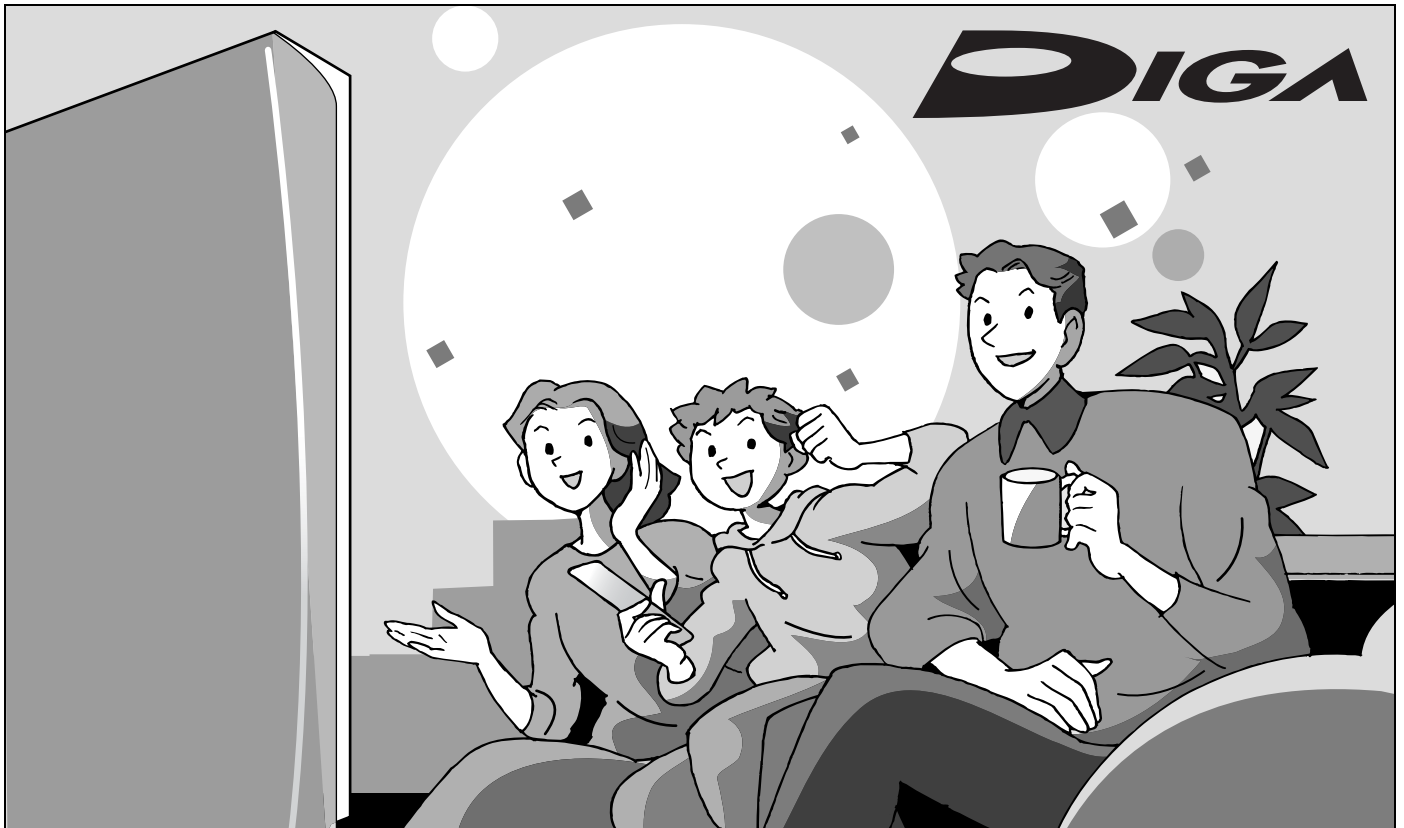


Panasonic®

DVD VIDEO RECORDER

Operating Instructions

Model No. **DMR-E80H**



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 60.
 [For\Canada]only
The warranty can be found on page 61.

En las páginas 62 y 63 hay una guía de referencia rápida en español.

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.



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:

TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

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.**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.

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.

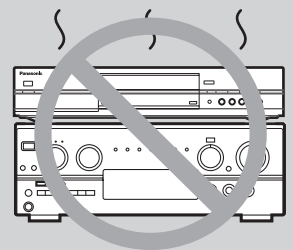
DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC60825-1)
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLÄ. ÄLÄ KATSO SÄTEESEEN.
VARNING	- 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 LASERSTRÄHLUNG, WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.
注意	- 打开时有可见及不可见激光辐射。避免激光束照射。
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。 RQLS0233

(Inside of product)

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

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

The heat can damage the unit.



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.



Features

This unit allows recording of high quality video on HDD and DVD-RAM, the compact and durable digital media with fast random access. This media also out performs past tape formats in ease of operation.

■ Maximum 106 hours on HDD (Hard Disk Drive) (→page 15)

This model is installed with a high capacity 80 GB hard disk capable of recording a maximum of 106 hours (6 hours continuously). The same functions are available with HDD as with DVD-RAM and editing/recording of visual data from hard disk to DVD-RAM/R is easy-to-perform.

■ Maximum 12 hours on DVD-RAM

- Using a double sided, 9.4 GB DVD-RAM allows you to record a maximum of 12 hours (6 hours continuously).
- You can also use the FR (Flexible Recording) mode to fit recordings efficiently onto the available space on the disc.

■ Auto Renewal Recording (→page 26)

If you record a program onto HDD repeatedly everyday or every week using timer recording, the unit will record the new program over the old one.

■ Relief Recording (→page 25)

When timer recording to DVD-RAM or DVD-R, the unit will compare the remaining space on the disc and the time necessary for recording. If space is insufficient the unit will record the program to HDD instead (there is no relief recording function the other way, i.e. from HDD to DVD-RAM or DVD-R).

■ Editing your recording [HDD] [RAM]

- You can divide programs (→page 34).
- Use play lists (→page 31) to select your favorite scenes and rearrange them to play in any order you like.

■ Exceptional sound and picture quality when recording

- Audio is recorded using Dolby Digital stereo, enabling high quality sound recordings. When recording in XP mode it is possible to use LPCM (2 channel) to achieve sound recordings of even higher quality.
- The encoder system used for recording is called "Hybrid VBR" and allows high quality recordings.

■ Fast access to the program you want to watch (→page 19) [HDD] [RAM] [DVD-R]

Use the Direct Navigator to find a program you have recorded and start play.

■ Make your own DVD-Video

- Finalizing a DVD-R that has been recorded on produces an original DVD-Video in accordance with DVD-Video standards.
- In addition to DVD-Video movie software, this unit can also play other types of discs including audio CDs and Video CDs. This means that this unit has the potential to play a central role in your home entertainment, from high-end home theater through to CD playback.

■ MP3 disc play (→page 23)

You can also play MP3 files recorded on CD-R and CD-RW, as well as DVD-RAM, DVD-R, DVD-Audio, DVD-Video, Video CDs and CDs.

■ Progressive Scan

By connecting the component video terminal of this unit to a progressive scan television, it is possible to enjoy the high quality picture rendered by the progressive scan function.

■ Quick View (→page 21)

You can speed up play to make checking the contents faster. Both video and sound are played faster.

■ The FUNCTIONS window shows you most of the features you can use (→page 42)

The FUNCTIONS window has most of the features and functions you are likely to use regularly. Just select the icon for the operation you want to perform.

■ Watch a program while you are recording it (→page 17) [HDD] [RAM]

Chasing play

You can watch a program from the start while you are still recording it.

Simultaneous rec and play

You can record a program while watching one you recorded previously.

Time Slip

You can jump back to review a piece of action you missed while recording by pressing the time slip button.

- During playback, you can specify a length of time to jump to the scene you wish to view.

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.

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
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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 contact 1-800-332-5368 or the website (<http://www.panasonic.com>).
Only for Canada: To order accessories, call the dealer from whom you have made your purchase.

- | | | | | | |
|---|---|---|--|---|---|
| <input type="checkbox"/> 1 Remote control
(EUR7624KB0) |  | <input type="checkbox"/> 1 AC power supply cord
(RJA0065-A) |  | <input type="checkbox"/> 1 75 Ω coaxial cable
(VJA1091) |  |
| <input type="checkbox"/> 2 Batteries
for remote control |  | <input type="checkbox"/> 1 Audio/Video cable
(VJA0788) |  | <input type="checkbox"/> 1 DVD-RAM disc |  |

[Note]
 The included AC power supply cord is 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/>

STEP 1 Antenna and television connections

Preparation

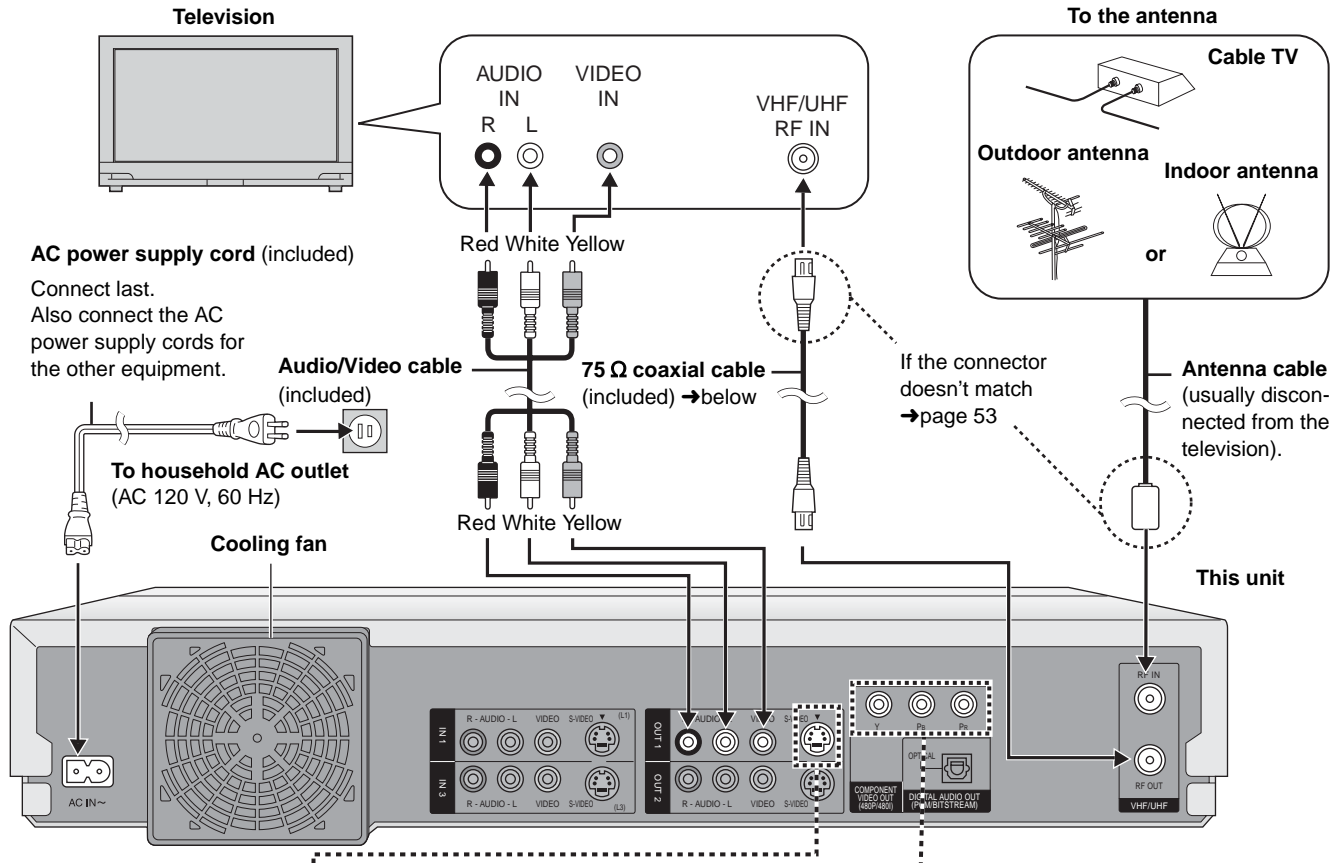
- Refer to the television's operating instructions.
- Turn the television off and disconnect its AC power supply cord.

To enjoy sound through other audio equipment (→page 51)

To enjoy progressive video

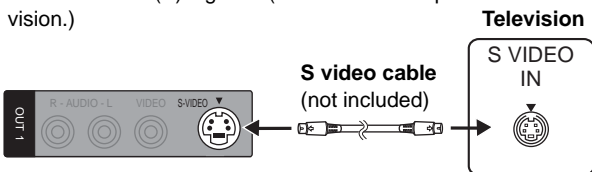
Connect to the component video (480P) input terminals on a television compatible with this unit's copy guard system. (Video will not be displayed correctly if connected to an incompatible television.)

- All Panasonic televisions that have 480P input terminals are compatible. Consult the manufacturer if you have another brand of television.



S-VIDEO OUT terminal

The S-VIDEO OUT terminal achieves a more vivid picture than the VIDEO OUT terminal by separating the chrominance (C) and luminance (Y) signals. (Actual results depend on the television.)



When making this connection, ensure you connect the audio cables to the corresponding audio input terminals on the television.

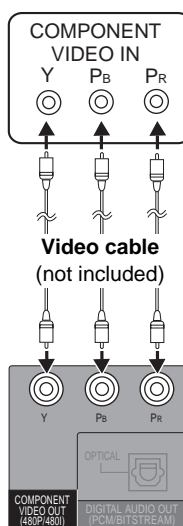
75 Ω coaxial cable

- The signal from the antenna passes through this unit and along the 75 Ω coaxial cable to the television even when this unit is turned off. You don't have to connect the antenna to the television.
- The picture and sound signal from this unit does not go through the 75 Ω coaxial cable to the television. Make sure you connect one of the following terminals on this unit to the television: the AUDIO/VIDEO terminal, the S-VIDEO OUT terminal or the COMPONENT VIDEO OUT terminal. If the television has none of these terminals, consult your local dealer.

Conserving power

This unit consumes a small amount of power, even when it is turned off (approx. 3.3 W). To save power when the unit is not to be used for a long time, unplug it from the household AC outlet.

Television



COMPONENT VIDEO OUT terminal

These terminals can be used for either interlace or progressive output and provide a purer picture than the S-VIDEO OUT terminal.

Connection using these terminals outputs the color difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors.

- The description of the component video input terminals depends on the television or monitor (e.g. Y/P_B/P_R, Y/B-Y/R-Y, Y/C_B/C_R). Connect to terminals of the same color.

- After making this connection, change the black level for a better picture (→page 45, Video-Black Level Control). When making this connection, ensure you connect the audio cables to the corresponding audio input terminals on the television.

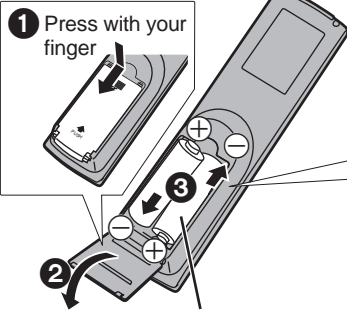
Do not connect the unit through a video cassette recorder

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.

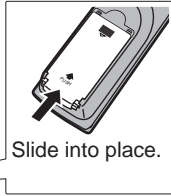
STEP 2 The remote control

Batteries

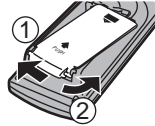
Opening the rear cover.



Closing the rear cover.



● When the cover comes off



R6/LR6, AA, UM-3

- Insert so the poles (+ and -) match those in the remote control.
- Do not use rechargeable type batteries.

Do not:

- mix old and new batteries.
- use different types at the same time.
- heat or expose to flame.
- take apart or short circuit.
- attempt to recharge alkaline or manganese batteries.
- 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.

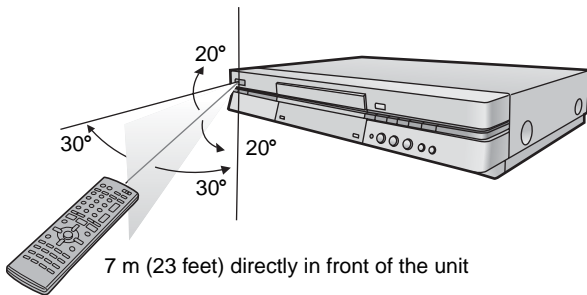
Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

[Note]

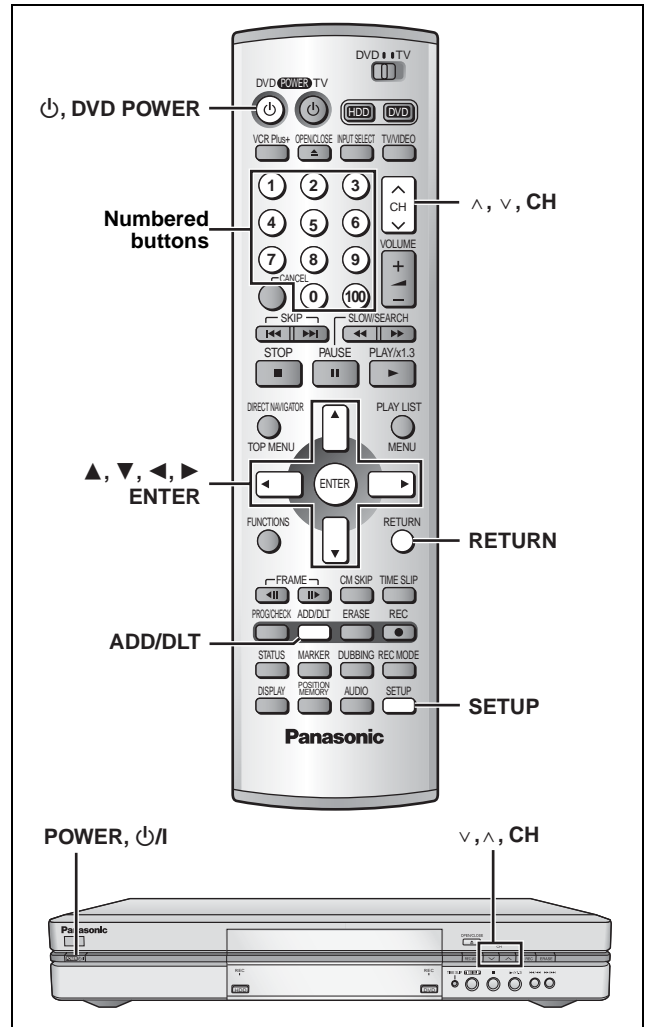
If you cannot operate the unit or television using the remote control after changing the batteries, please re-enter the codes (television →page 9, main unit →page 46).

Use

Remote control signal sensor



STEP 3 Plug-in Auto Tuning



After plugging the unit into your household AC outlet and pressing [POWER, DVD POWER] to turn the unit on for the first time, the unit assists you to set the menu language, and automatically tunes in all the channels it can receive and sets the clock.

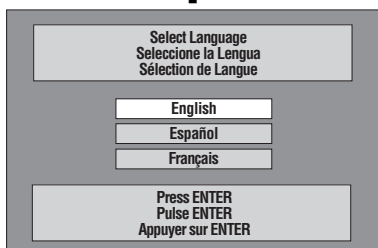
The unit automatically determines the type of transmission (air or cable) and puts them into channels as follows.

	Band	Channel
TV Mode (Air)	VHF	2-13
	UHF	14-69
CATV Mode (Cable)	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

Preparation

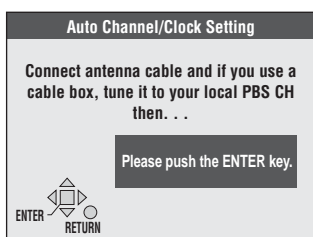
- Confirm that the antenna is connected correctly.
- Turn on the television and select the appropriate video input to suit the connections to this unit.

1 Press [⏻, DVD POWER] to turn the unit on.



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

e.g., when you select English



3 Press [ENTER].

Plug-in Auto Tuning starts and the unit puts the stations it can receive into channels.

The unit then proceeds with Auto Clock Setting. The time is displayed when finished. If the clock is an hour slower or faster than the actual time, go to "Time Zone Adjust" to correct it (→page 47).

4 When the display shows the correct time Press [ENTER] to complete Plug-in Auto Tuning.

If the unit couldn't set the clock automatically

Press [ENTER] to show the "Manual Clock Setting" screen. Set the time manually (→page 47).

To start Plug-in Auto Tuning again (after relocation, for example)

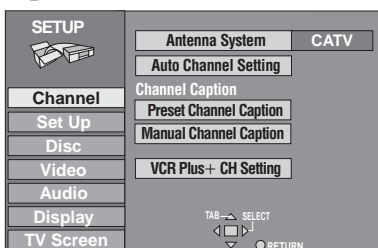
Antenna system, channel caption, and VCR Plus+ guide channel settings all revert to the default values when you perform the procedure below. Timer recording settings are also cleared.

When the unit is on and stopped

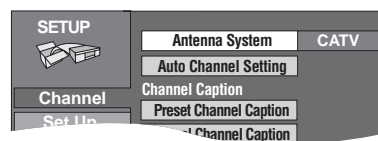
- 1 Press and hold [v, CH] and [^, CH] on the main unit for about five seconds. The unit turns off.
- 2 Press [⏻, DVD POWER] to turn the unit on. Follow the above steps 2–4.

If Plug-in Auto Tuning fails

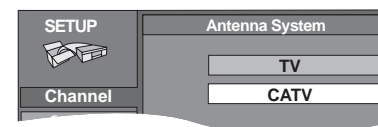
1 Press [SETUP] to show the menus.



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



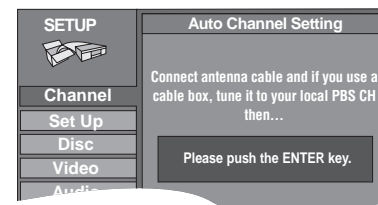
3 Press [▲, ▼] to select "Antenna System" and press [ENTER].



4 Press [▲, ▼] to select "TV" or "CATV" and press [ENTER].

The screen shown in step 2 reappears.

5 Press [▲, ▼] to select "Auto Channel Setting" and press [ENTER].



If you have not yet set clock, the "Auto Channel/Clock Setting" screen appears.

6 Press [ENTER].

Auto setting starts. This takes a few minutes. (To stop auto channel setting, press [RETURN].) When finished, the Complete screen or time display is shown. Press [ENTER].

To return to the previous screen

Press [RETURN].

When you are finished

Press [SETUP].

Adding and deleting channels

Add or delete channels if necessary channels are not set or unnecessary channels are set.

While this unit is receiving the antenna signal (but not during recording):

1 Press the numbered buttons to select a channel.

e.g., "5": [0] → [5]
 "15": [1] → [5]
 "115": [100] → [1] → [5]



- You can also use [^, v, CH] when you are going to delete a channel.

2 Press [ADD/DLT].

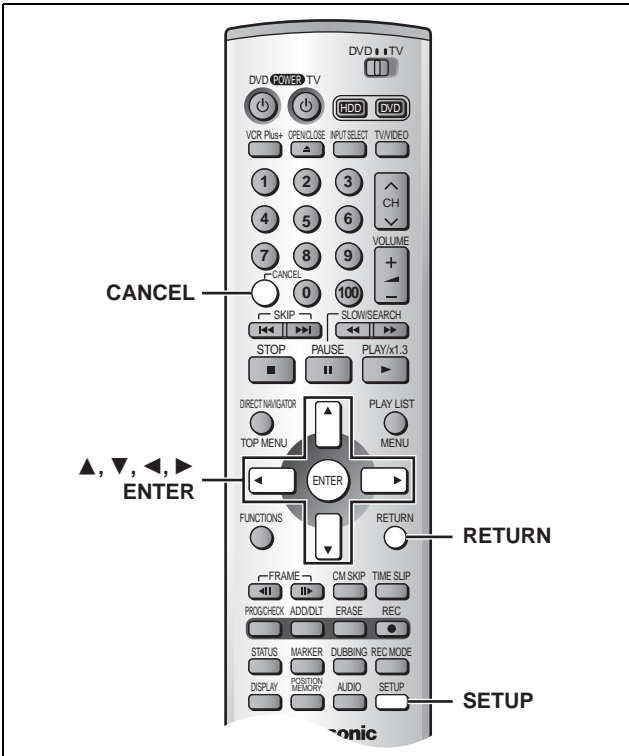
The channel is **deleted** if it was set or **added** if it was not set.

e.g.,



Repeat steps 1 and 2 as necessary.

STEP 4 VCR Plus+ guide channel settings



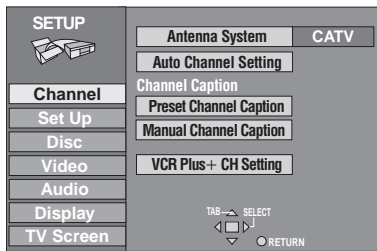
Set these guide channels so you can use VCR Plus+ codes for timer recording. Before starting the settings, prepare a chart showing the channels, station names, and guide channels.

e.g.,

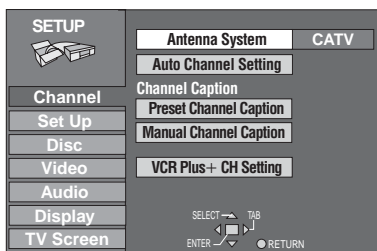
Station name	Guide channel	Channel number	Channel setting (in step 5)
CBS	04	04	Unnecessary
HBO	33	15	Enter channel 15 next to Guide Channel 33.
Nickelodeon	38	20	Enter channel 20 next to Guide Channel 38.

Look up the guide channels for the stations in magazines. Write down all the stations you can receive.

1 Press [SETUP] to show the menus.

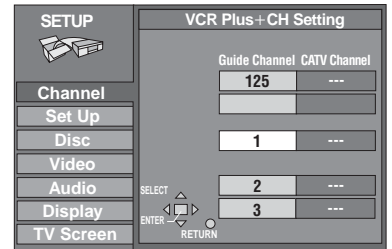


2 Press [▲, ▼] to select “Channel” and press [▶].



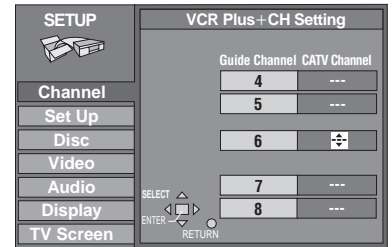
3 Press [▲, ▼] to select “VCR Plus+ CH Setting” and press [ENTER].

e.g., when the current antenna system is CATV.

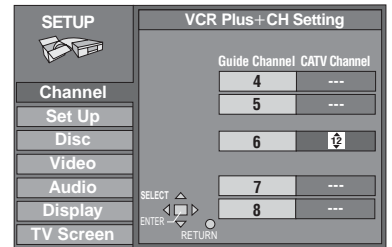


4 Press [▲, ▼] to select the guide channel you want to set and press [▶].

When selecting the guide channel, press and hold [▲, ▼] to scroll the screen up and down.



5 Press [▲, ▼] to select the channel corresponding to the guide channel and press [◀].



To delete a number, press [CANCEL]. Repeat steps 4 and 5 as necessary.

6 Press [ENTER].

The “Channel” screen reappears.

To return to the previous screen

Press [RETURN].

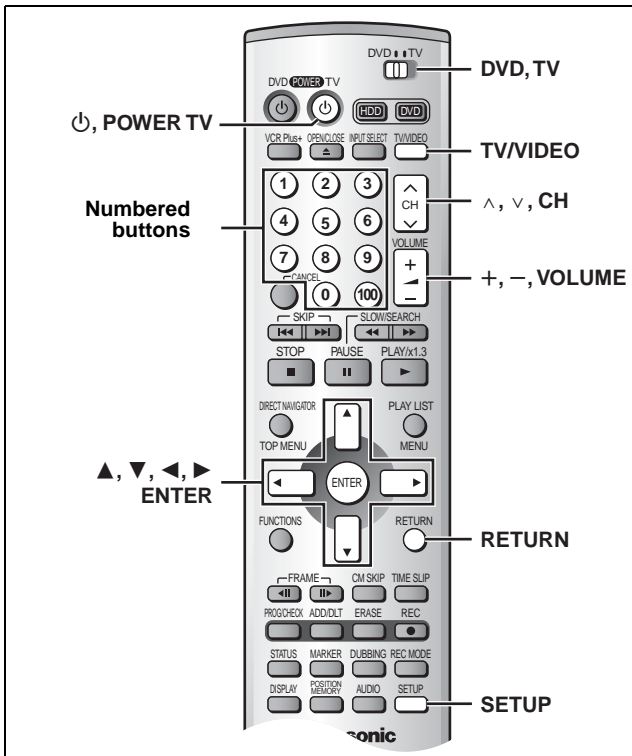
When you are finished

Press [SETUP].

VCR Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation. The VCR Plus+ system is manufactured under license from Gemstar Development Corporation.

Pats. 5,307,173; 5,335,079; 4,908,713; 4,751,578; and 4,706,121

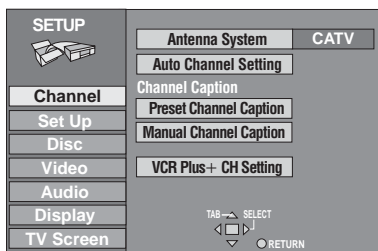
STEP 5 Set up to match your television



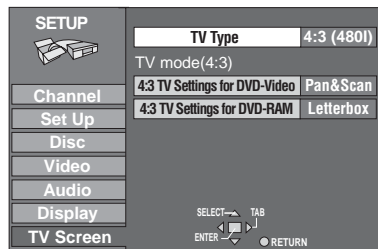
Change the settings if your television is:

- Progressive
 - Read your television's operating instructions for details.
- Widescreen (16:9 aspect ratio)

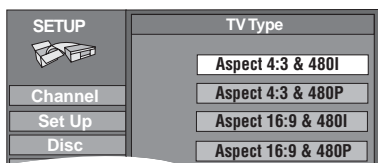
1 Press [SETUP] to show the menus.



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



3 Press [▲, ▼] to select "TV Type" and press [ENTER].



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

- If you select a progressive output (480P) item, select Video in the on-screen menu and set "Transfer" to suit the material (→page 41).

To return to the previous screen

Press [RETURN].

When you are finished

Press [SETUP].

■ Regarding Progressive Television Picture

Progressive image aspect (height to width ratio) is set at a standard 16:9. DVD-Video which has been set at 16:9 will be displayed correctly. However, 4:3 video material will be stretched to the right and left when displayed.

• To view the picture at the right aspect

- For televisions that allow the aspect of progressive images to be adjusted, use the function provided on the television and adjust as necessary.
- For televisions which do not allow the aspect of progressive images to be adjusted, please set "Progressive" to "OFF" (→page 41).

[Note]

- If the unit is connected to the TV through VIDEO OUT or S-VIDEO OUT, output will be interlace only (even if you select progressive output).
- When progressive output is on, closed captions cannot be displayed.

Television operation

You can control televisions by entering the remote control code.

Press and hold [⏻, POWER TV] and enter the two-digit code with the numbered buttons.

e.g., 01: press [0] → [1].

Code No. and Manufacturer

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

- Test by turning on the television and changing channels. Repeat the procedure until you find the code that allows correct operation.

[Note]



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.

■ Operation

Point the remote control at the television.

Operation	Button
On and off	[⏻, POWER TV]
Video input mode	[TV/VIDEO]
Channels	(Switch [DVD, TV] to "TV".) [▲, ▼, CH] or Numbered buttons e.g., Channel "5": [0] → [5]
Volume	[+, −, VOLUME]

Discs you can use for recording and play

 DVD-RAM <small>RAM 4.7</small>	 DVD-R <small>R 4.7</small>
DVD-RAM 4.7 GB/9.4 GB, 12 cm (5") 2.8 GB, 8 cm (3")	DVD-R 4.7 GB, 12 cm (5") 1.4 GB, 8 cm (3") for General Ver. 2.0

- We recommend using Panasonic discs as they have been confirmed to be compatible with this unit. Other discs may not perform correctly.
- Do not allow the disc to become dirty or scratched. Fingerprints, dirt, dust, scratches or deposits of cigarette smoke on the recording surface may make it impossible to use the disc for recording.
- Discs with programs recorded in PAL already cannot be recorded on using this unit.

DVD-RAM

- **DVD-RAM recorded on this unit may not be compatible with other DVD players, including some Panasonic players. Consult the manual for the player to determine compatibility with these DVD-RAM discs.**
- This unit is compatible with both non-cartridge and cartridge DVD-RAM, but the write-protect tabs on cartridge-type discs give better protection to your recordings.
- Picture aspect ratios, regular 4:3 or widescreen 16:9, are recorded as they are received.

DVD-R

- **In order to play a DVD-R recorded using this unit on another playback source, the disc must first be finalized** (→page 36).
- Once a DVD-R is finalized, it becomes DVD-Video.
- You can record onto the available space on the disc and perform editing functions, such as giving titles to discs and programs and erasing programs before finalizing.
- When programming is erased from a DVD-R, that space does not become available. Once an area on a DVD-R is recorded on, that area is no longer available for recording, whether the recording is erased or not.
- It takes about 30 seconds for the unit to complete recording management information after recording finishes.
- This unit optimizes the DVD-R for each recording. Optimizing is carried out when you start recording after inserting the disc or turning on the unit. Recording onto the disc may become impossible if optimizing is carried out too many times.
- Play may be impossible in some cases due the condition of the recording.
- The video is recorded in a 4:3 aspect irrespective of the video signal input.
- A DVD-R recorded on this unit may not be recordable on other Panasonic DVD recorders.

Protection

[RAM]

You can protect the contents of your discs in the following ways.

- **Cartridge-protect:**
With the write-protect tab in the protect position, you cannot record to, edit, or erase from the disc. (Type 1, 2, and 4 cartridge discs)
- **Program-protect** (→page 34)
- **Disc-protect** (→page 36)



Play-only discs

 DVD-Audio ^{*1}	  DVD-Video	 Video CD	 Audio CD ^{*2}
---	---	--	--



*1 Play is in stereo only.

*2 Including discs recorded with MP3.

- The producer of the material can control how DVD-Video and Video CDs are played. This means that you may not be able to control play of a disc with some operations described in these operating instructions. Read the disc's instructions carefully.
- This unit can play CD-R/CD-RW (audio recording disc) recorded with CD-DA (digital audio), video CD (video CD format 2.0 or above) or MP3. Finalize* the disc after recording. Play may be impossible on some CD-R or CD-RW discs due to the condition of recording.
* A process that allows play on compatible equipment.
- This unit cannot record onto CD-R or CD-RW.

DVD-Video

Audio format

 DOLBY DIGITAL	Dolby Digital (→page 45) This unit can play Dolby Digital in stereo (2 channels). Connect an amplifier with a built-in Dolby Digital decoder to enjoy surround sound.
 DTS DIGITAL SURROUND	DTS Digital Surround (→page 45) Connect this unit to equipment that has a DTS decoder to enjoy DVDs with this mark.

Discs you can use

The features you can use with the different types of discs are indicated as follows.

[HDD]	[RAM]	[DVD-R]	[DVD-A]	[DVD-V]
Hard Disk	DVD-RAM	DVD-R	DVD-Audio	DVD-Video
[VCD]	[CD]	[MP3]		
Video CD	Audio CD	MP3 discs		

- [DVD-R] indicates DVD-R that have not yet been finalized (→page 36). DVD-R that have been finalized can use the same features as DVD-Video. (Refer to features indicated [DVD-V].)

Discs that cannot be played

- DVD-Video with a region number other than "1" or "ALL"
- 12-cm (5"), 2.6- and 5.2-GB DVD-RAM
- DVD-RAM not recorded following the Video Recording Standard
- 3.95- and 4.7-GB DVD-R for Authoring
- Unfinalized DVD-R recorded on other equipment
- PAL discs
- DVD-ROM
- DVD-RW
- +RW
- CD-ROM
- CDV
- CD-G
- Photo CD
- CVD
- SVCD
- SACD
- MV-Disc
- PD
- Divx Video Disc, etc.

HDD (Hard disk drive)

Follow the precautions indicated below to prevent damage to the internal HDD. (Not following precautions may result in a loss of recording, stop of operation or recording of noise.)

■ During setup:

- 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.
- 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

- During the rainy season in tropical and sub tropical areas.
- When there is high humidity or a lot of steam in the room.
- When there is an extreme change in temperature (moving from a very hot location to a very cold location, or when an extreme change in air conditioning or cooled air directly impacts the unit.)

→In the above situation, **with the power off**, let the unit adjust to the room temperature and wait 2-3 hours until condensation is gone.

■ While operating

- Do not remove the AC power plug from the AC outlet, or flip the power breaker switch.
- Do not move the unit or subject to vibration or impact.
→When moving the unit:
 - ① Turn the power switch off (Wait until "BYE" disappears from the display)
 - ② Remove the AC power plug from the AC outlet
 - ③ Wait 2 minutes before moving

While the unit is on, the HDD will be spinning at high speed and it is normal to hear sounds. These sounds are not problems.

■ In the event of a power failure

If a power failure occurs, contents in the process of playback/recording may be damaged.

■ Safeguards against accidental loss

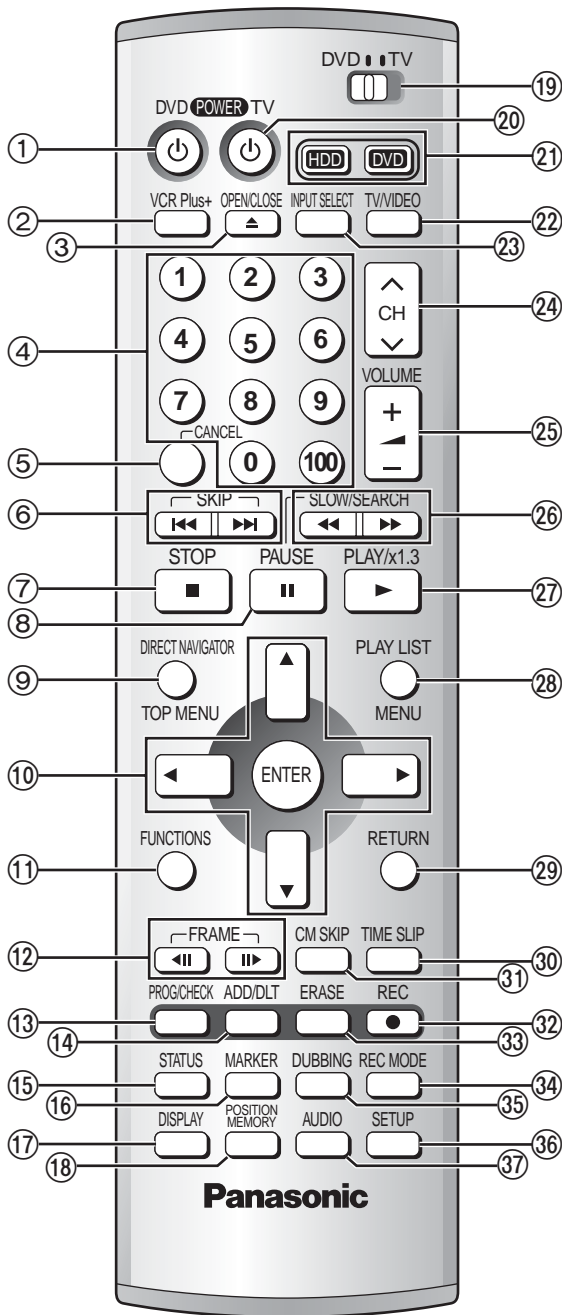
Data may be lost if the HDD suffers damage. Any contents you wish to keep permanently should be dubbed to DVD-RAM or DVD-R.

HDD recording time remaining

This unit records using a VBR (Variable bit recording) 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.

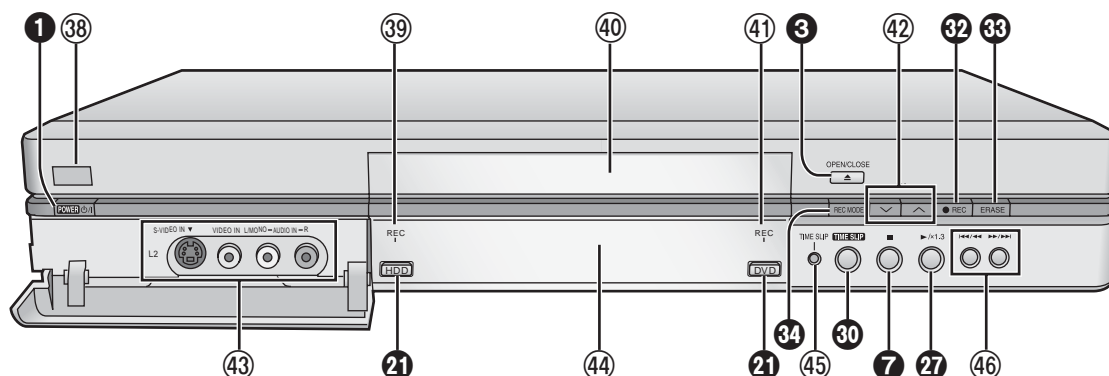
If the remaining amount time is insufficient, erase any unwanted programs to create enough space before you start recording. (Erasing a playlist will not increase the amount of time.)

Remote control



- ① **POWER button** (⏻, DVD (POWER)) 7, 14
Press to switch the unit from on to standby mode or vice versa.
In standby mode, the unit is still consuming a small amount of power.
- ② **VCR Plus+ button** (VCR Plus+) 24
- ③ **Disc tray open/close button** (▲ OPEN/CLOSE) 14
- ④ **Numbered buttons** (1–9, 0, 100) 8
- ⑤ **Cancel button** (CANCEL) 8
- ⑥ **Skip buttons** (⏮, ⏭) SKIP 20
- ⑦ **Stop button** (■ STOP) 14
- ⑧ **Pause button** (⏸ PAUSE) 14
- ⑨ **Top menu and Direct Navigator button**
(TOP MENU, DIRECT NAVIGATOR) 19, 23
- ⑩ **Cursor buttons** (▲, ▼, ◀, ▶)/Enter button (ENTER) 7
- ⑪ **Functions button** (FUNCTIONS) 42
- ⑫ **Frame advance and frame reverse buttons**
(◀◀, ▶▶) FRAME 20
- ⑬ **Manual programming and check button**
(PROG/CHECK) 25
- ⑭ **Manual channel adding and deleting button**
(ADD/DLT) 7
- ⑮ **On-screen display button** (STATUS) 43
- ⑯ **Marker button** (MARKER) 22
- ⑰ **On-screen menu button** (DISPLAY) 40
- ⑱ **Position memory button** (POSITION MEMORY) 19
- ⑲ **DVD/TV switch** (DVD, TV) 9
- ⑳ **TV power on/off button** (⏻, (POWER) TV) 9
- ㉑ **Drive select buttons** (HDD, DVD) 14
- ㉒ **Television input mode selector** (TV/VIDEO) 9
- ㉓ **Input select button** (INPUT SELECT) 16
- ㉔ **Channel buttons for recorder and TV** (▲, ▼, CH) 9, 14
- ㉕ **TV volume buttons** (+, −, VOLUME) 9
- ㉖ **Slow/search buttons** (◀◀, ▶▶) SLOW/SEARCH 20
- ㉗ **Play/quick view button** (▶ PLAY/×1.3) 18, 21
- ㉘ **Menu and Play list button** (MENU, PLAY LIST) 19, 31
- ㉙ **Return button** (RETURN) 7
- ㉚ **Time slip button** (TIME SLIP) 17, 21
- ㉛ **One-minute skip button** (CM SKIP) 21
- ㉜ **Recording button** (●, REC) 14
- ㉝ **Program/play list erase button** (ERASE) 19, 31
- ㉞ **Recording mode button** (REC MODE) 14
- ㉟ **Dubbing button** (DUBBING) 29
- ㊱ **Setup button** (SETUP) 7
- ㊲ **Audio button** (AUDIO) 39

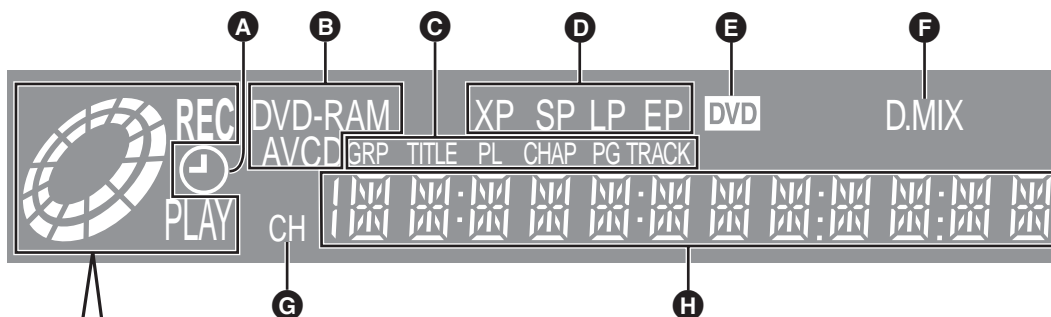
Main unit



Controls such as 1 function the same as the buttons on the remote control.

38 Remote control signal sensor..... 6	43 L2 input terminals (L2).....52
39 HDD record lamp..... 14	44 Display (→below)
40 Disc tray..... 14	45 Time slip indicator (TIME SLIP).....17
41 DVD record lamp..... 14	46 Skip/Slow/Search buttons (◀◀/◀▶, ▶▶/▶▶).....20
42 Channel buttons for recorder (v, ^, CH)..... 14	

The unit's display



Center circle (e.g., DVD-RAM)

Rotating (REC):recording
Stopped (REC):recording paused



Rotating (REC, PLAY):
 Chasing play or simultaneous
 rec and play is in progress



Rotating (PLAY):playing
Stopped (PLAY):play paused
"PLAY" flashes:
 the resume function (→page 18,
 To stop play) is working



A Timer recording display

On: When timer recording is on standby (→page 24)
Flashes: When the unit couldn't go to timer recording standby

B Disc type

C The display mode of the main display section

GRP: Group number
TITLE: Title number
PL: Play list number
CHAP: Chapter number
PG: Program number
TRACK: Track number

D Recording mode (→page 15)

E DVD indicator
Flashes: When you press [⏻, DVD POWER] to turn the unit off until it actually turns off

F Down-mix indicator

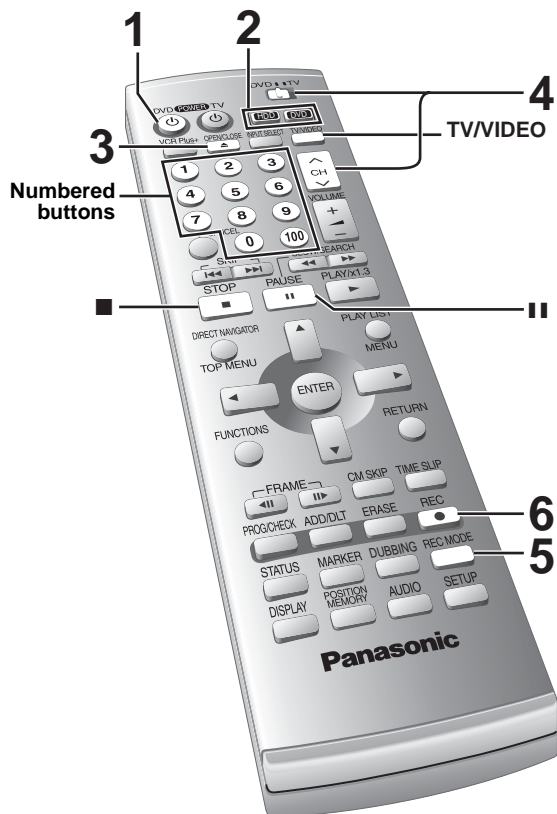
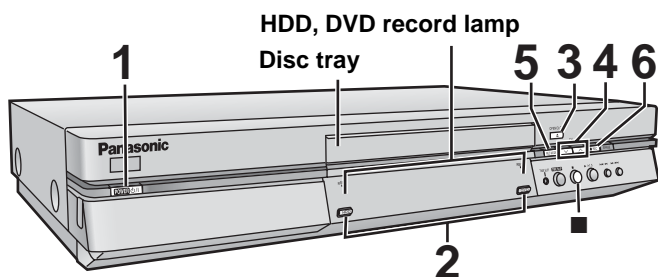
On: When multi-channel recorded DVD-Audio is downmixed to 2 channels and output.

G Channel

H Main display section

Recording and play counter, and other miscellaneous messages

Recording television programs



[HDD] [RAM] [DVD-R]

1 Press [⏻, DVD POWER] to turn the unit on.

2 Press [HDD] or [DVD] to select the recording drive.

The HDD or DVD button lights up on the unit.
 • It is not possible to record to both HDD (Hard Disk Drive) and DVD drive simultaneously.

3 If you selected the DVD drive
 Press [▲ OPEN/CLOSE] to open the tray and insert a disc (→ left).

• Press the button again to close the tray.
 • 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.
 • If you put a disc in while the HDD is selected, the DVD button on the unit will flash while the unit reads the disc.

4 Ensure [DVD, TV] is switched to "DVD" and press [∧, ∨, CH] to select the channel.



5 Press [REC MODE] to select the recording mode (→ next page).



• To record sound using LPCM (possible only in XP mode): Select "LPCM" in "Audio Mode for XP Recording" (the picture quality may go down slightly). (→page 45)

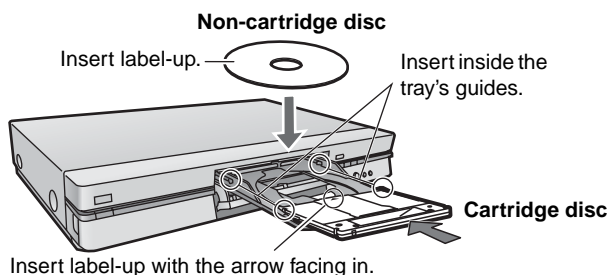
6 Press [●, REC] to start recording.
 The HDD or DVD record lamp on the main unit lights up.



Program information (e.g., time and date) is registered in the program list (→page 19).

Inserting discs

You can insert a cartridge or non-cartridge disc.



[Note]

- Load double-sided discs so the label for the side you want to record/play is facing up.
- When using 8 cm (3") DVD-RAM, remove the disc from the cartridge and insert it, making sure you align it with the groove.

Should the AC power supply cord come loose by accident or for any other reason the power supply is cut off while recording or editing is taking place, the contents of the HDD or disc may be lost.

[DVD-R]

To play DVD-R on compatible equipment, finalize it (→page 36).

To stop recording

Press [■].

To pause recording

Press [⏸]. Press again to continue recording. (Program is not split into a separate program.)

Auto power-off

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 44, Set Up—Off Timer).

[Note]

- 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.
- You cannot change the channel or recording mode during recording.
- Release protection (cartridge →page 10, disc →page 36) when you record. [RAM]
- When using a DVD-RAM for the first time with this unit, format it to ensure accurate recording (→page 36, "Format").
- There are limitations when recording to DVD-R (→page 10).
- When recording MTS sound onto DVD-R or recording using LPCM, only one of either the main channel or the sub channel can be recorded. Select at "Select MTS" (→page 45).

For your reference

- You can record up to 250 programs on HDD, 99 programs on one disc.
- This unit is compatible with the **Content Protection for Recordable Media (CPRM →page 54)** system so you can record broadcasts that allow one copy, such as some CATV broadcasts, onto 4.7 GB/9.4 GB DVD-RAM (these are CPRM compatible). It is not possible to record onto DVD-R or 2.8 GB DVD-RAM.
- Recording will take place on open space in the HDD or on disc. Data will not be overwritten.
- It is possible to watch playback from one drive while recording from another (editing is not possible).

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.

Recording modes and approximate recording times in hours

Mode \ Disc	HDD (80GB)	DVD-RAM		DVD-R (4.7 GB)
		Single-sided (4.7 GB)	Double-sided (9.4 GB)	
XP (High quality)	17	1	2	1
SP (Normal)	34	2	4	2
LP (Long play)	68	4	8	4
EP (Extra long play)	106	6	12	6

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

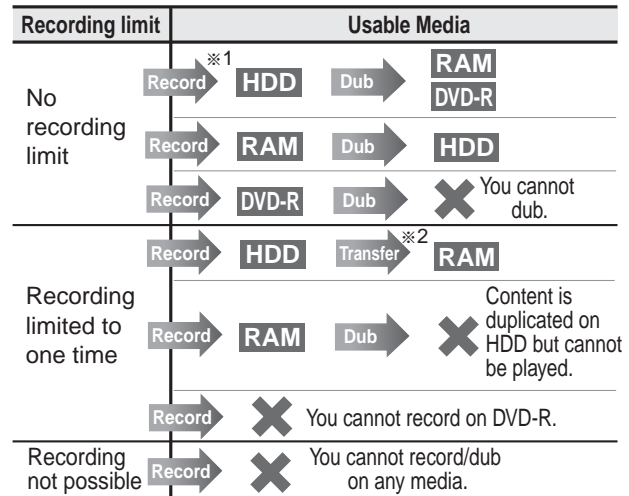
FR (Flexible Recording Mode) (→page 16)

The unit automatically selects a recording rate between XP and EP that will enable the recordings to fit in the available recording time on the disc with the best possible recording quality.

- You can set for dubbing (→page 28) or timer program recording (→page 24).
- When dubbing content stored on the HDD, the contents are automatically adjusted to fit on 4.7 GB DVD-RAM/R discs.
- All the recording modes from XP to EP appear in the display.

Recording/Dubbing/Transferring of a program

This unit incorporates copyright protection technology for recording equipment known as CPRM (→page 54). With some programs recording, dubbing and/or transferring may not be possible.



※1Turning "DVD-R compatible Rec" to "On" from the Setup menu allows dubbing to a DVD-R using the high speed mode after a recording has been saved to the HDD. (→page 44)

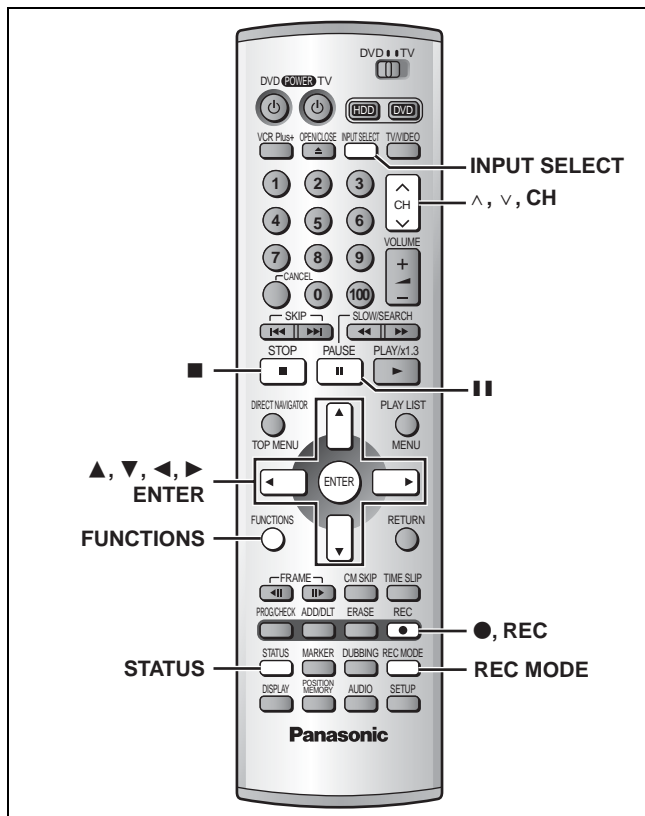
※2**Transfer:** this is when a program is moved to another storage media. All recorded content transferred to DVD-RAM is deleted from the HDD.

Watching the television while recording

Pictures being recorded are unaffected.

Switch [DVD, TV] to "TV".

- ① Press [TV/VIDEO] to change the television's input mode to "TV".
- ② Press [Λ, v, CH] to change channels.
 - You can also select the channel with the numbered buttons.

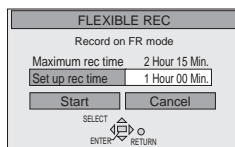


[HDD] [RAM] [DVD-R]

Recording the best quality pictures in the remaining time—Flexible Recording

The unit calculates a recording rate that enables the recording to fit in the time you set (within the remaining time on the disc) and with the best possible picture quality.

- 1 Press [**^, v, CH**] to select the channel.
- 2 While stopped
Press [**FUNCTIONS**].
- 3 Press [**▲, ▼, ◀, ▶**] to select “FLEXIBLE REC” and then [**ENTER**].
- 4 Press [**◀, ▶**] to select “Hour” and “Min.” and press [**▲, ▼**] to set the recording time.
- 5 Press [**▲, ▼, ◀, ▶**] to select “Start” and press [**ENTER**].
Recording starts.



[Note]

It may not be possible to record to the end of the program if the remaining time doesn't allow.

For your reference

- Press [STATUS] during recording to show the remaining time.
- Recording time reduces if you repeatedly pause recording.
- The recording mode becomes FR.

Recording from a video cassette recorder

Preparation

Connect a video cassette recorder to this unit's input terminals (→page 52).

- 1 While stopped
Press [**INPUT SELECT**] to select the input channel for the equipment you have connected.
Select L1, L2 or L3.
• You can also select the input channel by pressing [**^, v, CH**].
- 2 Press [**REC MODE**] to select the recording mode (XP, SP, LP or EP).
- 3 Start play on the other equipment.
- 4 Press [**●, REC**] at the point you want to start recording.
Recording starts.

To skip unwanted parts

Press [**||**] to pause recording. (Press again to restart recording.)

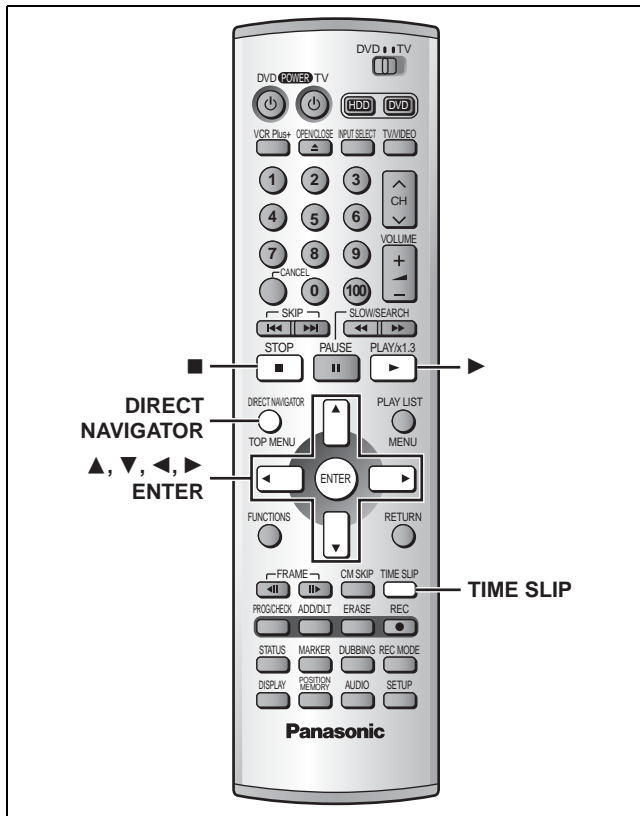
To stop recording

Press [**■**].

[Note]

- When recording using L1, L2 or L3 terminals, only the sound received at the time of recording will be recorded.
- If flexible recording (→ left) is used instead of steps 2 and 4, settings can be made so that recording continues to the end of the video.

Playing while you are recording



[HDD] [RAM]

Playing from the beginning of the program you are recording—Chasing Play

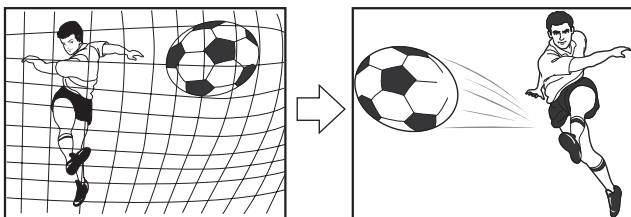
Press [▶] (PLAY).

Play starts from the beginning of the program being recorded. (Time slip indicator on the main unit lights.)

e.g.,

You are recording a **sports program** and you want to watch it from the beginning.

The same **sports program** is played back from the beginning. (Recording continues.)



[Note]

Sound is not output while fast-forwarding.

The stop procedure in this box applies to all 3 scenarios on this page.

To stop play and recording

- ① Press [■]. (Play stops.)
Wait 2 seconds.
- ② Press [■]. (Recording stops.)
 - To stop timer recording, press [■], then [ENTER] within 5 seconds.

Simultaneous rec and play

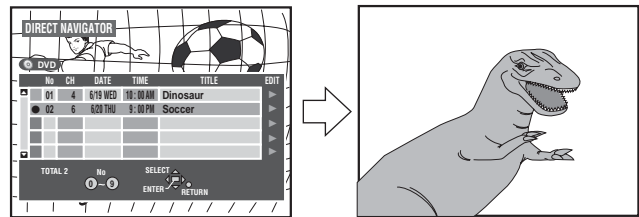
You can play a program previously recorded.

- 1 During recording
Press [DIRECT NAVIGATOR].
Time slip indicator on the main unit lights.
- 2 Press [▲, ▼] to select a program and press [ENTER].

e.g.,

You want to watch the **movie** you recorded yesterday (program 1) while recording program 2 (sport).

Program 1 is played back while program 2 (sport) is being recorded.



[Note]

- Sound is not output while fast-forwarding.
- You cannot edit programs during simultaneous rec and play (→page 34).

Reviewing the recorded images while recording—Time Slip

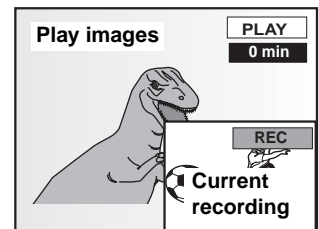
You can play the program being recorded to check that it is being recorded correctly. You can also check parts that were recorded previously.

- 1 Press [TIME SLIP].

Time slip indicator on the main unit lights.

Play starts from 30 seconds previous. The current recording images appear as a picture-in-picture and you will hear the playback audio.

- You can select another program if you press [DIRECT NAVIGATOR].



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

- Press [▲, ▼] to alter in one-minute units. Press and hold [▲, ▼] to alter in 10-minute units.

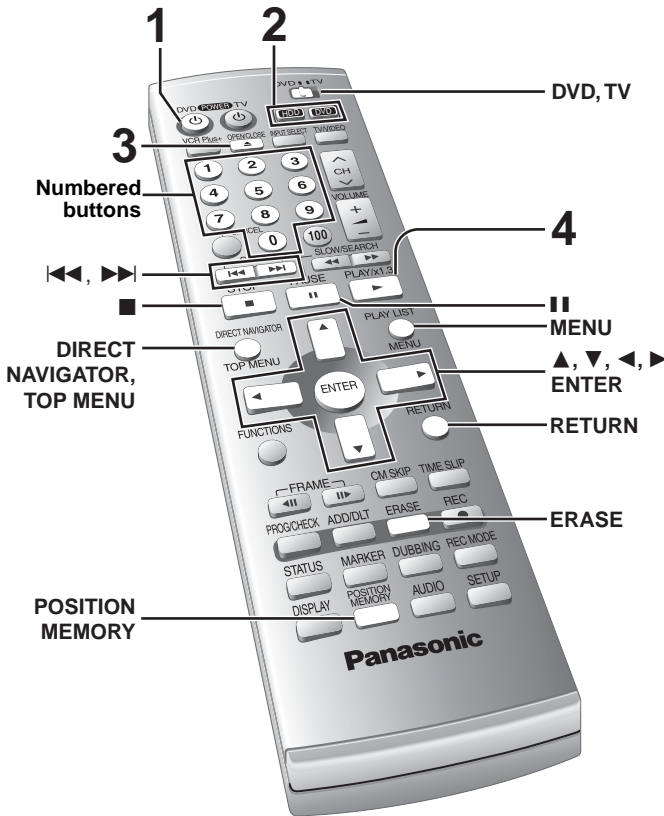
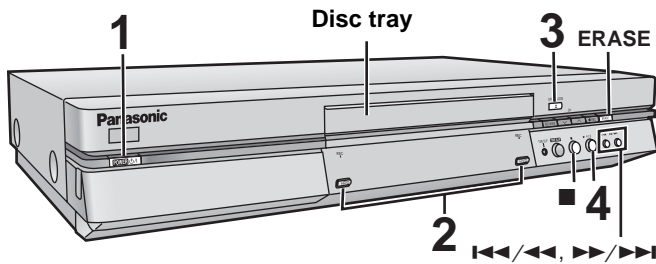


Press [TIME SLIP] to show the play images in full. Press again to show the play and recording images.

Note:

The recording and play images cannot be shown at the same time if you set "TV Type" to "480P" (....page 9)

Playing discs



Playing back

[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

- 1 Press [⏻, DVD POWER] to turn the unit on.
- 2 Press [HDD] or [DVD] to select the playback drive.

The HDD or DVD button lights up on the unit.

- It is not possible to playback both HDD (Hard Disk Drive) and DVD drive simultaneously.

- 3 If you selected the DVD drive Press [▲ OPEN/CLOSE] to open the tray and insert a disc (→page 14).

- Press the button again to close the tray.
- If cartridge protection is activated (→page 10), play begins automatically when you close the tray. [RAM]
- You cannot play continuously from one side of a double-sided disc to the other. Eject the disc and turn it over.
- If you put a disc in while the HDD is selected, the DVD button on the unit will flash while the unit reads the disc.

- 4 Press [▶] (PLAY).

The unit takes some time to read the disc before play starts. (When a menu screen appears on the television → next page)



- Play starts from the most recently recorded program. [HDD] [RAM] [DVD-R]
- Play starts from the beginning of the disc. [DVD-A] [DVD-V] [VCD] [CD] [MP3]

To stop play

Press [■].

- When "PLAY" flashes on the display, resume function is active. Press [▶] (PLAY) to start play from where you stopped it. To cancel, press [■] until "PLAY" goes out. (The position is also cleared when you turn the unit off or open the disc tray.)
- The screen saver may appear when you stop play. Press [■] again and you can use this unit's tuner to watch television.



To pause play

Press [⏸]. (Press again to restart play.)

Auto power-off

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 44, Set Up—Off Timer).

[Note]

- If you select another drive while playback is in progress, playback will be stopped. If using DVD-Video, the contents of the menu screen may be returned to their initial state.
- If a disc is loaded, the unit will come on and play will start when you press [▶] (PLAY).
- When you play a disc with an audio-only track, the video from the previous disc may continue to be shown on the television.
- Actual sound levels for DVD-Video are lower compared to television broadcast or playback of other discs. To avoid a sudden increase in volume level when switching from DVD-Video, reduce the volume setting before playing other sources or switching to television broadcast.
- When using this unit for the first time, the HDD has nothing recorded on it. You must record a program etc to the HDD before you can enjoy playback.

When a menu screen appears on the television

[VCD]

Switch [DVD, TV] to "DVD" and

Press the numbered buttons (0, 1–9) to select an item.

e.g., "5": [0] → [5]

"15": [1] → [5]

[DVD-A] [DVD-V]

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

- You may also be able to use the numbered buttons (0, 1–9) to select an item.

Other buttons used to operate menus

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

[▶▶][▶▶/▶▶]: Shows the next menu.

[◀◀][◀◀/◀◀]: Shows the previous menu.

[RETURN]: Shows the menu screen. [VCD]

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

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

[Note]

- Discs continue to rotate while menus are displayed. Press [■] when you have finished viewing to preserve the unit's motor and your television screen.
- If "⊘" appears on the television, the operation is prohibited by the unit or disc.
- Functions available vary from disc to disc.

Position Memory

[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

You can start play from a memorized position even after turning the unit off.

(When the elapsed play time is displayed)

1 During play
Press [POSITION MEMORY].

The message "Position Memorized" appears on the television.

2 After switching the unit to standby and back on
Press [▶] (PLAY).

Play starts from the memorized position. (The position is cleared.)

[Note]

[DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

- The position is cleared when you open the disc tray.
- Positions remain memorized even after the disc tray is opened.
- You cannot mark positions if the disc is write-protected. (cartridge →page 10, disc →page 36)

For your reference

If you press [■] before switching the unit to standby after pressing [POSITION MEMORY] to memorize a position, play will resume from the position you pressed [■] when you press [▶] (PLAY).

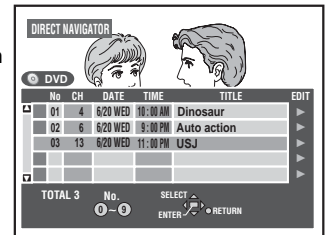
Using the Direct Navigator

[HDD] [RAM] [DVD-R]

A list of programs is created as you record them. You can use this list to find programs to watch.

1 Press [DIRECT NAVIGATOR]. e.g., DVD-RAM

The highlighted program plays in the background.



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

- You can also select programs with the numbered buttons.

e.g., [HDD]

[RAM] [DVD-R]

"5": [0] → [0] → [5]

"5": [0] → [5]

"15": [0] → [1] → [5]

"15": [1] → [5]

Play of the images that were playing in the background continues.

To stop play

Press [■].

To clear the program list

Press [DIRECT NAVIGATOR].

About the program list

Write-protected

Displayed when you have protected the program.

Copy-protected

Displayed when you have recorded a program that has copy protection, from CATV broadcasts, for example.

Unable to play

Displayed if you cannot play the program.

Currently recording

Displayed when the program is being recorded.

And more...



: Programs that have been rerouted to the HDD [HDD] (→page 25, Relief Recording)



: Programs that allow one copy [HDD]

No	POS	FE
01	4	6/21
02	6	6/21
03	13	6/21
04	2	6/21
05	8	6/21

TOTAL 5

To erase a program that is being played back

[HDD] [RAM] [DVD-R]

Since the program, any play lists (→page 31) created from it are erased irretrievably by this procedure, you should be certain you wish to erase before carrying it out.

1 Press [ERASE].

A confirmation screen will be displayed.

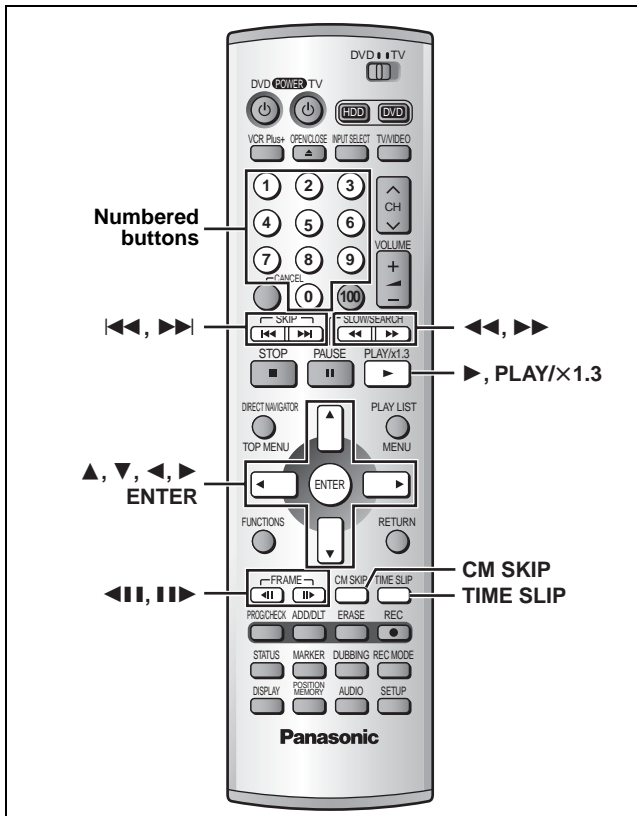
2 Press [◀] to select "Erase" and press [ENTER].

- On the main unit, press [◀◀/◀◀] and [ERASE].

[Note]

- It is not possible to erase the program when you are carrying out simultaneous rec and play (→page 17). [RAM]
- The amount of space remaining on the disc does not increase even if you erase programs. [DVD-R]
- If the confirmation screen disappears before you complete the operation, start from the beginning again.

Other methods of play



Skipping

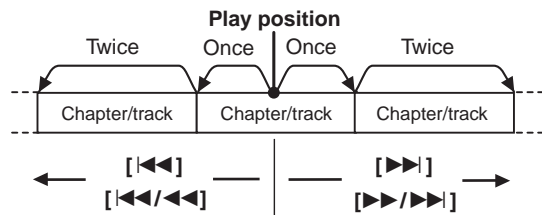
[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

During play or while paused

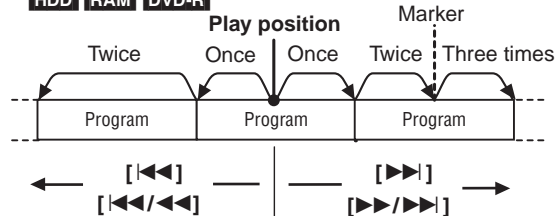
Press [**⏮**] or [**⏭**].

- Press [**⏮**] or [**⏭**] on the main unit.
- Each press increases the number of skips.

DVD-A **DVD-V** **VCD** **CD** **MP3**



HDD **RAM** **DVD-R**



For your reference

Pressing [**⏮**] [**⏮**] [**⏮**] or [**⏭**] [**⏭**] [**⏭**] while the playback control feature on Video CDs (→page 54) is working may take you to a menu screen.

Slow-motion play

[HDD] [RAM] [DVD-R] [DVD-A] (Motion picture parts only) [DVD-V] [VCD]

While paused

Press [**⏮**] or [**⏭**].

Press and hold [**⏮**] or [**⏭**] on the main unit.

[Note]

- The speed increases up to 5 steps.
- Press [**▶**] (PLAY) to restart play.
- Backward ([**⏮**] [**⏮**]) does not work with Video CDs.

Frame-by-frame viewing

[HDD] [RAM] [DVD-R] [DVD-A] (Motion picture parts only) [DVD-V] [VCD]

While paused

Press [**⏮**] or [**⏭**].

[Note]

- Each press shows the next frame.
- Press [**▶**] (PLAY) to restart play.
- Cursor buttons [**⏪**, **⏩**] are also effective while paused for frame-by-frame viewing.
- Backward ([**⏮**]) does not work with Video CDs.

Starting play from a selected item

[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

During play or while stopped

Press the numbered buttons to select the item.

e.g., "5": [0] → [5] [HDD] [MP3] "5": [0] → [0] → [5]
 "15": [1] → [5] "15": [0] → [1] → [5]

[Note]

- This may not work with some discs.
- This works only when stopped with some discs (the screen saver is on the television).
- [DVD-A]
 - A group number can be specified while the screen saver is displayed.
e.g., "5": [5]
 - **Playing bonus groups**
Some discs contain bonus groups. If a password screen appears after selecting a group, enter the password with the numbered buttons and press [ENTER]. Refer also to the disc's jacket.



Skipping a minute forward—CM Skip

[HDD] [RAM] [DVD-R]

During play

Press **[CM SKIP]**.

Play restarts from approximately a minute later.

[Note]

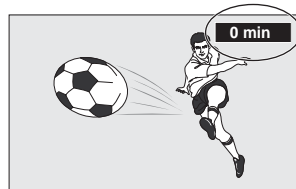
If the start of the next program is within one minute of the point you skipped from, play restarts from the beginning of that program.

Selecting an amount of time to skip—Time Slip

[HDD] [RAM] [DVD-R]

1 During play

Press **[TIME SLIP]**.



2 Within 5 seconds

Press **[▲, ▼]** to enter the time and then press **[ENTER]**.

e.g., Go back to 5 minutes



Press to alter in one-minute units. Press and hold to alter in 10-minute units.

Fast forward and rewind—SEARCH

[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

During play

Press **[◀◀] or [▶▶]**.

• Press and hold **[◀◀/◀◀] or [▶▶/▶▶]** on the main unit.

[Note]

- The speed increases up to 5 steps.
- Press **[▶] (PLAY)** to restart play.
- Audio is heard only while using first level fast forward (other than CD, MP3). You can turn this audio off if you want to (→page 45, Audio—PLAY ×1.3 & Audio during Search).

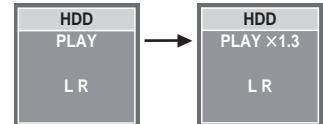
Quick View

[HDD] [RAM] (Only with Dolby Digital)

You can increase the speed of play without disrupting the soundtrack.

During play

Press and hold **[▶] (PLAY/ ×1.3)**.

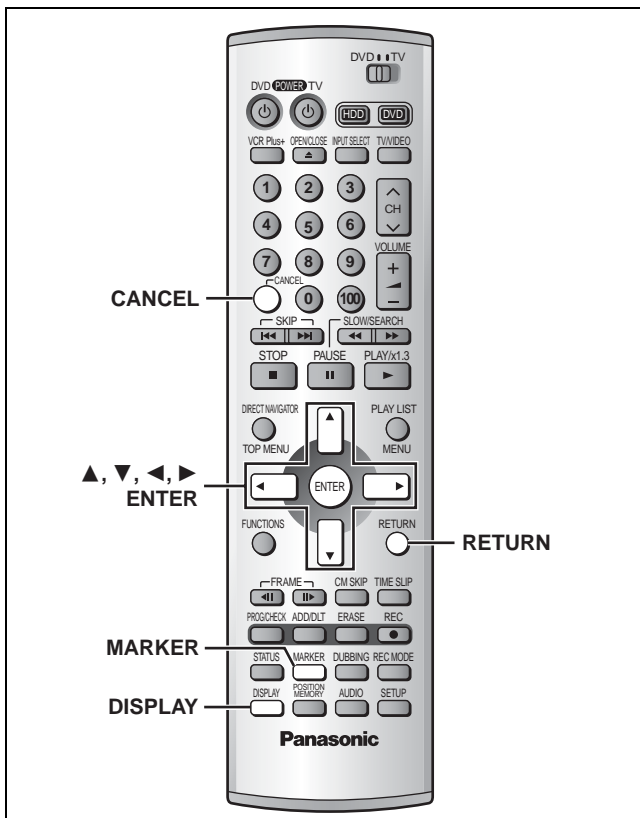


To return to normal speed

Press **[▶] (PLAY/ ×1.3)**.

[Note]

- Output is in PCM when using a digital connection (→page 51, [A]).
- This is canceled if you perform operations to change the soundtrack, skip or pause.
- This does not work if the setting is "Off" in "PLAY ×1.3 & Audio during Search" (→page 45).
- This does not work when recording is in XP or FR mode during simultaneous rec and play (→page 17). [RAM]



Marking places to play again—MARKER

You can mark positions by pressing [MARKER]. Also use on-screen menus to mark, recall, and clear positions.

[HDD] [RAM] [DVD-R]

Mark up to 999 positions. The unit records the markers directly onto the disc and they remain intact even if you remove the disc.

[DVD-A] [DVD-V] [VCD] [CD] [MP3]

Mark up to 5 positions. The markers clear when you open the disc tray.

Marking positions directly

During play

Press [MARKER].

One marker is added.



Using on-screen menus to mark positions

1 During play

Press [DISPLAY].

The on-screen menus appear.

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

e.g., DVD-RAM



3 Press [▲, ▼] to select “Marker” and press [▶] to highlight the first asterisk (*).

[HDD] [RAM] [DVD-R]

[DVD-A] [DVD-V] [VCD] [CD] [MP3]



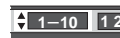
4 Press [◀, ▶] to select an asterisk (*) and press [ENTER].

One marker is added.

When marking positions 11 and above

[HDD] [RAM] [DVD-R]

① Press [◀, ▶] to highlight “1-10”.



② Press [▲, ▼] to select “11-20”.

You can select the next group of 10 when the current group is full.

③ Press [▶].

The first asterisk is highlighted.

④ Press [ENTER] to mark a position.

To recall a marker

Press [◀, ▶] to select a marker number and press [ENTER].

• Play starts from the marked position.

To clear markers

Press [◀, ▶] to select a marker number and press [CANCEL].

• An asterisk replaces the number and the position is cleared.

To clear the on-screen menus

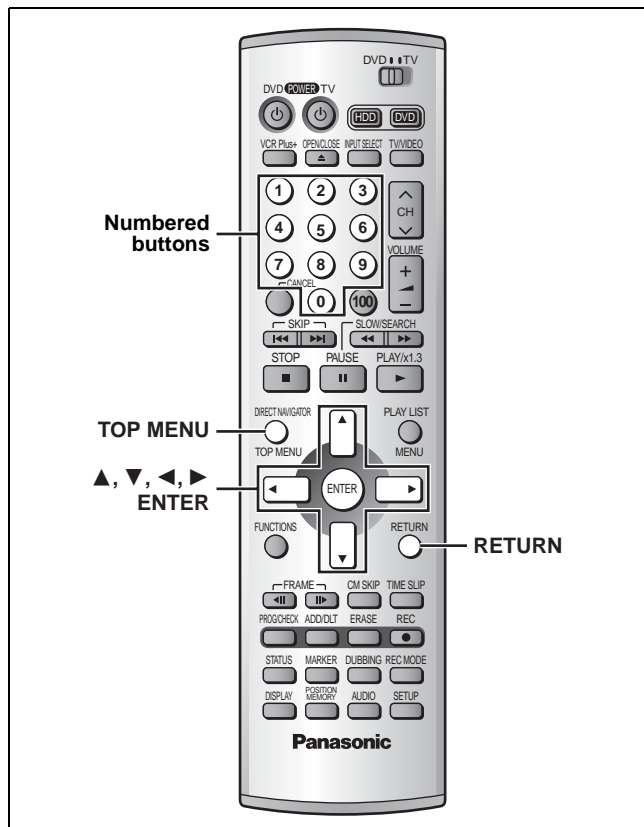
Press [RETURN].

[Note]

• You cannot use this feature if:

- the disc's elapsed play time is not shown in the display.
- you are using a play list. [HDD] [RAM]
- protection (cartridge →page 10, disc →page 36) is set (you can still recall the markers to play a position). [RAM]
- Subtitles around markers may fail to appear.
- Markers are cleared when you finalize DVD-R (→page 36).
- Markers on HDD, DVD-RAM and DVD-R are ordered by time, so marker numbers can change when you add and delete them.

Using menus to play MP3 discs

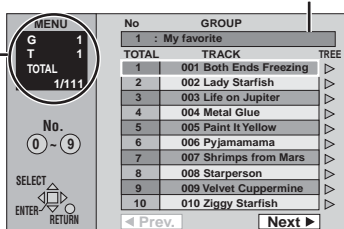


[MP3]
This unit can play MP3 files recorded on CD-R/RW with a computer. Files are treated as tracks and folders are treated as groups.

1 Press [TOP MENU].

Selected group number and name

- G: Group no.
- T: Track no. in the group
- TOTAL: Selected track no./ Total track no. 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 tracks with 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 file list

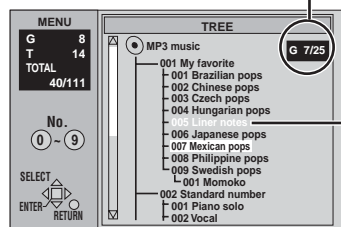
Press [TOP MENU].

Using the tree screen to find a group

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

Selected group no. / Total group no.

- 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].

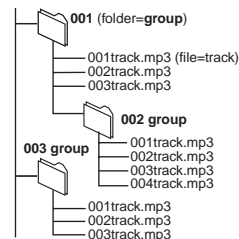
[Note]

- Discs must conform to ISO9660 level 1 or 2 (except for extended formats).
- This unit is compatible with multi-session but if there are a lot of sessions it takes more time for play to start. Keep the number of sessions to a minimum to avoid this.
- If you play a MP3 track that includes still picture data, it will take some time before the music itself starts playing and the elapsed time will not be displayed during this time. Even after the track starts, the correct play time will not be displayed.
- This unit is not compatible with ID3 tags or packet writing.
- Depending on recording some items may not be playable.
- Compatible sampling rate: 16, 22.05, 24, 32, 44.1 and 48 kHz.

Compatible compression rate: between 32 kbps and 320 kbps
Maximum number of tracks and groups recognizable:
999 tracks and 99 groups

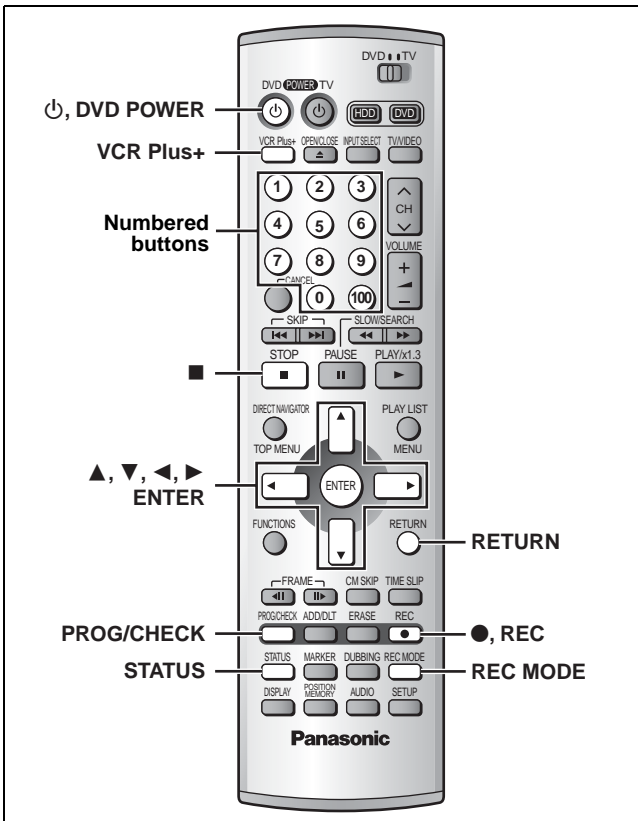
Naming folders and files

- MP3 files must have the extension e.g., “.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).



MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

Timer recording



[HDD] [RAM] [DVD-R]

Specify a time to stop recording

This is a simple way of specifying a time to stop recording when you are in a hurry or before you go to bed.

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
 ↑ Counter (cancel) ← 4:00 ←

e.g.,



For your reference

- Press [STATUS] to show the time remaining until recording finishes.
- This does not work during timer recordings or while using Flexible Recording (→page 16).
- Recording stops and the set time is cleared if you press [■].
- The set time is cleared if you change the recording mode or channel while recording is paused.

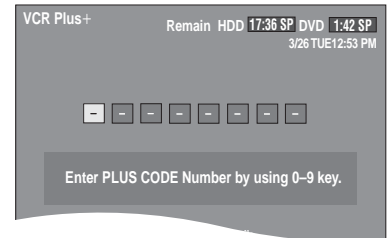
Preparation

- Ensure the clock (and guide channels for VCR Plus+ recording, →page 8) are set correctly.
- Release protection (cartridge →page 10, disc →page 36) before proceeding. [RAM]

Using VCR Plus+ codes to make timer recordings

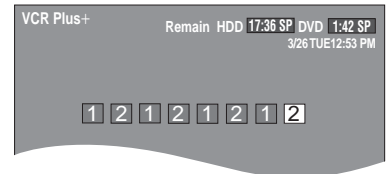
Entering VCR Plus+ codes is an easy way of programming the unit for recording. You can find these codes in newspapers and magazines. You can enter up to 32 programs up to a month in advance.

1 Press [VCR Plus+].



2 Press the numbered buttons to enter the VCR Plus+ code.

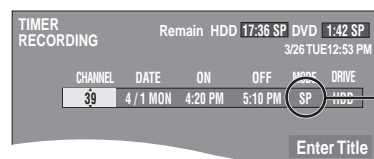
Press [◀] to move back to correct a digit.



3 Press [ENTER].

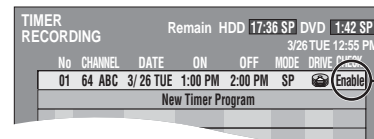
Confirm the program and make corrections if necessary using [▲, ▼, ◀, ▶].

- "Invalid Entry" is displayed when you enter the wrong code. Reenter the code.
- To select the recording drive
 - ① Press [◀, ▶] to select "DRIVE".
 - ② Press [▲, ▼] to select "HDD" or "DVD".
- To change the recording mode Press [REC MODE].
- To enter the title of the program Press [◀, ▶] to select "Enter Title" and press [ENTER] (→page 38).



The current recording mode (shown on the unit's display) is automatically selected.

When you press [ENTER]



Displayed if the recording can fit in the remaining space on the HDD or disc.

Repeat steps 1–3 to program other recordings.

4 Press [RETURN].

The timer recording list disappears and the unit enters Timer Recording standby mode ("⏻" appears on the unit display).

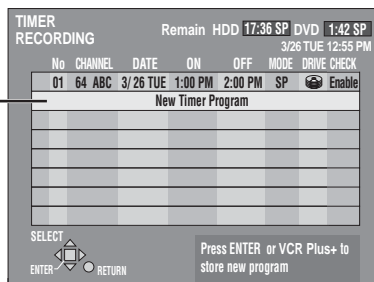
- The unit is not off. To save power, turn the unit off by pressing [⏻, DVD POWER].

Manually programming timer recordings

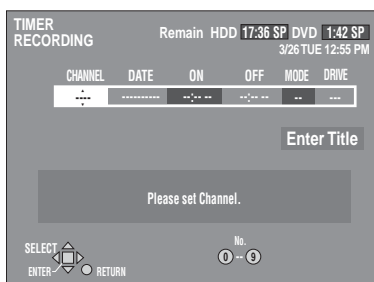
You can enter up to 32 programs up to a month in advance. Each daily or weekly program is counted as one program.

1 Press [PROG/CHECK].

A line that is ready for programming is highlighted.

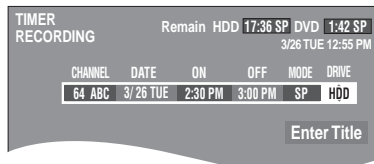


2 Press [ENTER].



3 Press [▶] to move through the items and change the items with [▲, ▼].

- The current settings are shown each time you press [▶].
- You may use the numbered buttons to enter the CHANNEL, DATE, ON (start Time), and OFF (Finish Time).

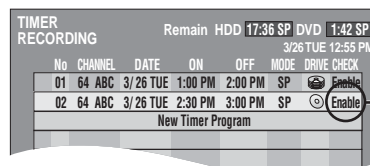


- **CHANNEL (Channel number and caption)**
- **DATE**

→Current date
 ↓ ↑
 Next day up to one month later minus one day
 ↓ ↑
 Weekly timer: SUN-SAT → MON-SAT → MON-FRI
 ↓ ↑
 →Daily timer: WEEKLY SUN → --- → WEEKLY SAT

- **ON (Start time)/OFF (Finish time)**
 The time increases or decreases in 30-minute increments if you hold the button.
- **MODE (Recording mode →page 15)**
 SP → XP → FR → EP → LP (→Return to SP)
- **DRIVE**
 HDD ↔ DVD
- **RENEW**
 (Only when you set daily or weekly recording onto HDD
 →page 26, Auto Renewal Recording)
 ON ↔ OFF
- **Enter Title**
 Select "Enter Title" using [◀, ▶] and press [ENTER]
 (→page 38).

4 Press [ENTER] when you have finished programming the timer.



Displayed if the recording can fit in the remaining space on the disc.

- Press [▲, ▼] to select "New Timer Program" and repeat steps 2- 4 to program other recordings.

5 Press [PROG/CHECK] or [RETURN].

The timer recording list disappears and the unit enters Timer Recording standby mode ("Ⓞ" appears on the unit display).

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

To release the unit from recording standby
 Cancel all the timer recording programs using [CANCEL] (→page 27).

To stop recording when recording has already begun

Press [■], then [ENTER] within 5 seconds on the remote. Recording stops.

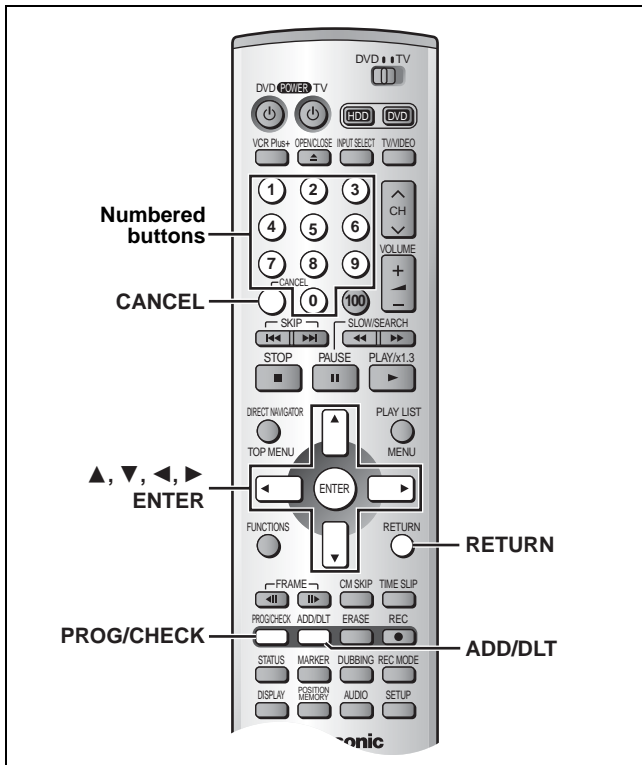
[Note]

- When the program timer reaches the set time when in recording standby mode, timer recording will start even if the unit is playing or recording another program.
- The actual time recorded may be longer than the program itself when television programs are recorded using VCR Plus+.
- If you don't select a recording mode when using VCR Plus+ codes to make a timer recording, the unit sets the mode selected on the unit at that time (unless the mode is "XP", in which case the unit sets "FR" as the mode).
- "All timer programs are occupied." appears if there are already 32 programs.
- The remaining time displayed is based on the current recording mode.
- When you program successive timer recordings to start immediately one after the other, the unit cannot record the part at the beginning of the later programs (a few seconds when recording with HDD or DVD-RAM, and approximately 30 seconds when recording with DVD-R).
- If you set DST (Daylight Saving Time) to ON when manually setting the clock (→page 47), timer recording may not work when summer switches to winter and vice versa.
- "Ⓞ" flashes when the unit couldn't go to timer recording standby.
- When timer recording starts, the record lamp (→page 13, Main unit) lights, even if the unit is off.

Relief Recording

When the recording drive is set to "DVD" for timer recording, the unit will automatically evaluate if the program will fit onto the disc before beginning recording. If the program will not fit then the recording drive will be altered to "HDD" automatically.

- If the time remaining on the HDD is insufficient, as much of the program as possible will be recorded onto the HDD.
- If there is no disc in the tray or the disc cannot be recorded on, the recording drive will be altered to HDD.
- The recording mode will not be altered.
- The Direct Navigator shows which programs were relief-recorded (→page 19).



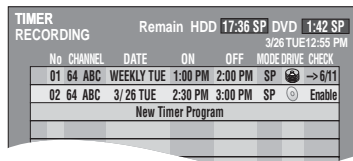
Auto Renewal Recording

[HDD]

If you record a program onto HDD repeatedly everyday or every week using timer recording, the unit will record the new program over the old one.

This function can be used only when weekly recording or daily recording is selected for "DATE".

1 While the timer recording list (→page 25, step 4) is displayed Press **[▲, ▼]** to select the program and then **[ENTER]**.



2 Press **[◀, ▶]** to select "RENEW".



3 Press **[▲, ▼]** to select "ON" and then **[ENTER]**.
The timer recording list reappears.

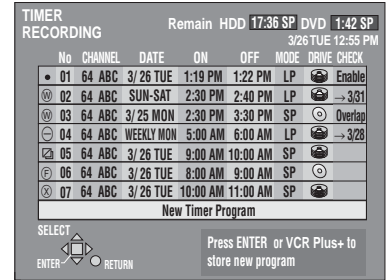
[Note]

- If a program set for Auto Renewal Recording is protected, the program will not be overwritten. Instead the program set for recording will be saved as a separate program, and this program will be the one to be overwritten when the next Auto Renewal Recording takes place.
- When play back is taking place from the HDD, auto renewal recording will not be carried out. The program supposed to be auto renewal recorded will be recorded as a separate program.
- Play list scenes made from programs that were set for Auto Renewal Recording are erased along with auto renewal.
- When there is not enough space on the HDD, the program may not be recorded completely (even if repeating a renewal recording).

Check programs

[HDD] [RAM] [DVD-R]

1 Press **[PROG/CHECK]**.



Icon explanations

- Ⓜ The times overlap those in another program.
Note the following if times overlap:
–The program with the earlier start time receives priority.
–Recording of the program with the later start time starts when the earlier program finishes recording.
–If you make two programs with the same start time, the one you programmed last receives priority.
- Ⓞ You stopped recording of a weekly or daily timer recording. The icon disappears the next time the timer starts recording.
- This program is currently recording.
- Ⓢ The disc was full or the maximum number of programs or scenes was reached so the program failed to record.
- Ⓜ The material was copy-prohibited so it was not recorded.
- Ⓧ The program did not complete recording because the disc is dirty or some other reason.
- Programs that failed to record are displayed gray. They are automatically deleted from the timer recording list at 4 a.m. two days later.
- Ⓢ **Auto Renewal Recording indicator** [HDD]
The program will be automatically recorded over in succession.
- ➔ **Relief Recording indicator**
Programs that have been rerouted to the HDD because of insufficient space.

Recording drive indicator

HDD DVD

Message displayed in the CHECK line

Some of the information shown in the CHECK line may not be correct while you are recording.

Enable: Displayed if the recording can fit in the remaining space on the disc.

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

! : It may not be possible to record because of write protection, because there is no more space left or because the number of possible programs has reached its maximum. Please check the HDD and disc.

2 Press **[PROG/CHECK]** or **[RETURN]**.

The timer recording list disappears.

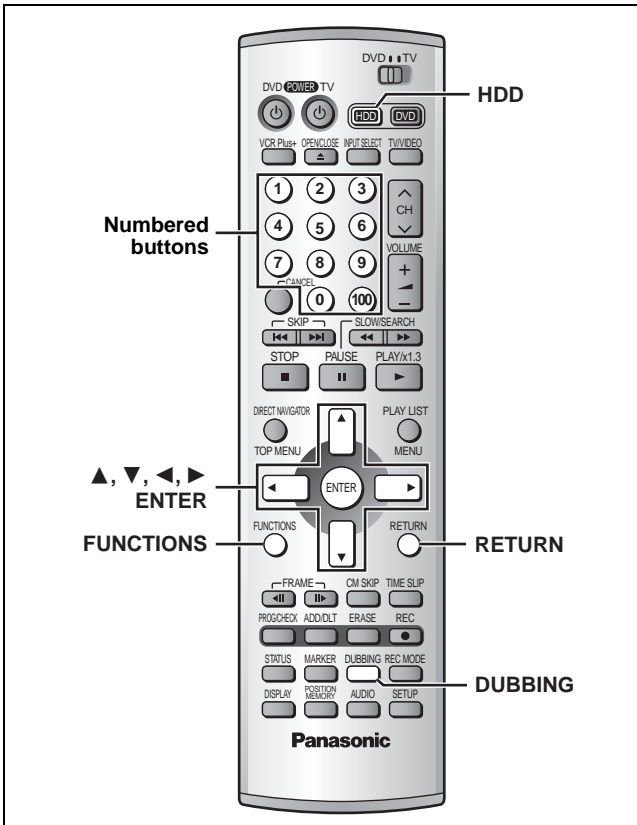
Change or delete the program

[HDD] [RAM] [DVD-R]

- 1 Press [PROG/CHECK].**
The timer recording list appears.
- 2 Press [▲, ▼] to select the program.**
 - You may also select programs by inputting a 2-digit number using the numbered buttons.
e.g., "5": [0] → [5]
"15": [1] → [5]
 - Press [◀, ▶] to skip down several programs on the list.
- 3 Press [CANCEL] or [ADD/DLT] to delete,**
You cannot delete programs that are currently recording.
or press [ENTER] to change.
The timer recording setting screen appears.
- 4 If you pressed [ENTER] in step 3,**
Move through the items with [◀, ▶]
and change the settings with [▲, ▼]
and press [ENTER].
- 5 Press [PROG/CHECK] or [RETURN].**
The timer recording list disappears.

[Note]

- A Timer recording that is taking place in a recording mode other than "FR" may have its end time altered.
- Even if the power is off you can still view timer recording information by pressing [PROG/CHECK].



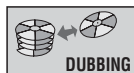
[HDD] [RAM] [DVD-R]

- It is possible to dub a program or play list to another drive.
- Dubbing a play list will create a program.
- You can dub a maximum of 250 programs to HDD and 99 programs to DVD-RAM or DVD-R.

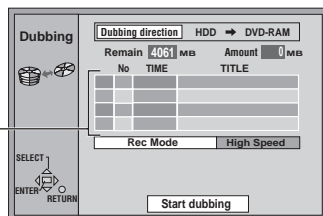
Preparation

Press [HDD] to select HDD drive.

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



e.g., Dubbing from HDD to DVD-RAM



3 Select the dubbing direction.

- ① While selecting "Dubbing direction" Press [ENTER].
- ② Press [▲, ▼] to select the dubbing direction and press [ENTER].

4 Select items for dubbing.

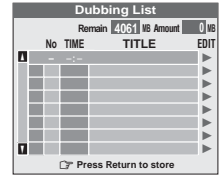
- ① Press [▲, ▼] to select the dubbing list table and press [ENTER].

Displayed icons on the dubbing list

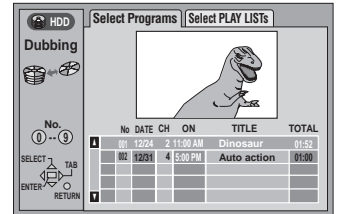
: "Transfer" because of recording restriction (→next page)

: Program or playlist contains still picture(s) (cannot dub)

: Program recorded with the "DVD-R compatible Rec" setting "ON". (→page 44)



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



- ③ Press [◀, ▶] to select "Select Programs" or "Select Play Lists".

• You cannot select playlists in the following cases.

- When dubbing from a DVD-RAM to a HDD.
- When the playlist was created from a program containing a recording restriction.
- Programs with recording limitations and play lists cannot be registered on the same dubbing list.

- ④ Press [▲, ▼] to select the program or play list for dubbing and press [ENTER].

- Repeat steps 4-② to 4-④ to register more than one. (Check that the dubbing list "Amount" does not exceed the "Remain" indicated).
- You can also select the program or play list with the numbered buttons (0, 1–9).

e.g., "5": [0] → [5], To select a program on HDD:
 "15": [1] → [5] "5": [0] → [0] → [5]
 "15": [0] → [1] → [5]

- ⑤ Press [RETURN].
Return to step 2.

5 Select the recording mode.

- ① Press [▲, ▼] to select "Rec Mode" and press [ENTER].
- ② Press [▲, ▼] to select the recording mode and press [ENTER].

Dubbing direction	Recording mode					
	High Speed	XP	SP	LP	EP	FR
HDD → RAM	○	○	○	○	○	○
HDD → DVD-R	○	○	○	○	○	○
RAM → HDD	○	×	×	×	×	×

- You will not be able to obtain better picture quality of the original picture even if you select a higher quality picture mode than the original. (Only prevents picture degradation.)
- You cannot select the high speed mode in the following cases.

- When dubbing a program containing recording restrictions from the HDD to a RAM disc.
- When dubbing programs from the HDD to a DVD-R that do not display the "▶▶▶".
- When dubbing a playlist.
- You can select only the high speed mode when dubbing content from the DVD-RAM to the HDD.

6 While the screen in step 2 is displayed Press [▲, ▼] to select "Start dubbing" and press [ENTER].

The confirmation screen will be displayed.

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

To stop dubbing

Press and hold [RETURN] for 3 seconds.


- Data will be recorded up to the point recording was stopped. However, if you stop dubbing in High Speed mode partway, the part you tried recording will become unplayable. (Recording to DVD-R will reduce the remaining amount of recordable disc space.)

To add or remove from the dubbing list

While the Dubbing List (→ step 4-①) is displayed





- ① Press [▲, ▼] to select the dubbing list and press [▶].
- ② Press [▲, ▼] to select an item and press [ENTER].
 - If you select “Add”, carry out steps 4-③ and 4-④. Addition will take place above the program selected in step ①.
 - If you select “Erase” or “Erase All”, a confirmation screen will be displayed. Press [◀, ▶] to select “Yes” or “No” and press [ENTER] (Return to Dubbing List).

[Note]


- The contents of dubbing lists (from HDD to a disc) will remain in the memory even after the power has been turned off. However, note that if programs and play lists are erased, all the dubbing lists will also be erased.
- It is not possible to activate timer recording during dubbing.
- The program settings (protect, etc) are reproduced in the dubbed material. (If you select a recording mode other than “High Speed”, markers are not reproduced).
- Still pictures in programs and play lists (displayed with an  in the Dubbing select screen) cannot be dubbed. [RAM]
- When dubbing SAP broadcast to DVD-R or dubbing sound using LPCM, the setting at “Select MTS” is given priority (→ page 45, Audio).

Recording Limits

Some programs may not be recordable or may have limits on number of times they can be dubbed. Refer to the table below for details about storage media and associated limits.

Recording limit	Usable Media	
No recording limit	Record ^{※1} → HDD	Dub → RAM DVD-R
	Record → RAM	Dub → HDD
	Record → DVD-R	Dub →  You cannot dub.
Recording limited to one time	Record → HDD	Transfer ^{※2} → RAM
	Record → RAM	Dub →  Content is duplicated on HDD but cannot be played.
	Record →  You cannot record on DVD-R.	
Recording not possible	Record →  You cannot record/dub on any media.	

^{※1}Turning “DVD-R compatible Rec” to “On” from the Setup menu allows dubbing to a DVD-R using the high speed mode after a recording has been saved to the HDD. (→page 44)

^{※2}**Transfer**: this is when a program is moved to another storage media. All recorded content transferred to DVD-RAM is deleted from the HDD. When a program with recording limitations enters a dubbing list, “” (Transfer) is displayed and a message screen is displayed when dubbing.

One Touch Dubbing (HDD → DVD)

Programs and play lists currently being played back on HDD can simultaneously be dubbed to DVD-RAM or DVD-R.

Preparation

Press [HDD] to select HDD drive.

- 1 During play or while paused Press [DUBBING].**
The confirmation screen appears.
- 2 Press [◀, ▶] to select “Yes” and press [ENTER].**

To stop dubbing

Press and hold [RETURN] for 3 seconds.

- Data will be recorded up to the point recording was stopped. However, if you stop dubbing in High Speed mode partway, the part you tried recording will become unplayable. (Recording to DVD-R will reduce the remaining amount of recordable disc space.)

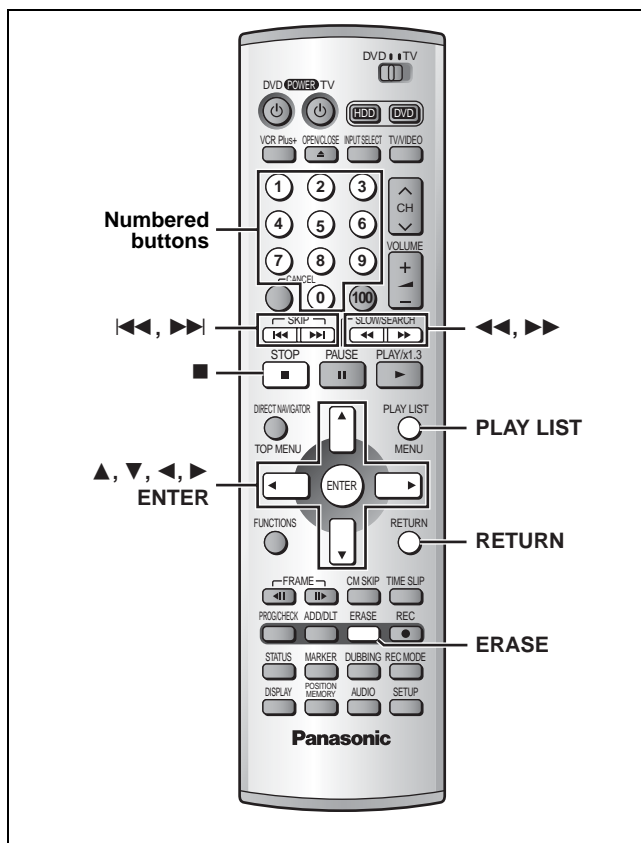
[Note]

- This function works even while the program list or play list screen is being displayed.
- It is not possible to activate timer recording during dubbing.
- Programs with recording limitations (including play lists made from those programs) cannot be dubbed.

The recording mode is set as follows:

- High speed mode:
 - When dubbing to a DVD-RAM.
 - When the “DVD-R compatible Rec” setting is set to “On” and the recorded program is being dubbed to a DVD-R.
- Original dubbing mode:
 - When the “DVD-R compatible Rec” setting is set to “Off” and the recorded program is being dubbed to a DVD-R.
- FR (Flexible Recording) (→page 16):
 - Based on the above conditions, the mode automatically changes to FR when there is not enough room left on the disc.
 - When playlist dubbing.

Creating play lists



[HDD] [RAM]

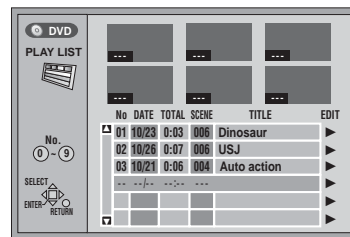
Specify start and end points to create scenes, then specify the order in which they are to be played. These scenes are not recorded separately so this doesn't use much capacity.

You can create a maximum of 99 play lists and 999 scenes on a DVD-RAM and HDD.

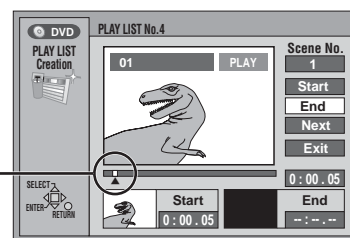
Preparation

Release protection (cartridge →page 10, disc →page 36) before proceeding.

- 1 While stopped
Press [PLAY LIST].
- 2 Press [▲, ▼] to select “---/---” and press [ENTER].



- 3 Press [ENTER] at the start point.

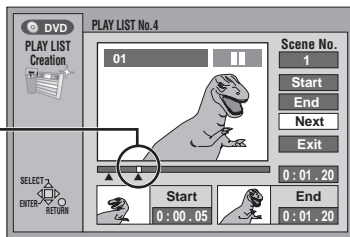


HDD: The location of the whole program's start point

DVD-RAM: The location of the whole disc's start point

- Use [◀◀], [▶▶] and slow-motion (→page 20) to find the start and end points.
- Pressing [◀◀], [▶▶] allows you to select other programs.

- 4 Press [ENTER] at the end point.



HDD: The location of the whole program's end point

DVD-RAM: The location of the whole disc's end point

To specify another scene

Select “Next” and press [ENTER], then repeat steps 3 and 4.

- 5 Press [▲, ▼] to select “Exit” and press [ENTER].

The play list screen appears.

To clear the play list screen

Press [PLAY LIST].

To stop partway through

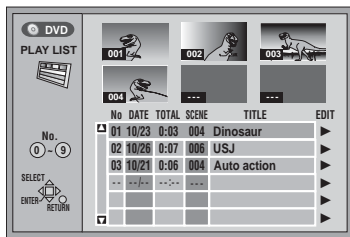
Press [RETURN].

For your reference

- You cannot specify an end point before a start point.
- You may not be able to specify points within 3 seconds of each other.
- Play pauses if the end of the last program on the disc is reached during this procedure.
- Depending on the state of recording, the actual number of play lists that can be recorded may be less than that specified in this manual.

Playing play lists

- 1 While stopped
Press [PLAY LIST].



- 2 Press [▲, ▼] to select the play list and press [ENTER].

- You can also select play lists by entering a 2-digit number with the numbered buttons.

e.g., "5": [0] → [5]
"15": [1] → [5]

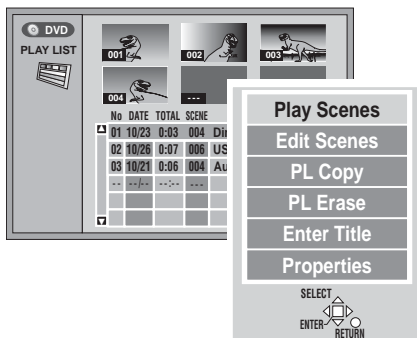
All the scenes in the play list are played.

To stop play list play

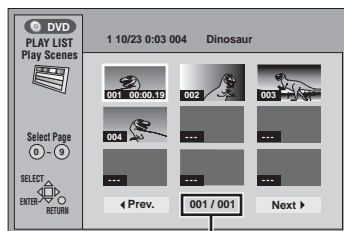
Press [■]. (The play list appears.)

Playing play list scenes

- 1 While stopped
Press [PLAY LIST].
- 2 Press [▲, ▼] to select the play list that contains the scene you want to play and press [▶].



- 3 Press [▲, ▼] to select "Play Scenes" and press [ENTER].



Page no./Total page no.

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

The scene you select is played.

To show scene 10 and later

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

- You can also select a page of scenes by entering a 3-digit number with the numbered buttons.

e.g., "5": [0] → [0] → [5]
"15": [0] → [1] → [5]

To stop scene play

Press [■]. (The scene list appears.)

To clear the scene list

Press [RETURN].

To erase a play list or a play list scene during playback

- 1 Press [ERASE].
A confirmation screen will be displayed.
- 2 Press [◀] to select "Erase" or "Yes" and press [ENTER].

Editing play lists

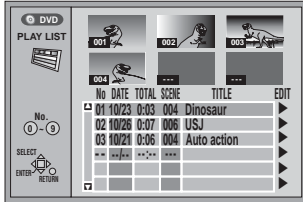
[HDD] [RAM]

Operation

Preparation

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

While stopped
Press [PLAY LIST].



e.g.,
DVD-RAM

Press [▲, ▼] to select the list.

- To create a new list, select “- -” and press [ENTER] (→ page 30).

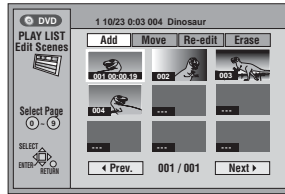
Press [▶] so the submenu appears.

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

Play Scenes

→ page 31, Playing play list scenes

Edit Scenes

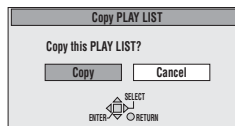


Press [◀, ▶] to select the item (Add, Move, Re-edit or Erase) and press [ENTER].

To show scene 10 and later

- Press [▲, ▼, ▶, ◀] to select “Next” and press [ENTER].
- You can also select a page of scenes by entering a 3-digit number with the numbered buttons.
e.g., “5”: [0] → [0] → [5]
“15”: [0] → [1] → [5]

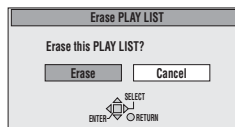
PL Copy



Press [◀] to select “Copy” and press [ENTER].

The copied play list appears at the bottom of the list.

PL Erase



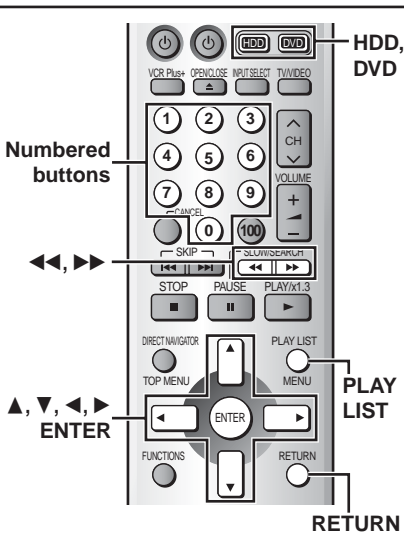
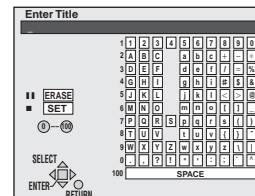
Once a play list has been erased, it is irretrievable. Check carefully before proceeding.

Press [◀] to select “Erase” and press [ENTER].

The play list is erased.

Enter Title

Entering text → page 38



To clear the play list or scene list screen

Press [PLAY LIST].

To stop set up process

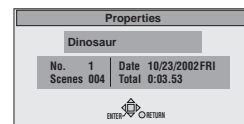
Press [RETURN].

For your reference

You can only perform operations for “Play Scenes” and “Properties” if the disc is write-protected. Release protection (cartridge → page 10, disc → page 36) to access other items.

Properties

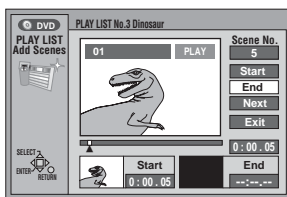
Play list information (e.g., time and date) is shown.



■ Add (maximum of 999 scenes)

Press [**▲**, **▼**, **◀**, **▶**] to select the place where you want to add the scene and press [**ENTER**].

Press [**ENTER**] at the start point of the scene.



Press [**ENTER**] at the end point of the scene.

Press [**▲**, **▼**] to select "Exit" and press [**ENTER**]. The new scene is inserted before the highlighted scene.

Press [**▲**, **▼**] to select "Next" and press [**ENTER**]. (Repeat to add other scenes.)

■ Move

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

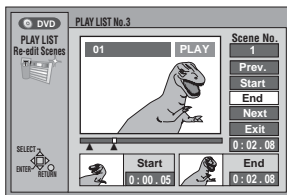
Press [**▲**, **▼**, **◀**, **▶**] to select the place where you want to move the scene to and press [**ENTER**]. The scene is moved and inserted before the highlighted scene.

Repeat to move other scenes.

■ Re-edit

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

Press [**ENTER**] at the start point of the scene.



Press [**ENTER**] at the end point of the scene.

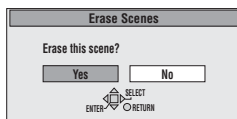
Press [**▲**, **▼**] to select "Exit" and press [**ENTER**]. The re-edited scene replaces the old one.

Press [**▲**, **▼**] to select "Prev." or "Next" and press [**ENTER**]. (Repeat to re-edit other scenes.)

■ Erase

Once a scene has been erased, it is irretrievable. Check carefully before proceeding.

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



Press [**◀**] to select "Yes" and press [**ENTER**]. The selected scene is erased from the play list.

Note

The play list itself is erased if you erase all the scenes in it.

Repeat to erase other scenes.

Note

- Use [**◀◀**], [**▶▶**] and slow-motion (→ page 20) to find the start and end points.
- You cannot specify an end point before a start point.
- You may not be able to specify points within 3 seconds of each other.
- Play pauses if the end of the last program is reached during this procedure.
- You cannot edit still picture images.
- Depending on the state of recording, the actual number of play lists or scenes that can be recorded may be less than that specified in this manual.
- The picture illustration on the right may be shown in the HDD play list scene display. This picture illustration indicates pictures that are permitted to be recorded only once. (→ page 29, Recording limits)



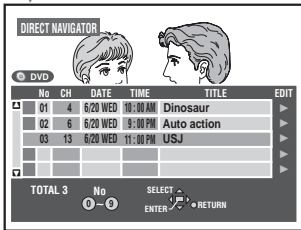
Editing programs

Operation

Preparation

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

Press [DIRECT NAVIGATOR].



e.g., DVD-RAM

Press [▲, ▼] to select the program.

- You can also select programs with the numbered buttons.
e.g., "5": [0] → [5]
(HDD [0] → [0] → [5])

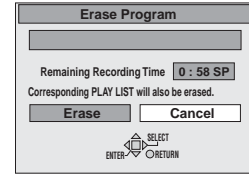
Press [▶] so the submenu appears.

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

Erase Program

HDD RAM DVD-R

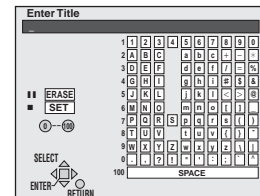
The program, and play lists created from it, are erased irretrievably when you use this procedure. Check carefully before proceeding.



Enter Title

HDD RAM DVD-R

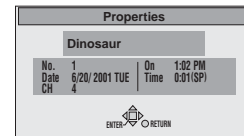
Entering text → page 38



Properties

HDD RAM DVD-R

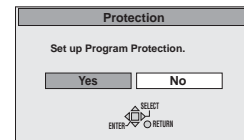
Program information (e.g., time and date) is shown.



Protection

HDD RAM

If set, this will protect the program from accidental erasure.

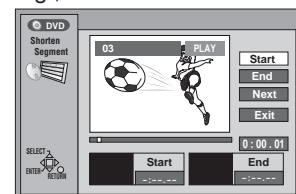


Shorten Segment

HDD RAM

The program segment, and play list scenes created from it, are erased irretrievably when you use this procedure. Check carefully before proceeding.

e.g., DVD-RAM



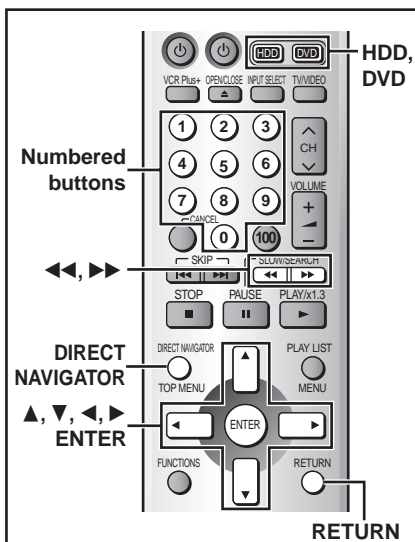
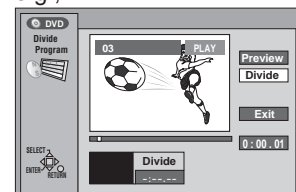
Divide Program

HDD RAM

Select a point at which to divide the program into two.

You must be sure you wish to divide a program because once a program has been divided, it cannot be returned to its original form.

e.g., DVD-RAM



To clear the program list

Press [DIRECT NAVIGATOR].

To stop set up process

Press [RETURN].

For your reference

You can only perform operations for "Properties" if the disc is write-protected. Release protection (cartridge → page 10, disc → page 36) to access other items. **RAM**

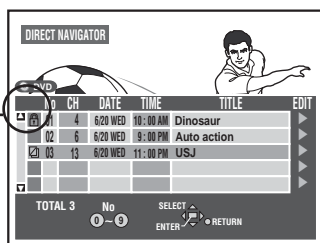
Press [◀] to select "Erase" and press [ENTER].
The program is erased.

Note

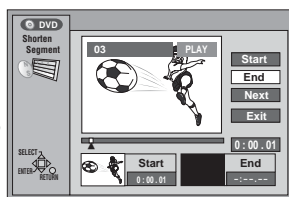
- The disc's available recording time may not increase after erasing short programs.
- Computer data cannot be erased.
- The available recording time on DVD-R does not increase when you erase programs.

Press [◀] to set protection and press [ENTER].

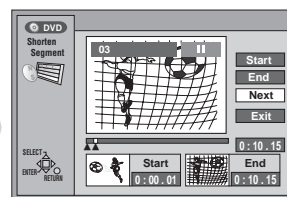
The lock symbol appears when the program is write-protected.



Press [ENTER] at the start point of the section you want to erase.



Press [ENTER] at the end point of the section you want to erase.



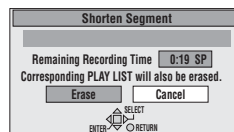
Press [▲, ▼] to select "Next" and press [ENTER], then press [◀] to select "Erase" and press [ENTER].

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

Repeat to enter other sections.

Note

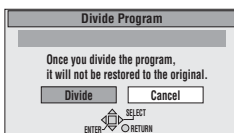
- Use [◀◀], [▶▶] and slow-motion (→ page 20) to find the start and end points.
- Play pauses if the end of the program is reached during this procedure.
- You may not be able to specify points within 3 seconds of each other.
- You cannot specify an end point before a start point.
- You cannot specify points on still pictures in the program.
- The disc's available recording time may not increase after erasing short segments.



Press [◀] to select "Erase" and press [ENTER].

Press [ENTER] at the point you want to divide the program.

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



Press [◀] to select "Divide" and press [ENTER].
The program is divided.

To confirm the division point

Press [▲, ▼] to select "Preview" and press [ENTER]. (Play will begin from a point 10 seconds prior to and after the division point.)

To change the division point

Press [▲, ▼] to select "Divide" and press [ENTER] at the point you want to change.

Note

- The divided programs retain the title and CPRM property (→ page 54) of the original program.
- A minute portion of the recording directly preceding the division point may be lost.
- It is not possible to carry out Divide Program in the following cases:
 - when the program is extremely short.
 - when the total number of programs is more than 250 (HDD) or 99 (DVD-RAM).

HDD, Disc setting

Operation

Preparation

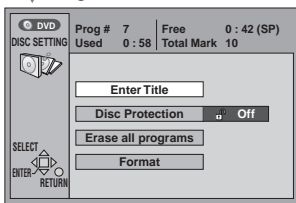
Press [HDD] or [DVD] to select the drive.

While stopped
Press [FUNCTIONS].

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



e.g., DVD-RAM



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

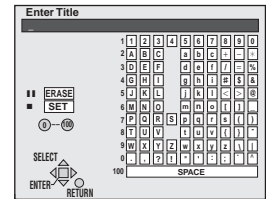
Editing

To stop set up process
Press [RETURN].

Enter Title

RAM DVD-R

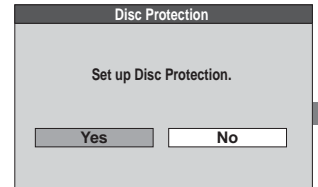
Entering text → page 38



Disc Protection

RAM

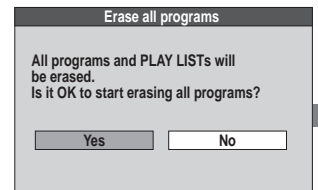
If set, this will protect the disc from accidental erasure.



Erase all programs

HDD RAM

All programs and play lists created from them will be erased irretrievably when you use this procedure. Check carefully before proceeding.



Preparation

Release protection (cartridge → page 10, program → page 34, disc → above) before proceeding.

Format

HDD

Erase the entire contents on the HDD.

RAM

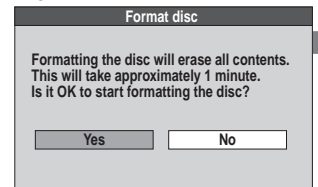
Some DVD-RAM are unformatted. Format them before using them in this unit. Formatting also allows you to erase the entire contents of a disc.

Preparation

- Release protection (cartridge → page 10) before proceeding.
- If the disc is dirty, clean it with the recommended cleaner (→ page 54) before formatting.

Formatting erases all contents on the disc, including computer data. Check carefully before proceeding.

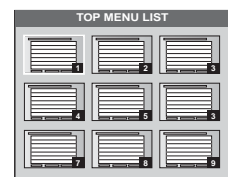
e.g., DVD-RAM



TOP MENU

DVD-R

Prior to finalizing, you can select the background (9 kinds) that will be displayed as the DVD Video top menu after finalizing.

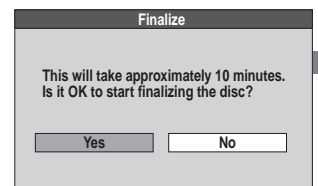


Finalize

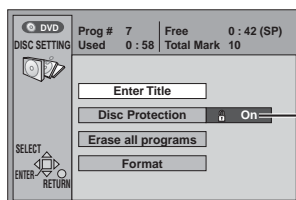
DVD-R

(DVD-R recorded on this unit only)

You can play DVD-R on compatible DVD players by finalizing them on this unit, effectively making them into DVD-Video that complies with DVD-Video standards.



Press [◀] to set disc protection and press [ENTER].



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

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

Press [◀] to select "Start" and press [ENTER].

All programs and play lists are erased.

Note

- Computer data and still pictures (JPEG, TIFF) cannot be erased.
- Erase does not work if one or more programs are protected.

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

Press [◀] to select "Start" and press [ENTER].

Formatting starts.
• A message appears when formatting is finished.

Press [ENTER] to complete the procedure.

Note

- Do not disconnect the AC power supply cord while the message "Formatting the disc" is on the television. This can render the disc unusable.
- Formatting normally takes a few minutes, however it may take up to a maximum of 70 minutes.
- The contents on the disc are erased when you format it even if you have set program or disc protection. **RAM**
- It may not be possible to use a disc on this unit if you cannot format it.
- Formatting cannot be performed on DVD-R or CD-R/RW.

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.

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

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

Press [◀] to select "Start" and press [ENTER].

Finalizing starts.
• A message appears when finalizing is finished.

Press [ENTER] to complete the procedure.

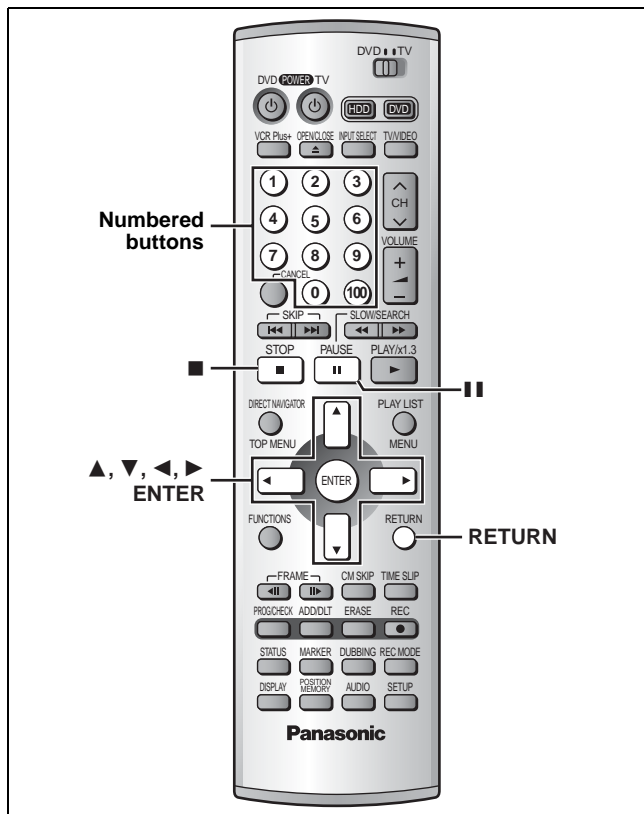
Note

- Do not disconnect the AC power supply cord while the message "Finalizing the disc" is on the television. This will render the disc unusable.
- Finalizing takes up to 15 minutes.

After finalizing..

- You cannot record or perform editing such as giving titles and erasing programs.
- Video content will be split into 5 minute chapter segments if the longer than 5 minutes in length.
- There is a pause of several seconds between program segments.
- The markers you entered (→ page 22) will be lost. However, when the "DVD-R compatible Rec" setting is set to "On" (→ page 44) and the recorded program is being dubbed from the HDD using the high speed mode markers are treated as chapter cutoff points.
- These DVD-R can be played on other Panasonic DVD players, but this is not guaranteed. Play may not be possible due to the player you are using, the DVD-R, or the condition of the recording. Play the disc using this unit if you experience problems with other equipment. Visit Panasonic's homepage for more information about DVDs. <http://www.panasonic.com/playDVD-R>

Entering text



Editing

[HDD] [RAM] [DVD-R]

This page shows how to enter text for:

- Program titles for timer recording (→pages 24 and 25)
Program titles (→page 34)
- Play list titles (→page 32)
- Disc titles (→page 36)

You can enter characters up to:

Item	Number of characters		
	[HDD]	[RAM]	[DVD-R]
Disc	—	64	40
Program	64*		44
Play list	64		—

* From the timer recording menu: 44

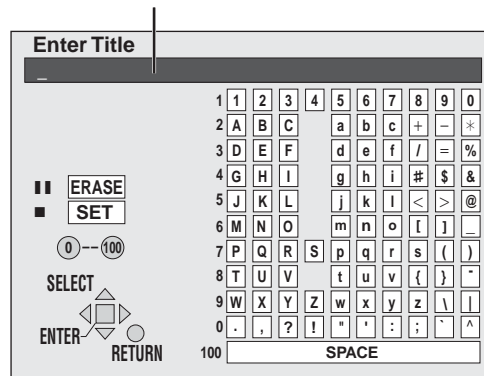
Preparation

Release protection before proceeding.

Cartridge →page 10, program →page 34, disc →page 36 [RAM]

- 1 After the titling screen appears
Press [**▲**, **▼**, **◀**, **▶**] to select the character and press [**ENTER**].

Title field: shows the text you have entered



Repeat step 1 to enter other characters.

- 2 Press [**■**].

The title is entered and the screen disappears.

- You can also finish entering the title by selecting "SET" and pressing [ENTER].

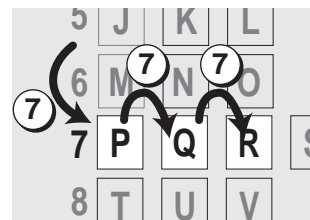
To end input midway

Press [RETURN] (does not save any title information).

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].



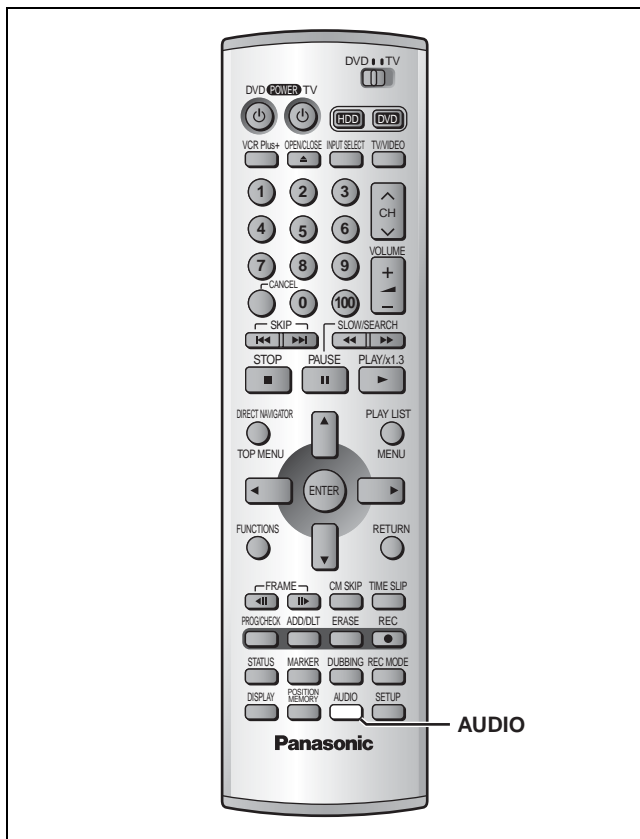
To erase a character

- 1 Press [**▲**, **▼**, **◀**, **▶**] to select the character you want to erase in the title field.
- 2 Press [**■**].
You can also erase characters by selecting "ERASE" and pressing [ENTER].

[Note]

- The full title is shown in the Properties screen (→page 32 and 34), but if you enter a long title, only part of it is shown in the program list or play list screen.
- If you enter a long title, only part of it is shown in the menu screen after finalization. [DVD-R]

Changing audio



[HDD] [RAM] [DVD-A] [DVD-V] [VCD]
 You can change the audio being received or played.

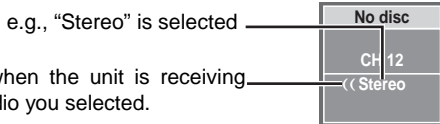
Press [AUDIO].

How the type changes depends on when you press the button.

■ While receiving MTS audio (Multi-channel Television Sound Stereo)

- **Stereo:** Main audio (stereo)
- ↓
- **SAP:** Secondary audio program (SAP)
- ↓
- **Mono:** Main audio (monaural)

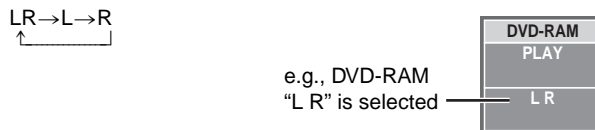
- If the broadcast is "Mono + SAP", audio will be monaural even if you select Stereo mode.
- Select "Mono" if reception is poor during a stereo broadcast.



[Note]

- If you change the sound setting while recording, the recorded sound will also change. [HDD] [RAM]
- It will not be possible to alter the sound by pressing [AUDIO] in the following cases:
 - When the DVD drive is selected and a DVD-R is in the disc tray.
 - When recording mode is XP and "LPCM" has been selected in the Audio menu, "Audio Mode for XP Recording" (→page 45).
 - When "DVD-R compatible Rec" is set to "On" (→page 44)
 Select "Main" or "SAP" from "Select MTS" in the Audio menu when recording SAP broadcasts based on the above conditions (→page 45, Audio—Select MTS).
- If recorded in SAP mode, main audio is also recorded.

■ While playing HDD, DVD-RAM or Video CD



- If it is a recording of an SAP broadcast, each time you press [AUDIO]: [HDD] [RAM]
 MAIN ↔ SAP

For your reference

You can change the audio for the full images being played with simultaneous rec and play and Time Slip. [HDD] [RAM]

■ While playing DVD-Audio or DVD-Video

You can change the audio channel number each time you press the button. This allows you to change things like the soundtrack language.

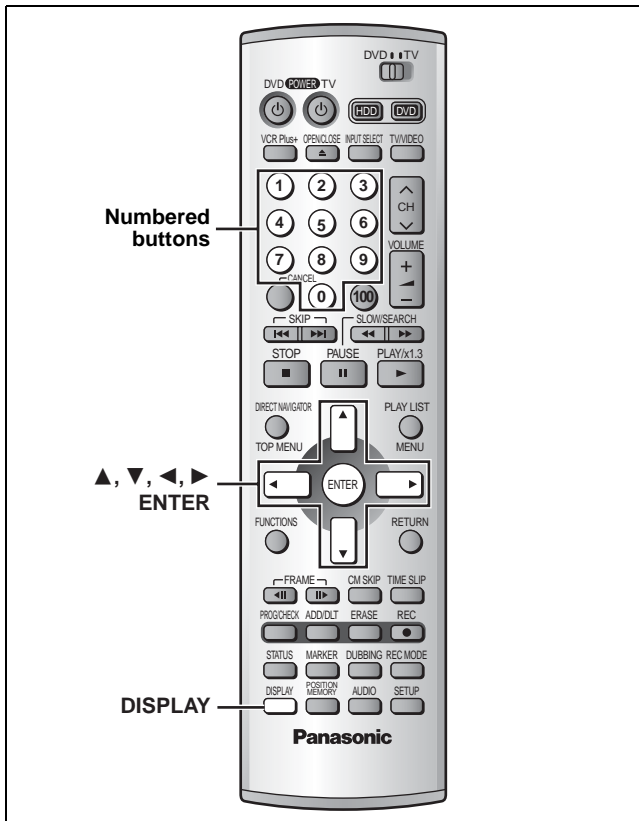


[Note]

[HDD] [RAM]

You may be unable to change the audio when you have connected the unit to an AV receiver through the DIGITAL AUDIO OUT terminal and "Dolby Digital" is set to "Bitstream". If this occurs:
 – Change "Dolby Digital" to "PCM" (→page 45), or
 – Connect also with an audio cable (→page 51, [B]) and change the input on the receiver.

Using on-screen menus



Disc menu

Not available when playing CDs and MP3 discs.
e.g., DVD-RAM

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

Item	Content
Sound track	Soundtrack language [DVD-A] [DVD-V] See [A] below.
	Audio attribute [HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] See [B] below.
	Karaoke vocals, on and off (Karaoke [DVD-V] only) Solo: ON ↔ OFF Duet: OFF ↔ V1+V2 ↔ V1 ↔ V2
Subtitle	Subtitle language [DVD-A] [DVD-V] See [A] below.
	Subtitle on/off [HDD] [RAM] [DVD-R] [DVD-A] [DVD-V]
Angle	Angle number [DVD-A] [DVD-V]
STILL-P	Page Still picture number [DVD-A] ● When "Return" is displayed Select "Return" and press [ENTER] to return to the default page. ● When "RANDOM" is displayed Select "RANDOM" and press [ENTER], the picture changes randomly each time you press [ENTER].
	Slide Show (Display only) [DVD-A]
Audio channel	[HDD] [RAM] [VCD] (→page 39)
PBC	Playback control on/off [VCD] Indicates whether menu play (playback control) is on or off.

Common procedures

1 Press [DISPLAY].

e.g., DVD-RAM

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

Menu Item Setting

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

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

4 Press [▲, ▼] to select the setting.

To clear the on-screen menus

Press [DISPLAY].

For your reference

- Some items can be changed by pressing [ENTER].
- Some items can also be changed with the numbered buttons.
- The screens depend on the disc contents.
- Depending on the condition of the unit (playing, stopped, etc.) and disc contents, there are some items that you cannot select or change.

[A] Soundtrack/Subtitle 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

[B] Audio attributes

LPCM/PPCM/DDigital/DTS/MPEG: Signal type

k (kHz): Sampling frequency

b (bit): Number of bits

ch (channel): Number of channels

e.g., 3/2 .1ch

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


For your reference

- When playing back recordings of SAP broadcasts, "1+1 ch" will be displayed.
- You can only select subtitles, soundtracks, and angles if they are recorded on the disc.
- Some discs allow changes to soundtracks, subtitles, and angles only by using the disc's menus.
- If the subtitles overlap closed captions recorded on discs, turn the subtitles off.

Play menu

e.g., DVD-RAM

Disc	Repeat play	OFF
Play	Marker	1-10 *****
Video		
Audio		

Item	Content	Remarks
Repeat play	<p>Each time you press [▲, ▼]:</p> <p>[HDD] [RAM] [DVD-R] [DVD-V]</p> <p>PRG: Program Chapter</p> <p>All Title</p> <p>PL: Play list ([HDD] [RAM]) OFF</p> <p>OFF</p> <p>[VCD] [CD] [DVD-A] [MP3]</p> <p>Track Track</p> <p>All Group</p> <p>OFF OFF</p> <p>To cancel: Select "OFF".</p>	<ul style="list-style-type: none"> You cannot use repeat play to repeat an entire DVD-Audio, DVD-Video, MP3 discs or all the play lists on a DVD-RAM. Repeat play does not work if the disc's elapsed play time is not shown on the unit's display. [ERASE] does not work while in repeat play mode. <p>If the Video CD has playback control</p> <p>① While stopped (the screen saver is on the television), press the numbered buttons to select a track (→page 20).</p> <p>② Select the repeat mode.</p> 
Marker	[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3] (→page 22)	—

Audio menu

Not available when playing Video CDs, CDs and MP3 discs.

e.g., DVD-Video

Disc	V. S. S.	OFF
Play	Dialog Enhancer	OFF
Video		
Audio		

Item	Content	Remarks
V.S.S.	<p>[HDD] [RAM] [DVD-R] [DVD-V]</p> <p>(Only with Dolby Digital with 2 or more channels)</p> <p>Enjoy a surround-like effect if you are using two front speakers only. The effect is broadened and sound seems to come from virtual speakers on either side if the disc has surround signals recorded on it.</p> <p>Natural ↔ Emphasis ↔ OFF</p> <p>↑—————↓</p>	<ul style="list-style-type: none"> Turn off the surround effects on the other equipment. V.S.S. will not work, or will have less effect, with some discs. Turn V.S.S. off if it causes distortion. V.S.S. does not work for SAP recordings made on this unit's tuner.
Dialog Enhancer	<p>[DVD-V]</p> <p>(Dolby Digital, 3-channel or over only, including a center channel)</p> <p>The volume of the center channel is raised to make dialog easier to hear.</p> <p>ON ↔ OFF</p>	—

Video menu

Not available when playing CDs and MP3 discs.

Disc	Picture	Normal
Play	MPEG-DNR	ON
Video		
Audio		

Item	Content
Picture	<p>Normal: Default setting</p> <p>Soft: Soft picture with fewer video artifacts</p> <p>Fine: Details are sharper</p> <p>Cinema: Mellows movies, enhances detail in dark scenes.</p> <p>User: You can make further adjustments. See page 42.</p>
MPEG-DNR	<p>(When any item other than "User" is selected)</p> <p>You can turn the recommended settings for 3D NR, block NR, and mosquito NR (→page 42) on and off.</p> <p>ON ↔ OFF</p>

■ When you have set "TV Type" to "Aspect 4:3 & 480P" or "Aspect 16:9 & 480P" in SETUP (→page 9)

Disc	Picture	Normal
Play	MPEG-DNR	ON
Video	Progressive	ON
Audio	Transfer	Auto 1

Item	Content
Progressive	<p>ON: Enables progressive output</p> <p>OFF: Disables progressive output</p>
Transfer (When progressive output is on)	<p>Select the method of conversion for progressive output to suit the type of material being played (→page 54, Film and video).</p> <p>Auto1 (normal): For film material</p> <p>Auto2: For film material (the same as Auto1, but able to convert 30-frame-per-second progressive video.)</p> <p>Video: For video material</p>

Video menu

■ When “User” is selected

Select “Detail picture adjustment”.

(“User” → [◀] → [▼] → [ENTER])

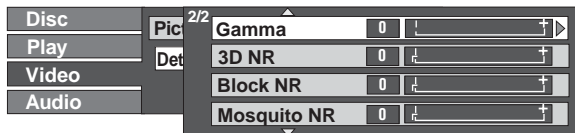


Page 1/2 of “Detail picture adjustment”

Contrast	Increases the contrast between light and dark parts of the picture (-7 to +7).
Brightness	Brightens the picture (0 to +15).
Sharpness	Adjust the sharpness of the edges of the horizontal lines (-6 to +6).
Color	Adjusts the shade of the picture's color (-7 to +7).

Press [ENTER] to enter the setting.

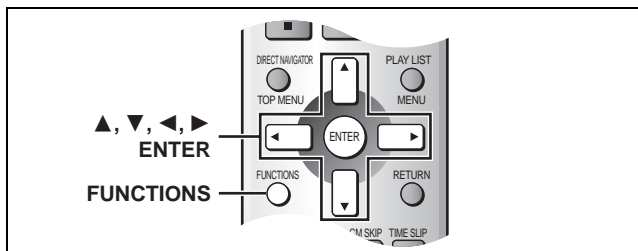
Press [▲] or [▼] until page 2/2 appears.



Page 2/2 of “Detail picture adjustment”

Gamma	Increases the brightness of the center ranges to improve detail and contrast in dark scenes (0 to +5).
3D NR	Reduces overall noise (0 to +4).
Block NR	Smooths block noise (0 to +3).
Mosquito NR	Reduces the smudging that appears around contrasting sections of the picture (0 to +3).

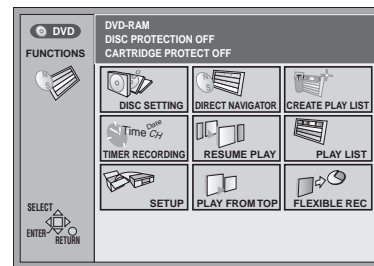
Press [ENTER] to enter the setting.



[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

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

1 While stopped Press [FUNCTIONS]. e.g., DVD-RAM



2 Press [▲, ▼, ◀, ▶] to select an item.

Refer to the relevant pages for details.

Icon	Refer to
DISC SETTING	→page 36, HDD, Disc setting
TIMER RECORDING	→page 24, Timer recording
SETUP	→page 44, Changing the unit's settings
DIRECT NAVIGATOR	→page 19, Using the Direct Navigator
RESUME PLAY	→page 34, Editing programs
PLAY	→page 18, Playing discs
PLAY FROM TOP	[HDD] [RAM] [DVD-R] Play will begin with the oldest program on the disc (Program 1). [DVD-A] [DVD-V] Play will avoid playing the introductory parts and begin playing the contents immediately. (The performance of this function varies from disc to disc.)
CREATE PLAY LIST	→page 30, Creating play lists
PLAY LIST	→page 31, Playing play lists →page 32, Editing play lists
FLEXIBLE REC	→page 16, Recording the best quality pictures in the remaining time—Flexible Recording
TOP MENU MENU	→page 19, When a menu screen appears on the television
DUBBING	→page 28, Dubbing programs or play list

Functions displayed depend on the type of disc.

- Some items will be grayed out and cannot be selected if:
 - the disc is write protected/the disc is not formatted/there is nothing recorded on the disc.

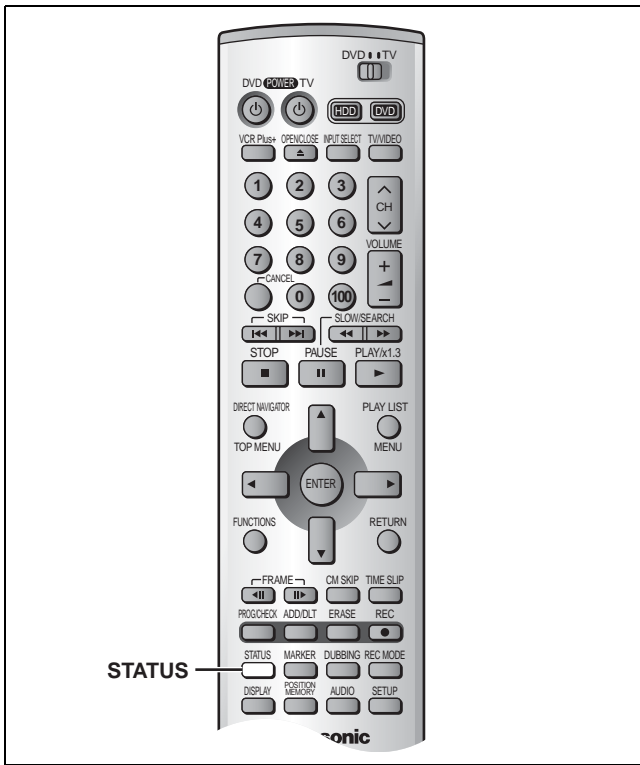
3 Press [ENTER].

Your selection is entered and the FUNCTIONS window disappears. If the operation requires further selections, another screen appears.

To clear the FUNCTIONS window

Press [FUNCTIONS].

On-screen displays



Displays appear on the television when you operate the unit to let you know what operation was performed and what condition the unit is in.

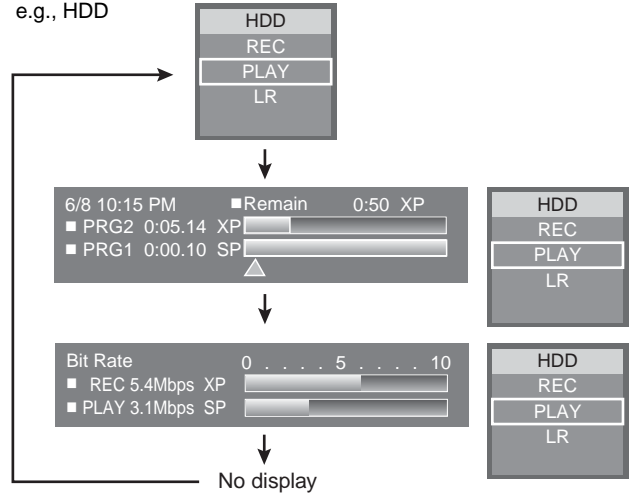
- You can change the setting in the SETUP menu so the first display does not appear automatically (→page 45, Display—Status Messages).

Changing the information displayed

Press [STATUS].

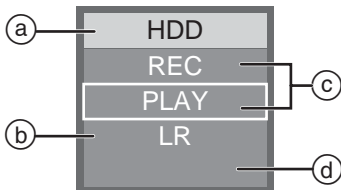
The display changes each time you press the button.

e.g., HDD



Display examples

e.g., HDD



a HDD/Disc indication

b Audio type (→page 39)

Shows the selected audio type.

- During reception
 - Stereo:** Stereo is selected
 - Mono:** Monaural is selected
 - SAP:** Secondary audio program is selected

("(" appears when the type you have selected is actually being received.)

- During play

LR, R, L: a stereo program is recorded
MAIN, SAP: an SAP program is recorded

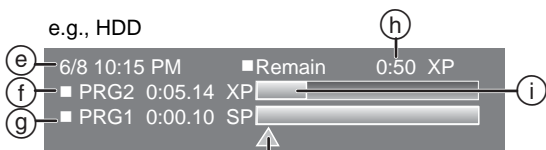
c Current recording or play status/input channel and caption (if entered)

- REC:** Recording
- PAUSE:** Recording paused
- PLAY:** Playing
- ◀◀:** Rewinding
- ▶▶:** Fast forwarding
- ◀:** Reverse slow-motion
- ▶:** Slow-motion

d HDD recording/DVD recording:

the recording drive is indicated
Tray open/closed: indicates the status of the disc tray when the HDD drive is selected

e.g., HDD



e The current date and time

f Elapsed recording time/recording mode

g Elapsed play time of a program playing/mode at the time of recording

h Available recording time and recording mode

i Approximate volume of recording

j Play position in the volume of recording

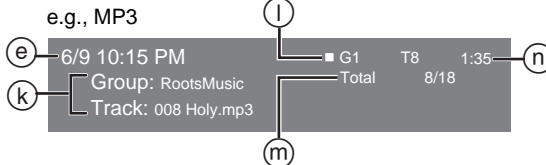
k Selected group and track name

l Selected group and track number

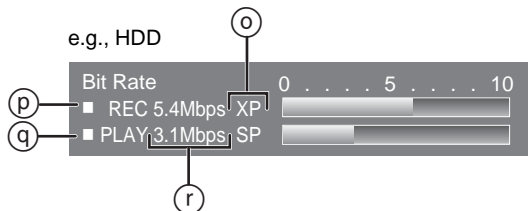
m Selected track no./Total track no. in all groups

n Elapsed play time of a track playing

e.g., MP3



e.g., HDD



o Recording mode or I/P/B display when paused (→page 54)

p Video bit-rate when recording

q Video bit-rate when playing

r Bit-rate display*

Show as Mbps (Megabits per seconds) during play and recording, or kbit (kilobits) while paused.

* The method of calculating bit-rate for recording and playing is different so there may be differences in the figures displayed. (Values are approximate.)

Changing the unit's settings

Summary of settings

This chart shows the initial settings for this unit. See page 46 for details on menu operation.

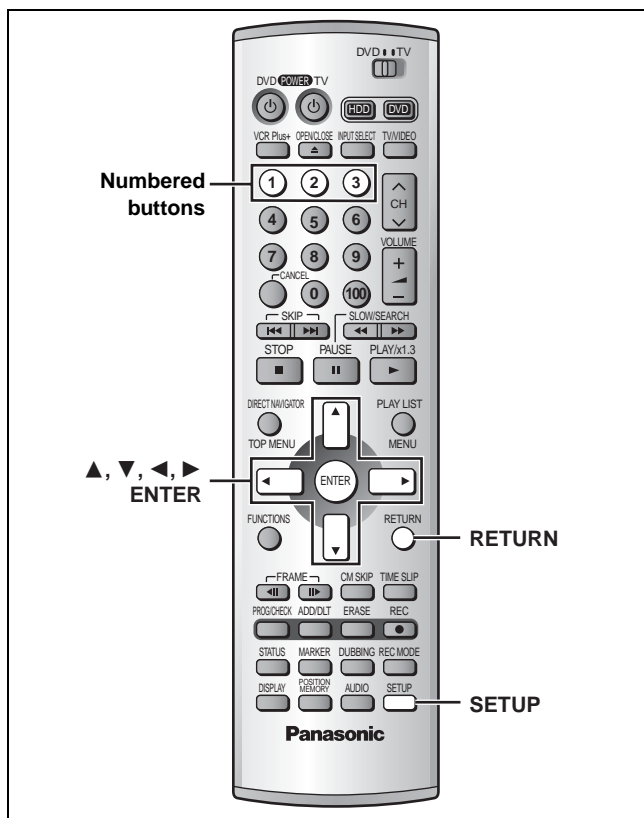
• Underlined items are the factory presets.

Tabs	Menus	Options
Channel	Antenna System (→page 7) Select to suit the type of antenna you are using. Channels are set corresponding to the antenna system you select.	•TV • <u>CATV</u>
	Auto Channel Setting (→page 7) The unit sets the channels automatically.	
	Preset Channel Caption (→page 48) You can give preset captions to the channels.	
	Manual Channel Caption (→page 48) You can set channel captions manually.	
	VCR Plus+ CH Setting (→page 24) Set the guide channels for use with VCR Plus+ timer recording.	
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 46) To avoid operating equipment other than the one intended (when more than one remote controlled item is in the same area), change the remote control code.	• <u>Set Code 1</u> •Set Code 2 •Set Code 3
	Auto Clock Setting (→page 47) The unit adjusts the clock automatically.	
	Manual Clock Setting (→page 47) You can adjust the clock.	
	Time Zone Adjust (→page 47) Adjust the time zone if it was not set correctly after auto clock setting. This appears only after auto clock setting is complete.	•-1 • <u>0</u> •+1
	Re-initialize Setting This returns all values in the SETUP menus, except for the clock, channel settings, ratings level, and display language, to the default settings.	•Yes • <u>No</u>
Disc	Audio Choose the audio language.	Some discs start in a certain language despite any changes you make here.
	Subtitle Choose the subtitle language.	
	Menus Choose the language for disc menus.	
	Ratings Set a ratings level to limit DVD-Video play. The password screen is shown when you select levels 0 to 7. To enter a password 1. Input a 4-digit password with the numbered buttons. •If you enter a wrong number, press [CANCEL] to erase it. • Do not forget your password. 2. Press [ENTER]. •The lock symbol appears closed to show the rating is locked. 3. Press [ENTER] to confirm the 4 digits. If you insert a DVD-Video that exceeds the ratings limit you set, a message appears on the television. Press [SETUP] to select "Ratings" again and change ratings.	<ul style="list-style-type: none"> •English •French •Spanish •Original: The original language of each disc will be selected. •Other ****: Input a code (→back cover). <ul style="list-style-type: none"> •<u>Automatic</u>: If the language selected for "Audio" is not available, subtitles of that language will automatically appear if available on that disc. •English •French •Spanish •Other **** <ul style="list-style-type: none"> •<u>English</u> •French •Spanish •Other **** <p>Setting ratings (When level 8 is selected) 8 No Limit: 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.</p> <p>Changing ratings (When level 0-7 is selected) •Unlock Recorder •Change Password •Change Level •Temporary Unlock</p>
	DVD-Video mode Select how to play pictures contained on some DVD-Audio. The setting returns to "Off" when you change the disc or turn the unit off.	<ul style="list-style-type: none"> •On: You can play DVD-Video content on DVD-Audio. •<u>Off</u>: DVD-Audio are played as DVD-Audio.
	DVD-R compatible Rec You can dub to DVD-R discs using high speed mode if this setting is "On" when recording content to the HDD.	<ul style="list-style-type: none"> •On: High speed mode compatibility ("⏏" appears in the dubbing list. →page 28) –Pictures are saved at 4:3. –For SAP broadcasts use "Select MTS". (→next page) Select the type of audio in advance. –Hybrid VBR Resolution (→below) setting is "Fixed". •<u>Off</u> You cannot dub programs to a DVD-R disc using the high speed mode if you recorded the program on a DVD recorder that does not have the "DVD-R compatible Rec" function, even when dubbing to the HDD with this setting "On".
	Video	3-D Y/C Separation Turn 3-D Y/C separation on or off.
Hybrid VBR Resolution Switch between automatic and fixed hybrid VBR resolution when recording.		<ul style="list-style-type: none"> •<u>Automatic</u>: Video compression is automated providing efficient recording. •Fixed: Video compression is fixed when recording providing smooth video play.

Continued on next page.

Tabs	Menus	Options
Video	Still Mode Select the type of picture shown when you pause play.	<ul style="list-style-type: none"> ● Automatic ● Field: Less blurred field stills are shown. Select if jittering occurs when "Automatic" is selected. ● Frame: Sharper frame stills are shown. Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected.
	Seamless Play Turn seamless play on or off on discs with play lists. ● Seamless Play does not work with programs recorded in LPCM or when using Quick View.	<ul style="list-style-type: none"> ● On: The scenes in play lists are played seamlessly. This may cause shifting of the points where scenes change. Some play lists cannot be played seamlessly. ● Off: The points where scenes in play lists change are played accurately, but the picture may freeze for a moment.
	Black Level Control Select normal, lighter or darker for adjusting the black level control to the desired setting for picture enhancement.	<ul style="list-style-type: none"> ● Input Level (Lighter/Darker): Adjusts the black level of the input signal (e.g., L1, L2, L3) ● Composite & S Video Output Level (Lighter/Darker): when connected to a TV through the VIDEO OUT or S-VIDEO OUT terminal ● Component Video Output Level (Lighter/Normal/Darker): when connected to a TV through the COMPONENT VIDEO OUT (Y/P_B/P_R) terminal
Audio	PLAY ×1.3 & Audio during Search [HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] Choose whether to have sound during the first level of fast-forward. Quick View (→page 21) does not work if you make the setting "Off".	<ul style="list-style-type: none"> ● On ● Off – You may hear sound regardless of this setting with some discs. [DVD-A]
	D. Range Compression [DVD-V] (Dolby Digital only) Change the dynamic range for late night viewing.	<ul style="list-style-type: none"> ● On ● Off
	Select MTS (→page 39) Select whether to record the main or secondary audio type (SAP) when recording to DVD-R or when recording using LPCM sound ("Audio Mode for XP Recording" → below).	<ul style="list-style-type: none"> ● Main ● SAP – You cannot change secondary audio when recording audio to DVD-R from an external source.
	Digital Audio Output Change the settings when you have connected equipment through this unit's DIGITAL AUDIO OUT terminal (→page 51, [A]).	
	PCM Down Conversion You can select whether or not to convert recorded audio sampling rates from 96kHz or 88.2 kHz (as is if setting Off) to 48 kHz or 44.1 kHz (if the setting is On).	<ul style="list-style-type: none"> ● On: If the equipment or connection doesn't support 96 kHz or 88.2 kHz. ● Off: If the equipment or connection does support 96 kHz or 88.2 kHz. However, output will be down converted to 48 kHz or 44.1 kHz regardless of settings if the signal is greater than 176.4 kHz or a copy guard has been applied to the disc.
	Dolby Digital DTS If the equipment you connected cannot decode the signal, the setting must be changed to PCM or Off. If not, signals the equipment cannot process will be output by this unit, causing high levels of noise which can damage your hearing and the speakers.	<ul style="list-style-type: none"> ● Bitstream: Select if the equipment you connected can decode the signal. ● PCM: Select if the equipment you connected cannot decode the signal. ● Bitstream: Select if the equipment you connected can decode the signal. ● Off: Select if the equipment you connected cannot decode the signal.
Audio Mode for XP Recording Choose the audio type when recording with XP mode. ● Sound recordings made using LPCM require more information than usual. Consequently the picture quality of LPCM recordings may be less than that of normal XP mode recordings.	<ul style="list-style-type: none"> ● Dolby Digital (→page 54) ● LPCM (→page 54) 	
Display	Status Messages Choose whether to show on-screen messages automatically.	<ul style="list-style-type: none"> ● Automatic ● Off
	Language of Display Message Choose the language for these menus and the on-screen messages.	<ul style="list-style-type: none"> ● English ● Español ● Français
	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"> ● On ● Off
	FL Display Changes the brightness of the unit's display.	<ul style="list-style-type: none"> ● Bright ● Dim ● Automatic: The display dims during video playback and goes off completely when the unit is turned off. If you press a button the display will brighten briefly. (At this time the power consumed will be approx. 0.4 W.)
TV Screen	TV Type (→page 9) Choose the setting to suit your television.	<ul style="list-style-type: none"> ● Aspect 4:3 & 480I ● Aspect 4:3 & 480P ● Aspect 16:9 & 480I ● Aspect 16:9 & 480P
	4:3 TV Settings for DVD-Video Select how DVD-Video widescreen picture is shown on a 4:3 standard aspect television.	<ul style="list-style-type: none"> ● Pan & Scan (→page 54): Video recorded for a widescreen is played as Pan & Scan (unless prohibited by the producer of the disc). ● Letterbox (→page 54): Video recorded for a widescreen is played in the letterbox style.
	4:3 TV Settings for DVD-RAM Select how DVD-RAM widescreen picture is shown on a 4:3 standard aspect television.	<ul style="list-style-type: none"> ● 4:3: Programs played as recorded. ● Pan & Scan: Video recorded for a widescreen is played as Pan & Scan. ● Letterbox: Video recorded for a widescreen is played in the letterbox style.

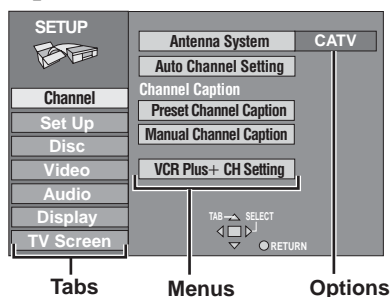
Changing the unit's settings



Common procedures

See pages 44 and 45 for menu and option details.

- 1 While stopped
Press [SETUP] to show the menus.



- 2 Press [▲, ▼] to select the menu's tab and press [▶].
- 3 Press [▲, ▼] to select the menu and press [ENTER].
- 4 Press [▲, ▼] to select the option and press [ENTER].

The screen now shows the menu again.

- Some items require different operations. Follow the on-screen instructions, or read the following explanations.

To return to the previous screen

Press [RETURN].

When you are finished

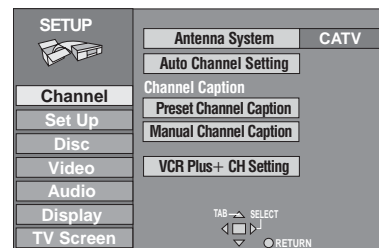
Press [SETUP].

Changing the remote control code

Panasonic DVD players and recorders use the same remote control system so they may respond unintentionally to a command from this remote control. Change the code on this unit and its remote control (the two must match) if you place equipment close together.

- Use "1", the factory set code, under normal circumstances.

- 1 While stopped
Press [SETUP] to show the menus.



- 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].

The remote control code on the unit has been set.

- 5 While pressing [ENTER] on the remote control, press the numbered button ([1], [2] or [3]) corresponding to the code you selected in step 4.

The remote control code on the remote control has been set.

- 6 Press [SETUP].

The following display appears when you use a remote control with a different code.



The unit's remote control code

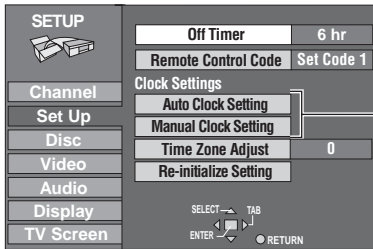
If you are trying to use this unit's remote control, change its code to match the unit's (→ step 5).

Clock settings

Preparation

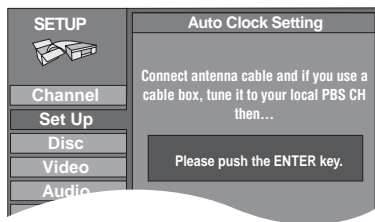
If you connect the unit through a cable TV box or DSS receiver (→page 50), tune to your local PBS station before starting auto clock setting. Use manual clock setting if auto clock setting does not work or if there is no local PBS channel in your area.

- 1 Press [SETUP] to show the menus.
- 2 Press [▲, ▼] to select “Set Up” and press [▶].



Auto Clock Setting

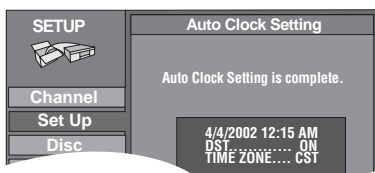
- 3 Press [▲, ▼] to select “Auto Clock Setting” and press [ENTER].



If you have not yet set channels, the “Auto Channel/Clock Setting” screen appears.

- 4 Press [ENTER].

Auto setting starts. This can take some time, up to a few hours in some cases. (To stop auto clock setting, press [RETURN].) The following screen appears when setting is complete. Press [ENTER].

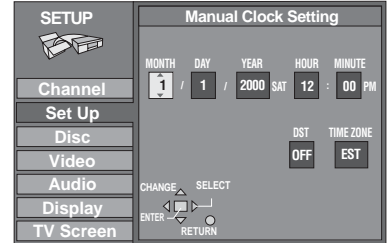


[Note]

- If the time was not set correctly, use manual clock setting or time zone adjust.
- DST, Daylight Saving Time, shows the summertime setting.
- TIME ZONE shows the time difference from Greenwich meantime (GMT).
EST=GMT -5, CST=GMT -6, MST=GMT-7, PST=GMT-8, AST=GMT -9, HST=GMT-10, For other areas: xx hr

Manual Clock Setting

- 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.

MONTH ↔ DAY ↔ YEAR ↔ HOUR (12-hour display)
↑ → TIME ZONE ↔ DST ↔ MINUTE ← ↓

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:

EST ↔ CST ↔ MST ↔ PST ↔ AST ↔ HST
(-5) (-6) (-7) (-8) (-9) (-10)

- 5 Press [ENTER].

The clock starts.

[Note]

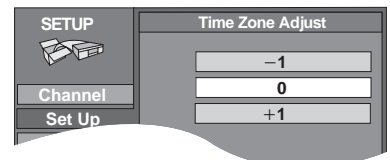
When you change the time zone, the recording times for programs recorded before the time zone was changed also change to correspond to the new time zone.

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.

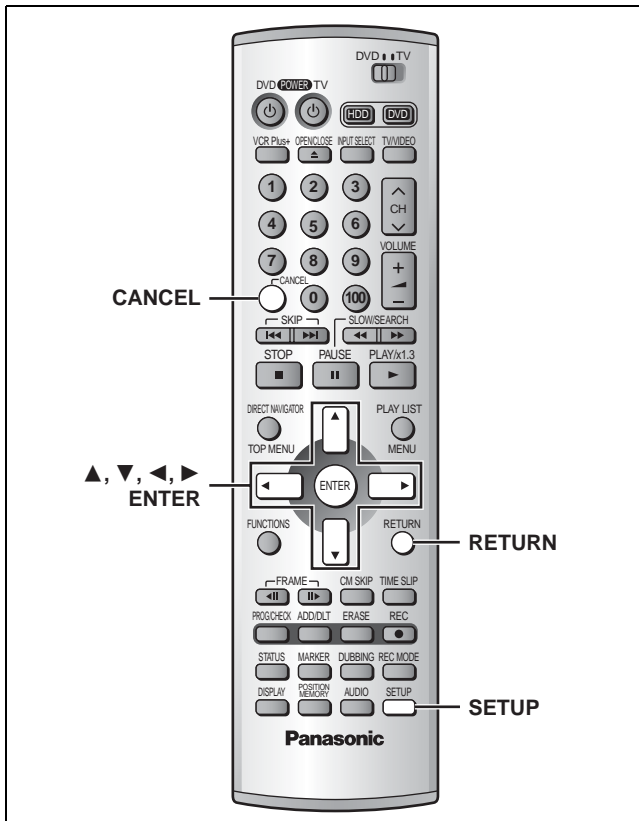
- 3 Press [▲, ▼] to select “Time Zone Adjust” and press [ENTER].



- 4 Press [▲, ▼] to select “-1”, “0”, or “+1” and press [ENTER].

The “Set Up” screen (→ step 2) reappears.

Changing the unit's settings



4 Press [▲, ▼] to select the caption and then 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

- The screen scrolls a page at a time if you press and hold [▲, ▼].

5 Press [▲, ▼] to select the channel corresponding to the caption and then press [◀].

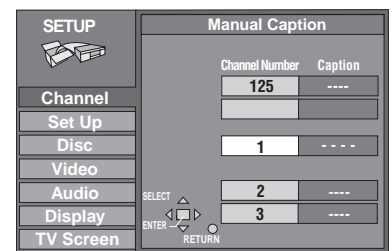
- Channels are not displayed if they do not contain a station or if captions have been added manually.
- To delete the channel number, press [CANCEL].
- Repeat steps 4 and 5 as necessary.

6 Press [ENTER].

The "Channel" screen reappears.

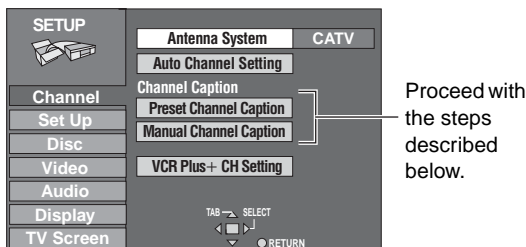
Manual Channel Caption

3 Press [▲, ▼] to select "Manual Channel Caption" and press [ENTER].



Other channel settings

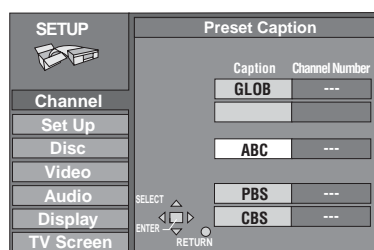
- 1 Press [SETUP] to show the menus.
- 2 Press [▲, ▼] to select "Channel" and press [▶].



Proceed with the steps described below.

Preset Channel Caption

- 3 Press [▲, ▼] to select "Preset Channel Caption" and press [ENTER].

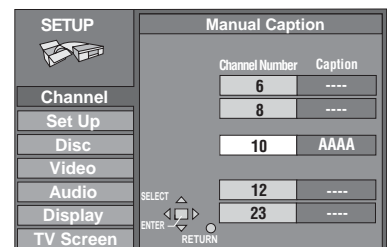


4 Press [▲, ▼] to select the channel and then press [▶].

- Channels are not displayed if they do not contain a station or if preset captions have been added.

5 Press [▲, ▼] to select the first character and then press [▶].

- You can choose from the following characters: A-Z, 0-9, -, &, !, /, (space)
- To delete the caption, press [CANCEL].
- Repeat step 5 to enter the other characters.



6 Press [◀, ▶] to return to the Channel Number column when you are finished.

Repeat steps 4, 5, and 6 as necessary.

7 Press [ENTER].

The "Channel" screen reappears.

To return to the previous screen

Press [RETURN].

When you are finished

Press [SETUP].

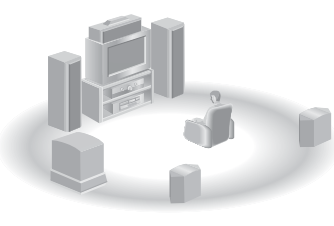
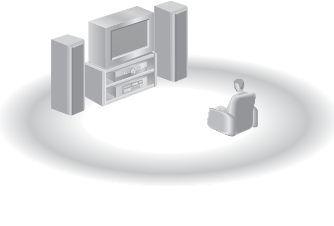
Home Theater

Refer to the relevant pages for details.

Enjoying CATV/Satellite broadcasts

What you want to do	How to do it	Reference pages	Settings	Reference pages
Enjoying CATV/Satellite broadcasts	Connect a cable TV box or satellite receiver.	50	Tune to channels correctly.	6, 7
			Change the necessary settings on the equipment you have connected.	—

Enjoying more powerful sound

Enjoying 5.1-channel surround sound with Dolby Digital and DTS 	Digital connection Connect to an amplifier with built-in decoders.	51 [A]	SETUP—Audio—Digital Audio Output • Set PCM Down Conversion to suit the equipment. • Set Dolby Digital and DTS to suit the equipment.	45
			Change speaker settings on the amplifier.	—
Enjoying stereo or Dolby Pro Logic 	Analog connection Connect to an analog amplifier or system component.	51 [B]	SETUP—Audio—Digital Audio Output • Set PCM Down Conversion to Off.	45
			Digital connection Connect to a digital amplifier or system component.	51 [A]

Other uses

Record to digital recording equipment or cassette deck (→page 51)
 Record from a video cassette recorder (→page 52)

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

"DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

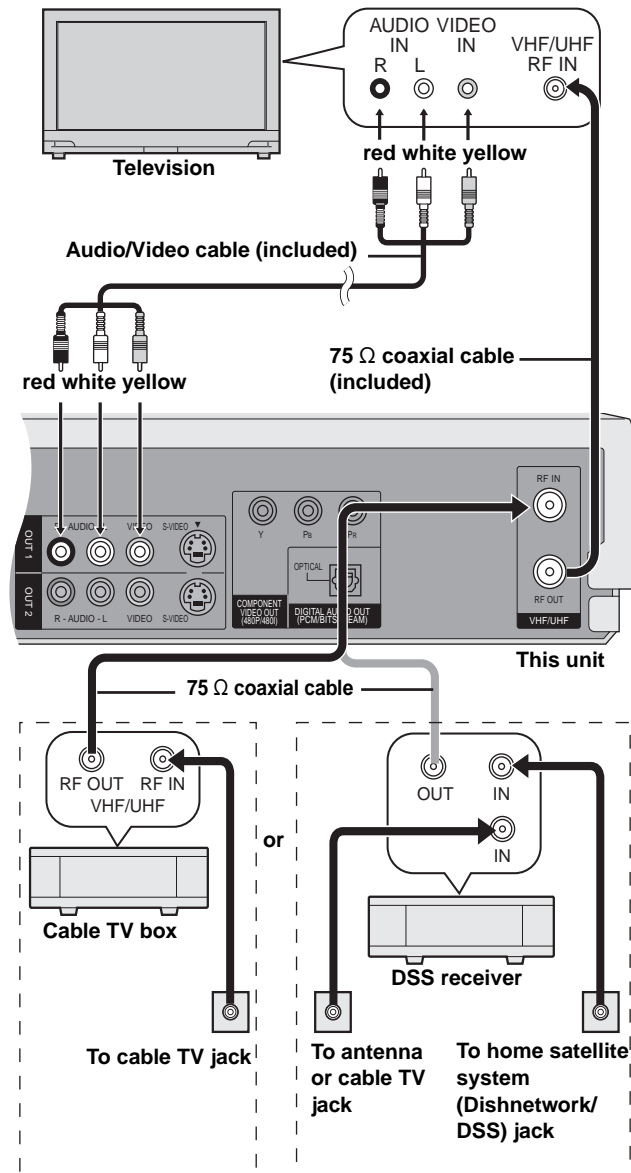
- The equipment connections described are examples.
- Peripheral equipment and optional cables sold separately unless otherwise indicated.
- Before connection, turn off all equipment and read the appropriate operating instructions.
- The signal from the cable TV box or satellite receiver passes through this unit to the television even when this unit is turned off.

Connecting a cable TV box/satellite receiver

You need to subscribe to a cable TV or satellite TV service, to enjoy viewing their programming.

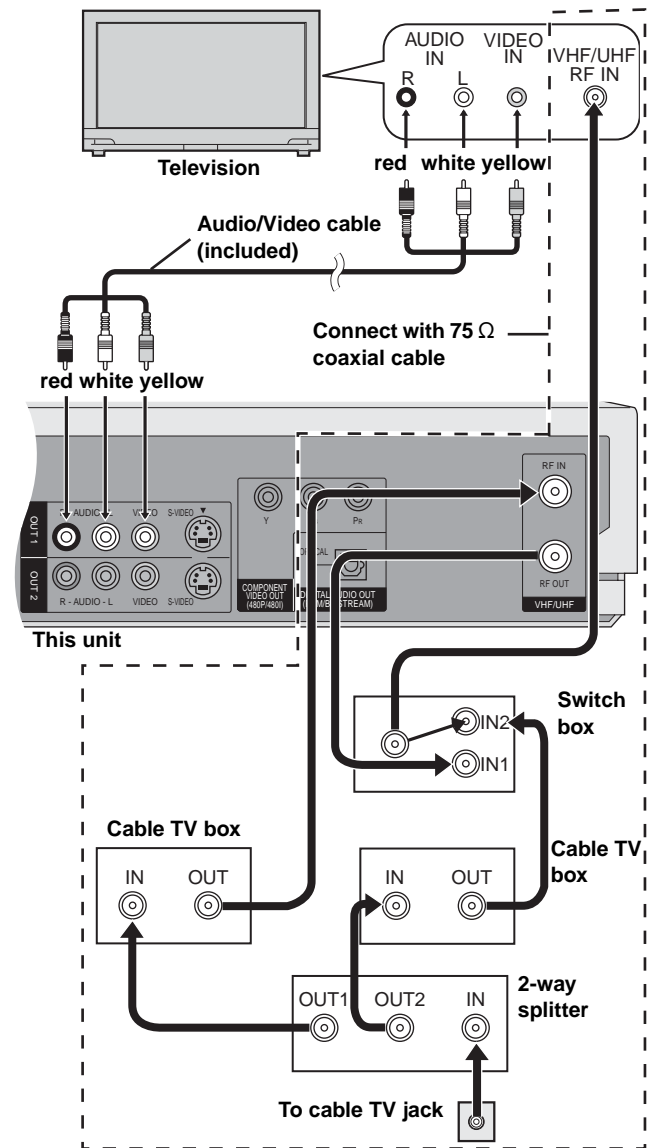
- Consult your service provider regarding appropriate cable box or satellite receiver.
- Select the applicable input on your television to view the output from your cable box/satellite receiver through this unit.

One cable TV box/satellite receiver



Two cable TV boxes

You can record and view both scrambled and unscrambled channels if connections are made as shown in the diagram below.



Advanced operation

[Note]

When a home satellite system (Dishnetwork/DSS) is connected, auto tuning and auto clock setting may not operate properly. Set the clock manually (→page 47).

- Change the video input on the television when you want to watch another program while recording.
- You cannot do a timer recording unless the channel is first selected on the cable TV box or DSS receiver.

- Change the video input on the television when you want to watch another program while recording.
- You cannot do a timer recording unless the channel is first selected on the cable TV box.

Connecting an amplifier or system component

This model can play Dolby Digital, but only in two channels. This model does not have a DTS decoder. You must connect a unit with a Dolby Digital or DTS decoder to enjoy surround sound.

A Digital connection

To enjoy multi-channel surround sound

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

- Change the settings in "Digital Audio Output" (→page 45).

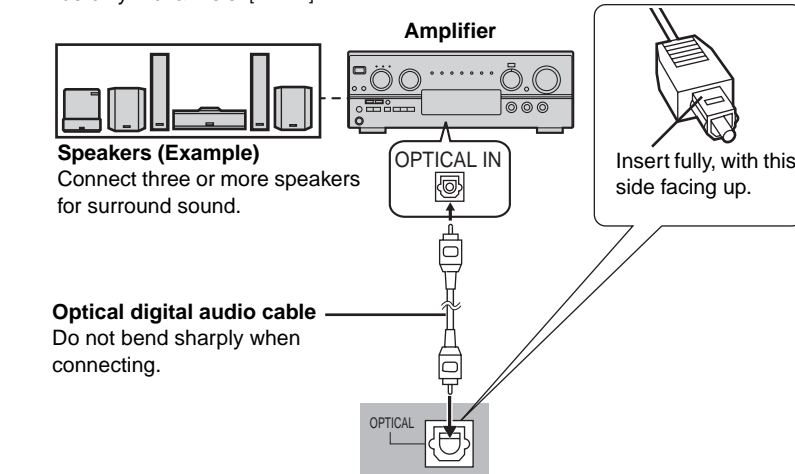
[Note]

- You cannot use DTS Digital Surround decoders not suited to DVD.
- Even if using this connection, output will be only 2 channels. [DVD-A]

To enjoy stereo or Dolby Pro Logic

Connect a digital amplifier or system component.

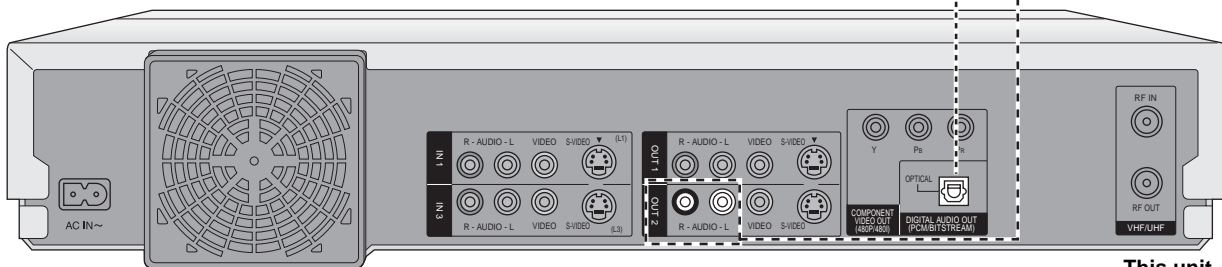
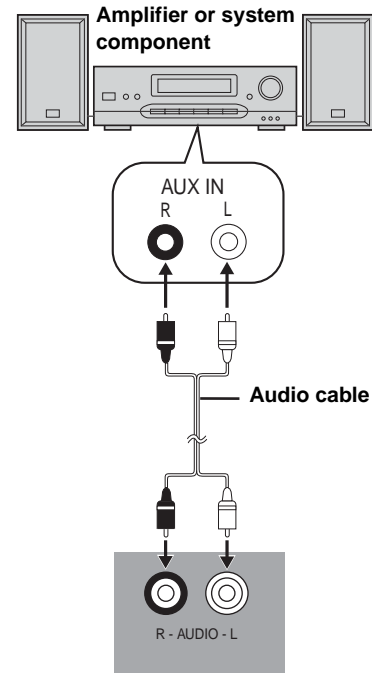
- Change the settings in "Digital Audio Output" (→page 45).



B Analog connection

To enjoy stereo or Dolby Pro Logic

Connect an analog amplifier or system component.



Recording to digital recording equipment or cassette tapes

Digital recording

You can record the digital signal directly to digital recording equipment (→ Connection [A] above).

[Note]

- With DVD, the following conditions must be met: (a) the disc doesn't have protection preventing digital recording, and (b) the recording equipment can handle signals with a sampling frequency of 48 kHz.
- You cannot record DTS signals.
- You cannot record MP3.

When recording DVDs, make the following settings.

V.S.S.: OFF (→page 41)

PCM Down Conversion: On (→page 45)

Dolby Digital: PCM (→page 45)

DTS: Off (→page 45)

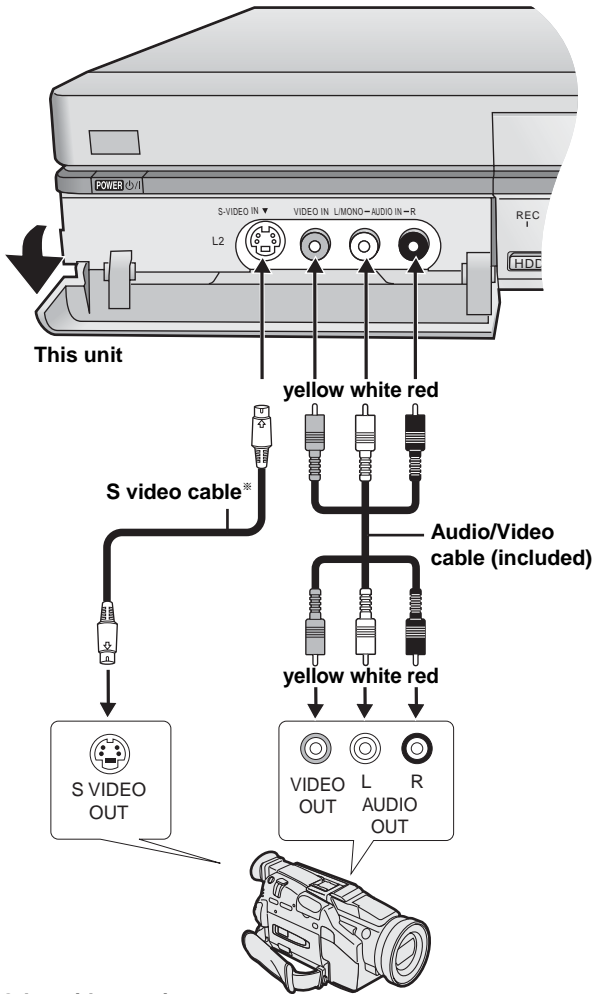
Analog recording

You can record to a cassette deck or other recording equipment (→ Connection [B] above).

There are no limitations on recording analog signals as there are with digital signals.

Connecting other video equipment

Connecting to the L2 input terminals on the front of the unit



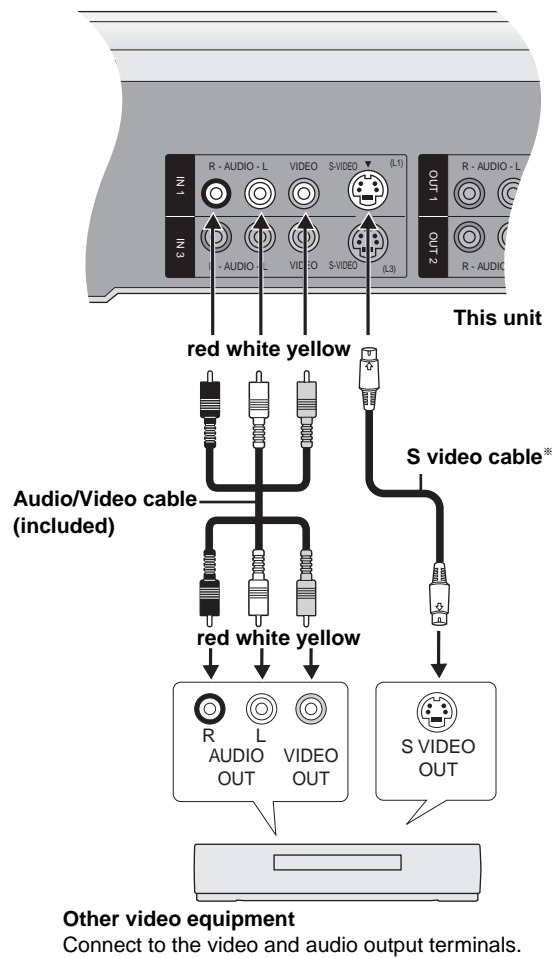
Other video equipment

Connect to the video and audio output terminals.

* By using the S video cable instead of the yellow video cable you may make recordings of higher picture quality.

- If the audio output of the other equipment is monaural, connect to L/MONO. (Both left and right channels are recorded when connected through L/MONO.)
- When DV equipment is connected, it is not possible to operate the unit from the other equipment.
- The picture compression system of the DV equipment you have connected may differ from that used in this unit. In such cases, dubbing from this equipment will not be possible.

Connecting to the input terminals on the rear of the unit, L1 and L3



Other video equipment

Connect to the video and audio output terminals.

* By using the S video cable instead of the yellow video cable you may make recordings of higher picture quality.

[Note]

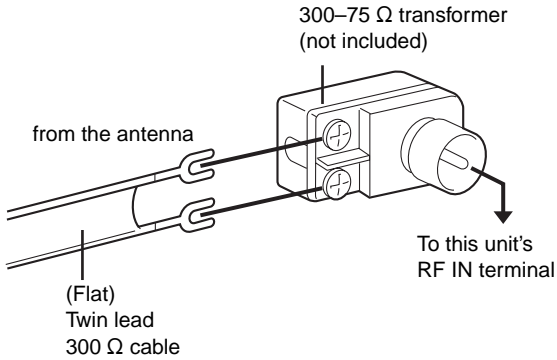
If audio output on the other equipment is monaural, use a stereo-monaural conversion cable (not included).

Other antenna connections

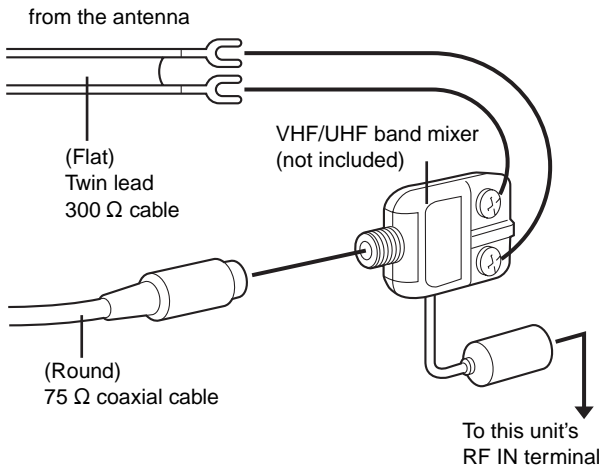
Other antenna connection to the unit

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

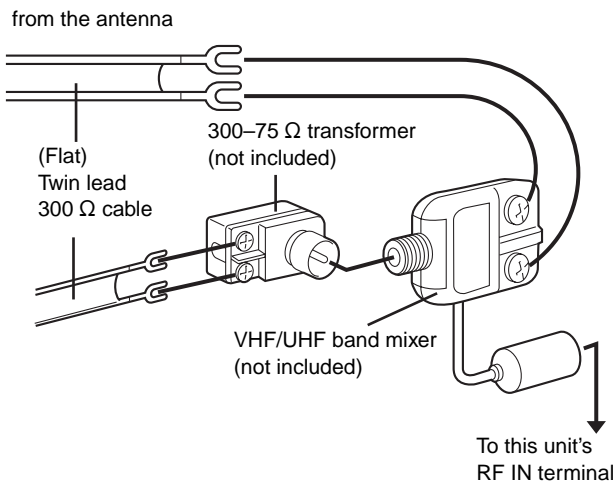
■ A single twin lead



■ A twin lead and a coaxial cable



■ Two twin leads

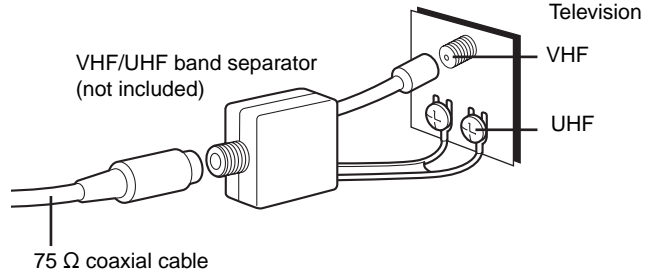


- If your television has both lead and coaxial VHF terminals, use the lead connection to minimize signal loss.

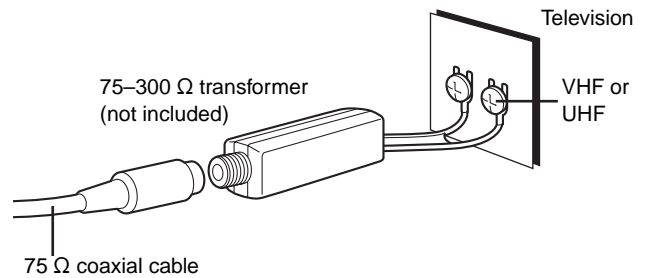
Other antenna connection from the unit to the television

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

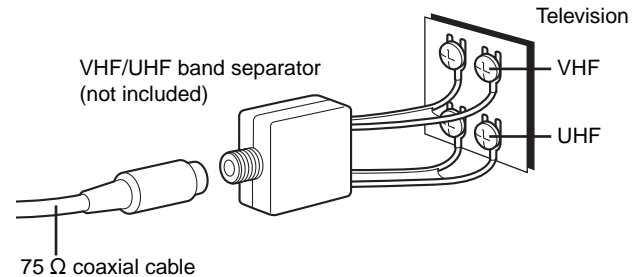
■ A twin lead and coaxial plug terminal



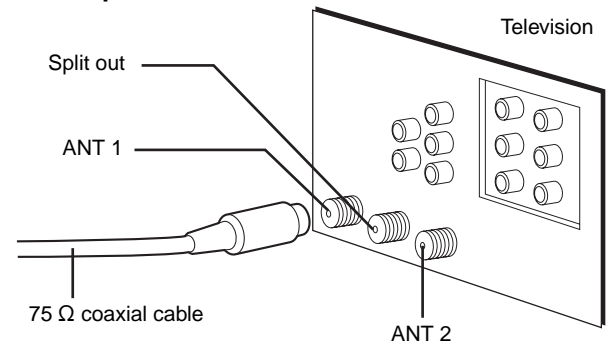
■ A twin lead terminal



■ Two twin lead terminals



■ Multiple antenna terminals



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

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 the copyright protection technology that is used to protect broadcasts that are allowed to be recorded only once (e.g. some CATV broadcasts).

Decoder

A decoder restores the coded audio signals on DVDs to normal. This is called decoding.

Dolby Digital

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

This unit is set to record using Dolby Digital in all recording modes.

Dolby Pro Logic

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

Drive

In the instance of this unit, this refers to the hard disk (HDD) and DVD. These perform the reading and writing of data. Select them by pressing the drive select buttons ([HDD] or [DVD]).

DTS (Digital Theater Systems)

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

Film and video

DVD-Videos are recorded using either film or video. Usually, film is recorded at 24 frames per second, the rate movies are filmed at, while video is recorded at 30 frames per second.

Frame still and field still

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

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

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

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

Hard disk drive (HDD)

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.

Interlace and progressive output

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. The video signals output from this unit's COMPONENT VIDEO OUT terminals (Y, P_B, P_R) allow you to enjoy higher quality pictures than if the signals were output from the VIDEO OUT terminal or S-VIDEO OUT terminal.

I/P/B

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

I: Intra coded picture

This picture has the best quality and is the best to use when adjusting the picture.

P: Predictive coded picture

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

B: Bidirectionally-predictive coded picture

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

Linear PCM (pulse code modulation)

These are uncompressed digital signals. This unit outputs linear PCM sound in 2 channels from the DIGITAL AUDIO OUT terminal. LPCM sound is available when recording in XP mode.

Playback control (PBC)

If a Video CD has playback control, you can select scenes and information with menus.

Pan&Scan/Letterbox

In general, DVD-Video are produced with the intention that they be viewed on a widescreen television with an aspect ratio of 16:9. This means you can view most material with the intended aspect ratio on a widescreen television.

Material with this ratio will not fit onto a standard television with an aspect ratio of 4:3. 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.

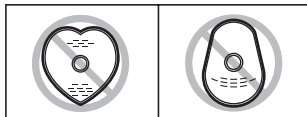


Letterbox: Black bands appear at the top and bottom of the picture so the picture itself appears in an aspect ratio of 16:9.



Disc handling

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



How to hold a disc

Do not touch the recorded surface.



If there is dirt or condensation on the disc

Moisture may condense on discs after they are brought inside from the cold.

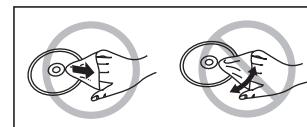
DVD-RAM and DVD-R

Clean with an optional DVD-RAM/PD disc cleaner (LF-K200DCA1, where available).

Do not use cleaners or cloths for CDs to clean DVD-RAM and DVD-R.

DVD-Audio, DVD-Video, Video CD, CD

Wipe with a damp cloth and then wipe dry.

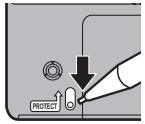


Handling precautions

- 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 attach labels or stickers to discs. (Do not use discs with exposed adhesive from tape or left over peeled-off stickers.)
- Do not use scratch-proof protectors or covers.
- Do not use discs printed with label printers available on the market.
- Do not use discs that are badly warped or cracked.

Error messages

On the television

		Page
No disc.	● You haven't inserted a disc. Correctly insert a disc that this unit can use.	10
	● The disc is upside down. If it is a single-sided disc, insert it so the label is facing up.	14
This is non-recordable disc.	● The unit cannot record on the disc you inserted. Insert a DVD-RAM or unfinalized DVD-R.	10
This disc is not formatted properly. Please format the disc in 'DISC SETTING' to record.	● You inserted an unformatted DVD-RAM. Format the disc with this unit.	36
This disc cannot be read.	● You inserted an incompatible disc.	10
Please check write protect tab on the disc.	<ul style="list-style-type: none"> ● The write-protect tab on the cartridge is set to PROTECT. Use a ballpoint pen or similar to release the write protection. 	—
Contents of this disc are protected.	● The program is write-protected. Cancel the protection.	34
	● The disc is write-protected. Cancel Disc Protection.	36
Cannot finish recording completely.	● The program was copy-guarded.	—
	● No space left on HDD or the disc. → Create space by erasing any unwanted programs. [HDD] [RAM]	34
	→ Use a new disc. [RAM] [DVD-R]	—
	● Recording was not completed for some other reason.	—
Cannot record on the disc.	● The disc is scratched. Use another disc.	—
	● The disc is dirty.	54
	● You inserted an incompatible disc.	10
HDD is full. Disc is full.	<ul style="list-style-type: none"> ● No space left on HDD or the disc. → Create space by erasing any unwanted programs. [HDD] [RAM] → Use a new disc. [RAM] [DVD-R] 	34
Cannot dub from this disc.	● Dubbing prohibited disc in tray. → Dubbing to the HDD is not possible.	—
Please set clock.	● The clock is not set.	47
This disc may not be played in your region.	● You tried to play a disc with a region number different from this unit's region number. This unit can only play discs with the region numbers compatible with this unit (1, All, or including the number 1).	Cover page
Your selection exceeds the recorder's rating limit.	● A ratings level has been set for DVD-Video with this unit. Unlock the unit with "Ratings" in "Disc".	44
Finalizing is necessary for compatible playback.	● To enable playback of your DVD-R on compatible equipment, it is necessary to finalize it.	36
Please check write protect tab.	● Release the protection on the DVD-RAM.	10
Error has occurred. Please press ENTER.	● A serious, but temporary error has occurred and one of the unit's safety devices has activated. Press [ENTER]. The unit switches to the standby mode. Press [⏻, DVD POWER] to turn the unit on again.	—

On the unit's display

NO READ	● The disc is dirty or badly scratched. → Clean the disc if it is dirty.	54
	→ The disc cannot be played if it is scratched and this display doesn't disappear.	—
	● The unit cannot read the disc.	—
	● You have used a DVD-RAM/PD lens cleaner and it has finished.	58
UNSUPPORT	● You have inserted a disc the unit cannot play or record on.	10
U14	● The unit is hot. → The unit switches to standby automatically for safety reasons and you cannot operate it. Wait for about 30 minutes for the service number to disappear.	—
	→ Select a position with good ventilation when installing the unit.	—
	→ Do not block the cooling fan on the rear of the unit.	—
	● The unit fails to operate properly. Press [⏻, DVD POWER] to switch the unit to standby. Now press [⏻, DVD POWER] again to turn the unit on.	—
<input type="checkbox"/> CHK REMOTE ("□" stands for a number.)	● The remote control and main unit are using different codes. Change the code on the remote control or main unit.	46
RECOVER	● There was a power failure or the AC plug was disconnected while the power was on. The unit is carrying out its recovery process. Wait until the message disappears.	—

Troubleshooting guide

Before requesting service, make the below 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:

In the U.S.A., contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumerproducts@panasonic.com, or the website (<http://www.panasonic.com>).

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.

Power

Page

No power.	<ul style="list-style-type: none"> ● Insert the AC power supply cord securely into a known active AC outlet. 	5
The unit switches to the standby mode.	<ul style="list-style-type: none"> ● This is a power saving feature. You can turn it off if you would prefer (Set Up—Off Timer—Off). Press [⏻, DVD POWER] to turn the unit on. ● One of the unit's safety devices may have activated. Press [⏻, DVD POWER] to turn the unit on. 	44 —

Operation

The unit is on but cannot be operated.	<ul style="list-style-type: none"> ● Some operations may be prohibited by the disc. ● Recording drive or playback drive have not been selected properly. ● The unit is hot ("U14" appears on the display). Wait for "U14" to disappear. ● One of the unit's safety devices may have activated. <p>Reset the unit as follows:</p> <ol style="list-style-type: none"> 1. Press [⏻, DVD POWER] to switch the unit to standby. If the unit doesn't switch to standby, press and hold [⏻, DVD POWER] for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC power supply cord, wait one minute, then reconnect it. 2. Press [⏻, DVD POWER] to turn the unit on. 	— 14, 18 55 —
Cannot eject disc.	<ul style="list-style-type: none"> ● The unit may have a problem. With the power off, press and hold [■] and [v, CH] at the same time on the main unit for about 5 seconds. Remove the disc and consult the dealer. 	—

Picture

● When progressive output is on, refer also to "Progressive video" below.

The images from this unit do not appear on the television.	<ul style="list-style-type: none"> ● Make sure that the television is connected to the AUDIO/VIDEO terminal, S-VIDEO OUT terminal or COMPONENT VIDEO OUT terminal on this unit. ● Make sure that the television's input setting (e.g., VIDEO 1) is correct. ● When using this unit for the first time, the HDD has nothing recorded on it. You must record a program etc. to the HDD before you can enjoy playback. ● You have set "TV Type" to "4:3 (480P)" or "16:9 (480P)" in the TV Screen menus, but the television isn't compatible with progressive signals. Press and hold [■] and [TIME SLIP] on the unit at the same time for about 5 seconds. The setting will change to interlace. 	5 — 14 —
Television reception worsens after connecting the unit.	<ul style="list-style-type: none"> ● This can occur because the signals are being divided between the unit and the television. It can be solved by using a signal booster, available from audio-visual suppliers. Consult your dealer if reception does not improve. ● Due to inherent characteristics of the HDD, the picture may occasionally be disturbed. This is normal. 	— —
Screen size is wrong.	<ul style="list-style-type: none"> ● Check the settings on your television. ● Check the settings for "TV Type", "4:3 TV Settings for DVD-Video" or "4:3 TV Settings for DVD-RAM" in the TV Screen menu. 	— 9, 45
On-screen messages do not appear.	<ul style="list-style-type: none"> ● Go to the Display menu and select "Automatic" for "Status Messages". ● Press [STATUS] to show the on-screen messages constantly. 	45 43
The blue background does not appear.	<ul style="list-style-type: none"> ● Go to the Display menu and select "On" for "Blue Background". 	45
There is ghosting.	<ul style="list-style-type: none"> ● Change the settings for "3D NR", "Block NR", and "Mosquito NR" to "0" or turn "MPEG-DNR" off if it is on. 	41, 42
Play stops for a moment during Quick View.	<ul style="list-style-type: none"> ● Play may stop where two play lists join, but this is not a malfunction. 	—

Progressive video

There is ghosting when progressive output is on.	<ul style="list-style-type: none"> ● Set "Progressive" 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. 	41
There is no apparent change in picture quality when adjusted with the Video menu in the on-screen menus.	<ul style="list-style-type: none"> ● The effect is less perceivable with some types of video. 	—

Sound

Page

No sound. Low volume. Distorted sound.	<ul style="list-style-type: none"> • Check the connections. Check the input mode on the amplifier if you have connected one. • Turn V.S.S. off if it causes distortion. 	5, 50–52 41
Cannot hear the desired audio type.	<ul style="list-style-type: none"> • Press [AUDIO] to select the desired audio type. • If “D.MIX” does not appear in the display when playing multi-channel DVD-Audio, audio output will be the front two speakers only. • You cannot change the DVD-Audio audio type if the software producer has restricted play in stereo. 	39 13 —
Cannot switch audio during stereo or SAP broadcasts.	<ul style="list-style-type: none"> • You have used digital connection. Set “Dolby Digital” to “PCM” or connect to other equipment using audio cables (analog connection). • You cannot change the audio type when a DVD-R is in the disc tray. • It is not possible to switch the audio when the recording mode is XP and “LPCM” has been selected in the SETUP menu, “Audio Mode for XP Recording”. → Select “Main” or “SAP” from “Select MTS” in the Audio menu before recording. 	45, 51 — 45

Play

Play fails to start even when [▶] (PLAY) is pressed. Play starts but then stops immediately.	<ul style="list-style-type: none"> • Insert the disc correctly with the label facing up. • This unit cannot play discs other than DVD-RAM, DVD-R, DVD-Audio, DVD-Video, Video CD, CD and MP3 discs. • The disc is dirty. Clean it. • The disc may be badly scratched. • You inserted a blank DVD-RAM or DVD-R. 	14 10 54 — —
A title or chapter doesn't play when it is selected.	<ul style="list-style-type: none"> • Some titles and chapters on DVD-Video are not played when you have changed the ratings level. 	44
Picture distorted during search.	<ul style="list-style-type: none"> • Some distortion is normal. 	—
Alternative soundtrack and subtitles cannot be selected.	<ul style="list-style-type: none"> • The languages are not recorded on the disc. • You may have to use the disc's menus to select languages. 	— 19
No subtitles.	<ul style="list-style-type: none"> • Subtitles are not recorded on the disc. • Turn the subtitles on. 	— 40
Angle cannot be changed.	<ul style="list-style-type: none"> • This function depends on software availability. Angles can only be changed during scenes where different angles are recorded. 	—
You have forgotten your ratings password.	<ul style="list-style-type: none"> • Return the ratings setting to “8”. While the disc tray is open, press and hold [◀◀/▶▶] and [▶▶/▶▶] on the main unit at the same time for 5 or more seconds. 	—

Displays

The display is dim.	<ul style="list-style-type: none"> • Go to the Display menu and change the display's brightness with “FL Display”. 	45
“12:00” is flashing on the unit's display.	<ul style="list-style-type: none"> • The clock is not set. 	47
The displayed recording time and actual recording time differ.	<ul style="list-style-type: none"> • Displayed recording time is based on the number of frames per second. This number is subject to minute variations. When recording over long periods, these variations may result in the difference between displayed recording time and actual recording time. This is normal. 	—
The display doesn't show the correct time. [MP3]	<ul style="list-style-type: none"> • Times may not appear correctly when searching through tracks recorded with a variable bit rate. 	—

Remote control

The remote control doesn't work.	<ul style="list-style-type: none"> • [DVD, TV] is not switched to “DVD”. Switch to “DVD” when operating this unit. • The remote control and main unit are using different codes. Change the code on the remote control or main unit. • The batteries are depleted. Replace them with new ones. • Point the remote control at the remote control sensor on the main unit. • Remove obstacles from between the remote control and main unit. 	12 46 6 6 —
Cannot operate the television.	<ul style="list-style-type: none"> • Change manufacturer code. Some televisions cannot be operated even if you change the code. • [DVD, TV] is not switched to “TV”. Switch to “TV” when selecting the receiving channel for the television. 	9 12

Troubleshooting guide

Recording and timer recording

Page

Cannot record.	• You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto.	10
	• The disc is unformatted. Format the disc so this unit can record on it. [RAM]	36
	• The write-protect tab on the cartridge is set to PROTECT.	10
	• Some programs have limitations on the number of times they can be recorded (CPRM).	15
	• The disc is protected with DISC SETTING.	36
	• The HDD or the disc is full or nearly full. Erase unneeded programs or use another disc.	34
VCR Plus+ programming does not work properly.	• You cannot record on finalized DVD-R discs.	—
	• The guide channels are incorrect. Go to the Channel menu and correct them with "VCR Plus+ CH Setting".	8
Timer recording does not work properly.	• The clock is wrong. Go to the Set Up menu and correct it with "Clock Settings".	47
	• The timer program is incorrect. Correct the program.	27
The unit switches to standby while making a timer recording.	• Different timer program times overlap.	—
	• The clock is wrong. Go to the Set Up menu and correct it with "Clock Settings".	47
The timer program remains even after recording finishes.	• The disc has run out of space. Use a disc that has enough space to record the program.	—
Timer recording does not stop even when [■] is pressed.	• The program remains if you select "DAILY" or "WEEKLY".	25
The available recording time doesn't increase even after erasing recordings on the disc.	• Press [■] and then [ENTER] within 5 seconds to turn "Ⓢ" off. Recording stops.	—
	• As this unit is unable to erase data written to DVD-RAM with a computer, the available recording time does not increase. The data will be erased if you reformat the disc.	36
	• If the disc is dirty, wipe with the DVD-RAM/PD disc cleaner (optional) before formatting.	54
A part or whole of a recorded program has been lost.	• Available recording space on the DVD-R does not increase even after erasing previously recorded programming.	—
	• If there is a power failure or the plug is disconnected from the household AC outlet while recording or editing, the program may be lost or the HDD/disc may become unusable. → We cannot offer any guarantee regarding lost programs or discs. You will have to format the HDD/disc or use a new disc.	—
Cannot dub to a DVD-R disc using the high speed mode.	• When recording to the HDD, set "DVD-R compatible Rec" to "On" from the Disc menu. Note that you cannot dub programs to a DVD-R disc using the high speed mode if you recorded the program on a DVD recorder that does not have the "DVD-R compatible Rec" function, even when dubbing to the HDD with this setting "On".	44

Discs make sounds as they rotate. This does not indicate a malfunction.

Maintenance

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)** about once every year, depending on frequency of use and the operating environment. Read the lens cleaner's instructions carefully before use.

Specifications

Recording system:	DVD video recording standards (DVD-RAM), DVD video standards (DVD-R)
Optical pick-up:	System with 1 lens, 2 integration units (662 nm wavelength for DVDs, 790 nm wavelength for CDs)
Recordable discs:	12 cm (5") 4.7 GB DVD-RAM discs 12 cm (5") 9.4 GB DVD-RAM discs 8 cm (3") 2.8 GB DVD-RAM discs 12 cm (5") 4.7 GB DVD-R discs 8 cm (3") 1.4 GB DVD-R discs (for General Ver. 2.0)
Recording time:	●Max. 6 hours (using 4.7 GB disc) XP: 60 minutes SP: 120 minutes LP: 240 minutes EP: 360 minutes ●Max. 106 hours (using built-in HDD) XP: 17 hours SP: 34 hours LP: 68 hours EP: 106 hours (Continuous Recording time is 6 hours max.)
Discs played:	12 cm (5") 4.7 GB DVD-RAM discs 12 cm (5") 9.4 GB DVD-RAM discs 8 cm (3") 2.8 GB DVD-RAM discs 12 cm (5") 4.7 GB DVD-R discs 8 cm (3") 1.4 GB DVD-R discs (for General Ver. 2.0) DVD-VIDEO discs CD-Audio discs (CD-DA) Video CD discs DVD-AUDIO discs CD-R/CD-RW discs (CD-DA, Video CD, MP3 formatted discs)
Video system	
TV system:	NTSC system, 525 lines, 60 fields
Recording system:	MPEG2 (Hybrid VBR)
Input:	LINE (pin jack)×3, 1.0 Vp-p; 75 Ω S connector×3 Y: 1.0 Vp-p; 75 Ω 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; 75 Ω C: 0.286 Vp-p; 75 Ω
Component video output (480P/480i):	Y: 1.0 Vp-p; 75 Ω P _B : 0.7 Vp-p; 75 Ω P _R : 0.7 Vp-p; 75 Ω
Antenna reception input:	TV Channel: 2ch–69ch, 75 Ω CATV Channel: 1ch–125ch, 75 Ω

Audio system	
Recording system:	Dolby Digital (XP/SP/LP/EP) LINEAR PCM (XP mode only)
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 Reference output: 309 mVrms FS: 2 Vrms (1 kHz, 0 dB) Output impedance: 1 kΩ (Load impedance: 10 kΩ)
Number of channels:	Recording: 2 channels Playback: 2 channels
Other input/output connectors:	Digital audio optical output connector (PCM, Dolby Digital, DTS)
Operating temperature range:	5 °C–40 °C (41 °F–104 °F)
Operating humidity range:	10 %–80 % RH (no condensation)
Clock unit:	Quartz-controlled 12-hour digital display

LASER Specification

Class I LASER Product

Wave Length:	775–815 nm 655–666 nm
Laser Power:	No hazardous radiation is emitted with the safety protection

Power supply:	AC 120 V, 60 Hz
Power consumption:	35 W
Dimensions:	Approx. 430 (W)×79 (H)×300 (D) mm [Approx. 16 ¹⁵ / ₁₆ "(W)×3 ¹ / ₈ "(H)×11 ¹³ / ₁₆ "(D)] (excluding protrusions)
Mass:	Approx. 4.5 kg (9.92 lbs)

Power consumption in standby mode: approx. 3.3 W

[Note]

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

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., contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumerproducts@panasonic.com, or the website (<http://www.panasonic.com>).
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.

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

**Panasonic Consumer Electronics Company,
Division of Matsushita Electric Corporation of America**
One Panasonic Way Secaucus, New Jersey 07094

**Panasonic Sales Company, Division of Matsushita Electric
of 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 Sales Company (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 Sales Company (787)-750-4300 or fax (787)-768-2910.

Limited Warranty Limits And Exclusions

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

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

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the warrantor's Consumer Affairs Department at the addresses listed for the warrantor.

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

Customer Services Directory

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and Customer Service inquiries please visit Web Site:

<http://www.panasonic.com>

You can purchase parts, accessories, locate your nearest servicenter and more by visiting our Web Site

or E-mail us via web:

http://www.panasonic.com/consumer_electronics/support/customerfeedback.asp

Contact:

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

1-800-332-5368 (Customer Orders Only)

1-800-237-9080 (Fax Only)

(Monday-Friday 9 am to 8 pm, EST.) Panasonic Services Company

20421 84th Avenue South, Kent, WA 98032

(Accepts Visa, MasterCard, Discover Card, American Express, and Personal Check)

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

Service in Puerto Rico

Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/Factory Servicenter:
Ave. 65 de Infantería, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985

Phone (787) 750-4300 Fax (787) 768-2910

F0602NY

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-E80H _____

SERIAL NUMBER _____

User memo:

DATE OF PURCHASE _____
DEALER NAME _____
DEALER ADDRESS _____

TELEPHONE NUMBER _____

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, EXCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR 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

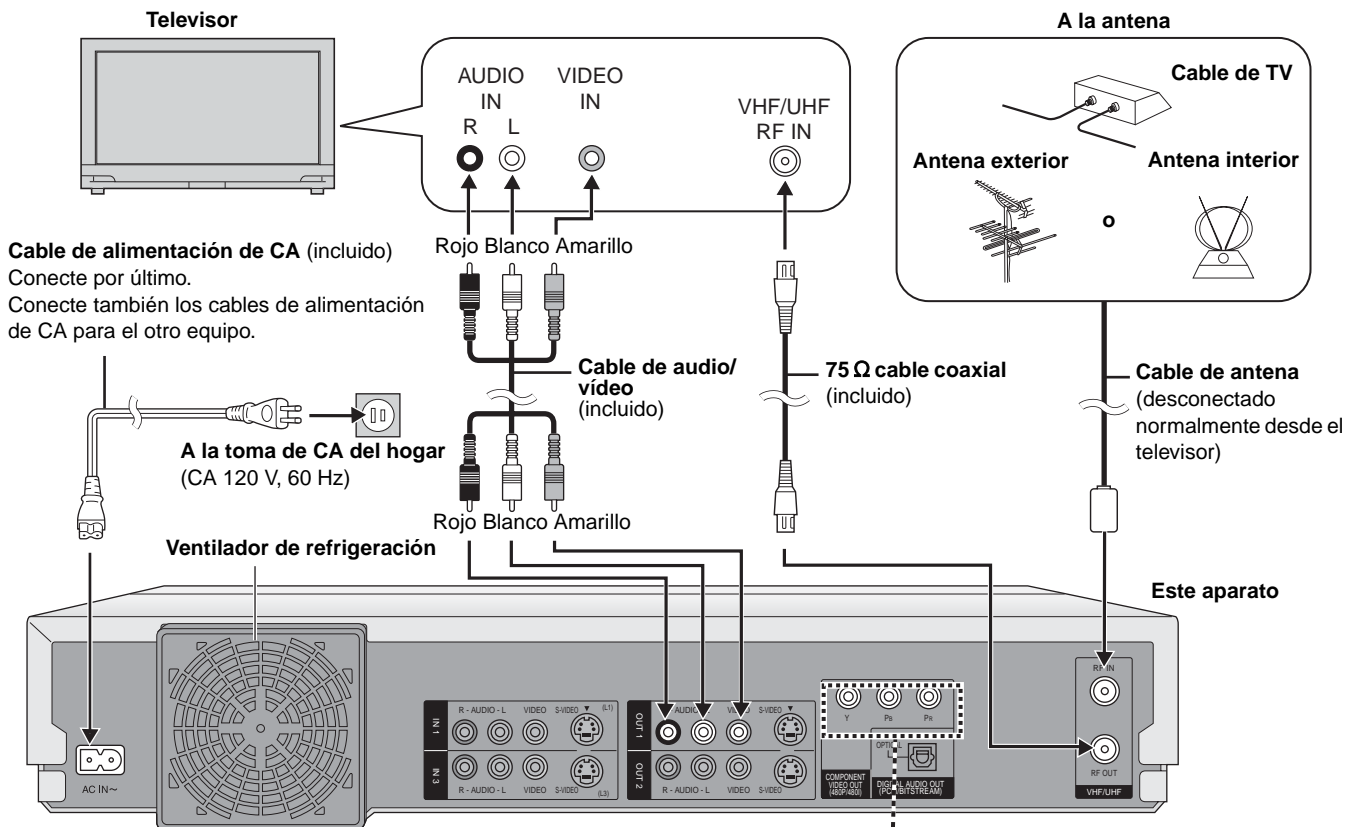
Lachine, Québec

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.

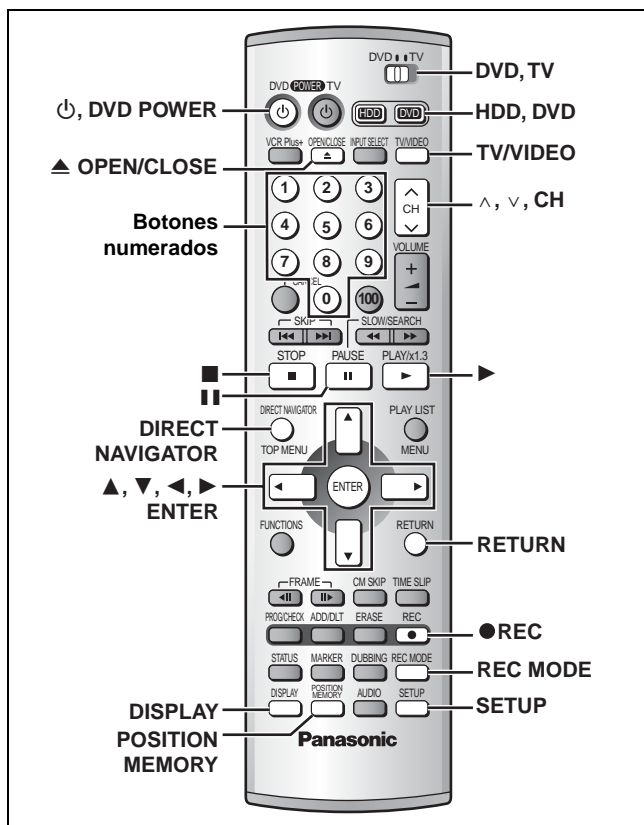
Conexiones del televisor y de la antena



Para disfrutar del vídeo progresivo

- Conecte a los terminales de entrada de vídeo componente (480P) en un televisor compatible con el sistema de protección contra copia del aparato. (El vídeo no se visualizará correctamente si está conectado a un televisor incompatible).
- Ajuste "Tipo TV" a "4:3 y 480P" o "16:9 y 480P". (→abajo, "Configuración según su televisor")

Español



Preparación

- Confirme que la antena esté conectada correctamente.
- Encienda el televisor y seleccione la entrada de vídeo apropiada según las conexiones hechas al aparato.

Sintonización automática al enchufar

- 1 Pulse [⏻, DVD POWER] para encender el aparato.
- 2 Pulse [▲, ▼] para seleccionar "Español" y pulse [ENTER].
- 3 Pulse [ENTER].

La sintonización automática al enchufar empieza y el aparato transforma las emisoras que puede recibir en canales.

El aparato pasa luego a la configuración automática del reloj. Cuando termina se visualiza la hora.

Cuando la visualización muestra la hora correcta

- 4 Pulse [ENTER] para completar la sintonización automática al enchufar.

Configuración según su televisor

Cambie la configuración si su televisor es:

- Progresiva (Lea las instrucciones de funcionamiento de su televisor para conocer detalles.)
- Pantalla panorámica (relación de aspecto 16:9)

- 1 Pulse [SETUP] para mostrar los menús.
- 2 Pulse [▲, ▼] para seleccionar "Pantalla TV" y pulse [▶].
- 3 Pulse [▲, ▼] para seleccionar "Tipo TV" y pulse [ENTER].
- 4 Pulse [▲, ▼] para seleccionar el elemento y pulse [ENTER].

Para volver a la pantalla anterior

Pulse [RETURN].

Cuando termine

Pulse [SETUP].

■ Si selecciona el elemento para salida progresiva (480P)

Seleccione Vídeo en el menú en pantalla y ajuste "Transferencia" de acuerdo con el tipo de material en reproducción durante la reproducción.

Durante la reproducción

1. Pulse [DISPLAY].
2. Pulse [▲, ▼] para seleccionar "Vídeo" y pulse [▶].
3. Pulse [▲, ▼] para seleccionar "Progresiva" y pulse [▶] dos veces.
4. Pulse [▲, ▼] para seleccionar "Transferencia" de acuerdo con el tipo de material en reproducción.

Disco	Imagen	Normal
Repr.	DNR	ACT
Vídeo	Progresiva	ACT
Audio	Transferencia	Auto 1

Auto1 (normal): Para material cinematográfico

Auto2: Para material cinematográfico (igual que Auto1, capaz de convertir vídeo progresivo de 30 cuadros por segundo).

Vídeo: Para material de vídeo

Grabación de programas de televisión

[HDD] [RAM] [DVD-R]

1 Pulse [⏻, DVD POWER] para encender el aparato.

2 Pulse [HDD] o [DVD] para seleccionar la unidad de grabación.

El botón HDD o DVD se enciende en la unidad.

- No es posible grabar simultáneamente en la unidad HDD (unidad de disco duro) y en la unidad DVD.

3 Si seleccionó la unidad DVD

Pulse [▲ OPEN/CLOSE] para abrir la bandeja e introduzca un disco.

- Vuelva a pulsar el botón para cerrar la bandeja.
- En un disco de doble cara, no es posible grabar de manera continua desde una cara a la otra. Será necesario expulsar el disco y darle la vuelta.

4 Asegúrese de que [DVD, TV] se encuentre en la posición "DVD" y pulse [▲, ▼, CH] para seleccionar el canal.

5 Pulse [REC MODE] para seleccionar el modo de grabación.

- Seleccione "XP", "SP", "LP" o "EP".

6 Pulse [●, REC] para iniciar la grabación.

La luz de grabación de las unidades HDD y DVD se enciende en la unidad principal.

Para detener la grabación

Pulse [■].

Para hacer una pausa en la grabación

Pulse [⏸]. Pulse de nuevo para continuar grabando. (El programa no se divide en un programa separado.)

■ Visualización del televisor durante la grabación

[HDD] [RAM] [DVD-R]

Las imágenes siendo grabadas no se ven afectadas.

Interruptor [DVD, TV] a "TV".

1 Pulse [TV/VIDEO] para cambiar el modo de entrada del televisor a "TV".

2 Pulse [▲, ▼, CH] para cambiar canales.

■ Reproducción desde el inicio del programa que está grabando—Reproducción encadenada [HDD] [RAM]

Pulse [▶] (PLAY).

La reproducción se inicia desde el principio del programa que se está grabando. (Se enciende el indicador Time Slip).

■ Grabación y reproducción simultáneas [HDD] [RAM]

Puede reproducir un programa grabado previamente durante la grabación.

1 Pulse [DIRECT NAVIGATOR].

Se enciende el indicador Time Slip.

2 Pulse [▲, ▼] para seleccionar un programa y pulse [ENTER].

Para detener la reproducción y la grabación

① Pulse [■]. (La reproducción se detiene).

Espere 2 segundos.

② Pulse [■]. (La grabación se detiene).

- Para detener la grabación con temporizador, pulse [■], después [ENTER] en un transcurso de 5 segundos.

Reproducción de discos

[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

1 Pulse [⏻, DVD POWER] para encender el aparato.

2 Pulse [HDD] o [DVD] para seleccionar la unidad de reproducción.

El botón HDD o DVD se enciende en la unidad.

- No es posible reproducir simultáneamente en la unidad HDD (unidad de disco duro) y en la unidad DVD.

3 Si seleccionó la unidad DVD

Pulse [▲ OPEN/CLOSE] para abrir la bandeja e introducir un disco.

- Vuelva a pulsar el botón para cerrar la bandeja.
- En un disco de doble cara, no es posible reproducir de manera continua desde una cara a la otra. Será necesario expulsar el disco y darle la vuelta.

4 Pulse [▶] (PLAY).

(Cuando aparece una pantalla de menús en el televisor → abajo)

Para detener la reproducción

Pulse [■].

- Cuando "PLAY" parpadea en la visualización, se está activando la función de reanudación. Pulse [▶] (PLAY) para iniciar la reproducción desde la posición en que la detuvo.

Para cancelar la función, pulse [■] hasta que se apague "PLAY" (también se cancela la posición al apagar el aparato o abrir la bandeja del disco).

Para hacer una pausa en la reproducción

Pulse [⏸]. (Vuelva a pulsar para reanudar la reproducción).

■ Cuando aparece una pantalla de menús en el televisor [VCD]

Interruptor [DVD, TV] a "DVD" y

Pulse los botones numerados (0, 1–9) para seleccionar un elemento.

por ejemplo., "5": [0] → [5] "15": [1] → [5]

[DVD-A] [DVD-V]

Pulse [▲, ▼, ◀, ▶] para seleccionar un elemento y pulse [ENTER].

- Puede que también sea posible utilizar los botones numerados (0, 1–9) para seleccionar un elemento.

■ Memoria de posición

[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

Después de apagar el aparato, puede iniciar la reproducción desde una posición memorizada.

(Cuando se muestra el tiempo de reproducción transcurrido)

Durante la reproducción

1 Pulse [POSITION MEMORY].

El mensaje "Posición Memorizada" aparece en el televisor.

2 Después de pasar el aparato a la posición de modo en espera y de volver a ponerlo en funcionamiento

Pulse [▶] (PLAY).

La reproducción se inicia desde la posición memorizada. (La posición se cancela).

[Nota]

[DVD-R] [DVD-A] [DVD-V] [VCD] [CD] [MP3]

- La posición se cancela al abrir la bandeja del disco.

[RAM]

- Las posiciones siguen estando memorizadas incluso tras haber abierto la bandeja del disco.

- Si el disco está protegido contra escritura, no se pueden marcar posiciones.

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Language code list Input the code with numbered buttons.



Abkhazian: 6566	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Telugu: 8469
Afar: 6565	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Thai: 8472
Afrikaans: 6570	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoan: 8377	Tibetan: 6679
Albanian: 8381	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tigrinya: 8473
Ameharic: 6577	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tonga: 8479
Arabic: 6582	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Turkish: 8482
Armenian: 7289	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkmen: 8475
Assamese: 6583	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Twi: 8487
Aymara: 6588	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Ukrainian: 8575
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Basque: 6985	Finnish: 7073	Kannada: 7578	Nepali: 7869	Slovenian: 8376	Vietnamese: 8673
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Breton: 6682	Georgian: 7565	Korean: 7579	Persian: 7065	Swahili: 8387	Xhosa: 8872
Bulgarian: 6671	German: 6869	Kurdish: 7585	Polish: 8076	Swedish: 8386	Yiddish: 7473
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U.S. patent Nos. 4,631,603, 4,577,216, 4,819,098, and 4,907,093.

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

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 New Jersey 07094
<http://www.panasonic.com>

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 San Gabriel Industrial Park, Carolina,
 Puerto Rico 00985

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