owner's manual

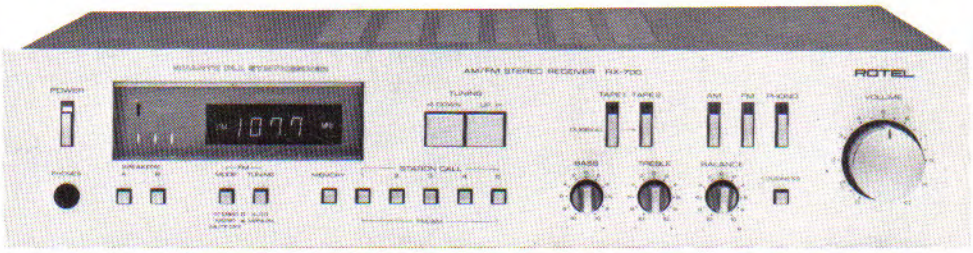


Photo: RX-700

Quality. Uncompromised.

ROTEL®

RX-700

QUARTZ PLL SYNTHESIZER
AM/FM STEREO RECEIVER

RX-700L

QUARTZ PLL SYNTHESIZER
MW/LW/FM STEREO RECEIVER

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.

ENGLISH

QUARTZ PLL SYNTHESIZER STEREO RECEIVER RX-700/RX-700L

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 directly to a household wall outlet, and not to an auxiliary outlet on another component. 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. 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.

4. 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.

5. 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.

6. Turn the volume control initially to minimum.

When lowering the tonearm of your turntable onto a record, an excess of current in the lower frequency range may cause damage to the speakers. Always minimize the volume setting initially.

7. 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.

8. If the unit gets wet

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

9. 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.

10. Owner's manual

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

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

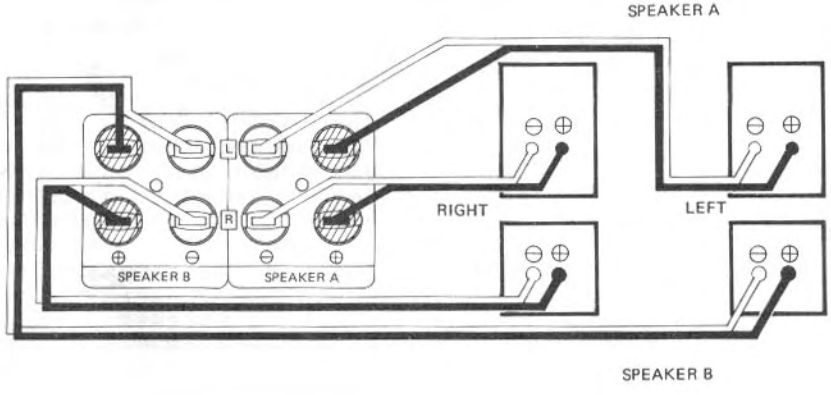
The unit allows hookup of two speaker systems. Use speaker systems with impedance ratings of 8-16 ohms. Before hooking up your speaker system, be sure to check its impedance, which should be indicated either on the back of the speaker, or in the speaker instruction manual.

HOOKING UP SPEAKERS

On the rear panel of the RX-700 are two sets of speaker terminals, "A" and "B", to which two speaker systems may be connected. Connect the speaker leads of the right-hand speaker to terminals "R" of "A" (or "B"), and the speaker leads of the left-hand speaker to terminals "L" of "A" (or "B"). 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.

The terminals are the insert-screw type. Insert the end of the lead into the terminal hole, and turn the knob to the right about 120 degrees; when the knob can be turned no further, the cord is fixed.



ANTENNA INSTALLATION AND CONNECTION

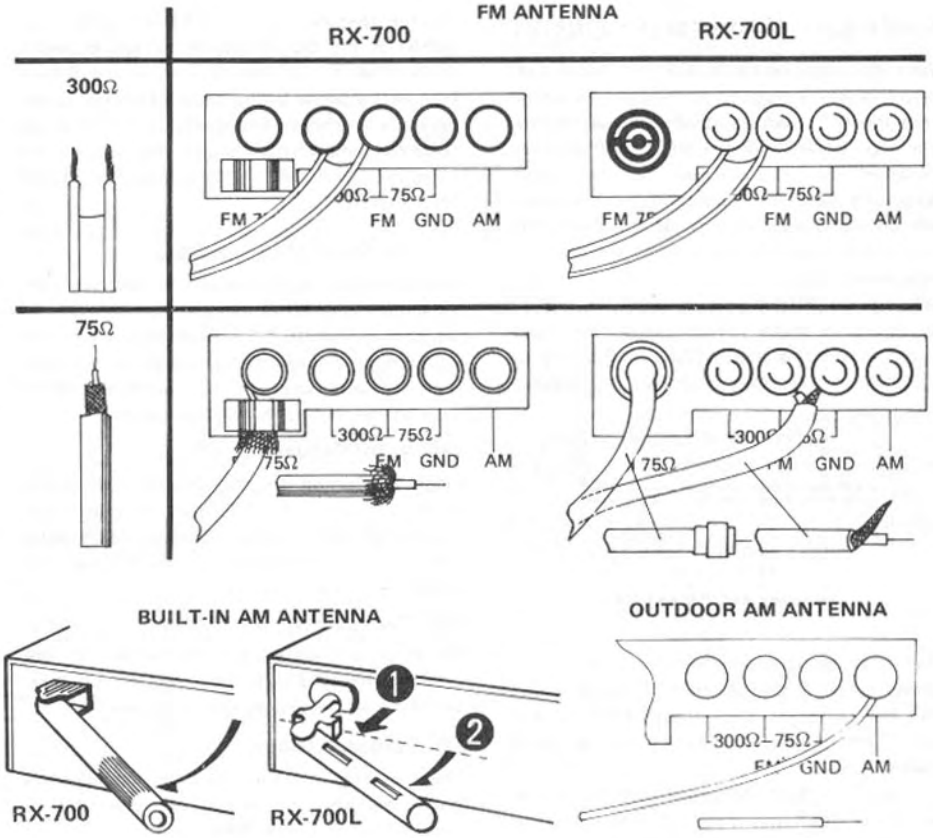
■ FM ANTENNA

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.
4. Connect the 75-ohm coaxial cable to the antenna terminals located on the rear panel, as shown in the figure.

■ AM ANTENNA

Erect the AM ferrite bar antenna provided on the rear panel. If you install outdoor AM antenna, connect the antenna lead wire to the antenna terminal marked "AM."

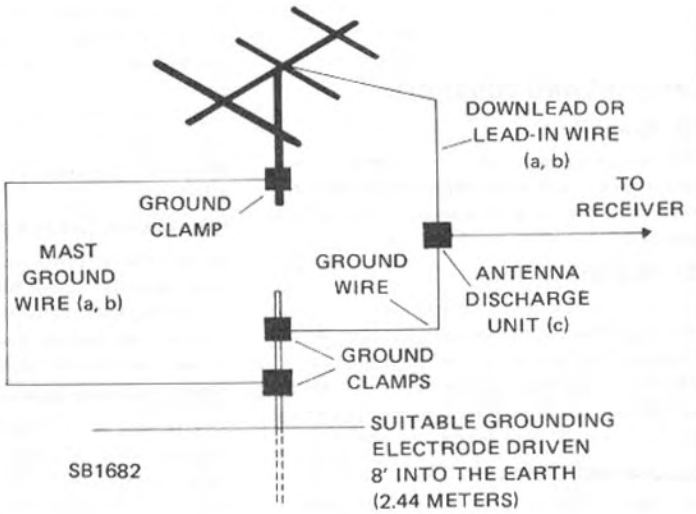


EXCLUSIVE NOTES FOR THE U.S.A.

Outdoor Antenna Grounding

If an outside antenna is connected to the receiver/tuner, 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. 70–1978, 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.

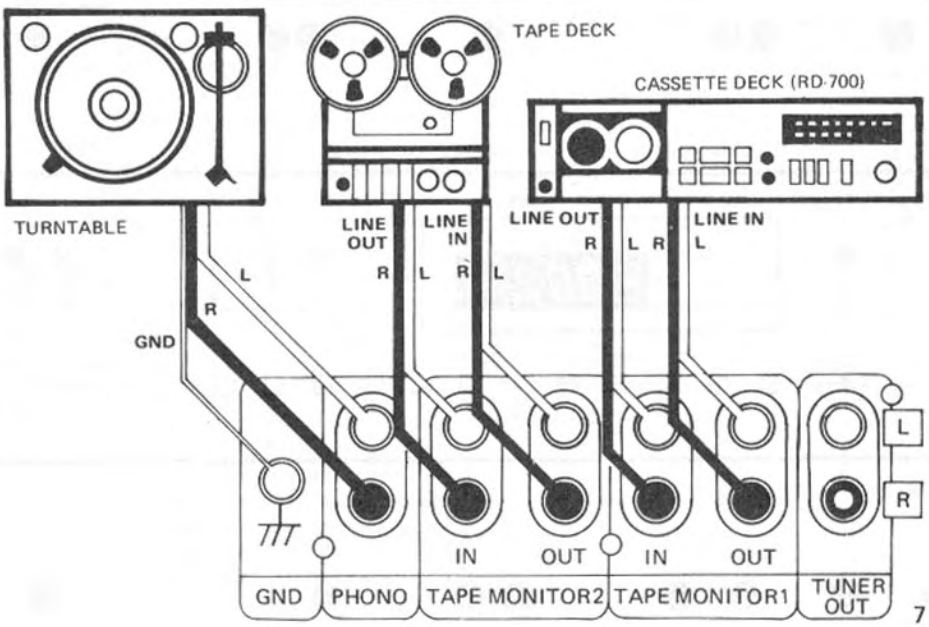
a. Use No. 10 AWG copper or No. 8 AWG aluminum or No. 17 AWG copper-clad steel or bronze wire, or larger as ground wires for both mast and lead-in.
b. Secure lead-in wire from antenna to antenna discharge unit and mast ground wire to house with stand-off insulators, spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
c. Mount antenna discharge unit as closely as possible to where lead-in enters house.



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.

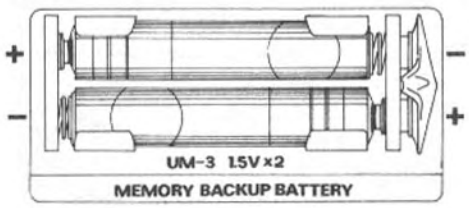
The rear panel of the unit is provided with a socket for connecting the Rotel Remote Control Center RR-700, which allows wireless-remote-control of the unit.



POWER SUPPLY TO MEMORY CIRCUIT

When the power switch on the front panel is set to ON, power is supplied to the memory circuit from the AC mains (through the wall outlet). When the power switch is set to OFF or when the power cord is unplugged, the back-up batteries (dry batteries) housed in the rear panel will provide power instead of the AC mains, thus maintaining the memory of the receiving frequencies.

Before using this receiver, correctly fit the two No. 3 dry batteries provided into the battery holder in the rear panel. (Observe the polarity markings on the inside of the battery holder).



The life of the batteries is about one year.

When replacing the batteries, first make sure that the power cord is plugged into the wall outlet and the power switch on the front panel is set to ON.

If power from both the power cord (AC mains) and the dry batteries is cut off simultaneously, the receiving frequencies stored in the memory will be lost.

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) Headphones Jack

Plug your headphones into this jack for private listening. When using headphones, both A and B speaker buttons 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 Buttons (A, B)

By these buttons you may select speaker system you wish to use. Press button A to activate the speaker system connected to speaker terminals A on the rear panel, and button B for the system connected to speaker terminals B. Depressing both A and B buttons will activate both speaker systems. When only one speaker system is hooked up, press the corresponding button only, and release the other button to OFF. Otherwise no sound will be produced.

(4) FM Mode/Muting 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.

(5) Auto/Manual Button

When this button is in the released (AUTO) position, you can tune in FM stations in automatic tuning mode. In the depressed (MANUAL) position, tuning is made in manual mode, for either FM or AM reception.

(6) Memory Program Button

To enter a given station frequency into the unit's memory circuit, press this button first, and then tap the desired station button.

(7) Station Buttons

These buttons are used to tune in to desired preset stations, or to preset given station frequencies in unit's memory.

(8) Tone Controls

Two separate tone controls regulate bass and treble respectively: knob labeled BASS is for low frequency range and TREBLE for high frequency range.

Rotate the knob clockwise to boost the response, and counterclockwise to cut it. Achieve the sound you like best by using those controls effectively.

(9) 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 the left decreases the sound from the right speaker.

(10) Loudness Button

This button is used when listening at reduced volume levels, to help overcome the human ear's loss of sensitivity to low and high frequencies. Using this button boosts bass and treble frequencies, to provide natural sound quality.

(11) Volume Control

Used to regulate the volume level. Rotate clockwise to raise the level, and counterclockwise to reduce it.

(12) Function Selector

The Function Selector works only when the Tape Monitor buttons are in released (OFF) position. Use it to select program sources: press AM button for AM broadcast, FM button for FM broadcast, and PHONO button to get signal from the connected turntable. When AM or PHONO button is depressed, an LED indicator above each button glows.

In RX-700L, AM reception is either in MW or LW mode. Press MW button for middle wave reception, and LW button for long wave reception.

(13) Tape Monitor Buttons

Used to listen to signal from the tape deck. Depress button labeled TAPE 1 for the deck connected to TAPE 1 terminals, and button labeled TAPE 2 for the deck connected to TAPE 2 terminals. Dubbing (tape-to-tape copying) is possible only from TAPE 1 to TAPE 2 deck, not the other way.

The LED indicators above each button glow when the button is depressed.

(14) Tuning Button, UP

Used when tuning in a station whose frequency is higher than the reading on the frequency display.

(15) Tuning Button, DOWN

Used when tuning in a station whose frequency is lower than the reading on the frequency display.

(16) Frequency Display

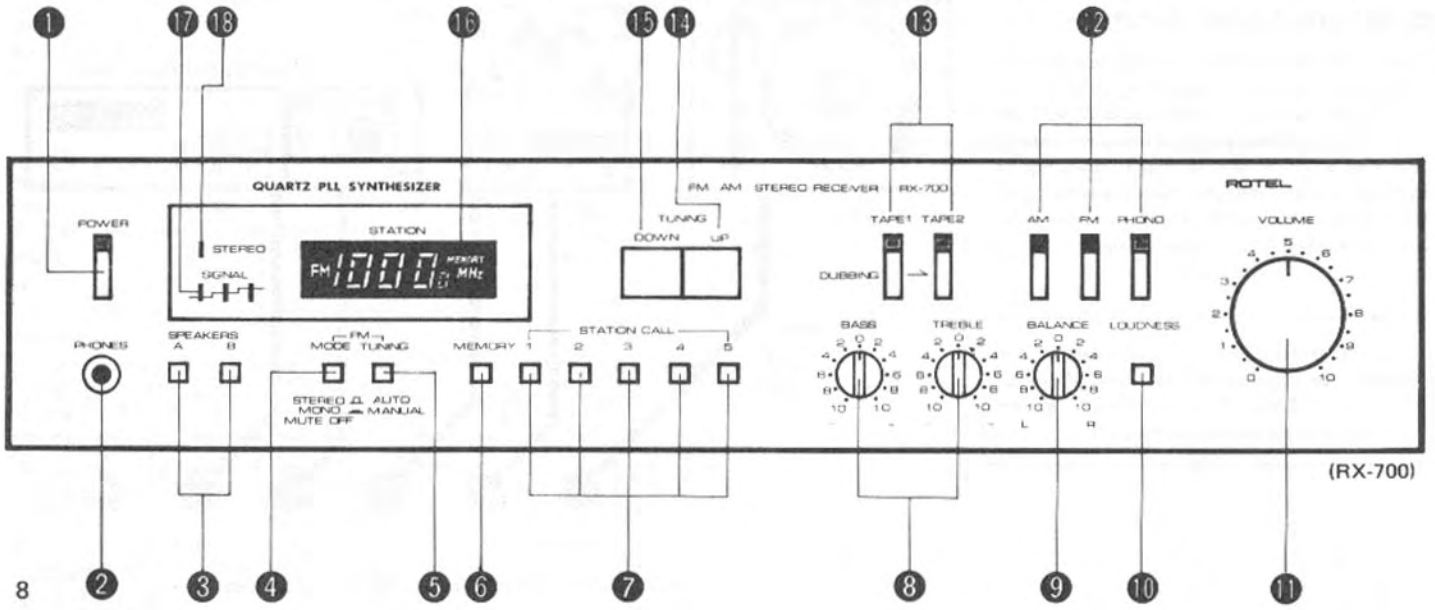
Indicates frequency currently tuned in, along with notations "FM" and "MHz" in FM reception, or "AM" and "kHz" in AM reception. The word "MEMORY" will appear when Memory Program button is pressed.

(17) Signal Strength Indicator

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

(18) Stereo Indicator

Glows when stereo broadcasting signal is tuned in. Note that when stereo signal is very weak, the unit may give only monaural reproduction. In that case, the indicator will not light up even though the unit is tuned to a stereo program.



OPERATION

• The RX-700 is an AM/FM stereo receiver employing quartz PLL synthesizer tuning for superb operability.

By presetting the broadcasting frequency, optimum tuning will be obtained every time by simply pressing the selector button.

When the power switch is set to ON, power will be provided to the memory circuit from the AC mains. In the event of a power failure, or when the power switch is set to OFF or when the power cord is unplugged from the wall outlet, the memory circuit will be powered by dry batteries housed in the rear panel of the receiver. Consequently, the memory circuit will continue to function when the receiver is not being used, throughout the life of the batteries.

One presetting button can be used to memorize one AM and one FM stations. A total of 5 AM and 5 FM stations can be preset.

The RX-700L memory stores a total of five FM stations, and five MW/LW stations.

• Insert the No. 3 dry batteries (two) provided into the battery holder in the rear panel of the receiver, ensuring that the polarities agree with the markings inside the battery holder. This will ensure that power will be continuously supplied to the memory circuit. When the AC mains power is cut off, the batteries will maintain the memory circuit energized instead. The life of the batteries is about one year. When is time to replace the batteries, replace them both with fresh No. 3 batteries.

Note: Replace the batteries with the power cord plugged in and the power switch set to ON. If the AC mains power is cut off during this operation, the contents of the memory circuit will disappear.

• Before commencing operation, check to see if all connections are properly made.

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

• Select Speaker button A or B (or both) for the speaker system(s) you are going to use.

• When using headphones, set both Speaker buttons to released (OFF) position.

• Set the Tone controls and Balance control as desired.

Listening to FM or AM Broadcasts

1. Release Tape Monitor buttons, TAPE 1 and TAPE 2, to OFF.
2. Press FM or AM button on the function selector. On RX-700L, depress FM, MW, or LW button.
3. Tune in to the desired station by means of tuning buttons or station buttons.
4. Raise the volume to the desired level.

TUNING

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

• **Auto tuning (for FM reception only)**

Set Auto/Manual button to AUTO position. Press Tuning button, UP or DOWN. 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 button according to the frequency of the desired station.

• **Manual tuning**

Set Auto/Manual button to MANUAL position. A tap of the tuning button, DOWN or UP, will shift the tuning frequency in specified increments. If you keep the button pressed down, the frequency will change continuously. Release the button to stop frequency change.

• **Preset memory tuning**

Tune in to the desired station in either auto or manual tuning mode. Tap the Memory Program button. The word "MEMORY" will appear on the frequency display. Then, tap any station button, 1 through 5, to enter the frequency into the memory circuit. Thereafter, you may recall the same frequency any time simply by tapping the same button.

Note that the word "MEMORY" remains on the display panel for several seconds only; you should tap the appropriate station button to enter the station frequency during that time. If the word "MEMORY" disappears before you tap the station button, entry cannot be made. In that case start again, following the above procedures. The above procedures should also be followed to change the station preset for a given station button.

Note 1: 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.

Note 2: To go directly into the manual tuning mode from the auto tuning mode, set the Auto/Manual button to MANUAL position, and then press the tuning button, UP or DOWN. Scanning stops and you are now in the manual tuning mode.

Listening from turntable

1. Set Tape Monitor buttons to OFF.
2. Depress PHONO button on the function selector.
3. Start the play, then raise the volume.

Playing back tape deck

1. Depress either Tape Monitor button, TAPE 1 or TAPE 2, according to the tape deck you wish to use.
2. Start playback.
3. Raise the volume level.

Recording program source

Play the desired program source according to the procedures mentioned above. The signal from the source will be sent through TAPE MONITOR OUT terminals on unit's rear panel. Put the tape deck in the record mode to record the signal. During recording, operation of volume control, and tone controls will have no effect on the signal being sent through TAPE MONITOR OUT terminals.

Dubbing

Two tape decks are used to perform tape-to-tape copying (dubbing). The unit allows dubbing from TAPE 1 to TAPE 2 only.

1. Set both TAPE 1 and TAPE 2 buttons in depressed (ON) position.
2. Put "TAPE 1" deck into playback mode and "TAPE 2" deck into recording mode, and then dubbing starts. During dubbing, you may listen to the signal with volume control, tone control, etc. set as desired, since they will not affect the recording signal.

HUM AND NOISE

Hum often accompanies activation of power supply. If hum is generated, try replugging the power cord into the wall outlet, reversing the plug this time. Other possible causes of hum include improper routing of connecting cords (try changing cord position), or incorrect pin-plug insertion. Check all connections if hum persists.

If noise is introduced, it is usually caused by improper positioning of antenna cable or improper antenna installation. Use a 75-ohm cable for outdoor FM antenna and minimize multipath to obtain optimal signal reception. Note that during signal reception the unit may pick up noise from other household electric appliances (as when switching power on or off). In that case, check the relative location of the appliances and keep them away from the unit, or vice versa, as necessary.

Note 1: In a location near a broadcasting station, very strong signals may cause noise or distortion, depending on the type of antenna used. In that case, install an attenuator between the antenna and the tuner.

Note 2: Inside a concrete building, FM signals are weakened and satisfactory reception may be difficult. An outdoor FM antenna will best remedy such a situation.

PROTECTION CIRCUIT

To prevent accidental damage to the unit or speakers, a protection circuit is installed in the unit. If the unit suddenly stops operating, a blown fuse may be the cause. Accordingly, carry out the following check.

1. Turn off the unit.
2. Open the fuse box on the rear panel and check the two fuses: one is for the left channel and the other for the right channel circuit.
3. The blown fuse may be due to a short-circuited speaker cable or an overload resulting from the use of a low impedance speaker. Check the speaker cable, its connection and speaker impedance. Correct the cause of the trouble if any.
4. Replace the blown fuse with a new one and close the fuse box. If the fuse blows again despite taking the above action, cut off the power supply from your entire audio system and consult your dealer of a qualified electrician.

Note: To prevent pop noise upon turning on the power, the muting circuit is incorporated into the unit so that sound is produced several seconds after turn-on.

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 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 check the voltage setting, remove the name plate on the rear panel and locate the VOLTAGE SELECTOR. Use a screwdriver to turn the voltage selector to the required voltage.

SPECIFICATIONS

AMPLIFIER SECTION

Continuous Power Output . . . . .35 watts* per channel, min. RMS both channels driven into 8 ohms from 20 to 20,000Hz with no more than 0.08% total harmonic distortion.

Total Harmonic Distortion. . . . .No more than 0.08% (continuous rated power output)
(20 to 20,000Hz, from AUX)
No more than 0.05% (continuous 1/2 rate power output)
No more than 0.05% (1 watt per channel power output 8 ohms)

Intermodulation Distortion . . . .No more than 0.08% (continuous rated power output)
(60Hz : 7kHz = 4 : 1)
No more than 0.05% (continuous 1/2 rated power output)
No more than 0.05% (1 watt per channel power output 8 ohms)

Output: Speaker . . . . . .A, B (8-16 ohms), A (8-16 ohms) + B (8-16 ohms)
Headphone . . . . . .8-16 ohms

Damping Factor. . . . . .35 (20 to 20,000Hz, 8 ohms)

Input Sensitivity/Impedance:
- PHONO . . . . . .2.5mV/50 kohms
- AUX . . . . . .150mV/30 kohms
- TAPE IN 1, 2 . . . . . .150mV/30 kohms

Overload Level (T.H.D. 0.3%, 1kHz):
- PHONO 130mV
- AUX 5V

Output Level/Impedance:
- TAPE OUT . . . . . .300mV/1 kohm

Frequency Response:
- PHONO . . . . . .30 to 15,000Hz, ±0.5dB (RIAA STD)
- AUX, TAPE IN 12-25,000Hz

Tone Control:
- BASS. . . . . .±10dB (50Hz)
- TREBLE. . . . . .±10dB (15kHz)

Loudness Contour . . . . . .+10dB (100Hz), +5dB (10kHz)
(volume control set at −40dB position)

Signal-to-Noise Ratio (IHF, A network):
- PHONO 75dB
- AUX, TAPE IN 1, 2 . . . . . .90dB

FM TUNER SECTION

Usable Sensitivity (mono) . . . . .11.2dBf/2.0μV/300 ohms

50dB Quieting Sensitivity:
- Mono. . . . . .18.1dBf/5.0μV/300 ohms
- Stereo . . . . . .37.2dBf/40μV/300 ohms

Signal-to-Noise Ratio (at 65dBf):
- Mono. 75dB
- Stereo 73dB

Harmonic Distortion (at 65dBf):
- 100Hz . . . . . .0.3% (mono), 0.5% (stereo)
- 1kHz . . . . . .0.3% (mono), 0.5% (stereo)
- 6kHz . . . . . .0.3% (mono), 0.5% (stereo)

Frequency Response . . . . . .30 to 15,000Hz, +0dB, −2dB

Capture Ratio 1.0dB

Alternate Channel Selectivity (±400kHz). 60dB

Spurious Response Ratio. 90dB

Image Response Ratio 80dB

IF Response Ratio 100dB

AM Suppression Ratio 58dB

Muting Threshold. 15μV

Stereo Separation. . . . . .40dB (1kHz), 32dB(50-15kHz)

Subcarrier Product Ratio. 40dB

SCA Rejection Ratio 65dB

Antenna Input. . . . . .300 ohms balanced, 75 ohms unbalanced

AM TUNER SECTION (RX-700)

Sensitivity . . . . . .300μV/m (IHF, ferrite antenna)

Selectivity 40dB

Signal-to-Noise Ratio. 50dB

Image Response Ratio 45dB

IF Response Ratio 42dB

Antenna . . . . . .Ferrite loopstick antenna

MW + LW TUNER SECTION (RX-700L)

Sensitivity:
- MW . . . . . .270μV/m (IHF, ferrite antenna)
- LW . . . . . .1,000μV/m (IHF, ferrite antenna)

Signal-to-Noise Ratio . . . . . .50dB (MW), 45dB (LW)

Image Response Ratio . . . . . .45dB (MW), 45dB (LW)

IF Response Ratio . . . . . .40dB (MW), 40dB (LW)

MISCELLANEOUS

Power Requirement. . . . . .50Hz, 240V/50Hz or 120, 220, 240V/50-60Hz (depending on destinations)

Power Consumption . . . . . .200 watts

Dimensions (overall) . . . . . .430 (W) x 115 (H) x 292 (D) mm 16-15/16" x 4-17/32" x 11-1/2"

Weight (net) . . . . . .8.1kg/17.8 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).