**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.**

---

**DECLARATION OF CONFORMITY**

We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:

EN60065, EN55013, EN55020, EN61000-3-2 and EN61000-3-3.


**ÜBEREINSTIMMUNGSKLÄRUNG**

Wir erklären unter unserer Verantwortung, daß dieses Produkt, auf das sich diese Erklärung bezieht, den folgenden Standards entspricht:

EN60065, EN55013, EN55020, EN61000-3-2 und EN61000-3-3.


**DECLARATION DE CONFORMITE**

Nous déclarons sous notre seule responsabilité que ce produit auquel cette déclaration se réfère, est conforme aux standards suivants:

EN60065, EN55013, EN55020, EN61000-3-2 et EN61000-3-3.


**VERSÖNKÄMÄSESTYNTY**

Härmä niityys helt på eget ansvar att denna produkt, vilken detta intyg avser, uppfyller följande standarder:

EN60065, EN55013, EN55020, EN61000-3-2 och EN61000-3-3.


**DIÁRRAHMAI FÓRMTITÁ**

Δηλώνουμε υπό μόνη ευθύνη της εταιρείας ότι το προϊόν στο οποίο αυτή η δήλωση αναφέρεται, συμπληρώνει τις ακόλουθες αποδείξεις μόνος του:

EN60065, EN55013, EN55020, EN61000-3-2 και EN61000-3-3.


**EENVORMIGHEIDSVERKLARING**

Wij verklaren uitsluitend op onze verantwoordelijkheid dat dit produkt, waarop deze verklaring betrekking heeft, in overeenstemming is met de volgende normen:

EN60065, EN55013, EN55020, EN61000-3-2 en EN61000-3-3.


**DECLARACIÓN DE CONFORMIDAD**

Declaramos bajo nuestra exclusiva responsabilidad que este producto al que hace referencia esta declaración, está conforme con los siguientes estándares:

EN60065, EN55013, EN55020, EN61000-3-2 y EN61000-3-3.


**EENVORMIGHEIDSVERKLARING**

Wij verklaren uitsluitend op onze verantwoordelijkheid dat dit produkt, waarop deze verklaring betrekking heeft, in overeenstemming is met de volgende normen:

EN60065, EN55013, EN55020, EN61000-3-2 en EN61000-3-3.


**DECLARAZIONE DI CONFORMITÀ**

Declariamo sotto nostra esclusiva responsabilità che questo prodotto all'interno del quale si riferisce tale dichiarazione, è conforme ai seguenti standard:

EN60065, EN55013, EN55020, EN61000-3-2 e EN61000-3-3.

Seguendo le disposizioni della Direttiva 73/23/EEC, 89/336/EEC e 93/68/EEC.

**NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES À L’UTILISATION / NOTE SULL’USO**

**NOTAS SOBRE EL USO / ALVORENS TE GEBRUIKEN / OBSERVERA**

**CAUTION**

- Do not let foreign objects in the set.
- Keep the set free from moisture, water and dust.
- Handle the appliance with care.
- Protect the appliance against humidity, dust and soiling.
- Keep the set in an environment free of humidity, dust and soiling.
- Do not let insects around the set.
- Do not obstruct the ventilation holes.
- Do not spreadpictures, objects filled with liquids, such as vases, shall be placed on the appliance.

**DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**
We greatly appreciate your purchase of the AVR-1905.

To be sure you take maximum advantage of all the features the AVR-1905 has to offer, read these instructions carefully and use the set properly. Be sure to keep this manual for future reference, should any questions or problems arise.

“SERIAL NO.
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE”

INTRODUCTION
Thank you for choosing the DENON AVR-1905 Digital A / V Surround Receiver. This remarkable component has been engineered to provide superb surround sound listening with home theater sources such as DVD, as well as providing outstanding high fidelity reproduction of your favorite music sources. As this product is provided with an immense array of features, we recommend that before you begin hookup and operation that you review the contents of this manual before proceeding.

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ACCESSORIES
Check that the following parts are included in addition to the main unit:
1 Operating instructions .............................. 1
2 Service station list .................................... 1
3 Remote control unit (RC-979) ................. 1
4 R6P/AA batteries .................................... 2
5 AM loop antenna .................................... 1
6 FM indoor antenna ................................. 1

BEFORE USING
Pay attention to the following before using this unit:

• Moving the set
To prevent short circuits or damaged wires in the connection cords, always unplug the power cord and disconnect the connection cords between all other audio components when moving the set.

• Before turning the power switch on
Check once again that all connections are proper and that there are not problems with the connection cords. Always set the power switch to the standby position before connecting and disconnecting connection cords.

• Store this instructions in a safe place
After reading, store this instructions along with the warranty in a safe place.

• Note that the illustrations in this manual may differ from the actual set for explanation purposes.

V. AUX terminal
The AVR-1905’s front panel is equipped with a V. AUX terminal. Remove the cap covering the terminal when you want to use it.

CAUTIONS ON INSTALLATION
Noise or disturbance of the picture may be generated if this unit or any other electronic equipment using microprocessors is used near a tuner or TV. If this happens, take the following steps:

• Install this unit as far as possible from the tuner or TV.

• Set the antenna wires from the tuner or TV away from this unit’s power cord and input/output connection cords.

• Noise or disturbance tends to occur particularly when using indoor antennas or 300 Ω/ohms feeder wires. We recommend using outdoor antennas and 75 Ω/ohms coaxial cables.

For heat dispersal, leave at least 10 cm of space between the top, back and sides of this unit and the wall or other components.

CAUTIONS ON HANDLING

• Switching the input function when input jacks are not connected
A clicking noise may be produced if the input function is switched when nothing is connected to the input jacks. If this happens, either turn down the MASTER VOLUME control or connect components to the input jacks.

• Muting of PRE OUT jacks, HEADPHONE jack and SPEAKER terminals
The PRE OUT jacks, HEADPHONE jack and SPEAKER terminals include a muting circuit.

Because of this, the output signals are greatly reduced for several seconds after the power switch is turned on or input function, surround mode or any other-set-up is changed. If the volume is turned up during this time, the output will be very high after the muting circuit stops functioning. Always wait until the muting circuit turns off before adjusting the volume.

• Whenever the unit is in the STANDBY state, the apparatus is still connected on AC line voltage. Please be sure to turn the power off (off) when you leave home for, say, a vacation.
1. **Dolby Digital**
   Using advanced digital processing algorithms, Dolby Digital provides up to 5.1 channels of wide-range, high fidelity surround sound. Dolby Digital is the default digital audio delivery system for DVD and North American DTV.

2. **Dolby Pro Logic IIx compatibility**
   Dolby Pro Logic IIx furthers the matrix decoding technology of Dolby Pro Logic II to decode audio signals recorded on two channels into up to 7.1 playback channels, including the surround back channel. Dolby Pro Logic IIx also allows 5.1-channel sources to be played in up to 7.1 channels. The mode can be selected according to the source. The Music mode is best suited for playing music, the Cinema mode for playing movies, and the Game mode for playing games. The Game mode can only be used with 2-channel audio sources.

3. **Dolby Pro Logic II Game mode compatibility**
   In addition to the previously offered Music and Cinema modes, the AVR-1905 also offers a Game mode optimum for games.

4. **DTS (Digital Theater Systems)**
   DTS provides up to 5.1 channels of wide-range, high fidelity surround sound, from sources such as laser disc, DVD and specially-encoded music discs.

5. **DTS-ES Extended Surround and DTS Neo:6**
   The AVR-1905 can be decoded with DTS-ES Extended Surround, a multi-channel format developed by Digital Theater Systems Inc. The AVR-1905 can be also decoded with DTS Neo:6, a surround mode allowing 6.1 channels playback of regular stereo sources.

6. **DTS 96/24 compatibility**
   The AVR-1905 can be decoded with sources recorded in DTS 96/24, a multi-channel digital signal format developed by Digital Theater Systems Inc. DTS 96/24 sources can be played in the multi-channel mode on the AVR-1905 with high sound quality of 96 kHz/24 bits or 88.2 kHz/24 bits.

7. **Future Sound Format Upgrade Capability via Eight Channel Outputs**
   For future multi-channel audio formats, the AVR-1905 is provided with 5.1 channel (five main channels, plus one low frequency effects channel) inputs, along with a full set of 7.1 channel pre-amp outputs, controlled by the 8 channel master volume control. This assures future upgrade possibilities for any future multi-channel sound format.

8. **Front input Terminal**
   The unit is equipped with a Front Input connector for the convenient connection of a video camera or other equipment.

9. **Video Conversion Function**
   The AVR-1905 is equipped with a function for converting the signals input to the video input connector and S-Video input connector. With this function, the AVR-1905’s monitor out connector and the monitor (TV) can be connected with video pin-plug cords or an S-Video connection cord.

10. **Component Video Switching**
    In addition to composite video and “S” video switching, the AVR-1905 provides 3 sets of component video (Y, Pb/Cb, Pr/Cr) inputs, and one set of component video outputs to the television, for superior picture quality.

11. **Auto Surround Mode**
    This function stores the surround mode last used for an input signal in the memory and automatically sets that surround mode the next time that signal is input.

12. **Preset Memory Tuning**
    56-Station AM/FM Random Preset Memory tuning.

13. **On Screen Diaplay**
    Troublesome operations such as adjusting the delay time and other parameters according to the listening environment are greatly simplified. The various parameters can be set simply by selecting the graphic displayed on the monitor screen according to the listening room’s system environment.
5 CONNECTIONS

- Do not plug in the AC 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 OUTLET for audio equipment only.
  Do not use them for hair dryers, etc.

- Note that binding pin plug cords together with AC cords or placing them near a power transformer will result in generating hum or other noise.
- Noise or humming may be generated if a connected audio equipment is used independently without turning the power of this unit on. If this happens, turn on the power of the this unit.

Connecting the audio components

- When making connections, also refer to the operating instructions of the other components.

**Connecting a CD player**

Connect the CD player's analog output jacks (ANALOG OUTPUT) to this unit's CD jacks using pin plug cords.

**Connecting a tape deck**

Connections for recording:
Connect the tape deck's recording input jacks (LINE IN or REC) to this unit's tape playback (CDR/TAPE OUT) jacks using pin plug cords.

Connections for playback:
Connect the tape deck's playback output jacks (LINE OUT or PB) to this unit's tape recording (CDR/TAPE IN) jacks using pin plug cords.

**Connecting the DIGITAL jacks**

Use these for connections to audio (video) equipment with digital output. Refer to page 15 for instructions on setting this terminal.

NOTES:
- Use 75 Ω/ohms cable pin cords for coaxial connections.
- Use optical cables for optical connections, removing the cap before connecting.
- The main unit's power must be turned on when recording via the AVR-1905.

**Connecting the PRE OUT jacks**

Use these jacks if you wish to connect external power amplifier(s) to increase the power of the front, center and surround sound channels, or for connection to powered loudspeakers.

- To use Surround back with one speaker, connect the speaker to SURR. BACK L CH.

**Connecting the AC OUTLET**

- SWITCHED (total capacity – 100 W)
  The power to these outlets is turned on and off in conjunction with the POWER operation switch on the main unit, and when the power is switched between on and standby from the remote control unit. No power is supplied from these outlets when this unit’s power is at standby. Never connect equipment whose total capacity is above 100 W.

NOTE:
Only use the AC OUTLET for audio equipment. Never use them for hair dryers, TVs or other electrical appliances.
Connecting the video components equipped with S-Video jacks

- When making connections, also refer to the operating instructions of the other components.
- A note on the S input jacks
  The input selectors for the S inputs and pin jack inputs work in conjunction with each other.
  The AVR-1905 is equipped with a function for converting video signals.
  The signal connected to the S-Video signal terminal is output to the composite video monitor out terminals.
  The REC OUT terminals have no conversion function, so when recording only connect the S-Video terminals.

Connecting the video components

- To connect the video signal, connect using a 75 Ω/ohms video signal cable cord. Using an improper cable can result in a drop in video quality.
- When making connections, also refer to the operating instructions of the other components.
- The AVR-1905 is equipped with a function for up-converting video signals.
- The signal connected to the video signal terminal is output to the S-Video monitor out terminals.
- The REC OUT terminals have no conversion function, so when recording only connect the video terminals.

Connecting a TV or DBS tuner

- Connect the TV’s or DBS tuner’s video output jack (VIDEO OUTPUT) to the (yellow) TV or DBS IN jack using a 75 Ω/ohms video coaxial pin plug cord.
- Connect the TV’s or DBS tuner’s audio output jacks (AUDIO OUTPUT) to the (white) TV or DBS IN jacks using pin plug cords.

Connecting a DVD player or a video disc player (VDP)

- Connect the DVD player’s S-Video output jack to the S-VIDEO DVD IN jack using a S-Video connection cord.
- VDP can be connected to the VDP jacks in the same way.
- It is also possible to connect a video disc player, DVD player, video camcorder, game machine, etc., to the V.AUX jacks.

Connecting a monitor TV

- Connect the TV’s video input jack (VIDEO INPUT) to the (yellow) MONITOR OUT jack using a 75 Ω/ohms video coaxial pin plug cord.
- Only audio signals are inputs to the digital input jacks. For details, (See page 5)

Note on connecting the digital input jacks

- Only audio signals are inputs to the digital input jacks. For details, (See page 5)

Connecting a video decks

- Only audio signals are inputs to the digital input jacks. For details, (See page 5)

Connecting the audio output jacks:

- Connect the video deck’s audio output jacks (AUDIO OUT) to the (white) VCR OUT jacks using pin plug cords.
- VCR IN, and the video deck’s audio input jacks (AUDIO IN) to the (white) VCR OUT jacks using pin plug cords.

Connecting the video decks

- Connect the video deck’s video output jack (VIDEO OUT) to the (yellow) VCR IN jack, and the video deck’s video input jack (VIDEO IN) to the (yellow) VCR OUT jack using 75 Ω/ohms video coaxial pin plug cords.

Connecting the video input/output connections:

- Connect the video deck’s video output jack (VIDEO OUT) to the (yellow) VCR IN jack, and the video deck’s video input jack (VIDEO IN) to the (yellow) VCR OUT jack using 75 Ω/ohms video coaxial pin plug cords.

Connecting the video components equipped with S-Video jacks

- When making connections, also refer to the operating instructions of the other components.
- A note on the S input jacks
  The input selectors for the S inputs and pin jack inputs work in conjunction with each other.
  The AVR-1905 is equipped with a function for converting video signals.
  The signal connected to the S-Video signal terminal is output to the composite video monitor out terminals.
  The REC OUT terminals have no conversion function, so when recording only connect the S-Video terminals.
Connecting the video component equipped with Color Difference (Component - Y, Pn/Cn, Pr/Cr) Video jacks

• When making connections, also refer to the operating instructions of the other components.
• The signals input to the color difference (component) video jacks are not output from the VIDEO output jack (yellow) or the S-Video output jack. In addition, the video signals input to the VIDEO input (yellow) and S-Video input jacks are not output to the color difference (component) video jacks.
• Some video sources with component video outputs are labeled Y, Ca, Cr, or Y, Ps, Pr, or Y, R-Y, B-Y. These terms all refer to component video color difference output.

Connecting a DVD player

- Connect the DVD player’s color difference (component) video output jacks (COMPONENT VIDEO OUTPUT) to the COMPONENT DVD/VDP IN jack using 75 Ω/ohms coaxial video pin-plug cords.
- In the same way, another video source with component video outputs such as a TV/DBS tuner, etc., can be connected to the TV/DBS color difference (component) video jacks.

Connecting a monitor TV

- The color difference input jacks may be indicated differently on some TVs, monitors or video components (“Cr, Cb and Y”, “R-Y, B-Y and Y”, “Pr, Pb and Y”, etc.). For details, carefully read the operating instructions included with the TV or other component.

Video Conversion signals

<table>
<thead>
<tr>
<th>Signal input to the AVR-1905</th>
<th>Monitor Output jacks</th>
<th>Monitor Output jacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video signal input jack</td>
<td>○</td>
<td>○ (Up-conversion)</td>
</tr>
<tr>
<td>S-Video signal input jack</td>
<td>○ (Down-conversion)</td>
<td>○</td>
</tr>
<tr>
<td>Color difference (component)</td>
<td>×</td>
<td>×</td>
</tr>
</tbody>
</table>

(○ : Video signal output, × : Video signal not output)

Connecting the antenna terminals

- Connect the antenna terminals to the FM INDOOR ANTENNA (An accessory).

Connecting the AM loop antenna assembly

1. Push the lever.
2. Insert the conductor.
3. Return the lever.

NOTES:
• Do not connect two FM antennas simultaneously.
• Even if an external AM antenna is used, do not disconnect the AM loop antenna.
• Make sure AM loop antenna lead terminals do not touch metal parts of the panel.

Connecting a monitor TV

- Connect the TV’s color difference (component) video input jacks (COMPONENT VIDEO INPUT) to the COMPONENT MONITOR OUT jack using 75 Ω/ohms coaxial video pin-plug cords.

• The color difference input jacks may be indicated differently on some TVs, monitors or video components (“Cr, Cb and Y”, “R-Y, B-Y and Y”, “Pr, Pb and Y”, etc.). For details, carefully read the operating instructions included with the TV or other component.

Connecting a DVD player

- Connect the DVD player’s color difference (component) video output jacks (COMPONENT VIDEO OUTPUT) to the COMPONENT DVD/VDP IN jack using 75 Ω/ohms coaxial video pin-plug cords.

• In the same way, another video source with component video outputs such as a TV/DBS tuner, etc., can be connected to the TV/DBS color difference (component) video jacks.

Notes:
- An F-type FM antenna cable plug can be connected directly.
Connecting the external input (EXT. IN) jacks

- These jacks are for inputting multi-channel audio signals from an outboard decoder, or a component with a different type of multi-channel decoder, such as a DVD Audio player, a multi-channel SACD player, or other future multi-channel sound format decoder.
- When making connections, also refer to the operating instructions of the other components.

For instructions on playback using the external input (EXT. IN) jacks. (See page 21)

Connecting the video component equipped with V. AUX jacks

To connect the video signal, connect using a 75 Ω video signal cable cord.

• Connect the video component’s output jacks to this unit’s V. AUX INPUT jacks.

Speaker system connections

- 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.

NOTE: NEVER touch the speaker terminals when the power is on. Doing so could result in electric shocks.

Connecting the speaker cords

1. Loosen by turning counterclockwise.
2. Insert the cord.
3. Tighten by turning clockwise.

Speaker Impedance

- When speaker systems A and B are used separately, speakers with an impedance of 6 to 16 Ω/ohms can be connected for use as front speakers.
- Be careful when using two pairs of front speakers (A + B) at the same time, since use of speakers with an impedance of 12 to 16 Ω/ohms.
- Speakers with an impedance of 6 to 16 Ω/ohms can be connected for use as center and surround and surround back speakers.
- The protector circuit may be activated if the set is played for long periods of time at high volumes when speakers with an impedance lower than the specified impedance are connected.

Protector circuit

This unit is equipped with a high-speed protection circuit. The purpose of this circuit is to protect the speakers under circumstances such as when the output of the power amplifier is inadvertently short-circuited and a large current flows, when the temperature surrounding the unit becomes unusually high, or when the unit is used at high output over a long period which results in an extreme temperature rise.

When the protection circuit is activated, the speaker output is cut off and the power supply indicator LED flashes. Should this occur, please follow these steps: be sure to switch off the power of this unit, check whether there are any faults with the wiring of the speaker cables or input cables, and wait for the unit to cool down if it is very hot. Improve the ventilation condition around the unit and switch the power back on.

If the protection circuit is activated again even though there are no problems with the wiring or the ventilation around the unit, switch off the power and contact a DENON service center.

Note on speaker impedance

• The protector circuit may be activated if the set is played for long periods of time at high volumes when speakers with an impedance lower than the specified impedance (for example speakers with an impedance of lower than 4 Ω/ohms) are connected. If the protector circuit is activated, the speaker output is cut off. Turn off the set’s power, wait for the set to cool down, improve the ventilation around the set, then turn the power back on.
Connections

- When making connections, also refer to the operating instructions of the other components.

**Connection jack for subwoofer with built-in amplifier (subwoofer), etc.**

Front Panel

- For details on the functions of these parts, refer to the pages given in parentheses ( ).

6 PART NAMES AND FUNCTIONS

- 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.
7) USING THE REMOTE CONTROL UNIT

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

Range of operation of the remote control unit

Point the remote control unit at the remote control sensor as shown on the diagram at the left.

NOTES:
• The remote control unit can be used from a straight distance of approximately 7 meters, but this distance will shorten or operation will become difficult if there are obstacles between the remote control unit and the remote control sensor, if the remote control sensor is exposed to direct sunlight or other strong light, or if operated from an angle.
• Neon signs or other devices emitting pulse-type noise nearby may result in malfunction, so keep the set as far away from such devices as possible.

Inserting the batteries

1) Press as shown by the arrow and slide off.
2) Insert the R6P/AA batteries properly, as shown on the diagram.
3) Close the lid.

NOTES:
• Use only R6P/AA batteries for replacement.
• Be sure the polarities are correct. (See the illustration inside the battery compartment.)
• Remove the batteries if the remote control transmitter will not be used for an extended period of time.
• If batteries leak, dispose of them immediately. Avoid touching the leaked material or letting it come in contact with clothing, etc. Clean the battery compartment thoroughly before installing new batteries.
• Have replacement batteries on hand so that the old batteries can be replaced as quickly as possible when the time comes.
• Even if less than a year has passed, replace the batteries with new ones if the set does not operate even when the remote control unit is operated nearby the set. (The included battery is only for verifying operation. Replace it with a new battery as soon as possible.)
8 SETTING UP THE SYSTEM

Once all connections with other AV components have been completed as described in “CONNECTIONS” (see pages 5 to 9), make the various settings described below on the monitor screen using the AVR-1905’s on-screen display function. These settings are required to set up the listening room’s AV system centered around the AVR-1905.

Use the following buttons to set up the system

1 Set the slide switch to “AUDIO”.

2 Use the following buttons to set up the system:

- **SYSTEM SETUP button**
  - Press this to display the system setup on the display.

- **CURSOR buttons (, , , )**
  - Press these to change what appears on the display.

- **ENTER button**
  - Press this to switch the display.
  - Also use this button to complete the setting.

- **System setup items and default values (set upon shipment from the factory)**

<table>
<thead>
<tr>
<th>System setup</th>
<th>Default settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Speaker Configuration</strong></td>
<td></td>
</tr>
<tr>
<td>Input the combination of speakers in your system and their corresponding sizes (SMALL for regular speakers, LARGE for full-size, full-range) to automatically set the composition of the signals output from the speakers and the frequency response.</td>
<td></td>
</tr>
<tr>
<td>Large Small Small Small / 2 spkrs Yes</td>
<td></td>
</tr>
<tr>
<td><strong>Delay Time</strong></td>
<td></td>
</tr>
<tr>
<td>This parameter is for optimizing the timing with which the audio signals are produced from the speakers and subwoofer according to the listening position.</td>
<td></td>
</tr>
<tr>
<td>Front L Front R Center Surround L Surround R Surround Back L Surround Back R Subwoofer</td>
<td></td>
</tr>
<tr>
<td>3.6 m 3.6 m 3.6 m 3.0 m 3.0 m 3.0 m 3.0 m 3.6 m</td>
<td></td>
</tr>
<tr>
<td><strong>Subwoofer mode</strong></td>
<td></td>
</tr>
<tr>
<td>This selects the subwoofer speaker for playing deep bass signals.</td>
<td>Subwoofer mode = LFE (Normal)</td>
</tr>
<tr>
<td><strong>Crossover Frequency</strong></td>
<td></td>
</tr>
<tr>
<td>Set the frequency (Hz) below which the bass sound of the various speakers is to be output from the subwoofer.</td>
<td>80 Hz</td>
</tr>
<tr>
<td><strong>Test Tone</strong></td>
<td></td>
</tr>
<tr>
<td>This adjusts the volume of the signals output from the speakers and subwoofer for the different channels in order to obtain optimum effects.</td>
<td></td>
</tr>
<tr>
<td>Front L Front R Center Surround L Surround R Surround Back L Surround Back R Subwoofer</td>
<td></td>
</tr>
<tr>
<td>0 dB 0 dB 0 dB 0 dB 0 dB 0 dB 0 dB 0 dB</td>
<td></td>
</tr>
<tr>
<td><strong>Digital In Assignment</strong></td>
<td></td>
</tr>
<tr>
<td>This assigns the digital input jacks for the different input sources.</td>
<td></td>
</tr>
<tr>
<td>Input source Input Digital Inputs</td>
<td></td>
</tr>
<tr>
<td>CD DVD/VP TV/DBS COAXIAL OPTICAL 1 OPTICAL 2</td>
<td></td>
</tr>
</tbody>
</table>

- **Auto Surround Mode**
  - Auto surround mode function setting.
  - Default setting: Auto Surround Mode = ON

- **Ext. In SW Level**
  - Set the Ext. In Subwoofer channel playback level.
  - Default setting: Ext. In SW Level = +15 dB

- **On Screen Display**
  - This sets whether or not to display the on-screen display that appears on the monitor screen when the controls on the remote control unit or main unit are operated.
  - A setting to prevent flickering.
  - Default setting: On Screen Display = ON / Mode 1

- **Auto Tuner Presets**
  - FM stations are received automatically and stored in the memory.
  - Default setting: A1 ~ A8 B1 ~ B8 C1 ~ C8 D1 ~ D8 E1 ~ E8
    - 87.5/89.1/98.1/108.0/90.1/90.1 MHz 522/603/999/1404/1611 kHz, 90.1/90.1/90.1 MHz
    - 90.1 MHz

- **NOTES:**
  - The on-screen display signals are output with priority to the S-VIDEO MONITOR OUT jack during playback of a video component. For example, if the TV monitor is connected to both the AVR-1905’s S-Video and video monitor output jacks and signals are input to the AVR-1905 from a video source (VDP, etc.) connected to both the S-Video and video input jacks, the on-screen display signals are output with priority to the S-Video monitor output. If you wish to output the signals to the video monitor output jack, do not connect a cord to the S-VIDEO MONITOR OUT jack. (For details, see page 16.)
  - The AVR-1905’s on-screen display function is designed for use with high resolution monitor TVs, so it may be difficult to read small characters on TVs with small screens or low resolutions.
  - The setup menu is not displayed when headphone are being used.

Speaker system layout

**Basic system layout**

The following is an example of the basic layout for a system consisting of eight speaker systems and a television monitor:

![Speaker system layout diagram](image-url)

- **Subwoofer**
- **Center speaker system**
- **Surround speaker systems**
- **Surround back speaker system**
- **Front speaker systems**

Set these at the sides of the TV or screen with their front surfaces as flush with the front of the screen as possible.
Before setting up the system

1 Refer to “CONNECTIONS” (pages 5 to 9) and check that all connections are correct.

2 Press the Power switch (button).
   - ON
     The power turns on and indicator is light.
     Set the power switch to this position to turn the power on and off from the included remote control unit.
   - OFF
     The power turns off and indicator is off.
     In this position, the power cannot be turned on and off from the remote control unit.

3 Turn on the power.
   Press the Power ON/STANDBY switch (button).

4 Press the SYSTEM SETUP button to enter the setting.
   - SYSTEM SET UP
     NOTE: Please make sure the “AUDIO” position of the slide switch on the remote control unit.

5 Press the ENTER or (down) button to switch to the Speaker Configuration Setup.

NOTE:
- Press the SYSTEM SETUP button again to finish system set up. System set up can be finished at any time. The changes to the settings made up to that point are entered.

Setting the type of speakers

1 Set whether or not speakers are connected and, if so, their size parameters.
   - To select the speaker
       Subwoofer
       Listening position
       Surround back Sp.
   - To select the parameter
     - SYSTEM SET UP
     - SPEAKER DISTANCE setting.

2 Press the ENTER or (down) button to enter the settings and switch to the SPEAKER DISTANCE setting.

   • Parameters
     Large..................Select this when using speakers that have sufficient performance for reproducing bass sound below the frequency set for the Crossover Frequency mode.
     Small..................Select this when using speakers that do not have sufficient performance for reproducing bass sound below the frequency set for the Crossover Frequency mode. When this is set, bass sound with a frequency below the frequency set for the Crossover Frequency mode is sent to the subwoofer.
     None ..................Select this when no speakers are installed.
     Yes/No................Select “Yes” when a subwoofer is installed, “No” when a subwoofer is not installed.
     2spkrs/1spkr ........Set the number of speakers to be used for the surround back channel.

   • If the subwoofer has sufficient low frequency playback capacity, good sound can be achieved even when “Small” is set for the front, center and surround speakers.
Setting the Subwoofer mode and Crossover Frequency

This screen is not displayed when not using a subwoofer.

- Set the crossover frequency and subwoofer mode according to the speaker system being used.

1. Select the “Subwoofer Mode”.
   - Select the setting.
   - 15SW MODE NORM

2. Select the “Crossover Frequency” mode.
   - Select the frequency.
   - 16CR.OVER 80Hz

3. Press the ENTER or (down) button to enter the setting and switch to the Test Tone setting.

Preparations:

Measure the distances between the listening position and the speakers (L1 to L5) on the diagram at the right).

L1: Distance between center speaker and listening position
L2: Distance between front speakers and listening position
L3: Distance between surround speakers and listening position
L4: Distance between surround back speaker and listening position
L5: Distance between subwoofer and listening position

CAUTION:

- Please note that the difference for every speaker should be 6.0 m or less.

NOTE:

- No setting when “None” has been selected for the Speaker Configuration setting.

Setting the delay time

- Input the distance between the listening position and the different speakers to set the delay time for the surround mode.

1. Select the speaker to be set.
   - (Remote control unit)

2. Set the distance between the speaker and listening position.
   - The distance changes in units of 0.1 meters each time the button is pressed.
   - Select the value closest to the measured distance.
   - (Remote control unit)

3. Press the ENTER or (down) button to enter the setting and switch the SUBWOOFER MODE setting.
   - (Remote control unit)

NOTE:

- 40 / 60 / 80 / 100 / 120 / 150 / 200 / 250 Hz can be selected.

Input the distance between the listening position and the different speakers to set the delay time for the surround mode.

Preparations:

Measure the distances between the listening position and the speakers (L1 to L5) on the diagram at the right).

L1: Distance between center speaker and listening position
L2: Distance between front speakers and listening position
L3: Distance between surround speakers and listening position
L4: Distance between surround back speaker and listening position
L5: Distance between subwoofer and listening position

CAUTION:

- Please note that the difference for every speaker should be 6.0 m or less.

NOTE:

- No setting when “None” has been selected for the Speaker Configuration setting.

Setting the delay time

1. Select the speaker to be set.
   - (Remote control unit)

2. Set the distance between the speaker and listening position.
   - The distance changes in units of 0.1 meters each time the button is pressed.
   - Select the value closest to the measured distance.
   - (Remote control unit)

3. Press the ENTER or (down) button to enter the setting and switch the SUBWOOFER MODE setting.
   - (Remote control unit)
**Setting the Test Tone**

- Use this setting to adjust to that the playback level between the different channel is equal.
- From the listening position, listen to the test tones produced from the speakers to adjust the level.
- The level can also be adjusted directly from the remote control unit. (For details, see page 23.)

### 1

- Use the (left) button to the Test Tone.
- Press the ENTER or (down) button to switch to the Digital In Assignment.

### 2

Set the mode.
Select “Auto” or “Manual”.

- **Auto:**
  Adjust the level while listening to the test tones produced automatically from the different speakers.
- **Manual:**
  Select the speaker from which you want to produce the test tone to adjust the level.

### 3

Press the (down) button to start Test Tone.

### 4

**a.** If the “Auto” mode is selected:
- Test tones are automatically emitted from the different speakers.
- The test tones are emitted from the different speakers in the following order, at 4-second intervals the first time and second time around, 2-second intervals the third time around and on:

```
  1spkr  2spkrs
  Front L 0dB  Front L 0dB
  Front R 0dB  Front R 0dB
  Center 0dB  Center 0dB
  Surr L 0dB  Surr L 0dB
  Surr R 0dB  Surr R 0dB
  Subwoofer 0dB
```

- When the surround back speaker setting is set to “1sp” for “Speaker Configuration”, this is set to “SB”.

Use the CURSOR left and right buttons to adjust all the speakers to the same level.
- The volume can be adjusted between –12 dB and +12 dB in units of 1 dB.

**b.** When the “Manual” mode is selected
- Use the CURSOR up and down to select the speaker for which you want to output test tones, then use the CURSOR left and right to adjust so that the volume of the test tones from the various speakers is the same.

---

**NOTES:**

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** Assignment of low frequency signal range —**

- The signals produced from the subwoofer channel are LFE signals (during playback of Dolby Digital or DTS signals) and the low frequency signal range of channels set to “SMALL” in the setup. The low frequency signal range of channels set to “LARGE” are not produced from those channels.

---

** Crossover Frequency —**

- When “Subwoofer” is set to “Yes” at the “Speaker Configuration Setting”, set the frequency (Hz) below which the bass sound of the various speakers is to be output from the subwoofer (the crossover frequency).
- For speakers set to “Small”, sound with a frequency below the crossover frequency is cut, and the cut bass sound is output from the subwoofer instead.

** NOTE:** For ordinary speaker systems, we recommend setting the crossover frequency to 80 Hz. When using small speakers, however, setting the crossover frequency to a high frequency may improve frequency response for frequencies near the crossover frequency.

---

** Subwoofer mode —**

- The subwoofer mode setting is only valid when “Large” is set for the front speakers and “YES” is set for the subwoofer in the “Speaker Configuration” settings (see page 12).
- When the “LFE+MAIN” playback mode is selected, the low frequency signal range of channels set to “Large” are produced simultaneously from those channels and the subwoofer channel.
  - In this playback mode, the low frequency range expand more uniformly through the room, but depending on the size and shape of the room, interference may result in a decrease of the actual volume of the low frequency range.
  - Selection of the “LFE” play mode will play the low frequency signal range of the channel selected with “Large” from that channel only. Therefore, the low frequency signal range that are played from the subwoofer channel are only the low frequency signal range of LFE (only during Dolby Digital or DTS signal playback) and the channel specified as “Small” in the setup menu.
  - Select the play mode that provides bass reproduction with quantity.
- When the subwoofer is set to “Yes”, bass sound is output from the subwoofer regardless of the subwoofer mode setting in surround modes other than Dolby/DTS.
- In surround modes other than Dolby Digital and DTS, if the subwoofer is set to “YES”, the low frequency portion is always output to the subwoofer channel. For details, refer to “Surround Modes and Parameters” on page 30.

---

** Assignment of low frequency signal range —**

- The signals produced from the subwoofer channel are LFE signals (during playback of Dolby Digital or DTS signals) and the low frequency signal range of channels set to “SMALL” in the setup. The low frequency signal range of channels set to “LARGE” are produced from those channels.

---

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- When “Subwoofer” is set to “Yes” at the “Speaker Configuration Setting”, set the frequency (Hz) below which the bass sound of the various speakers is to be output from the subwoofer (the crossover frequency).
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  - In this playback mode, the low frequency range expand more uniformly through the room, but depending on the size and shape of the room, interference may result in a decrease of the actual volume of the low frequency range.
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- When the subwoofer is set to “Yes”, bass sound is output from the subwoofer regardless of the subwoofer mode setting in surround modes other than Dolby/DTS.
- In surround modes other than Dolby Digital and DTS, if the subwoofer is set to “YES”, the low frequency portion is always output to the subwoofer channel. For details, refer to “Surround Modes and Parameters” on page 30.

---

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---

** Crossover Frequency —**

- When “Subwoofer” is set to “Yes” at the “Speaker Configuration Setting”, set the frequency (Hz) below which the bass sound of the various speakers is to be output from the subwoofer (the crossover frequency).
- For speakers set to “Small”, sound with a frequency below the crossover frequency is cut, and the cut bass sound is output from the subwoofer instead.

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---

** Subwoofer mode —**

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- When the “LFE+MAIN” playback mode is selected, the low frequency signal range of channels set to “Large” are produced simultaneously from those channels and the subwoofer channel.
  - In this playback mode, the low frequency range expand more uniformly through the room, but depending on the size and shape of the room, interference may result in a decrease of the actual volume of the low frequency range.
  - Selection of the “LFE” play mode will play the low frequency signal range of the channel selected with “Large” from that channel only. Therefore, the low frequency signal range that are played from the subwoofer channel are only the low frequency signal range of LFE (only during Dolby Digital or DTS signal playback) and the channel specified as “Small” in the setup menu.
  - Select the play mode that provides bass reproduction with quantity.
- When the subwoofer is set to “Yes”, bass sound is output from the subwoofer regardless of the subwoofer mode setting in surround modes other than Dolby/DTS.
- In surround modes other than Dolby Digital and DTS, if the subwoofer is set to “YES”, the low frequency portion is always output to the subwoofer channel. For details, refer to “Surround Modes and Parameters” on page 30.
5 After completing the adjustment, press the ENTER button.

6 Press the ENTER or (down) button to enter the setting and switch the DIGITAL input setting.

NOTES:
• When you adjust the channel levels while in the TEST TONE mode, the channel level adjustments made will affect all surround modes. Consider this mode a Master Channel Level adjustment mode.
• You can adjust the channel levels for each of the following surround modes: DIRECT, STEREO, STANDARD (DOLBY/DTS SURROUND), 5/7 CH STEREO, MONO MOVIE, ROCK ARENA, JAZZ CLUB, VIDEO GAME, MATRIX and VIRTUAL.

Setting the Digital In Assignment
• This setting assigns the digital input jacks of the AVR-1905 for the different input sources.

1 Select the digital input jack to be assigned to the input source.
• To select the digital input jack

2 • To select the input source
Select "OFF" if nothing is connected.

3 Press the ENTER or (down) button to enter the setting and switch the Auto Surround Mode setting.

NOTE:
• TUNER and V. AUX cannot be selected.

Setting the Auto Surround Mode
For the three kinds of input signals as shown below, the surround mode played last is stored in the memory. At next time if the same signal inputs, the memorized surround mode is automatically selected and the signal is played.

<table>
<thead>
<tr>
<th>SIGNAL</th>
<th>Default Auto Surround Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analog and PCM 2-channel signals</td>
</tr>
<tr>
<td>2</td>
<td>2-channel signals of Dolby Digital, DTS or other multichannel format</td>
</tr>
<tr>
<td>3</td>
<td>Multichannel signals of Dolby Digital, DTS or other multichannel format</td>
</tr>
</tbody>
</table>

1 Select “ON” if you want to use the auto surround mode, “OFF” if you do not want to use it.

2 Press the ENTER or (down) button to switch the Ext. In SW Level setting.
**Setting the Ext. In SW Level**

- Set the playback level of the analog input signal connected to the Ext. In terminal.

1. Select desired setting.
   - Select according to the specifications of the player being used. Also refer to the player’s operating instructions.
   - +15dB (default) recommended. (0, +5, 10 and +15 can be selected.)

   ![22 EXT.IN SW+15](Remote control unit)

2. Press the ENTER or (down) button to switch the On Screen Display setting.

   ![Remote control unit]

**Setting the On Screen Display (OSD)**

- Use this to turn the on-screen display (messages other than the menu screens) on or off.
- Sets the on-screen display’s display mode.
  - Mode 1: Prevents flickering of the on-screen display when there is no video signal.
  - Mode 2: Flickering is not prevented.

- Use this mode if the on-screen display does not appear in the mode 1, as may happen according to the TV being used.

1. Select “ON” or “OFF”.

   ![23 OSD ON](Remote control unit)

2. Select the “On Screen Display” mode.

   ![24 OSD MODE1](Remote control unit)

3. Press the ENTER or (down) button to switch the Auto Preset Memory setting.

   ![Remote control unit]

**Auto Tuner Presets**

- Use this to automatically search for FM broadcasts and store up to 56 stations at preset channels A1 to 8, B1 to 8, C1 to 8, D1 to 8, E1 to 8, F1 to 8 and G1 to 8.

**NOTE:**
- If an FM station cannot be preset automatically due to poor reception, use the “Manual tuning” operation to tune in the station, then preset it using the manual “Preset memory” operation.

1. Use the CURSOR button to select “Yes”. “Search” flashes on the screen and searching begins. “Completed” appears once searching is completed. The display automatically switches to screen.

   ![25 PRESET <YES](Remote control unit)

2. Press the ENTER or (down) button if you want to start the settings over from the beginning.

   ![Remote control unit]

**After setting up the system**

- Press the SYSTEM SETUP button to finish system set up.

This completes the system setup operations. Once the system is set up, there is no need to make the settings again unless other components or speakers are connected to or the speaker layout is changed.

**On-screen display signals**

<table>
<thead>
<tr>
<th>Signals input to the AVR-1905</th>
<th>On-screen display signal output</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIDEO signal input jack (yellow)</td>
<td>Video signal output to VIDEO MONITOR OUT jack (yellow)</td>
</tr>
<tr>
<td>S-video signal input jack</td>
<td>Video signal output to S-Video MONITOR OUT jack</td>
</tr>
<tr>
<td>1</td>
<td>×</td>
</tr>
<tr>
<td>2</td>
<td>○</td>
</tr>
<tr>
<td>3</td>
<td>×</td>
</tr>
<tr>
<td>4</td>
<td>○</td>
</tr>
</tbody>
</table>
9 REMOTE CONTROL UNIT

Operating DENON audio components

• Turn on the power of the different components before operating them.

1 Set mode switch 1 to “AUDIO”.

2 Set mode switch 2 to the position for the component to be operated. (CD, CDR/MD or Tape deck)

3 Operate the audio component.
• For details, refer to the component’s operating instructions.
• While this remote control is compatible with a wide range of infrared controlled components, some models of components may not be operated with this remote control.

1. CD player (CD) and CD recorder and MD recorder (CDR/MD) system buttons

2. Tape deck (TAPE) system buttons

3. Tuner system buttons

NOTE:
• TUNER can be operated when the switch is at “AUDIO” position.

Preset memory

DENON and other makes of components can be operated by setting the preset memory. This remote control unit can be used to operate components of other manufacturers without using the learning function by registering the manufacturer of the component as shown on the List of Preset Codes (pages 276–278). Operation is not possible for some models.

1 Set mode switch 1 to “AUDIO” or “VIDEO”.

2 Set mode switch 2 to the component to be registered.

3 Press the ON/SOURCE button and the OFF button at the same time.

4 Referring to the included List of Preset Codes, use the number buttons to input the preset code (a 3-digit number) for the manufacturer of the component whose signals you want to store in the memory.

5 To store the codes of another component in the memory, repeat steps 1 to 4.

NOTES:
• The signals for the pressed buttons are emitted while setting the preset memory. To avoid accidental operation, cover the remote control unit’s transmitting window while setting the preset memory.
• Depending on the model and year of manufacture, this function cannot be used for some models, even if they are of makes listed on the included list of preset codes.
• Some manufacturers use more than one type of remote control code. Refer to the included list of preset codes to change the number and check.
• The preset memory can be set for one component only among the following: CDR/MD, DVD/VDP, and DBS/CABLE.

The preset codes are as follows upon shipment from the factory and after resetting:
TV, VCR..................................................HITACHI
CD, TAPE..................................................DENON
CDR/MD..................................................DENON (CDR)
DVD/VDP..................................................DENON (DVD)
DBS/CABLE...........................................ABC (CABLE)
Operating component stored in the preset memory

1. Set mode switch 1 to “AUDIO” or “VIDEO”.
   - Set the AUDIO side for the CD, tape deck or CDR/MD position, to the VIDEO side for the DVD/VDP, DBS/CABLE, VCR or TV position.

2. Set mode switch 2 to the component you want to operate.
   - For details, refer to the component’s operating instructions.
   - Some models cannot be operated with this remote control unit.

3. Operate the component.
   - For details, refer to the component’s operating instructions.

1. Digital video disc player (DVD) system buttons
   - POWER: Power on/standby (ON/SOURCE)
   - OFF: DENON DVD Power
   - 🔄 🔄 🔄: Manual search (forward and reverse)
   - ■: Stop
   - ▶: Play
   - 🔄 ◀ 🔄: Auto search (cue)
   - III: Pause
   - 0 ~ 9, +10: 10 key
   - DISC SKIP: Disc skip
   - DateString: Disc skip
   - DISPLAY: Switch display
   - MENU: Menu
   - RETURN: Return
   - SETUP: Setup
   - ENTER: Enter setting

2. Video disc player (VDP) system buttons
   - POWER: Power on/standby (ON/SOURCE)
   - 🔄 🔄 🔄: Manual search (forward and reverse)
   - ■: Stop
   - ▶: Play
   - III: Pause
   - 0 ~ 9, +10: 10 key

3. Video deck (VCR) system buttons
   - POWER: Power on/standby (ON/SOURCE)
   - 🔄 🔄 🔄: Manual search (forward and reverse)
   - ■: Stop
   - ▶: Play
   - III: Pause
   - Channel: Channels
   +, –

4. Digital broadcast satellite (DBS) tuner and cable (CABLE) system buttons
   - POWER: Power on/standby (ON/SOURCE)
   - MENU: Menu
   - RETURN: Return
   - ▱ ▲ ▱: Cursor up, down, left and right
   - ENTER: Enter
   - CHANNEL: Switch channels
     +, –
     0 ~ 9, +10: Channels
   - DISPLAY: Switch display
   - TV/VCR: Switch between TV and video player
   - TV VOL: Volume up/down
   +, –

5. Monitor TV (TV) system buttons
   - POWER: Power on/standby (ON/SOURCE)
   - MENU: Menu
   - RETURN: Return
   - ▱ ▲ ▱: Cursor up, down, left and right
   - ENTER: Enter
   - CHANNEL: Switch channels
     +, –
     0 ~ 9, +10: Channels
   - DISPLAY: Switch display
   - TV/VCR: Switch between TV and video player
   - TV VOL: Volume up/down
   +, –

NOTES:
- Some manufacturers use different names for the DVD remote control buttons, so also refer to the instructions on remote control for that component.

- For this CD, CDR, MD and TAPE components, buttons can be operated in the same way as for Denon audio components (page 17).
- The TV can be operated when the switch is at DVD/VDP, VCR, TV position.
Punch Through

“Punch Through” is a function allowing you to operate the PLAY, STOP, MANUAL SEARCH and AUTO SEARCH buttons on the CD, TAPE, CDR/MD, DVD/VDP or VCR components when in the DBS/CABLE or TV mode. By default, nothing is set.

1. Set mode switch 1 to “VIDEO”.
2. Set mode switch 2 to the component to be registered (DBS/CABLE or TV).
3. Press the DVD/VDP POWER button and the TV POWER button at the same time.
   - Indicator flash.
4. Input the number of the component you want to set. (See Table 1)

Table 1

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD</td>
<td>1</td>
</tr>
<tr>
<td>TAPE</td>
<td>2</td>
</tr>
<tr>
<td>CDR/MD</td>
<td>3</td>
</tr>
<tr>
<td>DVD/VDP</td>
<td>4</td>
</tr>
<tr>
<td>VCR</td>
<td>5</td>
</tr>
<tr>
<td>No setting</td>
<td>0</td>
</tr>
</tbody>
</table>

OPERATION

Before operating

Preparations:
Check that all connections are proper.

1. Press the power switch (button).
   - ON
   The power turns on and indicator is light. Set the power switch to this position to turn the power on and off from the included remote control unit.
   - OFF
   The power turns off and power indicator is off. In this position, the power cannot be turned on and off from the remote control unit.

2. Turn on the power.
   Press the Power ON/STANDBY switch (button).
   - (Main unit)
   When pressed, the power turns on and the display lights. The sound is muted for several seconds, after which the unit operates normally. When pressed again, the power turns off, the standby mode is set and the display turns off.
   - (Remote control unit)

3. Select the front speakers.
   Press the SPEAKER A or B button to turn the speaker on.
   - The front speaker A, B setting can be also be changed with the SPEAKER button on the remote control unit.
Playing the input source

1. Select the input source to be played.
   Example: CD

2. Select the input mode.
   - Selecting the analog mode
     Press the ANALOG button to switch to the analog input.
   - Selecting the external input (EXT. IN) mode
     Press the EXT. IN to switch the external input.
   - Selecting the AUTO, PCM and DTS modes
     The mode switches as shown below each time the INPUT MODE button is pressed.

Input mode selection function
Different input modes can be selected for different input sources. The selected input modes for the separate input sources are stored in the memory.

1. AUTO (auto mode)
   In this mode, the types of signals being input to the digital and analog input jacks for the selected input source are detected and the program in the AVR-1905’s surround decoder is selected automatically upon playback. This mode can be selected for all input sources other than TUNER. The presence or absence of digital signals is detected, the signals input to the digital input jacks are identified and decoding and playback are performed automatically in DTS, Dolby Digital or PCM (2 channel stereo) format. If no digital signal is being input, the analog input jacks are selected. Use this mode to play Dolby Digital signals.

2. PCM (exclusive PCM signal playback mode)
   Decoding and playback are only performed when PCM signals are being input. Note that noise may be generated when using this mode to play signals other than PCM signals.

3. DTS (exclusive DTS signal playback mode)
   Decoding and playback are only performed when DTS signals are being input.

4. ANALOG (exclusive analog audio signal playback mode)
   The signals input to the analog input jacks are decoded and played.

5. EXT. IN (external decoder input jack selection mode)
   The signals being input to the external decoder input jacks are played without passing through the surround circuitry.

NOTE:
- Selecting the AUTO, PCM and DTS modes
- In the DIGITAL DTS mode
- In the ANALOG mode
- In some rare cases the noise may be generated when you perform the operation to stop playback of a DTS-CD or DTS-LD.

Notes on playing a source encoded with DTS
- Noise may be generated at the beginning of playback and while searching during DTS playback in the AUTO mode. If so, play in the DTS mode.
- In some rare cases the noise may be generated when you perform the operation to stop playback of a DTS-CD or DTS-LD.

Input mode display
- One of these lights, depending on the input signal.
- In the AUTO mode
- In the DIGITAL PCM mode
- In the DIGITAL DTS mode
- In the ANALOG mode

Input signal display
- DOLBY DIGITAL
- DTS
- PCM

The DIGITAL indicator lights when digital signals are being input properly. If the DIGITAL indicator does not light, check whether the digital input component setup (page 15) and connections are correct and whether the component’s power is turned on.

NOTE:
- The DIGITAL indicator will light when playing CD-ROMs containing data other than audio signals, but no sound will be heard.
Playback using the external input (EXT. IN) jacks

1. Set the external input (EXT. IN) mode. Press the EXT. IN to switch the external input.

   (Main unit) (Remote control unit)

Once this is selected, the input signals connected to the FL (front left), FR (front right), C (center), SL (surround left) and SR (surround right) channels of the EXT. IN jacks are output directly to the front (left and right), center and surround (left and right) speaker systems as well as the pre-out jacks without passing through the surround circuitry. In addition, the signal input to the SW (subwoofer) jack is output to the PRE OUT SUBWOOFER jack.

2. Cancelling the external input mode

To cancel the external input (EXT. IN) setting, press the INPUT MODE (AUTO, PCM, DTS) or ANALOG button to switch to the desired input mode. (See page 20.)

   (Main unit) (Remote control unit)

NOTES:

- When the input mode is set to the external input (EXT. IN), the play mode (DIRECT, STEREO, STANDARD (DOLBY/DTS SURROUND), 5CH/7CH STEREO or DSP SIMULATION) cannot be selected.

Playing audio sources (CDs and DVDs)

The AVR-1905 is equipped with two 2-channel playback modes exclusively for music. Select the mode to suit your tastes.

1. DIRECT mode

Use this mode to achieve good quality 2-channel sound while watching images. In this mode, the audio signals bypass such circuits as the tone circuit and are transmitted directly, resulting in good quality sound.

   (Main unit) (Remote control unit)

2. STEREO mode

Use this mode to adjust the tone and achieve the desired sound while watching images.

   (Main unit) (Remote control unit)

NOTES:

- In play modes other than the external input mode, the signals connected to EXT. IN jacks cannot be played. In addition, signals cannot be output from channels not connected to the input jacks.
- The external input mode can be set for any input source. To watch video while listening to sound, select the input source to which the video signal is connected, then set this mode.
- If the subwoofer output level seems too high, set the “SW ATT.” surround parameter to “ON”.

DIRECT / STEREO

(Direct unit) (Remote control unit)
After starting playback

[1] Adjusting the sound quality (tone)
• The tone control function will not work in the direct mode.

1 The tone switches as follows each time the TONE CONTROL button is pressed.

2 With the name of the volume to be adjusted selected, turn the SELECT knob to adjust the level.

• To increase the bass or treble: Turn the control clockwise. (The bass or treble sound can be increased to up to +12 dB in steps of 2 dB.)
• To decrease the bass or treble: Turn the control counterclockwise. (The bass or treble sound can be decreased to up to –12 dB in steps of 2 dB.)

[2] Listening over headphones

1 Plug the headphones’ plug into the jack.

• Connect the headphones to the PHONES jack. The pre-out output (including the speaker output) is automatically turned off when headphones are connected.

[3] Turning the sound off temporarily (MUTING)

1 Use this to turn off the audio output temporarily. Press the MUTING button.

• Cancelling MUTING mode.
  • Press the MUTING button again.
  • Muting will also be cancelled when MASTER VOL is adjusted up or down.

[4] Combining the currently playing sound with the desired image

1 Simulcast playback
Use this switch to monitor a video source other than the audio source. Press the VIDEO SELECT button repeatedly until the desired source appears on the display.

• Cancelling simulcast playback.
  • Select “SOURCE” using the VIDEO SELECT button.
  • Switch the program source to the component connected to the video input jacks.

[5] Checking the currently playing program source, etc.

1 On screen display
Each time an operation is performed, a description of that operation appears on the display connected to the unit’s VIDEO MONITOR OUT jack. Also, the unit’s operating status can be checked during playback by pressing the remote control unit’s ON SCREEN/DISPLAY button. Such information as the position of the input selector and the surround parameter settings is output in sequence.

2 Using the dimmer function
• Use this to change the brightness of the display.
  The display brightness changes in four steps (bright, medium, dim and off) by pressing the main unit’s DIMMER button repeatedly.
Multi-source recording

Playing one source while recording another (REC OUT mode)

1. Press the REC SELECT button.

2. With “RECOUT SOURCE” displayed, turn the FUNCTION knob to select the source you wish to record.

3. Set the recording mode.
   - For operating instructions, refer to the manual of the component on which you want to record.

4. To cancel, turn the function knob and select “SOURCE”.

NOTES:
- Recording sources other than digital inputs selected in the REC OUT mode are also output to the multi source audio output jacks.
- Digital signals are not output to the REC SOURCE or audio output jacks.
- The DIGITAL IN’s signal selected with the function selector knob are output to the DIGITAL OUT (OPTICAL) jack.

11 SURROUND

Before playing with the surround function

- Before playing with the surround function, be sure to use the test tones to adjust the playback level from the different speakers. This adjustment can be performed with the system setup (see page 11) or from the remote control unit, as described below.
- Adjusting with the remote control unit using the test tones is only possible in the “Auto” mode and only effective in the STANDARD (DOLBY/DTS SURROUND) modes. The adjusted levels for the different modes are automatically stored in the memory.

1. Set the STANDARD (DOLBY/DTS SURROUND) modes.

2. Press the TEST TONE button.

3. Test tones are output from the different speakers. Use the channel volume adjust buttons to adjust so that the volume of the test tones is the same for all the speakers.

   NOTE:
   - Please make sure the “AUDIO” position of the slide switch on the remote control unit.

4. After completing the adjustment, press the TEST TONE button again.
• After adjusting using the test tones, adjust the channel levels either according to the playback sources or to suit your tastes, as described below.

1 Select the speaker whose level you want to adjust.
   (Remote control unit)

   The channel switches as shown below each time the button is pressed.

   - When the surround back speaker setting is set to "1sp" for "Speaker Configuration", this is set to "SB".

   **NOTE:**
   - Please make sure the "AUDIO" position of the slide switch on the remote control unit.

2 Adjust the level of the selected speaker.
   (Remote control unit)

   - Default setting of channel level is 0 dB.
   - The level of the selected speaker can be adjusted within the range of +12 to –12 dB using the cursor buttons.
   - SW channel level can be turned off by decreasing one step from –12 dB.
     OFF ➔ –12 dB ➔ 12 dB

---

**Dolby Pro Logic IIx (Pro Logic II) mode**

To play in the PL IIx mode, set “S.BackSp” at the Speaker Configuration setting to “1Sp” or “2Sp”.

1 Select the function to which the component you want to play is connected.
   
   **Example: DVD**

   (Main unit) (Remote control unit)

2 Select the Dolby Surround Pro Logic IIx mode.

   (Main unit) (Remote control unit)

   • The Dolby Pro Logic II indicator lights.

   **Display**

   **Light**

   - [DOLBY PL IIx cine]
   - [PRO LOGIC II]
   - [PL IIx C DUO]

3 Play a program source with the [DOLBY SURROUND] mark.
   • For operating instructions, refer to the manuals of the respective components.

4 Select the surround parameter mode.

   (Main unit)

   **Display**

   **Mode**

   - [DOLBY PL IIx cine]
   - [PRO LOGIC II]
   - [PL IIx C DUO]

   (Remote control unit)

   - To perform this operation from the remote control unit, check that the mode selector switch is set to "AUDIO".

---

24
Select the optimum mode for the source.

- When the “SB CH OUT” parameter is set to “ON”. (Set “S.BackSp” at system set up to “SMALL” or “LARGE”.)

- When the “SB CH OUT” parameter is set to “OFF”. (Set “S.BackSp” at system set up to “NONE”.)

Select the various parameters. (See “Surround parameters” for a description of the various parameters.)

Set the various surround parameters.

When the surround parameters are set using the buttons on the main unit, stop operating buttons after completing the settings. The settings are automatically finalized and the normal display reappears after several seconds.

Press the ENTER button to finish surround parameter mode.

NOTE:
- When making parameter settings, the display will return to the regular condition several seconds after the last button was pressed and the setting will be completed.

Example: DVD

1. Select the function to which the component you want to play is connected.

2. Select the DTS NEO:6 mode.

3. Play a program source.

4. Select the surround parameter mode.

5. Select the optimum mode for the source.

6. Select the various parameters.

The DTS NEO:6 Cinema or Music mode can be chosen directly by pressing the CINEMA or MUSIC button on the remote control unit during playback in the DTS NEO:6 mode.
Set the various surround parameters.

When the surround parameters are set using the buttons on the main unit, stop operating buttons after completing the settings. The settings are automatically finalized and the normal display reappears after several seconds.

NOTE:
- When making parameter settings, the display will return to the regular condition several seconds after the last button was pressed and the setting will be completed.

Surround parameters

1. Pro Logic IIx and Pro Logic II Mode:
   - The Cinema mode is for use with stereo television shows and all programs encoded in Dolby Surround.
   - The Music mode is recommended as the standard mode for auto sound music systems (no video), and is optional for A/V systems.
   - The Pro Logic mode offers the same robust surround processing as original Pro Logic in case the source contents is not of optimum quality.
   - The Game mode for playing games. The game mode can only be used with 2-channel audio sources.

2. Panorama Control:
   This mode extends the front stereo image to include the surround speakers for an exciting "wraparound" effect with side wall imaging.
   Select "OFF" or "ON".

3. Dimension Control:
   This control gradually adjust the soundfield either towards the front or towards the rear.
   The control can be set in 7 steps from 0 to 6.

4. Center Width Control:
   This control adjust the center image so it may be heard only from the center speaker; only from the left/right speakers as a phantom image; or from all three front speakers to varying degrees.
   The control can be set in 8 steps from 0 to 7.

5. DTS NEO:6 Mode:
   - Cinema
     This mode is optimum for playing movies. Decoding is performed with emphasis on separation performance to achieve the same atmosphere with 2-channel sources as with 6.1-channel sources.
     This mode is effective for playing sources recorded in conventional surround formats as well, because the in-phase component is assigned mainly to the center channel (C) and the reversed phase component to the surround (SL, SR and SB channels).
   - Music
     This mode is suited mainly for playing music. The front channel (FL and FR) signals bypass the decoder and are played directly so there is no loss of sound quality, and the effect of the surround signals output from the center (C) and surround (SL, SR and SB) channels add a natural sense of expansion to the sound field.

   CENTER IMAGE (0.0 to 1.0: default 0.3):
   The center image parameter for adjusting the expansion of the center channel in the DTS NEO:6 MUSIC mode has been added.

Press the ENTER button to finish surround parameter mode.

NOTE:
- When making parameter settings, the display will return to the regular condition several seconds after the last button was pressed and the setting will be completed.
Display the surround parameter menu.

6

Select the various parameters.

7

Adjust the parameter settings.

8

Press the ENTER button to finish surround parameter mode.

NOTE:
- When making parameter settings, the display will return to the regular condition several seconds after the last button was pressed and the setting will be completed.

Dialogue Normalization

The dialogue normalization function is activated automatically when playing Dolby Digital program sources. Dialogue normalization is a basic function of Dolby Digital which automatically normalizes the dialog level (standard level) of the signals which are recorded at different levels for different program sources, such as DVD, DTV and other future formats that will use Dolby Digital.

These contents can be verified with the ON SCREEN/DISPLAY button.

The input signal can be checked by pressing the remote control unit’s ON SCREEN/DISPLAY button.

SIGNAL: Displays the type of signal (DTS, DOLBY DIGITAL, PCM, etc.).

fs: Displays the input signal’s sampling frequency.

FORMAT: Displays the input signal’s number of channels.

Offset: Displays the dialog normalization offset value.

FLAG: Displays the special identification signal recorded in the input signal.

In addition, screen information is displayed in the following order when the ON SCREEN button is pressed repeatedly:

- OSD-1 Input signal
- OSD-2 Input/output
- OSD-3 Auto surround mode
- OSD-4~10 Tuner preset stations

NOTE:
- OSD-3: This is displayed when the auto surround mode is set to “ON” and the input mode is set to “Auto”.
- It is not displayed when the input mode is set to “Analog” or “EXT. IN”.

Checking the input signal

Display

The number indicates the normalization level when the currently playing program is normalized to the standard level.
Surround parameters

CINEMA EQ. (Cinema Equalizer):
The Cinema EQ function gently decreases the level of the extreme high frequencies, compensating for overly-bright sounding motion picture soundtracks. Select this function if the sound from the front speakers is too bright. This function only works in the Dolby Pro Logic IIx, Dolby Digital, DTS Surround and DTS NEO:6 modes. (The same contents are set for all operating modes.)

D.COMP. (Dynamic Range Compression):
Motion picture soundtracks have tremendous dynamic range (the contrast between very soft and very loud sounds). For listening late at night, or whenever the maximum sound level is lower than usual, the Dynamic Range Compression allows you to hear all of the sounds in the soundtrack (but with reduced dynamic range). (This only works when playing program sources recorded in Dolby Digital or DTS.) Select one of the four parameters ("OFF", "LOW", "MID" (middle) or "HI" (high)). Set to OFF for normal listening.

LFE (Low Frequency Effect):
This sets the level of the LFE (Low Frequency Effect) sounds included in the source when playing program sources recorded in Dolby Digital or DTS. If the sound produced from the subwoofer sounds distorted due to the LFE signals when playing Dolby Digital or DTS sources when the peak limiter is turned off with the subwoofer peak limit level setting (system setup menu), adjust the level as necessary.

Program source and adjustment range:
1. Dolby Digital: -10 dB to 0 dB
2. DTS Surround: -10 dB to 0 dB

* When DTS encoded movie software is played, it is recommended that the LFE LEVEL be set to 0 dB for correct DTS playback.
* When DTS encoded music software is played, it is recommended that the LFE LEVEL be set to -10 dB for correct DTS playback.

TONE:
This adjusts the tone control. This can be set individually for the separate surround mode other than Direct mode.

SB CH OUT (Surround Back):
(1) (Multi channel source)
"OFF".................Playback is conducted without using the surround back speaker.
"NON MTRX"...........The same signals those of the surround channels are output from the surround back channels.
"MTRX ON"...........Surround back channel is reproduced using digital matrix processing.
"ES MTRX"...........When playing DTS signals, the surround back signals undergo digital matrix processing for playback.
"ES DSCRT".............When a signal identifying the source as a discrete 6.1-channel source is included in the DTS signals, the surround back signals included in the source are played.
"PL Ilx Cinema"...........Processing is performed with the Cinema mode of the PL Ilx decoder and the Surround Back channel is reproduced.
"PL Ilx Music"...........Processing is performed with the Music mode of the PL Ilx decoder and the Surround Back channel is reproduced.
(2) (2ch source)
"OFF".................Playback is conducted without using the surround back speaker.
"ON".....................Playback is conducted using the surround back speaker.

NOTE: This operation can be performed directly using the SURROUND BACK button on the main unit’s panel.

DSP SURROUND SIMULATION

This unit is equipped with a high performance DSP (Digital Signal Processor) which uses digital signal processing to synthetically recreate the sound field. One of 7 preset surround modes can be selected according to the program source and the parameters can be adjusted according to the conditions in the listening room to achieve a more realistic, powerful sound.

Surround modes and their features

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SCH/7CH STEREO</td>
</tr>
<tr>
<td>2</td>
<td>MONO MOVIE (NOTE 1)</td>
</tr>
<tr>
<td>3</td>
<td>ROCK ARENA</td>
</tr>
<tr>
<td>4</td>
<td>JAZZ CLUB</td>
</tr>
<tr>
<td>5</td>
<td>VIDEO GAME</td>
</tr>
<tr>
<td>6</td>
<td>MATRIX</td>
</tr>
<tr>
<td>7</td>
<td>VIRTUAL</td>
</tr>
</tbody>
</table>

NOTE 1: Depending on the program source being played, the effect may not be very noticeable. In this case, try other surround modes, without worrying about their names, to create a sound field suited to your tastes.

NOTE 2: The surround parameters, tone control settings and playback level balance for the different output channels are memorized for each surround mode.
DSP surround simulation

• To operate the surround mode and surround parameters from the remote control unit.

1 Select the surround mode for the input channel.

The surround mode switches in the following order each time the DSP SIMULATION button is pressed:

MONO MOVIE ROCK ARENA
MATRX VIDEO GAME JAZZ CLUB

To enter the surround parameter setting mode, press the SURROUND PARAMETER button.
• The surround parameter switches in the following order each time the SURROUND PARAMETER button is pressed for the different surround modes.

2

(Remote control unit)

To select the various parameters.

(Primary unit)

3

(Primary unit)

Select the various parameters.

Adjust the parameter settings.

(Primary unit)

5

(Primary control unit)

Press the ENTER button to finish surround parameter mode.

NOTE:
• When making parameter settings, the display will return to the regular condition several seconds after the last button was pressed and the setting will be completed.

Surround parameters

ROOM SIZE:
This sets the size of the sound field.
There are five settings: “small”, “med.sm” (medium-small), “medium”, “med.l” (medium-large) and “large”.
“small” recreates a small sound field, “large” a large sound field.

EFFECT LEVEL:
This sets the strength of the surround effect.
The level can be set in 15 steps from 1 to 15.

DELAY TIME:
In the matrix mode only, the delay time can be set within the range of 0 to 110 ms.

NOTE:
• When making parameter settings, the display will return to the regular condition several seconds after the last button was pressed and the setting will be completed.

1 Turn the SELECT knob to select the surround mode.

• Operating the surround mode and surround parameters from the main unit’s panel.

1

(Main unit)

2

(Main unit)

Press the SURROUND PARAMETER button.
• To select the surround mode while adjusting the surround parameters, tone defeat or tone control, press the SURROUND MODE button then operate the selector.

2

(Main unit)

Press and hold in the surround parameter button to select the parameter you want to set.
• The parameters which can be set differ for the different surround modes.
(Refer to “Surround Modes and Parameters” on page 30.

3

(Main unit)

Display the parameter you want to adjust, then turn the SELECT knob to set it.

NOTE:
• When making parameter settings, the display will return to the regular condition several seconds after the last button was pressed and the setting will be completed.
# Surround modes and parameters

## Signals and adjustability in the different modes

<table>
<thead>
<tr>
<th>Channel output</th>
<th>When playing Dolby Digital signals</th>
<th>When playing DTS signals</th>
<th>When playing PCM signals</th>
<th>When playing ANALOG signals</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRONT L/R</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>CENTER</td>
<td>x</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>SURROUND L/R</td>
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<tr>
<td>SURROUND BACK L/R</td>
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<td>x</td>
<td>x</td>
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<tr>
<td>SUB-WOOFER</td>
<td>○</td>
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</tr>
</tbody>
</table>

### Mode
- DIRECT
- STEREO
- EXTERNAL INPUT
- DOLBY PRO LOGIC II
- DOLBY PRO LOGIC III
- DTS NEO:6
- DOLBY DIGITAL
- DTS SURROUND
- SCH/CH STEREO
- ROCK ARENA
- JAZZ CLUB
- VIDEO GAME
- MONO MOVIE
- MATRIX
- VIRTUAL

- **Circle (○):** Signal / Adjustable
- **X (×):** No signal
- **Square (□):** Turned on or off by speaker configuration setting
- **Star (*):** Only for 2 ch contents.

### Parameter
- When playing Dolby Digital and DTS signals
  - D.COMP
  - LFE
  - SB CH OUT (MODE)
  - TONE CONTROL
  - CINEMA EQ
  - MODE

- **Circle (○):** Able
- **X (×):** Unable
- **Circle (○):** Adjustable
- **X (×):** Not adjustable

---

# Signals and adjustability in the different modes

## Surround Parameter

<table>
<thead>
<tr>
<th>Mode</th>
<th>ROOM SIZE</th>
<th>EFFECT LEVEL</th>
<th>DELAY TIME</th>
<th>PRO LOGIC III/IIx ONLY</th>
<th>NEO:6 MUSIC</th>
<th>EXT. IN</th>
<th>SW ATT</th>
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<tbody>
<tr>
<td>DIRECT</td>
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</tbody>
</table>

- **Circle (○):** Adjustable
- **X (×):** Not adjustable
LISTENING TO THE RADIO

Auto preset memory

This unit is equipped with a function for automatically searching for FM broadcast stations and storing them in the preset memory. The “Auto tuner preset” operation can also be performed at “System setup”. (See page 16.)

1 When the main unit’s power operation switch turn on while pressing the set’s PRESET ▲ (+) button the unit automatically begins searching for FM broadcast stations.

2 When the first FM broadcast station is found, that station is stored in the preset memory at channel A1. Subsequent stations are automatically stored in order at preset channels A1 to A8, B1 to B8, C1 to C8, D1 to D8, E1 to E8, F1 to F8 and G1 to G8, for a maximum of 56 stations.

3 Channel A1 is tuned in after the auto preset memory operation is completed.

NOTES:
• If an FM station cannot be preset automatically due to poor reception, use the “Manual tuning” operation to tune in the station, then preset it using the manual “Preset memory” operation.
• To interrupt this function, press the power operation switch.

DEFAULT VALUE

<table>
<thead>
<tr>
<th>AUTO TUNER PRESETS</th>
<th>AUTO TUNER PRESETS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 – A8</td>
<td>87.5/89.1/90.1/90.1/90.1/90.1/90.1/90.1 MHz</td>
</tr>
<tr>
<td>B1 – B8</td>
<td>522/603/699/1404/1611 kHz/90.1/90.1/90.1 MHz</td>
</tr>
<tr>
<td>C1 – C8</td>
<td>90.1 MHz</td>
</tr>
<tr>
<td>D1 – D8</td>
<td>90.1 MHz</td>
</tr>
<tr>
<td>E1 – E8</td>
<td>90.1 MHz</td>
</tr>
<tr>
<td>F1 – F8</td>
<td>90.1 MHz</td>
</tr>
<tr>
<td>G1 – G8</td>
<td>90.1 MHz</td>
</tr>
</tbody>
</table>

Auto tuning

1 Press the MODE button to set the auto tuning mode.

2 Press the TUNING ▲ (+) or ◄ (–) button.

Manual tuning

1 Set the input function to “TUNER”.

2 Watching the display, press the BAND button to select the desired band (AM or FM).

3 Press the MODE button to set the manual tuning mode. Check that the display’s “AUTO” indicator turns off.

4 Press the TUNING ▲ (+) or ◄ (–) button to tune in the desired station. The frequency changes continuously when the button is held in.

NOTE:
• When the manual tuning mode is set, FM stereo broadcasts are received in monaural and the “STEREO” indicator turns off.
Preset stations

Preparations:
Use the “Auto tuning” or “Manual tuning” operation to tune in the station to be preset in the memory.

1. Press the MEMORY button.
(Remote control unit)

2. Press the SHIFT button and select the desired memory block (A to G).
(Main unit) (Remote control unit)

3. Press the PRESET • (+) or • (−) button to select the desired preset channel (1 to 8).
(Main unit) (Remote control unit)

4. Press the MEMORY button again to store the station in the preset memory.
(Remote control unit)

* To preset other channels, repeat steps 1 to 4. A total of 56 broadcast stations can be preset – 8 stations (channels 1 to 8) in each of blocks A to G.

Checking the preset stations

• The preset (broadcast) stations can be checked on the on screen display (OSD).

1. Press the ON SCREEN/DISPLAY button repeatedly until the “Tuner Preset Stations” screen appears on the OSD.
(Remote control unit)

Recalling preset stations

1. Watching the display, press the SHIFT button to select the preset memory block.
(Main unit) (Remote control unit)

NOTE:
• Please make sure the “AUDIO” position of the slide switch on the remote control unit.

2. Watching the display, press the PRESET • (+) or • (−) button to select the desired preset channel.
(Main unit) (Remote control unit)

NOTE:
• Please make sure the “AUDIO” position of the slide switch on the remote control unit.
RDS (Radio Data System)

RDS (works only on the FM band) is a broadcasting service which allows stations to send additional information along with the regular radio program signal. The following three types of RDS information can be received on this unit:

- **Program Type (PTY)**
  - PTY identifies the type of RDS program.
  - The program types and their displays are as follows:

<table>
<thead>
<tr>
<th>News</th>
<th>Rock Music</th>
<th>PHONE IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFFAIRS</td>
<td>Easy Listening</td>
<td>TRAVEL</td>
</tr>
<tr>
<td>INFO</td>
<td>Light Classical</td>
<td>LEISURE</td>
</tr>
<tr>
<td>SPORT</td>
<td>Serious Classical</td>
<td>JAZZ</td>
</tr>
<tr>
<td>EDUCATE</td>
<td>Other Music</td>
<td>COUNTRY</td>
</tr>
<tr>
<td>DRAMA</td>
<td>Weather</td>
<td>NATION M</td>
</tr>
<tr>
<td>CULTURE</td>
<td>Finance</td>
<td>OLDIES</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>Children's programmes</td>
<td>FOLK M</td>
</tr>
<tr>
<td>VARIED</td>
<td>Social Affairs</td>
<td>DOCUMENT</td>
</tr>
<tr>
<td>POP M</td>
<td>RELIGION</td>
<td></td>
</tr>
</tbody>
</table>

- **Traffic Program (TP)**
  - TP identifies programs that carry traffic announcements.
  - This allows you to easily find out the latest traffic conditions in your area before you leaving home.

- **Radio Text (RT)**
  - RT allows the RDS station to send text messages that appear on the display.

**NOTE:** The operations described below using the RDS, PTY and RT buttons will not function in areas in which there are no RDS broadcasts.

**RDS search**

Use this function to automatically tune to FM stations that provide RDS service.

1. Set the input source to “TUNER”.

2. Press the RDS button until “RDS SEARCH” appears on the display.

3. Press the PRESET • (+) or (–) button to automatically begin the RDS search operation.

4. When a broadcast station is found, that station’s name appears on the display.

5. To continue searching, repeat step 3. If no other RDS station is found when all the frequencies are searched, “NO RDS” is displayed.

RDS (Radio Data System) is a broadcasting service which allows stations to send additional information along with the regular radio program signal. The following three types of RDS information can be received on this unit:

- **Program Type (PTY)**
  - PTY identifies the type of RDS program.
  - The program types and their displays are as follows:

- **Traffic Program (TP)**
  - TP identifies programs that carry traffic announcements.
  - This allows you to easily find out the latest traffic conditions in your area before you leaving home.

- **Radio Text (RT)**
  - RT allows the RDS station to send text messages that appear on the display.

**NOTE:** The operations described below using the RDS, PTY and RT buttons will not function in areas in which there are no RDS broadcasts.

**RDS search**

Use this function to automatically tune to FM stations that provide RDS service.

1. Set the input source to “TUNER”.

2. Press the RDS button until “RDS SEARCH” appears on the display.

3. Press the PRESET • (+) or (–) button to automatically begin the RDS search operation.

4. When a broadcast station is found, that station’s name appears on the display.

5. To continue searching, repeat step 3. If no other RDS station is found when all the frequencies are searched, “NO RDS” is displayed.

**RDS (Radio Data System)**

RDS (works only on the FM band) is a broadcasting service which allows stations to send additional information along with the regular radio program signal. The following three types of RDS information can be received on this unit:

- **Program Type (PTY)**
  - PTY identifies the type of RDS program.
  - The program types and their displays are as follows:

- **Traffic Program (TP)**
  - TP identifies programs that carry traffic announcements.
  - This allows you to easily find out the latest traffic conditions in your area before you leaving home.

- **Radio Text (RT)**
  - RT allows the RDS station to send text messages that appear on the display.

**NOTE:** The operations described below using the RDS, PTY and RT buttons will not function in areas in which there are no RDS broadcasts.

**RDS search**

Use this function to automatically tune to FM stations that provide RDS service.

1. Set the input source to “TUNER”.

2. Press the RDS button until “RDS SEARCH” appears on the display.

3. Press the PRESET • (+) or (–) button to automatically begin the RDS search operation.

4. When a broadcast station is found, that station’s name appears on the display.

5. To continue searching, repeat step 3. If no other RDS station is found when all the frequencies are searched, “NO RDS” is displayed.

**RDS (Radio Data System)**

RDS (works only on the FM band) is a broadcasting service which allows stations to send additional information along with the regular radio program signal. The following three types of RDS information can be received on this unit:

- **Program Type (PTY)**
  - PTY identifies the type of RDS program.
  - The program types and their displays are as follows:

- **Traffic Program (TP)**
  - TP identifies programs that carry traffic announcements.
  - This allows you to easily find out the latest traffic conditions in your area before you leaving home.

- **Radio Text (RT)**
  - RT allows the RDS station to send text messages that appear on the display.

**NOTE:** The operations described below using the RDS, PTY and RT buttons will not function in areas in which there are no RDS broadcasts.

**RDS search**

Use this function to automatically tune to FM stations that provide RDS service.

1. Set the input source to “TUNER”.

2. Press the RDS button until “RDS SEARCH” appears on the display.

3. Press the PRESET • (+) or (–) button to automatically begin the RDS search operation.

4. When a broadcast station is found, that station’s name appears on the display.

5. To continue searching, repeat step 3. If no other RDS station is found when all the frequencies are searched, “NO RDS” is displayed.
PTY search

Use this function to find RDS stations broadcasting a designated program type (PTY). For a description of each program type, refer to “Program Type (PTY)”.

1 Set the input source to “TUNER”.
2 Press the RDS button until “PTY SEARCH” appears on the display.
3 Watching the display, press the PTY button to call out the desired program type.
4 Press the PRESET (+) or (−) button to automatically begin the PTY search operation.
   If there is no station broadcasting the designated program type with above operation, all the reception bands are searched.
5 The station name is displayed on the display after searching stops.

TP search

Use this function to find RDS stations broadcasting traffic program (TP stations).

1 Set the input source to “TUNER”.
2 Press the RDS button until “TP SEARCH” appears on the display.
3 Press the PRESET (+) or (−) button TP search begins.
   If no TP station is found with above operation, all the reception bands are searched.
4 The station name is displayed on the display after searching stops.
5 To continue searching, repeat step 3. If no other TP station is found when all the frequencies are searched, “NO PROGRAMME” is displayed.
**Optimum surround sound for different sources**

There are currently various types of multi-channel signals (signals or formats with more than two channels).

- **Types of multi-channel signals**
  - Dolby Digital, Dolby Pro Logic, DTS, high definition 3-1 signals (Japan MUSE Hi-Vision audio), DVD-Audio, SACD (Super Audio CD), MPEG multi-channel audio, etc.
  - “Source” here does not refer to the type of signal (format) but the recorded content. Sources can be divided into two major categories.

- **Types of sources**
  - **Movie audio**
    - Signals created to be played in movie theaters. In general sound is recorded to be played in movie theaters equipped with multiple surround speakers, regardless of the format (Dolby Digital, DTS, etc.).
  - **Other types of audio**
    - These signals are designed to recreate a 360° sound field using three to five speakers.

In this case it is important to achieve the same sense of expansion as in a movie theater with the surround channels. To do so, in some cases the number of surround speakers is increased (to four or eight) or speakers with bipolar or dipolar properties are used.

In this case the speakers should surround the listener from all sides to create a uniform sound field from 360°. Ideally the surround speakers should function as “point” sound sources in the same way as the front speakers.

These two types of sources thus have different properties, and different speaker settings, particularly for the surround speakers, are required in order to achieve the ideal sound.

---

**Notes:**
- If step 3 does not work, start over from step 1.
- If the microprocessor has been reset, all the button settings are reset to the default values (the values set upon shipment from the factory).
Set the front speakers, center speaker and subwoofer in the same positions as in example (1).

It is best to place the surround speakers directly at the side or slightly to the front of the viewing position, and 60 to 90 cm above the ears.

Same as surround back speaker installation method (1). Using dipolar speakers for the surround back speakers as well is more effective.

The signals from the surround channels reflect off the walls as shown on the diagram at the left, creating an enveloping and realistic surround sound presentation.

Consult the owner’s manual for your subwoofer for advice on placing the subwoofer within the listening room.

If the surround speakers are direct-radiating (monopolar) then place them slightly behind and at an angle to the listening position and parallel to the walls at a position 60 to 90 cm above ear level at the prime listening position.

When using two surround back speakers, place them at the back facing the front at a narrower distance than the front left and right speakers. When using one surround back speaker, place it at the rear center facing the front at a slightly higher position (0 to 20 cm) than the surround speakers.

We recommend installing the surround back speaker(s) at a slightly downward facing angle. This effectively prevents the surround back channel signals from reflecting off the monitor or screen at the front center, resulting in interference and making the sense of movement from the front to the back less sharp.

As seen from above

Movement of acoustic image from SR to SL

Movement of acoustic image from SR to SB to SL

With this set, speaker(s) for 1 or 2 channels are required to achieve a 6.1-channel system (DTS-ES, etc.). Adding these speakers, however, increases the surround effect not only with sources recorded in 6.1 channels but also with conventional 2- to 5.1-channel sources. Furthermore, all the DENON original surround modes (see page 28) are compatible with 7.1-channel playback, so you can enjoy 7.1-channel sound with any signal source.

Number of surround back speakers

Though the surround back channel only consists of 1 channel of playback signals for 6.1-channel sources (DTS-ES, etc.), we recommend using two speakers. When using speakers with dipolar characteristics in particular, it is essential to use two speakers. Using two speakers results in a smoother blend with the sound of the surround channels and better sound positioning of the surround back channel when listening from a position other than the center.

Placement of the surround left and right channels when using surround back speakers

Using surround back speakers greatly improves the positioning of the sound at the rear. Because of this, the surround left and right channels play an important role in achieving a smooth transition of the acoustic image from the front to the back. As shown on the diagram above, in a movie theater the surround signals are also produced from diagonally in front of the listeners, creating an acoustic image as if the sound were floating in space.

To achieve these effects, we recommend placing the speakers for the surround left and right channels slightly more towards the front than with conventional surround systems. Doing so sometimes increases the surround effect when playing conventional 5.1-channel sources in the 6.1 surround or DTS-ES Matrix 6.1 mode. Check the surround effects of the various modes before selecting the surround mode.

Speaker setting examples

Here we describe a number of speaker settings for different purposes. Use these examples as guides to set up your system according to the type of speakers used and the main usage purpose.

1. DTS-ES compatible system (using surround back speakers)

(1) Basic setting for primarily watching movies

This is recommended when mainly playing movies and using regular single way or 2-way speakers for the surround speakers.

- Set the front speakers with their front surfaces as flush with the TV or monitor screen as possible. Set the center speaker between the front left and right speakers and no further from the listening position than the front speakers.
- Consult the owner’s manual for your subwoofer for advice on placing the subwoofer within the listening room.
- If the surround speakers are direct-radiating (monopolar) then place them slightly behind and at an angle to the listening position and parallel to the walls at a position 60 to 90 cm above ear level at the prime listening position.
- When using two surround back speakers, place them at the back facing the front at a narrower distance than the front left and right speakers. When using one surround back speaker, place it at the rear center facing the front at a slightly higher position (0 to 20 cm) than the surround speakers.
- We recommend installing the surround back speaker(s) at a slightly downward facing angle. This effectively prevents the surround back channel signals from reflecting off the monitor or screen at the front center, resulting in interference and making the sense of movement from the front to the back less sharp.

(2) Setting for primarily watching movies using diffusion type speakers for the surround speakers

For the greatest sense of surround sound envelopment, diffuse radiation speakers such as bipolar types, or dipolar types, provide a wider dispersion than is possible to obtain from a direct radiating speaker (monopolar). Place these speakers at either side of the prime listening position, mounted above ear level.

- Set the front speakers, center speaker and subwoofer in the same positions as in example (1).
- It is best to place the surround speakers directly at the side or slightly to the front of the viewing position, and 60 to 90 cm above the ears.
- Same as surround back speaker installation method (1). Using dipolar speakers for the surround back speakers as well is more effective.
- The signals from the surround channels reflect off the walls as shown on the diagram at the left, creating an enveloping and realistic surround sound presentation.
2. When not using surround back speakers

- Set the front speakers with their front surfaces as flush with the TV or monitor screen as possible. Set the center speaker between the front left and right speakers and no further from the listening position than the front speakers.
- Consult the owner’s manual for your subwoofer for advice on placing the subwoofer within the listening room.
- If the surround speakers are direct-radiating (monopolar) then place them slightly behind and at an angle to the listening position and parallel to the walls at a position 60 to 90 cm above ear level at the prime listening position.

Surround

The AVR-1905 is equipped with a digital signal processing circuit that lets you play program sources in the surround mode to achieve the same sense of presence as in a movie theater.

Dolby Surround

(1) Dolby Digital

Dolby Digital is the multi-channel digital signal format developed by Dolby Laboratories. Dolby Digital consists of up to “5.1” channels - front left, front right, center, surround left, surround right, and an additional channel exclusively reserved for additional deep bass sound effects (the Low Frequency Effects – LFE – channel, also called the “.1” channel, containing bass frequencies of up to 120 Hz). Unlike the analog Dolby Pro Logic format, Dolby Digital’s main channels can all contain full range sound information, from the lowest bass, up to the highest frequencies – 22 kHz. The signals within each channel are distinct from the others, allowing pinpoint sound imaging, and Dolby Digital offers tremendous dynamic range from the most powerful sound effects to the quietest, softest sounds, free from noise and distortion.

(2) Dolby Pro Logic IIx

- Dolby Pro Logic IIx furthers the matrix decoding technology of Dolby Pro Logic II to decode audio signals recorded on two channels into up to 7.1 playback channels, including the surround back channel. Dolby Pro Logic IIx also allows 5.1-channel sources to be played in up to 7.1 channels.

Dolby Digital compatible media and playback methods

Marks indicating Dolby Digital compatibility:

The following are general examples. Also refer to the player’s operating instructions.

<table>
<thead>
<tr>
<th>Media</th>
<th>Dolby Digital output jacks</th>
<th>Playback method (reference page)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD (VDP)</td>
<td>Coaxial Dolby Digital RF output jack</td>
<td>Set the input mode to “AUTO”. (Page 20)</td>
</tr>
<tr>
<td>DVD</td>
<td>Optical or coaxial digital output (same as for PCM)</td>
<td>Set the input mode to “AUTO”. (Page 20)</td>
</tr>
<tr>
<td>Others (satellite broadcasts, CATV, etc.)</td>
<td>Optical or coaxial digital output (same as for PCM)</td>
<td>Set the input mode to “AUTO”. (Page 20)</td>
</tr>
</tbody>
</table>

1 Please use a commercially available adapter when connecting the Dolby Digital RF output jack of the LD player to the digital input jack. Please refer to the instruction manual of the adapter when making connection.

2 Some DVD digital outputs have the function of switching the Dolby Digital signal output method between “bit stream” and “(convert to) PCM”. When playing in Dolby Digital surround on the AVR-1905, switch the DVD player’s output mode to “bit stream”. In some cases players are equipped with both “bit stream + PCM” and “PCM only” digital outputs. In this case connect the “bit stream + PCM” jacks to the AVR-1905.
Digital Theater Surround (also called simply DTS) is a multi-channel digital signal format developed by Digital Theater Systems.

DTS offers the same “5.1” playback channels as Dolby Digital (front left, front right and center, surround left and surround right) as well as the stereo 2-channel mode. The signals for the different channels are fully independent, eliminating the risk of deterioration of sound quality due to interference between signals, crosstalk, etc. DTS features a relatively higher bit rate as compared to Dolby Digital (1234 kbps for CDs and LDs, 1536 kbps for DVDs) so it operates with a relatively low compression rate. Because of this the amount of data is great, and when DTS playback is used in movie theaters, a separate CD-ROM synchronized with the film is played. With LDs and DVDs, there is of course no need for an extra disc; the pictures and sound can be recorded simultaneously on the same disc, so the discs can be handled in the same way as discs with other formats. There are also music CDs recorded in DTS. These CDs include 5.1-channel surround signals (compared to two channels on current CDs). They do not include picture data, but they offer surround playback on CD players that are equipped with digital outputs (PCM type digital output required).

DTS surround track playback offers the same intricate, grand sound as in a movie theater, right in your own listening room.

### DTS compatible media and playback methods

Marks indicating DTS compatibility: 

The following are general examples. Also refer to the player’s operating instructions.

<table>
<thead>
<tr>
<th>Media</th>
<th>Dolby Digital output jacks</th>
<th>Playback method (reference page)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD</td>
<td>Optical or coaxial digital output</td>
<td>Set the input mode to “AUTO” or “DTS” (page 20). Never set the mode to “ANALOG” or “PCM”.</td>
</tr>
<tr>
<td></td>
<td>(same as for PCM)</td>
<td>⚹ 2</td>
</tr>
<tr>
<td>LD (VDP)</td>
<td>Optical or coaxial digital output</td>
<td>Set the input mode to “AUTO” or “DTS” (page 20). Never set the mode to “ANALOG” or “PCM”.</td>
</tr>
<tr>
<td></td>
<td>(same as for PCM)</td>
<td>⚹ 2</td>
</tr>
<tr>
<td>DVD</td>
<td>Optical or coaxial digital output</td>
<td>Set the input mode to “AUTO” or “DTS” (page 20).</td>
</tr>
<tr>
<td></td>
<td>(same as for PCM)</td>
<td>⚹ 3</td>
</tr>
</tbody>
</table>

1. DTS signals are recorded in the same way on CDs and LDs as PCM signals. Because of this, the un-decoded DTS signals are output as random “hissy” noise from the CD or LD player’s analog outputs. If this noise is played with the amplifier set at a very high volume, it may possibly cause damage to the speakers. To avoid this, be sure to switch the input mode to “AUTO” or “DTS” before playing CDs or LDs recorded in DTS. Also, never switch the input mode to “ANALOG” or “PCM” during playback. The same holds true when playing CDs or LDs on a DVD player or LD/DVD compatible player. For DVDs, the DTS signals are recorded in a special way so this problem does not occur.

2. The signals provided at the digital outputs of a CD or LD player may undergo some sort of internal signal processing (output level adjustment, sampling frequency conversion, etc.). In this case the DTS-encoded signals may be processed erroneously, in which case they cannot be decoded by the AVR-1905, or may only produce noise. Before playing DTS signals for the first time, turn down the master volume to a low level, start playing the DTS disc, then check whether the DTS indicator on the AVR-1905 (see page 20) lights before turning up the master volume.

3. A DVD player with DTS-compatible digital output is required to play DTS DVDs. A DTS Digital Output logo is featured on the front panel of compatible DVD players. Recent DENON DVD player models feature DTS-compatible digital output – consult the player’s owner’s manual for information on configuring the digital output for DTS playback of DTS-encoded DVDs.

Manufactured under license from Dolby Laboratories.

“Dolby”, “Pro Logic” and the double-D symbol are trademarks of Dolby Laboratories.

Manufactured under license from Digital Theater Systems, Inc.

U.S. Pat. No’s: 5,451,942; 5,956,674; 5,974,380; 5,978,762; 6,226,616; 6,487,535 and other U.S. and World-Wide Patents Issued and Pending.

“DTS”, “DTS-ES”, “Neo:6”, and “DTS 96/24” are trademarks of Digital Theater Systems, Inc.

DTS-ES Extended Surround is a new multi-channel digital signal format developed by Digital Theater Systems Inc. While offering high compatibility with the conventional DTS Digital Surround format, DTS-ES Extended Surround greatly improves the 360-degree surround impression and space expression thanks to further expanded surround signals. This format has been used professionally in movie theaters since 1999.

In addition to the 5.1 surround channels (FL, FR, C, SL, SR and LFE), DTS-ES Extended Surround also offers the SB (Surround Back, sometimes also referred to as "surround center") channel for surround playback with a total of 6.1 channels. DTS-ES Extended Surround includes two signal formats with different surround signal recording methods, as described below.

■ DTS-ES™ Discrete 6.1

DTS-ES Discrete 6.1 is the newest recording format. With it, all 6.1 channels (including the SB channel) are recorded independently using a digital discrete system. The main feature of this format is that because the SL, SR and SB channels are independently, the sound can be designed with total freedom and it is possible to achieve a sense that the acoustic images are moving about freely among the background sounds surrounding the listener from 360 degrees.

Though maximum performance is achieved when sound tracks recorded with this system are played using a DTS-ES decoder, when played with a conventional DTS decoder the SB channel signals are automatically down-mixed to the SL and SR channels, so none of the signal components are lost.

■ DTS-ES™ Matrix 6.1

With this format, the additional SB channel signals undergo matrix encoding and are input to the SL and SR channels beforehand. Upon playback they are decoded to the SL, SR and SB channels. The performance of the encoder used at the time of recording can be fully matched using a high precision digital matrix decoder developed by DTS, thereby achieving surround sound more faithful to the producer's sound design aims than with conventional 5.1- or 6.1-channel systems.

In addition, the bit stream format is 100% compatible with conventional DTS signals, so the effect of the Matrix 6.1 format can be achieved even with 5.1-channel signal sources. Of course it is also possible to play DTS-ES Matrix 6.1 encoded sources with a DTS 5.1-channel decoder.

When DTS-ES Discrete 6.1 or Matrix 6.1 encoded sources are decoded with a DTS-ES decoder, the format is automatically detected upon decoding and the optimum playing mode is selected. However, some Matrix 6.1 sources may be detected as having a 5.1-channel format, so the DTS-ES Matrix 6.1 mode must be set manually to play these sources.

(For instructions on selecting the surround mode, see page 26.)

The DTS-ES decoder includes another function, the DTS Neo:6 surround mode for 6.1-channel playback of digital PCM and analog signal sources.

■ DTS Neo:6™ surround

This mode applies conventional 2-channel signals to the high precision digital matrix decoder used for DTS-ES Matrix 6.1 to achieve 6.1-channel surround playback. High precision input signal detection and matrix processing enable full band reproduction (frequency response of 20 Hz to 20 kHz or greater) for all 6.1 channels, and separation between the different channels is improved to the same level as that of a digital discrete system.

DTS Neo:6 surround includes two modes for selecting the optimum decoding for the signal source.

• DTS Neo:6 Cinema

This mode is optimum for playing movies. Decoding is performed with emphasis on separation performance to achieve the same atmosphere with 2-channel sources as with 6.1-channel sources.

This mode is effective for playing sources recorded in conventional surround formats as well, because the in-phase component is assigned mainly to the center channel (C) and the reversed phase component to the surround (SL, SR and SB channels).

• DTS Neo:6 Music

This mode is suited mainly for playing music. Changes in the sound quality are reduced by decoding with emphasis on the front channel signals (FL and FR), and a natural sense of expansion is given to the sound field by the effect of the surround signals output from the center (C) and surround (SL, SR and SB) channels.

DTS 96/24

The sampling frequency, number of bits and number of channels used for recording of music, etc., in studios has been increasing in recent years, and there are a growing number of high quality signal sources, including 96 kHz/24 bit 5.1-channel sources.

For example, there are high picture/sound quality DVD video sources with 96 kHz/24 bit stereo PCM audio tracks. However, because the data rate for these audio tracks is extremely high, there are limits to recording them on two channels only, and since the quality of the pictures must be restricted it is common to only include still pictures.

In addition, 96 kHz/24 bit 5.1-channel surround is possible with DVD audio sources, but DVD audio players are required to play them with this high quality.

DTS 96/24 is a multi-channel digital signal format developed by Digital Theater Systems Inc. in order to deal with this situation.

Conventional surround formats used sampling frequencies of 48 or 44.1 kHz, so 20 kHz was about the maximum playback signal frequency. With DTS 96/24, the sampling frequency is increased to 96 or 88.2 kHz to achieve a wide frequency range of over 40 kHz.

In addition, DTS 96/24 has a resolution of 24 bits, resulting in the same frequency band and dynamic range as 96 kHz/24 bit PCM.

As with conventional DTS Surround, DTS 96/24 is compatible with a maximum of 5.1 channels, so sources recorded using DTS 96/24 can be played in high sampling frequency, multiple channel audio with such normal media as DVD videos and CDs.

Thus, with DTS 96/24, the same 96 kHz/24 bit multi-channel surround sound as with DVD-Audio can be achieved while viewing DVD-Video images on a conventional DVD-Video player (*1). Furthermore, with DTS 96/24 compatible CDs, 88.2 kHz/24 bit multi-channel surround can be achieved using normal CD/LD players (*1).

Even with the high quality multi-channel signals, the recording time is the same as with conventional DTS surround sources.

What's more, DTS 96/24 is fully compatible with the conventional DTS surround format, so DTS 96/24 signal sources can be played with a sampling frequency of 48 kHz or 44.1 kHz on conventional DTS or DTS-ES surround decoders (*2).

*1 A DVD player with DTS digital output capabilities (for CD/LD players, a player with digital outputs for conventional DTS CDs/LDs) and a disc recorded in DTS 96/24 are required.

*2 The resolution is 24 or 20 bits, depending on the decoder.
## TROUBLESHOOTING

If a problem should arise, first check the following.

1. Are the connections correct?
2. Have you operated the receiver according to the Operating Instructions?
3. Are the speakers, turntable and other components operating properly?

If this unit 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.

### Common problems when listening to the CD, records, tapes and FM broadcasts, etc.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Measures</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISPLAY not lit and sound not produced when power switch set to on.</td>
<td>• Power cord not plugged in securely.</td>
<td>• Check the insertion of the power cord plug.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>• Speaker cords not securely connected.</td>
<td>• Connect securely.</td>
<td>8, 9</td>
</tr>
<tr>
<td></td>
<td>• Incomplete connection of speaker cords.</td>
<td>• Connect securely.</td>
<td>5, 8</td>
</tr>
<tr>
<td></td>
<td>• Volume control set to minimum.</td>
<td>• Switch power off, connect speakers properly, then switch power back on.</td>
<td>8, 9</td>
</tr>
<tr>
<td></td>
<td>• The unit is operating at continuous high power conditions and/or inadequate ventilation.</td>
<td>• Turn off the set’s power, then ventilate it well to cool it down. Once the set is cooled down, turn the power back on.</td>
<td>5, 8</td>
</tr>
<tr>
<td></td>
<td>• Incomplete connection of input/output cords.</td>
<td>• Connect securely.</td>
<td>6 – 9</td>
</tr>
<tr>
<td></td>
<td>• Reverse connections of left and right speakers or left and right input/output cords.</td>
<td>• Check left and right connections.</td>
<td>9</td>
</tr>
</tbody>
</table>

### When playing records

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Measures</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humming noise produced when record is playing.</td>
<td>• Ground wire of turntable not connected properly.</td>
<td>• Connect securely.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>• Incomplete PHONO jack connection.</td>
<td>• Connect securely.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>• TV or radio transmission antenna nearby.</td>
<td>• Contact your store of purchase.</td>
<td>—</td>
</tr>
<tr>
<td>Howling noise produced when volume is high.</td>
<td>• Turntable and speaker systems too close together.</td>
<td>• Separate as much as possible.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• Floor is unstable and vibrates easily.</td>
<td>• Use cushions to absorb speaker vibrations transmitted by floor. If turntable is not equipped with insulators, use audio insulators (commonly available).</td>
<td>—</td>
</tr>
<tr>
<td>Sound is distorted.</td>
<td>• Stylus pressure too weak.</td>
<td>• Apply proper stylus pressure.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• Dust or dirt on stylus.</td>
<td>• Check stylus.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• Cartridge defective.</td>
<td>• Replace cartridge.</td>
<td>—</td>
</tr>
<tr>
<td>Volume is weak.</td>
<td>• MC cartridge being used.</td>
<td>• Replace with MM cartridge or use a head amplifier or step-up transformer.</td>
<td>6</td>
</tr>
</tbody>
</table>

### When using remote control unit

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Measures</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>This unit does not operate properly when remote control unit is used.</td>
<td>• Batteries dead.</td>
<td>• Replace with new batteries.</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• Remote control unit too far from this unit.</td>
<td>• Move closer.</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• Obstacle between this unit and remote control unit.</td>
<td>• Remove obstacle.</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• Different button is being pressed.</td>
<td>• Press the proper button.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• @ and @ ends of battery inserted in reverse.</td>
<td>• Insert batteries properly.</td>
<td>10</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

Audio section

- Power amplifier
  Rated output:
  - Front: 80 W + 80 W (8 Ω/ohms, 20 Hz ~ 20 kHz with 0.08% T.H.D.)
  - Center: 80 W (8 Ω/ohms, 1 kHz with 0.7% T.H.D.)
  - 115 W + 115 W (6 Ω/ohms, 20 Hz ~ 20 kHz with 0.7% T.H.D.)
  - Surround: 80 W + 80 W (8 Ω/ohms, 1 kHz with 0.08% T.H.D.)
  - 115 W + 115 W (6 Ω/ohms, 20 Hz ~ 20 kHz with 0.7% T.H.D.)
  - Surround Back: 80 W + 80 W (8 Ω/ohms, 1 kHz with 0.08% T.H.D.)
  - 115 W + 115 W (6 Ω/ohms, 20 Hz ~ 20 kHz with 0.7% T.H.D.)

  Front, Center, Surround, Surround Back:
  - Output terminals: A or B
  - A + B 6 ~ 16 Ω/ohms
  - Center, Surround, Surr. Back: 6 ~ 16 Ω/ohms

- Analog
  - Input sensitivity / input impedance: 200 mV / 47 kΩ/kohms
  - Frequency response: 10 Hz ~ 100 kHz: +1, –3 dB (DIRECT mode)
  - S/N ratio: 98 dB (IHF-A weighted) (DIRECT mode)

Video section

- Standard video jacks
  - Input / output level and impedance: 1 Vp-p, 75 Ω/ohms
  - Frequency response: 5 Hz ~ 10 MHz — +1, -3 dB

- S-video jacks
  - Input / output level and impedance: Y (brightness) signal — 1 Vp-p, 75 Ω/ohms
  - C (color) signal — 0.286 Vp-p, 75 Ω/ohms
  - Frequency response: 5 Hz ~ 10 MHz — +1, -3 dB

- Color component video jacks
  - Input / output level and impedance:
    - Y (brightness) signal — 1 Vp-p, 75 Ω/ohms
    - Pb/Cb (blue) signal — 0.7 Vp-p, 75 Ω/ohms
    - Pr/Cr (red) signal — 0.7 Vp-p, 75 Ω/ohms
  - Frequency response: 5 ~ 30 MHz — +1, -3 dB

Tuner section

- [FM] (note: µV at 75 Ω/ohms, 0 dBf=1 x 10^-15 W)
  - Receiving Range: 87.50 MHz ~ 108.00 MHz
  - Usable Sensitivity: 1.0 µV (11.2 dBf)
  - 50 dB Quieting Sensitivity:
    - MONO 1.6 µV (15.3 dBf)
    - STEREO 23 µV (38.5 dBf)
  - S/N ratio:
    - MONO 77 dB (IHF-A weighted)
    - STEREO 72 dB (IHF-A weighted)
  - Total Harmonic Distortion:
    - MONO 0.15 % (1 kHz)
    - STEREO 0.3 % (1 kHz)

- [AM]
  - 522 kHz ~ 1611 kHz
  - Usable Sensitivity: 18 µV

General

- Power supply: AC 230 V, 50 Hz
- Power consumption:
  - 260 W
  - 1 W Max (Standby)
- Maximum external dimensions: 434 (W) x 147 (H) x 417 (D) mm
- Mass: 11.4 kg

Remote control unit (RC-979)

- Batteries: R6/AA Type (two batteries)
- External dimensions: 55 (W) x 225 (H) x 34.5 (D) mm
- Mass: 165 g (including batteries)

* For purposes of improvement, specifications and design are subject to change without notice.
<table>
<thead>
<tr>
<th>Device</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD</td>
<td>Denon 014, Aiwa 020, Hitachi 010, JVC 006, 011, Magnavox 005, Mitsubishi 004, Panasonic 014, Philips 005, 015, 016, 017, Pioneer 003, 008, Sanyo 018, Sony 002, 019, 020, Toshiba 001, 021, 022, Zenith 023</td>
</tr>
<tr>
<td>VDP</td>
<td>Denon 028, 029, 112, Magnavox 026, Mitsubishi 028, Panasonic 029, 030, Philips 026, Pioneer 028, 031, RCA 032, Sony 033, 034, 035, 036</td>
</tr>
<tr>
<td>VCR</td>
<td>Admiral 081, Akio 095, Aiwa 009, Akai 026, 027, 070, 072, 082, 083, 084, Alba 055, Amstrad 009, ASA 042, Asha 087, Audio Dynamic 005, 085, Audiovox 088, Beaumark 087, Broksom 086, 093, Calix 088, Candle 006, 087, 088, 089, 090, Canon 049, 057, Capehart 025, 055, 056, 071, Carver 015, CCE 095, Chizen 006, 007, 087, 088, 089, 090, 096</td>
</tr>
<tr>
<td>TV</td>
<td>Admiral 045, 121, Adventura 122, Aiko 054, Akai 016, 027, 046, Alleron 062, A-Mark 007, Amtron 061, Anam 006, 007, 036, Anam National 061, 147, AOC 003, 007, 033, 038, 039, 047, 048, 049, 133, Archer 007, Audiovox 007, 061, Bauer 155, Belcor 047, Bell &amp; Howell 045, 118, Bogen 045, 118</td>
</tr>
</tbody>
</table>
Hughes Network 063, 064, 065, 069
JVC 057
Kathrein 074, 075, 076, 083
Magnavox 060
Nokia 070, 080, 084, 085, 086
Philips 060
Primestar 051
Proscan 048, 056, 056
RCA 048, 056, 056, 068
Realistic 042
Sierra I 036
Sierra II 036
Sierra III 036
Sony 049, 067

CD
Denon *[111]
Aiwa 001, 035, 043
Burmester 002
Carver 003, 035
Emerson 004, 005, 006, 007
Fisher 003, 008, 009, 010
JVC 018, 019
Kenwood 011, 012, 013, 014, 017
Magnavox 006, 015, 035
Marantz 016, 028, 035
MCS 016, 024
Onkyo 025, 027
Optimus 017, 020, 021, 022, 023
Philips 014, 032, 033, 035
Pioneer 006, 022, 030
Sears 006
Sony 023, 031
Teac 002, 009, 028
Technics 016, 029, 036
Wards 035, 037
Yamaha 038, 039, 040, 041
Zenith 042

MD
Denon 113
Kenwood 003, 004
Onkyo 007
Sharp 005
Sony 006

TAPE
Denon *[111]
Aiwa 001, 002
Carver 002
Harman/Kardon 002, 003
JVC 004, 005
Kenwood 006
Magnavox 002
Marantz 002
Onkyo 016, 018
Optimus 007, 008
Panasonic 012
Philips 002
Pioneer 007, 008, 009
Sony 013, 014, 015
Technics 012
Victor 004
Wards 007
Yamaha 010, 011

*[] : Preset codes set upon shipment from the factory.
*[] : Sie Voreinstellungscodes wurden vor der Auslieferung werkseitig eingestellt.
*[] : Les codes préréglés différent en fonction des livraison de l’usine.
*[] : I codici di preselezione sono impostati in fabbrica prima della consegna.
*[] : Los códigos vienen preprogramados de fábrica.
*[] : Vooringestelde koder har ställts in vid transporten från fabriken.

DVD preset codes
DVD-Voreinstellungscodes
Codes préréglés DVD
Codici di preselezione DVD
Códigos de preajuste de DVD
DVD-voorkeuzecodes
Förinställda DVD-koder

<table>
<thead>
<tr>
<th>DENON</th>
<th>Model No.</th>
<th>Modelnr</th>
<th>Modèle numéro</th>
<th>Modello No</th>
<th>Nº de modelo</th>
<th>Modelnr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DVD-700</td>
<td></td>
<td>DVD-900</td>
<td>DVD-1000</td>
<td>DVD-1400</td>
<td>DVD-1500</td>
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<td></td>
<td>DVD-800</td>
<td></td>
<td>DVD-1600</td>
<td>DVD-2000</td>
<td>DVD-2500</td>
<td>DVD-3000</td>
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<td>DVD-3300</td>
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</tbody>
</table>

CDR
Denon *[111], 112
Philips 112