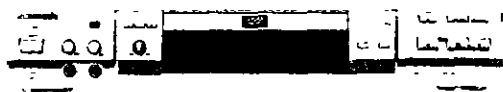


# Panasonic

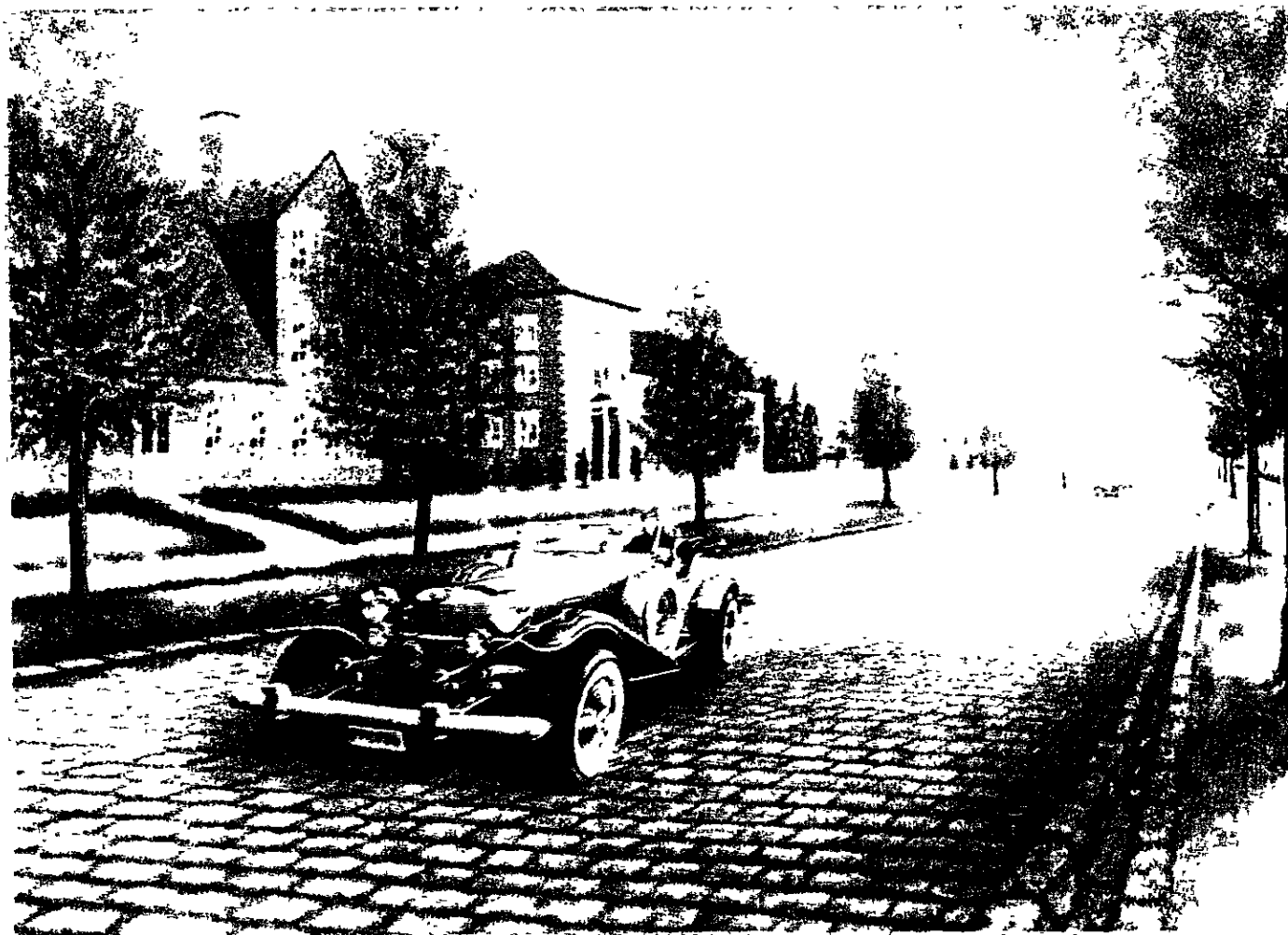
## DVD/VIDEO CD/CD PLAYER

### Operating Instructions



Model No. **DVD-RV45K**

The illustrations show the model for U S A



Before connecting, operating or adjusting this product, please read these instructions completely  
Please keep this manual for future reference

**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.**  
**DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.**

**WARNING:**

**TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPLIANCE TO RAIN, SPLASHING, DRIPPING OR MOISTURE.**

CAUTION	-LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM.
ATTENTION	-RAYONNEMENT LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU.
VORSICHT	-LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT IN DEN STRAHL BLICKEN.
ADVARSEL	-LASERSTRÅLING VED ÅBNING. SE IKKE INN I STRÅLEN.
ADVARSEL	-LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN.
VARNING	-LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLEN.
VARO!	-AVATTAESSA OLET ALTTIINA LASERSÄTELYLLE. ÄLÄ TUJOTA SÄTEESEEN.
注意	- 当打开这里会出现激光。 请不要直视激光。
注意	- ここを開くとレーザー光が出ます。 レーザー光をのぞき込まないでください。

(Inside of unit)

**THE FOLLOWING APPLIES ONLY IN THE U.S.A.:**

**CAUTION:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.


These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.


**THE FOLLOWING APPLIES ONLY IN THE U.S.A. AND CANADA:**



**CAUTION**

**RISK OF ELECTRIC SHOCK**

**DO NOT OPEN**



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



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



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

**Accessories**

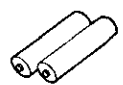


Please check and identify the supplied accessories. Use numbers indicated in parentheses when asking for replacement parts.  
*(Only for U.S.A.)*  
**To order accessories contact 1-800-332-5368 or web site (<http://www.panasonic.com>)**

Remote control ..... 1  
 (N2QAJB000007)



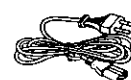
Batteries ..... 2  
 for remote control



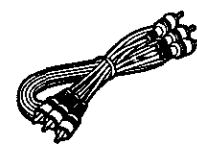
AC power supply cord ..... 1

**For U.S.A.**  
 (RJA0065-A)

**For Asia**  
 (RJA0019-1X)



Audio/video cable ..... 1  
 (VJA0788-D)



**Note**

The included AC power supply cord is for use with this unit only. Do not use it with other equipment.

# Dear customer

Thank you for purchasing this product  
For optimum performance and safety please read these instructions carefully

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Getting started



# PRECAUTIONS

Before using this unit please read these operating instructions carefully. Take special care to follow the warnings indicated on the unit itself as well as the safety suggestions listed below. Afterwards keep them handy for future reference.

Getting started

## Safety

- Power Source**—The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company.
- Polarization**—If the unit is equipped with a polarized AC power plug (a plug having one blade wider than the other), that plug will fit into the AC outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- Power Cord Protection**—AC power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Never take hold of the plug or cord if your hand is wet, and always grasp the plug body when connecting or disconnecting it.
- Overloading**—Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
- Nonuse Periods**—When the unit is not being used, turn the power off. When left unused for a long time, the unit should be unplugged from the household AC outlet.
- Attachments**—Do not use attachments not recommended by the unit manufacturer as they may cause hazards.

## Installation

### Environment

- Water and Moisture**—Do not use this unit near water—for example, near a bathtub, washbowl, swimming pool, or the like. Damp basements should also be avoided.
- Condensation**—Moisture may form on the lens in the following conditions...
  - immediately after a heater has been turned on.
  - in a steamy or very humid room.
  - when the unit is suddenly moved from a cold environment to a warm one.If moisture forms inside this unit, it may not operate properly. To correct this problem, turn on the power and wait about one hour for the moisture to evaporate.
- Heat**—The unit should be situated away from heat sources such as radiators and the like. It also should not be placed in temperatures less than 5°C (41°F) or greater than 35°C (95°F).

### Placement

- Ventilation**—The unit should be situated so that its location or position does not interfere with its proper ventilation. Allow 10 cm (4") clearance from the rear of the unit.
- Foreign Material**—Care should be taken so that objects do not fall into and liquids are not spilled into the unit. Do not subject this unit to excessive smoke, dust, mechanical vibration, or shock.
- Carts and Stands**—The unit should be used only with a cart or stand that is recommended by the manufacturer. The unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.
- Mounting**—Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.



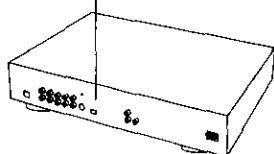
## Maintenance

Disconnect this unit from the AC outlet before cleaning. Clean the cabinet, panel and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

## Service

- Damage Requiring Service**—The unit should be serviced by qualified service personnel when:
  - (a) The AC power supply cord or the plug has been damaged; or
  - (b) Objects have fallen or liquid has been spilled into the unit; or
  - (c) The unit has been exposed to water; or
  - (d) The unit does not appear to operate normally or exhibits a marked change in performance; or
  - (e) The unit has been dropped, or the enclosure damaged.
- Servicing**—The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to an authorized service personnel.  
**For the address of an authorized servicenter:**  
**In the U.S.A., call 1-800-211-7262,**  
**e-mail [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com),**  
**or visit [www.panasonic.com](http://www.panasonic.com)**  
**In Canada, call 1-800-561-5505**  
**or visit [www.panasonic.ca](http://www.panasonic.ca)**
- Replacement parts**—When parts need replacing, ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.
- Safety check**—After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

### For Asia



(Back of unit)

### User memo:






DATE OF PURCHASE \_\_\_\_\_  
DEALER NAME \_\_\_\_\_  
DEALER ADDRESS \_\_\_\_\_  
TELEPHONE NUMBER \_\_\_\_\_

The model number and serial number of this product can be found on either the back or the bottom of the unit. Please note them in the space provided below and keep for future reference.

MODEL NUMBER \_\_\_\_\_ DVD-RV45K \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

# Disc information

 Discs supported by this unit	 Discs not supported by this unit
DVD-Video 	<ul style="list-style-type: none"> <li>● Do not try to play Photo CD or CD-R. (Data on the disc may be damaged.)</li> <li>● DVD with region number other than the region number of this unit or "ALL"</li> <li>● CD-G</li> <li>● CD-RW</li> <li>● DVD-RAM</li> <li>● SVCD</li> <li>● SACD</li> <li>● Divx Video Disc</li> <li>● DVD-Audio</li> <li>● DVD+RW</li> <li>● CD-ROM</li> <li>● VSD</li> <li>● DVD-ROM</li> <li>● DVD-R</li> <li>● DVD-RW</li> <li>● CVD</li> <li>● CDV</li> </ul> etc.
Video CD 	
Audio CD 	

## ■ Region number supported by this unit

Region numbers are allocated to DVD players and software according to where they are sold.

**For U.S.A.**

- The region number of this unit is "1".
- The unit will play DVDs marked with labels containing the region number "1" or "ALL".

Example:

1

ALL

1  
3  
6

**For Asia**

- The region number of this unit is "3".
- The unit will play DVDs marked with labels containing the region number "3" or "ALL".

Example:

3

ALL

1  
3  
6




Read the disc's instructions carefully.

## ■ Playing DVDs and Video CDs

The producer of the material can control how these discs are played. This means that you may not be able to control play of a disc with some operations described in these operating instructions. Read the disc's instructions carefully.

## ■ Marks used in these operating instructions

The functions depend on the disc being played. These marks indicate the functions available.

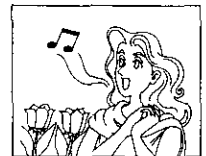
-  : DVD-Video
-  : Video CD
-  : Audio CD

## ■ Compatible with NTSC DVD/Video CD and PAL DVD/Video CD

This unit can play discs recorded in either NTSC or PAL format. However, the unit must be connected to a multi-system television or PAL television which is capable of receiving PAL 525/60 system to play both NTSC DVD/Video CD and PAL DVD/Video CD.

The use of a multi-system television is recommended. Refer to this table to select discs suitable for your television.

○ Clear images are shown on the screen.



× No clear images shown on the screen.



TV type	Disc	TV Monitor
Multi-system TV	NTSC	○
	PAL	○
NTSC	NTSC	○
	PAL	×
PAL *1	NTSC	○*2
	PAL	○

※1 Screens shown while the unit is stopped (e.g. initial settings) may not be displayed correctly.

※2 In "9 Other settings"-"7 NTSC Disc Output", select "1 PAL 60" (➡ page 33). If your television is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.

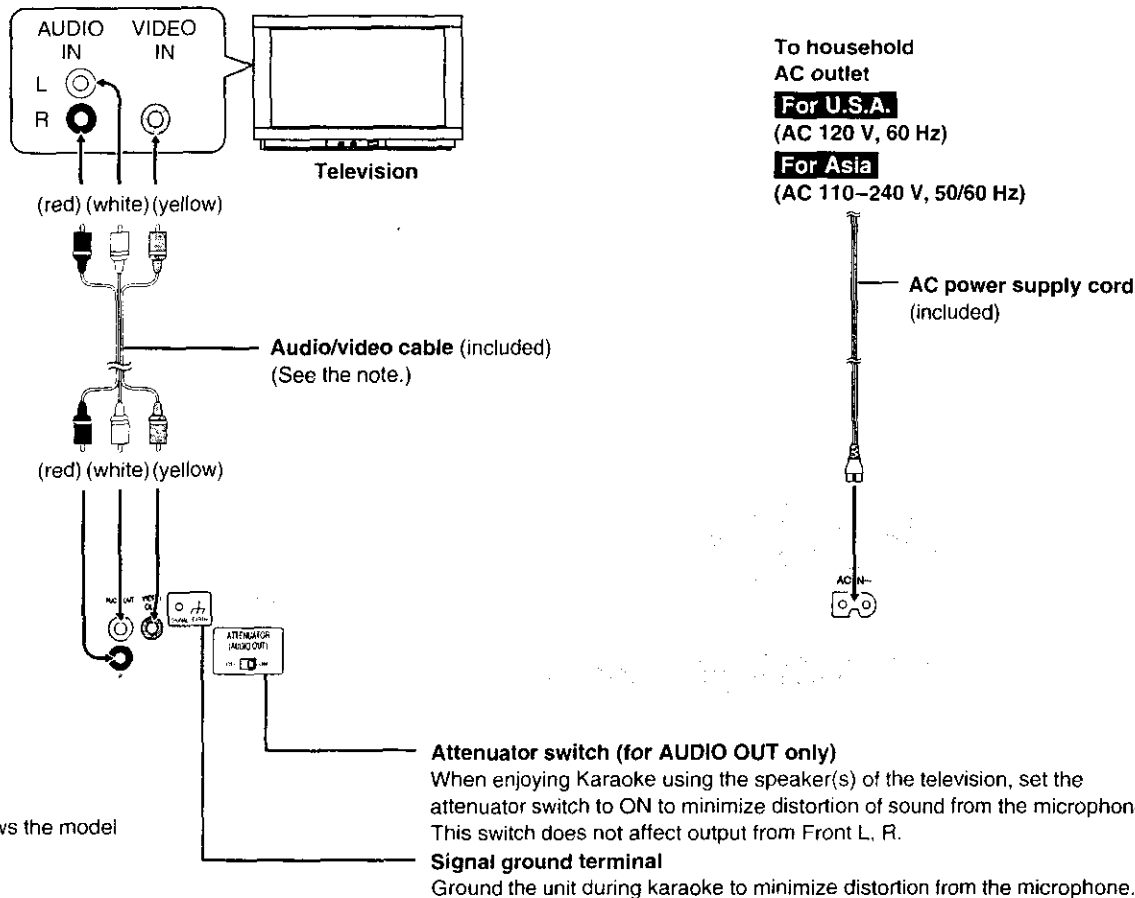
# Connection to a television

These pages explain how to connect the unit to a television and set it up so you hear the audio through the television's speakers. Connections and procedures that enable you to enjoy more powerful sounds are described beginning on page 34.

## Before connection

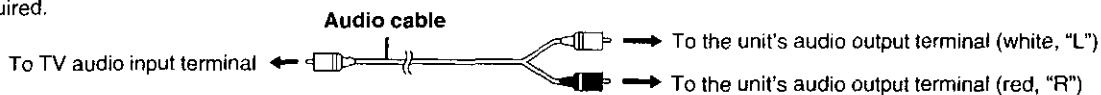
- Disconnect the AC power supply cord.
- Read through the instructions and refer to the television's operating instructions.
- Ensure that you observe the color coding when connecting audio and video cables.

## Connecting to a television with a video input terminal



## Note

- If your television is monaural, use a stereo-monoaural audio cable instead of the supplied audio/video cable. The video part of the cable (yellow) can still be used if required.



- When you have finished connection, select the appropriate screen type at the initial setting "6 TV Aspect" according to your television (4:3/16:9) (→ page 8). No changes are needed if you connect the unit to a conventional television (4:3).

## Conserving power

This unit consumes a small amount of power, even when it is switched to the standby mode (approx. 2 W in the U.S.A. and 3 W in Asia). To save power when the unit is not to be used for a long time, unplug it from the household AC outlet.

## Upgrading your television

Apart from a regular television, you can also connect CRT projectors, LCD projectors, and projection televisions to enhance your viewing experience. Refer to your equipment's operating instructions for details.

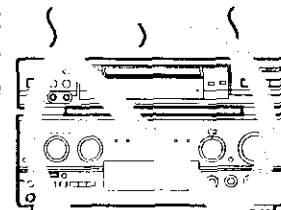
## Connect Your Unit Directly To Your Television.

We strongly recommend you do not connect the unit to your video cassette recorder when setting up your home entertainment system, because the picture may not be played correctly due to the copy guard.

- Connect to the television section if you connect the unit to a combined television-video player.

**Do not place the unit on amplifiers or equipment that may become hot.**

The heat can damage the unit.

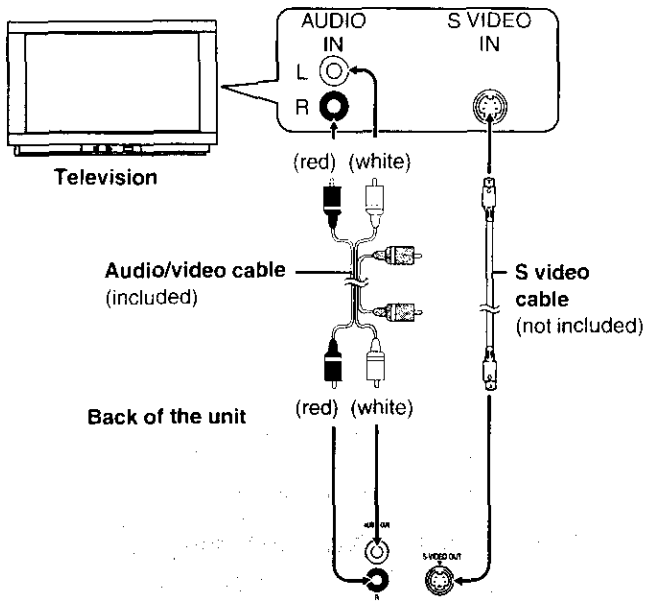


# Remote control preparations

Getting started

## Connecting to a television with S video input terminal

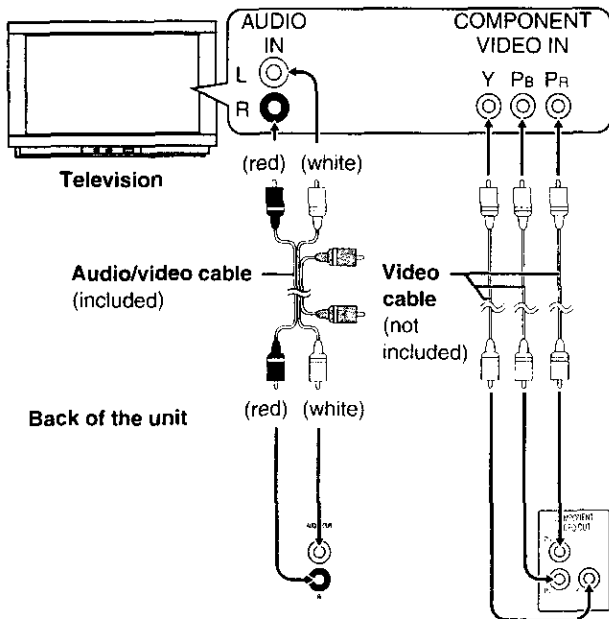
The S (separate) video output terminal achieves a more vivid picture than the video output terminal by separating the chrominance (C) and luminance (Y) signals before transmitting them to the television. (Actual results depend on the television.)



## Connecting to a television with component video input terminals

The component video output terminal outputs the color difference signals (P<sub>B</sub>/P<sub>R</sub>) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors.

• The description of the component video input terminals depends on the television or monitor (e.g. Y/P<sub>B</sub>/P<sub>R</sub>, Y/B-Y/R-Y, Y/C<sub>B</sub>/C<sub>R</sub>). Connect to terminals of the same color.



### Black Level Control For U.S.A.

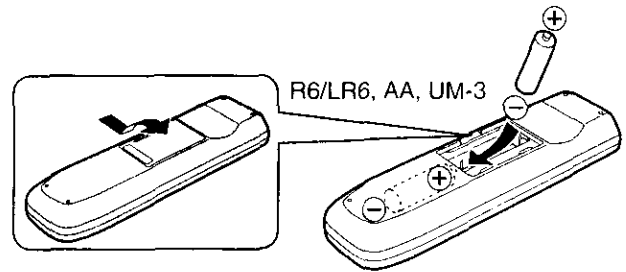
After making this connection, change the black level for a better picture (→ "Black Level Control", page 33).

#### Note

You cannot connect through the component terminals on a high-definition television that isn't equipped to deal with DVD-video signals.

## Battery installation

### Use of batteries



- Align the poles (+ and -) properly when inserting the batteries.
- Do not mix old and new batteries or different types of batteries.
- Do not recharge ordinary dry cell batteries.
- Do not heat or disassemble the batteries. Do not allow them to contact flame or water.
- Remove the batteries if the unit is not to be used for a long time.
- Do not keep together with metallic objects such as necklaces.
- Do not use rechargeable type batteries.
- Do not use batteries if the covering has been peeled off.

Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.

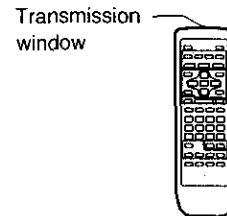
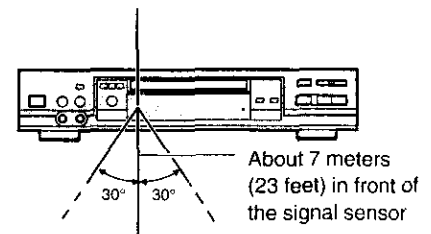
If electrolyte leaks from the batteries, consult your dealer.

Wash thoroughly with water if electrolyte comes in contact with any part of your body.

## Correct method of use

### Operation notes

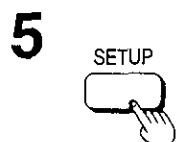
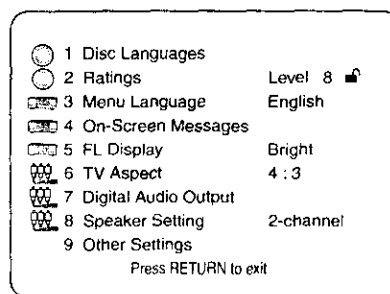
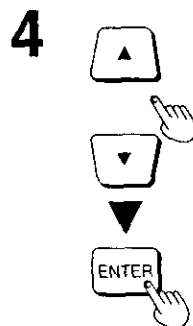
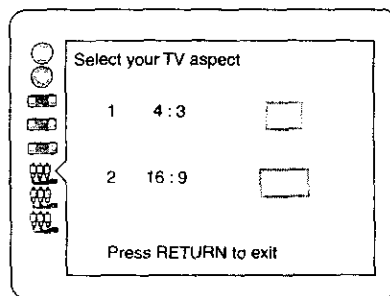
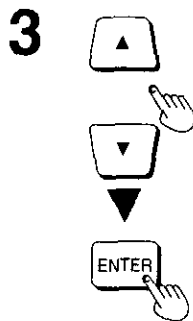
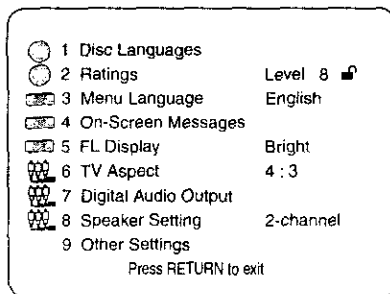
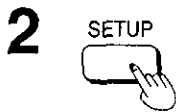
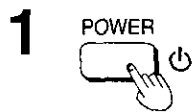
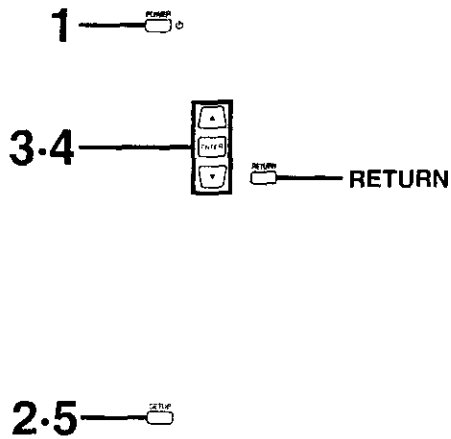
Remote control signal sensor



- Do not place obstacles between the remote control signal sensor and remote control unit.
- Do not expose the remote control signal sensor to direct sunlight or to the bright light of a fluorescent light.
- Take care to keep the remote control signal sensor and end of the remote control unit free from dust.
- If this system is installed in a rack with glass doors, the glass doors' thickness or color might make it necessary to use the remote control a shorter distance from the system.

### To prevent damage

- Never place heavy items on top of the unit.
- Do not disassemble or reconstruct the unit.
- Do not spill water or other liquids into the unit.



## Selecting TV screen type

You may not be able to use the screens to operate the initial settings on a PAL television because the screens for this function cannot be displayed correctly.

The menu language for this unit has been set to English, but you can change the language to Chinese (→ "3 Menu Language", page 32). English has been used in the examples shown.

## Selecting TV screen type

Select the TV aspect, conventional size screen (4:3) or widescreen (16:9) according to your television.

### Preparation

- Turn on your television and other equipment.
- Switch the video input mode on the television to suit the type of connection you have made (e.g., VIDEO 1).

**1** Press [POWER] to switch on the power.

**2** Press [SETUP] while the unit is stopped.

The initial settings screen is displayed.

**3** Press the cursor buttons [▲, ▼] to select "6 TV Aspect" and press [ENTER].

**4** Press the cursor buttons [▲, ▼] to select a TV aspect and press [ENTER].

1 4:3 (Factory preset)

Select when a conventional television is connected.

2 16:9

Select when a widescreen television is connected.

Setting is finished and the initial settings screen is displayed.

**5** Press [SETUP] to end the settings.

To return to the previous menu

Press [RETURN].

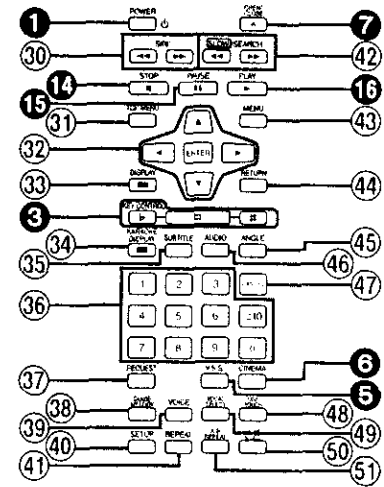
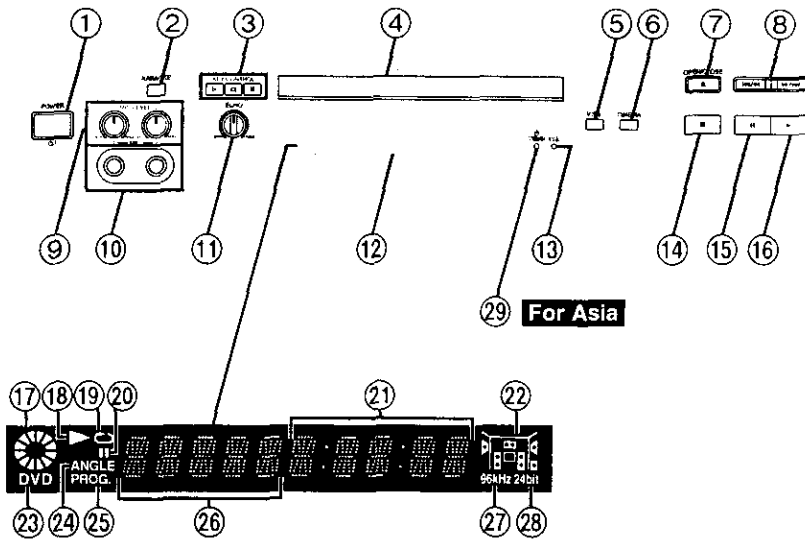
For your reference

For further details on the images that appear on your television, see page 41.



# Control reference guide

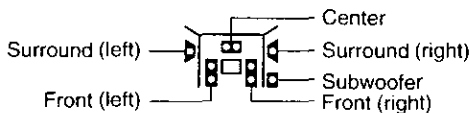
Buttons such as ❶ function the same as the controls on the unit.



## Unit

Page

❶ Standby/on switch (POWER ⏻/⏻)	10
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.	
❷ Karaoke button/indicator (KARAOKE)	15
❸ Key control buttons (b, □, # KEY CONTROL)	15
❹ Disc tray	10
❺ Virtual Surround Sound button (V.S.S.)	23
❻ Cinema button (CINEMA)	23
❼ Disc tray open/close button (▲ OPEN/CLOSE)	10
❽ Skip/Search buttons (◀◀/◀◀, ▶▶/▶▶)	12, 13
❾ MIC LEVEL controls (MIC LEVEL 1, 2)	15
❿ MIC jacks (MIC 1, 2)	15
⓫ Echo control (ECHO)	15
⓬ FL display	
⓭ V.S.S. indicator (V.S.S.)	23
⓮ Stop button (■)	11
⓯ Pause button (⏸)	12
⓰ Play button (▶)	10
⓱ Play condition indicator	
⓲ Play indicator	
⓳ Repeat play indicator	
⓴ Pause (still) indicator	
⓵ Elapsed time display	
⓶ Audio channel information	



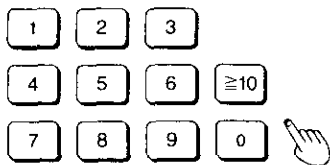
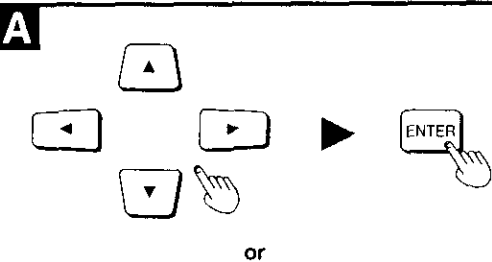
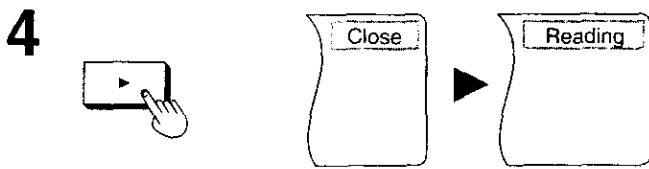
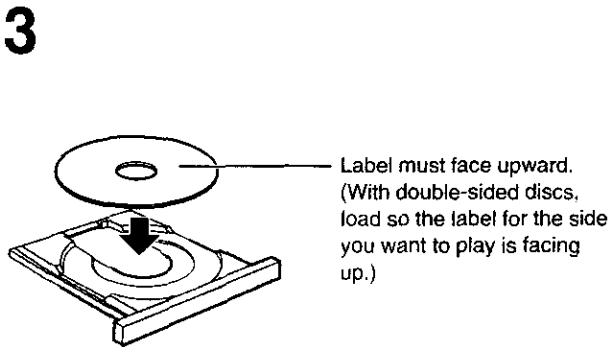
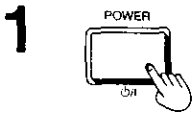
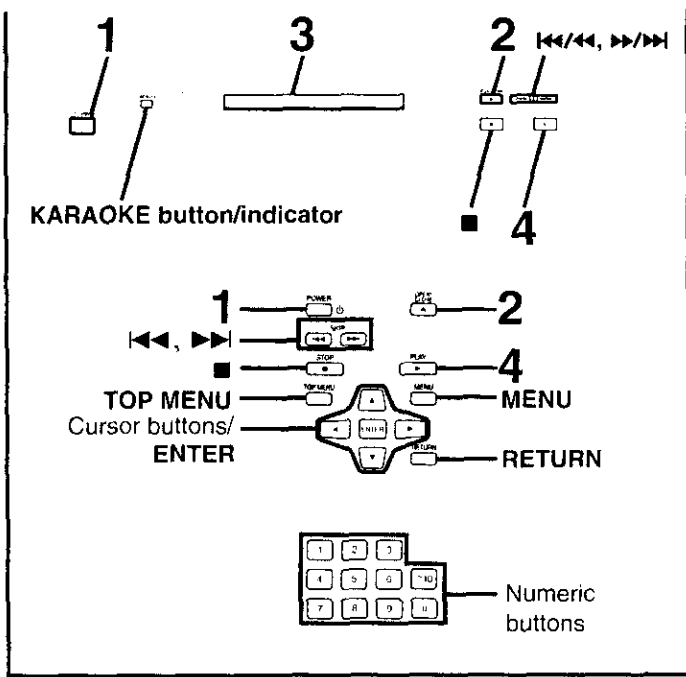
⓷ DVD indicator [DVD]	
⓸ Angle indicator [DVD]	
⓹ Program play indicator [CD]	
⓺ Title/chapter number [DVD]	
Track number [CD]	
⓻ 96 kHz indicator	
⓼ 24 bit indicator	
⓽ STANDBY indicator (STANDBY ⏻) <b>For Asia</b>	

When the unit is connected to the AC power supply, this indicator lights up in standby mode and goes out when the unit is turned on.

## Remote control

Page

⓫ SKIP buttons (◀◀, ▶▶ SKIP)	12
⓬ Top menu button (TOP MENU)	10, 14
⓭ Cursor buttons (▲, ▼, ◀, ▶)/Enter button (ENTER)	10
⓮ Display button (DISPLAY)	24
⓯ Karaoke display button (KARAOKE DISPLAY)	24
⓰ Subtitle button (SUBTITLE)	22
⓱ Numeric buttons (1-9, 0, ≧10)	10
⓲ Request button (REQUEST)	17
⓳ Guide melody button (GUIDE MELODY)	16
⓴ Voice button (VOICE)	16
⓵ Setup button (SETUP)	29
⓶ Repeat button (REPEAT)	20
⓷ Slow/Search buttons (◀◀, ▶▶ SLOW/SEARCH)	13
⓸ Menu button (MENU)	10, 14
⓹ Return button (RETURN)	10
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⓻ Audio button (AUDIO)	21
⓼ Cancel button (CANCEL)	15
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⓿ Vocal select button (VOCAL SELECT)	15
ⓠ Play mode button (PLAY MODE)	18
⓲ A-B repeat button (A-B REPEAT)	20



## BASIC play

DVD VIDEO CD

### Preparation

- Turn on your television and other equipment.
- Switch the video input mode on the television to suit the type of connection you have made (e.g., VIDEO 1).

**1** Press [POWER ] to switch on the power.

*if you are going to do karaoke*

Press [KARAOKE] so the button's light comes on. The volume is slightly lower when this button is on.

**2** Press [] to open the disc tray.

**3** Place the disc on the disc tray.

**4** Press [] (PLAY).

The disc tray closes and play begins.

**A** When a menu screen appears on the television

DVD

Press the cursor buttons [, , , ] to highlight an item and press [ENTER].

or

DVD VIDEO

Press the numeric buttons to select an item.

To select a 2-digit number with the numeric buttons

Example: To select track 23

Press [ $\geq 10$ ], then [2] and [3].

Play of the selected item now begins.

### Other buttons used to operate menus

Read the disc's instructions for further details about operation.

[, ], []: Shows the next menu.

[, ], []: Shows the previous menu.

[RETURN]: Shows the menu screen.

[TOP MENU]: Shows the first menu screen. [DVD]

[MENU]: Shows the menu screen. [DVD]

### Auto power-off function

The unit is automatically switched to the standby mode after approx. 30 minutes have elapsed in the stop mode.

### Note

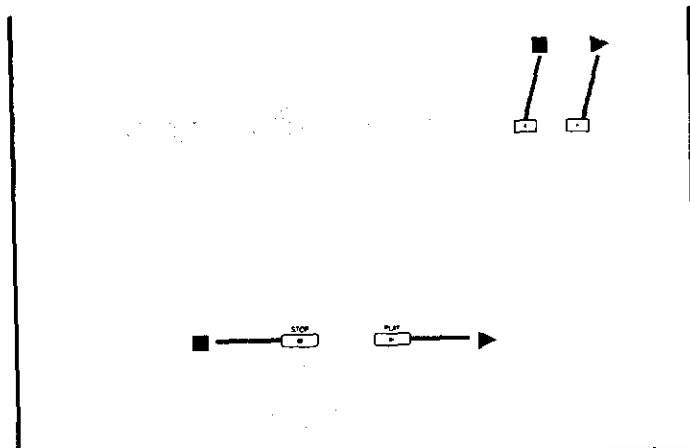
- The disc continues to rotate while the menu is displayed even after the unit has finished playing a particular item. Press [] when you finish viewing to preserve the unit's motor and your television screen.

- Volume may be lower when playing DVDs than when playing other discs or during television broadcasts.

If you turn the volume up on the television or amplifier, ensure you reduce the volume again before playing other sources so that a sudden increase in output does not occur.

- If "⊘" appears on the television when you perform an operation, it is prohibited by the unit or disc.

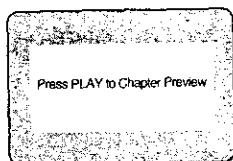
## Basic play



**A**



**B**



### A Stopping play

DVD  CD

Press [■] during play.

The position you stopped play at is recorded by the unit when "▷" is flashing on the unit's FL display.

While "▷" is flashing on the unit's FL display, press [▶] (PLAY) to start play from where you stopped it (**Resume function**).

If you are playing DVD, the illustrated display also appears. **B**

Pressing [▶] (PLAY) while the message is displayed activates the Chapter Preview feature.

If you do not press [▶] (PLAY), the message disappears and play starts from where you stopped it.

#### Chapter Preview:

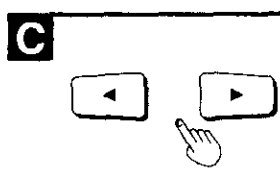
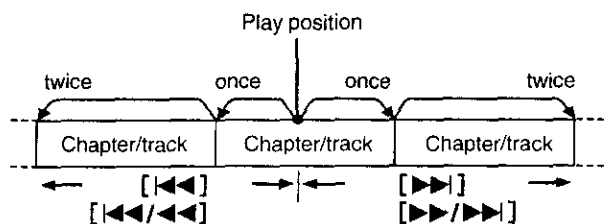
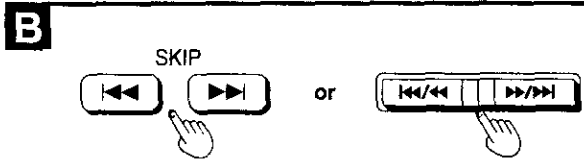
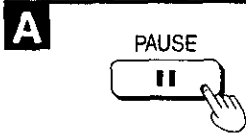
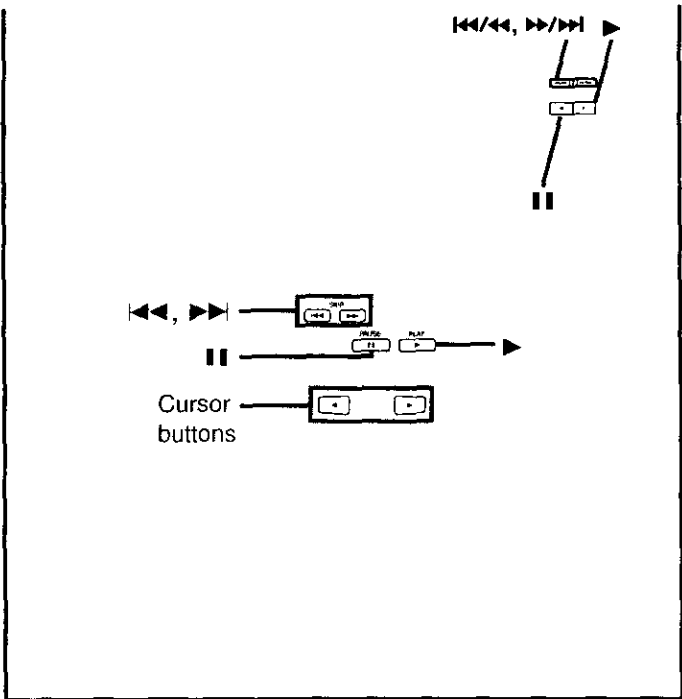
The beginning portions of each chapter up to the current one are played. Full play resumes from the point where you stopped play. (Chapter Preview feature works only within a title.)

#### To cancel Resume function

Press [■] until "▷" disappears from the unit's FL display.

#### Note

- The resume function does not work if the disc's play time is not displayed.
- The resume position remains in memory even if the unit is switched to the standby mode. The position is cleared when the disc tray is opened.



## Other methods of play

### A Pause (Still picture)

DVD CD

Press [II] during play.

To return to normal play  
Press [▶] (PLAY).

### B Skipping chapters or tracks

DVD CD

On the remote control

Press [◀◀] (reverse) or [▶▶] (forward) during play or while paused.

On the main unit

Press [◀◀/◀◀] (reverse) or [▶▶/▶▶] (forward) during play or while paused.

Each press increases the number of skip.

### C Frame advance (Frame reverse)

DVD ~~VCD~~

Press the cursor buttons [◀] (reverse: DVD only) or [▶] (forward) while paused.

- The disc is advanced (reversed) by one frame each time the cursor buttons [◀, ▶] are pressed.
- When the cursor buttons [◀, ▶] are held, consecutive frame advance (reverse) is activated.


To return to normal play  
Press [▶] (PLAY).

For your reference  
Pressing [II] also activates frame advance.

[◀◀, ▶▶] and [◀◀/◀◀, ▶▶/▶▶]  
When these buttons are pressed during menu play of Video CDs with playback control (→ page 45), a menu screen may be recalled.

## Other methods of play

### A Slow-motion play

**DVD** 

On the remote control

Press [**◀◀**] (reverse: DVD only) or [**▶▶**] (forward) **while paused**.

- Each press increases the speed of slow-motion (5 speeds).

On the main unit

Press and hold [**|◀◀/◀◀**] (reverse: DVD only) or [**▶▶/▶▶|**] (forward) **while paused**.

- The speed of slow-motion increases if you press and hold the button (5 speeds).

To return to normal play

Press [**▶**] (PLAY).

### B Rapid advance (Rapid reverse)

**DVD**  **VCD**  **CD** 

On the remote control

Press [**◀◀**] (reverse) or [**▶▶**] (forward) **during play**.

- Each press increases the speed of the search (5 speeds).

On the main unit

Press and hold [**|◀◀/◀◀**] (reverse) or [**▶▶/▶▶|**] (forward) **during play**.

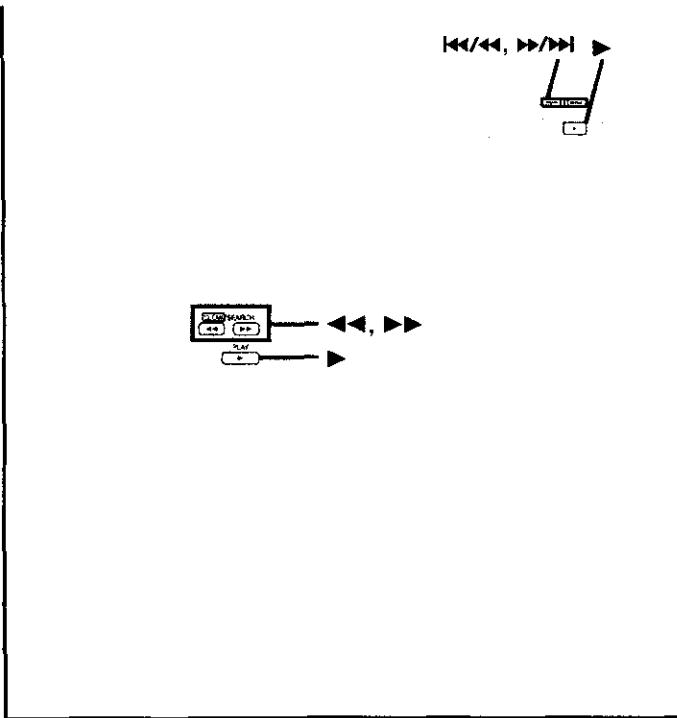
- The speed of the search increases if you press and hold the button (5 speeds).

To return to normal play

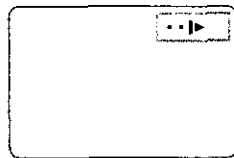
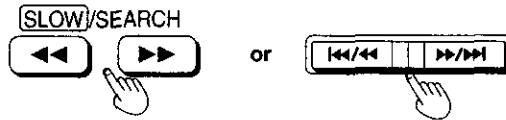
Press [**▶**] (PLAY).

**For your reference**

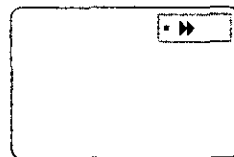
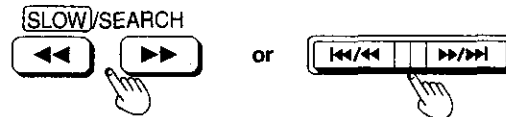
For DVDs and Video CDs, audio will be heard during searching (forward direction only) at the initial search speed. (To turn audio off, → "2 Audio during Search" in "9 Other Settings", page 33.)

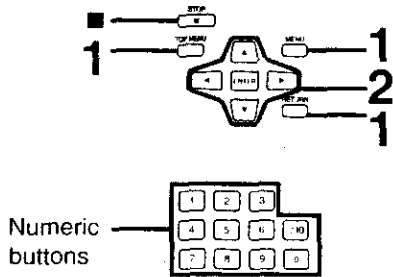


**A**

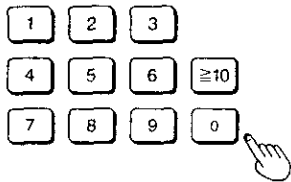


**B**

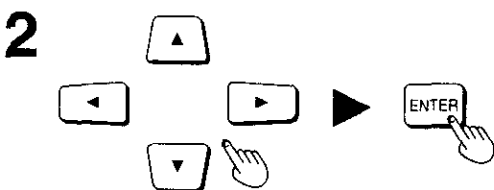




**A**

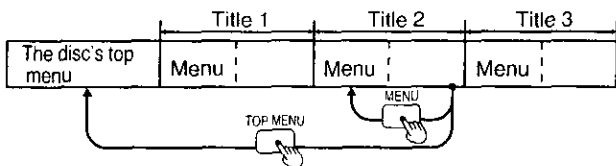


**B**



**C**

**Example:** If you press the buttons while you are playing title 2



Other methods of play

**A Starting play from a selected title or track**

**DVD VCD CD**

**Preparation** (Video CDs with playback control only)

Press [■] to cancel menu play.  
("PBC" will be cleared from the unit's FL display.)

**Press the numeric buttons in the stop mode.**

**To select a 2-digit number**

Example: To select track 23  
Press [≧10], then [2] and [3].

Play starts from the selected title/track.

**Note**

- The numeric buttons also work during play if the disc is a Karaoke DVD, Video CD, or CD.
- This may not work with some discs.

**■ To return to menu play of a Video CD with playback control**

Press [■] to stop play, press [MENU], and press the numeric buttons to select an item.

"PBC" lights on the unit's FL display.

**B Using disc menus**

**DVD VCD**

By calling up menus during play, you can start play from a specific item, or change the soundtrack and subtitle languages.

**1**

**DVD**

**Press [TOP MENU] or [MENU] during play to display the menu.**

- Press again to return to what you were watching.

or

**VCD**

**Press [RETURN] during play to display the menu.**

- The operation works only in menu play.

**2**

**Press the cursor buttons [▲, ▼, ◀, ▶] to select an item and press [ENTER].**

The selected item is confirmed.

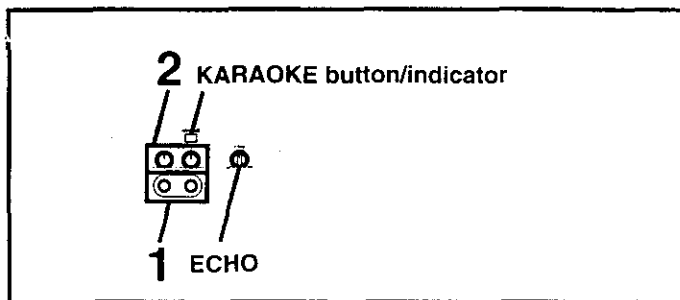
- Repeat if other menus are shown.

DVDs can have several menus. The menu displayed when you press [TOP MENU] may be different from the menu displayed when you press [MENU]. **C**

**For your reference**

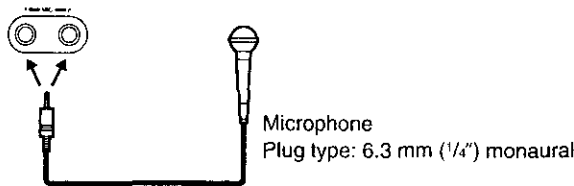
Menu content depends on the disc. These operating instructions describe basic steps.

# Enjoying karaoke

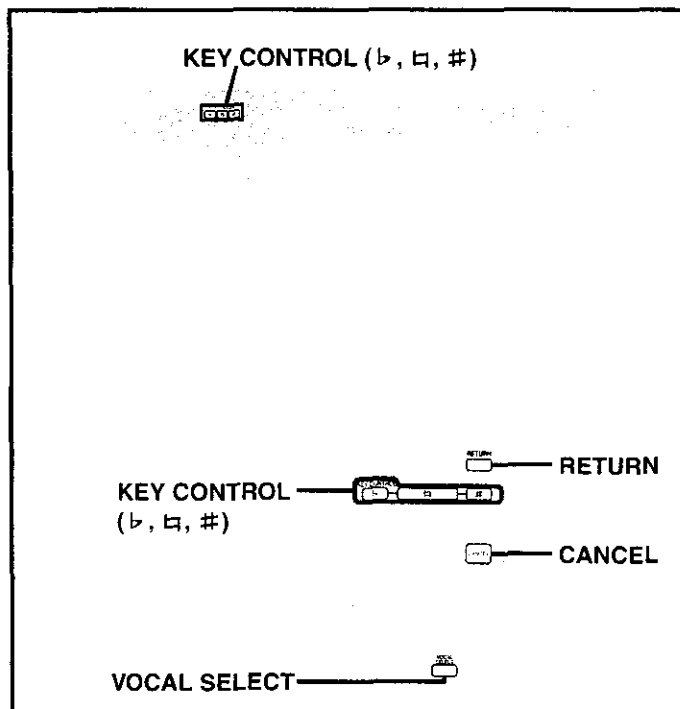


## A

1



2



## B



## C



a DVD



b Video CD/CD



## Preparation

Press [KARAOKE] so it comes on.

- You cannot use the karaoke On-Screen Menu Icons (→ page 24) and microphones if the karaoke button is off.
- The volume is slightly lower when karaoke button is on.

## A Connecting microphone(s) (not included)

- 1 Connect the microphone(s) to [MIC 1] or [MIC 2].
- 2 Adjust the volume with [MIC LEVEL 1] or [MIC LEVEL 2].

To adjust the echo level  
Rotate [ECHO].

## B Changing the key (Key control)

DVD VIDEO CD

The key of the accompaniment can be changed to match your voice.

Press [b] or [#] during play.

The karaoke On-Screen Menu Icon is displayed.

- b: lowers the key by a half tone each time you press the button
- #: raises the key by a half tone each time you press the button

You can raise or lower the key by six steps.

To return to the original key

Press [□].

To clear the display

Press [RETURN] or [CANCEL].

## C Switching vocals ON and OFF for karaoke discs (Vocal select)

DVD VIDEO CD (multi audio discs only)

Press [VOCAL SELECT] during play.

The karaoke On-Screen Menu Icon is displayed. Each time the button is pressed, the audio channel changes depending on the disc.

a DVD

- Solo
  - : Vocal OFF (for karaoke)

- ON: Vocal ON

- Duet
  - : Vocal OFF (for karaoke)
  - 1+2: Vocal 1, 2 ON
  - V1: Vocal 1 only ON (for duet)
  - V2: Vocal 2 only ON (for duet)

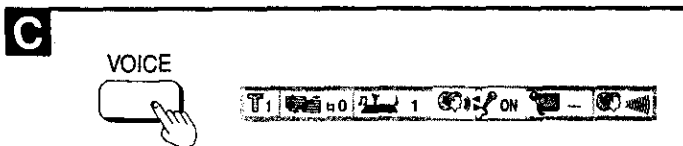
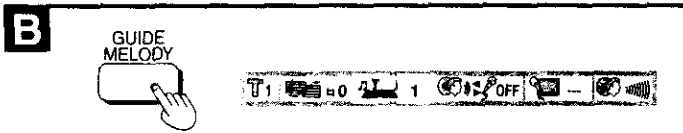
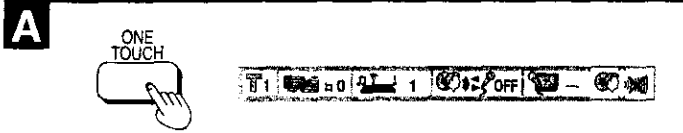
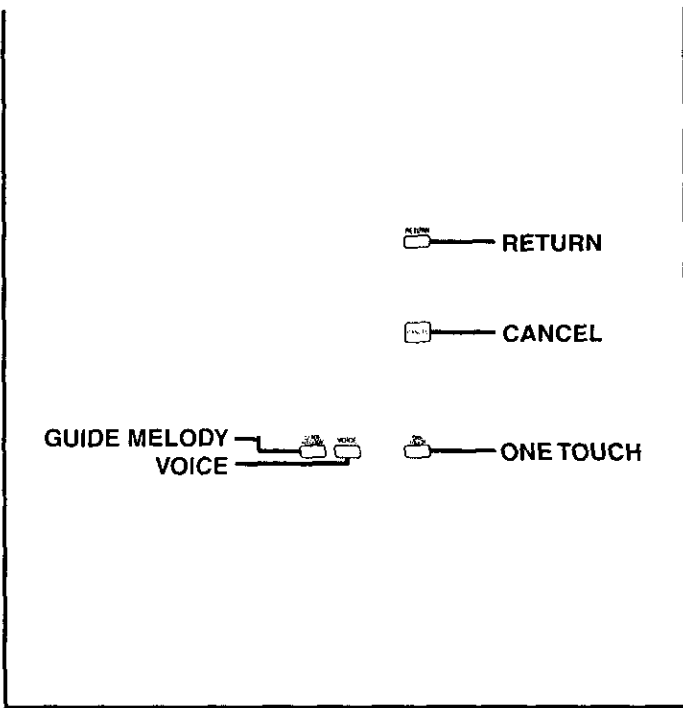
b Video CD/CD

- LR: Vocals (Vocals seem to come from the right)
- L: No vocals (for karaoke)
- R: Vocals (Vocals seem to come from both left and right)
- L+R: Vocals (Vocals seem to come from both left and right)

• Some discs have vocals in the L channel and no vocals in the R channel. Karaoke is possible if you choose no vocals.

To clear the display

Press [RETURN] or [CANCEL].



## Enjoying karaoke

### A Enjoying karaoke using non-karaoke discs (One touch karaoke)

**DVD VCD CD**

Using this function decreases the volume of the vocals recorded on non-karaoke discs.

#### Press [ONE TOUCH] during play.

The karaoke On-Screen Menu Icon is displayed.

Each time you press the button:

: The vocal volume is reduced.



: normal volume

#### To clear the display

Press [RETURN] or [CANCEL].

#### Note

Depending on the type of prerecorded songs, vocal volume cannot be reduced.

### B Changing the volume of the guide melody (Guide melody)

**DVD** (with the guide melody recorded)

The guide melody which plays the tune of the song is recorded separately on some Karaoke DVD. When using this type of disc, you will find it easier to sing along even with songs that you are not familiar with when you set the function on. Alternatively, you can sing to the accompaniment alone like a professional singer when you turn the function off.

#### Press [GUIDE MELODY] during play.

The karaoke On-Screen Menu Icon is displayed.

Each time you press the button:

→ 1: normal volume



→ 2: increased volume



→ OFF: the guide melody is turned off

#### To clear the display

Press [RETURN] or [CANCEL].

### C Turning off the vocals while you are singing (Voice change)

**DVD VCD CD**

Activating this function turns the vocals off while you are singing. This function is convenient when practicing a new tune.

#### Press [VOICE] during play.

The karaoke On-Screen Menu Icon is displayed.

Each time you press the button:

**ON:** the vocals are played but are not heard while you are singing



**OFF:** voice change function does not work

#### To clear the display

Press [RETURN] or [CANCEL].



## Enjoying karaoke

### Karaoke request play

DVD VIDEO CD

You can request up to 8 titles or tracks.

#### 1 Press [REQUEST] during play or in the stop mode.

The karaoke request screen is displayed.

When [REQUEST] is pressed during play, the title or track being played is requested.

#### 2 Press the numeric buttons to enter the desired song(s).

• Select the title number for DVDs or the track number for Video CDs/CDs. (Refer to the jacket of the disc concerned for the title or track numbers.)

• To select a 2-digit number

Example: To select track 23

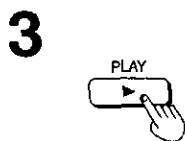
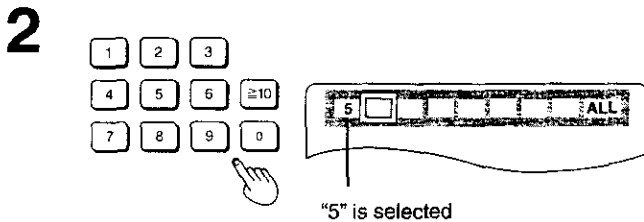
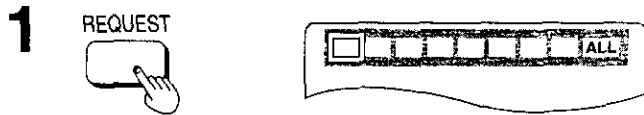
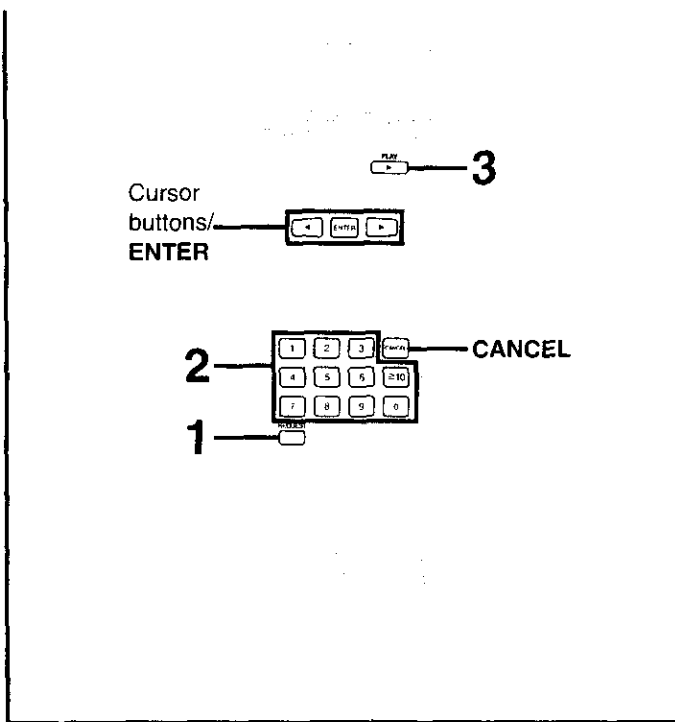
Press [ $\geq 10$ ], then [2] and [3].

• To request all of the titles or tracks on a disc, select "ALL" with the cursor button [ $\blacktriangleright$ ] and press [ENTER].

#### 3 Press [ $\blacktriangleright$ ] (PLAY) if you pressed [REQUEST] in the stop mode.

Play of the selection now begins.

• If you were playing an item, the items you requested start playing when it finishes.



#### To clear the display

Press [REQUEST].

#### To change the requested items

1. Press the cursor buttons [ $\blacktriangleleft$ ,  $\blacktriangleright$ ] to select the item.
2. Press the numeric buttons to change the item.

#### To clear the requested item

1. Press the cursor buttons [ $\blacktriangleleft$ ,  $\blacktriangleright$ ] to select the item.
2. Press [CANCEL].

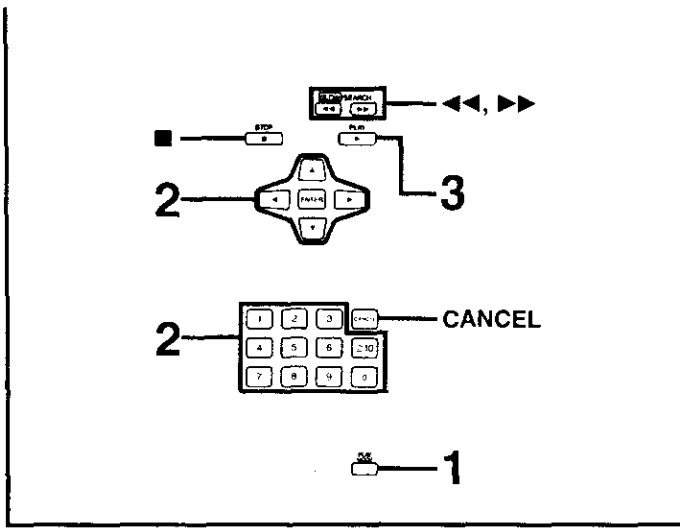
• If you selected "ALL" to request all the titles or tracks, press [CANCEL].

#### To return to normal play

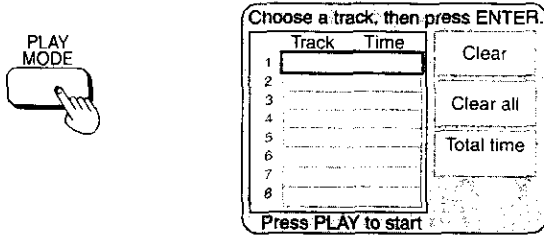
Clear all the requested items (= above).

#### Note

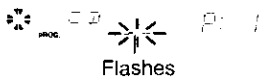
- Karaoke request play does not work while the disc's menu is on the screen.
- While items are requested, [TOP MENU] and [MENU] do not work.



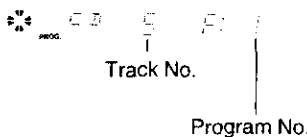
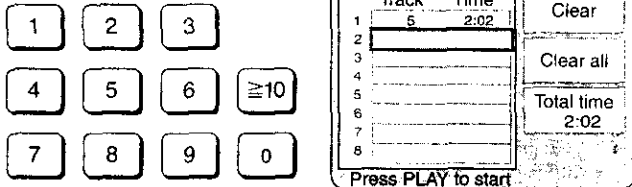
1



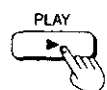
FL display (e.g. CD)



2



3



## Changing the play sequence

### Program play



The unit plays the tracks on a disc in the order you specify. You can program up to 32 tracks.

**1 Press [PLAY MODE] while stopped until the illustrated screen appears.**

- If "O" appears on the television, press [■] to clear "O" on the unit's FL display, then press [PLAY MODE].

**2 Press the numeric buttons to select the track.**

The selected track is stored in memory.

- To select a 2-digit number  
Example: To select track 23  
Press [≥10], then [2] and [3].

or

**Press [ENTER] and press the cursor buttons [▲, ▼] to select a track.**

Press [ENTER] to register the track number.

- Repeat step 2 to select another track.
- "Total time" tells you the total time of the programmed tracks.

**3 Press [▶] (PLAY).**

Play now begins in the programmed sequence.

#### To clear the display

Press [PLAY MODE] until the screen disappears.

#### To add or change tracks

1. Press [■] during program play until the program play screen appears.
2. Press the cursor buttons [▲, ▼] to select an available item, then repeat program play step 2.

- Press [◀, ▶] to turn the program pages to make the selection faster.

#### To return to normal play

1. Press [■] during program play until "▷" disappears on the unit's FL display.
2. Press [PLAY MODE] twice.
3. Press [▶] (PLAY).

- The program is retained in memory.

#### To check the program by observing the unit's FL display

Press the cursor buttons [▲, ▼] while "PROG." is displayed. Each time you press the cursor buttons [▲, ▼], the program contents (track/program number) will be displayed.

#### To clear the programmed tracks one by one

1. Press the cursor buttons [▲, ▼] to highlight the track.
2. Press [CANCEL]. (Alternatively you can select "Clear" and press [ENTER].)

#### To clear the whole program

Move to "Clear all" with the cursor buttons [▲, ▼, ◀, ▶] and press [ENTER]. The whole program is also cleared when the unit is switched to the standby mode or unplugged, or the disc tray is opened.

## Changing the play sequence

### Random play



The unit plays the tracks on a disc in random order.

**1 Press [PLAY MODE] while stopped until the illustrated screen appears.**

- If "⊙" appears on the television, press [■] so "▷" on the FL display goes out, then press [PLAY MODE].

**2 Press [▶] (PLAY).**

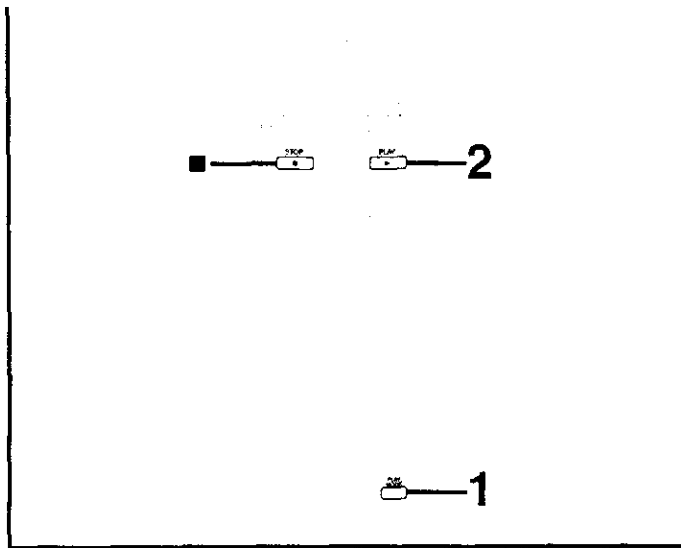
Play now begins in random order.

#### To clear the display

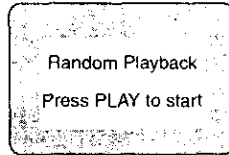
Press [PLAY MODE] until the screen disappears.

#### To return to normal play

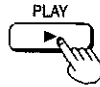
1. Press [■] during random play until "▷" disappears on the unit's FL display.
2. Press [PLAY MODE] once.
3. Press [▶] (PLAY).

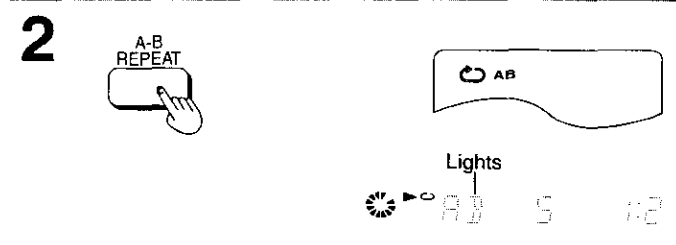
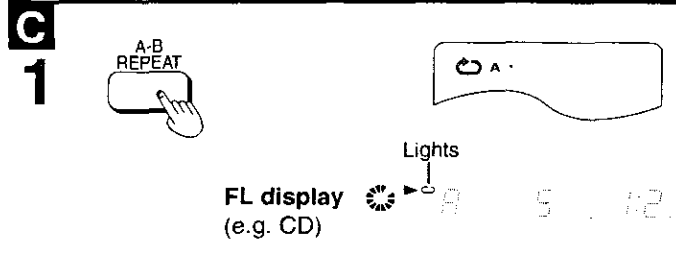
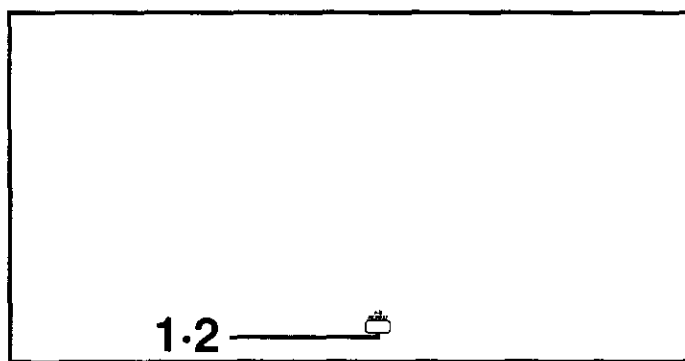
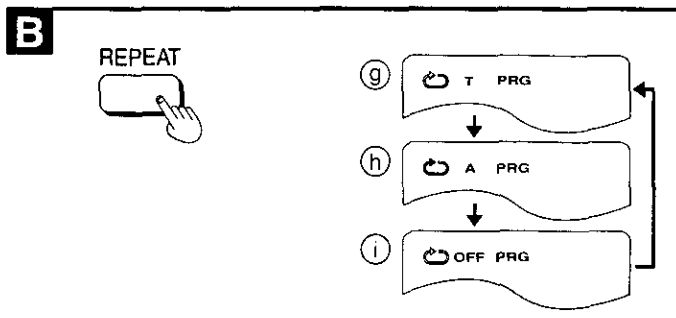
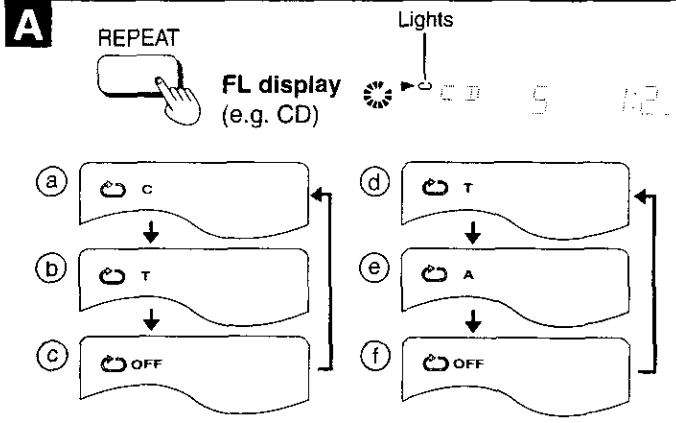
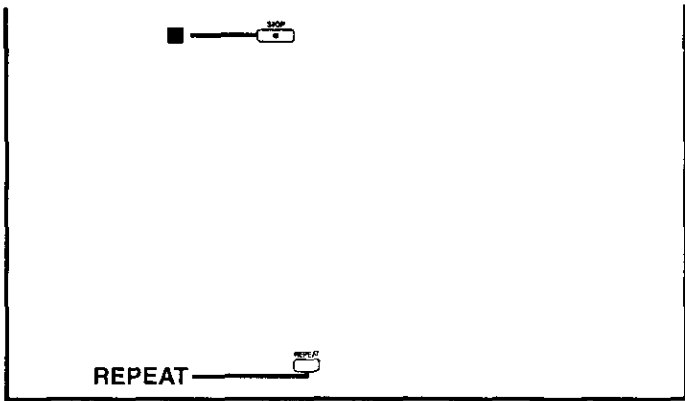


**1**



**2**





## Repeat play

### A Repeat play

DVD VCD CD

#### Press [REPEAT] during play.

The display changes as illustrated.

##### •DVD

- (a) Repeat of chapter being played
- (b) Repeat of title being played
- (c) Cancel repeat mode (Normal play)

##### •Video CD/CD

- (d) Repeat of track being played
- (e) Repeat of entire disc contents
- (f) Cancel repeat mode (Normal play)

#### If the Video CD has playback control

Cancel menu play first.

1. Press [ ] during play so "PBC" is cleared from the unit's FL display.
2. Press the numeric buttons to select a track to start play.
3. Press [REPEAT] (⇨ above).

#### To return to normal play

Press [REPEAT] until "OFF" is displayed.

##### Note

- Repeat play may not work as desired with some DVDs.
- Repeat play does not work if the disc's elapsed playtime is not shown on the unit's FL display.
- There is no mode for repeating the whole DVD.

### B To enjoy program repeat play

VCD CD

#### Press [REPEAT] during program play.

(⇨ page 18)

The display changes as illustrated.

- (g) Repeat of track being played
- (h) Repeat of all programmed tracks
- (i) Cancel repeat mode (Program play)

#### To return to program play

Press [REPEAT] until "OFF" is displayed.

### C Repeating sections between two specific points (A-B repeat)

DVD VCD CD

**1** Press [A-B REPEAT] during play at the point where repeat play is to start (A).

**2** Press [A-B REPEAT] at the point where repeat play is to be concluded (B).

Repeat play of the section between points A and B starts.

#### To return to normal play

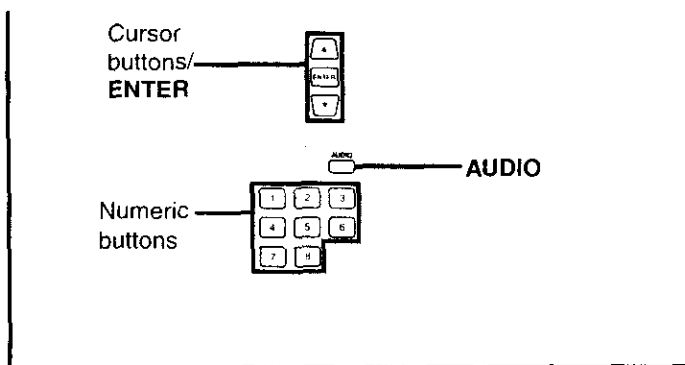
Press [A-B REPEAT] until "••" is displayed.

##### Note

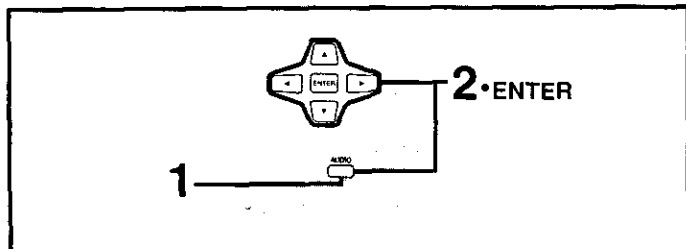
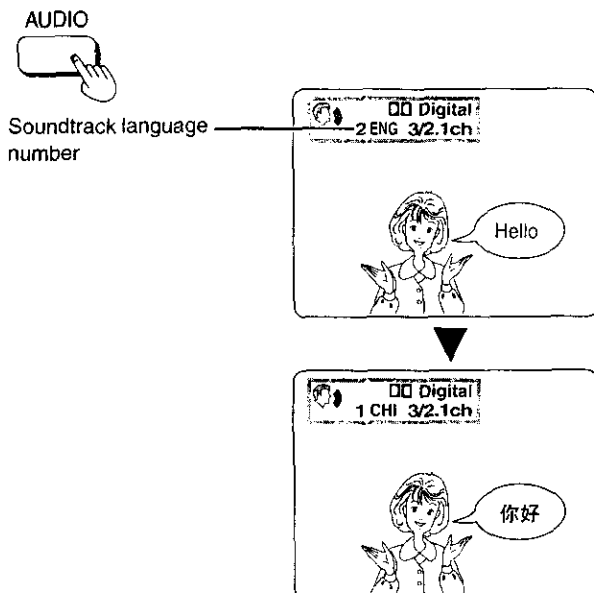
- A-B repeat play does not work if the DVD's elapsed playtime is not shown on the unit's FL display.
- Some subtitles recorded around point A or B may fail to appear (DVD).
- A-B repeat play works only within a title (DVD) or a track (Video CD/CD).

#### For your reference

The unit automatically determines the end of a title/track as point B when the end of the title/track is reached.



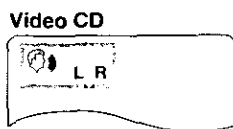
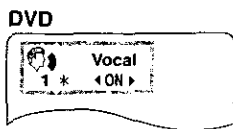
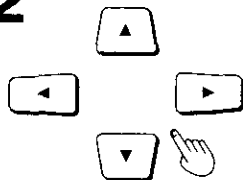
**A**



**B**



**2**



## Increasing your enjoyment of movies and music

As well as the features described on pages 21 to 23, you can also use the On-Screen Menu Icons to enjoy the following features.

- **Dialogue Enhancer:** Makes dialogue clearer (⇒ page 27).
- **Marker:** You can mark parts to play again (⇒ page 27).

### A Changing soundtrack language

**DVD**

Some DVDs have more than one soundtrack language recorded on them, and you can change soundtrack language during play.

**Press [AUDIO] during play to change the soundtrack language number.**

The number changes each time you press the button.

- You can also use the cursor buttons [▲, ▼] or the numeric buttons to change the language number.
- "—" is displayed in circumstances such as when soundtracks are not recorded on the disc.

**To clear the display**

Press [ENTER].

**For your reference**

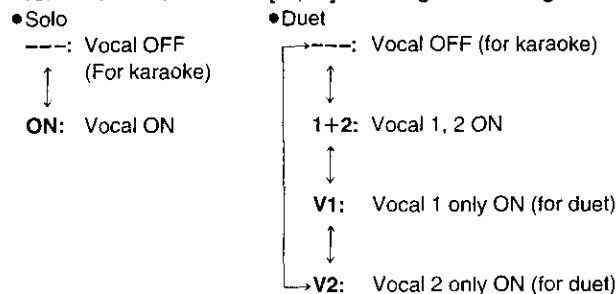
- The soundtrack language reverts to the initial setting (⇒ page 30) if you stop play and the resume function is canceled.
- Some discs allow changes to soundtrack languages only by using the disc's menus.
- In some cases, the master vocal may be turned on or off through the above operation on Karaoke DVD with multiple audio numbers (streams).
- You can also make language settings before play with the Audio Language Settings (⇒ page 30) so that play starts in the selected language whenever you turn the unit on or change discs.

### B Switching vocals ON or OFF for karaoke discs

**DVD VCD**

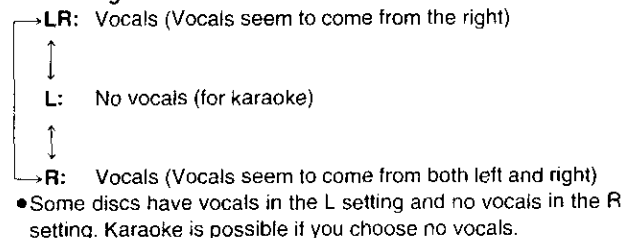
1. Press [AUDIO] during play.
2. **DVD**

Press the cursor buttons [◀, ▶] to change the setting.



**Video CD**

Press the cursor buttons [▲, ▼] or press [AUDIO] to change the setting.



**Note**

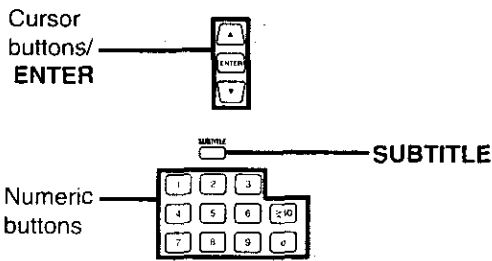
"L+R" can be selected only while the karaoke button on the unit is on (⇒ page 15).

**To clear the display**

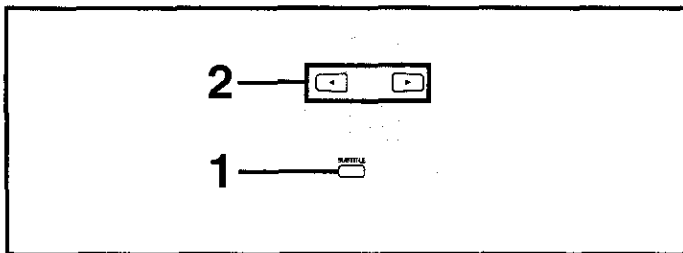
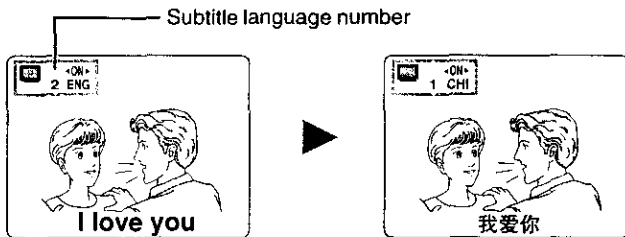
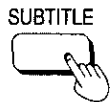
Press [ENTER].

**For your reference**

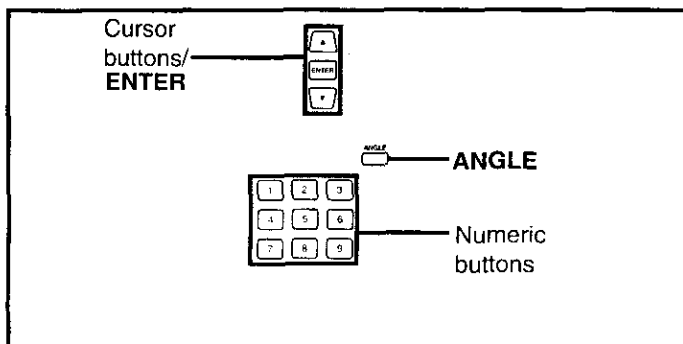
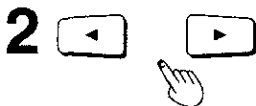
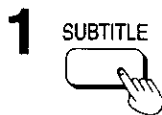
Some discs require different operations from those described. Read the disc's instructions for details.



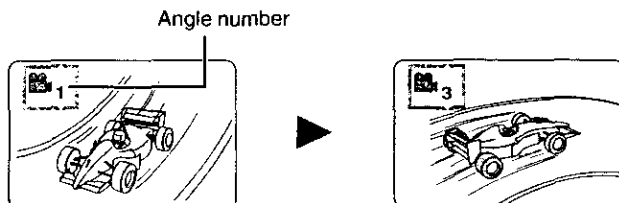
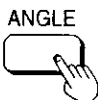
**A**



**B**



**C**



**Increasing your enjoyment of movies and music**

**A Changing subtitle language**

**DVD**

Some DVDs have more than one subtitle language recorded on them, and you can change subtitle language during play.

**Press [SUBTITLE] during play to change the subtitle language number.**

The number changes each time you press the button.

- You can also use the cursor buttons [▲, ▼] or the numeric buttons to change the language number.
- “—” is displayed in circumstances such as when subtitles are not recorded on the disc.

**To clear the display**

Press [ENTER].

**B To clear/display the subtitles**

1. Press [SUBTITLE].
2. Press the cursor buttons [◀, ▶] to select “ON” or “OFF”.

**Note**

- In some cases, the subtitle language is not changed to the selected one immediately.
- You can also make language settings before play with the Subtitle Language Settings (⇒ page 30) so that play starts in the selected language whenever you turn the unit on or change discs.

**For U.S.A.**

- When a disc supporting closed captions is played, the subtitles and closed captions may overlap each other on the television. In this case, turn the subtitles off.

**For your reference**

- The subtitle language reverts to the initial setting (⇒ page 30) if you stop play and the resume function is canceled.
- Some discs allow changes to subtitle languages only by using the disc’s menus.

**C Viewing from another angle**

**DVD**

Some DVDs allow you to view the same scene from different angles. “ANGLE” lights on the FL display to indicate that the feature is available.

**Press [ANGLE] during play to change the angle number.**

The number changes each time you press the button.

- You can also use the cursor buttons [▲, ▼] or the numeric buttons to change the angle.

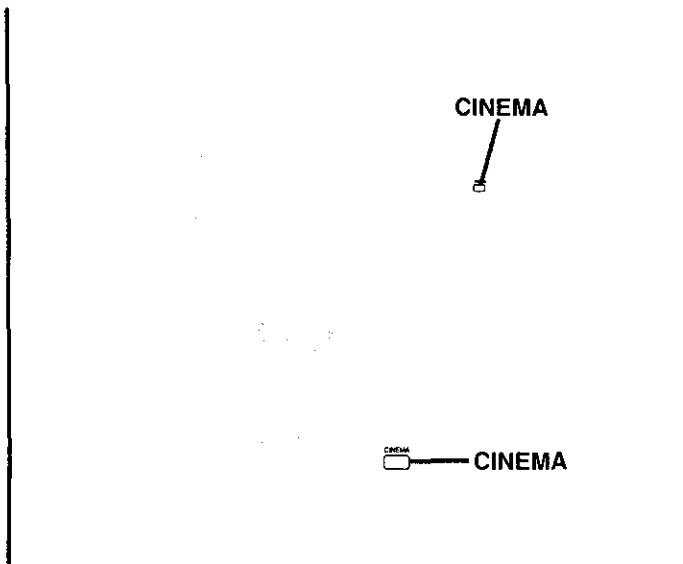
**To clear the display**

Press [ENTER].

**For your reference**

- Some discs allow you to set angles before multi-angle scenes are played. Read the instructions that come with the DVD.
- Some discs allow changes to angles only by using the disc’s menus.

Increasing your enjoyment of movies and music



### A Changing picture quality for movie viewing

DVD

Press [CINEMA] while a disc is loaded.

Each time you press the button:

N: Normal mode



C: Cinema mode

Mellows movies, enhances detail in dark scenes and reduces picture noise.

To restore the normal picture mode

Press [CINEMA].



### B Reproducing an advanced Virtual Surround Sound (V.S.S.) effect

DVD (Dolby Digital, 2-channel or over only)

Use this feature to enjoy a surround-like effect if you are using 2 front speakers. If you are playing a disc with surround effects recorded on it, the effect is broadened and sound seems to come from virtual speakers on either side.

Press [V.S.S.] during play.

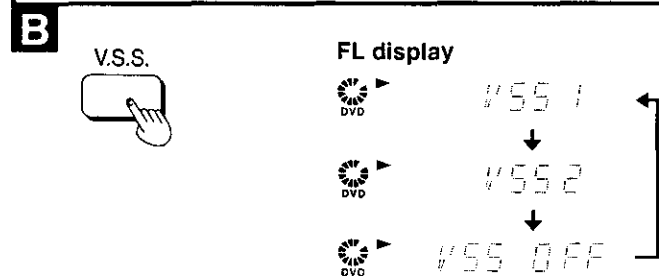
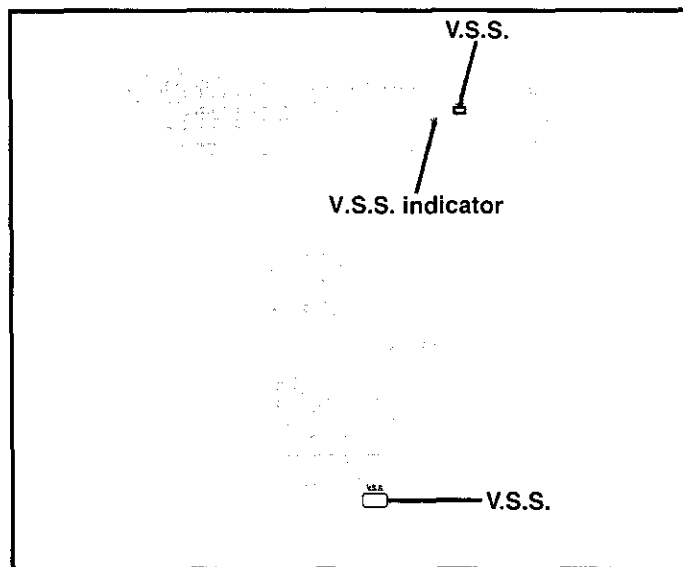
Each time you press the button:

V.S.S. 1: Natural effect

V.S.S. 2: Emphasized effect

V.S.S. OFF: Cancel

•The V.S.S. indicator lights up when V.S.S. is on.

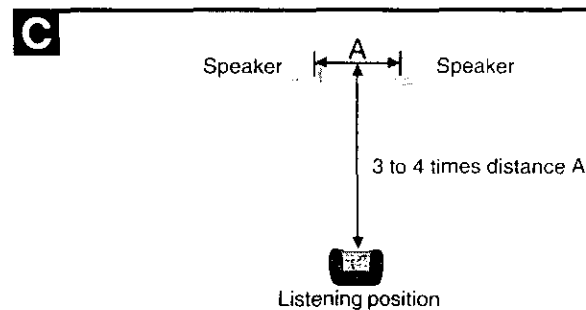


#### Note

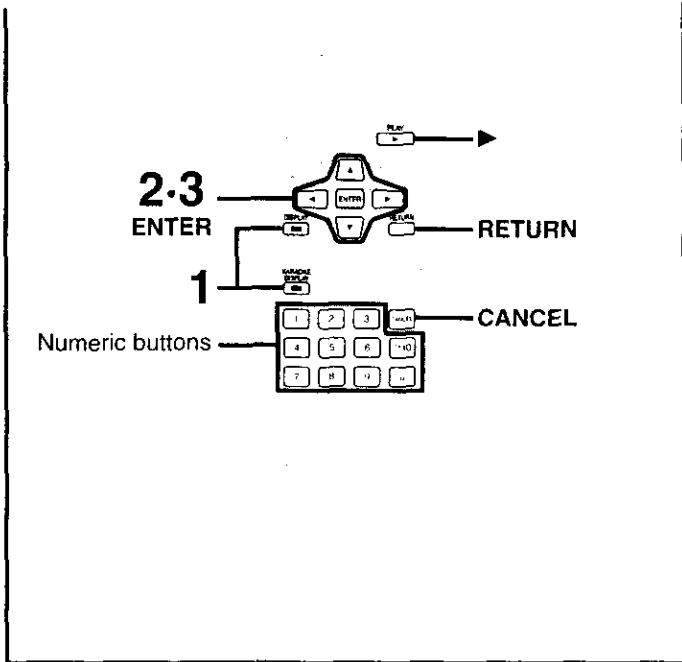
- V.S.S. does not work with Karaoke DVDs.
- V.S.S. does not work while the karaoke button is on.
- V.S.S. will not work or will have less effect with some discs.
- Turn off the surround sound effects on the equipment you have connected when using this effect.
- Sound will only come from the two front speakers if V.S.S. is on.
- Turn V.S.S. off if it causes distortion.

#### For your reference

- Optimum listening position **C**



Advanced operations

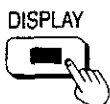
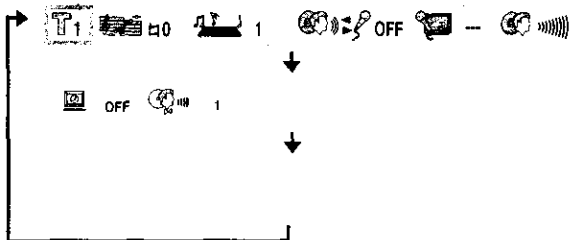


1



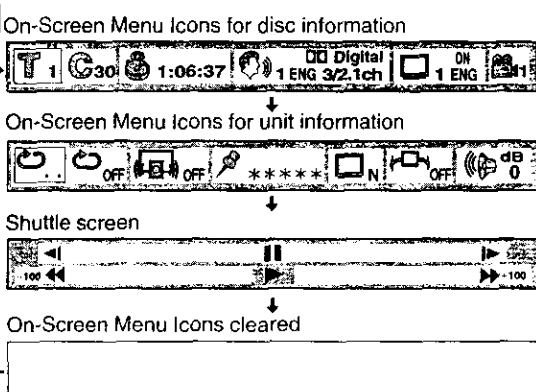
Example: DVD

A

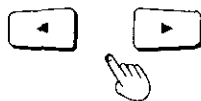


Example: DVD

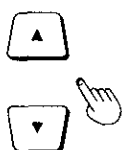
B



2



3



## Using On-Screen Menu Icons

On-Screen Menu Icons are long thin menus that contain information about the disc or unit. These menus allow you to perform operations by changing this information.

There are two types of On-Screen Menu Icons:

Karaoke On-Screen Menu Icons and general On-Screen Menu Icons.

### Common procedures

DVD CD

#### Preparation

To use the karaoke On-Screen Menu Icons

Press [KARAOKE] so it lights (→ page 15).

1

To use the karaoke On-Screen Menu Icons

Press [KARAOKE DISPLAY] during play or in the stop mode.

The karaoke On-Screen Menu Icons are displayed. **A**

To use the general On-Screen Menu Icons

Press [DISPLAY] during play or in the stop mode.

The On-Screen Menu Icons are displayed. **B**

- Each time you press the button, the icons change.

- The screens depend on the disc contents.

- Some functions cannot be accessed from the stop mode.

2

Press the cursor buttons [◀, ▶] to select the item.

The item is highlighted in yellow.

3

Press the cursor buttons [▲, ▼] to select the setting.

- For some functions, the setting will be registered immediately; for others, [ENTER] or [▶] (PLAY) must be pressed.

- When numbers are displayed (e.g. title No.), the numeric buttons are also effective for setting. When numbers are entered with numeric buttons, press [ENTER] to register the setting.

To clear the On-Screen Menu Icons

Press [RETURN] or [CANCEL].

For your reference

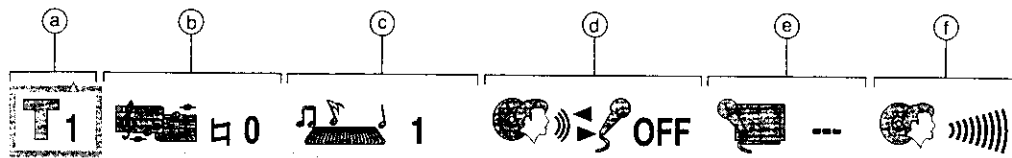
- If part of the On-Screen Menu Icons is cut off or fails to appear, go to the initial settings menu to change the position of On-Screen Messages. The color of the On-Screen Menu Icons can also be changed (→ page 32, "4 On-Screen Messages").

- "▲, ▼" around the icon means that the item can be changed using the cursor buttons [▲, ▼].





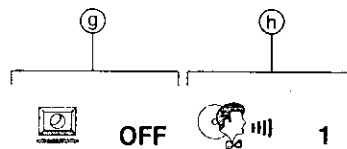
# Detailed descriptions of karaoke On-Screen Menu Icons



- a Title number [DVD]**  
**Track number [CD]**  
 Select a number to start play from a title or a track.
- b Key control** (⇒ page 15)  
 Adjust the key in half-tone steps.  
 ♭ : lowers the key in six steps  
 □ : restores the original key  
 # : raises the key in six steps
- c Guide melody** (⇒ page 16) [DVD]  
 (Karaoke DVD discs only in which the guide melody is recorded independently)  
 Adjust the volume of the guide melody.  
 1: normal volume  
 2: increased volume  
 OFF: the guide melody is turned off
- d Voice change on and off** (⇒ page 16)  
 When you select "ON", the disc's vocals are muted while you are singing.

- e Switching vocals** (⇒ page 15)  
 (multi audio discs only)  
 The audio mode you select is played.

  - Karaoke DVD solo discs  
 ---: Vocal OFF (for karaoke)  
 ↓  
 ON: Vocal ON
  - Karaoke DVD duet discs  
 ---: Vocal OFF (for karaoke)  
 ↓  
 1+2: Vocal 1, 2 ON  
 ↓  
 V1: Vocal 1 only ON (for duet)  
 ↓  
 V2: Vocal 2 only ON (for duet)
  - Video CD/CD  
 LR: Vocals (Vocals seem to come from the right)  
 ↓  
 L: No vocals (for karaoke)  
 ↓  
 R: Vocals (Vocals seem to come from both left and right)  
 ↓  
 L+R: Vocals (Vocals seem to come from both left and right)
- f One touch karaoke on and off** (⇒ page 16)  
 When you select "ON", you can do karaoke with non-karaoke discs.  
 >>> : ON  
 >>>>> : OFF

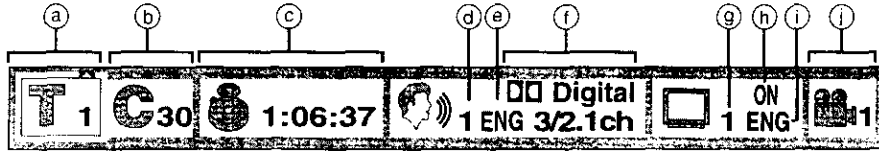


- g Bass boost**  
 The bass is emphasized.  
 ON: the bass is boosted  
 OFF: normal sound range
- h Master vocal level [DVD]**  
 (Karaoke DVD discs only in which the master vocal is recorded independently)  
 You can adjust the volume of the vocals.  
 1: normal volume  
 2: increased volume

Detailed descriptions of general On-Screen Menu Icons

Screen for disc information

■ DVD

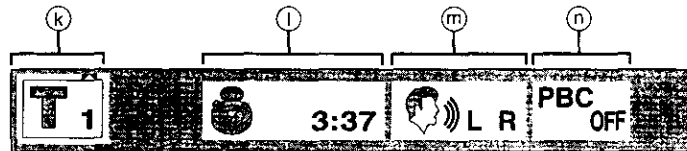


- (a) **Title number**  
Select a number to start play from a title.
- (b) **Chapter number**  
Select a number to start play from a chapter.
- (c) **Elapsed play time**  
(hour:minute:second)  
Play starts from a time you specify with the numeric buttons.  
For example: To start play from 1 hour 6 minutes and 37 seconds into the disc,  
[1]→[0]→[6]→[3]→[7]→[ENTER]
- (d) **Soundtrack language number**  
Specify a soundtrack language number.
- (e) **Soundtrack language**

ENG: English	SVE: Swedish	CHI: Chinese
FRA: French	NOR: Norwegian	KOR: Korean
DEU: German	DAN: Danish	MAL: Malay
ITA: Italian	POR: Portuguese	VIE: Vietnamese
ESP: Spanish	RUS: Russian	THA: Thai
NLD: Dutch	JPN: Japanese	*: Others

- (f) **Audio attribute**  
Shows the audio attributes of the selected soundtrack (cannot be changed).  
**LPCM/DD Digital/DTS:** Signal type  
k: Sampling frequency (kHz)  
b: Number of bits (bit)  
ch: Number of channels\*  
**Vocal:** Vocals indication for karaoke discs  
• You can switch vocals ON or OFF with the cursor buttons [▲, ▼].  
Karaoke DVD (Solo): --- (OFF) ↔ ON  
Karaoke DVD (Duet): --- (OFF) ↔ V1+V2 ↔ V1 ↔ V2
- (g) **Subtitle language number**  
Specify a subtitle language number.
- (h) **Subtitle on/off**  
Select "ON" or "OFF".  
OFF: Subtitles cleared.  
ON: Subtitles displayed.
- (i) **Subtitle language**  
See the table under item (e).
- (j) **Angle number**  
Specify an angle number.

■ Video CD/CD



- (k) **Track number**  
Select a number to start play from a track.
- (l) **Time display mode**  
(minute:second)  
Display is changed each time the cursor buttons [▲, ▼] are pressed. (The times cannot be changed)  
Elapsed playing time of the track ↔ Remaining time of the track  
↔ Remaining time of the disc ↔

- (m) **Audio mode** [L R]  
Specify an audio channel.  
LR ↔ L ↔ R
- (n) **Playback control** [PBC OFF] (Video CDs with playback control)  
Shows whether menu play is on or off (cannot be changed here).  
OFF: Menu play is OFF.  
ON: Menu play is ON.

Note

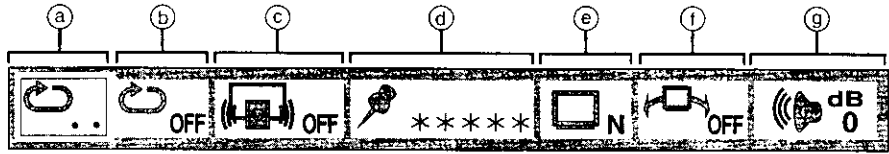
- During program and random play of Video CDs and CDs, the remaining time of the disc is not displayed.
- "L+R" can be selected only while the karaoke button on the unit is on (→ page 15).

※Example:

3/2.1ch

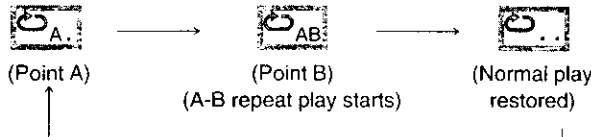
.1: Subwoofer signal (not displayed if there is no subwoofer signal)
0: No surround 1: Mono surround 2: Stereo surround (left/right)
1: Center 2: Front left+Front right 3: Front left+Front right+Center

Screen for unit information



**a A-B repeat play**

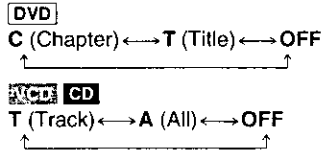
Play repeats between 2 specified points.  
During play  
Each time you press [ENTER];



- This feature works only within a title/track.
- The unit automatically determines the end of a track/title as point B when the end of the title/track is reached.

**b Repeat play**

Repeat play starts after you select a type of play.



**c Dialogue Enhancer**

**DVD** [Icon] OFF  
(Dolby Digital, 3-channel or over only)  
Dialogue Enhancer raises dialogue from the center channel.

**Play mode** (⇒ pages 18 and 19)

The current play mode is shown (cannot be changed here).  
**PRG**: Program play  
**RND**: Random play  
---: Normal play

**d Marker**

You can mark up to 5 positions that you want to play again.  
Press [ENTER] once, then press [ENTER] again at the point you want to mark.

- To mark another position, press the cursor button [▶] to select the next marker.
- All the markers are cleared when the unit is switched to the standby mode or the disc tray is opened.

■ **To recall a position**

Select the marker number with the cursor buttons [◀, ▶] and press [ENTER].

■ **To clear a marker**

Select the marker number with the cursor buttons [◀, ▶] and press [CANCEL].

**e Cinema mode** (⇒ page 23)

**DVD** [Icon]  
Select the picture mode.  
**C**: Cinema mode: Picture for viewing movies  
**N**: Normal mode

**f Virtual Surround Sound (V.S.S.)** (⇒ page 23)

**DVD** (Dolby Digital, 2-channel or over only)  
Select the V.S.S. level during play.  
**1** (Natural effect) ↔ **2** (Emphasized effect)  
↔ **OFF** (Cancel) ↔

**g Master volume** (Analog output only)

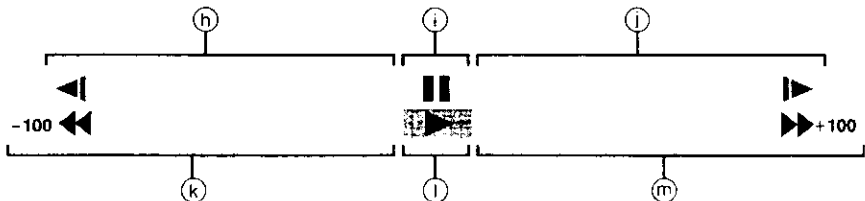
Adjust the master volume.  
-∞ (mute) or -127 dB (minimum) to 0 dB (maximum)

**Note**

- A-B repeat play does not work if the DVD's elapsed play time is not shown on the unit's FL display.
- Repeat play and marker functions do not work if the disc's elapsed play time is not shown on the unit's FL display.

Shuttle screen

Example: DVD



- h** Slow-motion play (Backward) [DVD]
- i** Pause/Still
- l** Slow-motion play (Forward) [DVD] [Icon]

- k** Rapid reverse
- l** Play
- m** Rapid advance

**For your reference**

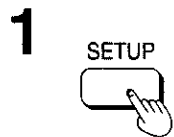
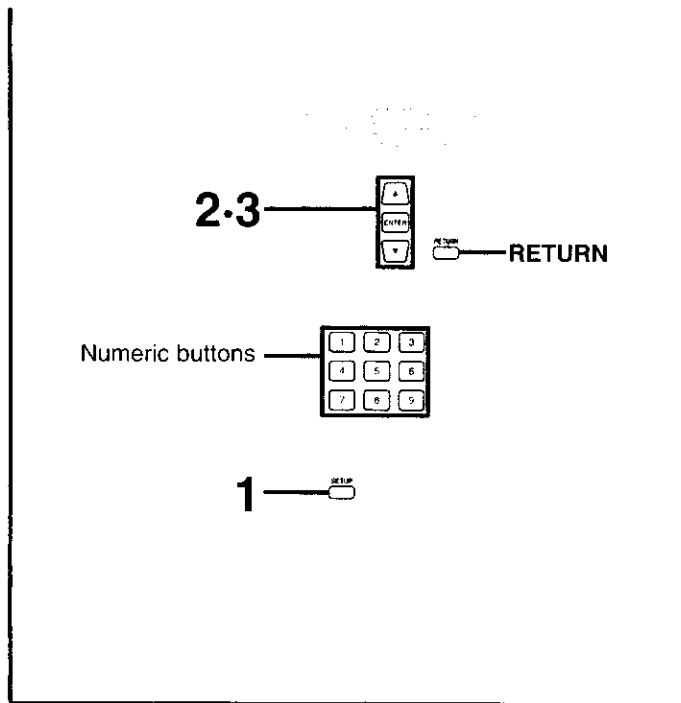
- The numbers on either side of the shuttle screen indicate the maximum speeds.
- Each time the cursor buttons [◀, ▶] are pressed, the speed of rapid reverse/advance and slow-motion play increases up to 5 steps.
- Some operations are not possible with some discs.

# Changing initial settings

## Summary of initial settings

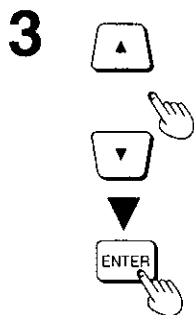
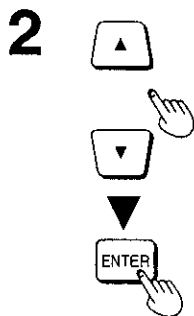
This is a list of items you are able to change before playing discs (initial settings).  
See the relevant pages for more details. Underlined values are factory settings.

Settings	Item and content		Page
1 Disc Languages	Audio	<u>English</u> /Chinese/Original/Other	30
	Subtitle	<u>Automatic</u> /English/Chinese/Other	
	Menus	<u>English</u> /Chinese/Other	
2 Ratings	8 <u>No Limit</u> /7/6/5/4/3/2/1/0 Lock All		31
3 Menu Language	<u>English</u> / 中文		32
4 On-Screen Messages	On-Screen Messages	<u>On</u> /Off	32
	Color and Position	<u>Blue</u> /Violet/Green/Blue (slightly lower)/Violet (slightly lower)/ Green (slightly lower)	
5 FL Display	<u>Bright</u> /Dim/ Dim During DVD/VCD Play (Auto)		32
6 TV Aspect	<u>4:3</u> /16:9		8
7 Digital Audio Output	PCM Down Conversion	<u>No</u> /Yes	38
	Dolby Digital	<u>Bitstream</u> /PCM	
	DTS Digital Surround	<u>Off</u> /Bitstream	
8 Speaker Setting	Multi-channel	Setting the size and presence of your speakers Front speakers (L/R): <u>Large</u> /Small Center speaker: <u>Large</u> /Small/No Subwoofer: <u>Yes</u> /No Surround speakers (LS/RS): <u>Large</u> /Small/No	39
		Delay time Center speaker: <u>0</u> /1.3/2.6/3.9/5.3 ms Surround speakers: <u>0</u> /5.3/10.6/15.9 ms	
		Channel balance Center channel: <u>0</u> /±6 dB Subwoofer channel: <u>0</u> /±6 dB Surround (L/R) channel: <u>0</u> /±6 dB	
	2-channel		
9 Other Settings	Still Mode	<u>Automatic</u> /Field/Frame	33
	Audio during Search	<u>On</u> /Off	
	TV Mode (4:3)	<u>Pan &amp; Scan</u> /Letterbox	
	D.Range Compression	<u>Off</u> /On	
	Still Picture Display	<u>Off</u> /On	
	<b>For U.S.A.</b> Black Level Control	<u>Lighter</u> /Darker	
	NTSC Disc Output	<u>PAL 60</u> /NTSC	



○ 1	Disc Languages	
○ 2	Ratings	Level 8
○ 3	Menu Language	English
○ 4	On-Screen Messages	
○ 5	FL Display	Bright
○ 6	TV Aspect	4 : 3
○ 7	Digital Audio Output	
○ 8	Speaker Setting	2-channel
○ 9	Other Settings	

Press RETURN to exit



## Changing initial settings

Change the initial settings to suit your preferences and to suit the unit to the environment in which it is being used. These settings are retained in memory until they are changed, even if the unit is switched to the standby mode.

### Common procedures

- 1 Press [SETUP] in the stop mode.**  
The initial settings screen is displayed.
- 2 Press the cursor buttons [▲, ▼] to select the item and press [ENTER].**  
Each item that can be modified is displayed.

- 1 Disc Languages (⇒ page 30)**  
Change the soundtrack language, subtitle language and the language used in the disc's menu to be used for every disc played.
- 2 Ratings (⇒ page 31)**  
Change the ratings level to prevent play of discs (e.g. with violent scenes).
- 3 Menu Language (⇒ page 32)**  
Change the language used for the on-screen displays and initial settings menus.
- 4 On-Screen Messages (⇒ page 32)**  
Choose whether "Play", "Still" and other displays will be displayed, choose the color and position of these displays as well as karaoke On-Screen Menu Icons and general On-Screen Menu Icons.
- 5 FL Display (⇒ page 32)**  
Change the brightness for the FL display.
- 6 TV Aspect (⇒ page 8)**  
Change the settings to suit your television.
- 7 Digital Audio Output (⇒ page 38)**  
Change the settings to suit the type of digital equipment you have connected.
- 8 Speaker Setting (⇒ page 39)**  
Change the settings to suit the type of speaker you have connected.
- 9 Other Settings (⇒ page 33)**  
Choose the kind of picture shown when play is paused, and adjust various other settings to enhance your viewing experience.

- 3 Press the cursor buttons [▲, ▼] to select the setting and press [ENTER].**

•Some items require additional steps.  
(See the respective pages.)  
Setting is finished and the initial settings screen is displayed.

**To return to the previous menu**  
Press [RETURN].

**When you are finished**  
Press [SETUP].

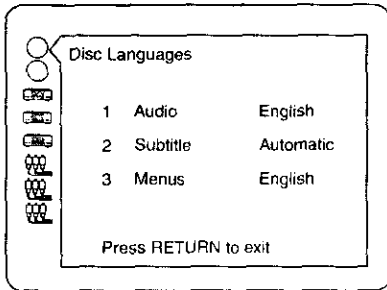
**For your reference**  
The numeric buttons can also be used for selecting items or settings. Pressing [ENTER] is not necessary.

## Changing initial settings

### Disc Languages (⇒ page 29 for operation)

These settings allow you to choose the languages used when a DVD is played.

If the language selected is not available on the disc, the language designated by each disc will be selected. There are cases where the selected language is recorded but the disc designates another language.



<b>1 Audio</b>	<b>1 English (Factory preset)</b> <b>3 Original</b> The original language of each disc will be selected. <b>4 Other * * * *</b> Another language can be selected.*	<b>2 Chinese</b>
<b>2 Subtitle</b>	<b>1 Automatic (Factory preset)</b> If the language selected in "Audio" is actually used during play, the subtitles will not appear. <b>2 English</b> <b>4 Other * * * *</b> Another language can be selected.*	<b>3 Chinese</b>
<b>3 Menus</b>	<b>1 English (Factory preset)</b> <b>3 Other * * * *</b> Another language can be selected.*	<b>2 Chinese</b>

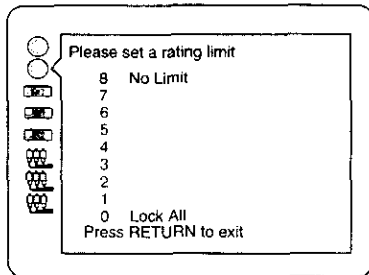
\*Enter the language code if you select "Other". (See the language code list below.) If you enter a wrong number, press [CANCEL] to erase it before you press [ENTER].

#### Language code list

Abkhazian: 6566	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Telugu: 8469
Afar: 6565	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Thai: 8472
Afrikaans: 6570	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoan: 8377	Tibetan: 6679
Albanian: 8381	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tigrinya: 8473
Ameharic: 6577	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tonga: 8479
Arabic: 6582	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Turkish: 8482
Armenian: 7289	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkmen: 8475
Assamese: 6583	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Twi: 8487
Aymara: 6588	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Ukrainian: 8575
Azerbaijani: 6590	Faroese: 7079	Japanese: 7465	Mongolian: 7778	Singhalese: 8373	Urdu: 8582
Bashkir: 6665	Fiji: 7074	Javanese: 7487	Nauru: 7865	Slovak: 8375	Uzbek: 8590
Basque: 6985	Finnish: 7073	Kannada: 7578	Nepali: 7869	Slovenian: 8376	Vietnamese: 8673
Bengali; Bangla: 6678	French: 7082	Kashmiri: 7583	Norwegian: 7879	Somali: 8379	Volapük: 8679
Bhutani: 6890	Frisian: 7089	Kazakh: 7575	Oriya: 7982	Spanish: 6983	Welsh: 6789
Bihari: 6672	Galician: 7176	Kirghiz: 7589	Pashto, Pushto: 8083	Sundanese: 8385	Wolof: 8779
Breton: 6682	Georgian: 7565	Korean: 7579	Persian: 7065	Swahili: 8387	Xhosa: 8872
Bulgarian: 6671	German: 6869	Kurdish: 7585	Polish: 8076	Swedish: 8386	Yiddish: 7473
Burmese: 7789	Greek: 6976	Laotian: 7679	Portuguese: 8084	Tagalog: 8476	Yoruba: 8979
Byelorussian: 6669	Greenlandic: 7576	Latin: 7665	Punjabi: 8065	Tajik: 8471	Zulu: 9085
Cambodian: 7577	Guarani: 7178	Latvian, Lettish: 7686	Quechua: 8185	Tamil: 8465	
Catalan: 6765	Gujarati: 7185	Lingala: 7678	Rhaeto-Romance: 8277	Tatar: 8484	

## Ratings (→ page 29 for operation)

You can limit play of DVDs which are unsuitable for some audiences, for example, children. Play and changes to the settings are not possible unless a password is entered.



**Level 8** (Factory preset)  
All DVDs can be played.

### Level 7 to 1

Prevents play of DVDs with ratings recorded on them (e.g. those that contain adult or violent scenes).

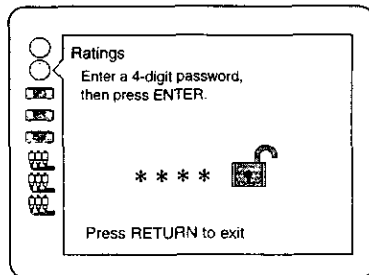
### Level 0

Play of all DVDs is prohibited.

### Note

- The rating method differs from disc to disc.
- There are discs designed for adults that do not have these ratings recorded on them. These discs can be played as normal. To prevent play of these discs, set the rating limit to "0 Lock All".

## Setting ratings



**1** Select the level with the cursor buttons [▲, ▼] and press [ENTER].

**2** Enter a 4-digit password with the numeric buttons and press [ENTER].

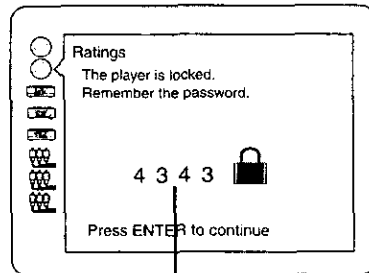
- If you enter a wrong number, press [CANCEL] to erase it before you press [ENTER].

The lock symbol appears closed to show the rating is locked.

**Do not forget your password.**

**3** Press [ENTER].

Setting is finished and the initial settings screen is displayed.



Example: "4343"

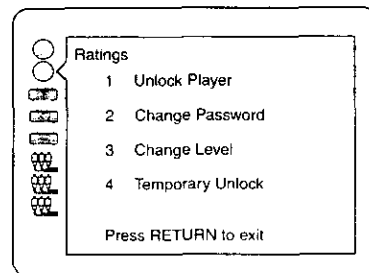
Now, when you insert a DVD that exceeds the ratings limit you set, a message appears on the television.

If you want to play the disc, select "Yes" and enter your password. The unit will unlock temporarily, locking again when the disc tray is opened or the unit is switched to the standby mode.

Your selection exceeds the player's rating limit. Do you want to change the limit?

Yes  
No

## Changing ratings (When the level is "0" to "7")



**1** Press the cursor buttons [▲, ▼] to select "2 Ratings" in the initial settings screen and press [ENTER].

**2** Enter your 4-digit password with the numeric buttons and press [ENTER].

**3** Press the cursor buttons [▲, ▼] to select the item.

**To unlock the unit (the rating level returns to "8")**

Select "1" and then press [ENTER].

**To change the password**

Select "2" and press [ENTER]. Enter a new 4-digit password and press [ENTER], then press [ENTER] again.

**To change the rating level**

Select "3" and press [ENTER]. Select a new level with the cursor buttons [▲, ▼], then press [ENTER].

**To unlock the unit temporarily**

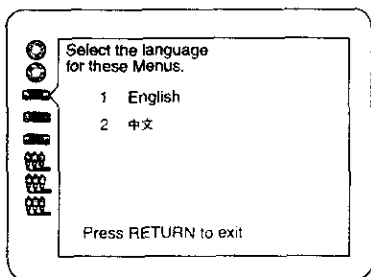
Select "4" and then press [ENTER].

- The rating is unlocked temporarily for the current disc. The unit is locked again when the disc tray is opened or the unit is switched to the standby mode.

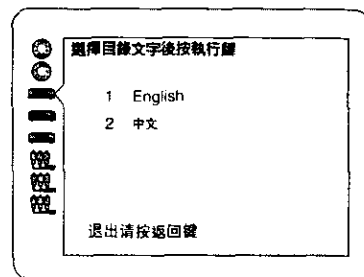
## Menu Language (⇒ page 29 for operation)

You can change the language used for on-screen messages ("Play", etc.) and initial setting screens.

Example: If you selected "2 中文"



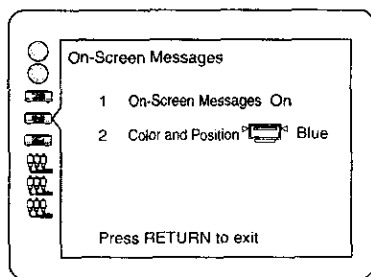
- 1 English (Factory preset)
- 2 中文



## On-Screen Messages (⇒ page 29 for operation)

You can choose to display on-screen messages or not, and you can choose their color and position.

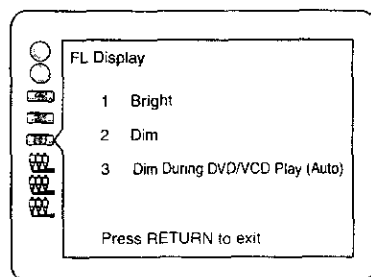
Advanced operations



1 On-Screen Messages	<ul style="list-style-type: none"> <li>1 On (Factory preset)</li> <li>2 Off</li> </ul>
2 Color and Position	<ul style="list-style-type: none"> <li>1  Blue (Factory preset)</li> <li>2  Violet</li> <li>3  Green</li> <li>4  Blue</li> <li>5  Violet</li> <li>6  Green</li> </ul> <p style="margin-left: 150px;">} Shown slightly lower. Select if the top of the screen is cut off.</p>

## FL Display (⇒ page 29 for operation)

You can dim the FL display.



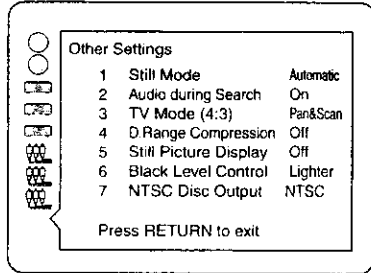
- 1 Bright (Factory preset)
- 2 Dim
- 3 Dim During DVD/VCD Play (Auto)  
The FL display will be dimmed during play of DVDs and Video CDs. The display brightens when you press a button for special play such as [◀◀], [▶▶] or [III].



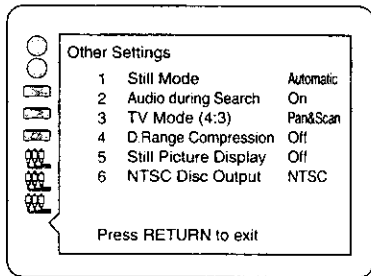
**Other Settings (→ page 29 for operation)**



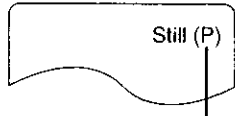
The following special settings can be made.

**For U.S.A.**



**For Asia**



<p><b>1 Still Mode</b> You can select either "Field still" or "Frame still" in the still picture mode.</p>	<p><b>1 Automatic</b> (Factory preset) The unit automatically selects field still or frame still.</p> <p><b>2 Field</b> The unit shows field stills. Select this setting when jittering occurs in the still picture mode when "1 Automatic" is selected.</p> <p><b>3 Frame</b> The unit shows frame stills. Select if small text or fine patterns cannot be seen clearly in the still picture mode when "1 Automatic" is selected.</p>
<p><b>2 Audio during Search</b> You can choose whether audio is heard during search (forward direction) at the initial search speed. (DVD and Video CD)</p>	<p><b>1 On</b> (Factory preset)</p> <p><b>2 Off</b> Select if you do not want audio during search.</p>
<p><b>3 TV Mode (4:3)</b> You can choose how software made for a widescreen television (16:9) is displayed on a conventional TV (4:3).</p>	<p><b>1 Pan &amp; Scan</b> (Factory preset) The picture is shown with either one or both sides cut off.</p>  <p><b>2 Letterbox</b> Black bands appear at the top and bottom of the screen.</p> 
<p><b>4 D. (Dynamic) Range Compression</b> You can compress the dynamic range (the difference between the loudest sound and the softest sound). (Dolby Digital DVD only)</p>	<p><b>1 Off</b> (Factory preset)</p> <p><b>2 On</b> Select when viewing discs at low volume, such as late at night.</p>
<p><b>5 Still Picture Display</b> You can display the picture type, I, P or B in the still picture mode. (DVD only)</p>	<p><b>1 Off</b> (Factory preset)</p> <p><b>2 On</b> Indicates the picture type in the still picture mode.</p>  <p>Example: P-picture</p>
<p><b>For U.S.A.</b></p> <p><b>6 Black Level Control</b> You can select the black level of the picture, "Lighter" or "Darker".</p>	<p><b>1 Lighter</b> (Factory preset) Select when the unit is connected to a television through the VIDEO OUT terminal or S VIDEO OUT terminal.</p> <p><b>2 Darker</b> Select when the unit is connected to a television through the COMPONENT VIDEO OUT (Y/Pb/Pa) terminals.</p>
<p><b>7 NTSC Disc Output</b> You can select whether PAL 60 signals or NTSC signals will be output during playback of NTSC discs.</p>	<p><b>1 PAL 60</b> Select when the unit is connected to a PAL television which is capable of receiving PAL 525/60.</p> <p><b>2 NTSC</b> (Factory preset) Select when the unit is connected to an NTSC television or a multi-system television.</p>

\*For Asia, "NTSC Disc Output" is item "6".

**Note**

- Audio is heard at any scanning speed (forward/backward) when playing CDs, regardless of any settings at "2 Audio during Search".
- Audio is not heard at any scanning speed (forward/backward) when playing CDs encoded with DTS, regardless of any settings at "2 Audio during Search".

# Home theater

This unit has a Dolby Digital decoder. You can enjoy the movie theater-like surround effects found on discs encoded with Dolby Digital right in your home, merely by connecting this unit to the 5.1-channel input terminals on an amplifier. This unit does not have a DTS decoder.

## ■ Upgrading your audio equipment

Setup chart				
Equipment and settings Types of connection	Equipment	Speakers	Settings	Page
To enjoy the 5.1-channel surround sound found on DVDs using the unit's built-in decoder <b>Analog connection</b>	Amplifier with 5.1-channel audio input terminals	<ul style="list-style-type: none"> <li>• Front speakers (L/R)</li> <li>• Subwoofer</li> <li>• Surround speakers (L/R)</li> <li>• Center speaker</li> </ul>	Select "1 Multi-channel" in "8 Speaker Setting" <ul style="list-style-type: none"> <li>• Speaker presence ⇒ Set speakers you have connected to "Yes"</li> <li>• Set delay time if necessary</li> <li>• Correct output balance if necessary</li> </ul>	35 <b>A</b> , 39
To enjoy the 5.1-channel surround sound found on DVDs using the decoder in another unit*1 <b>Digital connection</b>	Amplifier with built-in decoder or a separate decoder-amplifier combination	<ul style="list-style-type: none"> <li>• Front speakers (L/R)</li> <li>• Subwoofer</li> <li>• Surround speakers (L/R)</li> <li>• Center speaker</li> </ul>	In "7 Digital Audio Output" <ul style="list-style-type: none"> <li>• PCM Down Conversion⇒ "Yes"</li> <li>• Dolby Digital/DTS Digital Surround ⇒ Settings depend on your decoding equipment</li> </ul>	36 <b>B</b> , 38
To enjoy stereo through an analog amplifier*2 <b>Analog connection</b>	Audio equipment with 2-channel audio input terminals	Front speakers (L/R)	Select "2 2-channel" in "8 Speaker Setting"	37 <b>C</b> , 39
To enjoy stereo through a digital amplifier*2 <b>Digital connection</b>	Audio equipment with digital audio input terminal	Front speakers (L/R)	In "7 Digital Audio Output" <ul style="list-style-type: none"> <li>• PCM Down Conversion⇒ "Yes"</li> <li>• Dolby Digital⇒ "PCM"</li> <li>• DTS Digital Surround ⇒ "Off"</li> </ul>	37 <b>D</b> , 38

\*1 Connect speakers if necessary and make the speaker settings on the amplifier.

\*2 If you have connected an amplifier with a Dolby Pro Logic decoder, you may need to connect center and surround speakers.

### ■ Other uses

Recording to MDs or cassette tapes (⇒ page 37).

#### Note

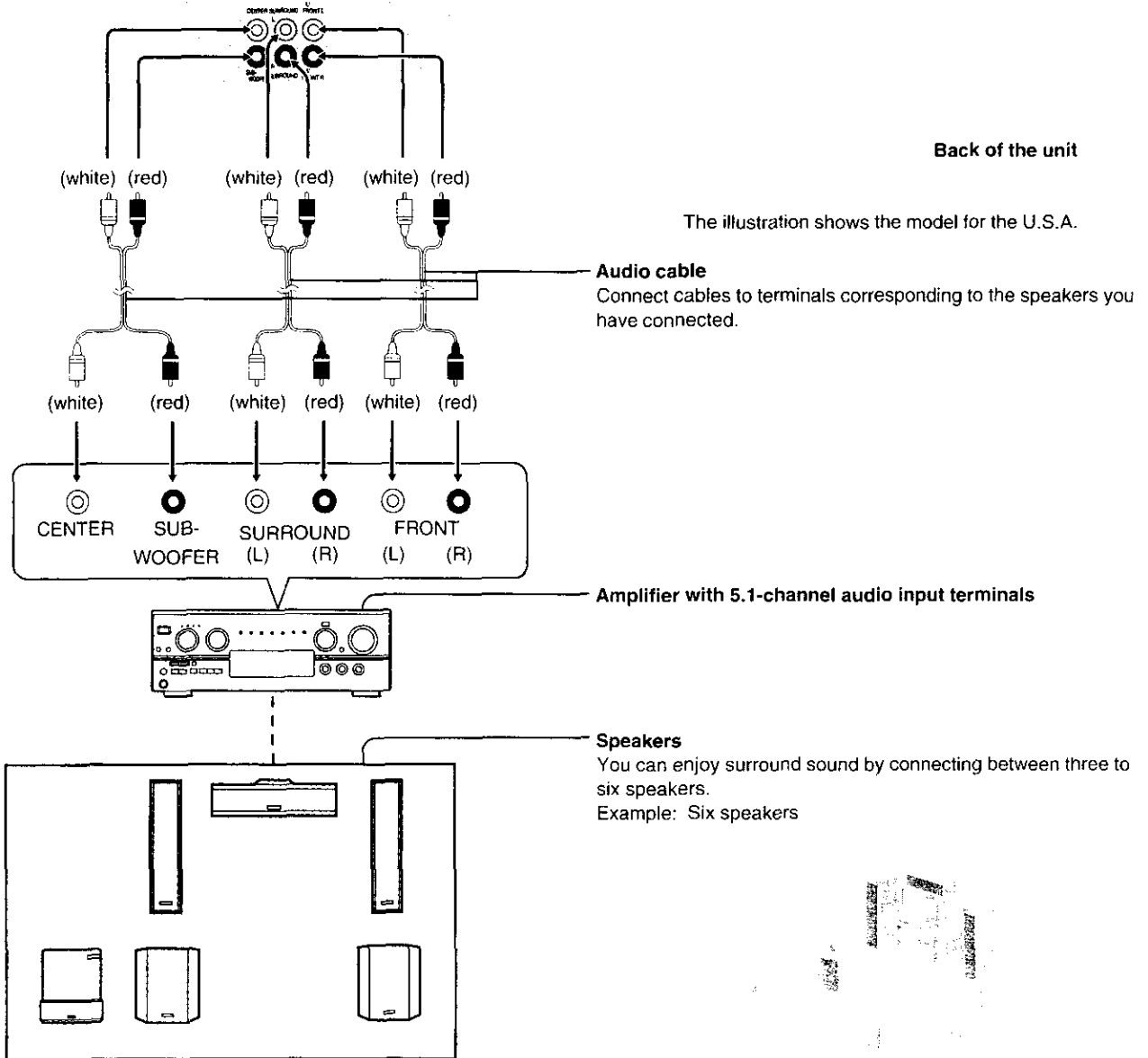
- The equipment connections described are examples.
- Peripheral equipment and optional cables are sold separately unless otherwise indicated.
- Before connection, turn off all equipment and read the appropriate operating instructions.

## A Connecting an amplifier with 5.1-channel audio input terminals

### Analog connection

This unit can decode Dolby Digital. Connect an amplifier with 5.1-channel discrete input terminals to enjoy surround sound.

### 1 Connect an amplifier with 5.1-channel audio input terminals.



### 2 Adjust the settings to suit the speakers you have connected (→ page 39 “Speaker Setting”).

#### Note

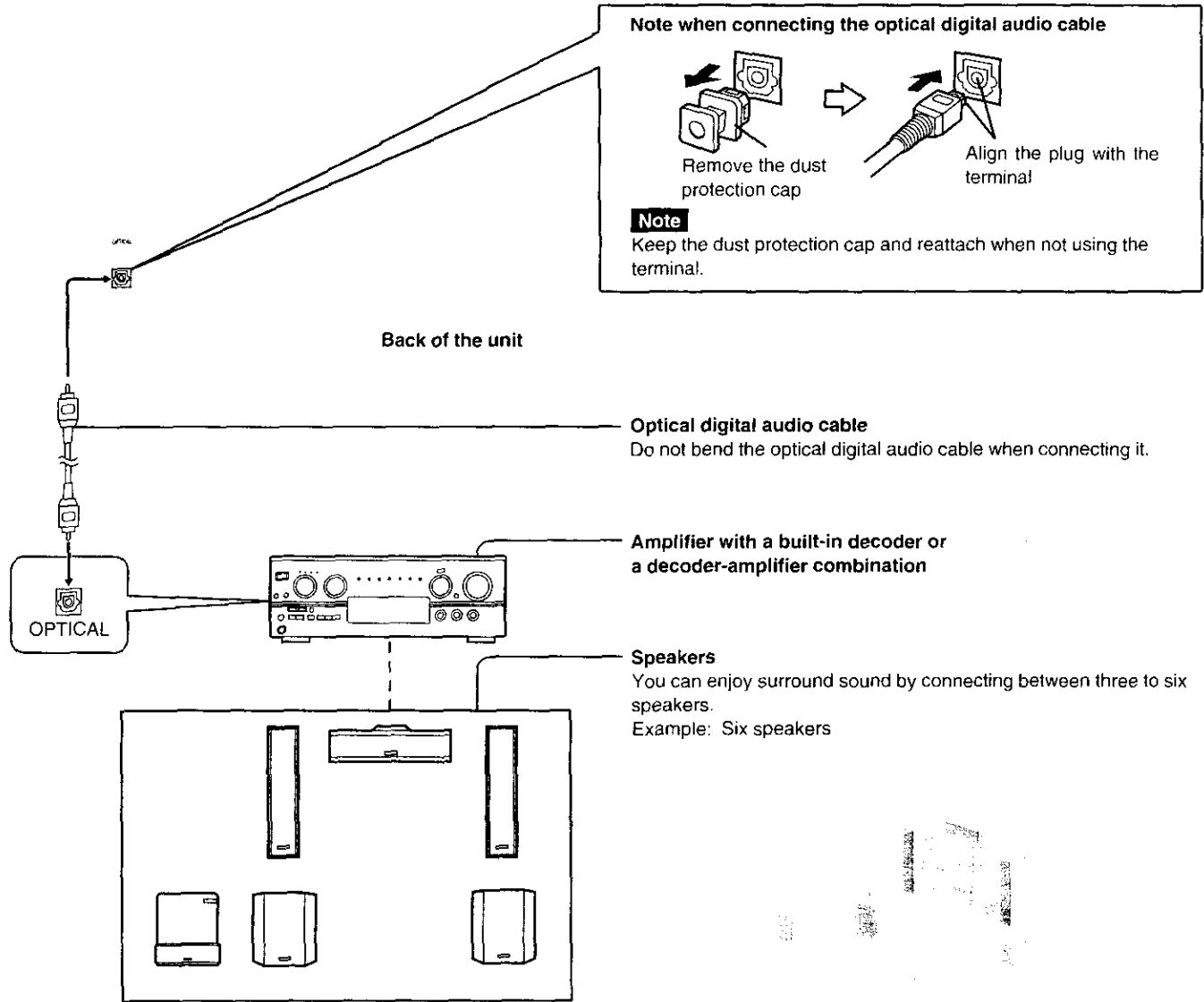
- Turn off V.S.S. (→ page 23) if you have connected a subwoofer, center speaker, or surround speakers as well as the front speakers. Sound will not come from the other speakers if V.S.S. is on.
- Use the connection described in **B** on page 36 to enjoy DVDs encoded with DTS.
- If you do not connect a subwoofer, it is advisable to connect front speakers (L/R) capable of producing bass of less than 100Hz.

## B Connecting an amplifier with a built-in decoder or a decoder-amplifier combination

### Digital connection

You can enjoy the 5.1-channel surround sound found on DVD recorded with Dolby Digital or DTS Digital Surround by connecting an amplifier with a built-in decoder or a separate decoder-amplifier combination.

### 1 Connect an amplifier with a built-in decoder or a decoder-amplifier combination.



### 2 Adjust the setting to suit the equipment you have connected (→ page 38 “Selecting digital output”).

#### Note

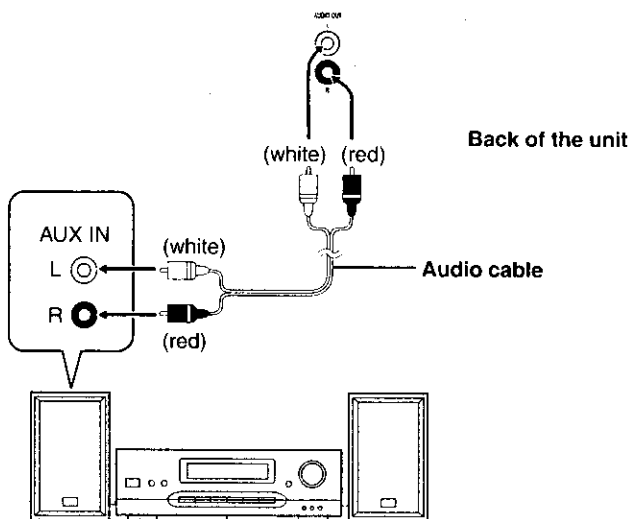
You cannot use DTS Digital Surround decoders not suited to DVD.

## C Connecting audio equipment with 2-channel audio input terminals

### Analog connection

You can enjoy stereo sound if you connect an amplifier or system component that has 2-channel audio input terminals.

- 1 Connect a 2-channel analog amplifier or system component.



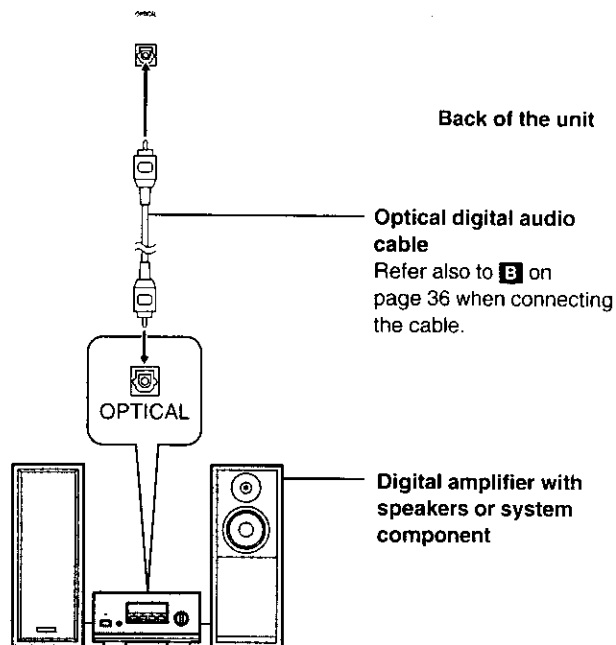
Analog amplifier with speakers or system component

- 2 Select "2-channel" in "Speaker Setting" (⇒ page 39).

## D Connecting audio equipment with digital audio input terminals

### Digital connection

- 1 Connect a 2-channel digital amplifier or system component.



- 2 Adjust the setting to suit the equipment you have connected (⇒ page 38 "Selecting digital output").

### To enjoy Dolby Pro Logic

- If you connect an amplifier with a Dolby Pro Logic decoder, you will also need to connect center and surround speakers to enjoy surround sound. Read the instructions for the equipment for connection details.
- Turn V.S.S. off (⇒ page 23). The Dolby Pro Logic decoder will not function correctly if V.S.S. is on.

## Recording to MDs or cassette tapes

### Analog recording

You can record to an MD or cassette tape without sound being affected by copy guards if you use analog connection.

You can also record audio input through the microphone. The audio is converted to analog before recording.

#### To make an analog recording

1. Connect the recording equipment with an audio cable (⇒ pages 35 and 37).
2. Set "8 Speaker Setting" to "2-channel" (⇒ page 39).
  - if this is set to "Multi-channel", only the audio for the front 2 speakers will be recorded.

### Digital recording

You can record the digital signal directly onto an MD. Signals will be converted to 48 kHz/16 bit linear PCM. You cannot record from the microphone.

Ensure the following conditions are met.

- There is no copy guard recorded on the disc.
- The recording equipment can handle a sampling frequency of 48 kHz/16 bit.

#### To make a digital recording

1. Connect the recording equipment with an optical digital audio cable (⇒ pages 36 and 37).
2. Change the digital audio output settings (⇒ page 38).  
Change the settings as follows.  
PCM Down Conversion: Yes  
Dolby Digital: PCM  
DTS Digital Surround: Off
3. Turn [KARAOKE] off.

## Selecting digital output

Select the output from the optical digital audio output terminal.

- 1** Press [SETUP] in the stop mode.  
The initial settings screen is displayed.
- 2** Press the cursor buttons [▲, ▼] to select "7 Digital Audio Output" and press [ENTER].
- 3** Press the cursor buttons [▲, ▼] to select the item and press [ENTER].

- 1 PCM Down Conversion**  
Output during play of DVD recorded in 96 kHz linear PCM.
- 2 Dolby Digital**  
Output during play of DVDs recorded with Dolby Digital.
- 3 DTS Digital Surround**  
Output during play of DVDs recorded with DTS Digital Surround.

- 4** Press the cursor buttons [▲, ▼] to select the setting and press [ENTER].

When "1 PCM Down Conversion" is selected

- 1 No** (Factory preset)  
When you have connected an amplifier with audio cables.
- 2 Yes**  
When you have connected an amplifier with an optical digital audio cable.  
Copyright protection limits digital output to 48 kHz/16 bit.

When playing DVDs recorded in 96 kHz

Sound is output as follows in accordance with the connections and settings you have made.

Setting	Connection	
	Digital	Analog
No	No output (Audio will be output at 96 kHz if the DVD has not had copyright protection recorded on it.)*	Output as 96 kHz
Yes	Converted and output as 48 kHz/16 bit	Converted and output as 48 kHz

\*The connected equipment must be able to handle 96 kHz LPCM in order to take advantage of high quality audio found on these discs.

When "2 Dolby Digital" is selected

- 1 Bitstream** (Factory preset)  
When you have connected a unit with a built-in Dolby Digital decoder.
- 2 PCM**  
When you have connected a unit that doesn't have a built-in Dolby Digital decoder.

When "3 DTS Digital Surround" is selected

- 1 Off** (Factory preset)  
When you have connected a unit that doesn't have a built-in DTS decoder. (No digital signal is output.)
- 2 Bitstream**  
When you have connected a unit with a built-in DTS decoder.

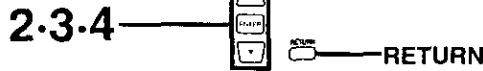
The screen illustrated in step 2 is displayed.

**To return to the previous menu**

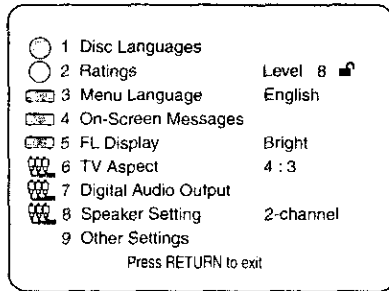
Press [RETURN].

**When you are finished**

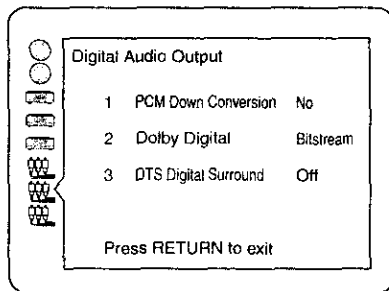
Press [SETUP].



**1**



**2**



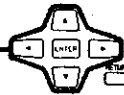
**3**



**4**



2.3.4.5



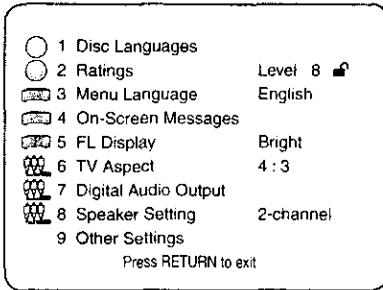
RETURN

1



1

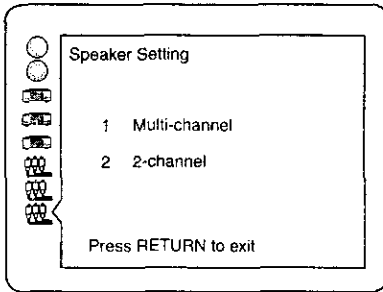
SETUP



2



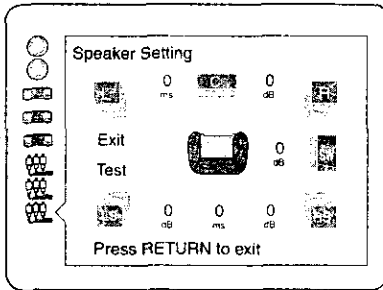
ENTER



3



ENTER



4



ENTER



5



ENTER



## Speaker Setting

Here you can change the settings for the built-in Dolby Digital decoder.

These changes will have no effect if you connect the unit to other equipment through the digital audio output terminal (make the necessary changes on the other equipment).

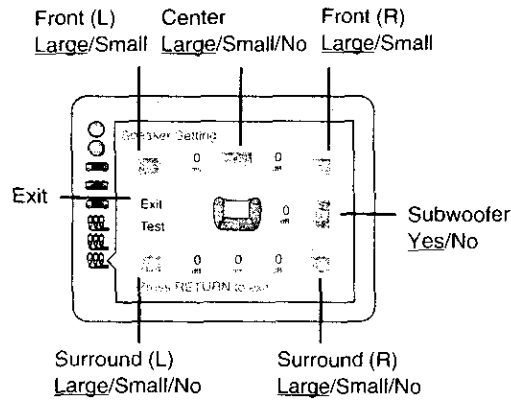
- 1 **Press [SETUP] in the stop mode.**  
The initial settings screen is displayed.
- 2 **Press the cursor buttons [▲, ▼] to select "8 Speaker Setting" and press [ENTER].**
- 3 **Press the cursor buttons [▲, ▼] to select the item and press [ENTER].**
  - 1 **Multi-channel**  
If you have connected 3 or more speakers. (Proceed to step 4.)
  - 2 **2-channel (Factory preset)**  
If you have connected 2 speakers or an amplifier with a Dolby Pro Logic decoder. (You will return to the menu shown in step 1. Settings are not necessary.)
- 4 **Change settings to suit your speakers and the listening position (→ page 40).**
  - **Setting the size and presence of your speakers**  
Choose "Yes" for speakers you have connected. Sound will not be output if you choose "No".
  - **Delay time**  
Allows you to make up for differences in distance if you cannot place your speakers in the optimum positions.
  - **Channel balance**  
Allows you to adjust the output level of the speakers to make up for differences in volume caused by different types of speakers or distances.
- 5 **Press the cursor buttons [▲, ▼, ◀, ▶] to select "Exit" and press [ENTER].**

The screen illustrated in step 2 is displayed.

To return to the previous menu  
Press [RETURN].

When you are finished  
Press [SETUP].

**A**

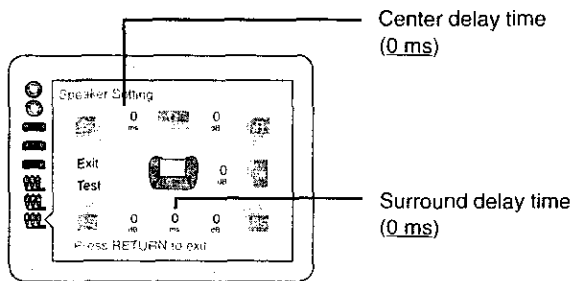


• Underlined items are factory preset.

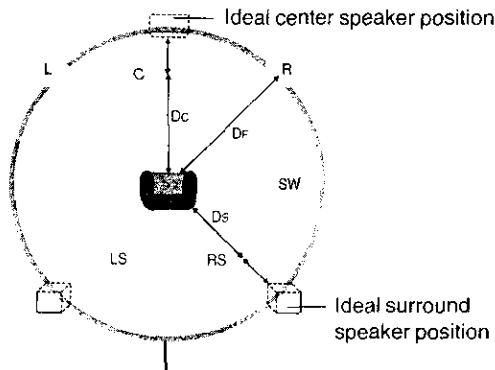
In case of surround speaker (L)



**B**

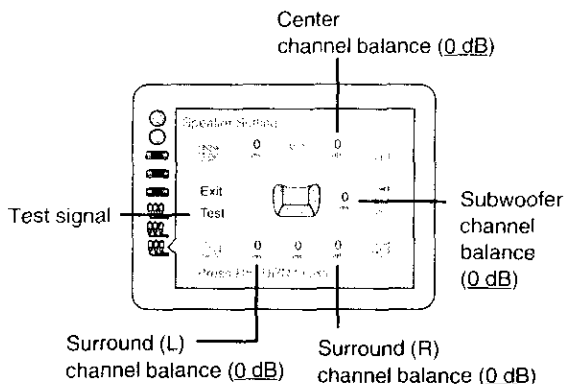


• Underlined items are factory preset.



Place all your speakers within this circumference

**C**



• Underlined items are factory preset.

**Home theater**

**A**

**Setting the size and presence of your speakers**

1. Press the cursor buttons [▲, ▼, ◀, ▶] to select the item and press [ENTER].
2. Press the cursor buttons [▲, ▼] to select the setting and press [ENTER].
  - Large speaker icon  
If the speaker supports low-frequency (under 100 Hz) reproduction.
  - Small speaker icon  
If the speaker does not support low-frequency reproduction.

If you set the subwoofer to "No", the front speakers will be automatically set to "Large".

**B**

**Delay time**

[DVD] (Center and surround speakers only)

1. Press the cursor buttons [▲, ▼, ◀, ▶] to select the item and press [ENTER].
2. Press the cursor buttons [▲, ▼] to adjust the delay time and press [ENTER].
  - Center speaker  
Set delay time to "0 ms" (factory preset) if  $D_f$  is less than or equal to  $D_c$ .

If $D_f - D_c =$	then set to
approx. 50 cm (1½ feet)	1.3 ms
approx. 100 cm (3 feet)	2.6 ms
approx. 150 cm (5 feet)	3.9 ms
approx. 200 cm (6 feet)	5.3 ms

• Surround speakers

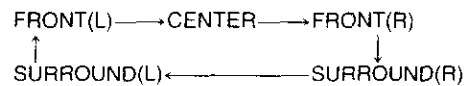
Set delay time to "0 ms" (factory preset) if  $D_f$  is less than or equal to  $D_s$ .

If $D_f - D_s =$	then set to
approx. 200 cm (6 feet)	5.3 ms
approx. 400 cm (12 feet)	10.6 ms
approx. 600 cm (18 feet)	15.9 ms

**C**

**Channel balance**

1. Press the cursor buttons [▲, ▼, ◀, ▶] to select "Test" and press [ENTER].  
A test signal is output from one speaker at a time, starting with the front left speaker and proceeding clockwise.



2. While listening to the test signal, press the cursor buttons [▲, ▼] to adjust the volume of the center and surround speakers so they are the same apparent volume as the front speakers.  
(The front speakers cannot be adjusted here.)
3. Press [ENTER].  
(The test signals are stopped.)


















**Note**

No signal is output for the subwoofer. To adjust its volume, play something, then return to this screen to adjust to suit your taste.



# How different kinds of software appear on your television

DVD software is recorded in a variety of picture formats, and how they appear on your television depends on the software, the kind of television you have, and the picture mode your television is set to.

Television and picture mode \ Software format	4:3	16:9 full mode	16:9 zoom mode	16:9 auto mode
<b>Widescreen, pan and scan</b> 	Edges cut off 	Full screen 	Top and bottom cut off 	Full screen 
<b>Widescreen, non-pan and scan</b> 	Letterbox 			
<b>Regular (4:3)</b> 	Full screen 	Screen stretched horizontally 	Top and bottom cut off 	Full screen with black bands at right and left 
<b>Regular (4:3) letterbox</b> 	Letterbox 	Letterbox with screen stretched horizontally 	Full screen 	Letterbox with extremities of picture stretched 

The names given to the television picture modes depend on your television. There may also be slight differences in how the pictures appear on the screen. Refer to your television's operating instructions for details.

# Troubleshooting Guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.

If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, consult your dealer for instructions.

## For U.S.A.

For detailed instructions, contact an authorized servicenter.

Call 1-800-211-7262,

e-mail [consumerproducts@panasonic.com](mailto:consumerproducts@panasonic.com),

or visit [www.panasonic.com](http://www.panasonic.com)

Reference pages are shown as black circled numbers ⑥.

## Power

<p><b>No power.</b></p> <p>The unit is automatically switched to the standby mode.</p>	<ul style="list-style-type: none"> <li>● Insert the AC power supply cord securely into the household AC outlet. ⑥</li> <li>● To conserve power, the unit automatically switches to the standby mode after approx. 30 minutes elapse in the stop mode (<b>Auto power-off function</b>). Turn the power back to ON.</li> </ul>
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## Operation

<p><b>No key operation is effective.</b></p> <p>No operations can be performed with the remote control.</p> <p>Play fails to start even when [▶] (PLAY) is pressed. Play starts but then stops immediately.</p> <p>Alternative soundtrack (or subtitle) languages fail to be selected.</p> <p>No subtitles.</p> <p>Soundtrack and/or subtitle language is not the one selected at the initial settings.</p> <p>Angle cannot be changed.</p> <p>You have forgotten your ratings password. Reset all the settings to Factory Preset.</p>	<ul style="list-style-type: none"> <li>● Some operations may be prohibited by the disc.</li> <li>● The unit may not be operating properly due to lightning, static electricity or some other external factor. Press [POWER ⏻/⏻] to switch the unit to the standby mode and then back to ON. Alternatively, press [POWER ⏻/⏻] to switch the unit to the standby mode, disconnect the AC power supply cord and then reconnect it.</li> <li>● Check the batteries are installed with the correct polarities (+ and -). ⑦</li> <li>● The batteries are depleted: Replace them with new ones. ⑦</li> <li>● Point the remote control at the remote control signal sensor and operate. ⑦</li> <li>● Operate the remote control at a distance of no more than 7 m (23 feet) from the remote control signal sensor.</li> <li>● Remove obstacles between the remote control and remote control signal sensor.</li> <li>● Condensation has formed: Wait about 1 to 2 hours for it to evaporate.</li> <li>● This unit cannot play discs other than DVD, Video CD and CD.</li> <li>● This unit cannot play discs with a different region number ("1" for the U.S.A. and "3" for Asia). ⑤</li> <li>● The disc may be dirty and may require cleaning. ④⑥</li> <li>● Ensure that the disc is installed with the label of the side to be played facing upwards. ⑩</li> <li>● An alternative language is not selected with discs which do not contain more than one language.</li> <li>● In the case of some discs, the alternative language cannot be selected by operating the [AUDIO] or [SUBTITLE]. Try selecting it from the disc's menu if one is available.</li> <li>● Subtitles appear only with discs that contain them.</li> <li>● Subtitles are cleared from the television. Display the subtitles. ⑫</li> <li>● If the soundtrack and/or subtitle language does not exist on the disc, the language selected at the initial settings will not be seen/heard.</li> <li>● This function is dependent on software availability. Even if a disc has a number of angles recorded, these angles may be recorded for specific scenes only (when "ANGLE" lights up on the unit's FL display). ⑫</li> <li>● While stopped, press and hold [◀◀/◀◀] and [■] on the unit and then also press and hold [▲] on the unit until "Initialized" disappears from the television. Switch the unit to the standby mode, and then back to ON. All initial settings will return to the default values.</li> </ul>
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## Karaoke operation

<p>The vocals cannot be turned off.</p> <p>The vocals on Karaoke DVD aren't played.</p> <p>A menu is shown after playing each song on a Karaoke DVD.</p> <p>No sound from the microphone is heard even when the microphone volume level is raised.</p> <p>Sound from the microphone is distorted during karaoke through television speakers.</p>	<ul style="list-style-type: none"> <li>● You have selected an audio channel that includes a vocal channel. Read the disc's jacket to choose the correct channel. ⑬</li> <li>● When you have connected this unit to other equipment through the DIGITAL AUDIO OUT terminal, go to "7 Digital Audio Output" in the initial settings and change the setting for "2 Dolby Digital" to "PCM". ⑬</li> <li>● Most Karaoke DVDs are designed to do this. Some discs have an item in the menu that allows you to play all the songs.</li> <li>● You can play all the titles or tracks by selecting "ALL" with the request feature. ⑰</li> <li>● Press [KARAOKE] so it comes on. (Sound from the microphone will not be output if the karaoke button is off.) ⑮</li> <li>● The microphone sound is not output from the DIGITAL AUDIO OUT terminal.</li> <li>● Set the attenuator switch to ON. ⑥</li> </ul>
--	---

For your reference

## Sound

<p><b>The volume is low.</b></p> <p><b>No sound.</b> <b>Distorted sound.</b></p> <p><b>Sound does not come from a speaker.</b></p> <p><b>Piercing noise comes from the speakers.</b></p>	<ul style="list-style-type: none"> <li>• Volume is reduced slightly when the karaoke button is on. Press the karaoke button to turn it off when you are not doing karaoke. ⑩</li> <li>• Check the volume on the equipment you have connected.</li> <li>• Ensure that the equipment is connected properly. ⑥ ⑦ ⑬–⑰</li> <li>• Ensure that the input settings for the television and stereo system are correct.</li> <li>• Adjust the master volume using the On-Screen Menu Icons for unit information. ⑳</li> <li>• Turn V.S.S. off if it is on. ㉓</li> <li>• Check the connections. ㉔–㉗</li> <li>• If you have connected this unit to an amplifier through the audio output terminals, go to the initial settings menu "8 Speaker Setting" and change the settings to suit your speakers. Select "Yes" for all the speakers you have connected. ㉙</li> <li>• Sound will only come from the 2 front speakers if V.S.S. is on. Turn V.S.S. off if you are using three or more speakers. ㉚</li> <li>• If you have connected this unit to other equipment through the DIGITAL AUDIO OUT terminal, ensure you have made the correct settings in "7 Digital Audio Output" for "2 Dolby Digital" and "3 DTS Digital Surround". ㉛</li> </ul>
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## Picture

<p><b>Picture distorted during rapid advance or rapid reverse.</b></p> <p><b>No picture.</b></p> <p><b>The picture shown on the television is not normal.</b> (The sides of the picture are cut off or black bands appear at the top and bottom of the screen.)</p>	<ul style="list-style-type: none"> <li>• The picture will be somewhat distorted at times: This is normal.</li> <li>• Ensure that the equipment is connected properly. ⑥ ⑦</li> <li>• Make sure the television is on.</li> <li>• Ensure the television's video input setting (e.g., VIDEO 1) is correct.</li> <li>• Go to the initial settings menu "6 TV Aspect" and change the setting to suit your television. You may also need to change the screen mode on the television itself. ⑧ ④</li> </ul>
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## Displays

<p><b>"NO PLAY" appears on the unit's FL display.</b></p> <p><b>No on-screen display.</b></p> <p><b>On-Screen Menu Icons not displayed or only partially displayed on the television.</b></p> <p><b>The disc's menu is displayed in a different language.</b></p> <p><b>No menu play.</b></p> <p><b>"CHECK THE DISC" appears on the unit's FL display.</b></p> <p><b>"H□□" appears on the unit's FL display.</b></p> <p style="text-align: center;">□□ stands for a number.</p> <p><b>"NO DISC" appears on the unit's FL display.</b></p>	<ul style="list-style-type: none"> <li>• You inserted a disc the unit cannot play; insert one it can. ⑤</li> <li>• Select "On" for "1 On-Screen Messages" in "4 On-Screen Messages". ㉔</li> <li>• Change the position of the On-Screen Menu Icons using "2 Color and Position" in "4 On-Screen Messages" of the initial settings. ㉗</li> <li>• Go to "3 Menus" in "1 Disc Languages" to select the preferred menu language. ㉙</li> <li>• This function works only for Video CDs with playback control. ㉚</li> <li>• Disc is dirty. Wipe the disc clean. ㉛</li> <li>• Trouble is likely to have occurred. The number following "H" depends on the status of the unit. Press [POWER ⏻/⏻] to switch the unit to the standby mode and then back to ON. Alternatively, press [POWER ⏻/⏻] to switch the unit to the standby mode, disconnect the AC power supply cord, and then reconnect it.</li> <li>• If the service numbers fail to clear, note the service number and contact a qualified service person.</li> <li>• You haven't inserted a disc; insert one.</li> <li>• You haven't inserted the disc correctly; insert it correctly.</li> </ul>
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# Servicenter List (US)

**Panasonic**

**Technics**

**Quasar**

**For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:  
1-800-211-PANA (7262), Monday-Friday 9 am-9 pm; Saturday-Sunday 9 am-7 pm, EST.**

**Web Site: <http://www.panasonic.com>  
You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.**

**Accessory Purchases:**

1-800-332-5368 (Customer Orders Only)  
Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032  
(6 am to 5 pm Monday-Friday; 6 am to 10:30 am Saturday; PST)  
(Visa, MasterCard, Discover Card, American Express, Check)

<b>Factory Servicers Locations</b>			
<p><b>CALIFORNIA</b> 6550 Katella Avenue Cypress, CA 90630</p> <p>800 Dubuque Avenue S. San Francisco CA 94080</p> <p>20201 Sherman Way Suite 102 Canoga Park, CA 91306</p> <p>3878 Ruiffin Road Suite A San Diego, CA 92123</p> <p><b>COLORADO</b> 1640 South Abilene Street Suite D Aurora, CO 80012</p> <p><b>FLORIDA</b> 3700 North 29<sup>th</sup> Avenue Suite 102 Hollywood, FL 33020</p>	<p><b>GEORGIA</b> 8655 Roswell Road Suite 100 Atlanta, GA 30350</p> <p><b>ILLINOIS</b> 9060 Golf Road Niles, IL 60714</p> <p>1703 North Randall Road Elgin, IL 60123 (Pick-up/Drop-off only)</p> <p><b>MARYLAND</b> 62 Mountain Road Glen Burnie, MD 21061</p> <p><b>MASSACHUSETTS</b> 60 Glacier Drive Suite G Westwood, MA 02090</p>	<p><b>MICHIGAN</b> 37048 Van Dyke Avenue Sterling Heights, MI 48312</p> <p><b>MINNESOTA</b> 7850-12<sup>th</sup> Avenue South Airport Business Center Bloomington, MN 55425</p> <p><b>OHIO</b> 2236 Waycross Road Civic Center Plaza Forest Park, OH 45240</p> <p><b>PENNSYLVANIA</b> 2221 Cabot Blvd. West Suite B Langhorne, PA 19047</p>	<p><b>TEXAS</b> 13615 Welch Road Suite 101 Farmers Branch TX 75244</p> <p><b>WASHINGTON</b> 20425-84<sup>th</sup> Avenue South Kent, WA 98032</p>
			<p><b>HAWAII</b> 99-859 Iwaiwa Street Aiea, Hawaii 96701 Phone (808) 488-1996 Fax (808) 486-4369</p>

For your reference

**Service in Puerto Rico**  
**Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/Factory Servicer:**  
**Ave. 65 de Infanteria, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985**  
**Phone (787) 750-4300 Fax (787) 768-2910**

F04030 As of APR 00

# Glossary

## Bitstream

This is the digital form of multiple channel audio data (e.g., 5.1 channel) before it is decoded into its various channels.

## Dolby Digital

This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2-channel) audio, these signals can also be 5.1-channel audio. A large amount of audio information can be recorded on one disc using this method.

## Dolby Pro Logic

A surround system where a 4-channel audio track is recorded as 2 channels and then is restored to 4 channels for play. The surround channel is monaural and can reproduce up to 7 kHz.

## DTS (Digital Theater Systems)

This surround system is used in many movie theaters around the world. There is good separation between the channels, so realistic sound effects are possible.

## Dynamic range

Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs.

## Field

One frame is made up of 2 fields. A regular television shows these fields one after the other to create frames.

## Frame

Frames are the still pictures that go together to make a moving picture. There are about 30 frames shown each second.

## Frame still and field still

A still is shown when you pause a moving picture. A frame still is made up of 2 alternating fields, so the picture may appear blurred, but overall quality is high.

A field still is not blurred, but it has only half the information of a frame still so picture quality is lower.

## I/P/B

MPEG 2, the video compression standard adopted for use with DVD-Video, codes frames using these 3 picture types.

I: Intra coded picture (I-picture)

This is the standard picture and is a complete picture in itself. This means it has the best picture quality and is the best to use when adjusting the picture.

P: Predictive coded picture (P-picture)

This picture is calculated based on past I or P-pictures.

B: Bidirectionally-predictive coded picture (B-picture)

This picture is calculated by comparing past and future I and P-pictures so it has the lowest volume of information.

## Linear PCM (pulse code modulation)

PCM is the usual digital method used for music CDs. DVDs have a greater volume so they use linear PCM, which has a higher sampling rate. Compressed PCM signals are called packed PCM (PPCM).

## Optical digital audio cable

Electronic signals are converted to optical signals for output to the amplifier. This reduces noise caused by electronic interference.

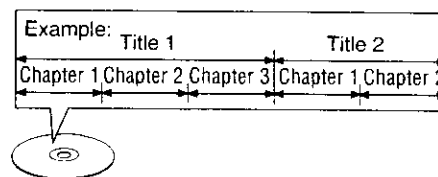
## Playback control

If a Video CD has "playback control" written on it or its jacket, it means that particular scenes or information can be selected for viewing interactively with the television using the menu screen. This unit can play Video CDs with playback control.

Using menus to control play of a Video CD is called "menu play" in these operating instructions.

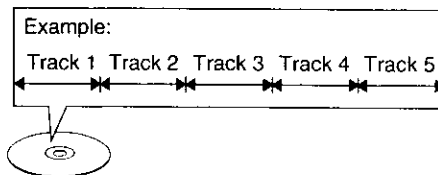
## Title/Chapter

DVDs are divided up into large sections, titles, and smaller sections, chapters. The numbers allocated to these sections are called title numbers and chapter numbers.



## Track

Video CDs and CDs are divided up into sections called tracks, and the numbers allocated to these sections are called track numbers.

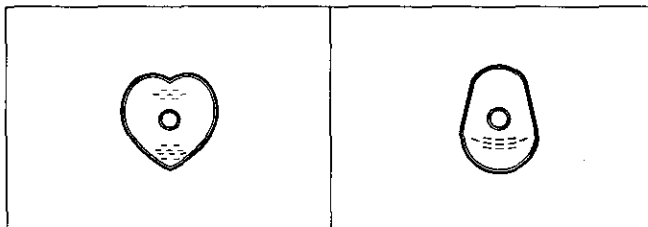


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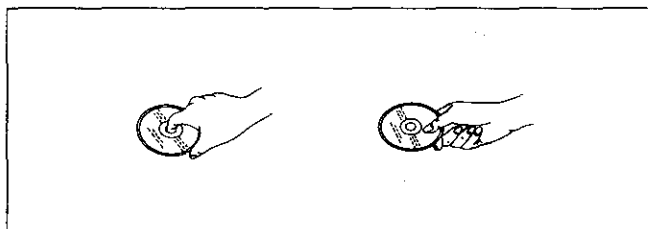
## Disc handling

Do not use irregularly shaped discs, such as heart-shaped. (These can damage the unit.)



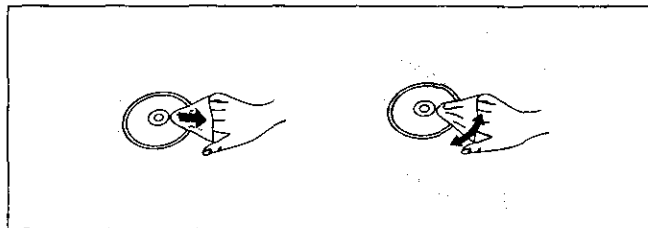
### ■ How to hold a disc

Do not touch the recorded surface.



### ■ If the surface is dirty

Wipe it with a damp cloth and then wipe dry.



### ■ If the disc is brought from a cold to a warm environment, moisture may form on the disc

Wipe with a soft, dry, lint-free cloth before using the disc.

### ■ Handling precautions

- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not attach labels or stickers to discs. (Do not use discs with exposed adhesive from tape or left over peeled-off stickers.)
- Do not use scratch-proof protectors or covers other than those specified for use with this unit.

### ■ Do not place or store discs in the following places

- Locations exposed to direct sunlight
- Humid or dusty locations
- Locations directly exposed to a heat vent or heating appliance

## Maintenance

To clean this unit, wipe with a soft, dry cloth.

If the surfaces are extremely dirty, use a soft cloth dipped in a soap-and-water solution or a weak detergent solution.

- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically treated cloth, read the instructions that came with the cloth carefully.

# Specifications

<b>Power supply:</b>	<b>For U.S.A.</b> AC 120 V, 60 Hz <b>For Asia</b> AC 110–240 V, 50/60 Hz
<b>Power consumption:</b>	<b>For U.S.A.</b> 14 W <b>For Asia</b> 15 W
<b>Dimensions:</b>	430 (W)×273 (D)×82 (H) mm [16 <sup>15/16</sup> " (W)×10 <sup>3/4</sup> " (D)× 3 <sup>1/4</sup> " (H)] (excluding protrusions)
<b>Mass:</b>	2.9 kg (6.4 lb.)
<b>Signal system:</b>	NTSC, PAL 625/50, PAL 525/60
<b>Operating temperature range:</b>	+5 to +35 °C (+41 to +95 °F)
<b>Operating humidity range:</b>	5–90 % RH (no condensation)
<b>Discs played:</b>	
(1) <b>DVD-Video disc:</b>	
12 cm (5") single-sided, single-layer	
12 cm (5") single-sided, double-layer	
12 cm (5") double-sided, one layer per side	
8 cm (3") single-sided, single-layer	
8 cm (3") single-sided, double-layer	
8 cm (3") double-sided, one layer per side	
(2) <b>Compact disc (CD-DA, Video CD):</b>	
12 cm (5") disc	
8 cm (3") disc	
<b>Video output:</b>	
Output level:	1 Vp-p (75 Ω)
Output terminal:	Pin jack (2 systems)
<b>S video output:</b>	
Y output level:	1 Vp-p (75 Ω)
C output level:	
NTSC:	0.286 Vp-p (75 Ω)
PAL:	0.300 Vp-p (75 Ω)
Output terminal:	S terminal (1 system)
<b>Component video output:</b>	
Y output level:	1 Vp-p (75 Ω)
P <sub>B</sub> output level:	0.7 Vp-p (75 Ω)
P <sub>R</sub> output level:	0.7 Vp-p (75 Ω)
Output terminal:	Pin jack (Y: green, P <sub>B</sub> : blue, P <sub>R</sub> : red)

<b>Audio output:</b>	
Output level:	2 Vrms (1 kHz, 0 dB, 10 kΩ load impedance)
Output terminal:	
Mixed output (L/R):	Pin jack (1 system)
5.1ch discrete output (5.1ch):	Pin jack (1 system)
<b>Audio signal output characteristics:</b>	
(1) Frequency response:	
•DVD (linear audio):	4 Hz–22 kHz (48 kHz sampling) 4 Hz–44 kHz (96 kHz sampling)
•CD audio:	4 Hz–20 kHz
(2) S/N ratio:	
•CD audio:	115 dB
(3) Dynamic range:	
•DVD (linear audio):	102 dB
•CD audio:	98 dB
(4) Total harmonic distortion:	
•CD audio:	0.0025 %
<b>Digital audio output:</b>	
Optical digital output:	Optical terminal
<b>Microphones input:</b>	
Input terminals:	6.3 mm (1/4") monaural
Number of terminals:	2 systems
<b>Pickup:</b>	
Wave length:	665 nm
Laser power:	CLASS II

Power consumption in standby mode: <b>For U.S.A.</b> approx. 2 W <b>For Asia</b> approx. 3 W
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## Note

Specifications are subject to change without notice.  
Mass and dimensions are approximate.

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, and 4,819,098, licensed for limited viewing uses only.

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