971.

FRONT PANEL CONTROLS

We have designed this integrated amplifier to be a no frills, no compromise design. The controls are simple but comprehensive. For example the amplifier is able to send music to a tape recorder that is independent of the music being heard. This is possible because we have incorporated separate recording and listening controls on the front panel.

The **POWER** button will turn the amplifier **ON** and **OFF**. Push it in and the amplifier will turn ON. The **POWER INDICATOR LIGHT** will illuminate at the same time. If you push the **POWER** button again the power will go OFF and the power indicator light will extinguish. To adjust the bass and treble content of the music, set the **TONE** switch to the **ON** position. This will allow the **BASS** and **TREBLE** controls to function. Turning the **BASS** or **TREBLE** controls *clockwise will increase* the amount of bass or treble. Turning the controls counterclockwise will decrease the amount of bass or treble. When the Tone switch is set to the **OFF** position, the tone controls are *bypassed* inside this amplifier. We have incorporated this switch to allow for adjustment of the music's tonal balance or to allow for the shortest circuit path for those people who choose not to use the bass and treble controls.

We have included speaker switching on this amplifier and **SPEAKER REMOTE** refers to the way this switch operates. The **SPEAKER REMOTE** switch will turn the **REMOTE** labeled speaker terminals on or off. If you listen with headphones and would like to be able to turn your speakers off *when* listening, we suggest they be connected as the **REMOTE** pair of speakers. The **SPEAKER REMOTE** switch will not turn the **DIRECT** labeled speaker terminals off. (See note in the *Connections* section.) The headphone jack provides a convenient connection for your headphones. If you have headphones with a 3.5-mm mini plug you should ask your **ROTEL hi fi Authorized Dealer** for an adapter plug to convert them for use with the headphone jack.

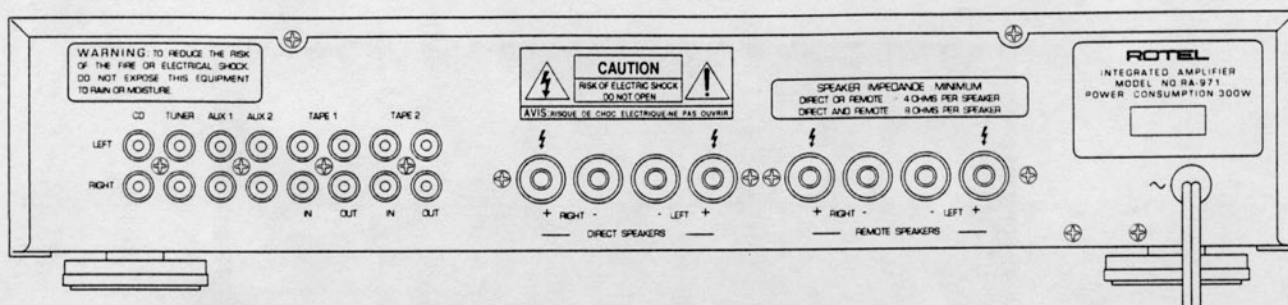
The **VOLUME** control will allow you to turn the **LEFT (L)** and **RIGHT (R)** channels of music up or down in level at the same time. This is a *dual concentric design* and is adjustable for individual volume levels. Hold the front or rear section of the volume control still and rotate the other section to raise or lower the volume in the channel you wish to adjust. Once the relative volume level between the two channels has been adjusted you will be able to raise or lower the volume in both channels simultaneously. Rotation *clockwise* will increase the volume, rotation *counterclockwise* will decrease the volume.

The **RECORDING** selector switch will send the signal *from* the input of your choice to the **TAPE OUT** connections on the back panel of the RA 971. The **RECORDING** selector may be set to the same input as the music you are listening to or it may be set to a different input while you listen to music. *As an example*, you might wish to listen to your CD player while making a recording of a radio program. To do this, choose the source input **TUNER** on the **RECORDING** selector and the **CD** input on the **LISTENING** selector. The **RECORDING** control should be set to the **OFF** position if you are not recording. This setting ensures maximum fidelity and freedom from interference for the RA 971. When you are **DUBBING** (copying from Recorder to Recorder) from one recorder to another the signal will come from **Tape 1** to be recorded by **Tape 2**.

NOTE: The **TAPE 2 TAPE OUT** can not be recorded by a recorder connected to **TAPE 1**.

The **LISTENING** selector switch will select the source that you wish to hear. We have provided inputs for **Aux**

1, Aux 2, Tuner, CD, Tape 1 and Tape 2. The Tuner, CD, Tape 1 and Tape 2 positions are all labeled for your convenience. The Tape 2 position should be used for the recorder you intend to record with the most, as it is capable of dubbing Tape 1 playback as well. The Tape 1 position may be used for the audio outputs (L and R) of a Hi Fi VCR if you wish to play movies or TV shows through your stereo.



Please refer to this drawing of the rear panel of the RA 971 when connecting components or speakers.

CONNECTING COMPONENTS TO YOUR INTEGRATED AMPLIFIER

The back panel has **INPUT** connections and **SPEAKER TERMINALS** for connection to the other components and speakers in your stereo system. The INPUTS are clearly labeled and the left and right channels are designated. Please be certain that the left channel and right channel connections are not reversed. This will not harm anything but it will alter the original perspective of the source material. The CD, TUNER, AUXILIARY 1 and 2 are line level inputs and will accept inputs from an external phono stage, DVD, Laser Disc, CD players, tuners, satellite TV tuner outputs or other line level components. If you wish to use a turntable, we suggest the ROTEL RP 955 and our RQ 970BX Phono Equalizer. These may be connected to Aux 1 or Aux 2.

Connecting your VCR to your stereo system is an increasingly popular way to view TV and movies at home. If your VCR is monophonic then you will need to have a "Y" connector to adapt it to play through both channels of your amplifier. If you are using a monophonic VCR you are missing the true excitement and impact of a *hi fi* VCR signal from rented videotapes.

The TAPE 1 and 2 connections have IN and OUT connections. These are to send a signal to (OUT) the recorder and then to receive a signal back from (IN) the recorder. The labels of various brands of recorders are different but the usual labels are Tape In, REC IN, or Input and Tape Out, REC OUT or Output. The labeling can be confusing sometimes but the idea is to go *from* the RA 971 *to* the recorder and then *return* to the RA 971. Check all connections and read the owners' manual for your recorder if you are in doubt about the labels.

The SPEAKER TERMINALS will accept two pairs of speakers. The **DIRECT** connection has the shortest signal path for the clearest possible sound. If you listen to headphones we suggest the use of the **REMOTE** speaker terminals for your convenience. (CONNECTION NOTE: The DIRECT speaker terminals are always on and will not be turned off by the SPEAKER REMOTE SWITCH or the HEADPHONE jack on the front panel.)

You may connect the speakers with bare wire, banana plugs or 4-mm speaker plugs. (Non CE mark countries) Please be certain to observe the correct polarity of the positive and negative wires. The **RED (+)** speaker terminals are to be connected to the RED or positive terminals on your speakers. The **BLACK (-)** speaker terminals are to be connected to the BLACK or negative terminals on your speakers. If you incorrectly make these connections you will have a vague stereo image and very little bass response from your system.

If you are in doubt about the sound when listening then you should reverse the positive and negative connections on the back of one speaker only. If the image becomes more specific and the bass improves then the speaker connections should be rechecked to ensure correct connection of both speakers. You may also confirm this by placing the speakers face to face 75-mm apart (3") and playing music with strong bass content

as a source. The connection that has the most bass output is the correct connection. *The incorrect connection will have very little sound output as each of the two speakers will attempt to cancel the sound the other is making due to the opposite polarity, and motion, of the drivers.*

If you connect your speakers to the RA 971 with bare wire, strip approximately 1 1/2 mm (~1/2") of the insulation from the end of the wire and connect to the terminal of the amplifier by turning it around the center post of the speaker terminal. The RED or BLACK terminal knob should be turned counterclockwise to extend the terminal for connecting. When you have wrapped the wire around the post, tighten the terminal by turning the red or black knob clockwise to grasp the wire FIRMLY. Ensure that NO LOOSE WIRE is outside the terminal housing. Repeat this operation for all of the terminals. If you use banana plugs or 4 mm plugs they may be connected to the end of the speaker terminals by inserting them into the holes provided. (Non CE mark countries)

HUM AND NOISE IN A STEREO SYSTEM

In any high fidelity stereo installation it is possible for noise to be created by the physical location of some of the components. If your system has hum or excessive noise it is possible to diagnose this before trying to have repairs made to a properly functioning component. If the system only hums with one of the source components, it should be unplugged from the system. Turn the volume down or turn the power off before you unplug the suspected component. If the system still hums after the suspected component has been removed, you may require service. First though, you should disconnect all of the other components *except* the speakers. If there is no hum after this then a source component in the system is either in need of physical relocation, has a bad RCA patch cable or needs repair. Connect the components one by one until the problem reappears. If you are unable to locate the source of the problem, consult your **ROTEL hi fi Authorized Dealer** for advice or service.

A FINAL WORD FROM ROTEL

We have designed this amplifier for high performance using test equipment and the human ear. We believe that both methods are useful in the design of audio electronics. *This is time consuming but we feel that the music benefits from this care and attention to detail.* We realize that there are many choices available and we thank you again for choosing RA 971 to amplify your music. *Enjoy the music!*

SPECIFICATIONS :

Rated power, rms.	(20-20,000 Hz, 0.03%, 8 Ohms)	60Watts
	(20-20,000 Hz, 0.03%, 4 Ohms)	90 watts
Total Harmonic Distortion, (THD)		≤ 0.03%
Intermodulation Distortion, (IMD)		≤ 0.03%
Signal to Noise ratio, all inputs		> 95 dB IHF A
Frequency response		10-100,000 Hz, +1, -3 dB
Tone control response		
Bass		± 6 dB @ 100 Hz
Treble		± 6 dB @ 10 kHz
Input overload level, all inputs		≥ 5 volts
Power Requirement		115 volts 60 Hz
		230 volts 50 Hz
Power consumption		300 watts
Dimensions (W x H x D)		440 x 92 x 347 mm
		17-3/8 x 3-5/8 x 13-11/16"
Weight (net)		6.5 kg, 14.3 lb.

All specifications are accurate at the time of printing. Rotel reserves the right to improvement without notice.

SYSTEM TROUBLESHOOTING HINTS

NO POWER

IS THE AC CORD CONNECTED TO A SWITCHED AC OUTLET?
IS THE SWITCHED AC OUTLET TURNED ON?

NO SOUND

CHECK THE POWER FUSE FOR THE AC OUTLET.
CORRECT INPUT SELECTED? IS THE AMPLIFIER
TURNED ON? IS THE SOURCE COMPONENT TURNED ON?
IS THE SOURCE COMPONENT CONNECTED PROPERLY?
ARE THE SPEAKER WIRES CONNECTED PROPERLY?

NO BASS

IS THE SUBWOOFER AMPLIFIER TURNED ON?
IS THE POWERED SUBWOOFER TURNED ON?
ARE THE "WOOFERS" IN YOUR SPEAKERS DAMAGED?
ARE THE SPEAKERS WIRED CORRECTLY?

POOR TRACKING (CD PLAYER)

IS THE DISC DIRTY OR SCRATCHED? IS THE DISC
SEVERELY WARPED? IS THE DISC SEMI-TRANSPARENT OR
POORLY MADE WITH VISIBLE "PIN" HOLES?

POOR, DULL SOUND WOW & FLUTTER (TAPE DECK)

ARE THE HEADS DIRTY? HEADS MAGNETIZED FROM LONG
USAGE WITHOUT DEMAGNETIZING? ARE THE PINCH
ROLLER AND THE CAPSTAN DIRTY? *CLEAN WITH PURE
ALCOHOL, "Q" TIP COTTON BUDS OR A TAPE DECK
CLEANING KIT. DEMAGNETIZE THE HEADS WITH A HAND
HELD DEMAGNETIZER. DO NOT USE ABRASIVE DRY
CLEANERS!*

DISTORTED BASS

OVERLOADING SMALL SPEAKERS?
TOO LOUD VOLUME "CLIPPING" YOUR AMPLIFIER?

"HUM" IN SYSTEM

AC CORD, VIDEO, DIGITAL AND AUDIO CABLES TOUCHING?
THE AC CORD SHOULD BE SEPARATE FROM SIGNAL CABLES
SIGNAL CABLES LAYING NEAR A LARGE POWER
TRANSFORMER, SUCH AS IN A POWER AMPLIFIER?
DEFECTIVE OR UNSHIELDED SIGNAL CABLES?

OVERHEATING

IS A COMPONENT STACKED ON THE AMPLIFIER?
IS THE AMPLIFIER ENCLOSED IN A SMALL SPACE? A
*MINIMUM OF 3 TO 4" (~8-10 CM) CLEARANCE IS NEEDED
ABOVE THE AMPLIFIER IN A SYSTEM. DO NOT STACK
COMPONENTS ON THE AMPLIFIER. AN AMPLIFIER NEEDS TO
"BREATHE" FREELY TO STAY COOL.*

POOR RECEPTION (FM RADIO)

IS THE ANTENNA CONNECTED PROPERLY? IS THE
ANTENNA MOUNTED AS HIGH AS POSSIBLE? IS THE
ANTENNA ORIENTED FOR BEST RECEPTION? IS THE FM
STATION DISTANT? *AN OUTDOORS ANTENNA MAY BE
NECESSARY. ADJUST THE ANTENNA FOR BEST RECEPTION.*

NOISY RECEPTION (AM RADIO)

IS THE ANTENNA CONNECTED PROPERLY? IS THERE A
LARGE ELECTRICAL MOTOR, COMPUTER OR COMPRESSOR
NEAR THE TUNER OR ANTENNA? *NOISE IS EASILY RECEIVED
IN THE AM BAND. ADJUST THE AM ANTENNA FOR BEST
RECEPTION AND MINIMUM INTERFERENCE.*

CONTINUED PROBLEMS? ASK YOUR ROTEL hi fi Authorized Dealer FOR HELP.

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