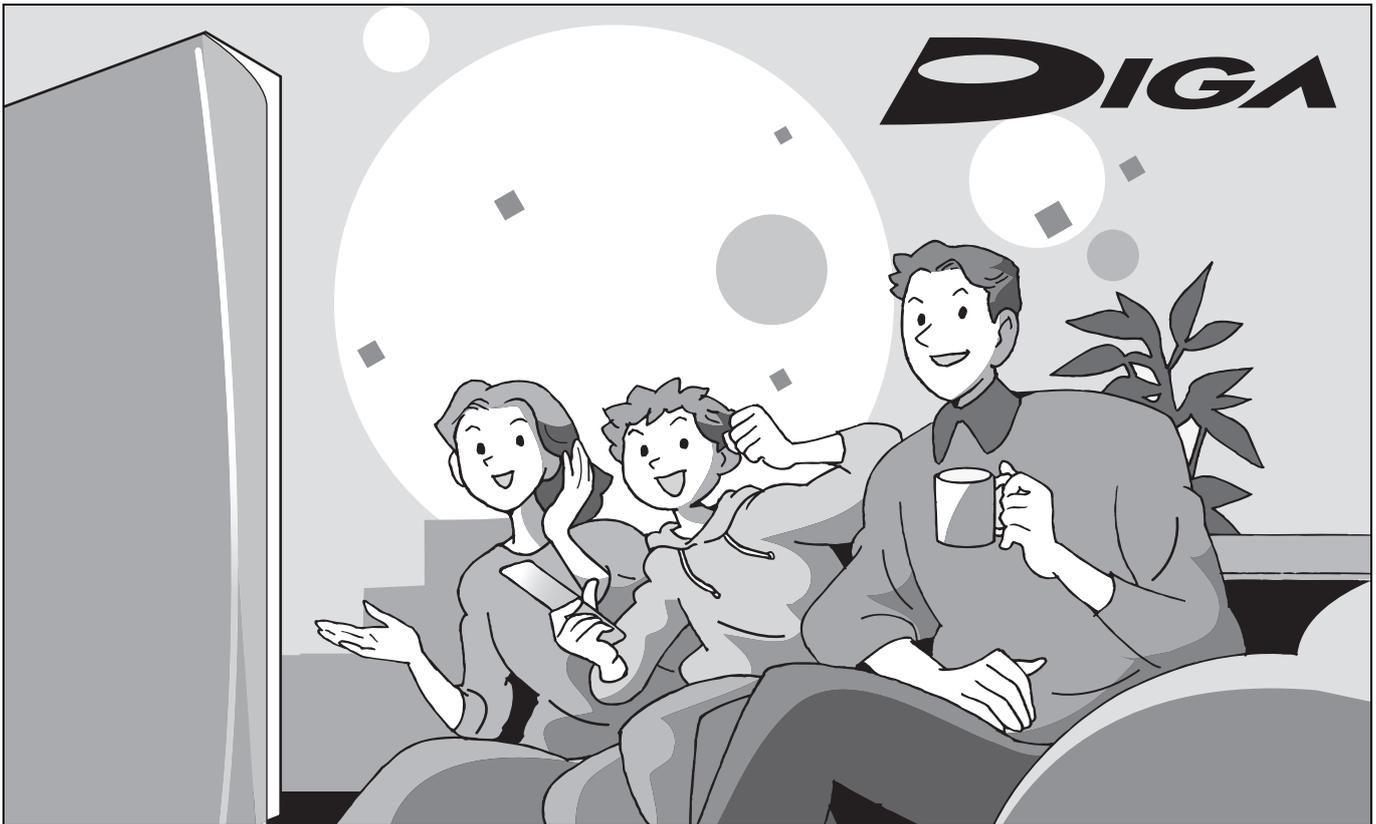




Operating Instructions

DVD Video Recorder

Model No. **DMR-E500H**



Dear customer

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

Before connecting, operating or adjusting this product, please read these instructions completely.

Please keep this manual for future reference.

Region number supported by this unit

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

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

Example:



For U.S.A. only

The warranty can be found on page 80.

For Canada only

The warranty can be found on page 81.

La referencia rápida en español se puede encontrar en la página 82.



This manual was printed with soy based ink.

CAUTION!

THIS PRODUCT UTILIZES A LASER. USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

Keep the small memory cards such as the SD Memory Card out of reach of children. If swallowed, seek medical advice immediately.

DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC60825-1)
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALLTIINÄ NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KÄTSO SÄTEESEEN.
WARNING	- SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注意	- 打开时有可见及不可见激光辐射。避免激光照射。
注意	- ここを開くと可視及び不可視のレーザー光が出ます。ビームを直接見たり、照れたりしないでください。

(Inside of product)



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



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

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

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

CAUTION!

DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.

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

Note to CATV system installer:

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

The socket outlet shall be installed near the equipment and easily accessible or the mains plug or an appliance coupler shall remain readily operable.

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

FCC Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

FCC Caution: To assure continued compliance, follow the attached installation instructions and use only shielded interface cables when connecting to peripheral devices.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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

Responsible Party:

Panasonic Corporation of North America

One Panasonic Way

Secaucus, NJ, 07094 USA

Telephone No.: 1-800-211-7262

IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

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



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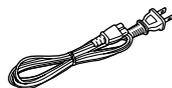
Accessories



Please check and identify the supplied accessories. Use numbers indicated in parentheses when asking for replacement parts.
Only for U.S.A.: To order accessories, refer to "Accessory Purchases" on page 80.
Only for Canada: To order accessories, call the dealer from whom you have made your purchase.



1 Remote control (EUR7721KL0)



1 AC power supply cord (K2CB2CB00006)



1 75 Ohm coaxial cable (VJA1125)



2 Batteries for remote control



1 Audio/video cable (K2KA6CA00001)



1 IR Blaster (K2ZZ04C00002)

•For use with this unit only. Do not use it with other equipment.

(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/>

This DVD Video recorder records high quality images to rapid random access capable HDD (Hard disk drive) or DVD-RAM. This has resulted in many new features that outperform older tape formats. The following information summarizes a few of these features.

Instant recording

You no longer need to search for empty disc space. By pressing the recording button, the unit finds available recording space and begins recording right away. There is no need to worry about overwriting already recorded content.

HDD recording

You can keep on recording your favorite programs to an internal HDD that is able to record up to 709 hours when using EP (8H) mode. You can also high speed transfer (dub) your favorite programs to DVD-RAM or DVD-R and create a backup disc.

LAN terminal, SD/PC card slots, DV input terminal

This unit is equipped with interfaces that allow networking with digital equipment.

- The LAN terminal of this unit lets you connect to a computer for easy text input when giving names to video titles. This also allows playback of MPEG4 titles and viewing of JPEG. You can also connect to another network compatible Panasonic DVD recorder for more video playback choice.
- The SD/PC card slots of this unit let you transfer (dub) digital camera photographs from a card to DVD-RAM for easy storage without using a computer.
- The DV automatic recording function of this unit lets you easily transfer (dub) digital images to the HDD by connecting only a single DV cable.

Transferring (dubbing)/editing/playing MPEG4 titles

- While recording programs to the HDD you can simultaneously record them as MPEG4 titles. By then transferring (dubbing) these MPEG4 titles from the HDD to a SD Memory Card or MultiMediaCard, you can view them on a SD Video Camera etc.
- You can also transfer (dub) MPEG2 titles recorded on a SD Video Camera etc, to HDD or DVD-RAM.

TV Guide On Screen™ system

The TV Guide On Screen™ system provides a handy electronic program guide (EPG) for checking what's on. Setting up to record a broadcast is easy too. Simply select the desired program from the displayed list. You can also search for desired programs alphabetically or by displaying only the programs in a certain category.

- This service may not be available in some areas.

Instant play

There is no need to rewind or search forward. Direct Navigator guides you to the beginning of the recorded video immediately.



Chasing playback

There is no need to wait until recording is complete. Without stopping recording, you can play the video currently being recorded from its beginning.



Simultaneous Recording and Playback

While recording, you can play another video program that was recorded previously.



Time Slip

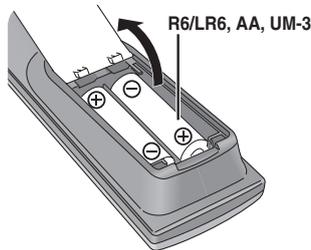
During play and also while recording, you can jump to the scene you wish to view by specifying the skip time.

5.1 channel surround sound

Enjoy the powerful movie theater and hall-like sound available with multiple channel audio found on DVDs by connecting an amplifier and speakers.

The remote control

Batteries



- Insert so the poles (+ and -) match those in the remote control.
- Do not use rechargeable type batteries.
- Do not mix old and new batteries.
- Do not use different types at the same time.
- Do not heat or expose to flame.
- Do not take apart or short circuit.
- Do not attempt to recharge alkaline or manganese batteries.
- Do not use batteries if the covering has been peeled off.

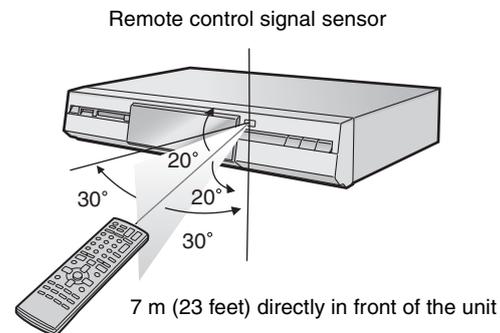
Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.

Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

Note

If you cannot operate the unit or television using the remote control after changing the batteries, please re-enter the codes (➡ page 14).

Use

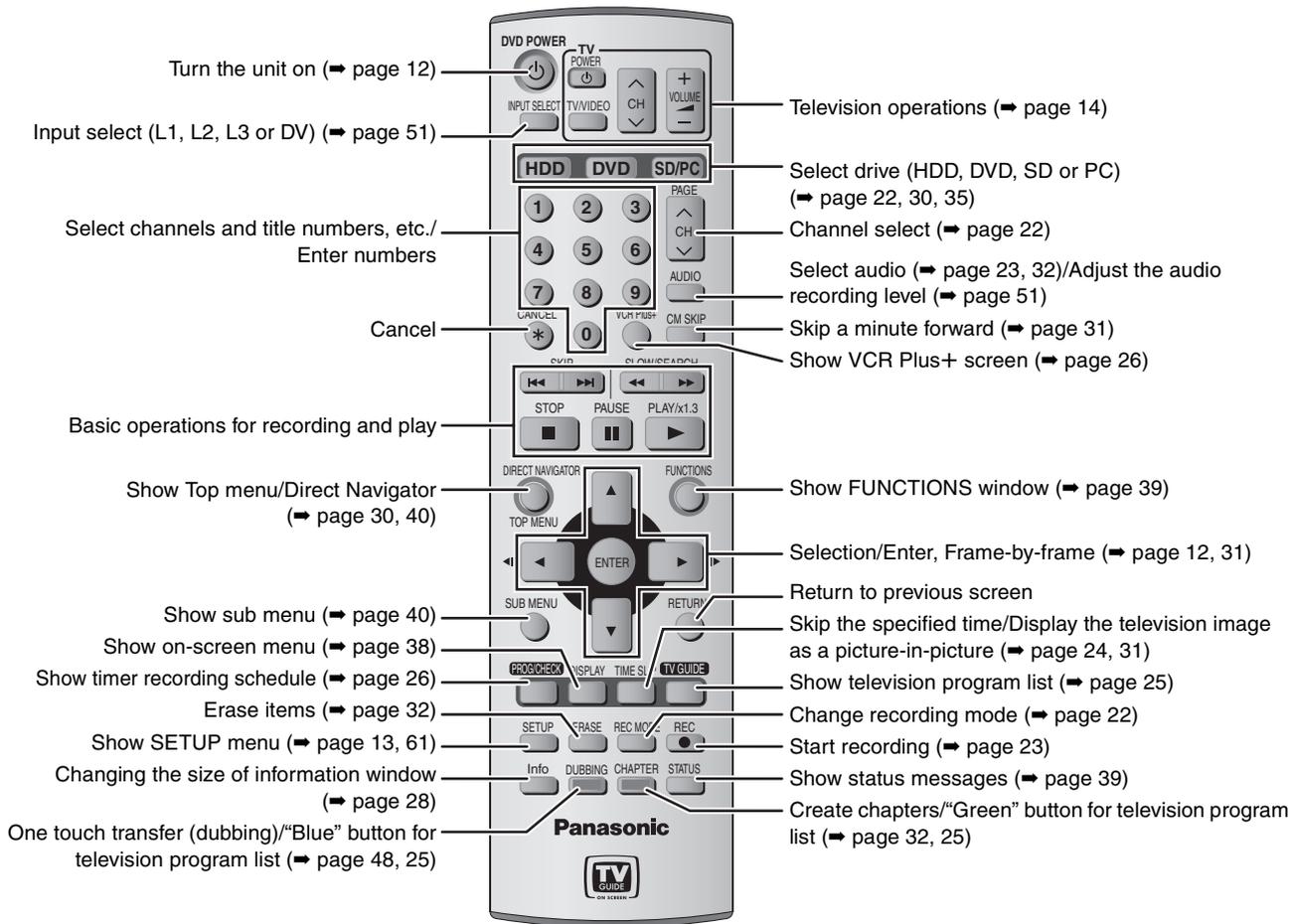


The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material due to a problem with the unit or recordable media, and accepts no responsibility and offers no compensation for any subsequent damage caused by such loss.

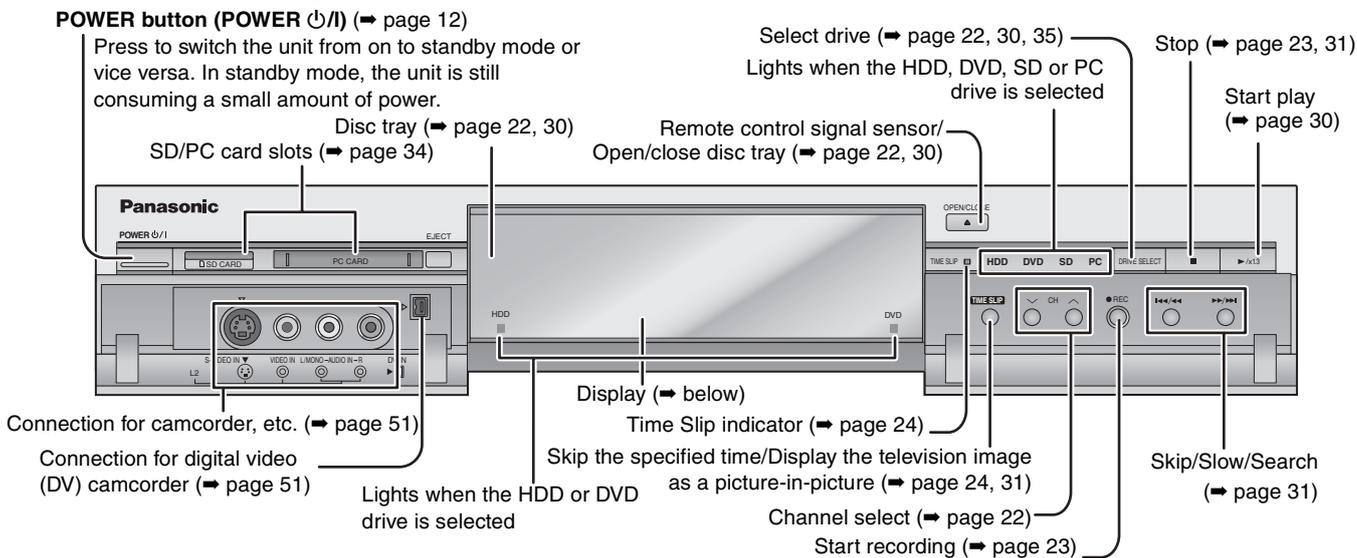
Examples of causes of such losses are

- A disc recorded and edited with this unit is played in a DVD recorder or computer disc drive manufactured by another company.
- A disc used as described above and then played again in this unit.
- A disc recorded and edited with a DVD recorder or computer disc drive manufactured by another company is played in this unit.

Remote control

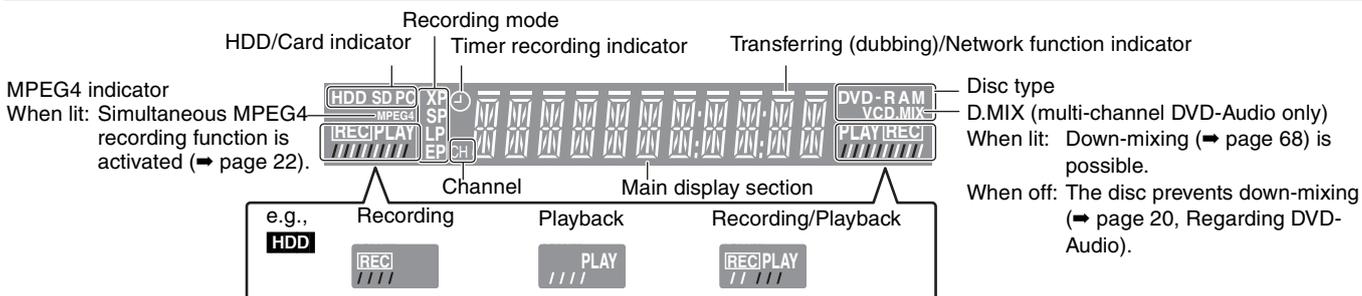


Main unit



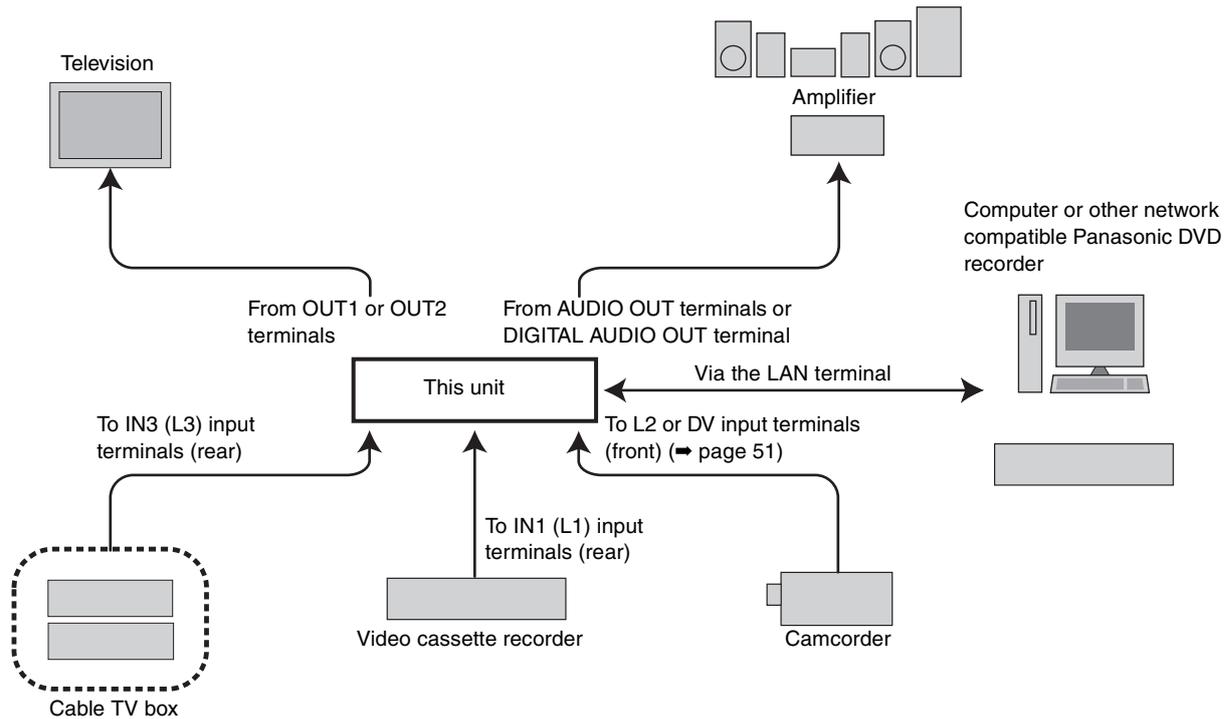
Rear panel terminals (⇒ page 7)

The unit's display



STEP 1 Connection

Examples of equipment you can connect to this unit's terminals



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

The heat can damage the unit.

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. 21 W).

- Note that the television program list is not downloaded while the unit is unplugged.

Before moving the unit, ensure the disc tray is empty. Failure to do so will risk severely damaging the disc and the unit.

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

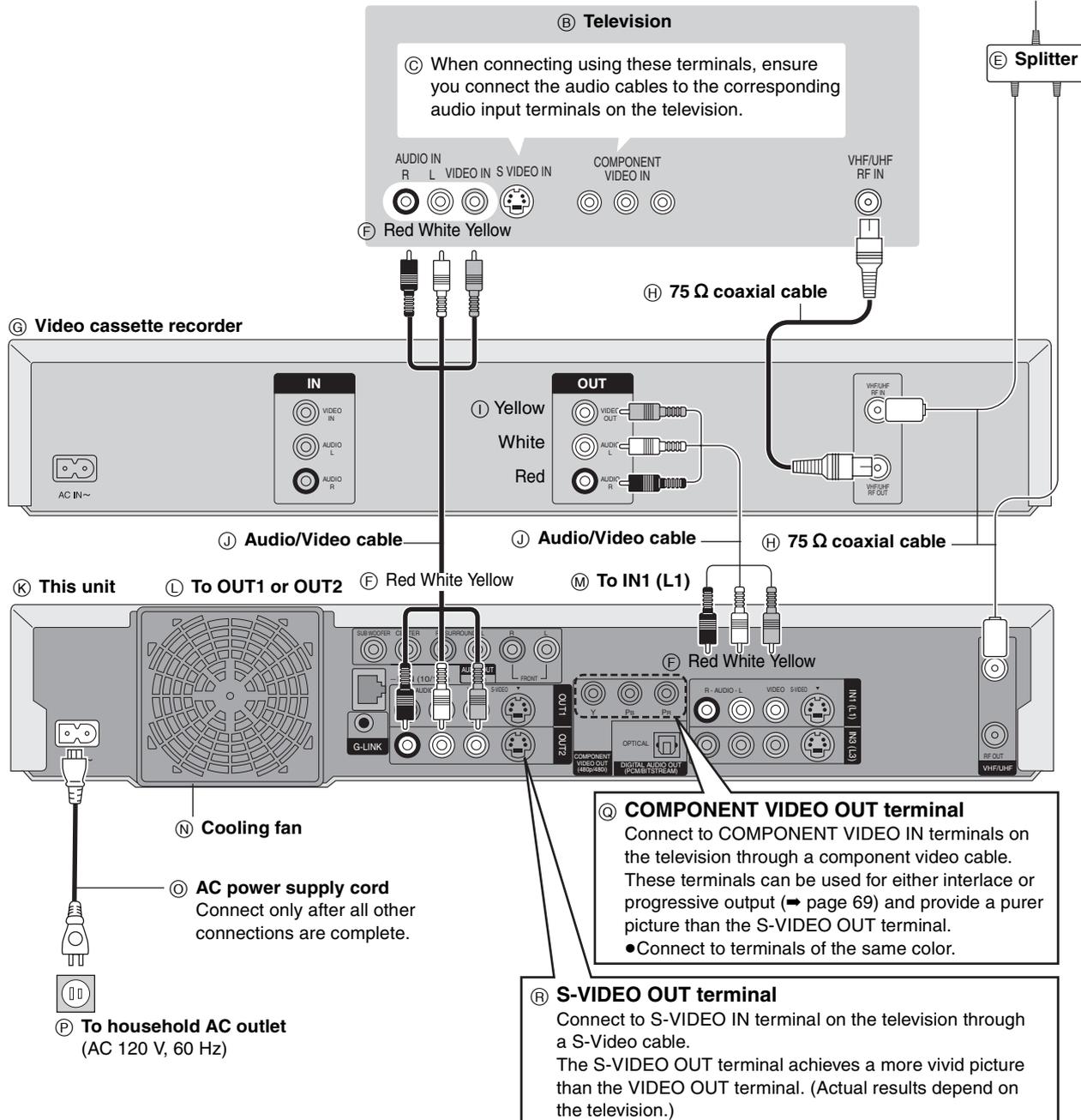
Connection with a television and video cassette recorder

The connection will allow the video cassette recorder to be used for playback when this unit is turned off. For optimum operation, it is recommended that this unit be connected as shown below.

(A) to (R) are indexes for Spanish Quick Reference.

- (A) indicates included accessories.
- indicates accessories not included.

(D) Cable from wall or antenna signal



■ The unit's RF OUT terminal

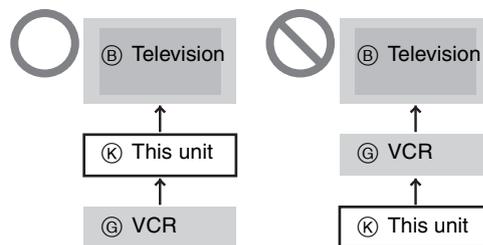
The picture and sound signal from this unit does not go through the RF OUT terminal to the television.

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. If the television has none of these terminals, consult your local dealer.

- Refer to page 9 if the antenna connector doesn't match.

Do not connect the unit through a video cassette recorder

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.



- When connecting to a television with a built in VCR, connect to the input terminals on the television side, not the VCR side.

STEP 1 Connection

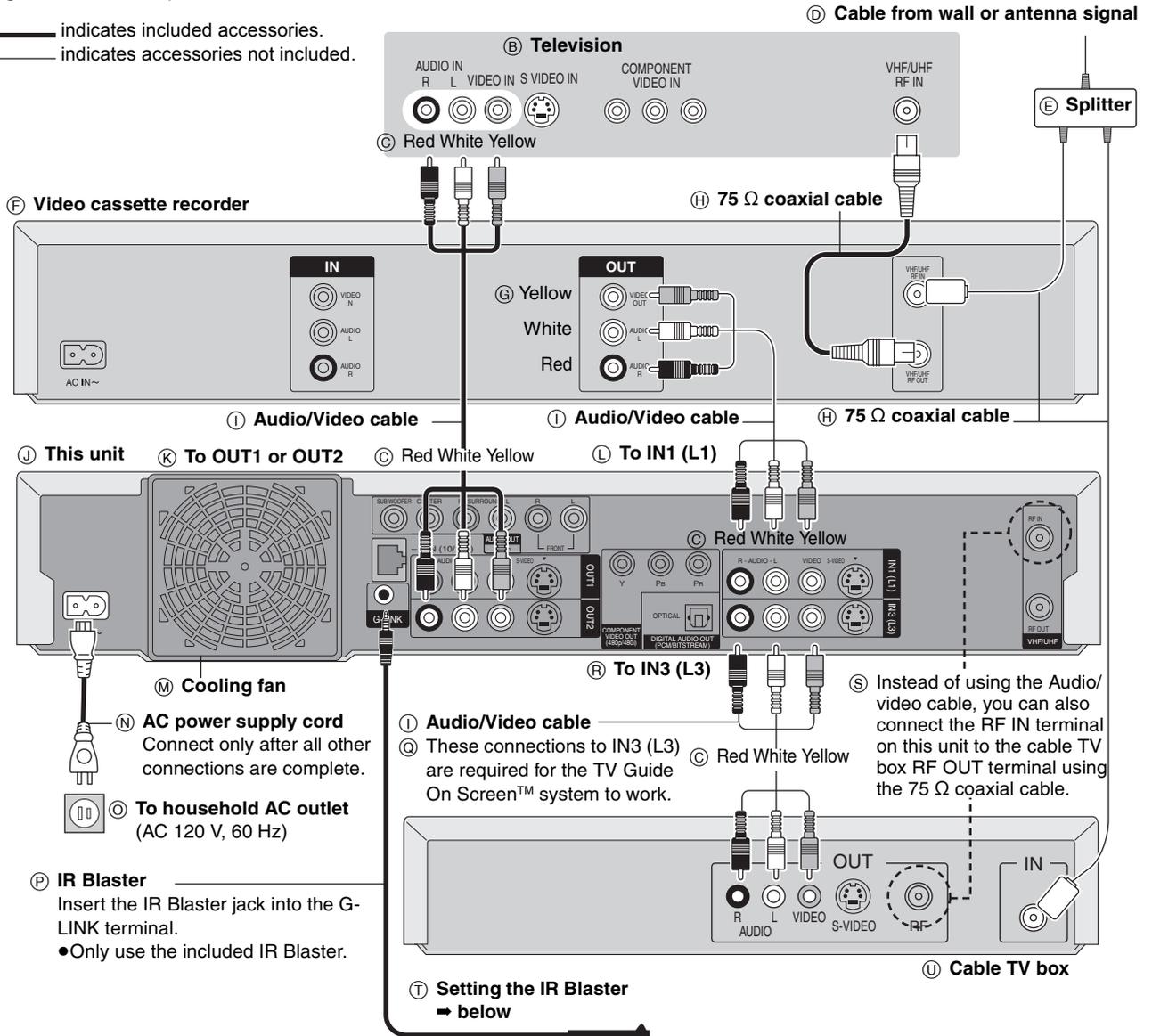
Connection with a cable TV box and video cassette recorder

- You need to subscribe to a cable TV service to enjoy viewing their programming.
- Consult your service provider regarding appropriate cable TV box.
- **If you receive your programming solely from a satellite service, the program guide in this unit will not receive program listings or channel information. Without this information, program-based recordings cannot be made. However, recordings can still be set manually.**

The connection will allow the video cassette recorder to be used for playback when this unit is turned off. For optimum operation, it is recommended that this unit be connected as shown below.

(A) to (Y) are indexes for Spanish Quick Reference.

- (A) — indicates included accessories.
 — indicates accessories not included.



■ Should I use the AUDIO/VIDEO OUT terminal or the RF OUT terminal?

If your cable TV box has both AUDIO/VIDEO OUT terminals and RF OUT terminals, we recommend connecting the AUDIO/VIDEO OUT terminal with the unit's IN3 (L3) terminal. Using this connection provides better picture quality.

- The S-VIDEO terminal achieves a more vivid picture than the VIDEO terminal.

■ Why should I connect the IR Blaster?

The IR Blaster is a device that allows this unit to communicate with the cable TV box. It acts like a remote control for the cable TV box. If you connect a cable TV box to this unit, you also need to attach the IR Blaster so this unit can control the channels on the cable TV box.

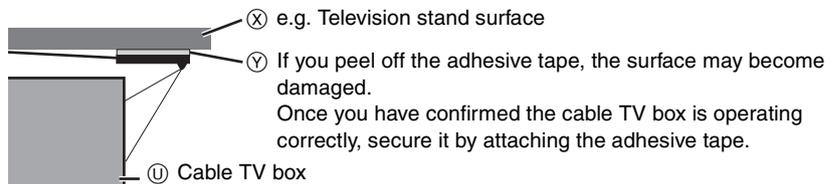
Setting the IR Blaster

Place the IR Blaster in front of the signal sensor of the cable TV box.

- (V) Read the cable TV box operating instructions regarding positioning of the signal sensor.



- (W) If necessary, use the double sided adhesive tape (included) to secure the IR Blaster to a flat surface.



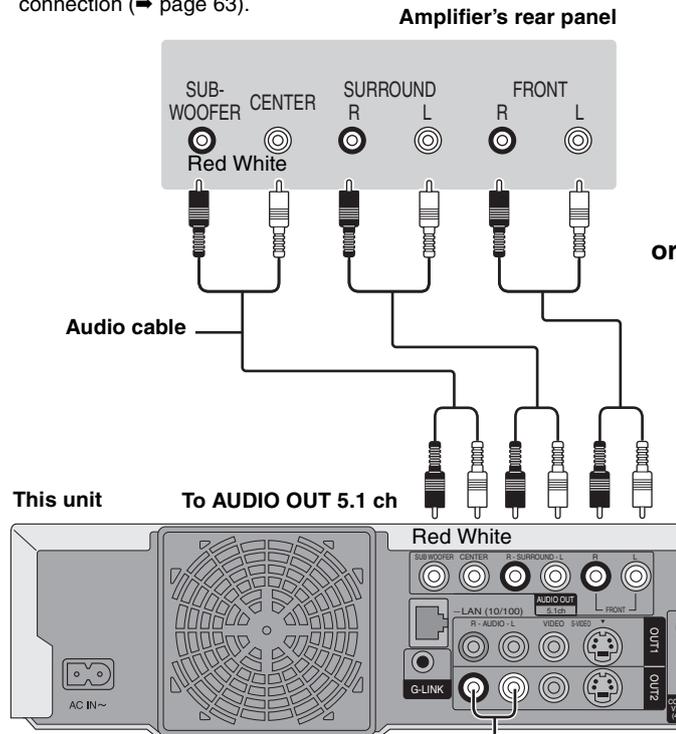
Connecting an amplifier or system component

Enjoy multi-channel surround sound on DVD by connecting an amplifier and speakers. There are two types of connection, digital and analog.

Analog connection

To enjoy multi-channel surround sound on DVD-Video and DVD-Audio connect an amplifier using the AUDIO OUT 5.1 ch terminals and go to the settings on page 15.

- Switch the attenuator on if sound is distorted with this connection (→ page 63).



Connect with AUDIO OUT1 or 2 terminals to enjoy stereo (2 channel) sound.

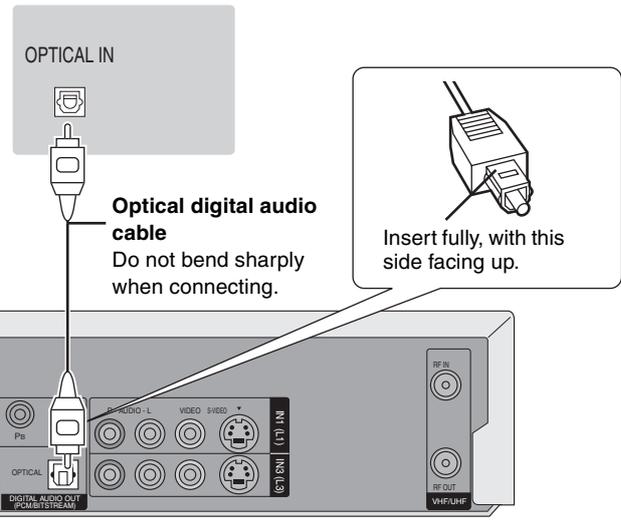
Digital connection

To enjoy multi-channel surround sound on DVD-Video connect an amplifier with a built-in decoder displaying these logo marks. Use an optical digital audio cable and change the settings in "Digital Audio Output" (→ page 63).



- You cannot use DTS Digital Surround decoders not suited to DVD.
- Even if using this connection, output will only be from 2 channels when playing DVD-Audio.

Amplifier's rear panel



Optical digital audio cable
Do not bend sharply when connecting.

Insert fully, with this side facing up.

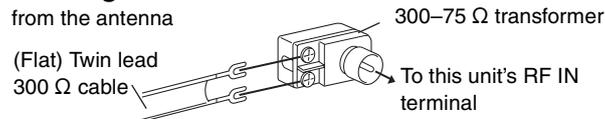
If the antenna connector doesn't match

Other antenna connections to the unit

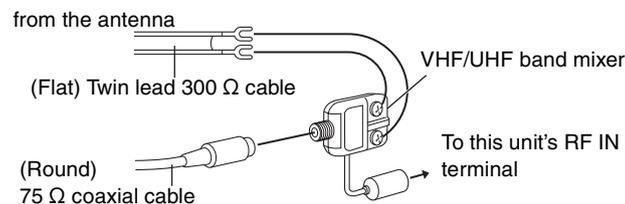
Use one of the following connections to suit the antenna lead.

- If your television has both lead and coaxial VHF terminals, use the lead connection to minimize signal loss.

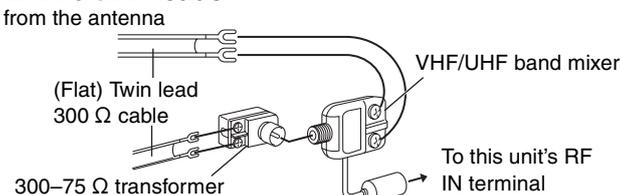
A single twin lead



A twin lead and a coaxial cable



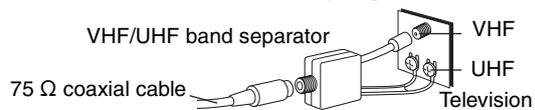
Two twin leads



Other antenna connections from the unit to the television

Use one of the following connections to suit the antenna terminals on your television. Refer to the television's operating instructions.

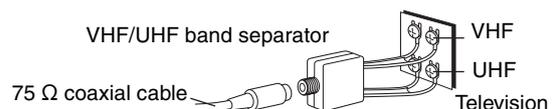
A twin lead and coaxial plug terminal



A twin lead terminal

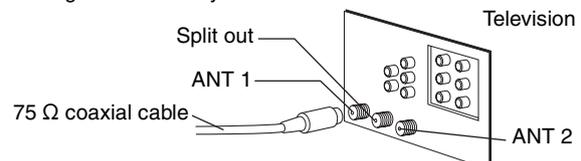


Two twin lead terminals



Multiple antenna terminals

- Connect to one of the ANT terminals, then change the television's settings as necessary.



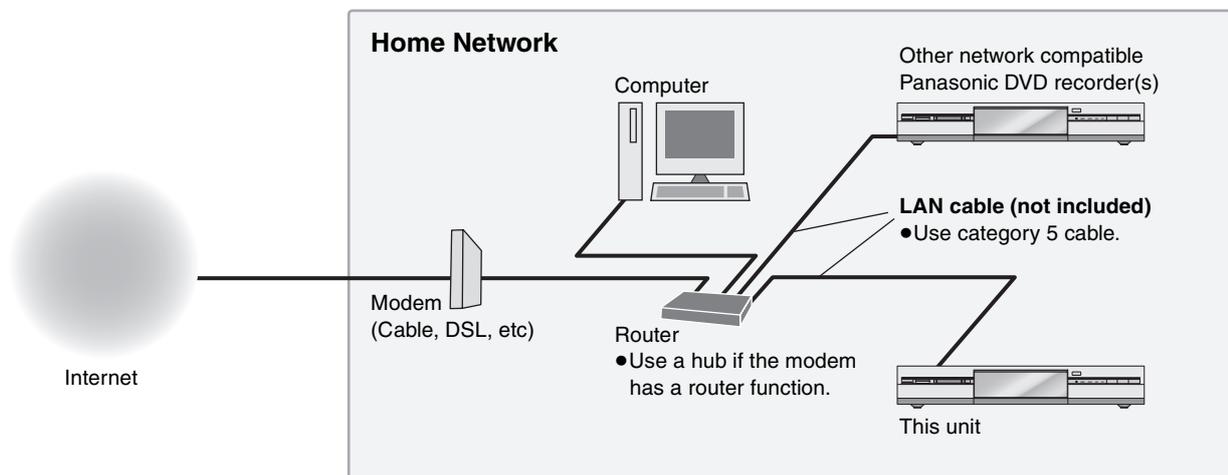
STEP 1 Connection**Connections for the Network function**

- **Setting up the Network** (⇒ page 16–19)
- **Operations with the Network function** (⇒ page 56–57)

■ Connecting to the Home Network

Connect this unit to a router on the Home Network. This will allow you to do the following:

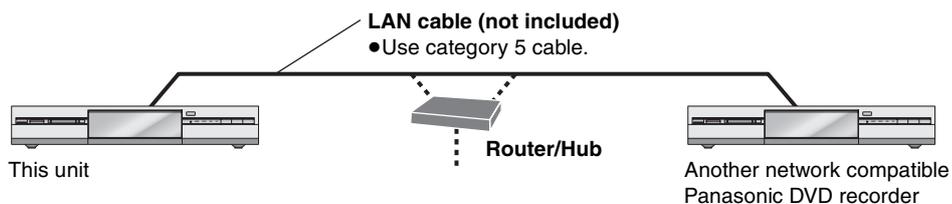
- Operate this unit from a computer, i.e. give names to video titles, playback MPEG4 titles, and view JPEG.
- Playback video stored on other network compatible Panasonic DVD recorders from this unit.



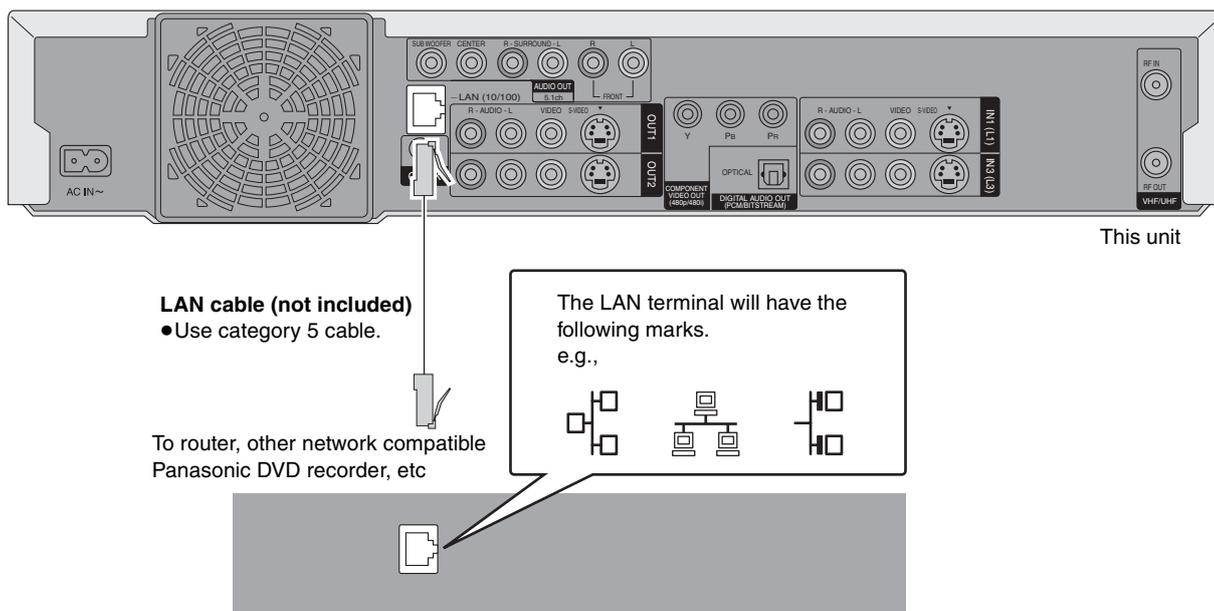
- You can also connect to the network with a wireless router.
- Set the router's DHCP (Dynamic Host Configuration Protocol) to enable it to automatically assign IP addresses. The default configuration of the router is normally sufficient.
- Use a router that supports 100BASE-TX.
- It may not be possible to connect this unit to the Internet depending upon router security settings. Visit Panasonic's homepage for more information about the Network function of the DVD recorder.
<http://panasonic.co.jp/pavc/global/cs/dvd/index.html>
- Refer to the router's operating instructions or contact your Internet service provider for information about router connections and settings.

■ Connecting directly to another network compatible Panasonic DVD recorder

Connect this unit directly to another network compatible Panasonic DVD recorder. This will allow you to playback video stored on the other network compatible Panasonic DVD recorder from this unit.



Connecting a LAN cable to this unit



LAN cable (not included)

- Use category 5 cable.

To router, other network compatible
Panasonic DVD recorder, etc

■ To prevent improper use

- The unit's network password:
 - Please do not reveal your password to anyone or let it be seen by anyone.
 - Should a third party have carried out the installation and setting-up of this unit please change the password.
 - Please initialize the password before requesting any repairs (➔ page 78).
 - If transferring this unit to a third party, or throwing it away, please initialize it.
- We are unable to provide any technological information related to network security.

■ Service support

It is the customer's responsibility to bear all essential connection costs for this unit. These include equipment for Internet communications (modem, router, hub etc.) and contract, installation, set-up, connection and telecommunication fees from the telecommunications carrier and Internet provider.

■ Connecting to the Internet

The Internet connection may not work if not used for years. Please consult your dealer.

■ Indemnity clause

- Disclosure of the unit's network password to a third party can result in the improper use of this unit. The password is your responsibility so please look after it. We accept no responsibility for improper use of this unit due to disclosing the password to a third party.
- We accept no responsibility for any loss from a connection failure or a malfunction caused by using equipment for Internet connections not specified by us, or using more than one piece of software in a combination not intended.
- Advanced knowledge about networks is essential for changing router security settings. Please use your judgement before proceeding with any such changes. We accept no responsibility for any problems incurred as a result of changing router security settings. We are also unable to respond to any inquiries about router usage.

Computer system requirements

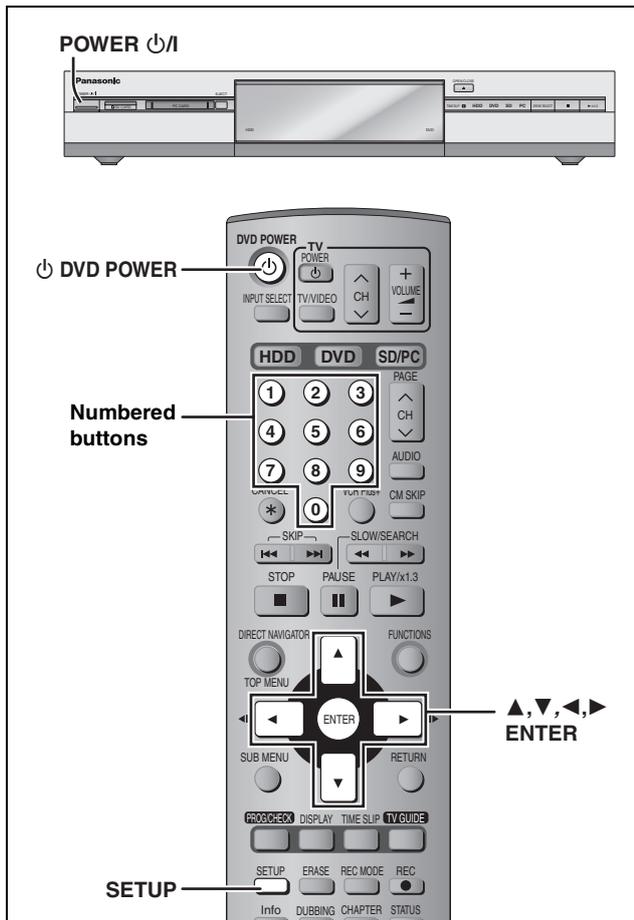
OS: Microsoft® Windows® XP Home Edition/Professional pre-installed
WWW browser: Internet Explorer 6.0 or later
Windows Media Player: Ver 8.0 or later (Ver 9.0 recommended)
Display: 1024×768 pixels or more, High Color (16 bit) or more
Interface: LAN port (100BASE-TX recommended)

Note

- Even if the system requirements mentioned in these operating instructions are fulfilled, some personal computers cannot be used.
- The Network function cannot be used with Macintosh computers.
- You will need to download an audio decoder etc. for MPEG4 playback (➔ page 56, When you playback MPEG4 titles).

Microsoft, Windows and Windows Media are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

STEP 2 Setting up the TV Guide On Screen™ system



After plugging the unit into your household AC outlet and pressing [DVD POWER] to turn the unit on for the first time, the unit starts TV Guide On Screen™ system setup.

IMPORTANT: The TV Guide On Screen™ system must be setup whether it is then used or not. You cannot use the timer recording feature unless this setup is completed.

Only English is displayed in the TV Guide On Screen™ system. Other languages cannot be displayed.

TV Guide On Screen™ system

This unit features the TV Guide On Screen™ system that provides an 8-day rolling list of TV programs available in your area. Use the TV Guide On Screen™ system to choose TV programs and simplify the recording of your favorite TV shows (➔ page 25–29). Best of all this service is free!

- If you receive your programming solely from a satellite service, the program guide in this unit will not receive program listings or channel information. Without this information, program-based recordings cannot be made. However, recordings can still be set manually.
- In order to cool the circuits used when downloading the television program list, the cooling fan may sometimes operate when the unit is turned off. This is not a malfunction.

Preparation

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- When using the cable TV box, check the following.
 - Make sure the IR Blaster is connected and positioned properly (➔ page 8).
 - Make sure the cable TV box is turned on.

If further assistance is needed,

In the U.S.A.: Contact Panasonic's Customer Call Center at **1-800-211-PANA (7262).**

In Canada: Call **1-800-561-5505.**

1 Press [DVD POWER].



2 Following the on-screen messages, input the operating environment for your television.

- Move the cursor using [▲, ▼, ◀, ▶] and press [ENTER] to confirm.
- Press the numbered buttons to enter numbers.
- Press [ENTER] to advance to the next screen.
- Refer to the guidance on the bottom of the screen.

Set the following;

- Country (USA/Canada)

Which country is your DVD Recorder located in?

USA

Canada

- ZIP (Postal) code

Please enter the 5-digit ZIP code where your DVD Recorder is located:

== == == == ==

- Cable service connected to this unit (Yes/No)

Do you have cable service connected to this DVD Recorder?

Yes

No

When "No" is selected ➔ right, "The set contents are displayed together"

- Cable TV box connected to this unit (Yes/No)

Is a cable box connected to this DVD Recorder?

Yes

No

When "No" is selected ➔ right, "The set contents are displayed together"

If you do not want to use the TV Guide On Screen™ system Select "No" at this point even if a cable TV box is connected.

If you are using a cable TV box, set the following:

- Cable TV box connection channel (Ch2/Ch3/Ch4/L3)
 - If you are connecting the cable TV box to this unit's IN3 (L3) terminal, select "L3".
 - If you are connecting the cable TV box to this unit's RF terminal, select "Ch2", "Ch3" or "Ch4", according to the cable TV box setting.
- Cable TV box brand
 - (Move down with [▼] for more brands. Select "Not Listed" if you cannot find your cable TV box on the list.)
- IR signal code
 - Make sure your cable TV box is set to the channel that appears on screen and press [ENTER].

Follow steps A and B below:

- Please tune your cable box **channel 02**
- Make sure to leave your cable box turned ON

The unit begins trying various IR codes to see which one communicates properly with your cable TV box. It's quite common for this phase of the setup to be repeated numerous times.

Is your cable box now tuned to channel 09?

Yes

No

–If the cable TV box has changed to channel 09, select “Yes” and press [ENTER].

–If the cable TV box is still set to the same channel, select “No” and press [ENTER]. Repeat this step until the cable TV box changes to channel 09.

■ The set contents are displayed together

Zip code - 11111 (USA)
Cable - Yes
Cable box - No

–If the information is correct, select “Yes, end setup” and press [ENTER].

–If the information is not correct, select “No, repeat setup process” and press [ENTER] to start the setting again.

Once you confirm the input content, the following screen appears.

What would you like to do now?

Watch TV

3 Press [ENTER].

A television reception screen or a blue background screen is displayed.

If you do not want to use TV Guide On Screen™ system
→ page 65, Auto channel/clock settings

4 Press [DVD POWER].

“BYE” appears briefly and then “12:00A” flashes on the unit's display. The unit is now in standby mode and ready to download the channel line-up and the program listings.

Check the following again, so the downloading will not fail.

If you connect a cable TV box

- the output terminal of the cable TV box is connected to this unit's RF IN or IN3 (L3) terminal (→ page 8)
- the IR Blaster is correctly connected and installed (→ page 8)
- the cable TV box is turned on

If you do not connect a cable TV box

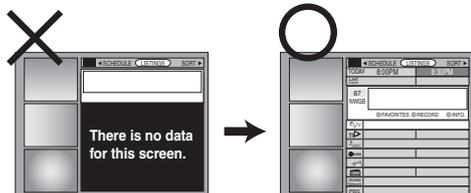
- the antenna cable is connected to this unit's RF IN terminal

5 Leave this unit in the standby mode.

It is strongly recommended that you wait at least 24 hours before using the unit. No damage will occur if the unit is used sooner, but the channel line-up and program listings may not have been fully downloaded.

- If you connect a cable TV box, leave it switched on without using it.
- With some cable TV boxes, the cable TV box remote control can turn on and off both the cable TV box and the television. Utilizing this feature (turning the cable TV box off) will prevent the channel line-up from being downloaded.

If you find “There is no data for this screen” displayed on the television when you turn the unit on, the unit has not yet downloaded the channel line-up.



This unit may download more than one channel line-up. Follow the on-screen guidance and select one of these.

To use immediately (Manual Clock Setting)

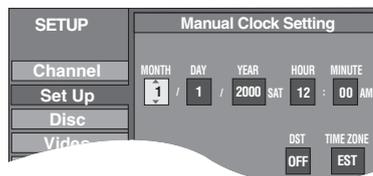
Set the clock manually.

Please note that the program list is not displayed until the unit downloads it. Timer program recording is only possible manually.

1 Press [SETUP].

2 Press [▲, ▼] to select “Set Up” and press [▶].

3 Press [▲, ▼] to select “Manual Clock Setting” and press [ENTER].



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

5 Press [ENTER].

The clock starts.

6 Press [SETUP].

- 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 meantime (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

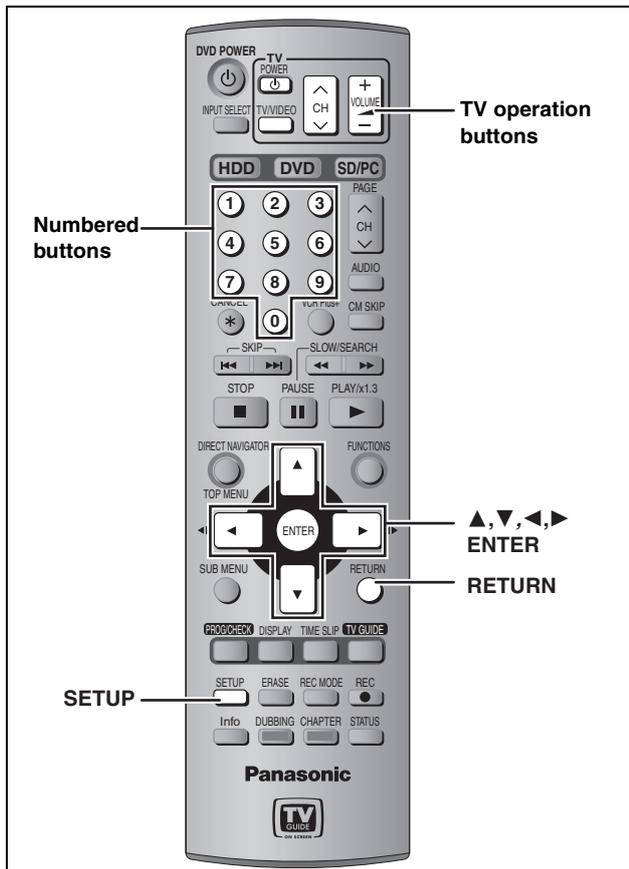
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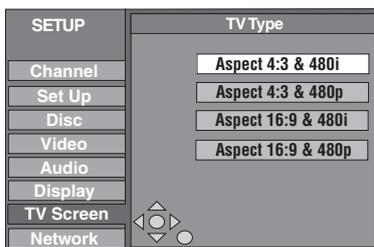
STEP 3 Set up to match your television and remote control



Selecting television type

You do not have to change the setting when connected to a 4:3 standard aspect television that is not compatible with progressive output (→ page 69).

- 1 Press [SETUP].
- 2 Press [▲, ▼] to select “TV Screen” and press [▶].
- 3 Press [▲, ▼] to select “TV Type” and press [ENTER].



- Aspect 4:3/Aspect 16:9:



4:3 standard aspect television 16:9 widescreen television

- 480p/480i:
Select “480p” if the television is compatible with progressive output.

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

Television operation

You can configure the remote control TV operation buttons to turn the television on/off, change the television input mode, select the television channel and change the television volume.

Point the remote control at the television

While pressing [⏻ POWER TV], enter the code with the numbered buttons.

e.g., 01: [0] → [1]

Manufacturer and Code No.

Panasonic		PHILIPS (RC-5)	03
National	01, 02	RCA	05
QUASAR		SAMSUNG	14, 18, 19
FISHER	10	SANYO	10
GE	05	SHARP	06, 07
GOLDSTAR	15, 16, 17	SONY	08
HITACHI	12	SYLVANIA	03
JVC	11	THOMSON	05
LG	15, 16, 17	TOSHIBA	09
MAGNAVOX	03	ZENITH	04
mitsubishi	13		

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.

- 1 Press [SETUP].
- 2 Press [▲, ▼] to select “Set Up” 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].



- 5 To change the code on the remote control
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



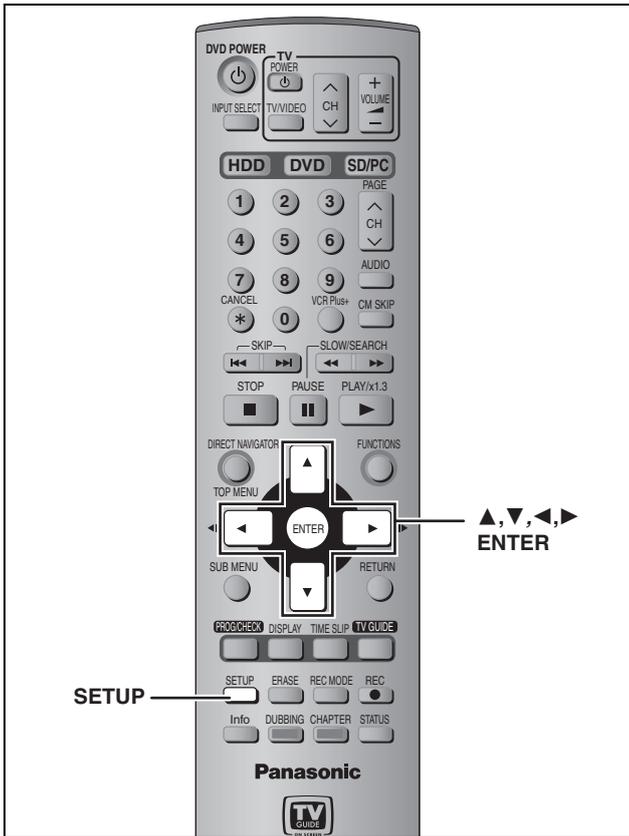
The unit's remote control code

Change the code on the remote control to match the main unit's (→ step 5).

To exit the screen
Press [SETUP].

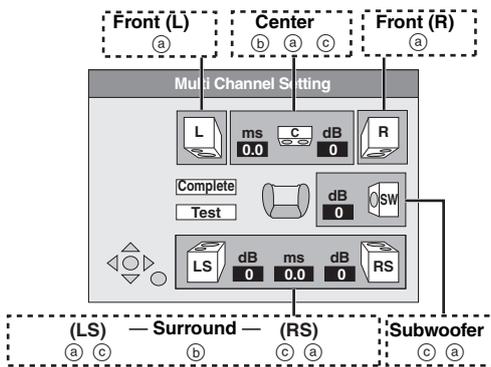
To return to the previous screen
Press [RETURN].

STEP 4 Multi-channel speaker setting



Set as follows when connecting with AUDIO OUT 5.1 ch terminals (→ page 9).

- 1 Press [SETUP].
- 2 Press [▲, ▼] to select “Audio” and press [▶].
- 3 Press [▲, ▼] to select “Speaker” and press [ENTER].
- 4 Press [▲, ▼] to select “Multi Channel” and press [ENTER].



Settings ①, ②, and ③ can be changed as necessary.

To set the speaker presence and size (①)

- 5 Press [▲, ▼, ◀, ▶] to select the speaker icon and press [ENTER].
- 6 Press [▲, ▼] to select the setting and press [ENTER].

To finish the speaker setting

Press [▲, ▼, ◀, ▶] to select “Complete” and press [ENTER].

Icon examples: Surround speaker (LS)



Select when the speaker supports low-frequency (under 100 Hz) reproduction.



Select when the speaker does not support low-frequency reproduction.



No sound is output from the speaker.

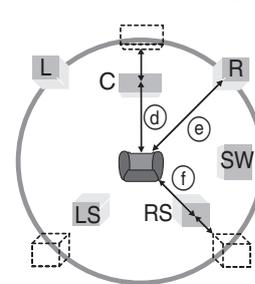
If the subwoofer is set so that no sound is output, the front speakers will automatically be set to support low-frequency reproduction. Connect front speakers that can reproduce the bass range below 100 Hz if you do not connect a subwoofer.

To set the delay time (②) (only when the speakers are not placed equidistant from the seating position)

(Effective only when playing multi-channel discs)

For optimum listening with 5.1-channel sound, all the speakers, except for the subwoofer, should be the same distance from the seating position. If you have to place the center or surround speakers closer to the seating position, adjust the delay time to make up for the difference.

If distances ④ (from the center speaker) and ⑥ (from the surround speakers) are the same as or greater than ⑤ (from the front speakers), leave the delay time as “0”, the factory preset. If either distance ④ or ⑥ is less than ⑤, find the difference in the relevant table and change to the recommended setting.



④ Center speaker

Difference	Setting
Approx. 30 cm (1 feet)	1.0 ms
Approx. 60 cm (2 feet)	2.0 ms
Approx. 90 cm (3 feet)	3.0 ms
Approx. 120 cm (4 feet)	4.0 ms
Approx. 150 cm (5 feet)	5.0 ms

⑥ Surround speakers

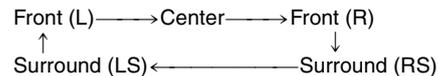
Difference	Setting
Approx. 150 cm (5 feet)	5.0 ms
Approx. 300 cm (10 feet)	10.0 ms
Approx. 450 cm (15 feet)	15.0 ms

- 7 Press [▲, ▼, ◀, ▶] to select “ms” and press [ENTER].
- 8 Press [▲, ▼] to adjust the delay time and press [ENTER].

To adjust the speaker volume level (③)

- 9 Press [▲, ▼, ◀, ▶] to select “Test” and press [ENTER].

A test signal is output from one speaker at a time, starting with the front left speaker and proceeding clockwise.



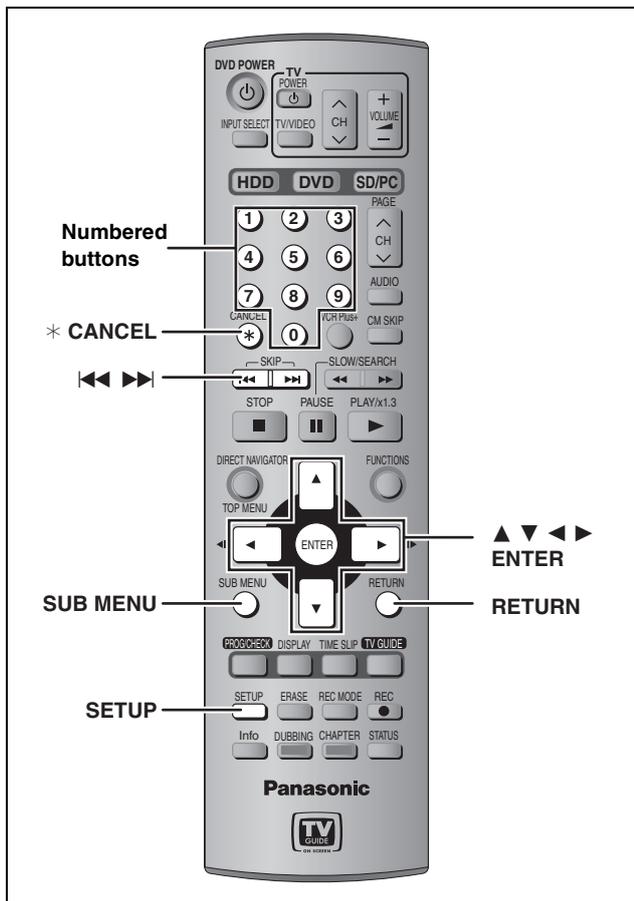
- 10 While listening to the test signal Press [▲, ▼] to adjust the volume of the center and surround speakers.

- Adjust the volume of the center and surround speakers so that they sound the same as the front speaker. (The front speakers cannot be adjusted here.)
- No signal is output for the subwoofer. To adjust its volume, play something, then return to this screen and adjust as desired.

- 11 Press [ENTER].

The test signal stops.

STEP 5 Setting up the Network

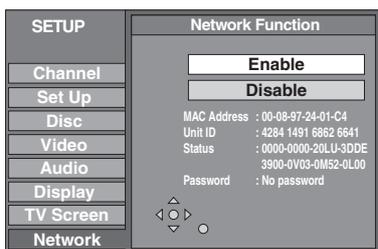


This unit's network setting

Preparation

- Connect this unit to the Home Network. This can be directly to another network compatible Panasonic DVD recorder (⇒ page 10).
- Check the computer's IP address setting (⇒ page 18), if connecting this unit and a computer when the DHCP on the router is disabled.

- 1 Press [SETUP].
- 2 Press [▲, ▼] to select "Network" and press [▶].
- 3 Press [▲, ▼] to select "Network Function" and press [ENTER].
- 4 Press [▲, ▼] to select "Enable" and press [ENTER].

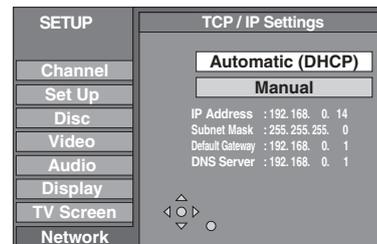


- 5 Press [▲, ▼] to select "TCP/IP Settings" and press [ENTER].

- 6 Press [▲, ▼] to select "Automatic (DHCP)" and press [ENTER].

When connecting a computer via a router with its DHCP disabled

Press [▲, ▼] to select "Manual" and press [ENTER] (⇒ page 19, To manually enter the DVD recorder's IP Address).



- IP Address : Make a note of this IP address. You will need it when operating this unit from the computer.

- 7 Confirm that a connection has been established.



Wait until the display changes (this may take a few minutes).

- "Now connected to the network." is displayed if the connection has been correctly established.
- "Cannot connect to the network." is displayed if the connection has failed. Check the LAN cable connection.

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

Note

While "Now updating the settings. Please wait for a while." is displayed, no operations will be accepted by this unit. Wait about 5 seconds until the highlights appear again.

■ To change unit names

When more than one network compatible Panasonic DVD recorder is connected on the Home Network, you need to give each a unique unit name so that they can be distinguished. (Factory preset: "DVD Recorder")

After step 2 (⇒ left)

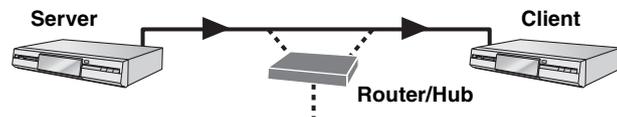
- 1 Press [▲, ▼] to select "Unit Name Setting" and press [ENTER].
- 2 Enter the name (⇒ page 46).

When more than one network compatible Panasonic DVD recorder is on the Home Network

You can playback video titles on other network compatible Panasonic DVD recorders on the Home Network.

When more than one network compatible Panasonic DVD recorder is on the Home Network, the terms "server" and "client" are used. The "client" is the DVD recorder that you will actually operate to receive video titles.

The "server" is the DVD recorder that delivers video titles to your "client".



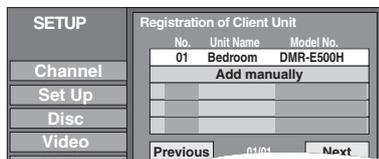
Make the following settings so this unit can recognize which DVD recorder will receive the data. This unit will later function as the server.

Preparation

- Connect to the Home Network or another network compatible Panasonic DVD recorder.
- Confirm "TCP/IP Settings" is set to "Automatic (DHCP)" (⇒ page 16, step 6).
- Give all the DVD recorders on the Home Network a unique unit name. (⇒ page 16, To change unit names)

On the unit you want to use as the server

- 1 Press [SETUP].
- 2 Press [▲, ▼] to select "Network" and press [▶].
- 3 Press [▲, ▼] to select "Registration of Client Unit" and press [ENTER].

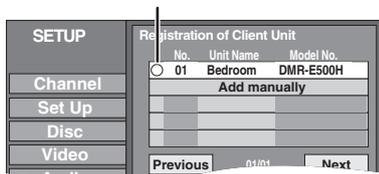


The unit names of the DVD recorders on the Home Network will be displayed after a few seconds (up to 15 units).

- When not displayed (⇒ right, "When connected DVD recorders are not displayed-Renew")

- 4 Press [▲, ▼] to select the DVD recorder you want to register as a client and press [ENTER].

"○" indicates the registered client unit.



- Press [ENTER] again to cancel.
- Repeat this step to register other units as clients.
- You can have up to 4 client units.

To show other pages

Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].

- You can also press [◀◀, ▶▶] to show other pages.

When connected DVD recorders are not displayed-Renew

In step 3 (⇒ left)

- 1 Press [SUB MENU].
- 2 Press [▲, ▼] to select "Renew" and press [ENTER].



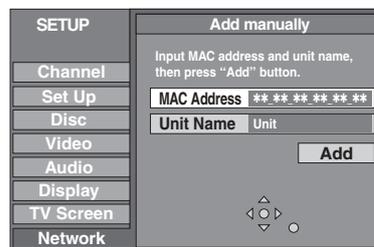
The list will be updated within 15 seconds.

If any DVD recorders are not displayed despite selecting "Renew", add them manually (⇒ below, Manually adding DVD recorders).

Manually adding DVD recorders

In step 3 (⇒ left)

- 1 Press [▲, ▼] to select "Add manually" and press [ENTER].



"Add manually" screen

- 2 Press [▲, ▼] to select "MAC Address" and press [ENTER].
- 3 Press [▲, ▼, ◀, ▶] to enter the MAC Address of the unit you want to use as the client and press [ENTER].
 - To check the MAC Address (⇒ page 16, step 4).
- 4 Press [▲, ▼] to select "Unit Name" and press [ENTER].
- 5 Enter the name (⇒ page 46).
- 6 Press [▲, ▼] to select "Add" and press [ENTER].
 - You can manually add up to 4 units.
 - "Model" is displayed in the "Model No." column.
 - You cannot check the properties of manually added DVD recorders.

To check the properties of the DVD recorders on the list

(You cannot do this with manually added DVD recorders.)

In step 3 (⇒ left)

- 1 Press [▲, ▼] to select the DVD recorder and press [SUB MENU].



- 2 Press [▲, ▼] to select "Properties" and press [ENTER].

The model name, manufacturer and MAC address of the DVD recorder will be displayed.

To delete DVD recorders from the list

In step 3 (⇒ left)

- 1 Press [▲, ▼] to select the DVD recorder and press [SUB MENU].
- 2 Press [▲, ▼] to select "Delete" and press [ENTER].
- 3 Press [◀, ▶] to select "Delete" and press [ENTER].

To correct the setting of manually added DVD recorders

In step 3 (⇒ left)

- 1 Press [▲, ▼] to select the manually added DVD recorder and press [SUB MENU].
- 2 Press [▲, ▼] to select "Edit" and press [ENTER].
- 3 Press [▲, ▼] to select the item and make the correction.
- 4 Press [▲, ▼] to select "Set" and press [ENTER].

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

STEP 5 Setting up the Network

Refer to the control reference on page 16.

To be able to operate this unit from a computer on the Home Network

When connecting a computer via a router with its DHCP enabled

Confirm "TCP/IP Settings" is set to "Automatic (DHCP)" (⇒ page 16, step 6).

The settings on page 18–19 are not required.

When connecting a computer via a router with its DHCP disabled

Please confirm the following were carried out correctly.

- 1 Check the computer's IP address (⇒ right, step 4).
- 2 Enter the DVD recorder's IP address manually (⇒ page 19).

To check the computer's IP address

On the computer

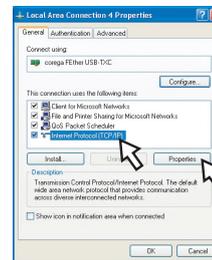
- 1 Click [start] ⇒ [Control Panel].
Double-click [Network Connections].

- 2 Right-click the [Local Area Connection]** icon and click [Properties].

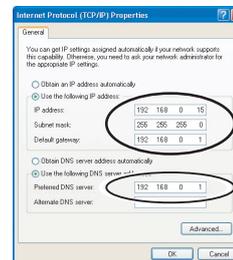


**A message may appear below the icon such as [Bridge Connections] or [Network Bridge].

- 3 Select [Internet Protocol (TCP/IP)] and click [Properties].



- 4 Check the IP address setting.



Please make a note of the "IP address", "Subnet mask", "Default gateway" and "Preferred DNS server" settings (These will be needed during DVD recorder setting).

- 5 Click [Cancel].

You will exit the "Internet Protocol (TCP/IP) Properties" window.

- 6 Click [Cancel].

You will exit the "Local Area Connection Properties" window.

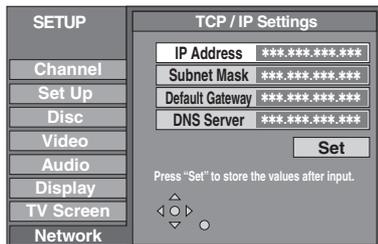
•Screen shots reprinted by permission from Microsoft Corporation.

To manually enter the DVD recorder's IP Address

On the DVD recorder

After step 5 (⇒ page 16)

1 Press [▲, ▼] to select “Manual” and press [ENTER].



2 Press [▲, ▼] to select “IP Address” and press [ENTER].

3 Press the numbered buttons to enter the number and press [ENTER].

- Press [◀, ▶] to move the cursor.
- Press [* CANCEL] to clear the numbers.

Repeat step 2 and 3 to enter “Subnet Mask”, “Default Gateway” and “DNS Server” numbers.

IP Address

If the computer's IP address is 192.168.0.15, enter 192.168.0. and then enter an arbitrary number, except 15, between 2 and 254 (⇒ page 18, step 4).

Subnet Mask

Enter the same set of digits as the computer's Subnet mask (⇒ page 18, step 4).

Default Gateway

Enter the same set of digits as the computer's Default gateway (⇒ page 18, step 4).

DNS Server

Enter the same set of digits as the computer's Preferred DNS server (⇒ page 18, step 4).

Example:

IP Address* : 192.168.0.14
Subnet Mask : 255.255.255.0
Default Gateway : 192.168.0.1
DNS Server : 192.168.0.1

*Make a note of this IP address. You will need it when operating this unit from the computer (⇒ page 56).

4 Press [▲, ▼] to select “Set” and press [ENTER].

- Once the connection has been correctly established “Now connected to the Local Area Network” will be displayed.

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

HDD and discs you can use for recording and play

Type	Logo	Data that can be recorded and played	Instructions
Hard disk drive (HDD) ● 400 GB Indicated in these instructions with HDD	—	Video* Still pictures MPEG4	Temporary storage <ul style="list-style-type: none"> You can record up to 709 hours [in EP (8H) mode] (⇒ page 23, Recording modes and approximate recording times). You can view the title being recorded from the beginning (Chasing playback, Time Slip) (⇒ page 24). You can record digital broadcasts that allow "One time only recording". You can transfer (dub) a recorded title to a CPRM compatible DVD-RAM; however, the title is erased from the HDD (⇒ page 68). You can play and transfer (dub) still pictures taken on a digital camera etc. (⇒ page 34, 52). You can play and transfer (dub) MPEG4 motion pictures taken on a SD Video Camera etc. (⇒ page 36, 54) You can record MPEG4 data at the same time as recording a TV program. (⇒ page 22)
DVD-RAM ● 4.7 GB/9.4 GB, 12 cm (5") ● 2.8 GB, 8 cm (3") RAM		Video* Still pictures MPEG4	Re-writable discs for backup use <ul style="list-style-type: none"> You can record approximately up to 8 hours on a single-sided disc and 16 hours on a double-sided disc (⇒ page 23, Recording modes and approximate recording times). You can view the title being recorded from the beginning (Chasing playback, Time Slip) (⇒ page 24). Scratch and dust resistant cartridge discs and large capacity double sided discs (9.4GB) are commercially available. You can record digital broadcasts that allow "One time only recording" when using CPRM (Content Protection for Recordable Media) compatible discs (⇒ page 68). You cannot transfer (dub) a recorded title. This unit is compatible with 1×–5× recording speed discs. You can transfer (dub) up to 40× recording speed by using a high speed recording compatible disc (⇒ page 47). You can play and transfer (dub) still pictures taken on a digital camera etc. (⇒ page 34, 52) You can play and transfer (dub) MPEG4 motion pictures taken on a SD Video Camera etc. (⇒ page 36, 54)
DVD-R ● 4.7 GB, 12 cm (5") ● 1.4 GB, 8 cm (3") DVD-R		Video*	One time recording discs for backup use (recordable until the disc is full) <ul style="list-style-type: none"> You can record up to 8 hours [in EP (8H) mode] (⇒ page 23, Recording modes and approximate recording times). By finalizing the disc, you can play it in a DVD player as DVD-Video (Play only) (⇒ page 60, 68). You cannot record digital broadcasts that allow "One time only recording". This unit is compatible with 1×–8× recording speed discs. You can transfer (dub) up to 64× recording speed by using a high speed recording compatible disc (⇒ page 47).

*conventionally recorded programs

● We recommend using Panasonic discs and cards. DVD-R from other manufacturers may not be recorded or played due to the condition of the recording.

■ Which should I use, DVD-RAM or DVD-R?

The following chart indicates the differences. Select based upon what you require.

(○:Possible, X:Impossible)	DVD-RAM	DVD-R
Re-writable	○	×
Edit	○	※1
Play on other players	○※2	○※3
Recording both Main and SAP of MTS broadcast	○	×※4
Recording broadcasts that allow one copy	○※5	×
Recording 16:9 aspect picture	○	※6

- ※1 You can erase, enter name and change thumbnail. Available space does not increase after erasing.
- ※2 Only on DVD-RAM compatible players.
- ※3 After finalizing the disc (⇒ page 60, 68).
- ※4 Only one is recorded (⇒ page 63, Select MTS).
- ※5 CPRM (⇒ page 68) compatible discs only.
- ※6 The picture is recorded in 4:3 aspect.

Note

When "DVD-R High-Speed Recording" is set to "On" the restrictions on secondary audio recording, etc. are also applied to DVD-RAM. Turn this setting "Off" if high speed transfer (dubbing) to DVD-R is not necessary when recording a program (⇒ page 62).

Play-only discs [12 cm (5")/8 cm (3")]

Disc type	Logo	Instructions
DVD-Audio DVD-A		High fidelity music discs
DVD-Video DVD-V		High quality movie and music discs
Video CD VCD		Recorded music and video (including CD-R/RW)
Audio CD CD		Recorded audio and music (including CD-R/RW)
	—	CD-R and CD-RW with music recorded in MP3 (⇒ page 33)

- This unit plays CD-R/CD-RW discs (audio recording discs) which have been recorded under one of the following standards: CD-DA, MP3 and Video CD. Close the session or finalize the disc after recording. Play may be impossible on some CD-R or CD-RW discs due to the condition of the recording.
- 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.

Regarding DVD-Audio

Some multi-channel DVD-Audio will prevent down-mixing (⇒ page 68) of all or part of their contents if this is the manufacturer's intention. When playing such discs, or such parts of the disc, unless the number of connected speakers is the same as the disc's channel specification, audio will not be output properly (e.g. part of the audio is missing, multi-channel audio cannot be selected and audio is played in two channels). Refer to the disc's jacket for more information.

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
- Unfinalized DVD-R recorded on other equipment (⇒ page 68, Finalize)
- PAL discs (you can still play the audio on DVD-Audio)
- DVD-Video with a region number other than "1" or "ALL"
- DVD-ROM, DVD-RW, +R, +RW, CD-ROM, CDV, CD-G, Photo CD, CVD, SVCD, SACD, MV-Disc, PD, Divx Video Disc, etc.

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.

Cards useable on this unit

Type	Data that can be recorded and played	Instructions
SD Memory Card^{※1} MultiMediaCard	You can insert directly into the SD card slot. SD	<ul style="list-style-type: none"> ● You can play and transfer (dub) still pictures taken on a digital camera etc. (⇒ page 34, 52). ● You can set the DPOF (Digital Print Order Format) for automatic printing on your home printer or at a photo developing store (⇒ page 44, 68).
SD Memory Card MultiMediaCard CompactFlash SmartMedia MEMORYSTICK xD-Picture Card Microdrive	You can insert into the PC card slot using an adaptor (TYPE II PC card adaptor). PC	<p>With SD Memory Card, MultiMediaCard, Mobile hard disk</p> <ul style="list-style-type: none"> ● You can play and transfer (dub) MPEG4 motion pictures taken on a SD Video Camera etc. (⇒ page 36, 54) ● You can transfer (dub) MPEG2 motion pictures taken on a SD Video Camera etc. to the HDD or DVD-RAM. (These will be treated as video titles in the HDD or DVD-RAM.) (⇒ page 54) <p>With SD Memory Card and MultiMediaCard</p> <ul style="list-style-type: none"> ● You can transfer (dub) at high speed MPEG4 titles being simultaneously recorded to the HDD (⇒ page 54). ● You can also transfer (dub) video titles already recorded on the HDD or DVD-RAM to a card by converting to MPEG4 format (⇒ page 54). <p>● Compatible with: FAT 12 or FAT 16</p> <ul style="list-style-type: none"> ● We recommend using a Panasonic SD card. ● You cannot use SD cards that exceed 2 GB. ● We recommend using this unit to format a card before recording (⇒ page 59, 68). ● You may not be able to use the card if formatted on a computer. <p>^{※1} Includes miniSD™ Cards. A miniSD™ adaptor needs to be inserted before using these cards.</p> <p>^{※2} Content saved on SD media storage (SV-PT1). You can only play the saved still pictures or MPEG4 titles, and transfer (dub) the data onto other cards, HDD or DVD-RAM.</p>
ATA Flash PC Card Mobile hard disk^{※2}	You can insert directly into the PC card slot. PC	<p>Still pictures</p> <p>MPEG4 (With SD Memory Card, MultiMediaCard, Mobile hard disk)</p>

Suitable SD Memory Cards

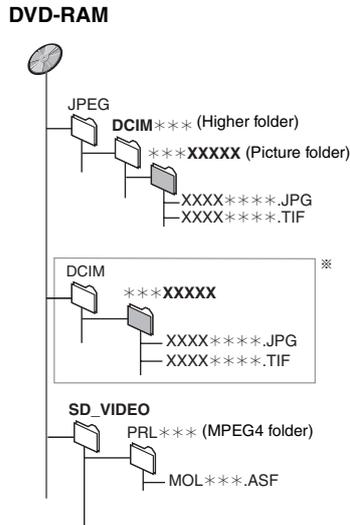
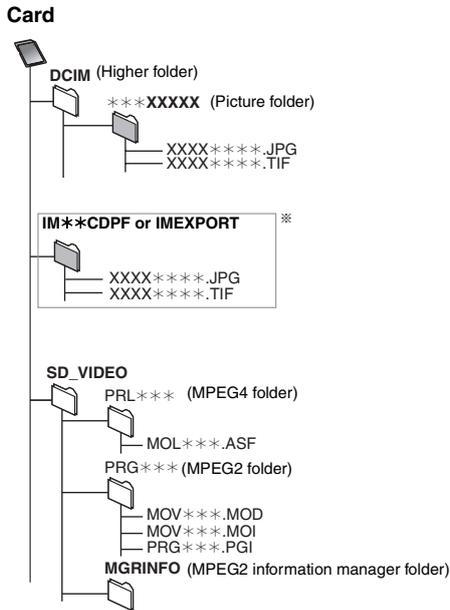
- You can use SD Memory Cards with the following capacities (from 8 MB to 1 GB).
- | | | | | | | | |
|-------|--------|--------|--------|---------|---------|---------|----------------|
| 8 MB, | 16 MB, | 32 MB, | 64 MB, | 128 MB, | 256 MB, | 512 MB, | 1 GB (Maximum) |
|-------|--------|--------|--------|---------|---------|---------|----------------|

Please confirm the latest information on the following website.
<http://panasonic.co.jp/pavc/global/cs>
 (This site is in English only.)

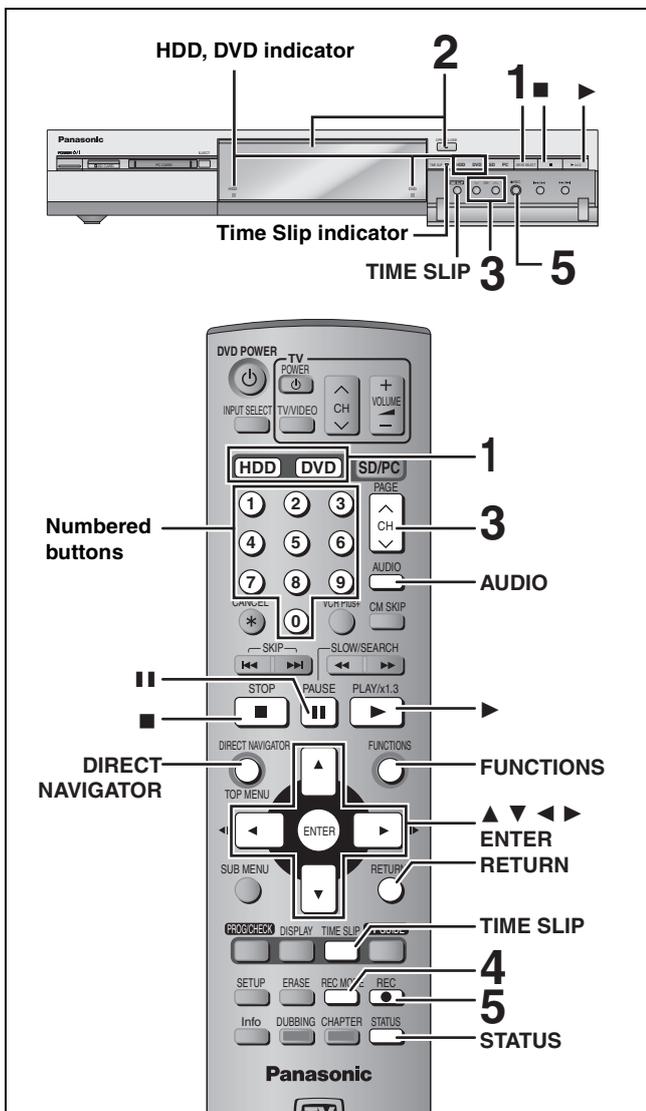
- If the SD Memory Card is formatted on other equipment, the time spent for recording may become longer. Also if the SD Memory Card is formatted on a PC, you may not be able to use it on this unit. In these cases, format the card on this unit (⇒ page 59, 68).
- This unit supports SD Memory Cards formatted in FAT 12 system and FAT 16 system based on SD Memory Card Specifications.
- We recommend using a Panasonic SD card.

Structure of folders displayed by this unit

The following can be displayed on this unit.
 ***: Numbers XXX: Letters



* Folders can be created on other equipment. However, these folders cannot be selected as a transferring (dubbing) destination.
 ● The folder cannot be displayed if the numbers are all "0" (e.g., DCIM000 etc).
 ● If a folder name or filename 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.



HDD RAM DVD-R

- It is not possible to record to both HDD (Hard Disk Drive) and DVD drive simultaneously.
- You can record up to 500 titles on HDD, 99 titles on one disc.
- 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.
- When using 8 cm (3") DVD-RAM, remove the disc from the cartridge.
- It is not possible to record digital broadcasts that allow "One time only recording" onto DVD-R or 2.8 GB DVD-RAM discs.
- It is not possible to record directly onto a card. To set the simultaneous MPEG4 recording function → right

When transferring (dubbing) in high speed mode to DVD-R after you have recorded to the HDD.

Set "DVD-R High-Speed Recording" to "On" before recording to the HDD (→ page 62).

However, the following restrictions apply.

- Even 16:9 aspect (Widescreen) programs are recorded in 4:3 aspect.
- Even if "Hybrid VBR Resolution" is set to "Automatic", it changes to "Fixed" automatically (→ page 62).

When recording to DVD-R

- When recording MTS broadcasts
 - If you do not connect a cable TV box
Select "Main" or "SAP" in "Select MTS" in the SETUP menu (→ page 63).
 - If you connect a cable TV box
Select "Main" or "SAP" on the cable TV box.
- In order to play a DVD-R recorded using this unit on another playback source, the disc must first be finalized (→ page 60).

■ Simultaneous MPEG4 recording **HDD**

If you set "MPEG4 Recording Mode" "XF", "SF", "F", "N" or "E" before recording to the HDD, programs that are recorded as video titles will be simultaneously recorded in MPEG4 format. You can transfer (dub) these MPEG4 titles to a SD Memory Card or MultiMediaCard quickly (→ page 54).

Digital broadcasts that allow "One time only recording" cannot be recorded as a MPEG4 title.

Prior to recording to the HDD

- ① Set the picture quality of the MPEG4 data to be recorded in "MPEG4 Recording Mode" in the SETUP menu (→ page 62).
 - ② Set the capacity of the card you are using in "SD Card Capacity" in the SETUP menu (→ page 62).
- When recording MTS broadcasts
 - If you do not connect a cable TV box
Select "Main" or "SAP" in "Select MTS" in the SETUP menu (→ page 63)
 - If you connect a cable TV box
Select "Main" or "SAP" on the cable TV box.

Note

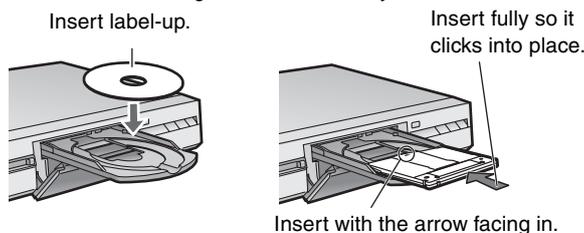
- The audio for MPEG4 is monaural and the aspect ratio of the recorded picture is 4:3.
- You cannot use the simultaneous MPEG4 recording function while transferring (dubbing) or "DV automatic recording".
- When recording a program without recording limits after recording programs with recording limits, the first 10 seconds or so of the MPEG4 title may not be recorded.

Preparation

Press [RETURN] to exit the television program list if it is displayed on the television. To turn off auto start up of the television program list → page 29, "Review options" menu

1 Press [HDD] or [DVD] to select the recording drive.
The HDD or DVD indicator lights up on the unit.

2 If you selected the DVD drive
Press [▲ OPEN/CLOSE] on the main unit to open the tray and insert a disc.
• Press the button again to close the tray.



3 Press [▲ ▼ CH] to select the channel.



To select with the numbered buttons:

TV Mode (Airwaves)	CATV Mode (Cable)
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 23).

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



- To record sound using LPCM (XP mode only):
Set "Audio for XP Recording" to "LPCM" in the SETUP menu (→ page 63).

5 Press [● REC] to start recording.



Recording will take place on open space on the HDD or on disc. Data will not be overwritten.

- You cannot change the channel or recording mode during recording.

- You can record while the unit is on standby for timer recording, but once the time for the timer recording to begin is reached, any recording taking place will stop and the timer recording will begin.

■ To pause recording

Press [II].

Press again to restart recording.
(Title is not split into separate titles.)

■ To stop recording

Press [■].

From the start to the end of the recording is called one title.

HDD

When continuously recording for long durations, titles are automatically divided every 8 hours.

DVD-R

It takes about 30 seconds for the unit to complete recording management information after recording finishes.

■ To specify a time to stop recording—One Touch Recording

During recording

Press [● REC] to select the recording time.

Each time you press the button:

0:30 → 1:00 → 1:30 → 2:00 → 3:00 → 4:00
 ↑ Counter (cancel) ←

- This does not work during timer recordings (⇒ page 25) or while using Flexible Recording (⇒ page 24).

To stop recording partway

Press [■].

Off Timer

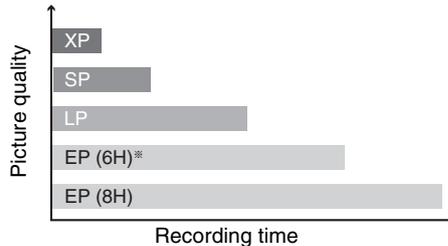
The unit switches to standby after about 6 hours in the stop mode. You can turn this feature off or change the time to 2 hours (⇒ page 61, "Off Timer").

Recording modes and approximate recording times

Depending on the content being recorded, the recording times may become shorter than indicated. If you set simultaneous MPEG4 recording (⇒ page 22), the available recording time to HDD is reduced.

(Unit: hour)

Mode	HDD (400 GB)	DVD-RAM		DVD-R (4.7 GB)
		Single-sided (4.7 GB)	Double-sided (9.4 GB)	
XP (High quality)	89	1	2	1
SP (Normal)	177	2	4	2
LP (Long play)	355	4	8	4
EP (Extra long play)	709 (532*)	8 (6*)	16 (12*)	8 (6*)



* When "Recording Time in EP Mode" is set to "EP (6H)" in the SETUP menu. The sound quality is better when using "EP (6H)" than when using "EP (8H)".

Note

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.

FR (Flexible Recording Mode)

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 set when transferring (dubbing) or programming timer recordings.
- When recording to the HDD, picture quality is automatically adjusted to precisely fit a transferred (dubbed) title on a 4.7 GB disc.
- All the recording modes from XP to EP appear in the display.

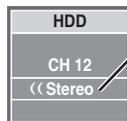


Selecting audio to record

HDD RAM

Press [AUDIO].

- **Stereo:** Main audio (stereo)
 - If the broadcast is "Mono+SAP", audio will be monaural even if you select Stereo mode.
 - ↓ **SAP:** Secondary audio program (SAP)
 - If recorded in SAP mode, main audio is also recorded.
 - ↓ **Mono:** Main audio (monaural)
 - Select "Mono" if reception is poor during a stereo broadcast.
- e.g., "Stereo" is selected
 ("(" appears when the unit is receiving the audio type you selected.



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

DVD-R

HDD RAM (When recording sound in LPCM)

HDD RAM (When "DVD-R High-Speed Recording" is set to "On")

Select the audio (Main or SAP) in "Select MTS" in the SETUP menu (⇒ page 63).

Refer to the control reference on page 22.

HDD RAM

Playing while you are recording

You can change the drive and play while recording on this unit. Also, while recording to the HDD or to DVD-RAM you can view the title being recorded from the beginning as well as play a recorded title.

Playing from the beginning of the title you are recording—Chasing playback

Press [▶] (PLAY).

Time Slip indicator on the main unit lights.

Playing a title previously recorded while recording—Simultaneous rec and play

1 Press [DIRECT NAVIGATOR].

2 Press [▲, ▼, ◀, ▶] to select a title and press [ENTER].

Time Slip indicator on the main unit lights.

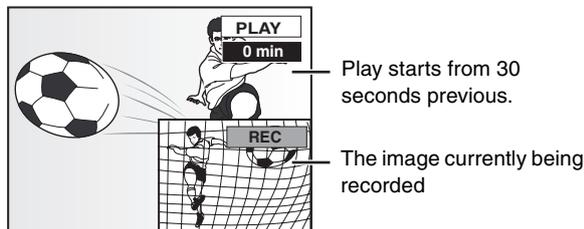
To exit the Direct Navigator screen

Press [DIRECT NAVIGATOR].

Reviewing the recorded images while recording—Time Slip

1 Press [TIME SLIP].

Time Slip indicator on the main unit lights.



- You will hear the playback audio.

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

- Press [TIME SLIP] to show the play images in full. Press again to show the play and recording images.

■ To stop play

Press [■].

■ To stop recording

2 seconds after play stops

Press [■].

■ To stop timer recording

Press [■], then [ENTER] within 5 seconds.

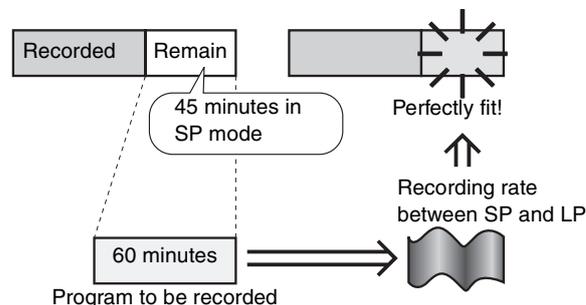
- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.

HDD RAM DVD-R

Flexible Recording

The unit sets the best possible picture quality that fits the recording within the remaining disc space. The recording mode becomes FR mode.

e.g.,

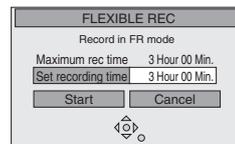


Preparation

- Select the channel to record.
- Press [HDD] or [DVD] to select the recording drive.

1 While stopped Press [FUNCTIONS].

2 Press [▲, ▼, ◀, ▶] to select “FLEXIBLE RECORDING” and press [ENTER].



3 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 more than 8 hours.

4 When you want to start recording Press [▲, ▼, ◀, ▶] to select “Start” and press [ENTER]. Recording starts.

To exit the screen without recording

Press [RETURN].

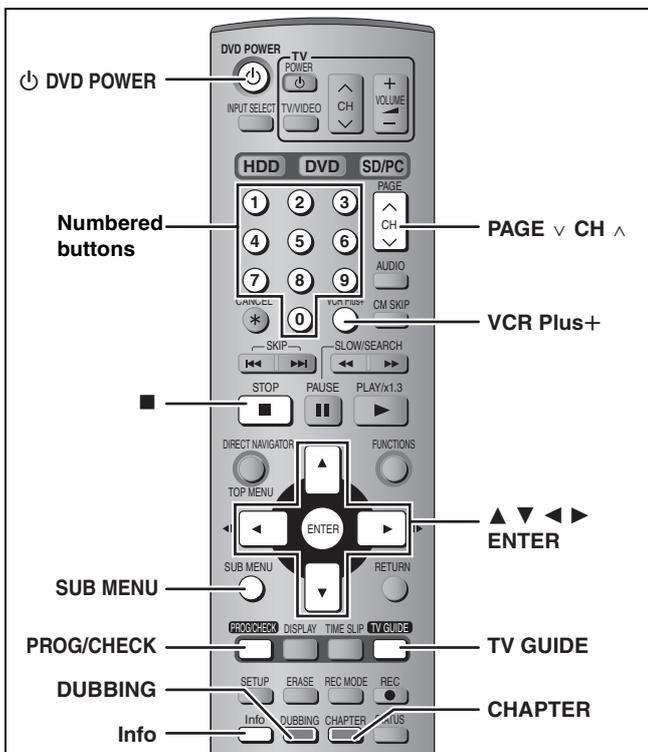
To stop recording partway

Press [■].

To show the remaining time

Press [STATUS].





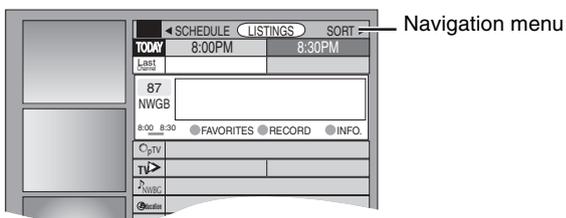
HDD | RAM | DVD-R

Using the TV Guide On Screen™ system to make timer recordings

You can perform timer recording easily by just marking the desired program(s) in a television program list.

- You can enter up to 8 days in advance.
- The program name becomes the recorded title if the program is listed on the television program list.

1 Press [TV GUIDE].



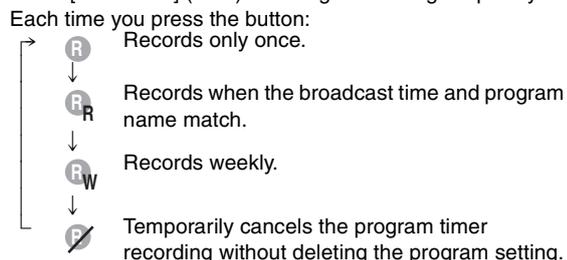
2 Press [▲, ▼, ◀, ▶] to select the program.

- To skip one screen
Press [PAGE v CH ^].
- To skip 24 hours in the list
Press [▲, ▼, ◀, ▶] to select "LISTINGS" and:
Press [CHAPTER] (Green) (forward).
Press [DUBBING] (Blue) (backward).

3 Press [CHAPTER] (Green).

"R" appears in the list to indicate that the program is set for timer recording.

- Press [CHAPTER] (Green) to cancel.
- Press [DUBBING] (Blue) to change recording frequency.

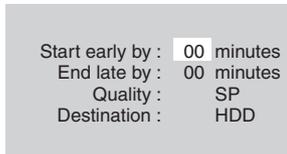


Repeat steps 2–3 to program other recordings.

- As long as the setting is not changed, the program is recorded to the HDD in the recording mode selected by the unit. To change the setting → below.

■ To change the setting

- 1 Press [SUB MENU] to go to the Navigation menu.
- 2 Press [◀, ▶] to select "SCHEDULE".
- 3 Press [▲, ▼] to select the program and press [ENTER].



- 4 Change the setting as necessary and press [ENTER].

• To set recording to start early or end late

Press [▲, ▼] to select "Start early by" or "End late by" and press the numbered buttons to enter minutes (up to 99).

• To change the recording mode

Press [▲, ▼] to select "Quality" and press [DUBBING] (Blue).

Each time you press the button:

LP → EP → FR → XP → SP

• To change the recording drive

Press [▲, ▼] to select "Destination" and press [DUBBING] (Blue).

Each time you press the button:

HDD ↔ DVD

When the recording drive is "DVD" and there is not enough remaining space, recording automatically switches to the "HDD" (→ page 27, Relief Recording).

4 Press [TV GUIDE].

Returns to the television screen.

- The unit is not off. To save power, turn the unit off by pressing [DVD POWER].
- When using the cable TV box, make sure the cable TV box is turned on.

To check, change or delete the program → page 27

To utilize TV Guide On Screen™ system, see also page 28.

Notes on timer recording → page 27

■ To cancel recording when recording has already begun

Press [■], then [ENTER] within 5 seconds.

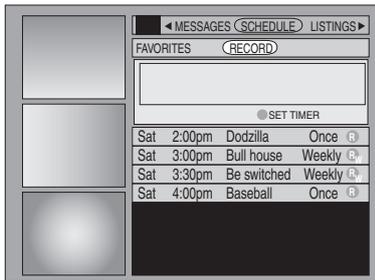
- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.

- There may be some channels that are not displayed in the television program list even if they are receivable. In this case set them manually (→ page 26).

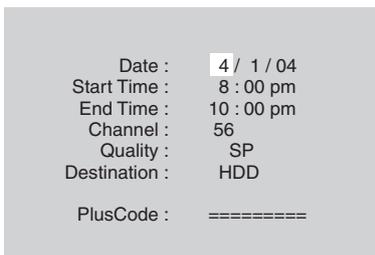
Refer to the control reference on page 25.

Manually programming timer recordings

1 Press [PROG/CHECK].



2 Press [CHAPTER] (Green).



3 Enter the settings.

•To enter the date

Press [▲, ▼] to select "Date" and press the numbered buttons.
(Date: Month/Day/Year)

•To enter the time

Press [▲, ▼] to select "Start Time" or "End Time" and press the numbered buttons.
–You can set up to 8 hours.
–To change am/pm
Press [◀, ▶] to select "am" or "pm" and press [DUBBING] (Blue).

•To enter the channel

Press [▲, ▼] to select "Channel" and press the numbered buttons.
–To select the input channel (L1/L2/L3/DV)
Press [DUBBING] (Blue).

•To change the recording mode

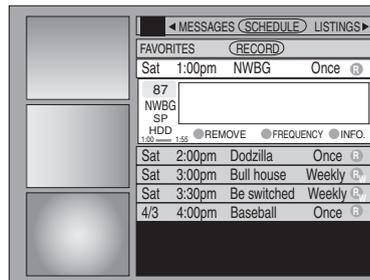
Press [▲, ▼] to select "Quality" and press [DUBBING] (Blue).
Each time you press the button:
LP → EP → FR → XP → SP
↑

•To change the recording drive

Press [▲, ▼] to select "Destination" and press [DUBBING] (Blue).
Each time you press the button:
HDD ↔ DVD

When the recording drive is "DVD" and there is not enough remaining space, recording automatically switches to the "HDD" (⇒ page 27, Relief Recording).

4 Press [ENTER].



•Press [CHAPTER] (Green) to change recording frequency.

Each time you press the button:

- Records only once. (R)
- Records weekly. (RW)
- Records daily (From Monday to Friday). (RD)
- Temporarily cancels the program timer recording without deleting the program setting. (R with a slash)

•To program other recordings

Press [▲, ▼, ▶, ◀] to select "RECORD" and repeat steps 2–4.

5 Press [TV GUIDE].

Returns to the television screen.

- The unit is not off. To save power, turn the unit off by pressing [⏻ DVD POWER].
- When using the cable TV box, make sure the cable TV box is turned on.

Notes on timer recording ⇒ page 27

■ To cancel recording when recording has already begun

Press [■], then [ENTER] within 5 seconds.

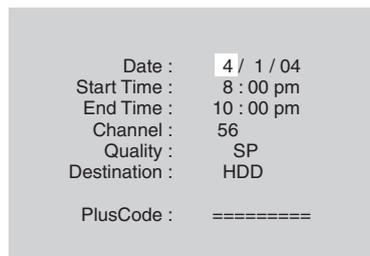
- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.

Using VCR Plus+ system to make timer recordings

Entering PlusCode® number is an easy way of timer recording. You can find them in TV listings in newspapers and magazines.

- You can enter up to 8 days in advance.
- VCR Plus+ system works only after this unit downloads the television program list (⇒ page 12).

1 Press [VCR Plus+].



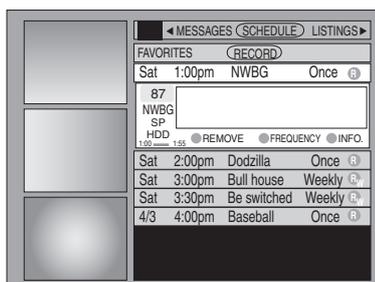
2 Press [▲, ▼] to select "PlusCode".

3 Press the numbered buttons to enter the PlusCode number.

•To correct the number

Press [▲] and press [▼]. Enter the number again from the beginning.

4 Press [ENTER].



Repeat steps 1–4 to program other recordings.

- As long as the setting is not changed, the program is recorded to the HDD in the recording mode selected by the unit. To change the setting → page 25, To change the setting, steps ③–④.

5 Press [TV GUIDE].

Returns to the television screen.

- The unit is not off. To save power, turn the unit off by pressing [⏻ DVD POWER].
- When using the cable TV box, make sure the cable TV box is turned on.

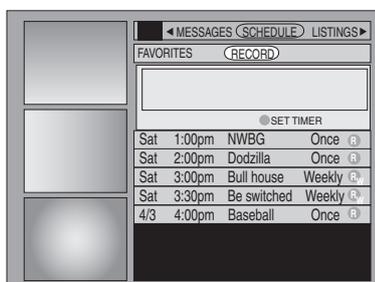
■ To cancel recording when recording has already begun

Press [■], then [ENTER] within 5 seconds.

- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.

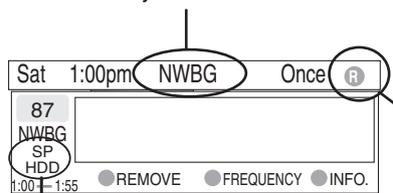
Check, change or delete a program

1 Press [PROG/CHECK].



2 Press [▲, ▼] to select the program.

Channel or program name (a program name that was set for timer recording using TV Guide On Screen™ system or VCR Plus+ system that was listed in the program list)



Recording mode (→ page 23) Frequency (→ page 25, 26)
Recording drive

■ To change the recording frequency

Press [CHAPTER] (Green).

■ To change the time, recording mode and recording drive

Press [ENTER]. (→ page 25, To change the setting, step ④)

■ To delete the program

Press [DUBBING] (Blue).

■ To exit the screen

Press [TV GUIDE].

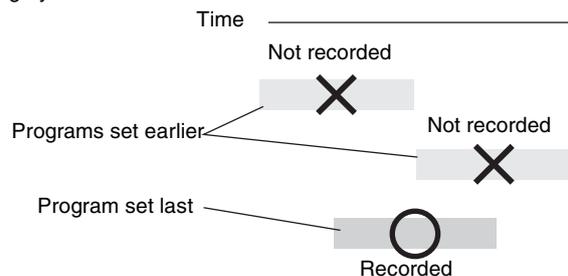
Returns to the television screen.

- The unit is not off. To save power, turn the unit off by pressing [⏻ DVD POWER].

■ When there is a duplicate or overlapping program timer recording

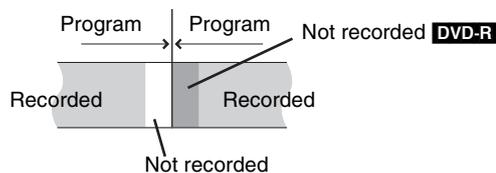
The program timer recording that was set last is recorded. None of the program that was set earlier is recorded even if there is only partial overlapping.

Program timer recordings that are not recorded are highlighted in grey.



Notes on timer recording

- “Ⓜ” lights on the unit’s display to indicate that the unit is in timer recording standby.
- “Ⓜ” flashes when the unit cannot go to timer recording standby.
- Timer recordings are activated regardless of whether the unit is turned on/off.
- Timer recordings begin when the set time is reached even when recording or when playing.
- When recordings do not begin while transferring (dubbing) in normal speed mode (→ page 47).
- When you program successive timer recordings to start immediately one after the other, the unit cannot record the part at the ending of the earlier program (approximately 15 seconds). In addition, when recording to DVD-R, the unit cannot record the part at the beginning of the later program (approximately 15 seconds).



- If you set DST (Daylight Saving Time) to ON when manually setting the clock (→ page 13), timer recording may not work when summer switches to winter and vice versa.

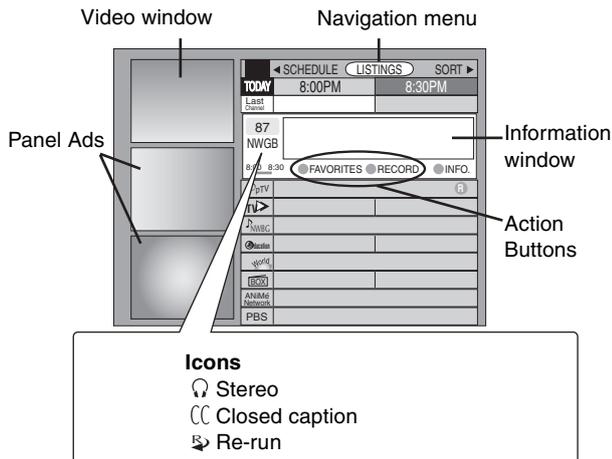
■ Relief Recording

When the recording drive is set to “DVD” for timer recording and if the program will not fit onto the disc, the recording drive will be changed to the “HDD” automatically.

- If there is no disc in the tray or the disc cannot be recorded on or when timer recording starts while transferring (dubbing), the recording drive will be changed to the HDD.
- The Direct Navigator shows which programs were relief-recorded (“↔” is displayed.) (→ page 30).
- If the time remaining on the HDD is insufficient, as much of the program as possible will be recorded onto the HDD.

Refer to the control reference on page 25.

1 Press [TV GUIDE].



Programs are categorized by color.

- Green: Sports
- Blue: Children's
- Purple: Movies
- Teal: Other categories

2 Press [SUB MENU] to go to the Navigation menu.

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

One of the following screens will appear depending on the item selected.

- LISTINGS
- SETUP
- SORT
- MESSAGES
- SCHEDULE
- PROMOTIONS

Common operations

[▲, ▼, ◀, ▶]	Select/Enter
[ENTER]	
[PAGE v CH ^]	Skip one screen
[SUB MENU]	Move to the Navigation menu
[CHAPTER]	"Green" Action Button The Action Button functions will be displayed on the screen.
[DUBBING]	"Blue" Action Button The Action Button functions will be displayed on the screen.
[Info]	Change the size of information window

LISTINGS screen

The LISTINGS screen displays the station, title, time, length, contents and ratings. It allows you to scroll through current and future program listings and register them for recording or as a "Favorite", and jump directly to the program channel through a one-touch button.

Functions of Action Buttons

+24 Hours:	Skip 24 hours forward
-24 Hours:	Skip 24 hours backward
LOCK:	Lock the program currently selected in the Video Window
UNLOCK:	The Video Window display will change as different programs are highlighted
RECORD:	Record this program (⇒ page 25, Step 3)
FAVORITE:	Register this program as a "Favorite" (⇒ right)
CANCEL REC./ CANCEL FAV.:	Cancel recording or a "Favorite"
FREQUENCY:	Change the frequency of recording or a "Favorite"

■ Registering a program you don't want to miss as a "Favorite"

By registering a program as a "Favorite", you can later tune to that program quickly by pressing [DUBBING] (Blue) when that program begins broadcasting.

When watching TV, we recommend you occasionally press [DUBBING] (Blue). This unit may tune into a "Favorite" program that you had forgotten about.

To register a program as a "Favorite"

Press [DUBBING] (Blue) on the program.

"♥" appears in the list to indicate that the program is set as a "Favorite".

- Press [CHAPTER] (Green) to change the frequency.

Each time you press the button:

- Registers as a "Favorite" only once.
- A program becomes a "Favorite" when the broadcast time and program name match.
- Registers as a "Favorite" weekly.
- "Favorite" registration temporarily off.

- Press [DUBBING] (Blue) to cancel.

Repeat the above to set other programs.

- When there is more than one program registered as "Favorite" in the same time frame, each time you press [DUBBING] (Blue), the program switches to the other.

SORT screen

The SORT screen displays program listings sorted into your preferred categories. You can register programs on the list for recording or as a "Favorite", and jump directly to the program channel through a one-touch button.

There are various categories, such as movies, sports, children's, educational, news, variety, series, HDTV, and alphabetically. Each category will contain individual sub-categories.

- 1 Press [◀, ▶] to select the major category and press [▼].
- 2 Press [▲, ▼, ◀, ▶] to select the minor category and press [ENTER].
- 3 Press [▲, ▼, ◀, ▶] to select a program.
 - When sorting alphabetically, programs with the same name (such as reruns or subsequent broadcasts of the same program) are displayed together in one column. In this case, press [▲, ▼] to select a program name and press [ENTER]. Each broadcast of the program is then displayed separately. Press [▲, ▼] to select the desired program.

Functions of Action Buttons

RECORD:	Record this program (⇒ page 25, Step 3)
FAVORITE:	Register this program as a "Favorite" (⇒ above)
CANCEL REC./ CANCEL FAV.:	Cancel recording or a "Favorite"
FREQUENCY:	Change the frequency of recording or a "Favorite"

SCHEDULE screen

The SCHEDULE screen displays programs registered for recording or as a "Favorite" separately on the list. In addition to being able to review the list, you can also remove programs and change the frequency or modify the start/end times (only when recording) of programs selected.

Functions of Action Buttons

SET TIMER:	Show the manual timer recording screen (⇒ page 26, Step 3)
CANCEL:	Cancel an entry on the manual timer recording screen
FREQUENCY:	Change the frequency of recording or a "Favorite"
REMOVE/STOP	Remove the timer or "Favorite" program/ Stop timer recording

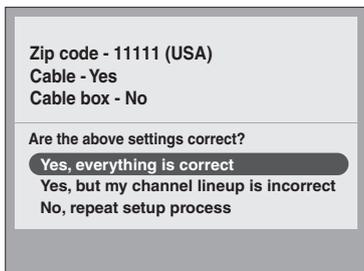
SETUP screen

The SETUP screen allows you to redo the channel settings, customize the channel line-up and set the TV Guide On Screen™ system's start-up pattern.

■ “Change system settings” menu–Access to the TV Guide On Screen™ system setup screen

You can also verify any information entered during setup, or completely redo the setup, for the TV Guide On Screen™ system.

- 1 Press [▲, ▼] to select “Change system settings” and press [ENTER].
The information that was set is displayed, and you are asked to confirm whether it is correct.



- 2 Press [▲, ▼] to select the message and press [ENTER].
 - “Yes, everything is correct”
 - The information that was set will remain intact. Press [ENTER] again to exit the screen.
 - “Yes, but my channel lineup is incorrect”
 - You can customize the channel line-up in the CHANNEL EDITOR screen (⇒ below). Press [▲, ▼] to select “No Match” and press [ENTER].
 - “No, repeat setup process”
 - The TV Guide On Screen™ system setup screen is displayed. Follow the on-screen prompts to redo the setup (⇒ page 12, step 2).

■ “Change channel display” menu–CHANNEL EDITOR

The “Change channel display” menu allows you to customize the channel line-up using the CHANNEL EDITOR. You can easily change channel line-up should the cable company occasionally revise their channel assignments.

- 1 Press [▲, ▼] to select “Change channel display” and press [ENTER].
- 2 Press [▲, ▼] to select the channel.
 - Press [PAGE ∨ CH ▲] to skip one screen.
- 3 Customize the channel as follows.

To display/hide the channel

Press [CHAPTER] (Green) to select “ON” (display) or “OFF” (hide).

<input type="radio"/> PTV	PTV-S	2	ON
● CANCEL ● ON/OFF ● INFO.			
<input checked="" type="radio"/> TV	TV-TR	5	ON
<input checked="" type="radio"/> NWBG	NWBG	12	ON
<input checked="" type="radio"/> Education	EDU	22	ON

CHANNEL EDITOR screen

To change the channel number

Press the numbered buttons.

- e.g. 1: [0] ⇒ [0] ⇒ [1]
 15: [0] ⇒ [1] ⇒ [5]
 115: [1] ⇒ [1] ⇒ [5]

To change the order of the channels

- ① Press [◀].
- ② Press [DUBBING] (Blue) to move up or [CHAPTER] (Green) to move down.

<input type="radio"/> PTV	PTV-S	2	ON
● MOVE UP ● MOVE DOWN ● INFO.			
<input checked="" type="radio"/> TV	TV-TR	5	ON
<input checked="" type="radio"/> NWBG	NWBG	12	ON
<input checked="" type="radio"/> Education	EDU	22	ON

Repeat steps 2–3 as necessary.

- 4 Press [TV GUIDE].

■ “Review options” menu–Selecting the TV Guide On Screen™ system start up pattern

- 1 Press [▲, ▼] to select “Review options” and press [ENTER].
- 2 Press [▲, ▼] to select the option and press [ENTER].
 - On: Turns on auto start up.
 - Off: Turns off auto start up.

MESSAGES screen

The MESSAGES screen is where additional product program or other information can be received and displayed by the TV Guide On Screen™ system. If major changes to the program listings are scheduled to be made, it will be displayed in the message section. The serial number specific to your TV Guide On Screen™ system can also be found on this screen.

When there are unread messages, an envelope-shaped icon appears at the upper left of the screen.

To read a message

Press [▲, ▼] to select the message and press [Info].

- To delete unwanted messages press [CHAPTER] (Green).
- Messages are automatically deleted after 60 days.

PROMOTIONS screen

The PROMOTIONS screen provides you with a list of promotional items that have appeared as Panel Ads or Channel banners during the current day. Promotions are updated daily during pre-designated download times.

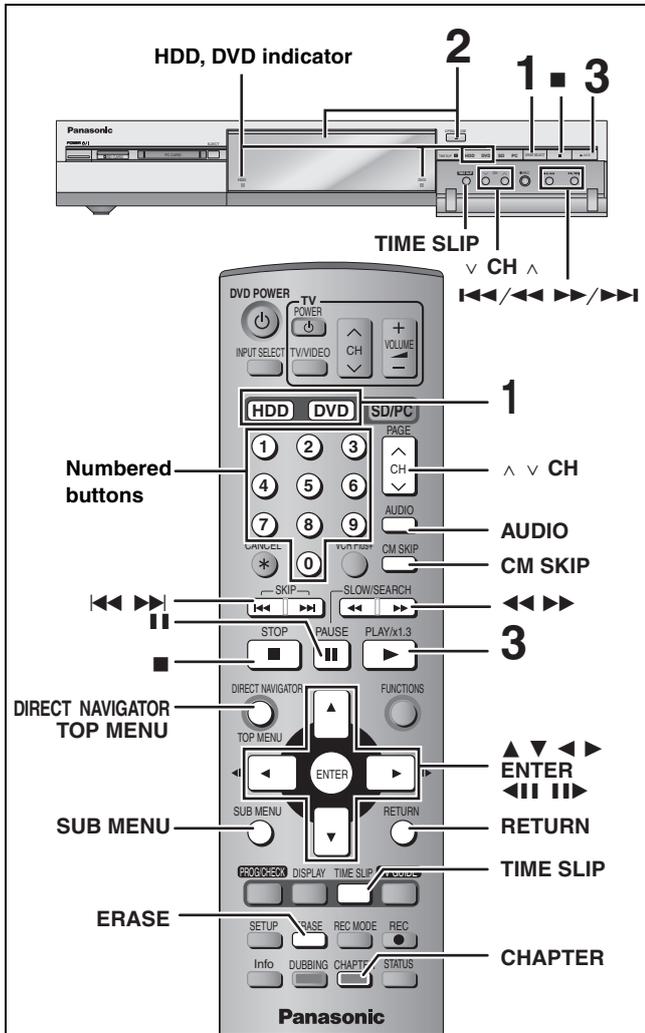
To read a promotion

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

Functions of Action Buttons

(When the TV program item is highlighted)

RECORD:	Record this program (⇒ page 25, Step 3)
FAVORITE:	Register this program as a “Favorite” (⇒ page 28)



- It is possible to watch playback from one drive while recording on another (editing is not possible).
- It is not possible to play still pictures and MPEG4 titles while recording.
- 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.
- When using 8 cm (3") DVD-RAM, remove the disc from the cartridge.

Preparation

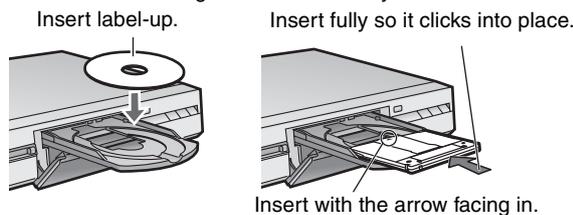
Press [RETURN] to exit the television program list if it is displayed on the television. To turn off auto start up of the television program list → page 29, "Review options" menu

1 Press [HDD] or [DVD] to select the playback drive.

The HDD or DVD indicator lights up on the unit.

2 If you selected the DVD drive Press [▲ OPEN/CLOSE] on the main unit to open the tray and insert a disc.

- Press the button again to close the tray.



3 Press [▶] (PLAY).

HDD RAM DVD-R

Play starts from the most recently recorded title.

DVD-A DVD-V VCD CD

Play starts from the beginning of the disc.

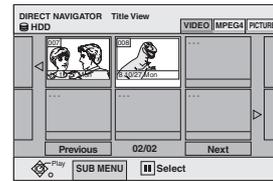


■ Selecting recorded programs (titles) to play— Direct Navigator

HDD RAM DVD-R

1 Press [DIRECT NAVIGATOR].

•Thumbnail Display



•Table Display

No.	Ch	Date	Day	Start	Name
001	28	10/24	Fri	3:30 PM	
002	28	10/25	Sat	5:15 AM	
003	88	10/25	Sat	10:00 AM	
004	88	10/25	Sat	10:05 PM	
005	8	10/25	Sun	1:10 PM	
006	18	10/27	Mon	5:25 AM	
007	18	10/27	Mon	1:30 PM	
008	8	10/27	Mon	5:00 PM	

Switching the Direct Navigator appearance

- Press [SUB MENU] while Thumbnail Display is displayed.
 - Press [▲, ▼] to select "Table Display" and press [ENTER].
- The display appearance last used is saved even after the unit is turned off.

2 **HDD RAM**

Press [▲, ▼, ◀, ▶] to select "VIDEO" tab and press [ENTER].



HDD To sort Title View for easy searching (Table Display only)

This function is convenient when searching for one title to playback from many titles.

- Press [SUB MENU].
- Press [▲, ▼] to select "Sort" and press [ENTER].
- Press [▲, ▼] to select the item and press [ENTER].

- If you select an item other than "No."
- The Direct Navigator screen will reappear after playback of the selected title has finished. (You cannot play titles continuously.)
- Skip and Time Slip will only function with the title currently being played back.
- If you exit the Direct Navigator screen, or switch to the "MPEG4" or "PICTURE" Direct Navigator screen, the sorted Title View will be cancelled.

3 Press [▲, ▼, ◀, ▶] to select the title and press [ENTER].

You can also select titles with the numbered buttons.

e.g., **HDD** 5: [0] ⇒ [0] ⇒ [5] 15: [0] ⇒ [0] ⇒ [5] 115: [1] ⇒ [1] ⇒ [5]

To show other pages

Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].

- You can also press [◀◀, ▶▶] to show other pages.

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 [When transferring (dubbing) a title to the HDD, or when data is damaged, etc.]
- Currently recording.
- Titles that have been rerouted to the HDD (→ page 27, Relief Recording)
- Title with "One time only recording" restriction

■ When a menu screen appears on the television

DVD-A DVD-V

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]

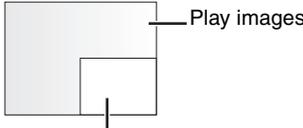
•To return to the menu screen

DVD-A Press [TOP MENU].

DVD-V Press [TOP MENU] or [SUB MENU].

VCD Press [RETURN].

Operations during play

<p>Stop</p>	<p>Press [■]. The stopped position is memorized. “PLAY” flashes in the unit’s display. (Excluding when playing from the Direct Navigator and when playing a play list.) Resume play function Press [▶] (PLAY) to restart from this position.</p> 
<p>Pause</p>	<p>Press [⏸]. Press again to restart play.</p>
<p>Search</p>	<p>Press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> •On the main unit, press and hold [◀◀/▶▶] or [▶▶/▶▶]. •The speed increases up to 5 steps. •Press [▶] (PLAY) to restart play. •Audio is heard during first level search forward. <p>You can turn off the sound during search (⇒ page 63, Search Audio & PLAY ×1.3). Audio is heard during all levels of search. DVD-A (excluding moving picture parts) CD</p>
<p>Skip</p>	<p>Press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> •On the main unit, press [◀◀/▶▶] or [▶▶/▶▶]. •Each press increases the number of skips.
<p>Starting from a selected item</p>	<p>Press the numbered buttons. e.g., 5: [0] ⇒ [5] HDD CD (MP3 discs only) 5: [0] ⇒ [0] ⇒ [5] 15: [1] ⇒ [5] 15: [0] ⇒ [1] ⇒ [5]</p> <p>DVD-A Selecting groups While stopped (screen saver is displayed on the television ⇒ right) 5: [5]</p> <ul style="list-style-type: none"> •This works only when stopped (screen saver is displayed on the television ⇒ right) with some discs. 
<p>Quick View HDD RAM The play speed can be increased without distorting the audio.</p>	<p>Press and hold [▶] (PLAY/×1.3).</p> <ul style="list-style-type: none"> •Press again to return to normal speed. •This does not work if the setting is “Off” in “Search Audio & PLAY ×1.3” (⇒ page 63).
<p>Slow-motion HDD RAM DVD-R DVD-A (Motion picture parts only) DVD-V VCD</p>	<p>While paused, press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> •On the main unit, press and hold [◀◀/▶▶] or [▶▶/▶▶]. •The speed increases up to 5 steps. •Press [▶] (PLAY) to restart play. •Forward direction only. VCD •The unit will pause if slow-motion play is continued for 5 minutes.
<p>Frame-by-frame HDD RAM DVD-R DVD-A (Motion picture parts only) DVD-V VCD</p>	<p>While paused, press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> •Each press shows the next frame. •Press [▶] (PLAY) to restart play. •Forward direction only. VCD
<p>Displaying the television image as a picture-in-picture</p> <p>Skipping the specified time (Time Slip)</p> <p>HDD RAM DVD-R</p>	<p>Press [TIME SLIP]. The unit displays the television image as a picture-in-picture.</p> <ul style="list-style-type: none"> •You will hear the playback audio. •Press [TIME SLIP] again to cancel. •The blue background does not appear on the receiving screen even if you select “On” from the “Blue Background” in the SETUP menu (⇒ page 63).  <p>1 Press [TIME SLIP]. 2 Press [▲, ▼] to select the time and press [ENTER]. Play skips the specified time.</p> <ul style="list-style-type: none"> •Press [TIME SLIP] to show the play images in full. <p>Play images Current receiving images</p> <ul style="list-style-type: none"> •You can change the channel being received by pressing [^ v CH]. •You cannot change the channel being received while recording.
<p>CM Skip HDD RAM DVD-R Play restarts from approximately a minute later.</p>	<p>Press [CM SKIP].</p>

Refer to the control reference on page 30.

Editing operations during play

Erase

HDD RAM DVD-R

- 1 Press [ERASE].
- 2 Press [◀, ▶] to select "Erase" and press [ENTER].

- A title cannot be restored once it is erased. Make certain before proceeding.
- You cannot erase while recording or transferring (dubbing).

Create chapters

(⇒ page 40, Title/Chapter)

HDD RAM

Press [CHAPTER].

- Press [◀◀, ▶▶] to skip to the start of a chapter.
- You cannot divide while recording or transferring (dubbing).

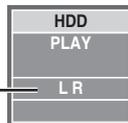
Changing audio during play

Press [AUDIO].

HDD RAM VCD

LR→L→R
↑

e.g., "L R" is selected



- When playing an SAP broadcast recorded on DVD-RAM: MAIN ↔ SAP

DVD-A DVD-V

You can change the audio channel number each time you press the button. This allows you to change things like the soundtrack language (⇒ page 38, Sound track).

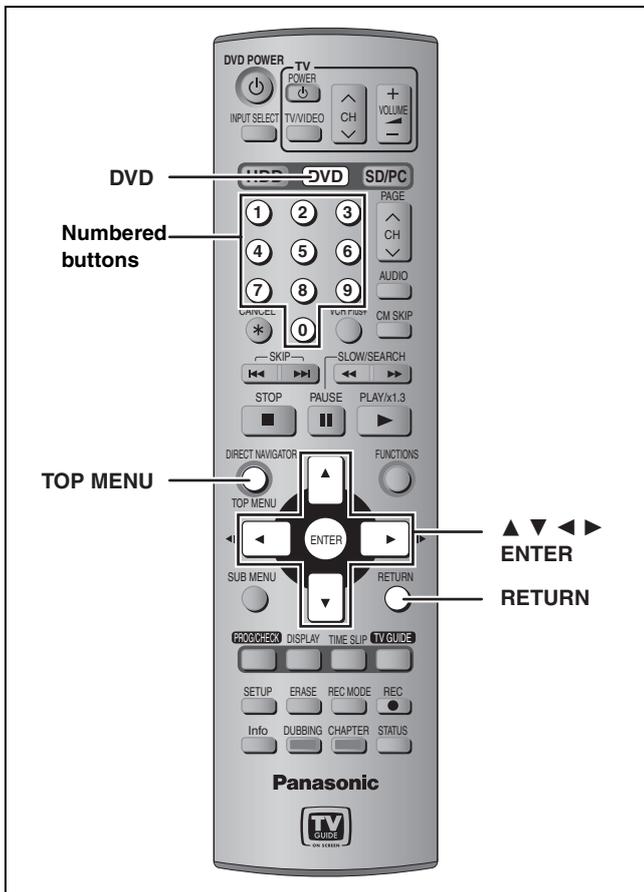


e.g., English is selected.

Note

You cannot change the audio type in the following cases.

- When a DVD-R disc is in the disc tray while DVD drive is selected.
- When the recording mode is XP and "Audio for XP Recording" is set to "LPCM" (⇒ page 63).
- When "DVD-R High-Speed Recording" is set to "On" (⇒ page 62).



CD (MP3 discs only)

This unit plays MP3 files recorded on CD-R/RW designed for audio recording that are finalized (→ page 68) on a computer. Files are treated as tracks and folders are treated as groups.

Preparation

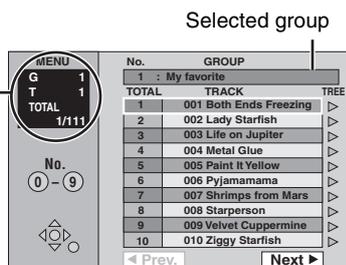
Press [DVD] to select the DVD drive.

1 Press [TOP MENU].

G: Group No.

T: Track No. in the group

TOTAL: Track No./Total tracks in all groups



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

Play continues to the last track in the last group.

- "▶" 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 [▲, ▼, ◀, ▶] to select "Prev." or "Next" and press [ENTER]. After listing all the tracks in one group, the list for the next group appears.

To exit the screen

Press [TOP MENU].

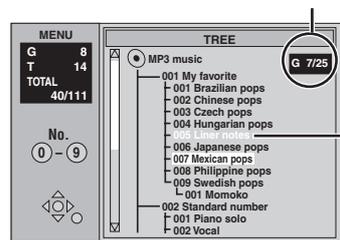
Using the tree screen to find a group

While the file list is displayed

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

Selected group No. /Total groups

If the group has no track, "--" is displayed as group number.



You cannot select groups that contain no compatible files.

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

The file list for the group appears.

To return to the file list

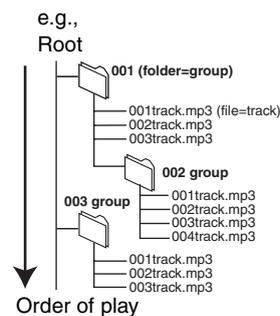
Press [RETURN].

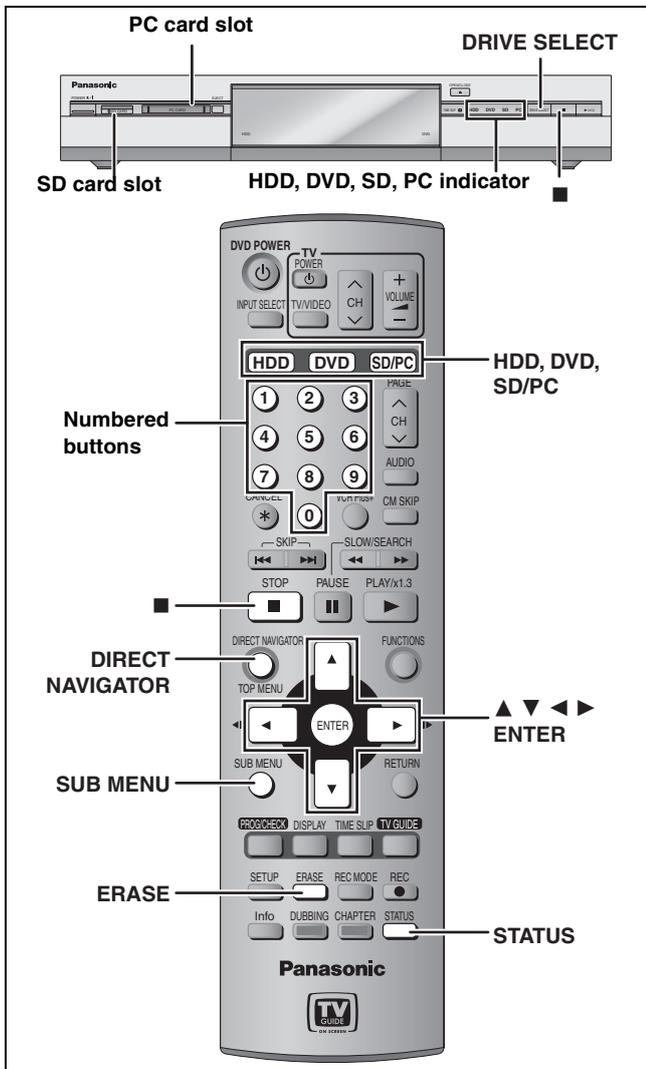
Tips for making MP3 discs

- Discs must conform to ISO9660 level 1 or 2 (except for extended formats).
- Compatible compression rate: between 32 kbps and 320 kbps
- Compatible sampling rate:
16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz and 48 kHz
- Maximum number of tracks and groups recognizable:
999 tracks and 99 groups
- This unit is compatible with multi-session.
- This unit is not compatible with ID3 tags or packet writing.
- Depending on recording, some items may not be playable.
- Reading or play of the disc may take time if there are a lot of still pictures or sessions.
- The display order may differ from how the order is displayed on a computer.

Naming folders and files

- MP3 files must have the extension ".MP3" or ".mp3".
- At the time of recording, give folder and file names a 3-digit numeric prefix in the order you want them to play (this may not work at times).
- English alphabets and Arabic numerals are displayed correctly. Other characters may not be displayed correctly.





Regarding still pictures (JPEG, TIFF)

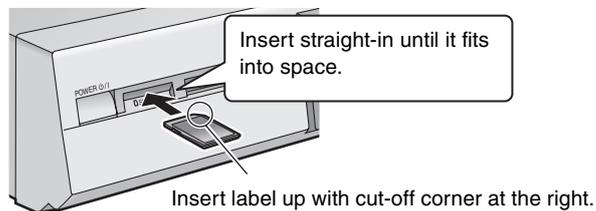
- Compatible formats: DCF* compliant (Content recorded on a digital camera etc.)
 - * Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).
- File format: JPEG, TIFF (non-compressed RGB chunky format)
- Number of pixels: 34×34 to 6144×4096 (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.
- MOTION JPEG is not supported.

Inserting/Removing the SD/PC card

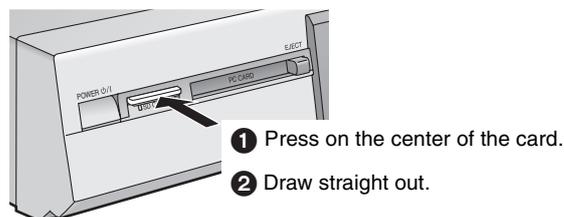
Only insert or remove the SD/PC card after turning the unit off. When the card indicator ("SD" or "PC") on the unit's display is flashing, the card is being read from or written to. Do not turn off the unit or remove the card. Such action may result in malfunction or loss of the card's contents.

SD card slot

Inserting the card



Removing the card

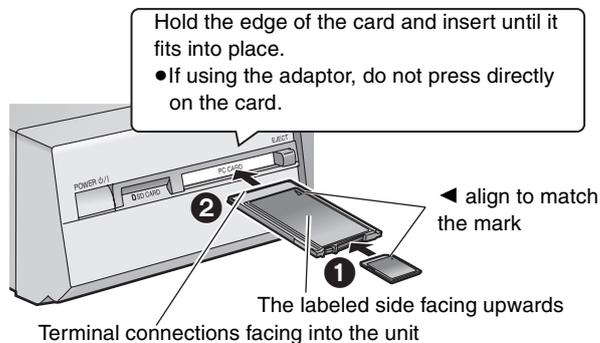


- You can use SD Memory Cards with capacities from 8 MB to 1 GB (⇒ page 21).

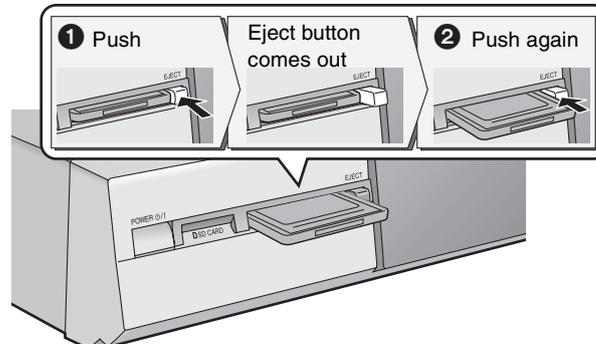
PC card slot

Inserting the card

There are cards requiring adaptors (⇒ page 21).



Removing the card



- If using the adaptor, remove the adaptor and card together.

HDD RAM SD PC

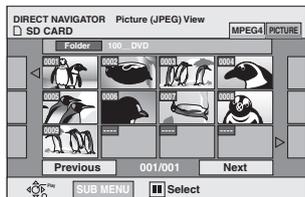
• You can use SD Memory Cards with capacities from 8 MB to 1 GB (⇒ page 21).

1 Press [HDD], [DVD] or [SD/PC] to select the drive.

- Each time you press [SD/PC]:
SD card drive ↔ PC card drive
- On the main unit, press [DRIVE SELECT] several times.
The indicator lights up on the unit.



2 Press [DIRECT NAVIGATOR].



Picture (JPEG) View screen

3 Press [▲, ▼, ◀, ▶] to select “PICTURE” tab and press [ENTER].

4 Press [▲, ▼, ◀, ▶] to select the still picture and press [ENTER].

- You can also select still pictures with the numbered buttons.
- e.g.,
- 5: [0] ⇒ [0] ⇒ [0] ⇒ [5] 115: [0] ⇒ [1] ⇒ [1] ⇒ [5]
- 15: [0] ⇒ [0] ⇒ [1] ⇒ [5] 1115: [1] ⇒ [1] ⇒ [1] ⇒ [5]
- Press [◀, ▶] to display the previous or next still picture.
 - Useful functions during still picture play (⇒ below).

To stop playing

Press [■].

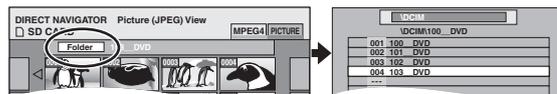
To exit the screen

Press [DIRECT NAVIGATOR].

■ To select the still pictures in another folder

(⇒ page 21, Structure of folders displayed by this unit)

- 1 Press [▲, ▼, ◀, ▶] to select “Folder” and press [ENTER].
- 2 Press [▲, ▼] to select the folder and press [ENTER].



You can also select folders with the numbered buttons.

e.g., 5: [0] ⇒ [0] ⇒ [0] ⇒ [5]

15: [0] ⇒ [1] ⇒ [5]

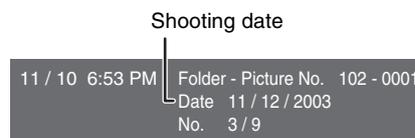
115: [1] ⇒ [1] ⇒ [5]

- If there is a multiple number of higher folders recognizable, you can switch them using [◀, ▶].



■ To show the picture properties

Press [STATUS] twice.



To exit the picture properties screen

Press [STATUS].

Note

Still pictures cannot be played during recording or transferring (dubbing).

Direct Navigator screen icons

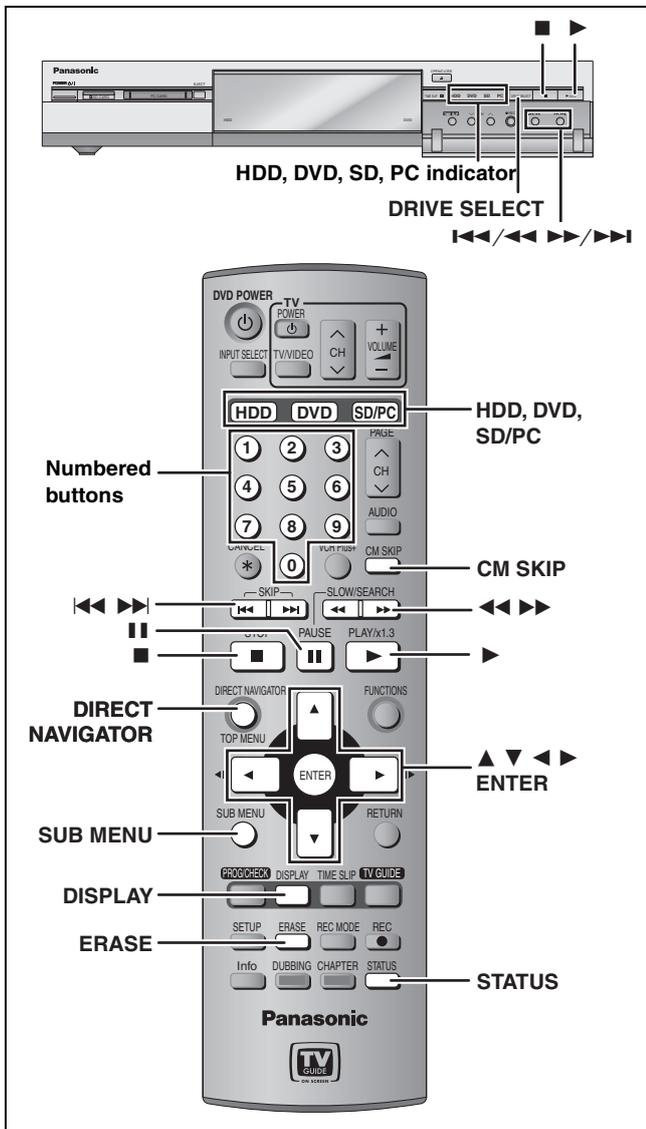
- Picture protected.
- Picture in which the number of prints is set (DPOF) (⇒ page 44, 68).

Useful functions during still picture play

HDD RAM SD PC

Start Slide Show Slide Interval	<p>You can display still pictures one by one with constant interval.</p> <p>While the Picture (JPEG) View screen is displayed</p> <ol style="list-style-type: none"> 1 Press [SUB MENU]. 2 Press [▲, ▼] to select “Start Slide Show” and press [ENTER]. <ul style="list-style-type: none"> • To change the display timing <ol style="list-style-type: none"> 1 Press [▲, ▼] to select “Slide Interval” in step 2 and press [ENTER]. 2 Press [◀, ▶] to select the desired timing (0–30 seconds) and press [ENTER]. 	
Rotate	<ol style="list-style-type: none"> 1 Press [SUB MENU]. 2 Press [▲, ▼] to select “Rotate RIGHT” or “Rotate LEFT” and press [ENTER]. <ul style="list-style-type: none"> • Rotation information will not be stored. 	
Zoom in Zoom out <small>(Only for a still picture with a low pixel count)</small>	<ol style="list-style-type: none"> 1 Press [SUB MENU]. 2 Press [▲, ▼] to select “Zoom in” and press [ENTER]. <ul style="list-style-type: none"> • To return the picture to its original size, press [▲, ▼] to select “Zoom out” in step 2 and press [ENTER]. • When zooming in, the picture may be cut off. • The enlargement information will not be stored. 	
Erase	<ol style="list-style-type: none"> 1 Press [ERASE]. 2 Press [◀, ▶] to select “Erase” and press [ENTER]. <ul style="list-style-type: none"> • Once erased, the recorded contents are lost and cannot be restored. Make certain before proceeding. 	

Playing MPEG4 titles



HDD RAM SD PC (Mobile hard disk only)

Preparation

Insert a disc or a card (→ page 30, 34)

1 Press [HDD], [DVD] or [SD/PC] to select the drive.

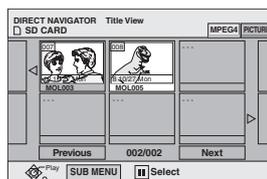
On the main unit, press [DRIVE SELECT] several times. The indicator lights up on the unit.

e.g., SD card drive



2 Press [DIRECT NAVIGATOR].

•Thumbnail Display



•Table Display

No.	Ch	Date	Day	Start	Name
001	24	10/24	Fri	8:30 PM	MOL0001
002	24	10/25	Sat	8:15 AM	MOL0002
003	86	10/25	Sat	10:00 AM	MOL0004
004	86	10/25	Sat	10:05 PM	MOL0001
005	8	10/26	Sun	4:10 PM	MOL0007
006	10	10/27	Mon	9:25 AM	MOL0008
007	10	10/27	Mon	1:30 PM	MOL0008
008	8	10/27	Mon	9:00 PM	MOL0005

Switching the Direct Navigator appearance

- Press [SUB MENU] while Thumbnail Display is displayed.
 - Press [▲, ▼] to select "Table Display" and press [ENTER].
- The display appearance last used is saved even after the unit is turned off.

3 Press [▲, ▼, ◀, ▶] to select "MPEG4" tab and press [ENTER].

4 Press [▲, ▼, ◀, ▶] to select the title and press [ENTER].

You can also select the titles with the numbered buttons.
 e.g., 5: [0] → [0] → [5]
 15: [0] → [1] → [5]
 115: [1] → [1] → [5]

To show other pages

Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].

- You can also press [◀◀, ▶▶] to show other pages.

(Mobile hard disk only) To select the MPEG4 titles in another folder → page 37

To stop playing

Press [■].

To exit the screen

Press [DIRECT NAVIGATOR].

Direct Navigator screen icons

	Title protected.
	Title cannot be played (e.g. the data is damaged/the file format is not compatible with this unit)
	The audio cannot be output (e.g. the audio was not recorded by G.726)
	Title name cannot be entered (e.g. the data was recorded on another company's equipment)

Regarding MPEG4

- Compatible formats: SD-Video format conforming (ASF)
 Video: MPEG4 conforming
 Audio: G.726 conforming (monaural)
- Bit rate (Including Audio transfer rate as 32 kbps)
 Maximum: approx. 100 kbps to 1.5 Mbps
 Average: approx. 93 kbps to 1050 kbps
- Number of pixels: 176×144 (QCIF), 320×240 (QVGA)
 Frame rate: 6 fps to 30 fps
- It is compatible up to 999 files.
- The picture is enlarged to match the display frame in this unit (320×240) so the aspect ratio may differ from that of the original picture and the sides of the picture may be cut off.
- The recording date may differ from that of the actual data.
- Files that have been recorded on other devices may not be correctly displayed on this unit (playback may not be possible or the picture or file name may be incorrect). Similarly files recorded on this unit may not be correctly displayed on other devices.

Note

You cannot play MPEG4 titles while recording or transferring (dubbing).

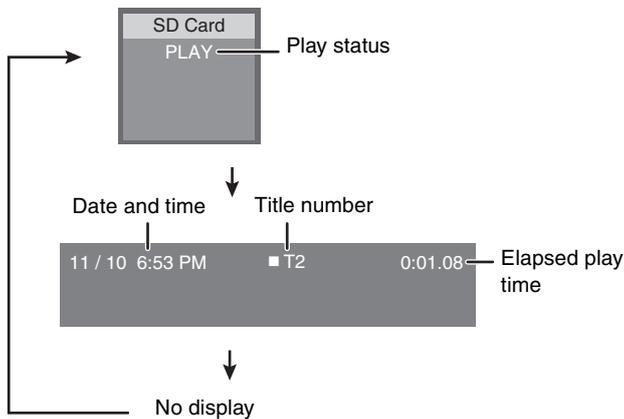
Useful functions during MPEG4 title play

Pause HDD RAM SD PC (Mobile hard disk only)	Press [II]. The status display will be shown automatically (⇒ below). Press again to restart play.
Search HDD RAM SD PC (Mobile hard disk only)	Press [◀◀] or [▶▶]. While searching, the title being played is displayed as a still picture. The elapsed play time display will be shown automatically to indicate the current position (⇒ below). <ul style="list-style-type: none"> •On the main unit, press and hold [◀◀/▶▶] or [▶▶/▶▶]. •The speed increases up to 3 steps. •Press [▶] (PLAY) to restart play.
Skip HDD RAM SD PC (Mobile hard disk only)	Press [◀◀] or [▶▶]. <ul style="list-style-type: none"> •On the main unit, press [◀◀/▶▶] or [▶▶/▶▶]. •Each press increases the number of skips.
CM Skip HDD RAM SD PC (Mobile hard disk only) Play restarts from approximately a minute later.	Press [CM SKIP].
Repeat play HDD RAM SD PC (Mobile hard disk only)	1 Press [DISPLAY]. 2 Press [▶] twice and press [▲, ▼] to select “Title”. Title is played repeatedly. <ul style="list-style-type: none"> •To cancel repeat play, press [▲, ▼] to select “OFF” in step 2. •Press [DISPLAY] again to clear the on-screen menus.
Erase HDD RAM SD	1 Press [ERASE]. 2 Press [◀, ▶] to select “Erase” and press [ENTER]. •Once erased, the recorded contents are lost and cannot be restored. Make certain before proceeding.

■ To view the playback status of a MPEG4 title

Press [STATUS].

The display changes each time you press the button.

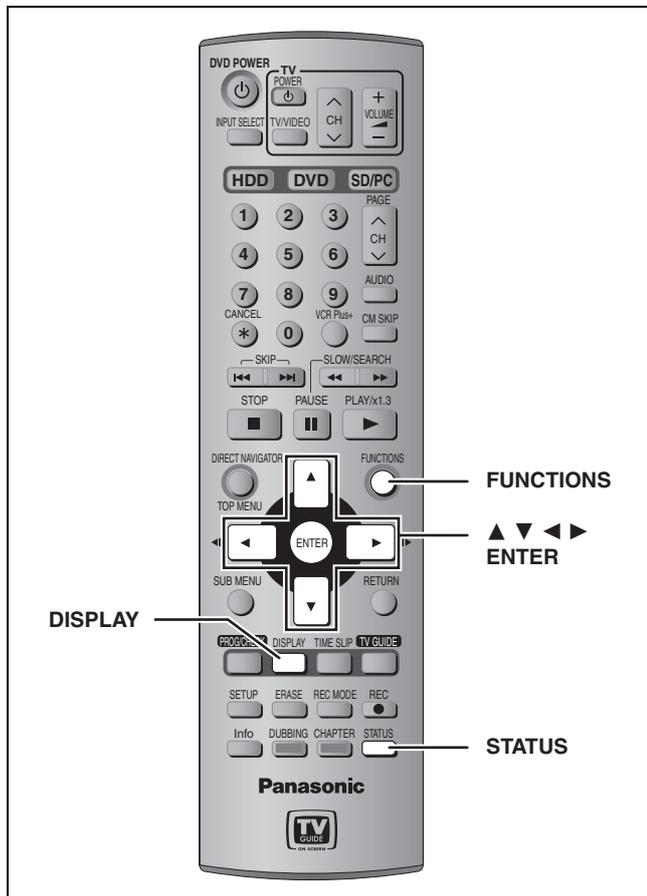


(Mobile hard disk only)

■ To select the MPEG4 titles in another folder

Select the title in step 4 (⇒ page 36).

- ① Press [SUB MENU].
- ② Press [▲, ▼] to select “Select Folder” and press [ENTER].
- ③ Press [◀, ▶] to select the folder and press [ENTER].



Disc menu—Setting the disc content

Sound track*

HDD RAM DVD-R

The disc's audio attributes appear.

DVD-A DVD-V

Select the audio and language (➡ below, Audio attribute, Language).

Subtitle*

HDD RAM DVD-R (Only discs that contain subtitle on/off information)

DVD-A DVD-V

Turn the subtitle on/off and select the language (➡ below, Language).

- Subtitle on/off information cannot be recorded using this unit. **HDD RAM DVD-R**
- If the subtitles overlap closed captions recorded on discs, turn the subtitles off.

Audio channel **HDD RAM VCD**

➡ page 32, Changing audio during play

Angle* **DVD-A DVD-V**

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 69) **VCD**

Indicates whether menu play (playback control) is on or off.

* You may have to use the menus (➡ page 30) on the disc to make changes.

• The display changes according to the disc content. You cannot change 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	SVE: Swedish	CHI: Chinese
FRA: French	NOR: Norwegian	KOR: Korean
DEU: German	DAN: Danish	MAL: Malay
ITA: Italian	POR: Portuguese	VIE: Vietnamese
ESP: Spanish	RUS: Russian	THA: Thai
NLD: Dutch	JPN: Japanese	*: Others

On-screen menus

1 Press [DISPLAY].

Disc	Sound track	1	DQ Digital	2/0 ch
Play	Subtitle	OFF		
Video	Audio channel	L R		

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].

Play menu—Change the play sequence

This function works only when the elapsed play time is displayed.

Repeat play

- All VCD CD (excluding MP3 discs)
 - Chapter HDD RAM DVD-R DVD-V
 - Group DVD-A CD (MP3 discs only)
 - PL (Play list) HDD RAM
 - Title* HDD RAM DVD-R DVD-V
 - Track DVD-A VCD CD
- Select "OFF" to cancel.

*This can also be selected during MPEG4 title playback.

Video menu—Change the picture quality

Picture

- **Normal:** Default setting
- **Soft:** Soft picture with fewer video artifacts
- **Fine:** Details are sharper
- **Cinema:** Mellows movies, enhances detail in dark scenes.
- **User:** You can make further adjustments.
Press [**▲**, **▼**, **◀**, **▶**] to select "Detail picture adjustment" and press [ENTER].

Contrast

Increases the contrast between light and dark parts of the picture.

Brightness

Brightens the picture.

Sharpness

Adjust the sharpness of the edges of the horizontal lines.

Color

Adjusts the shade of the picture's color.

Gamma

Increases the brightness of the center ranges to improve detail and contrast in dark scenes.

3D NR

Reduces overall noise.

Integrated DNR

Reduces mosaic noise and character smudging.

MPEG-DNR (When any item other than "User" is selected)

You can turn the recommended settings for 3D NR and Integrated DNR on and off.

Progressive* (⇒ page 69)

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* [When "Progressive" (⇒ above) is set to "ON".]

Select the method of conversion for progressive output to suit the type of material being played (⇒ page 68, Film and video).

- **Auto1 (normal):** Detects 24 frame-per-second film content and appropriately converts it.
- **Auto2:** Compatible with 30 frame-per-second film content in addition to 24 frame-per-second film content. (Picture distortion may occur depending on the content)
- **Video:** Select when using "Auto1" and "Auto2", and the video content is distorted.

* Only when you have selected "480p" in "TV Type" (⇒ page 14).

Audio menu—Change the sound effect

V.S.S. HDD RAM DVD-R DVD-V

(Dolby Digital, 2-channel or over only)

Enjoy a surround-like effect if you are using two front speakers only.

- Turn V.S.S. off if it causes distortion.
- V.S.S. does not work for SAP recordings.

Dialog Enhancer DVD-A DVD-V

(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.

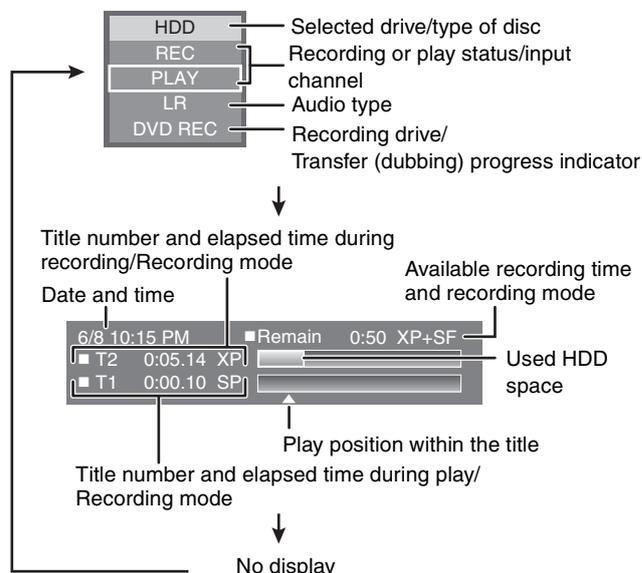
Status messages

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.

- Displayed information are examples.



FUNCTIONS window

By using the FUNCTIONS window you may access the main functions quickly and easily.

1 While stopped

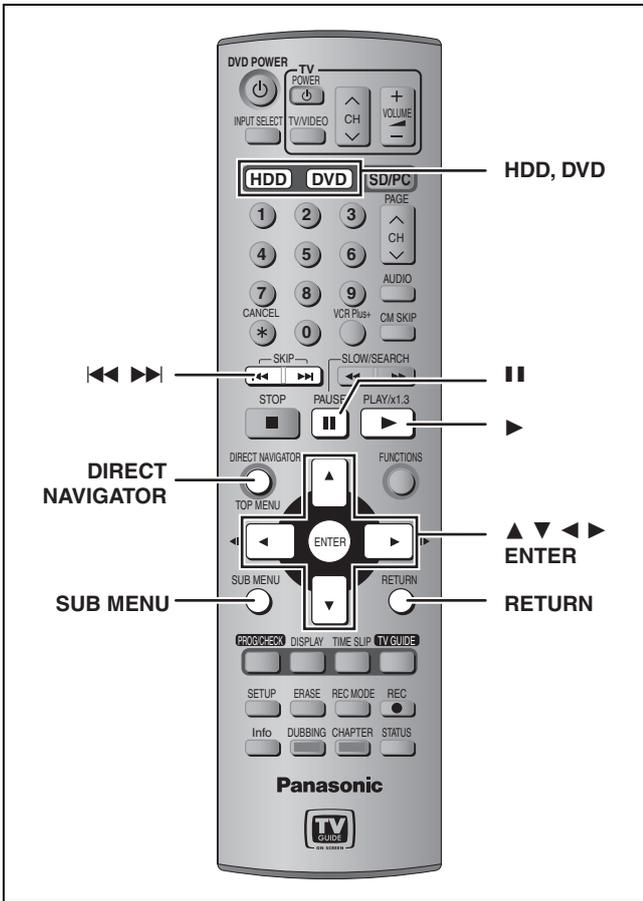
Press [FUNCTIONS].



Functions displayed depend on the selected drive or type of disc.

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

To exit the FUNCTIONS window
Press [FUNCTIONS].

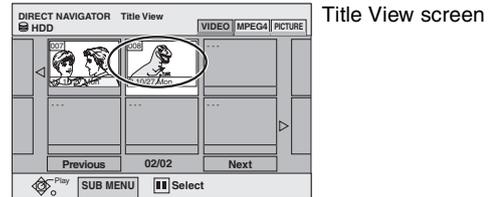


Editing titles/chapters and playing chapters

Preparation

- Press [HDD] or [DVD] to select the drive.
- Release protection (→ page 58). **RAM**

- 1 Press [DIRECT NAVIGATOR].
- 2 Press [▲, ▼, ◀, ▶] to select “VIDEO” tab and press [ENTER].
- 3 Press [▲, ▼, ◀, ▶] to select the title.



To show other pages

Press [▲, ▼, ◀, ▶] to select “Previous” or “Next” and press [ENTER].

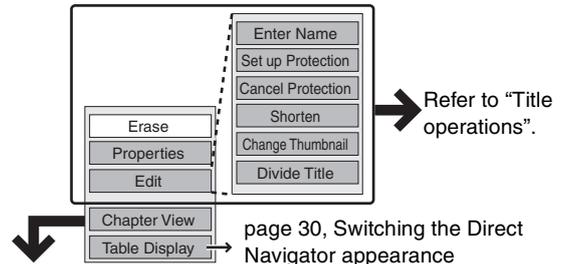
- You can also press [◀◀, ▶▶] to show other pages.

Multiple editing

Select with [▲, ▼, ◀, ▶] and press [II]. (Repeat.) A check mark appears. Press [II] again to cancel.

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

- If you select “Edit”, press [▲, ▼] to select the operation and press [ENTER].

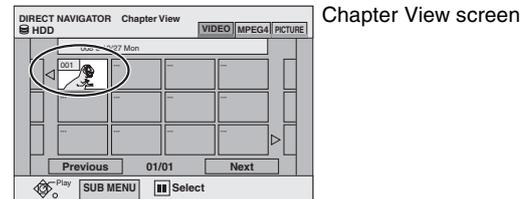


If you select “Chapter View”

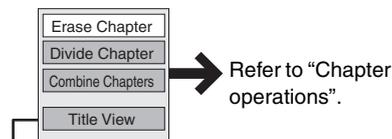
- 5 Press [▲, ▼, ◀, ▶] to select the chapter.

To start play → Press [ENTER].

To edit → Step 6.



- To show other pages/Multiple editing (→ above)
- 6 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].



- You can go back to the Title View.

To exit the screen

Press [DIRECT NAVIGATOR].

To return to the previous screen

Press [RETURN].

HDD | RAM | DVD-R

Title/Chapter

Programs are recorded as a single title consisting of one chapter.



You can divide a title into multiple chapters. **HDD | RAM** (→ page 32, Create chapters, → page 41, Divide Chapter)



You can change the order of chapters and create a play list (→ page 42). **HDD | RAM**

- Titles are divided into about 5-minute chapters after finalizing (→ page 60). **DVD-R**

- The maximum number of items on a disc

HDD

- Titles: 500
- Chapters: Approximately 1000 per title (Depends on the state of recording.)

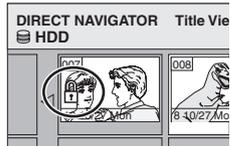
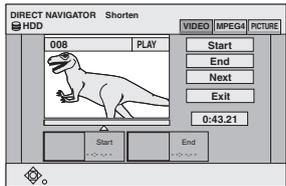
RAM | DVD-R

- Titles: 99
- Chapters: Approximately 1000 (Depends on the state of recording.)

Note

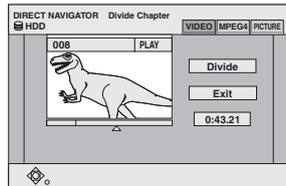
- Once erased, divided or shortened, it cannot be restored to its original state. Make certain before proceeding.
- You cannot edit during recording, chasing play or transferring (dubbing), etc.
- Restricted recording information remains even after editing (e.g. dividing a title, etc).

Title operations

Erase* HDD RAM DVD-R	<p>Press [◀, ▶] to select “Erase” and press [ENTER].</p> <ul style="list-style-type: none"> •Once erased, the recorded contents are lost and cannot be restored. Make certain before proceeding. •The available recording time on DVD-R does not increase when you erase titles.
Properties HDD RAM DVD-R	<p>Information (e.g., time and date) is shown.</p> 
Enter Name HDD RAM DVD-R	<p>You can give names to recorded titles. → page 46, Entering text</p>
Set up Protection* Cancel Protection* HDD RAM	<p>If set, this will protect the title from accidental erasure.</p> <p>Press [◀, ▶] to select “Yes” and press [ENTER].</p> <p>The lock symbol appears when the title is protected.</p> 
Shorten HDD RAM	<p>You can remove unnecessary parts of the recording such as commercials.</p> <ol style="list-style-type: none"> ① Press [ENTER] at the start point and end point of the section you want to erase. ② Press [▲, ▼] to select “Exit” and press [ENTER]. <ul style="list-style-type: none"> •Select “Next” and press [ENTER] to erase other sections. ③ Press [◀, ▶] to select “Erase” and press [ENTER]. 
Change Thumbnail HDD RAM DVD-R	<p>You can change the image to be shown as the thumbnail picture in the Title View.</p> <ol style="list-style-type: none"> ① Press [▶] (PLAY) to start play. ② Press [ENTER] when the image you want to use as a thumbnail is shown. ③ Press [▲, ▼] to select “Exit” and press [ENTER]. 
Divide Title HDD RAM	<p>You can divide a title into two.</p> <ol style="list-style-type: none"> 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]. <p>To confirm the division point Press [▲, ▼] to select “Preview” and press [ENTER]. (The unit plays 10 seconds before and after the division point.)</p> <p>To change the division point Restart play and press [▲, ▼] to select “Divide”, then press [ENTER] at the point you want to change.</p> <p>Note</p> <ul style="list-style-type: none"> •The divided titles retain the name and CPRM property (→ page 68) of the original title. •Video and audio just before and after the dividing point may momentarily cut out. 

* Multiple editing is possible.

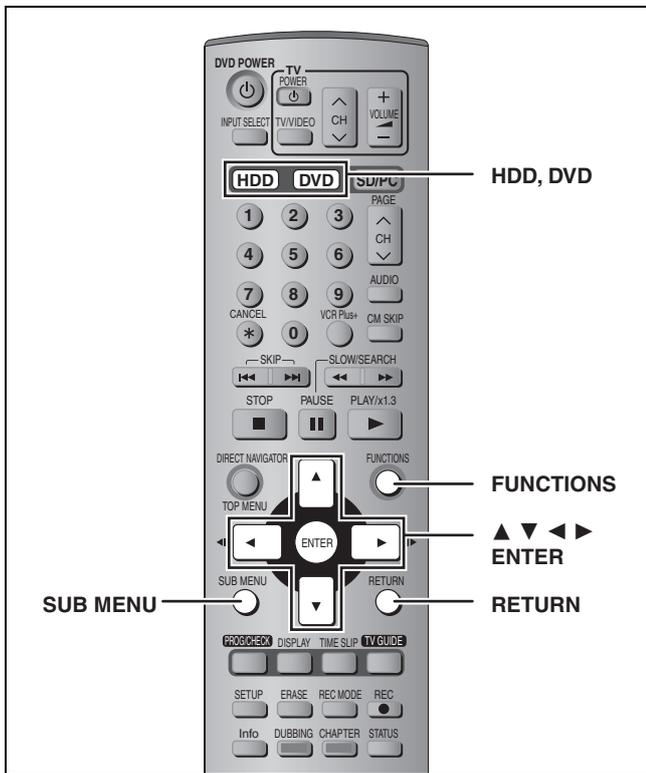
Chapter operations

Erase Chapter* HDD RAM	<p>Press [◀, ▶] to select “Erase” and press [ENTER].</p> <ul style="list-style-type: none"> •Once erased, the recorded contents are lost and cannot be restored. Make certain before proceeding.
Divide Chapter HDD RAM	<ol style="list-style-type: none"> ① Press [ENTER] at the point you want to divide. <ul style="list-style-type: none"> •Repeat this step to divide at other points. ② Press [▲, ▼] to select “Exit” and press [ENTER]. 
Combine Chapters HDD RAM	<p>Press [◀, ▶] to select “Combine” and press [ENTER].</p> <ul style="list-style-type: none"> •The selected chapter and next chapter are combined.

* Multiple editing is possible.

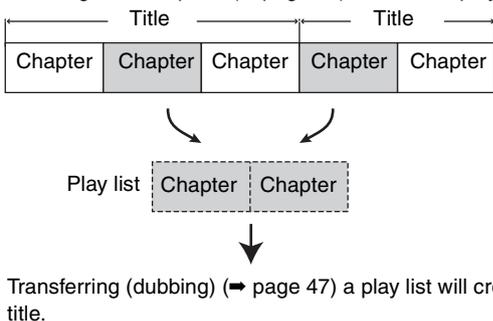
For quicker editing

- Use search, Time Slip or slow-motion (→ page 31) to find the desired point.
- Press [◀◀, ▶▶] to skip to the end of a title.



HDD | RAM

You can arrange the chapters (⇒ page 40) to create a play list.



- Play lists are not recorded separately so this doesn't use much capacity.
- Editing play lists doesn't modify the recorded data.

- The maximum number of items on a disc
 - Play lists: 99
 - Chapters in play lists: Approximately 1000 (Depends on the state of recording.)

Note

You cannot create or edit a play list while recording or while transferring (dubbing).

Creating play lists

Preparation

- Press [HDD] or [DVD] to select the drive.
- Release protection (⇒ page 58). **RAM**

- 1 While stopped
Press [FUNCTIONS].



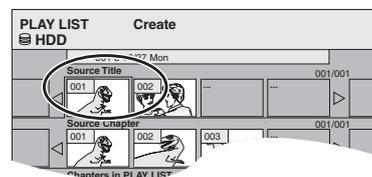
- 2 Press [▲, ▼, ◀, ▶] to select “PLAY LIST” and press [ENTER].



- 3 Press [▲, ▼, ◀, ▶] to select “Create” and press [ENTER].

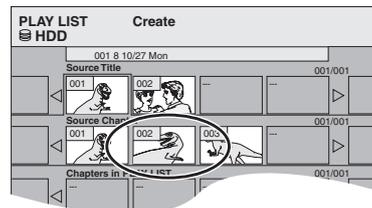
- 4 Press [◀, ▶] to select the source title and press [▼].

- Press [ENTER] to select all the chapters in the title, then skip to step 6.



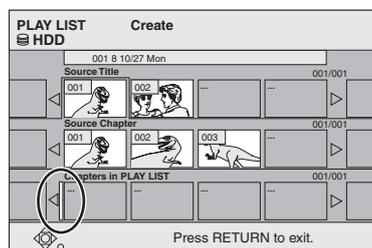
- 5 Press [◀, ▶] to select the chapter you want to add to a play list and press [ENTER].

Press [▲] to cancel.



- You can also create a new chapter from the source title. Press [SUB MENU] to select “Divide Chapter” and press [ENTER] (⇒ page 41, Divide Chapter).

- 6 Press [◀, ▶] to select the position to insert the chapter and press [ENTER].



- Press [▲] to select other source titles.
- Repeat steps 5–6 to add other chapters.

- 7 Press [RETURN].

To exit the screen

Press [RETURN] several times.

To return to the previous screen

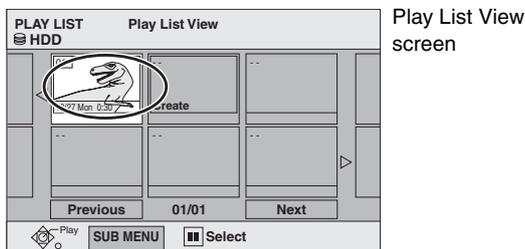
Press [RETURN].

Editing and playing play lists/chapters

- 1 Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select “PLAY LIST” and press [ENTER].
- 3 Press [▲, ▼, ◀, ▶] to select the play list.

To start play ⇒ Press [ENTER].

To edit ⇒ Step 4.

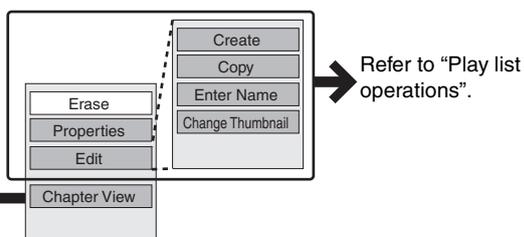


Play List View screen

- To show other pages/Multiple editing (⇒ page 40)

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

- If you select “Edit”, press [▲, ▼] to select the operation and press [ENTER].

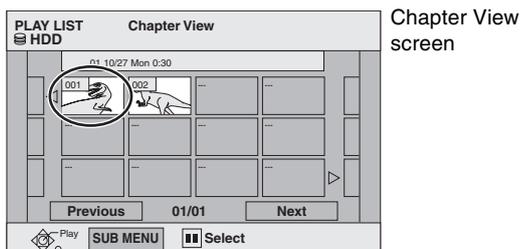


If you select “Chapter View”

- 5 Press [▲, ▼, ◀, ▶] to select the chapter.

To start play ⇒ Press [ENTER].

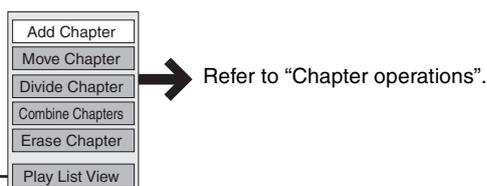
To edit ⇒ Step 6.



Chapter View screen

- To show other pages/Multiple editing (⇒ page 40)

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



- You can go back to the Play List View.

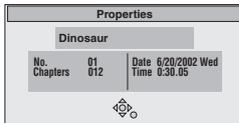
To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

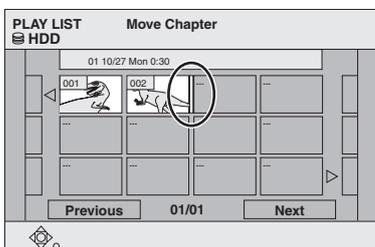
Play list operations

Erase*	Press [◀, ▶] to select “Erase” and press [ENTER].
Properties	Play list information (e.g., time and date) is shown. 
Create	⇒ page 42, Creating play lists, Step 4–7
Copy*	Press [◀, ▶] to select “Copy” and press [ENTER].
Enter Name	⇒ page 46, Entering text
Change Thumbnail	⇒ page 41, Change Thumbnail

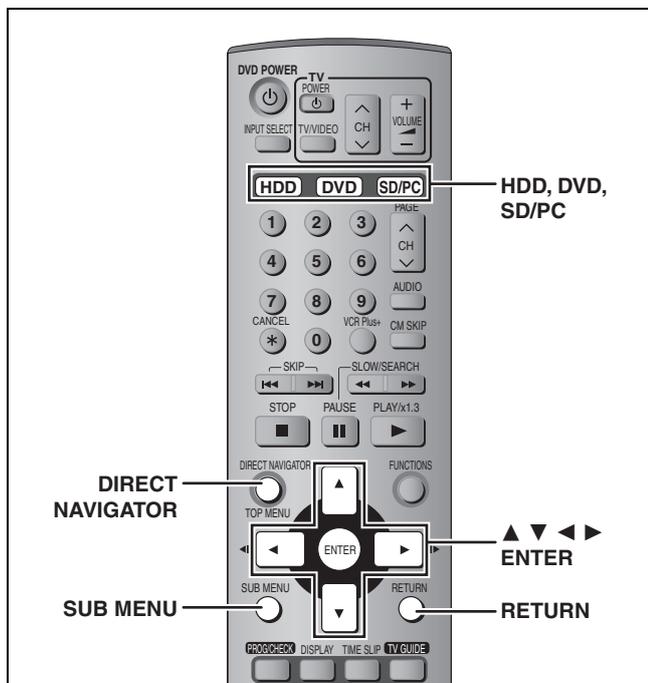
* Multiple editing is possible.

Chapter operations

Editing chapters in a play list does not modify the source titles and source chapters.

Add Chapter	⇒ page 42, Creating play lists, Step 4–6
Move Chapter	Press [▲, ▼, ◀, ▶] to select the position to insert the chapter and press [ENTER]. 
Divide Chapter	⇒ page 41, Divide Chapter
Combine Chapters	⇒ page 41, Combine Chapters
Erase Chapter*	⇒ page 41, Erase Chapter

* Multiple editing is possible.



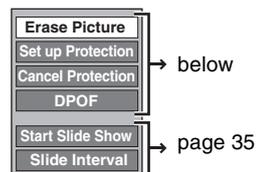
HDD RAM SD PC

• You can use SD Memory Cards with capacities from 8 MB to 1 GB (⇒ page 21).

Preparation

- Press [HDD], [DVD] or [SD/PC] to select the drive.
- Release protection (⇒ page 58).

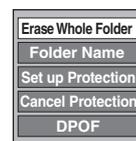
- 1 Press [DIRECT NAVIGATOR].
- 2 Press [▲, ▼, ◀, ▶] to select “PICTURE” tab and press [ENTER].
- 3 Press [▲, ▼, ◀, ▶] to select the still picture.
 - To show other pages/Multiple editing (⇒ page 40)
 - To select the still pictures in another folder (⇒ page 35)
- 4 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].



■ To edit still picture folders

In step 3 (⇒ above)

- ① Press [▲, ▼, ◀, ▶] to select “Folder” and press [ENTER].
- ② Press [▲, ▼] to select the folder.
 - To show other pages/Multiple editing (⇒ page 40)
- ③ Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].
 - To select another higher folder (⇒ page 35)



To exit the screen

Press [DIRECT NAVIGATOR].

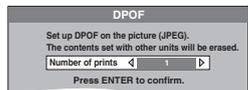
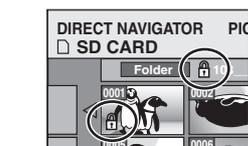
To return to the previous screen

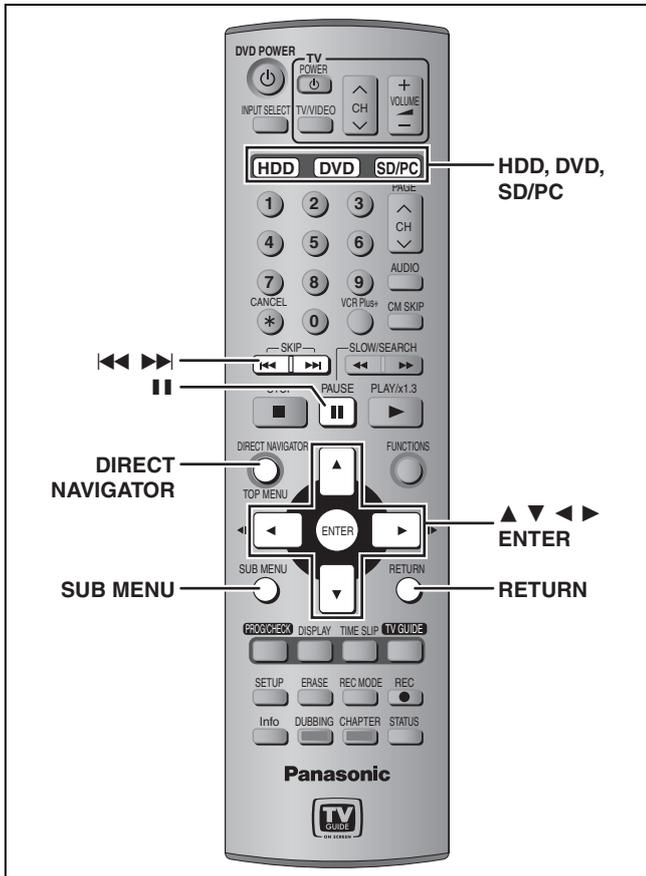
Press [RETURN].

Picture and folder operation

<p>Erase Picture* Erase Whole Folder* HDD RAM SD PC</p>	<p>Press [◀, ▶] to select “Erase” and press [ENTER].</p> <ul style="list-style-type: none"> • Once erased, the recorded contents are lost and cannot be restored. Make certain before proceeding. • When erasing a folder, even the files not containing still pictures will also be erased if they are inside the folder. (This does not apply to folders under the folder concerned.)
<p>Set up Protection* Cancel Protection* HDD RAM SD PC</p>	<p>If set, this will protect the still picture or folder from accidental erasure.</p> <p>Press [◀, ▶] to select “Yes” and press [ENTER].</p> <p>The lock symbol appears when the still picture or folder is protected.</p> <ul style="list-style-type: none"> • Even if the protection setting is used by this unit to protect a folder, the folder may be erased by another unit.
<p>DPOF* SD PC</p>	<p>You can select a whole folder or individual pictures for printing and specify the number of prints to be made.</p> <p>Press [◀, ▶] to select number of print (0 to 9) and press [ENTER].</p> <p>The DPOF mark appears.</p> <ul style="list-style-type: none"> • This appears on the still pictures inside a folder when you make the DPOF setting for the folder. <p>To cancel the print setting Set the number of print to “0”.</p> <ul style="list-style-type: none"> • When this is set by this unit, any settings established by other units will be released. • Print settings (DPOF) made using this unit may not be viewable on other equipment. • Settings cannot be made for folders and files not in accordance with DCF standards or if there is no remaining space on the card.
<p>Folder Name HDD RAM SD PC</p>	<p>You can give names to still picture folders.</p> <p>⇒ page 46, Entering text</p> <ul style="list-style-type: none"> • Folder names input using this unit may not be displayed on other equipment.

* Multiple editing is possible.





HDD RAM SD PC (Mobile hard disk only)

Preparation

- Press [HDD], [DVD] or [SD/PC] to select the drive.
- Release protection (→ page 58).

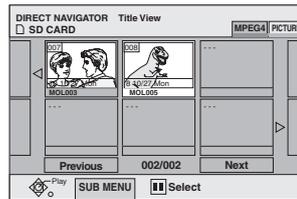
1 Press [DIRECT NAVIGATOR].

To exit the screen

Press [DIRECT NAVIGATOR].

2 Press [**▲**, **▼**, **◀**, **▶**] to select “MPEG4” tab and press [ENTER].

3 Press [**▲**, **▼**, **◀**, **▶**] to select the title.



To show other pages

Press [**▲**, **▼**, **◀**, **▶**] to select “Previous” or “Next” and press [ENTER].

- You can also press [**◀◀**, **▶▶**] to show other pages.

Multiple editing

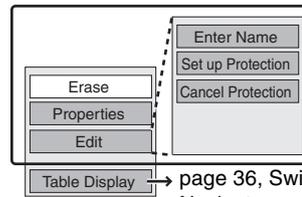
Select with [**▲**, **▼**, **◀**, **▶**] and press [**■**]. (Repeat.)

A check mark appears. Press [**■**] again to cancel.

(Mobile hard disk only) To select the MPEG4 titles in another folder → page 37

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

- If you select “Edit”, press [**▲**, **▼**] to select the operation and press [ENTER].



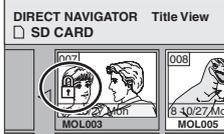
Refer to “MPEG4 title operations” (→ below).

page 36, Switching the Direct Navigator appearance

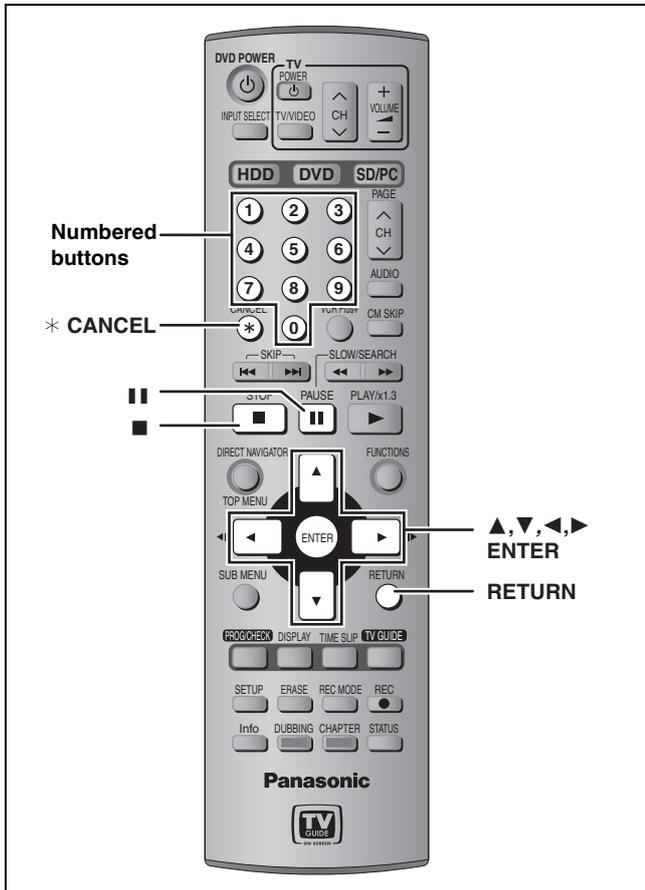
To return to the previous screen

Press [RETURN].

MPEG4 title operations

Erase* HDD RAM SD	<p>Press [◀, ▶] to select “Erase” and press [ENTER].</p> <p>• Once erased, the recorded contents are lost and cannot be restored. Make certain before proceeding.</p>
Properties HDD RAM SD PC (Mobile hard disk only)	<p>Information (e.g., time and date) is shown.</p> 
Enter Name HDD RAM SD	<p>You can give names to titles. → page 46, Entering text</p>
Set up Protection* Cancel Protection* HDD RAM SD	<p>If set, this will protect the title from accidental erasure.</p> <p>Press [◀, ▶] to select “Yes” and press [ENTER].</p> <p>The lock symbol appears when the title is protected.</p> 

* Multiple editing is possible.



HDD RAM DVD-R SD PC

You can give names to recorded titles etc. or to units for distinguishing them on the network.

The maximum number of characters:

HDD RAM	Characters
Title	64
Play list	64
Disc	64
Folder of still pictures	36
MPEG4 title	44

DVD-R	Characters
Title	44
Disc	40

SD PC	Characters
Folder of still pictures	36

SD	Characters
MPEG4 title	44

(Network function)	Characters
Unit name	16

Note

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

1 Show Enter Name screen.

Title
Select "Enter Name" in step 4 on page 40.

Play list
Select "Enter Name" in step 4 on page 43.

Disc
Select "Disc Name" in step 3 on page 58.

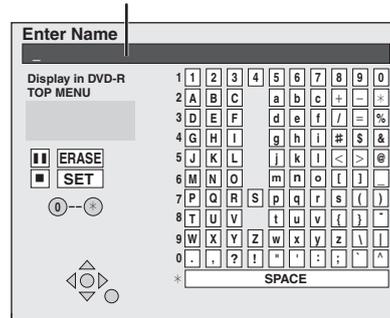
Folder of still pictures
Select "Folder Name" in step ③ on page 44, "To edit still picture folders".

MPEG4 title
Select "Enter Name" in step 4 on page 45.

Unit name
Select "Unit Name Setting" after step 2 on page 16.

Select "Unit Name" in the "Add manually" screen on page 17.

Name field: shows the text you have entered



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 [■].

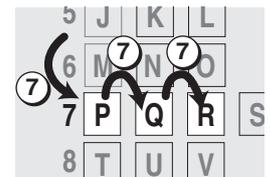
• **Using the numbered buttons to enter characters**

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.

For your reference

If you enter a long name, only part of it is shown in the TOP MENU after finalization (➡ page 60). When entering a title name, the name that will appear in the TOP MENU can be previewed in "Display in DVD-R TOP MENU" window.



Transferring (dubbing) titles or play lists

HDD RAM DVD-R

You can select from a variety of methods to transfer (dub) on this unit.

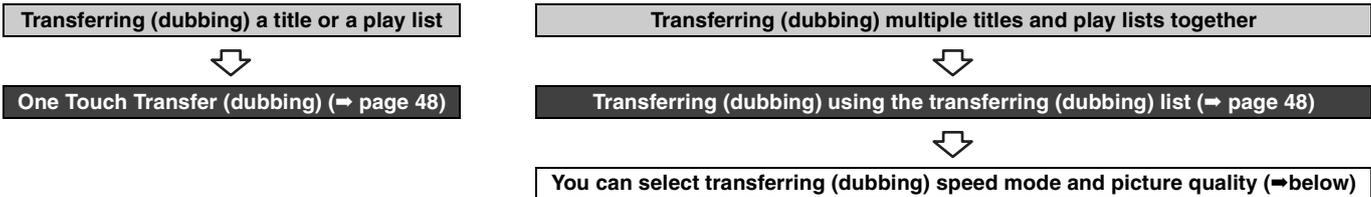
When transferring (dubbing) MPEG4 motion pictures or video titles by converting them to MPEG4 format (⇒ page 54).

■ Transferring (dubbing) direction

You can transfer (dub) your favorite titles and play lists to an archive disc. ● Transferring (dubbing) a play list will create a title.		When you want to re-edit finalized content on a DVD-R, etc.
<p>High speed mode HDD → RAM</p> <p>Normal speed mode HDD → RAM</p>	<p>High speed mode* HDD → DVD-R</p> <p>Normal speed mode HDD → DVD-R</p> <p>● When you want to play a transferred (dubbed) disc on other equipment, you must finalize the disc after transferring (dubbing) (⇒ page 60, 68). * Before recording to HDD, set "DVD-R High-Speed Recording" to "On" (⇒ page 62).</p>	<p>Normal speed mode DVD-V* → HDD</p> <p>* Finalized DVD-R or DVD-Video on sale that is not copy-protected, etc.</p>

Normal speed mode: Select XP, SP, LP, EP or FR as the recording mode for transferring (dubbing) (⇒ page 23).

■ Transferring (dubbing) mode



■ Transferring (dubbing) speed mode types and features

	High speed	Normal speed (XP, SP, LP, EP, FR)
Features	You can transfer (dub) in a very short amount of time. You can transfer (dub) even faster if you use a high speed recording compatible disc. You can record and play using the HDD while high speed transferring (dubbing).	You can record for a long period of time on 1 disc. For example, using LP mode, you can record approximately 4 hours on 1 (4.7 GB) disc (⇒ page 23). e.g., 1 hour TV drama Only one episode using XP mode 4 episodes using LP mode
Transferring (dubbing) times	⇒ below, Approximate transferring (dubbing) times	The same amount of time it takes to record the source
Picture quality	Original picture quality	Can change* ¹
Are chapters/thumbnails maintained?	Yes* ²	No (One title is recorded as one chapter. Thumbnails return to the default position.)
Other operations while transferring (dubbing)	You can record/play using the HDD.	No

*¹ If you select a recording mode with better picture quality than the original, the picture quality does not improve. (However, it does prevent against degradation of picture quality.)

*² When transferring (dubbing) play lists to DVD-R, the thumbnails may not reflect changes made to them.

■ Approximate transferring (dubbing) times (Max. speed)

(excludes time required to write data management information)

HDD		5× high speed recording compatible DVD-RAM		8× high speed recording compatible DVD-R	
Recording mode	Recording time	Required time	Speed	Required time	Speed
XP	1 hour	Approx. 12 min.	5×	Approx. 8.7 min.	Max. 8×
SP		Approx. 6 min.	10×	Approx. 3.8 min.	Max. 16×
LP		Approx. 3 min.	20×	Approx. 1.9 min.	Max. 32×
EP (6H)		Approx. 2 min.	30×	Approx. 1.3 min.	Max. 48×
EP (8H)		Approx. 1.5 min.	40×	Approx. 56 sec.	Max. 64×

Note

- When recording or playing while transferring (dubbing), the unit may not use the maximum recording speed.
- Depending on the condition of the disc, the unit may not transfer (dub) using the maximum speed.

Regarding high speed transfer (dubbing) to DVD-R

To high speed transfer (dub) titles (or play lists created from those titles), set "DVD-R High-Speed Recording" to "On" before recording to the HDD (⇒ page 62).

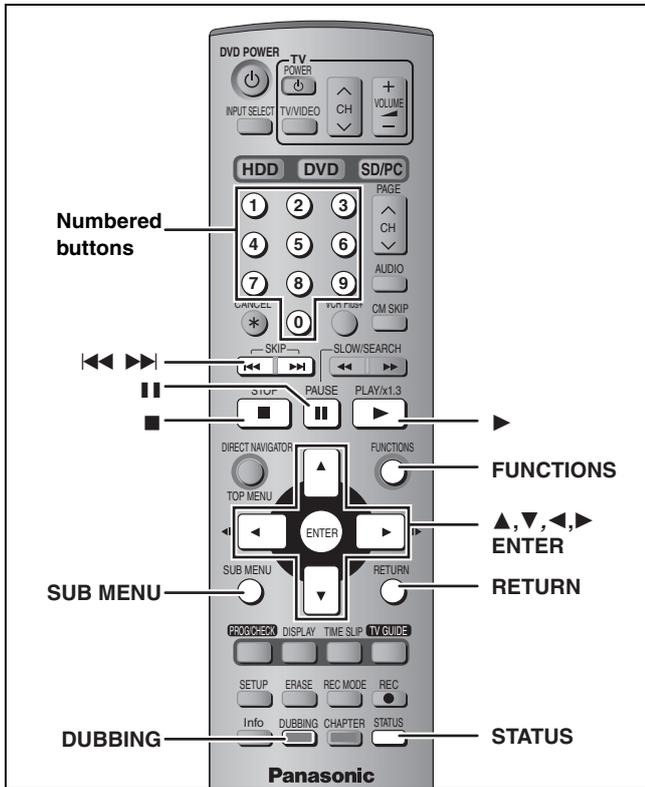
However, in the following cases, transferring (dubbing) to DVD-R using the high speed mode does not work.

- Play lists created from titles using a variety of recording modes
- Play lists created from multiple titles using FR recording mode
- Play lists mixed with a variety of audio types (Dolby Digital and LPCM, etc.)
- Titles that contain many erased segments.

Regarding transferring (dubbing) of digital broadcasts that allow "One time only recording"

You can transfer (dub) a recorded title to a CPRM (⇒ page 68) compatible DVD-RAM; however, the title is erased from the HDD.

- You cannot use one touch transfer (dubbing). Use the transferring (dubbing) list (⇒ page 48).
- Titles will not be transferred (dubbed) if they are protected (⇒ page 41).
- You cannot transfer (dub) play lists created from "One time only recording" titles.
- Titles with recording limitations and play lists cannot be registered on the same transferring (dubbing) list.
- Titles or play lists cannot be transferred (dubbed) from DVD-RAM to the HDD.



Transferring (dubbing) using the transferring (dubbing) list

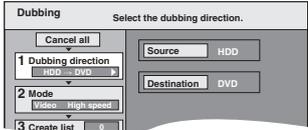
- HDD ↔ RAM
- HDD → DVD-R

You can order titles and play lists for transfer (dubbing) as desired as well as select the speed and picture quality.

Preparation

- Select the audio type for recording MTS broadcasts from “Select MTS” (⇒ page 63) when:
 - Transferring (dubbing) to a DVD-R.
 - When “Audio for XP Recording” is set to “LPCM” (⇒ page 63) and you are transferring (dubbing) in XP mode.

- 1 While stopped Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select “DUBBING” and press [ENTER].



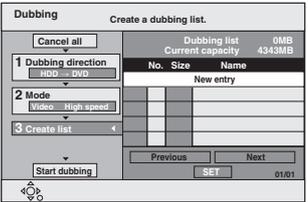
- 3 Press [▲, ▼] to select “Dubbing direction” and press [▶].
 - ① Press [▲, ▼] to select “Source” and press [ENTER].
 - ② Press [▲, ▼] to select the drive and press [ENTER].
 - ③ Press [▲, ▼] to select “Destination” and press [ENTER].

• If you are not going to change the registered list press [▼] several times (⇒ step 7).

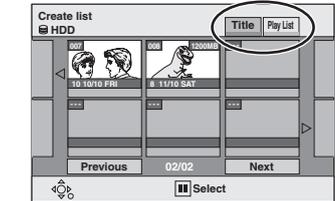
- 4 Press [▲, ▼] to select “Mode” and press [▶].
 - ④ Press [▲, ▼] to select the mode and press [ENTER].
 - ⑤ Press [◀] to confirm.

- 5 Press [▲, ▼] to select “Create list” and press [▶].
 - ⑥ Press [▲, ▼] to select “Format” and press [ENTER].
 - ⑦ Press [▲, ▼] to select “Video” and press [ENTER].
 - ⑧ Press [▲, ▼] to select “Recording mode” and press [ENTER].
 - ⑨ Press [▲, ▼] to select the mode and press [ENTER].
 - ⑩ Press [◀] to confirm.

- 6 Press [▲, ▼] to select “Create list” and press [▶].
 - Select the transferring (dubbing) items and register on the list.
 - When transferring (dubbing) to DVD-R using high speed mode, only items indicated with “▶▶▶” can be registered.



- 1 Press [▲, ▼] to select “New entry” and press [ENTER].
- 2 Press [▲, ▼, ◀, ▶] to select “Video” or “Play List” tab and press [ENTER].



One Touch Transfer (dubbing)

- HDD → RAM
- HDD → DVD-R

Preparation

Select the audio type for recording MTS broadcast from “Select MTS” (⇒ page 63) when transferring (dubbing) to a DVD-R.

- 1 Play the title or play list you want to transfer (dub).
- 2 Press [DUBBING].



When transferring (dubbing) to 8x high speed recording compatible DVD-R or 5x high speed recording compatible DVD-RAM in High speed mode

- 1 Press [▲] to highlight “DVD drive speed”.
 - 2 Press [◀, ▶] to select “Top speed mode” or “Silent mode” and press [▼].
- Selecting “Silent mode” means the noise generated by this unit is less than “Top speed mode”, however the time required for transferring (dubbing) will increase (approximately) double.

- 3 Press [◀, ▶] to select “Yes” and press [ENTER].

•The transfer (dubbing) speed and picture quality are set as follows.

The recording mode changes to FR mode if the remaining disc space is exceeded using one of the recording modes indicated below.

- HDD → RAM: High speed mode
- HDD → DVD-R:

DVD-R High-Speed Recording setting	
On	Off
High speed mode	Same recording mode used as when recording the source title (XP-EP, FR). •Play lists are transferred (dubbed) in FR mode.

Note

Titles and play lists cannot be transferred (dubbed) if they contain a broadcast that allows “One time only recording”.

③ Press [**▲**, **▼**, **◀**, **▶**] to select the titles or play lists and press [ENTER].

•To select a multiple number of items together, press [**■**] to add the check mark and press [ENTER] (⇒ below, Multiple editing).

•To show other pages (⇒ below)

•To edit the transferring (dubbing) list (⇒ below)

6 Press [**▲**, **▼**] to select “SET” and press [ENTER].

The transferring (dubbing) list is registered.

7 Press [**▲**, **▼**] to select “Start dubbing” and press [ENTER].

When transferring (dubbing) to 8× high speed recording compatible DVD-R or 5× high speed recording compatible DVD-RAM in High speed mode

1 Press [**▲**] to highlight “DVD drive speed”.

2 Press [**◀**, **▶**] to select “Top speed mode” or “Silent mode” and press [**▼**].

•Selecting “Silent mode” means the noise generated by this unit is less than “Top speed mode”, however the time required for transferring (dubbing) will increase (approximately) double.

Press [**◀**, **▶**] to select “Yes” and press [ENTER] to start transferring (dubbing).

■ To edit the transferring (dubbing) list

Select the item in step 5 (⇒ page 48, right column)

1 Press [SUB MENU].

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

* Multiple editing is possible (⇒below).



To cancel all registered transferring (dubbing) setting and lists

In step 3 (⇒ page 48, right column)

1 Press [**▲**, **▼**] to select “Cancel all” and press [ENTER].

2 Press [**◀**, **▶**] to select “Yes” and press [ENTER].

•The settings and lists may be cancelled in the following situations.
–When a title, still picture, etc. has been recorded or erased at the transfer (dubbing) source
–When steps have been taken, for instance, to turn off the unit, open the tray, change the transfer (dubbing) direction, etc.

To show other pages

Press [**▲**, **▼**, **◀**, **▶**] to select “Previous” or “Next” and press [ENTER].

•You can also press [**◀◀**, **▶▶**] to show other pages.

Multiple editing

Select with [**▲**, **▼**, **◀**, **▶**] and press [**■**]. (Repeat.)

Press [ENTER] to register to the list.

•A check mark appears. Press [**■**] again to cancel.

•When you switch between the “Video” and “Play List” tab, the check mark is cancelled.

Transferring (dubbing) list icons



Titles and play lists that can be transferred (dubbed) in high speed mode to DVD-R (⇒ page 62)



Title with “One time only recording” restriction

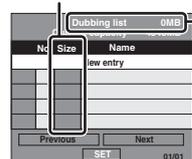


Titles erased from the HDD by “One time only recording” restriction after transferring (dubbing).



Title or play list contains still picture(s)
•Still picture(s) cannot be transferred (dubbed).

Data size of each registered item



Data size recorded to the transfer (dubbing) destination

•When transferring (dubbing) at normal speed, the total data size will change according to the recording mode.

•When transferring (dubbing) to the HDD using high speed mode, data management information is automatically added so the total data size becomes larger than the sum of the data size for all registered items.

■ To stop transferring (dubbing)

Press and hold [RETURN] for 3 seconds.

•If stopped partway, transferring (dubbing) will be up to that point. However, in high speed mode, only titles that have completed transferring (dubbing) at the point stopped are transferred (dubbed). [Even if the title was not transferred (dubbed) to the DVD-R, the amount of remaining writable disc space becomes less.]

■ To return to the previous screen

Press [RETURN].

■ Recording and playing while transferring (dubbing)

You can record and play using the HDD while high speed transferring (dubbing).

Press [ENTER] to cancel the screen display.

•To confirm the current progress

Press [STATUS].

Note

- You cannot perform chasing play or edit, etc. while transferring (dubbing).
- Timer recordings executed while transferring (dubbing) are recorded to the HDD regardless of the recording drive settings.
- You cannot play a play list while transferring (dubbing) titles with “One time only recording” restriction (⇒ page 47).

Refer to the control reference on page 48.

Transferring (dubbing) a finalized DVD-R

DVD-V → HDD

While playing a disc, the content being played is transferred (dubbed) to the HDD according to the set time.

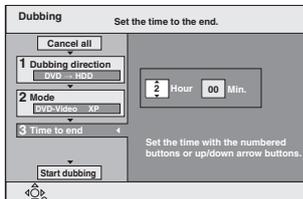


- Operations and on screen displays during transfer (dubbing) are also recorded.
- Almost all DVD-Video on sale have been treated to prevent illegal copying, and cannot be transferred (dubbed).
- The following cannot be transferred (dubbed): DVD-Audio, Video CD, Audio CD and so on.

After performing steps 1–4 (“Format” is automatically set to “DVD-Video”.) (➔ page 48, right column)

5 Press [▲, ▼] to select “Time to end” and press [▶].

6 Press [◀, ▶] to select “Hour” and “Min.” and press [▲, ▼] to set the recording time.



- You can also set the recording time with the numbered buttons.
- Set a few minutes longer than the source title, in order to include the operation time before play begins.

7 Press [◀] to select “Time to end”.

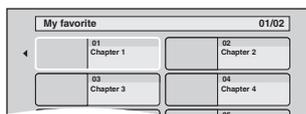
8 Press [▲, ▼] to select “Start dubbing” and press [ENTER].

Press [◀, ▶] to select “Yes” and press [ENTER] to start transferring (dubbing).

The disc top menu is displayed.

- Disc play automatically begins from title 1 when “Title 1” is selected from the “Select First play” menu when finalizing the disc (➔ page 60).

9 When the top menu is displayed Press [▲, ▼, ▶, ◀] to select the title you want to start transferring (dubbing), and press [ENTER].



While playing in order, all the titles after the selected title are recorded until the set time. (After the last title on the disc has finished playing the top menu is recorded until the set time is reached.)

Note

- The screen on the right (screen saver) is recorded at the beginning.
- Recorded as 1 title from the start of transfer (dubbing) to the end.
- If play does not begin automatically or if the top menu does not display automatically, press [▶] (PLAY) to start.
- Even if you transfer (dub) a high quality video/audio DVD, the original picture and audio quality cannot be exactly replicated.

To stop transferring (dubbing)

Press [■].

You can also press and hold [RETURN] for 3 seconds to stop transferring (dubbing).

- If stopped partway, transferring (dubbing) will be up to that point.

To return to the previous screen

Press [RETURN].

Manual recording

HDD RAM DVD-R

Preparation

- Connect a video cassette recorder to this unit's input terminals.
- Press [HDD] or [DVD] to select the recording drive.
- To adjust the audio recording level (➔ below)

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 L2 input terminals, select "L2".

2 Press [REC MODE] to select the recording mode.

3 Start play on the other equipment.

4 Press [● REC].

Recording starts.

To skip unwanted parts

Press [II] to pause recording. (Press again to restart recording.)

To stop recording

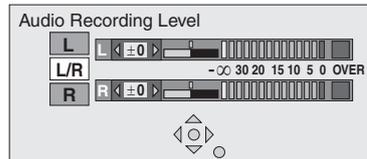
Press [■].

To record programs to fill up the remaining space on the disc
➔ page 24, Flexible Recording

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

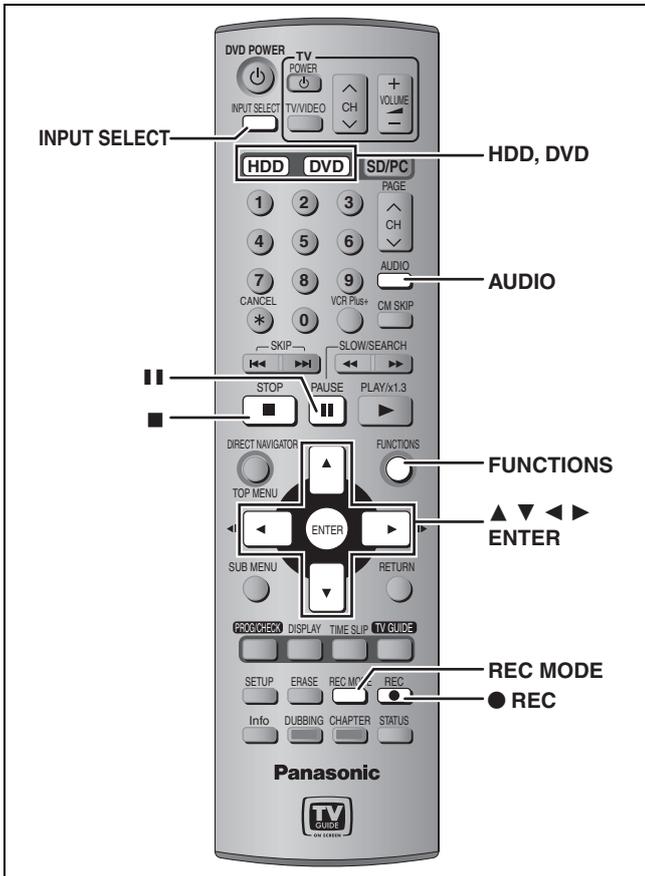
To adjust the audio recording level

- 1 Before recording commences, press and hold [AUDIO] for more than 3 seconds.



- 2 Press [▲, ▼] to select "L/R". To individually adjust a level press [▲, ▼] to select "L" (left) or "R" (right).
- 3 Press [◀, ▶] to adjust the audio recording level and press [ENTER].

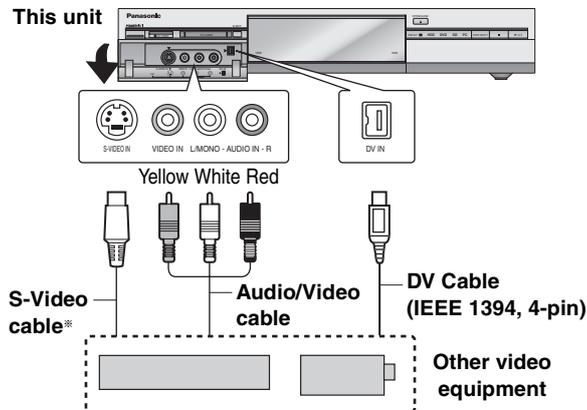
- Set the level to neutral again after recording is finished.
- If the recording level is too high the audio will be distorted. Set it so the audio level meter is not shaking (Maximum -10 dB to -5 dB is an appropriate level).
- The DV input is unaffected.



e.g.: Connecting other video equipment to the L2 or DV input terminals

- Turn off the unit and other video equipment before connecting.

This unit



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.

- DV automatic recording (DV AUTO REC) ➔ page 52

When recording from the unit's DV terminal

Select the type of audio recording from "Select Audio CH for DV Input" in the SETUP menu (➔ page 63).

Refer to the control reference on page 51.

DV automatic recording (DV AUTO REC)

HDD | RAM

When the "DV AUTO REC" function is used, programs are recorded as a title while at the same time chapters are created at each break in the images and the play list is created automatically.

Preparation

- 1 Turn off the main unit and DV equipment, then connect the equipment with the unit's DV input terminal (⇒ page 51, left column).
- 2 Turn on the main unit and DV equipment.
- 3 Pause play of the DV equipment at the point you want recording to start.
- 4 Press [HDD] or [DVD] to select the recording drive.

- 1 **While stopped**
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "DV AUTO REC" and press [ENTER].
- 3 Press [REC MODE] to select the recording mode.
- 4 Press [◀, ▶] to select "Rec" and press [ENTER].
Recording starts.

When recording finishes

The confirmation screen appears. Press [ENTER] to finish DV automatic recording.

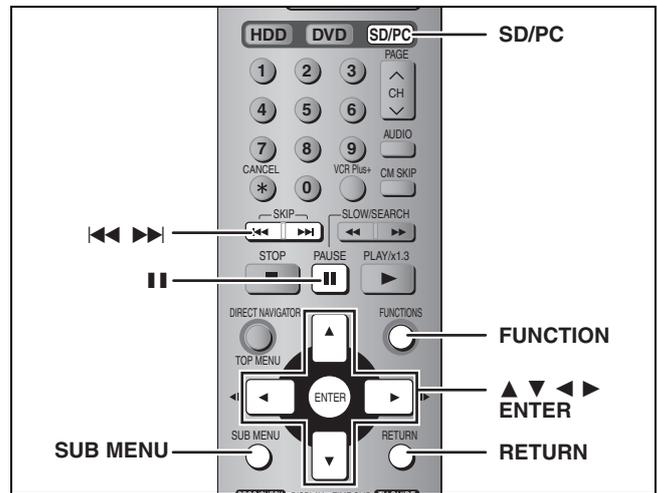
To stop recording

Press [■].

Note

- Only one piece of DV equipment (e.g., digital video camcorder) can be connected to the unit via the DV input terminal.
- It is not possible to operate the unit from the connected DV equipment.
- The DV input 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.
- Even if you set the simultaneous MPEG4 recording function (⇒ page 22), MPEG4 recording will not take place.

If the DV automatic 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 (⇒ page 51).

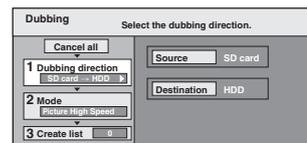


HDD | RAM | SD | PC

- You can use SD Memory Cards with capacities from 8 MB to 1 GB (⇒ page 21).

Transferring (dubbing) using the transferring (dubbing) list

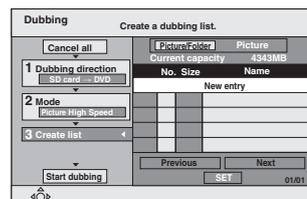
- 1 **While stopped**
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "DUBBING" and press [ENTER].



If you are not going to change the registered list press [▼] several times (⇒ page 53, step 7).

- 3 Press [▲, ▼] to select "Dubbing direction" and press [▶].
 - 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 transfer (dubbing) source can be selected.
 - ⑤ Press [◀] to confirm.
- 4 Press [▲, ▼] to select "Mode" and press [▶].
 - ① Press [▲, ▼] to select "Format" and press [ENTER].
 - ② Press [▲, ▼] to select "Picture" and press [ENTER].
"Recording mode" is automatically set to "High speed".
 - ③ Press [◀] to confirm.
- 5 Press [▲, ▼] to select "Create list" and press [▶].

Select the transferring (dubbing) items and register on the list. Still pictures and folders cannot be registered on the same list.

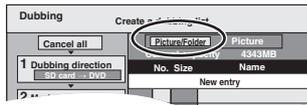


■ To register individual still pictures

- ① Press [▲, ▼] to select "New entry" and press [ENTER].
 - ② Press [▲, ▼, ◀, ▶] to select a still picture and press [ENTER].
- To select a multiple number of items together, press [■] to add the check mark and press [ENTER] (⇒ page 53, Multiple editing)
 - To show other pages (⇒ page 53)
 - To select the still pictures in another folder (⇒ page 53)
 - To edit the transferring (dubbing) list (⇒ page 53)

■ **To register on a folder by folder basis**

- 1 Press [▲, ▼] to select “Picture/Folder” and press [ENTER].



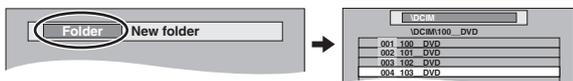
- 2 Press [▲, ▼] to select “Folder” and press [ENTER].
 - 3 Press [▲, ▼] to select “New entry” and press [ENTER].
 - 4 Press [▲, ▼] to select the folder and press [ENTER].
- To select a multiple number of items together, press [II] to add the check mark and press [ENTER] (⇒ below, Multiple editing).
 - To show other pages (⇒ below)
 - To switch another higher folder (⇒ below)
 - To edit the transferring (dubbing) list (⇒ below)

6 Press [▲, ▼] to select “SET” and press [ENTER].

The transferring (dubbing) list is registered.

7 Press [▲, ▼] to select “Start dubbing” and press [ENTER].

- For individual still pictures only
When specifying another folder as the transferring (dubbing) destination, select “Folder”.



Press [◀, ▶] to select “Yes” and press [ENTER] to start transferring (dubbing).

To stop transferring (dubbing)

Press and hold [RETURN] for 3 seconds.

To return to the previous screen

Press [RETURN].

■ **To select another folder**

- 1 Press [▲, ▼, ◀, ▶] to select “Folder” and press [ENTER].
- 2 Press [▲, ▼] to select the folder and press [ENTER].



- The still pictures of different folders cannot be registered on the same list.
- If there is a multiple number of higher folders recognizable, you can switch them using [◀, ▶]. (Folders whose higher folders are different cannot be registered on the same list.)



■ **To edit the transferring (dubbing) list**

Select the item in step 5 (⇒ page 52, right column)

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



* Multiple editing is possible (⇒ below).

To cancel all registered transferring (dubbing) settings and lists

In step 3 (⇒ page 52, right column)

- 1 Press [▲, ▼] to select “Cancel all” and press [ENTER].
 - 2 Press [◀, ▶] to select “Yes” and press [ENTER].
- The settings and lists may be cancelled in the following situations.
 - When a title or still picture has been recorded or erased at the transfer (dubbing) source
 - When steps have been taken, for instance, to turn off the unit, remove the card, open the tray, change the transfer (dubbing) direction, etc.

To show other pages

Press [▲, ▼, ◀, ▶] to select “Previous” or “Next” and press [ENTER].

- You can also press [◀◀, ▶▶] to show other pages.

Multiple editing

Select with [▲, ▼, ◀, ▶] and press [II]. (Repeat.)

Press [ENTER] to register to the list.

- A check mark appears. Press [II] again to cancel.

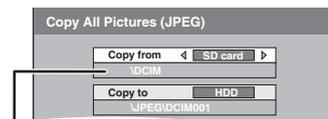
Transferring (dubbing) all the still pictures on a card—COPY ALL PICTURES

SD or PC → HDD or RAM

Preparation

Press [SD/PC] to select the source drive.

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select “COPY ALL PICTURES” and press [ENTER].



- If there is a multiple number of higher folders recognizable, you can switch them using [◀, ▶].

- 3 Press [▲, ▼] to select “Copy from” and press [◀, ▶] to select the drive.
- 4 Press [▲, ▼] to select “Copy to” and press [◀, ▶] to select the drive.
- 5 Press [▲, ▼, ◀, ▶] to select “Copy” and press [ENTER].

To stop transferring (dubbing)

Press and hold [RETURN] for 3 seconds.

To return to the previous screen

Press [RETURN].

Note

- When transferring (dubbing) the still pictures on a folder by folder or card by card basis, files other than the still picture files inside the folder will also be transferred (dubbed). (This does not apply to the lower folders contained inside the folders.)
- If still pictures are already contained inside the transfer (dubbing) destination folder, the new still pictures are recorded following the existing still pictures.
- If the space on the destination drive runs out or the number of files/folders to be transferred (dubbed) exceeds the maximum (⇒ page 34), transferring (dubbing) will stop partway through.
- When a name has not been input for the transfer (dubbing) source folder, it is possible that this folder's number will not be the same on the transfer (dubbing) destination. It is recommended that you input a folder name before transferring (dubbing) (⇒ page 46).
- Print number setting (DPOF) is not transferred (dubbed).
- The sequence in which the still pictures are registered on the transfer (dubbing) list may not be the same at the transfer (dubbing) destination.

Transferring (dubbing) MPEG4/MPEG2* titles

*MPEG2 data taken on a SD Video Camera

■ Transferring (dubbing) types and features

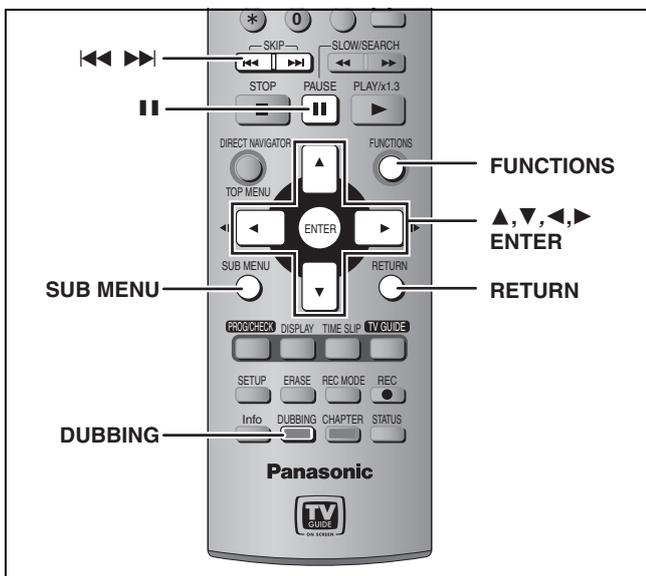
<p>High speed mode transfer (dubbing)</p> <p>MPEG4 titles recorded on the HDD using the simultaneous MPEG4 recording function (⇒ page 22), can be transferred directly, or through DVD-RAM, to a SD Memory Card or MultiMediaCard at high speed.</p> <p>You can watch on a SD Video Camera.</p>	<p>MPEG4 titles recorded on the HDD using the simultaneous MPEG4 recording function (⇒ page 22), can be transferred directly, or through DVD-RAM, to a SD Memory Card or MultiMediaCard at high speed.</p> <ul style="list-style-type: none"> ● One Touch transfer (dubbing) is convenient when transferring (dubbing) one title (⇒ below). ● Use the transferring (dubbing) list when transferring (dubbing) multiple titles at the same time (⇒ page 55).
<p>Transferring (dubbing) by converting to MPEG4</p> <p>You can transfer (dub) video titles recorded on HDD or DVD-RAM to a SD Memory Card or MultiMediaCard by converting them to MPEG4 format.</p> <p>You can watch on a SD Video Camera.</p>	<p>You can transfer (dub) video titles recorded on HDD or DVD-RAM to a SD Memory Card or MultiMediaCard by converting them to MPEG4 format.</p> <ul style="list-style-type: none"> ● Use the transferring (dubbing) list (⇒ page 55). [One Touch transfer (dubbing) is not possible.] ● Digital broadcasts that allow “One time only recording” cannot be converted to MPEG4.
<p>High speed mode transfer (dubbing)</p> <p>Motion pictures encoded in the MPEG2 or MPEG4 format, which have been taken by a SD Video Camera, digital video camera etc, can be stored on HDD or DVD-RAM. [MPEG2 titles transferred (dubbed) to HDD or DVD-RAM will be treated as video titles.]</p>	<p>Motion pictures encoded in the MPEG2 or MPEG4 format, which have been taken by a SD Video Camera, digital video camera etc, can be stored on HDD or DVD-RAM. [MPEG2 titles transferred (dubbed) to HDD or DVD-RAM will be treated as video titles.]</p> <ul style="list-style-type: none"> ● Use the transferring (dubbing) list (⇒ page 55). [One Touch transfer (dubbing) is not possible.]

- You cannot transfer (dub) MPEG4 data to a MultiMediaCard in “XF” or “SF” mode.
- A title that is transferred (dubbed) to a computer-formatted card by converting it to MPEG4 format may not playback normally. Format the card on this unit before transferring (dubbing) (⇒ page 59).
- Some equipment which allows MPEG4 playback may not be compatible with this unit’s recording modes. Please check the equipment’s operating instructions for more information. (Some equipment may display messages such as “Press the RESET button” when playing a non-compatible title.)

■ Approximate recording time when recording a MPEG4 title on Panasonic SD Memory Card

- Not all of the capacity is available for recording or transferring (dubbing) because the copyright information is also included.
- The approximate time on the left of each column is applicable when recording pictures with a lot of movement and the one on the right when recording pictures with little movement.

SD Card Capacity	MPEG4 Recording Mode				
	Extra Fine (XF)	Super Fine (SF)	Fine (F)	Normal (N)	Economy (E)
8 MB	0 min. (0 min.)	1 min. (1 min.)	2 min. (3 min.)	3 min. (4 min.)	8 min. (9 min.)
16 MB	1 min. (1 min.)	2 min. (2 min.)	4 min. (6 min.)	6 min. (9 min.)	19 min. (21 min.)
32 MB	2 min. (4 min.)	4 min. (5 min.)	9 min. (13 min.)	13 min. (18 min.)	41 min. (44 min.)
64 MB	5 min. (8 min.)	8 min. (10 min.)	19 min. (26 min.)	28 min. (38 min.)	1 h 24 min. (1 h 31 min.)
128 MB	11 min. (16 min.)	16 min. (21 min.)	40 min. (53 min.)	57 min. (1 h 18 min.)	2 h 50 min. (3 h 4 min.)
256 MB	22 min. (33 min.)	32 min. (42 min.)	1 h 19 min. (1 h 45 min.)	1 h 53 min. (2 h 36 min.)	5 h 40 min. (6 h 7 min.)
512 MB	44 min. (1 h 6 min.)	1 h 5 min. (1 h 24 min.)	2 h 40 min. (3 h 31 min.)	3 h 49 min. (5 h 16 min.)	11 h 26 min. (12 h 21 min.)
1 GB	1 h 25 min. (2 h 8 min.)	2 h 6 min. (2 h 43 min.)	5 h 9 min. (6 h 47 min.)	7 h 21 min. (10 h 7 min.)	21 h 59 min. (23 h 45 min.)
2 GB	2 h 51 min. (4 h 16 min.)	4 h 12 min. (5 h 26 min.)	10 h 19 min. (13 h 35 min.)	14 h 42 min. (20 h 15 min.)	43 h 59 min. (47 h 30 min.)



One Touch transfer (dubbing)

HDD RAM → SD

- 1 Play the MPEG4 title you want to transfer (dub).
 - 2 Press [DUBBING].
- Dubbing

Dub in High speed mode.
Do you want to continue?

Yes No
- 3 Press [◀, ▶] to select “Yes” and press [ENTER].

The transfer (dubbing) mode is set to High speed mode.
● You cannot record or play while transferring (dubbing).

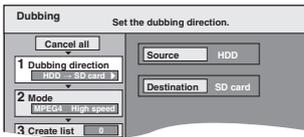
Transferring (dubbing) using the transferring (dubbing) list

HDD **RAM** **SD** **PC** (Mobile hard disk only)

Preparation

Select the audio type to be used when transferring (dubbing) a video title by converting to MPEG4 format, from "Select MTS" in the SETUP menu (→ page 63).

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "DUBBING" and press [ENTER].



• If you are not going to change the registered list press [▼] several times (→ step 7).

- 3 Press [▲, ▼] to select "Dubbing direction" and press [▶].

- 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].
 - Do not select the same drive as the transfer (dubbing) source.
 - Transferring (dubbing) by converting to MPEG4 format is only possible when the source is set as the HDD or DVD-RAM and the destination as the SD card.
 - Mobile hard disk cannot be selected as the destination.
- ④ Press [▲, ▼] to select the drive and press [ENTER].
- ⑤ Press [◀] to confirm.

- 4 Press [▲, ▼] to select "Mode" and press [▶].

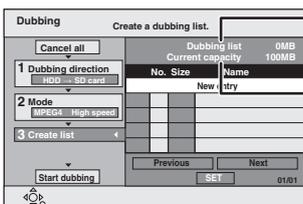
■ To transfer (dub) the MPEG4 title

- ① Press [▲, ▼] to select "Format" and press [ENTER].
- ② Press [▲, ▼] to select "MPEG4" and press [ENTER]. "Recording mode" is automatically set to "High speed".
- ③ Press [◀] to confirm.

■ To transfer (dub) video titles by converting to MPEG4 format/To transfer (dub) MPEG2 titles

- ① Press [▲, ▼] to select "Format" and press [ENTER].
- ② Press [▲, ▼] to select "Video" and press [ENTER]. When transferring (dubbing) the MPEG2 title, "Recording mode" is automatically set to "High speed".
- ③ Press [▲, ▼] to select "Recording mode" and press [ENTER].
- ④ Press [▲, ▼] to select the mode and press [ENTER].
- ⑤ Press [◀] to confirm.

- 5 Press [▲, ▼] to select "Create list" and press [▶].



Data size recorded to the transfer (dubbing) destination*1

Destination capacity

*1 When transferring (dubbing) by converting to MPEG4 format, the total data size will change according to the recording mode.

Select the transferring (dubbing) items and register on the list.

- ① Press [▲, ▼] to select "New entry" and press [ENTER].
- ② Press [▲, ▼, ◀, ▶] to select the titles (or play lists) and press [ENTER].

- To select a multiple number of items together, press [III] to add the check mark and press [ENTER] (→ below, Multiple editing).
- To show other pages (→ below)
- To edit the transferring (dubbing) list (→ below)
- (Mobile hard disk only) To select the titles in another folder (→ page 37)
- To view the contents of MPEG2 titles **SD** **PC** (Mobile hard disk only)
MPEG2 titles are shown as still pictures on the Create list screen. Follow the steps below to display the chapters.
 - 1 Press [▲, ▼, ◀, ▶] to select the title and press [SUB MENU].
 - 2 Press [▲, ▼] to select "Chapter View" and press [ENTER].
Chapter View screen is displayed.

When transferring (dubbing) by converting to MPEG4 format, the displayed "Dubbing List" value is calculated using video segments that contain the most information. You may still be able to transfer (dub) even if the "Dubbing List" has exceeded "Current capacity" when the video images contain little movement.

- 6 Press [▲, ▼] to select "SET" and press [ENTER].

The transferring (dubbing) list is registered.

- 7 Press [▲, ▼] to select "Start dubbing" and press [ENTER].

When transferring (dubbing) the MPEG2 title to 5× high speed recording compatible DVD-RAM

- 1 Press [▲] to highlight "DVD drive speed".
 - 2 Press [◀, ▶] to select "Top speed mode" or "Silent mode" and press [▼].
- Selecting "Silent mode" means the noise generated by this unit is less than "Top speed mode", however the time required for transferring (dubbing) will increase (approximately) double.

Press [◀, ▶] to select "Yes" and press [ENTER] to start transferring (dubbing).

■ To edit the transferring (dubbing) list

Select the item in step 5 (→ left)
When transferring (dubbing) MPEG4 titles in "High Speed" mode, "Move" is not displayed.

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

*2 Multiple editing is possible (→ below).



To cancel all registered transferring (dubbing) setting and lists

- In step 3 (→ left)
- 1 Press [▲, ▼] to select "Cancel all" and press [ENTER].
 - 2 Press [◀, ▶] to select "Yes" and press [ENTER].
- The settings and lists may be cancelled in the following situations.
 - When a title etc. has been erased at the transfer (dubbing) source
 - When steps have been taken, for instance, to turn off the unit, remove the card, open the tray, change the transfer (dubbing) direction, etc.

To show other pages

Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].

• You can also press [◀◀, ▶▶] to show other pages.

Multiple editing

Select with [▲, ▼, ◀, ▶] and press [III]. (Repeat.)
Press [ENTER] to register to the list.

• A check mark appears. Press [III] again to cancel.

• When you switch between the "Video" and "Play List" tab, the check mark is cancelled.

To stop transferring (dubbing)

Press and hold [RETURN] for 3 seconds.

To return to the previous screen

Press [RETURN].

Note

- When a name has not been input for the transfer (dubbing) source title, it is possible that this title's number will not be the same on the transfer (dubbing) destination. It is recommended that you input a title name before transferring (dubbing) (→ page 46).
- The sequence in which the MPEG4 titles are registered on the transfer (dubbing) list may not be the same at the transfer (dubbing) destination.

Refer to the control reference on page 57.

The functions below are available if you connect your computer through the Home Network.

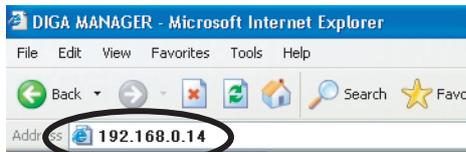
- Entering, and editing, the names of video titles recorded on the DVD recorder's HDD or DVD-RAM. ("Edit Video Title-Name" function)
- Viewing MPEG4 titles and still pictures (JPEG files only) recorded on the DVD recorder's HDD or DVD-RAM. ("Play MPEG4", "View Pictures" functions)

Preparation

- Connect to the Home Network (⇒ page 10).
- Set "This unit's network setting" (⇒ page 16).
- Insert a disc if necessary.
- Turn off the DVD recorder.

On the computer

1 Start Internet Explorer. Input the DVD recorder's IP address in the address bar and press the "Enter" key.

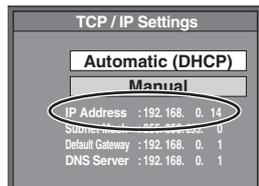


The log-in screen appears.

On the DVD recorder

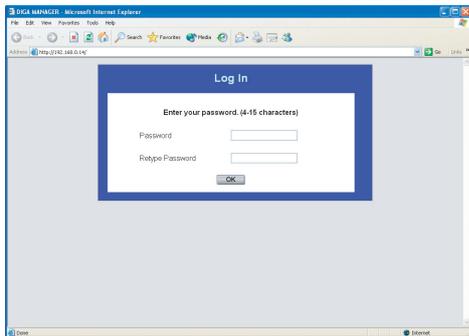
To confirm the DVD recorder's IP address

- 1 Press [SETUP].
- 2 Press [▲, ▼] to select "Network" and press [▶].
- 3 Press [▲, ▼] to select "TCP/IP Settings" and press [ENTER].



- If "The page cannot be displayed" is shown, start Internet Explorer and click [Tools] ⇒ [Internet Options...] ⇒ [Connections] ⇒ [LAN settings...]. Uncheck "Use a proxy server for your LAN" and click [OK].

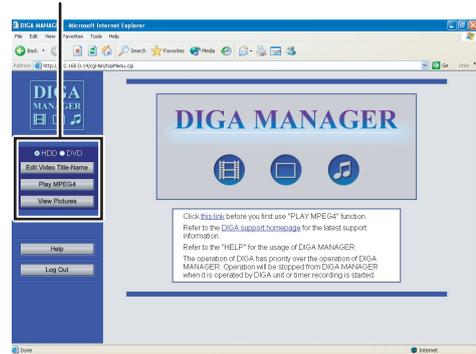
2 Enter the network password and click [OK].



The first time that you log in the password is unset so needs to be set here.

Enter this password when subsequently logging in.

3 Select the operation.



Wait about 1 minute until the connection with the DVD recorder has been established, then click [OK].

- "AV NETWORK" is displayed on the DVD recorder's display.

Please follow the on-screen instructions for each operation.

- Refer to "Help" in the DIGA MANAGER for more information.

- The DVD recorder may turn off, if more than 30 minutes pass without any operations.

- When timer recording begins on the DVD recorder, operations from the computer are interrupted.

When you playback MPEG4 titles

When upgrading to Windows Media Player Ver 9.0, various errata need to be corrected. Visit the homepage below for more information.

Should the computer be able to simultaneously connect to both the DVD recorder and the Internet, an audio decoder will automatically be installed should this be necessary.

- If the installation does not start

- 1 Start Windows Media Player (Click [start] ⇒ [All Programs] ⇒ [Accessories] ⇒ [Entertainment] ⇒ [Windows Media Player]).
- 2 Click [Tools] ⇒ [Options...] ⇒ [Player] tab.
- 3 Check "Download codecs automatically".
- 4 Click [OK].

- If the computer is unable to simultaneously connect to the DVD recorder and the Internet

Connect your computer to the Internet and download the sample MPEG4 file from the address below. When you playback this file, an audio decoder will be automatically installed in your computer should this be necessary. (This should be done before trying to operate the unit from the computer.)

http://panasonic.jp/support/dvd/e500h/use_info/env_e.html

To exit the operation

Click [Log Out].

- The DVD recorder will switch off if left for 30 minutes.

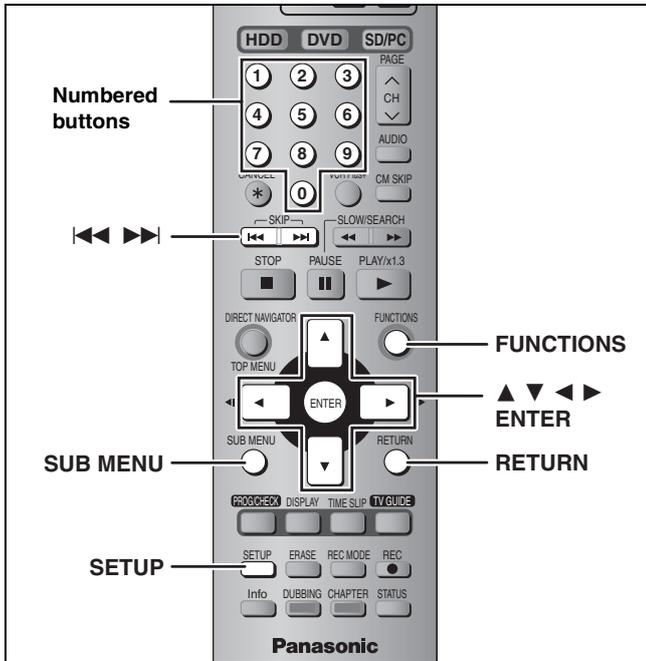
To exit the Network function and operate the DVD recorder directly

On the DVD recorder

- 1 Press [RETURN].
A message appears on the television connected to the DVD recorder.
- 2 Press [◀, ▶] to select "Yes" and press [ENTER].

■ Playback of MPEG4 titles recorded using the XF mode

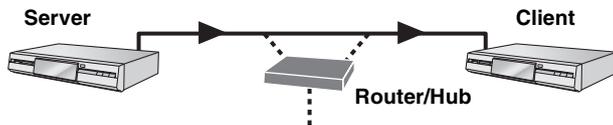
In the DIGA MANAGER (⇒ above) click [Help] and select "Important Information". Click the link in "Before You Start" concerning playback of MPEG4 titles recorded using the XF mode. Download and install the specifically designed decoder. You can also obtain the decoder from the above-mentioned address.



These steps are for when there is more than one network compatible Panasonic DVD recorder.

You can playback video titles recorded on the HDD of other network compatible Panasonic DVD recorders without any need for transferring (dubbing). (This is not possible with the play list.) For example, a video title recorded on the unit in the living room (server) can be played back on the unit in the bedroom (client).

- This function will work while the client unit is recording.
- This function will work while timer recording is in operation on the server unit.
- This function will not work while transferring (dubbing) is in operation on the client unit.

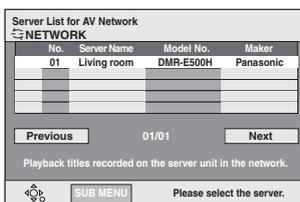


Preparation

- Connect to the Home Network or another network compatible Panasonic DVD recorder (⇒ page 10).
- Set "This unit's network setting" (⇒ page 16).
- Set "When more than one network compatible Panasonic DVD recorder is on the Home Network" (⇒ page 17).
- Turn off the server.

On the client

- 1 While stopped**
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "NETWORK" and press [ENTER].**
"AV NETWORK" appears on the client unit's display.
- 3 Press [▲, ▼] to select the server and press [ENTER].**



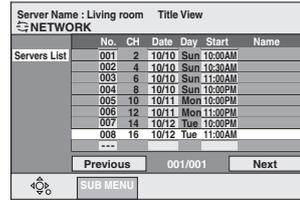
"AV NETWORK" appears on the server unit's display.

To show other pages

Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].

- You can also press [◀◀, ▶▶] to show other pages.

4 Press [▲, ▼] to select a title and press [ENTER].



You can also select titles with the numbered buttons.

- e.g., 5: [0] ⇒ [0] ⇒ [5]
 15: [0] ⇒ [1] ⇒ [5]
 115: [1] ⇒ [1] ⇒ [5]

• To show other pages (⇒ left)

• To return to the Server List screen

Press [▲, ▼, ◀, ▶] to select "Servers List" and press [ENTER].

Play starts after a few seconds.

• The title menu screen will return

– After playback has been completed or stopped. (Playback can only take place one title at a time.)

– When reaching the start or finish point of the title during a search.

• You cannot skip titles.

• Quick view, slow-motion and frame-by-frame will not work.

• Audio is not output during search.

To exit the network function and operate the units directly

• On the client

Press [RETURN].

The server will switch off if left for 30 minutes.

• On the server

- 1 Press [RETURN].

A message appears on the television connected to the server.

- 2 Press [◀, ▶] to select "Yes" and press [ENTER].

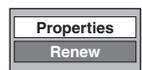
Title View screen icon

- ✗ Title cannot be played
(Title currently being recorded on the server.)

■ Useful functions on the Server List screen

Select the server in step 3 (⇒ above)

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



• Properties

Information about the server unit, such as model number, will be displayed.

• Renew

The Server List screen will be updated.

■ Useful functions on the Title View screen

In step 4 (⇒ above)

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



• Properties

The date, time and channel of the recorded titles will be displayed.

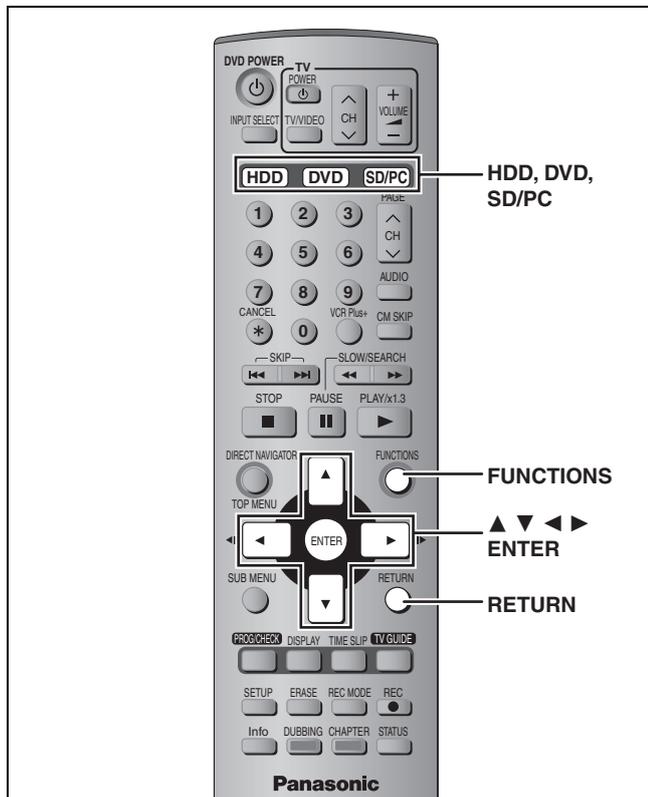
• Sort

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

The video titles will be sorted.

• Renew

The page currently displayed will be updated.



• You can use SD Memory Cards with capacities from 8 MB to 1 GB (→ page 21).

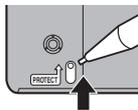
Setting the protection

■ Setting the protection for the whole disc or card

• For a DVD-RAM with a cartridge or for a card

RAM

With the write-protect tab in the protect position, play automatically starts when inserted in the unit.



SD PC

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

e.g. SD Memory Card



• For a DVD-RAM without a cartridge (→ below, Disc Protection)

■ Other protection settings

Title

Select "Set up Protection" in step 4 on page 40.

Still picture

Select "Set up Protection" in step 4 on page 44.

Folder of still pictures

Select "Set up Protection" in step ③ on page 44, "To edit still picture folders".

MPEG4 title

Select "Set up Protection" in step 4 on page 45.

Disc Protection

RAM

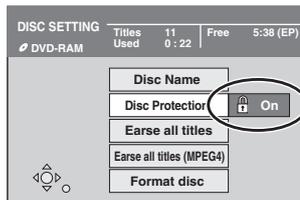
Preparation

Press [DVD] to select the DVD drive.

- 1** While stopped
Press [FUNCTIONS].
- 2** Press [▲, ▼, ◀, ▶] to select "DISC SETTING" and press [ENTER].

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

4 Press [◀, ▶] to select "Yes" and press [ENTER].



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

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

Providing a disc with a name

RAM DVD-R

Preparation

- Press [DVD] to select the DVD drive.
- Release protection (→ left).

- 1** While stopped
Press [FUNCTIONS].
- 2** Press [▲, ▼, ◀, ▶] to select "DISC SETTING" and press [ENTER].
- 3** Press [▲, ▼] to select "Disc Name" and press [ENTER].

→ page 46, Entering text

- The disc name is displayed in the FUNCTIONS window.
- With a finalized DVD-R, the name is displayed on the Top Menu.



To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

Erasing all titles, play lists and MPEG4 titles—Erase all titles

HDD RAM SD

Preparation

- Press [HDD], [DVD] or [SD/PC] to select the drive.
- Release protection (➡ page 58).

- 1** While stopped
Press [FUNCTIONS].
- 2** Press [▲, ▼, ◀, ▶] to select “DISC SETTING” or “CARD SETTING” and press [ENTER].
- 3** Press [▲, ▼] to select “Erase all titles” or “Erase all titles (MPEG4)” and press [ENTER].
- 4** Press [◀, ▶] to select “Yes” and press [ENTER].
- 5** Press [◀, ▶] to select “Start” and press [ENTER].
A message appears when finished.
- 6** Press [ENTER].

Note

- Once erased, the recorded contents are lost and cannot be restored. Make certain before proceeding.
- Erasing all video titles will result in all play lists also being erased.
- Still picture data (JPEG, TIFF) or computer data cannot be erased.
- With MPEG4, files that are not compatible with this unit may be erased.
- Erase does not work if one or more titles are protected.

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

Erasing all the contents of a disc or card—Format

HDD RAM SD PC

Preparation

- Press [HDD], [DVD] or [SD/PC] to select the drive.
- Release protection (➡ page 58).

- 1** While stopped
Press [FUNCTIONS].
- 2** Press [▲, ▼, ◀, ▶] to select “DISC SETTING” or “CARD SETTING” and press [ENTER].
- 3** Press [▲, ▼] to select “Format” or “Format disc” and press [ENTER].
- 4** Press [◀, ▶] to select “Yes” and press [ENTER].
- 5** Press [◀, ▶] to select “Start” and press [ENTER].
A message appears when formatting is finished.
- 6** Press [ENTER].

Note

- Formatting erases all contents (including computer data), and it cannot be restored. Check carefully before proceeding. The contents are erased when you format it even if you have set protection.
- Do not disconnect the AC power supply cord while formatting. This can render the disc unusable. Formatting normally takes a few minutes, however it may take up to a maximum of 70 minutes (RAM).

To stop formatting RAM

Press [RETURN].

(You can cancel formatting if it takes more than 2 minutes. The disc must be reformatted if you do this.)

- Formatting cannot be performed on DVD-R or CD-R/RW.
- When a disc or card has been formatted using this unit, it may not be possible to use it on any other equipment.
- You cannot format a Microdrive or mobile hard disk on this unit.

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

Refer to the control reference on page 58.

Enabling DVD-R to be played on other equipment—Finalize

DVD-R

Preparation

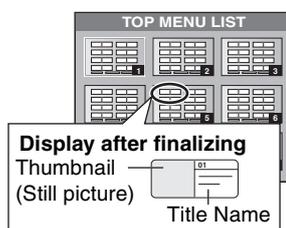
Press [DVD] to select the DVD drive.

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select “DISC SETTING” and press [ENTER].
- 3 Press [▲, ▼] to select “TOP MENU” and press [ENTER].

Press [▲, ▼, ◀, ▶] to select the background and press [ENTER].

You can select the background that will be displayed as the DVD-Video top menu after finalizing.

- You can change thumbnails displayed in the top menu. (→ page 41, Change Thumbnail)



- 4 Press [▲, ▼] to select “Select First play” and press [ENTER].
Press [▲, ▼] to select “Top Menu” or “Title 1” and press [ENTER].
You can select whether to show the top menu after finalizing.
Top Menu: The top menu appears first.
Title 1: The disc content is played without displaying the top menu.

- 5 Press [▲, ▼] to select “Finalize” and press [ENTER].
 - ① Press [◀, ▶] to select “Yes” and press [ENTER].
 - ② Press [◀, ▶] to select “Start” and press [ENTER].
A message appears when finalizing is finished.
 - ③ Press [ENTER].

Note

When finalizing a high-speed recording compatible disc, it may take longer than displayed on the confirmation screen (approximately four times).

After finalizing

- The disc becomes play-only and you can no longer record or edit.
- When transferring (dubbing) in high speed, chapters will be replicated.
- Titles are divided into about 5-minute* chapters, if
 - the titles were directly recorded to DVD-R.
 - the titles were transferred (dubbed) using any mode other than the high speed mode.
- * 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.

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

- Finalizing takes up to 15 minutes.

- You cannot finalize DVD-R recorded on other manufacturer's equipment.
- If you finalize a recorded DVD-R on Panasonic equipment other than this unit, the background selected as “TOP MENU” may not display.

	Before finalizing	After finalizing
Disc display on this unit	DVD-R	DVD-V
Recording/Editing/Entering name	○	×
Play on other players	×	○

DVD-R finalized on this unit may not be playable on other players due to the condition of the recording.

- Visit Panasonic's homepage for more information about DVDs.
<http://www.panasonic.com/playDVD-R>

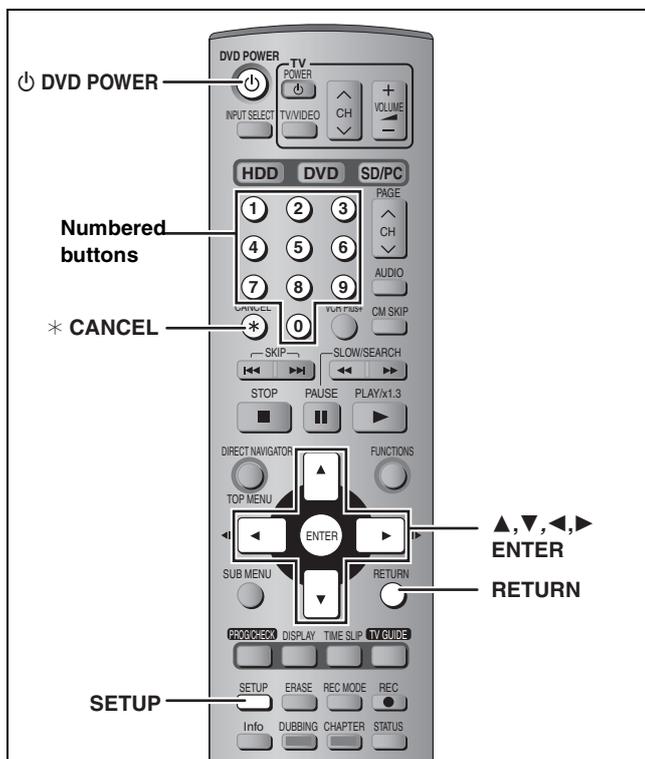
To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

Changing the unit's settings



Common procedures

- 1 While stopped
Press [SETUP].
-
- 2 Press [\blacktriangle , \blacktriangledown] to select the tab and press [\blacktriangleright].
 - 3 Press [\blacktriangle , \blacktriangledown] to select the menu and press [ENTER].
 - 4 Press [\blacktriangle , \blacktriangledown] to select the option and press [ENTER].

To exit the screen

Press [SETUP].

To return to the previous screen

Press [RETURN].

Summary of settings

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

*1 You need to set these menus only when you do not use TV Guide On Screen™ system. These menus turn gray and become un-selectable after this unit downloads the television program list.

*2 You can set these menus only after "Auto Channel Setting" is completed.

Tabs	Menus	Options (Underlined items are the factory presets.)
Channel	TV GUIDE Setting Set the TV Guide On Screen™ system.	
	Antenna System *2 Select to suit the type of antenna you are using.	•TV • <u>CATV</u>
	Auto Channel Setting *1 (⇒ page 65)	–
	Preset Channel Captions *2 (⇒ page 66)	–
	Manual Channel Captions *2 (⇒ page 66)	–
Set Up	Off Timer Select how long the unit remains on when it is not being used.	•2 hr • <u>6 hr</u> •Off
	Remote Control Code (⇒ page 14)	• <u>Set Code 1</u> •Set Code 2 •Set Code 3
	Auto Clock Setting *1 (⇒ page 65)	
	Manual Clock Setting *1 (⇒ page 13)	
	Time Zone Adjust *1 (⇒ page 65)	•–1 (⇒ page 65) • <u>0</u> •+1
	Re-initialize Settings This returns all values in the SETUP menus, except for the clock, channel settings, ratings level, on-screen language, Unit Name Setting and Registration of Client Unit, to the default settings.	•Yes • <u>No</u>
Disc	Languages Choose the language for audio, subtitle and disc menus. DVD-V	•Enter a code (⇒ page 69) 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 30).
	Audio Language	• <u>English</u> •French •Spanish •Original: The original language of each disc will be selected. •Other ****
	Subtitle Language	• <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 ****
	Menu Language	• <u>English</u> •French •Spanish •Other ****

Continued on next page

Tabs	Menus	Options (Underlined items are the factory presets.)
Disc Continued	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.
	Recording Time in EP Mode Select the maximum number of hours for recording in EP mode (⇒ page 23, Recording modes and approximate recording times).	● <u>EP (6H)</u> : You can record for 6 hours on an unused 4.7 GB disc. ● <u>EP (8H)</u> : You can record for 8 hours on an unused 4.7 GB disc.
	Play DVD-Audio in Video Mode Select "Video (On)" to play DVD-Video content on some DVD-Audio.	● <u>Video (On)</u> : The setting returns to "Audio (Off)" when you change the disc or turn the unit off. ● <u>Audio (Off)</u>
	DVD-R High-Speed Recording When high speed transferring (dubbing) a title to DVD-R, it is necessary to turn this setting "On" before recording to HDD; however, the screen size, etc. is restricted (⇒ right). We recommend turning the setting "Off" if high speed transfer (dubbing) to DVD-R is not necessary when recording a program.	● <u>On</u> : Makes high speed mode transferring (dubbing) to DVD-R possible. Press [◀, ▶] to select "Yes" and press [ENTER]. ["▶▶▶"] appears in the transferring (dubbing) list (⇒ page 48). – Pictures are saved at 4:3. – Hybrid VBR Resolution (⇒ below) setting is "Fixed". – Select the type of audio in advance from "Select MTS" (⇒ page 63). ● <u>Off</u>
MPEG4 Recording Press [ENTER] to show the following settings.	MPEG4 Recording Mode If you set this mode to "XF", "SF", "F", "N" or "E", you can record MPEG4 motion pictures at the selected mode while recording the program to HDD (⇒ page 54, Approximate recording time when recording a MPEG4 title on Panasonic SD Memory Card).	● Extra Fine (XF) ● Super Fine (SF) ● Fine (F) ● Normal (N) ● Economy (E) ● <u>Off</u> – When recording MTS broadcast, select the type of audio in advance from "Select MTS" (⇒ page 63). – You cannot transfer (dub) titles to a MultiMediaCard if you select "XF" or "SF".
	SD Card Capacity Set according to the capacity of the card you are using. MPEG4 data recorded to the HDD will be divided to match the card's capacity setting. It can then be transferred (dubbed) to the card.	● 8 MB ● 16 MB ● 32 MB ● 64 MB ● <u>128 MB</u> ● 256 MB ● 512 MB ● 1 GB ● 2 GB
Video	3-D Y/C Separation	● <u>On</u> : Reduces noise by separating the luminance (Y) and color (C) signals when recording. ● <u>Off</u> : Reduces the ghosting that occurs when recording fast moving images.
	Hybrid VBR Resolution (⇒ page 69, VBR)	● <u>Automatic</u> : The resolution is automated to provide efficient recording with less block noise. HDD RAM ● <u>Fixed</u> : The resolution is fixed to ensure that there is no loss of source picture resolution while recording.
	Still Mode Select the type of picture shown when you pause play (⇒ page 68, Frames and fields).	● <u>Automatic</u> ● <u>Field</u> : Select if jittering occurs when "Automatic" is selected. ● <u>Frame</u> : Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected.
	Seamless Play Select the play mode for play list chapter segments.	● <u>On</u> : The chapters in play lists are played seamlessly. This does not work when there are several audio types included on the play list and when using Quick View. Additionally, the positioning of chapter segments may change slightly. ● <u>Off</u> : The points where chapters in play lists change are played accurately, but the picture may freeze for a moment.
	Line-in NR Reduces video tape noise while transferring (dubbing). ● When noise reduction is on, "3-D Y/C Separation" (⇒ above) does not work regardless of the setting.	● <u>Automatic</u> : Noise reduction only works on picture input from a video tape. ● <u>On</u> : Noise reduction works for any video input. ● <u>Off</u> : Noise reduction is off. Select when you want to record input as is.
	Black Level Control Select normal, lighter or darker for adjusting the black level control to the desired setting for picture enhancement.	Input Level Adjusts the black level of the input signal. ● Lighter ● <u>Darker</u>
	Output Level (Composite/S Video) 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	Search Audio & PLAY ×1.3 You may hear sound regardless of this setting with some discs.	<ul style="list-style-type: none"> ● <u>On</u>: Audio is heard during first level search forward. ● <u>Off</u>: Audio is not heard during search. Quick View (⇒ page 31) does not work.
	D. Range Compression <u>DVD-V</u> (Dolby Digital only) Change the dynamic range for late night viewing.	<ul style="list-style-type: none"> ● <u>On</u> ● <u>Off</u>
	Select MTS Select the audio recording type, main or secondary (SAP) audio when: –Recording or transferring (dubbing) to a DVD-R. –Recording or transferring (dubbing) sound in LPCM. (⇒ below, Audio for XP Recording) –Recording or transferring (dubbing) in MPEG4.	<ul style="list-style-type: none"> ● <u>Main</u> ● <u>SAP</u> <p>In the following cases, you cannot select the audio on this unit. Select on the other equipment.</p> <ul style="list-style-type: none"> –when recording from an external source onto DVD-R. –when simultaneously recording MPEG4 from an external source.
	Digital Audio Output Change the settings when you have connected equipment through this unit's DIGITAL AUDIO OUT terminal (⇒ page 9). ● Press [ENTER] to show the following settings.	
	PCM Down Conversion Select how to output audio with a sampling frequency of 96 kHz or 88.2 kHz.	<ul style="list-style-type: none"> ● <u>On</u>: Signals are converted to 48 kHz or 44.1 kHz. (Choose when the connected equipment cannot process signals with 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 sampling frequency of 96 kHz or 88.2 kHz.) <p>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.</p>
	 Dolby Digital Select how to output the signal, to output "Bitstream" so the connected equipment decodes the signal, or to decode on this unit and output the signal as "PCM" (2 channel). Note Not making the proper settings may result in noise, possibly damage your hearing and speakers, and digital recording may not work properly.	<ul style="list-style-type: none"> ● <u>Bitstream</u>: When connecting to equipment displaying the Dolby Digital logo. ● <u>PCM</u>: When connecting to equipment not displaying the Dolby Digital logo.
	 DTS Select how to output the signal, to output "Bitstream" so the connected equipment decodes the signal, or to decode on this unit and output the signal as "PCM" (2 channel). Note Not making the proper settings may result in noise, possibly damage your hearing and speakers, and digital recording may not work properly.	<ul style="list-style-type: none"> ● <u>Bitstream</u>: When connecting to equipment displaying the DTS logo. ● <u>PCM</u>: When connecting to equipment not displaying the DTS logo.
	Audio for XP Recording Choose the audio type when recording or transferring (dubbing) with XP mode.	<ul style="list-style-type: none"> ● <u>Dolby Digital</u> (⇒ page 68) ● <u>LPCM</u> (⇒ page 68) –The picture quality of LPCM recordings may be lower than that of normal XP mode recordings. –The audio recording becomes Dolby Digital even if you selected LPCM when using a recording mode other than XP. –When recording MTS broadcast, select the type of audio in advance from "Select MTS" (⇒ above).
	Select Audio CH for DV Input You can select the kind of audio when recording from the unit's DV terminal (⇒ page 51, 52).	<ul style="list-style-type: none"> ● <u>Stereo 1</u>: Records audio (L1, R1). ● <u>Stereo 2</u>: Records added audio such as narration (L2, R2) subsequent to original recording. ● <u>Mix</u>: Records both Stereo 1 and Stereo 2. <p>When recording MTS broadcast, select the type of audio in advance from "Select MTS" (⇒ above).</p>
	Speaker (Analog connection only) Choose the settings to suit your audio system and listening environment.	<ul style="list-style-type: none"> ● <u>Multi Channel</u>: When you connect with AUDIO OUT 5.1 ch terminals (⇒ page 15). ● <u>2 Channel</u>: When you connect with AUDIO OUT1 or 2 terminals.
Attenuator Select "On" if sound is distorted.	<ul style="list-style-type: none"> ● <u>On</u> ● <u>Off</u> 	
Display	Status Messages Choose whether to show status messages automatically.	<ul style="list-style-type: none"> ● <u>Automatic</u> ● <u>Off</u>
	On-screen Language Choose the language for these menus and on-screen messages.	<ul style="list-style-type: none"> ● <u>English</u> ● <u>Español</u> ● <u>Français</u> <p>–Only English is displayed in the TV Guide On Screen™ system regardless of the settings. Other languages cannot be displayed.</p>
	Blue Background Select "Off" if you do not want to have the unit show the blue background when reception is weak.	<ul style="list-style-type: none"> ● <u>On</u> ● <u>Off</u>
	Front Display Changes the brightness of the unit's display.	<ul style="list-style-type: none"> ● <u>Bright</u> ● <u>Dim</u> ● <u>Automatic</u>: The display turns dark during play, and reappears momentarily if a button is pressed. 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 14)	<ul style="list-style-type: none"> ● <u>Aspect 4:3 & 480i</u> ● Aspect 16:9 & 480i ● Aspect 4:3 & 480p ● Aspect 16:9 & 480p
	<p>4:3 TV Settings for DVD-Video Select how DVD-Video widescreen picture is shown on a 4:3 standard aspect television.</p> <hr/> <p>4:3 TV Settings for DVD-RAM Select how DVD-RAM widescreen picture is shown on a 4:3 standard aspect television.</p>	<ul style="list-style-type: none"> ● <u>Pan & Scan</u>: Video recorded for a widescreen is played as Pan & Scan (unless prohibited by the producer of the disc). ● <u>Letterbox</u>: Video recorded for a widescreen is played in the letterbox style. <hr/> <ul style="list-style-type: none"> ● 4:3: Titles played as recorded. ● <u>Pan & Scan</u>: Video recorded for a widescreen is played as Pan & Scan. ● <u>Letterbox</u>: Video recorded for a widescreen is played in the letterbox style.
Network	Network Function Select whether to use the network function.	<ul style="list-style-type: none"> ● <u>Enable</u> ● Disable
	TCP/IP Settings Set this unit's IP address and other settings. There is usually no need to do anything manually.	<ul style="list-style-type: none"> ● <u>Automatic (DHCP)</u> ● Manual: When automatic setting fails, press [ENTER] to set the following settings manually. <hr/> <ul style="list-style-type: none"> ● IP Address ● Subnet Mask ● Default Gateway ● DNS Server
	Unit Name Setting You can give a name to each unit to distinguish them on the network.	<ul style="list-style-type: none"> ● Factory preset: "DVD Recorder" ● Press [ENTER] to input or change the name (⇒ page 46).
	Internet Connection This setting is for features that may be added later. Select, and keep at, "Off".	<ul style="list-style-type: none"> ● On ● <u>Off</u>
	Registration of Client Unit (⇒ page 17) Select a DVD recorder from the list of connected DVD recorders and register as a client. Video titles recorded on this unit can be played back on the client unit.	<ul style="list-style-type: none"> ● Press [▲, ▼] to select and press [ENTER] to register. ● Use "Add manually" if connected DVD recorders are not shown on the list.

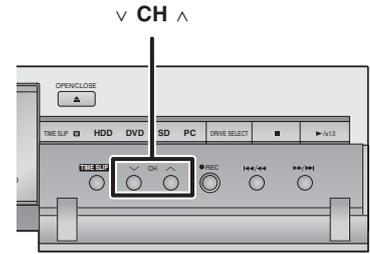
Refer to the control reference on page 61.

Preparation:

If the television program list has already been downloaded, return the unit to the factory preset condition using the steps indicated below.

When the unit is on and stopped

- ① **Press and hold** [∇ CH] and [∧ CH] **on the main unit for about five seconds.**
The unit turns off.
- ② **Press** [⏻ DVD POWER] **to turn the unit on.**
- ③ **Complete the TV Guide On Screen™ system setup (until [ENTER] is pressed after the “Watch TV” message screen is displayed).**



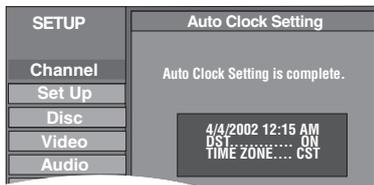
Note

You can set timer recording only manually after you set the unit with “Auto Channel Setting”.

Auto channel/clock settings

- 1 Press [SETUP].**
- 2 Press [▲, ▼] to select “Channel” and press [▶].**
- 3 Press [▲, ▼] to select “Auto Channel Setting” and press [ENTER].**
- 4 Press [◀, ▶] to select “Yes” and press [ENTER].**
- 5 Press [ENTER].**

Auto Channel Setting starts. This takes a few minutes. The unit then proceeds with Auto Clock Setting. The time is displayed when finished.



- DST, Daylight Saving Time, shows the summertime setting.
- TIME ZONE shows the time difference from Greenwich meantime (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
 - For other areas: xx hr
- If the Auto Clock Setting does not start automatically, select “Auto Clock Setting” from the “Set Up” tab.
- If the time was not set correctly, use manual clock setting (→ page 13) or time zone adjust.

- 6 Press [ENTER].**

- The unit configures channels according to the Antenna System settings as follows.

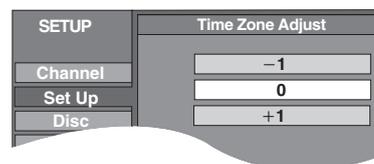
Antenna system	Band	Channel
TV	VHF	2-13
	UHF	14-69
CATV	VHF	2-13
	CATV LOW BAND	95-99
	CATV MID/SUPER BAND	14-36
	CATV HYPER BAND	37-65
	ULTRA BAND	66-94 100-125
	SPECIAL CATV CHANNEL	1

Time Zone Adjust

Adjust the time zone (-1 or +1) if it was not set correctly with auto clock setting.

You cannot change this setting if you set the clock manually.

- 1 Press [SETUP].**
- 2 Press [▲, ▼] to select “Set Up” and press [▶].**
- 3 Press [▲, ▼] to select “Time Zone Adjust” and press [ENTER].**



- 4 Press [▲, ▼] to select “-1” or “+1” and press [ENTER].**

To exit the screen

Press [SETUP].

To return to the previous screen

Press [RETURN].

To cancel partway while Auto Channel/Clock Setting is taking place

Press [RETURN].

Refer to the control reference on page 61.

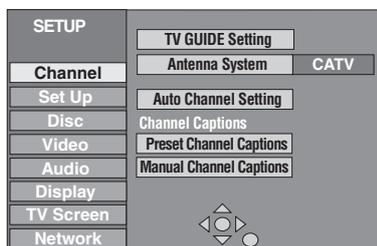
Channel captions

You can use the preset captions, or manually enter new ones yourself.

The captions you enter are displayed when the channel is displayed and in the Direct Navigator screen.

- You can set channel captions only after “Auto Channel Setting” is completed.

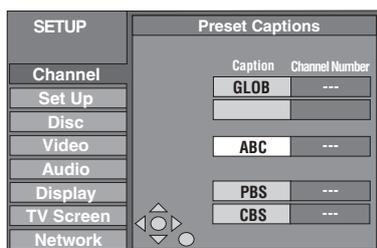
1 Press [SETUP].



2 Press [▲, ▼] to select “Channel” and press [▶].

Preset Channel Captions

3 Press [▲, ▼] to select “Preset Channel Captions” and press [ENTER].



4 Press [▲, ▼] to select the caption and press [▶].

You can choose from the following captions.

ABC, PBS, CBS, CNN, FOX, ESPN, NBC, HBO, A&E, AMC, FAM, MAX, MTV, SHOW, TBS, USA, TNT, CBC, UPN, CTV, WB, TSN, DSC, GLOB

- When selecting the caption, press and hold [▲, ▼] to scroll up and down the screen.

5 Press [▲, ▼] to select the channel corresponding to the caption and press [◀].

- Channels are only displayed if they contain a station and if captions have not been added manually.
- To delete the channel number, press [* CANCEL].

Repeat steps 4 and 5 to enter other channels.

6 Press [ENTER].

Manual Channel Captions

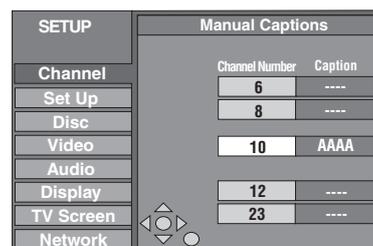
3 Press [▲, ▼] to select “Manual Channel Captions” and press [ENTER].

4 Press [▲, ▼] to select the channel and press [▶].

- Channels are only displayed if they contain a station and if preset captions have not been added.

5 Press [▲, ▼] to select the first character and press [▶].

- You can choose from the following characters:
A–Z, 0–9, -, &, !, /, (space)
- To delete the caption, press [* CANCEL].
- Repeat this step to enter the other characters.



6 Press [◀, ▶] to return to the “Channel Number” column.

Repeat steps 4–6 to enter other channels.

7 Press [ENTER].

To exit the screen

Press [SETUP].

To return to the previous screen

Press [RETURN].

Specifications

Recording system: DVD Video Recording format (DVD-RAM)
DVD-Video format (DVD-R)

Recordable discs:

DVD-RAM :

12 cm (5") 4.7 GB, 12 cm (5") 9.4 GB, 8 cm (3") 2.8 GB
12 cm (5") 4.7 GB (Ver. 2.1/3×-SPEED DVD-RAM Revision 1.0)
12 cm (5") 4.7 GB (Ver. 2.2/5×-SPEED DVD-RAM Revision 2.0)

DVD-R :

12 cm (5") 4.7 GB, 8cm (3") 1.4 GB (for General Ver. 2.0)
12 cm (5") 4.7 GB (for General Ver. 2.0/4×-SPEED DVD-R
Revision 1.0)
12 cm (5") 4.7 GB (for General Ver. 2.x/8×-SPEED DVD-R
Revision 3.0)

Recording time:

- Maximum 8 hours (with 4.7 GB disc)
XP: Approx. 1 hour SP: Approx. 2 hours
LP: Approx. 4 hours EP: Approx. 6 hours/8 hours
- Maximum 709 hours (with built-in 400 GB HDD)
XP: Approx. 89 hours SP: Approx. 177 hours
LP: Approx. 355 hours EP: Approx. 532 hours/709 hours

Playable discs:

DVD-RAM :

12 cm (5") 4.7 GB, 12 cm (5") 9.4 GB, 8 cm (3") 2.8 GB
12 cm (5") 4.7 GB (Ver. 2.1/3×-SPEED DVD-RAM Revision 1.0)
12 cm (5") 4.7 GB (Ver. 2.2/5×-SPEED DVD-RAM Revision 2.0)

DVD-R :

12 cm (5") 4.7 GB, 8cm (3") 1.4 GB (for General Ver. 2.0)
12 cm (5") 4.7 GB (for General Ver. 2.0/4×-SPEED DVD-R
Revision 1.0)
12 cm (5") 4.7 GB (for General Ver. 2.x/8×-SPEED DVD-R
Revision 3.0)

DVD-Video, DVD-Audio, Video CD, CD-Audio (CD-DA)
CD-R/CD-RW (MP3, CD-DA, Video CD formatted discs)

Built-in HDD Capacity: 400 GB

Drive unit: High Speed Drive (correspond to Maximum 8 times
speed with DVD-R disc and 5 times speed with DVD-RAM disc)
Maximum 64× High-Speed Recording from
Hard Disk to DVD-R

LASER Specification

Class I LASER Product

Wave length:

795 nm wavelength (for CDs), 662 nm wavelength (for DVDs)

Laser power:

No hazardous radiation is emitted with the safety protection

Audio

Recording system:

Dolby Digital 2 ch, Linear PCM (XP mode, 2ch), G.726 (MPEG4)

Input:

LINE (pin jack)×3
Reference input: 309 mVrms, FS: 2 Vrms (1 kHz, 0 dB)
Input Impedance: 47 kΩ

Output:

LINE (pin jack)×2
5.1 channel: 5.1 channel discrete output (pin jack)
Reference output: 309 mVrms, FS: 2 Vrms (1 kHz, 0 dB)
Output Impedance: 1 kΩ

Digital Audio Out: Optical terminal (PCM, Dolby Digital, DTS)

Television system

Tuner system:

NTSC-M

Antenna reception input:

TV Channel: 2 ch-69 ch, 75 Ω
CATV Channel: 1 ch-125 ch, 75 Ω

Video

Video system:

NTSC color signal, 525 lines, 60 fields

Recording system:

MPEG2 (Hybrid VBR), MPEG4

Input:

LINE (pin jack)×3, 1.0 Vp-p; 75 Ω
S connector×3 Y: 1.0 Vp-p; C: 0.286 Vp-p; 75 Ω

Output:

LINE (pin jack)×2, 1.0 Vp-p; 75 Ω
S connector×2 Y: 1.0 Vp-p; C: 0.286 Vp-p; 75 Ω

Component video output (480p/480i):

Y: 1.0 Vp-p; 75 Ω
Pb: 0.7 Vp-p; 75 Ω
Pr: 0.7 Vp-p; 75 Ω

SD/PC card slot

SD Memory Card slot: 1 pc.
PC Card slot (Type II): 1 pc.

Still picture (JPEG, TIFF)

Compatible media (SD Card Slot):

SD Memory Card*1, MultiMediaCard

Compatible media (PC Card Slot):

A PC Card adaptor conforming to PC Card Standards,
ATA Flash PC card, PC Card adaptor (SD Memory Card*1,
xD-Picture Card, Microdrive, MultiMediaCard, CompactFlash,
SmartMedia, MEMORYSTICK), Mobile hard disk

Format:

FAT12, FAT16

Image file format:

JPEG conforming to DCF (Design rule for Camera File system),
(sub sampling: 4:2:2 or 4:2:0)

TIFF (Uncompressed RGB chunky), DPOF Compatible

Number of pixels:

34 × 34 to 6144 × 4096

Thawing time:

Approx. 7 sec (2 M pixels)

SD Video (MPEG4, MPEG2)

Compatible media (SD Card Slot):

SD Memory Card*1,

MultiMediaCard (restricted to fine, normal, economy of MPEG4),

Compatible media (PC Card Slot): Mobile hard disk (read only)

MPEG4

Codec: Video: MPEG4 conforming, Audio: G.726 conforming

Number of pixels:

Extra fine/Super fine/Fine: 320×240 (QVGA)
Normal/Economy: 176×144 (QCIF)

Recording rate (Max):

Extra fine: Approx. 1.5 Mbps, Super fine: 1050 kbps
Fine: 430 kbps, Normal: 300 kbps, Economy: 100 kbps
(Including Audio transfer rate as 32 kbps)

File format:

SD-Video format conforming (ASF)

MPEG2*2

Codec: MPEG2(SD-Video Entertainment Video Profile)

File Format:

SD-Video format conforming

DV input:

IEEE 1394 Standard, 4 pin

Ethernet terminal:

10BASE-T / 100BASE-TX

G-LINK terminal:

Only use the included IR Blaster

Others

Regional code:

1

Clock unit:

Quartz-controlled 12-hour digital display

Operating temperature:

5 °C-40 °C (41 °F-104 °F)

Operating humidity range:

10 %-80 % RH (no condensation)

Power supply:

AC 120 V, 60 Hz

Power consumption:

47 W

Dimensions (W×H×D):

Approx. 430 mm×79 mm×302 mm
(Approx. 16¹⁵/₁₆"×3¹/₈"×11¹⁵/₁₆"

Mass:

Approx. 5 kg (11 lbs)

Power consumption in standby mode:

approx. 21 W

Note

Specifications are subject to change without notice.

Mass and dimensions are approximate.

*1 Includes miniSD™ Cards. (A miniSD™ adaptor needs to be inserted.)

*2 Video Recording conversion and transfer is possible from card to HDD or DVD-RAM disc.

After Video Recording conversion and transfer to HDD or DVD-RAM disc, the playback is possible.

User memo:

DATE OF PURCHASE _____

DEALER NAME _____

DEALER ADDRESS _____

TELEPHONE NUMBER _____

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

MODEL NUMBER _____ DMR-E500H _____

SERIAL NUMBER _____

Bitstream

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

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.

DHCP (Dynamic Host Configuration Protocol)

Provides a mechanism for automatically assigning network information such as the IP address or Subnet mask sent by the router and so on to this unit.

DNS Server

A server which acts like a telephone directory and translates Internet domain names into IP addresses.

Dolby Digital

This is the 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.

When recording on this unit Dolby Digital (2 channel) is the default audio.

Down-mixing

This is the process of remixing the multi-channel audio found on some discs into two channels. It is useful when you want to listen to the 5.1-channel audio recorded on DVDs through your television's speakers. Some DVD-Audio prevent down-mixing of all or part of their contents. When playing such discs, or such parts of the disc, unless the number of connected speakers is the same as the disc's channel specification, audio will not be output properly.

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 hard disk (HDD), disc (DVD), SD card (SD) and PC card (PC). 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 is 24 or 30 frames per second, with motion picture film generally being 24 frames per second.

Video is 60 fields per second (two fields making up one frame).

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 on this unit.

After finalizing, the disc becomes play-only and you can no longer record or edit.

Folder

This is a place on the hard disk 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) or MPEG4 are stored.

MPEG2/MPEG4 (Moving Picture Experts Group)

A standard for efficiently compressing and expanding color video. MPEG2 is a compression standard used for DVD and satellite based digital broadcasting. This unit records programs using MPEG2.

MPEG4 is a compression standard created for use with mobile equipment and use over networks, providing highly efficient recordings even with low bit rates.

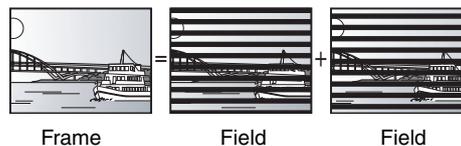
Formatting

Formatting is the process of making media such as DVD-RAM recordable on recording equipment.

You can format the HDD, DVD-RAM and memory cards on this unit. Formatting erases irrevocably 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.



- 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.

Gateway

IP address of the electronic device providing Internet access. Usually called a router IP address. (e.g., 192.168.0.1)

HDD (Hard disk drive)

This is a mass data storage device used in computers, etc. A disk with a surface that has been treated with magnetic fluid is spun and a magnetic head is brought in close proximity to facilitate the reading and writing of large amounts of data at high speed.

Hub

Used for connecting more than one device to the network.

IP address

A set of numbers which distinguish each computer on the network when, for example, connected to the Internet. When using a computer in a LAN (➡ below) to access a computer or device not part of the LAN, the IP address is called the local IP address. (e.g., 192.168.0.10)

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.

LAN (Local Area Network)

A group of linked devices in a company, school or home. Indicates the boundaries of a particular network.

LPCM (Linear PCM)

These are uncompressed digital signals, similar to those found on CDs. LPCM sound is available when recording in XP mode.

MAC (Media Access Control) address

Address assigned to each device connected to the network to allow it to be recognized.

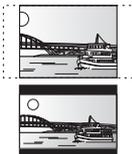
MP3 (MPEG Audio Layer 3)

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 erasure by setting writing protection or erasure protection.

Router

Distinguishes the IP address assigned to each device, such as the computer, and relays the flow of data within the network.

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.

Subnet mask

Enables efficient network use. A set of numbers which identify which part of the IP address allocated to every device connected to the router is the network portion.

TCP/IP (Transmission Control Protocol/Internet Protocol)

These are the standard protocols for sending and receiving data.

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.

VBR (Variable bitrate)

This is a method of video recording that adjusts the bit rate according to video signal.

Language code list Enter the code with the numbered buttons.

Abkhazian: 6566	Catalan: 6765	Gujarati: 7185	Lingala: 7678	Rhaeto-Romance: 8277	Tamil: 8465
Afar: 6565	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Tatar: 8484
Afrikaans: 6570	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Telugu: 8469
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Basque: 6985	Fiji: 7074	Javanese: 7487	Nauru: 7865	Slovak: 8375	Urdu: 8582
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Bihari: 6672	Frisian: 7089	Kazakh: 7575	Pashto, Pushto: 8083	Spanish: 6983	Volapük: 8679
Breton: 6682	Galician: 7176	Kirghiz: 7589	Persian: 7065	Sundanese: 8385	Welsh: 6789
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Frequently asked questions

Set up		Page
What equipment is necessary to play multi channel surround sound?	<ul style="list-style-type: none"> This unit has a built-in decoder so you can enjoy multi-channel surround sound by connecting an amplifier with AUDIO OUT 5.1 ch terminals and three or more speakers. 	9
Are the headphones and speakers directly connected to the unit?	<ul style="list-style-type: none"> You cannot directly connect to the unit. Connect through the amplifier, etc. 	9
The television has both S-VIDEO IN terminal and COMPONENT VIDEO IN terminals. Which terminal should I connect with?	<ul style="list-style-type: none"> We recommend the COMPONENT VIDEO IN terminal. Component signal outputs the color difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors. If the television is compatible with progressive output, a high quality picture can be output because this unit's component video output terminal outputs a progressive output signal. 	7
Is my television progressive output compatible?	<ul style="list-style-type: none"> 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-Video, DVD-Audio and Video CDs bought in another country?	<ul style="list-style-type: none"> 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?	<ul style="list-style-type: none"> 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 and DVD-RW compatibility with this unit.	<ul style="list-style-type: none"> This unit records and plays DVD-R. However, you cannot record onto DVD-R discs that are finalized. This unit also records and plays high speed recording compatible discs. This unit does not record or play DVD-RW. 	— — —
Please tell me about CD-R and CD-RW compatibility with this unit.	<ul style="list-style-type: none"> This unit plays CD-R/CD-RW discs (audio recording discs) which have been recorded under one of the following standards: CD-DA, MP3 and Video CD. Close the session or finalize the disc after recording. You cannot write to a CD-R or CD-RW with this unit. 	20, 33 —

Recording

Can I record from a commercially purchased video cassette or DVD?	<ul style="list-style-type: none"> Most commercially sold video cassettes and DVD are copy protected; therefore, recording is usually not possible. 	—						
Can a DVD-R recorded on this unit be played on other equipment?	<ul style="list-style-type: none"> You can play on DVD-R compatible players after finalizing the disc on this unit; however, due to the condition of the recording, play may not be possible. 	60						
Can I high speed transfer (dub) to a disc?	<ul style="list-style-type: none"> You can record up to 64× recording speed to DVD-R and up to 40× recording speed to DVD-RAM when using a high speed compatible disc. 	47						
Can I record digital audio signals using this unit?	<ul style="list-style-type: none"> You cannot record digital signals. The digital audio terminals on this unit are for output only. (The audio recorded using the DV automatic recording function from a digital video camcorder, for example, is recorded digitally.) 	—						
Can a digital audio signal from this unit be recorded to other equipment?	<ul style="list-style-type: none"> You can record if using the PCM signal. When recording DVD, change the "Digital Audio Output" settings to the following from the SETUP menu. <table border="0"> <tr> <td>–PCM Down Conversion</td> <td>On</td> </tr> <tr> <td>–Dolby Digital</td> <td>PCM</td> </tr> <tr> <td>–DTS</td> <td>PCM</td> </tr> </table> However, only <ul style="list-style-type: none"> –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. You cannot record MP3 signals. 	–PCM Down Conversion	On	–Dolby Digital	PCM	–DTS	PCM	63 —
–PCM Down Conversion	On							
–Dolby Digital	PCM							
–DTS	PCM							
Can I switch to SAP during recording?	<ul style="list-style-type: none"> With HDD and DVD-RAM, you can, and the audio recorded also changes. Just press [AUDIO]. With DVD-R, you cannot. Change before recording with "Select MTS" in the SETUP menu. 	23 63						

TV Guide On Screen™ system

Page

Does the TV Guide On Screen™ system work with analog and digital cable TV boxes?	<ul style="list-style-type: none"> • Yes. The TV Guide On Screen™ system works with both analog and digital cable TV boxes. 	—
I have relocated, changed my television reception system or cable TV box etc. How should I redo the TV Guide On Screen™ system setup?	<ul style="list-style-type: none"> • Select “Change system settings” in “SETUP” in the Navigation menu of the TV Guide On Screen™ system. If you select “No, repeat setup process”, you can then access the TV Guide On Screen™ system setup screen. You can also access the setup screen from “TV GUIDE Setting” in the SETUP menu. 	29, 61
Please tell me about the downloading of television program list data.	<ul style="list-style-type: none"> • Channel line-up data is transmitted continuously, 24 hours a day—7 days a week. • Program information that contains details about each program is usually transmitted four times a day, and the cycles last approximately 3 hours. The TV Guide On Screen™ system only requires one transmission a day to maintain up-to-date program listings. Because the unit must be turned off in order to receive new information, multiple transmissions are conveniently scheduled early to mid-morning and early afternoon hours. 	—
Why doesn't my favorite program have more information in the information window or expanded information window?	<ul style="list-style-type: none"> • The hardware that makes TV Guide On Screen™ system possible is a computer chip which has limited storage space. Factors used in determining which programs display detailed program information are the number of channels turned “ON” in the CHANNEL EDITOR screen and the availability of the descriptions. Setting channels that cannot be received to “OFF” in the CHANNEL EDITOR screen may increase the amount of information displayed. 	29
What kind of information might be seen in the MESSAGES screen?	<ul style="list-style-type: none"> • Useful Product Related Information (PRI) such as alerting the user to new features or data available through the TV Guide On Screen™ system. This feature may not be active in all viewing areas. 	—
Can I record one channel while watching another?	<p>If you do not connect a cable TV box</p> <ul style="list-style-type: none"> • Yes. Change the television's input mode to “TV”. <p>If you connect a cable TV box</p> <ul style="list-style-type: none"> • No. The user cannot watch one program and record another. 	—
If I have a power failure, will I need to reset the timer recording programs I have already set?	<ul style="list-style-type: none"> • In most cases the timer recording programs will be saved. However, if an extended power failure occurs, it is strongly recommended that you verify the timer recording programs that you had previously set. Press [PROG/CHECK] to display the SCHEDULE screen. 	27
I do not want TV Guide On Screen™ system to automatically appear on screen.	<ul style="list-style-type: none"> • Select “Off” in “Review options” menu, so that TV Guide On Screen™ system appears only when you press [TV GUIDE]. 	29
I do not want to use TV Guide On Screen™ system.	<ul style="list-style-type: none"> • Set the unit with “Auto Channel Setting” in the SETUP menu. Note that you can set timer recording only manually after you set the unit with “Auto Channel Setting”. 	65

Network

The router's LAN port is insufficient.	<ul style="list-style-type: none"> • Commercially available devices can augment the connection port (hub). After connecting the router and hub with a commercially available LAN cable the computer and this unit should connect through the hub. Please read the hub's operating instructions for further information. 	10, 11
The screen temporarily freezes.	<ul style="list-style-type: none"> • This may occur depending on computer and network efficiency. It is most likely when using a wireless LAN so a LAN cable is recommended. 	—

On the television

		Page
Cannot finish recording completely.	<ul style="list-style-type: none"> The program was copy-protected. The HDD or disc may be full. 	—
Cannot play.	<ul style="list-style-type: none"> You inserted an incompatible disc (Discs recorded in PAL video, etc.). 	—
Cannot record on the disc.	<ul style="list-style-type: none"> The disc may be dirty or scratched. 	79
Please check the disc.	<ul style="list-style-type: none"> You cannot format a Microdrive or mobile hard disk on this unit. 	—
Unable to format.		
Cannot play back on this DVD-Recorder.	<ul style="list-style-type: none"> You tried to play a non-compatible image. Turn the unit off and re-insert the card. 	34 34
Cannot record. Disc is full.	<ul style="list-style-type: none"> Create space by erasing any unnecessary titles. HDD RAM (Even if you erase recorded content from the DVD-R, there is no increase in disc space.) Use a new disc. 	32, 37, 41, 45, 59
Cannot record. Maximum number of titles exceeded.		—
Error has occurred. Please press ENTER.	<ul style="list-style-type: none"> Press [ENTER] to start recovery process. You cannot operate the unit while it is recovering ("SELF CHECK" appears on the unit's display). 	—
No disc	<ul style="list-style-type: none"> The disc may be upside down. 	—
No folders.	<ul style="list-style-type: none"> There is no compatible folder in this unit. 	21
No PC CARD No SD CARD No valid PC card. No valid SD card.	<ul style="list-style-type: none"> 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. 	34 21
Not enough space on dubbing destination.	<ul style="list-style-type: none"> Create space by erasing any unnecessary items. Erase one or more items registered on the transfer (dubbing) list to ensure that the "Current capacity" is not exceeded. 	32, 35, 37, 41, 44, 45, 59 49, 55
Please change the disc.	<ul style="list-style-type: none"> 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.) 	79
This is a non-recordable disc.	<ul style="list-style-type: none"> The unit cannot record on the disc you inserted. Insert a DVD-RAM or unfinalized DVD-R. 	—
This disc is not formatted properly.	<ul style="list-style-type: none"> You inserted an unformatted DVD-RAM. Format the disc with this unit. 	59
⊘	<ul style="list-style-type: none"> The operation is prohibited by the unit or disc. 	—
Cannot connect to the network.	<ul style="list-style-type: none"> The router etc. is not properly connected. Please check the LAN cable connection and router's AC power supply cord and setting (DHCP server setting etc.). 	10, 11
No file. No title.	<ul style="list-style-type: none"> Make sure the MPEG4 or still pictures have been recorded. To record MPEG4 titles on the HDD, set "MPEG4 Recording Mode" in the SETUP menu to "XF", "SF", "F", "N" or "E". 	34, 36 62

On the unit's display

CHK REMOTE □ ("□" stands for a number.)	<ul style="list-style-type: none"> The remote control and main unit are using different codes. Change the code on the remote control.  <p>Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.</p>	14
HARD ERR	<ul style="list-style-type: none"> If there is no change after turning the unit on and off, consult the dealer where the unit was purchased. 	—
HDD SLP	<ul style="list-style-type: none"> In order to extend HDD life, the HDD is in SLEEP mode. Press [HDD] to activate. 	79
NO READ	<ul style="list-style-type: none"> The disc is dirty or badly scratched. The unit cannot record, play, or edit. You have used a DVD-RAM/PD lens cleaner and it has finished. Press [▲ OPEN/CLOSE] on the main unit to eject the disc. 	79 —
PLEASE WAIT	<ul style="list-style-type: none"> Displayed when the unit is started. This is not a malfunction. 	—
SELF CHECK	<ul style="list-style-type: none"> There was a power failure or the AC plug was disconnected while the unit was on. The unit is carrying out its recovery process. Wait until the message disappears. 	—
UNSUPPORT	<ul style="list-style-type: none"> You have inserted a disc the unit cannot play or record on. 	20
U14	<ul style="list-style-type: none"> The unit is hot. The unit switches to standby for safety reasons. Wait for about 30 minutes until the message disappears. Select a position with good ventilation when installing the unit. Do not block the cooling fan on the rear of the unit. 	—
U99	<ul style="list-style-type: none"> The unit fails to operate properly. Press [POWER ⏻/⏻] on the main unit to switch the unit to standby. Now press [POWER ⏻/⏻] on the main unit again to turn the unit on. 	—

Troubleshooting guide

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 the "Customer Services Directory" on page 80 if you reside in the U.S.A., or refer to the "Product information" on page 78 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.
- A sound is heard when the HDD goes into SLEEP mode, or operations are slow to respond in SLEEP mode.

Power

Page

No power.	● Insert the AC power supply cord securely into a known active AC outlet.	7, 8
The unit switches to 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 ⏻/I] on the main unit to turn the unit on.	61 —

Displays

The display is dim.	● Change "Front Display" in the SETUP menu.	63
"12:00A" is flashing on the unit's display.	● Set the clock.	13
Compared to the actual recorded time, the remaining time displayed is less.	● The displayed recording/play time is converted from the number of frames at 29.97 frames (equal to 0.999 seconds) to one second. There will be a slight difference between the time displayed and the actual elapsed time (e.g., actual one-hour elapsed time may display as approximately 59 minutes 56 seconds). This does not affect the recording.	—
The time recorded on the disc and the available time shown do not add up. The play time shown for MP3 does not agree with the actual time.	● Times shown may disagree with actual times. ● When transferring (dubbing) pictures with little motion, by converting to MPEG4 format, they may be transferred (dubbed) within small amount of capacity. ● When the disc contains still pictures or MPEG4 data, the available recording time is reduced. ● More disc space than the actual recording time is used after recording or editing the DVD-R 200 times or more. ● While searching, the elapsed time may not display correctly. ● Even if you erase recorded content from the DVD-R, there is no increase in disc space.	— — — — — —

TV screen and video

Television reception worsens after connecting the unit.	● This can occur because the signals are being divided between the unit and other equipment. It can be solved by using a signal booster, available from audio-visual suppliers.	—
Status messages do not appear.	● Select "Automatic" in "Status Messages" in the SETUP menu.	63
The blue background does not appear.	● Select "On" in "Blue Background" in the SETUP menu.	63
The 4:3 aspect ratio picture expands left and right.	● Use the television to change the aspect. If your television does not have that function, set "Progressive" in the Video menu to "OFF".	39
Screen size is wrong.	● Check the settings for "TV Type", "4:3 TV Settings for DVD-Video" or "4:3 TV Settings for DVD-RAM" in the SETUP menu.	64
There is a lot of after-image when playing video.	● Change the settings for "3D NR", and "Integrated DNR" to "0" or turn "MPEG-DNR" off if it is on.	39
When playing DVD-Video using progressive output, one part of the picture momentarily appears to be doubled up.	● Set "Progressive" in the Video menu to "OFF". This problem is caused by the editing method or material used on DVD-Video, but should be corrected if you use interlace output.	39
There is no apparent change in picture quality when adjusted with the Video menu in the on-screen menus.	● The effect is less perceivable with some types of video.	—
The images from this unit do not appear on the television.	● Make sure that the television is connected to the VIDEO OUT terminal, S-VIDEO OUT terminal or COMPONENT VIDEO OUT terminals on this unit. ● Make sure that the television's input setting (e.g., VIDEO 1) is correct.	7 —
Picture is distorted.	● The television isn't compatible with progressive signals. Press and hold [■] and [TIME SLIP] on the main unit at the same time for about 5 seconds. The setting will change to interlace.	—
The channels keep changing.	● When the unit is turned off, it uses the IR Blaster to scan the cable TV box channels and acquire the TV program list data. To watch a cable TV box program (even if not recording) turn the unit back on.	—

Sound

Page

<p>No sound. Low volume. Distorted sound. Cannot hear the desired audio type.</p>	<ul style="list-style-type: none"> • Check the connections and settings. Check the input mode on the amplifier if you have connected one. • Press [AUDIO] to select the audio. • Turn off V.S.S. in the following cases. <ul style="list-style-type: none"> – When using discs that do not have surround sound effects such as Karaoke discs. – When three or more speakers are connected. – When playing MTS broadcast programs. • The disc may have restrictions on the method of audio output (e.g. discs for which “D.MIX” is not displayed during play). With some multi-channel discs, unless the number of connected speakers is the same as the disc’s channel specification, audio will not be output properly. Refer to the disc’s jacket for more information. DVD-A 	<p>7–9, 15, 63 23, 32 39 —</p>
<p>Cannot switch audio.</p>	<ul style="list-style-type: none"> • You cannot switch the audio in the following cases. <ul style="list-style-type: none"> – When a DVD-R disc is in the disc tray while DVD drive is selected. – When the recording mode is XP and “Audio for XP Recording” is set to “LPCM”. – When “DVD-R High-Speed Recording” is set to “On” • You have used digital connection. Set “Dolby Digital” to “PCM” or connect using audio cables (analog connection). • There are discs for which audio cannot be changed because of how the disc was created. • The audio for the MPEG4 is monaural. 	<p>— 63 62 63, 9 — —</p>

Operation

<p>Cannot operate the television. The remote control doesn't work.</p>	<ul style="list-style-type: none"> • Change manufacturer code. Some televisions cannot be operated even if you change the code. • The remote control and main unit are using different codes. Change the code on the remote control. <p style="text-align: center;">  Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds. </p> <ul style="list-style-type: none"> • The batteries are depleted. Replace them with new ones. • 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. 	<p>14 14 4 — —</p>
<p>The unit is on but cannot be operated.</p>	<ul style="list-style-type: none"> • Recording drive or playback drive has not been selected properly. • Some operations may be prohibited by the disc. • The unit is hot (“U14” appears on the display). Wait for “U14” to disappear. • One of the unit’s safety devices may have been activated. Reset the unit as follows: Press [POWER ⏻/I] on the main unit to switch the unit to standby. If the unit doesn't switch to standby, press and hold [POWER ⏻/I] 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. 	<p>22, 30 — — —</p>
<p>HDD activation is slow.</p>	<ul style="list-style-type: none"> • The HDD is in SLEEP mode. (“HDD SLP” appears in the unit’s display.) 	<p>79</p>
<p>Cannot eject disc.</p>	<ul style="list-style-type: none"> • 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. 	<p>—</p>

Recording/Timer recording/Transferring (dubbing)

<p>Cannot record.</p>	<ul style="list-style-type: none"> • You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto. • The disc is unformatted. Format the disc. RAM • The write-protect tab on the cartridge is set to PROTECT, or the disc is protected with DISC SETTING. • Some programs have limitations on the number of times they can be recorded. (CPRM) • You cannot record when there is not enough space or when the number of titles has reached its limit. Erase unwanted titles. • You cannot record on finalized DVD-R discs. • Due to peculiarities of DVD-R, 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. • A DVD-R recorded on this unit may not be recordable on other Panasonic DVD recorders. 	<p>20 59 58 68 32, 37, 41, 45, 59 — — —</p>
<p>Timer recording does not work properly. VCR Plus+ system does not work properly.</p>	<ul style="list-style-type: none"> • The timer program is incorrect or different timer program times overlap. Correct the program. • Timer recording program may be deleted if there is an interruption to the power. • VCR Plus+ system works only after this unit downloads the television program list. 	<p>27 — —</p>
<p>Timer recording does not stop even when [■] is pressed.</p>	<ul style="list-style-type: none"> • Press [■] and then [ENTER] within 5 seconds. Recording stops. 	<p>25, 26, 27</p>
<p>The timer program remains even after recording finishes.</p>	<ul style="list-style-type: none"> • The timer program remains unless set to “Once”. 	<p>25, 26</p>
<p>A part or whole of a recorded title has been lost.</p>	<ul style="list-style-type: none"> • 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 HDD/disc may become unusable. You will have to format the disc (HDD RAM) or use a new disc. We cannot offer any guarantee regarding lost titles or discs. 	<p>59</p>

Recording/Timer recording/Transferring (dubbing) (Continued)

Page

Cannot transfer (dub) to a DVD-R disc using the high speed mode.	<ul style="list-style-type: none"> •When recording to the HDD, set “DVD-R High-Speed Recording” to “On” in the SETUP menu. 	62
When transferring (dubbing), it takes a long time even when high speed mode is selected.	<ul style="list-style-type: none"> •Use a disc that is compatible with high speed recording. Even if the disc is high speed recording compatible, the maximum speed recording rating may not be possible due to the condition of the disc. •It takes longer than normal to transfer (dub) many titles. •You cannot high speed transfer (dub) to DVD-R titles longer than 6 hours when using other Panasonic DVD recorders that are not compatible with EP (8 hour) mode recording. 	— — —
An unusually loud sound coming from the rotating DVD-R.	<ul style="list-style-type: none"> •When recording or high speed transferring (dubbing) to a DVD-R, the sound of the disc rotating may be louder than normal; however, this is not a problem. 	—
The DV automatic recording function does not work.	<ul style="list-style-type: none"> •If images cannot be recorded or if the recording is aborted, check the connections and DV equipment settings. •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 automatic recording may not operate properly. 	51, 52 — — —

TV Guide On Screen™ system

Although initial setup for the TV Guide On Screen™ system was completed hours ago, television program list does not display when [TV GUIDE] is pressed.	<ul style="list-style-type: none"> •Leave the unit turned off for at least 24 hours. •Initial setup was done incorrectly. (e.g. The user entered the wrong country, ZIP/postal code or cable TV box information.) Select “Change system settings” menu and verify the data entered during initial setup. If the settings are wrong, set up the TV Guide On Screen™ system again. •Check the connection and set up the TV Guide On Screen™ system again. <ul style="list-style-type: none"> If you connect a cable TV box <ul style="list-style-type: none"> –the output terminal of the cable TV box is connected to this unit’s RF IN or IN3 (L3) terminal –the IR Blaster is correctly connected and installed –the cable TV box is turned on If you do not connect a cable TV box <ul style="list-style-type: none"> –the antenna cable is connected to this unit’s RF IN terminal •The television program list was temporarily unavailable in your area (Wait another 24 hours or Re-do setup). •The television program list is not available in your area. Set the unit using “Auto Channel Setting”. Note that you can only manually set timer recording after you set the unit using “Auto Channel Setting”. •Consult your service provider if you are using a cable TV box. 	— 29 29 8 8 — 7 — 65 —
“Cable code -INCOMPLETE-” appears in the TV Guide On Screen™ system setup.	<ul style="list-style-type: none"> •The unit cannot find the correct IR code for the cable TV box. Consult your service provider. 	—
As soon as the unit is turned on, and when you try to start timer recording, the TV Guide On Screen™ system setup begins.	<ul style="list-style-type: none"> •Even if you do not want to use the TV Guide On Screen™ system, you need to complete the TV Guide On Screen™ system setup (until you have to press [ENTER] after the “Watch TV” message screen is displayed). It will not be displayed after this point. 	12
Some or all of the channels display “No Listing”	<ul style="list-style-type: none"> •For a newly installed unit, the TV Guide On Screen™ system may not have been given enough time to download the initial data. This procedure can only occur when the unit is in standby mode for a period of 24 hours. (During this time, do not turn on the unit as the download will be interrupted.) Once the procedure takes place the phrase “No Listing” will be replaced with program information. •The channel(s) in question was (were) recently turned “ON” (in the CHANNEL EDITOR screen) however TV Guide On Screen™ system has yet to receive channel data for this channel. Leave the unit in standby mode. •Immediately after beginning use there are several days of blank listings. You can display the television program list for up to the next 8 days forward without any blank listings by downloading program lists continuously over several days. •The unit was left turned on for an extended period of time and the TV Guide On Screen™ system was unable to receive television program list data. Press [⏻ DVD POWER] to set the unit in standby mode when not in use. •During the data download the station from which data is downloaded had an unscheduled power outage. •If using an off-air antenna, marginally poor reception can cause some of the data to be missed. •If using a cable TV box, it was accidentally turned off. In installations using a cable TV box, the box must be left on continuously. 	— — — — — — — — —

Continued on next page

TV Guide On Screen™ system (Continued)

Page

<p>Cannot receive some channels displayed on the television program list.</p>	<ul style="list-style-type: none"> ●Cable TV subscribers receive channel data for all available channels your cable TV provider offers. In order to view all the channels, you'd also have to subscribe to all the channels. If you are connected to an off-air antenna the channel data you receive often represents a viewing area larger than you would typically be able to receive. Your location, the type of TV antenna you are using and your distance from each station's transmitting antenna will all determine which channels are viewable from your location. Once you've determined which channels can be received, all others can be removed from the television program list. Set these channels to "OFF" in the CHANNEL EDITOR screen. 	<p>29</p>
<p>Some of off-air or cable channels are not listed on the television program list and even on the CHANNEL EDITOR screen.</p>	<ul style="list-style-type: none"> ●Presently, the TV Guide On Screen™ system does not list all channels in any given broadcast area. As a result, channels are selected primarily on a "majority rules" basis. Channels with the highest potential viewership are given top priority. ●Data for local programming which is not provided to TV Guide's data distribution network would also not be available. 	<p>—</p>
<p>The program highlighted doesn't match up with the video window on the TV screen.</p>	<ul style="list-style-type: none"> ●The data entered during the initial setup was incorrect or the channel line-up you selected was incorrect. Select "Change system settings" menu and verify the data entered during initial setup. If the settings are wrong, set up the TV Guide On Screen™ system again. ●The station in question may have made recent program schedule changes and the TV Guide On Screen™ system has not yet been updated. 	<p>29</p>
<p>The unit doesn't change channels or it changes to the wrong channel.</p>	<ul style="list-style-type: none"> ●Data entered into the initial setup screen was done incorrectly. (e.g. The user entered the wrong ZIP/postal code or selected the incorrect channel line-up.) Select "Change system settings" menu and verify the data entered during initial setup. If the settings are wrong, set up the TV Guide On Screen™ system again. 	<p>29</p>
<p>Some of channels are listed on the wrong number.</p>	<ul style="list-style-type: none"> ●The cable company has not yet informed industry sources of their channel line-up changes. Use the CHANNEL EDITOR feature to make adjustments. 	<p>29</p>
<p>Two stations are received on certain channels; morning and evening programs differ.</p>	<ul style="list-style-type: none"> ●Such situations occur more frequently on cable TV. "Split" channels occur when the cable provider may not have an adequate number of open channels and chooses to switch the channel line to better suit the subscribers viewing habits. When a "Split" channel occurs, program data for only one channel is usually provided. 	<p>—</p>
<p>Cable TV box doesn't change channels with TV Guide On Screen™ system.</p>	<ul style="list-style-type: none"> ●The incorrect cable TV box brand code was selected during the initial setup. Select "Change system settings" menu and verify the data entered during initial setup. If the setting is wrong, set up the TV Guide On Screen™ system again. ●The user has incorrectly connected or positioned the IR Blaster. Please reconnect or reposition it. ●The cable TV box has no remote capability and is incompatible. Consult your service provider. ●The user has an "after market" brand cable TV box which may be incompatible. Consult your service provider. 	<p>29</p> <p>8</p> <p>—</p> <p>—</p>
<p>Cannot record a program. The screen remains snowy or blue.</p>	<p>If you do not connect a cable TV box</p> <ul style="list-style-type: none"> ●The unit was not hooked up correctly. Please reconnect it. ●The user selected the incorrect channel lineup. Select "Change system settings" menu and verify the data entered during initial setup. If the setting is wrong, set up the TV Guide On Screen™ system again. <p>If you connect a cable TV box</p> <ul style="list-style-type: none"> ●The unit is not set to the correct output channel. Select "Change system settings" menu and verify the data entered during initial setup. If the setting is wrong, redo setup correctly choosing 03, 04 or whichever output channel is set by your cable system. ●The unit and/or cable TV box is hooked up incorrectly. Please reconnect it, or contact the cable company for proper wiring procedure. ●The cable TV box was left OFF. The user should always leave the cable TV box turned on and the unit turned off (when not in use). 	<p>7</p> <p>29</p> <p>29</p> <p>8</p> <p>—</p>
<p>The SCHEDULE screen only shows the channel number of the program instead of the program name.</p>	<ul style="list-style-type: none"> ●The time slot and channel for the scheduled program may have not yet received listings information. Once updated information is received the program name will appear in the SCHEDULE screen. 	<p>—</p>

Play		Page
Play fails to start even when [▶] (PLAY) is pressed. Play starts but then stops immediately.	● Insert the disc correctly with the label facing up.	30
	● You tried to play a blank DVD-RAM/DVD-R, or disc unplayable on this unit.	20
	● You may be able to transfer (dub) a “One time only recording” title that was recorded to DVD-RAM using a different Panasonic DVD Recorder to this unit’s HDD, but play is not possible due to copyright protection.	—
	● 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.	62
Audio and video momentarily pause.	● You cannot play discs during DV automatic recording.	—
	● This occurs between play list chapters.	—
DVD-Video is not played.	● This occurs between chapters and with partially deleted titles on finalized DVD-R that have been transferred (dubbed) using the high speed mode.	—
	● Some DVD-Video cannot be played when you change the ratings level.	62
Alternative soundtrack and subtitles cannot be selected.	● The languages are not recorded on the disc.	—
	● You may have to use the disc’s menus to select languages.	—
No subtitles.	● When progressive output is on, closed captions cannot be displayed.	—
	● Subtitles are not recorded on the disc.	—
	● Turn the subtitles on.	38
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 [DVD] then press and hold [◀◀/▶▶] and [▶▶/▶▶] on the main unit at the same time for 5 or more seconds (“INIT” will appear on the unit’s display).	—
Quick View does not work.	● This does not work if the setting is “Off” in “Search Audio & PLAY ×1.3”.	63
	● This does not work when audio is other than Dolby Digital.	—
	● This does not work when recording is in XP or FR mode. RAM	—
The resume play function does not work.	● This function only works when “PLAY” is flashing on the unit display.	—
	● Memorized positions are canceled when the unit is turned off or when the tray is opened. The memorized position on the play list is also canceled when the play list and title are edited.	—

Edit		Page
Cannot format.	● The disc is dirty. Use a special cleaner and wipe clean.	79
	● You tried formatting a disc that is not compatible with this unit.	20
Cannot create chapters. Cannot mark the start point or the end point during “Shorten” operation.	● 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.	—
	● 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.	—
Cannot erase chapters.	● When the chapter is too short to erase, use “Combine Chapters” to make the chapter longer.	41
The available recording time doesn’t increase even after erasing recordings on the disc.	● Available recording space on the DVD-R does not increase even after erasing previously recorded titles.	—
Cannot create a play list.	● You cannot select all the chapters at once in a title if the title also includes still pictures. Select them individually.	—

Still pictures and MPEG4		Page
Cannot display Direct Navigator screen.	● This screen cannot be displayed during recording or transfer (dubbing) or while the unit is standing by for linked timer recording with external equipment.	—
Cannot edit or format a card.	● Release the card’s protection setting. (With some cards, the “WRITE PROTECTION OFF” message sometimes appears on the screen even when protection has been set.)	58
The contents of the card cannot be read.	● The card format is not compatible with the unit. (The contents on the card may be damaged.)	21, 34
	Format using FAT 12 or FAT 16 with other equipment or format the card with this unit.	59
	● The card contains a folder structure and/or file extensions that are not compatible with this unit.	21
	● Turn off and then turn on the unit again.	—
Transferring (dubbing), erasing and setting protection takes a long time.	● When there are a lot of folders and files, it may sometimes take a few hours.	—
	● When repeating transferring (dubbing) or erasing, it may sometimes take a long time. Format the disc or card.	59
The PC card cannot be removed.	● Make sure the PC card is slotted home firmly before attempting to remove.	34
Timer recording began in the middle of editing a still picture.	● If it comes to the time scheduled for timer recording, the recording may start even though you are editing.	—

Network

		Page
The network function will not run.	●When using a wireless router, operations may be being affected by local signal conditions (weak radio waves or the network environment).	—
	●Turn off the DVD recorder operated via the Network.	—
	●Check the router setting (DHCP server and the security settings etc.). Read the router's operating instructions for further information.	—
	●There may be limits to your usage of the router by your telecommunications carrier or Internet service provider. Please contact the telecommunications carrier or Internet service provider that you subscribe to.	—
	●Enter the IP address correctly if operating by computer.	56
	●Make sure the LAN cable is properly connected.	11
	●Make sure the client units are registered.	17
	●The server cannot transmit data to more than one place at the same time (e.g. more than one client, a client and a computer and so on).	—
	●Please check the connection.	—
	Select the "Network" tab in the SETUP menu. Press and hold [ENTER] for more than 5 seconds. Operation is possible when the display changes from "Now updating the settings" to "Now connected to the network".	

■ **To initialize this unit's network password**

While the disc tray is open, press [DVD] then press and hold [I◀◀/◀◀] and [TIME SLIP] on the main unit at the same time for 5 or more seconds ("INIT" will appear on the unit's display). The password setting will be erased. If "Network Function" is set to "Disable" the password cannot be erased (➡ page 64).

Product Service

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.

Product information

For product information or assistance with product operation:

In the U.S.A., refer to "Customer Services Directory" on page 80.

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.

Unit care

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 benzene to clean this unit.
- Before using chemically treated cloth, read the instructions that came with the cloth carefully.

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-RAM/PD lens cleaner (LF-K123LCA1, where available) about once every year, depending on frequency of use and the operating environment. Read the lens cleaner's instructions carefully before use.

Disc and card handling

How to hold a disc or card

Do not touch the recorded surface or the terminal surface.



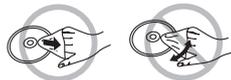
If there is dirt or condensation on the disc

RAM DVD-R

- Clean with an optional DVD-RAM/PD disc cleaner (LF-K200DCA1, where available).
- Do not use cleaners for CDs or cloths.

DVD-A DVD-V VCD CD

Wipe with a damp cloth and then wipe dry.



Handling precautions

- Do not attach labels or stickers to discs. (This may cause disc warping and un-balanced rotation, rendering it unusable.)
- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzene, thinner, static electricity prevention liquids or any other solvent.
- Do not use scratch-proof protectors or covers.
- Do not expose the terminals of the card to water, garbage or other strange things.
- Do not use the following discs:
 - Discs with exposed adhesive from removed stickers or labels (rented discs, etc).
 - Discs that are badly warped or cracked.
 - Irregularly shaped discs, such as heart shapes.
- Do not place in the following areas:
 - In direct sunlight.
 - In very dusty or humid areas.
 - Near a heater.
 - Where static electricity or electromagnetic waves occur



HDD (Hard disk drive) handling care

The HDD is a high precision recording instrument and because of its long recording capability and high speed operation it is a very special device that is easily susceptible to damage.

As a basic rule, save important video content to a DVD disc as backup.

The HDD is a device that is not built to withstand vibration/shock or dust

Depending on the setup environment and handling of the HDD some content may become damaged and play and recording may no longer be possible. Especially during operation, do not subject the unit to any vibration, shock, or remove the AC power plug from the household AC outlet. In the event of a power failure the content, during recording or play, may be damaged.

The HDD is a temporary storage device

The HDD is not an everlasting storage device for recorded content. Use the HDD as a temporary storage place for viewing once, editing, or for saving to a DVD disc.

Immediately save (backup) all content as soon as you feel there may be problem with the HDD

If there is an irregularity within the HDD, strange sounds or problems with picture (block noise, etc.) may result. Using the HDD in this condition may worsen the problem and in the worst case the HDD

may no longer become usable. As soon as you notice this type of problem, save all content to the DVD disc.

Recorded content (data) on an HDD that has become unusable is unrecoverable.

Setup precautions

- Do not place in an enclosed area so the rear cooling fan and the cooling vents on the side are covered up.
- Place the unit on a surface that is flat and not subject to vibration or impact.

- Do not place on anything that generates heat like a video cassette recorder, etc.



- Do not place in an area often subject to temperature changes.

- Do not place in an area where condensation does not occur. Condensation is a phenomenon where moisture forms on a cold surface when there is an extreme change in temperature. Condensation may cause internal damage to the unit.

Conditions where condensation may occur

–When there is an extreme change in temperature (moving from a very hot location to a very cold location, or vice versa, or when subjected to an air conditioner or when cooled air directly impacts the unit.) When the HDD (warms during operation) is subjected to cold air, condensation may form on the inside of the HDD and may cause damage to the HDD heads, etc.

- When there is high humidity or a lot of steam in the room.
- During the rainy season.

- In the above situation, **without turning the unit on**, let the unit adjust to the room temperature and wait 2–3 hours until condensation is gone.

Cigarette smoke, etc. causes malfunction or breakdown

The unit may breakdown if cigarette smoke or bug spray/vapor, etc. gets inside the unit.

While operating

- Do not move the unit or subject to vibration or impact. (The HDD may become damaged.)
- Do not remove the AC power plug from the household AC outlet, or flip the power breaker switch.

While the unit is on, the HDD is rotating at high speed. Sound or movement due to rotation is normal.

When moving the unit

- ① Turn the unit off. (Wait until "BYE" disappears from the display.)
- ② Remove the AC power plug from the household AC outlet.
- ③ Move only after the unit has come to a complete stop (approx. 2 minutes) in order to avoid subjecting to vibration and shock. (Even after turning the unit off, the HDD continues operating for a short time.)

HDD recording time remaining

This unit records using a VBR (Variable bit rate) data compression system to vary recorded data segments to match video data segments which may cause differences in the displayed amount of time and space remaining for recording.

If the remaining amount of time is insufficient, erase any unwanted titles to create enough space before you start recording. (Erasing a play list will not increase the amount of time.)

When "HDD SLP (SLEEP)" appears in the display

The HDD has been automatically placed in the SLEEP mode. (The HDD continues to rotate at high speed while the unit is on. In order to extend the life of the HDD, the HDD will be placed in the SLEEP mode if no operation has been performed for 30 minutes while there is no disc on the disc tray.)

- Press [HDD] to activate.
- While in SLEEP mode play or recording may not begin right away because the HDD takes time to be re-activated.
- When not using the unit, we recommend removing the disc in the tray in order to set the HDD to the SLEEP mode.

Indemnity concerning recorded content

Panasonic does not accept any responsibility for damages directly or indirectly due to any type of problems that result in loss of recording or edited content (data), and does not guarantee any content if recording or editing does not work properly. Likewise, the above also applies in a case where any type of repair is made to the unit (including any other non-HDD related component).

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
Rechargeable 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.

Reference

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@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

F1104

Limited Warranty (ONLY FOR CANADA)

Panasonic Canada Inc.
5770 Ambler Drive, Mississauga, Ontario L4W 2T3

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.

Panasonic DVD Recorder One (1) year, parts and labour

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 and information assistance, please contact your Dealer or our Customer Care Centre at: Telephone #: (905) 624-5505 Fax #: (905) 238-2360 Web: www.panasonic.ca

For product repairs, please contact one of the following:

- Your Dealer who will inform you of an authorized Servicentre nearest you.
- Our Customer Care Centre at (905) 624-5505 or www.panasonic.ca
- A Panasonic Factory Servicentre listed below:

Richmond, British Columbia

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

Calgary, Alberta

Panasonic Canada Inc.
6835-8th St. N. E.
Calgary, AB
T2E 7H7
Tel: (403) 295-3955
Fax: (403) 274-5493

Mississauga, Ontario

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

Lachine, Québec

Panasonic Canada Inc.
3075, rue Louis A. Amos
Lachine, QC
H8T 1C4
Tel: (514) 633-8684
Fax: (514) 633-8020

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.

Conexión con un televisor y videogradora

Consulte la ilustración que aparece en la página 7 de la sección en idioma inglés.

- Las conexiones del equipo descritas son ejemplos.
- 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.

La conexión permitirá utilizar la videogradora para reproducir cuando esté apagada esta unidad. Para que la operación sea óptima, se recomienda que esta unidad sea conectada como se muestra más abajo.

(A)	— indica accesorios incluidos. — indica accesorios no incluidos.
(B)	Televisión
(C)	Cuando conecte utilizando estos terminales, asegúrese de conectar los cables de audio a los terminales de entrada de audio correspondientes del televisor.
(D)	Cable procedente de una pared o señal de antena
(E)	Divisor
(F)	Rojo Blanco Amarillo
(G)	Videogradora
(H)	Cable coaxial de 75 Ω
(I)	Amarillo Blanco Rojo
(J)	Cable de audio/vídeo
(K)	Esta unidad
(L)	A OUT1 o OUT2
(M)	A IN1 (L1)
(N)	Ventilador de refrigeración
(O)	Cable de alimentación de CA Conecte solamente después de haber terminado todas las otras conexiones.
(P)	A una toma de CA de casa (CA 120 V, 60 Hz)
(Q)	Terminal COMPONENT VIDEO OUT Conecte a los terminales COMPONENT VIDEO IN del televisor utilizando un cable de vídeo componente. Estos terminales se pueden utilizar para la salida entrelazada o progresiva y para proporcionar una imagen más pura que la del terminal S-VIDEO OUT. • Conecte a los terminales del mismo color.
(R)	Terminal S-VIDEO OUT Conecte al terminal S-VIDEO IN del televisor utilizando un cable S-Vídeo. El terminal S-VIDEO OUT proporciona una imagen más viva que la del terminal VIDEO OUT. (Los resultados reales dependen del televisor.)

■ El terminal RF OUT de la unidad

La señal de imagen y sonido procedente de esta unidad no pasa a través del terminal RF OUT hacia el televisor. Asegúrese de conectar uno de los terminales siguientes de este aparato al televisor: el terminal AUDIO/VIDEO OUT, el terminal S-VIDEO OUT o el terminal COMPONENT VIDEO OUT. Si el televisor no tiene ninguno de estos terminales, consulte a su concesionario local.

■ No conecte la unidad a través de una videogradora

Las señales de vídeo que pasan a través de videogradoras afectarán a los sistemas de protección del copyright, y la imagen no se mostrará correctamente en el televisor.

- Cuando conecte a un televisor con videogradora incorporada, conecte a los terminales de entrada del televisor, no a los de la videogradora.

Conexión con un receptor de TV por cable y una videogradora

Consulte la ilustración que aparece en la página 8 de la sección en idioma inglés.

- Necesita suscribirse a los servicios de TV por cable para ver su programación.
- Consulte a su proveedor de servicios en cuanto al receptor de TV por cable apropiado.
- **Si recibe únicamente su programación de un servicio de satélite, la guía de programas de esta unidad no recibirá las listas de programas ni la información de los canales. Sin esta información no se podrán hacer grabaciones basadas en programas. Sin embargo, sí se podrán hacer grabaciones manualmente.**

La conexión permitirá utilizar la videogradora para reproducir cuando esté apagada esta unidad. Para que la operación sea óptima, se recomienda que esta unidad sea conectada como se muestra más abajo.

(A)	— indica accesorios incluidos. — indica accesorios no incluidos.
(B)	Televisión
(C)	Rojo Blanco Amarillo
(D)	Cable procedente de una pared o señal de antena
(E)	Divisor
(F)	Videogradora
(G)	Amarillo Blanco Rojo
(H)	Cable coaxial de 75 Ω
(I)	Cable de audio/vídeo
(J)	Esta unidad
(K)	A OUT1 o OUT2
(L)	A IN1 (L1)
(M)	Ventilador de refrigeración
(N)	Cable de alimentación de CA Conecte solamente después de haber terminado todas las otras conexiones.
(O)	A una toma de CA de casa (CA 120 V, 60 Hz)
(P)	IR Blaster Introduzca el conector IR Blaster en el terminal G-LINK. • Utilice solamente el IR Blaster suministrado.
(Q)	Para que el sistema TV Guide On Screen™ funcione resulta necesario hacer estas conexiones a IN3 (L3).
(R)	A IN3 (L3)
(S)	En lugar de utilizar el cable de audio/vídeo, también podrá conectar el terminal RF IN de esta unidad al terminal RF OUT del receptor de TV por cable utilizando el cable coaxial de 75 Ω.
(T)	Ajuste del IR Blaster → abajo
(U)	Receptor de TV por cable

■ ¿Debo usar el terminal AUDIO/VIDEO OUT o el RF OUT?

Si su receptor de TV por cable tiene terminales AUDIO/VIDEO OUT y RF OUT, le recomendamos conectar el terminal AUDIO/VIDEO OUT al terminal IN3 (L3) de la unidad. Esta conexión proporciona la mejor calidad de imagen.

- El terminal S-VIDEO proporciona una imagen más viva que la del terminal VIDEO.

■ ¿Por qué debo conectar el IR Blaster?

El IR Blaster es un dispositivo que permite que esta unidad se comunique con un receptor de TV por cable. Esta unidad sirve entonces como un mando a distancia para el receptor de TV por cable. Si conecta un receptor de TV por cable a esta unidad, también tendrá que conectar el IR Blaster para que esta unidad pueda controlar los canales del receptor de TV por cable.

Ajuste del IR Blaster

Coloque el IR Blaster delante del sensor de señales del receptor de TV por cable.

(V)	Lea las instrucciones del receptor de TV por cable relacionadas con la posición del sensor de señales.
(W)	Si es necesario, utilice cinta con adhesivo en ambas caras (incluida) para asegurar el IR Blaster a una superficie plana.
(X)	Ej. Superficie de base de televisión
(Y)	Si despegamos la cinta adhesiva, la superficie podrá dañarse. Después de confirmar que el receptor de TV por cable esté funcionando correctamente, asegúrelo empleando la cinta adhesiva.

Preparación del sistema de guía de TV en pantalla

Consulte la ilustración que aparece en la página 12 de la sección en idioma inglés.

Después de enchufar la unidad en una toma de CA de casa y pulsar [⏻ DVD POWER] para encender la unidad por primera vez, ésta inicia la preparación del sistema de guía de TV en pantalla.

En el sistema de guía de TV en pantalla sólo se muestra inglés. No se pueden mostrar otros idiomas.

Preparación

- Encienda el televisor y seleccione la entrada de vídeo apropiada a las conexiones de esta unidad.
- Cuando use el receptor de TV por cable, compruebe lo siguiente.
 - Asegúrese de que IR Blaster esté conectado y posicionado correctamente (⇒ páginas 8, 82).
 - Asegúrese de que el receptor de TV por cable esté encendido.

① Pulse [⏻ DVD POWER].

② Prepare el entorno de funcionamiento de su televisor siguiendo los mensajes de la pantalla.

- Mueva el cursor con [▲, ▼, ◀, ▶] y pulse [ENTER] para confirmar.
- Pulse los botones numerados para introducir números.
- Pulse [ENTER] para avanzar a la pantalla siguiente.
- Consulte las indicaciones de la parte inferior de la pantalla.

Ajuste lo siguiente:

- País [USA (EE.UU.)/Canada (Canadá)]
- Código postal
- Servicio de TV por cable conectado a esta unidad [Yes (Sí)/No]
- Receptor de TV por cable conectado a esta unidad [Yes (Sí)/No]

Si está usando un receptor de TV por cable, ajuste lo siguiente:

- Canales de conexión del receptor de TV por cable (Ch2/Ch3/Ch4/L3)
- Marca del receptor de TV por cable
- Código de señal IR

Asegúrese de que su receptor de TV por cable sintonice el canal que aparece en la pantalla y pulse [ENTER]. La unidad empieza a probar varios códigos IR para ver cuál se comunica correctamente con su receptor de TV por cable. Es muy común que esta fase de la preparación se repita numerosas veces.

- Si el receptor de TV por cable ha cambiado al canal 09, seleccione “Yes” (Sí) y pulse [ENTER].
- Si el receptor de TV por cable sigue sintonizado al mismo canal, seleccione “No” y pulse [ENTER]. Repita este paso hasta que el receptor de TV por cable cambie al canal 09.

El contenido ajustado se visualiza junto

Zip code - 11111 (USA)
Cable - Yes
Cable box - No

– Si la información es correcta, seleccione “Yes, end setup” (Sí, finalice la preparación) y pulse [ENTER].
– Si la información no es correcta, seleccione “No, repeat setup process” (No, repita el proceso de preparación) y pulse [ENTER] para iniciar de nuevo el ajuste.

Una vez confirmado el contenido introducido aparece la pantalla siguiente.

What would you like to do now?

Watch TV

③ Pulse [ENTER].

Se muestra una pantalla de recepción de televisión o una pantalla con fondo azul.

④ Pulse [⏻ DVD POWER].

“BYE” aparece brevemente y luego parpadea “12:00A” en el visualizador de la unidad. La unidad está ahora en el modo de espera y lista para descargar el grupo de canales y las listas de programas.

Compruebe de nuevo lo siguiente para que no falle la descarga.

Si conecta un receptor de TV por cable

- que el terminal de salida del receptor de TV por cable esté conectado al terminal RF IN o IN3 (L3) de esta unidad (⇒ páginas 8, 82)
- que el IR Blaster esté conectado e instalado correctamente (⇒ páginas 8, 82)
- que el receptor de TV por cable esté encendido

Si no conecta un receptor de TV por cable

- que el cable de la antena esté conectado al terminal RF IN de esta unidad

⑤ Deje esta unidad en el modo de espera.

Se recomienda esperar un mínimo de 24 horas antes de utilizar esta unidad. Si la unidad se utiliza antes no se producirá ningún problema, pero es posible que el grupo de canales y las listas de programas no se hayan descargado completamente.

- si conecta un receptor de TV por cable, déjelo encendido antes de utilizarlo.
- con algunos receptores de TV por cable, el mando a distancia de los mismos podrá encender y apagar el receptor de TV por cable y el televisor. Utilizar esta función (apagado del receptor de TV por cable) impedirá que el grupo de canales sea descargado.

Si se muestra “There is no data for this screen” (No hay datos para esta pantalla) en el televisor cuando enciende la unidad, ésta no habrá descargado aún el grupo de canales.

Esta unidad puede descargar más de un grupo de canales. Siga las indicaciones de la pantalla y seleccione uno de ellos.

Seleccione el idioma y el tipo de televisión

Consulte la ilustración que aparece en la página 14 de la sección en idioma inglés.

① Pulse [SETUP].

② Pulse [▲, ▼] para seleccionar “Display” y pulse [▶].

③ Pulse [▲, ▼] para seleccionar “On-screen Language” y pulse [ENTER].

④ Pulse [▲, ▼] para seleccionar “Español” y pulse [ENTER].

⑤ Pulse [◀].

⑥ Pulse [▲, ▼] para seleccionar “Pantalla TV” y pulse [▶].

⑦ Pulse [▲, ▼] para seleccionar “Tipo TV” y pulse [ENTER].

● Aspecto 4:3/Aspecto 16:9:

Televisor de aspecto estándar 4:3

Televisor panorámico 16:9

● 480p/480i:

Seleccione “480p” si el televisor es compatible con salida progresiva.

⑧ Pulse [▲, ▼] para seleccionar el elemento y pulse [ENTER].

Para salir de la pantalla

Pulse [SETUP].

Para volver a la pantalla anterior

Pulse [RETURN].

Grabación y reproducción

Consulte las ilustraciones de las páginas 22–24 y 30 en la sección en idioma inglés.

Grabación de programas de televisión

Preparación

Pulse [RETURN] para salir de la lista de programas de televisión si ésta se visualiza en el televisor.

① Pulse [HDD] o [DVD] para seleccionar la unidad de grabación.

② Si selecciona la unidad DVD

Pulse [▲ OPEN/CLOSE] en la unidad principal para abrir la bandeja e introducir el disco.

● Pulse de nuevo el botón para cerrar la bandeja.

③ Pulse [▲ ▼ CH] para seleccionar el canal.

④ Pulse [REC MODE] para seleccionar el modo de grabación (XP, SP, LP o EP).

⑤ Pulse [● REC] para empezar a grabar.

Reproducción mientras usted está grabando

HDD RAM

Reproducción con persecución

Puede empezar a reproducir desde el comienzo del título que está grabando.

Pulse [▶] (PLAY).

Grabación y reproducción simultáneas

Puede reproducir un título grabado previamente.

1 Pulse [DIRECT NAVIGATOR].

2 Pulse [▲, ▼, ◀, ▶] para seleccionar un título y pulse [ENTER].

● Para salir de la pantalla Direct Navigator, pulse [DIRECT NAVIGATOR].

Time Slip

Usando el ajuste de tiempo puede especificar la escena deseada del título grabado o del título que está siendo grabado y ver ambas en dos ventanas de la pantalla.

1 Pulse [TIME SLIP].

2 Pulse [▲, ▼] introducir el tiempo y pulse [ENTER].

● Pulse [TIME SLIP] para mostrar las imágenes de reproducción completas. Pulse de nuevo para mostrar las imágenes de reproducción y grabación.

Reproducción de discos

Preparación

Pulse [RETURN] para salir de la lista de programas de televisión si ésta se visualiza en el televisor.

① Pulse [HDD] o [DVD] para seleccionar la unidad de reproducción.

② Si selecciona la unidad DVD

Pulse [▲ OPEN/CLOSE] en la unidad principal para abrir la bandeja e introducir el disco.

③ Pulse [▶] (PLAY).

Para detener

Pulse [■].

Para hacer una pausa

Pulse [⏸].

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U.S. patent Nos. 4,631,603, 4,577,216, 4,819,098, and 4,907,093.

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