

————— OPERATING MANUAL

ROTEL®

RX-300

AUTOMATIC TUNING RECEIVER

INTRODUCTION

We would like to take this opportunity to thank you for purchasing our RX-300 Stereo Receiver. In RX-300 you have the finest equipment available in the Hi-Fi Components field. With the quality workmanship that goes into making the RX-300, you can be assured of its flawless performance for many years to come.

The RX-300 is equipped with every conceivable control and feature any demanding audiophile ever hopes of having on his unit. The RX-300 was designed for both the versatility and ease of operation. It will add professional studio flexibility to your present music center.

The performance of the RX-300 is exceptional; it will allow you to experience true high fidelity as never before. Its full and natural stereophonic reproduction offers you musical entertainment rivaling 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 all of the following pages of this Operating Manual carefully.

Do not attempt to operate the unit until you have made all the connections as specified in this Manual.

SPECIAL FEATURES

- 1) 3-gang FET Front End Tuner for excellent FM or FM Stereo reception.
- 2) Precision Automatic Tuning System for convenient station searching.
- 3) Local-Distant Push-Button Switch for better Auto-Tuning adjustment in relation with broadcasting.
- 4) Tone Controls for Bass and Treble offer accurate tone adjustment.
- 5) Tape Monitor Push-Button Switch for tape playback and recording.
- 6) Two Speaker Selector Push-Button Switches for individual or simultaneous operation of two pairs of speaker systems.
- 7) Illuminated Dial Pointer, Stereo Indicator and Signal Strength Meter.
- 8) Front Panel Stereo Headphone Jack for easy use.
- 9) All Silicon Output Transistors for better high frequency response and stronger heat resistance.
- 10) Ample 80-watt (IHF) Power Amplifier Section.

INSTALLATION

IMPORTANT

Do not apply power to this unit without first making sure that both speakers are connected properly. Before attempting to operate the RX-300, please read the following instructions carefully. When all the necessary connections are made, the power may be applied.

FM ANTENNA CONNECTION

Due to the exceptionally high sensitivity of your receiver, the 48" wire (grey-vinyl coated) supplied with the set is sufficient for all but the most difficult locations. The balanced antenna input is designed to accept a 300 ohm antenna, indoor or outdoor type. When using the wire antenna connect one end of the 48" wire to either of the FM antenna terminals in the rear of your receiver. Horizontal placement of the antenna will usually yield optimum reception. The antenna may be tacked to the back of the molding behind the equipment or to the shelf you use.

As FM signals are in the same broadcasting frequency range as TV signals, they are both affected by the same external conditions. Just as TV reception is improved, you can improve your FM reception with an external antenna. When using an external antenna, connect both leads of the antenna wire to the two FM antenna terminal posts at the rear of your unit.

AM ANTENNA CONNECTION

The ferrite loopstick built into the rear panel of the RX-300 assures adequate reception of most local AM stations. As the loopstick is mounted on a swivel bracket, if necessary, you may move the antenna bar away from the chassis for better reception.

In more remote locations, an additional outdoor antenna may be required. This AM antenna should consist of a single wire, which must be as long as possible. Attach the wire to the AM terminal post in the rear of the receiver. When placing the antenna, keep it away from large metal objects, power lines or electrical machinery to insure reception without external noise.

SPEAKER CONNECTION

The RX-300 has connections for two pairs of stereo speaker systems. Make sure that your main speakers are connected to the System-1 terminals and the remote speakers to the System-2 terminals.

Connect the left hand speaker leads to the terminals designated LEFT SPEAKERS and the right hand speaker leads to the RIGHT SPEAKERS. With the RX-300, any speaker systems of 4, 8, or 16 ohm impedance can be used.

NOTE: Be sure that all the speaker leads are fastened securely to the proper terminals and that there are no stray strands shorting one terminal with another.

PHASING

In a stereophonic music reproducing system, the two speakers must be properly connected to assure complementary functioning. Make sure that the terminals on the speakers are connected to the corresponding terminals on the amplifier. If the two speakers are out phase with each other, the stereophonic effect will suffer and the low frequency response will be particularly poor. Check to make sure that your speakers are in phase.

1. Push the MODE button "IN" or monophonic operation.
2. Play a monophonic source with solo singing or instrument.
3. If the speakers are in phase, the sound will appear to come from the exact center between the two speakers, and if the speakers are out of phase, the sound will appear to come from the two speakers separately.
4. If the speakers are out of phase, reverse the connections of the two speaker leads (from only one of the speakers, although it may be either one) at the RX-300's speaker terminals. The speakers will then be in phase with each other.

RECORD PLAYER CONNECTIONS (Magnetic Pickup Only)

The shielded cables from your stereo record player should be terminated with RCA type phono plugs. To avoid loss in the high frequencies, the cables should not exceed 10 feet in length.

Connect both leads from your record player to the Left and Right PHONO input jacks on the rear of the receiver. If your record player has a special ground wire emerging with the two input leads, connect this ground wire to the ground terminal on the rear of the receiver.

TAPE RECORDER CONNECTIONS

For playback purposes (cassette, 8-track, reel-to-reel, etc.), connect the two tape player output cables to the Left and Right AUX input jacks on the rear of the receiver. You can also use TAPE IN input jacks for playback.

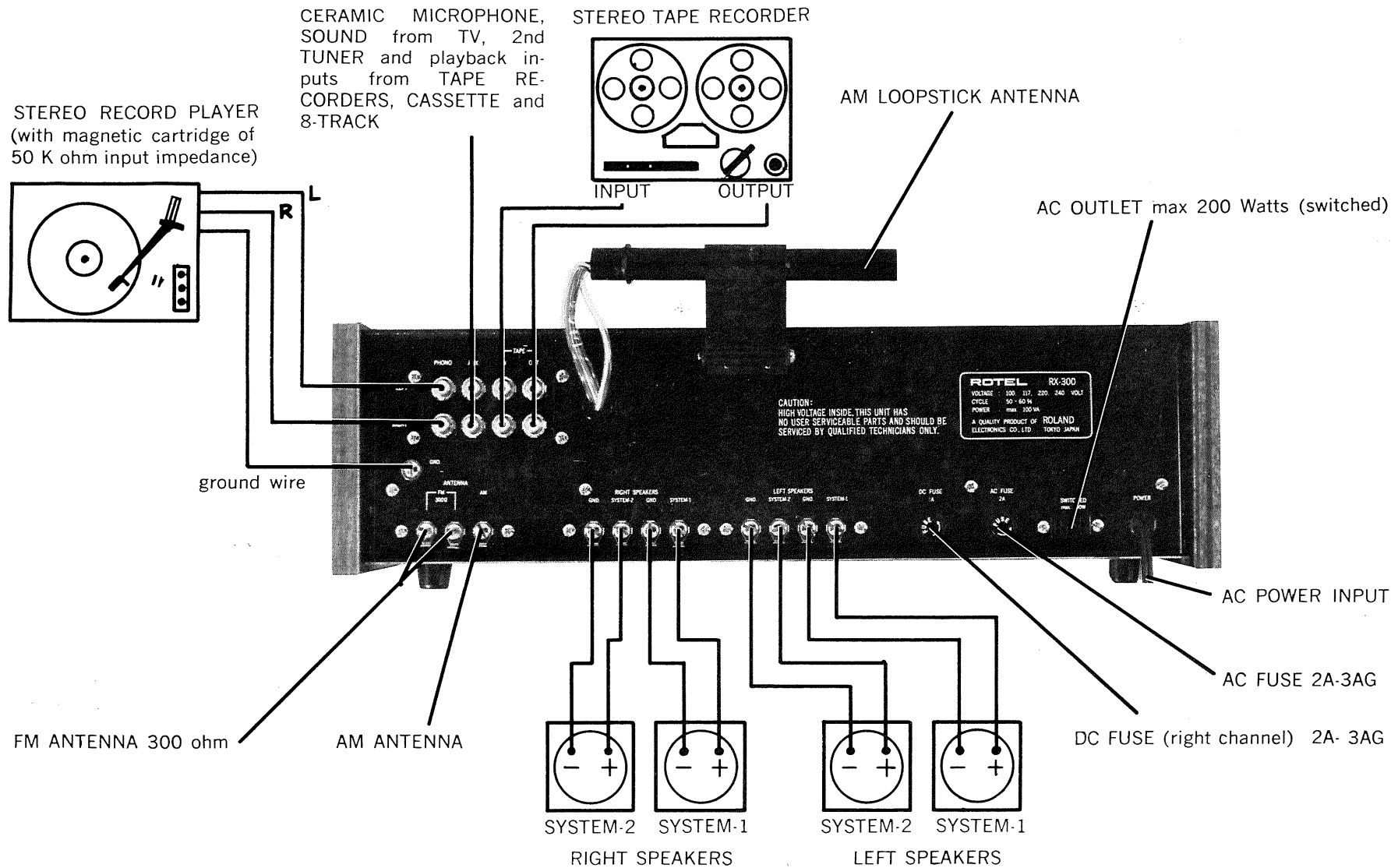
For recording purposes, the tape recorder input cables should be connected to the Left and Right TAPE OUT jacks.

VOLTAGE SELECTION

Your RX-300 comes preset at the proper voltage for use in your area; however, if you move to an area where the power supply voltage is different, simply change the voltage setting. The RX-300 is a variable voltage amplifier that can run on 100 V, 117 V, 220 V and 240 V power supplies.

If it is at all possible, take the RX-300 to the authorized personnel for changing the voltage setting. If you wish to change it yourself, be sure to disconnect your unit from the power source before attempting to remove the bonnet cover.

INTERCONNECTING DIAGRAM



To change the voltage setting, remove the bonnet cover and locate the Voltage Selector. The Voltage Selector Plug has a white arrow on its top. Pull out and reinsert the Plug so that the arrow lines up with the Pointer Line of the voltage you desire.

AC OUTLET

The RX-300 is equipped with an AC Outlet (switched) to provide switching control and power to whatever component you may wish to connect to the RX-300.

OPERATION

When all the connections have been made according to the preceding instructions, you may apply the power by pushing "IN" the POWER button. Select the speaker system you wish to activate by pushing "IN" either the SPEAKERS, SYSTEM-1 or SYSTEM-2 button, or if you desire to operate both the main and remote speaker systems simultaneously, push "IN" both buttons.

NOTE: If the Tuner Dial Light fails to light, remove and check the AC fuse. If no sound were heard even when all the buttons and controls are placed at their correct positions, remove and check the DC fuse. If a fuse is blown, check for possible cause for the blow-out (e.g., short at the speaker leads, etc.), and replace the fuse.

BASS AND TREBLE CONTROLS

The BASS and TREBLE tone controls on your receiver provide the full range of tonal adjustment necessary for stereo high fidelity listening. The tone control range is considerable and can adequately adjust the low and high frequencies in accordance with your listening preference, speaker characteristics and room acoustics.

BALANCE CONTROL

The BALANCE control is used to adjust the sound level of each channel in relation to each other.

The nature of stereophonic reproduction is such that it requires two identical channels to obtain the optimum stereo effect. As there may be slight differences between the location of the two speakers, tape heads, cartridges, etc., the BALANCE control is provided to permit re-balancing of the overall system even in extreme cases where unbalance exists.

It should be noted that the BALANCE may be set anywhere within its range of adjustment to attain system balance.

AUTOMATIC TUNING SYSTEM

The Auto-Tuning Switch is used to tune for AM, FM, or FM Stereo broadcasts. The operation of the Switch is as follows:

1. Pushing in the seesaw-type Auto-Tuning Switch on its right side will make the tuning dial pointer move to the right. The dial pointer will stop at the nearest broadcasting station. If the switch is pushed again on the right side the dial pointer will move on to the next right station. When the dial pointer goes to the right to the end of the tuning dial, the Auto-Tuning will automatically reverse the direction of the dial pointer movement. The dial pointer will now slide toward the left.
2. Do the same for moving the dial pointer to the left, by pushing the Auto-Tuning Switch on its left side.
3. If you push the Auto-Tuning Switch continuously, the dial pointer will keep moving, bypassing all the stations. If you let go of the Switch, the dial pointer will stop at the nearest station in the direction the dial pointer was moving at the time.
4. Auto and Manual Tuning.
When the Function Selector is in FM position, both FM and FM Stereo broadcasts can be received (due to the all-electronic FM automatic mono-stereo switching device). Automatic Tuning System is also activated at this position, so that you may manipulate the Auto-Tuning Switch.
However, if you wish to tune, using the Tuning Knob instead of Auto-Tuning Switch (such as tuning in weak stations), turn the Function Selector to FM MANUAL position. At this position, the Automatic Tuning System is deactivated.
5. Local-Distant Push-Button Switch.
The normal position of this switch is at DISTANT. But when you are operating the Auto-Tuning and wish to bypass weak stations, push "IN" the button to LOCAL. (At night, it is better to use LOCAL when listening to AM broadcasts).
6. Although pushing the Auto-Tuning Switch, when the dial pointer is in the state of reversing at the end of the tuning dial, will not cause any serious damage, try not to attempt it. However, you may manipulate other controls when the dial pointer is moving.
7. At the following conditions, the Auto-Tuning will keep on operating and the dial pointer will continue to move across the dial to the right and left and will not stop:
 - (A) When an FM signal cannot be received as a result of incorrectly connected FM antenna.
 - (B) When an AM signal cannot be received as a result of the AM bar antenna not being lifted up.
 - (C) When no broadcasts are received as a result of playing the unit in a basement, tunnel or when all the stations have finished broadcasting.

In order to stop the Auto-Tuning from operating continuously, cut off the power once or turn the Function Selector to PHONO or AUX position.

CONTROLS AND THEIR FUNCTIONS

SPEAKERS, SYSTEM-2 in "IN" position activates the remote pair of speaker systems.

SPEAKERS, SYSTEM-1 in "IN" position activates the main pair of speaker systems.

PHONES allows you to listen to your headphones by simply plugging in the lead.

POWER in "IN" position activates the system.

TAPE MONITOR in "IN" position allows you to listen to playback of a tape recording, and if your tape recorder is equipped with a separate playback head, it allows you to monitor a tape recording.

TUNING METER indicates the strength of the signal being received. It is used to tune for best possible reception of both AM and FM broadcasts.

STEREO INDICATOR LIGHT automatically lights up "STEREO" to indicate whenever the unit is tuned to an FM Stereo broadcast.

ILLUMINATED DIAL POINTER for easy tuning.

VOLUME modifies the sound level of the system. Set to suit your taste.

TUNING KNOB allows you to tune for whatever AM or FM station you wish to hear.

FUNCTION SELECTOR allows you to select whatever function you wish to operate at, whether "AM", "FM", "FM MANUAL", "PHONO" or "AUX".

AUTOMATIC TUNING allows you to seek and select a desired station with simply a flick of your finger.

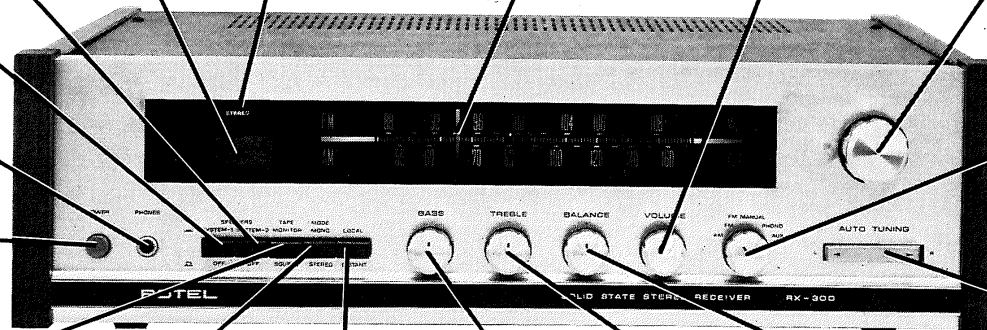
MODE in "IN" position is for monophonic program material, and in "OUT" position it is for stereophonic program material.

LOCAL-DISTANT allows you to select whether the Auto-Tune system is to select only strong "Local" stations or to include weak "Distant" stations also.

BASS modifies low frequency sounds. Set to suit your taste.

TREBLE modifies high frequency sounds. Set to suit your taste.

BALANCE modifies the sound level of each channel in relation to each other. Set to adjust for unequal sounds caused by room acoustics or faulty program material.



RECORD PLAYER

Set the Function Selector to PHONO position, and push the MODE button "IN" for Mono or leave the button "OUT" for Stereo, depending upon your records. In Stereo, the RX-300 is set for normal stereophonic operation; in Mono, it is limited to monophonic operation.

PLAYBACK OF TAPE RECORDING

1. If AUX inputs are being used, turn the Function Selector to AUX position, and set the MODE as well as the tone and balance controls, to your choice.
2. If TAPE IN inputs are being used, push the TAPE MONITOR button "IN" to listen to a playback of pre-recorded tape. The setting of the Function Selector is irrelevant in this case and may be left at any position.

MAKING TAPE RECORDINGS

To make off-the-air recordings, turn the Function Selector to AM or FM and to record off phono records, set to PHONO position. To "dub" off another tape recorder, set to AUX. (The back panel connections should be made so that the "recording" tape recorder is connected to the TAPE IN and TAPE OUT jacks and the "playback" tape recorder to AUX jacks.) Same procedure applies for recording off cassette or 8-track cartridge tape.

If your tape recorder is equipped with a separate playback head, pushing "IN" the TAPE MONITOR button will cause the input source to be bypassed and will permit you to listen to the recording being made on the tape. Leaving the TAPE MONITOR button "OUT" will permit you to listen to the input source. Thus, with the TAPE MONITOR button you may "monitor" (or compare) the recording being made with the source being recorded.

SELECTING MONOPHONIC OF FM STEREO BROADCASTS

Under normal use for all FM broadcasts the Function Selector should be placed in the FM position.

Your receiver is equipped with a stereo sensing circuit which can automatically determine whether your unit is receiving monophonic or stereophonic broadcasts and automatically adjust the mode of operation.

If the station is transmitting stereo, your receiver will automatically switch in the multiplex section and you will hear the broadcast in full stereo. Should the station conclude broadcasting in stereo, the RX-300 will automatically switch back to monophonic operation.

Should your receiver get a weak stereo signal whose quality has been degraded by noise or poor signal conditions, and you wish to listen to this stereo broadcast monophonically, push "IN" the MODE button to Mono position.

LISTENING TO STEREO HEADPHONES

Simply plug your Headphones into the PHONES jack located on the front panel. You can deactivate the speaker systems by pushing "OUT" the Speaker Selector button (or buttons if you have two pairs of speaker systems). In this way, you may listen to the Stereo Headphones without listening to the speakers.

FUSE

The RX-300 is protected with one 2-ampere fuse in the AC primary and one 3 ampere fuse in the DC output circuits. Replacing with a fuse of higher rating will not protect the unit more effectively, rather it may result in severe damage to the unit. (In 230V areas the AC fuse will be of 1-ampere rating, and DC fuse will remain at 3-ampere rating.)

SPECIFICATIONS

TUNER SECTION:

FM: ANTENNA IMPEDANCE: 300 ohms balanced, 75 ohms unbalanced

SENSITIVITY: 2.2 microvolts (IHF)

HARMONIC DISTORTION: less than 1% (400 Hz, 100% Mod.)

SIGNAL TO NOISE RATIO: 65 dB

CAPTURE RATIO: 5 dB

IMAGE REJECTION: 55 dB

IF REJECTION: 60 dB

SELECTIVITY: 45 dB (IHF)

STEREO SEPARATION: 35 dB at 1 kHz

SPURIOUS RESPONSE REJECTION: 70 dB

AM: SENSITIVITY: 25 microvolts (IHF)

IMAGE REJECTION: 50 dB at 1 MHz

IF REJECTION: 50 dB at 1 MHz

SELECTIVITY: 30 dB

AMPLIFIER SECTION:

TOTAL MUSIC POWER (IHF): 80 watts at 4 ohms

60 watts at 8 ohms

CONTINUOUS POWER (RMS): 20 watts/channel at 8 ohms

DISTORTION, IM: 0.5% at rated output

HARMONIC: 0.2% at rated output

FREQUENCY RESPONSE: 20 to 30,000 Hz, 0 to -1.5 dB at 15 watts

POWER BANDWIDTH: 25 to 30,000 Hz (IHF)

INPUT SENSITIVITY AND IMPEDANCE:

PHONO (MAG): 3 mV 50 kohms

AUX: 200 mV 100 kohms

TAPE IN: 400 mV 15 kohms

SIGNAL TO NOISE RATIO:

PHONO: 60 dB

AUX: 70 dB

RESIDUAL NOISE: 2 mV

SQUARE WAVE RISETIME: 3 microseconds

DAMPING FACTOR: 30 at 8 ohms

BASS CONTROL: +14 dB to -12 dB at 50 Hz

TREBLE CONTROL: ± 12 dB at 10,000 Hz

SPEAKER IMPEDANCE: 4, 8, 16 ohms

POWER VOLTAGE: 100, 120, 220, 240 V, 50/60 Hz

DIMENSIONS: 17" W X 13" D X 4 $\frac{7}{8}$ " H

WEIGHT: 15.4 lbs.

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ROTEL® RX-300