

# ROTEL *hi-fi*

## RT 940AX

AM/FM Stereo Tuner

## Owners Manual

English/French/German section included.

Please write the serial number and the purchase date of this RT 940AX for your records in the space provided.

Serial Number \_\_\_\_\_.

Purchase Date \_\_\_\_\_.

# SAFETY INSTRUCTIONS

**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.



**CAUTION**

**RISK OF ELECTRIC SHOCK**

**DO NOT OPEN**



**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.

## Explanation of Graphical Symbols

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user 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 the user to the presence of important operating and maintenance 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. **Heed Warnings** - All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** - All operating and use instructions should be followed.
5. **Water and Moisture** - The appliance should not be used near water - for example, near a bathtub, kitchen sink, laundry tub, in a wet basement or near a swimming pool, etc.
6. **Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.
7. **Wall or Ceiling Mounting** - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

## PORTABLE CART WARNING



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, heat registers, stoves or other appliances (including amplifiers) that produce heat.

10. **Power Sources** - 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. **Grounding or Polarization** - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

12. **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 and plugs, convenience receptacles and the point where they exit from the appliance.

13. **Cleaning** - The appliance should be cleaned only as recommended by the manufacturer.

14. **Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

15. **Object and Liquid Entry** - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.

16. **Damage Requiring Service** - The appliance should be serviced by qualified factory-authorized 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 enclosure damaged.

17. **Servicing** - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified factory-authorized service personnel.

## APPLICABLE FOR U.S.A., CANADA OR WHERE APPROVED TO THE USAGE.

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

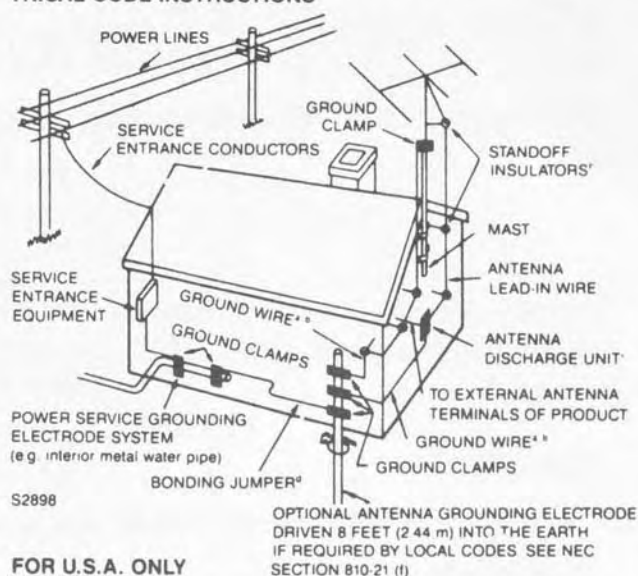
**ATTENTION:** POUR ÉVITER LES CHOCs ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

**Power Lines** — An outdoor antenna should be located away from power lines.

**Outdoor Antenna Grounding** — If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70—1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements from the grounding electrode. See Figure.

- a. Use No. 10 AWG (5.3 mm<sup>2</sup>) copper, No. 8 AWG (8.4 mm<sup>2</sup>) aluminum, No. 17 AWG (1.0 mm<sup>2</sup>) copper-clad steel or bronze wire, or larger, as a ground wire.
- b. Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4—6 feet (1.22 — 1.83 m) apart.
- c. Mount antenna discharge unit as close as possible to where lead-in enters house.
- d. Use jumper wire not smaller than No. 6 AWG (13.3 mm<sup>2</sup>) copper, or the equivalent, when a separate antenna-grounding electrode is used.

## EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS



## A WORD FROM ALL OF US AT ROTEL

We thank you for purchasing our RT 940AX Remote Control AM/FM Stereo Tuner. We have been designing and manufacturing high quality, high performance audio electronics for more than 30 years. This tuner was designed to offer lifelike sound and is a natural extension of our love of music. Our passion for good sound and our love of music is well known. We believe that the music received from our RT 940AX tuner will be a source of pleasure to you for years to come.

Rotel is committed to making quality products to enhance your life. We have designed this tuner to be durable, easy to operate and to have *high fidelity to the original signal broadcast and the music*. Please read the owners manual to ensure that the tuner is installed properly and capable of offering optimum performance. We appreciate being a part of your life.

## INSTALLATION OF THE RT 940AX

Please place the tuner on a **DRY**, level surface away from direct sunlight. Avoid placing the tuner where it will become wet as this will damage the circuits inside. The tuner should be mounted where it will not be subject to high humidity or vibration.

We recommend installing the RT 940AX in furniture designed to house Hi Fi components. This will allow the tuner to be mounted on a shelf of its own. Stacking the tuner on top of an amplifier will subject it to possible high heat and *is not recommended*. Placing it on a separate shelf will also minimize the potential from interference created by other components, particularly CD players. 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.

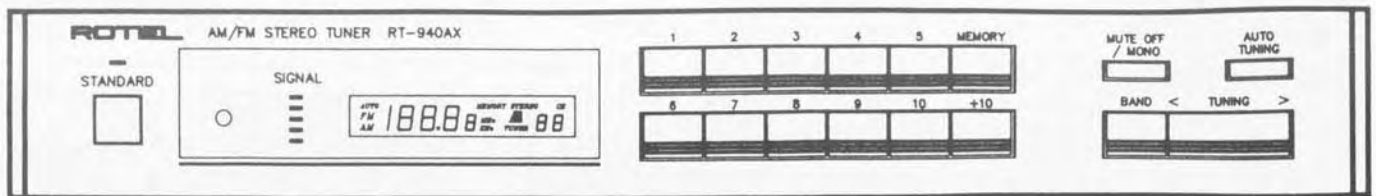
## ELECTRICAL REQUIREMENTS

This tuner is designed to operate on AC voltage and the correct voltage is displayed on the Back Panel. **Do not attempt to operate the tuner with incorrect voltage as this will damage the circuitry and will also void your warranty.** If you are in doubt about the correct voltage for this tuner 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.

There are **NO** user serviceable parts inside the RT 940AX. **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 inside the tuner and possibly void your warranty.

Connect the Power Cord to the AC wall outlet for power. When you wish to disconnect the power cord from the wall socket, always hold the plug firmly and pull on the plug to remove it from the outlet. *Do not unplug the power cord from the wall outlet by pulling on the cord only. This may damage the power cord and create a hazardous condition.* We recommend that the tuner be connected to the mains wall socket, not an extension cord.

If you wish to clean the cabinet of the RT 940AX 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 circuits if they leak into the tuner.



Please refer to this drawing of the Front Panel when reading the section about Controls and the Display on the RT 940AX or the Remote Control Handset.

## CONTROLS ON THIS AM/FM STEREO TUNER

The controls on the RT 940AX are easy to operate. RT 940AX includes a Remote Control Handset to select the main functions on the tuner. We are known to favor simple design and this tuner reflects that ideal while providing the necessary controls.

The **POWER** indicator light will *always be illuminated* when the RT 940AX is receiving power from the AC mains outlet. The **Standby** function will operate *only* if the Power indicator light is illuminated. Push the **POWER** button once, the Tuner will come **ON** and the **SIGNAL** strength indicator will immediately illuminate. Approximately 2 seconds later the **Frequency Display** will illuminate. This delay is normal. Push the **POWER** button again and the Display will go off and the Tuner will be in **STANDBY**.

The **Display** on the RT 940AX has a **SIGNAL** strength indicator to inform you of the relative signal strength being received. This will *vary in level* as you change stations *unless* you are fortunate enough to have *full* signal strength from all the stations in your area. Between the **POWER** button and the **SIGNAL** strength display we have mounted the **RECEIVER** for the Infra red signals from the **Remote Control Handset**. *Do not block this or the Remote Control Handset will not function properly.*

Inside the Display are the indicator lights for the **AUTO** tune function, the **AM** and **FM** band indicator, the **FREQUENCY** display in **MHz** (FM) or **kHz** (AM), **MEMORY**, **STEREO**, **TUNED** and the station preset **CH(ANNEL)** number expressed as digits.

We have the **Station Preset** buttons mounted to the right of the Display and they will recall stations for FM or AM after you have programmed your favorite stations into the **MEMORY**. The RT 940AX will remember up to 20 preset stations, for the difference **AM Band** and **FM Band**. To tune a station higher than 10 will require you to push the **10+** button at the same time as pushing the button for the remainder of the total station number. *For example; if you wish to tune in station 16 on the tuner then you should push the 10+ button and the 6 button at the same time. This is also the manner in which the MEMORY button will function. Press the MEMORY button and the MEMORY indicator light will illuminate in the Display. Then press the station preset number you wish to assign to the station you are tuned to at the present. After 5 seconds the MEMORY function will defeat itself if you have not entered a number.*

The **MUTE OFF/MONO** button will switch the RT 940AX from **STEREO** mode to **MONO** mode and will also defeat the **MUTE** circuit at the same time. This will allow you to receive signals too weak to overcome the **MUTE** circuit due to very low signal levels. Muting is designed to remove the annoying hiss between stations and the pop sounds as you tune in a station.

**NOTE:** The tuner will be in **MONO** when you turn the Power On *the first time*. Push the Mute Off button once to set the tuner to **Stereo** operation during initial installation. This setting will be remembered if the power is interrupted for a period up to a week or so.

The **AUTO TUNING** button will allow the RT 940AX to seek the next station *up or down* the band from the current station you have tuned in. Press the AUTO TUNING button and the **AUTO** indicator light will illuminate in the Display. When a station is properly received the **TUNED** indicator light will come on in the Display. To defeat this function press the AUTO TUNING button again and the AUTO light will go out.

The **BAND** button will change the tuner between **AM** and **FM** bands. The Display will show **kHz** and **AM** when the tuner is set for operation on the AM band. It will display **MHz** and **FM** when set to the FM band.

The **TUNING** button will permit you to start the tuner seeking the next station up or down the band if you are in the AUTO TUNING mode or it will allow you to manually tune to a specific frequency *when AUTO TUNING is defeated*. Push the right side of the TUNING button to tune higher frequencies up the band. Push the left side of the button to tune lower frequencies down the band.

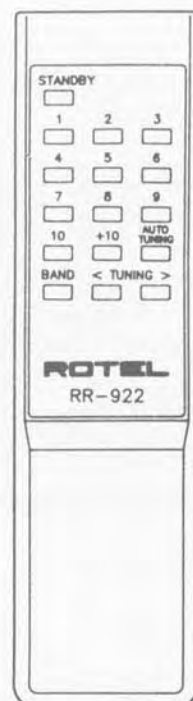
### CONTROLS ON THE REMOTE CONTROL HANDSET RR 922

The **REMOTE CONTROL HANDSET** has a button to control the **STANDBY FUNCTION** for the RT 940AX. Press this once to turn the tuner **ON** and press it again to turn the tuner to **STANDBY**.

The Remote Control also includes **STATION PRESET** buttons **1-10** and **10+**, the **AUTO TUNING**, **BAND**, and the **TUNING** buttons. All of these buttons duplicate the functions on the RT 940AX. (See note below.)

**NOTE: There is a difference in the way the 10+ station preset button functions.** To tune the 10+ preset stations with the Remote Control Handset it is not necessary to push the 10+ button at the same time as the other button for the remainder of the number desired. *For example; to tune the station 16 preset with the Remote Control press the 10+ button and afterwards press the 6 button. If you press the 10+ button and the 6 button at the same time the tuner will not respond to the command.*

To prepare the Remote Control Handset for operation will require the installation of the 2 AA batteries supplied with the remote control. Please be certain to insert the batteries with the correct polarity ( + , - ) to ensure correct operation of the remote control handset.



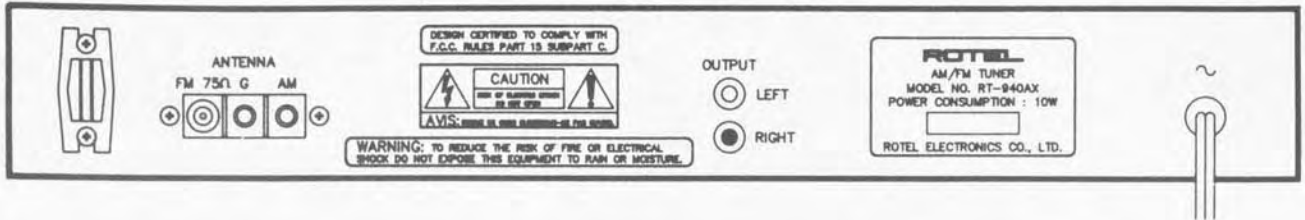
### CONNECTING THE RT 940AX TO YOUR STEREO SYSTEM

The Rear Panel of the RT 940AX has the connections for the **AM** and the **FM ANTENNAE'S** and also has the RCA **OUTPUT** connections to connect the tuner to your stereo system. We include a small FM antenna and an AM antenna with the RT 940AX. *We strongly recommend the use of an outdoor antenna if this is possible as it will greatly improve reception.* Ask your **ROTEL hi fi AUTHORIZED DEALER** for advice about external antennae's.

The included FM antenna should be extended and then positioned for best reception. **Small differences in location of the antenna can make a significant difference in the reception of FM signals.** Please experiment with the placement to ensure the best reception of FM stations.

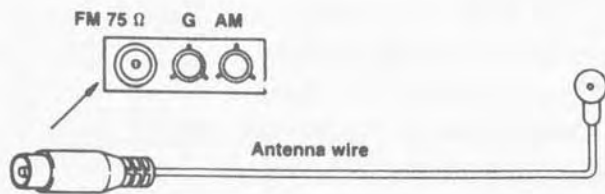
The AM antenna should be mounted for best reception and also the location should be chosen to minimize noise reception. Noise is inherent in the AM band, unfortunately, and is one of the reasons for the popularity of the FM radio band.

The OUTPUT connections should be connected to the Tuner input on your integrated amplifier, preamplifier or Surround Sound Processor. Be certain to ensure that the Left (L) and Right (R) channels are connected correctly. The sound may be improved by substituting high quality RCA patch cables for the ones supplied with the tuner. Auditioning various cables is recommended.

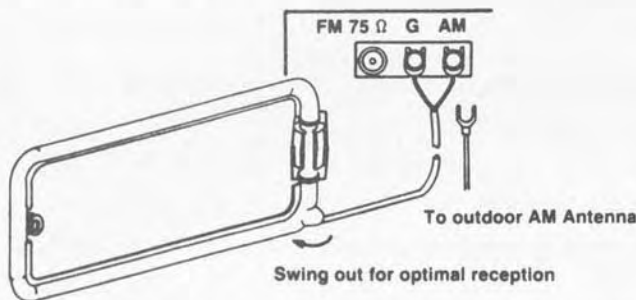


Please refer to this drawing of the Rear Panel when reading the section regarding the Antenna connection and connection to your stereo integrated amplifier or preamplifier.

• **INDOOR FM ANTENNA (Included)**

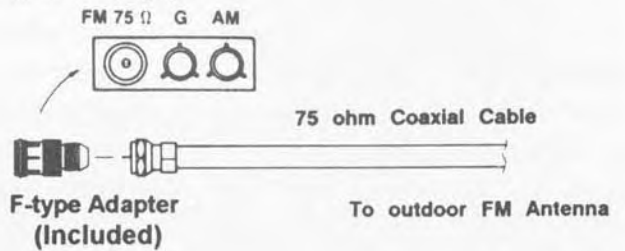


• **AM ANTENNA (Included)**

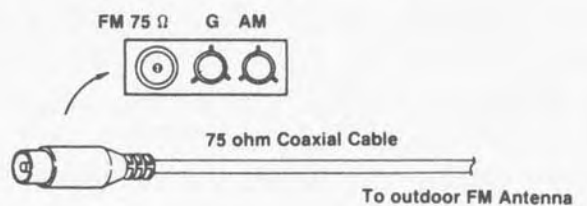


• **OUTDOOR FM ANTENNA**

(Applicable for U.S.A., Canada or where approved to the usage)



(Applicable for European version)



Please refer to this drawing of the indoor / outdoor FM Antenna and AM Antenna connection.

**A FINAL WORD FROM ROTEL ABOUT THIS TUNER**

We have designed this tuner to measure well with test instruments and with the human ear. We feel that both test 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 in the market today and we thank you again for choosing our RT 940AX Tuner to receive music from your favorite radio stations. *Enjoy the music!*

## SPECIFICATIONS RT 940AX AM/FM STEREO TUNER

### FM SECTION (75 ohm antenna)

Usable Sensitivity	12.5 dBf / 1.2 $\mu$ V (75 ohms)
50 dB Quieting Sensitivity	
Mono	11 dBf / 2 $\mu$ V (75 ohms)
Stereo	34.5 dBf / 30 $\mu$ V (75 ohms)
Signal to Noise ratio (@ 65 dBf)	
Mono	75 dB
Stereo	70 dB
Harmonic Distortion (@ 65 dBf, 1 kHz)	
Mono	0.08%
Stereo	0.3%
Frequency response	30 Hz-15,000 Hz $\pm$ 1.5 dB
Stereo separation (100 Hz / 1 kHz / 10 kHz)	35 dB / 40 dB / 30 dB
Output level	720 mV
Sub carrier product ratio	60 dB
Alternate channel selectivity ( $\pm$ 400 kHz)	63 dB
Capture ratio	1.5 dB
Spurious response ratio	95 dB
Image response ratio	65 dB
IF response ratio	90 dB
AM suppression ratio	60 dB
Antenna input impedance	75 ohm

### AM SECTION (Loop antenna)

Usable Sensitivity	350 $\mu$ V / m
Selectivity	27 dB
Signal to Noise ratio	60 dB
Image response ratio	40 dB
IF response ratio	40 dB
Power requirement	115 volts AC 50/60 Hz 230 volts AC 50/60 Hz
Power consumption	10 watts
Weight	3.6 kg / 7.9 lbs
Dimensions	440 (w) x 72 (h) x 284 (d) mm 17-3/8" (w) x 2-7/8" (h) x 11-1/4: (d)

All specifications are correct at the time of printing. Rotel reserves the right to make improvements without notice.