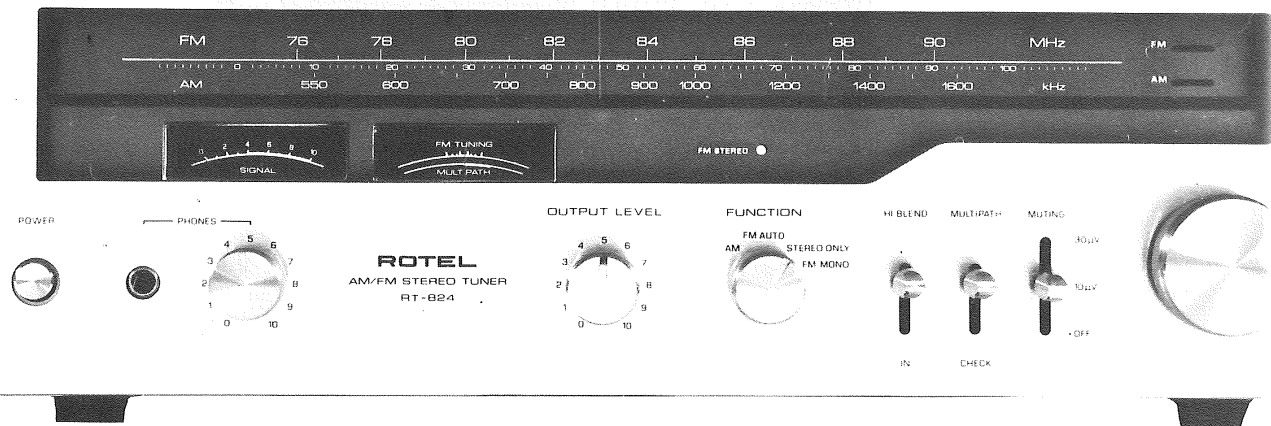
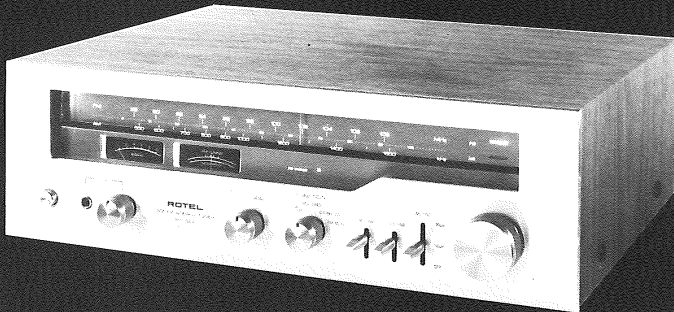


# Owner's Manual

AM/FM Stereo Tuner

# RT-824



## ROTEL

### INTRODUCTION

We would like to take this opportunity to congratulate you for purchasing our Stereo Tuner. 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.

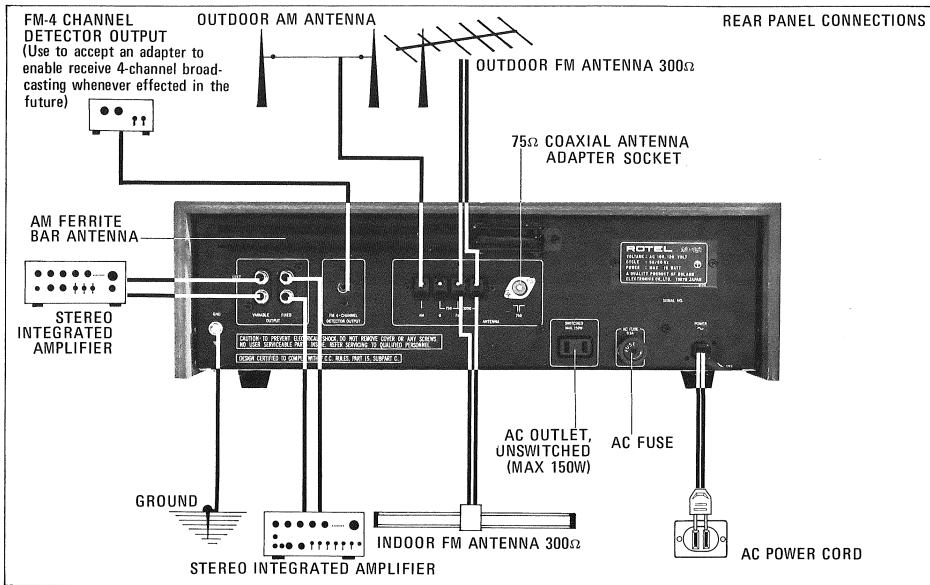
We have fitted every control and feature you could conceivably need. Designed for both versatility and ease of operation, this piece of equipment will add professional studio flexibility to your Hi-Fi sound center.

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.

**WARNING - TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**



## INSTALLATION

**IMPORTANT:** Do not apply power to this unit without first making sure that all the necessary connections are properly 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 unit. For best possible reception, extend the loopstick fully away from the tuner chassis. If you live in a difficult reception area, the use of an external or outdoor antenna may be desirable. Connect a single wire antenna lead to the terminal marked AM on the rear chassis. 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 unit, the antenna wire supplied is sufficient for most locations. Connect this to both FM antenna terminals 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 a 75-ohm unbalanced coaxial cable for antenna, you may connect between 75-ohm and G terminal posts with the outer conductor or shield of the cable connected to the G terminal or use an adapter holder and plug into the 75Ω adapter socket. Follow instruction on coaxial cable on further details.

### GROUND

Although it is not necessary to do so, but if you wish to ground the tuner, connect a wire from the terminal designated GND on the rear chassis to the ground terminal on your amplifier or to a nail driven into the earth.

### VARIABLE (Output Level Control) AND NON-VARIABLE OUTPUTS

There are two pairs of output jacks designated LEFT and RIGHT on the rear chassis. The left hand pair is a standard, non-variable output for use with most standard amplifiers. These pair of output should be connected to the corresponding left and right input (TUNER or AUX) jacks on your amplifier. For your convenience, the connecting cables for this purpose are supplied with this unit.

The right hand pair is a variable output of which output level can be varied from 0 to 0.3V (30%, 400Hz) for AM and from 0 to 1.5V (100%, 400Hz) for FM with the out-

put level control on the front panel. This output is for use with amplifiers whose input level requirements are different from the standard amplifiers. The control as its left most position is 0 output. Turning it to the right will increase the output level proportionately, and at its right most position, the output level will be at maximum. To achieve appropriate output level for your amplifier's input requirement, set the control to the position where the sound from the speakers is equally loud as when a record player is played through your amplifier (with the volume setting set at the same level).

### AC POWER INPUT CORD

Your tuner has been specially designed so that it may be connected to a variety of power sources. You may connect the AC Power Input Cord directly to a wall plug, in which case the power will be supplied to the tuner independent of your amplifier. Or, you may connect it to your amplifier's switched or unswitched AC outlet. If it is connected to a switched outlet, by leaving the power button of the tuner on, you will be able to maintain switching control for the tuner with your amplifier. If it is connected to an unswitched outlet, like connecting to a wall outlet you must use the tuner's own power button for switching control.

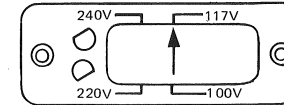
## VOLTAGE SELECTION

(not available for U.K. and Scandinavia)

The tuner 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 name plate on the rear panel 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

For power the unit requires the normal house electrical current (AC). Simply plug the unit to a wall outlet.

If in any doubt about connecting to the power source, consult a qualified electrician.

**CAUTION** - Do not apply power to the equipment without first making sure that speakers are connected properly and that the unit's VOLUME control is set to minimum. If you live in U.K. and your unit comes with 3-core cord without a plug, be sure to read the following note.

## FRONT PANEL CONTROLS

① **TUNING KNOB:** heavy flywheel action allows easy and precise tuning on both AM and FM stations.

② **MUTING SWITCH:** activates a circuit which reduces audible interstation noise when tuning from station to station in FM at two muting threshold level steps - 10μV or 30μV. Since very weak signals may be muted at the same time, leave the control at OFF position when you wish to pick up very weak stations.

③ **SOURCE SELECTOR CONTROL:** enables you to select the program you desire from AM, FM STEREO, STEREO ONLY (FM) and FM MONO.

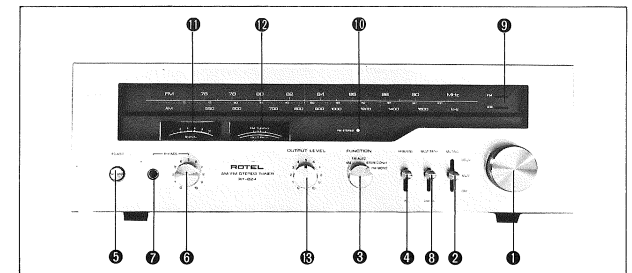
④ **HI BLEND SWITCH:** allows you to reduce annoying noise mixed in with signal. This switch, however, should not be always left at OFF position unless it is necessary.

⑤ **POWER SWITCH:** supplies power to the tuner and to any component connected to the switched AC outlet on the rear chassis. When the switch is ON, dial scale and meters will be illuminated.

⑥ **HEADPHONES VOLUME LEVEL CONTROL:** allows you to regulate the sound level fed into your headphone connected to this unit's HEADPHONE RECEPTACLE. Rotate clockwise for increase in volume level.

## OPERATION

Having made all connections according to the preceding instructions and become familiar with the functions of the unit, you are ready to operate the equipment. Apply power by plugging into the power source and pushing in the POWER button.



⑦ **HEADPHONES RECEPTACLE:** simply plug in your headphone lead for private listening. You may turn off speakers by using controls on your amplifier if wish to listen to headphone only.

⑧ **MULTIPATH SWITCH:** allows you to reduce FM interference noise caused by multipath characteristic. Flip the switch ON and relocate your FM antenna (usually "T"-shape dipole antenna) until the pointer of multipath meter (built-in with FM tuning meter) deflects least and approaches the center. Be sure to leave the switch OFF when not in use.

⑨ **FUNCTION INDICATOR LIGHT:** visually indicates the selected program FM or AM.

⑩ **STEREO INDICATOR LIGHT:** automatically lights up on the dial glass to visually indicate whenever an FM stereo broadcast is tuned.

① **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.

② **FM 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. It is also used as the multipath meter in conjunction with the multipath switch.

③ **OUTPUT LEVEL CONTROL:** see "VARIABLE AND NON-VARIABLE OUTPUTS" section for operation.

## RECEIVING FM AND AM BROADCASTS

### 1. FM STEREO

Under normal use for all FM broadcasts the function selector control should be placed in the FM STEREO position. This tuner 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 tuner will automatically switch on the multiplex section and you will hear the broadcast in full stereo. Should the station conclude broadcasting in stereo, your tuner will automatically switch back to monophonic reception.

## 2. STEREO ONLY

Should you wish to pick up only stereo stations, set the function selector control to the STEREO ONLY position. A special circuit is automatically set for you to tune in only stereophonic broadcasts discarding monophonic.

## 3. FM MONO

Should you wish to receive monophonic signal, or weak stereo signal whose quality has been degraded by noise and poor signal conditions and so may be necessary to be heard in mono, turn the function selector control to FM MONO.

Tune for the desired station with the tuning knob, using the tuning meters to assure the strongest possible reception.

## 4. AM

Should you wish to listen to AM broadcasts, turn the function selector control to AM. Though AM gives only monophonic signal, the tuner will convert the signal to

two channels enabling you to listen from two speakers as in stereo.

### CAUTION ON Furnished Convenience AC Outlet

- (a) Do not insert or remove plug from any convenience AC outlet supplied on the appliance while the appliance is connected to power. Also do not insert foreign object, other than a proper plug, into the convenience AC outlet.
- (b) Do not connect other appliance(s) to convenience AC outlet if its/their total power consumption exceeds maximum rated watts labeled next to the outlet.

### MUTING

Whenever you tune for an FM station, you will hear rather loud interstation noise; this is normal for all highly sensitive FM tuners and is not peculiar to this tuner.

To reduce this bothersome interstation noise, your tuner is equipped with a unique MUTING LEVEL CONTROL.

Muting can be effected by turning the control to either 10 $\mu$ V or 30 $\mu$ V position to suit your need. If you wish to tune in a relatively weak signal, set the control at 10  $\mu$ V so that muting will not suppress all the weak signals. For tuning in strong stations, the control may be set at 30 $\mu$ V.

The MUTING LEVEL CONTROL should normally be turned OFF when you have tuned in the desired station, but it may be left at either on position without causing perceptible effect upon program reproduction. However, if you have tuned in a very

weak station, the control should definitely be turned OFF to assure strongest possible signal reception.

### 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 this 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.

## SPECIFICATIONS

### FM SECTION

FM Sensitivity: IHF . . . . . 1.6 $\mu$ V  
 50 dB Quieting . . . . . 3 $\mu$ V  
 Signal-to-Noise Ratio . . . . . >70dB  
 Harmonic Distortion: Mono . . . . . < 0.2%  
                                   Stereo . . . . . < 0.4%  
 Selectivity: Alternate Channel . . . . . 80dB  
 Capture Ratio . . . . . 1.0 dB  
 Stereo Separation: At 1 kHz . . . . . 40 dB  
 Supurious Response Rejection . . . . . > 110 dB  
 IF Rejection . . . . . > 110 dB  
 Image Rejection . . . . . > 110 dB  
 AM Suppression . . . . . 55 dB  
 SCA Suppression . . . . . > 80 dB  
 Muting Threshold . . . . . 10 $\mu$ V, 30 $\mu$ V (fixed)  
 Output Level: fixed . . . . . 775 mV  
                                   variable . . . . . 0-1.5V

Dial Calibration Tolerance . . . . .  $\pm$  200 KHz

### AM SECTION

AM Sensitivity: IHF . . . . . 150 $\mu$ V/m  
 Image Rejection . . . . . > 80dB  
 IF Rejection . . . . . > 80dB  
 Signal-to-Noise Ratio . . . . . 55dB  
 Selectivity . . . . . 40dB

### GENERAL

Antenna (aerials): FM . . . . . 300 $\Omega$  bal./75 $\Omega$  unbal.  
                                   AM . . . . . ferrite loopstick  
 Dimensions: overall (WxHxD mm) 430 x 140 x 330  
 Weight: net . . . . . 9 Kg/20 lbs.

Note: features and specifications subject to changes for improvement without notice.

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