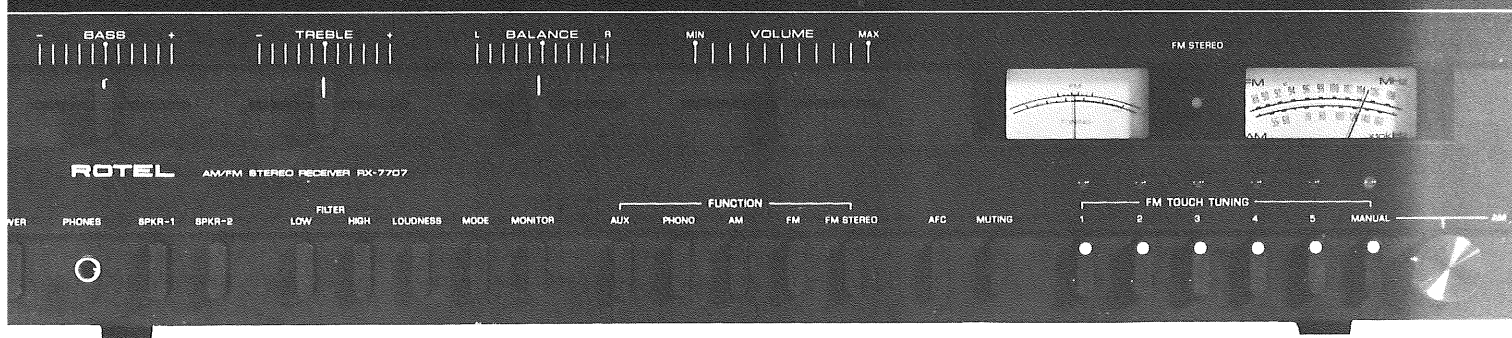


# Owner's Manual

AM/FM Stereo Receiver  
with FM Touch Tuning

# RX-7707



# ROTEL

## INTRODUCTION

We would like to take this opportunity to thank you for purchasing our audio component. 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. Built 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 sound reproduction offers you musical entertainment approaching that of live performances. We sincerely hope you will treasure this professional-type component.

The operations are really simple if you read at least the first two sections of this manual. The third section covers additional components such as a record player and a tape recorder that can be connected to this equipment, and is recommended to be followed if you wish to realize the full potential of this advanced and superbly engineered equipment.

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

# INSTALLATION

## LOCATING THE UNIT

Although the unit normally does not develop high heat, it should be placed in such a way that its ventilation system will not be impeded. Place the unit on a hard surface — any conveniently located shelf or table where not affected by heat. Leave at least 2 inches (5 cm) clearance on each side and in the rear of the unit, and about 3 inches (8 cm) above the unit. Never directly place an object on the ventilation at the top of the unit, if there is such a ventilation.

## LOCATING SPEAKERS

**Caution:** Check that each speaker's rated impedance is 8 ohms or higher. (The value should be marked near its connecting terminals or indicated in its instruction book or, if not, consult your dealer.) If any speaker is rated at 4 ohms, and if you have four speakers, severe overload and distortion may be incurred when all four speakers are played simultaneously. In the event you have speakers rated at 4 ohms, make sure that only two speakers are played at a time.

**1. MAIN SPEAKERS** — Two speakers are required for stereo operation. Place both speakers against a wall or on a shelf so that they face your selected listening position and are equal distance from you. For optimum stereo effect, they should be 10 to 15 feet (3 meters) apart and, if possible, at about ear level height. You may determine best locations to suit your personal tastes and listening conditions.

**2. REMOTE SPEAKERS** — If you wish to enjoy stereo sound in another room in your home, you can connect a pair of speakers to the SPEAKER 2 terminals located on the unit's rear panel. Though you will need long cables between the unit and the speakers in another room, make sure they are not longer than 50 to 60 feet (15 to 20 meters) in length and that they are of heavy duty type in order to prevent loss of volume. Follow the procedure described above in the item 1 for placing the remote speakers.

## SPEAKER CONNECTION

**Caution:** Do not apply power to the unit until the speakers are connected properly as described below.

### A. If your unit has push-insert type speaker terminals.

As shown in Fig. 1, the speaker terminals are quick-connect push-insert type, and are arranged into two boards, one for SPKR-1 (main) and the other for SPKR-2 (remote). Push back the tab on each terminal, slip the bare wire at the free end of the speaker lead into the opened jaw of the terminal, and release the tab to grip the bare wire in the jaw. (Note: if necessary, after stripping each end of speaker leads to obtain a bare wire, twist the bare strands together so it will be easy to insert and also prevent shorting among stray strands.) Make sure the position (+) lead of each speaker is connected to the (+) terminal and the ground (-) lead to the (-) terminal, and right to RIGHT and left to LEFT.

### B. If your unit has DIN-type speaker terminals.

When connecting the speakers to the DIN-type terminals, make sure that the speaker cables have DIN-type 2-prong plug on their ends. Simply plug these cables to the corresponding SPKR 1 terminals, right to RIGHT and left to LEFT.

If you have another pair of speakers, connect to the SPKR 2 terminals in the same manner as the above. See Fig. 1 and Fig. 2.

## AM ANTENNA CONNECTION

A ferrite-core AM loopstick antenna is affixed inside the unit for optimum reception.

If you live in a difficult reception area and the AM loopstick does not give sufficient reception, an external antenna may be required. There is a terminal on the rear panel for such antenna connection, so refer to the ANTENNAS section of this manual for installing external antenna.

## FM ANTENNA CONNECTION

Due to the high sensitivity of the FM tuner section of the unit, a "T"-shape dipole antenna (or sometimes even a 48-inch long single wire) is sufficient for most locations. Connect this to both FM antenna terminals marked 300 ohms and fasten the short arms of the antenna horizontally to a non-metallic surface, for instance by tacking to the shelf on which the unit is

mounted or to the wall where reception is optimum. In extremely difficult reception areas, an outdoor antenna may prove necessary. Refer to the ANTENNAS section of this manual for installing outdoor antenna.

## COMPONENTS CONNECTIONS

This unit is designed to handle a record player with magnetic cartridge, a stereo tape recorder and an additional auxiliary component such as stereo cassette or 8-track cartridge deck.

We recommend that you familiarize yourself with basic operations before connecting any such units. Refer to the ADDITIONAL COMPONENTS section provided in this manual for connections and operations of these components.

## PRE AMP OUT AND MAIN AMP IN RECEPTACLES

There are pairs of terminals marked PRE AMP OUT and MAIN AMP IN, connected with a pair of jumper pins on the rear chassis. Normally with the pins in place, your receiver is the combined equipment of integrated pre-amplifier and main-amplifier sections. However, by removing the jumper pins, your unit in essence becomes two independent components consisting of one pre-amplifier and one main-amplifier.

These receptacles are intended for use with any necessary equipment designed to be installed between the pre-amplifier and the main-amplifier or for separate use of either section alone. Such equipment as electronic audio equalizer or reverberation unit can be used; or, another pre-amplifier or main-amplifier may be hooked up. Simply disconnect the jumper pins and follow the instructions supplied with the accessory equipment. When no auxiliary equipment is being used, the jumper pins MUST be installed in place in order to use your receiver.

## AC OUTLET

The outlets marked SWITCHED on the rear panel provide power and switching control to whatever component you may wish to connect to the unit. For example, if you connect the power cord of your record player to the outlet, the record player will be activated and deactivated by the power switch on the unit.

**Caution:** Do not connect components whose total power consumption exceeds 150 W.

## POWER SUPPLY CONNECTION

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 last page of this manual before connecting to power.

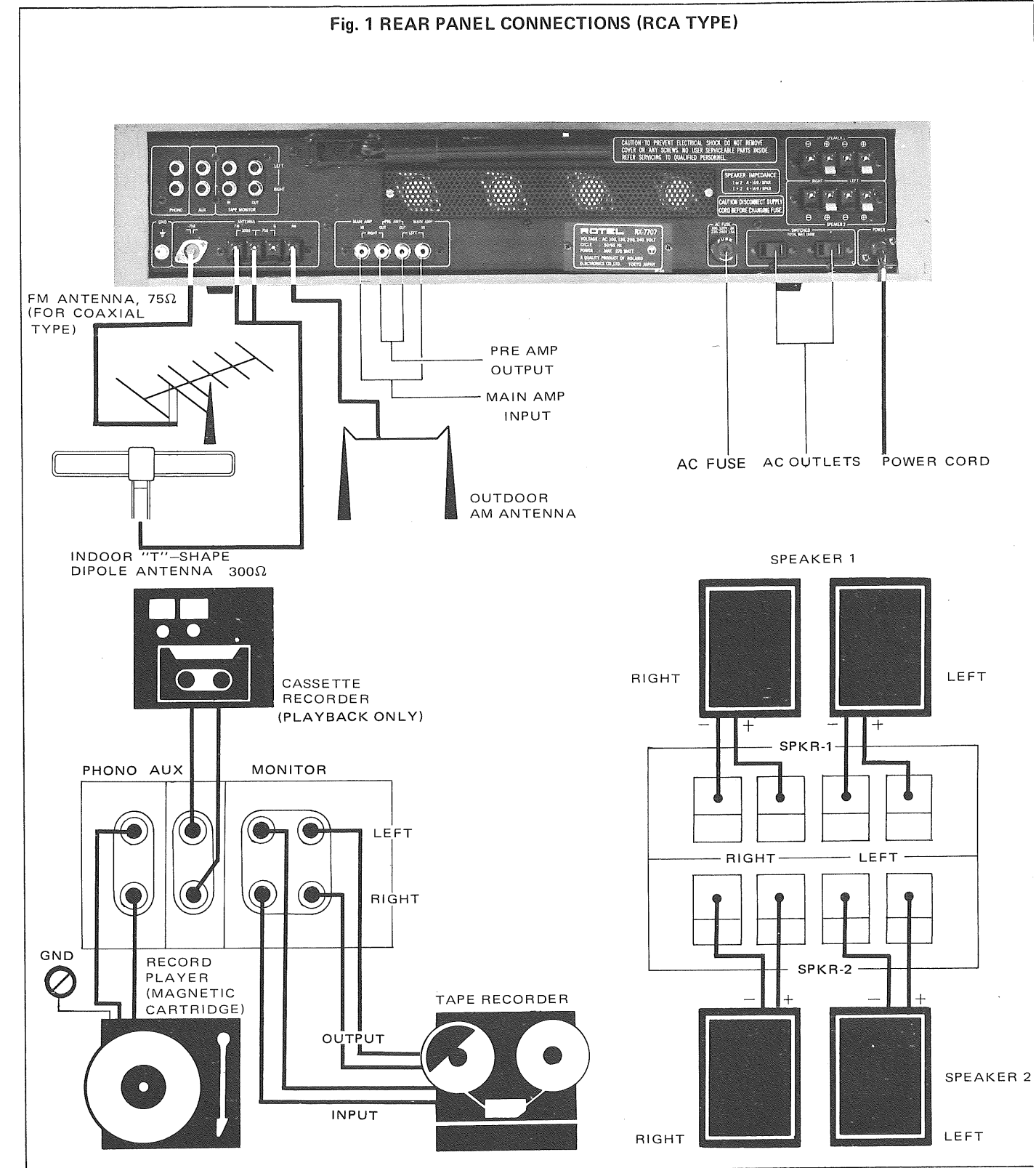
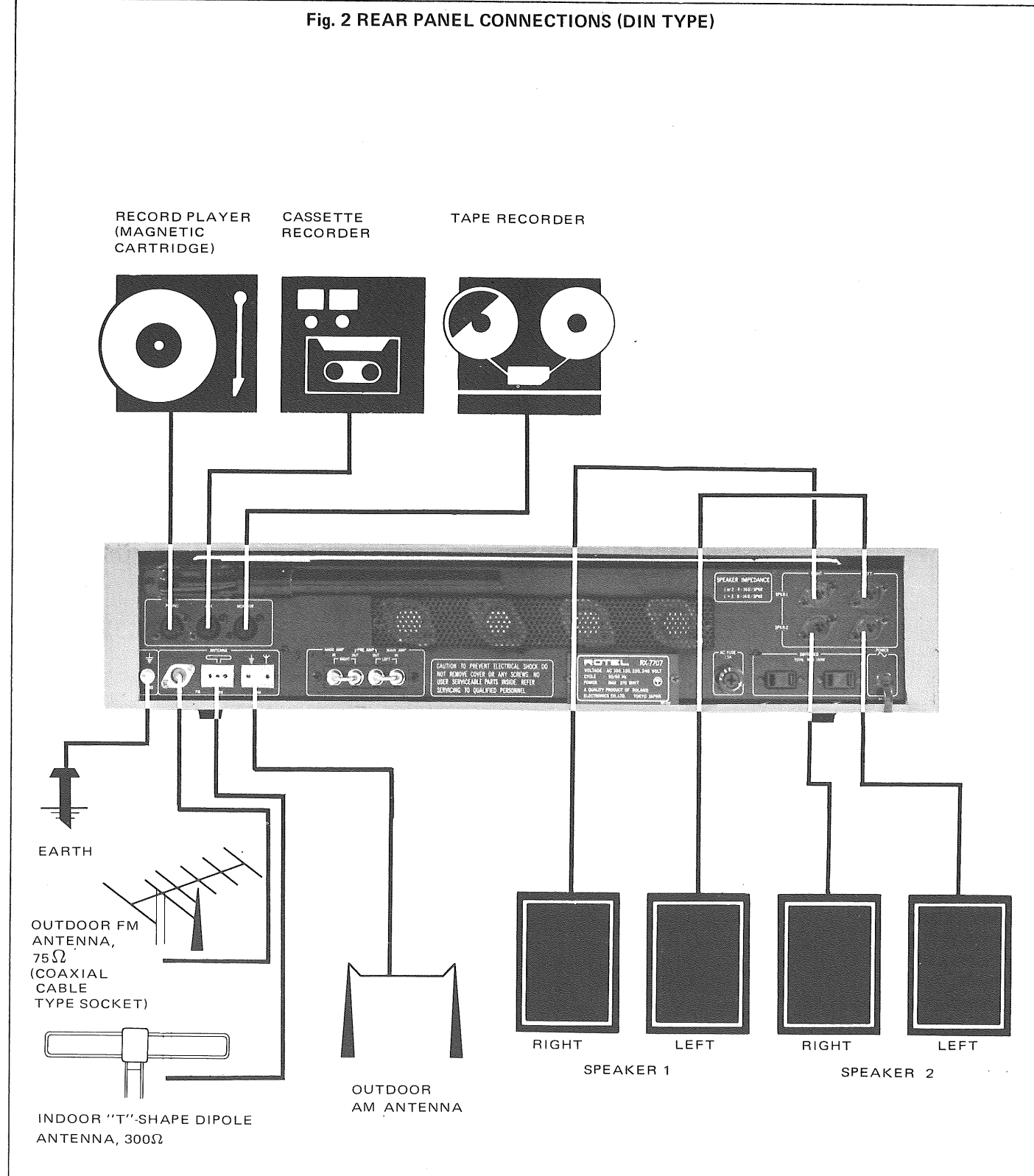


Fig. 2 REAR PANEL CONNECTIONS (DIN TYPE)



## OPERATION

Refer to Fig. 3 for the locations of the switches and the controls of the unit, and follow the instruction below carefully in order to master complete operation of the unit.

## CONTROLS AND SWITCHES

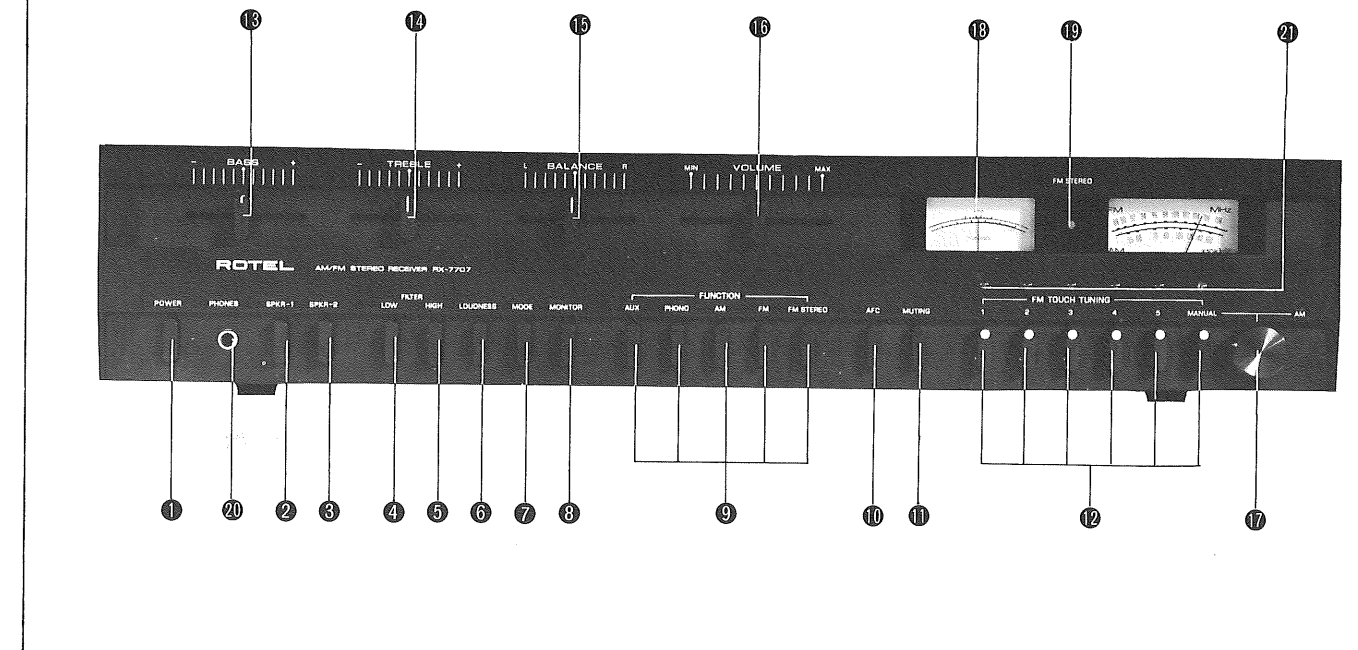
### A. PUSH BUTTON SWITCHES

The push button switches used are all of the PUSH/PUSH type; that is push in to activate the circuit and push again to release or deactivate the circuit. In describing these switches we

will consider the "in" position to be "ON" and the "out" position to be "OFF".

- 1 POWER SWITCH** — performs the function as its name denotes. It supplies power to the unit and to any switched AC outlets.

Fig. 3 LOCATIONS OF THE SWITCHES AND CONTROLS



When the switch is ON the dial scale board will be illuminated.

**Note:** If the dial scale board does not light or no sound comes out of speakers, or if the unit suddenly goes off during normal operation, refer to protection section (on page 7) in this manual

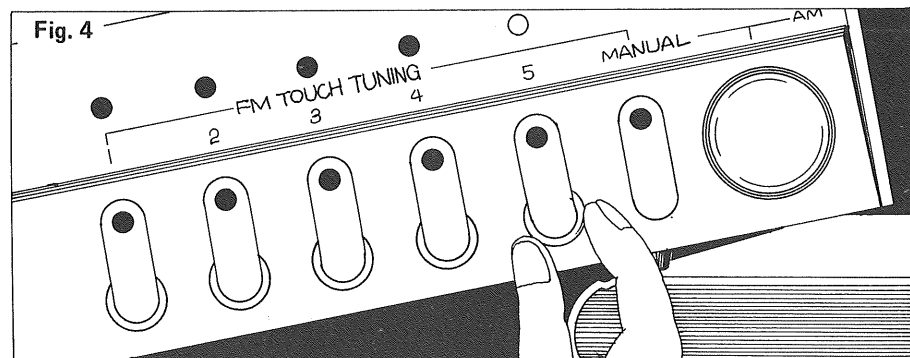
- 2 SPEAKERS 1 SWITCH** — in ON position activates the speakers connected to SPKR 1 terminals on the rear panel, and in OFF deactivates the speakers for such as private listening with headphones.
- 3 SPEAKERS 2 SWITCH** — operates in the same manner as the above switch and is used for the speakers connected to SPKR 2 terminals on the rear panel.
- 4 LOW FILTER** — allows you to reduce the low frequency response of your unit whenever you wish to reduce annoying record and tape rumbles, etc.
- 5 HIGH FILTER** — allows you to reduce high frequency interference whenever you wish to clear annoying record scratches, tape hiss, FM background noise, etc. Normally, however, keep this switch OFF for optimum frequency reproduction of all program sources.
- 6 LOUDNESS SWITCH** — in ON position activates a circuit which boosts low and high frequency sounds at low volume control settings. This compensates for the ears loss of sensitivity to bass and treble notes at low listening levels. However, leave the switch OFF at normal and high volume settings to prevent booming noise or overload on some speakers.
- 7 MODE SWITCH** — selects between stereophonic and monophonic operation depending upon the program source. In ON position the program will be heard monophonic, and in OFF position it will be stereophonic. Normally, leave the switch in OFF position.
- 8 TAPE MONITOR SWITCH** — allows you to playback and monitor tape recorder. MONITOR switch is used with the tape recorder connected to the MONITOR terminal on the rear panel. Push ON to playback pre-recorded tapes. Set to OFF position whenever tape recorder is not being operated but other program is being played. See the ADDITIONAL COMPONENTS section in this manual for a detailed operation of the switch.
- 9 FUNCTION SELECTOR SWITCHES** — enable you to select the function you desire from AUX, PHONO, AM, FM and FM STEREO.
- 10 AFC SWITCH** — activates the Automatic Frequency Control that permits you to lock in strongly on a station when using FM Preset tuning. Be sure to push OFF when tuning the preset volume button.
- 11 MUTING SWITCH** — in ON position activates a filter that effectively removes the FM interstation noise without affecting the tuner's selectivity. Hence, this switch may be left ON at all times, but if you wish to tune in a particularly weak FM station and want all the pulling power this unit has, you may turn off the switch.
- 12 PRESET TOUCH TUNING BUTTONS** — are used to tune in the stations for preset retrieval. Touch the metal point of the button to activate the FM Preset Tuning System. Turn the Preset Volume under button to tune for the desired station using the tuning meter. When the station has been tuned in, it is set for



instantaneous retrieval any time thereafter by simply touching the desired button. Place some spacing articles (books, etc.) under the unit for easy tuning.

stations with smooth action and precision.

### C. INDICATORS AND RECEPTACLE



Touch on the MANUAL button whenever you wish to use AM (or FM) by manual tuning.

### B. CONTROLS

- 13 **BASS CONTROL** — regulates low frequency sounds, as desired, to suit personal taste, speaker characteristics, etc. Sliding to right (+) increases the bass, and to left (-) reduces the bass.
- 14 **TREBLE CONTROL** — regulates high frequency sounds, and operates in the same manner as the BASS CONTROL.
- 15 **BALANCE CONTROL** — regulates the relative sound outputs from each channel. Normally the control is adjusted to provide the effect of a mono signal coming from a point midway between the speakers. When balanced in this way, the optimum stereo effect will be achieved.
- 16 **VOLUME CONTROL** — regulates the volume level of all channels simultaneously. Slide to right for increase in level and to left for decrease.
- 17 **TUNING KNOB** — allows you to tune in, in conjunction with the dial pointer, AM or FM

- 18 **DUAL PURPOSE TUNING METER** — provides indication of optimum reception on both AM and FM. Tune for maximum deflection to the right for AM and to dead center for FM.
- 19 **STEREO INDICATOR** — automatically lights up to visually indicate whenever an FM stereo broadcast is tuned.  
**Note:** In some cases, very weak stereo signals may not activate the stereo indicator. In this case the program will be reproduced monaurally.
- 20 **HEADPHONES RECEPTACLE** — simply plug in your stereo headphones lead to the receptacle for private listening. Turn OFF all speaker switches if you are listening to the headphones only.
- 21 **FM PRESET INDICATORS** — visually indicate selected position of preset button. The MANUAL position means the preset circuit is deactivated and the tuning should be done manually with the tuning knob.

### RECEIVING FM AND AM BROADCASTS

#### 1. FM TUNER OPERATION (PRESET)

cartridge you need an exclusive matching transformer, so follow its instruction when using one).

- a) If your unit has RCA-type PHONO jacks. Connect the RIGHT output cable of your turntable to the RIGHT jack and the LEFT output cable to the corresponding LEFT jack. If there is another cable emerging from the turntable besides the output cables, connect it to the

Set the function switch to FM or FM STEREO and push the AFC button OFF. Touch ON any Preset button and tune for the desired station by turning the Preset volume. Use the Tuning Meter in conjunction. When the desired station has been tuned in, you may thereafter retrieve the station by simply touching ON the same button. Repeat the same procedure with the remaining four Preset buttons, so that you may preset up to five of your most favorite stations for later retrieval. Adjust the Bass, Treble, Balance and Volume controls.

#### 2. FM STEREO

Under normal use for all FM broadcasts the function switch should be set at FM STEREO position. If a station you wish to listen to transmitting stereo signal, your unit will automatically switch on the multiplex circuit and you will enjoy the broadcast in stereo. Should the station conclude broadcasting in stereo, the unit will automatically switch back to monaural reception. Use the stereo indicator light as a guide to locate stereo stations.

#### 3. FM

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 set the function switch at FM.

#### 4. AM

Should you wish to listen to AM broadcasts, touch ON MANUAL in FM TOUCH TUNING and push ON the function switch AM. Though AM gives only monaural signal, the unit will enable you to listen to it from two speakers as if in stereo. In all cases, tune in the desired station with the tuning knob, using the tuning meter to assure the strongest possible reception. Utilize other controls to enhance your listening conditions and pleasure.

ground terminal marked GND on the rear panel near the PHONO jacks.

- b) If your unit has DIN-type PHONO socket. Connect the output DIN-type 5-prong plug of your turntable to the DIN-type socket marked PHONO.

**Note:** To avoid loss of the high frequency response due to excessively long cables, shielded cables not ex-

ceeding 10 feet (3 meters) in length should be used to connect your turntable. Usually, cables supplied with your turntable are sufficient.

#### 2. OPERATION

Push the function switch to PHONO if you wish to operate the turntable. Adjust Volume, Bass, Treble, Balance, etc. to suit your personal tastes and listening condition.

### TAPE RECORDER

#### 1. CONNECTION

There is a connection facility for tape recorder on the rear panel. It is called MONITOR and is used in conjunction with the tape monitor switch on the front panel. It is also used when your tape recorder has a separate playback head (i.e., tape recorder normally equipped with three heads).

Your tape recorder can be reel-to-reel deck, cassette recorder deck or 8-track cartridge player or recorder deck.

- a) If your unit has RCA-type jacks. Input jacks marked IN are for playing back pre-recorded tapes, and output jacks marked OUT are for recording program materials such as broadcasts, records and live sounds.

Connect the pair of output cables of your tape recorder to corre-

sponding LEFT and RIGHT input jacks and the pair of input cables to the corresponding output jacks.

- b) If your unit has DIN-type socket. Connect the DIN-type 5-prong plug of your tape recorder to the socket marked MONITOR.

#### 2. OPERATION

##### TAPE PLAYBACK

To listen to a playback of pre-recorded tape, push ON the TAPE MONITOR switch. The setting of the function selector control is irrelevant in this case and may be left at any position.

##### TAPE RECORDING

You may record with your tape recorder any program materials that can be played through this unit. Push one of the function switches to AM, FM, FM STEREO, PHONO or AUX depending on which program you wish to record, and operate the tape recorder while listening to the program. Always leave the TAPE MONITOR switch OFF if your tape recorder has no separate playback head (look up in its instruction manual to see if the tape recorder is equipped with separate playback and recording heads). If your tape recorder has the separate playback head, pushing ON the switch will let you monitor the recording

program (listening to the program as it is actually being recorded). Hence, you may compare the program as played by this unit to the same program as being recorded by pushing ON and OFF the TAPE MONITOR switch.

**Note:** You will not obtain any sound if the TAPE MONITOR switch is ON unless the tape recorder has a separate playback head. Also, volume, bass, treble and balance controls of this unit will have no effect upon the recording, so you should use the controls on the tape recorder.

### AUXILIARY

#### 1. CONNECTION

One set of AUX input terminals are provided for connection of equipment such as tape deck without recording facility (e.g., 8-track player deck). Connect the output cables of such equipment to input terminals in the same manner as the TAPE RECORDER section.

#### 2. OPERATION

Push the function switch AUX. Adjust volume, balance, bass and treble controls to suit your personal tastes and listening conditions.

antenna terminals for 75 ohms for FM coaxial cable antenna. If you wish to use such an antenna, follow its instruction manual for information and usage.

### AM ANTENNA

If AM reception is poor because you live in a steel-frame building, or if you wish to supplement the built-in AM antenna for improved reception of weak stations, connect an insulated flexible, single-conductor wire to the AM antenna terminal on the rear panel of this unit. The wire should be as long as possible, and should be run in a straight line along a nonmetallic surface or under a rug. In the wire out a window or by connecting it to an outdoor whip or rod antenna.

will deactivated automatically and the unit will work.

**Caution:** If the unit does not operate, or if it becomes inoperative within a short time, consult your dealer or a ROTEL service center.

### ANTENNAS

#### FM ANTENNA

If a single wire antenna or a "T"-shape dipole antenna is inadequate for FM reception in your area, it may be necessary to replace it with better indoor antenna or, in some extreme case, outdoor antenna.

1. **INDOOR ANTENNA** — you may use an indoor antenna such as "rabbit-ears" or telescopic antenna which can be rotated for best reception of the desired signal. Connection of such antenna is exactly the same as the dipole antenna. Make sure the leads connected to the antenna terminals, if the terminals are screw-type, do not touch each other as it will impede reception performance.

2. **OUTDOOR ANTENNA** — in weak-signal "fringe" areas, an outdoor antenna may be necessary if indoor antenna does not give satisfactory results. If you already have an outdoor VHF television antenna, this antenna may prove suitable for FM reception as well. To test it, connect TV antenna leads to the FM antenna terminals marked 300 ohms on the rear panel. If the results are satisfactory, obtain a TV/FM splitter/coupler so that you can operate both the TV set and this unit from the antenna simultaneously. If the TV antenna does not serve the purpose, you may have to use an outdoor antenna designed specially for FM. Follow its instruction manual for information and usage.
3. The unit is also equipped with the

### PROTECTION

This equipment is protected by a special automatic resettable protection circuit. If the unit fails to operate when plugged in and turned on or if it suddenly becomes completely inoperative while playing (i.e. one or

both speakers are silent regardless of speaker switches and function selector control position), the protection circuit is probably activated due to an overload condition such as shorting by stranded speaker wires at the speaker terminals. Once the fault is found and corrected, the protection circuit

### ADDITIONAL COMPONENTS

**Note:** Refer to Fig. 1 and Fig. 2 for visual guide to proper connections.

#### TURNTABLE

##### 1. CONNECTION

Make sure your turntable comes with regular magnetic cartridge (if you wish to use MC — moving coil — type

# HUM AND NOISE

In any high fidelity installation, hum may be caused by the interconnection of a turntable, tuner and amplifier, and speakers as a result of the cables, different grounds or locations of components. If hum is experienced with your unit, disconnect everything but the speakers from the unit. If the hum persists, reverse the power cord at the power source. Plug in the record player and if hum or howling appears, reverse the record player power plug or relocated the record player away from the speakers as much as possible. Note hum may also be induced by defective connecting cables or by running these cables too close to a strong AC field.

When your unit picks up noises 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 noises. 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 causes, consult your dealer or a qualified electrician.

# VOLTAGE SELECTION

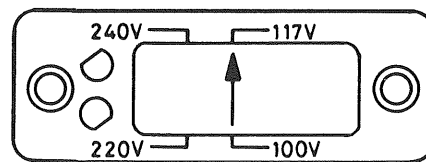
(not available for United Kingdom and Scandinavia)

The receiver 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 under).

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.



# SPECIFICATIONS

## AMPLIFIER SECTION

Continuous Power Output .....	35 watts per channel, min. RMS, both channels driven into 8 ohms from 20 to 20,000 Hz with no more than 0.5% total harmonic distortion.
IM Distortion .....	0.1% at rated output, -1 dB
Frequency Response .....	5-65,000 Hz, $\pm 3$ dB at 1 watt per channel
Damping Factor .....	35, $\pm 10\%$ at 8 ohms
Input Sensitivity/Impedance .....	MAIN IN: 750 mV/33K $\Omega$ TAPE, AUX: 130 mV/50K $\Omega$ PHONO: 2 mV/45 K $\Omega$
Tape Output Level .....	300 mV/3K $\Omega$ (RCA jack); 120 mV/90K $\Omega$ (DIN jack), 5 mV, phono input
Phono Overload .....	130 mV at 0.5% THD
Phono Equalization .....	RIAA STD, $\pm 1$ dB
Bass Control .....	$\pm 10$ dB at 100 Hz
Treble Control .....	$\pm 10$ dB at 10 KHz
Loudness Contour .....	+8dB at 100Hz, +4dB at 10KHz
Crosstalk .....	45 dB overall
Hum and Noise (S/N) .....	PHONO: more than 70 dB TAPE, AUX: more than 85 dB
Speaker Impedance .....	SPEAKER 1 or 2: 4 to 16 $\Omega$ SPEAKER 1+2: 8 to 16 $\Omega$

## FM TUNER SECTION

Sensitivity .....	2.0 $\mu$ V (IHF), 3.6 $\mu$ V (50dB quieting)
Signal-to-Noise Ratio .....	more than 65 dB
Harmonic Distortion .....	0.3% (mono), 0.5% (stereo)
Selectivity .....	50 dB
Capture Ratio .....	1.5 dB
Stereo Separation .....	40 dB at 1 KHz, 35 dB at 100 Hz, 35 dB at 10 KHz
IF Rejection .....	more than 70 dB
Image Rejection .....	more than 50 dB
Spurious Response Rejection .....	more than 70 dB
SCA Suppression .....	more than 60 dB
AM Suppression .....	50 dB

## AM TUNER SECTION

Sensitivity .....	200 $\mu$ V/m
Selectivity .....	35 dB
IF Rejection .....	40 dB
Image Rejection .....	60 dB

## GENERAL

Power Consumption .....	270 W Max.
Power Supply .....	100, 120, 220, 240V 50/60 Hz
Dimensions (overall) .....	566 W x 330 D x 120 H mm
Weight (net) .....	8.5 Kg/ 18.7 lbs

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

## 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  $\perp$ , 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.

Quality. Uncompromised.

**ROTEL**  
ROLAND ELECTRONICS CO., LTD.