

owner's manual

Quality. Uncompromised

ROTEL

RX-850A

AM/FM STEREO RECEIVER

RX-850AL

LW/MW/FM STEREO RECEIVER

ENGLISH.....1

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

Write your SERIAL NUMBER here.

The number is located near the name plate on the rear panel.

SAFETY INSTRUCTIONS

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



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 (servicing) instructions in the literature accompanying the appliance.

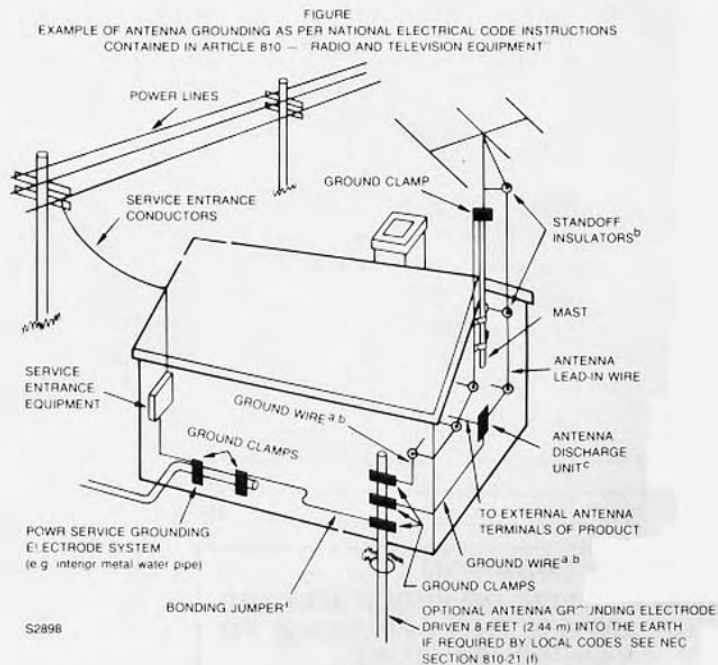
"Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical."

- 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, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
- 6. Carts and Stands** — The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 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, 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 at 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 openings.
- 16. 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 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 service personnel.

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 for the grounding electrode. See Figure.



^aUse No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as a ground wire.

^bSecure antenna lead-in and ground wires to house with stand-off insulators spaced from 4—6 feet (1.22—1.83 m) apart.

^cMount antenna discharge unit as close as possible to where lead-in enters house.

^dUse jumper wire not smaller than No. 6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).

FOR U.S.A. ONLY

ENGLISH

AM/FM STEREO RECEIVER RX-850A
LW/MW/FM STEREO RECEIVER RX-850AL

INTRODUCTION

We at Rotel want to thank you for purchasing our audio product.

Rotel audio products are designed to use the latest electronic technology, and they incorporate our long experience as a specialist manufacturer of audio equipment. We are confident that you will find satisfaction in the high quality sound and top performance, and that you will find pleasure in the functional beauty achieved through human-engineering concept. Before starting operation, please read this instruction manual thoroughly and acquaint yourself with the proper mode of using the unit and all its connections.

We hope you will enjoy top-notch performance for many years to come.

BEFORE ENJOYMENT/POWER SUPPLY

Follow the instructions below for maximum safety:

1. Use a wall outlet for power supply

Be sure to connect the AC line cord to a house-hold wall outlet. Be certain that the outlet voltage matches the electrical rating of the unit, found on the rear panel name plate.

2. Connecting and removing AC cord

Be sure to connect or disconnect the AC line cord only after turning off the power switch to prevent possible shock noise or damage to the speakers.

3. Ventilate the unit well

Never block any ventilation holes at the top and bottom of the unit. Be sure also to provide ample ventilation space around the unit. Poor ventilation may result in damage due to excessive heat.

4. Do not open the cabinet

In order to avoid electric shock or damage to the component, never open the cabinet. If a foreign object falls inside the unit by mistake, turn the power off, disconnect the wall plug, and consult a qualified electrician or your dealer.

5. Installation

Be sure to place the unit in a level and flat place where it is free from humidity, vibration, high temperature and not exposed to direct sunlight. Be careful not to place the unit in a highly enclosed place such as near a wall or on a bookshelf. A poor ventilation will cause undesirable effects to the unit.

6. Moving the unit

When transporting, remove the AC cord from the wall outlet and all other connected cords on the rear panel to prevent wire breakage and short circuits.

7. If the unit gets wet

If the unit should get wet, immediately disconnect the AC cord, and consult your dealer or a qualified electrician.

8. Cleaning and maintenance

Do not use chemicals such as benzine or thinners on the front panel. Always use a soft, dry cloth to clean the unit.

9. Owner's manual

Keep the owner's manual near the unit, and record the serial number (found on the rear panel) on the cover.

CAUTION:

To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

EXCLUSIVE NOTE FOR U.K.

If your unit comes with a 2-core cable without a plug, make certain live and neutral leads are connected to the proper terminals. Check that the terminals are screwed down firmly and no loose strands of wire are present.

IMPORTANT: The wires in this mains lead are coloured in accordance with the following code:

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 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.

SPEAKERS

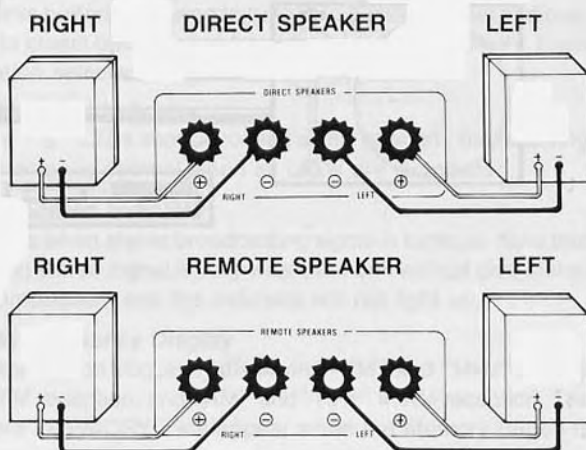
Use speaker systems with impedance ratings of 4-16 ohms, when you hook up 2 sets of speaker systems, be sure to speakers with ratings of 8-16 ohms. Before hooking up your speaker system, check its impedance, which should be indicated either on the back of the speaker, or in the speaker instruction manual.

HOOKING UP SPEAKERS

On the rear panel of the RX-850A are two sets of speaker terminals, "DIRECT" and "REMOTE", to which two speaker systems may be connected. Connect the speaker leads of the right-hand speaker to terminals RIGHT, and the speaker leads of the left-hand speaker to terminals LEFT. Make sure that the "+" speaker lead is connected to the "+" terminal, and the "-" lead to the "-" terminal.

Strip 1.0cm (3/8") of the polyvinyl chloride insulation from the end of each speaker lead. Twist the exposed strands tightly, and secure the end with a touch of solder.

Note: When only one pair of speakers is used, be sure to connect them to DIRECT terminals, which is "straight-path", so headphone circuit is not connected. If wish to listen to headphone privately, connect the remote speaker terminals and use the speaker remote button on front panel to turn speaker off.



ANTENNA INSTALLATION AND CONNECTION

FM Antenna

Proper installation of antenna is the key to smooth signal reception. To install the attached T-shape indoor antenna, stretch it taut and secure horizontally along a wall or the like in a location where signal reception is optimal. Securely connect the antenna to FM antenna terminals marked "300Ω" on the rear panel if outdoor type FM antenna is installed, the T-shape antenna is not necessary. For proper use of your outdoor FM antenna, follow the instructions below.

1. Be sure to select the most appropriate type of antenna for the signal reception conditions in your area.

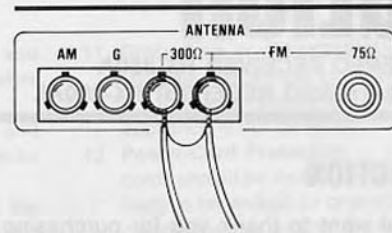
2. A 75-ohm coaxial cable is recommended in connecting the antenna to the unit.

3. Set the antenna in a position as high as possible if buildings, mountains or other obstructions nearby affect reception.

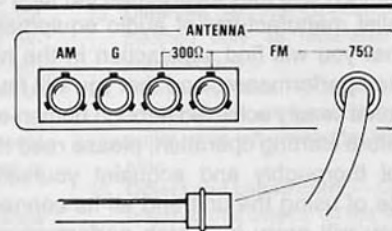
AM Antenna

The loop antenna is provided for optimum AM reception. Attach the loop antenna onto the antenna holder on the rear panel, and connect the lead wires to the antenna screw terminals marked "GND" and "AM". If an outdoor antenna is desired for better reception due to difficult reception area, connect such antenna to the same screw terminals as the loop antenna. Please note that the loop antenna should be left connected to the terminals even when the external antenna is connected.

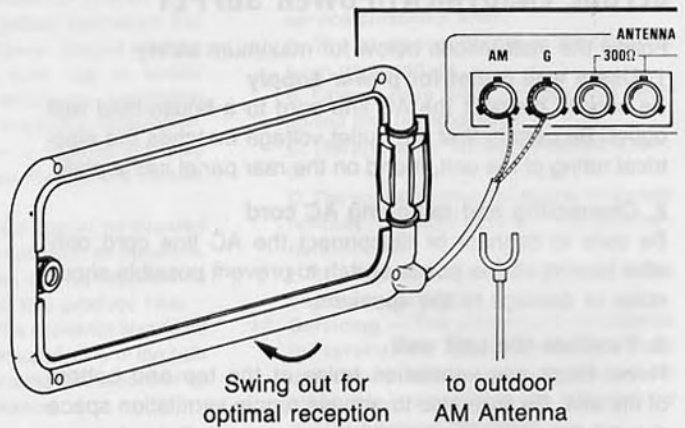
300Ω T-SHAPE FM ANTENNA



75Ω COAXIAL FM ANTENNA



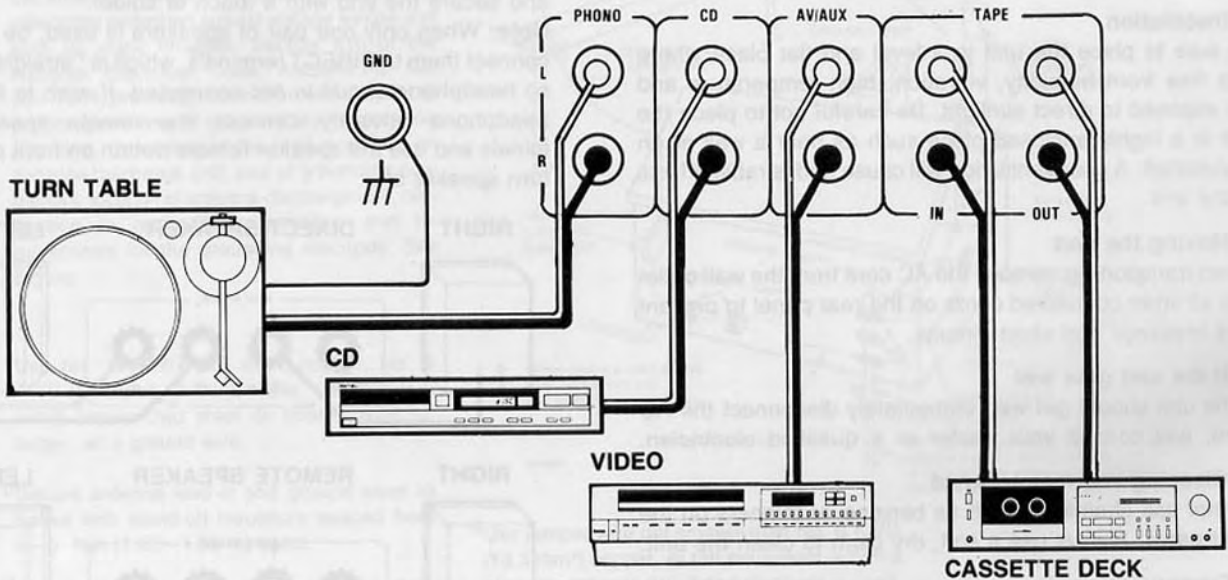
LOOP AM ANTENNA

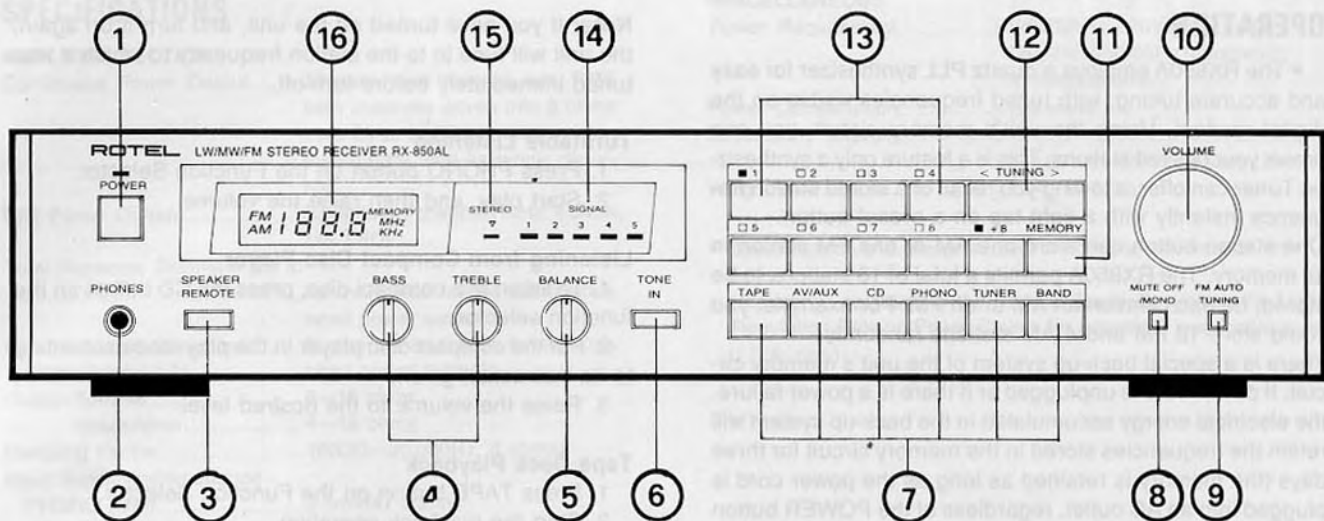


IMPORTANT: AM loop antenna must be always left connected to AM terminal, even when outdoor antenna is connected.

CONNECTING COMPONENTS

Connect all necessary audio components to the rear panel of the unit, using RCA pin cords. See the illustration for properly completed connections. When connecting RCA pin cords, be sure that L (left) and R (right) markings on each component are matched correctly. Connect the grounding wire of the turntable to the terminal marked GND on the receiver.





SWITCHES AND CONTROLS

(1) Power Button

This button turns on the unit. The LED indicator above it will glow when the power is on. Press the button a second time to turn off the power.

(2) Headphone Jack

Plug your headphones into this jack for private listening. When using headphones, remote speaker button should be in released (OFF) position so that sound is emitted only from the headphones. Volume level of headphone sound can be controlled with the volume control.

(3) Speaker Remote Button

Press the button to activate the speaker system connected to REMOTE speaker terminals on the rear panel. Release the button OFF to cut off sound from remote speakers.

(4) Bass and Treble Controls

These knobs allow you to regulate frequency response. Use them to tailor your favorite sound. The knob labeled BASS is used for low frequency range, and the knob labeled TREBLE is high frequency range. Rotate each knob clockwise to boost the response, and counterclockwise to reduce it.

(5) Balance Control

In the central position, sound is produced in equal level from both speakers, while turning it to the right decreases the sound from the left speaker, and turning it to left decreases the sound from the right speaker.

(6) Tone In Button.

Permits you to deactivate the tone control circuit to provide regulation of frequency response when in ON position.

(7) Function Selector

The function selector is used to select program sources you wish to listen to.

TAPE:

When playing the connected cassette recorder.

AV/AUX:

When playing the connected video cassette recorder or video disc player.

CD:

When playing the connected compact disc (CD) player.

PHONO:

When playing the connected turntable.

TUNER:

When listening to AM/FM, LW/MW/FM broadcast.

BAND:

When listening to AM or FM, LW or MW or FM broadcast.

(8) FM Mute Off/Mono Button

When this button is pressed to ON, any FM broadcast is received monaurally. Be sure to leave the button in the released (OFF) position during normal stereo FM reception. In the OFF position, interstation noise generated when tuning in an FM station will be reduced.

(9) FM Auto Tuning Button

Depress this button change FM tuning mode from manual to automatic and it will be automatic scanning of FM Band.

(10) Volume Control

This knob regulates the volume level. Rotate the knob clockwise to raise the volume level, and counterclockwise to reduce it. When the knob is tuned fully counterclockwise, no sound is produced. Always have the volume control set to minimum before you turn on power.

(11) Memory Button

To enter a given station frequency into the unit's memory circuit, press this button first, and then tap the desired station button. The indicator in the fluorescent will be lit while in activation.

(12) Tuning Up/Down Button

Used to tune in a desired broadcasting station. Press the left part of the button (marked <) to tune in lower frequencies than the reading on the frequency display, or press the right part (marked >) to tune in higher frequencies.

(13) Station Buttons

These buttons are used to tune in to desired preset stations, or to preset given station frequencies in unit's memory. Each station selected will be indicated by LED.

(14) Signal Indicator

The 5 LEDs show incoming signal strength; the receiving condition is optimal when all LEDs are illuminated.

(15) Stereo Indicator

Glow when stereo broadcasting signal is tuned in. Note that when stereo signal is very weak, the unit will not give stereo reproduction, and the indicator will not light up.

(16) Frequency Display

In the station frequency displaying "FM" and "MHz" appear in FM reception, and "AM" and "KHz" in AM reception. The word "MEMORY" will appear when the Memory Button is pressed.

OPERATION

- The RX850A employs a quartz PLL synthesizer for easy and accurate tuning, with tuned frequencies visible on the digital readout. Using the unit's memory circuit, you can preset your desired stations. This is a feature only a synthesized Tuner can offer, allowing you recall of a stored station frequency instantly with a light tap on a preset button.

One station button can store one AM or one FM station in its memory. The RX850A permits a total of 16 stations to be stored, be each station an AM or an FM. For example, you could store 12 FM and 4 AM stations randomly.

There is a special back-up system of the unit's memory circuit. If power cord is unplugged or if there is a power failure, the electrical energy accumulated in the back-up system will retain the frequencies stored in the memory circuit for three days (the memory is retained as long as the power cord is plugged into an AC outlet, regardless of the POWER button on/off). If you leave the power cord unplugged for over three days, the stored stations will be lost.

- Before commencing operation, check to see that all connections are properly made.

- Always be sure to set the volume control to the minimum position before turning on power.

- Push Remote Speaker button on if the remote speaker system is used.

- Set the tone controls with Tone In button as desired.

Radio Listening

1. Press TUNER button on the Function Selector, and select AM or FM using the BAND button.

2. Tune in to the desired station using the tuning or the preset station buttons.

3. Raise the volume to the desired level.

TUNING

The unit is designed to permit three modes of tuning: FM Auto tuning, manual tuning, and preset memory tuning.

• FM Auto Tuning (for FM Reception Only)

Set FM AutoTuning button to the depressed position. Press DOWN or UP part of the Tuning switch. Automatic scanning of FM band begins. Scanning stops when it reaches a point where the input signal exceeds a certain acceptable level. The receiving frequency is held on the readout. To tune in to another station, press DOWN or UP part of the Tuning switch according to the frequency of the desired station.

• Manual Tuning

Set FM AutoTuning button to the released position. A touch of the tuning switch, on DOWN or UP part, will shift the tuning frequency in specified increments. If you keep the switch pressed down, the frequency will change continuously. Release the switch to stop frequency change.

• Preset Memory Tuning

Tune in to the desired station in either auto or manual tuning mode. Press the Memory button, then press any station button, 1 through 16, to enter the frequency into the memory circuit. Thereafter, you may recall the same frequency any time simply by pressing the same button. Note that once the Memory button is pressed, you must press the appropriate station button within several seconds to enter the station frequency. If more time elapses before you press the station button, the memory circuit will be deactivated (MEMORY indicator turns off) and the entry cannot be made. In that case, start again, following the above procedures. Which should also be followed when changing the station preset for a given station button.

Note: If you have turned off the unit, and turn it on again, the unit will tune in to the station frequency to which it was tuned immediately before turn-off.

Turntable Listening

1. Press PHONO button on the Function Selector.
2. Start play, and then raise the volume.

Listening from Compact Disc Player

1. To listen to a compact disc, press the CD button on the function selector.

2. Put the compact disc player in the play mode according to its instruction given.

3. Raise the volume to the desired level.

Tape Deck Playback

1. Press TAPE button on the Function Selector.

2. Start the playback operation.

3. Raise the volume to the desired level.

AV/AUX Playback

1. Connect audio output from your TV monitor or video cassette recorder, or another CD player to the AV/AUX terminals on the rear panel.

2. Press AV/AUX button on.

3. Start the play back operation.

4. Raise the volume to the desired level.

Recording Program Source

Play the desired program source according to the procedures noted above. The signal from the source will appear at TAPE OUT terminals on the rear panel. Put the tape deck in the recording mode to record the signal. During recording, manipulating the volume control, tone controls, etc. will have no effect on the signal being sent through the terminals.

HUM AND NOISE

In any high fidelity installation, hum may be caused by the interconnection of a turntable, tuner and amplifier, and speakers as the result of wiring, different grounding or locations of components.

If hum is experienced with your unit, disconnect everything but the speakers from the unit. Plug in the turntable and if hum or howling appears, move the turntable away from the speakers as much as possible.

Note hum may also be induced by defective cable connections or by running the cables too close to strong AC field. When your unit picks up noise 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 noise. 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 the cause consult your dealer or a qualified electrician.

VOLTAGE SELECTION

Not available for U.K., Canada and Scandinavia

The unit is a variable voltage equipment that can run on 120V, 220V or 240V power supply. Your unit should already be preset at the proper voltage for use in your area. However, if your move to an area where the power supply voltage is different, consult your dealer.

SPECIFICATIONS

AMPLIFIER SECTION

Continuous Power Output	50 watts* per channel, min. RMS both channels driven into 8 ohms from 20 to 20,000Hz with no more than 0.03% total harmonic distortion.
DIN Power Output	50 watts per channel (1kHz, 4 ohms, 1% THD)
Total Harmonic Distortion (20 to 20,000Hz)	No more than 0.03% (continuous rated power output)
Intermodulation Distortion (60Hz:7kHz = 4:1)	No more than 0.05% (continuous rated power output)
Output: Speaker	8-16 ohms
Headphone	4-16 ohms
Damping Factor	180(20-20,000Hz, 8 ohms)
Input Sensitivity/Impedance	
PHONO (MM)	2.5mV/47 kohms
CD, VIDEO	150mV/47 kohms
TAPE	150mV/47 kohms
Overload Level (THD 0.5%, 1kHz)	
PHONO	200mV (MM)
TAPE, CD, VIDEO	5V
Frequency Response	
PHONO	20 to 20,000Hz, ± 0.3 dB (RIAA STD)
TAPE, CD, VIDEO	20 to 30,000Hz ± 0 dB, -1.0dB
Tone Control	
BASS	(100Hz) ± 3.5 dB
TREBLE	(10kHz) ± 3.5 dB
Signal-to-Noise Ratio (1HF, A network)	
PHONO	80dB (MM)
TAPE, CD, VIDEO	100dB

FM TUNER SECTION

Usable Sensitivity (mono)	10.8dB/0.95 μ V (75 ohms)
DIN Sensitivity (26dB S/N, 75 ohms)	
50dB Quieting Sensitivity	
Mono	15.2dB/1.5 μ V (75 ohms)
Stereo	37.2dB/20 μ V (75 ohms)
Signal-to-Noise Ratio (at 65dBf)	
Mono	80dB
Stereo	75dB
Harmonic Distortion (at 65dBf)	
1kHz	0.07% (mono), 0.25% (stereo)
Frequency Response	30 to 15,000Hz, +1dB, -1dB
Capture Ratio	1.0dB
Alternate Channel Selectivity (± 400 kHz)	63dB
Spurious Response Ratio	95dB
Image Response Ratio	70dB
IF Response Ratio	95dB
AM Suppression Ratio	58dB
Stereo Separation 100Hz/1kHz/10kHz	43dB/46dB/38dB
Subcarrier Product Ratio	60dB

AM TUNER SECTION	MW	LW(RX-850AL)
Sensitivity	350 μ V/m	750 μ V/m
Selectivity	35dB	35dB
Signal-to-Noise Ratio	60dB	60dB
Image Response Ratio	40dB	40dB
IF Response Ratio	40dB	40dB

MISCELLANEOUS

Power Requirement	120V/60 Hz, 220V/50 Hz, or 120, 220, 240V/50-60Hz (depending on destinations)
Power Consumption	180 watts
Dimensions (overall)	444(W) x 86(H) x 346(D) mm 17-1/2" x 3-3/8" x 13-5/8"
Weight (net)	7.0kg/15.4 lbs.

- Specifications and design subject to possible modification without notice.
- *Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers (applicable to the U.S.A. only).