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Accessories

Please check and identify the supplied accessories. Use numbers indicated in parentheses when asking for replacement parts. (Product numbers correct as of March 2006. These may be subject to change.)
Only for U.S.A.: To order accessories, refer to "Accessory Purchases" on page 55.
Only for Canada: To order accessories, call the dealer from whom you have made your purchase.

1 **Remote control** (EUR7659Y20)

1 **Audio/video cable** (K2KA6BA00003)
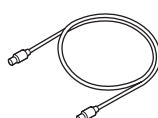
1 **75 Ω coaxial cable** (K2KZ2BA00001)
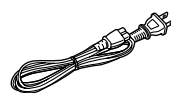
1 **AC power supply cord** (K2CB2CB00018)

• For use with this unit only. Do not use it with other equipment.
Also do not use the cords for other equipment with this unit.
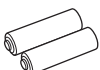
2 **Batteries** for remote control

1 **DVD-RAM disc**

(U.S.A. only)
Product Registration Card
Please complete and return the included product registration card, or register via the Internet at: http://www.prodreg.com/panasonic/

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Disc and card information

Discs you can use for recording and play

Disc type	DVD-RAM	DVD-R	DVD-R DL*¹ (dual layer on single side)	DVD-RW	+R*²	+R DL*¹ (double layer on single side)	+RW
Indication in these instructions	`RAM`	`-R` Before finalization / `DVD-V` After finalization	`-R DL` Before finalization / `DVD-V` After finalization	`-RW(V)` Before finalization / `DVD-V` After finalization	`+R` Before finalization / `DVD-V` After finalization	`+R DL` Before finalization / `DVD-V` After finalization	`+RW`
Logo	(DVD RAM4.7)	(DVD R4.7)	(DVD R DL)	(DVD RW)	——	——	——
Recording format (➔ below)	VR	DVD-Video	DVD-Video	DVD-Video	+VR	+VR	+VR
Data that can be recorded and played	Video Still picture	Video	Video	Video	Video	Video	Video
Re-writable*³	Yes	No	No	Yes	No	No	Yes
What you can do on this unit							
Recording broadcasts that allow one copy	Yes*⁴	No	No	No	No	No	No
Recording both Main and SAP of MTS broadcast	Yes	No	No	No	No	No	No
Recording 16:9 aspect picture	Yes	No	No	No	No	No	No
Creating playlists	Yes	No	No	No	No	No	No
Compatibility							
Usable high speed recording disc type*⁵	Up to 5x	Up to 16x	Up to 4x	Up to 6x	Up to 16x	Up to 2.4x	Up to 4x*⁶
Play on other players	Only on DVD-RAM compatible players. (It is not possible to finalize the disc.)	Yes	Yes*⁷	Yes	Yes	Yes*⁸	Yes (It is not possible to finalize the disc.)
		Only on compatible players after finalizing the disc (➔ page 41).					

- We recommend using Panasonic discs. We also recommend using DVD-RAM discs with cartridges to protect them from scratches and dirt.
- You may not be able to record depending on the condition of the discs and you may not be able to play due to the condition of the recording.
- For the recording time, refer to **"Recording modes and approximate recording times"** on page 19.
- *¹ You can record onto the second layer of dual- or double-layer discs after closing the first layer (➔ page 41). You will no longer be able to record to the first layer after you do this (➔ page 18).
  When playing a title recorded on both layers, video and audio may momentarily cut out when the unit is switching layers.
- *² You may not be able to use +R recorded on this unit in another Panasonic DVD recorder and vice versa. Once the disc is finalized, however, it can be played in the other unit.
- *³ The amount of the recordable disc space doesn't increase even if the program is deleted when you use a one time recording disc.
- *⁴ CPRM (➔ page 53) compatible discs only.
- *⁵ This unit can use the high-speed recording discs shown in the chart, but using them will not shorten the recording time.
- *⁶ You can play 8x recording speed discs recorded on another equipment.
- *⁷ Play on DVD-R DL compatible equipment.
- *⁸ Play on +R DL compatible equipment.

Regarding recording format

VR (DVD Video Recording) format
This is a recording method which allows you to freely record and edit television broadcasts and so on.
- Digital broadcasts that allow "One time only recording" can be recorded to a CPRM compatible disc. You can record to CPRM compatible DVD-RAM on this unit.
- Play is only possible on a compatible DVD player.

DVD-Video format
This recording method is the same as commercially available DVD-Video.
- Digital broadcasts that allow "One time only recording" cannot be recorded.
- You can play on compatible equipment such as DVD players after finalizing the disc on this unit.

+VR (+R/+RW Video Recording) format
This is method for recording moving pictures to +R/+RW discs. You can play back such discs recorded in this method in a similar way as contents recorded in the DVD-Video format.
- Digital broadcasts that allow "One time only recording" cannot be recorded.
- After finalizing the disc or creating the top menu, you can play the disc on DVD players and other equipment.

Play-only discs

Disc type	DVD-Video	DVD-Audio	DVD-RW (VR format)	CD		Video CD
Indication in these instructions	`DVD-V`	`DVD-A`	`-RW(VR)`	`CD`		`VCD`
Logo	VIDEO / DVD VIDEO	DVD AUDIO	DVD R W	COMPACT disc DIGITAL AUDIO	——	COMPACT disc DIGITAL VIDEO
Instructions	High quality movie and music discs	High fidelity music discs • Played on this unit in 2 channels.	DVD-RW recorded on another DVD Recorder* • You can play programs that allow "One time only recording" if they have been recorded to a CPRM compatible disc. • By formatting (➔ page 40) the disc, you can record to it in DVD-Video format. • It may be necessary to finalize the disc on the equipment used for recording.	Music and audio recorded (including CD-R/RW*)	CD-R and CD-RW* with music recorded in MP3 Still pictures (JPEG and TIFF) recorded on CD-R and CD-RW*	Music and video recorded (including CD-R/RW*)

- The producer of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.
- Operation and sound quality of CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.
- * Close the session after recording. Play may be impossible on some discs due to the condition of the recording.

Regarding DVD-Audio
Some multi-channel DVD-Audio will prevent down-mixing (➔ page 53) of all or part of their contents if this is the manufacturer's intention. Tracks that are prevented from being down-mixed will not play properly on this unit (e.g. audio is played from the front two channels only). Refer to the disc's jacket for more information.

Note about using a DualDisc
The digital audio content side of a DualDisc does not meet the technical specifications of the Compact Disc Digital Audio (CD-DA) format so play may not be possible.

Discs that cannot be played

- 2.6 and 5.2 GB DVD-RAM, 12 cm (5″)
- 3.95 and 4.7 GB DVD-R for Authoring
- DVD-R recorded in VR format
- DVD-R (DVD-Video format), DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL recorded on another unit and not finalized (➔ page 53)

- PAL discs (you can still play the audio on DVD-Audio)
- DVD-Video with a region number other than "1" or "ALL"
- Blu-ray
- DVD-ROM, +R 8 cm (3″), CD-ROM, CDV, CD-G, Photo CD, CVD, SVCD, SACD, MV-Disc, PD, Divx Video Disc, etc.

Cards you can use on this unit

Type	SD Memory Card, miniSD™ Card* MultiMediaCard
Indication in these instructions	`SD`
Data that can be recorded and played	**Still pictures**
Instructions	You can insert directly into the SD card slot. * A miniSD™ card adaptor included with the miniSD™ card is necessary. • You can play and copy still pictures taken on a digital camera, etc. (➔ page 26, 36). • You can set the DPOF (Digital Print Order Format) for automatic printing on your home printer or at a photo developing store (➔ page 35, 53).

Suitable SD Memory Cards

You can use SD Memory Cards with the following capacities (from 8 MB to 2 GB).

8 MB,	16 MB,	32 MB,	64 MB,	128 MB,
256 MB,	512 MB,	1 GB,	2 GB (Maximum)	

- Useable memory is slightly less than the card capacity.
- Please confirm the latest information on the following website.
  http://panasonic.co.jp/pavc/global/cs
  (This site is in English only.)
- If the SD Memory Card is formatted on other equipment, the time spent for recording may become longer. Also if the SD Memory Card is formatted on a PC, you may not be able to use it on this unit.
  In these cases, format the card on this unit (➔ page 40, 53).
- This unit supports SD Memory Cards formatted in FAT 12 system and FAT 16 system based on SD Memory Card Specifications.
- We recommend using a Panasonic SD card.

Structure of still picture (JPEG/TIFF) folders displayed by this unit

The following 📁 can be displayed on this unit.

DVD-RAM

- JPEG
  - DCIM✱✱✱ (Higher folder)
    - ✱✱✱xxxxx (Picture folder)
      - XXXX✱✱✱✱.JPG
      - XXXX✱✱✱✱.TIF
- DCIM *
  - ✱✱✱XXXXX
    - XXXX✱✱✱✱.JPG
    - XXXX✱✱✱✱.TIF

Card

- DCIM (Higher folder)
  - ✱✱✱xxxxx (Picture folder)
    - XXXX✱✱✱✱.JPG
    - XXXX✱✱✱✱.TIF
- IM✱✱CDPF or IMEXPORT *
  - XXXX✱✱✱✱.JPG
  - XXXX✱✱✱✱.TIF

CD

- DCIM *
  - X✱✱✱✱✱✱✱.JPG
  - X✱✱✱✱✱✱✱.JPG
  - X✱✱✱✱✱✱✱.JPG
  - X✱✱✱✱✱✱✱.JPG
  - X✱✱✱✱✱✱✱.JPG
- DCIM
  - X✱✱✱✱✱✱✱.JPG
  - X✱✱✱✱✱✱✱.JPG
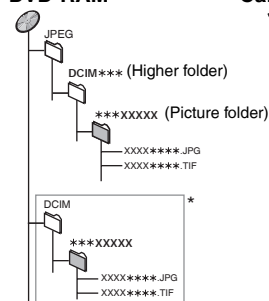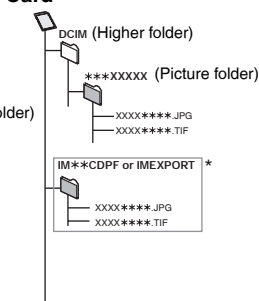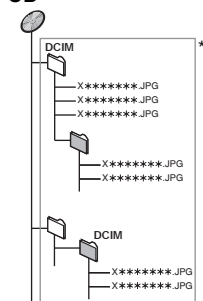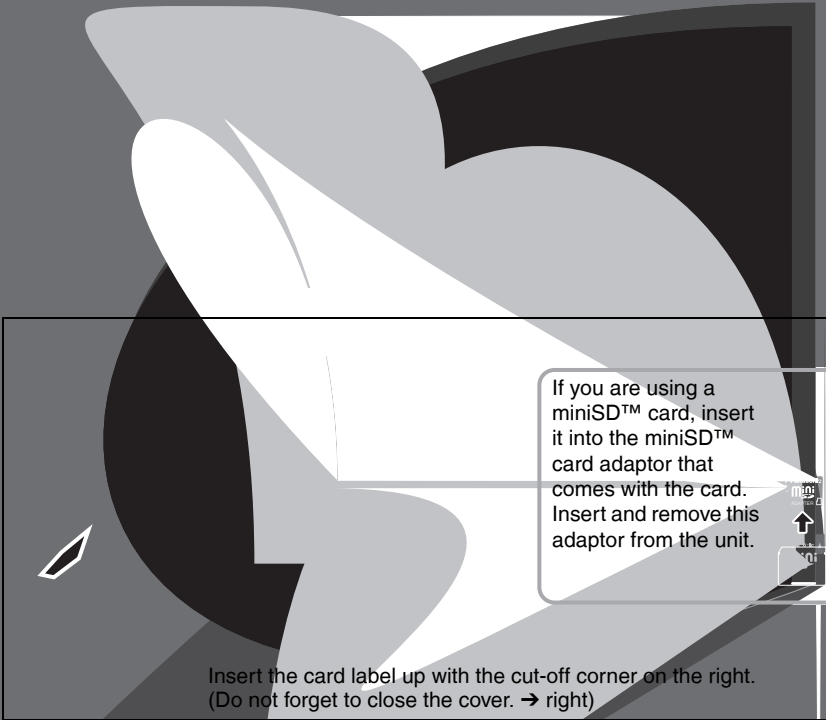
✱✱✱: Numbers
XXX: Letters

* Folders can be created on other equipment. However, these folders cannot be selected as a copying destination.
- The folder cannot be displayed if the numbers are all "0" (e.g., DCIM000, etc.).
- If a folder name or file name has been input using other equipment, the name may not be displayed properly or you may not be able to play or edit the data.
- `CD` When the highest level folders are "DCIM" folders, they are displayed first on the tree.

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If you are using a miniSD™ card, insert it into the miniSD™ card adaptor that comes with the card. Insert and remove this adaptor from the unit.

Insert the card label up with the cut-off corner on the right.
(Do not forget to close the cover. ➔ right)

Removing the card
① Press on the center of the card.
② Pull it straight out.

Closing the cover

Control reference guide
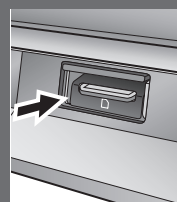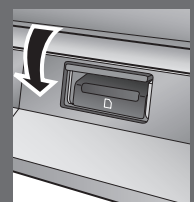
Remote control

Instructions for operations are generally described using the remote control.
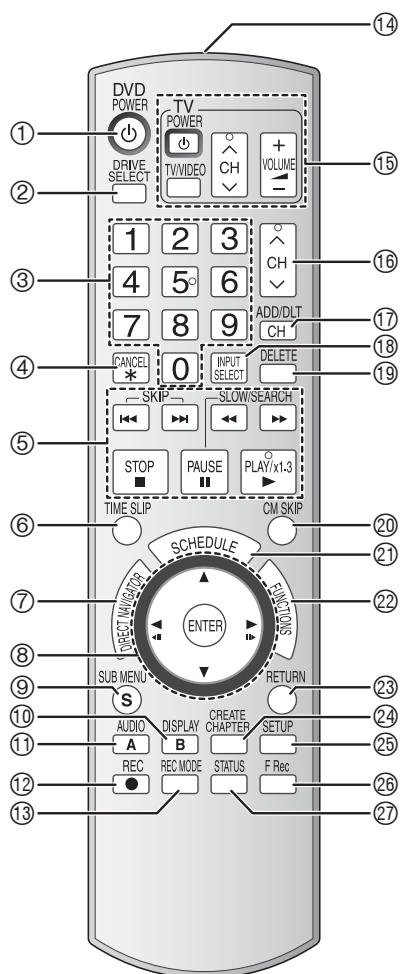
① Turn the unit on (➔ page 14)
② Select the drive (DVD or SD) (➔ page 20, 24)
③ Select channels and title numbers, etc./ Enter numbers
④ Cancel
⑤ Basic operations for recording and play
⑥ Skip the specified time (➔ page 25)
⑦ Show Direct Navigator/Top menu (➔ page 24, 26, 28, 30, 34)
⑧ Selection/Enter, Frame-by-frame cursor (➔ below)
⑨ Show sub menu (➔ page 27, 30, 33)
⑩ Show on-screen menu (➔ page 29) [B] for Direct Navigator (➔ page 34)
⑪ Select audio (➔ page 21, 25) [A] for Direct Navigator (➔ page 24)
⑫ Start recording/Specify the time to stop recording (➔ page 20, 21)

⑬ Change recording mode (➔ page 20)
⑭ Transmission window
⑮ Television operations (➔ page 17)
⑯ Channel select (➔ page 20)
⑰ Add/delete channel (➔ page 15)
⑱ Input select (IN1 or IN2 or DV)
⑲ Delete items (➔ page 39)
⑳ Skip a minute forward (➔ page 25)
㉑ Show scheduled recording list (➔ page 22)
㉒ Show FUNCTIONS window
㉓ Return to previous screen
㉔ Create chapters (➔ page 25)
㉕ Show Setup menu (➔ page 16, 42)
㉖ Start Flexible Recording (➔ page 21)
㉗ Show status messages (➔ page 24)

■ Using the cursor

- **Select items on menu screens and set items.**
  Press up, down, left or right to select an item.
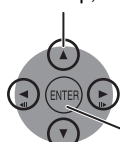
  Press [ENTER] to confirm.

This operation is also possible...
- **Frame-by-frame (backward/forward):**
  While paused, press [◀ ❚❚] or [❚❚ ▶] (left/right)

Main unit
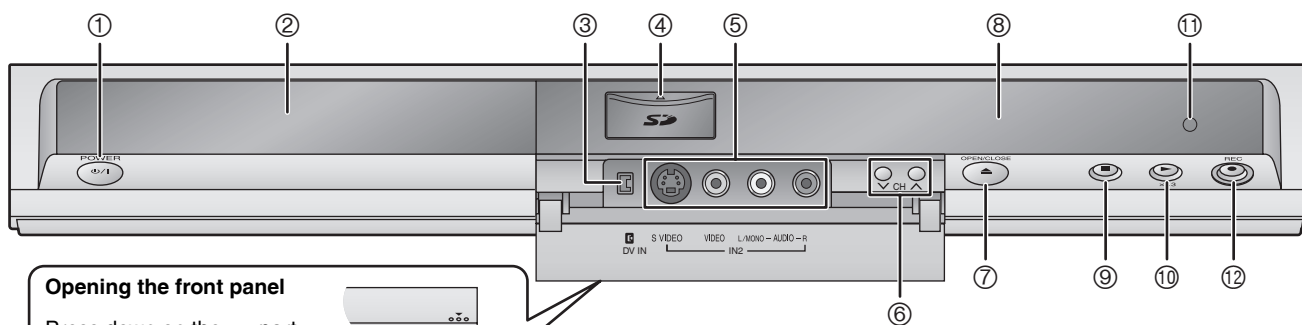
Opening the front panel

Press down on the ∘∘∘ part with your finger.

① **POWER button (**POWER ⏻/❙**) (➔ page 14)**
  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.
② Disc tray (➔ page 20)
③ Connector for digital video (DV) camcorder (➔ page 38)
④ SD card slot (➔ page 6)
⑤ Connector for external equipment (➔ page 38)
⑥ Channel select (➔ page 20)

⑦ Open/close disc tray (➔ page 20)
⑧ Display (➔ below)
⑨ Stop (➔ page 20, 25)
⑩ Start play (➔ page 24)
⑪ Remote control signal sensor
⑫ Start recording (➔ page 20)/ Specify the time to stop recording (➔ page 21)

The unit's display
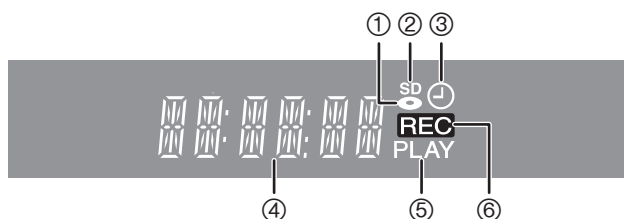
① Disc indicator
  • This indicator lights up when a disc that is supported by this unit is inserted.
② SD card indicator
  • This indicator lights up when card is inserted.
③ Scheduled recording indicator
④ Main display section
⑤ Playing indicator
⑥ Recording indicator

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STEP 1 Connection

This section includes diagrams of four common methods of connections (A-D, pages 8-9). Please connect using the one that best suits you.
- Visit Panasonic's homepage for more information about connection methods. (This is in English only.)
  http://www.panasonic.com/consumer_electronics/dvd_recorder/dvd_connection.asp
- Before doing any connection, turn off all equipment and read the appropriate operating instructions.
- Peripheral equipment and optional cables are sold separately unless otherwise indicated.

■ The unit's RF OUT terminal
The picture and sound signal from this unit does not go through the RF OUT terminal to the television.
Make sure you connect one of the following terminals on this unit to the television: the AUDIO/VIDEO OUT terminal, the S VIDEO OUT terminal or the COMPONENT VIDEO OUT terminal.
- Refer to page 11 if the antenna connectors don't match.

■ When the unit is not to be used for a long time
To save power, unplug it from the household AC outlet. This unit consumes a small amount of power, even when it is turned off **(approx. 2.1 W)**.

■ Connect the unit directly to the television
Video signals fed through video cassette recorders will be affected by copyright protection systems and the picture will not be shown correctly on the television.

A Connection with a television

Cable from the wall or antenna signal

- If your television does not have AUDIO/VIDEO terminals (→ page 10, a).
- If you would like to enjoy higher picture quality (→ page 11).

75 Ω coaxial cable

To a household AC outlet
(AC 120 V, 60 Hz)

To RF IN

Audio/video cable (Included)

75 Ω coaxial cable (Included)

To OUT

To RF OUT

Television

This unit's rear panel

AC power supply cord (Included)
Connect only after all other connections are complete.

B Connection with a television and a video cassette recorder

The connection will allow the video cassette recorder to be used for playback and recording when this unit is turned off.

| C | Connection with a television and a cable box or satellite receiver |

- You need to subscribe to a cable TV service to enjoy viewing their programming.
- Consult your service provider regarding an appropriate cable TV box or satellite receiver.

Television

AUDIO IN VIDEO
R L IN

Red White Yellow

VHF/UHF
RF IN

Cable from the wall or antenna signal

- If your television does not have AUDIO/VIDEO terminals (→ page 10, c).
- If you would like to enjoy higher picture quality (→ page 11).

75 Ω coaxial cable

2

Audio/video cable (Included)

5

75 Ω coaxial cable

4

To RF IN

To OUT

Red White Yellow

HDMI AV OUT

OPTICAL

DIGITAL AUDIO OUT (PCM/BITSTREAM)

To a household AC outlet (AC 120 V, 60 Hz)

AC IN ~

RF IN

RF OUT

VHF/UHF

Y
PB
PR

COMPONENT VIDEO OUT

Red White Yellow

R-AUDIO-L VIDEO S-VIDEO

To RF OUT

This unit's rear panel

AC power supply cord (Included) Connect only after all other connections are complete.

7

75 Ω coaxial cable (Included)

3

Red White Yellow

To IN1

6

Audio/video cable

Satellite antenna (Satellite receiver only)

1

75 Ω coaxial cable

IN
Satellite Cable

AUDIO
R L VIDEO S-VIDEO

OUT
RF

Cable box or Satellite receiver

| D | Connection with a television, a video cassette recorder and a cable box or satellite receiver |

- You need to subscribe to a cable TV service to enjoy viewing their programming.
- Consult your service provider regarding an appropriate cable TV box or satellite receiver.
- The connection will allow the video cassette recorder to be used for playback and recording when this unit is turned off.

Television

AUDIO IN VIDEO
R L IN

Red White Yellow

VHF/UHF
RF IN

Cable from the wall or antenna signal

- If your television does not have AUDIO/VIDEO terminals (→ page 10, d).
- If you would like to enjoy higher picture quality (→ page 11).

75 Ω coaxial cable

2

Audio/video cable (Included)

5

75 Ω coaxial cable

4

3

75 Ω coaxial cable (Included)

This unit's front panel

S VIDEO VIDEO L/MONO AUDIO R
IN

Yellow White Red

To IN2

8

Audio/video cable

To a household AC outlet (AC 120 V, 60 Hz)

To RF IN

To OUT

AC IN ~

RF IN

RF OUT

VHF/UHF

Y
PB
PR

COMPONENT VIDEO OUT

Red White Yellow

R-AUDIO-L VIDEO S-VIDEO

HDMI AV OUT

OPTICAL

DIGITAL AUDIO OUT (PCM/BITSTREAM)

To RF OUT

This unit's rear panel

9

AC power supply cord (Included) Connect only after all other connections are complete.

Red White Yellow

To IN1

Audio/video cable

7

OUT

Yellow VIDEO OUT
White AUDIO L
Red AUDIO R

IN

VIDEO IN
AUDIO L
AUDIO R

VHF/UHF RF OUT

Video cassette recorder

Satellite antenna (Satellite receiver only)

1

75 Ω coaxial cable

IN
Satellite Cable

AUDIO
R L VIDEO S-VIDEO

OUT
RF

Cable box or Satellite receiver

6

75 Ω coaxial cable

a ... page 8, **A)**

IN | OUT
AUDIO
R | L | VIDEO S-VIDEO | RF | RF

b ... d a video ca...e re...e 8, **B)**

c ...vision and a cable box or satellite re...

d ...ion, a video cassette recorder and a... → **page 9, D)**

o enjoy high

onnecting to the

VIDEO OUT termin
O OUT terminal. (Ac

ision

COMPONENT
VIDEO IN

**This unit's
rear panel**

ne of the following connections to suit the antenna
uipment (television etc.). Refer to other equipment's

T		
A		75–300 Ω transformer — VHF or UHF
		75 Ω coaxial cable — elevision
A a	from the antenna	VHF/UHF band separator — VHF
		75 Ω coaxial cable — UHF Television
	To this unit's RF IN terminal	
T	from the antenna	VHF/UHF band separator — VHF
	(Flat) Twin lead 300 Ω cable	VHF/UHF band mixer — 75 Ω coaxial cable — UHF Television
	300–75 Ω transformer	To this unit's RF IN terminal

Red White

RF IN
RF OUT
VHF/UHF
COMPONENT VIDEO OUT
Y Pв Pʀ
R-AUDIO-L
VIDEO
S-VIDEO

Connecting

■ Connecting an   a
   terminal

- When connecting this
  with an HDMI cable, se
  Output" to "Off" in the S
  (→ page 45).
- To enjoy multi-channel s
  DVD-Video, connect an
  built-in decoder displayi
  marks using an optical di
  and change the settings i
  Output (→ page 44).
- Before purchasing an optic
  cable, check the terminal s
  equipment to be connected
- You cannot use DTS Digital
  decoders not suited to DVD.
- Even if using this connection
  2 channels when playing DVD

s rear panel   Amplifier

Red   White

Audio cable

Optical digital audio cable
Do not bend sharply when
connecting.

Insert fully, with this side facing up.

Red   White

This unit's rear panel

This unit's rear panel

Connecting with an HDMI (High Definition Multimedia Interface) terminal

HDMI is the next-generation interface for digital devices. When connected to an HDMI compatible unit, an uncompressed digital audio and video signal is transmitted. You can enjoy high quality, digital video and audio with just one cord. When connecting to an HDMI-compatible HDTV (High Definition Television), the output can be switched to 1080i or 720p HD video.

Set the following:

From the Setup menu (➔ page 45), set "HDMI Video Output" and "HDMI Audio Output" to "On".

• Please use HDMI cables that have the HDMI logo (as shown on the cover).

Connecting to a TV

Television

HDMI IN

This unit

HDMI AV OUT

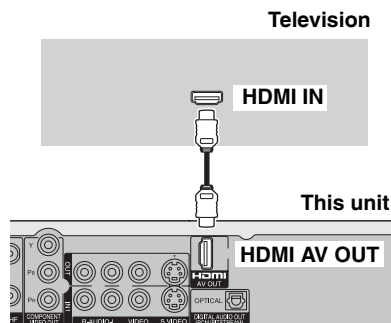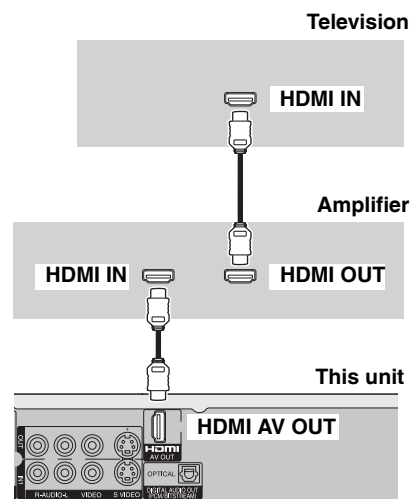• If connecting to equipment incompatible with CPPM (➔ page 53, Content Protection for Prerecorded Media), copy-protected DVD-Audio cannot be output through the HDMI terminal. Connect the audio cables (red and white) to the corresponding audio input terminals.

• If you are connecting to equipment that is only compatible with 2 channel output, audio with 3 channels or more will be down mixed (➔ page 53) and output as 2 channels. (Some discs cannot be down mixed.)

• For units compatible with HDCP (High-Bandwidth Digital Content Protection) copyright protection that are equipped with a digital DVI input terminal (PC monitors, etc.):
Depending on the unit, images may not display properly or at all when connecting with a DVI/HDMI switching cable. (Audio cannot be output.)

Connecting to an amplifier

Television

HDMI IN

Amplifier

HDMI IN   **HDMI OUT**

This unit

HDMI AV OUT

• If the speaker setup cannot be completed on the amplifier, then use the "HDMI Connection Speakers Setting" setting (➔ page 45).

• If connecting to equipment incompatible with CPPM (➔ page 53, Content Protection for Prerecorded Media), copy-protected DVD-Audio cannot be output through the HDMI terminal. Connect to the amplifier with an optical digital cable or audio cables (red and white).

Control with HDMI (HDAVI Control™)

What is HDAVI Control?
HDAVI Control is a convenient function that offers linked operations of this unit, and a Panasonic TV (VIERA) or Receiver under HDAVI Control. You can use this function by connecting the equipment with the HDMI cable. See the operating instructions for connected equipment for operational details.

After connecting the unit to a television using an HDMI cable, set "Ctrl with HDMI" to "On" (➔ page 45).

• It is recommended that you use Panasonic's HDMI cable.
  Recommended part number: RP-CDHG15 (1.5 m/4.9 ft.), RP-CDHG30 (3.0 m/9.8 ft.), RP-CDHG50 (5.0 m/16.4 ft.), etc.

• **Non-HDMI-compliant cables cannot be utilized.**

Turn on all HDAVI Control compatible equipment and select this unit's input channel on the connected television so that the HDAVI Control function works properly. Also when the connection or settings are changed, repeat this procedure.

Automatic input switching

When the following operations are performed the television will automatically switch the input channel and displays the corresponding action.
 – When play starts on the unit
 – When an action that uses the display screen is performed (e.g., Direct Navigator screen, scheduled recording screen)

Power on link

The television automatically turns on and the corresponding display appears when the following operations are performed with the television in standby mode.
 – When play starts on the unit
 – When an action that uses the display screen is performed (e.g., Direct Navigator screen, scheduled recording screen)

Power off link

All connected equipment compatible with HDAVI Control including this unit automatically turns off when you switch the TV off.
The unit automatically turns off even when the FUNCTIONS screen, any of the status messages, or any of the on-screen menus is displayed on the TV. The unit automatically turns off while in playback or when scheduled to record. (In the latter case, scheduled recordings remain effective after the unit turns off.)

• Only this unit turns off when you press [DVD POWER] for shutting it down. Other connected equipment compatible with HDAVI Control stay on.

Note
• Even if the television is turned off, the unit will not turn off at the same time in the following conditions:
 – When you pressed [● REC] and the unit is recording
 – When copying
 – When finalizing

For your reference
• **When [▶] (PLAY) is pressed on this unit for "Automatic input switching" or "Power on link", the playback image is not immediately displayed on the screen and it may not be possible to watch the contents from where playback started.** In this case, press [◀◀] or [◀◀] to go back to where playback started.

• When the DIGITAL AUDIO OUT (OPTICAL) terminal is used for audio output and the unit is connected to the television with an HDMI cable, set "HDMI Audio Output" to "Off" in the Setup menu (➔ page 45).

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POWER ⏻/Ι   ⋁ CH ⋀

DVD POWER

⏻ DVD POWER

DRIVE SELECT

Numbered buttons

ADD/DLT CH → ADD/DLT

DELETE

⋀ ⋁ CH

SKIP   SLOW/SEARCH

STOP   PAUSE   PLAY/x1.3

TIME SLIP   CM SKIP

SCHEDULE

▲,▼,◄,►
ENTER

SUB MENU   RETURN → RETURN

AUDIO DISPLAY CREATE CHAPTER SETUP

● REC   REC REC MODE STATUS F Rec
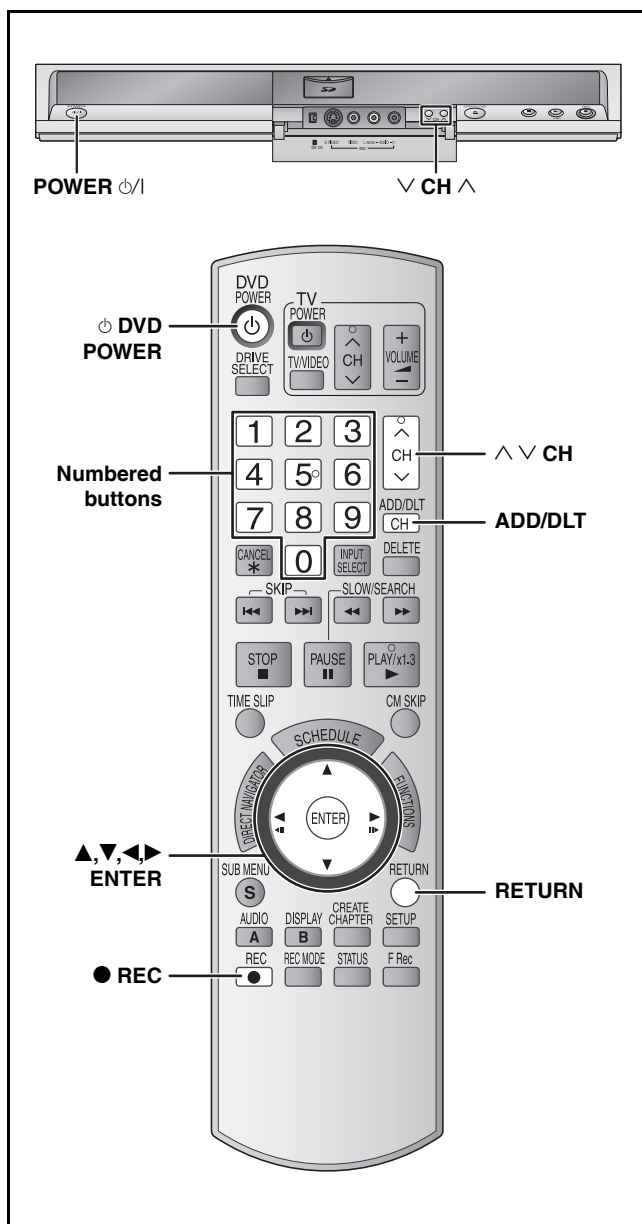
After pressing [⏻ DVD POWER] to turn the unit on for the first time, the unit starts necessary setup.

Regarding DST (Daylight Saving Time) (→ page 17)
Legal revision is expected to change the DST period in 2007. When you use the unit with DST on, the change may cause the unit's clock to go behind the actual time. Check the DST setting in "Set Clock Manually" in the Setup menu, set DST off and reset the clock correctly if you are using this function.

Preparation
Turn on the television and select the appropriate video input to suit the connections to this unit.

1 Press [⏻ DVD POWER].

Select Language
Seleccione el idioma
Sélection de Langue

English
Español
Français

Press ENTER
Pulse ENTER
Appuyer sur ENTER

2 Press [▲,▼] to select the language and press [ENTER].
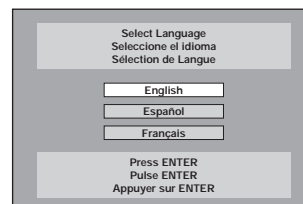If you make a mistake, press [RETURN] to return to an earlier screen.

Aspect Ratio Selection

Select TV type and press ENTER.
(Please refer to Operation Instruction for details)

4:3   4:3 TV
16:9   16:9 Widescreen TV
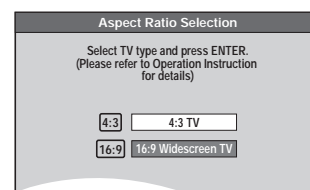
3 Press [▲,▼] to select "4:3 TV" or "16:9 Widescreen TV" and press [ENTER].

Quick Start setting

The unit can be turned on faster, in about 1 second. Please note that Quick Start mode slightly increases power consumption when the unit is off. (See Operation Instructions for details)
Turn Quick Start on ?

On
Off
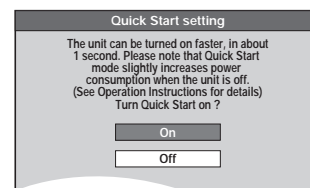
4 Press [▲,▼] to select "On" or "Off" and press [ENTER].
If you activate "Quick Start" function, select "On".

About "Quick Start" function
If you set Quick Start to on, you can start recording to DVD-RAM about 1 second after you press [⏻ DVD POWER] to turn the unit on and then press [● REC].
The following happens when you have selected "On".
• Power consumption in standby mode increases because power is supplied to the unit.

Default Recording Source

Please select the source from which this unit will record each time it is turned on. Note: Selecting "Internal TV Tuner" will start the Auto Channel Clock Settings process. This one time process takes a few minutes.

Internal TV Tuner
Input
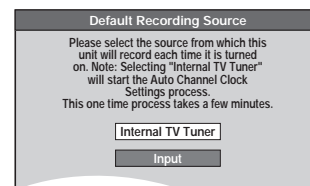
5 Press [▲,▼] to select "Internal TV Tuner" or "Input" and press [ENTER].
When you do not set channels on this unit, select "Input". The unit then displays "Set Clock Manually" screen. Set the clock manually (→ page 15).

6 Press [ENTER] to start Plug-in Auto Tuning.

```
Set Channels Automatically

Ch.    1

Set Channels Automatically
Proceeding . . .
▶ ▷ ▷
```

The unit then proceeds with Auto Clock Setting. The time is displayed when finished.

```
Set Clock Automatically

Auto Clock Setting is complete.

4/4/2006 12:15 AM
DST.....................On
Time Zone........CST
```

■ When one of the following screen appears
"No channels were found." screen

```
Set Channels Automatically

No channels were found.
Please check antenna or cable connection.
then...

press ENTER again
```

After turning off the unit, confirm following and perform setup again.
• Confirm the antenna cable is firmly connected to RF IN terminal.
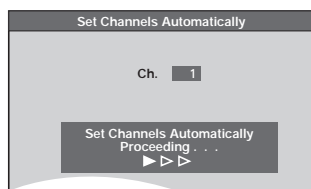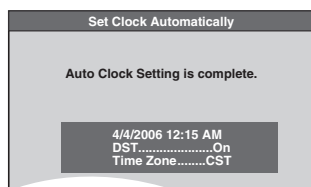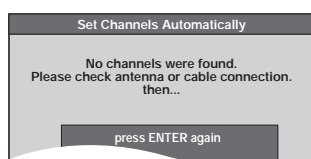• If you do not set channels on this unit, select "Input" in step 5.

"Auto Clock Setting is incomplete." screen

```
Set Clock Automatically

Auto Clock Setting is incomplete.

Press ENTER
to set clock manually.
```
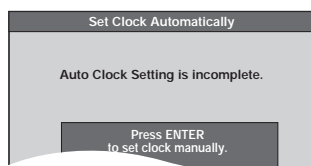
Press [ENTER] and set clock manually (→ right).

7 Press [ENTER].

A picture or a blue background screen is displayed.

■ If the clock is an hour slower or faster than the actual time
Select "–1" or "+1" in "Adjust Time Zone" in the Setup menu (→ page 17).

The unit configures channels according to the Signal Source (RF IN) settings (→ page 42) as follows.

Signal Source (RF IN)	Band	Channel
Antenna	VHF	2–13
	UHF	14–69
Cable TV	VHF	2–13
	CATV LOW BAND	95–99
	CATV MID/SUPER BAND	14–36
	CATV HYPER BAND	37–65
	ULTRA BAND	66–94 100–125
	SPECIAL CATV CHANNEL	1

Adding and deleting channels

After channel setting on this unit completed, you can add or delete channels if necessary channels are not set or unnecessary channels are set.
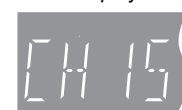
1 Press the numbered buttons to select a channel.

Antenna
e.g.,   5:   [0] → [5]
         15:      [1] → [5]
Cable TV
e.g.,   5:   [0] → [0] → [5]
         15:      [0] → [1] → [5]
         115:     [1] → [1] → [5]

Unit's display

```
CH 15
```

• You can also use [∧ ∨ CH] when you are going to delete a channel.

2 Press [ADD/DLT].

e.g., The channel is deleted.

```
Channel 15 Deleted
```

Restart Plug-in Auto Tuning (after relocation, for example)

The setting of the clock and channel is cleared when you perform the procedure below. Scheduled recording settings are also cleared.

1 When the unit is on and stopped
Press and hold [∨ CH] and [∧ CH] on the main unit for about five seconds.
The unit turns off.

2 Press [Φ DVD POWER].
The language selection screen is displayed.

When "Set Clock Manually" screen is displayed

The "Set Clock Manually" screen is automatically displayed when:
– there is an error while setting the clock automatically.
– you have selected "Input" in step 5 while setting (→ page 14).

1 Press [◀,▶] to select the item you want to change and press [▲,▼] to change the setting.

```
Set Clock Manually

Month  Day  Year    Hour  Minute
  1  /  1  / 2000 SAT 12  :  00  AM

     DST    Time Zone
     Off      EST
```
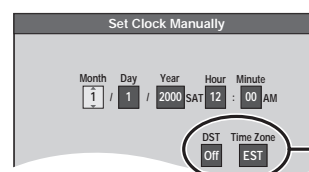
DST, Time Zone (→ below)

• DST (Daylight Saving Time):
If you select "On", the clock is advanced one hour starting at 2 a.m. on the first Sunday in April and ending at 2 a.m. on the last Sunday in October.
• Time Zone shows the time difference from Greenwich Mean Time (GMT).
  EST (Eastern Standard Time)   = GMT –5
  CST (Central Standard Time)   = GMT –6
  MST (Mountain Standard Time) = GMT –7
  PST (Pacific Standard Time)   = GMT –8
  AST (Alaska Standard Time)   = GMT –9
  HST (Hawaii Standard Time)   = GMT –10

2 Press [ENTER].

A picture or a blue background screen is displayed.
The clock starts.

Remote control settings

Television operation

You can operate the TV through the unit's remote control.
Point the remote control at the television
While pressing [⏻ POWER TV], enter the code with the numbered buttons.

e.g., 0250: [0] → [2] → [5] → [0]
Manufacturer and Code No.

Panasonic National QUASAR	0051/ 0250	PHILIPS (RC-5)	0054
		RCA	0047
		SAMSUNG	0060/ 0587/ 0702
FISHER	0154	SANYO	0154
GE	0047	SHARP	0093/ 0165
GOLDSTAR	0178/ 0317/ 0457	SONY	0000
HITACHI	0145	SYLVANIA	0054
JVC	0053	THOMSON	0047
LG	0178/ 0317/ 0457	TOSHIBA	0156
MAGNAVOX	0054	ZENITH	0017
MITSUBISHI	0150		

Test by turning on the television and changing channels. Repeat the procedure until you find the code that allows correct operation.
• If your television brand is not listed or if the code listed for your television does not allow control of your television, this remote control is not compatible with your television.

When other Panasonic products respond to this remote control

Change the remote control code on the main unit and the remote control (the two must match) if you place other Panasonic products close together.
Use "1", the factory set code, under normal circumstances.
To change the code on the main unit

1 While stopped
Press [SETUP].

2 **Press [▲,▼] to select "Setup" and press [▶].**

3 **Press [▲,▼] to select "Remote Control Code" and press [ENTER].**

4 **Press [▲,▼] to select the code ("1", "2", or "3") and press [ENTER].**
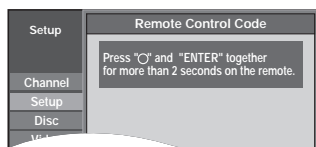
To change the code on the remote control

5 **While pressing [ENTER], press and hold the numbered button ([1], [2] or [3]) for more than 2 seconds.**

6 **Press [ENTER].**

■ **When the following indicator appears on the unit's display**

REC — Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.

To exit the screen
Press [SETUP].
To return to the previous screen
Press [RETURN].

Clock settings

In the case of a power failure, the clock setting remains in memory for approximately 1 minute.

1 While stopped
Press [SETUP].

2 **Press [▲,▼] to select "Setup" and press [▶].**

3 **Press [▲,▼] to select "Clock Settings" and press [ENTER].**

4 **Press [▲,▼] to select "Set Clock Manually" and press [ENTER].**

5 **Press [◀,▶] to select the item you want to change and press [▲,▼] to change the setting.**
• DST (Daylight Saving Time): On or Off
If you select "On", the clock is advanced one hour starting at 2 a.m. on the first Sunday in April and ending at 2 a.m. on the last Sunday in October.
• Time Zone shows the time difference from Greenwich Mean Time (GMT).

6 **Press [ENTER].**
The clock starts.

Adjust the time zone (−1 or +1) if it was not set correctly with auto clock setting.
You can set this menu only after "Set Clock Automatically" is completed.

1 While stopped
Press [SETUP].

2 **Press [▲,▼] to select "Setup" and press [▶].**

3 **Press [▲,▼] to select "Clock Settings" and press [ENTER].**

4 **Press [▲,▼] to select "Adjust Time Zone" and press [ENTER].**

5 **Press [▲,▼] to select "−1" or "+1" and press [ENTER].**

To exit the screen
Press [SETUP].
To return to the previous screen
Press [RETURN].

Recording of MTS broadcasting

`RAM`
Both main and secondary audio can be recorded
You can change the audio during playback.
(→ page 25, Changing audio)

Main   SAP
Hello   Hola

If you record from external equipment
– Select both "Main" and "SAP" on the external equipment.

`-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW`
Select the main or secondary audio before recording
(→ page 44, "Multi-channel TV Sound (MTS)")
The selected audio only is recorded.

Main
Hello

If you record from external equipment
– Select "Main" or "SAP" on the external equipment.

Recording of Widescreen broadcasting

`RAM`
Recorded in 16:9 aspect (Widescreen)

`-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW`
Recorded in 4:3 aspect

Recording of digital broadcasting

It is not possible to record digital broadcasts that allow "One time only recording" onto DVD-R, DVD DVD-RW, +R, +R DL, +RW or 8 cm (3″) DVD-RAM discs. Use a CPRM (→ page 53) compatible

`RAM` (CPRM compatible disc only)

`-R` `-R DL` `-RW(V)` `+R` `+R DL` `+R`

• "One time only recording" titles cannot be copied.
• Even when copying to video tape the title may not be copied correctly bec
• You cannot copy a playlist created from "One time only recording" titles.

Playing the disc on other DVD players

`-R` `-R DL` `-RW(V)` `+R` `+R DL`
The disc must be finalized after recording (→ page 41).
It is necessary to finalize DVD-R, etc. on this unit after recording or cop
them as a commercially sold DVD-Video. However, the discs become
copy.*
* You can record and copy again if you format DVD-RW.
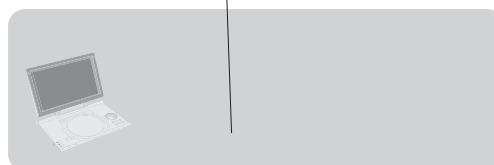
To enable play on other DVD equipment, please   DVD Top Menu" in DVD Management menu
(→ page 41).

Recording to a DVD-R DL and +R DL

DVD-R DL and +R DL discs have two layers of recording surface on one side.
It is not possible to record continuously from the first layer to the second layer. Recording stops when space on the first layer becomes full. You must close the first layer to start recording on the second layer. Closing makes the first layer unavailable for recording (editing is still available). You cannot cancel closing. Make certain before proceeding.

Recording modes and approximate recording times

Depending on the content being recorded, the recording times may become shorter than indicated.

Recording Mode	DVD-RAM		DVD-R, DVD-RW, +R, +RW 4.7 GB
	4.7 GB	9.4 GB (Double-sided*1)	
XP (High picture quality)	1 h.	2 h.	1 h.
SP (Standard)	2 h.	4 h.	2 h.
LP (Long recording)	4 h.	8 h.	4 h.
EP (Extra long recording)	8 h. (6 h.*2)	16 h. (12 h.*2)	8 h. (6 h.*2)
FR (Flexible Recording)	8 h. maximum	8 h. maximum for one side	8 h. maximum

Recording Mode	DVD-R DL, +R DL*3 8.5 GB	
	First layer (L0)	Second layer (L1)
XP (High picture quality)	55 min.	50 min.
SP (Standard)	1 h. 50 min.	1 h. 40 min.
LP (Long recording)	3 h. 40 min.	3 h. 20 min.
EP (Extra long recording)	7 h. 25 min. (5 h. 30 min.*2)	6 h. 50 min. (5 h. 15 min.*2)
FR (Flexible Recording)	7 h. 25 min. maximum	6 h. 50 min. maximum

*1 It is not possible to record or play continuously from one side of a double sided disc to the other.

*2 When "Recording Time in EP Mode" is set to "EP – Extended Play (6H)" in the Setup menu (→ page 43).
The sound quality is better when using "EP – Extended Play (6H)" than when using "EP – Extended Play (8H)".

*3 It is not possible to record continuously from first layer to second layer.

Note
- This unit uses variable bit rate (VBR) recording which varies the amount of data recorded to suit the images, so actual recording times and remaining recording times shown by the unit will be different. (The difference will be especially noticeable with DVD-R DL and +R DL.)
Use a disc with plenty of remaining time.
- RAM When recording to DVD-RAM using EP (8H) mode, play may not be possible on DVD players that are compatible with DVD-RAM. Use EP (6H) mode if playback may be on other equipment.

FR (Flexible Recording)

The unit automatically selects a recording rate between XP and EP (8H) that will enable the recordings to fit in the remaining disc space with the best possible recording quality.
- You can use FR mode in Scheduled recording (→ page 22, step 3) and Flexible Recording (→ page 21).

Using "FR mode" is convenient in these kind of situations

- When the amount of free space on the disc makes selecting an appropriate recording mode difficult
- When you want to record a long program with the best picture quality possible

e.g., Recording a 90 minutes program to disc
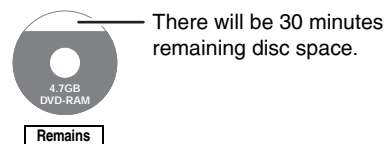
Disc Insertion/Ejection

When the format confirmation screen is displayed

RAM -RW(V) +R +R DL +RW
When you insert a new disc and a disc recorded on a computer or other equipment, a format confirmation screen might be displayed. Format the disc to use it. However all the recorded contents are deleted.
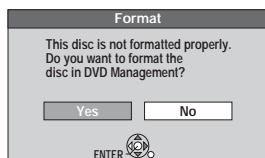
Press [◄,►] to select "Yes" and press [ENTER].

- Several steps are necessary to format a disc. Refer to "Deleting all contents of a disc or card –Format" (→ page 40).

When removing a recorded disc

-R -R DL -RW(V) +R +R DL
When you press [▲ OPEN/CLOSE] on the main unit while stopped:
The following screen appears when you have not processed the disc for play on other equipment.
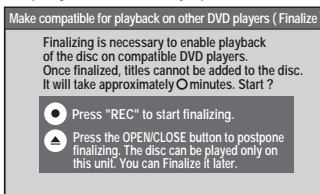
■ When finalizing the disc
Press [● REC].
- You cannot stop this process once you have started it.
- If you want to provide the disc with a name or set play menu select, select "Disc Name" (→ page 40) or "Playback will start with:" (→ page 41) in "DVD Management" before finalizing.

■ When opening the tray without disc finalization
Press [▲ OPEN/CLOSE] on the main unit.

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▲ OPEN/CLOSE

∨ CH ∧   ■ ▶ ● REC

DRIVE SELECT

Numbered buttons

∧ ∨ CH

DIRECT NAVIGATOR

■

▲,▼,◀,▶ ENTER

▶

II

AUDIO

RETURN

● REC

REC MODE

F Rec

STATUS

RAM -R -R DL -RW(V)
• You can record up to 99 titles on one disc.

+R +R DL +RW
• You can record up to 49 titles on one disc.

SD
• It is not possible to record onto a card.

See also the notes "Important notes for recording" (→ page 18).

Depending on the type of disc used for recording or the type of broadcast, there may be restrictions on the title you are trying to record.

Note
• +RW You can create a Top Menu using "Create DVD Top Menu" (→ page 41). Recording or editing on the disc may delete the menu. In that case, create the menu again.
• RAM It is not possible to record continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.

Preparation
• Turn on the television and select the appropriate video input to suit the connections to this unit.
• Turn the unit on.

Off Timer
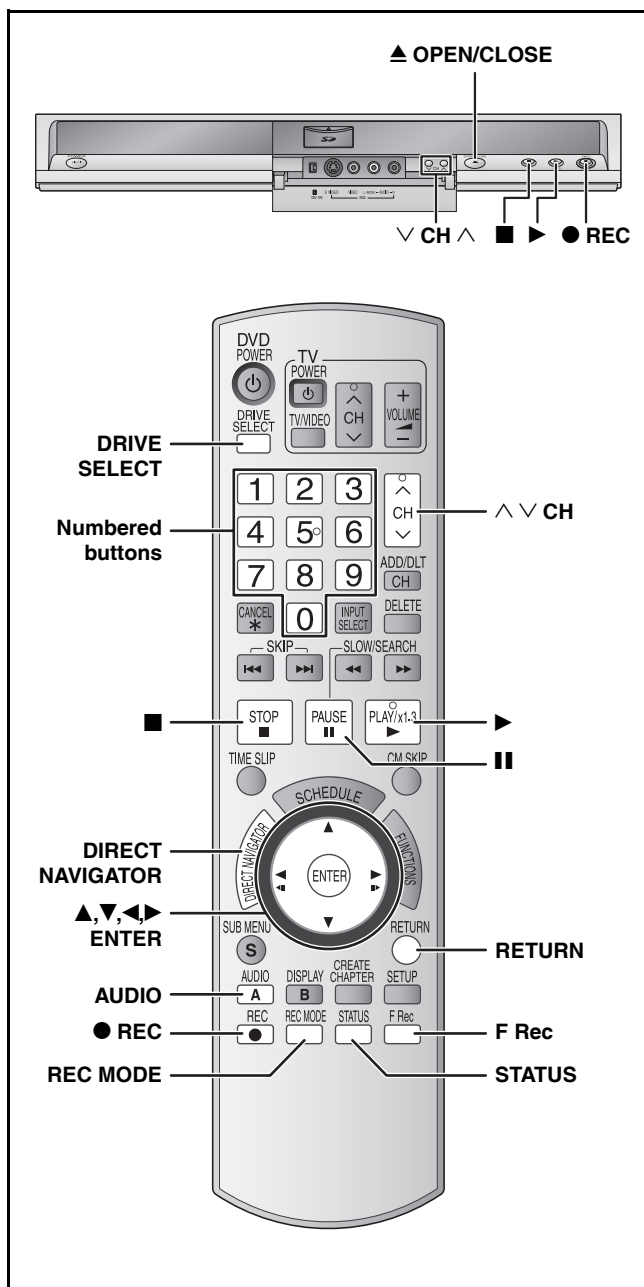The unit switches to standby after about 6 hours in the stop mode. You can turn this feature off or change the time to 2 hours (→ page 42, "Off Timer").

1 Press [DRIVE SELECT] to select the DVD drive.

2 Press [▲ OPEN/CLOSE] on the main unit to open the tray and insert a disc.
• Press the button again to close the tray.
• When using 8 cm (3″) DVD-RAM, or 8 cm (3″) DVD-R, remove the disc from the cartridge.

Insert label-up.

■ **Cartridge disc**
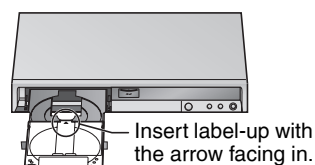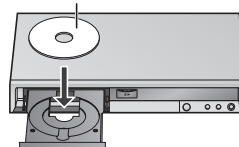
Insert label-up with the arrow facing in.

Insert fully.

3 Press [∧ ∨ CH] to select the channel.

To select with the numbered buttons:

Antenna		**Cable TV**	
e.g., 5:	[0] → [5]	e.g., 5:	[0] → [0] → [5]
15:	[1] → [5]	15:	[0] → [1] → [5]
		115:	[1] → [1] → [5]

• Select the audio to record (→ page 21).

4 Press [REC MODE] to select the recording mode (XP, SP, LP, or EP).

Remaining time on the disc

5 Press [● REC] to start recording.

The elapsed time is shown on the display.
Recording will take place on free space on disc. Data will not be overwritten.
• You cannot change the channel or recording mode during recording. You can change the channel or recording mode while paused; however, the recording will then be classified as a separate title.
• You can record while the unit is in standby for scheduled recording, but once the time for the scheduled recording to begin is reached, any recording taking place will stop and the scheduled recording will begin.

■ To pause recording
Press [II].
Press again to restart recording.
You can also press [● REC] to restart.
(Title is not split into separate titles.)

■ To stop recording
Press [■].
• From the start to the end of the recording is called one title.
• -R -R DL -RW(V) +R +R DL +RW
It takes about 30 seconds for the unit to complete recording management information after recording finishes.

■ When recording the channel (not set on this unit) from cable box or satellite receiver
① Select the channel on the equipment before turning the unit on.
② Press [∧ ∨ CH] to select IN1 or IN2 in step 3 (→ above).

To specify a time to stop recording –One Touch Recording

RAM -R -R DL -RW(V) +R +R DL +RW

During recording
Press [● REC] to select the recording time.
• The unit display changes as shown below.

OFF 0:30 ⟶ OFF 1:00 ⟶ OFF 1:30 ⟶ OFF 2:00
 ⌐— Counter (cancel) ⟵ OFF 4:00 ⟵ OFF 3:00 ⟵⌐

• This does not work during scheduled recordings (→ page 22) or while using Flexible Recording (→ below).
• If you change the channel or recording mode while recording is paused, the time specified to stop recording is canceled.
• The unit turns off automatically after the time to stop recording is reached.

To cancel
Press [● REC] several times until the counter appears.
• The time to stop recording is canceled; however, recording continues.

To stop recording partway
Press [■].

Flexible Recording
(Recording that fits the remaining disc space)

RAM -R -R DL -RW(V) +R +R DL

The unit sets the best possible picture quality that fits the recording within the remaining disc space. The recording mode becomes FR mode. Refer to "FR (Flexible Recording)" (→ page 19).

Preparation
• Select the channel or the external input (IN1, IN2 or DV) to record.
• Press [DRIVE SELECT] to select the DVD drive.

1 **While stopped**
Press [F Rec].

2 **Press [◄,►] to select "Hour" and "Min." and press [▲,▼] to set the recording time.**
• You can also set the recording time with the numbered buttons.
• You cannot record for more than 8 hours.

3 **When you want to start recording**
Press [▲,▼,◄,►] to select "Start" and press [ENTER].
Recording starts.

To exit the screen without recording
Press [RETURN].

To stop recording partway
Press [■].

To show the remaining time
Press [STATUS].

Press [►] (PLAY) during recording.
• There is no sound output while searching forward or backward.

To stop play
Press [■].

To stop recording
2 seconds after play stops
Press [■].

To stop scheduled recording
① Press [■] to stop playing.
② After 2 seconds, press [■].
③ Press [◄,►] to select "Stop recording" and press [ENTER].

1 **Press [DIRECT NAVIGATOR] during recording.**

2 **Press [▲,▼,◄,►] to select a title and press [ENTER].**
• There is no sound output while searching forward or backward.

To stop play
Press [■].

To exit the Direct Navigator screen
Press [DIRECT NAVIGATOR].

To stop recording
① Press [■] to stop playing.
② Press [DIRECT NAVIGATOR] to exit screen.
③ Press [■].

To stop scheduled recording
① Press [■] to stop playing.
② Press [DIRECT NAVIGATOR] to exit screen.
③ Press [■].
④ Press [◄,►] to select "Stop recording" and press [ENTER].

Press [AUDIO].

• If you change the sound setting while recording, the recorded sound will also change.

Select the audio (Main or SAP) in "Multi-channel TV Sound (MTS)" in the Setup menu (→ page 44).

RQT8327

DRIVE
SELECT

Numbered
buttons

CANCEL ✳

ADD/DLT

■

SCHEDULE

▲,▼,◄,►
ENTER

SUB MENU

RETURN

REC MODE

RAM   -R   -R DL   -RW(V)   +R   +R DL   +RW

| Schedule List | Remaining Recording Time | 1:58 SP |
| | | 3/26 Tue 12:53 PM |

No	Channel	Date	On	Off	Mode	Check

New Scheduled Recording

Press ENTER to set new schedule.

ENTER

| SCHEDULED RECORDING | Remaining Recording Time | 1:58 SP |
| | | 3/26 Tue 12:53 PM |

Channel	Date	On	Off	Mode
---	----------	--:-- --	--:-- --	-- ►

◄   Title Name

Set channel.

ENTER   ⏱ — ⏱ Number

Channel	Date	On	Off	Mode
39	4/1 Mon	4:20 PM	5:10 PM	SP ►

◄   Title Name

Date: Current date up to one month later minus
                one day

↓↑

Daily timer: Sun-Sat → Mon-Sat → Mon-Fri

↓↑

Weekly timer: Weekly, Sun → --- → Weekly, Sat

No	Channel	Date	On	Off	Mode	
01	64 ABC	3/26 Tue	2:30 PM	3:00 PM	SP	OK

New Scheduled Recording
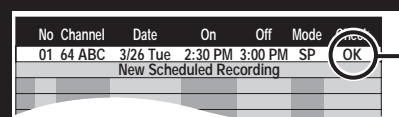
When "!" appears,
make sure the
disc has a
sufficient space.

Cancel scheduled recording that has already begun

1 **When the unit is on**

Press [■].

The confirmation screen appears.

2 **Press [◄,►] to select "Stop recording" and press [ENTER].**

Recording stops and the scheduled recording is canceled. (Daily and weekly schedules remain and scheduled recording will start as scheduled.)

Release program from recording standby

1 **Press [SCHEDULE].**

2 **Press [▲,▼] to select the program and press [SUB MENU].**

3 **Press [▲,▼] to select "Schedule set to Off" and press [ENTER].**

Canceled icon is displayed in left column.

Schedule
List
No Channel
➩x 01 64 ABC

- Be sure to select "Schedule set to On" in step 3 before the scheduled time to put the unit on recording standby.

Notes on scheduled recording

- "🕐" flashes on the unit's display for about 5 seconds when the unit cannot go to scheduled recording standby (e.g., a recordable disc is not in the disc tray).
- Scheduled recordings begin when the set time is reached even when recording or when playing.
- Scheduled recordings do not begin while copying still pictures (➔ page 36).
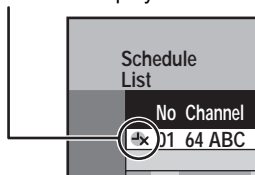- If the unit is turned on when scheduled recording begins, it remains turned on after recording finishes. It does not turn off automatically. You can turn the unit off during scheduled recording.
- If you are making consecutive recordings that will start one after the other, the very beginning of the title cannot be recorded.

e.g., Program① 10:00–11:00
       Program② 11:00–12:00

11:00

Program① | Program②

Recorded   Recorded

Not recorded
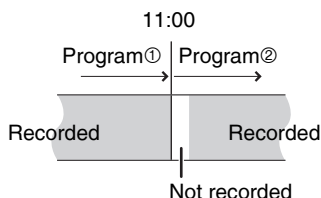
- If the actual broadcasting times of scheduled recordings overlap, the recording that starts first always has priority, and the recording of the later program will start only after the first scheduled recording has finished.
- If you set DST (Daylight Saving Time) to On when manually setting the clock (➔ page 17), scheduled recording may not work when summer switches to winter and vice versa.
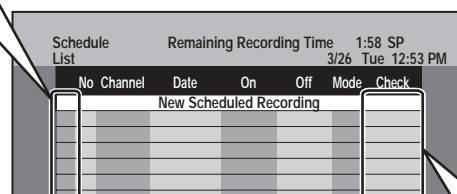
Check, change or delete a program

Even when the unit is turned off, you can display the schedule list by pressing [SCHEDULE].

Press [SCHEDULE].

Icons

● This program is currently recording.

ⓦ The times overlap those in another program.

➩x Scheduled recording standby is canceled. Recording will not start at the scheduled time.

⊖ You stopped a weekly or daily scheduled recording. The icon disappears the next time the scheduled program starts recording.

Ⓕ The disc was full so the program failed to record.

▱ The material was copy-protected so it was not recorded.

Ⓧ The program did not complete recording because the disc is dirty or for some other reason.

Schedule List   Remaining Recording Time 1:58 SP
                                3/26 Tue 12:53 PM
No Channel Date On Off Mode Check
           New Scheduled Recording

Message displayed in the Check line

OK: Displayed if the recording can fit in the remaining space.

→ (Date): For recordings made daily or weekly, the display will show until when recordings can be made (up to a maximum of one month from the present time) based on the time remaining on the disc.

!: It may not be possible to record because:
- no disc is inserted.
- the disc is write-protected.
- there is no more space left.
- the number of possible titles has reached its maximum.
- scheduled recording standby is canceled.

Overlap: The times overlap those in another program. Recording of the program with the later start time starts when the earlier program finishes recording.

■ To change a program

Press [▲,▼] to select the program and press [ENTER].
(➔ page 22, step 3)

- During scheduled recording, you can change the end time as long as the recording mode is not "FR".

■ To delete a program

Press [▲,▼] to select the program and press [CANCEL ✻] or [ADD/DLT].
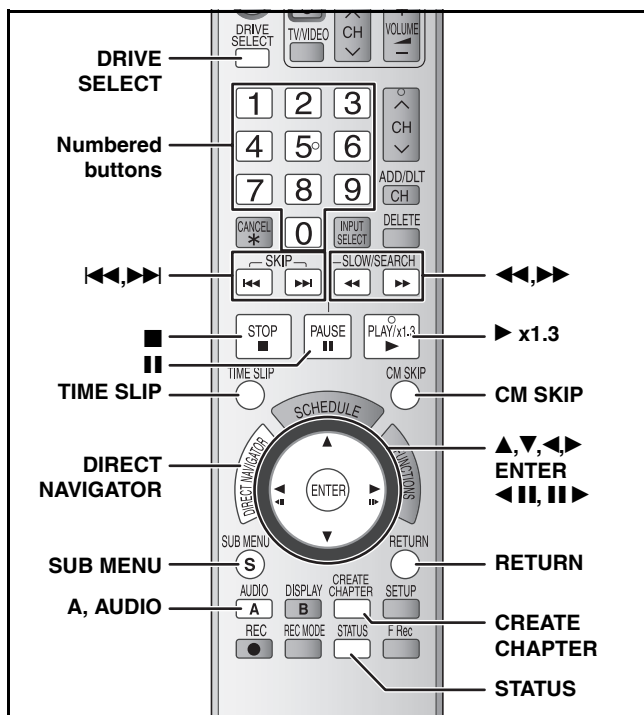
■ To cancel recording that has already begun

Press [▲,▼] to select program and press [SUB MENU], then press [ENTER].

■ To exit the schedule list

Press [SCHEDULE].

- Programs that failed to record are displayed gray, and cannot be changed. They are automatically deleted from the schedule list at 4 a.m. two days later.

Playing discs

DRIVE SELECT

Numbered buttons

|◄◄, ►►|

■

❚❚

TIME SLIP

DIRECT NAVIGATOR

SUB MENU

A, AUDIO

◄◄, ►►

► x1.3

CM SKIP

▲,▼,◄,►
ENTER
◄❚❚, ❚❚►

RETURN

CREATE CHAPTER

STATUS

■ If the recorded title is stretched vertically

If recorded to a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW disc, 16:9 aspect images will be recorded as 4:3 images.
• You may be able to adjust it by changing the display mode on your television, please refer to the television's operating instructions.

Preparation
• Turn on the television and select the appropriate video input to suit the connections to this unit.
• Turn on this unit.

1 Press [DRIVE SELECT] to select the DVD drive.

2 Insert a disc (→ page 20).

3 Press [►] (PLAY).

`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `-RW(VR)`
Play starts from the most recently recorded title.
`DVD-V` `DVD-A` `CD` `VCD`
Play starts from the beginning of the disc.

■ When a menu screen appears on the television

`DVD-V` `DVD-A`
Press [▲,▼,◄,►] to select the item and press [ENTER].
Some items can also be selected using the numbered buttons.
`VCD`
Press the numbered buttons to select the item.
e.g., 5: [0] → [5] 15: [1] → [5]

• **To return to the menu screen**
  `DVD-V` Press [DIRECT NAVIGATOR] or [SUB MENU].
  `DVD-A` Press [DIRECT NAVIGATOR].
  `VCD` Press [RETURN].

• The playing method may differ from the one described above depending on disc types. Read the disc's instructions carefully.

`Note`
• It is not possible to play continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
• Depending on the disc, it may take time for the menu screen, pictures, sound, etc. to start.
• Discs continue to rotate while menus are displayed. Press [■] when you have finished playback to protect the unit's motor, your television screen and so on.
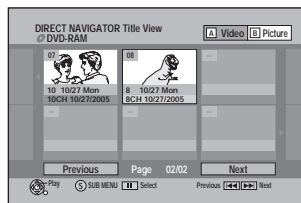
Selecting recorded titles to play –Direct Navigator

`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `-RW(VR)`
Simply select the recorded titles you want to play from the menu.

1 Press [DRIVE SELECT] to select the DVD drive.

2 Insert a disc (→ page 20).

3 Press [DIRECT NAVIGATOR].

4 `RAM`
Press [A] to select "Video".

5 Press [▲,▼,◄,►] to select the title and press [ENTER].

You can also select titles with the numbered buttons.
e.g., 5: [0] → [5] 15: [1] → [5]

To show other pages
Press [▲,▼,◄,►] to select "Previous" or "Next" and press [ENTER].
• You can also press [I◄◄] (Previous) or [►►I] (Next).

To exit the screen
Press [DIRECT NAVIGATOR].

Direct Navigator screen icons

🔒	Title protected.
✎	Title that was not recorded due to recording protection (Digital broadcasts, etc.)
✕	Title cannot be played because data is damaged.
●	Currently recording.
⊠	Title with "One time only recording" restriction

`Note`
• `RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` The unit stops playing a disc when scheduled recording starts.
• `RAM` Press [►] (PLAY) when you wish to start playing the disc while recording (→ page 21, "Chasing playback").

Status messages

Status messages appear on the television during operation to show the condition of the unit.

Press [STATUS].

The display changes each time you press the button.

DVD-RAM — Type of disc/Selected drive
Rec. ⎫
Play ⎬ — Recording or play status/Input channel
Stereo — Selected audio type
DVD Rec. — Recording drive

No display

Date and time

Available recording time and recording mode

12/24 6:34 PM ■ Remain 1:45 SP
■ T12 0:01.23 SP ■ T12 0:12.34 SP

Title number and elapsed time during play/Recording mode

Title number and elapsed time during recording/Recording mode

Operations during play

|	
Stop	**Press [■].** The stopped position is memorized. **Resume play function** Press [▶] (PLAY) to restart from this position. • [VCD] Depending on the disc, resume play function may not be effective. • The stopped position is cleared when: – You press [■] several times. – You open the tray. – [DVD-A] [CD] [VCD] You turn the unit off.
Pause	**Press [❙❙].** Press again or press [▶] (PLAY) to restart play.
Search	**Press [◀◀] or [▶▶].** • The speed increases up to 5 steps ([+R] [+R DL] [+RW] up to 3 steps). • Press [▶] (PLAY) to restart play. • Audio is heard during first level search forward. [DVD-A] (excluding moving picture parts) [CD] Audio is heard during all levels of search. • Depending on the disc, searching may not be possible.
Skip	**During play or while paused, press [❙◀◀] or [▶▶❙].** The unit will skip titles, chapters, or tracks according to the number of times the button is pressed and play will begin.

Starting from a selected item	**Press the numbered buttons.**
	Play starts from the selected title, chapter or track.
	e.g., 5: [0] → [5] [CD] MP3 and **JPEG/TIFF** 5: [0] → [0] → [5]
	  15: [1] → [5] 15: [0] → [1] → [5]
	  [DVD-A] Selecting groups
	  While stopped (screen saver is displayed on the television → right)
	  5: [5]
	• This works only when stopped (screen saver is displayed on the television → above) with some discs.
	• [VCD] (with playback control)
	  If you press the numbered buttons while stopped (the above screen saver is displayed on the television) you can cancel PBC. (Elapsed play time appears on the unit's display.)

Quick View [RAM]	**Press and hold [▶] (PLAY/x1.3).** Play speed is quicker than normal. • Press again to return to normal speed.
Slow-motion [RAM] [-R] [-R DL] [-RW(V)] [+R] [+R DL] [+RW] [DVD-V] [DVD-A] (Motion picture parts only) [-RW(VR)] [VCD]	**While paused, press [◀◀] or [▶▶].** • The speed increases up to 5 steps. • Press [▶] (PLAY) to restart play. • [VCD] Forward direction [▶▶] only. • The unit will pause if slow-motion play is continued for approximately 5 minutes (excluding [DVD-V] [DVD-A] [VCD]).
Frame-by-frame [RAM] [-R] [-R DL] [-RW(V)] [+R] [+R DL] [+RW] [DVD-V] [DVD-A] (Motion picture parts only) [-RW(VR)] [VCD]	**While paused, press [◀❙❙] or [❙❙▶].** • Each press shows the next frame. • Press and hold to change forward or backward in succession. • Press [▶] (PLAY) to restart play. • [VCD] Forward direction [❙❙▶] only.
Skipping the specified time (Time Slip) [RAM] [-R] [-R DL] [-RW(V)] [+R] [+R DL] [+RW] [-RW(VR)]	**1 Press [TIME SLIP].** **2 Press [▲,▼] to select the time and press [ENTER].** Play skips to the specified time. • Each time you press [▲,▼], the time increases [▲] or decreases [▼] by 1 minute intervals. (Press and hold for 10-minute intervals.)
CM Skip [RAM] [-R] [-R DL] [-RW(V)] [+R] [+R DL] [+RW] [-RW(VR)]	**Press [CM SKIP].** Play restarts from approximately a minute later.
Changing audio	**Press [AUDIO].** [RAM] [-RW(VR)] [VCD] Stereo → Mono L → Mono R • [RAM] [-RW(VR)] When playing an SAP broadcast: Main Audio↔SAP Audio [DVD-V] [DVD-A] You can change the audio channel number each time you press the button. This allows you to change things like the soundtrack language. | Soundtrack ⬍ 1 ENG 🔊 Digital 3/2.1ch | e.g., [DVD-V] English is the selected language (→ page 29, Soundtrack). **DVD-RAM** Play e.g., "Stereo" is selected — Stereo
Create Chapter [RAM] (→ page 30, Title/Chapter)	**Press [CREATE CHAPTER].** Chapters are divided at the point pressed. • Press [❙◀◀,▶▶❙] to skip to the start of a chapter.
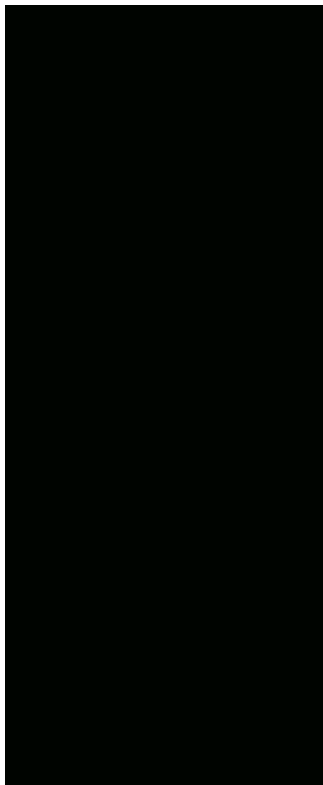
You can use SD Memory Cards with capacities from 8 MB to 2 GB (→ page 5).

You can play CD-R, CD-RW discs which contain still pictures (JPEG/TIFF) that have been recorded on a computer.
• You cannot playback still pictures while recording or copying.

Preparation
• Press [DRIVE SELECT] to select the DVD or SD drive.
• Insert a disc (→ page 20) or card (→ page 6).

The screen shown at right is displayed when you insert a disc containing MP3 files and still pictures (JPEG/TIFF).
Press [ENTER].

■ **To select Pictures Menu**
1 Press [FUNCTIONS].
2 Press [▲,▼] to select "Menu" and press [ENTER].
3 Press [▲,▼] to select "Pictures" and press [ENTER].
→ right, step 3

If you switch to MP3 menu again
Select "MP3 Music" in step 3.

While stopped and SD card has been inserted, "SD Card Operations" screen (→ right) is automatically displayed. Press [▲,▼] to select "Go to Album View" and press [ENTER]. You can proceed to step 2 (→ right).

---

1 Press [DIRECT NAVIGATOR].

Album View screen is displayed (→ go to step 2).

* Depending on the digital camera, the editing software on the PC etc., the information about the recording date may not be displayed. In this case, the date will appear as "--/--/--".

■ **When the Title View screen is displayed**
Press [B] to switch to the Album View screen.

Picture View screen is displayed (→ go to step 3).

Thumbnails for large JPEG files and images with aspect ratios other than 4:3 may not display.

2 Press [▲,▼,◄,►] to select the album and press [ENTER].

• The Picture View screen of selected album is displayed.

• You can also select the album with the numbered buttons.

3 Press [▲,▼,◄,►] to select the still picture and press [ENTER].

• The selected still picture is displayed on the screen.
• You can also select the still picture with the numbered buttons.

To return to the Album View screen
While the Picture View screen is displayed, press [RETURN].

To display the previous or next still picture during play
Press [◄,►].

To stop playing
Press [■].
• The unit remembers the still picture where you stopped play. This is cleared when you turn the unit off or remove the disc or card.

To return to the previous screen
Press [RETURN].

To exit the menu screen
Press [DIRECT NAVIGATOR].

Useful functions during still picture play

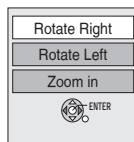|	
Start Slideshow Slideshow settings	You can display still pictures one by one with constant interval. **[RAM] [SD] While the Album View screen is displayed** **Press [▲,▼,◄,►] to select the album and press [►] (PLAY).** **You can also start Slideshow with the following steps.** While the Album View screen is displayed ① Press [▲,▼,◄,►] to select desired album and press [SUB MENU]. ② Press [▲,▼] to select "Start Slideshow" and press [ENTER]. **[CD] While the Picture View screen is displayed** **1 Press [▲,▼,◄,►] to select "Folder" and press [SUB MENU].** **2 Press [▲,▼] to select "Start Slideshow" and press [ENTER].** • **To change the display interval** ① Press [▲,▼] to select "Slideshow settings" in step 2 and press [ENTER]. ② Press [▲,▼] to select "Display Interval" and press [◄,►] to select the desired interval (0-30 seconds) and press [ENTER]. • **Repeat play** ① Press [▲,▼] to select "Slideshow settings" in step 2 and press [ENTER]. ② Press [▲,▼] to select "Repeat Play" and press [◄,►] to select "On" or "Off" and press [ENTER].
Rotate Zoom in Zoom out	**While playing** **1 Press [SUB MENU].** **2 Press [▲,▼] to select the item and press [ENTER].** [Rotate Right / Rotate Left / Zoom in / ●ENTER] **To return the rotated picture to its original position** Press [▲,▼] to select the opposite rotation in step 2 and press [ENTER]. **To return the picture to its original size** Press [▲,▼] to select "Zoom out" in step 2 and press [ENTER]. • Rotation information will not be stored. – [CD] Still pictures – When disc or album is protected – When played on other equipment – When copying pictures • If you remove the SD card while the Picture View screen is displayed, picture rotation information may not be properly stored. Make sure that you do not remove the SD card until the screen has closed. • When zooming in, the picture may be cut off. • The enlargement information will not be stored. • The "Zoom in/Zoom out" function is only available for still pictures smaller than 640 x 480 pixels.
Properties	**While playing** **Press [STATUS] twice.** 11/30 12:03 AM Date : 11/26/2005 No. : 2/ 30 Shooting date **To exit the picture properties screen** Press [STATUS] again.

[RAM] [SD]

■ To select a higher folder
While the Album View screen is displayed
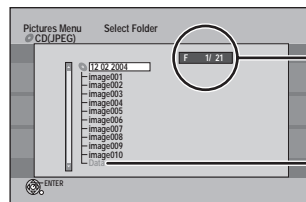(Only if there is a multiple number of higher folders recognizable)
1 Press [SUB MENU].
2 Press [▲,▼] to select "Select Root folder" and press [ENTER].
3 Press [◄,►] to select the higher folder and press [ENTER].

[CD]

■ To select another folder
While the Picture View screen is displayed
1 Press [▲,▼,◄,►] to select "Folder" and press [ENTER].

Pictures Menu   Select Folder
CD(JPEG)
          F 1/ 21
          image001
          image002
          image003
          image004
          image005
          image006
          image007
          image008
          image009
          image010
          Date
   ●ENTER

F: Selected folder no./Total folder

Folders that contain no compatible files

2 Press [▲,▼] to select the folder and press [ENTER].

Regarding still pictures (JPEG/TIFF)

[RAM] [SD]
• Compatible formats: DCF* compliant (Content recorded on a digital camera, etc.)
  * Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA)
• File format: JPEG, TIFF (non-compressed RGB chunky format) Files must have the extension ".jpg", ".JPG", ".tif" and ".TIF".
• Number of pixels: between 34 x 34 and 6144 x 4096 pixels (Sub sampling is 4:2:2 or 4:2:0)
• This unit can handle a maximum of 3000 files and 300 folders (including higher folders).
• Operation may take time to complete when playing TIFF format still pictures, or when there are many files and/or folders, some files may not display or be playable.
• This unit is not compatible with MOTION JPEG.

[CD]
• Compatible formats: ISO9660 level 1 or 2 (except for extended formats) and Joliet
• File format: JPEG, TIFF (non-compressed RGB chunky format) Files must have the extension ".jpg", ".JPG", ".tif" and ".TIF".
• Number of pixels: between 34 x 34 and 6144 x 4096 pixels (Sub sampling is 4:2:2 or 4:2:0)
• This unit cannot play images that have resolutions beyond the range shown.
• Maximum number of files and folders recognizable: 999 files* and 99 folders (including the root folder)
  * Total number for all the MP3, JPEG and other type of files
• This unit is compatible with multi-session but reading or play of the disc may take time if there are a lot of sessions.
• English alphabet and Arabic numerals are displayed correctly. Other characters may not be displayed correctly.
• The display order on this unit may differ from how the order is displayed on a computer.
• Depending on how you create the disc (writing software), files and folders may not play in the order you numbered them.
• This unit is not compatible with packet-write format.
• Depending on the recording, some items may not be playable.
• Operation may take time to complete when playing TIFF format still pictures, or when there are many files and/or folders, some files may not display or be playable.
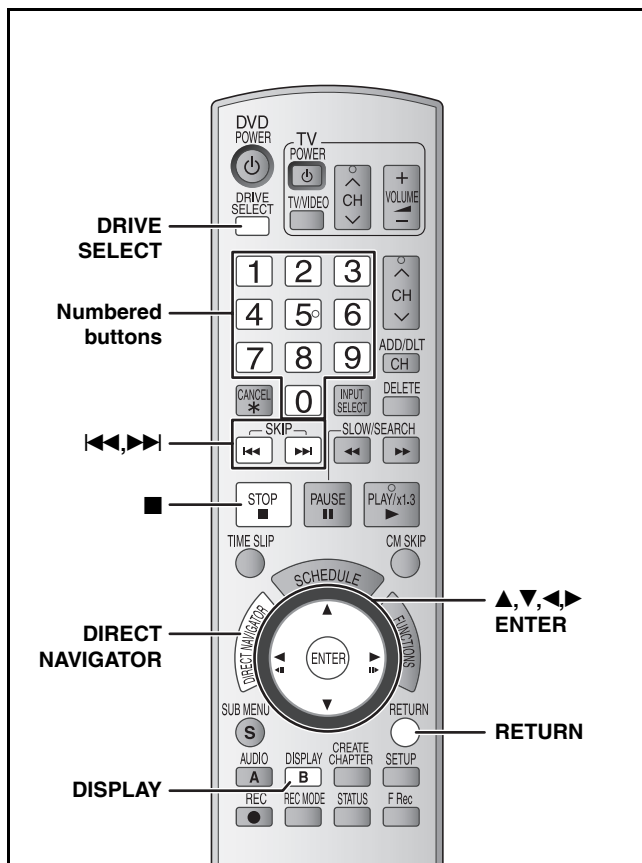• The unit is not compatible with MOTION JPEG.

[RAM] [CD] [SD]
For further information on structure of still picture folders (→ page 5)

DRIVE SELECT

Numbered buttons

|◄◄,►►|

■

DIRECT NAVIGATOR
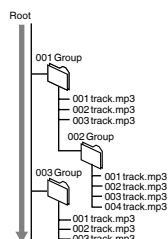
**▲,▼,◄,►
ENTER**

RETURN

DISPLAY

Regarding MP3
- Compatible formats: ISO9660 level 1 or 2 (except for extended formats) and Joliet
- File format: MP3
  Files must have the extension ".mp3" or ".MP3".
- Maximum number of files (tracks) and folders (groups) recognizable: 999 files* (tracks) and 99 (including the root folder) folders (groups)
  * Total number for all the MP3, JPEG and other type of files
- Bit rates: 32 kbps to 320 kbps
- Sampling frequency: 16 kHz/22.05 kHz/24 kHz/32 kHz/44.1 kHz/ 48 kHz
- This unit is compatible with multi-session but reading or play of the disc may take time if there are a lot of sessions.
- Operation may take time to complete when there are many files (tracks) and/or folders (groups) and some may not display or be playable.
- English alphabet and Arabic numerals are displayed correctly. Other characters may not be displayed correctly.
- The display order on this unit may differ from how the order is displayed on a computer.
- Depending on how you create the disc (writing software), files (tracks) and folders (groups) may not play in the order you numbered them.
- This unit is not compatible with packet-write format.
- Depending on the recording, some items may not be playable.
- This unit is not compatible with ID3 tags.
- If there is a large amount of still picture data etc. within an MP3 file, play may not be possible.

- You can play MP3 on this unit by making folders as shown below. However, depending on how you create the disc (writing software), play may not be in the order you numbered the folders.

Structure of MP3 folders
Prefix with 3-digit numbers in the order you want to play them.

Root

001 Group
— 001 track.mp3
— 002 track.mp3
— 003 track.mp3

002 Group

003 Group
— 001 track.mp3
— 002 track.mp3
— 003 track.mp3
— 004 track.mp3

— 001 track.mp3
— 002 track.mp3
— 003 track.mp3

Order of play

CD
- You can play CD-R, CD-RW discs which contain MP3 files that have been recorded on a computer.
- You may not be able to playback MP3 files which contain still pictures.

Preparation
- Press [DRIVE SELECT] to select the DVD drive.
- Insert a disc (→ page 20).

The screen shown at right is displayed when you insert a disc containing MP3 files and still pictures (JPEG/TIFF).
Press [ENTER], and follow the steps below.

Playback mode is set to MP3.
To display pictures,
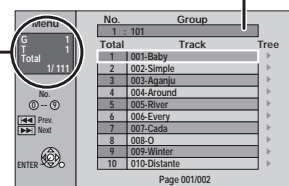please select Pictures Menu from FUNCTIONS.

ENTER

1 Press [DIRECT NAVIGATOR].

Selected group

G: Group no.
T: Track no. in the group
Total: Track no./Total track no. in all groups

No.	Group
1	101

Total	Track	Tree
1	001-Baby	►
2	002-Simple	►
3	003-Aganju	►
4	004-Around	►
5	005-River	►
6	006-Every	►
7	007-Cada	►
8	008-O	►
9	009-Winter	►
10	010-Distante	►

Page 001/002

- Files are treated as tracks and folders are treated as groups.

2 Press [▲,▼] to select the track and press [ENTER].

Play starts on the selected track.
- " 🖻 " indicates the track currently playing.
- You can also select the track with the numbered buttons.
  e.g., 5:   [0] → [0] → [5]
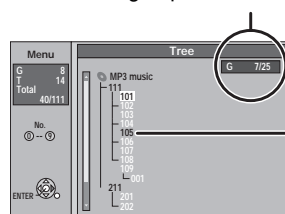   15:   [0] → [1] → [5]

To show other pages
Press [|◄◄] (Previous) or [►►|] (Next).

■ Using the tree screen to find a group

1 Press [►] while a track is highlighted to display the tree screen.

G: Selected group no. /Total group
If the group has no track, "– –" is displayed as group number.

G   7/25

Groups that contain no compatible files

2 Press [▲,▼] to select a group and press [ENTER].

The file list for the group appears.

To stop playing
Press [■].

To return to the previous screen
Press [RETURN].

To switch to Pictures menu
(→ page 26, "To select Pictures Menu")

To exit the screen
Press [DIRECT NAVIGATOR].

Using on-screen menus

Common procedures

1 Press [DISPLAY].

Disc	Soundtrack	1	⬛⬛ Digital 2/0 ch
Play	Subtitle		Off
Video	Audio channel		Stereo
Audio			
Other			

Menu   Item   Setting

- Depending on the condition of the unit (playing, stopped, etc.) and disc contents, there are some items that you cannot select or change.

2 Press [▲,▼] to select the menu and press [▶].

3 Press [▲,▼] to select the item and press [▶].

4 Press [▲,▼] to select the setting.
- Some items can be changed by pressing [ENTER].

To clear the on-screen menus
Press [DISPLAY].

Disc menu–Setting disc content

Soundtrack* `DVD-V` `DVD-A`
Select the audio and language (→ below, Audio attribute, Language).
`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `-RW(VR)`
The disc's audio attributes appear.

Subtitle* `DVD-V` `DVD-A`
Turn the subtitle on/off and select the language (→ below, Language).
`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `-RW(VR)`
(Only discs that contain subtitle on/off information)
- Subtitle on/off information cannot be recorded using this unit.
- If the subtitles overlap closed captions recorded on discs, turn the subtitles off.

Audio channel `RAM` `-RW(VR)` `VCD`
(→ page 25, Changing audio)

Angle* `DVD-V` `DVD-A`
Change the number to select an angle.

Still-P (Still picture) `DVD-A`
Selects the play method for still pictures.
Slide Show: Plays according to the default order on the disc.
Page: Select the still picture number and play.
- RANDOM: Plays in random order.
- Return: Returns to the default still picture on the disc.

PBC (Playback control → page 53) `VCD`
Indicates whether menu play (playback control) is on or off. (unchangeable)

* With some discs, you may only be able to make changes using the menus (→ page 24) on the disc.
- The display changes according to the disc content. You cannot change anything when there is no recording.

Audio attribute

LPCM/PPCM/⬛⬛Digital/DTS/MPEG:	Signal type
k (kHz):	Sampling frequency
b (bit):	Number of bits
ch (channel):	Number of channels

Language

ENG:	English	DAN:	Danish	THA:	Thai
FRA:	French	POR:	Portuguese	POL:	Polish
DEU:	German	RUS:	Russian	CES:	Czech
ITA:	Italian	JPN:	Japanese	SLK:	Slovak
ESP:	Spanish	CHI:	Chinese	HUN:	Hungarian
NLD:	Dutch	KOR:	Korean	FIN:	Finnish
SVE:	Swedish	MAL:	Malay	✳:	Others
NOR:	Norwegian	VIE:	Vietnamese		

Play menu–Change play sequence

This function works only when the elapsed play time is displayed. Select the item for repeat play. Depending on the disc, the items that can be selected will differ.

Repeat play
- All   `CD` `VCD`
- Chapter   `RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `DVD-V` `-RW(VR)`
- Group   `DVD-A` and **MP3**
- Playlists   `RAM` `-RW(VR)`
- Title   `RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `DVD-V` `-RW(VR)`
- Track   `DVD-A` `CD` `VCD` and **MP3**
Select "Off" to cancel.

Video menu–Change picture quality

Picture
`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `DVD-V` `DVD-A` `-RW(VR)` `VCD`
Select the picture mode.
- **Normal:** Default setting
- **Soft:** Soft picture with fewer video artifacts
- **Fine:** Details are sharper.
- **Cinema:** Mellows movies, enhances detail in dark scenes.

DNR
`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `DVD-V` `DVD-A` `-RW(VR)` `VCD`
Reduces noise and picture degradation.
On ↔ Off

Progressive
[Only when you have selected "480p" in "TV Type" (→ page 16).]
Select "On" to enable progressive output.
- Select "Off" if the picture is stretched horizontally.
- When progressive output is on, closed captions cannot be displayed.

Transfer [Only when "Progressive" (→ above) is set to "On".]
Select the method of conversion for progressive output to suit the type of material being played (→ page 53, Film and video).
- **Auto1 (normal):** Automatically detects the film and video content, and appropriately converts it.
- **Auto2:** In addition to "Auto1", automatically detects film contents with different frame rates and appropriately converts it.
- **Video:** Select when using "Auto1" or "Auto2", and the video content is distorted.

Line-in NR (Only when IN1, IN2 or DV is selected.)
Reduces video tape noise while copying.
Depending on the video signal, jittering may occur.
- **Automatic:** Noise reduction only works on picture input from a video tape.
- **On:** Noise reduction works for any video input.
- **Off:** Noise reduction is off. Select when you want to record input as it is.

Audio menu–Change sound effect

V. Surround Sound
`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `DVD-V` `DVD-A` `-RW(VR)`
(Dolby Digital, 2-channel or over only)
Enjoy a surround-like effect if you are using two front speakers only.
- Turn V. Surround Sound off if it causes distortion.
- Turn off the surround function on the connected equipment.
- V. Surround Sound does not work for SAP recordings.

Dialog Enhancer
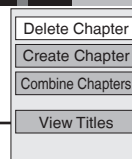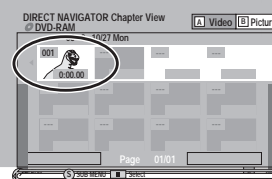`RAM` `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` `DVD-V` `DVD-A` `-RW(VR)`
(Dolby Digital, 3-channel or over only, including a center channel)
The volume of the center channel is raised to make dialog easier to hear.

Other menu–Change the display position

Position
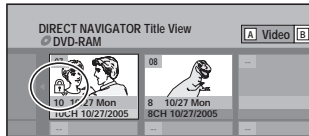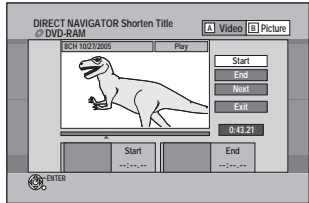1 (Standard) - 5: The higher the setting the lower the on-screen menu moves.
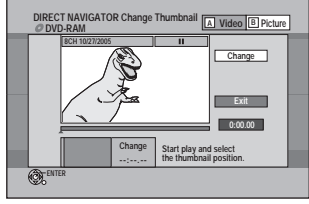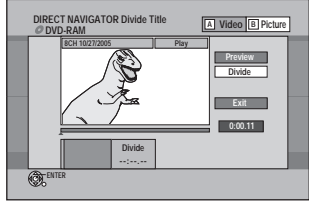
You can go back to Title View.

DIRECT NAVIGATOR Chapter View
DVD-RAM   A Video B Picture

001

0:00.00

Page   01/01

SUB MENU ■ Select

| Delete Chapter |
| Create Chapter |
| Combine Chapters |
| View Titles |

• You can go back to Title View.

Title operations

After performing steps 1–4 (→ page 30)

Delete Title*
 	
`RAM` `-R` `-R DL` `-RW(V)`
`+R` `+R DL` `+RW`
	Press [◄,►] to select "Delete" and press [ENTER].
	• **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
	• `-R` `-R DL` `+R` `+R DL` The available recording space does not increase when you delete titles.
	• `-RW(V)` `+RW` Available recording space increases only when the last recorded title is deleted. It does not increase if other titles are deleted.

Properties
 	
`RAM` `-R` `-R DL` `-RW(V)`
`+R` `+R DL` `+RW` `-RW(VR)`
	Information (e.g., time and date) is shown.
	• Press [ENTER] to exit the screen.

Title Name
 	
`RAM` `-R` `-R DL` `-RW(V)`
`+R` `+R DL` `+RW`
	You can give names to recorded titles.
	→ page 39, Entering text

Set Protection* Cancel Protection* `RAM` `+R` `+R DL` `+RW`	If set, this will protect the title from accidental deletion. **Press [◄,►] to select "Yes" and press [ENTER].** The lock symbol appears when the title is protected. • When the title is protected, some items cannot be accessed. Release the protection to access the inaccessible items.
Shorten Title `RAM` (→ below, "For quicker editing")	You can remove unnecessary parts of the recording such as commercials. ① **Press [ENTER] at the start point and end point of the section you want to delete.** ② **Press [▲,▼] to select "Exit" and press [ENTER].** Select "Next" and press [ENTER] to delete other sections. ③ **Press [◄,►] to select "Delete" and press [ENTER].**

Change Thumbnail
 	
`RAM` `-R` `-R DL` `-RW(V)`
`+R` `+R DL` `+RW`
(→ below, "For quicker editing")
	You can change the image to be shown as a thumbnail picture in the Title View.
	① **Press [►] (PLAY) to start play.**
	② **Press [ENTER] when the image you want to use as a thumbnail is shown.**
	   To change the thumbnail
	   Restart play and press [▲,▼] to select "Change", then press [ENTER] at the point you want to use as the thumbnail.
	③ **Press [▲,▼] to select "Exit" and press [ENTER].**

Divide Title `RAM` (→ below, "For quicker editing")	You can divide a title into two. ① **Press [ENTER] at the point you want to divide the title.** ② **Press [▲,▼] to select "Exit" and press [ENTER].** ③ **Press [◄,►] to select "Divide" and press [ENTER].** **To confirm the division point** Press [▲,▼] to select "Preview" and press [ENTER]. (The unit plays 10 seconds before and after the division point.) **To change the division point** Restart play and press [▲,▼] to select "Divide", then press [ENTER] at the point you want to divide. Note • The divided titles retain the name and CPRM property (→ page 53) of the original title. • Video and audio just before and after the dividing point may momentarily cut out. Make certain using "Preview" function (→ above) before proceeding.

* Multiple editing is possible.

Chapter operations

After performing steps 1–6 (→ page 30)

Delete Chapter* `RAM`	**Press [◄,►] to select "Delete" and press [ENTER].** • **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding. • To delete only the chapter division point, use "Combine Chapters" (→ below). The recorded contents are not deleted.
Create Chapter `RAM` (→ below, "For quicker editing")	Select the point where you want to start a new chapter while viewing the title. ① **Press [ENTER] at the point you want to divide.** • Repeat this step to divide at other points. ② **Press [▲,▼] to select "Exit" and press [ENTER].**
Combine Chapters `RAM`	**Press [◄,►] to select "Combine" and press [ENTER].** • The selected chapter and following chapter are combined.

* Multiple editing is possible.

For quicker editing
• Use search, Time Slip or slow-motion (→ page 25) to find the desired point.
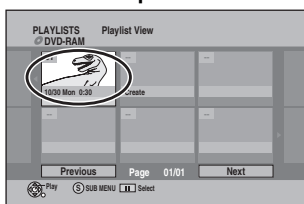• To skip to the start or end of a title, press [|◄◄] (start) or [►►|] (end).
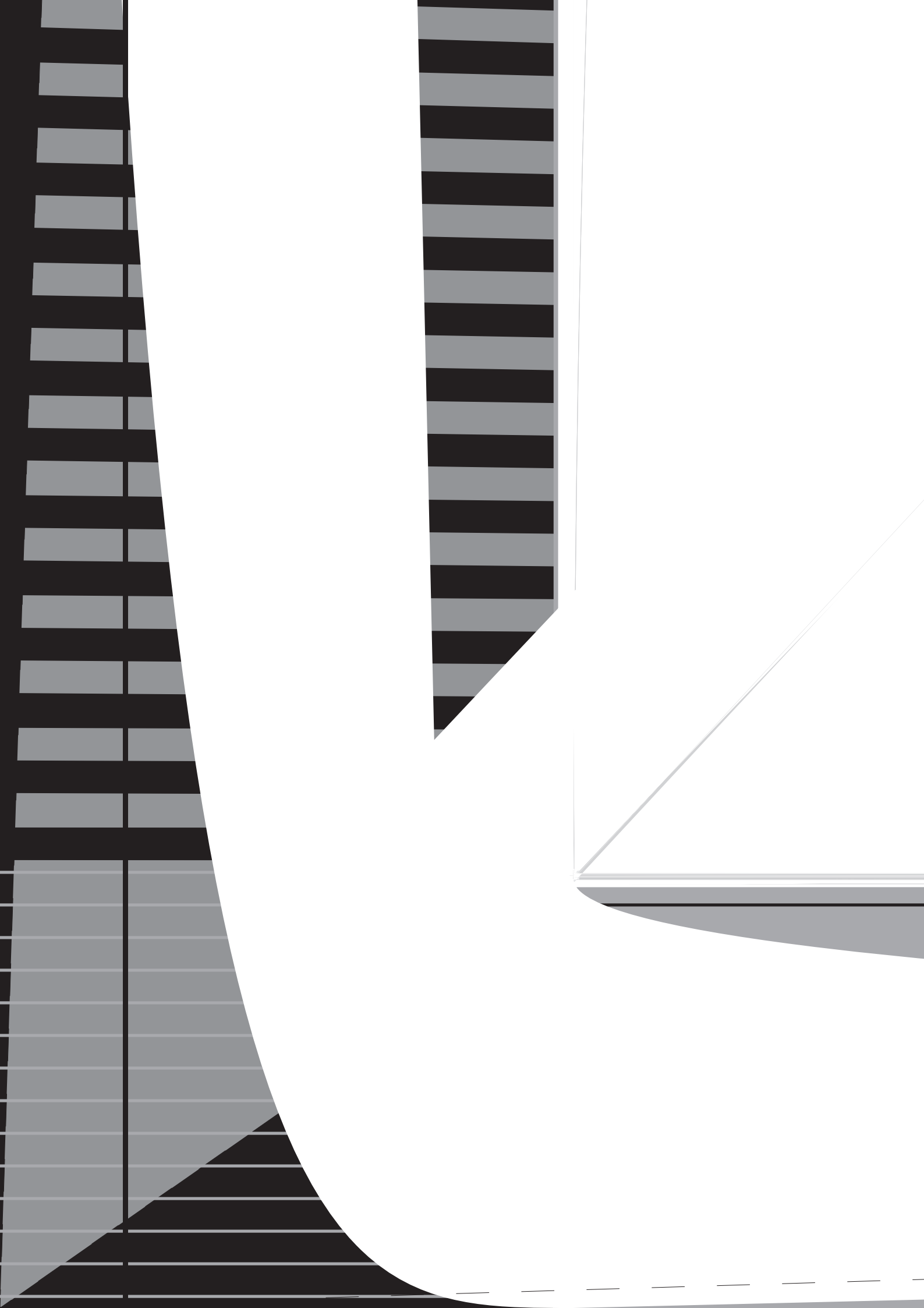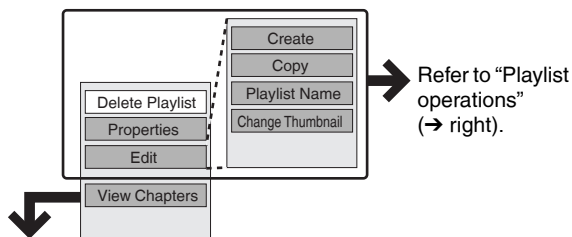
Editing and playing playlists/chapters

[RAM]
-RW(VR) (play only)

1 While stopped

Press [FUNCTIONS].

2 **Press [▲,▼] to select "Other Functions" and press [ENTER].**

3 **Press [▲,▼] to select "Playlists" and press [ENTER].**

4 **Press [▲,▼,◄,►] to select the playlist.**
To start play → Press [ENTER].
To edit → Step 5

```
PLAYLISTS    Playlist View
⊘ DVD-RAM

10/30 Mon 0:30    Create

    Previous       Page  01/01       Next
⊘Play  ⒮SUB MENU �ll Select
```
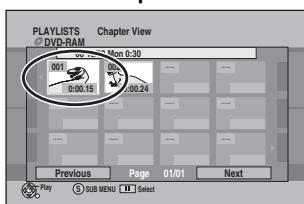
• To show other pages/Multiple editing (→ page 30)

5 **Press [SUB MENU], then [▲,▼] to select the operation and press [ENTER].**
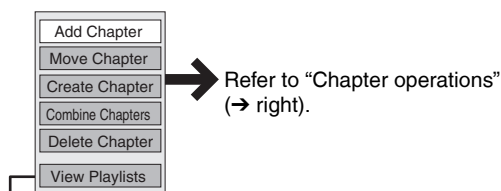• If you select "Edit", press [▲,▼] to select the operation and press [ENTER].

```
                    Create
                    Copy
                    Playlist Name      Refer to "Playlist
                    Change Thumbnail   operations"
 Delete Playlist                       (→ right).
 Properties
 Edit

 View Chapters
```

If you select "View Chapters" (→ Step 6)

6 **Press [▲,▼,◄,►] to select the chapter.**
To start play → Press [ENTER].
To edit → Step 7

```
PLAYLISTS    Chapter View
⊘ DVD-RAM
            Mon 0:30
 001       0
     0:00.15       0:00.24

    Previous       Page  01/01       Next
⊘Play  ⒮SUB MENU �ll Select
```

• To show other pages/Multiple editing (→ page 30)

7 **Press [SUB MENU], then [▲,▼] to select the operation and press [ENTER].**

```
 Add Chapter
 Move Chapter
 Create Chapter      Refer to "Chapter operations"
 Combine Chapters    (→ right).
 Delete Chapter

 View Playlists
```

• You can go back to the Playlist View.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [RETURN] several times.

Playlist operations

After performing steps 1–5 (→ left)

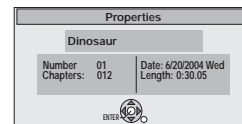|	
Delete Playlist* [RAM]	**Press [◄,►] to select "Delete" and press [ENTER].** **Once deleted, the playlists are lost and cannot be restored.** Make certain before proceeding.
Properties [RAM] -RW(VR)	Playlist information (e.g., length and date) is shown. • Press [ENTER] to exit the screen. Properties Dinosaur Number 01 Date: 6/20/2004 Wed Chapters: 012 Length: 0:30.05 ENTER
Create [RAM]	→ page 32, Creating playlists, steps 5–8
Copy* [RAM]	**Press [◄,►] to select "Copy" and press [ENTER].** • The copied playlist becomes the newest one in the playlist view screen.
Playlist Name [RAM]	→ page 39, Entering text
Change Thumbnail [RAM]	→ page 31, Change Thumbnail

* Multiple editing is possible.

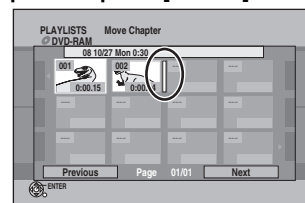## Chapter operations

[RAM]
After performing steps 1–7 (→ left)
• Editing chapters in a playlist does not modify the source titles and source chapters.

Add Chapter	→ page 32, Creating playlists, steps 5–8
Move Chapter	**Press [▲,▼,◄,►] to select the position to insert the chapter and press [ENTER].** PLAYLISTS Move Chapter ⊘ DVD-RAM 08 10/27 Mon 0:30 001 002 0:00.15 0:00.1 Previous Page 01/01 Next ENTER
Create Chapter	→ page 31, Create Chapter
Combine Chapters	→ page 31, Combine Chapters
Delete Chapter*	→ page 31, Delete Chapter The playlist itself is deleted if you delete all the chapters in it.

* Multiple editing is possible.
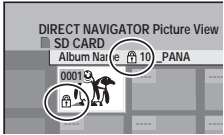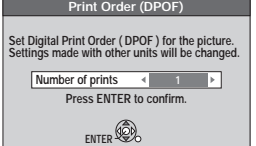
- You can edit still pictures or albums.
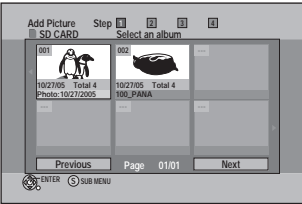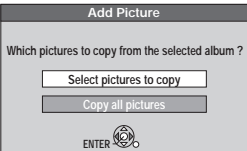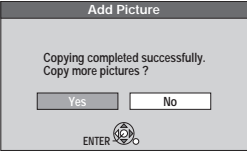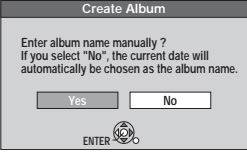- You can use SD Memory Cards with capacities from 8 MB to 2 GB
  (→ page 5).
- You cannot edit still pictures recorded on CD-R/CD-RW.

Preparation

Album and picture operations
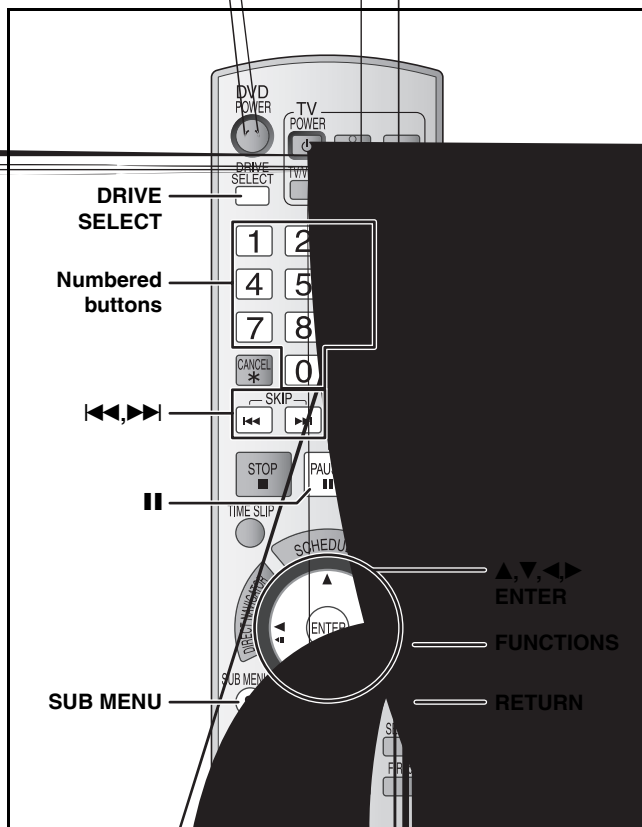
After performing steps 1–4 (→ page 34)

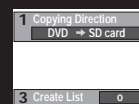|	
Delete Album* **Delete Picture*** RAM SD	**Press [◄,►] to select "Delete" and press [ENTER].** • **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding. • When deleting an album, files other than still picture files inside the album will also be deleted. (This does not apply to albums under the album concerned.)
Album Name RAM SD	You can give names to albums (→ page 39, Entering text). • Album names input using this unit may not be displayed on other equipment.
Protection Setup* **Set Protection*** **Cancel Protection*** RAM SD	If set, this will protect the still picture or album from accidental deletion. **Press [◄,►] to select "Yes" and press [ENTER].** The lock symbol appears when the still picture or album is protected. • Even if the protection setting is used by this unit to protect an album, the album may be deleted by another unit.
Print Order (DPOF)* SD	You can select individual pictures for printing and specify the number of prints to be made. **Press [◄,►] to select number of print (0 to 9) and press [ENTER].** The DPOF mark appears. **To cancel the print setting** Set the number of prints to "0". • Print settings (DPOF) made using this unit may not be viewable on other equipment. • When this is set by this unit, any settings established by other units will be released. • Settings cannot be made for files not in accordance with DCF standards or if there is no remaining space on the card.
Add Picture **Create Album** RAM SD	① **Press [◄,►] to select "Start" or "Yes" and press [ENTER].** ② **Press [▲,▼,◄,►] to select the album which contains the still picture you want to add and press [ENTER].** ③ **Press [▲,▼] to select the item and press [ENTER].** ■ **If "Select pictures to copy" is selected** Press [▲,▼,◄►] to select the picture and press [ENTER]. ■ **If "Copy all pictures" is selected** All the still pictures in the album will be copied. ④ **Press [◄,►] to select "Yes" or "No" and press [ENTER].** If you want to continue copying, select "Yes" and go to step ②. ⑤ **Only when you select "Create Album"** **Press [◄,►] to select "Yes" or "No" and press [ENTER].** • If "Yes" is selected, you can give a name to the album (→ page 39, Entering text). • If "No" is selected, the recording date of the first picture in the album becomes the album name. (If there is no shooting date information, the album name will appear as "--/--/--".)

* Multiple editing is possible.

Note
• Scheduled recordings do not start when performing "Add Picture" or "Create Album".
• You cannot perform "Add Picture" or "Create Album" to a higher folder.
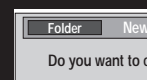
Copying still pictures

DRIVE SELECT

Numbered buttons

|◄◄,►►|

II

▲,▼,◄,►
ENTER

FUNCTIONS

SUB MENU

RETURN

`RAM` `SD`
• You can use SD M...   ...scape
  (→ page 5).
• You cannot copy ...

Preparation
• Turn on the televi...   ...
  the connections t...
• Turn the unit on.
• Insert a disc (→ pa...   ...age 6).
• Release protection...   ...ne protec...

`SD`
While stopped and S...
been inserted, "SD Ca...
Operations" screen (→
automatically display...
Press [▲,▼] to selec...
pictures" and press...
can proceed to step...
all the still pictures...
Copy All Pictures (...
• To exit the scree...
  Press [RETURN...

SD Card Operations

SD Card inserted.
Select an action or press RETURN.

Go to Album View

Copy pictures

ENTER

`Note`
• When copying the...
  "Copy All Pictures...
  still picture files ins...
  apply to the lower fo...
• If still pictures are alre...
  folder, the new still pict...
  pictures.
• If the space on the destination...
  folders to be copied exceeds the m...
  will stop partway through.
• When a name has not been input for the copying source folder, it is
  possible that this folder's name will not be the same on the copying
  destination. It is recommended that you input a folder name before
  copying (→ page 35, Album Name).
• You cannot copy the information about the print number setting
  (DPOF) or the picture rotation.
• The sequence in which the still pictures are registered on the
  copying list may not be the same at the copying destination.

Copying using the copying list

1 While stopped
Press [FUNCTIONS].

Copy

Cancel All

| 1 Copying Direction |
| DVD → SD card ► |

| 2 Mode |
| Picture High Speed |

| 3 Create List   o |

Start Copying

| 1 Copying Direction |
| DVD → SD card |

| 3 Create List   o |

Refer to "Copying
settings"
(→ page 37).

| Folder | New |
| Do you want to cr... |

Copying all the still pictures on a card –Copy All Pictures (JPEG)

Copy All Pictures (JPEG)

| Copy from | SD card |

| Copy to | DVD |

Copy all pictures(JPEG) in the card.

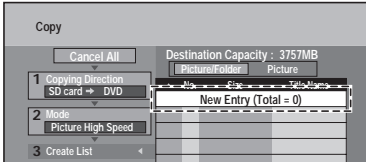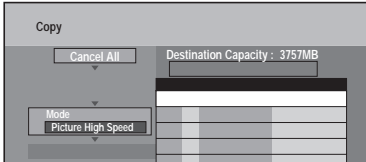ENTER   Copy   Cancel

4 Press [◄,►] to select "Copy" and press [ENTER] to start copying.

To return to the previous screen
Press [RETURN].

To stop copying partway
Press and hold [RETURN] for 3 seconds.

Copying settings

Copying Direction	① **Press [▲,▼] to select "Source" and press [ENTER].** ② **Press [▲,▼] to select the drive and press [ENTER].** ③ **Press [▲,▼] to select "Destination" and press [ENTER].** ④ **Press [▲,▼] to select the drive and press [ENTER].** The same drive as the copying source can be selected. ⑤ **Press [◄] to confirm.**	

Source   DVD → DVD
Destination   SD card ← SD card

Create List	**To register individual still pictures**	**To register on a folder by folder basis**
	① **Press [▲,▼] to select "New Entry" and press [ENTER].**	① **Press [▲,▼] to select "Picture/Folder" and press [ENTER].**

Copy
Destination Capacity : 3757MB
Picture/Folder   Picture
Cancel All
No   File   Title Name
1 Copying Direction
SD card → DVD
New Entry (Total = 0)
2 Mode
Picture High Speed
3 Create List

Copy
Destination Capacity : 3757MB
Cancel All
Mode
Picture High Speed

| | ② **Press [▲,▼,◄,►] to select a still picture and press [ENTER].** | ② **Press [▲,▼] to select "Folder" and press [ENTER].** |

Create List   Select Pictures
■ SD CARD
Folder   Photo:10/27/2005
0001
101-0001

	To select another folder (→ below) ③ **Press [◄] to confirm.**	③ **Press [▲,▼] to select "New Entry" and press [ENTER].**
		④ **Press [▲,▼] to select the folder and press [ENTER].**
		To switch to the higher folder (→ below) ⑤ **Press [◄] to confirm.**

To show other pages
Press [▲,▼,◄,►] to select "Previous" or "Next" and press [ENTER].
• You can also press [|◄◄] (Previous) or [►►|] (Next).

Multiple registration
Select with [▲,▼,◄,►] and press [❚❚]. (Repeat.)
• A check mark appears. Press [❚❚] again to cancel.

To select another folder
1 Press [▲,▼,◄,►] to select "Folder" and press [ENTER].
2 Press [▲,▼] to select the folder and press [ENTER].
 To switch to the higher folder (→ right)
 You can also select folders with the numbered buttons.

• The still pictures of different folders cannot be registered on the same list.

1 Press [▲,▼] to select the item and press [SUB MENU].
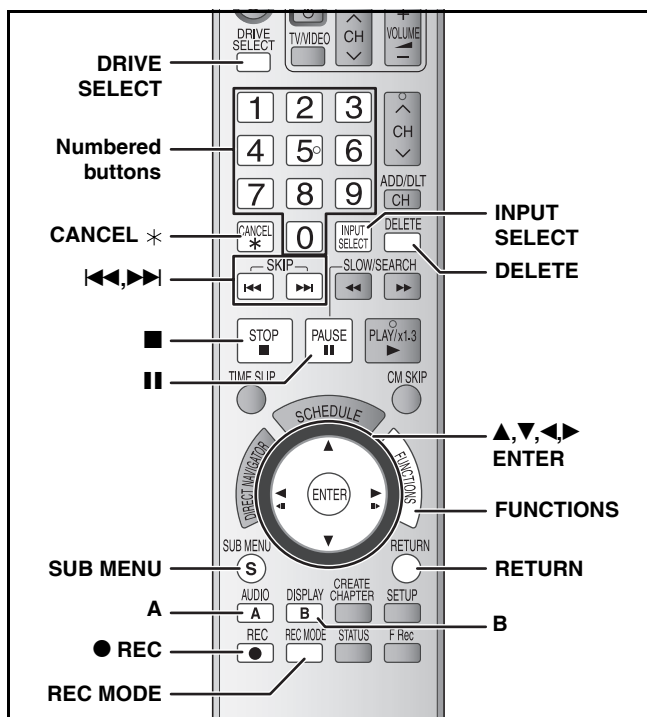2 Press [▲,▼] to select the operation and press [ENTER].

To switch to the higher folder
While the Select Folders screen is displayed
1 Press [SUB MENU] and press [ENTER].
2 Press [◄,►] to select the higher folder and press [ENTER].
 You cannot register a folder with a different higher folder to the same list.
3 Press [▲,▼] to select the desired folder and press [ENTER].
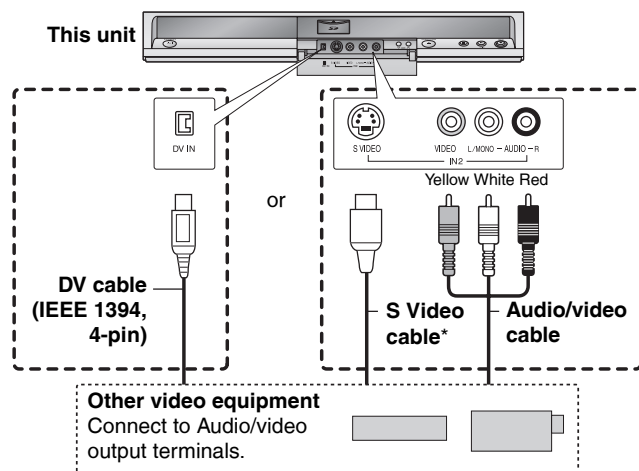
* Multiple editing is possible.

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DRIVE SELECT

Numbered buttons

CANCEL ✳

|◀◀,▶▶|

■

II

▲,▼,◀,▶ ENTER

FUNCTIONS

INPUT SELECT

DELETE

SUB MENU

A

● REC

REC MODE

RETURN

B

e.g.: Connecting other video equipment to the IN2 or DV IN terminals
You can also connect to the IN1 input terminal on the rear.
• Turn off the unit and other video equipment before connecting.

This unit

or

DV cable (IEEE 1394, 4-pin)

S Video cable*

Audio/video cable

Yellow White Red

Other video equipment
Connect to Audio/video output terminals.

If the audio output of the other equipment is monaural
Connect to L/MONO.
* The S VIDEO terminal achieves a more vivid picture than the VIDEO terminal.

See also the notes "Important notes for recording" (→ page 18).

Preparation
• Turn on the unit and connected equipment.
• Insert a disc (→ page 20).
• Press [DRIVE SELECT] to select the DVD drive.
• Press [REC MODE] to select the recording mode.
• To reduce noise in input from video cassette recorder, set "Line-in NR" to "On" (→ page 29).

• When recording from the unit's DV IN terminal
Select the type of audio recording from "Select Audio Channel for DV Input" in the Setup menu (→ page 44).
When recording from DV equipment (e.g., digital video camcorder), you can record audio/video recordings from a DV tape only.

DV camcorder recording

RAM -R -RW(V) +R +RW

Note
RAM Programs are recorded as a title while at the same time chapters are created at each break in the images and the playlist is created automatically.

When "DV camcorder connection" screen is displayed

DV camcorder connection

DV connection detected.
Start recording ?

Record to DVD   Cancel

ENTER

Press [◀,▶] to select "Record to DVD" and press [ENTER]. You can proceed to step 4.

1 While stopped
Press [FUNCTIONS].

2 **Press [▲,▼] to select "Other Functions" and press [ENTER].**

3 **Press [▲,▼] to select "DV Camcorder Rec." and press [ENTER].**

4 **Press [◀,▶] to select "Record" and press [ENTER].**
Recording starts.

When recording finishes
The confirmation screen appears. Press [ENTER] to finish DV camcorder recording.

To stop recording
Press [■]. The confirmation screen appears. Press [ENTER].

Note
• Only one piece of DV equipment (e.g., digital video camcorder) can be connected to the unit via the DV IN terminal.
• If you use video camcorders from other manufacturers these are not guaranteed to work.
• It is not possible to operate the unit from the connected DV equipment.
• The DV IN terminal on this unit is for use with DV equipment only. (It cannot be connected to a computer, etc.)
• The DV equipment name may not be shown correctly.
• Depending on the DV equipment, the images or audio may not be input properly.
• The date and time information on the tape of the DV equipment will not be recorded.
• You cannot record and play simultaneously.

If the DV camcorder recording function does not work properly, check the connections and DV equipment settings, and turn the unit off and back on.
If that does not work, follow the instructions for manual recording (→ below).

Manual recording

RAM -R -R DL -RW(V) +R +R DL +RW

Note
When recording using this unit's input terminals, only the sound received at the time of recording will be recorded.
As long as secondary audio that is recorded on the video cassette is not output on the unit in play, it is not recorded.

1 While stopped
Press [INPUT SELECT] to select the input channel for the equipment you have connected.
e.g., If you have connected to IN2 input terminals, select "IN2".

2 **Start play on the other equipment.**

3 When you want to start recording
Press [● REC].
Recording starts.

• Using Flexible Recording (→ page 21), you can record the content of a video cassette (approx. 1–8 hours) to a 4.7 GB disc with the best possible quality of recording without wasting disc space.
To skip unwanted parts
Press [II] to pause recording. (Press again to restart recording.)
To stop recording
Press [■].

Almost all videos and DVD software on the market have been treated to prevent illegal copying. Any software that has been so treated cannot be recorded using this unit.

Entering text

You can give names to recorded titles, etc.
The maximum number of characters:

* Scheduled recording

If a name is long, parts of it may not be shown in some screens.

1 Show Enter Name screen.

2 Press [▲,▼,◄,►] to select a character and press [ENTER].

Repeat this step to enter other characters.
- **To erase a character**
  Press [▲,▼,◄►] to select the character in the name field
  and press [❚❚].
- **Using the numbered buttons to enter characters**
  e.g., entering the letter "R"
  ① **Press [7] to move to the 7th row.**
  ② **Press [7] twice to highlight "R".**
  ③ **Press [ENTER].**
- **To enter a space**
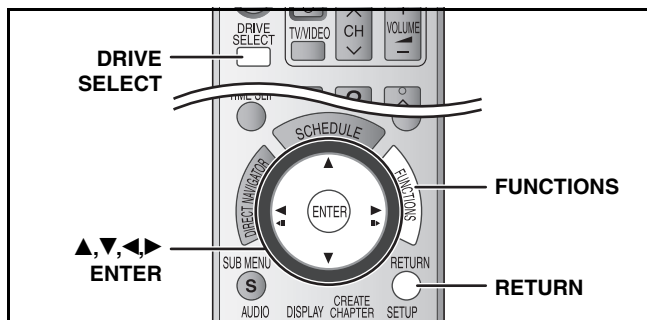 Press [CANCEL   ] and press [ENTER].

3 Press [■] (Set).

Returns to the previously displayed screen.

To end partway
Press [RETURN].
Text is not saved.

Delete Navigator

3001 T0-0.0008 Tw[()20.6((Y)14wTm0 Thef)9.7ilr)r)20.6(cord Tw[0.6()5r(cop0.007

DVD and card Management

DRIVE SELECT

FUNCTIONS

▲,▼,◄,►
ENTER

RETURN

1 While stopped
Press [FUNCTIONS].

2 Press [▲,▼] to select "Other Functions" and press [ENTER].

3 Press [▲,▼] to select "DVD Management" or "Card Management" and press [ENTER].

To return to the previous screen
Press [RETURN].
To exit the screen
Press [RETURN] several times.

Providing a disc with a name –Disc Name

RAM -R -R DL -RW(V) +R +R DL +RW
Preparation
• Press [DRIVE SELECT] to select the DVD drive.
• RAM Release protection (→ below).
After performing steps 1–3 (→ above)

4 Press [▲,▼] to select "Disc Name" and press [ENTER].
→ page 39, Entering text
• The disc name is displayed in the DVD MANAGEMENT window.
• -R -R DL -RW(V) +R +R DL With a finalized discs the name is displayed on the Top Menu.
• +RW The disc name is displayed only if you play the disc on other equipment.

(DVD MANAGEMENT window)   (DVD Top Menu window)

Setting the protection –Disc Protection

RAM
Preparation
• Press [DRIVE SELECT] to select the DVD drive.
After performing steps 1–3 (→ above)

4 Press [▲,▼] to select "Disc Protection" and press [ENTER].

5 Press [◄,►] to select "Yes" and press [ENTER].

The lock symbol appears closed when the disc is write-protected.

Cartridge–protection

RAM **(with a cartridge)**
With the write-protect tab in the protect position, play automatically starts when inserted in the unit.

SD
Switch the write-protect switch to the "LOCK" position.

Deleting all titles and playlists –Delete All Titles

RAM
Preparation
• Press [DRIVE SELECT] to select the DVD drive.
• Release protection (→ left).
After performing steps 1–3 (→ left)

4 Press [▲,▼] to select "Delete All Titles" and press [ENTER].

5 Press [◄,►] to select "Yes" and press [ENTER].

6 Press [◄,►] to select "Start" and press [ENTER].
A message appears when finished.

7 Press [ENTER].

Note
• **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
• Deleting all video titles will result in all playlists also being deleted.
• Still picture data (JPEG, TIFF) or computer data cannot be deleted.
• Delete does not work if one or more titles are protected.

Deleting all contents of a disc or card –Format

RAM -RW(V) +RW -RW(VR) SD
+R +R DL (New disc only)
Preparation
• Press [DRIVE SELECT] to select the DVD or SD drive.
• RAM SD Release protection (→ left).

Note

Formatting deletes all contents (including computer data), and they cannot be restored. Check carefully before proceeding. The contents are deleted when you format a disc or card even if you have set protection.

After performing steps 1–3 (→ left)

4 Press [▲,▼] to select "Format Disc (DVD)" or "Format memory card" and press [ENTER].

5 Press [◄,►] to select "Yes" and press [ENTER].

6 Press [◄,►] to select "Start" and press [ENTER].
A message appears when formatting is finished.

Note
• **Do not disconnect the AC power supply cord while formatting.** This can render the disc or the card unusable.
• Formatting normally takes a few minutes. However, it may take up to a maximum of 70 minutes (RAM).

7 Press [ENTER].

Note
• -R -R DL CD Formatting cannot be performed.
• -RW(V) -RW(VR) You can format only as DVD-Video format on this unit.
• When a disc or card has been formatted using this unit, it may not be possible to use it on any other equipment.

RAM **To stop formatting**
Press [RETURN].
• You can cancel formatting if it takes more than 2 minutes. The disc must be reformatted if you do this.

Selecting whether to show the Top Menu first
–Playback will start with:

`-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW`

You can select whether to show the top menu after finalizing. Make selections before finalizing the disc.

Preparation
• Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (→ page 40)

4 Press [▲,▼] to select "Playback will start with:" and press [ENTER].

5 Press [▲,▼] to select the item and press [ENTER].

DVD's Top Menu: The top menu appears first.
First Title on DVD: The disc content is played without displaying the top menu.

Enabling discs to be played on other equipment
–Finalize

`-R` `-R DL` `-RW(V)` `+R` `+R DL`

Finalize the disc so you can play it on other DVD equipment. The equipment must be able to play finalized discs. To check compatibility with other equipment, refer to page 4.

Preparation
• Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (→ page 40)

4 Press [▲,▼] to select "Finalize" and press [ENTER].

5 Press [◄,►] to select "Yes" and press [ENTER].

6 Press [◄,►] to select "Start" and press [ENTER].
• Finalizing starts. You cannot cancel finalizing.
• Finalizing can take a few minutes, up to a maximum of 15 minutes, depending on the remaining space on the disc.
(`-R DL` `+R DL` up to 60 minutes.)

| Note |
Do not disconnect the AC power supply cord while finalizing. This will render the disc unusable.

7 Press [ENTER].

After finalizing
• `-R` `-R DL` `+R` `+R DL` The disc becomes play-only and you can no longer record or edit.
• `-RW(V)` **You can record and edit the disc after formatting (→ page 40) although it becomes play-only after finalizing.**
• Titles are divided into about 5-minute (`+R` `+R DL` 8-minute) chapters. This time varies greatly depending on the condition and mode of recording.
• There is a pause of several seconds between titles and chapters during play.

• You cannot finalize discs recorded on other manufacturers' equipment.
• Discs finalized on this unit may not be playable on other players due to the condition of the recording.
• When finalizing a high-speed recording compatible disc, it may take longer than displayed on the confirmation screen (approximately four times).

Creating Top Menu
–Create DVD Top Menu

`+RW`

+RW discs contain no Top Menu data. Top Menu is a convenient function. We recommend you to create the menu before playing a +RW disc on other equipment.
• **You cannot use the top menu for playing on this unit.**

Preparation
• Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (→ page 40)

4 Press [▲,▼] to select "Create DVD Top Menu" and press [ENTER].

5 Press [◄,►] to select "Yes" and press [ENTER].

6 Press [◄,►] to select "Start" and press [ENTER].
Creating Top Menu starts. You cannot cancel creating.
Creating Top Menu can take a few minutes.

7 Press [ENTER].

Recording or editing on the disc may delete the menu. In that case, create the menu again.

Enabling the second layer on DL (dual- or double- layer on single side) discs to be recordable
–Close First Layer

`-R DL` `+R DL`

DVD-R DL and +R DL discs have two layers of recording surface on one side. This unit does not offer seamless recording on two layers. Recording stops when space on the first layer becomes full. You must close the first layer to start recording on the second layer. Closing makes the first layer unavailable for recording (editing is still available). You cannot cancel closing. Make certain before proceeding.

Preparation
• Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (→ page 40)

4 Press [▲,▼] to select "Close First Layer" and press [ENTER].

5 Press [◄,►] to select "Yes" and press [ENTER].

6 Press [◄,►] to select "Start" and press [ENTER].
Closing the layer starts. You cannot cancel closing.
Closing the layer can take several minutes, up to a maximum of 30 minutes, depending on the remaining space on the first layer.

| Note |
Do not disconnect the AC power supply cord while closing the layer. This will render the disc unusable.
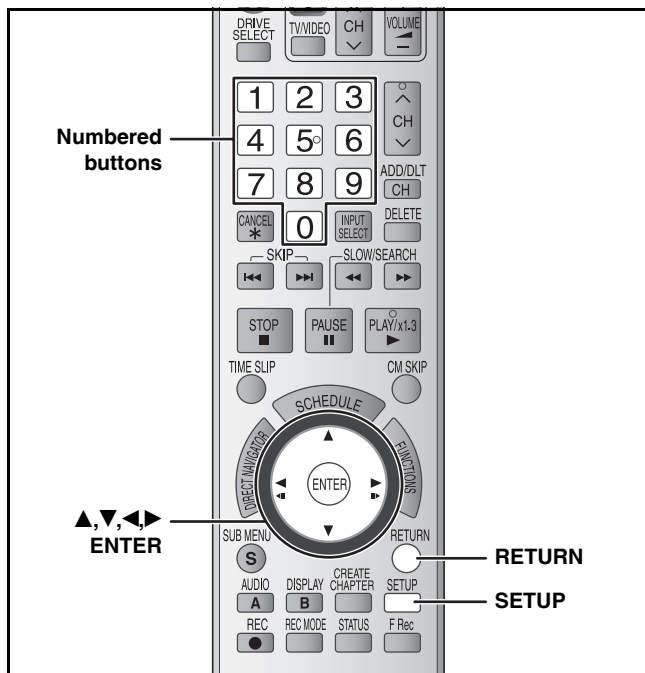
7 Press [ENTER].

• You cannot close the first layer when it has no recording.
• By closing the layer, you can record or edit discs that have been recorded on the second layer by other equipment.

■ To confirm the layer you can record
You can confirm the remaining recording time on the layer you can record.

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Changing the unit's settings

Numbered buttons

△,▽,◁,▷
ENTER

RETURN

SETUP

Common procedures

1 While stopped

Press [SETUP].

Tabs   Menus   Options

Setup	Signal Source (RF IN)	Cable TV
Channel	Set Channels Automatically	
Setup	Channel Captions	
Disc	Preset Channel Captions	
	Manual Channel Captions	

2 **Press [△,▽] to select the tab and press [▶].**

3 **Press [△,▽] to select the menu and press [ENTER].**

4 **Press [△,▽] to select the option and press [ENTER].**

To return to the previous screen
Press [RETURN].

To exit the screen
Press [SETUP].

Note

There may be differences in operation methods. If this happens, follow the on-screen instructions for the operation.

Summary of settings

The settings remain intact even if you switch the unit to standby.

Tabs	Menus	Options (Underlined items are the factory presets.)		
Channel	**Signal Source (RF IN)** (→ page 15)	• Antenna	• Cable TV	
	Set Channels Automatically	–		
	Preset Channel Captions*1 (→ page 16)	–		
	Manual Channel Captions*1 (→ page 16)	–		
Setup	**Off Timer** Select how long the unit remains on when it is not being used.	• 2 Hours	• 6 Hours	• Off
	Remote Control Code (→ page 17)	• Set Code 1	• Set Code 2	• Set Code 3
	Clock Settings Press [ENTER] to show the following settings.			
	Set Clock Automatically	–		
	Set Clock Manually (→ page 17)	–		
	Adjust Time Zone*2 (→ page 17)	• –1	• 0	• +1
	Quick Start If you set Quick Start to on, you can start recording to DVD-RAM about 1 second after you press [⏻ DVD POWER] to turn the unit on and then press [● REC].	• On	• Off The following happens when you have selected "On". • Power consumption in standby mode increases because power is supplied to the unit.	
	Restore Default Settings This returns all values in the Setup menus, except for the clock, channel settings, ratings level, and on-screen language, to the default settings.	• Yes	• No	

*1You can set these menus only after "Set Channels Automatically" is completed.
*2You can set this menu only after "Set Clock Automatically" is completed.

Tabs	Menus	Options (Underlined items are the factory presets.)
Disc	**Settings for Playback** Press [ENTER] to show the following settings.	
	Ratings Set a ratings level to limit DVD-Video play. Follow the on-screen instructions. Enter a 4-digit password with the numbered buttons when the password screen is shown. • Do not forget your password.	• <u>8 No Limit</u>: All DVD-Video can be played. • 1 to 7: Prohibits play of DVD-Video with corresponding ratings recorded on them. • 0 Lock All: Prohibits play of all DVD-Video. • Unlock Recorder • Change Password • Change Level • Temporary Unlock
	Play DVD-Audio in Video Mode Select "Video Mode (Video On)" to play DVD-Video content on some DVD-Audio.	• Video Mode (Video On): The setting returns to "Audio Mode (Video Off)" when you change the disc or turn the unit off. • <u>Audio Mode (Video Off)</u>
	Audio Language `DVD-V` **Subtitle Language** `DVD-V` **Menu Language** `DVD-V`	• Some discs start in a certain language despite any changes you make here. • Enter a code (➔ page 46) with the numbered buttons when you select "Other ✳ ✳ ✳ ✳". When the selected language is not available on the disc, the default language is played. There are discs where you can only switch the language from the menu screen (➔ page 24).	• <u>English</u> • French • Spanish • Original: The original language of each disc will be selected. • Other ✳ ✳ ✳ ✳ • <u>Automatic</u>: If the language selected for "Audio Language" is not available, subtitles of that language will automatically appear if available on that disc. • English • French • Spanish • Other ✳ ✳ ✳ ✳ • <u>English</u> • French • Spanish • Other ✳ ✳ ✳ ✳
	Settings for Recording Press [ENTER] to show the following setting.	
	Recording Time in EP Mode Select the maximum number of hours for recording in EP mode (➔ page 19, Recording modes and approximate recording times).	• EP – Extended Play (6H): You can record for 6 hours on an unused 4.7 GB disc. • <u>EP – Extended Play (8H)</u>: You can record for 8 hours on an unused 4.7 GB disc. The sound quality is better when using "EP – Extended Play (6H)" than when using "EP – Extended Play (8H)".
Video	**Still Mode (paused video)** Select the type of picture shown when you pause play (➔ page 53, Frames and fields).	• <u>Automatic</u> • Field: Select if jittering occurs when "Automatic" is selected. (The picture is coarser.) • Frame: Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected. (The picture is clearer and finer.)
	Black Level Control Select for adjusting the black level control to the desired setting for picture enhancement. Press [ENTER] to show the following settings.	
	Input Level Adjusts the black level of the input signal.	• Lighter • <u>Darker</u>
	Output Level (Composite/SVideo) Adjusts the black level of the output signal from the VIDEO OUT and S VIDEO OUT terminal.	• <u>Lighter</u> • Darker
	Output Level (Component) Adjusts the black level of the output signal from the COMPONENT VIDEO OUT (Y/P_B/P_R) terminals.	• Lighter • <u>Normal</u> • Darker

Tabs	Menus	Options (Underlined items are the factory presets.)
Audio	**Dynamic Range Compression** `DVD-V` **(Dolby Digital only)** Change the dynamic range for late night viewing.	• On • <u>Off</u>
	Multi-channel TV Sound (MTS) `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` Select whether to record the main or secondary audio program (SAP) when recording to a disc.	• <u>Main</u> • Secondary Audio Program (SAP) You cannot select the audio on this unit when recording from an external source, such as when copying from a video cassette recorder. Select on the other equipment. When recording from the unit's DV IN terminal, select the type of audio recording from "Select Audio Channel for DV Input" (➔ below).
	Digital Audio Output Change the settings when you have connected equipment through this unit's DIGITAL AUDIO OUT terminal (➔ page 12). • Press [ENTER] to display the menu.	

	PCM Down Conversion
	    Select how to output audio with a sampling frequency of 96 kHz or 88.2 kHz.
	    • Signals are converted to 48 kHz or 44.1 kHz despite the above settings if the signals have a sampling frequency of over 96 kHz or 88.2 kHz, or the disc has copy protection.
		• On: Signals are converted to 48 kHz or 44.1 kHz. (Choose when the connected equipment cannot process signals with a sampling frequency of 96 kHz or 88.2 kHz.)
		• <u>Off</u>: Signals are output as 96 kHz or 88.2 kHz. (Choose when the connected equipment can process signals with a sampling frequency of 96 kHz or 88.2 kHz.)

	Dolby Digital **DOLBY DIGITAL**	Select how to output the signal. If "Bitstream" is selected, the connected equipment decodes the signal. If "PCM" is selected, this unit decodes the signal and outputs it as 2 channel. **Note** Not making the proper settings may result in noise or some trouble for digital recording.	• <u>Bitstream</u>: When connecting to equipment displaying the Dolby Digital logo. • PCM: When connecting to equipment not displaying the Dolby Digital logo.

(Note: the following rows continue the "Select how to output the signal" cell which spans Dolby Digital and DTS)

| Tabs	Menus		Options (Underlined items are the factory presets.)
	DTS **DIGITAL dts SURROUND**		• <u>Bitstream</u>: When connecting to equipment displaying the DTS logo. • PCM: When connecting to equipment not displaying the DTS logo.
	Select Audio Channel for DV Input You can select the kind of audio when recording from the unit's DV IN terminal (➔ page 38).		• <u>Stereo 1</u>: Records audio (L1, R1) • Stereo 2: Records added audio such as narration (L2, R2) subsequent to original recording. • Mix: Records both Stereo 1 and Stereo 2. `-R` `-R DL` `-RW(V)` `+R` `+R DL` `+RW` When recording MTS broadcast, select the type of audio in advance from "Multi-channel TV Sound (MTS)" (➔ above).
Display	**Status Messages** Choose whether to show status messages automatically.		• <u>Automatic</u> • Off
	On-screen Language Choose the language for these menus and on-screen messages.		• <u>English</u> • Español • Français
	Blue Background Select "Off" if you do not want to have the unit show the blue background when reception is weak.		• <u>On</u> • Off
	FL Display Changes the brightness of the unit's display.		• <u>Bright</u> • Dim • Automatic: The display turns dark during play, and reappears momentarily when you press a button. When the unit is turned off all displays disappear. While using this mode the standby power consumption can be reduced.

Tabs	Menus	Options (Underlined items are the factory presets.)	
TV Screen	**TV Type** (→ page 16)	• <u>Aspect 4:3 & 480i</u> • Aspect 16:9 & 480i	• Aspect 4:3 & 480p • Aspect 16:9 & 480p
	Functions of HDMI Press [ENTER] to display the menu.		
	HDMI Video Output	• <u>On</u> • Off: When video is output from COMPONENT VIDEO OUT terminal.	
	HDMI Resolution You can only select items compatible with the connected equipment. This setting normally does not need to be changed. However if you are concerned about output picture quality, it may be improved by changing the setting. Still pictures play at a resolution equivalent to 480p regardless of the settings.	• <u>Auto</u>: Automatically selects the output resolution best suited to the connected television (1080i, 720p or 480p). • 480p • 720p • 1080i	
	HDMI Output Display Aspect Settings used when 4:3 aspect video is output on the television as 16:9 aspect. (Only effective when 720p or 1080i is selected as the output resolution)	• Full: Video output is enlarged to match the screen size. • <u>Normal</u>: Video is output as 4:3 aspect. Side panels (black bars on the left and right) will appear on the screen.	
	HDMI RGB Output Range Effective when connected to a device that only supports RGB output.	• <u>Standard</u> • Enhanced: When the black and white images are not distinct.	
	HDMI Audio Output	• <u>On</u> • Off: Audio is output from an amplifier when using the DIGITAL AUDIO OUT terminal.	

	HDMI Connection Speakers Setting
	You can set the unit to output the best possible sound for your speakers.
		• <u>Auto</u>:
		  When using the speaker settings of the connected equipment
		• Multi Channel:
		  When using three or more speakers with equipment that cannot set the speaker settings
		• 2 Channel:
		  When using two speakers	

	Multi Channel Setting Displayed when "Multi Channel" is selected in "HDMI Connection Speakers Setting"	You can adjust the settings for speaker size, presence and audio-delay (→ page 46).	
	Ctrl with HDMI	• <u>On</u>: When "On" is selected, you can operate other "HDAVI Control" compatible devices using the "Ctrl with HDMI". • Off	

	4:3 TV Settings for DVD-Video
	Select how DVD-Video widescreen picture is shown on a 4:3 standard aspect television.
		• <u>Pan and Scan (Stretch to fit)</u>:
		  Video recorded for a widescreen is plays 9(P)39.8(a&nd Sca3)]TJT*0.0602 Tc
		   Video recorded aor a w730.3(4.5(descreen is pla)22.7(y)0303 T)-9.4y st 4eef	

Changing the speaker setting to suit your speakers

For connection with an HDMI cable to an amplifier, use the following settings on this unit if you cannot set the speaker size, presence and delay effect on the amplifier.

1 While stopped
Press [SETUP].

2 **Press [▲,▼] to select "TV Screen" and press [▶].**

3 **Press [▲,▼] to select "Functions of HDMI" and press [ENTER].**

4 **Press [▲,▼] to select "HDMI Connection Speakers Setting" and press [ENTER].**

5 **Press [▲,▼] to select "Multi Channel" and press [ENTER].**

Front (L) Ⓐ   Center Ⓑ Ⓐ   Front (R) Ⓐ

Complete

(LS) — Surround — (RS)
Ⓐ   Ⓑ   Ⓐ

Subwoofer Ⓐ
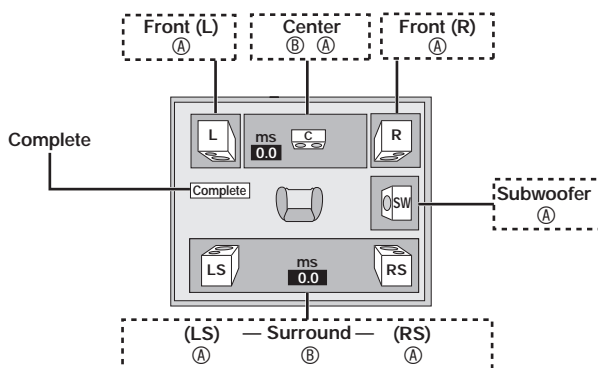
6 **Change the speaker setting.**

■ **Speaker presence and size (Ⓐ, → left)**
① Press [▲,▼,◀,▶] to select the speaker icon (Ⓐ) and press [ENTER].
② Press [▲,▼] to select the setting and press [ENTER].

Icon examples:
Surround speaker (LS)

LS   LS
Large   Small   No

• **Large**: Select when the speaker supports low-frequency (under 100 Hz) reproduction.
• **Small**: Select when the speaker does not support low-frequency reproduction.

If the subwoofer is set to "No", the front speakers will automatically be set to "Large". (In this case, we recommend connecting a speaker that can reproduce bass below 100 Hz.)

■ **Delay time (Ⓑ, → left)**
(Effective when playing multi-channel audio)
If either distance Ⓒ or Ⓔ is less than Ⓓ, find the difference in the relevant table and change to the recommended setting.
③ Press [▲,▼,◀,▶] to select the item Ⓑ and press [ENTER].
④ Press [▲,▼] to select a setting and press [ENTER].

⬚ : Recommended placement

Ⓒ **Center speaker**
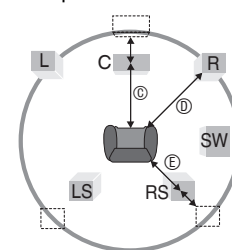
Difference	Setting
Approx. 34 cm ($1^1/_{10}$ feet)	1.0 ms
Approx. 68 cm ($2^1/_5$ feet)	2.0 ms
Approx. 102 cm ($3^3/_{10}$ feet)	3.0 ms
Approx. 136 cm ($4^2/_5$ feet)	4.0 ms
Approx. 170 cm ($5^1/_2$ feet)	5.0 ms

Ⓔ **Surround speakers**

Difference	Setting
Approx. 170 cm ($5^1/_2$ feet)	5.0 ms
Approx. 340 cm (11 feet)	10.0 ms
Approx. 510 cm ($16^1/_2$ feet)	15.0 ms

7 **Press [▲,▼,◀,▶] to select "Complete" and press [ENTER].**

To return to the previous screen
Press [RETURN].
To exit the screen
Press [SETUP].

Language code list Enter the code with the numbered buttons.

Abkhazian:	6566	Chinese:	9072	Hebrew:	7387	Macedonian:	7775	Romanian:	8279	Telugu:	8469
Afar:	6565	Corsican:	6779	Hindi:	7273	Malagasy:	7771	Russian:	8285	Thai:	8472
Afrikaans:	6570	Croatian:	7282	Hungarian:	7285	Malay:	7783	Samoan:	8377	Tibetan:	6679
Albanian:	8381	Czech:	6783	Icelandic:	7383	Malayalam:	7776	Sanskrit:	8365	Tigrinya:	8473
Ameharic:	6577	Danish:	6865	Indonesian:	7378	Maltese:	7784	Scots Gaelic:	7168	Tonga:	8479
Arabic:	6582	Dutch:	7876	Interlingua:	7365	Maori:	7773	Serbian:	8382	Turkish:	8482
Armenian:	7289	English:	6978	Irish:	7165	Marathi:	7782	Serbo-Croatian:		Turkmen:	8475
Assamese:	6583	Esperanto:	6979	Italian:	7384	Moldavian:	7779		8372	Twi:	8487
Aymara:	6589	Estonian:	6984	Japanese:	7465	Mongolian:	7778	Shona:	8378	Ukrainian:	8575
Azerbaijani:	6590	Faroese:	7079	Javanese:	7487	Nauru:	7865	Sindhi:	8368	Urdu:	8582
Bashkir:	6665	Fiji:	7074	Kannada:	7578	Nepali:	7869	Singhalese:	8373	Uzbek:	8590
Basque:	6985	Finnish:	7073	Kashmiri:	7583	Norwegian:	7879	Slovak:	8375	Vietnamese:	8673
Bengali; Bangla:		French:	7082	Kirghiz:	7589	Oriya:	7982	Slovenian:	8376	Volapük:	8679
	6678	Frisian:	7089	Korean:	7579	Pashto, Pushto:		Somali:	8379	Welsh:	6789
Bhutani:	6890	Galician:	7176	Kurdish:	7585		8083	Spanish:	6983	Wolof:	8779
Bihari:	6672	Georgian:	7565	Laotian:	7679	Persian:	7065	Sundanese:	8385	Xhosa:	8872
Breton:	6682	German:	6869	Latin:	7665	Polish:	8076	Swahili:	8387	Yiddish:	7473
Bulgarian:	6671	Greek:	6976	Latvian, Lettish:		Portuguese:	8084	Swedish:	8386	Yoruba:	8979
Burmese:	7789	Greenlandic:	7576		7686	Punjabi:	8065	Tagalog:	8476	Zulu:	9085
Byelorussian:	6669	Guarani:	7178			Quechua:	8185	Tajik:	8471		
Cambodian:	7577	Gujarati:	7185	Lingala:	7678	Rhaeto-Romance:		Tamil:	8465		
Catalan:	6765	Hausa:	7265	Lithuanian:	7684		8277	Tatar:	8484		

Messages

On the television

Page

Cannot finish recording completely.	• The program was copy-protected. • The disc may be full. • The maximum number of times you can record the program is exceeded.	— — —
Cannot play.	• You inserted an incompatible disc (Discs recorded in PAL video, etc.).	—
Cannot record on the disc.	• The disc may be dirty or scratched.	6
Unable to format.		
Please check the disc.		
Cannot play back on this DVD-Recorder.	• You tried to play a non-compatible image. • Turn the unit off and re-insert the card.	27 6
Cannot record. The disc is full.	• RAM -RW(V) +RW Create space by deleting any unnecessary titles. (Even if you delete recorded content from DVD-R, DVD-R DL, +R or +R DL, there is no increase in disc space.)	31, 39, 40
Cannot record. The number of titles has exceeded the maximum limit.	• Use a new disc.	—
No disc.	• The disc may be upside down.	—
No folders.	• There is no compatible folder in this unit.	5
No SD Card **No valid SD card.**	• The card is not inserted. If this message is displayed with a compatible card already inserted, turn off the unit, remove and then re-insert the card. • The card inserted is not compatible or the card format does not match.	6 5
There is not enough free space on the copying destination.	• Create space by deleting any unnecessary items.	31, 35, 39, 40
Please change the disc.	• There may be a problem with the disc. Press [▲ OPEN/CLOSE] on the main unit to remove it and check it for scratches or dirt. (The unit turns off automatically after you open the tray.)	6
This is a non-recordable disc.	• The unit cannot record on the disc you inserted. Insert a DVD-RAM or unfinalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW.	4
This disc is not formatted properly.	• You inserted an unformatted DVD-RAM, DVD-RW, +R, +R DL or +RW. Format the disc with this unit.	40
⃠	• The operation is prohibited by the unit or disc.	—

On the unit's display

The following messages or service numbers appear on the unit's display when something unusual is detected during startup and use.

SET ☐ (" ☐ " stands for a number.)	• The remote control and main unit are using different codes. Change the code on the remote control. Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.	17
HARD ERR ("HARD" and "ERR" are alternately displayed.)	• If there is no change after turning the unit on and off, consult the dealer where the unit was purchased.	—
NoREAD	• The disc is dirty or badly scratched. The unit cannot record, play, or edit. • The message may appear when the DVD lens cleaner has finished cleaning. Press [▲ OPEN/CLOSE] on the main unit to eject the disc.	6 —
NoWRIT	• Recording may be unavailable due to a disc problem. Use a new disc.	—
NoERAS	• Deleting an item may be unavailable due to a disc problem. Use a new disc.	—
PLEASE WAIT ("PLEASE" and "WAIT" are alternately displayed.)	• Displayed when the unit is started. This is not a malfunction. • The unit is carrying out its recovery process. You cannot operate the unit while "PLEASE WAIT" is displayed.	— —
UNSUPPORT ("UNSUP" and "PORT" are alternately displayed.)	• You have inserted a disc the unit cannot play or record on.	4, 5
UNFORMAT ("UNFOR" and "MAT" are alternately displayed.)	• You have inserted a new DVD-RW/+R/+R DL/+RW or a DVD-RAM/DVD-RW (DVD-Video format) recorded on other equipment.	40
F74	• The HDMI connection could not be authenticated due to a transfer malfunction.	—
F75	• The HDMI connection could not be authenticated due to an internal data malfunction.	—
U59	• The unit is hot. The unit switches to standby for safety reasons. Wait about 30 minutes until the message disappears. Select a position with good ventilation when installing the unit. Do not block the vent on the rear of the unit.	—
U61	• There was a power failure or the AC plug was disconnected while the unit was on. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.	—
U71	• The connected equipment is not HDMI compatible.	—
U72 **U73**	• The HDMI connection acts unusually. – The connected equipment is not HDMI compatible. – The HDMI cable is damaged.	—
U88	• There was something unusual detected with the disc while recording or playing. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.	49
U99	• The unit fails to operate properly. Press [POWER ⏻/I] on the main unit to switch the unit to standby. Now press [POWER ⏻/I] on the main unit again to turn the unit on.	—

RQT8327

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Frequently asked questions

Set up

		Page
Do I need to connect Audio/video cables from the unit to the TV?	• To enjoy vision and sounds from this unit to the TV, always use AV cables for connection. If your television does not have AUDIO/VIDEO terminals, an RF modulator is necessary. Consult your local dealer for more information.	**8–10**
What equipment is necessary to play multi channel surround sound?	• You cannot playback multi-channel sound on this unit without other equipment. You must connect this unit with an HDMI cable or an optical digital cable to an amplifier with a built-in (Dolby Digital or DTS) decoder.	**12, 13**
	• An amplifier supporting CPPM and the HDMI standard version 1.1 must be connected to this unit to play multi-channel audio on a DVD-Audio.	**—**
Are the headphones and speakers directly connected to the unit?	• You cannot directly connect to the unit. Connect through the amplifier, etc.	**12, 13**
The television has both S VIDEO IN terminal, COMPONENT VIDEO IN terminals and HDMI IN terminal. Which terminal should I connect with?	• The output of picture quality becomes finer in the following order: – VIDEO IN terminal; S VIDEO IN terminal; COMPONENT VIDEO IN terminals; HDMI IN terminal. However, it will take longer for the picture output to startup when this unit is connected with the HDMI IN terminal.	**—**
Is my television progressive output compatible?	• All Panasonic televisions that have 480p input terminals are compatible. Consult the manufacturer if you have another brand of television.	**—**

Disc

|		
Can I play DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW recorded on this unit with other equipment?	• You can play on compatible equipment such as DVD players after finalizing the disc on this unit. It is not necessary to finalize +RW. However, depending on the condition of the recording, the quality of the disc and capabilities of the DVD player, play may not be possible. To enable play on other DVD players, please use "Create DVD Top Menu" in the DVD Management menu.	**41**
Can I play DVD-Video, DVD-Audio and Video CDs bought in another country?	• You can play them if the video standard is NTSC. • However, you cannot play DVD-Video if their region number does not include "1" or "ALL".	**—** **Cover**
Can a DVD-Video that does not have a region number be played?	• The DVD-Video region number indicates the disc conforms to a standard. You cannot play discs that do not have a region number.	**—**
Please tell me about DVD-R, DVD-R DL, DVD-RW, +R, +R DL and +RW compatibility with this unit.	• This unit records and plays DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW, and plays DVD-RW (VR format).	**4, 5**
	• This unit also records and plays high speed recording compatible discs.	**4**
	• After recording +R, +R DL but before finalizing – You may not be able to play and record discs on this unit after recording them on other Panasonic products or other manufacturer's equipment. – You may not be able to play and record discs on other equipment after recording them on this unit. After finalizing the disc, however, you will be able to play it on any DVD-Video compatible player.	**—**
Please tell me about CD-R and CD-RW compatibility with this unit.	• This unit plays CD-R/CD-RW discs (audio recording discs) which have been recorded under one of the following standards: CD-DA, Video CD, MP3 and still pictures (JPEG/TIFF). Close the session after recording.	**5, 27, 28**
	• You cannot write to a CD-R or CD-RW with this unit.	**—**

Recording

Can I record from a commercially purchased video cassette or DVD?	• Most commercially sold video cassettes and DVD are copy protected; therefore, recording is usually not possible.	**—**
Can I record digital audio signals using this unit?	• You cannot record digital signals. The digital audio terminals on this unit are for output only. (The audio recorded using the unit's DV IN terminal from a digital video camcorder, for example, is recorded digitally.)	**—**
Can a digital audio signal from this unit be recorded to other equipment?	• You can record if using the PCM signal. When recording DVD, change the "Digital Audio Output" settings to the following from the Setup menu. – PCM Down Conversion On – Dolby Digital PCM – DTS PCM However, only – As long as digital recording from the disc is permitted. – As long as the recording equipment is compatible with a sampling frequency of 48 kHz.	**44**
	• You cannot record MP3 signals.	**—**
Can I switch to SAP during recording?	• With DVD-RAM, you can, and the recorded audio also changes. Just press [AUDIO].	**21**
	• With DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW you cannot. Change before recording with "Multi-channel TV Sound (MTS)" in the Setup menu.	**44**

Before requesting service, make the following checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to "Customer Services Directory" on page 55 if you reside in the U.S.A., or refer to "Product information" on page 52 if you reside in Canada.

The following do not indicate a problem with this unit:

- Regular disc rotating sounds.
- Poor reception due to atmospheric conditions.
- Image disturbance during search.
- Interruptions in reception due to periodic satellite broadcasting breaks.

- Operations do not work due to a poor-quality disc. (Try again using a Panasonic disc.)
- The unit freezes due to one of its safety devices being activated. (Press and hold [POWER ⏻/l] on the main unit for 10 seconds.)

Power   **Page**

No power.	• Insert the AC power supply cord securely into a known active AC outlet.	**8, 9**
The unit switches to the standby mode.	• This is a power saving feature. Change "Off Timer" in the Setup menu, if you would prefer. • One of the unit's safety devices is activated. Press [POWER ⏻/l] on the main unit to turn the unit on.	**42** **—**

TV screen and video

The images from this unit do not appear on the television. **Picture is distorted.**	• Make sure that the television is connected to the VIDEO terminal, COMPONENT VIDEO OUT terminals or HDMI • Make sure that the television's input setting (e.g., VIDEO • The television isn't compatible with progressive signals.)

Sound

		Page
No sound **Low volume.** **Distorted sound.** **Cannot hear the desired audio type.**	• Check the connections and settings. Check the input mode on the amplifier if you have connected one.	**8–13, 44**
	• Press [AUDIO] to select the audio.	**25**
	• Turn off V. Surround Sound in the following cases. – When using discs that do not have surround sound effects such as Karaoke discs. – When playing Multi-channel TV Sound (MTS) broadcast programs.	**29**
	• [DVD-A] This unit cannot playback multi-channel discs that prevent down-mixing unless the unit is connected with an HDMI cable to an amplifier supporting CPPM and the HDMI standard version 1.1. Refer to the disc's jacket for more information.	—
	• The sound effects will not work when the bitstream signal is output from the HDMI AV OUT terminal or the DIGITAL AUDIO OUT terminal.	—
	• Audio may not be heard when more than 4 devices are connected with HDMI cables. Reduce the number of connected devices.	—
	• To output audio from a device connected with an HDMI cable, set "HDMI Audio Output" to "On" in the Setup menu.	**45**
	• If the sound is distorted when the unit is connected to an amplifier with the HDMI cable, adjust the settings in "HDMI Connection Speakers Setting" in the Setup menu to match the connection.	**45**
	• Depending on the connected equipment, the sound may be distorted if this unit is connected with an HDMI cable.	—
Cannot switch audio.	• You cannot change the audio type when DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW is in the disc tray.	—
	• You cannot change the audio type when playing DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW. (You can select "Main" or "Secondary Audio Program (SAP)" in "Multi-channel TV Sound (MTS)" in the Setup menu before recording.)	**44**
	• When the sound is output from the HDMI AV OUT terminal or the DIGITAL AUDIO OUT terminal, the sound effect doesn't work if the setting of "Dolby Digital" is "Bitstream".	**12, 13, 44**
	• There are discs where audio cannot be changed because of how the disc was created.	—

Operation

Cannot operate the television. The remote control doesn't work.	• Change manufacturer code. Some televisions cannot be operated even if you change the code.	**17**
	• The remote control and main unit are using different codes. Change the code on the remote control. Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.	**17**
	• The batteries are depleted. Replace them with new ones.	**6**
	• You are not pointing the remote control at the main unit's remote control signal sensor during operation.	—
	• Colored glass may obstruct the signal reception/transmission.	—
	• Don't place the signal sensor in direct sunlight or in areas that may be subject to sunlight exposure.	—
	• It may be necessary to set the code on the remote control again after changing the batteries.	**17**
	• It may be necessary to set the manufacturer code again after changing the batteries.	**17**
The unit is on but cannot be operated.	• Recording drive or playback drive has not been selected properly.	**20, 24**
	• Some operations may be prohibited by the disc.	—
	• The unit is hot ("U59" appears on the display). Wait for "U59" to disappear.	—
	• One of the unit's safety devices may have been activated. Reset the unit as follows: 1 Press [POWER ⏻/l] on the main unit to switch the unit to standby. If the unit doesn't switch to standby, press and hold [POWER ⏻/l] on the main unit for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC power supply cord, wait one minute, then reconnect it. 2 Press [POWER ⏻/l] on the main unit to switch it on. If the unit still cannot be operated, consult the dealer.	—
Cannot eject disc.	• The unit is recording.	—
	• The unit may have a problem. While the unit is off, press and hold [■] and [CH ∧] on the main unit at the same time for about 5 seconds. Remove the disc and consult the dealer.	—
Startup is slow.	• Startup takes time in the following situations. – A disc other than a DVD-RAM is inserted. – The clock is not set. – Immediately after a power failure or the AC power supply cord is connected. – When the unit is connected with an HDMI cable.	—
Takes time to read DVD-RAM.	• It may take time to read a disc if it is being used for the first time in this unit or it has not been used for a long time.	—

Recording/Scheduled recording/Copying — **Page**

Cannot record.	• You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto.	**4**
	• `RAM` `-RW(V)` `+R` `+R DL` `+RW` The disc is unformatted. Format the disc using DVD Management.	**40**
	• `RAM` The write-protect tab on the cartridge is set to "PROTECT", or the disc is protected with DVD Management.	**40**
	• Some programs have limitations on the number of times they can be recorded. (CPRM)	**53**
	• The disc is full or nearly full. Delete unneeded titles or use another disc.	**31, 39, 40**
	• You cannot record on finalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or DVD-RW (VR format) discs.	—
	• Due to peculiarities of DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW you may be unable to record onto them if you either insert and remove the disc or switch the unit on and off while a disc is loaded, a total of fifty times.	—
	• DVD-R, DVD-R DL, DVD-RW, +R, +R DL and +RW recorded on this unit may not be recordable on other Panasonic DVD recorders.	—
Cannot record from external equipment.	• Check that the connection is correct.	**8, 9, 38**
	• Select the input channel ("IN1", "IN2" or "DV") for the equipment you have connected.	—
Scheduled recording does not work properly.	• The scheduled program is incorrect or different scheduled program times overlap. Correct the program.	**23**
	• Set the clock.	**17**
Scheduled recording does not stop even when [■] is pressed.	• 1 Press [DRIVE SELECT] to select DVD drive. 2 Press [■], then press [◄,►] to select "Stop recording" and press [ENTER]. Recording stops.	—
The scheduled program remains even after recording finishes.	• The scheduled program remains if set to Monday - Friday, Monday - Saturday, Sunday - Saturday or weekly.	**22**
A part or whole of a recorded title has been lost.	• If there is a power failure or the plug is disconnected from the household AC outlet while recording or editing, the title may be lost or the disc may become unusable. You will have to format the disc (`RAM` `-RW(V)` `+RW`) or use a new disc. We cannot offer any guarantee regarding lost titles or discs.	—
The DV camcorder recording function does not work.	• If images cannot be recorded or if the recording is aborted, check the connections and DV equipment settings.	**38**
	• You cannot start recording until the images from the DV equipment appear on the television.	—
	• Recording may not be performed as desired if the time codes on the tape in the DV equipment are not successive.	—
	• Depending on the equipment, the DV camcorder recording may not operate properly.	—
	• You can only record audio/video images on a DV tape.	—

Play

Play fails to start even when [►] (PLAY) is pressed. **Play starts but then stops immediately.**	• Insert the disc correctly with the label facing up.	**20**
	• The disc is dirty.	**6**
	• You tried to play a blank disc or unplayable disc on this unit.	**4, 5**
	• When recording to DVD-RAM using EP (8H) mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use EP (6H) mode.	**43**
	• You cannot play discs during DV camcorder recording.	—
DVD-Video is not played.	• You have set a ratings level to limit DVD-Video play. Change this setting.	**43**
Alternative soundtrack and subtitles cannot be selected.	• The languages are not recorded on the disc.	—
	• You may not be able to use the on-screen menus to change the soundtrack and subtitles on some discs. Use the disc's menu to make changes.	**24**
No subtitles.	• When progressive output is on, closed captions cannot be displayed.	—
	• Subtitles are not recorded on the disc.	—
	• Set "Subtitle" on the on-screen menu to "On".	**29**
Angle cannot be changed.	• Angles can only be changed during scenes where different angles are recorded.	—
You have forgotten your ratings password.	• While the disc tray is open, press [DRIVE SELECT] to select the DVD drive then press and hold [● REC] and [► x1.3] on the main unit at the same time for 5 or more seconds ("INIT" will appear on the unit's display). The ratings level returns to "8".	—
Quick View does not work.	• This does not work when audio is other than Dolby Digital.	—
	• `RAM` This does not work while recording in XP or FR mode.	—
The resume play function does not work.	• `VCD` Depending on the disc, resume play function may not be effective.	—
	• The stopped position is cleared when: – You press [■] several times. – You open the tray. – `DVD-A` `CD` `VCD` You turn the unit off.	—

Edit		Page
Cannot format.	• The disc is dirty. Wipe with a damp cloth and then wipe dry.	6
	• You tried formatting a disc that is not compatible with this unit.	4, 5
Cannot create chapters.	• The unit writes the chapter division information to the disc when you turn it off or remove the disc. The information is not written if there is an interruption to the power before this.	—
Cannot mark the start point or the end point during "Shorten Title" operation.	• These operations are not possible with still pictures.	—
	• You cannot set points if they are too close to each other. You cannot set an end point before a start point.	—

set94.48 45.30 Tw[(star)-35.2(t)-7.5J/TT4 1 Tf44.2406 4.7594 TD663.04—

—
—Tit.
n8   45.340-7.5J/TT4   1   Tf44.2406   4.7594   TD577(t)-
—

n340-7.5J/TT4   1   Tf44.2406   4.7594   TD485w48   —
—
—

1. **Damage requiring service**—The unit should be serviced by qualified service personnel if:
   (a) The AC power supply cord or AC adaptor has been damaged; or
   (b) Objects or liquids have gotten into the unit; or
   (c) The unit has been exposed to rain; or
   (d) The unit does not operate normally or exhibits a marked change in performance; or
   (e) The unit has been dropped or the cabinet damaged.
2. **Servicing**—Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.
3. **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.
4. **Safety check**—After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

For product information or assistance with product operation:

In the U.S.A., refer to "Customer Services Directory" on page 55.
In Canada, contact the Panasonic Canada Inc. Customer Care Centre at 1-800-561-5505, or visit the website (www.panasonic.ca), or an authorized Servicentre closest to you.

The precision parts in this unit are readily affected by the environment, especially temperature, humidity, and dust. Cigarette smoke also can cause malfunction or breakdown.

To clean this unit, wipe with a soft, dry cloth.
• Never use alcohol, paint thinner or benzine to clean this unit.
• Before using chemically treated cloth, carefully read the instructions that came with the cloth.
Observe the following points to ensure continued listening and viewing pleasure.
Dust and dirt may adhere to the unit's lens over time, making it impossible to record or play discs.
Use the **DVD lens cleaner** (RP-CL720PP) about once every year, depending on frequency of use and the operating environment.
Carefully read the lens cleaner's instructions before use.

Glossary

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

CPPM (Content Protection for Prerecorded Media)
A copy protection system used for DVD-Audio files. This unit supports CPPM.

CPRM (Content Protection for Recordable Media)
CPRM is technology used to protect broadcasts that are allowed to be recorded only once. Such broadcasts can be recorded only with CPRM compatible recorders and discs.

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 multi-channel audio. A large amount of audio information can be recorded on one disc using this method.

Down-mixing
This is the process of remixing the multi-channel audio found on some discs into two channels for stereo output. It is useful when you want to listen to the 5.1-channel audio recorded on DVDs through your television's speakers. Some discs prohibit down-mixing and this unit can then only output the front two channels.
`DVD-A` Tracks that do not allow down-mixing will not play correctly on this unit except when connecting with an HDMI cable to an amplifier that meets HDMI Ver. 1.1 standards and is CPPM compatible.

DPOF (Digital Print Order Format)
DPOF is the standard printing format for still picture data taken by a digital camera, etc. It is used for automatic printing at a photo developing store or on your home printer.

Drive
In the instance of this unit, this refers to the disc (DVD) and SD card (SD). These perform the reading and writing of data.

DTS (Digital Theater Systems)
This surround system is used in many movie theaters. 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. Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can listen at low volumes but still hear dialog clearly.

Film and video
DVD-Video are recorded using either film or video. This unit can determine which type has been used, then uses the most suitable method of progressive output.
Film:
Recorded at 24 or 30 frames per second. Generally appropriate for motion picture films.
Video:
Recorded at 30 frames/60 fields per second. Generally appropriate for TV drama programs or animation.

Finalize
A process that makes play of a recorded CD-R, CD-RW, DVD-R, etc. possible on equipment that can play such media. You can finalize DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R or +R DL on this unit.
After finalizing, the disc becomes play-only and you can no longer record or edit. However, finalized DVD-RW can be formatted to become recordable.

Folder
This is a place on the disc or memory card where groups of data are stored together. In the case of this unit, it refers to the place where still pictures (JPEG, TIFF) are stored.

Formatting
Formatting is the process of making media such as DVD-RAM recordable on recording equipment.
You can format DVD-RAM, DVD-RW (only as DVD-Video format), +R, +R DL, +RW and SD memory card on this unit.
When you use a new DVD-RW, +R, +R DL or +RW, it must be formatted.
Formatting irrevocably deletes all contents.

Frames and fields
Frames refer to the single images that constitute the video you see on your television. Each frame consists of two fields.

Frame　　　　Field　　　　Field

- A frame still shows two fields, so there may be some blurring, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

HDMI (High-Definition Multimedia Interface)
HDMI is a next-generation digital interface for consumer electronic products. Unlike conventional connections, it transmits uncompressed digital video and audio signals on a single cable. This unit supports high-definition video output (720p,1080i) from HDMI AV OUT terminal. To enjoy high-definition video a high-definition compatible television is required.

JPEG (Joint Photographic Experts Group)
This is a system used for compressing/decoding color still pictures. If you select JPEG as the storage system on digital cameras, etc., the data will be compressed to 1/10–1/100 of its original size. The feature of JPEG is less deterioration in picture quality considering the degree of compression.

MP3 (MPEG Audio Layer 3)
An audio compression method that compresses audio to approximately one tenth of its size without any considerable loss of audio quality. You can play MP3 you have recorded onto CD-R and CD-RW.

Pan & Scan/Letterbox
In general, DVD-Video are produced with the intention that they be viewed on a widescreen television (16:9 aspect ratio), so images often don't fit regular (4:3 aspect ratio) televisions. Two styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

Pan & Scan: The sides are cut off so the picture fills the screen.

Letterbox:　Black bands appear at the top and bottom of the picture so the picture itself appears in an aspect ratio of 16:9.

Playback control (PBC)
If a Video CD has playback control, you can select scenes and information with menus.
(This unit is compatible with version 2.0 and 1.1.)

Progressive/Interlace
NTSC, the video signal standard, has 480 interlaced (i) scan lines, whereas progressive scanning uses twice the number of scan lines. This is called 480p.
Using progressive output, you can enjoy the high-resolution video recorded on media such as DVD-Video. Your television must be compatible to enjoy progressive video.

Protection
You can prevent accidental deletion by setting writing protection or deletion protection.

Sampling frequency
Sampling is the process of converting the heights of sound wave (analog signal) samples taken at set periods into digits (digital encoding). Sampling frequency is the number of samples taken per second, so larger numbers mean more faithful reproduction of the original sound.

Thumbnail
This refers to a miniature representation of a picture used to display multiple pictures in the form of a list.

TIFF (Tag Image File Format)
This is a system used for compressing/decoding color still pictures. A common format for storing high quality images on digital cameras and other devices.

1080i
In one high definition image, 1080 alternating scan lines pass every 1/60th of a second to create an interlace image. Because 1080i more than doubles current television broadcasts of 480i, the detail is much clearer and creates a more realistic and rich image.

720p
In one high definition image, 720 scan lines pass at the same time every 1/60th of a second to create a progressive image. Since progressive video does not alternate scan lines like interlace, there is a minimal amount of screen flicker.

Specifications

Recordable discs:

DVD-RAM:
- Ver. 2.0
- Ver. 2.1/3X–SPEED DVD-RAM Revision 1.0
- Ver. 2.2/5X–SPEED DVD-RAM Revision 2.0

DVD-R:
- For General Ver. 2.0
- For General Ver. 2.0/4X–SPEED DVD-R Revision 1.0
- For General Ver. 2.x/8X–SPEED DVD-R Revision 3.0
- For General Ver. 2.x/16X–SPEED DVD-R Revision 6.0
- For DL Ver. 3.0
- For DL Ver. 3.x/4X–SPEED DVD-R for DL Revision 1.0

DVD-RW:
- Ver. 1.1
- Ver. 1.x/2X–SPEED DVD-RW Revision 1.0
- Ver. 1.x/4X–SPEED DVD-RW Revision 2.0
- Ver. 1.x/6X–SPEED DVD-RW Revision 3.0

+R:
- Ver. 1.0
- Ver. 1.1
- Ver. 1.2
- Ver. 1.3
- For DL Ver. 1.0

+RW:
- Ver. 1.1
- Ver. 1.2/4X–SPEED

Recording system:

- DVD-RAM: DVD Video Recording format
- DVD-R: DVD-Video format
- DVD-R DL (Dual Layer):
              DVD-Video format
- DVD-RW: DVD-Video format
- +R
- +R DL (Double Layer)
- +RW

Recording time:

Max. 8 hours (using 4.7 GB disc)

XP: Approx. 1 hour	SP: Approx. 2 hours
LP: Approx. 4 hours	EP: Approx. 6 hours or 8 hours

Playable discs:

- DVD-RAM: DVD Video Recording format
- DVD-R: DVD-Video format
- DVD-R DL (Dual Layer):
              DVD-Video format
- DVD-RW: DVD-Video format, DVD Video Recording format
- +R   +R DL (Double Layer)
- +RW   DVD-Video
- DVD-Audio CD-Audio (CD-DA)
- Video CD   CD-R/CD-RW (CD-DA, Video CD, MP3, JPEG)

Optical pick-up:

System with 1 lens, 2 integration units
(662 nm wavelength for DVDs, 780 nm wavelength for CDs)

LASER Specification

Class I LASER Product

Wave length:	780 nm (CDs)
	662 nm (DVDs)
Laser power:	No hazardous radiation is emitted with the safety protection

Television system

TV system:	NTSC system, 525 lines, 60 fields
Antenna reception input:	TV Channel: 2 ch–69 ch
	CATV Channel: 1 ch–125 ch
RF converter output:	Not provided

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   DMR-ES25
SERIAL NUMBER

Video system

Recording system:	MPEG2 (Hybrid VBR)	
Input:	LINE (pin jack) ×2,	1.0 Vp-p; 75 Ω
	S connector ×2 Y:	1.0 Vp-p; 75 Ω
	C:	0.286 Vp-p; 75 Ω
Output:	LINE (pin jack) ×1,	1.0 Vp-p; 75 Ω
	S connector ×1 Y:	1.0 Vp-p; 75 Ω
	C:	0.286 Vp-p; 75 Ω
Component video output:	Y, P_B, P_R ×1 (480i/480p) Y:	1.0 Vp-p; 75 Ω
	P_B:	0.7 Vp-p; 75 Ω
	P_R:	0.7 Vp-p; 75 Ω

Audio system

Recording system:	Dolby Digital (2ch)
Analog Input:	LINE (pin jack) ×2
	Reference input: 309 mVrms
	FS: 2 Vrms (1 kHz, 0 dB)
	Input impedance: 47 kΩ
Analog Output:	LINE (pin jack) ×1
	Reference output: 309 mVrms
	FS: 2 Vrms (1 kHz, 0 dB)
	Output impedance: 1 kΩ
	(Load impedance: 10 kΩ)
Number of channels:	Recording: 2 channels
	Playback: 2 channels
Digital Output:	Digital audio optical output connector ×1
	(PCM, Dolby Digital, DTS)

HDMI Output:	(19 pin type A) ×1
	HDMI Ver. 1.2a (EDID Ver. 1.3)

SD Card Slot:	1 pc
Still Picture (JPEG, TIFF)	SD Memory Card Slot
Compatible media:	SD Memory Card*, Multi Media Card
	* Includes miniSD™ cards. (A miniSD™ adaptor needs to be inserted.)
Format:	FAT12, FAT16
Image file format:	JPEG conforming to DCF (Design rule for Camera File system)
	TIFF (Uncompressed RGB chunky), DPOF Compatible
	Sub sampling; 4:2:2 or 4:2:0
Number of pixels:	between 34 × 34 and 6144 × 4096 pixels
Thawing time:	Approx. 3 sec (6 M pixels, JPEG)

DV Input:	IEEE 1394 Standard, 4 Pin: 1 pc
Regional Code:	# 1
Clock unit:	Quartz-controlled 12-hour digital display
Operating temperature range:	5 °C to 40 °C (41 °F to 104 °F)
Operating humidity range:	10 % to 80 % RH (no condensation)
Power supply:	AC 120 V, 60 Hz
Power consumption:	Approx. 21 W
Dimensions (W × H × D):	Approx. 430 mm × 58 mm × 248 mm (Approx. $16^{15}/_{16}''$ × $2^{5}/_{16}''$ × $9^{13}/_{16}''$)
Mass:	Approx. 2.8 kg (6.16 lbs)

Power consumption in standby mode:
approx. 2.1 W (Shipping condition)
approx. 6.1 W (User setting: Quick Start: On)

Note

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

User memo:

DATE OF PURCHASE
DEALER NAME
DEALER ADDRESS

TELEPHONE NUMBER

Limited Warranty (ONLY FOR U.S.A.)

Panasonic Consumer Electronics Company,
Division of Panasonic Corporation of North America
One Panasonic Way Secaucus, New Jersey 07094

Panasonic Puerto Rico, Inc.
Ave. 65 de Infantería, Km. 9.5
San Gabriel Industrial Park, Carolina, Puerto Rico 00985

Panasonic DVD Recorder Limited Warranty

Limited Warranty Coverage

If your product does not work properly because of a defect in materials or workmanship, Panasonic Consumer Electronics Company or Panasonic Puerto Rico, Inc. (collectively referred to as "the warrantor") will, for the length of the period indicated on the chart below, which starts with the date of original purchase ("warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

Product or Part name	Parts	Labor
DVD Recorder	One (1) Year	One (1) Year
Rechageable Batteries, DVD-RAM Disc (in exchange for defective item)	Ten (10) Days	Not Applicable

During the "Labor" warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must carry-in or mail-in your product during the warranty period. If non-rechargeable batteries are included, they are not warranted. This warranty only applies to products purchased and serviced in the United States or Puerto Rico. This warranty is extended only to the original purchaser of a new product which was not sold "as is". A purchase receipt or other proof of the original purchase date is required for warranty service.

Carry-In or Mail-In Service

For Carry-In or Mail-In Service in the United States call 1-800-211-PANA (7262) or visit Panasonic Web Site: http://www.panasonic.com

For assistance in Puerto Rico call Panasonic Puerto Rico, Inc. (787)-750-4300 or fax (787)-768-2910.

Limited Warranty Limits And Exclusions

This warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or commercial use (such as in a hotel, office, restaurant, or other business), rental use of the product, service by anyone other than a Factory Servicenter or other Authorized Servicer, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE". THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, travel to and from the servicer, loss of media or images, data or other recorded content. The items listed are not exclusive, but are for illustration only.) **ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.**

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the warrantor's Consumer Affairs Department at the addresses listed for the warrantor.

PARTS AND SERVICE WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY ARE YOUR RESPONSIBILITY.

Customer Services Directory

Obtain Product Information and Operating Assistance; locate your nearest Dealer or Servicenter; purchase Parts and Accessories; or make Customer Service and Literature requests by visiting our Web Site at:
http://www.panasonic.com/consumersupport
or, contact us via the web at:
http://www.panasonic.com/contactinfo
You may also contact us directly at:
1-800-211-PANA (7262),
Monday-Friday 9 am-9 pm; Saturday-Sunday 10 am-7 pm, EST.

For hearing or speech impaired TTY users, TTY: 1-877-833-8855

Accessory Purchases

Purchase Parts, Accessories and Instruction Books online for all Panasonic Products by visiting our Web Site at:
http://www.pasc.panasonic.com
or, send your request by E-mail to:
npcparts@us.panasonic.com
You may also contact us directly at:
1-800-332-5368 (Phone) 1-800-237-9080 (Fax Only) (Monday – Friday 9 am to 8 pm, EST.)
Panasonic Services Company
20421 84th Avenue South, Kent, WA 98032
(We Accept Visa, MasterCard, Discover Card, American Express, and Personal Checks)

For hearing or speech impaired TTY users, TTY: 1-866-605-1277

Service in Puerto Rico

Panasonic Puerto Rico, Inc.
Ave. 65 de Infantería, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985
Phone (787)750-4300, Fax (787)768-2910

Limited Warranty (ONLY FOR CANADA)

Panasonic Canada Inc.

PANASONIC/TECHNICS PRODUCT – LIMITED WARRANTY

Panasonic Canada Inc. warrants this product to be free from defects in material and workmanship and agrees to remedy any such defect for a period as stated below from the date of original purchase.

Technics Audio Product	**One (1) year, parts and labour**
Panasonic Audio & DVD Product	**One (1) year, parts and labour**
Accessories including rechargeable batteries	**Ninety (90) days**

In-home Service will be carried out only to locations accessible by roads and within 50 km of an authorized Panasonic service facility.

LIMITATIONS AND EXCLUSIONS

This warranty does not apply to products purchased outside Canada or to any product which has been improperly installed, subjected to usage for which the product was not designed, misused or abused, damaged during shipping, or which has been altered or repaired in any way that affects the reliability or detracts from the performance, nor does it cover any product which is used commercially. Dry cell batteries are also excluded from coverage under this warranty.

This warranty is extended to the original end user purchaser only. A purchase receipt or other proof of date of original purchase is required before warranty service is performed.

THIS EXPRESS, LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT WILL PANASONIC CANADA INC. BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES.

In certain instances, some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or the exclusion of implied warranties, so the above limitations and exclusions may not be applicable.

WARRANTY SERVICE

FOR PRODUCT OPERATION ASSISTANCE, please contact:

Our Customer Care Centre:
- Telephone #: (905) 624-5505
- 1-800 #: 1-800-561-5505
- Fax #: (905) 238-2360
- Email link: "Contact Us" on www.panasonic.ca

FOR PRODUCT REPAIRS, please locate your nearest Authorized Servicentre at www.panasonic.ca :

Link : "Servicentres™ locator" under "Customer support"

Panasonic Factory Service:

Richmond British Columbia
Panasonic Canada Inc.
12111 Riverside Way
Richmond BC   V6W 1K8
Tel: (604) 278-4211
Fax: (604) 278-5627

Mississauga Ontario
Panasonic Canada Inc.
5770 Ambler Drive
Mississauga ON L4W 2T3
Tel: (905) 624-8447
Fax: (905) 238-2418

IF YOU SHIP THE PRODUCT TO A SERVICENTRE
Carefully pack and send prepaid, adequately insured and preferably in the original carton.
Include details of the defect claimed, and proof of date of original purchase.

Instalación básica

- Visite la página inicial de Panasonic para obtener más información acerca de los métodos de conexión. (Sólo está en inglés.)
  http://www.panasonic.com/consumer_electronics/dvd_recorder/dvd_connection.asp
- Antes de hacer la conexión, apague todos los equipos y lea los manuales de instrucciones apropiados.
- El equipo periférico y los cables opcionales se venden por separado a menos que se indique lo contrario.

∎ Terminal RF OUT de la unidad

La señal de imagen y sonido de esta unidad no pasa por el terminal RF OUT hasta el televisor.

Asegúrese de conectar al televisor uno de estos terminales de la unidad: el terminal AUDIO/VIDEO OUT, el terminal S VIDEO OUT o el terminal COMPONENT VIDEO OUT.

∎ Cuando la unidad no vaya a utilizarse durante mucho tiempo

Para ahorrar energía, desenchufe la unidad de la toma de corriente CA. Esta unidad consume una pequeña cantidad de energía aunque se encuentre apagada (**aproximadamente 2,1 W**).

∎ Conecte la unidad directamente al televisor

Las señales de vídeo enviadas a través de videograbadoras se verán afectadas por los sistemas de protección del copyright, y las imágenes no se mostrarán correctamente en el televisor.

Televisor
↑
Videograbadora
↑
Esta unidad

Conexión con un televisor y una videograbadora

Esta conexión permitirá utilizar la videograbadora para reproducir y grabar cuando la unidad esté apagada.
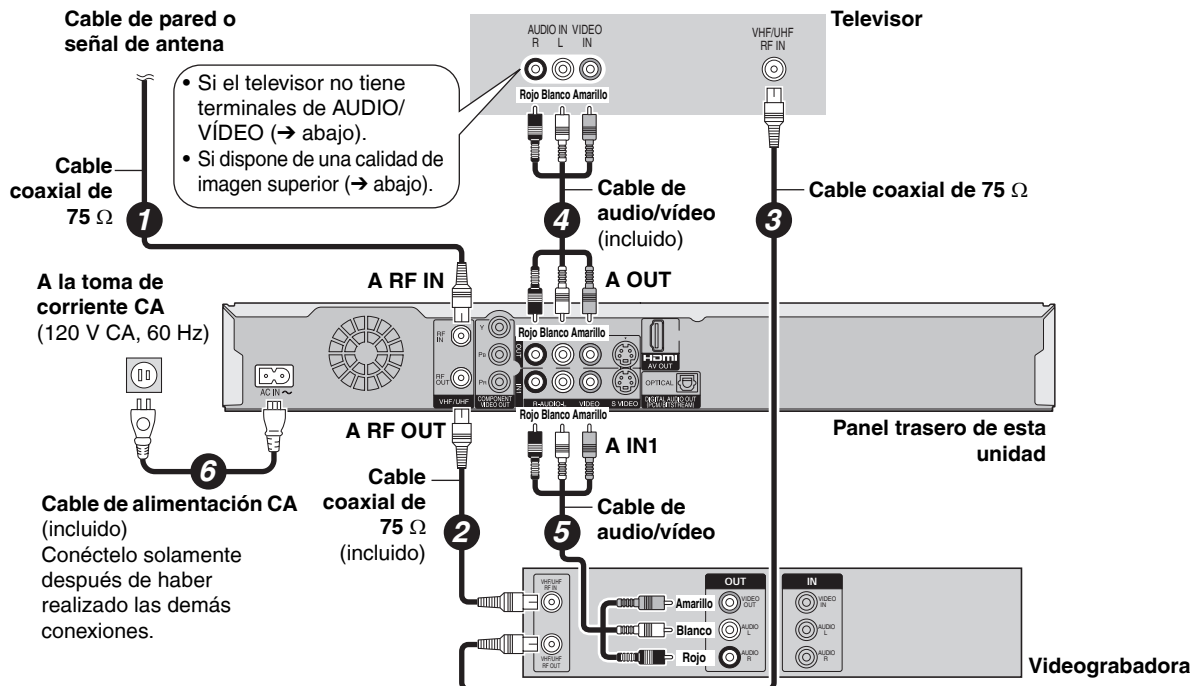
Si el televisor no tiene terminales de audio/vídeo, se necesita un modulador RF

Cable de audio/vídeo (incluido)

Modulador RF

Televisor

Panel trasero de esta unidad

Videograbadora

Cable coaxial de 75 Ω

Cable coaxial de 75 Ω
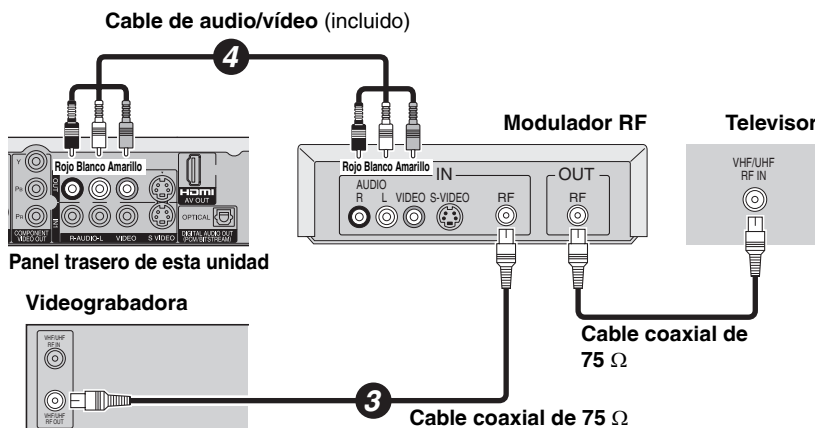
Para disfrutar de una mejor calidad de imagen

∎ Terminal S VIDEO OUT

Los terminales S VIDEO OUT logran una imagen más viva que la del terminal VIDEO OUT. (Los resultados reales dependen del televisor.)

∎ Terminal COMPONENT VIDEO OUT

Estos terminales se pueden utilizar para la salida entrelazada o progresiva y pueden proporcionar una imagen más clara que la del terminal S VIDEO OUT.

- Conéctelos a terminales del mismo color.

Ajuste automático de canales

Can.   1

Ajuste automático de canales
Está prosiguiendo . . .
↳ ↳ ▷

Selección del tipo de televisor

jus
que s
corresp

1   Duran
     Pulse

2   **Pulse [▲,**
     "Pantalla T

3   **Pulse [▲,▼] pa**
     TV" y pulse [EN
     • 480p/480i:
       Seleccione "480p" si el televisor
       progresiva.

4   **Pulse [▲,▼] para selecci**
     opción y pulse [ENTER].

Para salir de la pantalla
Pulse [SETUP].

Para volver a la pantalla anterior
Pulse [RETURN].

⏻ **DVD**
POWER

▲,▼,◄,►
ENTER

RETURN

SETUP

Sintonización auto   a

Preparación
• Encienda el televisor y seleccion   ada de vídeo apropiada
  para las conexiones de esta unic

1   **Pulse [⏻ DVD PO**   **.**

Select Language
Seleccione el idioma
Sélection de Langue

English
Español
Français

Press ENTER
Pulse ENTER
Appuyer sur ENTER

2   **Pulse [▲,▼] para s   eccionar el**
     idioma y pulse [E   R].
     Si se equivoca, pulse [RETU   ara volver a la pantalla
     anterior.

3   **Pulse [▲,▼] para s   eccionar "TV de**
     4:3" o "TV ancho d   16:9" y pulse
     [ENTER].

4   **Pulse [▲,▼] para s   eccionar**
     "Encendido" o "Ap   gado" y pulse
     [ENTER].

5   **Pulse [▲,▼] para s   eccionar**
     "Sintonizador" o "   ntrada" y pulse
     [ENTER].

Reproducción de discos

DRIVE SELECT
Botones numerados
|◀◀,▶▶|
■
II
TIME SLIP
DIRECT NAVIGATOR
SUB MENU
AUDIO

▶ x1.3
CM SKIP
▲,▼,◀,▶
ENTER
◀II, II▶
RETURN
CREATE CHAPTER

1 Pulse [DRIVE SELECT] para seleccionar la unidad DVD.

2 Inserte un disco (→ página 58).

3 Pulse [▶] (PLAY).

RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)
La reproducción se inicia a partir del título grabado más recientemente.

DVD-V DVD-A CD VCD
La reproducción se inicia desde el principio del disco.

■ Cuando aparece una pantalla de menú en el televisor

DVD-V DVD-A
Pulse [▲,▼,◀,▶] para seleccionar la opción y pulse [ENTER].
Algunas opciones también pueden seleccionarse utilizando los botones numerados.

VCD
Pulse los botones numerados para seleccionar la opción.
Por ejemplo, 5: [0] → [5]   15: [1] → [5]

• **Para volver a la pantalla de menú**
  DVD-V   Pulse [DIRECT NAVIGATOR] o [SUB MENU].
  DVD-A   Pulse [DIRECT NAVIGATOR].
  VCD   Pulse [RETURN].

Selección de títulos grabados para reproducirlos –Direct Navigator

RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)
Seleccione en el menú los títulos grabados que desee reproducir.

1 Pulse [DIRECT NAVIGATOR].
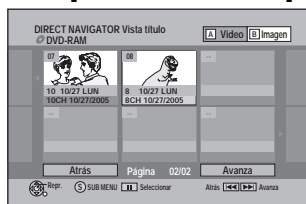
2 Pulse [▲,▼,◀,▶] para seleccionar el título y pulse [ENTER].
También puede seleccionar títulos con los botones numerados.
Por ejemplo, 5: [0] → [5]   15: [1] → [5]

Para salir de la pantalla
Pulse [DIRECT NAVIGATOR].

Operaciones durante la reproducción

Parada	**Pulse [■].** La posición de detención se memoriza. **Función de reanudación de la reproducción** Pulse [▶] (PLAY) para reiniciar la reproducción desde esta posición.
Pausa	**Pulse [II].** Pulse de nuevo o pulse [▶] (PLAY) para reiniciar la reproducción.
Búsqueda	**Pulse [◀◀] o [▶▶].** • La velocidad aumenta hasta 5 veces (+R +R DL +RW hasta 3 pasos). • Pulse [▶] (PLAY) para reiniciar la reproducción.
Salto	**Durante la reproducción o una pausa, pulse [I◀◀] o [▶▶I].** La unidad saltará los títulos, capítulos o pistas según el número de veces que se pulse el botón y se iniciará la reproducción.

Inicio desde una opción seleccionada	**Pulse los botones numerados.**
	Por ejemplo,
	  5: [0] → [5] 15: [1] → [5]
	CD MP3 y JPEG/TIFF
	  5: [0] → [0] → [5] 15: [0] → [1] → [5]
	DVD-A Selección de grupos
	Durante la parada (en el televisor se visualiza el salvapantallas)
	  5: [5]
	• Esto sólo funciona durante la parada con algunos discos (en el televisor se visualiza el salvapantallas).
	• VCD (con control de reproducción)
	Si pulsa los botones numerados durante la parada (el salvapantallas se visualiza en el televisor) podrá cancelar el PBC. (En el visor de la unidad aparece el tiempo de reproducción transcurrido.)

Visión rápida (Quick View) RAM	**Mantenga pulsado [▶] (PLAY/x1.3).** La velocidad de reproducción es superior a la normal. • Pulse de nuevo para volver a la velocidad normal.
Cámara lenta RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A (Sólo partes con imágenes en movimiento) -RW(VR) VCD	**Durante la pausa, pulse [◀◀] o [▶▶].** • La velocidad aumenta hasta 5 veces. • Pulse [▶] (PLAY) para reiniciar la reproducción. • VCD Sólo hacia delante [▶▶]. • La unidad hará una pausa si la reproducción a cámara lenta continúa durante unos 5 minutos (excluyendo DVD-V DVD-A VCD).
Imagen a imagen RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A (Sólo partes con imágenes en movimiento) -RW(VR) VCD	**Durante la pausa, pulse [◀II] o [II▶].** • Cada pulsación muestra la siguiente imagen. • Manténgalos pulsados si desea avanzar o retroceder de forma secuencial. • Pulse [▶] (PLAY) para reiniciar la reproducción. • VCD Sólo hacia delante [II▶].
Salto del tiempo especificado (Time Slip) RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)	**1 Pulse [TIME SLIP].** **2 Pulse [▲,▼] para seleccionar el tiempo y pulse [ENTER].** La reproducción salta el tiempo especificado. • Cada vez que pulsa [▲,▼], el tiempo aumenta [▲] o disminuye [▼] en intervalos de 1 minuto. (Manténgalo pulsado para cambiar en intervalos de 10 minutos.)
Salto CM RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)	**Pulse [CM SKIP].** La reproducción se reanuda aproximadamente un minuto después.
Cambio del audio	**Pulse [AUDIO].** RAM -RW(VR) VCD Estéreo → Mono L → Mono R • RAM -RW(VR) Al reproducir una emisión SAP (Programa de audio independiente): Principal↔SAP DVD-V DVD-A Cada vez que pulsa el botón puede cambiar el número del canal de audio. Esto le permite cambiar elementos como el idioma de la pista de sonido.
Crear capítulo RAM	**Pulse [CREATE CHAPTER].** Los capítulos se dividen cuando se pulsa el punto seleccionado.

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-If you see this symbol-