

# **ROTEL** *hi-fi*

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## **RSP-960AX**

**SURROUND SOUND PROCESSOR**

# ***OWNER'S MANUAL***

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**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  
identification plate on the rear panel.

## SAFETY INSTRUCTIONS

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, kitchen sink, laundry tub, in a wet basement or near a swimming pool, etc.
6. **Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.
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 and 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 the openings.
16. **Damage Requiring Service** - The appliance should be serviced by qualified factory-authorized service personnel when:
  - The power-supply cord or the plug has been damaged; or
  - Objects have fallen, or liquid has been spilled into the appliance; or
  - The appliance has been exposed to rain; or
  - The appliance does not appear to operate normally or exhibits a marked change in performance; or
  - 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 factory-authorized service personnel.

### PORTABLE CART WARNING





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

### Explanation of Graphical Symbols

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 instructions in the literature accompanying the appliance.



	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<b>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</b>		

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## INTRODUCTION

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### A WORD FROM ROTEL

We at Rotel take this opportunity to thank you for choosing our product. Our commitment and dedication to the design and manufacturing of high fidelity products for more than thirty years have guided the creation of equipment with the highest level in sound reproduction. We are confident that you will enjoy your Rotel equipment, now and for many years to come.

Please read this instruction manual carefully before you start using your surround sound processor and keep it in a safe place for future reference. Thank you.

### INTRODUCING THE RSP-960AX SURROUND SOUND PROCESSOR

With the introduction of Dolby Surround - Pro Logic, we are now capable of listening to soundtracks with the excitement and emotion of modern cinema theaters. Dolby Surround decoders are designed to work together with specially encoded audio soundtracks (Dolby Stereo movies or Dolby Surround video productions) which include a specially recorded center speaker signal. This adds to the conventional front and rear speaker signals, giving an added front-to-back dimension and a continuous left-to-right dimension, enabling the listener to feel he or she is a part of the sounds and images being heard and seen.

The RSP-960AX surround sound processor combines the ability of listening to Dolby Surround - Pro Logic recordings with full or partial effects (depending on the speaker systems used), with the opportunity of also listening to other programs in any one of three simulated surround modes: Jazz Club, Concert Hall and Stadium. There is also an additional Stereo button, which bypasses all surround modes, and creates a 'stereo' sounding effect for monaural sources, such as old soundtracks or records.

Six components may be directly connected to the RSP-960AX via the following inputs: Line, Tape, Laser Disc (LD), Video 1, Video 2 and TV Monitor. If the LD, Video 1, Video 2 and TV Monitor components are S-video compatible, they can be connected to the high grade S-video connectors (transcoders), which provides far superior picture quality.

Three Dolby Pro Logic modes can be experienced: Wide Center mode (assuming 3 identical full range front speakers), creates the 'widest' frequency response in the center as well as the left and right speakers; Normal Center mode removes the low bass frequencies from the center speakers; and Phantom Center mode creates a 'phantom' channel between the front speakers, when there is no center speaker. The Level Check button allows the adjustment of the speakers' output levels. The Delay Time button gives a choice of listening to soundtracks with either a 20 or 30 millisecond delay time, depending on the size of the room and distance of the speakers. The Bass Equalizer button increases the low level frequencies up 8 dB for the whole speaker system.

The RSP-960AX comes with a comprehensive remote control unit, the RR-907, which duplicates all front panel functions, as well as including a Mute function.

## UNPACKING AND INSTALLING

### CONTENTS OF THE PACKAGING BOX

- RSP-960AX surround sound processor
- RR-907 remote control unit and batteries
- Instruction manual

If any of these items is missing, please contact your dealer immediately.

### UNPACKING

Carefully unpack your unit and place it gently at its intended location. We advise you to keep the packaging material for future use, in case you move or need to return the unit for service.

### LOCATION

- Place the unit on a flat, firm surface where it will be free from direct sunlight, excessive humidity, vibrations, dust, heat or cold.
- For optimum sound performance, place the processor away from sources of hum, such as transformers or motors.

### ELECTRICAL REQUIREMENTS

Your unit has been designed to be powered by your local mains supply. Before connecting it to the mains outlet, check the rating of your unit on the identification plate located on the rear panel. Never plug the unit into an outlet of voltage different to that specified. The wrong voltage can cause a serious fire hazard. Consult your dealer if in doubt.

**EXCLUSIVE NOTE FOR U.K.** - If your unit comes with a 2-core mains lead without a plug, neither core is to be connected to the earth terminal of a three pin plug, make certain they are connected according to the following instruction, to the proper terminals. Check that the terminals are screwed down firmly and no loose strands of wire are present. **IMPORTANT:** The wires in the 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.

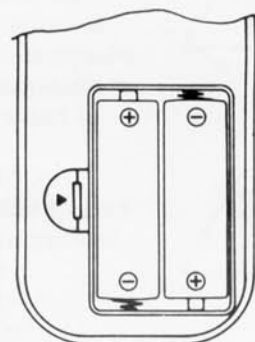
### THE CABINET

There are no user-serviceable parts inside the unit. Do not attempt to open the cabinet, as this could damage your unit and void the warranty. If the unit is dropped, damaged or does not seem to function properly, disconnect the power cord immediately and consult your dealer. If your unit becomes dirty, wipe it gently with a soft, clean, dry cloth. Never use solvents of any kind.

### REMOTE CONTROL UNIT

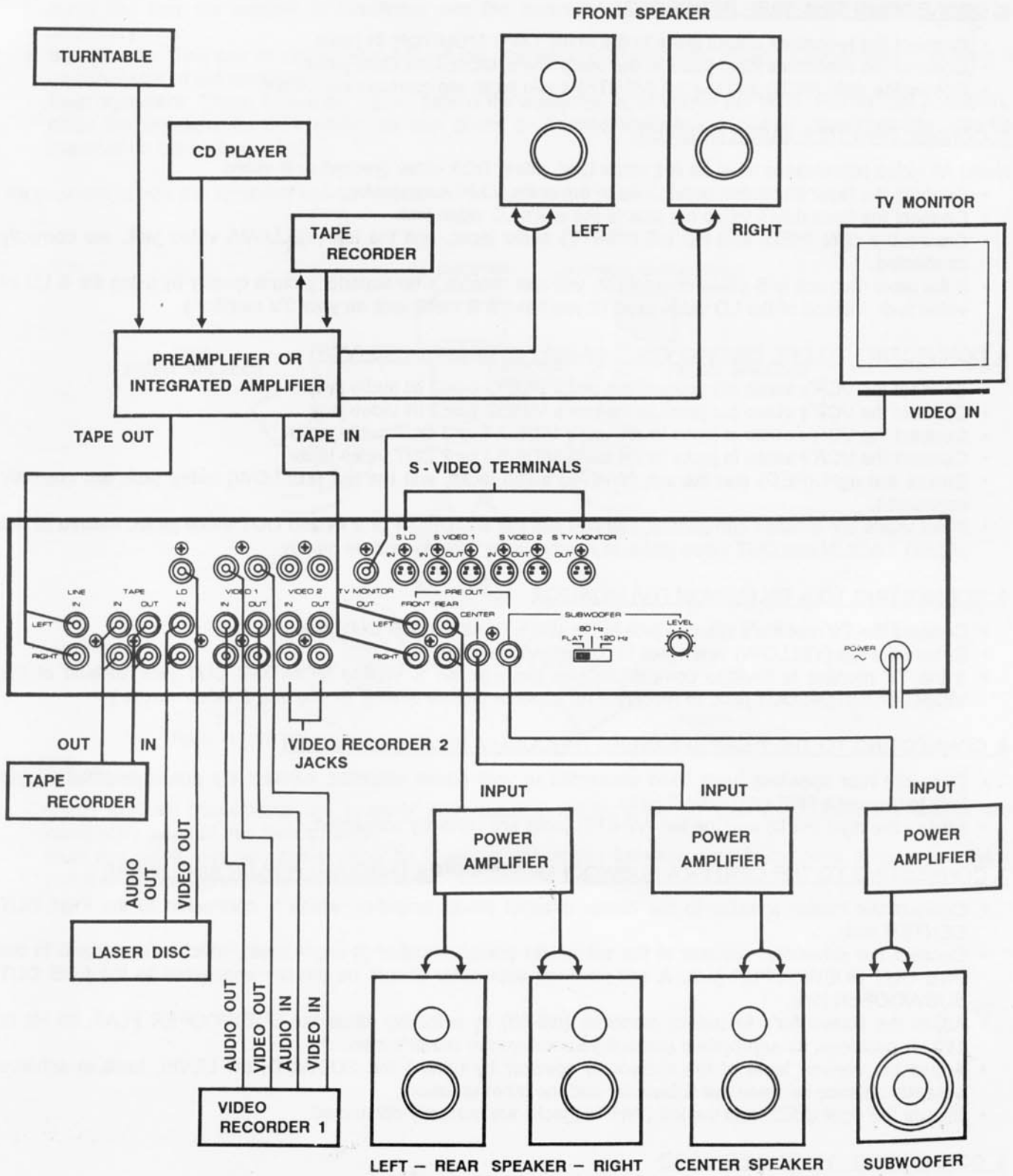
Remove the battery cover - on the back of the remote control unit -, and insert two batteries in the correct position, as indicated. Push the cover back in, to secure the batteries. The remote control unit should be pointed toward the player, to activate the functions. The average lifetime of the batteries is approximately one year, but may vary with the intensity of usage. To ensure the proper safe-keeping of the remote control unit:

- Keep the remote control unit away from extremely hot or humid places.
- Avoid dropping and spilling liquids on or into the remote control unit.
- Avoid exposing the remote sensor to direct sunlight or lighting apparatus.
- Remove the batteries when the remote control unit will not be used for a long time, to avoid leakage of the batteries, which could damage the unit.



## MAKING THE CONNECTIONS

**NOTE:** Before making connections, ensure the power is turned off and that the power cords from all components have been unplugged from the mains outlet.



## 1. CONNECTING TO AN INTEGRATED AMPLIFIER OR PREAMPLIFIER

- Once the front speakers and components - such as a compact disc player and cassette recorder - have been connected to your amplifier, connect the amplifier's 'record out' or 'tape out' jacks to the LINE jacks of your RSP-960AX.
- Connect the amplifier's 'record in' or 'tape in' jacks to the unit's PRE OUT FRONT jacks.
- Ensure the right (RED) and the left (WHITE) audio jacks and speaker terminals, are correctly connected.

## 2. CONNECTING TO A TAPE RECORDER

- Connect the recorder's output jacks to the unit's TAPE MONITOR IN jacks.
- Connect the recorder's input jacks to the unit's TAPE MONITOR OUT jacks.
- Ensure the right (RED) and the left (WHITE) audio jacks are correctly connected.

## 3. CONNECTING TO A LASER DISC (LD)

**Note:** All video connections must be the same type, either RCA video (yellow) or S video.

- Connect the laser disc's audio out jacks to the unit's LD IN audio jacks.
- Connect the laser disc's video out jack to the unit's LD video jack.
- Ensure the right (RED) and the left (WHITE) audio jacks, and the top (YELLOW) video jack, are correctly connected.
- If the laser disc unit is S-video compatible, you can receive a far superior picture quality by using the S LD IN video jack, instead of the LD video jack. (If you have a S video jack on your TV monitor.)

## 4. CONNECTING TO ONE OR TWO VIDEO CASSETTE RECORDERS (VCR)

- Connect the VCR's audio out jacks to the unit's VIDEO 1 or 2 IN audio jacks.
- Connect the VCR's video out jacks to the unit's VIDEO 1 or 2 IN video jack.
- Connect the VCR's audio in jacks to the unit's VIDEO 1 or 2 OUT audio jacks.
- Connect the VCR's video in jacks to the unit's VIDEO 1 or 2 OUT video jack.
- Ensure the right (RED) and the left (WHITE) audio jacks, and the top (YELLOW) video jack, are correctly connected.
- If the VCRs are S-video compatible, you can use the S VIDEO 1 or 2 IN and OUT video jacks, instead of the VIDEO 1 or 2 IN and OUT video jacks, to receive a far superior picture quality.

## 5. CONNECTING TO A TELEVISION (TV) MONITOR

- Connect the TV monitor's video in jack to the unit's TV MONITOR OUT jack.
- Ensure the top (YELLOW) video jack is correctly connected.
- If the TV monitor is S-video compatible, you can use the S VIDEO MONITOR OUT jack, instead of the VIDEO MONITOR OUT jack, to receive a far superior picture quality. (If you use S video source.)

## 6. CONNECTING TO THE REAR SPEAKERS THROUGH A POWER AMPLIFIER

- Once the rear speakers have been connected to your power amplifier, connect the power amplifier's input jack to the unit's PRE OUT REAR jacks.
- Ensure the right (RED) and the left (WHITE) jacks are correctly connected.

## 7. CONNECTING TO THE CENTER & SUBWOOFER SPEAKERS THROUGH POWER AMPLIFIERS

- Connect the center speaker to the center channel power amplifier, which is connected to the PRE OUT CENTER jack.
- Connect the subwoofer speaker to the subwoofer power amplifier (if unpowered), which is connected to the PRE OUT SUBWOOFER jack. A self-powered subwoofer should be directly connected to the PRE OUT SUBWOOFER jack.
- Adjust the subwoofer's frequency response (roll-off) by selecting either the SUBWOOFER FLAT, 80 Hz or 120 Hz positions, as appropriate (consult your subwoofer owner's manual).
- Adjust the volume level of the subwoofer speaker by turning the SUBWOOFER LEVEL knob to achieve acoustic balance between the subwoofer and the other speakers.
- Ensure the right (RED) and the left (WHITE) jacks are correctly connected.

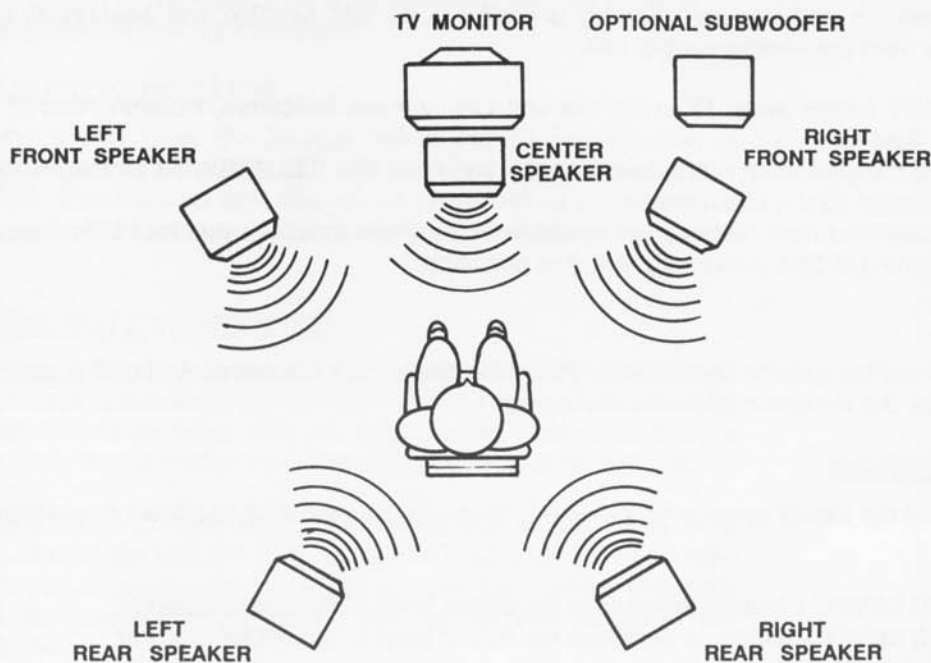
## 8. CONNECTING THE POWER CORD

After completing the installation and all the connections, connect the power cord to the mains outlet. Always handle the power cord with care, and never pull the plug out by tugging the cord.

## 9. SPEAKER PLACEMENT

- **Front Speakers:** These should be widely spaced, to obtain a broad sound stage, but not so wide so that 'gaps' occur in the imaging. If possible, the tweeters should be placed at about two thirds of the way up the screen.
- **Center Speaker:** This should preferably be placed either on top of or below the screen, as close to it as possible. Tilting the center speaker may also increase the effect of sound coming straight from the screen. However, if there is any discoloration of the picture close to where the speaker is, it means the speaker is too close and that the magnet is interfering with the screen. In some cases, a shielded speaker may be necessary.
- **Sub Woofer:** This can be placed anywhere in the front section of the room, though a suggestion is to place it on either side of the center speaker.
- **Rear Speakers:** These should be placed behind the audience, at or above ear level. Failing that possibility, place the speakers on their backs, so that sound is directed towards the ceiling. Speakers can also be mounted on the wall or ceiling.

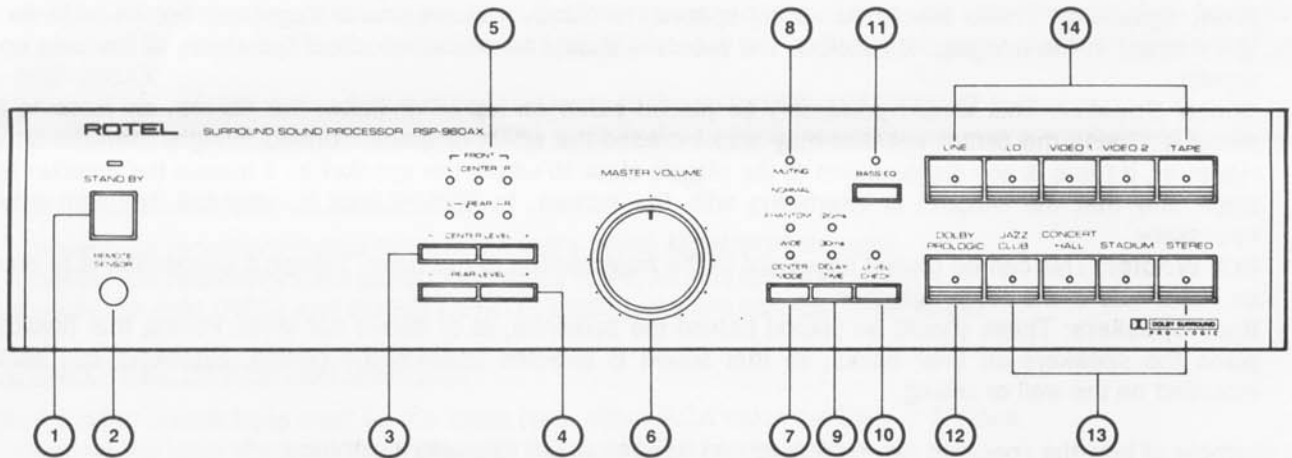
An example of how the speakers can be placed can be seen in the following illustration:



### NOTES:

- Verify that all connections are properly and securely made, checking that all interconnect cables are completely inserted into their sockets.
- Hum and noise may be caused either by improper connection between amplifiers and/or speakers, or as a result of different grounding or location of the components.

# CONTROLS AND OPERATION OF THE SURROUND SOUND PROCESSOR



## 1. STANDBY BUTTON/INDICATOR:

Toggles the unit between on and standby. Standby is similar to an "off" function and disables all functions. This button is also available from the remote control unit.

- Press the STANDBY button once, to switch the unit ON. Various indicators, including that of the MASTER VOLUME control, light up.
- Press the STANDBY button once more, to switch the unit back into STANDBY. All indicators - except for the red STANDBY indicator light -, disappear.
- When the unit is switched from standby to on, all the buttons and functions that had been selected when the unit was on, will remain in their previously selected positions.

## 2. REMOTE SENSOR

Receives commands from the remote control unit. The more directly the remote control unit is pointed toward the sensor, the better will be the reception of such commands.

## 3. CENTER LEVEL BUTTONS

Allows the adjustment of the center speaker output level. These buttons are also available from the remote control unit.

- Press the CENTER LEVEL + button, to increase the output level of the center speaker.
- Press the CENTER LEVEL - button, to decrease the output level of the center speaker.

## 4. REAR LEVEL BUTTONS

Allows the adjustment of the rear speakers output level. These buttons are also available from the remote control unit.

- Press the REAR LEVEL + button, to increase the output level of the rear speakers.
- Press the REAR LEVEL - button, to decrease the output level of the rear speakers.

NOTE: To adjust the output level of the subwoofer speakers you should turn the SUB WOOFER LEVEL knob, on the rear panel of this unit.

## 5. FRONT, CENTER AND REAR INDICATORS

These indicate which speaker signals are available from the different speakers. The different modes of the surround sound processor require different speaker usage at different times. When the speaker signals are available from the different speakers, the corresponding indicators light up. The top left and right indicators correspond to the FRONT LEFT and RIGHT speakers; the top middle indicator corresponds to the CENTER speaker; and the bottom left and right indicators correspond to the REAR LEFT and RIGHT speakers.

## 6. MASTER VOLUME CONTROL

Varies the volume for the FRONT, CENTER and REAR speakers, in a simultaneous fashion. This control is also available from the remote control unit.



- Turn the MASTER VOLUME CONTROL clockwise to increase the volume, and anti clockwise to decrease it. The volume increases or decreases simultaneously for all the speakers that it controls.

## 7. CENTER MODE BUTTON/INDICATORS

Allows the choice of the best possible speaker output mode - depending on the type of speaker system being used -, when viewing and playing back Dolby Surround encoded soundtracks (video tapes, laser discs or broadcast television). These buttons are also available from the remote control unit.

- Press the CENTER MODE button to choose one of the different modes available. The chosen mode will be shown by one of the three CENTER MODE indicators. Use the:
- **Normal mode:** when the center speaker is smaller than the front speakers, and therefore less capable of handling the lowest frequencies. The indicator below the word NORMAL lights up red, and the bass is subsequently redistributed from the center speaker to the front speakers.
- **Phantom mode:** when a center speaker is not available. The indicator below the word PHANTOM lights up red, and a "phantom" channel is created. The center channel information is split equally between the front left and right speakers, thus preventing loss of information and improving the intelligibility of the vocal tracks.
- **Wide mode:** when the center speaker is large enough (preferably identical to the front speakers) to handle the low bass frequencies. The indicator below the word WIDE lights up red. The low bass from the center speaker is not fed through to the front speakers, thereby creating the widest frequency response in the center as well as the left and right speakers.

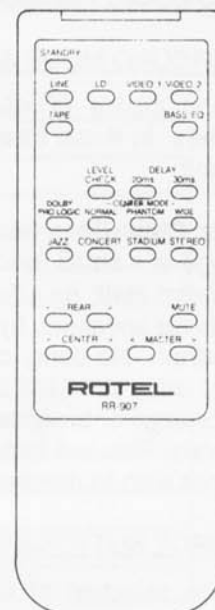
## 8. MUTING BUTTON/INDICATOR

Turns off the sound from the source. While the muting function is activated (no sound is heard), a red indicator light appears above the word MUTING. The indicator light disappears when muting is deactivated (sound is heard). This function is only available from the remote control unit.

## 9. DELAY TIME BUTTON/INDICATOR

The delay time is the time it takes for the surround sound waves to go from the surround speakers to the listener. You can choose between a 20 or 30 millisecond delay time, with the larger delay time resembling a larger room. This button is also available from the remote control unit.

- Press the DELAY TIME button to choose one of the delay time modes. One of the DELAY TIME indicators - either 20 ms or 30 ms - will light up, depending on the mode chosen. Experiment with both modes, to choose the delay time that will be best suited to the soundtrack.



NOTE: It is recommended position is that of 20 milliseconds. However, depending on the size of the room, or the distance of the speakers, you may find the 30 millisecond delay time more effective. Note that the difference between 20 and 30 milliseconds is subtle.

## 10. LEVEL CHECK BUTTON/INDICATOR

Before using the DOLBY PRO LOGIC button, the output level of the speakers should be adjusted to the proper level for best Dolby Surround reproduction. Such an adjustment ensures the output level of the speakers is appropriately suited to the environment and to the listeners. An incorrect balance of the speakers' output levels will produce distorted sound effects. This button is also available from the remote control unit.

- Switch on one of the source components, such as the television or the laser disc player.
- Turn the MASTER VOLUME control to the desired listening level.
- Press the LEVEL CHECK button. The red LEVEL CHECK indicator lights up and a 'test noise signal' is heard. The noise is heard from each of the speakers in the following sequence: LEFT FRONT speaker, CENTER speaker, RIGHT FRONT speaker, and REAR speakers. The noise will be heard for approximately 5 seconds for each speaker(s). This sequence will be repeated until the LEVEL CHECK button is deactivated.
- During this process, the output level of the speakers can be manually adjusted to suit the particular surroundings and taste of the listeners. Use the Center Level buttons, Rear Level buttons and Master Volume control, to manually adjust the output levels of the center, rear and front speakers.
- We recommend that the output levels of the CENTER and REAR speakers be adjusted to match the output levels of the FRONT speakers, so as to avoid distorted sound effects.

- Press the LEVEL CHECK button once again to deactivate this function. The LEVEL CHECK indicator light and test noise signals disappear.

### 11. BASS EQUALIZER (EQ) BUTTON/INDICATOR

Boosts the bass up 8 dB (at 100 Hz). This button is also available from the remote control unit.

- Press the BASS EQ button to boost the bass level. The red BASS EQ indicator lights up.
- Press the BASS EQ button to deactivate this function. The BASS EQ indicator light disappears.

### 12. DOLBY PRO LOGIC BUTTON/INDICATOR

Recreates the Dolby Stereo theater's ambiance and effects, by providing a front-to-back sound field dimension, to complement the left-to-right dimension of conventional stereo, as well as a center dimension coming from the center speaker. This button is also available from the remote control unit.

- Press the DOLBY PRO LOGIC button. The green DOLBY PRO LOGIC indicator lights up. If a Dolby Pro Logic encoded soundtrack is played, the fullest spatial capabilities of the system will be obtained. Non-Dolby Pro Logic stereo recordings can also be played effectively in Dolby Pro Logic mode, noting however, that only partial effects will be obtained.
- To deactivate the DOLBY PRO LOGIC function, press one of the simulated surround buttons. The DOLBY PRO LOGIC indicator light disappears.

### 13. SURROUND MODE & STEREO BUTTONS/INDICATORS

Allows the choice of stereo or special surround effects, and recreates the sound of a particular place or atmosphere. In these modes the center speaker is not in use. These buttons are also available from the remote control unit.

- **Jazz Club:** Bass frequencies are slightly lowered and the front channels are slightly mixed to recreate the image of a small room. An echo effect is produced by mixing the 30 ms and 1.5 ms rear signal delay times.
- **Concert Hall:** An effect similar to stereo is created, and 'reverb and delay' effects are introduced into the front and rear speakers, by mixing the 30 ms and 18 ms rear signal delay times.
- **Stadium:** No delay circuit is used, to simulate the effect of having no roof, as in an open-air stadium. The front and rear - left and right - speaker signals are spread wide. This mode is effective when hearing live recordings or broadcasts (such as sporting events).
- **Stereo:** This is a bypass setting and gives you two-channel, two-speaker stereo for use with sources that you do not wish to process in surround sound.

### 14. SOURCE BUTTONS/INDICATORS

Allows the selection of the source which you want to hear, visualize and/or control. These buttons are also available from the remote control unit.

- **Line:** Press the LINE button to activate the input from the preamplifier or integrated amplifier. The LINE indicator lights up.
- **LD:** Press the LD button to activate the laser disc player. The LD indicator lights up.
- **Video 1:** Press the VIDEO 1 button to activate the video input (1). The VIDEO 1 indicator lights up.
- **Video 2:** Press the VIDEO 2 button to activate the video input (2). The VIDEO 2 indicator lights up.
- **Tape:** Press the TAPE button to activate the recorder. The TAPE indicator lights up.
- The indicators' lights are green when activated, and disappear when deactivated.

## SPECIFICATIONS (Typical Values)

Sensitivity (Input 1 kHz; Output 1V; Auto Bal. off)

	FRONT	CENTER	REAR
DOLBY	300 mV	73 mV	50 mV
JAZZ	250 mV		100 mV
HALL	420 mV		50 mV
STADIUM	670 mV		120 mV
STEREO	420 mV		

Delay Time - Rear Speaker (Dolby) ..... 20 / 30 mS

Bass Equalization (Input 100 Hz) - Front Speaker (Stereo) ..... +8 dB

Frequency Response (Center Mode: Wide)

	FRONT	CENTER	REAR
DOLBY	20-55 kHz, (+0 -1 dB)	35-25 k, (+0 -1 dB)	30-6.5 kHz, (+0 -3 dB)
JAZZ	100Hz(-9.5dB),10kHz(-4.5dB)		
HALL	11- 110 kHz, (+0 -1 dB)		
STADIUM	100Hz(-4dB),10kHz( +3dB)		5-120 kHz, (+0 -3 dB)
STEREO	11-110 kHz, (+0 -1 dB)		

Hum and Noise (Input Short, Din Audio / IHF A)

	FRONT	CENTER	REAR
DOLBY	84 / 85 dB	75 / 76 dB	57 / 58 dB
JAZZ	100 / 102 dB		60 / 60 dB
HALL	100 / 102 dB		65 / 65 dB
STADIUM	94 / 95 dB		90 / 92 dB
STEREO	100 / 102 dB	81 / 83 dB	91 / 94 dB

Harmonic Distortion (Input 1 kHz; Output 1 V; 80 kHz filter on)

	FRONT	CENTER	REAR
DOLBY	0.025 %	0.035 %	0.35 %
JAZZ	0.0045 %		
HALL	0.0045 %		
STADIUM	0.0060 %		0.01 %
STEREO	0.0045 %		

Overload (Input 1 kHz; Output 1 V; Distortion 1 %)

	FRONT	CENTER	REAR
DOLBY	3.0V	> 2.0 V	1.5 V
JAZZ	>3.0 V		
HALL	> 3.0 V		
STADIUM	>3.0 V		> 2.0 V
STEREO	> 3.0 V		

Residual Noise (Din Audio / IHF A)

	FRONT	CENTER	REAR
	5 / 4 uV	25 / 20 uV	23 / 20 uV

Channel Separation (Center Rear VR -10 dB)

	FRONT	CENTER	REAR
DOLBY - L or R	-35 dB	-46 dB	-36 dB
Center	-35 dB		-36 dB
Rear	-45 dB	-32 dB	
JAZZ - L or R	-67 dB		
Rear			
HALL - L or R	-67 dB		
Rear			
STADIUM- L or R	-6.6 dB		+0.5 / -5.5, -5.5 / +0.5 dB
Rear	-8.5 dB		
STEREO - L or R	69 dB		

**SUB WOOFER**

Sensitivity (Output 1 V; Flat filter on) (Dolby)

FRONT	CENTER	REAR
145 mV	33 mV	

Frequency Response (Input Stereo, L ch)

FLAT	80 Hz	120 Hz
9-33 kHz, (+0 -1 dB)	80 Hz, (-3 dB)	120 Hz, (-3 dB)

Hum and Noise (1 V, 0 dB, Din Audio / IHF A)

FLAT	80 Hz	120 Hz
68 / 69 dB	85 / 106 dB	83 / 100 dB

Harmonic Distortion (Input Stereo, L ch)

FLAT	80 Hz	120 Hz
0.040%, 1 kHz	0.025%, 20 Hz	0.025 %, 20 Hz

Residual (Volume min) (Din Audio / IHF A)..... 8 uV / 7 uV

**VIDEO SELECTOR**

Sensitivity (Output Level 1 V, 75 ohm load)..... 1 V

Frequency Response (Output Level 1 V, 75 ohm load) ..... 10 Hz - 10 MHz, -1 dB

Overload (Input 4 MHz; Output 75 ohm load) ..... 3 V

Signal to Noise (Output 75 ohm load; 0dB = 1 V)..... -125 dB

**GENERAL**

Power Consumption..... 120 V, 50/60 Hz  
230 V, 240 V, 50/60 Hz

Overall Dimensions ..... 440(W) x 92(H) x 329(D) mm 17-3/8"(W) x 4-13/16"(H) x 13"(D)

Weight.....6.0 kg / 13.2 lbs

NOTE: Specifications and design are subject to possible modification without notice.

\* Dolby and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

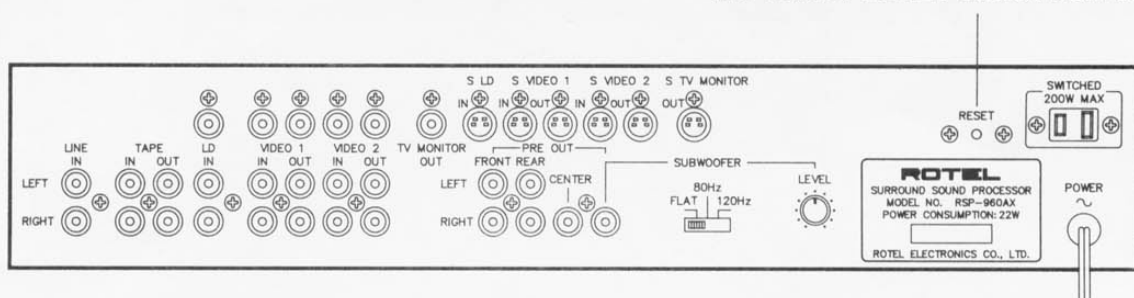
# NOTICE

The RSP-960AX is equipped with an additional function **RESET** button on the rear panel to allow the resetting for Pro Logic left and right channel balance in case of unbalancing caused by accidental erasure of the backup memory by the RSP-960AX being unplugged or having power failure for more than a week.

After you discover the accidental erasure and power on and adjust levels of the unit again, you may experience the unbalancing, although rare, between Pro Logic left and right channels. In this case, push the RESET button with a ballpoint pen's tip to correct the balance. However, as the resetting will also cancel all other level settings, the Balance Check must be done again using the test tone to set all the levels correctly.

Do not use the RESET button other than the above incident.

The hole of RESET switch button



## Additional Information for North American Version: (applicable for U.S.A., Canada and where approved for usage)

The RSP-960AX has a switched AC outlet on the rear panel for connecting the Rotel RLC-900 line conditioner. If you plug your power amplifier and other equipment to the AC outlets of the RLC-900, this will allow power turn on/off to all equipment connected via the RSP-960AX with its remote control handset. The control AC cord, not the main AC cord, of the RLC900 should be connected to the RSP-960AX's AC outlet.

Alternatively you can connect a tuner or an auxiliary equipment to the AC outlet. Such equipment can be turned on/off by the RSP-960AX.

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