


CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN



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.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

NOTICE

The DENON AVR-3000 is equipped with sophisticated heat detection circuitry to protect the unit from excessive heat.

This protection circuit may be activated when the unit is operating at continuous high power conditions and/or inadequate ventilation.


When activated all signal outputs are muted and "PROTECTION!" is indicated on the display.

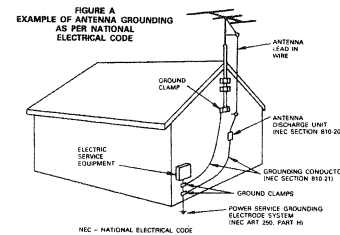
If protection is activated, switch off unit and allow unit to cool, this action will reset protection device.

After cool down, turn on unit, it will operate normally.

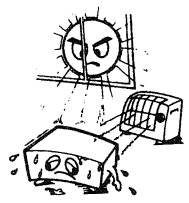



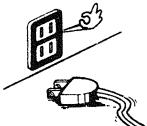
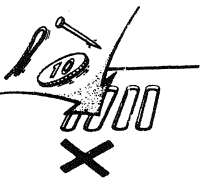
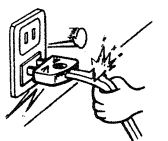
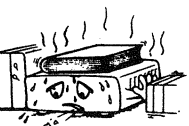
Note: If unit does not receive adequate air circulation, move to location that will allow proper cooling.

IMPORTANT SAFEGUARDS

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. Cleaning – Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. Attachments – Do not use attachments not recommended by the video product manufacturer as they may cause hazards.
7. Water and Moisture – Do not use this video product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.
8. Accessories – Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
- 9A. 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.
9. Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the video product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the video product on a bed, sofa, rug or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. Power Sources – This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.
11. Grounding or Polarization – This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
12. Power-Cord Protection – Power-Supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. 
14. Outdoor Antenna Grounding – If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
15. Lightning – For added protection for this video product receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power-line surges.
16. Power Lines – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17. Overloading – Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
18. Object and Liquid Entry – Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind of the video product.
19. Servicing – Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
20. Damage Requiring Service – Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power-supply cord or plug is damaged.
 - b. If liquid has been spilled, or objects have fallen into the video product.
 - c. If the video product has been exposed to rain or water.
 - d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
 - e. If the video product has been dropped or the cabinet has been damaged.
 - f. When the video product exhibits a distinct change in performance – this indicates a need for service.
21. Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
22. Safety Check – Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in proper operating condition.

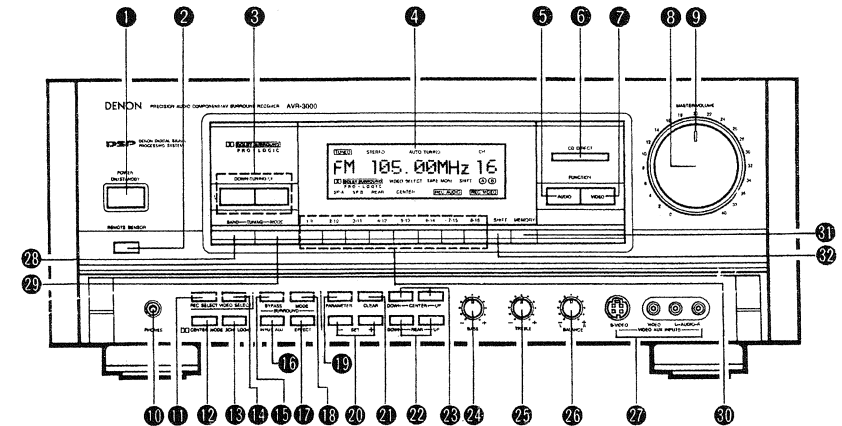


NOTE ON USE

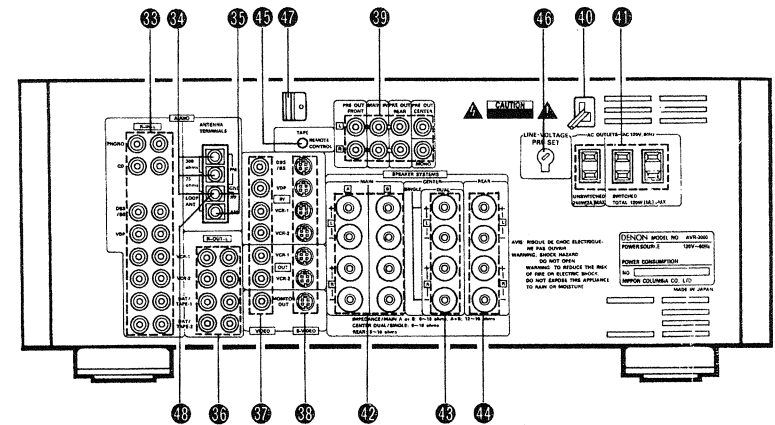
 <p>Be careful of high temperatures</p> <ul style="list-style-type: none"> Do not place the set in a location where it will be exposed to direct sunlight or near a heating appliance. <p>Caution on rack/cabinet installation</p> <ul style="list-style-type: none"> Avoid installing the set in a closed-type rack. When installing in a rack or cabinet, provide a sufficiently large ventilation opening to promote heat radiation. 	 <p>Caution on humidity, water, and dust</p> <ul style="list-style-type: none"> Do not place the set in a location where there is high humidity or a lot of dust. <p>Flower vases or other items containing water should not be placed on top of the set.</p>	 <p>Do not open the case</p> <ul style="list-style-type: none"> Opening the top cover or the bottom plate of the case and inserting your hand is dangerous. Do not open the case. <p>If some trouble arises with the performance of the set, remove the power plug soon and contact the store where the set was purchased or a nearby dealer.</p>
<p>Do not allow foreign matter into the equipment</p> <ul style="list-style-type: none"> Be especially careful of needles, hair pins, and coins getting into the set. 	 <p>Care of the case</p> <ul style="list-style-type: none"> Avoid the use of pesticides near the set as well as wiping the case with benzine, thinner or other solvents since they may cause a change in quality or color. Use a soft cloth when wiping away dirt and follow the instructions carefully when using chemically treated cloths. 	 <p>During your absence</p> <ul style="list-style-type: none"> When not using the set for an extended period such as when taking a trip, be sure to disconnect the plug from the receptacle.
 <p>Do not allow foreign matter into the equipment</p> <ul style="list-style-type: none"> Be especially careful of needles, hair pins, and coins getting into the set. 	 <p>Care with the power cord</p> <ul style="list-style-type: none"> When removing the plug from the receptacle, do not pull the power cord; be sure to hold the plug when removing it. 	 <p>For sets with ventilation holes</p> <p>Do not block the ventilation holes of the set</p> <ul style="list-style-type: none"> Blocking of the ventilation holes will lead to damage of the set. The ventilation holes are very important for heat radiation from within the set. Care must be taken since placing an object against the holes will result in an extreme rise of temperature within the set.

PART NAMES AND FUNCTIONS (Refer to pages 14 ~ 17)

Front panel (1 ~ 22)



Rear panel (23 ~ 46)



- We greatly appreciate your purchase.
- Read these operating instructions carefully to obtain the best performance and a long, trouble-free life from this receiver. Be sure to keep these operating instructions for future reference.

– CONTENTS –

1	Before Using	6	• Playback	31	
2	Installation Precautions	7	• Recording (audio and video)	32	
3	Handling Precautions	7	• Monitoring the recording	32	
4	Connections	8~13	• Operations in the different modes	33	
5	Part Names and Functions	14~21	8	Using the DSP (Digital Sound Processor)	34~47
6	Remote Control Unit	22~29	• DSP modes	34	
	• Part names and functions of the remote control unit RC-159	23~25	• Parameters	35~37	
	• Part names and functions of the remote control unit RC-160	23~25	• Dolby Pro Logic Surround	38, 39	
	• System code buttons	26	• DSP operation	40~42	
	• System call buttons	27	• Technical advice	43~47	
	• Remote control unit learning function	28	9	Last Function Memory	48
	• Preset memory	29	10	Troubleshooting	48, 49
7	Operation	30~33	11	Specifications	50
	• Preparations for playback	30		DENON SERVICE NETWORK	53

Check that the following items are included in the package in addition to the main unit:

- ① Operating Instructions 1
- ② Remote control unit
 - (RC-159) 1
 - (RC-160) 1
- ③ R6P/AA batteries 4
- ④ AM loop antenna 1
- ⑤ FM indoor antenna 1

1 BEFORE USING

Read the following cautions carefully before using the receiver:

- Moving the set
 - Be sure to unplug the power cord and disconnect other cords connecting the receiver to other audio units before moving the receiver to prevent damaging or short-circuiting the cords.
- Before turning on the power switch
 - Check again to make sure that all connections are correct and that there are no problems with the connection cords. Be sure to turn the power STANDBY before disconnecting or connecting cords.
- Retain the operating instructions
 - After reading this manual, store it in a safe place.
- The illustrations used in this manual may differ somewhat from the actual receiver.

• MULTI-VOLTAGE MODEL ONLY

Setting the line voltage

- The customer can set the VOLTAGE SELECTOR on the back panel for appropriate line voltage by using a screwdriver.
- Do not use excessive force in setting the VOLTAGE SELECTOR KNOB – you may damage it.
- If the VOLTAGE SELECTOR KNOB does not turn smoothly, call qualified service personnel.

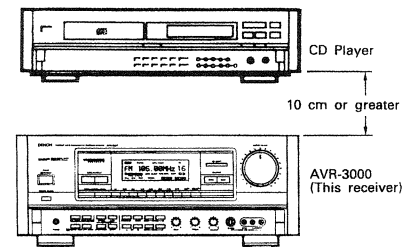
2 INSTALLATION PRECAUTIONS

Using this receiver or other electronic equipment containing microprocessors simultaneously with a tuner or TV may result in noise in the sound or picture.

If this should happen, take the following steps:

- Install the receiver as far as possible from the tuner or TV set.
- Keep the antenna lines of the tuner or TV as far as possible from the receiver's power cord and connection cables.
- This problem is especially frequent when using indoor antennas or 300 ohm feeder lines. We recommend using outdoor antennas and 75 ohm coaxial cables.

A note on stacking



For cooling purposes, do not place another AV component directly on top of the receiver. Be sure to leave a space of at least 10 cm.

3 HANDLING PRECAUTIONS

• Switching the input function when the input jacks are unconnected

Switching the input function when a component is not connected to the input jacks may result in the generation of click noise. If this should happen, turn down the MASTER VOLUME or connect a component to the input jacks.

• Playback with Dolby Pro logic

The Dolby Pro logic position provides optimum effectiveness for sources recorded with Dolby surround. A different surround mode should be selected when playing back sources other than this type. Note in particular that when playing back monaural recording sources, the bypass mode or the simulated mode should be used. Other modes will not provide a suitable effect.

• Muting of the PRE OUT jacks

An electronic muting circuit has been connected to the PRE OUT jacks. This circuit greatly attenuates the output signal for approximately 6 seconds after the power has been switched on. Raising the volume during this operation will result in an extremely large output once the muting has ended, so volume adjustments should be made only after the completion of muting.

• Rear output level while in the surround mode

The rear level will seem small for sources other than Dolby surround sources. The reason for this is that a rear playback signal is not contained in the software. When playing back such software with a surround mode, the mode should be set to something other than Dolby Pro logic surround. The rear output level may seem small for software having a small rear signal, even Dolby surround sources.

• Opening and closing the door

This receiver is equipped with a door on the front panel. Press the "PUSH OPEN△" portion printed at the upper right edge of the door to release and open the door. Likewise, to close the door, press in the same manner until a click sound is heard.

NOTE:

The door will open naturally once it has been released, but it may stop before fully opening. This is not a fault; just lightly push the door open.

4 CONNECTIONS

Speaker System Connections

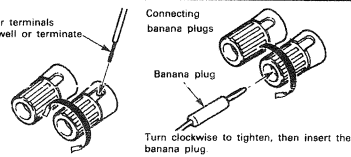
- This receiver can accommodate connections of a total of eight speakers including two sets of (front) main amplifier speakers (A and B), one set of rear speakers, and one or two center speakers.
- Connect the speaker terminals with the speakers making sure that like polarities are matched (⊕ with ⊕, ⊖ with ⊖). Mismatching of polarities will result in weak central sound, unclear orientation of the various instruments, and the sense of direction of the stereo being impaired.
- When making connections, take care that none of the individual conductors of the speaker cord come in contact with adjacent terminals, with other speaker cord conductors, or with the rear panel.

Speaker Impedance

- When speaker systems A and B are used separately, speakers with an impedance of from 6 to 16 ohms can be connected.
- Be careful when using two pairs of front speakers (A + B) at the same time, since use of speakers with an impedance outside the range of 12 to 16 ohms will lead to damage.
- Speakers with an impedance of 6 to 12 ohms can be connected for use as center and rear speakers.
- The protection circuit may operate or damage may occur when speakers with an impedance outside of the above range are used.

- Peel off the insulation from the tip of the cord.
- Twist the conductors.
- Turn the speaker terminal counterclockwise to loosen it.
- Insert the exposed portion of wire completely and turn the terminal clockwise to tighten it.

Connecting the speaker terminals
Twist the conductors well or terminate the cord.

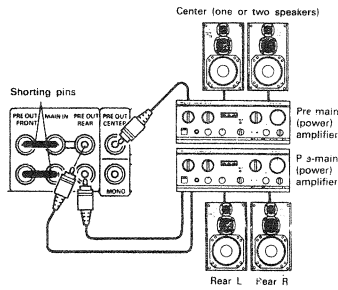


Speaker connections using the PRE OUT and MAIN IN jacks

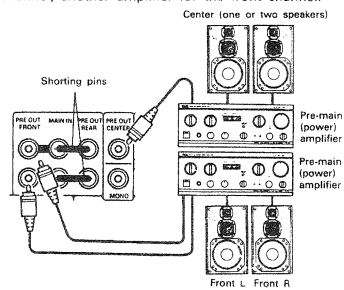
These jacks are used when a separate pre-main (power) amplifier is used to amplify the front, rear, and center sounds.

Using a second pre-main (power) amplifier Use the included short pin, inserting it fully.

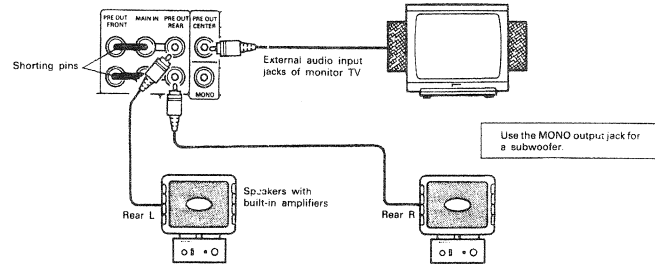
1 When using different amplifiers for the rear and center channels.



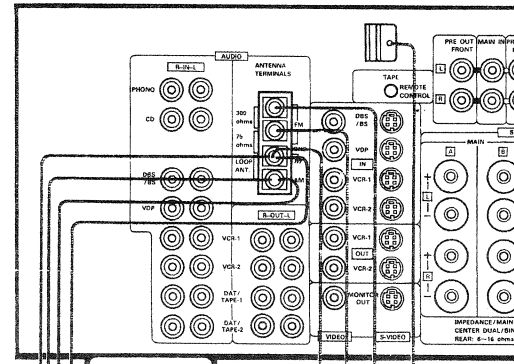
2 When using the built-in main amplifier for the rear channel, another amplifier for the front channel.



3 Using other equipment



Connecting the antenna terminals



ANTENNA INSTALLATION

FM ANTENNA

The supplied T-type indoor FM antenna (300 ohms) can be used inside wooden houses for receiving local FM stations and other strong FM signals. Stretch out the ends of the antenna and mount the antenna on the wall or ceiling where optimum reception is achieved. FM T-type antennas may not consistently ensure stable reception, due to environment changes. In such cases, the FM T-type antenna should only be used temporarily until an outdoor FM antenna has been installed.

When connecting an outdoor FM antenna, the use of 75 ohm coaxial cable (3C-2V, 5C-2V) is strongly recommended. Using a 300-ohm feeder cable will cause noise and you will not be able to achieve the high sound quality the built-in tuner is capable of delivering.

AM ANTENNA

Attach the supplied AM loop antenna to the antenna holder on the back panel. Connect the leads to the AM and GND terminals.

Also use the AM terminals for connecting an outdoor AM antenna (when making such a connection do not disconnect the AM loop antenna.)

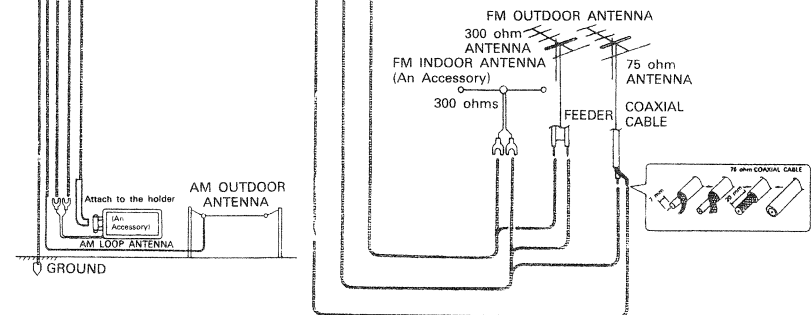
Adjust the loop antenna to obtain optimum reception. Where broadcast stations are distant and only weak signals are received, or where signals are blocked, it is best to install an outdoor AM antenna.

NOTES

- This receiver has a full back-up system. When the power is turned on, the INPUT SELECTOR buttons are set to the last mode set before the power was turned off.
- When using this receiver in close proximity to video equipment (TV, VCR, VDP, etc.), noise may be generated in AM broadcasts. To avoid this, keep the receiver as far away from other video components as possible, or detach the AM loop antenna from the antenna holder and place it where noise is reduced. If the noise is not reduced, turn off the power of the video components when listening to AM broadcasts.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



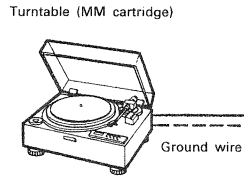
Audio Section

- Do not plug in the power cord until all connections have been completed.
- Be sure to connect the left and right channels properly (left with left, right with right).
- Insert the plugs securely. Incomplete connections will result in the generation of noise.
- Use the AC OUTLETS for audio equipment only. Do not use them for hair driers, etc.
- Note that binding pin plug cords together with power cords or placing them near a power transformer will result in the introduction of hum or other noise.

Connecting a turntable

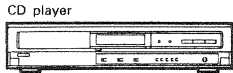
Plug the output cable of the turntable into the PHONO jack of the receiver, the L plug into the left (L) jack and the right plug into the right (R) jack.
If the turntable is equipped with a ground wire, connect it to the GND terminal.
* If hum or other noise is produced when the ground wire is connected, disconnect it.

NOTE:
The receiver cannot be used with MC cartridges directly. Use a separate head amplifier or step-up transformer.

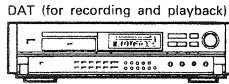


Connecting a CD player

Use pin plug cords to connect the analog output jacks of the CD player to the CD jacks of the receiver.



ANALOG OUTPUT

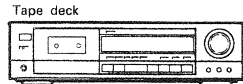


Connecting a DAT (Digital Audio Tape Recorder)

Connections for recording: Connect the DAT's analog recording input jacks (LINE IN or REC) to the receiver's tape recording (OUTPUT) jacks using pin plug cords.
Connections for playback: Connect the DAT's analog playback output jacks (LINE OUT or PB) to the receiver's tape playback (INPUT) jacks using pin plug cords.

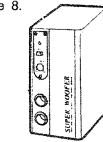
Connecting tape decks

Connections for recording: Connect the tape deck's recording input jacks (LINE IN or REC) to the receiver's tape recording (OUTPUT) jacks using pin plug cords.
Connections for playback: Connect the tape deck's playback output jacks (LINE OUT or PB) to the receiver's tape playback (INPUT) jacks using pin plug cords.



PRE OUT and MAIN IN jacks

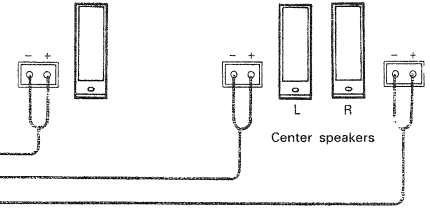
See page 8.



Connection jacks for subwoofers with built-in amplifier (super woofers), etc.

For a single center output (when only using one speaker for the center channel), connect the speaker to the (L) (left) "+" terminal and the (R) (right) "-" terminal.

When two speakers are connected as dual center outputs a better effect will be obtained when speakers having uniform characteristics are used.



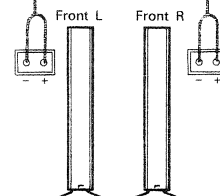
POWER OUTLET
AC 120 V, 60 Hz (U.S.A. model)
AC 110 V/220 V, 50/60 Hz (Multiple model)

AC OUTLETS

AC Outlets
These outlets are convenient for plugging in a TV tuner, turntable, tape deck, or some other component connected to the receiver.

- **SWITCHED outlets (120 W (1 A) total capacity)**
The power of these outlets is switched on and off by the receiver's POWER switch. These outlets will also be switched on when the power is set to ON-STANDBY with the remote control. When the receiver is in the standby mode, the outlets will be switched off.
- **UNSWITCHED outlet (240 W (2 A) capacity)**
This outlet remains on at all times, regardless of the setting of the receiver's POWER switch.

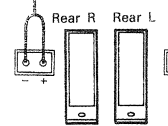
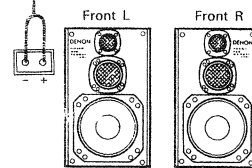
Speaker system A



Connecting speaker systems

Connect the speaker systems for the left channel (the left side as seen from the front) to the L terminals, and the speaker systems for the right channel to the R terminals.

Speaker system B



Rear speaker system (surround)

• Precautions when connecting speakers
If a speaker is placed near a TV or video monitor, the colors on the screen may be disturbed by the speaker's magnetism. If this should happen, move the speaker away to a position where it does not have this effect.

Video Section

Connecting a BS tuner

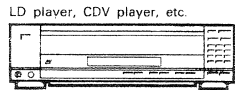
- Connect the BS tuner's S-output jack to the receiver's [S-VIDEO] DBS/BS-IN jack using an S-jack connection cord.
- Connect the BS tuner's video output jack to the receiver's [VIDEO] (yellow) DBS/BS-IN jack using a 75-ohm video coaxial cable pin plug cord.
- Connect the BS tuner's analog audio output jacks to the receiver's [AUDIO] DBS/BS-IN jacks using pin plug cords.



Audio output S-output Video output

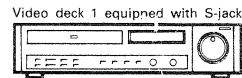
Connecting a video disc player (VDP)

- (VDP, CDV, etc.)
- Connect the video disc player's S-output jack to the receiver's [S-VIDEO] VDP IN jack using an S-jack connection cord.
 - Connect the video disc player's video output jacks to the receiver's [VIDEO] VDP (yellow) jack using a 75-ohm video coaxial cable pin plug cord.
 - Connect the video disc player's analog audio output jacks to the receiver's [AUDIO] VDP jacks using pin plug cords.

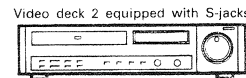


Connecting a video deck (VCR)

- There are two sets of VCR jacks, allowing connection of two video decks for simultaneous recording and video copying.
- Connections for video input and output:**
Connect the video deck's video output jack to the receiver's [VIDEO] (yellow) VCR-1 IN jack and the video deck's video input jack to the receiver's [VIDEO] (yellow) VCR-1 OUT jack using 75-ohm video coaxial cable pin plug cords.



Video deck 1 equipped with S-jack



Video deck 2 equipped with S-jack

Connecting the audio input and output jacks

- Connect the video deck's audio output jacks to the receiver's [AUDIO] VCR-1 IN jacks and the video deck's audio input jacks to the receiver's [AUDIO] VCR-1 OUT jacks using pin plug cords.
- A second video deck may be connected to the VCR-2 jacks in the same way.

Connect to VCR-2 jacks in the same way as for video deck 1.

Connecting a monitor TV

- Connect the TV's S-video input jack to the receiver's [S-VIDEO] MONITOR OUT jack using an S-jack connection cord.
- Connect the TV's video input jack to the receiver's [VIDEO] MONITOR OUT jack using a 75-ohm video coaxial cable pin plug cord.

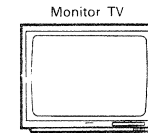
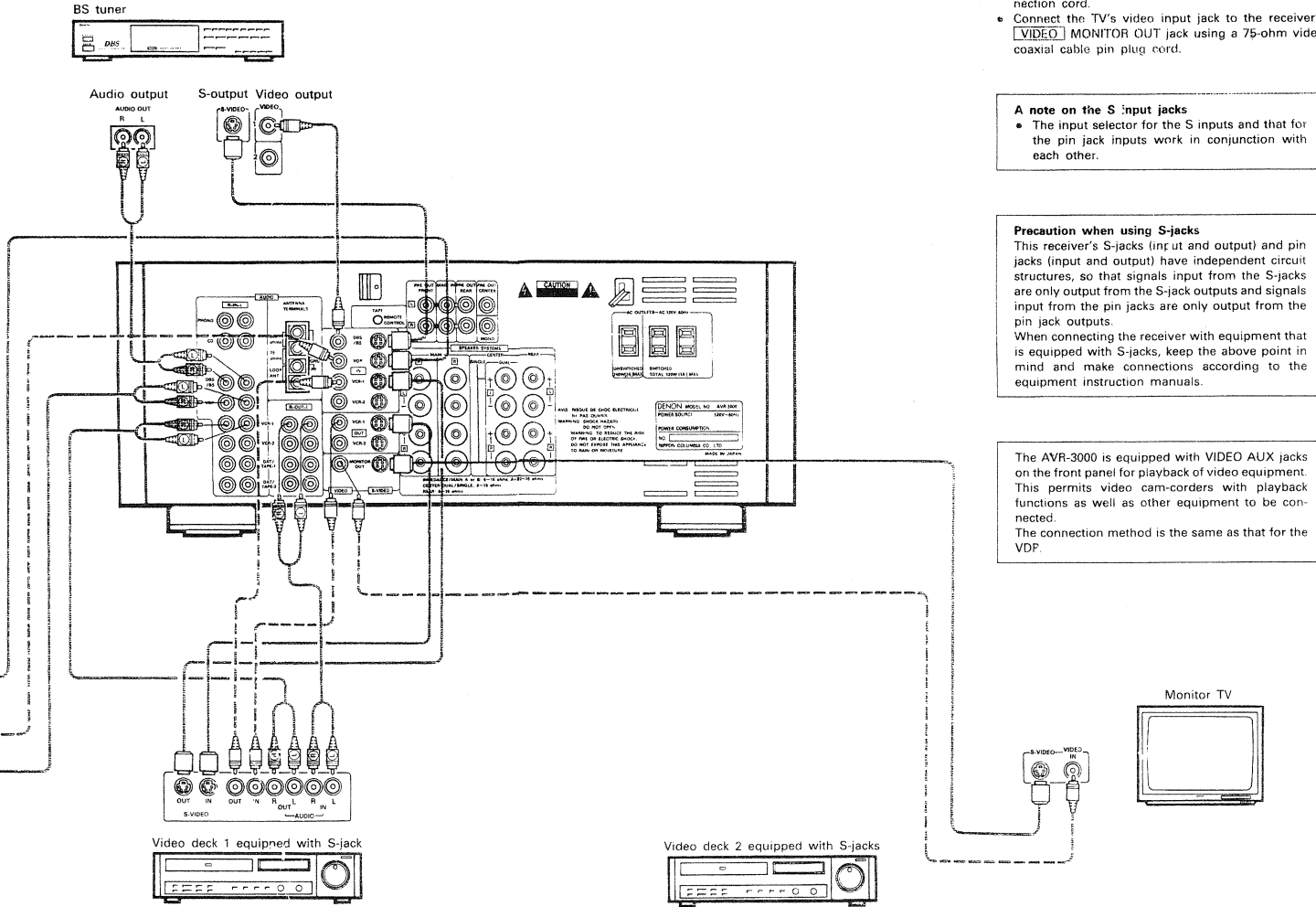
A note on the S input jacks

- The input selector for the S inputs and that for the pin jack inputs work in conjunction with each other.

Precaution when using S-jacks

This receiver's S-jacks (input and output) and pin jacks (input and output) have independent circuit structures, so that signals input from the S-jacks are only output from the S-jack outputs and signals input from the pin jacks are only output from the pin jack outputs.
When connecting the receiver with equipment that is equipped with S-jacks, keep the above point in mind and make connections according to the equipment instruction manuals.

The AVR-3000 is equipped with VIDEO AUX jacks on the front panel for playback of video equipment. This permits video cam-corders with playback functions as well as other equipment to be connected.
The connection method is the same as that for the VDP.



Monitor TV

Connecting the S-jacks

Connect the video deck's S-output jack to the receiver's [S-VIDEO] IN jack and the video deck's S-input jack to the receiver's [S-VIDEO] OUT jack using S-jack connection cords.

5 PART NAMES AND FUNCTIONS

(Refer to the figures on page 5.)

1 POWER switch

• ON

When this switch is pressed once, the power turns on and the MASTER VOLUME LED ④ flashes. (The muting circuit is activated while "MUTING" is flashing to prevent noise when the POWER switch is operated.) After several seconds, the LED stops flashing, remaining lit and the muting circuit turns off. The set is now in the normal operating mode.

• STANDBY

When the POWER switch is pressed once again, the power turns off and the standby mode is set. The MASTER VOLUME LED ④ remains lit. In addition, when the power turns off, the power supply from the SWITCHED AC outlets on the rear panel also turns off.

2 REMOTE SENSOR

This is where the signals from the wireless remote control unit are received.

Point the remote control unit (RC-159 or RC-160) at this sensor when operating it.

3 TUNING (Tuning Buttons)

Press these buttons to tune in a station. In the MANUAL TUNING mode, each press of the buttons will change the frequency in 100 kHz (or 50 kHz, Multi-voltage Model only) steps on FM and 10 kHz (or 9 kHz, Multi-voltage Model only) steps on AM. Keeping one of these buttons pressed, the frequency will change until the button is released.

During the AUTO TUNING mode, pressing one of these buttons will affect station search up or down the band.

4 FLD (multi-function fluorescent display)

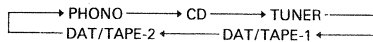
Information such as the surround mode and the input and output are displayed here when the power is turned on.

Normally the surround mode is displayed. If another button is pressed, a display pertaining to that button is shown for approximately 5 seconds (this time differs according to the display), after which the surround mode is once again displayed.

Refer to pages 18 to 21 for details on the FLD displays.

5 AUDIO FUNCTION selector button

This button is used to switch the audio input. Press this button repeatedly or hold it in to change the input in the following order:



(All the video outputs are off unless a video function is selected with the VIDEO SELECT button or the REC SELECT button.)

6 CD DIRECT button

This button is used to enjoy the audio signals input from the component connected to the CD jacks on the rear panel with higher sound quality. In the CD direct mode, the audio signals bypass such circuitry as the surround and tone control circuits, and are output directly to the front speakers for higher sound quality.

※ Cancelling the CD direct mode

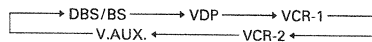
When in the CD direct mode, either press the CD DIRECT button once again, or press the AUDIO FUNCTION selector button ⑤ or VIDEO FUNCTION selector button ⑦ or BYPASS button ⑮ or SURROUND MODE selector button ⑬ button to cancel the CD direct mode.

NOTE:

When the CD DIRECT button ⑥ is selected, the output of signals to the audio and video output jacks is automatically prohibited, so the REC SELECT (independent audio/video recording) and VIDEO SELECT (independent video signal selector) buttons do not work. Also, if the REC SELECT ⑩ button is selected, the CD DIRECT button ⑥ will not function.

7 VIDEO FUNCTION selector button

This button is used to switch the video input. Press this button repeatedly or hold it in to change the input in the following order:



8 MASTER VOLUME control

Turn the control clockwise (↻) to increase the volume, counterclockwise (↺) to decrease it.

9 MASTER VOLUME LED

This LED remains lit when the set is in the normal operating mode or in the standby mode, and flashes when in the muting mode.

10 PHONES jack

This jack is for connecting headphones.

To cut the sound from the speakers, either turn off the output (speakers) from the remote control unit or turn off the output of the component connected to the PRE OUT jacks.

11 REC SELECT

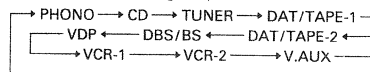
(independent recording output selector) button

This button makes it possible to select the audio or video recording mode independently of the mode selected with the FUNCTION selector buttons. It selects the audio recording signals output to the DAT/TAPE-1, DAT/TAPE-2, VCR-1 and VCR-2 audio output jacks, and the video (and audio) recording signals output to the VCR-1 and VCR-2 output jacks. For the audio recording output, normally the signal input selected with the FUNCTION selector buttons is output to the recording output side, but when this button is used, signals from input jacks other than the ones selected with the FUNCTION selector buttons can be selected.

In addition, for the video (and audio) recording output, normally the video (and audio) signals selected with the VIDEO FUNCTION selector button ⑦ are output to the recording output side, but when this button is used, input signals other than the ones selected with the VIDEO FUNCTION selector button can be selected.

When this button is pressed once, the independent recording output selection function turns on. When the button is held in, the video and audio recording output changes in the order shown below. Release the button when the desired video and audio recording output is displayed on the FLD.

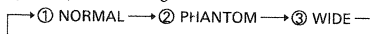
Press the REC SELECT button again to cancel the independent recording output selection mode.



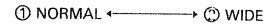
If the CD DIRECT button is selected, the audio and video recording output is automatically prohibited, so it is advisable to use the REC SELECT button ⑩ to prevent accidentally interrupting the recording.

12 CENTER MODE selector button

This button is used to select the center mode when in the Dolby Pro Logic, WIDE SCREEN or LIVE modes. Select the mode according to the speaker system you are using.



The mode switches as follows in the Dolby 3CH Logic mode:



* In the WIDE SCREEN and LIVE modes, the center mode only changes when the adaptive matrix is on.

* If this button is pressed in a mode other than Dolby Pro Logic, live, wide screen or CD DIRECT, the Dolby Pro Logic mode is set automatically.

For details, refer to pages 38 and 39.

13 3CH. LOGIC

(three-channel logic) button

This button only functions when in the Dolby Pro Logic mode. When pressed again, the three-channel logic mode turns off and the normal Pro Logic mode is set.

The 3CH. LOGIC key does not function when in the Dolby Pro Logic Phantom mode.

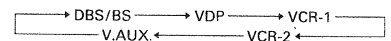
For details, refer to page 39.

14 VIDEO SELECT

(independent video signal selector) button

This button is used to select the video signal independently of the audio signal. When pressed once, the video selector function turns on. When the button is held in, the video input signal changes in the order shown below. Release the button when the desired video input signal is displayed on the FLD. After this is done, the video signal will not change even if the AUDIO FUNCTION selector button ⑤ is pressed and the audio input is changed.

To cancel the independent video signal selection mode, either press the VIDEO SELECT button again, or press the VIDEO FUNCTION selector button ⑦.



15 BYPASS (surround bypass) button

When this button is pressed, the surround mode is bypassed and the normal stereo sound is produced. No signals are output to the rear channel.

If the SURROUND MODE button is pressed when in the bypass mode, the mode returns to the mode which was set before the bypass mode was turned on.

* In the initial setting the center output is turned off.

16 INPUT ADJ.

(input level adjustment selector) button

This function makes it possible to increase the input level by +6dB, and is used when playing a source with a low input level, such as the tuner.

For details, refer to page 33.

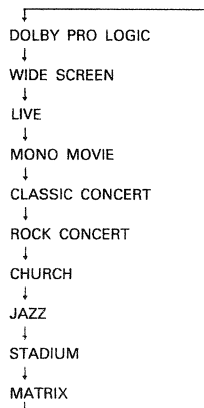
17 EFFECT selector button

This button turns the effect of the DSP (digital signal processor) on and off. When turned off, only direct sounds are played on the front left and right speakers. This function can be used to check the effect of the sound processor.

* The effect turns back on if this button is pressed once again when the effect is off, or when a parameter is selected and data is changed with the "-" or "+" keys.

* If the power is turned off when the effect is off, that mode is stored in the memory, so only the direct sound is played when the power is turned back on.

- 18 SURROUND MODE selector button**
Use this button to select the surround mode. Either press it repeatedly or hold it in to change the surround mode in the order shown at the top right of this page.
For details, refer to pages 34 to 37.



- 19 PARAMETER (DSP parameter selector) button**
Use this to select the parameter.
For details, refer to pages 35 to 37.
- 20 “-” and “+” SET (parameter setting) buttons**
Use these to change the parameter selected with the PARAMETER button 19.
For details, refer to pages 35 to 37.
- 21 CLEAR (user preset clear) button**
When this button is pressed, the parameters for the selected mode are reset to the values preset upon shipment from the factory.
For details, refer to page 47.
- 22 REAR (rear speaker volume adjust) buttons**
Use these to adjust the volume of the rear (surround) speakers.
Press the UP button to increase the volume, the DOWN button to decrease the volume.
The volume changes while the button is held in, and stops changing when the button is released. The volume change is indicated on the FLD or monitor screen. These buttons do not function when in the bypass mode, the CD direct mode, or the Dolby 3ch. Logic mode.

- 23 CENTER (center speaker volume adjust) buttons**
Use these buttons to adjust the volume of the center (surround) speaker.
Press the UP button to increase the volume, the DOWN button to decrease the volume.
The volume changes while the button is held in, and stops changing when the button is released. The volume change is indicated on the FLD or monitor screen. These buttons only function when in the bypass, Dolby Pro (3ch.) Logic normal or wide modes, and in the normal and wide modes with the adaptive matrix on when in the WIDE SCREEN and LIVE modes.
- 24 BASS control**
Use this to adjust the bass sound of the front speaker output or PRE-OUT FRONT jacks. The bass sound is emphasized when turned clockwise (↻) from the center position, reduced when turned counterclockwise (↺) from the center position.
- 25 TREBLE control**
Use this to adjust the treble sound of the front speaker output or PRE-OUT FRONT jacks. The treble sound is emphasized when turned clockwise (↻) from the center position, reduced when turned counterclockwise (↺) from the center position.
- 26 BALANCE control**
Use this to adjust the left/right balance of the front speakers (PRE-OUT FRONT jacks).
* This control does not function in the CD direct mode.
- 27 VIDEO AUX INPUTS**
These are auxiliary inputs for connecting video cameras or other AV equipment.
S-VIDEO: Connect the S-jack output of the other component here.
VIDEO: Connect the video output of the other component here. (Use a 75 ohm coaxial cable pin-plug cord.)
AUDIO L and R: Connect the audio output of the other component here.
- 28 TUNING BAND (Tuning Band Selector Switch)**
Press this switch to select FM or AM band.
- 29 TUNING MODE (Tuning Mode Switch)**
This switch allows selection between Auto Tuning and Manual Tuning.
AUTO TUNING: Pressing the UP key, the tuner will begin tuning to a higher frequency and pressing the DOWN key, it will begin tuning to a lower frequency until a broadcasting station is found.
MANUAL TUNING: Stations are tuned in manually by use of the UP and DOWN keys. FM output is monaural during MANUAL TUNING.

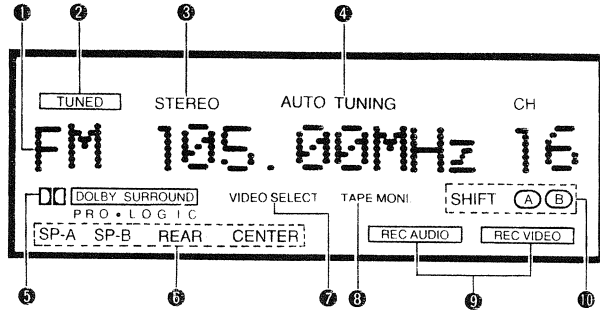
- 30 PRESET CHANNEL 1 ~ 16 (Preset Station Buttons)**
These buttons are used for storing stations or recalling stations which have been preset. Using the SHIFT button you can preset a total of 16 FM or AM stations into preset channels 1 ~ 8 and 9 ~ 16. Once a radio has been memorized on a PRESET CHANNEL button, the same station can later be tuned in instantly simply by pressing the corresponding PRESET CHANNEL button.
In addition, if one of these buttons is pressed when the input function is set to something other than TUNER, the input automatically switches to the tuner.
- 31 MEMORY (Memory Button)**
This switch is used to store the desired radio station on a PRESET CHANNEL button. When pressing this button, the CH indicator flashing for approximately 6 seconds. During this interval, the desired station can be stored in the memory.
- 32 SHIFT (Shift Button)**
Each time this button is pressed, the preset station range will be shifted between “1 ~ 8” and “9 ~ 16” (A: 1 ~ 8, B: 9 ~ 16)
- 33 AUDIO IN (audio input) jacks**
- 34 FM ANT (FM antenna terminals)**
Both 75-ohm coaxial cable and 300-ohm feeder can be connected to this terminal. For antenna connecting procedure, see the ANTENNA INSTALLATION.
- 35 AM ANT (AM antenna terminals)**
Connect the attached AM loop antenna. (Refer to page 9 for connections).
Connect to this terminal when a medium wave outdoor antenna is used.
- 36 AUDIO OUT (audio output) jacks**
- 37 VIDEO (video input/output) jacks**
- 38 S-VIDEO (video input/output) jacks**
- 39 PRE OUT (FRONT, CENTER, REAR and MONO) jacks**
Refer to page 8.
Connect the monaural audio input jack of a separately sold subwoofer or TV here.

- 40 AC cord (power cord)**
- 41 AC OUTLETS**
Refer to page 11.
- 42 MAIN SPEAKER SYSTEMS terminals**
- 43 CENTER SPEAKER SYSTEMS terminals**

Note on the center speaker terminals:
The center channel output on the AVR-3000 is dual center compatible, so two center speakers can be used. The Dolby Pro Logic surround effect can be obtained with a single center channel speaker, but connecting two speakers with similar performance are connected to the L and R terminals.
For details, refer to pages 8 and 11.

- 44 REAR SPEAKER SYSTEMS terminals**
- 45 TAPE/REMOTE CONTROL**
This terminal is exclusively used for sending the remote control signals to the tape deck. Connect it with a 3.5mm mini-jack cord.
- NOTE:**
Do not hook up a headphones or microphone jack cord. Use this jack to connect a Denon cassette deck with a remote control jack (wired).
If the cassette deck does not have this jack, wired remote control is not possible.
- 46 LINE VOLTAGE (Line Voltage) Switch [Multi Voltage model only.]**
- The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screw driver.
 - Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
 - If the voltage select switch does not turn smoothly, see qualified serviceman.
- 47 AM LOOP ANT (AM loop antenna)**
Correctly connect the AM loop antenna to the antenna terminal. Broadcasting cannot be received when the connection is incomplete.
Adjust the antenna for optimum reception while receiving the medium wave broadcasting. Do not place a pin cord, SP cord or electric cord near the antenna. This may cause noise generation.
- 48 GND (Grounding terminal)**
The grounding wire of the turntable is connected here.
- Hum or noise may be generated if the grounding wire is not connected.

Display



1 MULTI FUNCTION DISPLAY

This displays a maximum of 16 characters. Normally the reception frequency is displayed when the function is set to tuner, and the surround mode is displayed when the function is set to other positions. The display also indicates various other information according to the keys pressed, as shown in the examples on the following pages.

2 TUNED

(TUNED indicator)
This indicator lights when broadcast signals are received.

3 STEREO

(Stereo Indicator)
The STEREO indicator will automatically light up when a stereo broadcast is received.

4 AUTO TUNING

(AUTO TUNING Indicator)
This indicator lights when the auto tuning mode is selected by pressing the TUNING MODE key ④.

5 DOLBY SURROUND Indicator

This indicator lights when DOLBY PRO LOGIC is selected by pressing the SURROUND MODE button ⑩.

6 OUTPUT CHANNEL Indicator

This indicates the currently output speaker channel.

7 VIDEO SELECT

(VIDEO INPUT SELECT Indicator)
This indicator lights when the video monitor output is fixed in the video input select mode.

8 TAPE MONI.

(TAPE MONITOR Indicator)
This indicator lights when the function is set at TAPE/DAT-1 or TAPE/DAT-2 when the recording selector is operating.

9 Recording select indicators

RECAUDIO lights when one of positions PHONO through DAT/TAPE-2 is selected with the REC SELECT button, and both **RECAUDIO** and **RECVIDEO** light when one of positions DBS/BS through V.AUX is selected.

10 SHIFT

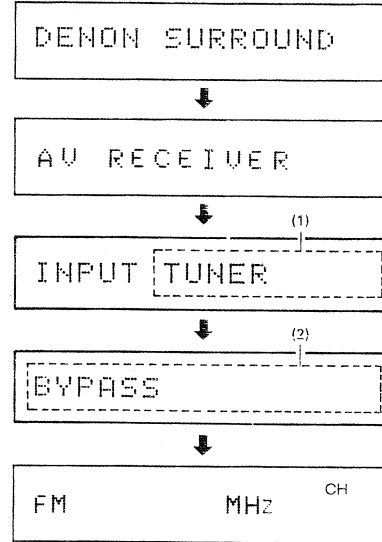
(Shift Indicator)
The preset channel which is selected with the Shift Button ② is displayed by the SHIFT **A** or **B**.

Multi-function Display (MFD)

The multi-function display indicates the status of the mode which has been operated by pressing the buttons on the front panel or on the remote control unit.

Display pattern examples

1. When the power is turned on

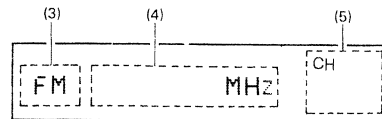


(1) The function name is displayed.

(2) The surround mode name is displayed.

• Only lights when the function is set to TUNER.

2. TUNER MODE display



(3) FM or AM.

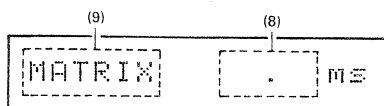
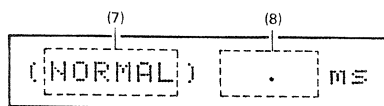
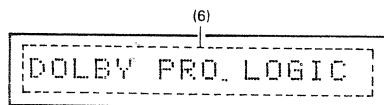
(4) **FREQUENCY**

The frequency is displayed in numerals. It is displayed in MHz for FM and in kHz for AM.

(5) **CHANNEL**

When using the channel preset button ⑩, the channel and the memorized frequency are displayed.

3. Surround mode display



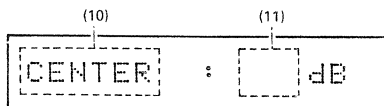
(6) "DOLBY PRO LOGIC", "DOLBY 3CH.LOGIC", "WIDE SCREEN", "LIVE", "MONO MOVIE", "CLASSIC CONCERT", "ROCK CONCERT", "CHURCH", "JAZZ", "STADIUM" or "BYPASS" is displayed.

(7) "NORMAL", "PHANTOM" or "WIDE" is displayed.
* These are not displayed in modes not using the Dolby center modes or when the adaptive matrix is off in the WIDE SCREEN or LIVE modes.

(8) The delay time is displayed.
* The delay time is not displayed in the Dolby 3ch. Logic mode or any surround modes other than the ones shown above, the CD direct

(9) "MATRIX" is displayed.
"DELAY" is displayed when the adaptive matrix is off in the WIDE SCREEN or LIVE modes.

4. Center level display



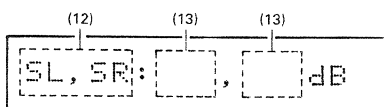
(10) "CENTER" is displayed when the one of the CENTER buttons is pressed.

(11) The level is displayed in steps of 2dB, from -48dB (minimum) to 0dB (maximum).

NOTE:

This is not displayed in modes in which no signals are output to the center speaker(s).

5. Rear level and balance display



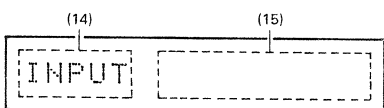
(12) This is displayed when one of the REAR buttons is pressed.

(13) The level is displayed in steps of 2dB, from -48dB (minimum) to 0dB (maximum).

NOTE:

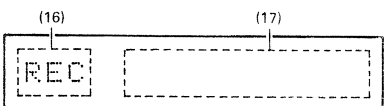
This is not displayed in modes in which no signals are output to the rear speakers.

6. Input display



(14) "INPUT" is displayed when one of the FUNCTION buttons (AUDIO or VIDEO) is pressed, and the name of the function is displayed in section (15). If the video signal has already been selected with the VIDEO SELECT button, the audio input and video input are displayed for 3 seconds when the AUDIO FUNCTION button is pressed.

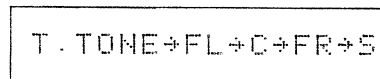
7. Recording output display



(16) "REC" is displayed when the REC SELECT button is pressed.

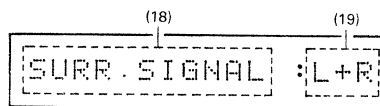
(17) The name of the function ("PHONO", "CD", "TUNER", "DAT/TAPE-1", "DAT/TAPE-2", "DBS/BS", "VDP", "VCR-1", "VCR-2", or "V-AUX") is displayed. Normally the source is displayed. When the recording output selection function is off and the video selection function is on, the source is displayed for the audio output and the selected signal ("DBS/BS", "VDP", "VCR-1", "VCR-2", or "V-AUX") is displayed for the video output.

8. Test tone display



This is displayed when the T.TONE button on the remote control unit is pressed.
The arrow moves as the output changes.
This message is displayed until the test tone function is turned off.

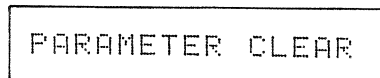
9. DSP parameter display



(18) The following are displayed in modes for which the PARAMETER key is effective:
"SURR.SIGNAL"
"ADAPT.MATRIX"
"7kHz L.P.F."
"SOUND SIM."
"INIT.DELAY"
"ROOM SIZE"
"EFFECT LEVEL"
"EFFECT"

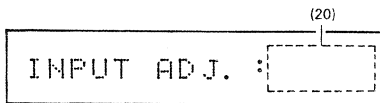
(19) The parameter settings are displayed here.

10. Clear display



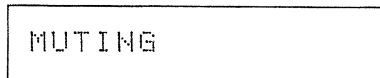
This is displayed when the CLEAR button is pressed.
* This is not displayed in the CD direct modes.

11. Input level adjustment display



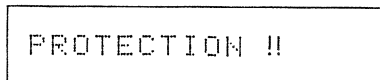
This is displayed when the INPUT ADJ. button is pressed, and the level (0dB or +6dB) is displayed at section (20).
* This is not displayed in the CD direct modes.

12. Muting display



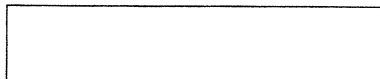
This is displayed when the MUTING button on the included remote control unit is pressed, and remains displayed until the muting function turns off.

13. Protection display



This is displayed when the protection circuit is on. For details, refer to page 30.

14. No display (FLD off)



Use this when you do not need or do not want to use the FLD.

When the PANEL key on the remote control unit is pressed and held in, the display on the FLD changes continuously and finally turns off. After this is done, when a button is pressed, the corresponding display appears for several seconds, but the FLD then automatically turns back off. To turn the FLD back to the normal display mode, press the PANEL button on the remote control unit once again.

6 REMOTE CONTROL UNIT

Following the procedure outlined below, insert the batteries before using the remote control unit.

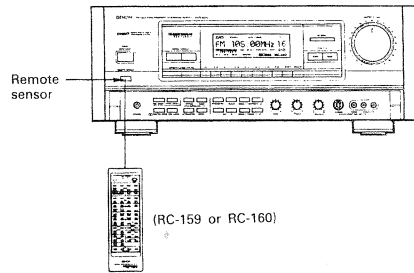
■ Cautions for batteries

- Use R6P/AA batteries in the remote control unit.
- Replace the batteries with new ones approximately once each year, though this depends on the frequency with which the remote control unit is operated.
- If the remote control unit does not operate from close to the main unit, replace the batteries with new ones, even if less than one year has passed since the new batteries were inserted.
- Be sure that the ⊕ and ⊖ ends of the batteries match the marks on the battery case of the remote control unit.
- Replace weak batteries as soon as possible.
- Do not mix new batteries with used ones.
- Do not use batteries of different types together. Note that some batteries of the same shape and size may provide different performance.
- Some batteries are rechargeable, others are not. Read the battery instructions carefully.
- Do not connect the ⊕ and ⊖ ends of the batteries directly with metal objects. (Do not short-circuit the batteries.)
- Do not disassemble, heat, or dispose of batteries in a fire. If the batteries should leak, carefully wipe off any fluid from the battery case, then insert new batteries.

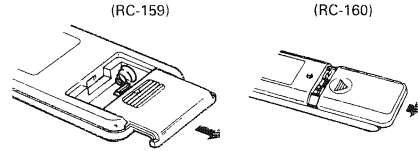
■ Using the remote control unit

The remote control unit uses highly linear infrared rays. Point it at the amplifier's remote sensor when operating it. The amplifier will not operate if the remote sensor is covered or if there is an obstacle between the remote control unit and the sensor. Also note that strong light shining on the remote sensor may result in mistaken operations. In addition, using the amplifier near neon signs which generate pulse type noise may result in mistaken operations, so keep the amplifier as far as possible from such neon signs.

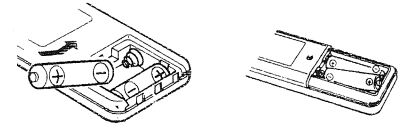
■ Range of operation of the remote control unit



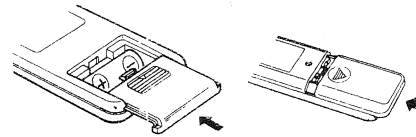
1. Open the bottom cover of the remote control unit and remove the battery cover.



2. Insert the two R6P/AA batteries, matching the ⊕ and ⊖ marks on the batteries with those in the case.



3. Close the bottom cover until it clicks shut.



■ A note on battery replacement

Have replacement batteries on hand so that the old batteries can be replaced as quickly as possible when the time comes.

The codes that have been learned may be lost if removed batteries are not replaced within about 5 minutes. (RC-159)

Point the remote control unit at the remote sensor when operating it, as shown on the diagram.

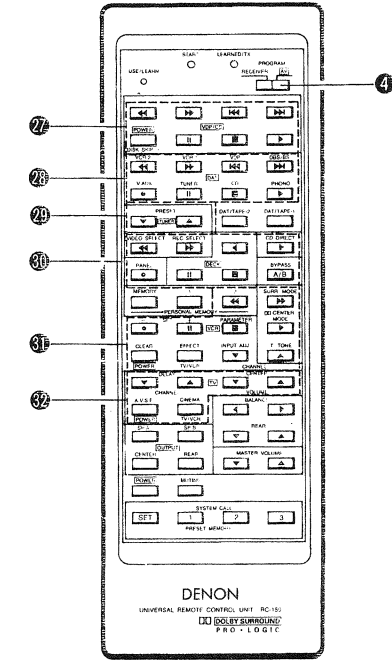
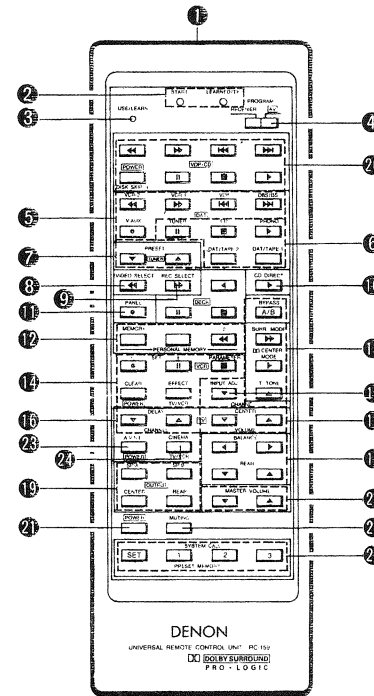
The remote control unit can be used at a direct distance of approximately 7 meters from the main unit, though this distance will be shorter if there is an obstacle between the remote control unit and main unit or if the remote control unit is operated from an angle.

Part names and functions of the remote control unit

• RC-159

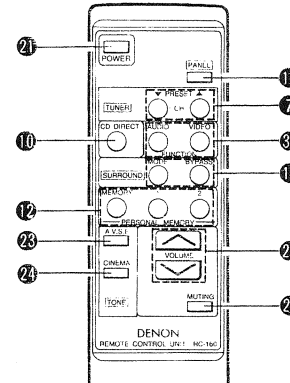
AVR-3000 codes

System codes



• RC-160

This remote control unit only includes functions which are frequently used, so the main unit (AVR-3000) can be enjoyed with simple operation.



AVR-3000 Codes

Use with the PROGRAM switch 4 set to the RECEIVER side.

- 1 **Transmitting window**
The remote control signals (infrared rays) are sent from this window.

- 2 **Indicator section (START, LEARNED/TX)**

- 3 **USE/LEARN (normal use/learn mode) selector button**
Press this button with the tip of a pen, etc., to set the learn mode. Both the START and LEARNED/TX indicators in the indicator section 2 flash and codes can be learned.

- 4 **PROGRAM switch (RECEIVER, AV)**

- 5 **Video input selector buttons**
This can only be set from the remote control unit. These buttons are used to select the video input signals directly. They select the input signals and switch the video signals.

DBS/BS: Use this to play the BS tuner connected to the DBS/BS jacks.

VDP: Use this to play the VDP connected to the VDP jacks.

VCR-1: Use this to play the video deck connected to the VCR-1 jacks.

VCR-2: Use this to play the video deck connected to the VCR-2 jacks.

V. AUX: Use this to play the video movie camera with playback function, etc., connected to the V-AUX jacks on the front panel.

- 6 **Audio input selector buttons**
This can only be set from the remote control unit. These buttons select the audio input signal directly.

PHONO: Use this to play the record player connected to the PHONO jacks.

CD: Use this to play the CD player connected to the CD jacks.

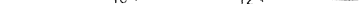
TUNER: Use this to play the tuner.

DAT/TAPE-1: Use this to play the DAT or tape deck connected to the DAT/TAPE-1 jacks.

DAT/TAPE-2: Use this to play the DAT or tape deck connected to the DAT/TAPE-2 jacks.

- 7 **TUNER PRESET ▾ and ▲ buttons**
Use these to move up and down among the preset channels.

When the ▲ button is pressed, the channels switch in the following order:



When the ▾ button is pressed, the channels switch in the following order:



This shift A display is for 1 to 8, the shift B display for 9 to 16.

In addition, if one of these buttons is pressed when the input function is set to something other than TUNER, the input automatically switches to the tuner.

- 8 **VIDEO SELECT button**
(Same function as on receiver.)

- 9 **REC SELECT button**
(Same function as on receiver.)

- 10 **CD DIRECT button**
(Same function as on receiver.)

- 11 **PANEL button**
This can only be set from the remote control unit. When this button is pressed, the current settings are displayed on the FLD. Operate this button to switch the on-screen display.

For details on the FLD, refer to pages 18 to 21.
* This button does not function in the test tone and muting modes.

- 12 **PERSONAL MEMORY function**
Your favorite surround mode and input function can be stored at "PERSONAL :1" and "PERSONAL :2", then recalled directly from any other playback mode by pressing the PERSONAL "1" or "2" button on the remote control unit.

- **Storing**
 - 1 Use the surround mode button to select the desired surround mode, and the INPUT FUNCTION button to select the desired input function.
 - 2 Press the PERSONAL MEMORY button to set the memory mode. "PERSONAL ?" flashes (for six seconds)
 - 3 Next press the button at which you want to store the information (PERSONAL "1" or "2"). If any other button is pressed, the memory mode is cancelled.
 - 4 "MEMORY 1(2) SET" is displayed, and the selected surround mode and input function are stored in the memory.

- NOTE:**
- The surround mode recalled with the PERSONAL MEMORY "1" or "2" button is the same as the mode selected with the surround mode button. Thus, if the parameters of the surround mode which was stored in the memory are cleared, when the mode is recalled it is set to the initial values.
 - Upon shipment from the factory, the "WIDE SCREEN" mode is stored at personal memory "1", the "LIVE" mode at personal memory "2".

- 13 **SURROUND MODE button**
- **BYPASS (Surround bypass) button**
 - **SURR. MODE (Surround mode) button**
 - **CENTER MODE Selector button**
(Same function as on receiver.)
 - **T.TONE (test tone) button**

This can only be set from the remote control unit. To obtain the maximum Dolby Pro Logic surround effect, the volume of all the speakers must be adjusted to the same level. When this button is pressed, test tones are produced from each of the speakers in the following order:

Front left → Center → Front right → Rear

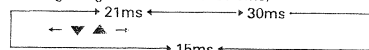
In addition, there are two modes, auto and manual. The speaker volume balance can be adjusted in either of these modes. For details, refer to page 39.

- 14 **DSP parameter adjustment buttons**
(Same functions as on receiver.)
- **EFFECT selector button**
 - **PARAMETER (DSP parameter selector) button**
 - **CLEAR (User preset clear) button**
 - **"-" and "+" SET button**

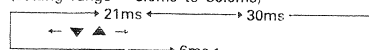
- 15 **INPUT ADJ. button (input level adjustment selector) button**
(Same function as on receiver.)

- 16 **DELAY time buttons**
This can only be set from the remote control unit. When these buttons are pressed, the delay time changes in steps of 1.5ms from 6ms to 60ms, 10.0ms from 60ms to 370ms. The delay time increases when the ▲ button is pressed. The delay time decreases when the ▾ button is pressed.

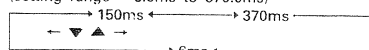
In the Dolby Pro Logic mode:
(setting range - 15.0ms to 30.0ms)



In the wide screen and live modes:
(setting range - 6.0ms to 30.0ms)



In the matrix mode:
(setting range - 6.0ms to 370.0ms)



- 17 **CENTER level adjustment buttons**
(Same function as on receiver.)

- 18 **REAR Speaker adjustment buttons**
- **REAR level adjustment buttons**
(Same function as on receiver.)
 - **BALANCE adjustment buttons**

This can only be set from the remote control unit. Use these to adjust the output balance of the rear speakers. When the ◀ button (left) is pressed, the volume of the right rear speaker decreases. When the ▶ button (right) is pressed, the volume of the left rear speaker decreases.

- 19 **OUTPUT (speaker output selector) buttons**
This can only be set from the remote control unit. Use these buttons to turn the speaker outputs on and off. The settings are displayed on the FLD and on-screen display.

SP-A: The speaker systems connected to the FRONT MAIN "A" speaker output terminals operate.

SP-B: The speaker systems connected to the FRONT MAIN "B" speaker output terminals operate.

CENTER: The speaker system(s) connected to the CENTER speaker output terminals and the PRE OUT CENTER terminal operate(s).

REAR: The speaker systems connected to the REAR speaker output terminals and the PRE OUT REAR terminal operate.

- 20 **MASTER VOLUME buttons**
These button functions in the same way as the MASTER VOLUME control on the main unit. When the ▲ button is pressed, the MASTER VOLUME control on the main unit turns clockwise and the overall volume increases. When the ▾ button is pressed, the MASTER VOLUME control on the main unit turns counterclockwise and the overall volume decreases.

- 21 **POWER button**
(Same function as on receiver.)

- 22 **MUTING button**
This can only be set from the remote control unit. When this button is pressed, the output from the PRE OUT jacks and SYSTEM SPEAKERS terminals is cut. The MASTER VOLUME LED flashes when the muting mode is set. Press this button again to cancel the muting mode.

- 23 **A.V.S.E. (Bass correction button)**
This button is used to emphasize the bass range of the front speakers.

Setting this switch to ON when using movie video software provides even greater impressiveness. Use this function as desired.
* This button cannot be used in the CD direct mode.

- 24 **CINEMA (Treble correction button)**
This button is used when playing back movie video software and the speech portion is felt to be harsh upon the ears. This function attenuates the treble range of the center speaker.
* This button cannot be used in the CD direct mode.

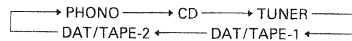
- 25 **SYSTEM CALL buttons**
This can only be set from the remote control unit. For details, refer to page 27.

AVR-3000 Codes, System Code Buttons

Ⓒ Functions selector buttons

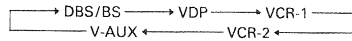
• AUDIO (audio function selector button)

The function switches as follows each time this button is pressed:



• VIDEO (video function selector button)

The function switches as follows each time this button is pressed:



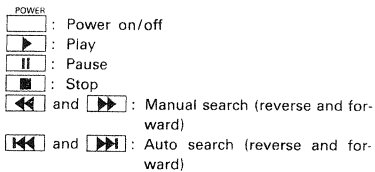
※ When selecting the function from the RC-159 remote control unit, the function can be selected directly using buttons ⑤ and ⑥.

Different system codes for DENON components are stored at the buttons in section ② when the PROGRAM switch ④ is set to the RECEIVER side, the buttons in sections ⑦ through ⑩ when the PROGRAM switch ④ is set to the AV side.

When the PROGRAM switch ④ is set to the RECEIVER side:

Ⓓ VDP system buttons

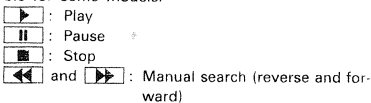
With these buttons, a Denon remote controllable LD player can be controlled directly. For details, refer to the LD player's operating instructions. Note that operation may not be possible for some models.



When the PROGRAM switch ④ is set to the AV side:

Ⓔ CD system buttons

With these buttons, a Denon remote controllable CD player can be controlled directly. For details, refer to the CD player's operating instructions. Note that operation may not be possible for some models.

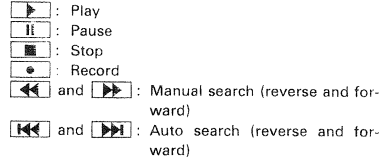


◀▶ and ▶▶ : Auto search (reverse and forward)

DISC SKIP 1 : CD changer, disc skip

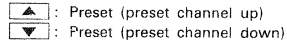
Ⓕ DAT system buttons

With these buttons, a Denon remote controllable DAT can be controlled directly. For details, refer to the DAT's operating instructions. Note that operation may not be possible for some models.



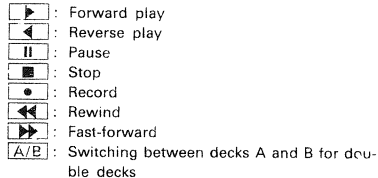
Ⓖ Tuner system buttons

With these buttons, a Denon remote controllable tuner can be controlled directly. For details, refer to the tuner's operating instructions. Note that operation may not be possible for some models.



Ⓗ Tape deck system buttons

With these buttons, a Denon remote controllable tape deck can be controlled directly. For details, refer to the tape deck's operating instructions. Note that operation may not be possible for some models.



Ⓙ VCR system buttons

No system codes are stored here.

Ⓚ TV system buttons

No system codes are stored here.

System Call Buttons

The system call function is a function which allows you to store a series of remote control operations consisting of the operations of up to a maximum of ten buttons, then perform this series of operations by pressing a single button.

Storing the System Call Operations

- Press the [SET] button. The START LED in the indicator section flashes.
- Set the PROGRAM switch ④ to the desired side, then press the buttons for the system call operations in the order you want to send the signals (up to a maximum of ten buttons). The LEARNED/TX LED lights each time a button is pressed. It is not possible to store the codes of more than ten buttons. If the button which has been pressed is a non-storable button or if an 11th button is pressed, the START LED will turn off while that button is pressed.
- Press one of buttons ① to ③ at which you want to store the system call series.
- The START LED turns off. The system call series has now been stored.
- Three system call series can be stored, one each at buttons ① to ③.

To continue storing another series, repeat steps 1 to 4.

NOTE:

Signals are sent from the remote control unit when buttons are pressed while storing the system call series, so prevent the components from operating by covering the transmitting window, etc.

Clearing the System Call Series

- Press the [SET] button. The START LED starts flashing.
- Press the button, ① to ③, which you want to clear.
- The START LED turns off and the system call series is cleared.
- To clear another button, repeat steps 1 to 3.

Using the System Call Buttons

- Press the desired button, ① to ③, once.
- The LEARNED/TX LED lights, and the remote control codes are sent in the order in which they were stored at a speed of approximately one second per code.
- The LEARNED/TX LED turns off once all the codes have been sent.

Remote Control Unit Learning Function

Follow the procedures explained below to use the remote control unit's learning function.

Operation

- Press the USE/LEARN (normal use/learn mode) selector button ④ with the tip of a pen, etc., to set the learn mode. Both the START and LEARNED/TX indicators in the indicator section ② flash, indicating that codes can be "learned".
- Set the PROGRAM switch ① to the desired side, RECEIVER or AV.
- Point the heads (transmitting window) of the RC-159 and the other remote control unit at each other at a distance of approximately 5cm.
- Press the button on the RC-159 at which you want to store the code for one or two seconds, then release it. The LEDs stop flashing, and only the START LED remains lit.

(If a non-learnable button is pressed or if two or more buttons are pressed, both the LEDs will stop flashing, remaining lit, when the button(s) is (are) released.)

- Check that the START LED ② is lit, then press in the button on the other remote control unit whose code you want to store in the RC-159.
- When the START LED ② turns off and the LEARNED LED lights, release the button. That code is now stored. Both LEDs once again start flashing. This operation can now be repeated to store other codes in the RC-159.

NOTE:

- If the code was not stored in the RC-159, the LEARNED LED will light after the START LED turns off. For a very limited number of models, codes cannot be stored in the RC-159.
- If after the START LED lights both LEDs start flashing rapidly, this means that the memory is full. The code you just tried to store in the RC-159 was not registered. To store a different code at a certain button, first used the "Resetting Procedure".

- To store codes at other buttons, repeat steps 4 to 6.
- After you finish storing all the codes you want, press the USE/LEARN (normal use/learn mode) selector button ④ again. Both LEDs stop flashing and the sending (use) mode is set. Check that the stored codes work properly.

Learnable buttons:

When the PROGRAM switch is at the RECEIVER side 8 buttons

When the PROGRAM switch is at the AV side 58 buttons
Maximum of 35 codes in 66 buttons

NOTE:

Depending on the types of codes stored, it may not be possible to store 35 codes.

Resetting (Clearing) Procedure

- Press the USE/LEARN (normal use/learn mode) selector button ④ with the tip of a pen, etc., to set the learn mode.
- Set the PROGRAM switch ① to the side whose codes you want to clear, RECEIVER or AV.
- Press the POWER button ④ and REAR ▼ button ⑤ simultaneously, and hold them in for at least four seconds.
- When both the START and LEARNED LEDs ② light simultaneously, all the learned codes for the selected source are cleared.

Remote Control Operation

- Check that both the LEDs are off. If they are flashing or lit, press the USE/LEARN (normal use/learn mode) selector button ④ so that the LEDs turn off.
- When a button at which a code was "learned" is pressed, the LEARNED/TX LED lights and the remote control code is sent.

Preset Memory

The VDP ④, VCR ⑤ and TV ⑥ system buttons can be preset to system codes of other manufacturers, instead of to the Denon component system codes. For some components, operation is possible simply by registering the manufacturer, without using the learning function.

Registering the Preset System Codes

- Set the PROGRAM switch to the side to be preset.
RECEIVER VDP ④
AV VCR ⑤ or TV ⑥
- Press and hold in the POWER button for the source to be preset.
- While pressing the POWER button, first press the SYSTEM CALL button, [1], [2] or [3], for the A block. (Select the proper SYSTEM CALL button from Table 1.) The LEARNED/TX LED ② now flashes.
- Now press and hold in the POWER button and press the button for the B block, as shown on Table 1.
- The LEARNED/TX LED turns off and the preset system codes have been registered.

NOTE:

Signals are sent from the remote control unit when buttons are pressed while registering the preset system codes, so prevent the components from operating by covering the transmitting window, etc. In addition, the learning function has priority over the preset memory. If codes have been stored with the learning function at any one of the VDP ④, VCR ⑤ or TV ⑥ keys, they will remain stored even if the preset memory codes are registered.

Some models even of applicable manufacturers use different formats, in which case operation is not possible. In such cases, using the learning function.

Table 1 Combinations of Preset System Codes for Different Manufacturers

"VCR"

B block \ A block	[1] button	[2] button	[3] button
CENTER VOL. ▼	SONY A	mitsubishi A	TOSHIBA
CENTER VOL. ▲	SONY B	mitsubishi B	—
REAR BAL. ◀	SONY C	mitsubishi C	VICTOR
REAR BAL. ▶	—	—	—
REAR VOL. ▼	PANASONIC A	—	HITACHI
REAR VOL. ▲	PANASONIC B	—	—
MASTER VOL. ▼	SHARP	SANYO	RCA
MASTER VOL. ▲	—	—	—

"TV"

B block \ A block	[1] button	[2] button	[3] button
CENTER VOL. ▼	SONY	mitsubishi	TOSHIBA
CENTER VOL. ▲	—	—	—
REAR BAL. ◀	—	—	VICTOR
REAR BAL. ▶	—	—	—
REAR VOL. ▼	PANASONIC A	—	HITACHI
REAR VOL. ▲	PANASONIC B	—	—
MASTER VOL. ▼	SHARP	SANYO	—
MASTER VOL. ▲	—	—	—

"VDP"

B block \ A block	[1] button	[2] button	[3] button
CENTER VOL. ▼	SONY A	DENON A	—
CENTER VOL. ▲	SONY B	DENON B	—
REAR BAL. ◀	SONY C	DENON C	—
REAR BAL. ▶	—	—	—
REAR VOL. ▼	PANASONIC	—	—
REAR VOL. ▲	—	—	—
MASTER VOL. ▼	PIONEER	SANYO	PHILIPS
MASTER VOL. ▲	—	—	MAGNAVOX




7 OPERATION


Preparations for playback

1. Checking connections



- Referring to the connection diagrams (Pages 8 to 13) check to make sure that the connections are made properly.
- Check that the left and right speakers are connected properly and also that the polarity (+, -) is correct.
- Check that the left and right sides of the pin plug cords are connected properly.
- Check that each cord is securely connected.
- Check that each cord is of the proper type.


2. Checking the positions of the controls

- (See Pages 14 to 17 for a reference to the circled numbers.)
- Turn the MASTER VOLUME control fully counterclockwise to the "0" position.
 - Set the BALANCE , BASS , and TREBLE  controls to their center positions.

After making the above checks, press POWER switch  to switch on the power.
The receiver will be operable when the LED of the MASTER VOLUME control stops flashing after several seconds of muting.

Note on playback

The sound will be interrupted if one of the FUNCTION selector buttons   is pressed during playback. This is due to the operation of the muting circuit which prevents noise from being amplified at the time of switching, and is not a malfunction.

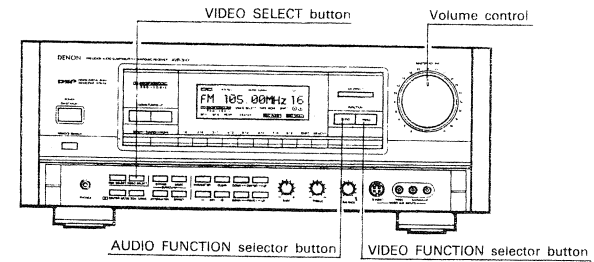
- When using the accompanying remote control unit, press the corresponding button. For details, see Page 22 of Section  REMOTE CONTROL UNIT.

Protection Circuit

This receiver is provided with a high-speed protection circuit. This circuit protects the internal circuitry from large currents which may be created by the output signals when the speaker terminals are not completely connected or are short-circuited.

The operation of this protection circuit automatically cuts off the output to the speakers and displays "PROTECTION!" on the multi-function display. If this should happen be sure to unplug the power cord, check the speaker connections, then plug in the power cord and switch on the power again. If, after another check, the "PROTECTION!" display comes on again, contact your store of purchase.

Playback



1. Playing a program source (Normal playback)

- Select the desired program source by pressing the AUDIO FUNCTION selector button or the VIDEO FUNCTION selector button.

AUDIO FUNCTION SELECTOR (Setting the program source)

Program source	AUDIO FUNCTION SELECTOR
To listen to a record	PHONO
To listen to a CD	CD
To listen to FM or AM broadcasts	TUNER
To listen to the DAT or tape deck connected to the DAT/TAPE-1 jacks	DAT/TAPE-1
To listen to the DAT or tape deck connected to the DAT/TAPE-2 jacks	DAT/TAPE-2

VIDEO FUNCTION SELECTOR (Setting the video program source)

Video program source	VIDEO FUNCTION SELECTOR
To watch a satellite broadcast	DBS/BS
To watch the video disc player connected to the VDP jacks	VDP
To watch the video deck connected to the VCR-1 jacks	VCR-1
To watch the video deck connected to the VCR-2 jacks	VCR-2
To watch the video camcorder equipped with playback function or another component connected to the (front panel) VIDEO-AUX jacks	V-AUX

MFD display

INPUT

2. Simulcast playback (Playing video and audio sources)

- Select the program source you wish to listen to with the AUDIO FUNCTION selector or the VIDEO FUNCTION selector.

MFD display

INPUT

- Hold down the VIDEO SELECT button for the video program source you wish to watch.

MFD display

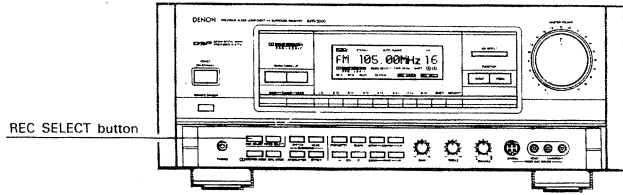
INPUT V:

- Begin playback of the program source. For operating details, see the manual of the respective component.
- Adjust the volume and tone.
 - Note that when the VIDEO FUNCTION button is again used to select the video program source during Simulcast playback, the Simulcast playback will be cancelled automatically.

- Begin playback of the program source. For operating details, see the manual of the respective component.

- Adjust the volume and tone.

Recording (Audio and Video)



**1. Recording program sources
(Recording the sound and picture of the source currently being monitored)**

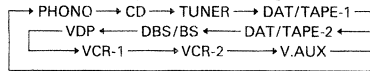
Follow the playback instructions for program sources (page 31).

Simultaneous Recording (audio or video)

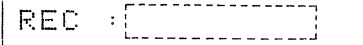
The signals of the source selected with the FUNCTION selector button are output simultaneously from the DAT/TAPE-1, DAT/TAPE-2, VCR-1 and VCR-2 REC OUT jacks. If a total of four decks – two tape decks and two video decks – are connected and all four are set to the recording mode, the same source can be recorded simultaneously on all for decks.

**2. Recording program sources independently and copying tapes (copying videos independently)
(Recording sounds (pictures) other than the ones currently being monitored)**

1 Press in the REC SELECT (independent recording selector) button, then release the button when the program source you want to record is displayed. The display changes in the following order:



MFD display



* If "PHONO", "CD", "TUNER", "DAT/TAPE-1" or "DAT/TAPE-2" is selected, no video signals will be output to the video REC OUT jacks.

2 Start playback of the program source you want to record.

3 Start recording on the tape deck, DAT (analog) or video deck.

For instructions on operation, refer to the manual for the corresponding component.

* This mode is cancelled if the REC SELECT button is pressed again.

* This is not possible in the CD direct mode.

Monitoring the Recording

The actual recorded sound can be monitored when recording on a three-headed tape deck.

To monitor the sound being recorded on the tape, after performing the above settings, use the AUDIO FUNCTION selector button to select the position, DAT/TAPE-1 or DAT/TAPE-2, to which the three-headed tape deck is connected. The tape monitor display lights on the FLD.

Operations in the Different Modes

	SP-A	SP-B	CENTER SP/PRE*1	REAR SP/PRE*1	CENTER LEVEL	REAR LEVEL	REAR BAL	CENTER MODE	TEST TONE	DELAY TIME	SURR. SIGNAL	A MATRIX
CD DIRECT	○	○	×	×	×	×	×	×	×	×	×	×
BYPASS	○	○	○	○	○	○	○	△ ¹²	×	×	×	×
DOLBY PRO LOGIC	NORMAL	○	○	○	○	○	○	○	○	○	×	×
	PHANTOM	○	○	×	○	×	○	○	○	○	×	×
	WIDE	○	○	○	○	○	○	○	○	○	×	×
DOLBY 3CH. LOGIC	NORMAL	○	○	○	×	○	×	○	○	×	×	×
	WIDE	○	○	○	×	○	×	○	○	×	×	×
WIDE SCREEN & LIVE	A MATRIX ON	NORMAL	○	○	○	○	○	○	×	○	○	○
		PHANTOM	○	○	×	○	×	○	○	×	○	○
		WIDE	○	○	○	○	○	○	○	×	○	○
MONO MOVIE	A MATRIX OFF (S.SIG.L+R, L-R)	NORMAL	○	○	×	○	×	○	×	×	○	△ ¹³
		PHANTOM	○	○	×	○	×	○	△ ¹²	×	×	×
CLASSIC CONCERT	○	○	×	○	×	○	○	△ ¹²	×	×	×	×
ROCK CONCERT	○	○	×	○	×	○	○	△ ¹²	×	×	×	×
CHURCH	○	○	×	○	×	○	○	△ ¹²	×	×	×	×
JAZZ	○	○	×	○	×	○	○	△ ¹²	×	×	×	×
STADIUM	○	○	×	○	×	○	○	△ ¹²	×	×	×	×
MATRIX	○	○	×	○	×	○	○	△ ¹²	×	×	×	×

	7MHz L/P	SOUND SIM	INIT DELAY	ROOM SIZE	EFFECT LEVEL	EFFECT ON/OFF	A.V.S.E	CINEMA	INPUT ADJ	CLR	
CD DIRECT	×	×	×	×	×	×	×	×	×	×	
BYPASS	×	×	×	×	×	×	○	○	○	○	
DOLBY PRO LOGIC	NORMAL	×	×	×	×	×	○	○	○	○	
	PHANTOM	×	×	×	×	×	○	○	○	○	
	WIDE	×	×	×	×	×	○	○	○	○	
DOLBY 3CH. LOGIC	NORMAL	×	×	×	×	×	○	○	○	○	
	WIDE	×	×	×	×	×	○	○	○	○	
WIDE SCREEN & LIVE	A MATRIX ON	NORMAL	○	○	×	△ ¹⁴	△ ¹⁴	×	○	○	○
		PHANTOM	○	○	×	△ ¹⁴	△ ¹⁴	×	○	○	○
		WIDE	○	○	×	△ ¹⁴	△ ¹⁴	×	○	○	○
MONO MOVIE	A MATRIX OFF (S.SIG.L+R, L-R)	NORMAL	○	○	×	△ ¹⁴	△ ¹⁴	×	○	○	○
		PHANTOM	○	○	×	△ ¹⁴	△ ¹⁴	×	○	○	○
CLASSIC CONCERT	×	×	○	○	○	○	○	○	○	○	
ROCK CONCERT	×	×	○	○	○	○	○	○	○	○	
CHURCH	×	×	○	○	○	○	○	○	○	○	
JAZZ	×	×	○	○	○	○	○	○	○	○	
STADIUM	×	×	○	○	○	○	○	○	○	○	
MATRIX	×	×	×	×	×	×	○	○	○	○	

○: Operation possible
×: Operation not possible

*1 When the power is turned on and when switching from other modes, the center and rear speaker pre-outputs are automatically turned on, even if they were off. In the bypass mode, however, the center speaker pre-outputs do not change.

*2 Switches to the Dolby Pro (3CH.) Logic mode for any modes other than CD direct, Dolby Pro (3CH.) Logic, Wide Screen and LIVE.

*3 Only when the surround signal parameter is set to "L-R".

*4 Only when the sound simulation parameter is set to "ON".

Operating the INPUT ADJ. button

For low input sources such as records or the tuner, if the INPUT ADJ. button is pressed and the attenuator is set to +6dB when listening to low input sources, the result is quality sound with an improved SN ratio.

* If the sound seems distorted when set to +6dB, set it back to 0dB.

* This input level setting (on or off) setting for the different input functions is automatically stored in the memory.

* This operation is not possible for the CD direct mode.

8 USING THE DSP (DIGITAL SOUND PROCESSOR)

DSP Modes

The AVR-3000 includes a DSP (Digital Signal Processor) for adjusting the sound field using digital signals. This DSP offers an excellent S/N ratio, channel separation, distortion, etc. The various parameters can be set according to conditions in the listening room to create a more realistic sound.

The sound field processing modes are as follows:

1. Modes not using the DSP

- **Bypass:** In this mode, the surround mode (DSP) is bypassed and the normal stereo sound is produced.
- **CD direct:** In these modes, the CD input signals are sent directly to the output jacks. (No signals are output to the center and rear channels.)

2. Modes using the DSP

- **Surround modes:** In these modes, signals are output to the center and rear speakers as well for four- or five-channel playback.

The surround modes are as follows:

1	Dolby Pro Logic	Use this when playing program sources recorded in Dolby Surround.
2	Wide Screen	Use this to enjoy program sources with the atmosphere of a movie theater, recorded in Dolby Surround.
3	Live	Use this to enjoy program sources with the atmosphere of a live performance, recorded in Dolby Surround.
4	Mono movie	In this mode, a sense of expansion is added to monaural audio sources. This mode is effective for old movies, bilingual TV movies, or monaural music sources.
5	Classic concert	This mode simulates the sound of a large concert hall. It is suited for classical music, etc.
6	Rock concert	This mode is best for playing rock, popular music, etc.
7	Church	Use this mode when playing religious music, pipe organ music, etc.
8	Jazz	This mode recreates the sound of a live music house with a low ceiling and strong vibrations.
9	Stadium	This mode simulates the sound of a large stadium.
10	Matrix	Use this to create a sense of expansion with sources recorded in stereo. The differential components of the input signals are output from the rear channel.

* These effects may not be very pronounced for some sources.

If this is the case, try other modes, not relying too much on their names, and find the mode you like best. Also, if the sound seems distorted, either lower the effect level or press the CLEAR button and readjust the parameters.

* To adjust the speaker balance for the different surround modes, first adjust for the Dolby Pro Logic Surround mode as explained on page 36, then use the position of the center level and rear level controls at this time as a guide to adjust the balance for that surround mode.

Parameters

The parameters are important data when using the DSP, and the parameters which can be used differ according to the DSP mode. (Refer to page 37 for a table of the usable parameters.)

The various parameters are preset upon shipment from the factory, but can be changed to suit your own tastes.

1. Independent functions (buttons)

In each DSP mode, there are some functions which can be used, others which cannot.

- (1) DELAY (▲ up and ▼ down) buttons

These adjust the delay time of the rear speaker signals.

Remote control unit

- (2) T.TONE (on/off) button

When pressed, test tones are emitted for adjusting the level, balance and delay time of the different channels. (For details, refer to page 39.)

Remote control unit

- (3) EFFECT button

This is a parameter which turns the DSP on and off.

When turned off, only the direct sounds are produced, as in the bypass mode.

Use this to check the effect of the DSP.

MFD display

EFFECT: []

2. PARAMETER button

Use this button to select the parameter.

The normal procedure for setting parameters is to first select the parameter with the PARAMETER button, then use the + and - buttons to set the selected parameter.

If no button is pressed for approximately 15 seconds, the parameter setting mode is automatically cancelled.

- (1) Initial delay

This parameter sets the distance (delay time) from the sound source to the reflecting walls.

The larger the value, the further away the sound source seems.

- +

0 ~ 50msec

10msec STEP

MFD display

INIT.DELAY: []ms

- (2) Room size

This parameter sets the time interval between the initial reflected sounds.

The larger the value, the larger the sound field seems to be, and the greater the sense of expansion.

- +

0.4 ~ 2.0

(0.2 STEP)

MFD display

ROOM SIZE: []

- (3) Effect level
 This parameter adjusts the level of the reflected sound.
 The larger the value, the greater the level of the reflected sound.

[-] [+]
 0 ~ 15

MFD display

EFFECT LEVEL: []

- (4) Surround signal
 This parameter is only for the WIDE SCREEN and LIVE modes.
 Select the surround input signal.

[-] [+]
 L-R ↔ L+R

MFD display

SURR. SIGNAL: []

- (5) Adaptive matrix
 This parameter is only for the WIDE SCREEN and LIVE modes.
 The adaptive matrix is a function for emphasizing a sense of movement and positioning.
 This turns the adaptive matrix, which is necessary for emphasizing the directivity, on and off.
 Normally leave it on, but for sources with which emphasizing the directivity seems unnatural, turn it off.

[-] [+]
 OFF ↔ ON

MFD display

ADAPT. MATRIX: []

- (6) 7kHz L.P.F. (low-pass filter)
 This parameter is only for the WIDE SCREEN and LIVE modes.
 This filter reduces the high frequencies in the reflected sound, cutting all frequencies of 7kHz and above.

[-] [+]
 OFF ↔ ON

MFD display

7kHz L.P.F.: []

- (7) Sound simulation
 This parameter is only for the WIDE SCREEN and LIVE modes.
 This parameter turns various types of sound field simulations on and off. When turned off, only the direct, unprocessed signals are produced.
 * If the power is turned off when the SOUND SIM. parameter set to "OFF", only the sound will be played when the power is turned back on.

[-] [+]
 OFF ↔ ON

MFD display

SOUND SIM.: []

DSP Parameter Table

Mode	DOLBY PRO LOGIC	WIDE SCREEN	LIVE	MONO MOVIE	CLASSIC CONCERT	ROCK CONCERT	CHURCH	JAZZ	STADIUM	MATRIX
Parameter										
Independent functions										
(1) DELAY	○	○	○	×	×	×	×	×	×	○
(2) TEST TONE	○	×	×	×	×	×	×	×	×	×
(2) EFFECT	×	×	×	○	○	○	○	○	○	×
PARAMETER										
(1) INIT. DELAY	×	×	×	○	○	○	○	○	○	×
(2) ROOM SIZE	×	○	○	○	○	○	○	○	○	×
(3) EFFECT LEVEL	×	○	○	○	○	○	○	○	○	×
(4) SURROUND SIGNAL	×	○	○	×	×	×	×	×	×	×
(5) ADAPTIVE MATRIX	×	○	○	×	×	×	×	×	×	×
(6) 7kHz L.P.F.	×	○	○	×	×	×	×	×	×	×
(7) SOUND SIM.	×	○	○	×	×	×	×	×	×	×

Parameters which can be used for the different modes are stored, except for the test tone function.

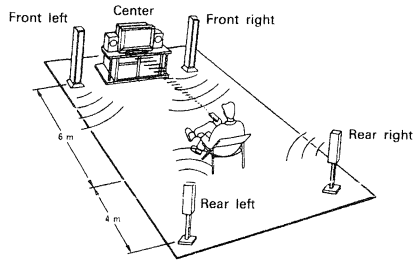
NOTE:

The sound is interrupted momentarily when the delay, initial delay, room size and effect level parameters are changed, but this is normal.
 For some playback sources, noise may be generated if the DSP parameters are changed.

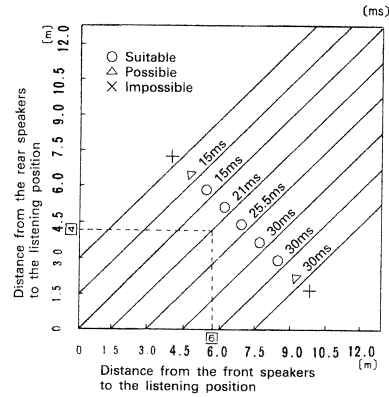
DOLBY PRO LOGIC SURROUND

• Setting the delay time

The optimum delay time will differ depending on the listening position. Referring to the chart at right, set the optimum delay time for your room's space and setting position. For example, when the distance from the front speakers to the listening position is 4 m and that from the rear speakers to the listening position is 4 m, the optimum delay time will be 21 ms. The variable range of the delay time differs depending on the mode. For details about the variable range, see Page 24.

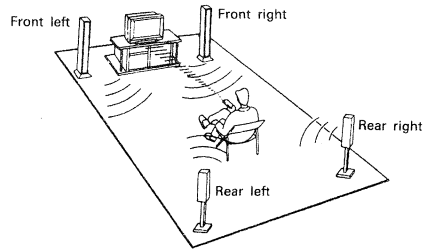
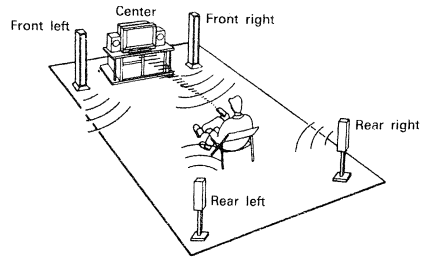


Listening position and optimum delay time for playback with Dolby Pro Logic surround



• Speaker arrangement and Dolby Pro Logic and the center mode

Ideally, center speakers are used for playback of Dolby Pro Logic surround.

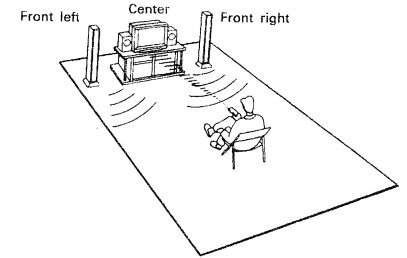
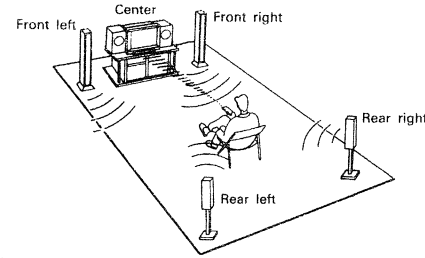


• NORMAL mode

Normal mode: This mode is suited for an arrangement in which the center channel speakers are smaller than the left and right speakers. Signals below 100 Hz which have almost no effect on directional orientation are distributed to the left and right channels, whereas the center channel outputs signals greater than 100 Hz. As a result, the bass of the left and right channels increases the apparent deepness of the sound.

• PHANTOM mode

Phantom mode: Use this mode when center channel speakers are not used. A directional emphasis circuit provides signal reproduction which is electrically oriented to the center and this provides an exciting sound field for your enjoyment.



• WIDE mode

Wide mode: This mode is suited for an arrangement in which the center channel speakers are of the same grade as the left and right speakers. The entire sound band from low region to high is output to the center channel to provide an exciting sound field for your enjoyment.

• 3CH. LOGIC

Three-channel logic mode: Use this mode when rear channel speakers are not used. The rear channel information is reproduced by the front speakers.

NOTE: The Phantom mode cannot be set when in the 3CH. Logic mode.

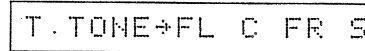
• Test Tones

This function emits test signals for adjusting the levels of the different channels for Dolby Pro Logic surround. When the T.TONE button on the remote control unit is pressed, test tones are emitted from the speakers, starting from the front left speaker.

Before playing sources recorded in Dolby Pro Logic surround, arrange the speakers as shown on the diagram above, then use the test tones to adjust the balance between the volumes of the speakers to achieve the most appropriate balance for the listening position, and adjust so that the level of the sound from all the speakers seems to be the same.

To stop emitting the test tones, press the T.TONE button once again. There are two test tone patterns, automatic and manual, selected with the PARAMETER button. In addition, enjoy other surround modes using the volume balance adjusted in the Dolby Pro Logic mode as the basis. For some playback sources the volume balance may not be optimal, so readjust it to suit your tastes.

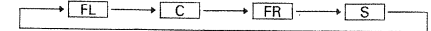
• MFD display



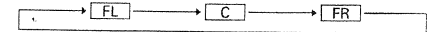
- FL : Front left channel
- C : Center channel
- FR : Front right channel
- S : Rear channels

• Automatic mode

The test tones are emitted in the order shown below, at four second intervals the first two times around, two second intervals from the third time around on.



(In the Dolby 3ch. Logic mode:)



* The test tone is always emitted from the front left channel first.

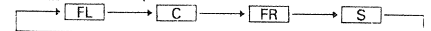
* The tone will not switch to the next channel when adjusting the center level for the center channel output or when adjusting the rear level or rear balance for the rear channel output. The tone switches to the next channel two seconds after the level key is released.

• Manual mode

In this mode, the channels from which the test tones are emitted are selected manually.

Use the and buttons to select the channels.

The test tones are emitted in the following order each time the button is pressed:



The test tones are emitted in the following order each time the button is pressed:



* When switched from the automatic mode to the manual mode, test tones are emitted starting from the channel from which they were being output in the automatic mode.

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DSP Operation

1. Surround modes – four-channel and five-channel playback modes SURROUND MODE button

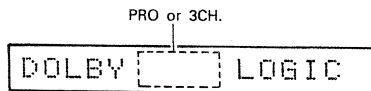
Main unit and remote control unit

The DSP surround mode switches in order each time this button is pressed.

- (1) Dolby Pro Logic and 3ch. Logic

Modes for playing program sources recorded in Dolby surround

MFD display

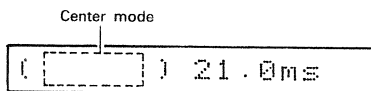


① CENTER MODE button

Main unit and remote control unit

Set the Dolby center mode according to the center speaker(s) being used.
Refer to pages 38 to 39.

MFD display



② T.TONE button

Remote control unit

Use this to adjust the speaker levels and balance.
Refer to page 39.

PARAMETER button

Main unit and remote control unit

Automatic mode ↔ manual mode (Refer to page 39.)

③ DELAY buttons (▲ and ▼)

Remote control unit

Use these to set the delay time (between 15 and 30msec).

④ Start playing the source.

⑤ A.V.S.E. button

Remote control unit

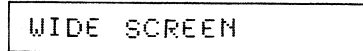
CINEMA button

Remote control unit

Set these to suit your tastes.
(Refer to page 24.)

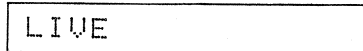
- (2) WIDE SCREEN – Mode for playing movie sources, etc., recorded in Dolby Surround

MFD display



LIVE – Mode for playing music sources, etc., recorded in Dolby Surround

MFD display



- The usable parameters are the same for the above two modes.

① CENTER MODE button

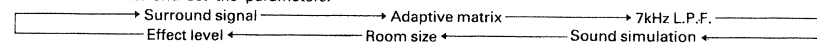
Main unit and remote control unit

Same as for the Dolby Pro Logic mode.

② PARAMETER button

Main unit and remote control unit

Use this to select and set the parameters.



Refer to pages 35 to 37.

- The adaptive matrix (on/off) can only be turned on when the surround signal parameter is set to "L-R". If the surround signal parameter is set to "L+R", the adaptive matrix is automatically set to "OFF". If the surround signal parameter is set back to "L-R", the adaptive matrix remains set to "OFF", even if it was set to "ON" before. In addition, the room size and effect level parameters can only be set when the sound simulator parameter is set to "ON".

③ DELAY buttons (▲ and ▼)

Remote control unit

Use these to set the delay time (between 6.0 and 30.0msec).

④ Start playing the source.

⑤ A.V.S.E. button

Remote control unit

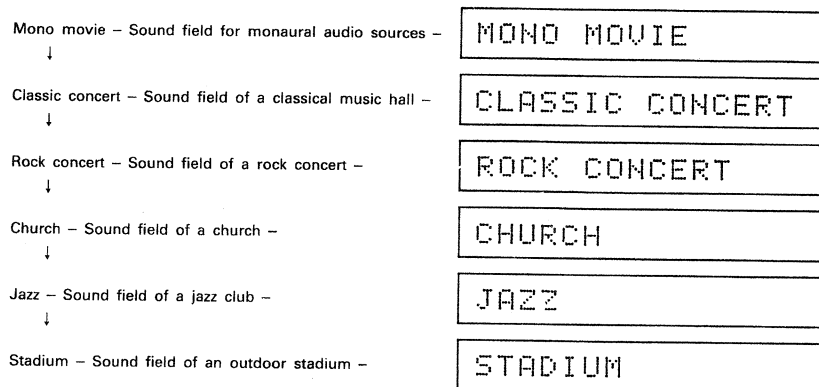
CINEMA button

Remote control unit

Set these to suit your tastes.
(Refer to page 24.)

(3)

MFD display

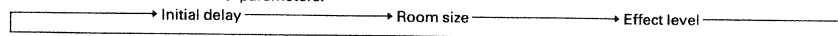


- The usable parameters are the same for the above six DSP surround modes.
- Set the parameters according to the DSP surround mode.
- Even if the parameters are set to the same values for all the surround modes, there are also internally fixed parameters, so the effects created with the various modes will be different.

① PARAMETER button

Main unit and remote control unit

Use this to select and set the parameters.



(Refer to pages 35 to 37.)

② Start playing the source.

③ EFFECT button

Main unit and remote control unit

Use this to check the effect.

④ A.V.S.E. button

CINEMA button

Remote control unit

Remote control unit

Set these to suit your tastes.
(Refer to page 24.)

(4) Matrix

① DELAY buttons (▲ and ▼)

Remote control unit

Use these to set the delay time (between 6.0 and 370.0msec).

② Start playing the source.

③ A.V.S.E. button

CINEMA button

Remote control unit

Remote control unit

Set these to suit your tastes.
(Refer to page 24.)

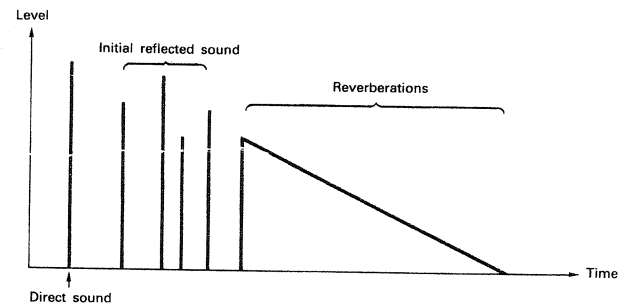
Technical Advice

1. "Sound field"

The sounds we hear normally or in concert halls, etc., does not only consist of sounds heard directly from the sound source (direct sound). Sound disperses in all directions and is reflected repeatedly off the walls and ceilings, and these reflected sounds reach our ears with a certain delay.

Reflected sounds can be classified into two main categories. The first is initial reflected sound, and this is sound which we hear after it has reflected once or a few times off of walls. This creates an echo-like effect, but as the time difference with respect to the direct sound is short, we do not perceive this initial reflected sound as a distinct sound. Rather, it has the effect of increasing the sense of expansion or depth of the direct sound. The second category of reflected sound is called reverberations. These are sounds which reach our ears after an elaborate series of reflections. These reverberations are responsible for the richness of the overall sound.

These different sounds can be graphed as follows:



The above is only one example. Actually the reflected sound takes on a particular form depending on the environment surrounding the sound source, that is such conditions as the size of the room, the distance to the walls, the shape and material of the walls, and our position within the room. This reflected sound combines with the direct sound, and we recognize it as the particular sound to the listening environment. This particular sound is called the sound field. Normally we hear it without paying special attention to it.

The AVR-3000 uses an advanced DSP (digital signal processor) to create various sound fields.

2. DSP sound fields

We now have access to many types of music and movie sources, including LDs, CD, videos, satellite broadcasts, and so on. In most cases, some sort of sound field has already been added to these sound sources. For live recordings, of course, but also for studio recordings, the reflected sounds are recorded along with the direct sound. But when we listen to them, we sometimes feel we would like a richer sound, or for example that we would like to recreate the exciting sense of presence at a live concert. By adding the DSP sound fields to the sources, we can create a more real sound with greater atmosphere.

The sound fields created by the DSP are created based on the sound source. Because of this, some adjustments are necessary to achieve an effect which fits the source, including the sound field already included in the source. The AVR-3000 offers various parameters so that the user can make these adjustments. Values have already been preset for the different parameters in the various modes upon shipment from the factory, they can be adjusted to create your own original sound fields.

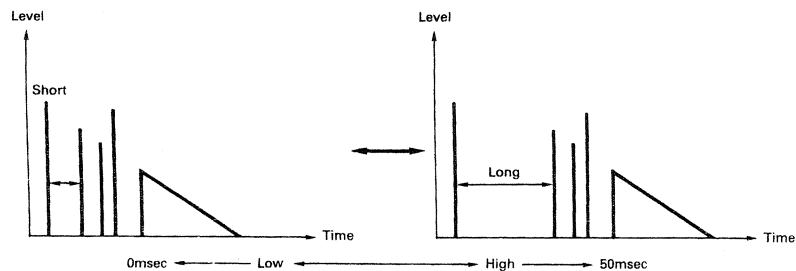
The parameters which the AVR-3000 includes for adjusting the sound field are as follows:

- ① Initial delay
- ② Room size
- ③ Effect level
- ④ Effect
- ⑤ 7kHz L.R.F. (low-pass filter)

3. Description of parameters

(1) Initial delay

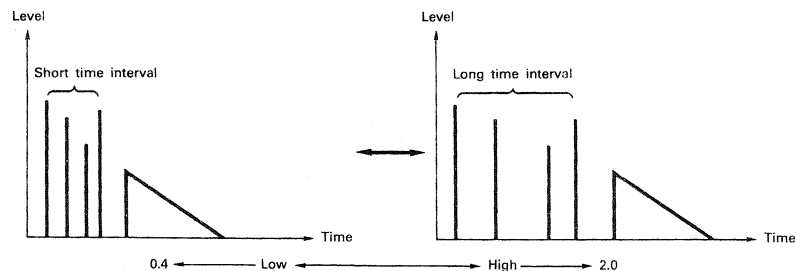
This parameter sets the distance (delay) time from the sound source to the reflecting walls.
Variable range: 0 to 50msec (in 10msec steps)



This adjusts the time different between the direct sound and the initial reflected sound. Think of it like changing the distance from the sound source to the wall behind the stage. The higher the value, the deeper the stage seems to be.

(2) Room size

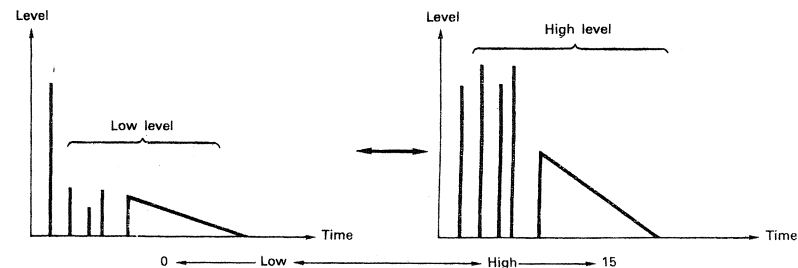
This parameter sets the time interval between initial reflected sounds.
Variable range: 0.4 to 2.0 (in 0.2 steps)



This parameter controls the size of the room. The higher this value, the greater the time interval between initial reflected sounds, and the greater the time difference between the direct sound and the initial reflected sounds. In other words, the time until which the sound reaches the listeners ears after reflecting off walls increases, as if the size of the room increased. Inversely, the lower the value, the smaller the room. This parameter has a strong effect, so if changed the sound may seem unnatural with some sources. If so, either lower the effect level or decrease the room size parameter.

(3) Effect level

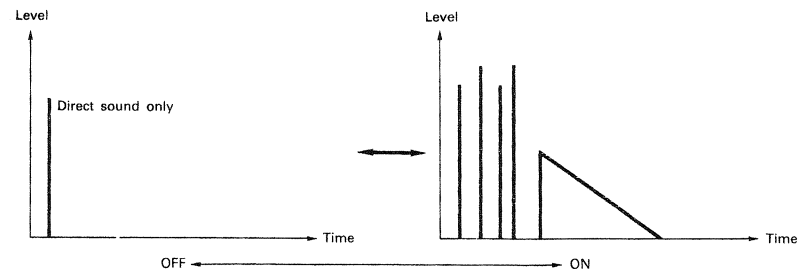
This parameter adjusts the level of the reflected sound.
The higher the value, the greater the level of the reflected sound.
Variable range: 0 to 15



Normally the number of reflected sounds runs from several sounds to several tens of sounds, and specific data is set for each of these in the different modes. For some sources, the level of the reflected sound may be too high, making the sound harsh to listen to. In other cases, the effect will be too low and not perceivable. In such cases, use this parameter to change the overall level of the reflected sounds without changing the balance between the level of the different reflected sounds, that is without changing the specific character of the sound field. If this parameter is set too high or too low, the resulting sound may be bizarre. At level 0, in particular, there is no reflected sound at all. Lower the effect level if the sound seems distorted.

(4) Effect

This parameter turns the DSP sound field effect on and off.
When turned off, the sound is the same as in the bypass mode, and only the direct sound is played.



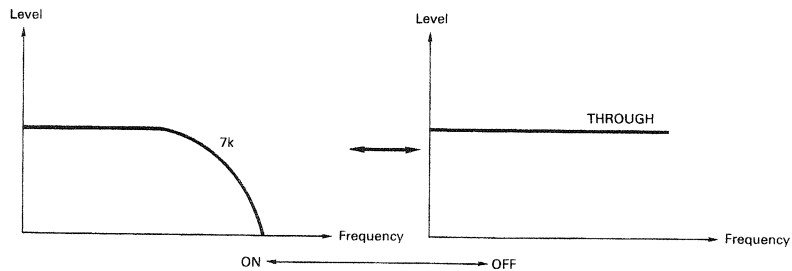
This parameter is used to check the effect of the DSP sound field. When turned off, only the direct sound is produced, and no reflected sounds are heard, regardless of the settings of the other parameters. The DSP sound field effect can be turned on and off without changing other parameters, making it easy to check the effect. The effect parameter turns back on automatically if other parameters are changed when the effect parameter is turned off.

(5) 7kHz L.P.F. (low-pass filter)

This filter cuts the high frequency range of reflected sounds.

All frequencies of 7kHz and higher are cut.

When the filter is turned off, all the frequencies are produced (this is the "through" mode).



Use this to change the quality of the reflected sounds.

When turned off, the sound is as if the room has hard, concrete walls, and when turned on, the sound becomes softer.

4. Creating original sound fields

Here we offer a general example of how to create original sound fields.

(1) Select the surround mode to use as the base.

(2) Adjust the room size and initial delay parameters.

First adjust the room size parameter. At this stage, roughly determine the size of the sound field. After roughly adjusting the room size parameter, adjust the initial delay parameter. If the room size and initial delay values are too high, the result may be an unnatural sound for some sources. Find the sound you like.

(3) Adjust the 7kHz L.P.F. (for the WIDE SCREEN and LIVE modes only)

Use the 7kHz L.P.F. to determine the quality of the reflected sound.

(4) Overall adjustment

Use the effect level parameter to adjust the balance between the direct sound and the reflected sound. The atmosphere changes substantially just by changing this balance.

If you cannot achieve the desired effect, try returning to the previous step. In particular, the relationship between steps 2 and 1 is important, so it may be a good idea to try something else. Sometimes you might discover surprising effects through different combinations.

The preset modes have been given names indicating sound fields appropriate for different types of music sources, but when creating your own original sound fields there is no need to worry too much about these names. To create a sound field to your liking, it may be best to try different variations.

* Press the CLEAR button to start over from scratch.

5. Initial settings of parameters

The initial settings of the different parameters are as shown below.

When the CLEAR button is pressed, the settings are all reset to these values.

	SP-A	SP-B	CENTER SP/PRE	REAR SP/PRE	CENTER LEVEL	REAR LEVEL*1	CENTER MODE	3CH. LOGIC	TEST TONE	DELAY TIME
BYPASS	ON	OFF	OFF	OFF	-12dB	-	-	-	-	-
DOLBY PRO LOGIC	ON	OFF	ON	ON	-12dB	-12dB	NORMAL	OFF	OFF	21msec
WIDE SCREEN	ON	OFF	ON	ON	-12dB	-12dB	NORMAL	-	-	21msec
LIVE	ON	OFF	ON	ON	-12dB	-12dB	NORMAL	-	-	21msec
MONO MOVIE	ON	OFF	OFF	ON	-	-12dB	-	-	-	-
CLASSIC CONCERT	ON	OFF	OFF	ON	-	-12dB	-	-	-	-
ROCK CONCERT	ON	OFF	OFF	ON	-	-12dB	-	-	-	-
CHURCH	ON	OFF	OFF	ON	-	-12dB	-	-	-	-
JAZZ	ON	OFF	OFF	ON	-	-12dB	-	-	-	-
STADIUM	ON	OFF	OFF	ON	-	-12dB	-	-	-	-
MATRIX	ON	OFF	OFF	ON	-	-12dB	-	-	-	21msec

	SURR. SIGNAL	A. MATRIX	7kHz L.P.F.	SOUND SIM.	INIT DELAY	ROOM SIZE	EFFECT LEVEL	EFFECT ON/OFF	AVSE	CINEMA
BYPASS	-	-	-	-	-	-	-	-	OFF	OFF
DOLBY PRO LOGIC	-	-	-	-	-	-	-	-	OFF	OFF
WIDE SCREEN	L-R	ON	ON	ON	-	1.0	10	-	OFF	OFF
LIVE	L-R	ON	ON	ON	-	1.0	10	-	OFF	OFF
MONO MOVIE	-	-	-	-	0msec	1.0	10	ON	OFF	OFF
CLASSIC CONCERT	-	-	-	-	0msec	1.0	10	ON	OFF	OFF
ROCK CONCERT	-	-	-	-	0msec	1.0	10	ON	OFF	OFF
CHURCH	-	-	-	-	0msec	1.0	10	ON	OFF	OFF
JAZZ	-	-	-	-	0msec	1.0	10	ON	OFF	OFF
STADIUM	-	-	-	-	0msec	1.6	10	ON	OFF	OFF
MATRIX	-	-	-	-	-	-	-	-	OFF	OFF

*1: Both the left and right rear channels are set to -12dB.

9 LAST FUNCTION MEMORY

- This receiver is equipped with a last function memory which stores the input and output setting conditions as they were immediately before the power is switched off. This function eliminates the need to perform complicated resettings when the power is switched on.
- This receiver is also equipped with a back-up memory. This function provides approximately one month of memory storage with the power cord disconnected.

10 TROUBLESHOOTING

If a problem should arise, first check the following:

- Are the connections correct?
- Have you operated the amplifier according to the Operating Instructions?
- Are the speakers, turntable, and other components operating properly?

If the receiver is not operating properly, check the items listed in the table below. Should the problem persist, there may be a malfunction. Disconnect the power immediately and contact your store of purchase.

	Symptom	Cause	Measures	Page
Common problems arising when listening to the CD, records, tapes, and FM broadcasts	FLD not lit and sound not produced when power switch set to on.	<ul style="list-style-type: none"> Power cord not plugged in securely. 	<ul style="list-style-type: none"> Check the insertion of the power cord plug. 	11
	FLD lit but sound not produced.	<ul style="list-style-type: none"> Speaker cords not securely connected. OUTPUT button is off. 	<ul style="list-style-type: none"> Connect securely. Select SP-A, SP-B, CENTER, or REAR of the remote control's OUTPUT button. 	8-13 25
			<ul style="list-style-type: none"> Improper position of the audio input selection button. Volume control set to minimum. MUTING is on. 	14-17 14 25
	"PROTECTION" display appears multi-function display.	<ul style="list-style-type: none"> Speaker terminals are short-circuited. Incomplete connection of the shorting pin between PRE OUT and MAIN IN. 	<ul style="list-style-type: none"> Switch power off, connect speakers properly, then switch power back on. Connect shorting pin properly. 	8 8
			<ul style="list-style-type: none"> Incomplete connection of speaker cords. Incomplete connection of input/output cords. Left/right balance is off. 	8-13 8-13 16
	Positions of instruments reversed during stereo playback.	<ul style="list-style-type: none"> Reverse connections of left and right speakers or left and right input/output cords. 	<ul style="list-style-type: none"> Check left and right connections. 	8-13
	Sound seems distorted	<ul style="list-style-type: none"> INPUT LEVEL ADJ. button set to +6dB. Effect level parameter is high. 	<ul style="list-style-type: none"> Set to 0dB. Lower effect level parameter. 	33 36,45
			<ul style="list-style-type: none"> DSP parameter settings are poor. 	<ul style="list-style-type: none"> Press the CLEAR button then adjust the DSP parameters.
	Sound field effect cannot be heard.	<ul style="list-style-type: none"> EFFECT is turned off. SOUND SIM. is turned off. 	<ul style="list-style-type: none"> Turn EFFECT on. Turn SOUND SIM. on. 	16 36
			<ul style="list-style-type: none"> CD direct mode set. 	<ul style="list-style-type: none"> Cancel CD direct mode.
	CD direct mode does not work.	<ul style="list-style-type: none"> REC SELECT is on. 	<ul style="list-style-type: none"> Cancel REC SELECT. 	14,15

	Symptom	Cause	Measures	Page
When playing records	Humming noise produced when record is playing.	<ul style="list-style-type: none"> Ground wire of turntable not connected properly. Incomplete PHONO jack connection. TV or radio transmission antenna nearby. 	<ul style="list-style-type: none"> Connect securely. 	10
			<ul style="list-style-type: none"> Connect securely. Contact your store of purchase. 	10 --
	Howling noise produced when volume is high.	<ul style="list-style-type: none"> Turntable and speaker systems too close together. Floor is unstable and vibrates easily. 	<ul style="list-style-type: none"> Separate as much as possible. 	--
			<ul style="list-style-type: none"> Use cushions to absorb speaker vibrations transmitted by floor. If turntable is not equipped with insulators, use audio insulators (commonly available). 	--
Sound is distorted.	<ul style="list-style-type: none"> Stylus pressure too weak. Dust or dirt on stylus. Cartridge defective. 	<ul style="list-style-type: none"> Apply proper stylus pressure. Check stylus. Replace cartridge. 	-- -- --	
Volume is weak.	<ul style="list-style-type: none"> MC cartridge being used. 	<ul style="list-style-type: none"> Replace with MM cartridge or use a up transformer. 	10	
Remote control unit	Receiver does not operate properly when remote control unit is used. (When LEARNED/TX LED is lit)	<ul style="list-style-type: none"> Batteries dead. Remote control unit too far from receiver. Obstacle between receiver and remote control unit. Learning process to the button improper. Different button is being pressed. 	<ul style="list-style-type: none"> Replace with new batteries. Move closer. 	22 22
			<ul style="list-style-type: none"> Remove obstacle. Set learning again. Press the proper button. 	28
	Receiver does not operate properly when remote control unit is used. (When LEARNED/TX LED is not lit)	<ul style="list-style-type: none"> Learning process to the button improper. Learning process has not been applied to the button. Batteries dead. ⊕ and ⊖ ends of battery inserted in reverse. Improper position of PROGRAM switch. 	<ul style="list-style-type: none"> Set learning again. Apply learning process. 	28 28
			<ul style="list-style-type: none"> Replace with new batteries. Insert batteries properly. Set to desired position (RECEIVER, AV). 	22 22
Preset memory codes do not operate.	<ul style="list-style-type: none"> Other code already learned at that key. 	<ul style="list-style-type: none"> Reset. 	28	

11 SPECIFICATIONS

- **Audio Section**
 - (Power amplifier)**

	for U.S.A model	for multi-voltage model
Rated output:	MAIN (main 2ch driven) 110 W + 110 W (8 ohms, 20 Hz - 20 kHz with 0.03% THD)	150 W + 150 W (6 ohms, EIAJ)
(All properties shown are only for the power amplifier stage.)	CENTER (center 1ch driven) 110 W (8 ohms, 20 Hz - 20 kHz with 0.03% THD)	150 W (6 ohms, EIAJ)
	REAR (rear 2ch driven) 35 W + 35 W (8 ohms, 1 kHz with 0.05% THD)	60 W + 60 W (6 ohms, EIAJ) at DOLBY PRO LOGIC WIDE MODE
 - Frequency response:** 5 Hz to 50 kHz (Main in - speaker out)
 - Rated input level / impedance:** 1 V/47 k ohms (Main in - speaker out)
 - Signal-to-noise ratio:** 120 dB (Main in - speaker out)
 - Output terminals:**

Main:	A or B	6 to 16 ohms
	A + B	12 to 16 ohms
Center:		6 to 16 ohms
Rear:		6 to 16 ohms
 - (Pre-amplifier)**
 - Line input (Each line input - FRONT PRE OUT)**
 - Input sensitivity / impedance:** 150 mV/47 k ohms PHONO (MM): 2.5 mV / 47 kohms, CD DIRECT: 150 mV / 33 kohms
 - Frequency response:**

5 Hz to 100 kHz:	±3 dB
5 Hz to 150 kHz:	±3 dB (CD DIRECT)
BASS:	100 Hz ±10 dB
TREBLE:	10 kHz ±10 dB
 - Tone control range:** 92 dB
 - Signal-to-noise ratio (FRONT PRE OUT):** 95 dB (CD DIRECT)
 - Distortion factor:** 0.01% 1 kHz 1 V (BYPASS mode)
0.003% 1 kHz 3 V (CD DIRECT)
 - Rated output / Maximum output:** 1 V/8 V (common for FRONT, CENTER, REAR, MONO, each PRE OUT)
 - Maximum headphone output:** 284 mW (8 ohms)
 - Phono equalizer (PHONO input - REC OUT)**
 - RIAA deviation:** 20 Hz to 20 kHz ±1 dB
 - Signal-to-noise ratio:** 76 dB (JIS-A, with 5 mV input)
 - Rated output / Maximum output:** 150 mV/8 V
 - Distortion factor:** 0.03% (1 kHz, 3 V)
- **Tuner Section**
 - [FM] (note: μV at 75 ohms, 0 dBf = 1×10^{-15} W)**

Receiving Range:	87.5 MHz ~ 108.0 MHz (for U.S.A. model); 87.5 MHz ~ 108.0 MHz (for multi-voltage model)
Usable Sensitivity:	0.9 μV (10.3 dBf)
50 dB Quieting Sensitivity:	MONO 1.6 μV (15.3 dBf) STEREO 23 μV (38.5 dBf)
Signal to Noise Ratio (IHF-A):	MONO 80 dB STEREO 75 dB
Total Harmonic Distortion (at 1 kHz):	MONO 0.1% STEREO 0.2%
 - [AM]**

Receiving Range:	520 kHz ~ 1710 kHz (for U.S.A. model) 522 kHz ~ 1611 kHz (for multi-voltage model)
Usable Sensitivity:	18 μV
Signal to Noise Ratio:	50 dB
- **Video Section**
 - Standard video jacks**
 - Input and output level / impedance:** 1 Vp-p/75 ohms
 - Frequency response:** 1 Hz to 10 MHz +0, -3 dB
 - S-video output jacks**
 - Input and output level / impedance:** Y (brightness) signal: 1 Vp-p/75 ohms
C (color) signal: 0.286 Vp-p/75 ohms
 - Frequency response:** 1 Hz to 11 MHz +0, -3 dB
- **General**
 - Power supply:** 120 V AC, 60 Hz (for U.S.A. model)
110/220 V AC, 50/60 Hz (for multi-voltage model)
 - Power consumption:** 5.5 A (for U.S.A. model)
290 W (for multi-voltage model)
 - Maximum external dimensions:** 434 (W) x 184 (H) x 421 (D) mm (17-3/32" x 7-1/4" x 16-37/64") (AVR-3000)
470 (W) x 185 (H) x 421 (D) mm (18-1/2" x 7-9/32" x 16-37/64") (AVR-3000G)
 - Weight:** 15.0 kg (33 lbs 2 oz) (AVR-3000) 16.5 kg (36 lbs 7 oz) (AVR-3000G)

- **Remote control unit**
 - System remote control with learning function**
 - RC-159:**

Total buttons:	62
DENON system code	
DAT:	8 buttons
CD player:	8 buttons
Cassette deck:	8 buttons
Tuner:	2 buttons
VDP:	8 buttons
AVR-3000 fixed codes:	47 buttons
 - Learning buttons**
 - System call buttons:** 3 (maximum of 10 codes per button)
 - Program - RECEIVER:** 8 buttons
 - AV: 58 buttons
 - Maximum total:** 35 codes
 - Batteries:** R6P/AA Type (two batteries)
 - External dimensions:** 70 (W) x 215 (H) x 18 (D) mm (2-3/4" x 8-15/32" x 45/64")
 - Weight:** 170 g (Approx. 6 oz) (including batteries)
- RC-160:**

Total buttons:	17 buttons
Batteries:	R6P/AA Type (two batteries)
External dimensions:	48 (W) x 177 (H) x 18 (D) mm (1-57/64" x 6-31/32" x 45/64")
Weight:	100 g (Approx. 3.5 oz) (including batteries)

* For purposes of improvement, specifications and design are subject to change without notice.

MEMO:

DENON SERVICE NETWORK

- Please contact one of our overseas service centers, listed below, for follow-up service consultation.
- Wenden Sie sich für anfallende Wartungs- bzw. Reparaturarbeiten bitte an eine der folgend aufgeführten Kundendienststellen.
- Adressez-vous à nos centres de service d'outre-mer indiqués ci-dessous, pour le service après-vente.
- Per il servizio dopo vendita rivolgete Vi al nostro centro di servizio estero appropriato della lista seguente.
- Para consultas de servicio por favor dirigirse a cualquiera de nuestros centros de servicio en el extranjero, enlistados abajo.
- Neem kontakt op met één van onze reparatie-inrichtingen in het buitenland, waarvan hier een lijst volgt, voor na-service.
- Ta kontakt med nedan angivna servicecentraler för rådföring om servicearbeten efter försäljningen.
- Favor contactar um de nossos centros de serviços internacionais, abaixo listados, para consulta de serviços de acompanhamento.

Australia	AWA Limited. 112-118 Talavera Road, North Ryde NSW 2113, Australia, Postal Locked Bag No. 12, North Ryde. Tel: (02) 888-9000. Fax: (02) 888-9310. Telex: AA 22692
Austria	Boyd U, Haas Electronic-Bauelemente Vertriebsges, mbH & Co., KG Rupertusplatz 3 A-1170 Wien Tel: 0222-460288
Belgium	Transtel-Sabima P.V.B.A. Harmoniestraat 13, 2018 Antwerpen 1, België Tel: 03-237-3607
Canada	Denon Canada Inc. 17 Denison Street, Markham Ontario, Canada L3R 1B5 Tel: 416-475-4085
Denmark	Audionord Danmark A/S. Vester Alle 7, 8000 Århus C. Tel: 86-128811
Finland	Oy Nepcon AB Myyrmäentie 2C, SF-01600 Vantaa Tel: 90-5664844
France	Denon France S.A. 3 Boulevard Ney, 75018 Paris Tel: (1) 40 35 14 14
F.R. Germany	Denon Electronic GmbH Halskestraße 32, 4030 Ratingen 1 Tel: 02102-4985-0
Greece	Kinotechniki Ass. 47 Stournara Str., Athens Tel: 3606 998
Hong Kong	Tai Lin Radio Service Ltd. 310 Nathan Road, Kowloon, Hong Kong Tel: K-855005-8
Iceland	Japis Ltd. Brautarholt 2, Box 396, 101 Reykjavik, Iceland Tel: 27133
Indonesia	PT Autoaccindo Jaya. Cideng Barat No. 7 Jakarta, Indonesia Tel: 6016599
Italy	Melchioni S.P.A. Via P. Colletta 37-20135 Milano Tel: 02-57941
Malaysia	Pertama Audio Sdn. Bhd. 44-46 Jalan SS 22/21 Damansara Jaya, 47400 Selangor, Malaysia Tel: 719 3957
Mexico	Labrador, S.A. de C.V. Zamora No. 154 Col. Condesa 06140 Mexico, D.F. Tel: 286 55 09 Fax: 286 34 62
Netherlands	Penhold B.V. Isarweg 6, 1043 AK Amsterdam Tel: 020-611-4957
New Zealand	Avalon Audio Corpn. Limited 119 Wellesley Street, Auckland 1, New Zealand Tel: 09-779-351, 09-775-370
Norway	Hi-Fi Klubben Box 70 Ankertorget, 0133 Oslo 1 Tel: 02-112218
Portugal	Videoacustica Qta. Do Paizinho-Armazém 5-Estrada De Circunvalação-Apart. 3127 1303 Lisboa Codex Tel: 2187004/2187096
Singapore	Pertama Audio Pte. Ltd. Alexandra Distripark Blk 4, No. 03-39 Pasir Panjang Road, Singapore 0511 Tel: 278-4411
Spain	Gaplasa S.A. Conde de Torroja, 24, 28022 Madrid Tel: 747-7777
Sweden	Sveriges Hi-Fi Klubb Box 5116, S-402 23 Göteborg, Tel: 031-200040
Switzerland	Diethelm & Co., AG. Eggbühlstrasse 28, 8052 Zürich Tel: 01-3013030
Taiwan R.O.C.	Taiwan Kolin Co., Ltd. 8th Fl., 83, Sec. 1, Chung-king S. Rd., Taipei, Taiwan R.O.C. Tel: (02) 314-3151 (20 Lines), Fax: (886) 02-3614037 Telex: 11102 TKOLIN
Thailand	Mahajak Development Co., Ltd. 6th Fl., Mahajak Building, 46 Sukhuhvit 3 (Nananua), Klongteoy, Prakranong, Bangkok 10110 Tel: 256-0000
United Kingdom & Eire	Hayden Laboratories Ltd. Hayden House, Chiltern Hill, Chalfont St. Peter Gerrards Cross, Bucks. SL9 9UG Tel: 0753-888447
U.S.A.	Denon America Inc. 222 New Road Parsippany, NJ07054, U.S.A., Tel: 201-882-7490, Fax: 201-575-1213

- * If there is no service center in your local area, consult the outlet where the equipment was purchased.
- * Falls sich in Ihrer Nähe keine Kundendienststelle befindet, wenden Sie sich an das Geschäft, wo das Gerät gekauft wurde.
- * S'il n'y a aucun centre de service dans votre région, consultez votre revendeur.
- * Se nella Vostra zona non c'è il centro di servizio, rivolgete Vi al negozio dove avete acquistato l'apparecchio.
- * Si no hay centros de servicio en su área local, consulte en donde haya comprado su equipo.
- * Als er in uw streek geen reparatie-inrichting is, neemt u contact op met de vestiging waar u de apparatuur gekocht heeft.
- * Saknas servicecentral i närheten där du bor, bör kontakt tas med återförsäljaren för apparaten.
- * Se não existir um centro de serviços em sua área local, consulte o estabelecimento onde o equipamento foi adquirido.

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