



DVD Receiver

AVD-303

Instruction Manual

Thank you for purchasing an Audio Pro DVD Receiver

Please read this manual thoroughly before making connections and turning on the power. Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new DVD Theater System. Please retain this manual for future reference.



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English

WARNING:

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

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.



WARNING
RISK OF ELECTRIC SHOCK
DO NOT OPEN

AVIS
RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR



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.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

PORTABLE CART WARNING


13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Damage Requiring Service

Unplug the apparatus from the wall outlet and refer servicing to qualified service personnel under the following conditions:

 - A. When the power-supply cord or plug is damaged,
 - B. If liquid has been spilled, or objects have fallen into the apparatus,
 - C. If the apparatus has been exposed to rain or water,
 - D. If the apparatus does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the apparatus to its normal operation,
 - E. If the apparatus has been dropped or damaged in any way, and
 - F. When the apparatus exhibits a distinct change in performance this indicates a need for service.
16. Object and Liquid Entry

Never push objects of any kind into the apparatus through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.

The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases shall be placed on the apparatus.

Don't put candles or other burning objects on top of this unit.
17. Batteries

Always consider the environmental issues and follow local regulations when disposing of batteries.
18. If you install the apparatus in a built-in installation, such as a bookcase or rack, ensure that there is adequate ventilation.

Leave 20 cm (8") of free space at the top and sides and 10 cm (4") at the rear. The rear edge of the shelf or board above the apparatus shall be set 10 cm (4") away from the rear panel or wall, creating a flue-like gap for warm air to escape.

S3125A

Precautions

DANGER:

VISIBLE LASER AND INVISIBLE RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. DO NOT STARE INTO BEAM.

CAUTION:

THIS PRODUCT UTILIZES A LASER. USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

This unit contains a semiconductor laser system and is classified as a "CLASS 1 LASER PRODUCT". So, to use this model properly, read this Instruction Manual carefully. In case of any trouble, please contact the store where you purchased the unit. To prevent being exposed to the laser beam, do not try to open the enclosure.



This label on the rear panel states that:

1. This unit is a CLASS 1 LASER PRODUCT and employs a laser inside the cabinet.
2. To prevent the laser from being exposed, do not remove the cover. Refer servicing to qualified personnel.

1. Regional Restriction Codes (Region Number)

Regional restriction codes are built into DVD receivers and DVD videos for each sales region. If the regional code of the DVD receiver does not match one of the regional codes on the DVD video, playback is not possible.

The regional number can be found on the rear panel of the DVD receiver. (e.g.  for Region 2)

2. About This Manual

This manual explains the basic procedures for operating the DVD receiver. Some DVD videos do not support the full potential of the DVD technology. Your DVD receiver may therefore not respond to all operating commands. Refer to instruction notes on discs.

A "⊘" mark may appear on the TV screen during operation. It means that the operation is not permitted by the DVD receiver or the disc.

3. Recording Copyright

Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.

4. AC FUSE

The fuse is located inside the chassis and is not user-serviceable. If power does not come on, contact your Audio Pro authorized service center.

5. Power WARNING

BEFORE PLUGGING IN THE UNIT FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.

The voltage of the available power supply differs according to country or region. Be sure that the power supply voltage of the area where the unit will be used meets the required voltage (e.g., AC 230V 50 Hz) written on the rear panel.

6. Do not touch the unit with wet hands

Do not handle the unit or power cord when your hands are wet or damp. If water or any other liquid enters the case, take the unit to an authorized service center for inspection.

7. Location of the unit

- Place the unit in a well-ventilated location. Take special care to provide plenty of ventilation on all sides of the unit especially when it is placed in an audio rack. If ventilation is blocked, the unit may overheat and malfunction.
- Do not expose the unit to direct sunlight or heating units as the unit's internal temperature may rise and shorten the life of the pickup.
- Avoid damp and dusty places and places directly affected by vibrations from the speakers. In particular, avoid placing the unit on or above one of the speakers.
- Be sure the unit is placed in a horizontal position. Never place it on its side or on a slanted surface as it may malfunction.
- When you place the unit near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the unit away from the TV, radio, or VCR.

8. Care

From time to time you should wipe the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth.

Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

9. Notes on Handling

When shipping the unit, use the original shipping carton and packing materials. For maximum protection, repack the unit as it was originally packed at the factory.

- Do not use volatile liquids, such as insect spray, near the unit.
- Do not leave rubber or plastic products in contact with the unit for a long time. They will leave marks on the finish.
- The top and rear panels of the unit may become warm after a long period of use. This is not a malfunction.
- When the unit is not in use, be sure to remove the disc and turn off the power.
- If you do not use the unit for a long period, the unit may not function properly in the future. Turn on and use the unit occasionally.

10. Notes on Moisture Condensation

Moisture condensation damages the unit.

Please read the following carefully.

• What is moisture condensation?

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day. Drops of water form on the outside of the glass. In the same way, moisture may condense on the optical pick-up lens inside the unit, one of the most crucial internal parts of the unit.

• Moisture condensation occurs in the following cases.

- When you bring the unit directly from a cold place to a warm place.
- When you use the unit in a room where you just turned on the heater, or a place where the cold wind from the air conditioner directly hits the unit.
- In summer, when you use the unit in a hot and humid place just after you move the unit from an air conditioned room.
- When you use the unit in a humid place.

• Do not use the unit when moisture condensation may occur.

If you use the unit in such a situation, it may damage discs and internal parts. Remove the disc, connect the power cord of the unit to the wall outlet, turn on the unit, and leave it for two or three hours. After a few hours, the unit will have warmed up and evaporated any moisture. Keep the unit connected to the wall outlet and moisture condensation will seldom occur.

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Features

AVD-303 Integrated Receiver/DVD Player

Receiver Section

- > 5 x 65 W/Channel at 6 Ω , 80 W at 4 Ω (Subwoofer)
- > DTS^{*1}, Dolby^{*2} Digital, Dolby Pro Logic II Decoding
- > A-Form-Auto Format Sensing
- > Linear PCM 96 kHz/24-bit D/A Converters
- > Built-in 64-bit DSP Processor
- > Color-Coded Speaker Terminals

DVD/CD Player Section

- > MP3 CD/CD/CD-R/RW/JPEG CD Playback
- > 2-Mode Search Function (Title/Track)
- > Random Playback (CD Only)
- > Set Up Menu Audio Language
- > Set Up Menu Subtitle Language
- > Multi-Aspect Ratio (16:9, 4:3)

*1 "DTS" and "DTS Digital Surround" are trademarks of Digital Theater Systems, Inc.

*2 Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

Notes on Copyright

It is forbidden by law to copy, broadcast, show, broadcast on cable, play in public, and rent copyrighted material without permission. DVD videos are copy protected, and any recordings made from these discs will be distorted.

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

Memory Preservation

This unit does not require memory preservation batteries. A built-in memory power backup system preserves the contents of memory during power failures and even when the power cord is Unplugged.

The memory preservation period after the unit has been turned off Varies depending on climate and placement of the unit. On average, memory contents are protected over a period of a few weeks after the time the unit has been turned off.

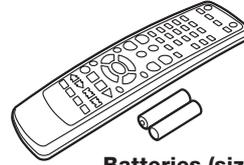
This period is shorter when the unit is exposed to a very humid climate.

Supplied Accessories

Supplied Accessories

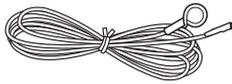
Make sure your box contains everything listed below.
If any pieces are missing, contact your Audio Pro dealer.
The number of accessories is indicated in brackets.

Remote controller (R-303) [1]

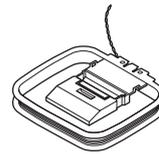


Batteries (size AAA/R03) [2]

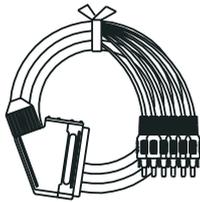
Indoor FM antenna [1]



AM loop antenna [1]



**Scart Video connection cable [1]
(For RGB Video and Audio)**

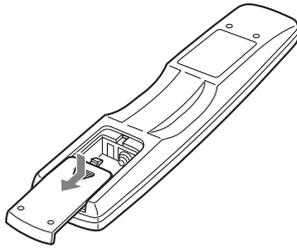




Preparing the Remote Controller

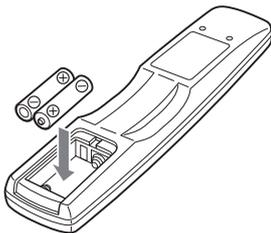
Inserting the Batteries

- 1 Detach the battery cover.

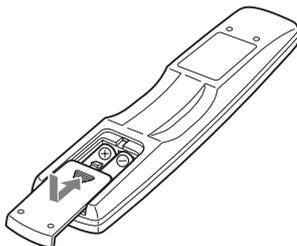


- 2 Insert the two size AAA/R03 batteries.

Be sure to match the + and - ends of the batteries with the diagram inside the battery compartment.



- 3 Attach the battery cover.

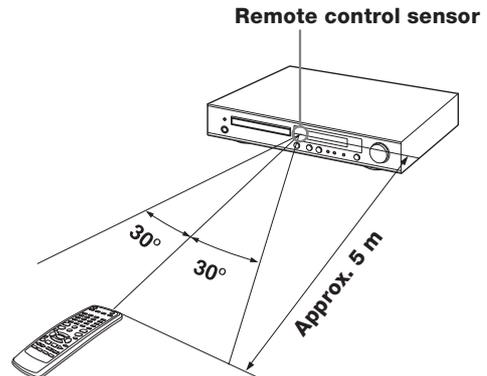


Notes

- > Do not mix new batteries with old batteries or different kinds of batteries.
- > To avoid corrosion, remove the batteries if the remote controller is not to be used for a long time.
- > Remove dead batteries immediately to avoid damage from corrosion. If the remote controller does not operate smoothly, replace both batteries at the same time.
- > The life of the batteries supplied is about six months but this varies depending on usage.

Pointing the remote controller in the right direction

Point the remote controller toward the remote control sensor.



Notes

- > Place the unit away from strong light such as direct sunlight or inverted fluorescent light which can prevent proper operation of the remote controller.
- > Using another remote controller of the same type in the same room or using the unit near equipment which uses infrared rays may cause operational interference.
- > Do not put any object such as a book on the remote controller. The buttons of the remote controller may be pressed by mistake and drain the batteries.
- > Make sure the audio rack doors do not have colored glass. Placing the unit behind such doors may prevent proper remote controller operation.
- > If there is any obstacle between the remote controller and the remote control sensor, the remote controller will not operate.

Notes on Discs

Playable Discs

This DVD receiver can playback the following discs.

	Disc Mark
DVD Videos	
Audio CDs	
CD-Rs ^{*1} CD-RWs ^{*1}	   

^{*1} This unit can play CD-R and CD-RW discs recorded in CD Audio Format, with MP3 audio files or with JPEG image files. However, there may be some discs that cannot be played back with this unit. The causes of this include incomplete disc finalization, recording characteristics of the recorder as well as disc properties, damage or stains on the disc in use, and stains or condensation on the pickup lens of this unit. For details, please refer to the instruction manual of the recorder.

- You cannot playback discs other than those listed above.
- This unit can play DVD-R, DVD+R, DVD-RW, and DVD+RW discs, but depending on the recording unit, the disc manufacturer, etc., playback sometimes may not be possible.
- This DVD receiver uses the PAL/NTSC color system
- Avoid using heart-shaped or octagonal discs. Playing irregularly shaped discs may damage the internal mechanism of the DVD receiver.



- Do not use discs that have residue from adhesive tape, rental discs that have peeling labels, or discs that have custom labels or stickers. Otherwise, you may not be able to eject the discs or the DVD receiver may become inoperative.

About playing copy-controlled CDs

Some audio CDs feature copy protection that doesn't conform to the official CD standard. Since these are nonstandard discs, they may not play properly.

Notes on Copyright

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This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

MP3/JPEG Compatibility

- This unit will play CD-R, and CD-RW discs containing files saved in the MPEG-1 Audio Layer 3 (MP3) format with a sampling rate of 32, 44.1 or 48 kHz, and JPEG format. Incompatible files will not play. Disc may be ejected automatically or "NO DISC" will be displayed.
- Fixed bit rate MP3 files are recommended. Variable bit rate (VBR) MP3 files are playable, but playing times may not be shown correctly.
- MP3/JPEG discs must be ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this receiver.
- Use CD-R or CD-RW media for recording your files. The disc must be finalized (i.e., the session must be closed) in order to play in this unit.
- This receiver only plays tracks that are named with the file extension .mp3, .MP3, .jpg or .JPG.
- When naming MP3 and JPEG files, add the corresponding file name extension (.mp3 or .jpg). Files are played according to the file extension. To prevent noise and malfunctions, do not use these extensions for other kinds of files.
- Folder and track names (excluding the file extension) are displayed.
- There are many different recording bit rates available to encode MP3 files. This unit was designed to be compatible with all of them. Audio encoded at 128 Kbps should sound close to standard audio CD quality. This receiver will play lower bit rate files, but please note that the sound quality becomes noticeably worse at lower bit rates.
- The AVD-303 can play Exif format pictures supporting JPEG. It is capable of playing at the maximum resolution of 5120x3840 for the baseline format, 2048x1536 for the progressive JPEG format.

When saving files onto media

Ensure that the session is closed or finalized when data has been written on media. There are cases where media on which the session has not been closed or finalized will not be played back correctly with this equipment.

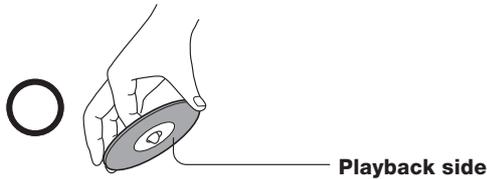
- There are cases where the folder names and file names will not be displayed correctly depending on the software used to save them.
- Do not store files or folders other than MP3 or JPEG on media to be played back with this equipment.
- It is recommended that ten or less sessions are stored when recording MP3 files onto a media.
- In case of a multisession disc, some time may be required until playback begins.

- There are cases where playback is not possible when MP3/JPEG files (CD-ROM) and music CD information (CD-DA) are saved on the same media.

Differences in Disc Composition

Handling Discs

- Do not touch the playback side of the disc.

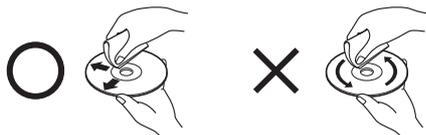


- Do not attach paper or tape to discs.



Cleaning Discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.



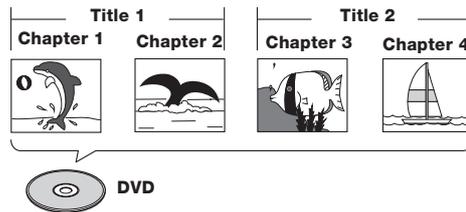
- If you cannot wipe off the dust with a soft cloth, wipe the disc lightly with a slightly moistened soft cloth and finish with a dry cloth.
- Do not use any type of solvent such as thinner, benzene, commercially available cleaners or antistatic spray for vinyl LPs, as these may damage the disc.

Storing Discs

- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs that are outside of their case may cause warping.

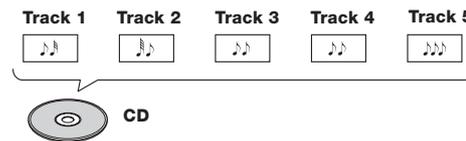
■ DVD

All discs are divided into smaller, more manageable sections so that you can find specific content more easily. DVDs are divided into one or more titles. Each title may be further divided into several chapters. Occasionally, a chapter may contain index points, effectively dividing the chapter into several parts.



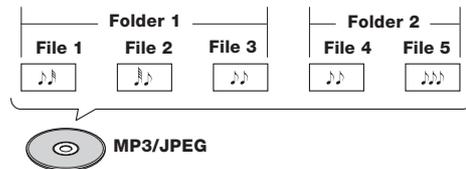
■ CD

Cds are divided into a number of tracks. In rare cases, a track may contain a number of index points, effectively dividing the track into several parts.



■ MP3/JPEG

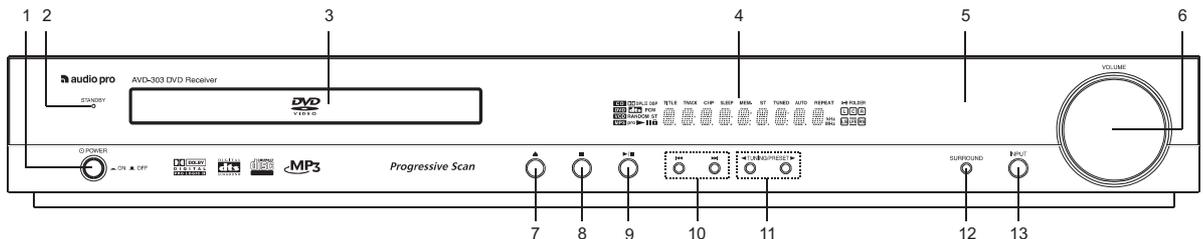
MP3 (MPEG1 Audio Layer 3) is compressed audio file formats. JPEG is a format for saving image files, such as those containing digital photographs or illustrations. Tracks within folders are automatically numbered T_001, T_002, etc.



Control Position and Names

Front Panel

For operational instructions, see the page indicated in brackets [].



1 POWER switch [26]

When POWER switch is pressed to ON, the DVD receiver turns on.

2 STANDBY indicator [26]

3 Disc tray [36]

When loading a disc, place discs in the disc tray with the label side facing up.

4 Display

5 Remote control sensor [9]

Point the remote control toward the remote sensor to operate the DVD receiver.

6 MASTER VOLUME control [32]

The MASTER VOLUME dial is used to control the volume level.

7 ▲ button [36, 39, 40]

Press to open and close the disc tray.

8 ■ button [37, 40, 41]

Press to stop playback. Pressing once enables playback to resume

from a point shortly before the location where it was stopped. Pressing twice causes the disc to return to the beginning of the disc when playback starts again.

9 ►/|| button [36-37, 39]

Press to start playback. Press again to pause playback, then once more to resume playback.

10 ◀◀/▶▶ buttons [38, 40-41]

Press to go back or advance to previous chapters/tracks.

11 ◀TUNING/PRESET▶ buttons [43-44,46]

Use these buttons to change the tuner frequency and to select preset channels.

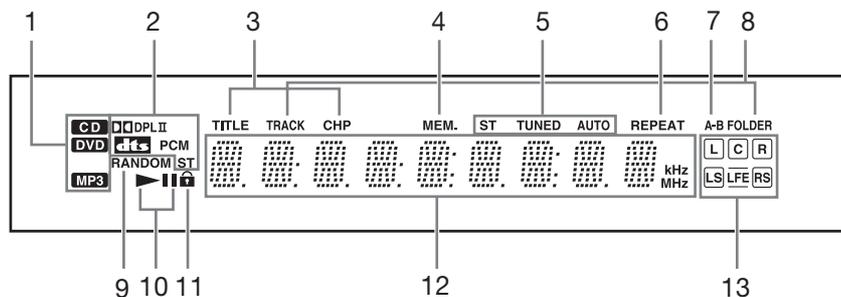
12 SURROUND button [27, 48]

Press to select a surround mode.

13 INPUT selector [32, 43]

Press to select the input source other than DVD.

Display



1 Disc indicator [36]

Indicates the type of current disc that is loaded.

2 Source/Listening mode indicators

One of the source indicators lights to show the format of the current source.

3 TITLE, CHP (Chapter) indicators

Indicate display mode of the current title or chapter of DVD.

4 MEM. (Memory) indicator [44, 57]

5 ST (Stereo), TUNED, AUTO indicators [43]

Indicate the reception mode.

6 REPEAT indicator [49, 54, 58]

Illuminates during repeat playback.

7 A-B indicator [49, 52]

8 FOLDER/TRACK indicator

9 RANDOM indicator [54, 58]

10 ►/|| indicators [36]

Lights up in play or pause mode.

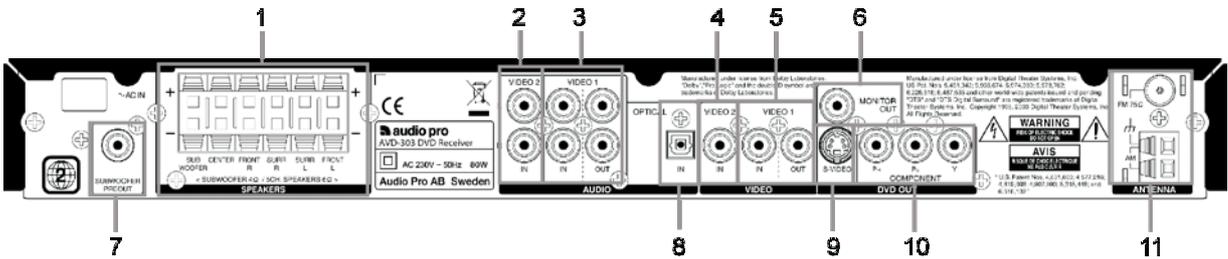
11 Parental Lock indicator [31]

12 Multipurpose display

13 Input/Speaker indicator [33-34, 48]

Rear Panel

For operational instructions, see the page indicated in brackets [].



Shapes of jacks vary depending on the area where they are purchased.

1 FRONT SPEAKERS, CENTER SPEAKER, SUBWOOFER and SURROUND SPEAKERS terminals [23]

These terminals are for connecting to the front, surround speakers, Center speaker and a passive subwoofer (without amplifier).

2 VIDEO2 IN (AUDIO IN) jacks [20]

This jack is for connecting to the Video Output jack on your video device.

3 VIDEO1 IN/OUT (AUDIO IN/OUT) jacks [20]

The IN jack is for connecting to the Audio Output jack on your video device, while the OUT jack is for connecting to the Audio Input jack.

4 VIDEO2 (VIDEO IN) jacks [20]

This jack is for connecting to the Audio Output jack on your video device.

5 VIDEO1 (VIDEO IN/OUT) jacks [20]

The IN jack is for connecting to the Video Output jack on your video device, while the OUT jack is for connecting to the Video Input jack.

6 MONITOR OUT jack [17]

Connect a video cable to this jack and to the Video Input jack on your TV.

7 SUBWOOFER OUT jack [23]

Connect an active Subwoofer (with amplifier) to this jack.

8 OPTICAL INPUT

Connect an optical cable to connect an external digital source

9 DVD OUT (S VIDEO) jack [18]

If your TV has a S-Video jack, you can connect an S-Video cable to your TV and to your DVD Player for improved video quality.

10 DVD OUT (RGB or COMPONENT) jack [17,19]

Connect the enclosed Scart Video connector cable between your TV set and this DVD Receiver. The Scart connector to your TV and the other marked connectors to this terminal.

Note that the connectors are both for Audio and Video. Check their marking before connection.

If your TV has component input, you can connect a component video cable to your TV and to your DVD Player for ideal video quality. If you connect a TV that is compatible with a Progressive scan signal, you can enjoy both Interlaced and Progressive scan. You can choose RGB or COMPONENT OUT in the menus. (RGB is default setting)

Note: When the RGB is selected as video out, the S-video output is not available.

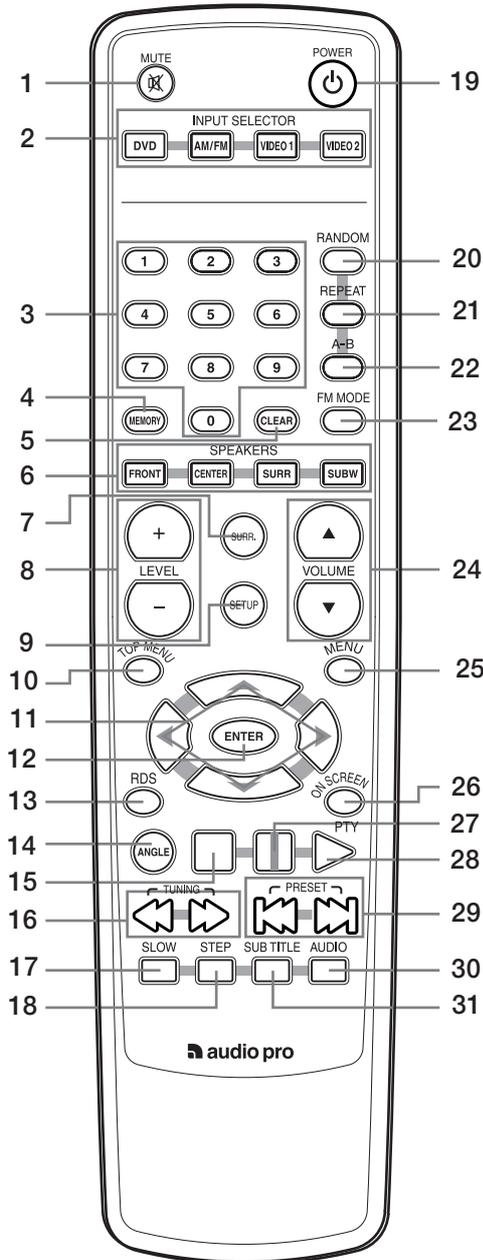
11 ANTENNA terminals [24, 25]

These terminals are for connecting the FM antenna and AM antenna.

Control Position and Names

Remote Controller

For operational instructions, see the page indicated in brackets [].



- 1 MUTE button [32]**
Activates the mute function.
- 2 INPUT selector buttons (DVD/AM/FM/VIDEO1/VIDEO2) [32, 43]**
Press to select the input source.
- 3 Numeric buttons (1-9, 0) [38, 40, 42, 44]**
Use to perform direct title/folder and track searches, and to input numerical values.
- 4 MEMORY button [44, 57]**
You can program tracks to play back in desired order. When AM or FM is selected, use to preset radio stations.
- 5 CLEAR button [56]**
- 6 SPEAKERS buttons [35]**
Selects a speaker for changing the speaker output level.
- 7 SURROUND button [48]**
Press to select the sound mode.
- 8 LEVEL +/- buttons [33-35, 48]**
Press to adjust the value.
In Dolby ProLogic II music mode, to adjust desired effects.
- 9 SETUP button [20, 33-34]**
Press and hold down during speaker set up.
In Video 2 mode, switch between Digital (optical) or Analog audio input.
- 10 TOP MENU button [37]**
Press to call up the top menu programmed on the DVD.
Depending on the DVD, the top menu may be identical to the DVD menu.
- 11 Cursors (◀/▶/▲/▼) [27, 41, 54]**
Use to move through the options on menu screens.
- 12 ENTER button [27, 41, 55]**
Press to choose a selected item or function.
- 13 RDS button [45]**
- 14 ANGLE button [50]**
Press to select various camera angles on a disc.
- 15 ■ / Stop Button [37, 40-41]**
Press to stop playback (DVD). Pressing once enables playback to resume from a point shortly before the location where it was stopped. Pressing twice causes the disc to return to the beginning of the disc when playback starts again.
- 16 ◀◀/▶▶ buttons [38, 40, 42, 43, 45, 46]**
During playback of DVD, press ▶▶ to perform fast forward scanning or ◀◀ to perform fast reverse scanning of DVD.
When a CD or MP3 is loaded, audio scanning is performed.
When AM or FM is selected, press for Tuning.
- 17 SLOW button [50]**
Press to play slow playback.
- 18 STEP button [50]**
Press during playback to view still frame.
- 19 POWER button [26, 40]**
Use to toggle standby on and off.

-
- 20 RANDOM button [52, 58]**
Press to activate random playback.
- 21 REPEAT button [49, 52, 58]**
Use to set the repeat mode.
- 22 A-B button [49, 52]**
Press at the beginning and end of the section you want to repeat or to mark a location you want to return to.
- 23 FM Mode button [43]**
For FM input, press to switch between FM Stereo auto and mono.
- 24 VOLUME ▲/▼ buttons [32]**
For adjusting the volume.
- 25 MENU button [27, 37]**
Use to display or close the DVD menu.
- 26 ON SCREEN / PTY button [46, 51, 56-57]**
Press to display information about the disc set in the unit.
- 27 II button [36, 39]**
Press to pause disc playback.
- 28 ► button [35-37, 39]**
Press to start or resume playback.
- 29 ◀◀/▶▶ buttons/ TUNER PRESET ◀▶ [38, 40, 41, 44]**
During playback of DVD and CD, press ◀◀ to go back to a previous chapter/track and ▶▶ to advance to the next chapter/track. When AM or FM is selected, press to select preset Channels.
- 30 AUDIO button [51]**
Press to select various audio languages on a disc.
- 31 SUBTITLE button [27, 51]**
Press to select various subtitle language on a disc.

Connecting Your AV Components

Before making any connections

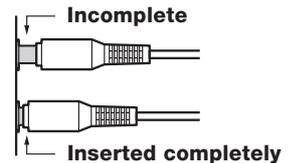
- Read the manuals supplied with your AV components.
- Don't connect the power cord until you've completed all audio and video connections.

RCA/phono AV Connection Color Coding

RCA/phono AV connections are usually color coded: red, white, and yellow. Use red plugs to connect right-channel audio inputs and outputs (typically labeled "R"). Use white plugs to connect left-channel audio inputs and outputs (typically labeled "L"). Further, use yellow plugs to connect composite video inputs and outputs.



- > Push the plugs in all the way to make a good connection.
- > To prevent interference, keep audio and video cables away from power cords and speaker cables.



AV cables & connectors

Video			
Component video (Option)			Component video separates the luminance (Y) and color difference signals (PR, PB), providing the best picture quality. Some TV manufacturers label their component video inputs differently.
S-Video (Option)			S-Video provides better picture quality than composite video.
Composite video (Option)			Composite video can be found on virtually all TVs, VCRs, and video equipment.
Scart Adaptor			This scart adaptor is enclosed with this unit. The scart is connected to your TV set and the RCA jacks are connected to corresponding jack on the receiver. Both Audio and Video is connected easily.

Audio

Analog (Option)			RCA/phono analog audio connectors can be found on virtually all AV components.
Optical (Option)			Optical audio connectors can be found on virtually all digital components.

Before Connecting

Connect the DVD receiver to the TV or AV component directly. If you connect the DVD receiver to a VCR, TV/VCR combination, or video selector, the playback picture may be distorted as DVD Video images are copy protected.

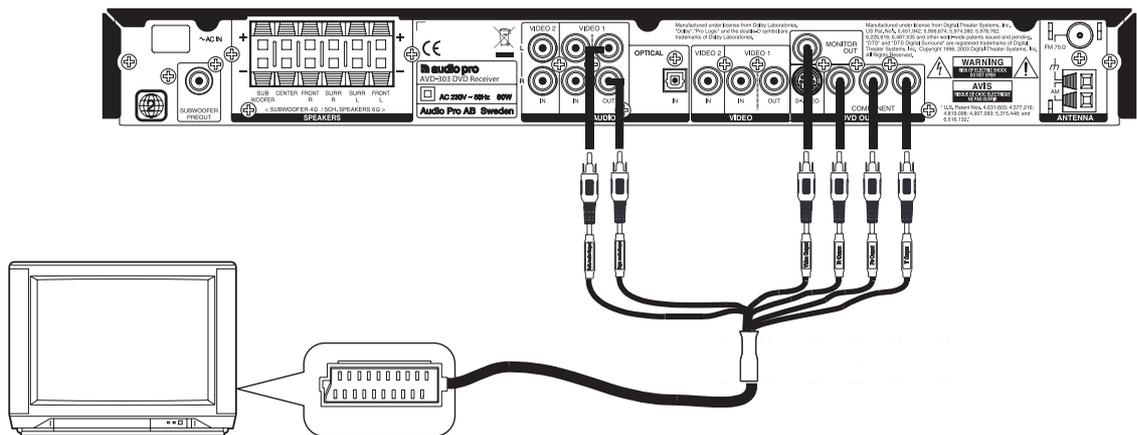
Connecting to a TV

This player has 3 kinds of video output jacks.

- Video jack connection: Use optional Video Connection Cable to connect.
- S-Video jack connection (optional): For higher quality video than video jack connection.
- Component jack connection (optional): For higher quality video than S-video jack connection.(factory default setting is RGB)

■ If your TV has Scart Input connector (RGB)

Using the scart connection cable (supplied), make video connection from the MONITOR OUT jack, COMPONENT jacks and AUDIO OUT Jacks. Each RCA connector is clearly marked.



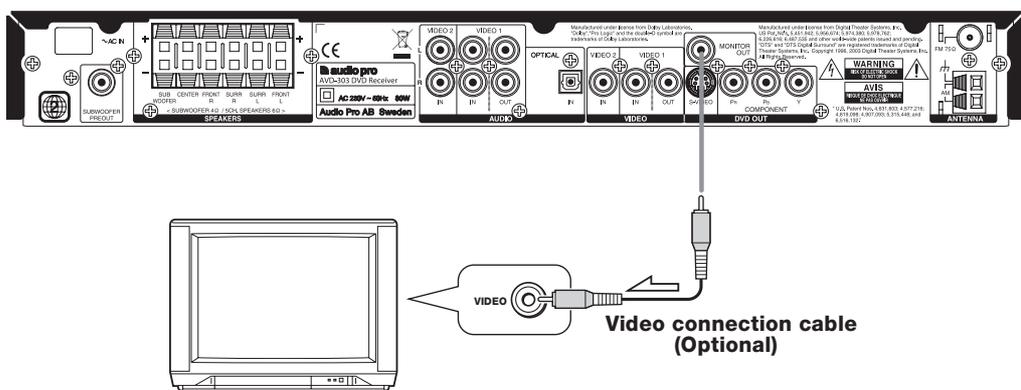
Note

When using this type of connection, make sure Progressive Output is set to OFF (page 19). If Progressive Output is set to ON, the picture will not appear on the TV screen.

■ If your TV has Video Input connector

Using the video connection cable (option), make video connection from the MONITOR OUT jack to the corresponding video input jack on the TV.

The video signal input from VIDEO1 and VIDEO2 jacks is output from MONITOR OUT jack only.



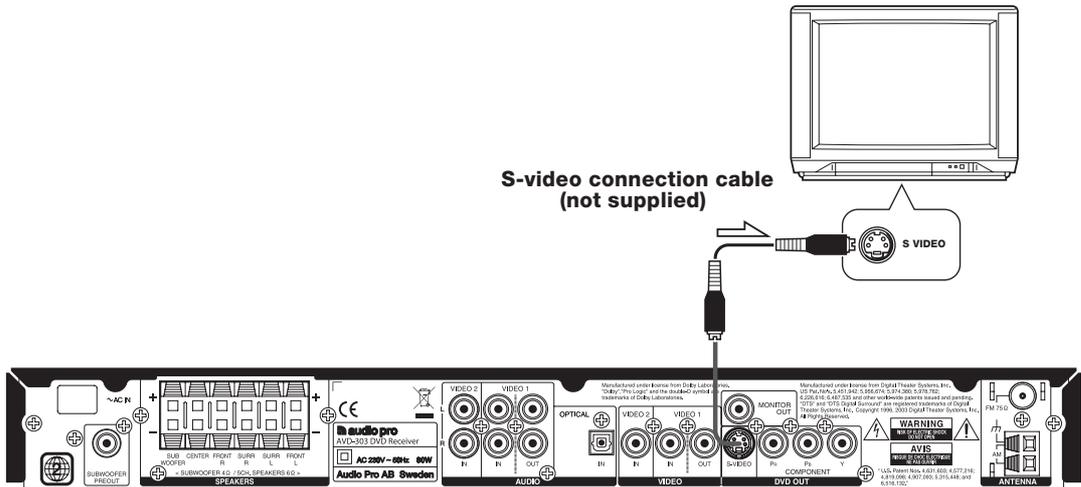
Note

When using this type of connection, make sure Progressive Output is set to OFF (page 19). If Progressive Output is set to ON, the picture will not appear on the TV screen.

Connecting Your AV Components

■ If your TV has S-Video Input connector

If the TV or monitor has an S-video input, making this type of video connection will produce improved picture quality. Using an S-video cable (sold separately), connect the DVD OUT jack to the corresponding S-video input jack on the TV. The video signal input from VIDEO1 and VIDEO2 jacks is not output from DVD OUT S VIDEO jack.



Note

Before using S-Video make sure COMPONENT is selected in the Preferences / Video output menu.

When using this type of connection, make sure Progressive Output is set to OFF (page 19). If Progressive Output is set to ON, the picture will not appear on the TV screen.

■ If your TV has Component Input connector

If the TV or monitor has component video inputs, making this type of video connection will produce ideal picture quality for the presentation of DVD-Video. Using a component video cable (sold separately), connect the DVD OUT COMPONENT jacks to the corresponding component video input jacks on the TV. Actual labels for component video inputs may vary depending on the TV manufacturer. (e.g., Y, R-Y, B-Y or Y, C_B, C_R)

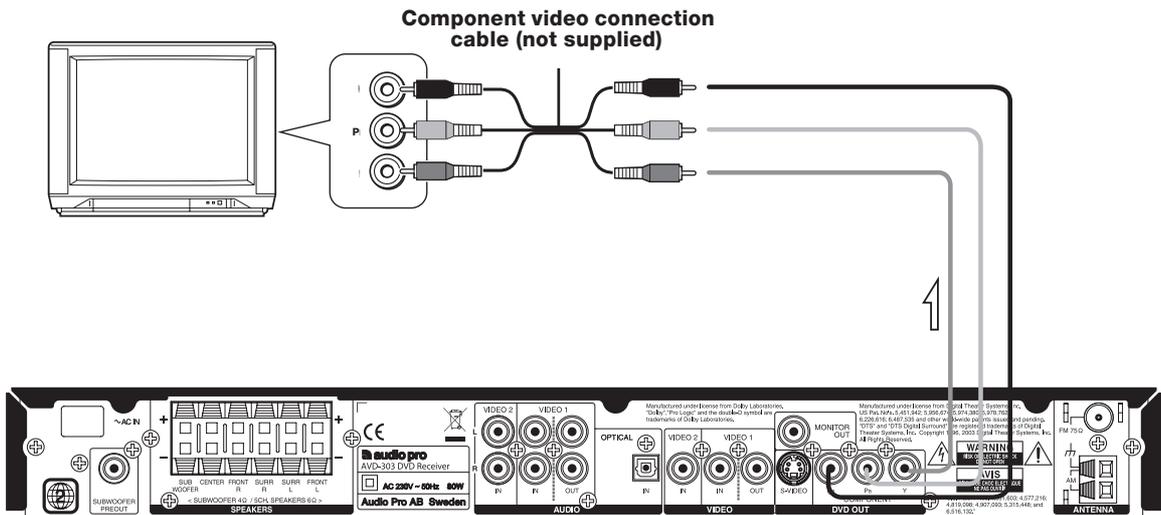
In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

This connection is necessary to use progressive function.

To view Progressive scan video, you need a TV with Progressive scan capability. Please check your TV's manual.

Notes

- > If the connected TV supports the progressive function, Progressive Output is available for selection.
- > The DVD Player can output NTSC or PAL format video depending on the setting on page 27. Make sure your TV supports the disc's video format.
- > In the MENU Preferences - Video output, the default RGB setting must be changed to COMPONENT.



Tip

When the TV has a COMPONENT terminal, the DVD image will be played back with higher picture quality in case of COMPOSITE connection. Connect the COMPOSITE video cable also in this case.

Select the scanning method (Progressive/Interlace) of the Component Video output using the button on the front panel. During stop mode, while pressing the ►/|| button on this unit, press and hold the SURROUND button for 5 or more seconds. Each time the button is held down, the setting changes as follows:

◀ P SCAN ON
 ▶ P SCAN OFF



P SCAN ON: When progressive scanning is unavailable with certain discs, the scanning method is switched automatically to interlaced scanning. When the scanning method is changed, the scanning status will be displayed for a few seconds.

P SCAN OFF: Scanning method is fixed at interlaced scanning.

Note

The P-scan mode is automatically recovered when the CD/MP3/Jpeg disc is ejected.

Connecting Your AV Components

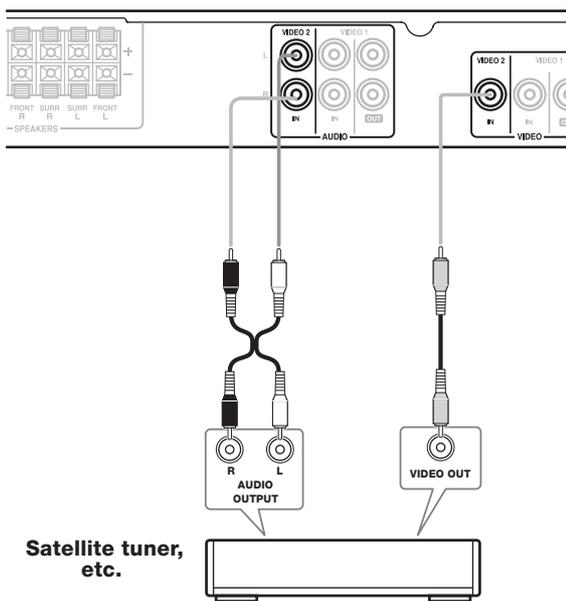
Connecting a Video Device

Video Connections

Use a composite video cable to connect the AVD-303's VIDEO 2 VIDEO IN to a composite video output on your satellite tuner, etc., as shown. Your TV must also be connected via composite video.

Analog Audio Connections

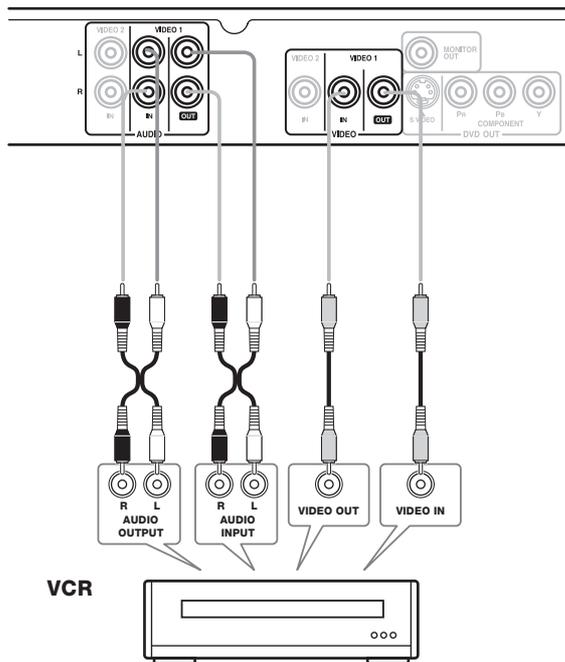
Use an RCA/phono audio cable to connect the AVD-303's L/R VIDEO 2 IN connectors to the analog audio outputs on your satellite tuner, etc. as shown.



Connecting a VCR for Recording

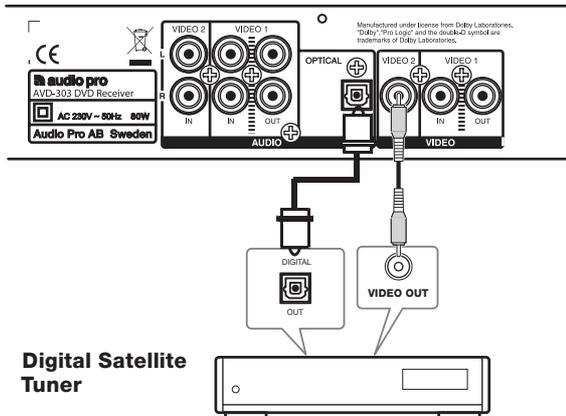
Use a composite video cable to connect the AVD-303's VIDEO 1 VIDEO OUT to a composite video input on your VCR, use another composite video cable to connect the AVD-303's VIDEO 1 VIDEO IN to a composite video output on your VCR as shown.

Use an RCA/phono audio cable to connect the AVD-303's L/R VIDEO 1 AUDIO OUT connectors to the analog audio inputs on your VCR, use another RCA/phono audio cable to connect the AVD-303's VIDEO 1 AUDIO IN connectors to the analog audio outputs on your VCR as shown.



Digital Audio Connections (Video 2 mode)

Use an optical audio cable to connect the AVD-303's OPTICAL IN connector to the digital audio output on your Digital satellite tuner, MP3 player, Mini Disc etc.



Notes

- > The AVD-303 must be turned on (not Standby) in order to record.
- > When you record signal from VIDEO AUDIO OUT jack on the unit, do not change the surround mode.

Notes

- > Press short on the SETUP key to switch between ANALOG/DIGITAL audio input mode (in Video 2 mode). Status is shown in the display.

Connecting Speakers

About wall-mounted speakers

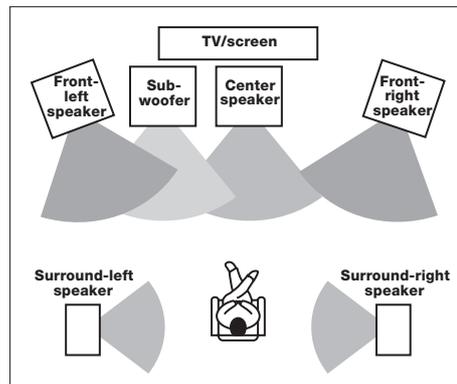
Note:

When mounting speakers on the wall, be sure to check the strength of the wall before mounting. The weight the screws are able to support differs depending on the material used for the wall and the position of the wall supports. Make sure you use sturdy, long screws with a head diameter of no more than 10 mm and a shaft diameter of no more than 4 mm. (If you are unsure about which screws to use, ask a shop assistant for advice.)

Standard speaker placement and speaker functions (general)

Speaker placement varies depending on the size of the room and the wall coverings used in the room. The following describes a sample layout for standard speaker placement and the functions of the various speakers.

Even if you do not connect the speakers according to the illustration below, you can set the amount of time it takes for sound to be delivered from the various speakers by performing the procedure in "Setting the Distance from the Listening Position to Each speaker" (see page 34) to experience the best possible Surround sound. You can also adjust the volume of each speaker as desired (see page 35). (Do this after you have completed all connections.)



Center speaker

This speaker enhances the front left and right speakers, making sound movements distinct and providing a full sound image. In movies it's used mainly for dialog.

Position it close to your TV facing forward at about ear level, or at the same height as the front left and right speakers. Put it somewhere where it won't slide around or fall.

Front left and right speakers

Place these speakers facing the listener so that:

- They are at the same, or nearly the same, height as the center speaker.
- They are positioned facing toward the listening position and the listener's ears. Ideally, the speakers should be placed symmetrically to the right and left.

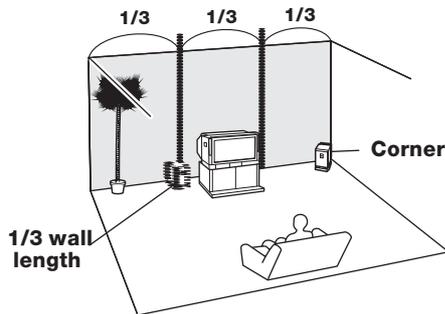
Surround speakers

Place these speakers to the side or rear of the listener. The surround speakers reproduce 3-dimensional sound motion, background sound effects, and help create the sensation of being in the middle of the action.

Subwoofer

The volume and quality of the bass output from your subwoofer will depend on its position, the shape of your listening room, and your listening position. In general, a good bass sound can be obtained by installing the subwoofer in a front corner, or at one-third the width of the wall, as shown.

Connecting Speakers



Note

When placing the satellite speakers, do not place them on the edge of a surface, such as a table or rack. If the speaker falls, you may be injured.

Operating Precautions

Placement

- Speakers are normally made out of wood or plastic and are therefore sensitive to extreme temperatures and humidity, do not put them in locations subject to direct sunlight or in humid places, such as near an air conditioner, humidifier, bathroom, or kitchen.
- Do not put water or other liquids close to the speakers. If liquid is spilled over the speakers, the drive units may be damaged.
- Speakers should only be placed on sturdy, flat surfaces that are free from vibration. Putting them on uneven or unstable surfaces, where they may fall and cause damage, will affect the sound quality.
- Subwoofers are designed to be used in the upright vertical position only. Do not use it in the horizontal or tilted position.
- If the unit is used near a turntable or CD player, howling or slipping of sound may occur. To prevent this, move the unit away from the turntable or CD player otherwise lower the unit's output level.

Using Close to a TV or Computer

TVs and computer monitors are magnetically sensitive devices and as such are likely to suffer discoloration or picture distortion when Conventional speakers are placed nearby. To prevent this, use speakers that feature an internal magnetic shielding. In some situations, however, discoloration may still be an issue, in which case you should turn off your TV or monitor, wait 15 to 30 minutes, and then turn it back on again. This normally activates the degaussing function, which neutralizes the magnetic field, thereby removing any discoloration effects. If discoloration problems persist, try moving the speakers away from your TV or monitor. Note that discoloration can also be caused by a magnet or demagnetizing tool that's too close to your TV or monitor.

Input Signal Warning

Speakers can handle the specified input power when used for normal music reproduction. If any of the following signals are fed to them, even if the input power is within the specified rating, excessive current may flow in the speaker coils, causing burning or wire breakage:

1. Interstation noise from an untuned FM radio.
2. Sound from fast-forwarding a cassette tape.
3. High-pitched sounds generated by an oscillator, electronic musical instrument, and so on.
4. Amplifier oscillation.
5. Special test tones from audio test CDs and so on.

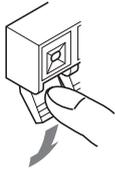
6. Thumps and clicks caused by connecting or disconnecting audio cables (Always turn off your amplifier before connecting or disconnecting cables.)
7. Microphone feedback.

Connecting the subwoofer, front (left and right), center, and surround speakers

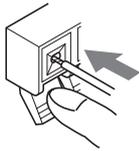
General information about connecting speakers to AVD-303
Please refer to the speakers manual for further information

■ Making connections to the speaker Terminals on AVD-303

1 Press and hold the lever.



2 Insert the exposed wires on the end of the cable.



3 Release the lever.

Caution

To prevent damage to the circuitry, never allow the positive (+) and negative (-) or left (L) and right (R) speaker wires to touch.

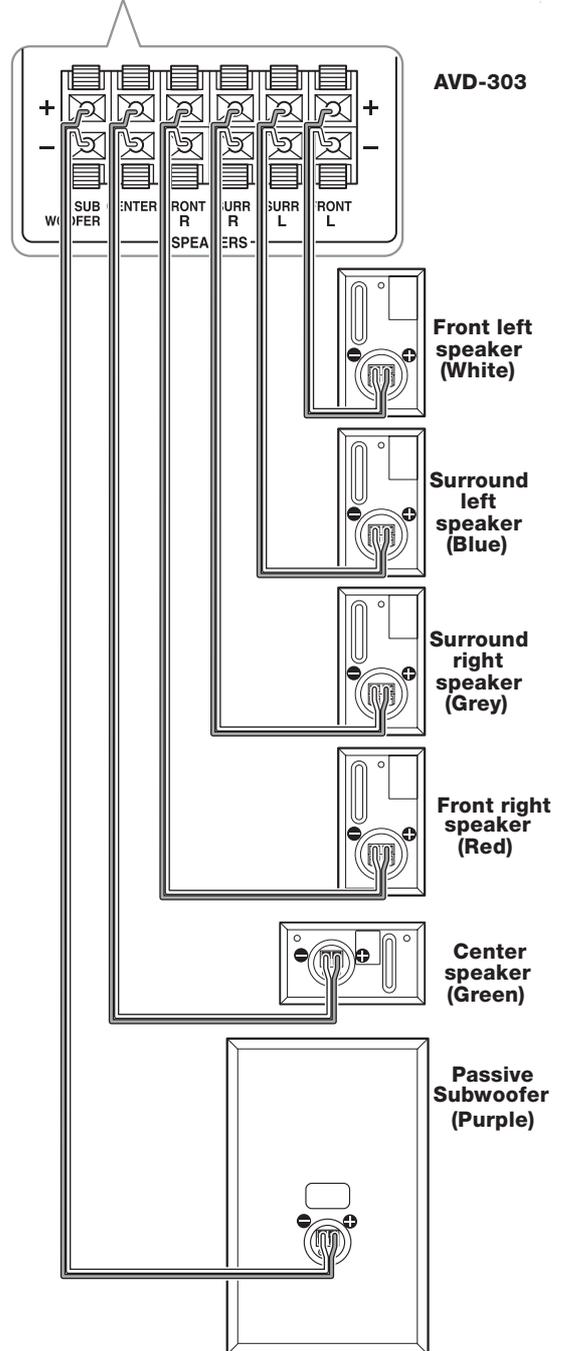
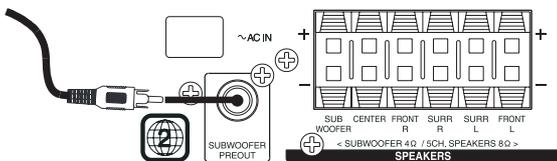


Notes

- > The speaker + terminals on AVD-303 are given different colors for ease of identification. (Refer to the figure on the right)
- > The terminals on the speakers and subwoofer (+ and -) are given different colors for ease of identification. Attach the speaker cables to terminals of the same color RED (+) and BLACK (-).
- > Connect the colored (or marked) side of the speaker cables to the plus (+) speaker terminals.
- > If you accidentally connect the wrong cable (+ or -) to a speaker terminal or the wrong cable to either the left or right speakers, the speakers will output unnatural sound.

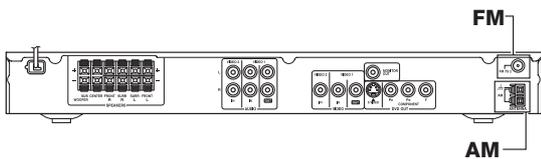
■ Connecting an active subwoofer to AVD-303

If you want to use an active subwoofer (with built-in amplifier) an RCA cable shall be connected between the SUBWOOFER PREOUT and Line in on the subwoofer. In this case no speaker wires shall be connected.



Connecting the Antenna

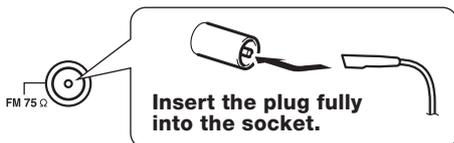
This chapter explains how to connect the supplied indoor FM antenna and AM loop antenna, and how to connect commercially available outdoor FM and AM antennas.



Connecting the Indoor FM Antenna

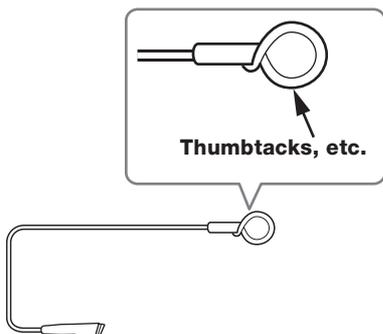
The supplied indoor FM antenna is for indoor use only.

1 Attach the FM antenna, as shown.



Once your AVD-303 is ready for use, you'll need to tune into an FM radio station and adjust the position of the FM antenna to achieve the best possible reception.

2 Use thumbtacks or something similar to fix the FM antenna into position.



Caution

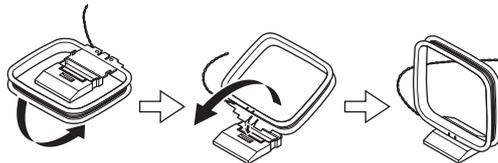
Be careful that you don't injure yourself when using thumbtacks.

If you cannot achieve good reception with the supplied indoor FM antenna, try a commercially available outdoor FM antenna instead (see page 25).

Connecting the AM Loop Antenna

The supplied indoor AM loop antenna is for indoor use only.

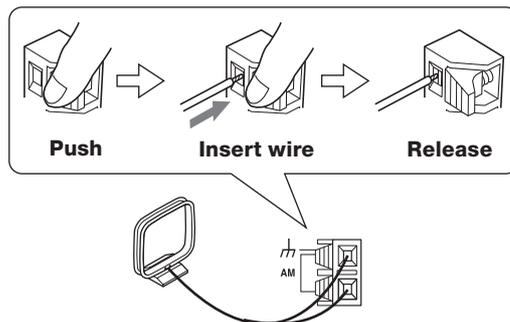
1 Assemble the AM loop antenna, inserting the tabs into the base, as shown.



2 Connect both wires of the AM loop antenna to the AM push terminals, as shown.

(The antenna's wires are not polarity sensitive, so they can be connected either way around.)

Make sure that the wires are attached securely and that the push terminals are gripping the bare wires, not the insulation.

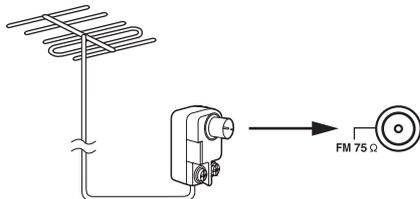


Once your AVD-303 is ready for use, you'll need to tune into an AM radio station and adjust the position of the AM antenna to achieve the best possible reception. Keep the antenna as far away as possible from your AVD-303, TV, speaker cables, and power cords.

If you cannot achieve good reception with the supplied indoor AM loop antenna, try using it with a commercially available outdoor AM antenna (see page 25).

Connecting an Outdoor FM Antenna

If you cannot achieve good reception with the supplied indoor FM antenna, try a commercially available outdoor FM antenna instead.



Notes

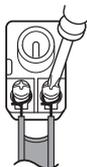
- Outdoor FM antennas work best outside, but usable results can sometimes be obtained when installed in an attic or loft.
- For best results, install the outdoor FM antenna well away for tall buildings, preferably with a clear line of sight to your local FM transmitter.
- Outdoor antenna should be located away from possible noise sources, such as neon signs, busy roads, etc.
- For safety reasons, outdoor antenna should be situated well away from power lines and other high-voltage equipment.

Using the 75/300-ohm Antenna Adapter

The 75/300-ohm Antenna Adapter is not supplied with AVD-303. The 75/300-ohm antenna adapter can be used to connect an FM antenna using either 75-ohm coaxial cable or 300-ohm twin-core flat cable.

■ Connecting 300-ohm Flat Cable

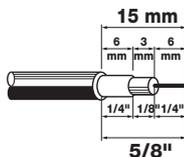
- 1 Using a screwdriver, loosen the two screws on the adapter, wrap the bare wires around the screws, and then retighten them, as shown.



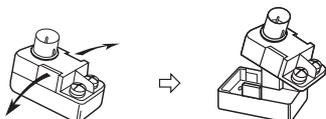
- 2 Plug the adapter into the 75Ω socket.

■ Connecting 75-ohm Coaxial Cable

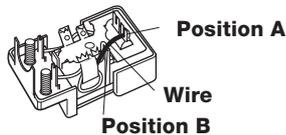
- 1 Strip and prepare the 75 ohm coaxial cable, as shown.



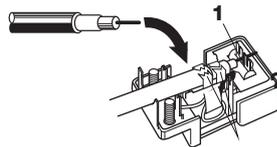
- 2 Using your fingernails or a small screwdriver, lever the adapter's tabs outward and remove the cover, as shown.



- 3 Move the small wire inside the adapter from position A to position B, as shown.



- 4 Insert the central conductor (1), as shown, and use a small pair of pliers to clamp the shielding and outer insulation sections of the cable (2), as shown.

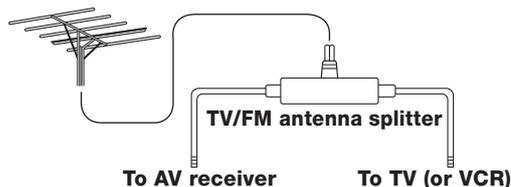


Make sure the shielding is not touching the central conductor.

- 5 Refit the adapter's cover, and then plug the adapter into the 75Ω socket.

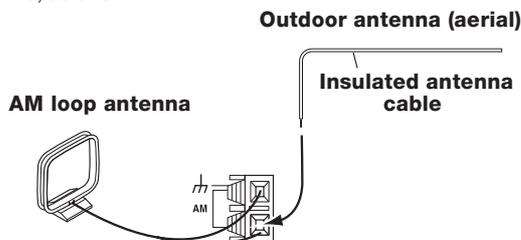
■ Using a TV/FM Antenna Splitter

It's best not to use the same antenna for both FM and TV reception, as this can cause interference problems. If circumstances demand it, use a TV/FM antenna splitter, as shown.



Connecting an Outdoor AM Antenna

If good reception cannot be achieved using the supplied AM loop antenna, an outdoor AM antenna can be used in addition to the loop antenna, as shown.

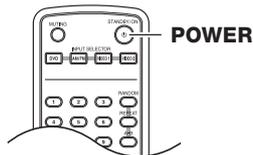
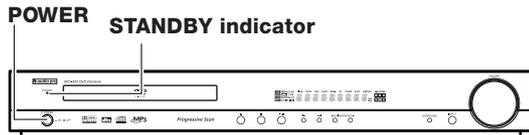


Outdoor AM antennas work best when installed outside horizontally, but good results can sometimes be obtained indoors by mounting horizontally above a window. Note that the AM loop antenna should be left connected.

Connecting the Power/Turning on the DVD receiver

Before connecting

- Make sure that all the connections from pages 17 to 25 are complete (the connection to the TV is required).
- Turning on the DVD receiver may cause a momentary power surge, which might interfere with other electrical equipment such as computers. If this happens, use a wall outlet on a different circuit.



1 Connect the power cord to a wall outlet.



2 Press POWER on the DVD receiver to turn on the DVD receiver.

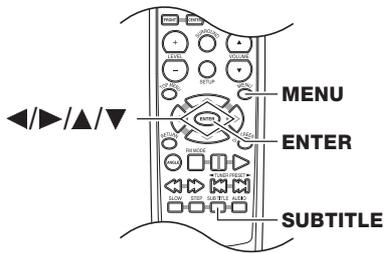
- The AVD-303 is shipped with the POWER in the ON position. () When the power cord is plugged in for the first time, the AVD-303 will automatically turn on.

3 The display on the DVD receiver's front panel light.

- > To put the DVD receiver in the standby mode, press POWER on the remote controller. Be sure to set the volume to minimum before putting the DVD receiver in the standby mode for the next use to avoid sudden loud sound reproduction.
- > While in the STANDBY mode, the DVD receiver can receive signals from the remote controller.

Setting the POWER button on the remote controller to set the DVD receiver to standby does not turn off the power completely.

Customizing Function Settings



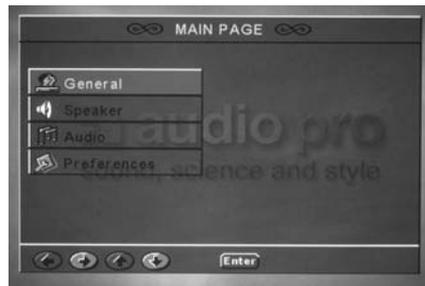
When you insert a DVD Video or audio CD, the various functions of the DVD receiver will be set (reset) according to the SETUP MENU. You can customize this setting menu according to your preference.

Setting Steps

1 Press MENU during stop mode.



The SETUP MENU appears.



2 Press ▲/▼ to select a category, then press ENTER.



Remove the disc to customize the General settings.

To set the TV system

1 Set the POWER on the main unit to the ON position.

After the power is switched ON, there is a delay of about 3 seconds before the display is lit.

2 Set TV Format according to the connected TV type.

While no disc is inserted, hold the SURROUND button on the main unit depressed and keep pressing the SUBTITLE button on the remote control. Each time these buttons are being held down, the setting changes as follows.

SURROUND



Main unit

SUB TITLE



Remote controller

MULTI (NTSC/PAL switchable)
 NTSC
 PAL

Customizing Function Settings

3 Press ▲/▼ to select the item, then press ►.



4 Press ▲/▼ to select the setting, then press ENTER.



To move the cursor to the item column, press ◀.

5 Further steps may be needed depending on the item or setting. Follow the steps described in the explanation of each item starting from page 29.

To return to the MAIN PAGE

Press ◀.

To clear the setting menu

Press MENU.

Note

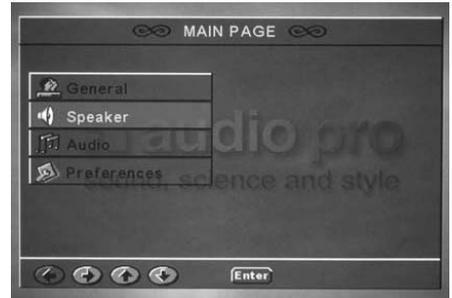
When a TV screen is not displayed, the “TV system” setting may not be suitable for your TV (see page 27).

Speaker setup

1 Press MENU during stop mode.



The SETUP MENU appears and select Speaker



2 Press ▲/▼ to select the item, then press ►.



3 Press ▲/▼ to select the setting, then press ENTER.



To move the cursor to the item column, press ◀.

Note

Subwoofer settings are only possible when front speakers are set to large.

General Setup



Picture Mode

This adjusts the screen quality according to the material being played back.

- **Auto**
The picture quality is adjusted automatically.
- **Film**
Choose this setting to reproduce the picture quality of film material.
- **Video**
Choose this setting to reproduce the picture quality of video material.
- **Smart**
Choose this setting to reproduce progressive and interlaced materials with limited motion.
- **Super Smart**
Choose this setting to reproduce progressive and interlaced materials with motion (motion adaptive deinterlacing).

Angle Mark

- **ON**
When a picture recorded in different angles is played back,  is displayed on the screen.
- **OFF**
 is not displayed on the screen. ( is displayed when the camera angle is changed.)

OSD Language

Select the On-Screen Display language.

- **English**
- **Swedish**
- **French**
- **German**
- **Spanish**
- **Italian**

Captions (NTSC only)

Some DVD videos contain special subtitles, an enhancement of closed captions for hearing impaired persons. The DVD Player automatically displays these special subtitles by setting this item to ON.

- **ON**
The extended subtitles are displayed automatically.
- **OFF**
The extended subtitles are not displayed.

Audio setup

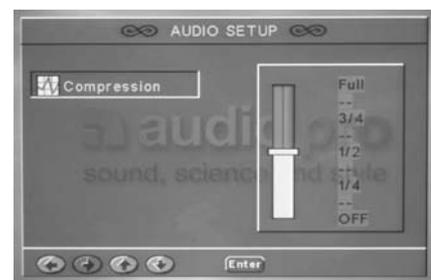


Compression

At the time of Dolby digital DVD playback, the difference of the maximum volume and the minimum volume are compressed. Adjustment is possible in 8 steps, and the range is largest (compression ratio 0) at the time of "OFF" and smallest (large compression ratio) at the time of "FULL". Reduce the dynamic range so that even low-level audio can be identifiable without increasing the overall listening volume.



- **OFF**
Full dynamic range is maintained.



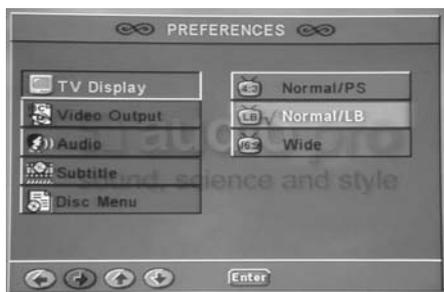
- **1/8 - FULL (8 steps)**
Dynamic range is reduced.

Notes

- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on the DVD.

Customizing Function Settings

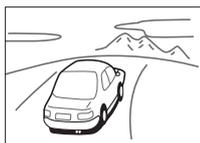
Preferences



TV Display

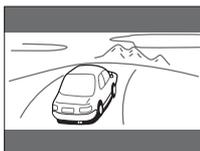
- **Normal/PS (Pan Scan)**

Select when a 4:3 TV is connected. Displays pictures cropped to fill your TV screen. Either or both sides of the picture are cut off. This function is only available when using a disc that supports Pan Scan.



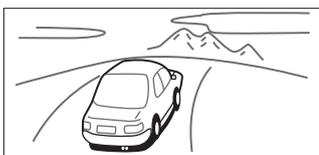
- **Normal/LB (Letter Box)**

Select when a 4:3 TV is connected. Displays wide screen images with masking bars above and below the picture.



- **Wide**

Select when a 16:9 wide TV is connected.



Notes

- The displayable picture size is preset on each DVD video. Therefore, the playback picture of some DVD videos may not conform to the picture size you select.
- When you play a DVD video recorded in the 4:3 picture size only, the playback picture always appears in the 4:3 picture size regardless of the TV shape setting.

If you select Wide and you own a 4:3 TV set, the DVD playback picture will be horizontally distorted during playback. Images will appear to be horizontally compressed. Make sure the TV shape conforms to the actual TV in use.



Video output

Select the preferred Video output.

- **Component (YPbPr)**
- **RGB**

Note.

When S-Video shall be used, Component must be selected in this menu.



Audio

Select the audio language.

- **English**
- **Swedish**
- **French**
- **Spanish**
- **German**
- **Italian**
- **Others**

To select other language

1. Select Others and press the ENTER button.
2. Input a 4-digit code by pressing the numeric buttons on the remote controller (DVD Menu Language Code List, page 59).
3. Press the ENTER button.

Note

Depending on the disc, a language recorded on the disc may be given priority and selected automatically when the disc is loaded regardless of the setting.

Subtitle

Select the subtitle language.

- **English**
- **Swedish**
- **French**
- **Spanish**
- **German**
- **Italian**
- **Others**
- **OFF**

To disable subtitles.

To select other language

1. Select Others and press the ENTER button.
2. Input a 4-digit code by pressing the numeric buttons on the remote controller (DVD Menu Language Code List, page 59).
3. Press the ENTER button.

Notes

- Some DVD-Video may be set to display subtitles in a different language than you selected. A prior subtitle language may be programmed on the disc.
- Some DVD-Video allow you to change subtitle selections only via the disc menu. If this is the case, press MENU and choose the appropriate subtitle language from the selection on the disc menu.

Disc Menu

Select the disc menu language.

- **English**
- **Swedish**
- **French**
- **Spanish**
- **German**
- **Italian**
- **Others**

To select other language

1. Select Others and press the ENTER button.
2. Input a 4-digit code by pressing the numeric buttons on the remote controller (DVD Menu Language Code List, page 59).
3. Press the ENTER button.

Note

Some DVD-Video may not include your pre-selected language. In this case, the DVD player automatically displays disc menus consistent with the disc's initial language setting.

Parental

DVD videos equipped with the parental lock function are rated according to their content. The content allowed by a parental lock level and the way a DVD video can be controlled may vary from disc to disc. For example, some discs allow you to edit out violent scenes unsuitable for children and replace them with more suitable scenes, or lock out playback of the disc altogether.



The password is set to "0000" by initial setting.

- **1G**
Select when you want to play back only DVD for children. (Reproduction of adult-oriented or public-oriented is forbidden.)
- **2, 3 PG, 4 PG-13, 5, 6 PG-R, 7 NC-17, 8 Adult**
Select when you want to play back only DVD for children and public. (Reproduction of adult-oriented DVD material is forbidden.)
- **No Parental**
Select when you want play back all DVD.

Note

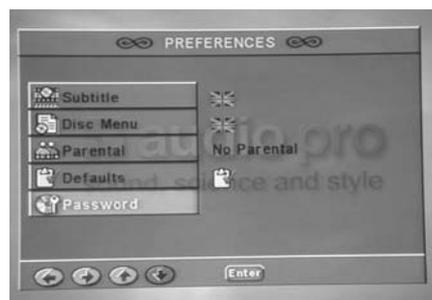
DVD videos may or may not respond to the parental lock settings. This is not a defect in the DVD player. Make sure this function works with your DVD videos.

Defaults

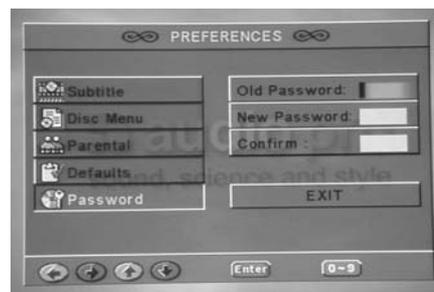
Resets all settings other than Password to the factory settings.

Password

The password for Parental is changed.



To change the password

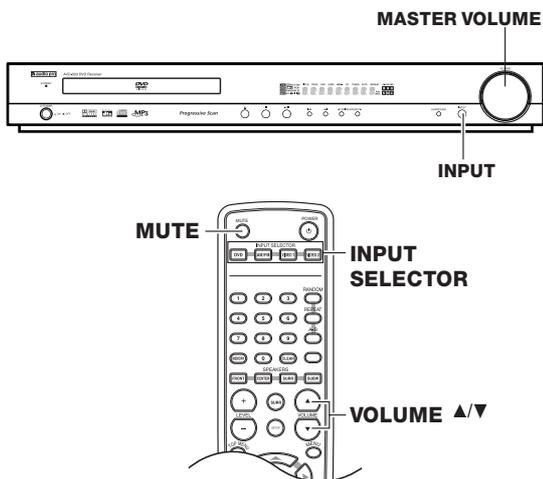


1. Press the numeric buttons to enter old password.
2. Press the numeric buttons to create a new 4-digit password.
3. Press the numeric buttons to enter the new password.

Notes

- The password is set to "0000" by initial setting.
- Be sure not to forget your password.
- You cannot change the password without the current password.
- If you forget your password, reset this unit (see page 61).

Basic Operation



Adjusting the Volume

The volume of the front left and right, center, surround left and right, and sub woofer speakers will be adjusted at the same time. Volume setting are as follows: Min, 01, 02 ... 68, 69, Max. The DVD receiver is designed for home theater enjoyment. It has a wide volume range, allowing precise adjustment.

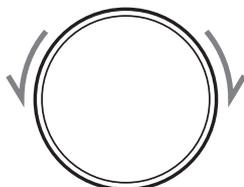
■ Operating with the remote controller

Press **VOLUME ▲/▼**.



■ Operating with the unit

Turn **MASTER VOLUME** clockwise to increase the volume, or counter-clockwise (anti-clockwise) to decrease the volume.



Main unit

Muting the Sound

Press **MUTE**.



To restore the sound, press MUTE again.

Tip

If you turn off the unit during muting, and turn it on again, the sound will be restored.

The sound is cancelled when the volume is controlled.

Playing the connected source

- 1 Press **INPUT SELECTOR (DVD/AM/FM/VIDEO1/VIDEO2)** on the remote controller or **INPUT SELECTOR** on the unit to select one of the following input sources:

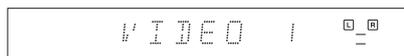


Main unit



Remote controller

- > **DVD**
 - > **AM/FM** (You can only switch between AM and FM using the AM/FM button on the remote controller.)
 - > **VIDEO1**
 - > **VIDEO2**
- The selected input source appears in the multipurpose display. Also the input source indicator is lit in the display until the DVD receiver is switched to another input source.



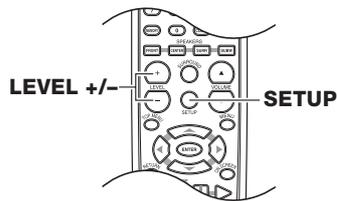
- 2 Start playing the selected source.

Speaker Setup

Adjust each speaker relative volume balance so that the volumes of all speaker's test tones sound equal at the listening position.

Note

Make sure you adjust the test tone volume by Test Tone before playing back discs.



Adjusting Each Speaker's Relative Volume Balance - Test Tone

Initial setting is 0 dB for all speakers.

1 Press **SETUP** for more than 3 seconds.



The test tone is played back from the front Left speaker. Adjust the MASTER VOLUME so that it is slightly loud and fix it there.

2 Press **LEVEL +/-** to control the speaker level.



The speakers will be switched as follows in intervals of about 2 seconds.



Adjust the volume with the LEVEL +/- buttons while the indicator is flashing so that the volume from all speakers appears the same. Level adjustments possible in the range from -10 dB to +10 dB.

After all speakers have been adjusted, operate the Delay time setting (see page 34).

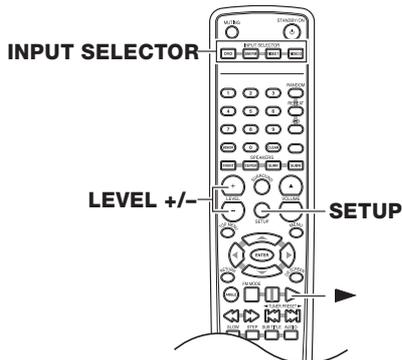
Speaker Setup

Before starting the procedure below, measure the distances from each speaker to the listening position.

For pair speakers such as front left and right speakers, the distance from the listening position to one speaker should be the same as the distance to the other.

In the procedure below, select the values which approximate the actual distances.

The front speakers (L/R) can be adjusted between 12 m and 0.9 m. The range which can be set for the center speaker (C) and the surround speakers (LS/RS) differs according to the setting for the front speakers. A longer distance than for the front speakers can not be set.



Setting the Distance From the Listening Position to Each Speaker

1 Press SETUP for 3 or more seconds.

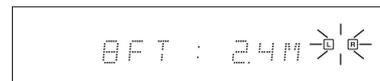


Return to the original display is made when no operation is performed for about 5 seconds.

2 Press SETUP.



3 Press LEVEL +/- to select the speaker distance.



4 Press SETUP.

The process advances to center speaker adjustment when the SETUP button is pressed.



5 Press LEVEL +/- to select the speaker distance.

Repeat step 3 and step 4 in the same way to adjust the surround speakers.



6 Press SETUP to finish speaker setting.

Level setting using a music source

A music source can be used for speaker level setting and subwoofer level setting.

1 Press to play back a disc.



2 Select the speaker.

Speaker level adjustment can be performed by pressing the buttons FRONT, CENTER, SURR, and SUBW.



FRONT: Front speakers

Switching is done as follows each time the button is pressed.

- FL ch (Left speaker)
- FR ch (Right speaker)

CENTER: Center speaker

SURR: Surround speakers

Switching is done as follows each time the switch is pressed.

- LS ch (Left surround speaker)
- RS ch (Right surround speaker)

SUBW: Subwoofer

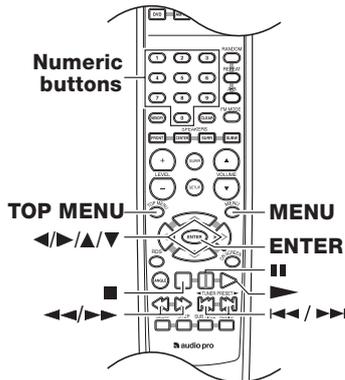
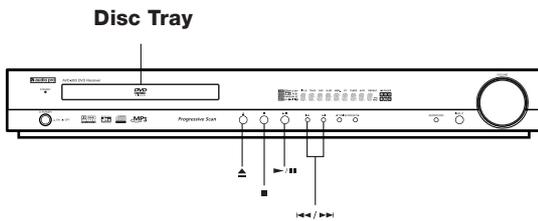
Note

When the surround mode is set to STEREO, the speaker levels for center and surround speakers cannot be adjusted.

3 Press **LEVEL +/-** to set the speaker level.

The speaker level can be changed in the range from -10 dB to +10 dB.

Playing DVDs (Basic Playback)



3 Start playback.

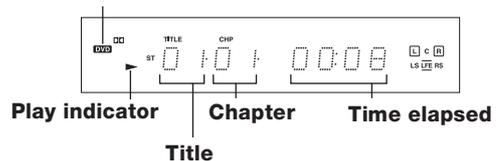


Main unit

Remote controller

- > When ►/|| (or ► on the remote controller) or ▲ is pressed while the tray is open, the tray automatically closes and playback begins.
- > Depending on the disc, a menu may be displayed.
- > To pause playback, press ►/|| (Or || on the remote controller). To resume playback, press ►/|| (Or ► on the remote controller).

Inserted disc indicator (DVD)



Notes

- > Do not move the DVD receiver during playback. Doing so may damage the disc.
- > Use ▲ on the DVD receiver to open and close the disc tray. Do not touch the disc tray while it is moving. Doing so may cause the DVD receiver to malfunction.
- > Do not press down on the disc tray or put any objects other than playable discs on the disc tray. Doing so may cause the DVD receiver to malfunction.
- > In many instances, a menu screen appears when playback of a movie is complete. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press ■ once the movie is complete.

Playing DVDs

1 Press ▲.

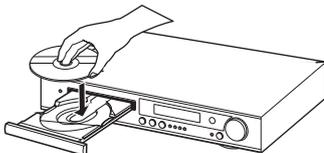
The disc tray comes out.



Main unit

2 Load a disc

Load a disc with the label side facing up, using the disc tray guide to align the disc.



Resuming playback from where you stopped

Use the resume feature to restart playback from the point that the disc was stopped last.

1 Press ■ once.

The stop position is memorized



Main unit



Remote controller

> Pressing ■ twice causes the disc to return to the beginning when ► is pressed again.

2 Press ►.

Playback starts from the resume position.



Main unit



Remote controller

Note

The actual restart position may be slightly before or after the resume position.

Stopping playback

Press ■ twice.



Main unit



Remote controller

To display the top menu

Press TOP MENU.



Remote controller

If TOP MENU doesn't work, try MENU. Some discs do not include a Top menu.

About top menu

A DVD video may let you locate a title/chapter/track using the menu. If any menu appears on the TV screen during DVD video playback, press ◀/▶/▲/▼ to select the item or setting, then press ENTER to Confirm.

To display the menu

Press MENU.



Remote controller

If MENU doesn't work, try TOP MENU. Some discs do not include a menu.

About menu

A DVD video may include more than one language and more than one sound system. In many instances, such DVD videos let you choose the language (e.g. disc menu language/audio language/subtitle language), sound system, and so on using the menu. If any menu appears on the TV screen during DVD video playback, press ◀/▶/▲/▼ to select the item or setting, then press ENTER to Confirm.

Locating a title using the title menu

If a DVD video contains a top menu, you can locate a specific title using the top menu function.

1 Press TOP MENU. (Depending on the DVD video, press MENU.)



The title menu appears on the TV screen.

2 Press ◀/▶/▲/▼ to select the title you want.



If the titles in the title menu are assigned a number, you can also directly locate a specific title using the numeric buttons.

3 Press ENTER or ►.



Note

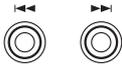
The instructions above describe basic procedures which may vary depending on the contents of the DVD video. If different instructions appear on the TV screen, follow those instructions.

Playing DVDs (Basic Playback)

Locating a specific chapter consecutively

You can locate consecutive chapters or tracks.

Press **◀▶** (repeatedly) to select the chapter you wish to start playing



Main unit



Remote controller

Press **◀** once to start playback from the beginning of the current chapter.

Press **◀** repeatedly to select the former chapters in reverse order.

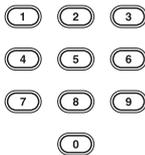
Press **▶** repeatedly to select the next chapter in order.

Notes

- > Some discs may not respond to this procedure.
- > Some titles may not display chapter numbers.

Locating a specific title and chapter by entering the numbers

- 1 Select the desired title or chapter number. Press any numeric button followed by the buttons as shown below.



(Example) To select chapter No. 23: **2****3**

TITLE 01/05 CHAPTER **001**/002

To select a title, press **▶**, then use the numeric buttons to select the desired title.

TITLE **01**/05 CHAPTER 001/002

- 2 Press **ENTER**.



Searching

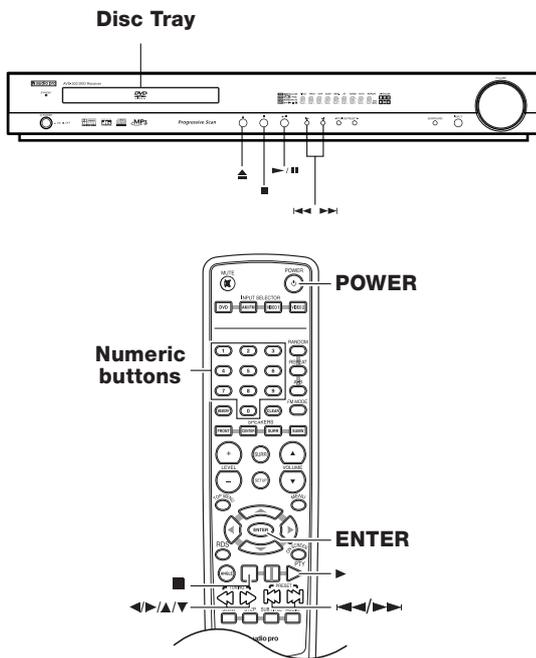
During playback, press the **◀◀** or **▶▶** button.



- > Each press switches the searching speed.
 - FF 2x (**▶▶** button) or FR 2x (**◀◀** button)
 - FF 4x (**▶▶▶▶** button) or FR 4x (**◀◀◀◀** button)
 - FF 8x (**▶▶▶▶▶▶** button) or FR 8x (**◀◀◀◀◀◀** button)
 - FF 16x (**▶▶▶▶▶▶▶▶** button) or FR 16x (**◀◀◀◀◀◀◀◀** button)
- Normal playback**

- > Press the **▶** button at any time to resume normal playback.

Playing CDs (Basic Playback)



3 Start playback.



Main unit

Remote controller

- > When ►/II (or ► on the remote controller) or ▲ is pressed while the tray is open, the tray automatically closes and playback begins.
- > To pause playback, press ►/II (or II on the remote controller). To resume playback, press ►/II (or ► on the remote controller)

Notes

- > Do not move the DVD receiver during playback. Doing so may damage the disc.
- > Use ▲ on the DVD receiver to open and close the disc tray. Do not touch the disc tray while it is moving. Doing so may cause the DVD receiver to malfunction.
- > Do not press down on the disc tray or put any objects other than playable discs on the disc tray. Doing so may cause the DVD receiver to malfunction.
- > In many instances, a menu screen appears when playback of a movie is complete. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press ■ once the movie is complete.

Playing CDs

1 Press ▲.

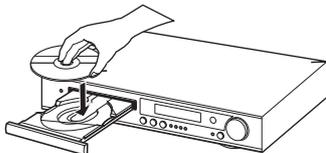
The disc tray comes out.



Main unit

2 Load a disc

Load a disc with the label side facing up, using the disc tray guide to align the disc



Playing CDs (Basic Playback)

Searching

During playback, press the ◀◀ or ▶▶ button.



◀◀ : To search backward (FR)
▶▶ : To search forward (FF)

- > Each press switches the searching speed.
- ▶▶ FF 2x (▶▶ button) or FR 2x (◀◀ button)
- ▶▶ FF 4x (▶▶ button) or FR 4x (◀◀ button)
- ▶▶ FF 8x (▶▶ button) or FR 8x (◀◀ button)
- ▶▶ FF 16x (▶▶ button) or FR 16x (◀◀ button)
- > Press the ▶▶ button at any time to resume normal playback.

NOTE: The mute function is on during SEARCH.

Locating a specific track consecutively

You can locate consecutive tracks.

During playback, press ◀◀/▶▶ (repeatedly) to select the track you wish to start playing



Main unit



Remote controller

- Press ◀◀ once to start playback from the beginning of the current track.
- Press ◀◀ repeatedly within second to select the former tracks in reverse order.
- Press ▶▶ repeatedly to select the next track in order.

Note

- > Some discs may not respond to this procedure.

Stopping Playback and Switching Power Off

1 Press ■.

Playback stops.



Main unit



Remote controller

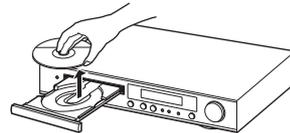
2 Press ▲.

The disc tray comes out.



Main unit

3 Remove the disc.



4 Press POWER.

The disc tray goes back in.

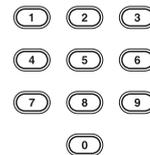


Remote controller

Locating a specific track directly

Select the desired track No.

1 Press the numeric buttons as shown below



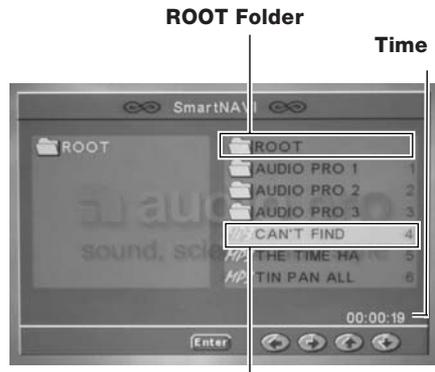
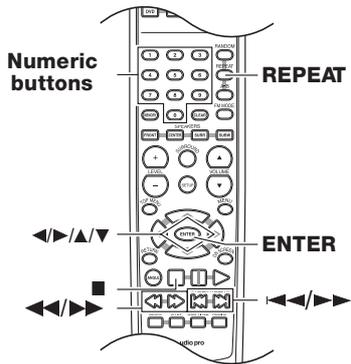
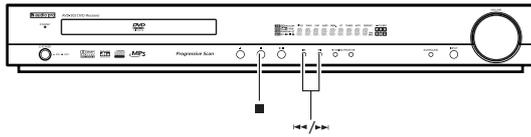
(Example) To select track No. 23: 2|3

2 Press ENTER



Playing MP3/JPEG Files (Basic Playback)

The DVD receiver can play back MP3/JPEG files recorded on CD-R or CD-RW.



Selected file

3 Press ◀/▶/▲/▼ on the remote controller to select the desired folder or file, then press ENTER to start playback.



When JPEG files are displayed, the display is switched automatically from one file to the next. The switching speed differs according to the file size.

4 To stop playback, press ■.



Playing back MP3/JPEG

- It is not possible to play back folders and files that exceed the maximum limitations of the media.
- A certain amount of time is required for the player to confirm the media on which MP3/JPEG files have been recorded before playback will commence.

NOTE. The display shows MP3 as source when playing JPEG files.

■ Playback

1 Press ENTER or PLAYBACK to start when an MP3 or JPEG disc is set.

For JPEG discs:

Slide show starts. Press ■ to display the NAVI screen. Thumbnails may be displayed depending on the type of disc that is set.

2 During stop mode, press REPEAT on the remote controller to select the play mode.



Each press switches the play mode.

FOLDER

Playback the folder that is selected.

DISC

Playback all files on the disc.

FOLDER REPEAT:

Repeat the folder that is selected.

DISC REPEAT

Repeat all files on the disc.

REPEAT ONE

Repeat the file that is selected.

■ Skipping Files

During playback, press ◀◀ or ▶▶.



Main unit



Remote controller

◀◀ : To skip backward
▶▶ : To skip forward

Note

When the play mode is FOLDER, FOLDER REPEAT or REPEAT ONE, skipping to outside the folder being played is not possible.

Playing MP3/JPEG Files (Basic Playback)

Searching (only for MP3 files)

During playback, press the ◀◀ or ▶▶ button.



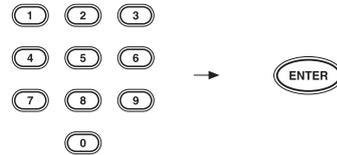
Each press switches the searching speed.

- FF 2x (▶▶ button) or FR 2x (◀◀ button)
- FF 4x (▶▶ button) or FR 4x (◀◀ button)
- FF 6x (▶▶ button) or FR 6x (◀◀ button)
- FF 8x (▶▶ button) or FR 8x (◀◀ button)
- Normal playback

NOTE: Mute function is on during SEARCH

Selects the files to be played back directly

Press the numeric buttons on the remote controller to enter the desired file number or folder number.



File numbers and folder numbers.

(Example)

To select track No. 23: [2] [3]

- > When a folder is selected, the contents of the selected folder will be displayed.
- > When a file is selected, playback of the selected file will start.

Note

For selection of a number, refer to the file numbers on the NAVI screen.

The file numbers shown on the display of the main unit differ from the file numbers entered directly with the numeric buttons, as the numbers for each folder are displayed.

Rotating a picture (JPEG files only)

It is possible to rotating a picture.

During JPEG file playback, press ◀▶/▲/▼ on the remote controller.



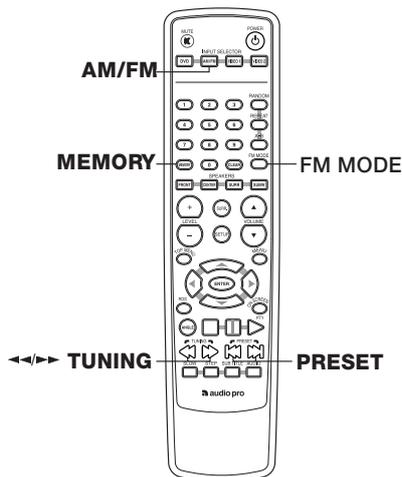
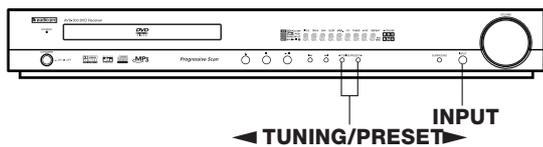
Switching as shown below is done when the cursor buttons are pressed.

- ▶ button: 90° rotation in clockwise direction
- ◀ button: 90° rotation in counterclockwise direction
- ▲ button: Vertical mirror image
- ▼ button: Horizontal mirror image

Listening to the Radio

There are two ways to select radio stations:

- Manual tuning
- Presetting radio stations then selecting the preset channels



4 Select a station.

“AUTO” mode (auto tuning) (FM only)



Press the button on the remote controller or press and hold the TUNING/PRESET button on the main unit to receive the next tuned station automatically.

“MONO” mode (manual tuning)



When the button is pressed and held continuously on the remote controller, the frequency changes continuously. When the button is released, the frequency stops changing. Each time the button is pressed, the frequency changes one step.

When the TUNING/PRESET button is pressed and held continuously on the main unit, the frequency changes continuously. When the button is released, the frequency stops changing and the selected frequency blinks. Each time the TUNING/PRESET button is pressed while it is lit, the frequency changes one step. When blinking stops the function returns to PRESET

Use the manual tuning mode when reception is noisy due to weak reception. (In the manual mode, stereo broadcasts are received in monaural.)

Tuning Manually

1 Select the TUNER input.



2 Select the broadcast band.



Each press changes the band.

- FM
- AM

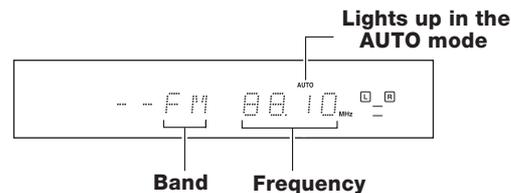
3 Select a tuning mode. (FM only)



Each press switches the mode.

- AUTO (Auto mode)**
- MONO (Monaural mode)**

When the buttons are pressed in AUTO mode, a station will be tuned in automatically and tuning will stop. Stereo reception will be made automatically when a stereo broadcast with sufficient signal strength is received.



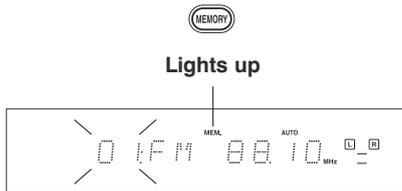
Listening to the Radio

Presetting Radio Stations

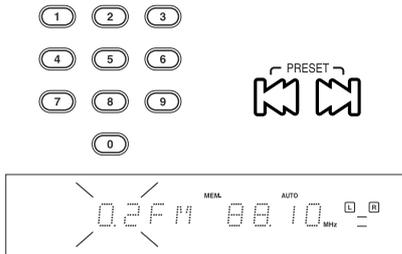
You can preset up to 40 Random stations.

1 Tune in the radio station you wish to preset (see page 43).

2 Press MEMORY



3 Select desired preset.



In case of input with the numeric buttons, a preset number will be decided simply by input of a 2-digit number without pressing the MEMORY button.

4 Press MEMORY



5 Select a station.



The preset station can be selected by pressing the numeric buttons on the remote controller.

Listening to the Radio

Using RDS Functions (for Europe only)

RDS is a system which transmits useful information (digital data) for FM broadcasts together with the broadcast signal. Tuners and receivers designed for RDS reception can extract the information from the broadcast signal for use with various functions such as automatic display of the station name.

Functions made possible with RDS:

PTY (Program Type Identification) Search:

The tuner automatically searches for a station which is currently broadcasting a specific program type

PS (Program Service Name) Display:

When an RDS broadcast is received, the station name is automatically displayed.

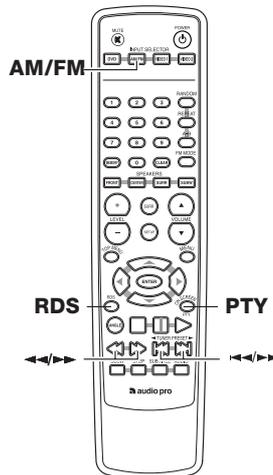
RT (Radio Text):

Displays the radio text data transmitted by some RDS stations when you select the RT mode.

CT (Clock Time):

Decodes the real time clock from the RDS broadcast.

NOTE: Not all stations transmit CT

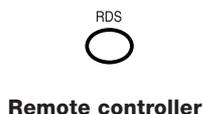


Using the RDS Display Function

1 Select the FM broadcast station.

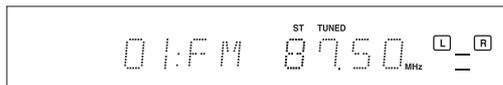


2 Press the RDS key.



Each press switches the display mode as follows.

- 1 PS NAME display
- 2 PTY display
- 3 CT display
- 4 RT display
- 5 Current FM frequency display

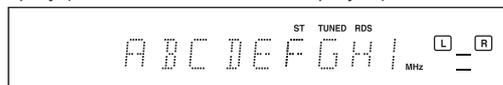


PS NAME

- > If the PS information is being received, the PS name (BBC, SR P3, AFO, NDR, etc.) is shown on the display.
- > If the PS information is not received, the original FM frequency is shown.
- > Even though no RDS key is pressed, the reception of PS information ensures the PS name is displayed.

RT display

- > Text data accompanying the RDS broadcast scrolls across the display (64 characters can be displayed).



Scrolled display

- > If the RT information is not received, the "NO TEXT" is shown on the display.

CT display

- > The CT information will take up to 2 minutes to be decoded therefore the clock is not displayed immediately.
- > If the CT information is not received, the "NO TIME" is shown on the display, and function returns to PS.
- > CT clock does not update the system clock.

Listening to the Radio

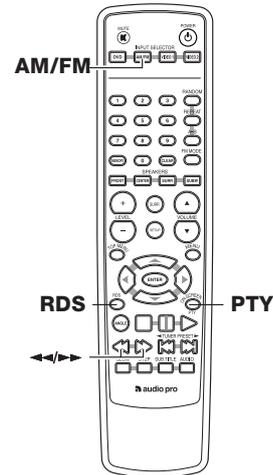
PTY Function

The PTY information is compressed of an identification symbol, which helps the FM radio to recognize the program type of each FM station.

The 29 PTY modes are shown in the display by pressing the PTY key.

Using the PTY Search Function

1 Select the FM band



2 Press the PTY key



> The PTY MODE (POP M, etc) appears on the display.

3 Press the PTY key repeatedly to select the desired PTY type.

4 Press any TUNING key to start the search



5 Search will stop automatically when a station is received with desired PTY type.

RDS Program types

Program Type Name	Receiver Display
News	NEWS
Current Affairs	AFFAIRS
Information	INFO
Sport	SPORT
Education	EDUCATE
Drama	DRAMA
Culture	CULTURE
Science	SCIENCE
Varied	VARIED
Pop Music	POP M
Rock Music	ROCK M
Easy Listening Music	EASY M
Light Classical Music	LIGHT M
Serious Classical Music	CLASSICS
Other Music	OTHER M
Weather	WEATHER
Finance	FINANCE
Children's programs	CHILDREN
Social affairs	SOCIAL
Religion	RELIGION
Phone in	PHONE IN
Travel	TRAVEL
Leisure	LEISURE
Jazz Music	JAZZ
Country Music	COUNTRY
National Music	NATION M
Oldies Music	OLDIES
Folk Music	FOLK M
Documentary	DOCUMENT

Enjoying the Surround Sound Effects

The surround sound of the DVD receiver enables you to enjoy the presence of a movie theater or concert hall in your room. Before using any sound effect, make sure the configurations for Adjusting Each Speaker's Relative Volume Balance - Test Tone and Setting the Distance From the Listening Position to Each Speaker have been set (see pages 33-34). Following are the sound systems the DVD receiver can reproduce.

■ DOLBY DIGITAL Surround and DTS (Digital Theater System) Surround

This 5.1 channel digital surround format enables you to individually play five full-range (20Hz-20kHz) channels (front left and right, center, and two surround channels) plus an LFE (Low Frequency Effect) channel for low-range effect sound. It will create a realistic sound like that heard in theaters and concert halls.

DOLBY DIGITAL Surround

Dolby Digital is compressed digital data with a maximum of 5.1-channel surround sound.

This source signal comes from DVDs that have the  mark and therefore recorded for 5.1-channel output.

DTS Surround

DTS (Digital Theater System) is compressed digital data with a maximum 5.1-channel surround output that allows for an extremely high-quality sound.

This source signal comes from DVDs that have the  mark and therefore recorded for 5.1-channel output.

Notes on DTS Surround

- > If you play a DTS Surround encoded disc with the DVD receiver, or a DTS encoded disc using a digitally connected player, you may hear a noise for a short while until the DTS decoder of the DVD receiver recognizes the DTS encoded signal and starts operating. This is not a malfunction.
- > If you play a DTS Surround source in fast reverse or fast forward, pause, or skip a chapter or track, noise may be heard. This is not a malfunction.
- > Even when playback of the DTS Surround source stops and the DTS signal transmission ends, the DVD receiver remains in DTS mode and the DTS indicator remains lit. This is to prevent noise when you pause, fast forward, fast reverse, or skip a chapter or track of the playback source. Therefore, if the source switches from the DTS signal to a PCM (2 channel digital stereo) signal suddenly, the PCM signal may not be played. In such a case, stop playback for about three seconds, then resume playback.

DOLBY PRO LOGIC II Surround

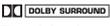
Opposed to Dolby Pro Logic, which had four channels (front left and front right, center and surround) recorded into two channels, Dolby Pro Logic II uses feedback logic circuit to have 5.1-channel surround audio (Dolby Surround, etc.) matrix-encoded into two channels and then played back in its original 5.1 -channel form.

Dolby Pro Logic II provides a Movie mode designed for playing movies and a Music mode designed for listening to music.

In the Movie mode, the surround channels, which used to provide monaural output over only a narrow frequency range, now provide complete stereo output over the full frequency range.

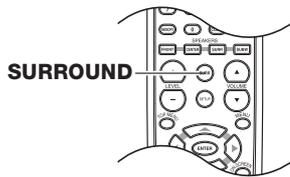
The result is movie viewing with a realistic feel of movement.

The Music mode uses the surround channels to provide a natural soundfield that cannot be provided with normal stereo output.

This mode can be used with VHS and DVD videos with the  mark and certain television programs.

The Music mode can be used with music compact discs and other stereo sources.

Enjoying the Surround Sound Effects



Selecting Surround Mode

Press **SURROUND**.



Each press switches the modes as shown below.

(At the time of PCM source or Dolby Digital 2ch source)

- DOLBY PL II MOVIE**
- DOLBY PL II MUSIC**
- STEREO**

(At the time of Dolby Digital 5.1ch source)

- Dolby Digital**
- STEREO**

(At the time of DTS source)

- DTS**
- STEREO**

When playing a source encoded in Dolby Digital or DTS, the surround mode is set to “Dolby Digital/DTS” automatically.

Note

Don't change the listening mode while recording with a VCR.

Tip

The Input/Speaker indicator becomes an input indicator at time of DOLBY DIGITAL and DTS source and a speaker indicator at all other times.



■ Description of Dolby Pro Logic II: Music mode

Panorama mode

Expands the image of front-channel stereo to the surround speakers to create a sound environment that fills your surroundings. (To change the Panorama mode, press SETUP button while “PLII MUSIC” appears on the display. Display the PANOR OFF or ON, then press the LEVEL +/- buttons to select ON or OFF)

Dimension

This controls the balance between the Front and Rear in 3 steps on the front and 3 steps on the rear. Set this parameter to one of the Front steps if the surround effect is too strong, or to one of the Back steps if it is too weak. (To change the Dimension, press SETUP button twice while “PLII MUSIC” appears on the display. Display the DIMEN 0 (or other value), then press the LEVEL +/- buttons to select F-1, F-2, F-3, R-3, R-2, R-1.)

Center Width

The center channel signal can be divided and distributed to the Front L/R channels.

The adjustment for distributing the center channel signal to the front channels can be applied in eight steps from 0 to 7. Use this adjustment when the center image seems to be too strong. (To change the Center Width, press SETUP button 3 times while “PLII MUSIC” appears on the display. Display the C WIDTH 3 (or other value), then press the LEVEL +/- buttons to select 0 ~ 7).

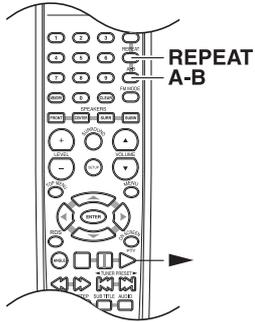
Checking the Sound System of the Playing Source

The DVD receiver will automatically detect the sound system when DOLBY DIGITAL Surround (), DTS Surround (), or PCM/MP3 DIGITAL (2 channel digital stereo) is played back. The corresponding sound system indicator lights in the DVD receiver's display.

Surround mode	Source				
	DISC/EXTERNAL DIGITAL INPUT				INPUT
	Dolby Digital 5.1ch	Dolby Digital 2ch	DTS	CD PCM STEREO	Analog
Dolby Digital	○				
DTS			○		
PL II		○		○	○
STEREO	○	○	○	○	○

Playing DVDs (Various Playback)

You can play a specific title, chapter, or segment repeatedly (Title repeat, chapter repeat, A-B repeat).



Repeating a Specific Segment

You can play a specific segment repeatedly (A-B repeat).

- 1 Press **A-B** at the beginning of the segment (point A) you want to play repeatedly.



"SET A" appears on the TV screen and the point A is set.

- 2 Press **A-B** again at the end of the segment (point B).



"SET B" appears on the TV screen and the point B is set. The DVD receiver automatically returns to the point A and starts repeat playback of the selected segment (A-B).

To resume normal playback

Press A-B repeatedly until "CANCELLED" appears on the TV screen.

Repeating a Title or Chapter

- 1 Select the title or chapter, you want to repeat (see page 38).
- 2 Press **REPEAT**.



Each time you press REPEAT, the repeat mode changes as follows.

- **CHAPTER REPEAT ON**
Repeats the same chapter.
- TITLE REPEAT ON**
Repeats the same title.
- REPEAT OFF**
Resumes normal playback.

When the repeat mode is on, the REPEAT indicator illuminates. And also, the CHP indicator blink when the mode is CHAPTER REPEAT ON, and the TITLE indicator blinks when the mode is TITLE REPEAT ON.

Notes

- > Some discs may not permit repeat operation.
- > The menu is switched off when no operation is performed for about 2 seconds.

Notes

- > Some discs may not permit A-B repeat operation.
- > The subtitle between point A and point B may not appear.
- > The menu is switched off when no operation is performed for about 2 seconds.

Selecting a Playback Audio Setting

You can select a preferred audio language and sound system.

You can select the preferred audio language and sound system as a set from those included on the DVD video.

This function lets you temporarily change the audio language which you selected in the PREFERENCES (see page 30), and choose the sound system if the DVD video is recorded in more than one sound format.

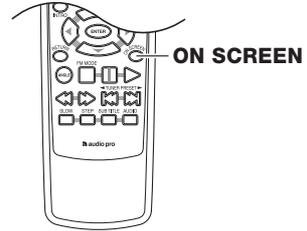
Press AUDIO repeatedly to select the playback audio setting.



Each time you press AUDIO, the language and audio recording system set changes.

Notes

- Some discs allow you to change audio selections only by using the disc menu. If this is the case, press MENU and choose the appropriate language from the selections in the disc menu.
- Some discs may have only one audio language and sound recording system set and you cannot change this selection.
- The display is switched off when no operation is performed for about 2 seconds.



Viewing information

You can view information about a disc on the TV screen.

Press ON SCREEN.



Each time you press ON SCREEN, the on-screen display on the TV screen changes as follows.

▶ Title number and chapter number display.

Example: TITLE 01/03 CHAPTER 07/20
00:10:12 (elapsed time of the title)



TITLE REMAIN

Remaining time of the title being played.



CHAPTER ELAPSED

Elapsed time of the chapter being played.



CHAPTER REMAIN

Remaining time of the chapter being played.

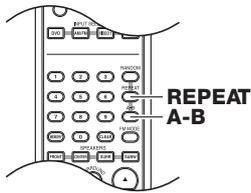


OFF

Notes

- Some DVD videos may not display the chapter number or elapsed time.
- The displayed time information cannot be changed in pause mode.
- The displayed information cannot be changed while a menu or the top menu is displayed.

Playing CDs (Various Playbacks)



You can play a specific track or segment repeatedly (A-B repeat).

Repeating a Track

1 Select the track you want to repeat (see page 40).

2 Press **REPEAT**.

Each time you press **REPEAT**, the repeat mode changes as follows.



- **REPEAT-ONE** (Repeats the same track (blinking))
- **REPEAT-ALL** (Repeats the entire disc.)
- **REPEAT OFF** (Resumes normal playback.)

Notes

- > Some discs may not permit repeat operation.
- > The repeat operation will be canceled when you turn off the DVD receiver.

Repeating a Specific Segment

You can play a specific segment repeatedly (A-B repeat).

1 Press **A-B** at the beginning of the segment (point **A**) you want to play repeatedly.



"SET A" appears on the TV screen and the point A is set.

2 Press **A-B** again at the end of the segment (point **B**).



"SET B" appears on the TV screen and the point B is set. The DVD Player automatically returns to the point A and starts repeat playback of the selected segment (A-B). Repeat A-B is shown in the display.

To resume normal playback

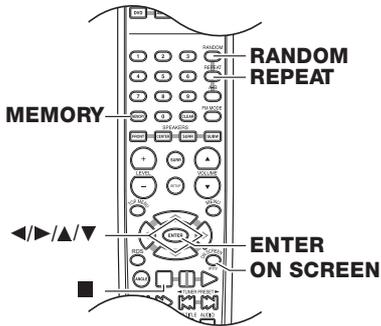
Press A-B repeatedly until "CANCELLED" appears on the TV screen.

Notes

- > Some discs may not permit A-B repeat operation.
- > The subtitle between point A and point B may not appear.
- > The A-B repeat operation will be canceled when you turn off the DVD receiver.



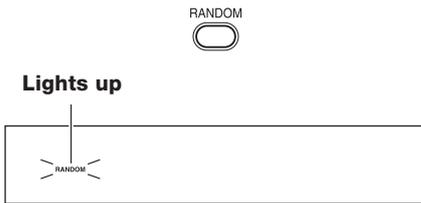
Playing CDs (Various Playbacks)



Random play

The tracks of the disc are played in random order.

- 1 During stop mode, press **RANDOM**.



- 2 Each time you press **RANDOM**, random play would be on and off.

Note
The menu is switched off when no operation is performed for about 2 seconds.

■ To cancel random play

- 1 Press **■** to stop playback.



- 2 Press **RANDOM** to cancel random playback.



■ To repeat random play

During random playback, press **REPEAT**.



Each press the button switches the mode.

- ▶ **REPEAT ONE**
- ▶ **REPEAT ALL**
- ▶ **REPEAT OFF**

Notes

- > After all tracks of a disc have been played in random order, playback will stop.
- > When playing a DVD, the Random mode does not work.

Setting Tracks in a Favorite Order

You can listen to the desired tracks of the current CD in any desired order.

Program Edit

- 1 During stop mode, press **MEMORY**.



Program edit screen appears.



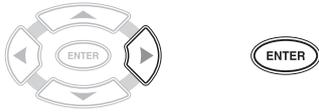
Number of tracks recorded on the disc

Program list

- 2 Select specific track by pressing **▲/▼**.



- 3** Select “ADD” icon on the screen to register selected value onto PROGRAM LIST, then press the ENTER button.



- 4** You can select maximum 21 values by repeating step 2 - 3.

- 5** Select “PLAY” icon on the screen. then press ENTER to start program play.



To repeat program play

During program playback, press the REPEAT button on the remote controller.

Each press the button switches the mode.

- ▶ REPEAT ONE
- REPEAT ALL
- REPEAT OFF

Notes

- “ADD” icon : Add value onto “PROGRAM LIST”
 - “DELETE” icon : Delete value from “PROGRAM LIST”
 - “INSERT” icon : Insert value in “PROGRAM LIST”
 - “PLAY” icon : Play program play
 - “CLEAR” icon : When this icon is selected and the ENTER button is pressed, the entire contents of the PROGRAM LIST will be deleted, and the Program edit screen also will disappear.
- > MP3/JPEG discs can not be programmed with this program mode. (MP3/JPEG program playback page 57)
- > The unit stops when the ■ button is pressed. To restart program playback, press the MEMORY button, display the program screen, select the “PLAY” icon, and press the ENTER button.

Insert track

During stop mode, press the MEMORY button on the remote controller.

The program edit screen appears.

- 1** Select specific track to insert by pressing ▲/▼ .

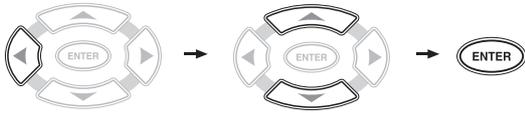


- 2** Move the cursor with ► to the “PROGRAM LIST” and select the column to be added with ▲/▼ . (The color of the column where the cursor is located will change.)



Playing CDs (Various Playbacks)

3 Press **←**, use **▲/▼** to move the cursors to the **“INSERT”** icon, and press **ENTER**.



The new track will be inserted after (below) the selected column.

2 Press **←**, use **▲/▼** to move the cursor to the **“DELETE”** icon, and press **ENTER**.

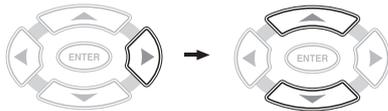


The selected value is deleted.

Delete Program

During stop mode, press the **MEMORY** button on the remote controller

1 Move the cursor with **▶** to the **“PROGRAM LIST”** and select the column to be deleted with **▲/▼**. (The color of the column where the cursor is located will change.)



Release Program Play

In following case, Program play would be released.

1. When you open and close tray.
2. When you turn power off and on.
3. Press the **CLEAR** button during display of the Program edit screen.

Viewing information

You can view information about a disc on the TV screen.

Press ON SCREEN.



Each time you press **ON SCREEN**, the on-screen display on the TV screen changes as follows.

At the time of CD playback

- **SINGLE ELAPSED**
Elapsed time of the track being played.
(Example) 22:23 TRACK 05/15
- SINGLE REMAIN**
Remaining time of the track being played.
- TOTAL ELAPSED**
Elapsed time of the disc being played.
- TOTAL REMAIN**
Remaining time of the disc being played.
- OFF**

Playing a MP3/JPEG (Various playbacks)

MP3/JPEG program playback

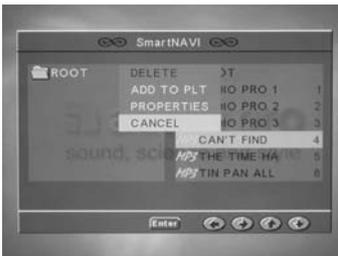
You can listen to the desired files of the current MP3/JPEG disc in any desired order.

Preparing Program List

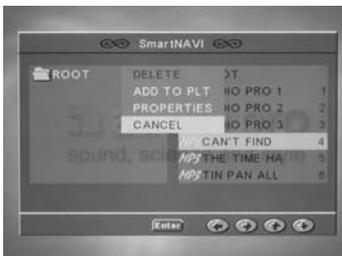
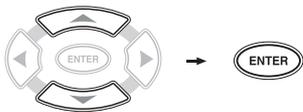
- 1 While in stop mode, use $\blacktriangle/\blacktriangledown$ to place the cursor on the file you wish to program.



- 2 Press ON SCREEN.



- 3 Use $\blacktriangle/\blacktriangledown$ to select "ADD TO PLT", then press ENTER.



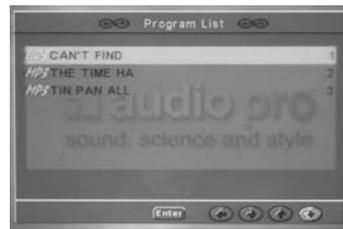
- > You can select a maximum of about 50 files by repeating step 2. However, note that the maximum number of programmable files depending on the number of files and folders in the MP3/JPEG disc and on the total number of characters used in the file and folder names.

- 4 Repeat steps 1 to 3 to complete the program.

- > To exit the program mode, select "CANCEL" and press ENTER.
- > Selecting "PROPERTIES" and then pressing ENTER displays the information of the selected file.

Playing back the Program

- 1 While in stop mode, press MEMORY.

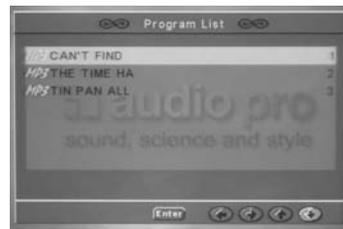


- 2 Use $\blacktriangle/\blacktriangledown$ to select the file you wish to play, then press ENTER.

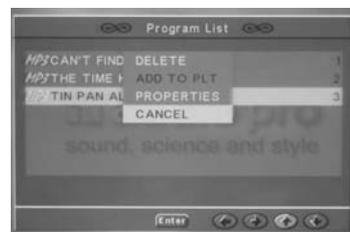


Deleting the Registered File

- 1 While in stop mode, press MEMORY.

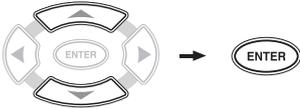


- 2 Place the cursor on the file you wish to delete, then press ON SCREEN.

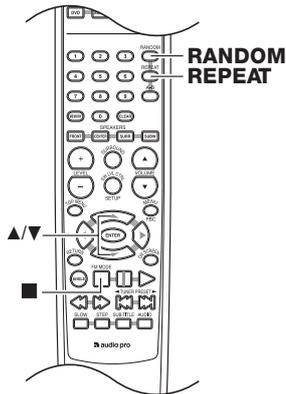


Playing a MP3/JPEG (Various playbacks)

- 3** Use ▲/▼ to select "DELETE," then press ENTER. The selected file will be deleted.



To exit the program list screen, press MEMORY.



MP3/JPEG Repeat Play

Perform operation in REPEAT mode always under observation of the NAVI screen. Desired folders or discs can be played back repeatedly.

- 1** During stop mode, press REPEAT.



Lights up



Each press REPEAT the play mode.

- ▶ **FOLDER** : Playback the folder that is selected.
- DISC** : Playback all files on the disc.
- FOLDER REPEAT** : Repeat the folder that is selected.
- DISC REPEAT** : Repeat the disc that is played.
- REPEAT ONE** : Repeat the file that is selected.

When repeat mode is selected, the REPEAT indicator illuminates. Further, the FOLDER indicator illuminates when the mode is set to FOLDER REPEAT and the TRACK indicator blinks when the mode is set to REPEAT ONE.

- 2** Press ▲/▼ to select desired file, then press ENTER or ▶ to start playback.

Note

Do not select DISC REPEAT when files other than MP3 and JPEG have been recorded on the disc.

MP3/JPEG Random play

The files of a folder are played in random order.
 > "RANDOM ON" : The files of a folder being played will be selected in random order for playback.

- 1** During stop mode, press RANDOM.



Lights up



Each time you press RANDOM button on the remote controller, random play would be on and off.

- 2** Select a file in the folder to be played, press ▶, and start random playback.

In case of RANDOM ON mode, playback will stop after all files in the folder have been played back once.

To cancel random play

- 1** Press ■ to stop playback.



- 2** Press RANDOM to cancel random playback.



DVD Menu Language Code List

Code No.	Language
1027	Afar
1028	Abkhazian
1032	Afrikaans
1039	Amharic
1044	Arabic
1045	Assamese
1051	Aymara
1052	Azerbaijani
1053	Bashkir
1057	Byelorussian
1059	Bulgarian
1060	Bihari
1069	Bislama
1066	Bengali; Bangla
1067	Tibetan
1070	Breton
1079	Catalan
1093	Corsican
1097	Czech
1103	Welsh
1105	Danish
1109	German
1130	Bhutani
1142	Greek
1144	English
1145	Esperanto
1149	Spanish
1150	Estonian
1151	Basque
1157	Persian
1165	Finnish
1166	Fiji
1171	Faeroese
1174	French
1181	Frisian
1183	Irish
1186	Scots Gaelic
1194	Galician
1196	Guarani
1203	Gujarati
1209	Hausa
1217	Hindi
1226	Croatian
1229	Hungarian
1233	Armenian
1235	Interlingua

Code No.	Language
1239	Interlingue
1245	Inupiak
1248	Indonesian
1253	Icelandic
1254	Italian
1257	Hebrew
1261	Japanese
1269	Yiddish
1283	Javanese
1287	Georgian
1297	Kazakh
1298	Greenlandic
1299	Cambodian
1300	Kanada
1301	Korean
1305	Kashmiri
1307	Kurdish
1311	Kirghiz
1313	Latin
1326	Lingala
1327	Laothian
1332	Lithuanian
1334	"Latvian, Lettish"
1345	Malagasy
1347	Maori
1349	Macedonian
1350	Malayalam
1352	Mongolian
1353	Moldavian
1356	Marathi
1357	Malay
1358	Maltese
1363	Burmese
1365	Nauru
1369	Nepali
1376	Dutch
1379	Norwegian
1393	Occitan
1403	(Afan) Oromo
1408	Oriya
1417	Punjabi
1428	Polish
1435	"Pashto, Pushto"
1436	Portuguese
1463	Quechua
1481	Rhaeto-Romance

Code No.	Language
1482	Kirundi
1483	Romanian
1489	Russian
1491	Kinyarwanda
1495	Sanskrit
1498	Sindhi
1501	Sangro
1502	Serbo-Croatian
1503	Shinghalese
1505	Slovak
1506	Slovenian
1507	Samoaan
1508	Shona
1509	Somali
1511	Albanian
1512	Serbian
1513	Siswati
1514	Sesotho
1515	Sundanese
1516	Swedish
1517	Swahili
1521	Tamil
1525	Tegulu
1527	Tajik
1528	Thai
1529	Tigrinya
1531	Turkmen
1532	Tagalog
1534	Setswana
1535	Tonga
1538	Turkish
1539	Tsonga
1540	Tatar
1543	Twi
1557	Ukrainian
1564	Urdu
1572	Uzbek
1581	Vietnamese
1587	Volapuk
1613	Wolof
1632	Xhosa
1665	Yoruba
1684	Chinese
1697	Zulu

Troubleshooting

Check the following guide for the possible cause of a problem before contacting service. Refer also to the respective instruction manuals of the connected components and TV.

Restoring the Default settings

To reset the AVD-303 to its factory default settings, if the main unit is set to standby, press and hold both SURROUND and  on the main unit for 2 seconds or longer.

Because the unit contains a microcomputer to provide advanced functions, it may malfunction due to external noise or static electricity. If this happens, press the POWER switch on the unit and then press it again after about five seconds.

Speakers

Symptoms	Causes	Remedies	Pages
Sound is not produced.	- The speaker cords are disconnected.	- Connect properly referring to "Connecting Speakers".	21,23
	- MUTING is enabled.	- Turn off MUTING.	32
Sound is not produced from the left or right speakers.	- The speaker cords are disconnected.	- Connect properly referring to "Connecting Speakers".	23
Radio stations cannot be received.	- The antennas have not been connected.	- Connect antennas.	24-25
	- A proper broadcasting band has not been selected. - The frequency of the station to be received is not tuned.	- Select a band. - Tune to the frequency of the desired station.	43 43
Noise interferes.	- Car ignition noise. - Influence of an electric appliance. - A TV set is installed near the system.	- Install the outdoor antenna in an apart position from the road. - Switch the suspected electric appliance OFF. - Install the TV or the system at an increased distance between them.	25 - -
A station has been preset but it cannot be received by pressing the  button.	- The frequency of the preset station is not tunable.	- Preset stations with tunable frequencies.	44
	- The preset memory has been cleared because the power cord has been unplugged for a long period.	- Preset stations again.	44
No sound from the surround speakers.	- The surround mode is STEREO.	- Select Surround with the SURR button.	48

Main unit

Symptoms	Causes	Remedies	Pages
Playback does not start when The ►/II button is pressed.	<ul style="list-style-type: none"> - There is no disc in the DVD receiver. - There are no signals recorded on the side of the disc being played. 	<ul style="list-style-type: none"> - Load a disc and press the ►/II button. - Turn the disc over and properly place it on the disc tray. 	36 36
Playback starts but no image/sound is seen heard.	<ul style="list-style-type: none"> - The TV is not turned on. - The connection cords are not properly connected. 	<ul style="list-style-type: none"> - Turn on the TV. - Properly reconnect the connection cords. 	- 17-23
The picture is disrupted when the image is fast forwarded or fast reversed.	<ul style="list-style-type: none"> - The picture is slightly disrupted during fast forward and fast reverse operations. 	<ul style="list-style-type: none"> - This is not a malfunction. 	-
No sound is heard.	<ul style="list-style-type: none"> - The audio output cords are not properly connected. - The player is in a special playback mode. 	<ul style="list-style-type: none"> - Properly connect the audio cords. - Press the ►/II button to resume normal playback mode. 	20 -
The picture does not look good or the picture/sound quality is poor.	<ul style="list-style-type: none"> - A nearby device is generating noise. - The disc is dirty. - The disc is damaged. - There is condensation on the optical lens. 	<ul style="list-style-type: none"> - Separate this unit as far as possible from the device you think is generating the noise. - Refer to the "Cleaning Discs" section and wipe dirt from the disc. - Use a new disc. - Refer to the "Notes on Moisture Condensation" section and evaporate the condensation. 	- 11 - 3
It takes a while for the disc to start playing.	<ul style="list-style-type: none"> - Time is required for the unit to detect the disc type and size and for the rotation of the motor to stabilize. This is not a malfunction. 	<ul style="list-style-type: none"> - Approximately 10 to 20 seconds are required for a disc to start playing, although the time differs depending on the disc. 	-
The tray opens automatically.	<ul style="list-style-type: none"> - The disc is not placed horizontally. 	<ul style="list-style-type: none"> - Properly place the disc on the tray. 	36
The top and bottom of the screen cannot be seen, or the screen becomes black-and-white.	<ul style="list-style-type: none"> - The video format of the disc being played does not match that of the connected TV monitor. 	<ul style="list-style-type: none"> - Refer to the "To set the TV system" section, and use a disc with the appropriate video format for your TV or a TV with the appropriate video format for the disc. 	27, 29
The subtitle is not displayed.	<ul style="list-style-type: none"> - The DVD disc being played does not contain the recording of subtitles. - The subtitle mode is set to off. 	<ul style="list-style-type: none"> - The subtitle cannot be displayed when the DVD disc being played does not contain the recording of subtitles. - Press the SUBTITLE button to switch on the subtitle mode. 	- 50
The voice (or subtitle) language cannot be changed.	<ul style="list-style-type: none"> - The DVD disc being played does not contain the recording of more than one audio (or subtitle) language. 	<ul style="list-style-type: none"> - The voice (or subtitle) language cannot be changed when the DVD disc being played does not contain the recording of more than one voice (or subtitle) language. 	-
The viewing angle cannot be changed.	<ul style="list-style-type: none"> - The DVD disc being played does not contain the recording of more than one angle. - You are attempting to switch the angle in a DVD section where more than one angle is not recorded. 	<ul style="list-style-type: none"> - The viewing angle cannot be changed when the DVD disc being played does not contain the recording of more than one angle. - More than one viewing angle may be recorded only in limited sections in a disc. 	- -
Playback will not start even after a title is selected.	<ul style="list-style-type: none"> - A viewing restriction (PARENTAL) has been set for the disc. 	<ul style="list-style-type: none"> - Check the viewing restriction level (PARENTAL) setting. 	31
The parental level cannot be changed.	<ul style="list-style-type: none"> - You have forgotten the password. 	<ul style="list-style-type: none"> - Set the initial setup to the factory setup with the following procedure. <ol style="list-style-type: none"> 1 While in stop mode, press and hold the SURROUND button on the main unit for more than 2 seconds, then press TOP MENU on the remote control. 2 Press STANDBY/ON to set this unit in standby mode. 	31

Troubleshooting

Symptoms	Causes	Remedies	Pages
The voice or subtitle language selected in the initial setting is not played.	<ul style="list-style-type: none"> The DVD disc being played does not contain the recording of the selected voice or subtitle language. The initial playback language is specified by the DVD disc. The DVD specifications provide for selection at the menu screen. 	<ul style="list-style-type: none"> Use a DVD disc containing the recording of the selected voice or subtitle language. Press SUBTITLE or the AUDIO button on the remote controller and select the language. Select at the menu screen of the disc. 	– 50-51 –
Menu screen messages are not shown in the desired language.	<ul style="list-style-type: none"> The menu language function is not set to desired language. 	<ul style="list-style-type: none"> Select disc menu language. 	31
The STANDBY indicator flashes red on the main unit.	<ul style="list-style-type: none"> The speaker connection is abnormal. 	<ul style="list-style-type: none"> Check the speaker connection. If this does not help, contact your dealer for service. 	21

Remote controller

Symptoms	Causes	Remedies	Pages
Remote control operation is not possible.	<ul style="list-style-type: none"> Batteries are exhausted. The remote control is too far away from the system, the controlling angle is deviated or there is an obstacle in between. 	<ul style="list-style-type: none"> Replace with new batteries. Operate the unit inside the remote controllable range. 	9 9

Others

Symptoms	Causes	Remedies	Pages
The inhibition icon  is displayed and remote control is not possible.	<ul style="list-style-type: none"> Playback is restricted intentionally by the software producer. 	<ul style="list-style-type: none"> The operation is inhibited. Please try another operation. 	–

Specifications

DVD receiver (AVD-303)

■ Amplifier section

Power Output	Front L/R, Center, Surround L/R: 65W (6 Ω , 1 kHz, RMS) Subwoofer: 80W (4 Ω 100 Hz, RMS)
Dynamic Power	65 W + 65 W (4 Ω , Front) 50 W + 50 W (8 Ω , Front)
Damping Factor	20 (Front, 1 kHz, 8 Ω)
Input Sensitivity and Impedance	250 mV/ 50 k Ω (LINE)
THD (Total Harmonic Distortion)	0.05 % (at 1 watt output)
Output Level and Impedance	250 mV/ 2.2 k Ω (REC OUT)
Frequency Response	20 Hz - 20 kHz/ +/- 3.0 dB
SN Ratio	74 dB (LINE IHF-A)
Speaker Impedance	6 Ω (FL/FR/C/SL/SR) 4 Ω (Subwoofer)
Input Sensitivity/Output Level and Impedance	1 Vp-p /75 Ω (Component and S-Video Y) 0.7 Vp-p /75 Ω (Component Pb/Cb, Pr/Cr) 0.286 Vp-p /75 Ω (S-Video C) 1 Vp-p /75 Ω (Composite)

■ Tuner section

Tuning Frequency Range	FM: 87.50 MHz - 108.00 MHz (50 kHz steps) AM: 531 kHz - 1602 kHz (9 kHz steps)
Usable Sensitivity	FM: Stereo 17.2 dBf, 2 μ V (75 Ω IHF) Mono 11.2 dBf, 1 μ V (75 Ω IHF) AM: 30 μ V
S/N Ratio	FM: Stereo 60 dB (IHF-A) Mono 65 dB (IHF-A) AM: 40 dB
THD	FM: Stereo 1 % (1 kHz) Mono 0.5 % (1 kHz) AM: 1.2 %
Stereo Separation	40 dB
Video Inputs	VIDEO1, VIDEO2
Video Output	VIDEO1
Analog Audio Inputs	VIDEO1, VIDEO2
Digital Audio Input	VIDEO2 (optical)
Analog Audio Output	VIDEO1
Speaker Outputs	6
Subwoofer Preout	1

Specifications

■ DVD section

Signal System	PAL/MULTI/NTSC	
Composite Video Output/Impedance	1.0 V (p-p)/75 Ω negative sync, RCA/phono	
S-Video Output/Impedance	Y: 0.7 V (p-p)/75 Ω negative sync, 4-pin mini DIN C: 0.286 V (p-p)/75 Ω	
Component Video Output/Impedance	Y: 1.0 V (p-p)/75 Ω PB/PR: 0.7 V (p-p)/75 Ω , RCA/phono	
Frequency Response	DVD Linear Sound	4 Hz - 44 kHz (96 kHz) 4 Hz - 22 kHz (48 kHz)
	Audio CD	4 Hz - 20 kHz (44.1 kHz)
S/N Ratio	90 dB	
Audio Dynamic Range	90 db	
THD (Total Harmonic Distortion)	0.008 % (1 kHz)	
Wow and Flutter	Below threshold of measurability	
Audio Output/Impedance (Analog)	2 V (rms) / 1 k Ω	
Operation Condition Temperature	5°C - 35°C	
Disc Compatibility	DVD-Video, Audio CD, CD-R/CD-RW (MP3, JPEG) * Disc that have not been property finalized may only be pertainly playable or not playable at all/	

■ General

Power Supply	AC 220 - 240 V, 50/60 Hz
Power Consumption	80 W
Stand-by Power Consumption	1.0 W
Dimensions	435 W · 58 H · 367 D mm
Weight	4.1 kg

Your own notes

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