

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 the instructions completely.

Please keep this manual for future reference.

Region number supported by this unit

Region numbers are allocated to DVD players and DVD-Video 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:



If you have any questions contact

In the U.S.A: 1-800-211-PANA(7262)

In Canada: 1-800-561-5505

For U.S.A. only

The warranty can be found on page 69.

For Canada only

The warranty can be found on page 70.

La guía rápida en español se encuentra en la página 71-78.

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!

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.



CAUTION
 RISK OF ELECTRIC SHOCK
 DO NOT OPEN



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



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



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

-If you see this symbol-

Information on Disposal in other Countries outside the European Union



This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

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

Note to CATV system installer:

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

The socket outlet shall be installed near the equipment and easily accessible. The mains plug of the power supply cord shall remain readily operable. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from AC receptacle.

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

FCC Note:

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

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

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

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

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

Responsible Party:
 Panasonic Corporation of North America
 One Panasonic Way
 Secaucus, NJ, 07094
 Telephone No.: 1-800-211-7262

DANGER	VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. FDA 21 CFR/Class IIIb
注意	— 打开时有可见及不可见激光辐射。避免光束照射。
注意	— ここを開くと可視及び不可視レーザー光が出ます。ヒームを昇たり、触れたりしないでください。
CAUTION	— CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. (IEC60825-1+A2/Class 3B)
ATTENTION	— RAYONNEMENT LASER VISIBLE ET INVISIBLE. CLASSE 3B. EN CAS D'OUVERTURE, ÉVITER UNE EXPOSITION AU FAISCEAU.
FORSIGTIG	— SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 3B. NÅR LÅGET ER ÅBENT, UNDGÅ AT BLIVE UDSAT FOR STRÅLEN.
VARO	— AVATTAESSA OLET ALTTIINA LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖNTÄ LASERSATELYÄ, VARO ALTISTUMISTA SATEELLE.
VARNING	— KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNNGÅ EXPONERING FÖR STRÅLEN.
VORSICHT	— SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG KLASSE 3B, WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.
CAUTION	— VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE 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 LASERSATELYLLE, ÄLÄ KATSO SATEESEEN.
VARNING	— SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD, BETRÄKTA EJ STRÅLEN.
VORSICHT	— SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG, WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.
ADVARSEL	— SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES, UNNGÅ EKSPONERING FOR STRÅLEN. (HCL950029)

(Inside of product)

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.



Unit care

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

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

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

Observe the following points to ensure continued listening and viewing pleasure.

Dust and dirt may adhere to the unit's lens over time, possibly making it impossible to record or play discs.

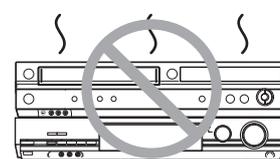
Use the **DVD lens cleaner** about once every year, depending on frequency of use and the operating environment.

Carefully read the lens cleaner's instructions before use.

Lens cleaner: RP-CL720PP

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

The heat can damage the unit.



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

■ Cautions as to condensation

Condensation can cause unreliable playback of VHS recordings.

Condensation may form in the following cases,

- The unit is brought from cold surroundings into a well-heated room.
- The unit is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.
- During the rainy season.

In any of the above-mentioned conditions, do not operate the unit for at least 2 hours. The unit is not equipped with a dew sensor.

■ Other precautions for installation

- The unit should not be installed or operated near large magnets or electromagnetic devices. Such devices can damage pre-recorded VHS recordings.
- Do not place any heavy objects atop the unit, and do not install it in a confined space. Please allow for adequate air circulation.
- The unit should not be mounted in a vertical position. It's designed to operate in the horizontal position.

■ When the unit is not to be used for a long time

To save power, unplug it from the household AC outlet. The unit consumes a small amount of power even when it is turned off.

Standby power consumption

		FL Display (→ 58)	
		Automatic	Bright
Quick Start (→ 56)	On	Approx. 7 W	Approx. 8 W
	Off	Approx. 3 W	Approx. 3.2 W

■ Quick Start (→ 56)

1 Sec. Quick Start for Recording on DVD-RAM*

* From the power off state, recording on DVD-RAM starts about 1 second after first pressing the [⏻, DVD/VHS POWER] and then sequentially pressing the [●, REC] (Quick Start Mode).

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About descriptions in these operating instructions

- Pages to be referred to are indicated as (→ ○○).

Accessories



Please check and identify the supplied accessories. Use numbers indicated in parentheses when asking for replacement parts. (Product numbers correct as of January 2006. These may be subject to change.)

Only for U.S.A.: To order accessories, refer to "Accessory Purchases" on page 69.

Only for Canada: To order accessories, call the dealer from whom you have made your purchase.

- 1 AC power supply cord**
(VFA0461)



- For use with the unit only. Do not use it with other equipment. Also, do not use cords belonging to other equipment with the unit.

- 1 75 Ω coaxial cable**
(K2KZ2BA00001)



- 1 Remote control**
(EUR7659Y70)



- 2 Batteries for the remote control**
R6 size



- 1 Audio/Video cable**
(K2KA6BA00003)



- 1 DVD-RAM**



(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/

Disc information

Discs you can use for recording and play

Disc type	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")	DVD-R DL* ¹ (dual layer on single side) ● 8.5 GB, 12 cm (5")	DVD-RW ● 4.7 GB, 12 cm (5") ● 1.4 GB, 8 cm (3")	+R* ² ● 4.7 GB, 12 cm (5")	+R DL* ¹ (double layer on single side) ● 8.5 GB, 12 cm (5")	+RW ● 4.7 GB, 12 cm (5")
Logo					—	—	—
Indicated in these instructions with	RAM	-R before finalization	-R DL before finalization	-RW(V) before finalization	+R before finalization	+R DL before finalization	+RW
		DVD-V after finalization	DVD-V after finalization	DVD-V after finalization	DVD-V after finalization	DVD-V after finalization	
Recording format (→ below)	VR	DVD-Video	DVD-Video	DVD-Video	+VR	+VR	+VR
Main use * ³	Re-writable discs	One time recording discs (recordable until the disc is full)	One time recording discs (recordable until the disc is full)	Re-writable discs	One time recording discs (recordable until the disc is full)	One time recording discs (recordable until the disc is full)	Re-writable discs
Compatibility							
Usable high speed recording disc * ⁴	Up to 5x	Up to 16x	Up to 4x	Up to 6x	Up to 16x	Up to 2.4x	Up to 4x * ⁵
Play on other player	Only on DVD-RAM compatible players. It is not necessary to finalize the disc. (→ 68)	Only after finalizing the disc. (→ 55, 68)	Only after finalizing the disc* ⁶ . (→ 55, 68)	Only after finalizing the disc. (→ 55, 68)	Only after finalizing the disc. (→ 55, 68)	Only after finalizing the disc. (→ 55, 68)	Yes. It is not necessary to finalize the disc. (→ 68)
What you can do on this unit (✓: Possible, ✗: Impossible)							
Chasing playback	✓	✗	✗	✗	✗	✗	✗
Recording broadcasts that allow one copy	✓ * ⁷	✗	✗	✗	✗	✗	✗
Recording both Main and SAP of MTS broadcast	✓	✗ (Only one is recorded. → 57, Multi-channel TV sound (MTS))	✗ (Only one is recorded. → 57, Multi-channel TV sound (MTS))	✗ (Only one is recorded. → 57, Multi-channel TV sound (MTS))	✗ (Only one is recorded. → 57, Multi-channel TV sound (MTS))	✗ (Only one is recorded. → 57, Multi-channel TV sound (MTS))	✗ (Only one is recorded. → 57, Multi-channel TV sound (MTS))
Recording 16:9 aspect picture	✓	✗ (The picture is recorded in 4:3 aspect.)	✗ (The picture is recorded in 4:3 aspect.)	✗ (The picture is recorded in 4:3 aspect.)	✗ (The picture is recorded in 4:3 aspect.)	✗ (The picture is recorded in 4:3 aspect.)	✗ (The picture is recorded in 4:3 aspect.)
Entering text	✓	✓	✓	✓	✓	✓	✓
Erasing titles	✓	✓ (Available space does not increase after deleting.)	✓ (Available space does not increase after deleting.)	✓ (Available disc space increases when the last recorded title is deleted.) * ⁸	✓ (Available space does not increase after deleting.)	✓ (Available space does not increase after deleting.)	✓ (Available disc space increases when the last recorded title is deleted.) * ⁸
Creating playlists	✓	✗	✗	✗	✗	✗	✗

*¹ You can record onto the second layer of dual- or double-layer discs after closing the first layer (→ 55). You will no longer be able to record to the first layer after you do this (→ 8).

When playing a title recorded on both layers, video and audio may momentarily cut out when the unit is switching layers.

*² You may not be able to use +R recorded on this unit in another Panasonic DVD recorder and vice versa. Once the disc is finalized, however, it can be played in the other unit.

*³ The amount of the recordable disc space doesn't increase even if the program is deleted when you use a one time recording disc.

*⁴ This unit can use the high-speed recording discs shown in the chart, but using them will not shorten the recording time.

*⁵ You can play 8x recording speed discs recorded on another equipment.

*⁶ Play on DVD-R DL compatible equipment.

*⁷ CPRM (→ 68) compatible discs only

*⁸ The recording space may increase slightly when other titles are deleted.

● The explanations concerning discs are indicated by **DVD**, and those concerning video are indicated by **VHS**.

● We recommend using Panasonic discs. We recommend using DVD-RAM discs with cartridges to protect them from scratches and dirt.

● You may not be able to record depending on the condition of the discs and you may not be able to play due to the condition of the recording.

● You cannot record programs that allow "One time only recording" to CPRM compatible DVD-R, DVD-R DL and DVD-RW on this unit. You can record other programs as DVD-Video format.

● For the recording time, refer to "Recording modes and approximate recording times (DVD)" on page 24.

■ DVD Video Recording format

This is a recording method which allows you to record and edit TV broadcasts and so on.

- Digital broadcasts that allow "One time only recording" can be recorded to a CPRM compatible disc. You can record to CPRM compatible DVD-RAM on this unit.
- Play is only possible on a compatible DVD player.

Use a DVD-RAM to record in DVD Video Recording format.

■ DVD-Video format

This recording method is the same as commercially available DVD-Video.

- Digital broadcasts that allow "One time only recording" cannot be recorded.

● These can be played on a DVD player. However programs recorded on this unit must be finalized to be played on other DVD players.

Use a DVD-R, DVD-R DL or DVD-RW to record in DVD-Video format.

Play-only discs

Disc type	DVD-Video	DVD-Audio	DVD-RW (DVD Video Recording format)	Audio CD		Video CD
Logo					—	
Indicated in these instructions with	DVD-V	DVD-A	-RW(VR)	CD		VCD
Instructions	High quality movie and music discs	High fidelity music discs ● Played on this unit in 2 channels	DVD-RW* recorded on another DVD recorder ● You can play programs that allow “One time only recording” if they have been recorded to a CPRM compatible disc. ● By formatting (→ 54) the disc, you can record to it in DVD-Video format. ● It may be necessary to finalize the disc on the equipment used for recording.	Recorded audio and music (including CD-R/RW*)	CD-R* and CD-RW* with music recorded in MP3 (→ 32) Still pictures (JPEG and TIFF) recorded on CD-R/RW*	Recorded music and video (including CD-R/RW*)

* Play may be impossible on some DVD-RW (DVD Video Recording format), CD-R or CD-RW discs due to the condition of the recording.

- You can play still pictures (JPEG/TIFF), CD-DA, Video CD and MP3 format data recorded on CD-R/RW. Close the session or finalize the disc after recording.
- The producer of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.

Note about using a DualDisc

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

Regarding DVD-Audio

Some multi-channel DVD-Audio will prevent down-mixing (→ 68) of all or part of their contents if this is the manufacturer's intention. Tracks that are prevented from being down-mixed will not play properly on this unit (e.g. audio is played from the front two channels only). Refer to the disc's jacket for more information.

Discs that cannot be played

- 2.6/5.2 GB DVD-RAM, 12 cm (5")
- 3.95/4.7 GB DVD-R for Authoring
- DVD-R recorded in DVD Video Recording format
- DVD-R (DVD-Video format), DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL recorded on another unit and not finalized (→ 55, “Enabling discs to be played on other equipment –Finalize”)
- PAL discs (you can still play the audio on DVD-Audio)
- DVD-Video with a region number other than “1” or “ALL”
- Blu-ray
- DVD-ROM, +R 8cm (3"), CD-ROM, CDV, CD-G, Photo CD, CVD, SVCD, SACD, MV-Disc, PD, DivX Video Disc, etc.

Concerning logo marks

	Dolby Digital (→ 57) This is a method of coding digital signals developed by Dolby Laboratories. Not only stereo (2 channel) audio, these signals can also be multi-channel audio. A large amount of audio information can be recorded on one disc by this method.
	DTS Digital Surround (→ 57) This surround system is used in many movie theaters around the world. The separation between channels is good and the compression ratio is low, so realistic sound effects are possible.

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

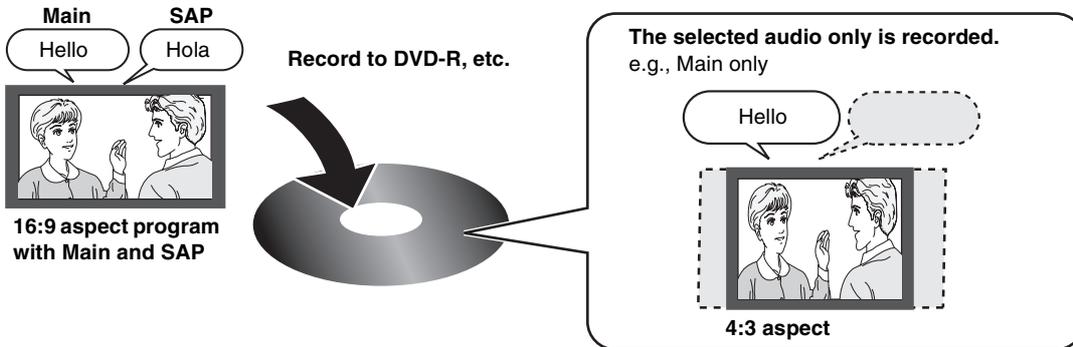
- A disc recorded and edited with this unit is played in a DVD Recorder or computer disc drive manufactured by another company.
- A disc used as described above and then played again in this unit.
- A disc recorded and edited with a DVD Recorder or computer disc drive manufactured by another company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

Using DVD-R, DVD-R DL, DVD-RW, +R, +R DL and +RW on this unit

Restrictions with DVD-R, etc.*

- 16:9 aspect programs are recorded in 4:3 aspect.
- Either Main or SAP can be recorded for MTS broadcasts.
- Playing the disc on other DVD players is not possible before finalizing.

* DVD-R, DVD-R DL, DVD-RW, +R, +R DL and +RW are collectively referred to as "DVD-R, etc." on this page.

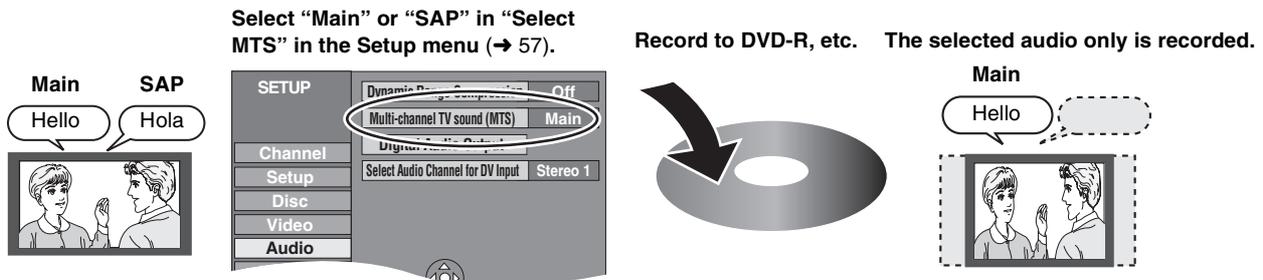


Therefore, follow the steps below when you use DVD-R, etc.

■ When recording an SAP program to DVD-R, etc.

Select the audio to record before recording or transferring (copying).

Some television programs are broadcast in SAP (Secondary Audio Program). You have to select the audio recording type before recording or transferring (copying) them to DVD-R, etc.

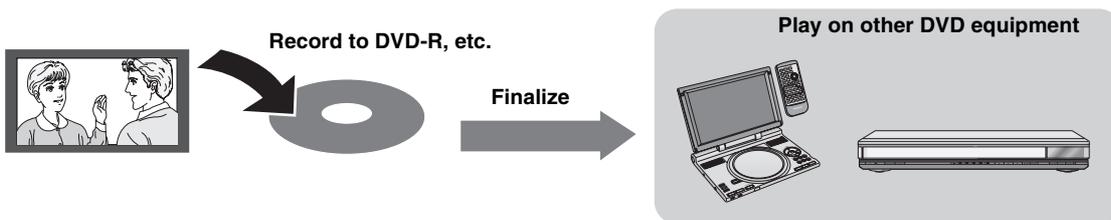


■ Playing the disc on other DVD players

The disc must be finalized after recording or transferring (Copying) (→ 55).

It is necessary to finalize DVD-R, etc. on this unit after recording or transferring (copying) titles to them. You can then play them as a commercially sold DVD-Video. However the discs become play-only and you can no longer record or transfer (copy).*

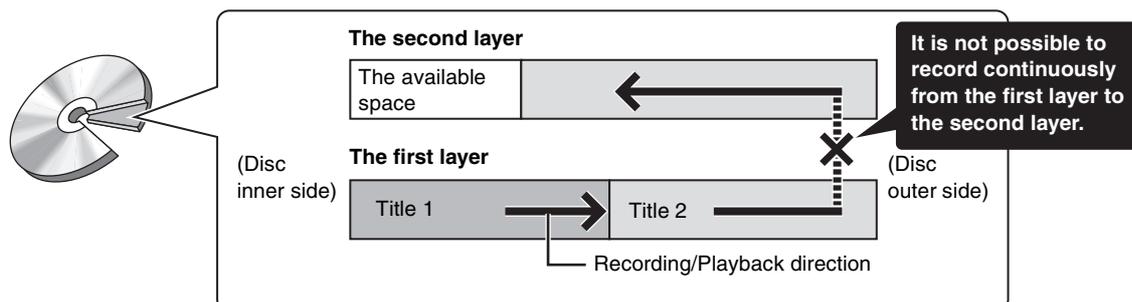
* You can record and transfer (copy) again if you format DVD-RW.



■ Recording to a DVD-R DL and +R DL

DVD-R DL and +R DL discs have two layers of recording surface on one side.

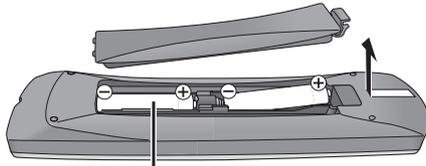
It is not possible to record continuously from the first layer to the second layer. Recording stops when space on the first layer becomes full. You must close the first layer to start recording on the second layer. Closing makes the first layer unavailable for recording (editing is still available). You cannot cancel closing. Make certain before proceeding.



The remote control

■ About batteries

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



R6/LR6, AA

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.

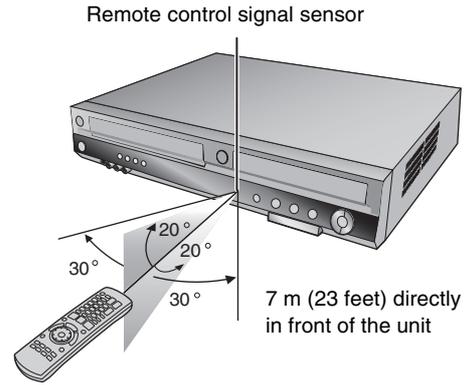
Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

Note

- If you cannot operate the unit or TV using the remote control after changing the batteries, please re-enter the codes (→ 19).

■ How to use the remote control

Aim at the sensor, avoiding obstacles, at a maximum range of 7 m (23 feet) directly in front of the unit.



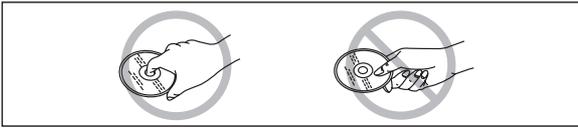
Notes

- Keep the transmission window and the unit's sensor free from dust.
- Operation can be affected by strong light sources, such as direct sunlight, inverter fluorescent lamps, and the glass doors on cabinets.

Disc handling

■ How to hold a disc

Do not touch the recorded surface.

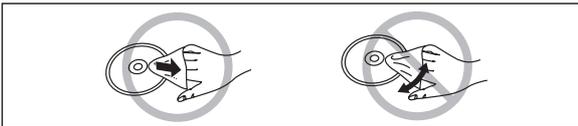


■ Concerning non-cartridge discs

Be careful about scratches and dirt.

■ If there is dirt or condensation on the disc

Wipe with a damp cloth and then wipe dry.



■ Handling precautions

- Do not attach labels or stickers to discs. (This may cause disc warping and unbalanced rotation, rendering it unusable.)
- Write on the label side of the disc only with a soft, oil-based felt pen. Do not use ballpoint pens or other hard writing implements.
- Do not use record cleaning sprays, benzene, thinner, static electricity prevention liquids or any other solvent.
- Do not use scratch-proof protectors or covers.
- Do not drop, stack, or cause impact to discs. Do not place objects on them.
- Do not use the following discs:
 - Discs with exposed adhesive from removed stickers or labels (rental discs etc.).
 - Discs that are badly warped or cracked.
 - Irregularly shaped discs, such as heart shapes.

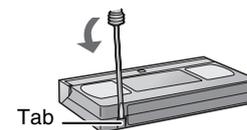


- Do not place in the following areas:
 - In direct sunlight.
 - In very dusty or humid areas.
 - Near a heater.
 - Locations susceptible to significant differences in temperature changes (condensation can occur).
 - Where static electricity or electromagnetic waves occur.
- To protect discs from scratches and dirt, return them to their cases or cartridges when you are not using them.

Video cassette information

■ Video cassettes

- Break off the video cassette's tab to prevent accidental erasure. Cover the hole with a double layer of adhesive tape when you want to use the video cassette for recording again.
- You can use video cassettes with the VHS and S-VHS marks, but the unit is unable to make full use of the characteristics of S-VHS video cassettes.



■ Video cassette care

- Poor quality or damaged video cassettes can cause the heads to become dirty and malfunction. Store your video cassettes carefully and discard them when they become dirty or damaged.
- Never use video cassettes on which juice has been spilled or those that are extremely damaged since this will not only cause the heads to become dirty, but will also make the unit malfunction.

■ Maintenance

Cleaning the video heads

Dirt on the video heads can cause poor recording and play.

If the picture does not improve, use an optional head-cleaning cassette (part number NV-TCL30PT). If the problem persists, seek advice from a qualified service person.



Useful features

You can enjoy both DVD and VHS with the unit.

This DVD Recorder can record images and sounds in high quality to rapid random access capable DVD media. This has resulted in many new features that outperform older tape formats. The following information summarizes a few of these features.

■ DVD

Progressive output (→ 15, 18)

If you connect the unit with a progressive output-compatible TV, you can enjoy higher-quality and less-flicker images than conventional TVs (of the interlace output type) can present.

Finalize (→ 55)

This function enables you to play recorded DVD-R, DVD-R DL, DVD-RW (DVD-Video format) +R and +R DL on other players.

Instant play (→ 30)

This function can quickly find and play a video program you wish to watch. Direct Navigator guides you to the beginning of a previously recorded video immediately.

Quick view (→ 30)

This function allows you to watch news, information and other programs in a short time.

Chasing play (→ 26)

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

Instant recording (→ 23)

You no longer need to search for empty disc space. By pressing the recording button, the unit finds available recording space and begins recording right away.

Simultaneous recording and play (→ 26)

With this function, you can play a previously recorded video program while recording another program.

Time Slip (→ 31)

This function enables you to jump to the scene you specify during play.

One touch transfer (copy) (→ 45, 47)

This function can copy video from VHS to DVD and vice versa.

DV input terminal (→ 50)

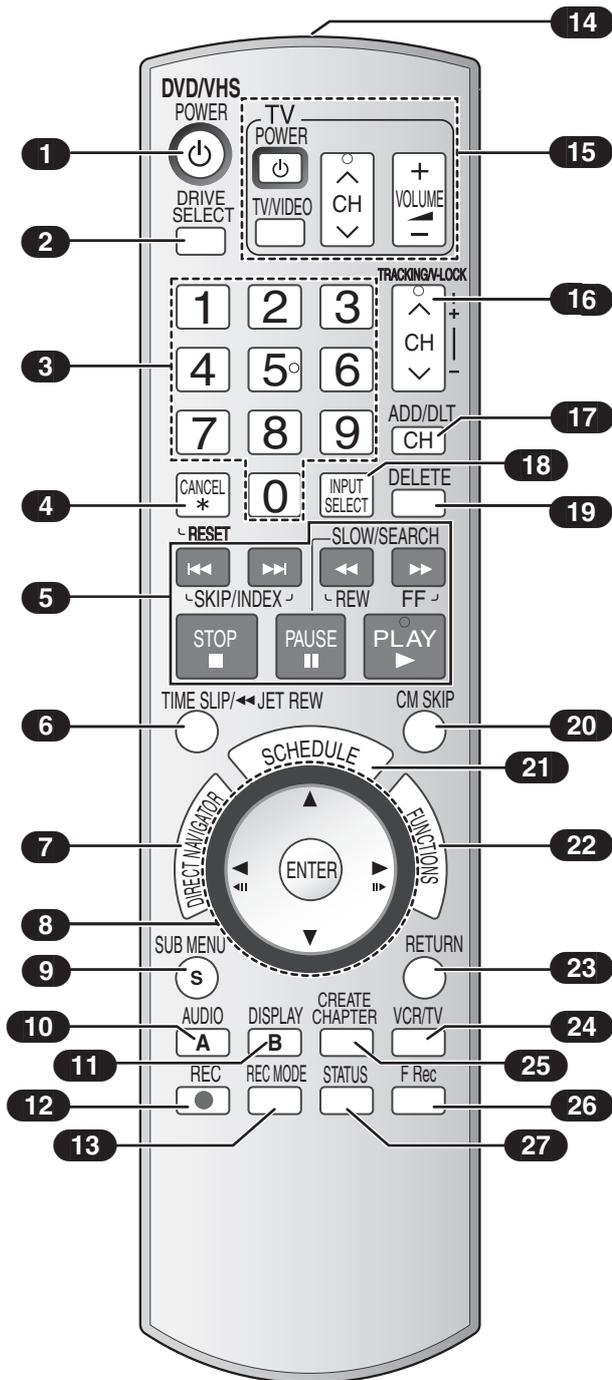
The DV camcorder recording function of this unit lets you easily copy a video to the DVD by connecting only a single DV cable.

■ VHS

Long recording (→ 24)

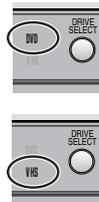
With this function, you can record approx. 10 hours of video onto a T-120 cassette, for example.

Remote control



■ [DRIVE SELECT] button

- Before performing DVD operations, be sure to press the [DRIVE SELECT] button to select DVD side. Also, make sure the DVD indicator lights up on the unit.
- Before performing VHS operations, be sure to press the [DRIVE SELECT] button to select VHS side. Also, make sure the VHS indicator lights up on the unit.

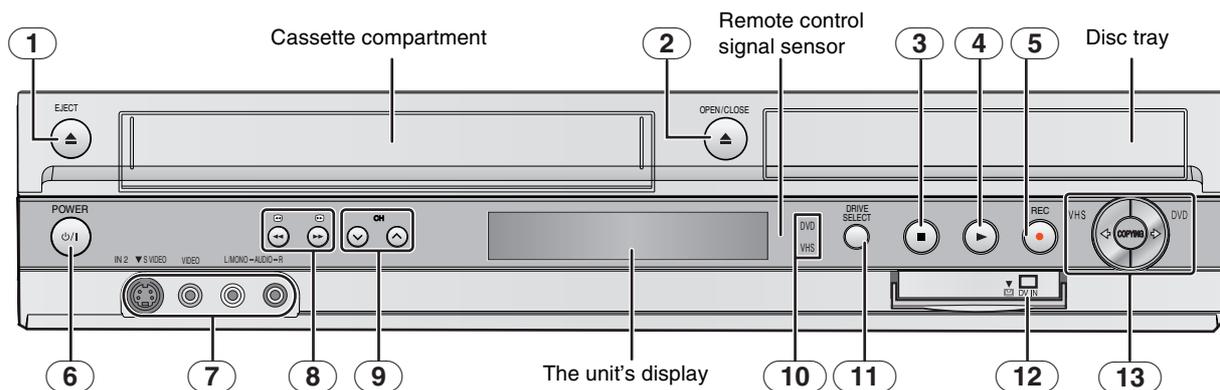


- 1 Turn the unit on → 16
- 2 Select drive (DVD or VHS) → above
- 3 Select channels and title numbers etc./Enter numbers
- 4 Cancel/Reset the tape counter
- 5 Basic operations for recording and play
- 6 Skip the specified time/..... → 31
Jet rewind button (JET REW) → 34
- 7 Direct Navigator → 30, 32
- 8 Selection/Enter, Frame-by-frame → 16, 31
- 9 Show sub menu → 33, 38, 42
- 10 Select audio → 25, 31
View select (A) → 48
- 11 Show on-screen menu → 36
View select (B) → 48
- 12 Start recording → 23
- 13 Change recording mode → 23, 28
- 14 Transmission window
- 15 TV operations → 19, 26
- 16 Channel select/
TRACKING/V-LOCK → 35
- 17 Add/delete channel → 17
- 18 Input select (IN1, IN2, DV) → 50
- 19 Delete items → 52
- 20 Skip a minute forward → 31
- 21 Show scheduled recording list → 28
- 22 Show FUNCTIONS window → 37
- 23 Return to previous screen
- 24 Select VCR/TV → 21
- 25 Create chapters → 31
- 26 Start Flexible Recording → 27
- 27 Show status messages → 35, 37

Notes

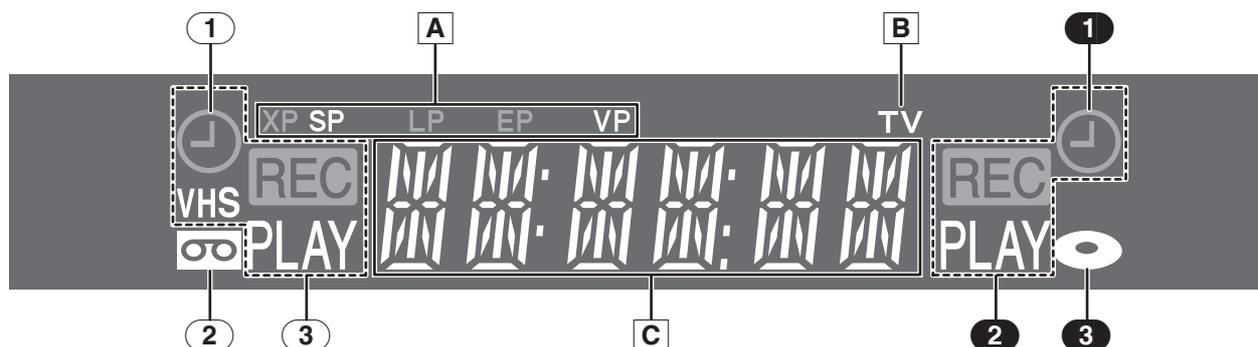
- Buttons such as the [●, REC] button do not protrude as much as other buttons to stop them from being pressed accidentally.
- The word “button” is not used in these operating instructions so “Press the [ENTER] button.” is shown as “Press [ENTER].”
- You can use this remote control to operate your TV if you set the TV manufacturer code (→ 19).

Main unit



- ① **Cassette eject button (▲, EJECT)** → 22
- ② **Disc tray open/close button (▲, OPEN/CLOSE)** → 22
- ③ **Stop button (■)** → 30, 34
- ④ **Play/X1.3 button (▶)** → 30, 34
- ⑤ **Recording button (●, REC)** → 23, 50
- ⑥ **DVD/VHS POWER on/off button (⏻, POWER)** → 16
 - To switch the unit from on to standby mode or vice versa.
 - In the standby mode, the unit is still consuming a small amount of power.
- ⑦ **IN2 input terminals (IN2)** → 50
- ⑧ **DVD-SEARCH, VHS-REW/FF buttons (◀/▶)**
- ⑨ **Channel up/down buttons (CH, v, ^)** → 35
- ⑩ **DVD/VHS drive indicator**
 - Lights when the DVD or VHS drive is selected.
- ⑪ **DRIVE SELECT button**
 - Drive changes each time you press [DRIVE SELECT].
- ⑫ **Connector for a digital video (DV) camcorder** → 50
- ⑬ **One Touch Transfer (copying) operation button**
 - From VHS to DVD → 45
 - From DVD to VHS → 47

The unit's display



Common to DVD/VHS

- A Recording mode indicator**
 - DVD:**
 - XP, SP, LP, EP: (→ 24)
 - XP SP LP EP (all on): FR mode (→ 27)
 - VHS:**
 - SP, LP*, EP, VP: (→ 24)
 - * Playback only
- B TV indicator**
 - The indicator lights during the TV mode and it goes out during the VCR mode. You can switch the mode by using [VCR/TV]. (→ 21)
- C Main display**
 - Current time
 - Disc recording and play counter
 - VHS recording and play counter
 - Transfer (Copying) messages
 - Miscellaneous messages, etc.

VHS

- ① **Scheduled recording indicator (⊕) (→ 28)**
 - On:**
 - When a scheduled recording program is registered and recordable tape is inserted.
 - Flashes:**
 - The scheduled recording indicator flashes when the unit cannot go to scheduled recording standby (e.g. there is no tape, etc).
- ② **Tape indicator**
- ③ **Tape operation status**

DVD

- ① **Scheduled recording indicator (⊕) (→ 28)**
 - On:**
 - When a scheduled recording program is registered and a recordable disc is inserted.
 - Flashes:**
 - The scheduled recording indicator flashes when the unit cannot go to scheduled recording standby (e.g. there is no disc, etc).
- ② **Disc operation status**
- ③ **Disc indicator**

STEP 1 Connection

This section includes diagrams of two common methods of connection (A-B, pages 13-14). Please connect using the one that best suits you.

● Visit Panasonic's homepage for more information about connection methods. (This is in English only.)

http://www.panasonic.com/consumer_electronics/dvd_recorder/dvd_connection.asp

- Before doing any connection, turn off all the equipments and read the appropriate operating instructions.
- Peripheral equipments and optional cables are sold separately unless otherwise indicated.
- You need to subscribe to a cable TV or satellite service to enjoy viewing their programme.
- Consult your service provider regarding appropriate cable box.

■ The unit's RF OUT terminal

The picture and sound signal from this unit go through the RF OUT terminal to the television.

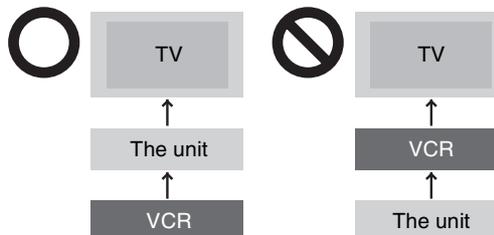
Refer to page 14 if the antenna connector doesn't match.

■ When the unit is not to be used for a long time

To save power, unplug it from the household AC outlet. This unit consumes a small amount of power, even when it is turned off (approx. 8 W).

■ Do not connect the unit through a video cassette recorder

Video signals sent through video cassette recorders will be affected by copyright protection systems and the picture will not be shown correctly on the TV.



A Connection with a television

■ Connection (with Audio/Video cable)

Connect in numerical order ① to ④.

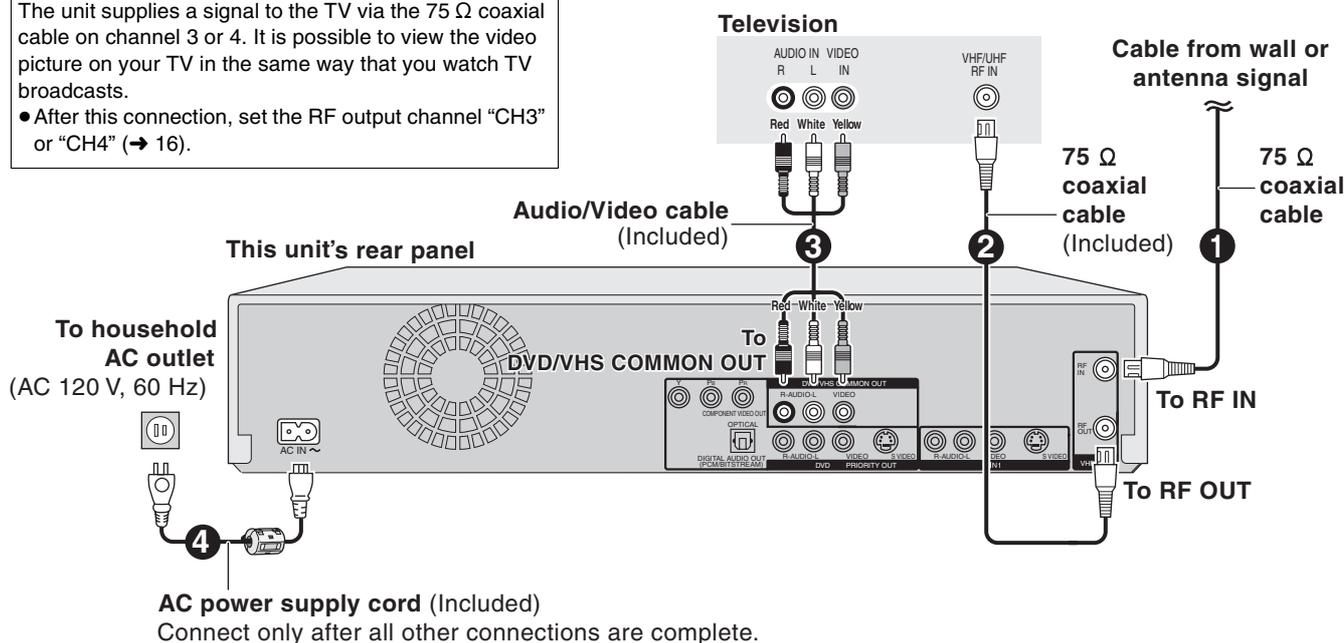
● After this connection, set the RF output channel "OFF" (→ 16), and then press TV/VIDEO button of TV remote controller to select the AV input mode to the connected TV terminal. You can watch a video from this unit on your TV.

■ Connection (without Audio/Video cable)

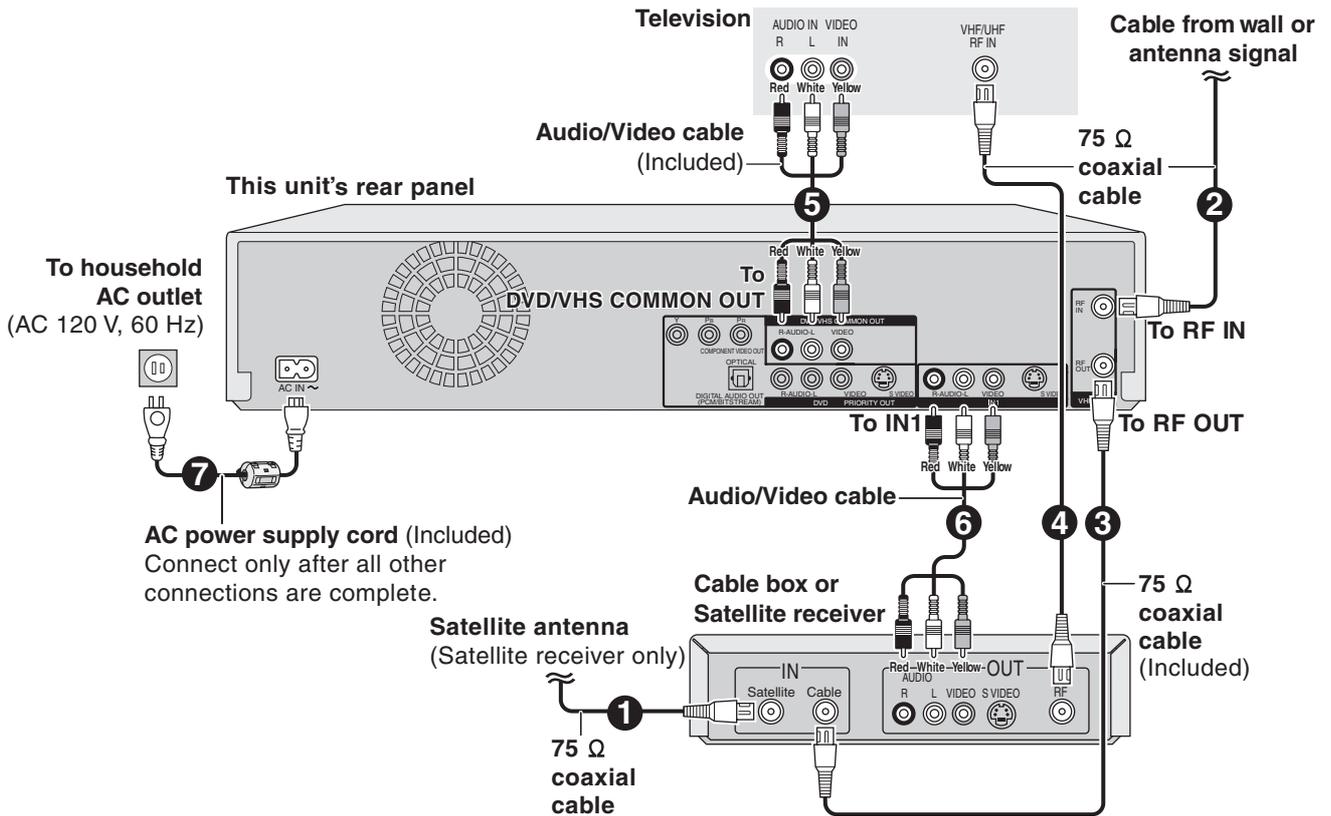
You do not need to connect "③".

The unit supplies a signal to the TV via the 75 Ω coaxial cable on channel 3 or 4. It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

● After this connection, set the RF output channel "CH3" or "CH4" (→ 16).



B Connection with a television and cable box or satellite receiver



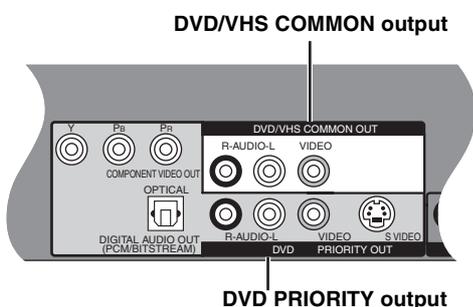
If the antenna connector doesn't match

Use one of the following connections to suit the antenna lead to the unit's RF IN terminal, and the 75 Ω coaxial cable to the antenna terminals on the equipment (television etc.). Refer to other equipment's operating instructions.

Other antenna connections to the unit	Other antenna connections to the television
<p>■ A single twin lead from the antenna (Flat) Twin lead 300 Ω cable</p> <p>300-75 Ω transformer To this unit's RF IN terminal</p>	<p>■ A twin lead terminal 75-300 Ω transformer</p> <p>75 Ω coaxial cable VHF or UHF Television</p>
<p>■ A twin lead and a coaxial cable from the antenna (Flat) Twin lead 300 Ω cable (Round) 75 Ω coaxial cable</p> <p>VHF/UHF band mixer To this unit's RF IN terminal</p>	<p>■ A twin lead and coaxial plug terminal VHF/UHF band separator</p> <p>75 Ω coaxial cable VHF UHF Television</p>
<p>■ Two twin leads from the antenna (Flat) Twin lead 300 Ω cable 300-75 Ω transformer</p> <p>VHF/UHF band mixer To this unit's RF IN terminal</p>	<p>■ Two twin lead terminals VHF/UHF band separator</p> <p>75 Ω coaxial cable VHF UHF Television</p>

DVD output and DVD/VHS output

The unit has DVD/VHS COMMON output terminals and DVD PRIORITY output terminals.



DVD/VHS COMMON OUT

- For DVD/VHS COMMON output terminals, both DVD and VHS signals can be output.

DVD PRIORITY OUT

- You can also playback a tape with the DVD PRIORITY output terminal except while recording, or making a scheduled recording, on the DVD. (→ 15)

To enjoy higher picture quality

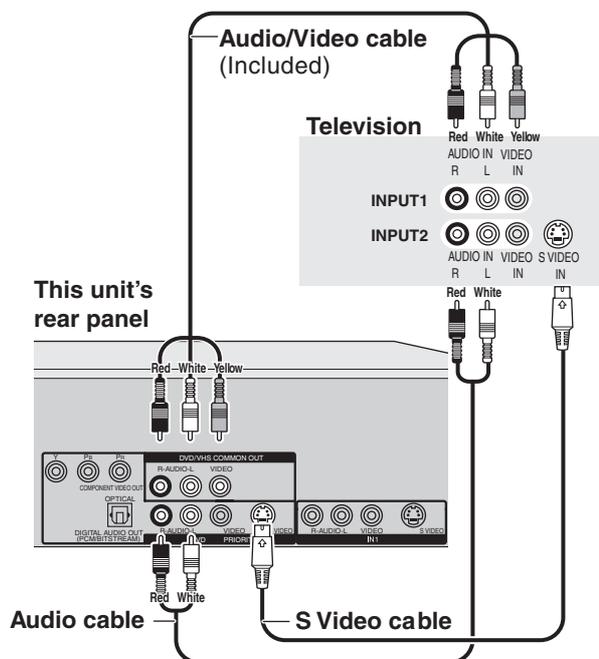
■ Connecting to the TV S VIDEO IN terminal

S VIDEO OUT terminal

The S VIDEO OUT terminal achieves a more vivid picture than the VIDEO OUT terminal. (Actual results depend on the television.)

After completing "Connection with a television" (→ 13) or "Connection with a television and cable box or satellite receiver" (→ 14), connect S VIDEO cable as illustration below.

Usually you can watch a picture from INPUT2 terminal. When you want to playback VHS while recording on DVD, change to INPUT1 terminal.



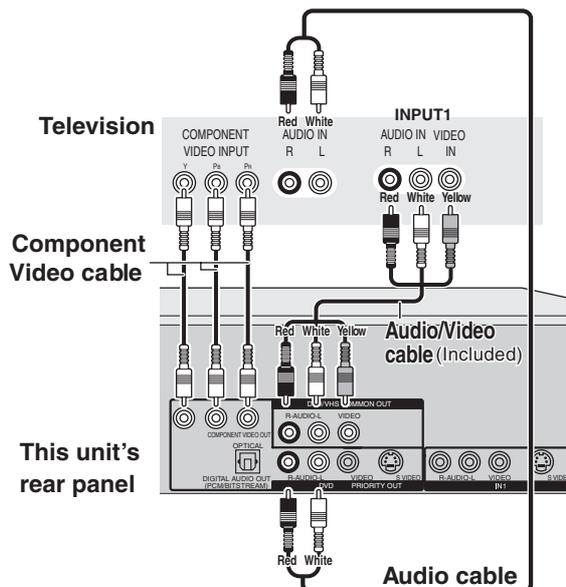
■ Connecting to the TV COMPONENT VIDEO IN terminals

COMPONENT VIDEO OUT terminal

These terminals can be used for either interlace or progressive output (→ 68) and provide a purer picture than the S VIDEO OUT terminal.

After completing "Connection with a television" (→ 13) or "Connection with a television and cable box or satellite receiver" (→ 14), connect COMPONENT VIDEO cable as illustration below. Usually you can watch a picture from COMPONENT VIDEO INPUT terminal. When you want to playback VHS while recording on DVD, change to INPUT1 terminal.

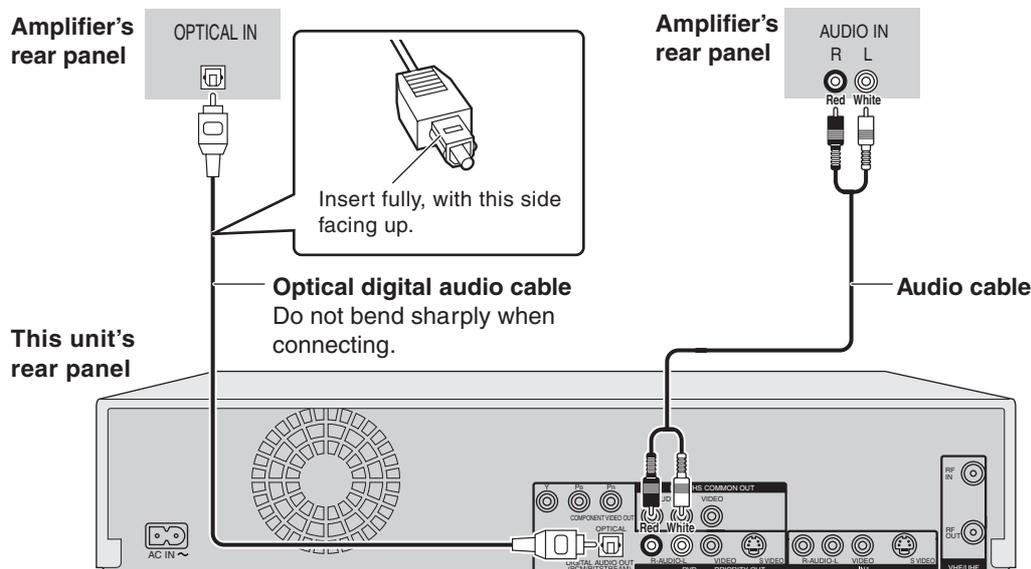
- Connect to terminals of the same color.



Connecting an amplifier or system component

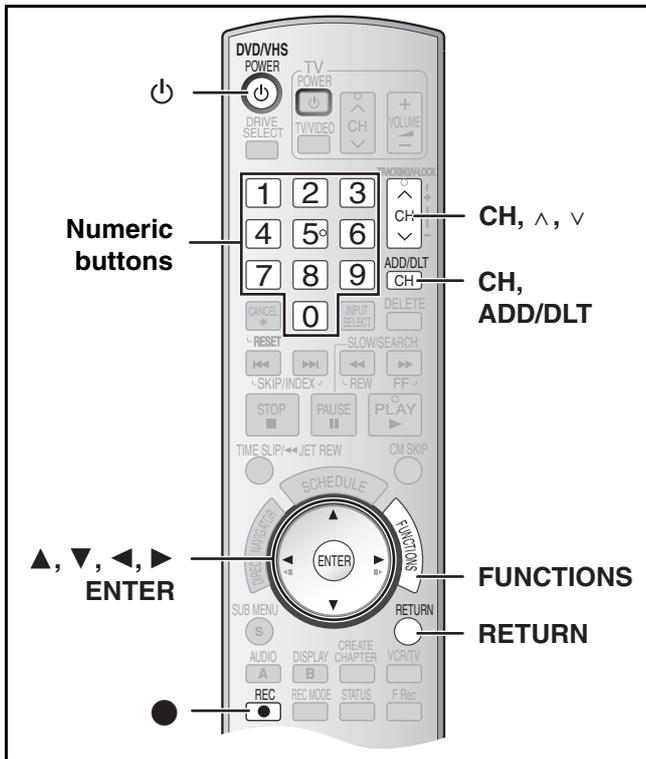
■ Connecting an amplifier with a digital input terminal

- To enjoy multi-channel surround on DVD-Video, connect an amplifier with a built-in decoder displaying these logo marks using an optical digital audio cable and change the settings in "Digital Audio Output" (→ 57).
- Before purchasing an optical digital audio cable (not included), check the terminal shape of the connected equipment.
- You cannot use DTS Digital Surround decoders not suited to DVD.
- Even if using this connection, output will be only 2 channels when playing DVD-Audio.



■ Connection to a stereo amplifier

STEP 2 Plug-in Auto Tuning



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

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

	Band	Channel
Antenna Mode (Airwaves)	VHF	2 to 13
	UHF	14 to 69
CableTV Mode (Cable)	VHF	2 to 13
	CATV LOW BAND	95 to 99
	CATV MID/SUPER BAND	14 to 36
	CATV HYPER BAND	37 to 65
	ULTRA BAND	66 to 94 100 to 125
	SPECIAL CATV CHANNEL	1

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

Preparation

- Turn on the TV and select the appropriate video input to suit the connections to the unit. (Example: AV input, CH3 or CH4)
- If you connect the unit through a cable box or satellite receiver (→ 14), tune to your local PBS for Auto Clock Setting to work. If there is no local PBS, set the clock manually (→ 17, "Set Clock Manually").

1 Press [⏻, DVD/VHS POWER].

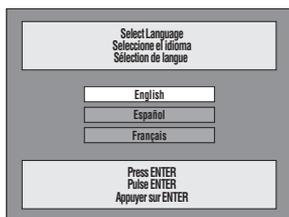
2 Press [CH, ^, v] to select an RF output channel number.

Connection (without Audio/Video cable):

Select "CH3" or "CH4" which displays the screen on the right.

Connection (with Audio/Video cable):

Select "OFF".



The unit's display



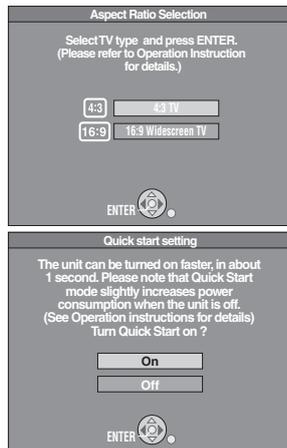
The unit's display

Each time you press the button:
CH 3 (Default setting) ↔ CH 4 ↔ OFF

3 Use [▲, ▼] to select the language and press [ENTER].

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

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



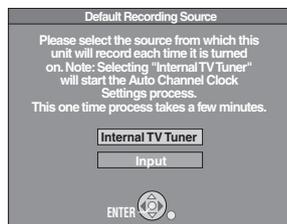
About "Quick Start" function

If you set Quick Start to on, you can start recording to DVD-RAM about 1 second after you press [⏻, DVD/VHS POWER] to turn the unit on and then sequentially press [●, REC]. The following happens when you have selected "On".

- Power consumption in standby mode increases because power is supplied to the unit.

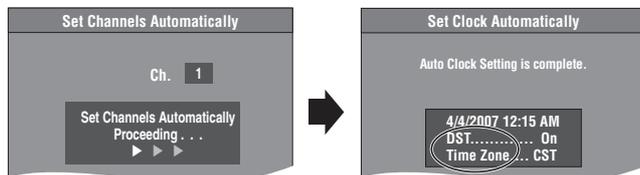
6 Press [▲, ▼] to select "Internal TV Tuner" or "Input" and press [ENTER].

When you do not set channels on this unit, select "Input". The unit then displays "Set Clock Manually" screen. Set the clock manually. (→ 17)



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

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



- DST, Daylight Saving Time, shows the summertime setting.
- Time Zone shows the time difference from Greenwich Mean Time (GMT).

- EST (Eastern Standard Time) = GMT - 5
- CST (Central Standard Time) = GMT - 6
- MST (Mountain Standard Time) = GMT - 7
- PST (Pacific Standard Time) = GMT - 8
- AST (Alaska Standard Time) = GMT - 9
- HST (Hawaii Standard Time) = GMT - 10
- For other areas: xx hr

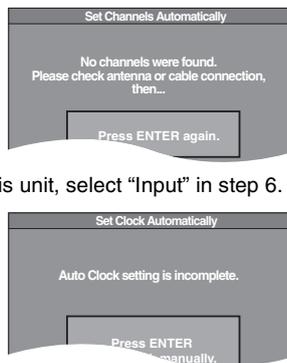
When one of the following screens appears

"No channels were found."
After turning off the unit, confirm following and perform setup again.

- Confirm the antenna cable is firmly connected to RF IN terminal.

- If you do not set channels on this unit, select "Input" in step 6.

"Auto Clock Setting is incomplete."
Press [ENTER] and set clock manually. (→ 17)



8 Press [ENTER].

■ If the clock is an hour slower or faster than the actual time

Select “-1” or “+1” in “Adjust Time Zone” in the Setup menu (→ 56).

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

Signal source, RF output channel, channel caption revert to the default values when you perform the procedure below.

Scheduled recording settings are also cleared.

When the unit is on and stopped

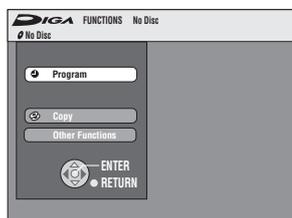
- 1 Press and hold [CH, ^] and [CH, v] on the main unit for about 5 seconds.

The unit turns off.

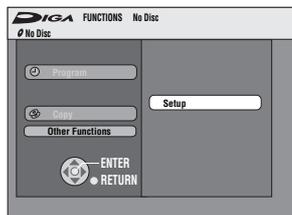
- 2 Press [⏻, DVD/VHS POWER] to turn the unit on. Plug-in Auto Tuning starts.

■ Restart Set Channels Automatically

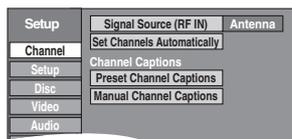
- 1 While stopped Press [FUNCTIONS].



- 2 Select “Other Functions” with [▲, ▼] and press [ENTER].

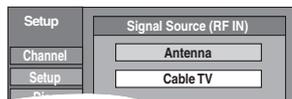


- 3 Select “Setup” with [▲, ▼] and press [ENTER].



- 4 Select “Channel” with [▲, ▼] and press [◀, ▶].

- 5 Select “Signal Source (RF IN)” with [▲, ▼] and press [ENTER].



- 6 Select “Antenna” or “Cable TV” with [▲, ▼] and press [ENTER].

- 7 Select “Set Channels Automatically” with [▲, ▼] and press [ENTER].

- 8 Press [ENTER].

• Auto Channel Setting starts. This takes a few minutes.

- 9 Press [ENTER].

■ To cancel in the middle

Press [RETURN].

■ To exit the screen

Press [RETURN].

■ Adding and deleting channels

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

- 1 Press the numeric buttons to select a channel.

Antenna Mode (Airwaves)

e.g., “5”: [0]→[5]
“15”: [1]→[5]

CableTV Mode (Cable)

e.g., “5”: [0]→[0]→[5]
“15”: [0]→[1]→[5]
“115”: [1]→[1]→[5]

The unit's display



- You can also use [CH, ^, v] to select a channel.

- 2 Press [CH, ADD/DLT].

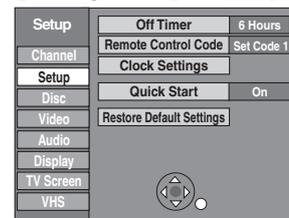
e.g., The channel is deleted.

Channel 15 Deleted

■ Set Clock Manually

“Clock Settings” made here are applied to VHS as well.

- 1 While stopped Press [FUNCTIONS].
- 2 Select “Other Functions” with [▲, ▼] and press [ENTER].
- 3 Select “Setup” with [▲, ▼] and press [ENTER].



- 4 Select “Setup” with [▲, ▼] and press [◀, ▶].
- 5 Select “Clock Settings” with [▲, ▼] and press [ENTER].
- 6 Select “Set Clock Manually” with [▲, ▼] and press [ENTER].



- 7 Use [◀, ▶] to select the item you want to change, and press [▲, ▼] to change the setting.

- DST (Daylight Saving Time): On or Off

If you select “On”, the clock is advanced one hour starting at 2 a.m. on the first Sunday in April and ending at 2 a.m. on the last Sunday in October.

- Time Zone (→ 20)

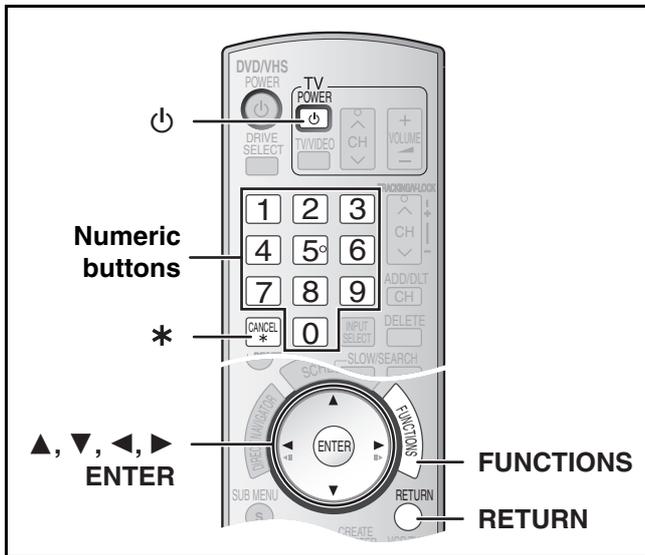
- 8 Press [ENTER].

- The clock starts.

• When you change the time zone, the recording times for titles recorded before the time zone adjustment also change to correspond to the new time zone.

■ To return to the previous screen

Press [RETURN].



Channel captions

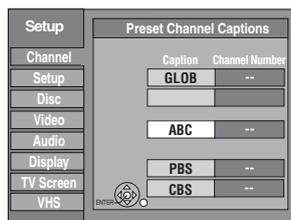
You can use the preset captions, or manually enter new ones yourself. The captions you enter are used as channel names and displayed on the Direct Navigator screen.

- 1** While stopped Press [FUNCTIONS].
- 2** Select "Other Functions" with [▲, ▼] and press [ENTER].
- 3** Select "Setup" with [▲, ▼] and press [ENTER].
- 4** Select "Channel" with [▲, ▼] and press [◀, ▶].
 - Go to the item you want to set next.



■ Preset Channel Captions

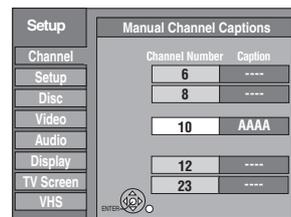
- Follow steps 1 to 4 of "Channel captions".
- 5** Select "Preset Channel Captions" with [▲, ▼] and press [ENTER].
 - 6** Use [▲, ▼] to select the caption and press [▶].
You can choose from the following captions.
ABC, PBS, CBS, CNN, FOX, ESPN, NBC, HBO, A&E, AMC, FAM, MAX, MTV, SHOW, TBS, USA, TNT, CBC, UPN, CTV, WB, TSN, DSC, GLOB
 - When selecting the caption, press and hold [▲, ▼] to scroll up and down the screen quickly.
 - 7** Use [▲, ▼] to select the channel corresponding to the caption and press [◀].
 - Channels are displayed only when they contain a station and if captions have not been added manually.
 - To delete the channel number, press [*, CANCEL].
 - Repeat steps 6 and 7 as necessary.
 - 8** Press [ENTER].



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

■ Manual Channel Captions

- Follow steps 1 to 4 of "Channel captions".
- 5** Select "Manual Channel Captions" with [▲, ▼] and press [ENTER].
- 6** Use [▲, ▼] to select the channel and press [▶].
 - Channels are only displayed if they contain a station and if preset captions have not been added.
- 7** Use [▲, ▼] to select the first character and press [▶].
 - You can choose from the following characters:
A to Z, 0 to 9, -, &, !, /, (space)
 - To delete the caption, press [*, CANCEL].
 - Repeat this step to enter the other characters.



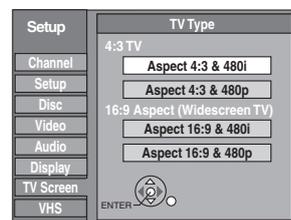
- 8** Use [◀, ▶] to return to the "Channel Number" column.
 - Repeat steps 6 to 8 to enter other channels.
- 9** Press [ENTER].

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

Selecting television type

You do not have to change the setting when connected to a 4:3 standard aspect TV that is not compatible with progressive output. (→ 68)

- 1** While stopped Press [FUNCTIONS].
- 2** Select "Other Functions" with [▲, ▼] and press [ENTER].
- 3** Select "Setup" with [▲, ▼] and press [ENTER].
- 4** Select "TV Screen" with [▲, ▼] and press [◀, ▶].
- 5** Select "TV Type" with [▲, ▼] and press [ENTER].



- Aspect 4:3/Aspect 16:9:



4:3 standard aspect TV



16:9 widescreen TV

- 480p/480i:
Select "480p" if the TV is compatible with progressive output.

- 6** Use [▲, ▼] to select the item and press [ENTER].

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

Television operation

To turn the TV on/off, change the TV input mode, select the TV channel and change the TV volume by means of this remote control, set the remote control as follows.

Point the remote control at the TV

While pressing [POWER TV], enter the code using the numeric buttons.

e.g., 0250: press [0] → [2] → [5] → [0].

Manufacturer and Code No.

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

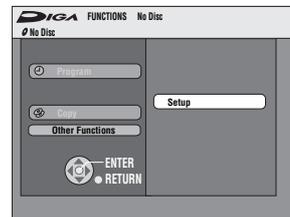
- Test by turning on the TV and changing channels. Repeat the procedure until you find the code that allows correct operation.
- If your TV brand is not listed or if the code listed for your TV does not allow control of your TV, this remote control is not compatible with your TV.

When other Panasonic products respond to this remote control

Change the remote control code on the main unit and on the remote control (the two must match) if you place other Panasonic products close together. When changing the remote control code, make sure the two codes are same.

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

- 1 While stopped**
Press [FUNCTIONS].
- 2 Select "Other Functions" with [▲, ▼] and press [ENTER].**
- 3 Select "Setup" with [▲, ▼] and press [ENTER].**
- 4 Select "Setup" with [▲, ▼] and press [◀, ▶].**
- 5 Select "Remote Control Code" with [▲, ▼] and press [ENTER].**
- 6 Use [▲, ▼] to select the code (1, 2 or 3) and press [ENTER].**
 - The code on the unit has been set.
- 7 While pressing [ENTER], press and hold for about 2 seconds the numeric button ([1], [2] or [3]) corresponding to the code you selected in step 6.**
 - The code on the remote control has been set.
- 8 Press [ENTER].**



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



The unit's remote control code

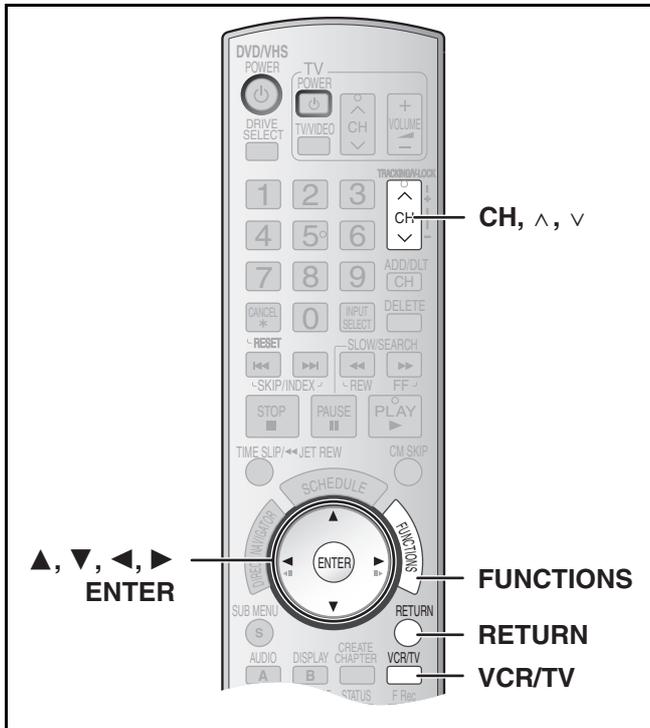
Change the code on the remote control to match the main unit's code (→ step 7).

■ To return to the previous screen

Press [RETURN].

■ To exit the screen

Press [RETURN].



- Time Zone shows the time difference from Greenwich Mean Time (GMT).

EST (Eastern Standard Time) = GMT -5
 CST (Central Standard Time) = GMT -6
 MST (Mountain Standard Time) = GMT -7
 PST (Pacific Standard Time) = GMT -8
 AST (Alaska Standard Time) = GMT -9
 HST (Hawaii Standard Time) = GMT -10
 For other areas: xx hr

8 Press [ENTER].

■ To cancel in the middle

Press [RETURN].

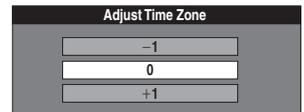
■ Adjust Time Zone

- Follow steps 1 to 5 of “Clock Settings”.

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

You can set this menu only after “Set Clock Automatically” is completed.

- 6 Select “Adjust Time Zone” with [▲, ▼] and press [ENTER].**



- 7 Select “-1” or “+1” with [▲, ▼] and press [ENTER].**

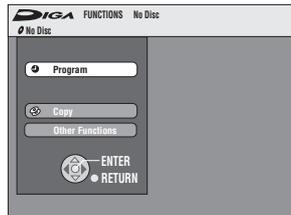
■ To return to the previous screen

Press [RETURN].

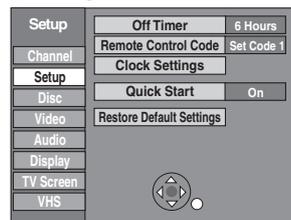
Clock Settings

“Clock Settings” made here are applied to VHS as well.

- 1 While stopped Press [FUNCTIONS].**



- 2 Select “Other Functions” with [▲, ▼] and press [ENTER].**
3 Select “Setup” with [▲, ▼] and press [ENTER].
4 Select “Setup” with [▲, ▼] and press [◀, ▶].



- 5 Select “Clock Settings” with [▲, ▼] and press [ENTER].**

■ Set Clock Automatically

- 6 Select “Set Clock Automatically” with [▲, ▼] and press [ENTER].**
7 Press [ENTER].
 • Auto setting starts. This can take some time, up to a few hours in some cases. The following screen appears when setting is complete.



- If the time was not set correctly, use manual clock setting or time zone adjust.
- DST, (Daylight Saving Time) shows the summertime setting.

Removing Interference

Connection (without Audio/Video cable) only

TV screen



Picture with interference

In some cases, interference (lines or patterning) or a very poor picture may appear on the TV when the DVD Recorder is connected. If this happens, follow the steps below to change the video playback channel (RF output channel) to remove the interference.

1 Press [FUNCTIONS] for more than 5 seconds.

The RF output channel number is displayed on the unit display.

2 Press [CH, ^, v] to select a channel number (CH3 or CH4).



The unit's display



The unit's display

Each time you press the button:

CH 3 (Default setting) ↔ CH4 ↔ OFF



- Set the RF output channel of the DVD Video Recorder to "OFF" (RF OFF) when the DVD Video Recorder is connected to the TV via the Audio/Video cable.

3 Press [ENTER] to finish this setting.



The clear picture

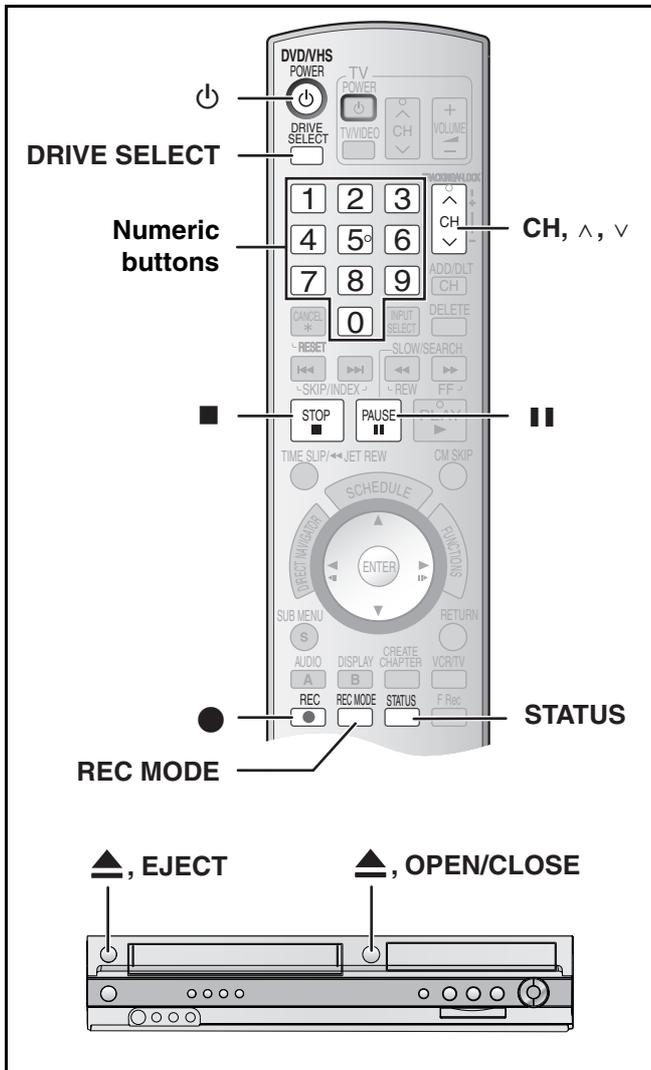
■ When you set the RF output channel to "CH3" or "CH4"

A picture is output on CH3 or CH4 from RF output.

Press [VCR/TV] to switch the mode from TV to VCR, and vice versa.

- When the TV mode is selected, the "TV" indicator lights on the unit's display and you can watch TV.
- When the "TV" indicator does not light on, then VCR mode is selected and you can watch images from the unit.

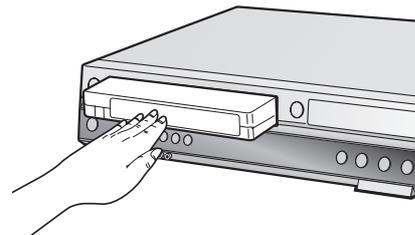
Recording television programs



Inserting a video cassette

The surface on which you can see a roll of tape should face up, **Insert a video cassette.**

• The unit is automatically turned on.



■ To eject a video cassette

• You can eject a video cassette even when the unit is in standby mode. It switches back to standby once it ejects the video cassette.

For main unit

• Press [▲, EJECT] on the main unit.

For remote control

• Press [DRIVE SELECT] to select VHS side and then press and hold [■, STOP] for about 3 or more seconds.

Before recording

+RW

• The created title menu is deleted when recording on the disc. Create the title menu again by using "Create DVD Top Menu" in DVD Management. (→ 55)

The Main or SAP only can be recorded for MTS broadcasts, when recording to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, +RW

If you do not connect a cable box

- Select "Main" or "SAP" in "Multi-channel TV sound (MTS)" in the Setup menu. (→ 57)

If you connect a cable box

- Select "Main" or "SAP" on the cable box.

Inserting discs

1 Press [▲, OPEN/CLOSE] on the main unit to open the tray.

• You can insert a cartridge or non-cartridge disc.

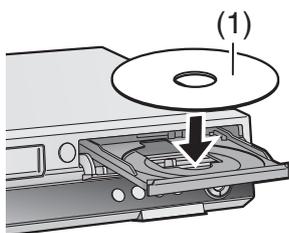
2 Press [▲, OPEN/CLOSE] on the main unit to close the tray.

• If you insert a DVD-RAM with the write-protect tab set to "PROTECT" (→ 53), play starts automatically.

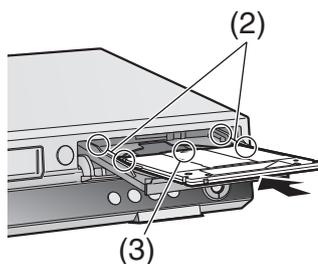
Notes

- A double-sided disc should be loaded with the side you want to record/play facing down.
- It is not possible to record continuously from one side of a double-sided disc to the other. You will need to eject the disc and turn it over.
- When using 8 cm (3") DVD-RAM or 8 cm (3") DVD-R, remove the disc from the cartridge.

Non-cartridge disc



Cartridge disc



- (1) Insert label-up.
- (2) Insert fully so it clicks into place.
- (3) Insert label-up with the arrow facing in.

Recording procedures

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

RAM -R -R DL -RW(V)

• You can record up to 99 titles on a disc.

+R +R DL +RW

• You can record up to 49 titles on a disc.

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

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

• If there is no space left on the recording disc, you will need to erase unwanted titles (→ 38, 52) or use a new disc.

When recording to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW

• When recording MTS broadcasts

- If you do not connect a cable box
Select "Main" or "SAP" in "Multi-channel TV sound (MTS)" in the Setup menu (→ 57).

- If you connect a cable box
Select "Main" or "SAP" on the cable box.

• The aspect ratio of the recorded image will be 4:3.

• **To play a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R or +R DL recorded using this unit on another playback source, the disc must first be finalized (→ 55).**

• **+RW To enable play on other DVD equipment, please use "Create DVD Top Menu" in DVD Management menu (→ 55).**

Preparation

• Release protection (disc → 53, cartridge → 53). **RAM**

• Select the unit viewing channel (e.g. AV input) on the TV.

• Select an audio type you want to record. (→ 25)

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

2 Press [DRIVE SELECT] to select the drive you want to record on (DVD or VHS).

3 Insert a disc. (→ 22)

• When using a DVD-RAM for the first time with the unit, format it to ensure accurate recording (→ 54, "Deleting all contents of a disc -Format Disc (DVD)").

or

Insert a video cassette with an intact accidental erasure prevention tab. (→ 22)

4 Press [CH, ^, v] to select the channel.

• To select with the numeric buttons:



Antenna Mode (Airwaves)

e.g., "5": [0]→[5]

"15": [1]→[5]

CableTV Mode (Cable)

e.g., "5": [0]→[0]→[5]

"15": [0]→[1]→[5]

"115": [1]→[1]→[5]

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



Remaining time on the disc

DVD

XP, SP, LP or EP

VHS

SP, EP or VP

6 Press [●, REC] to start recording.



• You cannot change the channel or recording mode during recording. You can change them while recording is paused, but the material is recorded as a separate title.

■ To pause recording

Press [PAUSE]. (Press again to restart recording.)

• Title is not split into separate titles. **DVD**

• You can also press [●, REC] to restart recording.

■ To stop recording

Press [STOP].

• Recorded as 1 title until the position where stopped. **DVD**

• **-R -R DL -RW(V) +R +R DL +RW**

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

■ To show the remaining time

DVD

Press [STATUS] several times. (→ 37)

VHS

1 Select "Select Tape Length" from the Setup and select the corresponding tape length. (→ 58)

2 Press [STATUS] several times.

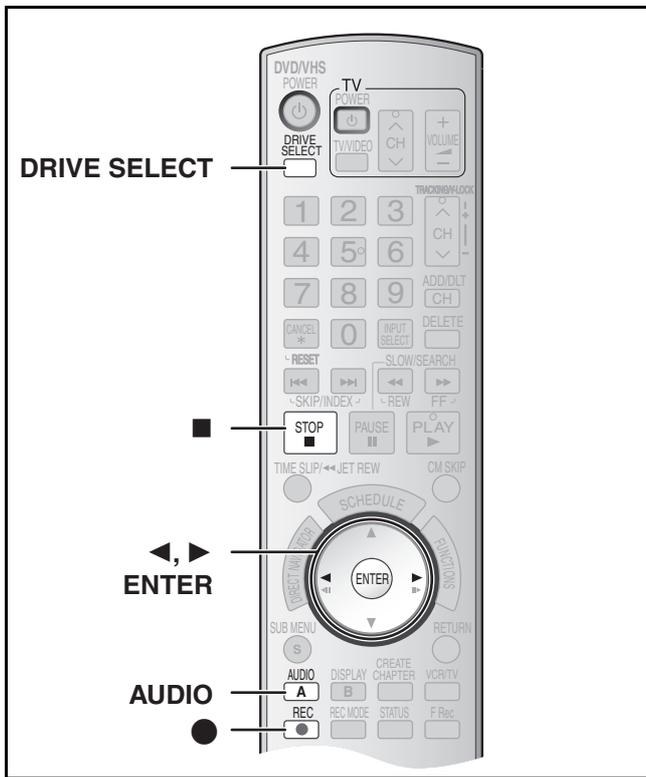
The remaining tape time may not be displayed correctly depending on the tape used.

Notes

• **Even if the video cassette you use is labeled "S-VHS", it is not possible to record in the S-VHS system with the unit. It records in the normal VHS system. **VHS****

• When recording is paused for 5 or more minutes, the unit returns to stop mode. **VHS**

• The remaining tape time is only displayed during playback or recording. **VHS**



Recording modes and approximate recording times (DVD)

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

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

	DVD-R DL, +R DL*3 (8.5 GB)	
	First layer	Second layer
XP (High quality)	55 minutes	50 minutes
SP (Normal)	1 hour 50 minutes	1 hour 40 minutes
LP (Long recording)	3 hours 40 minutes	3 hours 20 minutes
EP (Extra long recording)	7 hours 25 minutes (5 hours 30 minutes*2)	6 hours 50 minutes (5 hours 15 minutes*2)
FR (Flexible Recording)	7 hours 25 minutes maximum	6 hours 50 minutes maximum

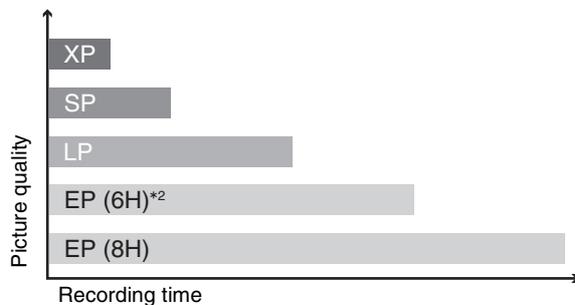
This unit uses variable bit rate (VBR) recording which varies the amount of data recorded to suit the images, so actual recording times and remaining recording times shown by the unit will be different. (The difference will be especially noticeable with DVD-R DL and +R DL.)

Use a disc with plenty of remaining time to be sure.

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

*2 When "Recording Time in EP Mode" has been set to "EP (6H)" in the Setup menu. (→ 57)
The sound quality is better when using "EP (6H)" than when using "EP (8H)".

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



Note

When recording to DVD-RAM using EP (8H) mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use EP (6H) mode.

FR (Flexible Recording mode → 27):

- You can set FR mode when transferring (copying) or programming scheduled recordings.

Recording modes (VHS)

Recording mode

SP: You can record the length shown on the tape.

EP: 3 times the length of SP mode.

VP: 5 times the length of SP mode.

- To have a longer recording capacity, select "EP" or "VP".
- If the image quality is important to you or if you wish to store the tape for a long period, select "SP".
- The unit can play tapes recorded in LP mode on other equipment ("LP" lights on the unit's display).

VP mode:

- A tape recorded in VP mode by the unit cannot be played back by other VCRs. It is recommended to distinguish it from other tapes by writing "VP" on the tape label, etc.
- It takes more time for automatic tracking to work when playing tapes recorded with VP mode, and it may not work at all with some tapes. Do tracking manually if this is the case (→ 35).

Note

You cannot play VP recording on other equipment.

Off Timer

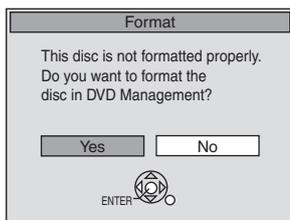
The unit automatically switches to standby when it has not been used for about 6 hours.

You can turn this feature off or change the time to 2 hours. (→ 56, "Off Timer")

When the format confirmation screen is displayed

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

When you insert a new disc and a disc recorded on a computer or other equipment, a format confirmation screen might be displayed. Format the disc to use it. However all the recorded contents are deleted.



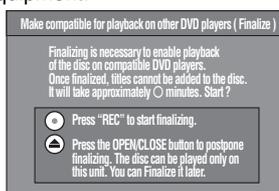
Press [**◀**, **▶**] to select "Yes" and press [ENTER].

- Several steps are necessary to format a disc. Refer to "Deleting all contents of a disc -Format Disc (DVD)". (→ 54)

When remove a recorded disc

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

When you press [**▲**, OPEN/CLOSE] on the main unit while stopped: The following screen appears when you have not processed the disc for play on other equipment.



When finalizing the disc

Press [**●**, REC].

- You cannot stop this process once you have started it.
- If you want to provide the disc with a name or set play menu select, select "Disc Name" (→ 53) or "Playback will start with" (→ 54) in "DVD Management" before finalizing.

When opening the tray without disc finalization

Press [**▲**, OPEN/CLOSE] on the main unit.

To specify a time to stop recording -One Touch Recording

While recording

1 Press [DRIVE SELECT] to select the drive you want to specify the time to stop recording (DVD or VHS).

2 Press [**●**, REC] to select the recording time.

- On the main unit, press [**●**, REC].

The unit's display

Each time you press the button:

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

For your reference

- This does not work during scheduled recording or Flexible Recording.
- Recording stops and the set time is cleared if you press [**■**, STOP].
- The set time is cleared if you change the recording mode or channel while recording is paused. **DVD**

Selecting audio to record

RAM

Press [AUDIO].

Stereo → SAP Audio → Mono

Stereo:	Main audio (stereo). If the broadcast is "Mono+SAP", audio will be monaural even if you select Stereo mode.
SAP Audio:	Secondary audio program (SAP). If recorded in SAP, main audio is also recorded.
Mono:	Main audio (monaural). Select "Mono" if reception is poor during a stereo broadcast.

e.g., "Stereo" is selected.
 ("(" appears when the unit is receiving the audio type you selected.



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

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

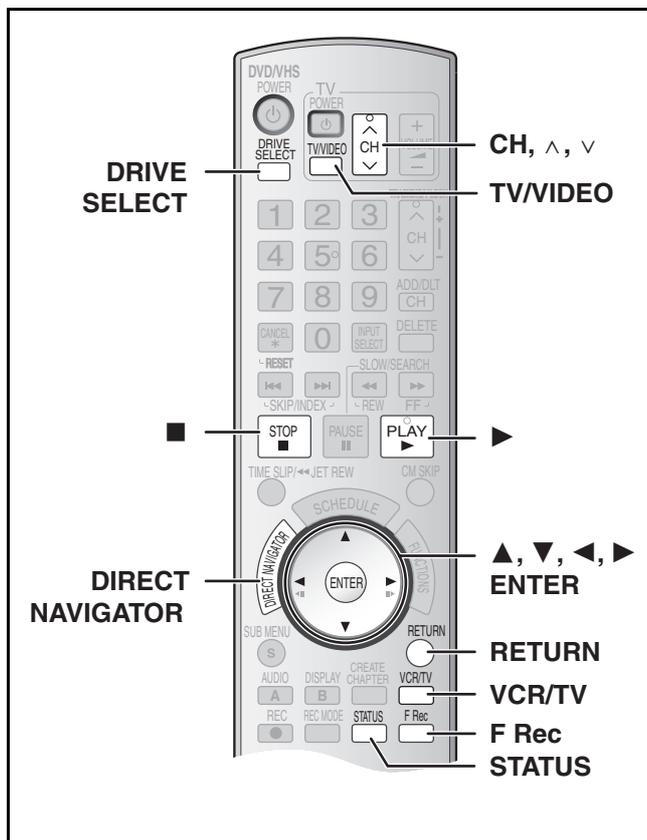
Select the audio (Main or SAP) in "Multi-channel TV sound (MTS)" in the Setup menu. (→ 57)

Auto Bilingual Choice Function

VHS

When a stereo broadcast or SAP broadcast is recorded and played back on the unit, stereo sound will be automatically selected in the case of a stereo broadcast and SAP sound will be automatically selected in the case of a dual-sound broadcast (Mono and SAP or Stereo and SAP).

- This function may not work properly if the program is played back from a mid point. In a case like this, press [AUDIO] and select the right sound.
- The function will not work with a cassette which has been recorded using external equipment.



Playing DVD while recording VHS

You can play discs while recording VHS. The recording will not be affected.

- DVD playback (→ 30)

For your reference

- You cannot record on discs while VHS recording.

Playing VHS while recording DVD

You can play tapes while recording DVD. The recording will not be affected.

- VHS playback (→ 34)

For your reference

- You cannot record on tapes while DVD recording.

Watching the TV while recording

Preparation

- Connection (without Audio/Video cable)
 - Make sure that the TV indicator is lit on the unit's display. If it is not lit, press [VCR/TV] to light it.
- Connection (with Audio/Video cable)
 - Press [TV/VIDEO] to change the input mode to "TV".

Press TV's [CH, ^, v] to select the desired TV channel.

For your reference

- You can also do this if the unit is making a scheduled recording.
- The recording is unaffected.

Playing while you are recording

RAM

Preparation

- Select DVD side with pressing [DRIVE SELECT].

Hint

- Sound is not output while fast-forwarding.

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

You can start play from the beginning of the title while continuing to record it.

While recording or scheduled recording

Press [▶, PLAY].

- Play starts while recording proceeds.

For your reference

- Play cannot be started until at least 2 seconds after recording starts.

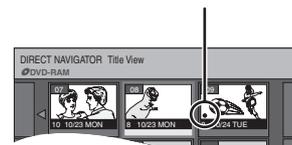
■ Playing a title previously recorded while recording—Simultaneous rec and play

You can play a title previously recorded while you are recording another title.

1 While recording or scheduled recording

Press [DIRECT NAVIGATOR]. (→ 30)

- : Currently recording



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

- Play starts while recording proceeds.

■ To exit the Direct Navigator screen

Press [DIRECT NAVIGATOR].

For your reference

- During simultaneous recording and play, you cannot edit or erase titles with the Direct Navigator or playlists.
- Even if you start play while the unit is on standby for scheduled recording, recording starts when the time you set is reached.

Flexible Recording

(Recording that fits the remaining disc space)

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

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

Using “FLEXIBLE RECORDING” is convenient in these kind of situations.

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

e.g., Recording a 90 minute program to disc

If you select XP mode, the program will not fit one disc.



A second disc is necessary for 30 minutes of the program.

If you select SP mode, the program will fit one disc.



However there will be 30 minutes remaining disc space



If you select “FLEXIBLE RECORDING” the program will fit one disc perfectly.

Preparation

- Select DVD side with pressing [DRIVE SELECT].
- Select the channel to record.

1 While stopped

Press [F Rec].



Maximum recording time
This is the maximum recording time in FR mode.

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

- You can also set the recording time with the numbered buttons.
- You cannot record for more than 8 hours.

3 When you want to start recording

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

- Recording starts.

To exit the screen without recording

Press [RETURN].

To stop recording partway

Press [■, STOP].

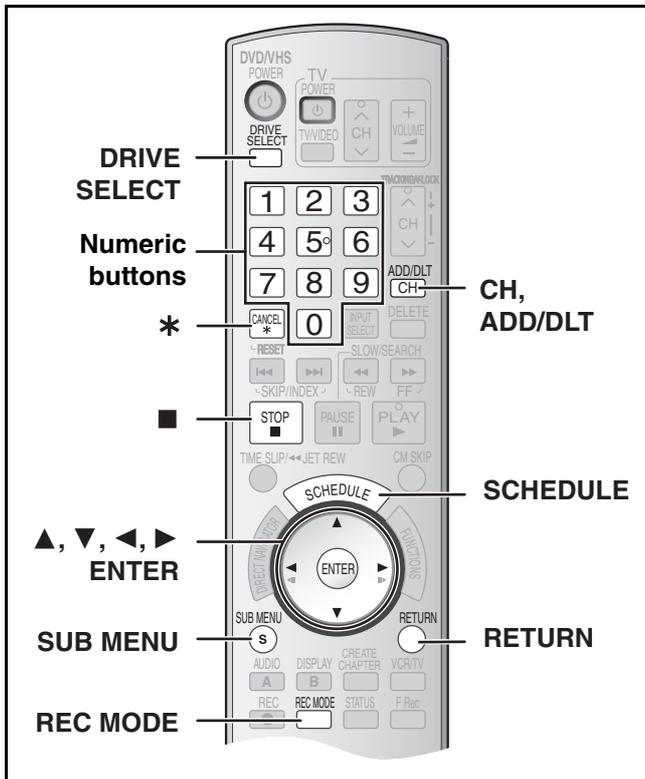
To show the remaining time

Press [STATUS] several times. (→ 37)

For your reference

- During a Flexible Recording, all recording mode indicators light up on the unit's display.
- It is not possible to change the channel or recording mode while Flexible Recording is paused.

Scheduled Recording



Cautions for using scheduled recording on DVD and VHS

- **Scheduled recording automatically starts at the set time.**
- Scheduled recording can be started whether the unit is turned on or off. When the unit is turned off, the sound and the video cannot be outputted to the TV.
- **Scheduled recording for TV programs cannot be executed on both DVD and VHS at the same time.**
Make sure the scheduled recording start times do not overlap on both DVD and VHS Scheduled Recording List screens.

When the scheduled recording settings overlap:

- When the start time of both scheduled recordings is the same, the programme that you register later has priority.
- If there is a VHS scheduled recording that overlaps a DVD scheduled recording that is currently being recorded, it may not be possible to operate the VHS during the overlap.

Programming scheduled recordings

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

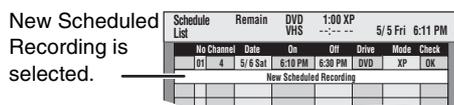
You can enter up to 16 programs a month in advance.

Preparation

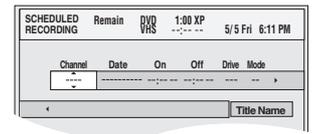
- Release protection (disc → 53, cartridge → 53) **RAM**.
- Insert a disc (→ 22) and confirm there is sufficient empty space for recording on it (→ 37).
- Check that the clock is set to the correct time.
- When connecting a cable box or satellite receiver, select the channel on the cable box or satellite receiver before scheduled recording starts.

1 Press [SCHEDULE].

- Make sure "New Scheduled Recording" is selected.



2 Press [ENTER] to move and change the items using [▲, ▼, ◀, ▶].



- You may use the numeric buttons to enter "Channel", "Date", "On", and "Off".
- **Channel** (Program Position/TV Station Name)
- **Date**
You can also make a daily or weekly program. Each daily or weekly program is counted as one program.
- **On** (start time)/**Off** (finish time)
The time increases or decreases in 30-minute increments if you hold down the button.
- **Drive**
You can select DVD or VHS drive.
You can also press [DRIVE SELECT] to select the drive. DVD ↔ VHS
- **Mode** (Recording mode)
You can also press [REC MODE] to change the recording mode.
DVD XP ↔ SP ↔ LP ↔ EP ↔ FR ↔ XP.. (→ 24)
VHS SP ↔ EP ↔ VP ↔ AUTO* ↔ SP.. (→ 24)
*Auto SP/EP mode (→ 29)
- **Title Name**
Press [◀, ▶] to select "Title Name" and press [ENTER] (→ 51).

3 Press [ENTER] when you have finished making changes.

- "⊖" lights on the unit's display. (→ 12)
- "Invalid Entry" is displayed when you enter the wrong item. Reenter the item.
- Make sure that the scheduled recording has been programmed correctly on the SCHEDULE LIST screen (→ 29).
- To continue programming:
Select "New Scheduled Recording" and repeat steps 2 to 3.

4 Press [RETURN].

Notes

- When the unit is carrying out a scheduled recording, you may utilize playback.
- When the disc or video cassette is removed, scheduled recording standby is cancelled (the "⊖" indicator goes out). You can put the unit back on standby by inserting a recordable disc or video cassette (the "⊖" indicator comes on again).
- When a video cassette is not inserted or a video cassette with no accidental erasure prevention tab is inserted, the warning message appears before the recording starts because scheduled recording cannot be executed.
- When recording more than one program in a row, for DVD-RAM the first few seconds, and for DVD-R, DVD-R DL, DVD-RW, +R, +R DL or +RW about the first 30 seconds of all programs from the second one onwards will not be recorded.
- Even if you set the Title Name on the scheduled recording screen, it is not recorded on video cassette.
- If you set "DST" (Daylight Saving Time) to "ON" when manually setting the clock (→ 17), scheduled recording may not work when summer switches to winter and vice versa.

■ Cancel scheduled recording that has already begun

Preparation

- Select the drive with the scheduled recording you want to cancel by pressing [DRIVE SELECT].

- 1 When unit is on**
Press [■, STOP].

- Confirmation screen appears.

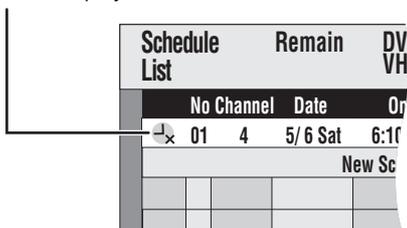
- 2 Press [◀, ▶] to select “Stop Recording” and press [ENTER].**

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

■ Release program from recording standby

- 1 Press [SCHEDULE].**
- 2 Press [▲, ▼] to select the program and press [SUB MENU].**
- 3 Press [▲, ▼] to select “Schedule set to Off” and press [ENTER].**

Cancelled icon is displayed in left column.



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

Note

- When a scheduled recording program cannot start (no tape, etc.), “Schedule set to On.” is cancelled one minute before the start time. (If a daily or weekly scheduled recording program cannot start, the following daily or weekly scheduled recording will not be affected.)

VHS

■ Auto SP/EP mode

VHS

If, at the beginning of a scheduled recording, there is not enough tape remaining to complete the recording, the SP/EP function will automatically run the tape at EP speed for recording. This ensures that the entire program will be recorded. If EP mode is not enough to stretch the remaining tape to fit the whole program you will not be able to record the whole TV program.

Scheduled recording

1st program (30 min)	2nd program (60 min)	
30 min at SP	15 min at SP	45 min at EP

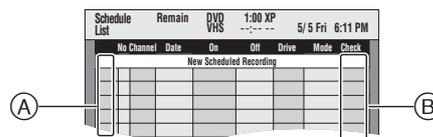
Video tape (e.g.: 60-minute cassette)

- It is not possible to automatically activate VP mode.
- The tape length must be set correctly. (→ 58)
- Some tapes may not work correctly.
- If the recording mode changes from SP to EP during a scheduled recording, some picture distortion occurs at that point.

■ Check, change or delete programs

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

- 1 Press [SCHEDULE].**



Icon explanations (A)

- : Currently recording
- W: Programs are overlapped. Recording of the program with the later start time starts when the earlier program finishes recording.
- ⌘: Scheduled recording standby is cancelled. Recording will not start at the scheduled time.
- ⊖: You stopped a weekly or daily scheduled recording. The icon disappears when the next scheduled recording starts.
- F: The disc was full. (not enough space)
- Ⓜ: The TV program may not be recorded due to copy-protect. (disc)
- ⓧ: Recording stopped (Dirty disc or tape, etc.)

Check (B)

- OK:** Recordable (disc)
- **(Date):** The last day of daily or weekly recording. (disc)

!:

- It may not be possible to record because:
- the disc is write-protected.
 - there is no more space left (disc).
 - the number of possible titles has reached its maximum.
 - the tape tab is broken off.
 - there is no tape/the tape is full.
 - the remaining tape time is not calculated.

Overlap: When the date and time overlap with another scheduled recording, only a part of the program can be recorded.

--: All other cases (tape)

- 2 Press [▲, ▼] to select the program.**

- You may also select program by inputting a 2-digit number using the numeric buttons.

e.g.: “5”: [0]→[5]
“15”: [1]→[5]

- Press [◀, ▶] to move to the preceding or following page.

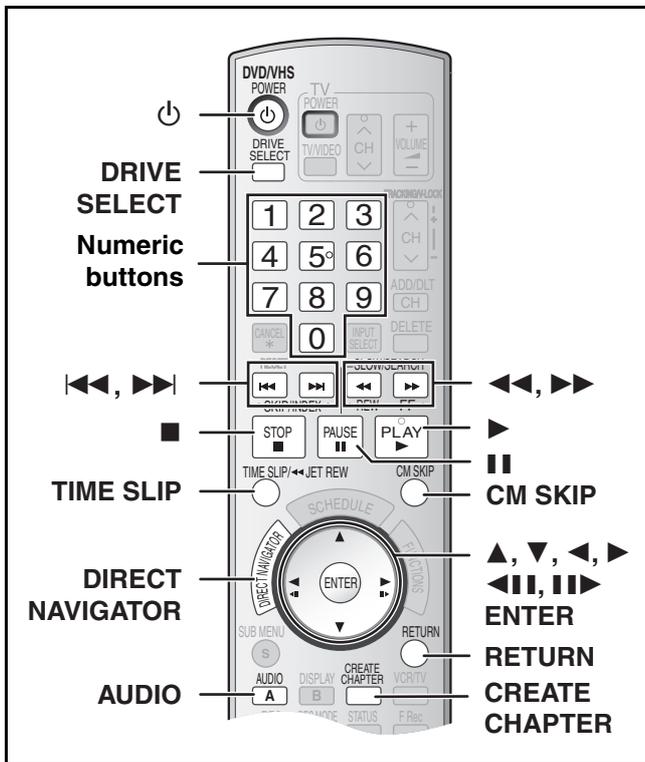
- 3 Press [*, CANCEL] or [CH, ADD/HLT] to delete, or press [ENTER] to change.**

- You cannot delete programs that are currently recording.
- The scheduled recording setting screen appears.

- 4 If you pressed [ENTER] in step 3, Use [▲, ▼, ◀, ▶] to change and press [ENTER].**

- 5 Press [RETURN].**

Playing discs



Preparation

- Turn on the TV and select the appropriate video input to suit the connections to the unit.

Playing discs

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

- 1 Press [⏻, DVD/VHS POWER] to turn the unit on.
- 2 Insert a disc. (→ 22)
- 3 Select DVD side with pressing [DRIVE SELECT].
- 4 Press [▶, PLAY].

- The disc tray closes and play begins. (The unit takes some time to read the disc before play starts.)
- Playback starts from the most recently recorded title.

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

- Playback starts from the beginning of the disc.

DVD-A DVD-V VCD CD

To stop play

Press [■, STOP].

The stopped position is memorized.

Resume play function

Press [▶, PLAY] to restart from this position.

- **VCD** Depending on the disc, resume play function may not be effective.

- The stopped position is cleared when:

- You press [■, STOP] several times.

- You open the tray.

- **DVD-A VCD CD** You turn the unit off.

- The screen saver on the right may appear when you stop play. Press [■, STOP] again and you can use the unit's tuner to watch TV.

DVD-A DVD-V VCD CD

To pause play

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

Note

- The unit stops playing a disc when scheduled recording starts.

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

- Press [▶, PLAY] when you wish to start playing the disc while recording (→ 26, "Playing from the beginning of the title you are recording—Chasing playback"). **RAM**

Screen saver



When a menu screen appears on the TV

VCD

Press the numeric buttons 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 can sometimes use the numeric buttons to select an item.

Other buttons used to operate menus

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

Note

- If "⊘" appears on the TV, the operation is prohibited by the unit or disc.

Selecting recorded titles to play

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

- 1 Press [DIRECT NAVIGATOR].

- 2 Use [▲, ▼, ◀, ▶] to select the title you want to watch and press [ENTER].

- Play starts.

- You can also select titles by

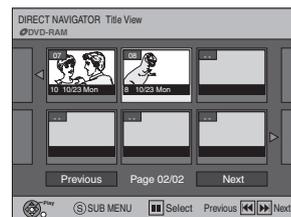
entering a 2-digit number with the numeric buttons.

e.g.: "5": [0]→[5]

"15": [1]→[5]

- If you enter a number larger than the total number of titles, the last title is selected.

- "To show other pages" (→ 38)



To clear the title list

Press [RETURN].

For your reference

- Direct Navigator screen icons

🔒: Title protected

🔒: Copy-protected so it was not recorded

x: Unable to play

●: Currently recording

🔒: Title with "One time only recording" restriction (→ 68, CPRM)

Quick View (Play ×1.3)

RAM

The play speed can be increased without distorting the audio.

During Play

Press and hold [▶, PLAY].



To return to normal speed

Press [▶, PLAY].

Fast forward and rewind—SEARCH

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

During Play

Press [◀◀, SLOW/SEARCH] or [▶▶, SLOW/SEARCH].

e.g.: **RAM**



- There are 5 search speeds. Each press

increases the search speed. (+R +RW Up to 3 speeds)

- Press [▶, PLAY] to restart playback.

For your reference

- Sound is output only in the first level of fast forward. In the case of DVD-Audio (except motion picture parts), CD and MP3, it is output in all levels.

- Depending on the disc, search may not be possible.

Skipping

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

During play or while paused

Press [**◀◀**, SKIP] or [**▶▶**, SKIP].

- Each press increases the number of skips.

Slow-motion play

RAM -R -R DL -RW(V) +R +R DL +RW
DVD-A (Motion picture parts only) DVD-V -RW(VR) VCD

While paused

Press [**◀◀**, SLOW/SEARCH] or [**▶▶**, SLOW/SEARCH].

- When slow motion play is continued for about 5 minutes it pauses automatically (excluding DVD-A DVD-V VCD).
- There are 5 play speeds. Each press increases the play speed.
- Press [**▶**, PLAY] to restart playback.
- **VCD** Forward direction ([**▶▶**, SLOW/SEARCH]) only.

Frame-by-frame viewing

RAM -R -R DL -RW(V) +R +R DL +RW
DVD-A (Motion picture parts only) DVD-V -RW(VR) VCD

While paused

Press [**◀◀**] ([**◀**]) or [**▶▶**] ([**▶**]).

- Each press shows the next or previous frame.
- Press and hold to change in succession forward or backward.
- Press [**▶**, PLAY] to restart playback.
- **VCD** Forward direction ([**▶▶**], [**▶**]) only.

Direct play

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

You can play from the title, chapter or track you select.

During Play

Press the numeric buttons to select an item.

CD (MP3, JPEG and TIFF disc only)

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

DVD-A

A group number can be specified while the screen saver (→ 30) is displayed.

e.g.: "5": [5]

- This works only when stopped (screen saver is displayed) with some discs.
- **Playing bonus groups**
Some discs contain bonus groups. If a password screen appears after selecting a group, enter the password with the numeric buttons and press [ENTER]. For the password, refer to the disc's jacket, etc.

CM Skip

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

You can skip approximately 1 minute with one press.

During play

Press [**CM SKIP**].

Create chapters

RAM

During play

Press [**CREATE CHAPTER**].

- Press [**◀◀**, SKIP] or [**▶▶**, SKIP] to skip to the start of a chapter.
- You cannot activate this function when you are carrying out transfer (copy).

Skipping the specified time — Time Slip

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

1 During play

Press [**TIME SLIP**].

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

Play skips to the specified time.

- Each time you press [**▲**, **▼**] the time increases [**▲**] or decreases [**▼**] by 1 minute intervals. (Press and hold for 10-minute intervals.)

Changing audio during play

Press [**AUDIO**] to select the audio type.

- You can select audio types depend on the recording medium.

RAM -RW(VR) VCD
Stereo → Mono L → Mono R

e.g.: **RAM**
"Stereo" is
selected.



RAM -RW(VR) [When playing an SAP broadcast recorded on DVD-RAM, DVD-RW (DVD Video Recording format)]
MAIN Audio ↔ SAP Audio

DVD-A DVD-V

This allows you to change items like the audio channel number and the sound track language. (→ 36)



e.g.: English is the selected language. **DVD-V**

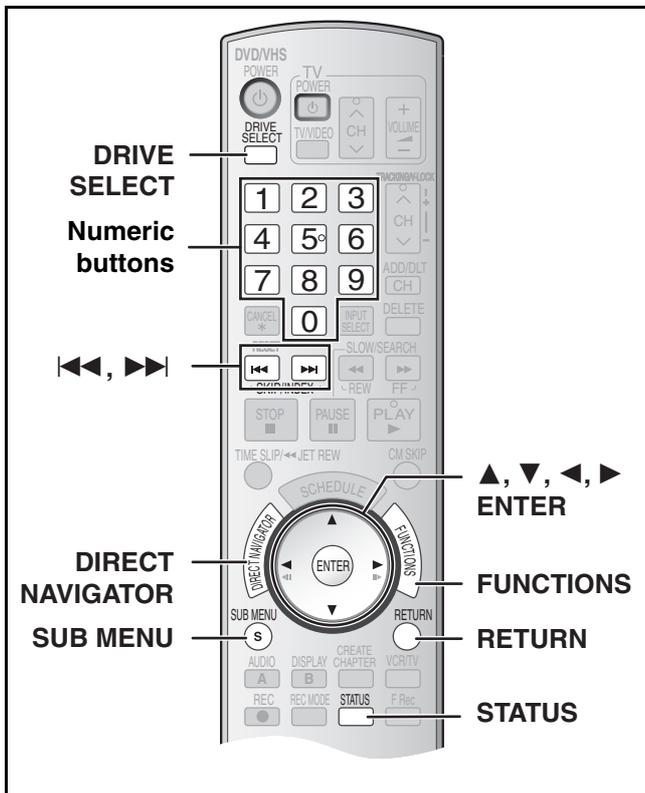
VHS

Stereo → Mono L → Mono R → No display (Normal audio track)

Note

- If you cannot change the audio type when you have used only an optical digital cable for connection, set "Dolby Digital" to "PCM" (→ 57). Alternatively, you may connect to an amplifier with an Audio/Video cable and change the input on the amplifier to suit the connection.

Using menus to play MP3 and still pictures (JPEG/TIFF)



Preparation

- Turn on the TV and select the appropriate video input to suit the connections to the unit.
- Select DVD side with pressing [DRIVE SELECT].

Playing discs which contain both MP3 and still pictures

CD

The screen shown below is displayed when you insert a disc containing MP3 files and still pictures (JPEG/TIFF).

Press [ENTER].

To play MP3

Refer to "Playing MP3". (→ below)

To play still pictures

Refer to "To show Pictures Menu". (→ 33)



Playing MP3

CD

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

1 During stop or play

Press [DIRECT NAVIGATOR].

- The file list appears.

Selected Group No. and Name

G:

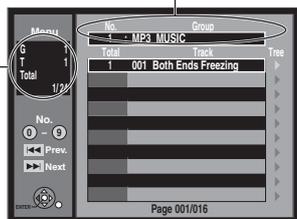
The Group Number

T:

Track Number in the Group

Total:

Selected Track Number/
Total Track Number



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

- Play starts on the selected track.
- "□" indicates the track currently playing.
- You can also directly select the track with the numeric buttons. e.g.:

"6": [0]→[0]→[6]
"10": [0]→[1]→[0]

Using the tree screen to find a group (→ 33)

To show other groups

Press [◀] (Prev.) or [▶] (Next) to show other pages.

- After listing all the tracks in one group, the list for the next group appears.

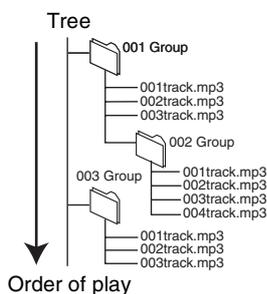
To exit the file list

Press [DIRECT NAVIGATOR] or [RETURN].

- You can play MP3 and still pictures (JPEG/TIFF) on this unit by making folders as shown below. However depending on how you create the disc (writing software), play may not be in the order you numbered the folders.
- English alphabetical characters and Arabic numerals are displayed correctly. Other characters may not be displayed correctly.
- When the highest level folders are "DCIM" folders, they are displayed first on the tree.

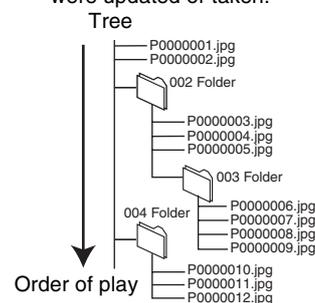
Structure of MP3 folders

Prefix with 3-digit numbers in the order you want to play them.



Structure of still pictures (JPEG/TIFF)

Files inside a folder are displayed in the order they were updated or taken.



Regarding MP3 and still pictures (JPEG/TIFF)

- Compatible formats: ISO9660 level 1 or 2 (except for extended formats) and Joliet
- Maximum number of files (tracks) and folders (groups) recognizable: 999 files (tracks) and 99 folders (groups)
- This unit is compatible with multi-session but reading or play of the disc may take time if there are a lot of sessions.
- Operation may take time to complete when there are many files (tracks) and/or folders (groups) and some files (tracks) may not display or be playable.
- The display order on this unit may differ from how the order is displayed on a computer.
- Depending on how you create the disc (writing software), files (tracks) and folders (groups) may not play in the order you numbered them.
- This unit is not compatible with packet-write format.
- Depending on the recording, some items may not be playable.

Regarding MP3

- File format: MP3
- Files must have the extension ".mp3" or ".MP3".
- Bit rates: 32 kbps to 320 kbps
- Sampling frequency: 16 kHz/22.05 kHz/24 kHz/32 kHz/44.1 kHz/48 kHz
- This unit is not compatible with ID3 tags.

Regarding still pictures (JPEG/TIFF)

- File format: JPEG, TIFF (non-compressed RGB chunky format)
- Files must have the extension ".jpg", ".JPG", ".tif" and ".TIF".
- Number of pixels: 34 × 34 to 6144 × 4096 (Sub sampling is 4:2:2 or 4:2:0)
- Operation may take time to complete when playing TIFF format still pictures.
- Motion JPEG is not supported.

■ Using the tree screen to find a group

1 While the file list is displayed (→ 32)

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



Selected Group Number/Total Group Number

• If the group has no track, “- -” is displayed as group number.

- A folder which has no MP3 files is indicated in black. You cannot select groups with no MP3 files.
- Press [◀, ▶] to jump layers in the tree screen.

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

- The file list for the selected group appears.

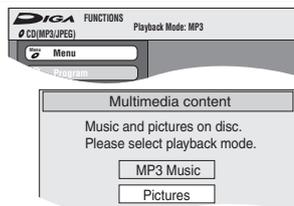
■ To return to the file list

Press [RETURN].

To show Pictures Menu

CD [with MP3 files and still pictures (JPEG/TIFF)]

- 1 Press [FUNCTIONS].
- 2 Select “Menu” with [▲, ▼] and press [ENTER].
- 3 Select “Pictures” with [▲, ▼] and press [ENTER].



CD [with still pictures (JPEG/TIFF) only]

Press [DIRECT NAVIGATOR].

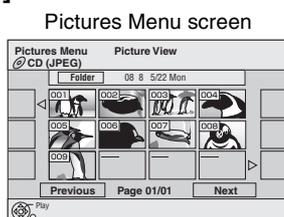
■ To show other pages

Press [◀] (Previous) or [▶] (Next) to show other pages.

- You can also press [▲, ▼, ◀, ▶] to select “Previous” or “Next” and press [ENTER] to show other pages.

■ To exit the Pictures Menu

Press [DIRECT NAVIGATOR] or [RETURN].



Playing still pictures (JPEG/TIFF)

- Make sure that Pictures Menu screen appears by following the steps “To show Pictures Menu”.

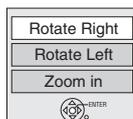
Use [▲, ▼, ◀, ▶] to select a still picture you want to watch and press [ENTER].

- You can also select a still picture by entering a 3-digit with the numeric buttons.
e.g.: “5”: [0]→[0]→[5]
“15”: [0]→[1]→[5]
- You can watch the still pictures in order by pressing [◀] (previous) or [▶] (next).

To rotate a still picture

- 1 Press [SUB MENU].
- 2 Select “Rotate Right” or “Rotate Left” with [▲, ▼] and press [ENTER].

- Rotation information will not be stored;
 - [CD] When Still pictures
 - When disc is protected
 - When played on other equipment
 - When copying pictures



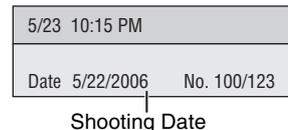
To zoom in/out

- 1 Press [SUB MENU].
- 2 Select “Zoom in” with [▲, ▼] and press [ENTER].

- To return the picture to its original size, repeat step 1 and press [▲, ▼] to select “Zoom out” in step 2 and then press [ENTER].
- When zooming in, the still picture may be cut off.
- The enlargement information will not be stored.
- The “Zoom in/Zoom out” function is only available for still pictures smaller than 640×480 pixels.

To show the picture properties

- 1 Press [STATUS] twice.
- Press [STATUS] again, the properties disappear.

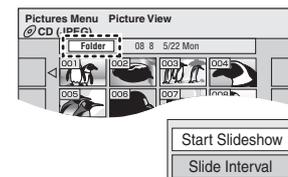


■ Start Slideshow/Slide Interval

- Make sure that Pictures Menu screen appears by following the steps “To show Pictures Menu”.

You can display still pictures one by one with constant interval.

- 1 Select “Folder” with [▲] and press [SUB MENU].
- 2 Select “Start Slideshow” with [▲, ▼] and press [ENTER].



To Change the display timing

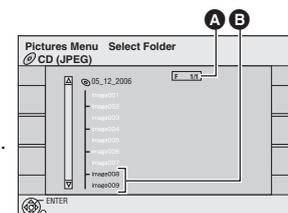
- 1 Select “Slide Interval” with [▲, ▼] in step 2 and press [ENTER].
- 2 Press [◀, ▶] to select the desired timing (0 to 30 seconds) and press [ENTER].

■ To select the still pictures in another folder

- Make sure that Pictures Menu screen appears by following the steps “To show Pictures Menu”.

You can display still pictures one by one with a constant interval.

- 1 Select “Folder” with [▲] and press [ENTER].
 - 2 Select the folder with [▲, ▼] and press [ENTER].
- A** Selected folder no./Total folder no.
B You cannot select folders that contain no compatible files.



Adjusting the playback picture

Manual tracking

The unit usually makes tracking adjustments, but you may need to do it manually if noise appears on a tape recorded on other equipment.

During play

Press **[TRACKING/V-LOCK, +]** or **[TRACKING/V-LOCK, -]**.

Repeat until the noise disappears.

Vertical locking adjustment

Adjust the vertical synchronization to stop the picture from jiggling while paused.

While paused

Press **[TRACKING/V-LOCK, +]** or **[TRACKING/V-LOCK, -]**.

Repeat until the jiggling stops.

To return to auto tracking

Press both **[TRACKING/V-LOCK, +]** and **[TRACKING/V-LOCK, -]** simultaneously.

To remove the noise from a paused picture

Start slow play, then adjust the tracking.

Notes

- This function may not work with some TV models and tapes.
- You can also adjust the tracking and vertical synchronization with **[CH, ^, v]** on the main unit.

VHS Index Search System (VISS)

The unit automatically records special index signals on the tape every time a recording is started. The index search function makes use of these index signals to let you find the beginning of a desired program quickly and easily.

Index signals are recorded in the following cases.

- When a recording is started by pressing **[●, REC]**.
- When scheduled recording is started.

Preparation

- Select the unit viewing channel on the TV.
- Select VHS side with pressing **[DRIVE SELECT]**.
- Insert a recorded video cassette.

While stopped or during normal play

Press **[◀◀]** or **[▶▶]**.

- Each press increases the number of skips.



To cancel the index search

Press **[■, STOP]**.

Notes

- You can search up to 20 index signals can be searched for in both directions.
- When you press either one of the buttons too much, you can control the number of skips by pressing the opposite button.
- The figure on the display decreases by 1 each time an index signal is located.
- This feature may not work correctly if the index signals are too close together. Make recordings of at least 5 minutes.

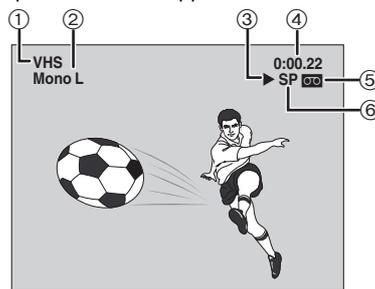
Various on-screen display indications

On-screen display below appears during play on VHS.

To see these displays, set the "Status Messages" item in the "Setup" to "Automatic". (→ 58)

Press **[STATUS]**.

The time and operation details appear on the screen.

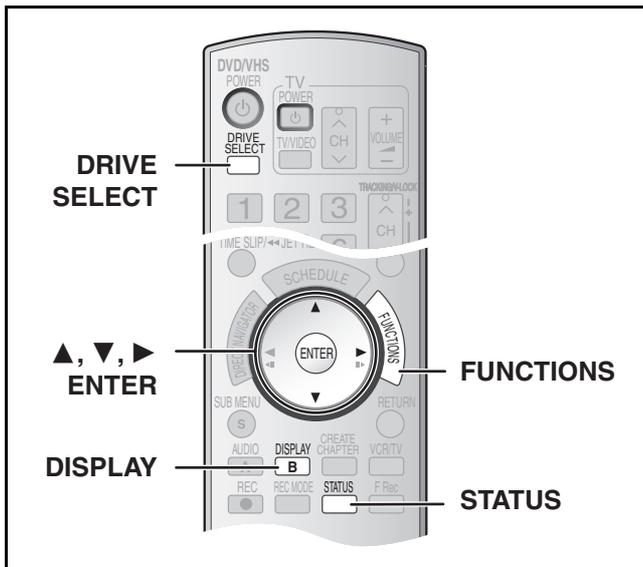


①	Current drive
②	Audio indicators The Left (Mono L) and Right (Mono R) indicators show which sound mode is selected as follows: Stereo: Stereo indicator appears. Mono L: The Mono L indicator appears. Mono R: The Mono R indicator appears. Normal: Neither the L nor R indicator appears.
③	Operation status display
④	Shows the tape counter and remaining tape time Pressing [STATUS] once makes the on-screen display appear. After that, press the button repeatedly to change the display as follows: No display → Tape counter → Remaining tape time ↑ • Press [*, CANCEL] to reset the tape counter (elapsed time) to "0:00.00". The tape counter is automatically reset to "0:00.00" when inserting a video cassette. • The remaining time is approximate. It will be incorrect if you set the wrong tape time in "Select Tape Length" in the "Setup" and if the tape is of poor quality. (→ 58)
⑤	Cassette-in indicator Shows whether you have inserted a video cassette.
⑥	Recording mode indicator (→ 24)

Note

- The on-screen display may be distorted depending on the playback tape or the input signal.

Using on-screen menus



Common procedures

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

Preparation

- Select DVD side with pressing [DRIVE SELECT].

1 Press [DISPLAY].

Disc	Soundtrack	1	DD Digital 2/0ch
Play	Subtitle	Off	
Video	Audio channel	Stereo	
Audio			
Other			
Menu	Item		Setting

2 Select a menu with [▲, ▼] and press [▶].

3 Select an item with [▲, ▼] and press [▶].

4 Select a setting with [▲, ▼].

- Different operations are required depending on settings. Follow the on-screen instructions.

To exit the screen

Press [DISPLAY].

For your reference

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

Disc menu-Setting disc content

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V -RW(VR)
VCD

Soundtrack

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

The disc's audio attributes appear.

DVD-A DVD-V

Select the audio and language. (See [B] Audio attributes)

Subtitle

DVD-A DVD-V

Turn the subtitle on/off and select the language (See [A] Sound track/Subtitle language)

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

(Only disc that contain subtitle on/off information)

Turn the subtitle on/off.

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

Audio channel RAM -RW(VR) VCD

"Changing audio during play" (→ 31)

Angle DVD-A DVD-V

Change the number to select an angle.

Still-P (Still picture) DVD-A

Selects the play method for still pictures.

Slide Show: Plays according to the default order on the disc.

Page: Select the still picture number and play.

RANDOM: Plays in random order.

Return: Returns to the default still picture on the disc.

PBC (Playback control) VCD (→ 68)

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

[A] Sound track/Subtitle language

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

[B] Audio attributes

LPCM/PPCM/DD Digital/DTS/MPEG: Signal type

k (kHz): Sampling frequency

b (bit): Number of bits

ch (channel): Number of channels

For your reference

- The display changes according to the disc content. You cannot make a change when there is no recording.
- Some discs allow changes to sound tracks, subtitles, and angles only by using the disc's setup menus.

Play menu-Change play sequence

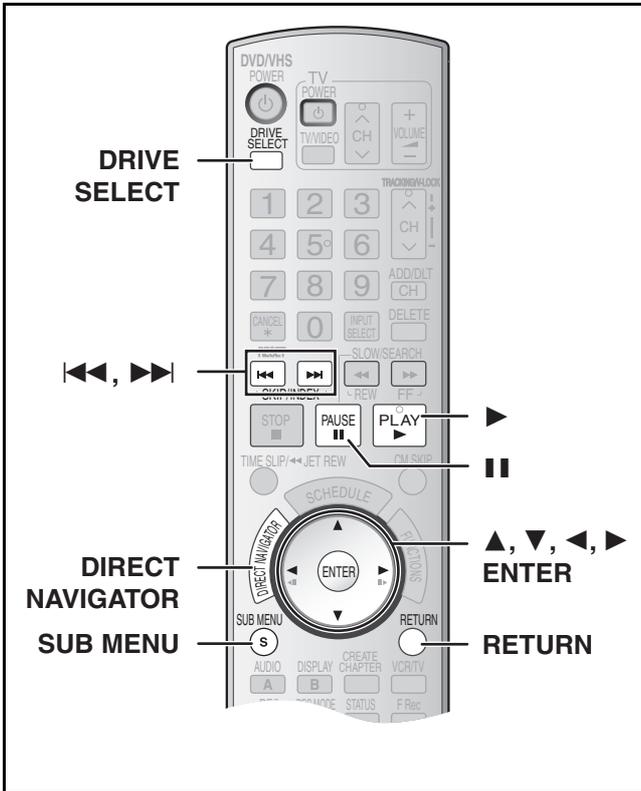
RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V -RW(VR)
VCD CD

Repeat play

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

Select the item for repeat play. Depending on the disc, the items that can be selected will differ.

- All VCD CD (excluding MP3 discs)
 - Chapter RAM -R -R DL -RW(V) +R +R DL +RW
DVD-V -RW(VR)
 - Group DVD-A CD (MP3 discs only)
 - Playlists RAM -RW(VR)
 - Title RAM -R -R DL -RW(V) +R +R DL +RW
DVD-V -RW(VR)
 - Track DVD-A VCD CD
- Select "Off" to cancel.



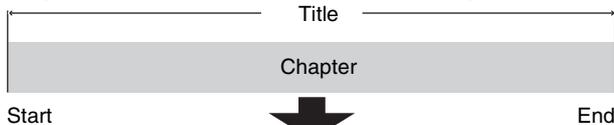
RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)
 Press [DIRECT NAVIGATOR] and the list of titles recorded (Title View) is shown. You can play and edit a desired title.

For your reference

- You cannot edit during recording or transferring (copying), etc.
- You can create a Top Menu using “Create DVD Top Menu” (→ 55). Recording or editing on the disc may delete the menu. In that case, create the menu again. **+RW**
- Management information is recorded in unused sections when you edit discs. The available space these discs decreases each time you edit their contents. **+R +R DL**
- The maximum number of items on a disc:
 - Title: 99 (**+R +R DL +RW**) 49 titles)
 - Chapter: Approximately 1000 (**+R +R DL +RW**) Approximately 254) (Depends on the state of recording.)

Title/Chapter

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



You can divide a title into multiple chapters. **RAM** (→ 31, “Create chapters”, → 40 “Create Chapter”)



- You can change the order of chapters and create a playlist (→ 41). **RAM**
- Titles are divided into chapters about 5 minutes after finalizing (→ 55). **-R -R DL -RW(V)** (8 minutes **+R +R DL**)

Editing titles/Chapters and playing chapters

Note

- Once deleted, divided or shortened, the title cannot be restored to its original state. Make certain before proceeding.

Preparation

- Release protection (disc → 53, cartridge → 53). **RAM**
- Select DVD side with pressing [DRIVE SELECT].

- 1 Press [DIRECT NAVIGATOR].
- 2 Use [▲, ▼, ◀, ▶] to select a desired title.
 - “To show other pages” (→ below)
- 3 Press [SUB MENU].
- 4 Use [▲, ▼] to select a desired item and press [ENTER].
 - After this operation, follow the desired operation.



To stop in the middle

Press [RETURN].

For your reference

- When the title is protected (→ 39), some items are not accessible. Release the protection to access the inaccessible items. **RAM**

Title operations

Delete Title

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

(Multiple editing is possible. → below)

- Follow steps 1 to 3 of “Editing titles/Chapters and playing chapters”.

Once title is deleted using this procedure, it cannot be retrieved. Check the title carefully before erasing to ensure it isn't one you want to keep.

- 4 Select “Delete Title” with [▲, ▼] and press [ENTER].
- 5 Select “Delete” with [◀] and press [ENTER].



For your reference

- The disc's available recording time may not increase after erasing short titles.
- The available recording space on DVD-R, DVD-R DL, +R or +R DL does not increase when you delete titles.
- The available recording space on a DVD-RW (DVD-Video format) or +RW increases when the last recorded title is deleted. (The recording space may increase slightly when other titles are deleted.)

Properties

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

- Follow steps 1 to 3 of “Editing titles/Chapters and playing chapters”.

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

- 4 Select “Properties” with [▲, ▼] and press [ENTER].



Various operations

To show other pages

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

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

Multiple editing

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

■ Edit Title

You can perform various kinds of title editing.

Preparation

- Release protection (disc → 53, cartridge → 53). **RAM**
- Select DVD side with pressing [DRIVE SELECT].

1 Press [DIRECT NAVIGATOR] and use [▲, ▼, ◀, ▶] to select a desired title.

- “To show other pages” → 38
- “Multiple editing” → 38

2 Press [SUB MENU].

e.g.; **RAM**



3 Select “Edit Title” with [▲, ▼] and press [ENTER].

4 Use [▲, ▼] to select a desired item and press [ENTER].

- The editing screen for the selected item appears.

■ To return to the previous screen

Press [RETURN].

■ To exit the screen

Press [RETURN].

▶ Title Name

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

- Follow steps 1 to 3 of “Edit Title”.

4 Select “Title Name” with [▲, ▼] and press [ENTER].

Refer to “Entering text”. (→ 51)

▶ Set Protection/Cancel Protection

RAM **+R** **+R DL** **+RW** (“Multiple editing” → 38)

- Follow steps 1 to 3 of “Edit Title”.

You can prevent accidental erasure of titles by setting and canceling the write-protection.

4 Select “Set Protection” or “Cancel Protection” with [▲, ▼] and press [ENTER].

5 Select “Yes” with [◀] and press [ENTER].



Set up Protection:
The padlock mark appears.



Cancel Protection:
The padlock mark disappears.

For your reference

Titles will be erased even if they are protected if you format the disc with DVD Management (→ 53).

▶ Shorten Title

RAM

- Follow steps 1 to 3 of “Edit Title”.

You can remove unnecessary parts of the title such as commercials.

4 Select “Shorten Title” with [▲, ▼] and press [ENTER].

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

(→ 40, “For quicker editing”)



6 Select “Exit” with [▲, ▼] and press [ENTER].

7 Select “Delete” with [◀] and press [ENTER].



■ To erase another part of the same title

After setting the point in “Start” and “End”, select “Next” in step 5 and perform step 7, then repeat steps 5–7.

For your reference

- You may not be able to specify start and end points within 3 seconds of each other.
- The disc’s available recording time may not increase after erasing short parts of titles.

▶ Change Thumbnail

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

- Follow steps 1 to 3 of “Edit Title”.

You can change the image to be shown as a thumbnail picture in the Title View.

4 Select “Change Thumbnail” with [▲, ▼] and press [ENTER].

5 Press [▶, PLAY] to play.

6 Press [ENTER] at the point you want to display.

(→ 40, “For quicker editing”)

• To change to another point in the same title:

- Select “Change” with [▲, ▼] and press [▶, PLAY] and then repeat step 6.

7 Select “Exit” with [▲, ▼] and press [ENTER].

- The thumbnail picture will be changed at this point.



▶ Divide Title

RAM

- Follow steps 1 to 3 of “Edit Title”.

You can divide a selected title into two. You must be careful when dividing a title because it cannot be recovered after the procedure.

4 Select “Divide Title” with [▲, ▼] and press [ENTER].

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

(→ 40, “For quicker editing”)

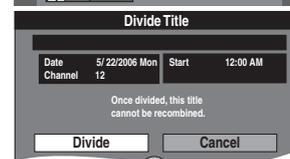
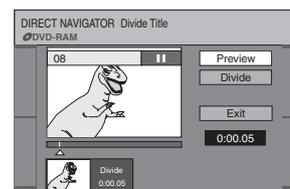
• To change the point to divide:

- Select “Divide” with [▲, ▼] and press [▶, PLAY], and then repeat steps 5 to 7.

6 Select “Exit” with [▲, ▼] and press [ENTER].

7 Select “Divide” with [◀] and press [ENTER].

- The title is divided at that point.

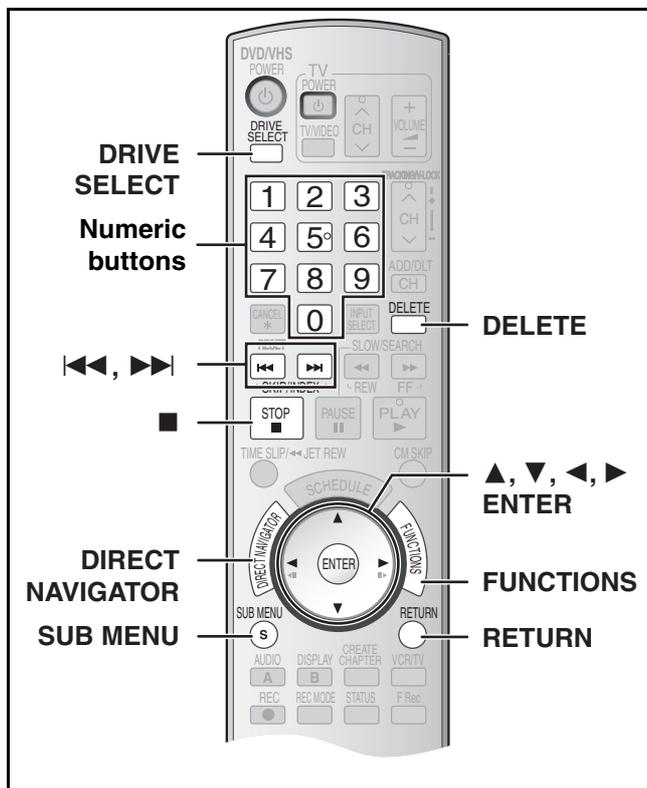


■ To check the division point

By selecting “Preview” in step 5 and pressing [ENTER], play will begin from 10 seconds prior to the division point to 10 seconds after the division point.

For your reference

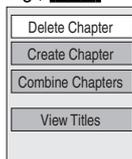
- The divided titles retain the name of the original title. They also retain the CPRM property (→ 68) of the original.
- Video and audio just before and after the division point will be momentarily cut out.
- It is not possible to carry out “Divide” in the following cases:
 - When the resulting part(s) are extremely short.
 - When the total number of titles is more than 99.



Chapter operations

■ View Chapters

- 1** Press [DIRECT NAVIGATOR] and use [▲, ▼, ◀, ▶] to select a desired title.
 - “To show other pages” → 38
- 2** Press [SUB MENU].
- 3** Select “View Chapters” with [▲, ▼] and press [ENTER]. e.g.; **RAM**
- 4** Select a desired chapter with [▲, ▼, ◀, ▶].
 - To start play → Press [ENTER].
 - To edit → Follow the steps below.
- 5** Press [SUB MENU].
- 6** Select a desired item with [▲, ▼] and press [ENTER].



▶ Delete Chapter

RAM (“Multiple editing” → 38)

- Follow steps 1 to 5 of “View Chapters”.

Once deleted, the recorded contents are lost and cannot be restored. Make certain before proceeding.

- 6** Select “Delete Chapter” with [▲, ▼] and press [ENTER].
- 7** Select “Delete” with [◀] and press [ENTER].

▶ Create Chapter

RAM

- Follow steps 1 to 5 of “View Chapters”.

- 6** Select “Create Chapter” with [▲, ▼] and press [ENTER].
- 7** Press [ENTER] at the point you want to divide. (→ below, “For quicker editing”)
 - Repeat this step to divide at other points.



- 8** Select “Exit” with [▼] and press [ENTER].

Note

- A short portion of the recording just after the creation point may be lost.

For your reference

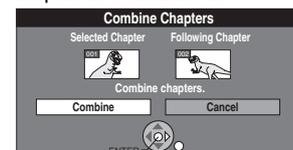
- The divided titles retain the name of the original title. They also retain the CPRM property (→ 68) of the original.
- It is not possible to carry out “Create” when the resulting part(s) are extremely short.

▶ Combine Chapters

RAM

- Follow steps 1 to 5 of “View Chapters”.

- 6** Select “Combine Chapters” with [▲, ▼] and press [ENTER].
- 7** Select “Combine” with [◀] and press [ENTER].
 - The selected chapter and next chapter are combined.



▶ View Titles

- Follow steps 1 to 5 of “View Chapters”.

- 6** Select “View Titles” with [▲, ▼] and press [ENTER].

You go back to Title View.

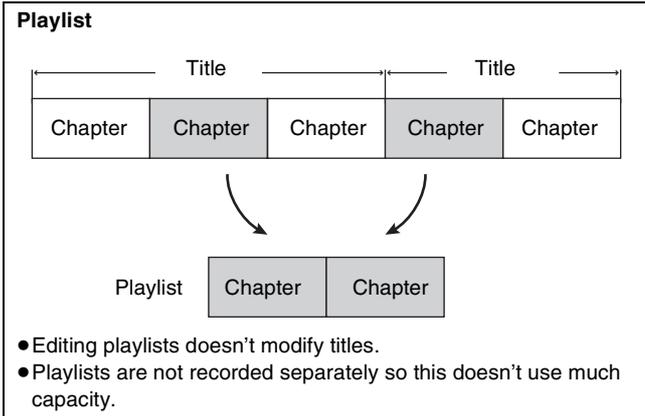
For quicker editing

- Use search (→ 30), Time Slip (→ 31) or slow-motion (→ 31) to find the desired point.
- Press [◀◀, SKIP] or [▶▶, SKIP] to skip to the end of a title.

Creating, editing and playing playlist

RAM

You can create a playlist by gathering your favorite chapters (→ 38) from your recordings. You can also play and edit the created playlist.



- The maximum number of items on a disc:
 - Playlists: 99
 - Chapters in play lists: Approximately 1000 (Depends on the state of recording.)
- If you exceed the maximum numbers of items for a disc, all the items entered will not be recorded.
- You cannot create or edit a playlist while recording.

Creating playlists

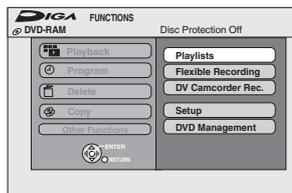
RAM

Preparation

- Release protection. (disc → 53, cartridge → 53)
- Select DVD side with pressing [DRIVE SELECT].

1 While stopped

Press [FUNCTIONS].

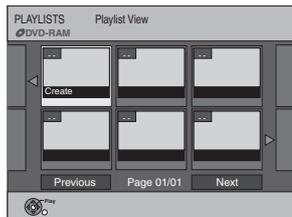


2 Select "Other Functions"

with [▲, ▼] and press [ENTER].

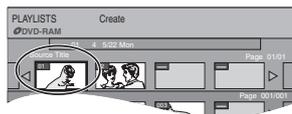
3 Select "Playlists" with [▲, ▼] and press [ENTER].

- The Playlist View appears.



4 Select "Create" with [▲, ▼, ◀, ▶] and press [ENTER].

5 Use [◀, ▶] to select the source title and press [▼].



- When you want to select all chapters in the title, use [◀, ▶] to select the source title and press [ENTER], then skip to step 7.
- Repeat steps 5 to 7 to add other titles or chapters.

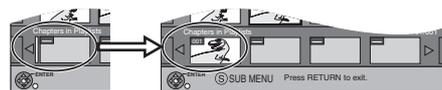
6 Use [◀, ▶] to select the chapter you want to add to a playlist and press [ENTER].

- Press [▲] to cancel.



- You can also create a new chapter in the source title. Press [SUB MENU] to select "Create Chapter" and press [ENTER] (→ 40, "Create Chapter").

7 Use [◀, ▶] to select the position to insert the chapter and press [ENTER].



- The chapter is registered in the playlist.
- Repeat steps 6 to 7 to add other chapters.
- To select other source titles, press [▲] several times to return to step 5.

8 Press [RETURN].

■ To return to the previous screen

Press [RETURN].

■ To exit the screen

Press [RETURN].

Playing playlists

RAM -RW(VR) (Play only)

Preparation

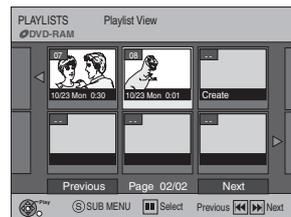
- Create playlists.
- Select DVD side with pressing [DRIVE SELECT].

1 While stopped

Press [FUNCTIONS].

2 Select "Other Functions" with [▲, ▼] and press [ENTER].

3 Select "Playlists" with [▲, ▼] and press [ENTER].



4 Use [▲, ▼, ◀, ▶] to select a playlist and press [ENTER].

- Chapters are not displayed if you have not yet created a playlist with the disc.
- You can also select a playlist from the Playlist View by entering a 2-digit number with the numeric buttons.
 - e.g.: "5": [0]→[5]
 - "15": [1]→[5]
- If you enter a number larger than the total number of playlists, "Create" is selected.
- "To show other pages" → 38

■ To stop playlist play

Press [■, STOP]. (The Playlist View screen appears.)

■ To return to the previous screen

Press [RETURN].

■ To exit the screen

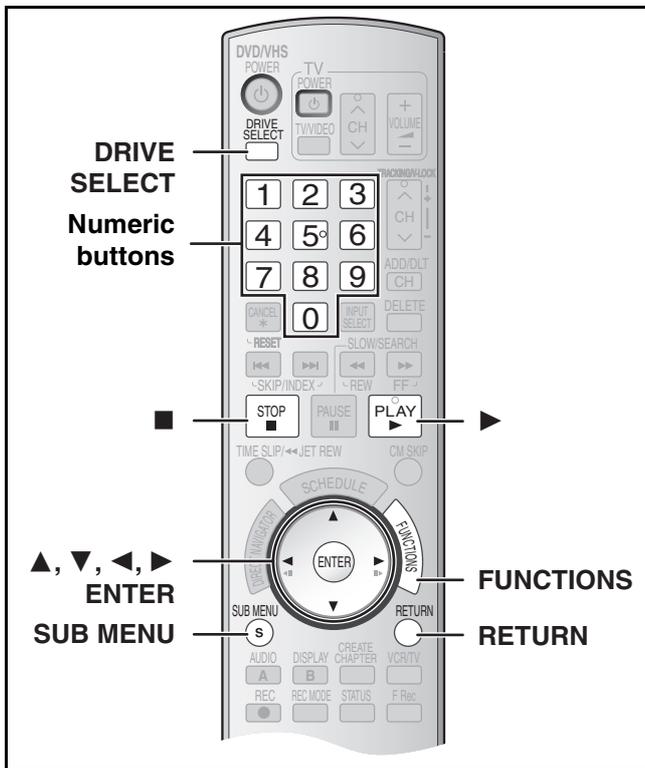
Press [RETURN].

■ To delete a playlist during play

- 1 Press [DELETE].
 - A confirmation message will be displayed.
- 2 Use [◀] to select "Delete" and press [ENTER].

For your reference

- You can use fast-forward, fast-rewind, pause, and slow-motion while playing chapters just as you can during normal play.



Preparation

- Create playlists. (→ 41)
- Release protection (disc → 53, cartridge → 53). **RAM**
- Select DVD side with pressing [DRIVE SELECT].

Editing playlists/chapters

RAM -RW(VR) (Properties only)

- 1 While stopped**
Press [FUNCTIONS].
- 2 Select “Other Functions” with [▲, ▼] and press [ENTER].**
- 3 Select “Playlists” with [▲, ▼] and press [ENTER].**
• Chapters are not displayed if you have not yet created a playlist on the disc.
- 4 Use [▲, ▼, ◀, ▶] to select a playlist.**
• “To show other pages” → 38 e.g.; **RAM**
- 5 Press [SUB MENU].**
- 6 Use [▲, ▼] to select a desired item and press [ENTER].**



■ **To return to the previous screen**

Press [RETURN].

■ **To exit the screen**

Press [RETURN].

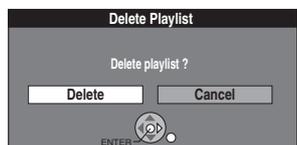
Playlist operations

■ Delete Playlist

RAM (“Multiple editing” → 38)

• Follow steps 1 to 5 of “Editing playlists/chapters”.

- 6 Select “Delete Playlist” with [▲, ▼] and press [ENTER].**
- 7 Select “Delete” with [◀] and press [ENTER].**



- The playlist is deleted.
- Once a playlist has been deleted, it cannot be restored. Check carefully before proceeding.
- Even if you delete the playlist, the original title is not deleted.

■ Properties

RAM -RW(VR)

• Follow steps 1 to 5 of “Editing playlists/chapters”.

- 6 Select “Properties” with [▲, ▼] and press [ENTER].**

Playlist information (e.g., date and length) is shown.

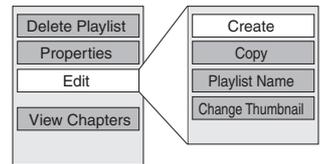


■ Edit

RAM

You can perform various kinds of playlist editing.

- 1 While stopped**
Press [FUNCTIONS].
- 2 Select “Other Functions” with [▲, ▼] and press [ENTER].**
- 3 Select “Playlists” with [▲, ▼] and press [ENTER].**
- 4 Use [▲, ▼, ◀, ▶] to select a playlist.**
• “To show other pages” → 38 e.g.; **RAM**
- 5 Press [SUB MENU], then select “Edit” with [▲, ▼] and press [ENTER].**
- 6 Use [▲, ▼] to select a desired item and press [ENTER].**



■ **To return to the previous screen**

Press [RETURN].

■ **To exit the screen**

Press [RETURN].

▶ Create

• Follow steps 1 to 5 of “Edit”.

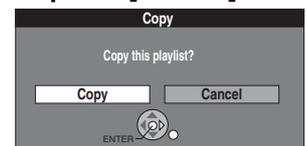
- 6 Select “Create” with [▲, ▼] and press [ENTER].**
Refer to “Creating playlists”, steps 5–8. (→ 41)

▶ Copy

(“Multiple editing” → 38)

• Follow steps 1 to 5 of “Edit”.

- 6 Select “Copy” with [▲, ▼] and press [ENTER].**
- 7 Select “Copy” with [◀] and press [ENTER].**



▶ Playlist Name

• Follow steps 1 to 5 of “Edit”.

- 6 Select “Playlist Name” with [▲, ▼] and press [ENTER].**

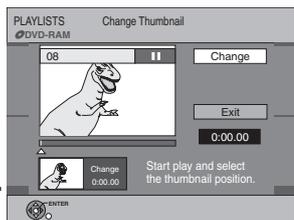
Refer to “Entering text”. (→ 51)

► Change Thumbnail

• Follow steps 1 to 5 of “Edit”.

You can change the image to be shown as a thumbnail picture in the Playlist View.

- 6 Select “Change Thumbnail” with [▲, ▼] and press [ENTER].
- 7 Press [▶, PLAY] to play.
- 8 Press [ENTER] at the point you want to display.



(→ 40, “For quicker editing”)
 • To change to another point in the same title:
 - Select “Change” with [▲, ▼] and press [▶, PLAY], and then repeat step 8.

- 9 Select “Exit” with [▲, ▼] and press [ENTER].
 • The displayed scene is changed at this point.

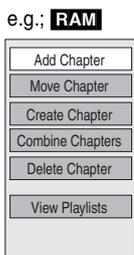
Chapter operations

■ View Chapters

RAM **-RW(VR)** (Play only)

You can play/edit the chapters in a playlist.

- 1 While stopped Press [FUNCTIONS].
- 2 Select “Other Functions” with [▲, ▼] and press [ENTER].
- 3 Select “Playlists” with [▲, ▼] and press [ENTER].
- 4 Use [▲, ▼, ◀, ▶] to select a playlist.
 • “To show other pages” → 38
- 5 Press [SUB MENU], and select “View Chapters” with [▲, ▼] and press [ENTER].
- 6 Use [▲, ▼, ◀, ▶] to select a desired chapter.
 • You can also select a chapter from the chapter view by entering a 3-digit number with the numeric buttons.
 e.g.: “5”: [0]→[0]→[5]
 “15”: [0]→[1]→[5] e.g.; **RAM**
- If you enter a number larger than the total number of chapters, the last chapter is selected.
- Editing chapters in a playlist does not modify the source titles and source chapters.
- “To show other pages” → 38
- 7 Press [SUB MENU].
- 8 Use [▲, ▼] to select a desired item and press [ENTER].



■ To play a chapter

Press [ENTER] after step 5.

■ To stop chapter play

Press [■, STOP]. (The Chapter View screen appears.)

► Add Chapter

RAM

• Follow steps 1 to 7 of “View Chapters”.

- 8 Select “Add Chapter” with [▲, ▼] and press [ENTER].

Refer to “Creating playlists”, steps 5–8. (→ 41)

► Move Chapter

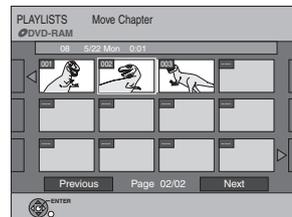
RAM

• Follow steps 1 to 7 of “View Chapters”.

- 8 Select “Move Chapter” with [▲, ▼] and press [ENTER].

- 9 Use [▲, ▼, ◀, ▶] to select the position to insert the chapter and press [ENTER].

• The chapter is moved and inserted before the highlighted chapter.



► Create Chapter

RAM

• Follow steps 1 to 7 of “View Chapters”.

- 8 Select “Create Chapter” with [▲, ▼] and press [ENTER].

- 9 Press [ENTER] at the point you want to divide. (→ 40, “For quicker editing”)

• Repeat this step to divide at other points.



- 10 Select “Exit” with [▼] and press [ENTER].

Note

• A short portion of the recording just after the creation point may be lost.

For your reference

- The divided titles retain the name of the original title. They also retain the CPRM property (→ 68) of the original.
- It is not possible to carry out “Create” when the resulting part(s) are extremely short.

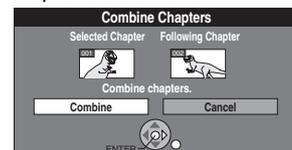
► Combine Chapters

RAM

• Follow steps 1 to 7 of “View Chapters”.

- 8 Select “Combine Chapters” with [▲, ▼] and press [ENTER].

- 9 Select “Combine” with [◀] and press [ENTER].
 • The selected chapter and next chapter are combined.



► Delete Chapter

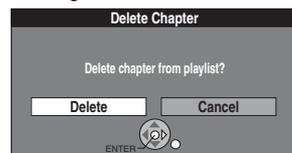
RAM (“Multiple editing” → 38)

• Follow steps 1 to 7 of “View Chapters”.

Once deleted, the recorded contents are lost and cannot be restored. Make certain before proceeding.

- 8 Select “Delete Chapter” with [▲, ▼] and press [ENTER].

- 9 Select “Delete” with [◀] and press [ENTER].
 • Even if you delete the chapter, the original title is not deleted.



► View Playlists

RAM **-RW(VR)**

• Follow steps 1 to 7 of “View Chapters”.

- 8 Select “View Playlists” with [▲, ▼] and press [ENTER].

You go back to Playlist View.

Transferring (Copying)

Before transferring (copying)

You can select from a variety of methods to transfer (copy) on the unit.
You cannot transfer (copy) titles which have been treated to prevent copying.

Direction		Type of transfer (copying) you want	Suitable methods
From	To		
VHS	DVD-RAM, DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW	Easy transferring (copying) with one button ●When you want to transfer (copy) from the selected start point to the end of the tape	One Touch Transfer (→ 45)
		Transferring (copying) with detailed settings ●When you want to transfer (copy) from the selected start point to the end of the tape ●When you want to transfer (copy) for the limited amount of time ●When you want to transfer (copy) to fit in the remaining capacity of the disc	GUI Transfer (→ 46)
DVD-RAM, +RW or DVD-RW (DVD Video Recording format)	VHS	Easy transferring (copying) with one button ●When you want to transfer (copy) a whole disc ●When you want to transfer (copy) from the beginning of the selected title and playlist to the end of the disc*	One Touch Transfer (→ 47)
		Transferring (copying) with detailed settings ●When you want to transfer (copy) multiple titles or playlists in combination*	GUI Transfer (→ 48)
DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R or +R DL	VHS	Easy transferring (copying) with one button ●When you want to transfer (copy) a whole disc ●When you want to transfer (copy) from the beginning of the selected title to the end of the disc	One Touch Transfer (→ 47)
		Transferring (copying) with detailed settings	Cannot transfer
Finalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or DVD-Video on sale that are not copy-protected, etc.	VHS	Easy transferring (copying) with one button	Cannot transfer
		Transferring (copying) with detailed settings ●When you want to transfer (copy) whole of a disc ●When you want to transfer only for the specified time	DVD-Video Transfer (→ 49)

* Since you cannot create playlists on +RW, you cannot copy those. **+RW**

■ Caution for transfer (copying) from VHS to DVD

- Copy-protected video tapes cannot be copied. Most video tapes are copy-protected to prevent illegal copying so they cannot be copied.
- When a copy-protected tape is inserted, a message appears on the display and the recording stops on the spot.
- If a part of a tape recorded in VP mode is copied to disc, noise may appear at the beginning of the copied part.

Only the following operations are allowed while transferring (copying):

- Stopping transfer (One Touch or GUI Transfer) by pressing and holding [RETURN] for about 3 seconds or more.
- Stopping transfer (One Touch Transfer) by pressing [■, STOP].

When transfer (copying) is started, the following operations also start automatically

- "Status Messages" on Display → "Off" (→ 58) (One Touch or GUI Transfer)

■ Caution for transfer (copying) from DVD to VHS

- Copy-protected discs cannot be copied. Most discs are copy-protected to prevent illegal copying so they cannot be copied.

Only the following operations are allowed while transferring (copying):

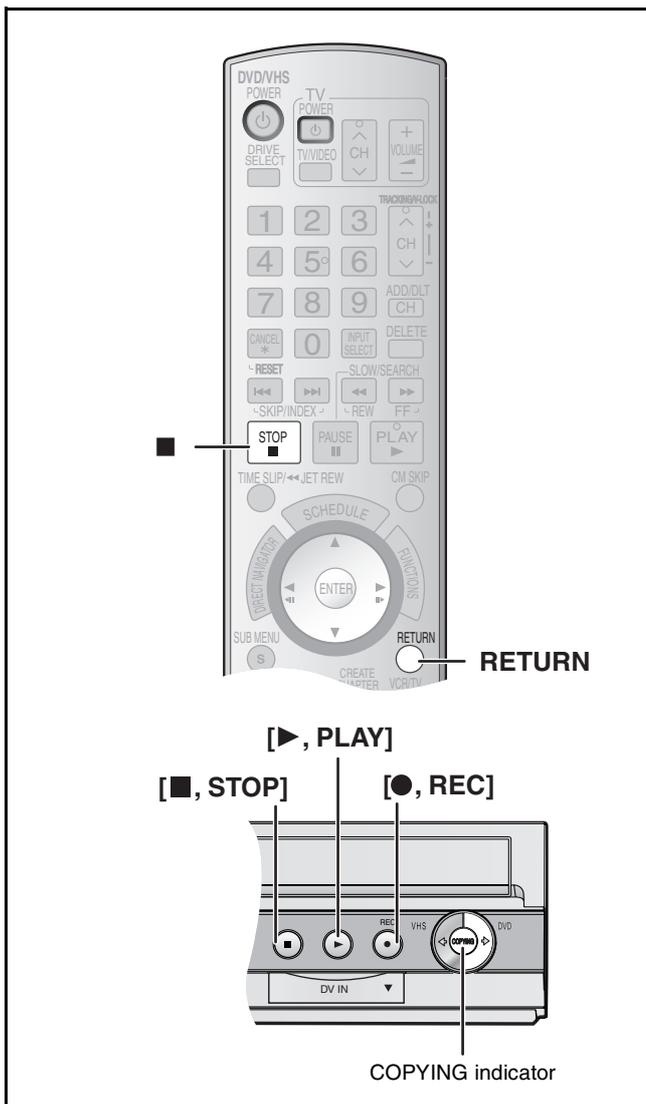
- Stopping transfer (One Touch or GUI Transfer) by pressing and holding [RETURN] for about 3 seconds or more.
- Stopping transfer (One Touch Transfer) by pressing [■, STOP].

When transfer (copying) is started, the following operations also start automatically

- "Status Messages" on Display → "Off" (→ 58) (One Touch or GUI Transfer)
- Audio output when playing back DVD → Stereo (L R) **RAM** (One Touch or GUI Transfer)

When the playback location of the disc is recorded by the Resume Function (→ 30) and you start transferring (copying), the transfer (copying) is executed from the top of the title which contains the starting position of playback to the end of the disc.

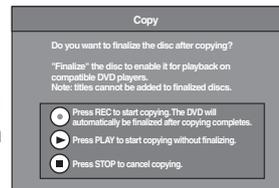
Transfer (Copying) from VHS



- 1** While both DVD and VHS are stopped Press and hold [▶ DVD] on the main unit for about 3 seconds or more (until “START” on the unit’s display terminates flashing).



-R -R DL -RW(V) +R +R DL
 And then press [●, REC] or [▶, PLAY] on the main unit to copy the disc with or without finalizing.



- If you press [●, REC] on the main unit, the disc will automatically be finalized after copying completes.
- If you press [▶, PLAY] on the main unit, you can start copying without finalizing.
- If you press [■, STOP] on the main unit, you can cancel to copy.

- Check if transfer (copying) starts properly.
- Copying is automatically completed when the tape reaches its end or the disc becomes full.
- If you press [●, REC] on the main unit to finalize; After finalizing, the discs become play-only and you can also play them on other DVD equipment. However, you can no longer record or edit.
- In case the copying doesn't complete due to shortage of remaining time of disc or etc., the finalizing doesn't start.

■ To stop transfer (copying) in the middle

Press [■, STOP] or press and hold [RETURN] for about 3 seconds or more.

- However, you cannot stop finalizing after it has started.

Notes

- While One Touch Transfer (Copying) is activated, a scheduled recording cannot be started.
- When the transfer (copying) is not started or not executed, the “COPYING” indicator blinks for about 7 seconds. Check if the unit is properly prepared.

■ Dividing a title to be copied

In One Touch Transfer (Copying) from VHS to DVD, the title is divided by index signal detected and then recorded. You can search desired titles with Direct Navigator's Title View (→ 38) after transfer (copy) to DVD.

- Titles recorded within 15 minutes (25 minutes in VP mode) of each other may not be divided properly.
- The recording time may become longer than the original title depending on the number of index signals.

If you want to transfer (copy) without dividing the contents into titles, follow the methods below.

- Set “Time Limit” to “On” on the GUI transfer (→ 46).

■ One Touch Transfer (Copying) (VHS → DVD)

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

You can transfer (copy) programs recorded on a tape onto a disc* with one stroke of the button.

In One Touch Transfer (Copying), programs are automatically transferred (copied) onto the disc from the location of playback at the time when the transfer (copying) of the tape starts.

* Available discs for transfer (copying) from tape are DVD-RAM, non-finalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, and +RW.

Preparation

- Select the unit viewing channel (e.g. AV input) on the TV.

DVD

- Release protection (disc → 53, cartridge → 53). **RAM**
- Insert a disc and confirm there is sufficient empty space for recording on it (→ 22, 37).
- Select the recording mode. (→ 24)
- When SAP broadcast program is played back on VHS, select the audio to be recorded on disc in “Multi-channel TV sound (MTS)” in the “Setup” menu. (→ 57) **-R -R DL -RW(V) +R +R DL +RW**

VHS

- Insert the video cassette containing the program to be copied (→ 10, 22).

■ GUI (Graphical User Interface) Transfer (Copying)

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

You can transfer (copy) programs recorded on a tape onto a disc** from the location* of playback as of the transfer (copying) start of the tape.

* When you set the recording mode to “FR” and “Time Limit” to “Off”, you can transfer (copy) the whole tape from the beginning to the end. (→ below)

** Available discs for transfer (copying) from tape are DVD-RAM, non-finalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, and +RW.

Preparation

● Select the unit viewing channel (e.g. AV input) on the TV.

DVD

- Release protection (disc → 53, cartridge → 53). **RAM**
- Insert a disc and confirm there is sufficient empty space for recording on it (→ 22, 37).
- When SAP broadcast program is played back on VHS, select the audio to be recorded on discs in “Multi-channel TV sound (MTS)” in the “Setup” menu. (→ 57) **-R -R DL -RW(V) +R +R DL +RW**

VHS

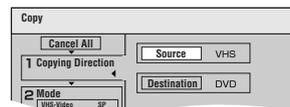
● Insert the video cassette containing the program to be copied (→ 10, 22).

1 While both DVD and VHS are stopped Press [FUNCTIONS].

2 Select “Copy” with [▲, ▼] and press [ENTER].

3 Set the transfer (copying) direction.

- Set “Source” to “VHS”.
- If you are not going to change the copy direction, press [▼], then skip to step 4.

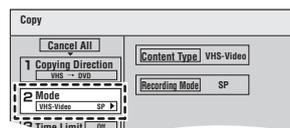


■ To change the setting

- (1) Make sure “Copying Direction” is selected and press [▶].
- (2) Make sure “Source” is selected and press [ENTER].
- (3) Press [▲, ▼] to select “VHS” and press [ENTER].
- When you set “Source” to “VHS”, “DVD” is automatically selected on “Destination”.
- (4) Press [◀].
- (5) Press [▼].

4 Set the recording mode.

- If you are not going to change the recording mode, press [▼], then skip to step 5.

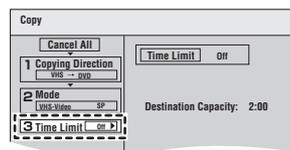


■ To change the setting

- (1) Make sure “Mode” is selected and press [▶].
- (2) Make sure “Recording Mode” is selected and press [ENTER].
- (3) Select recording mode (XP, SP, LP, EP or FR) with [▲, ▼] and press [ENTER].
 - “About FR mode” (→ right)
- (4) Press [◀].
- (5) Press [▼].

5 Set the time limit.

- If you are not going to change the recording time, press [▼], then skip to step 6.

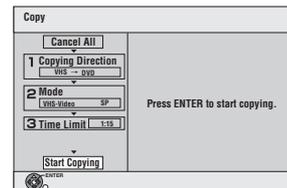


■ To change the setting

- (1) Make sure “Time Limit” is selected and press [▶].
- (2) Make sure “Time Limit” is selected and press [ENTER].
- (3) Select time limit (“On” or “Off”) with [▲, ▼] and press [ENTER].
 - “When you select “Off”, proceed to Step (6) below.
- (4) Press [▲, ▼] to select “Set time” and press [ENTER].
- (5) Press [◀, ▶] to select “Hour” and “Min.” and press [▲, ▼] to set the recording time, and then press [ENTER].
 - You can also set the set time with the numeric buttons.
 - Maximum recording time is 8 hours.
- (6) Press [◀].
- (7) Press [▼].

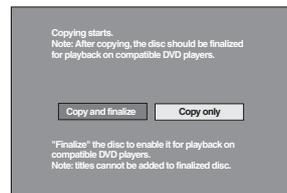
6 Make sure “Start Copying” is selected and press [ENTER].

- The confirmation screen appears.



7 Select “Yes” with [◀, ▶] and press [ENTER].

-R -R DL -RW(V) +R +R DL
And then press [◀, ▶] to select “Copy and finalize” or “Copy only” and press [ENTER].



- Transfer (copying) is started.
- Transfer (copying) is automatically stopped when the tape reaches the end or the remaining capacity of the disc is filled. (A message appears on the TV screen and then disappears a few seconds later.)

● If “Copy and finalize” is selected; After finalizing, the discs become play-only and you can also play them on other DVD equipment. However, you can no longer record or edit.

- In case the copying doesn't complete due to shortage of remaining time of disc or etc., the finalizing doesn't start.

■ To stop transfer (copying) in the middle

Press and hold [RETURN] for about 3 seconds or more.

- However, you cannot stop finalizing after it has started.

■ About FR Mode

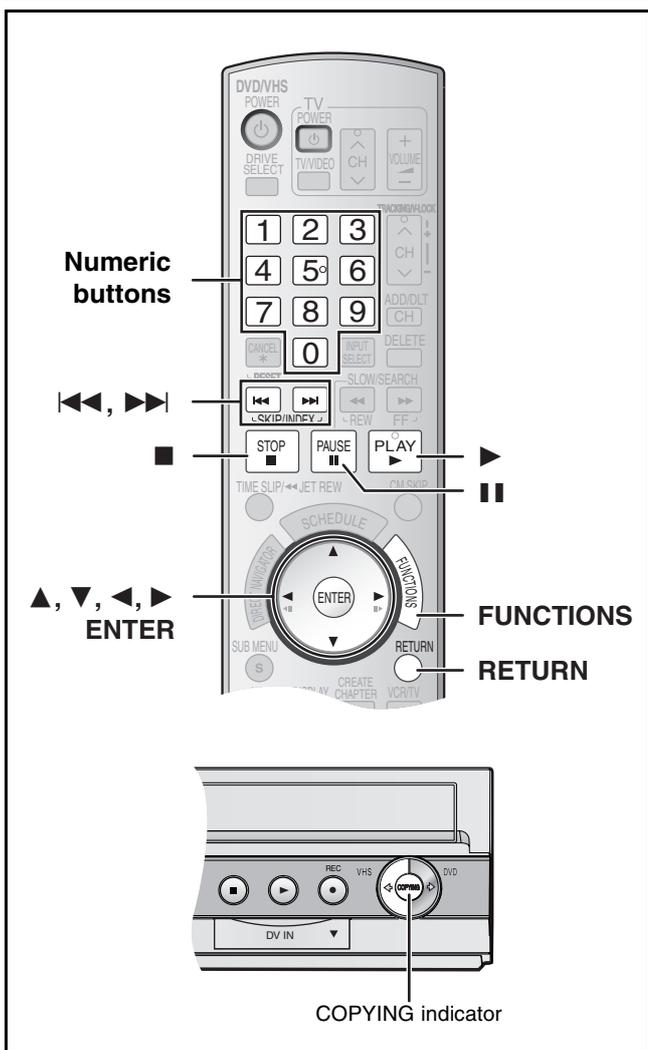
When “Time Limit” is set to “Off” in Step 5 above:

- The recording mode is automatically selected by estimating the remaining capacity of the disc for transfer (copying) of only the recorded parts in the video cassette (unrecorded parts will not be recorded).
- When you press [ENTER] to start transfer (copy), the tape is automatically fast-forwarded to the end and then fast-rewind to the beginning before the transfer (copying) is actually started. It may take time to start transfer (copy). If the remaining capacity of the disc is insufficient, the transfer (copying) will be stopped in the middle.
- The recording is divided into titles every time the tape index signals are detected.

When “Time Limit” is set to “On” in Step 5 above:

- The recording mode is automatically determined by estimating the remaining capacity of the disc for transfer (copying) of the contents equivalent to the recording time set from the start point of the transfer (copying) on the video cassette (unrecorded parts will also be recorded).
- The recording is not divided into titles.

Transfer (Copying) from DVD



■ One Touch Transfer (Copying) (DVD → VHS)

You can transfer (copy) titles recorded on a disc* onto a tape with one touch of the button.

In One Touch Transfer (copying), all contents on the disc are automatically copied onto the tape.

* Available discs for transfer (copying) onto tape are

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

Preparation

- Select the unit viewing channel (e.g. AV input) on the TV.

DVD

- Insert the disc containing the program to be copied (→ 22).

VHS

- Insert a video cassette with an accidental erasure prevention tab. (→ 10, 22)
- Confirm that the remaining tape time is sufficient for recording. (→ 37)
- Select the recording mode. (→ 24)

■ When you transfer (copy) a whole disc

Make sure that the DVD is stopped.

- When resume function is activated, press [■, STOP] to deactivate it. (→ 30)

■ When you transfer (copy) a title from the beginning of the selected title to the end of the disc

■ When you transfer (copy) a playlist from the beginning of the selected playlist to the last playlist

Press [▶, PLAY] to play back the desired title or playlist (→ 41).

- You can transfer (copy) (a title or playlist) while playback is paused by pressing [||, PAUSE].
- You cannot transfer (copy) a playlist which is longer than 8 hours. (When you transfer (copy) multiple playlists, the playlist which is longer than 8 hours is omitted.)

1 Press and hold [VHS 4] on the main unit for about 3 seconds or more (until "START" on the unit's display terminates flashing).

- Check if transfer (copying) starts properly.
- Copying is automatically completed when playback of the disc is finished or the tape reaches its end.

e.g.: **RAM**

START

(Remaining time)

SP 00:51

■ To stop transfer (copying) in the middle

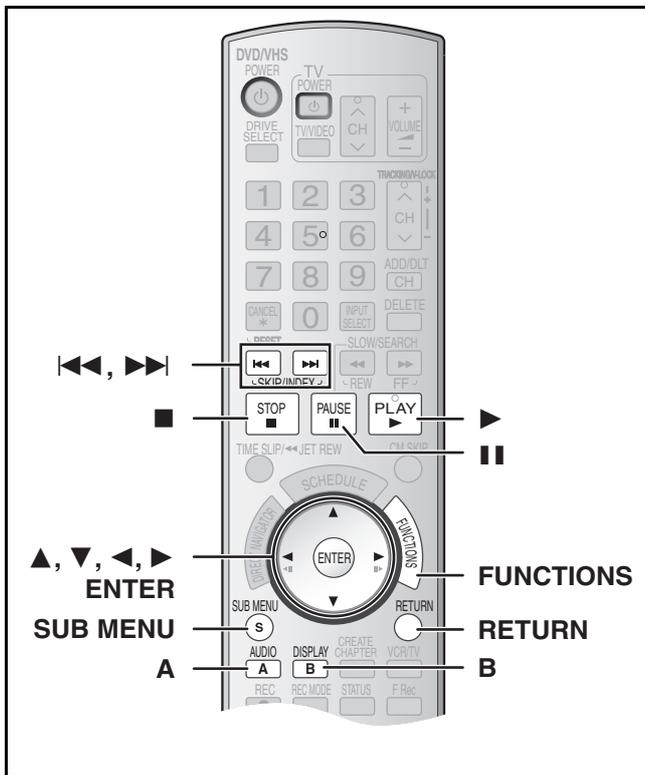
Press [■, STOP] or press and hold [RETURN] for about 3 seconds or more.

Notes

- While One Touch Transfer (Copying) is activated, a scheduled recording cannot be started.
- When the transfer (copying) is not started or not executed, the "COPYING" indicator blinks for about 7 seconds. Check to make sure the unit is properly prepared.
- If you start transfer (copying) when resume function is activated, the DVD is copied from the beginning of the title which you stopped.

■ About Recording VISS (→ 35)

In One Touch Copying from DVD to VHS, the index signal is automatically recorded for each title. You can search desired titles with [◀◀] or [▶▶].



■ GUI (Graphical User Interface) Transfer (Copying)

RAM +RW -RW(VR)

You can transfer (copy) multiple titles or playlists recorded on a disc onto a tape in combination.

- Available discs for transfer (copy) onto tape are **RAM -RW(VR)**.
- Since you cannot create playlists on +RW, you cannot copy those. **+RW**

Preparation

- Select the unit viewing channel (e.g. AV input) on the TV.

DVD

- Insert the disc containing the program to be copied (→ 22).

VHS

- Insert a video cassette with an accidental erasure prevention tab. (→ 10, 22)
- Confirm that the remaining tape time is sufficient for recording. (→ 37)

1 While both DVD and VHS are stopped

Press **[FUNCTIONS]**.

2 Select "Copy" with **[▲, ▼]** and press **[ENTER]**.

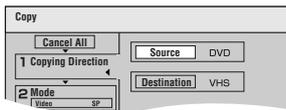
3 Set "Copying Direction".

- Set "Source" to "DVD".
- If you are not going to change the copy direction, press **[▼]**, then skip to step 4.

■ To change the setting

- (1) Make sure "Copying Direction" is selected and press **[▶]**.
- (2) Make sure "Source" is selected and press **[ENTER]**.
- (3) Press **[▲, ▼]** to select "DVD" and press **[ENTER]**.

- When you set "Source" to "DVD", "VHS" is automatically selected on "Destination".



(4) Press **[◀]**.

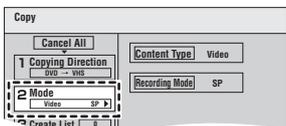
(5) Press **[▼]**.

4 Set the recording mode.

- If you are not going to change the recording mode, press **[▼]**, then skip to step 5.

■ To Change the setting

- (1) Make sure "Mode" is selected and press **[▶]**.
- (2) Make sure "Recording Mode" is selected and press **[ENTER]**.
- (3) Select recording mode (SP, EP or VP) with **[▲, ▼]** and press **[ENTER]**.



(4) Press **[◀]**.

(5) Press **[▼]**.

5 Register titles and playlists for transfer (copying).

- If you are going to transfer a registered list without making any changes to it, press **[▼]**, then skip to step 6.

■ To set for the registration

- (1) Make sure "Create List" is selected and press **[▶]**.
- (2) Make sure "New Entry (Total = 0)" is selected and press **[ENTER]**.

(3) Press **[AUDIO/A]** to select "Video" or press **[DISPLAY/B]** to select "Playlists".

- You can also select the view by selecting "Other View" from the SUB MENU.

① Press **[SUB MENU]**.

② Make sure "Other View" is selected and press

[ENTER] twice.

(4) Press **[▲, ▼, ◀, ▶]** to select the title or playlist and press **[ENTER]**.

- You can register multiple titles or playlists to the copying list by repeating the above steps 2 to 4.

("To edit the transfer (copying) list" → 49)

- "To show other pages" (→ below)
- "Multiple editing" (→ below)

(5) Press **[◀]**.

- Before pressing **[◀]**, make sure that the value on "Copying list" is smaller than the value on "Current Remaining".

(6) Press **[▼]**.

6 When you finish creating the copying list, Make sure to select "Start Copying" and press **[ENTER]**.

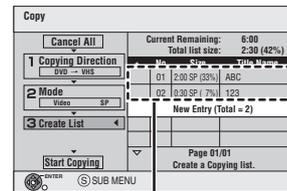
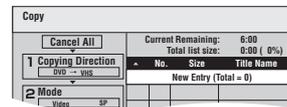
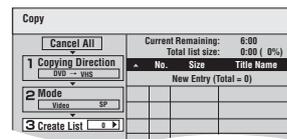
- The confirmation screen appears.

7 Select "Yes" with **[◀]** and press **[ENTER]**.

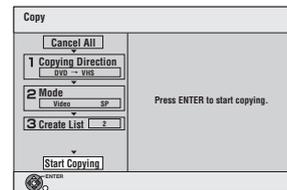
- Transfer (copying) is started.

■ To stop transfer (copying) in the middle

Press and hold **[RETURN]** for about 3 seconds or more.



Registered titles



Various operations

■ To show other pages

Press **[◀◀, SKIP]** or **[▶▶, SKIP]**.

- Press **[▲, ▼, ◀, ▶]** to select "Previous" or "Next" and press **[ENTER]** to show other pages.

■ Multiple editing

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

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

- When you switch between the "Video" and "Playlists" tab, the check mark is canceled.

- Titles or playlists are registered to the copying list in ascending order of title number.

To edit the transfer (copying) list

Select the item in step 5 (4). (→ 48)

- 1 Select a desired item with [▲, ▼] and press [SUB MENU].
- 2 Press [▲, ▼] to select the operation and press [ENTER].

**Clear All:**

Clear all items registered on the transfer (copying) list.

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

Add:

Add new items to the transfer (copying) list.

- Press [▲, ▼, ▶, ◀] to select the titles and playlists to be added and press [ENTER].

Remove:

Remove the selected item.

- Press [◀, ▶] to select “Yes” and press [ENTER].
- Multiple editing is possible. (→ 48)

Move:

Move selected items or change the order of items on the transfer (copying) list.

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

To cancel all registered transfer (copying) settings and lists

After performing steps 1 to 4 (→ 48)

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



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

- The settings and lists may be canceled in the following situations.

- When a title or a playlist has been recorded or erased at the transfer (copying) source.
- When steps have been taken, for instance, to turn off the unit or open the tray.

Transfer (Copying) a DVD-Video, finalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, or +R DL

You can transfer (copy) the contents of a disc being played onto a tape for the set time while playing the disc.

Operations and on screen displays during transfer (copying) are also recorded.

- Almost all DVD-Video on sale have been treated to prevent illegal copying, and cannot be transferred (copied).
- The following cannot be transferred (copied): DVD-Audio, Video CD, Audio CD and so on.

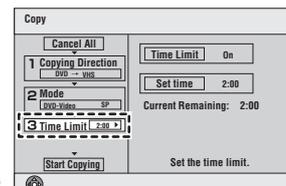
After performing steps 1 to 4 of “GUI (Graphical User Interface) Transfer (Copying)” (→ 48),

5 Set “Time Limit”.

- If you are not going to change the setting, press [▼], then skip to step 6.

Setting the unit to transfer (copy) according to the set time

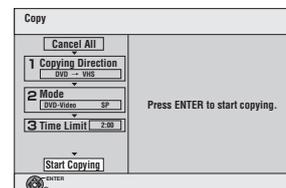
- (1) Make sure “Time Limit” is selected and press [▶].
 - Setting the unit to transfer (copy) all the content on the disc
- (2) Make sure “Time Limit” is selected and press [ENTER].
 - Setting the transfer (copying) time
- (3) Press [▲, ▼] to select “On” and press [ENTER].
- (4) Press [▲, ▼] to select “Set time” and press [ENTER].
- (5) Press [◀, ▶] to select “Hour” and “Min.” and press [▲, ▼] to set the recording time, and then press [ENTER].
 - You can also set the set time with the numeric buttons.
 - Maximum recording time is 8 hours.
- (6) Press [◀].
- (7) Press [▼].

**6 Make sure “Start Copying” is selected and press [ENTER].**

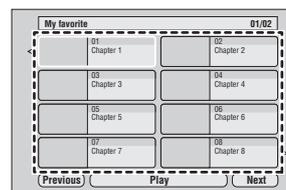
Press [◀] to select “Yes” and press [ENTER] to start transfer (copy).

The disc top menu is displayed.

- Disc play automatically begins from title 1 when “First Title” is selected from the “Playback will start with:” menu when finalizing the disc (→ 54).

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

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

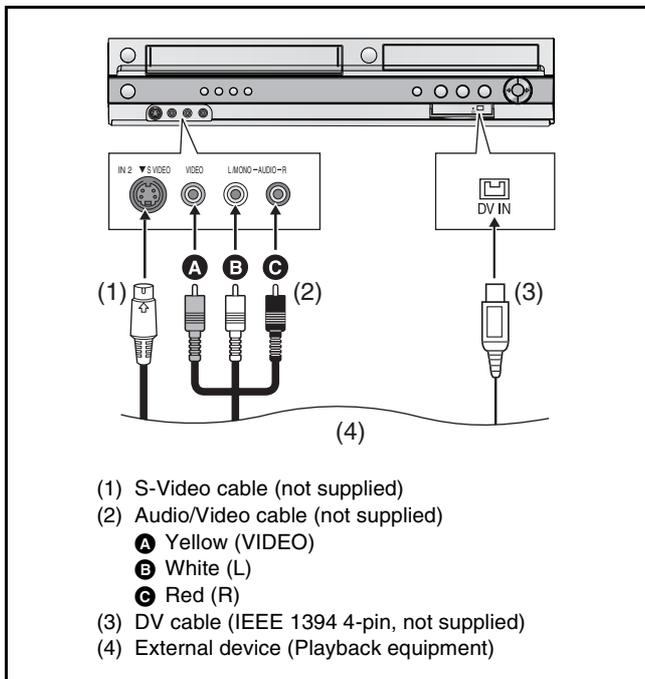
**To stop transfer (copying) in the middle**

Press [■, STOP] or press and hold [RETURN] for about 3 seconds or more.

Notes

- The screen on the right (screen saver) is recorded at the beginning.
- It is recorded as 1 title from the start of transfer (copying) to the end (even if there are multiple programs).
- If play does not begin automatically or if the top menu does not display automatically, press [▶, PLAY] to start.
- REC only appears on the unit's display when transferring from DVD-Video.





Before connecting any cables, first make sure that the power for the unit and the external device are off. Then, after connecting cables, turn on both.

Recording from an external device

When connecting the IN2 input terminals on the front of the unit

- You can also connect to the IN1 input terminals on the rear of the unit.

Notes

- When recording using the unit's input terminals, only the sound received at the time of recording will be recorded. As long as secondary audio that is recorded on the media in the external device is not output to the unit in play, it is not recorded.
- 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.)
- The S-VIDEO terminal achieves a more vivid picture than the VIDEO terminal.

Preparation

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

- Release protection (disc → 53, cartridge → 53). **RAM**
- Select DVD side with pressing [DRIVE SELECT].

VHS

- Insert a video cassette with an accidental erasure prevention tab. (→ 22)
- Select VHS side with pressing [DRIVE SELECT].

1 Press [REC MODE] to select the recording mode. (DVD → 24, VHS → 24)

- DVD **RAM -R -R DL -RW(V) +R +R DL +RW**
 - It is also possible to perform Flexible Recording (FR). (→ 27)

2 While stopped

Press [CH, ^, v] or [INPUT SELECT] to select the input channel for the equipment you have connected.

- Select IN1 or IN2.

DVD

Follow the above steps 1 to 2.

3 Start play on the external device.

4 Press [●, REC] at the point where you want to start recording.

VHS

Follow the above steps 1 to 2.

3 Press [▶, PLAY].

- Start playing the video cassette and find the recording start point.

4 Press [II, PAUSE], then press [●, REC].

- Put the unit in recording standby mode.

5 Start play on the external device.

6 Press [II, PAUSE] at the point where you want to start recording.

■ To skip unwanted parts

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

■ To stop recording

Press [■, STOP].

For your reference

- Almost all videos and DVD software on sale have been treated to prevent illegal copying. Such software cannot be recorded.

DV camcorder recording

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

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

Preparation

- Turn on the main unit and DV equipment.
- Select the type of audio recording from "Select Audio Channel for DV Input" in the Audio menu. (→ 57)
 When recording from DV equipment (e.g., digital video camcorder), you can record audio/video recordings from DV tape only.
- Pause play on the DV equipment at the point you want recording to start.
- Press [REC MODE] to select the recording mode.

1 While stopped

Press [FUNCTIONS].

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

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

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

When recording finishes

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

To stop recording

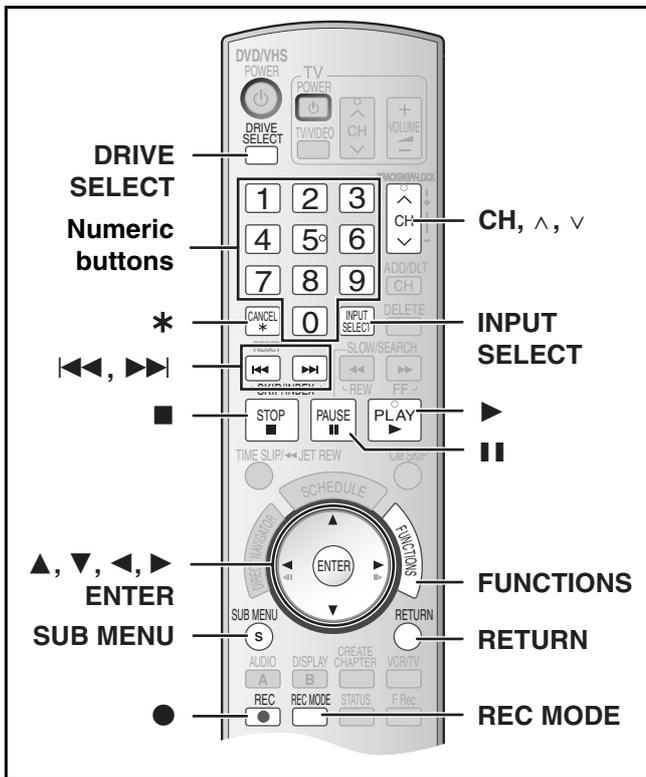
Press [■, STOP]. The confirmation screen appears. Press [ENTER].

Notes

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

If the DV automatic recording function does not work properly, check the connections and DV equipment settings, and turn the unit off and back on.
If that does not work, follow the instructions for Recording from an external device (→left).

Entering text



Entering text

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

You can give names to recorded titles, etc.

The maximum number of characters:

RAM	Characters
• Title	64
• Title (scheduled recording)	44
• Playlist	64
• Disc	64

-R -R DL -RW(V) +R +R DL +RW	Characters
• Title	44
• Disc	40

Note

- If a name is long, only part of it is displayed on the title list (→ 38) and the playlist screen (→ 42).

Preparation

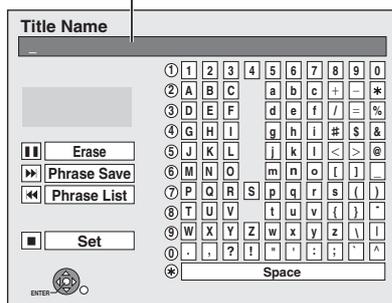
- Insert a recorded disc.
- Release protection (Disc → 53, title → 39, cartridge → 53). **RAM**
- Select DVD side with pressing [DRIVE SELECT].

1 Show Enter Name screen.

Refer to the following pages regarding display of the Enter Name Screen.

- Title (→ 39)
- Title (scheduled recording) (→ 28)
- Disc (→ 53)
- Playlist (→ 42)

Name field: shows the text you have entered



2 Use [▲, ▼, ◀, ▶] to select the character you want to enter and press [ENTER].

Repeat this step to enter other characters.

• To erase a character

Press [▲, ▼, ◀, ▶] to select the character in the name field and press [II, PAUSE].

• Using the numeric buttons to enter characters

e.g., entering the letter "R".

- (1) Press 7 to move to the 7th row.
- (2) Press 7 twice to highlight "R".
- (3) Press [ENTER].



• To enter space

Press [* , CANCEL] and press [ENTER].

• Save/recall phrased (→ below)

3 After you have finished naming Press [■, STOP].

The title is entered and the screen disappears.

■ To cancel in the middle

Press [RETURN].

- Characters will not be saved.

■ To save phrases

You can save frequently used phrases and recall them later.

Maximum number of saved phrases: 20

Maximum number of characters per phrase: 20

- After entering the phrase (step 1 to 2, "Entering text")

- 1 Press [▲, ▼, ◀, ▶] to select "Phrase Save" and press [ENTER].
 - You can also press [▶▶], SKIP to select "Phrase Save".
- 2 Press [◀, ▶] to select "Save" and press [ENTER].
 - Press [RETURN] to cancel.

■ To recall a saved phrases

- 1 Press [▲, ▼, ◀, ▶] to select "Phrase List" and press [ENTER].
 - You can also press [◀◀], SKIP to select "Phrase List".
- 2 Press [▲, ▼, ◀, ▶] to select the phrase to be recalled and press [ENTER].

■ To erase saved phrases

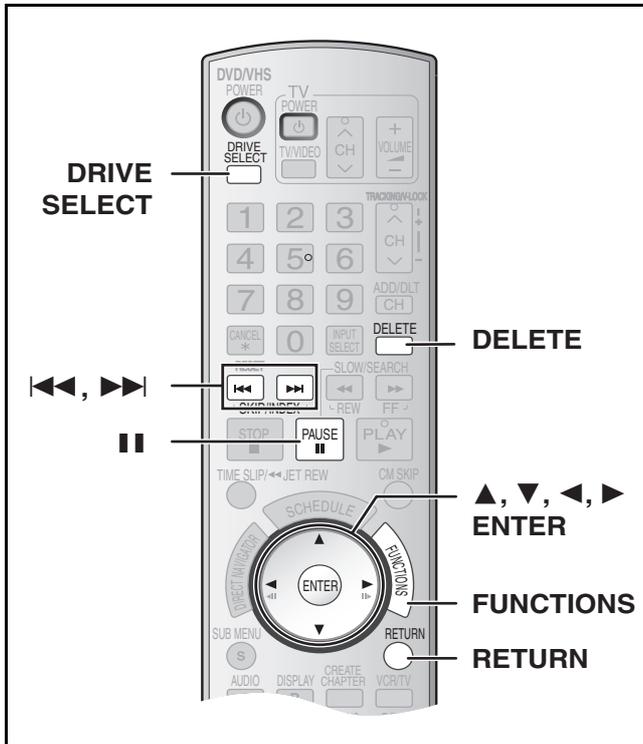
- 1 Press [▲, ▼, ◀, ▶] to select "Phrase List" and press [ENTER].
 - You can also press [◀◀], SKIP to select "Phrase List".
- 2 Press [▲, ▼, ◀, ▶] to select the phrase to be erased.
- 3 Press [SUB MENU] to show "Erase Phrase" and press [ENTER].
- 4 Press [◀, ▶] to select "Erase" and press [ENTER].
- 5 Press [RETURN].

For your reference

If you enter a long name, only part of it is shown in the TOP MENU after finalization (→ 55). When entering a title name, the name that will appear in the TOP MENU can be previewed in "Top Menu Preview (Finalized Disc)" window.



Deleting title



Preparation

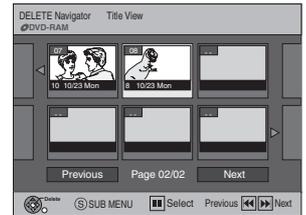
- Release protection (disc → 53, cartridge → 53). **RAM**
- Insert a disc (→ 22).
- Select DVD side with pressing [DRIVE SELECT].

Selecting recorded titles to delete –Delete Navigator

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

- **A title cannot be restored once it is deleted.** Make certain before proceeding.
- You cannot delete while recording.
- **-R -R DL +R +R DL** Available space does not increase after deletion.
- **-RW(V) +RW** Available recording space increases when the last recorded title is deleted. (The recording space may increase slightly when other titles are deleted.)

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



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

■ To show other pages

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

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

■ Multiple editing

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

- 4 Press [◀, ▶] to select “Delete” and press [ENTER].**

■ To return to the previous screen

Press [RETURN].

■ To exit the screen

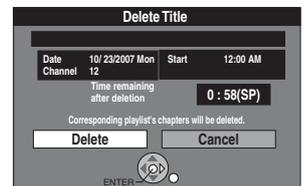
Press [RETURN] several times.

Deleting title during play

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

Once title is deleted, it cannot be restored. Make certain before proceeding.

- 1 During Play**
Press [DELETE].
- 2 Press [◀] to select “Delete” and press [ENTER].**



For your reference

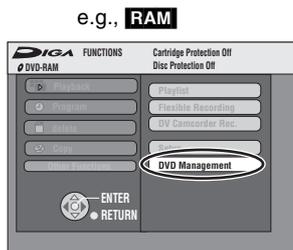
- You cannot delete while recording or transferring (copying).
- **-R -R DL +R +R DL** Available space does not increase after erasing.
- **-RW(V) +RW** Available recording space increases when the last recorded title is deleted. (The recording space may increase slightly when other titles are deleted.)

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

Preparation

- Release protection (disc → right, cartridge → right). **RAM**
- Insert a disc (→ 22).
- Select DVD side with pressing [DRIVE SELECT].

- 1 While stopped Press [FUNCTIONS].
- 2 Select “Other Functions” with [▲, ▼] and press [ENTER].
- 3 Select “DVD Management” with [▲, ▼] and press [ENTER].



e.g., **RAM**



e.g., **-R**



- 4 Use [▲, ▼] to select a desired item and press [ENTER].

You can change various settings.
• After this operation, follow the desired operation.

■ To stop to the previous screen

Press [RETURN].

Providing a disc with a name

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

- Follow steps 1 to 3 of “DVD Management”.

- 4 Select “Disc Name” with [▲, ▼] and press [ENTER].

Refer to “Entering text” (→ 51).

- The disc name is displayed in the DVD Management window.
- With a finalized discs and +RW, the name is displayed on the Top Menu.



Setting the protection

RAM

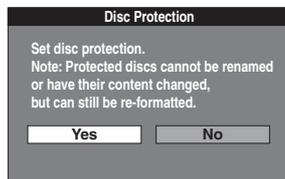
- Follow steps 1 to 3 of “DVD Management”.

This allows you to protect the whole disc from accidental erasure and release disc protection.

- 4 Select “Disc Protection” with [▲, ▼] and press [ENTER].

- 5 Select “Yes” with [◀] and press [ENTER].

- To protect



- To release protection



■ Protection of cartridge disc

You can protect the contents of your discs.

- With the write-protect tab in the protect position, you cannot record to, edit, or erase from the disc.



Deleting all titles and playlists –Delete All Titles

RAM

- Follow steps 1 to 3 of “DVD Management”.

Once deleted, the recorded contents are lost and cannot be restored. Make certain before proceeding.

- 4 Select “Delete All Titles” with [▲, ▼] and press [ENTER].

- 5 Select “Yes” with [◀] and press [ENTER].

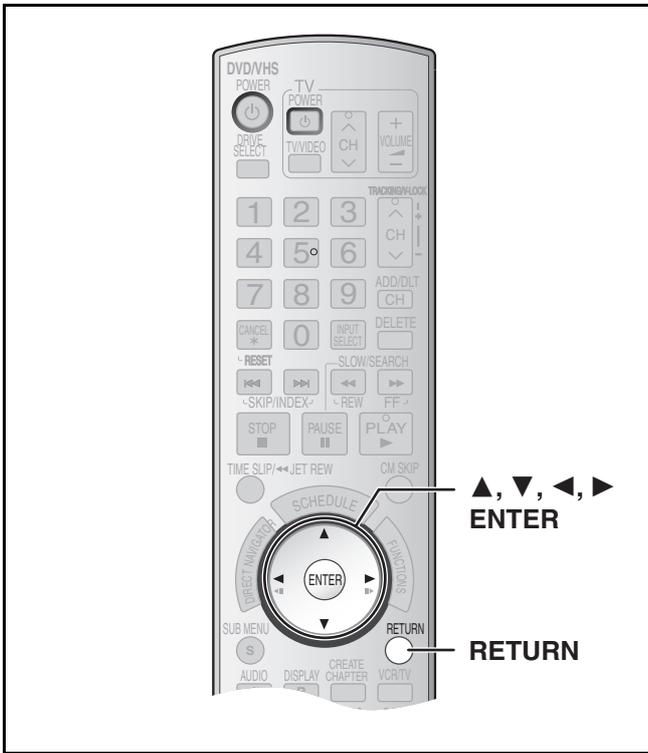
- 6 Select “Start” with [◀] and press [ENTER].

- A message appears when finished.

- 7 Press [ENTER].

Notes

- Deleting all video titles will result in all playlists also being deleted.
- Delete does not work if one or more titles are protected.



Deleting all contents of a disc –Format Disc (DVD)

RAM -RW(V) +RW -RW(VR)

+R +R DL (New disc only)

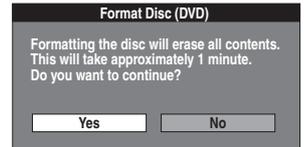
- Follow steps 1 to 3 of “DVD Management”.

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

4 Select “Format Disc (DVD)” with [▲, ▼] and press [ENTER].

5 Select “Yes” with [◀] and press [ENTER].

e.g.; **RAM**



6 Select “Start” with [◀] and press [ENTER].



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

Notes

- Formatting normally takes a few minutes; however it may take up to a maximum of 70 minutes **RAM**.
- **Do not disconnect the AC power supply cord while formatting.** This can render the disc unusable.

7 Press [ENTER].

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.

Notes

- When a disc has been formatted using this unit, it may not be possible to use it on any other equipment.
- DVD-R, DVD-R DL and CD-R/RW cannot be formatted.
- You can format DVD-RW only as DVD-Video format on this unit.
- The disc cannot be formatted if the write protect tab (→ 53) is switched to “PROTECT”. Release the protection to continue.
- The message “**Unable to format**” appears when trying to format discs the unit cannot use.

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

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

- Follow steps 1 to 3 of “DVD Management”.

Select whether to show the top menu after finalizing the disc. Do this before finalizing the disc.

4 Select “Playback will start with:” with [▲, ▼] and press [ENTER].

5 Use [▲, ▼] to select a desired item and press [ENTER].



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

Enabling discs to be played on other equipment

–Finalize

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

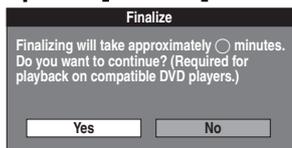
- Follow steps 1 to 3 of “DVD Management”.
- Make selection from “Selecting whether to show the Top Menu first –Playback will start with:” before finalizing the disc. (→ 54)

You can play DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R or +R DL on compatible DVD players by finalizing it on the unit, effectively making it into DVD-Video that complies with DVD-Video standards.

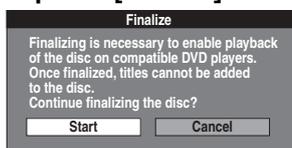
The menu you create with the unit can also be used on DVD players.

4 Select “Finalize” with [▲, ▼] and press [ENTER].

5 Select “Yes” with [◀] and press [ENTER].



6 Select “Start” with [◀] and press [ENTER].



- Finalizing starts.
- You cannot cancel finalizing.
- A message appears when finalizing is finished.

Notes

- Finalizing can take a few minutes, up to a maximum of 15 minutes, depending on the remaining space on the disc. (**-R DL +R DL** up to 60 minutes)

- **Do not disconnect the AC power supply cord while finalizing.** This can render the disc unusable.

7 Press [ENTER].

Notes

- When finalizing a high-speed recording compatible disc, it may take longer than displayed on the confirmation screen (approximately 4 times).
 - After finalizing
 - The disc becomes play-only and you can no longer record or edit it. **-R -R DL +R +R DL**
 - You can record and edit the disc after formatting (→ 54) although it becomes play-only after finalizing. **-RW(V)**
 - DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R or +R DL finalized on the unit may not be playable on other players depending on the condition of the recording.
 - There is a pause of several seconds between titles and chapters during play.
 - Titles are divided into about 5-minute chapters* (**-R DL +R DL** 8 minutes).
- * This time varies greatly depending on the condition and mode of recording.

- Visit Panasonic’s homepage for more information about DVDs.

For U.S.A.: <http://www.panasonic.com/playDVD-R>

For Canada: <http://www.panasonic.ca>

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

–Close First Layer

-R DL +R DL

- Follow steps 1 to 3 of “DVD Management”.

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

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

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

6 Press [◀, ▶] to select “Start” and press [ENTER].

Closing the layer starts. You cannot cancel closing.

Closing the layer can take several minutes, up to a maximum of 30 minutes, depending on the remaining space on the first layer.

Note

- Do not disconnect the AC power supply cord while closing the layer. This will render the disc unusable.

7 Press [ENTER].

■ To confirm the layer you can record

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



Notes

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

Creating Top Menu

–Create DVD Top Menu

+RW

- Follow steps 1 to 3 of “DVD Management”.
- +RW discs contain no Top Menu data. Top menu is a convenient function. We recommend you to create the menu before playing a +RW disc on other equipment.

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

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

6 Press [◀, ▶] to select “Start” and press [ENTER].

Creating Top Menu starts. You cannot cancel creating. Creating Top Menu can take a few minutes.

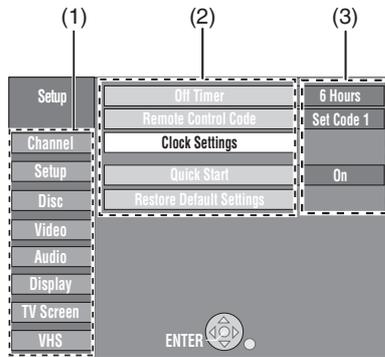
7 Press [ENTER].

- Recording or editing on the disc may delete the menu. In that case, create the menu again.
- You cannot use the title menu for playing on this unit.

Common procedures

Use the following procedure to change the settings if necessary.

- 1 While stopped Press [FUNCTIONS].
- 2 Select "Other Functions" with [▲, ▼] and press [ENTER].
- 3 Select "Setup" with [▲, ▼] and press [ENTER].



- (1) Menus
(2) Items
(3) Options

- 4 Select a menu with [▲, ▼] and press [◀, ▶].
- 5 Select an item to be changed with [▲, ▼] and press [ENTER].
- 6 Select an option with [▲, ▼] and press [ENTER].
 - Some options require different operations. Follow the displayed instructions.

■ To return to the previous screen

Press [RETURN]. Even if you have changed an option, the change is not activated until you press [ENTER].

■ To exit the screen

Press [RETURN] several times.

For your reference

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

Entering a password (Ratings)

You can limit play of DVDs unsuitable for some audiences (children, for example). Play and changes to the settings are not possible unless you enter a password.

Preparation

- Select DVD side with pressing [DRIVE SELECT].

When setting ratings

The password screen is shown when you select levels 0 to 7.

- 1 Input a 4-digit password with the numeric buttons.
 - If you enter a wrong number, press [◀] to erase it before you press [ENTER].
 - Do not forget your password.
- 2 Press [ENTER].
- 3 Press [ENTER].

The password is entered and the unit is locked.

Now, when you insert a DVD-Video that exceeds the ratings limit you set, a message appears on the TV. Follow the on-screen instructions.

When changing ratings

The password screen is shown when you select "Ratings" (→ right)

- 1 Input a 4-digit password with the numeric buttons and press [ENTER].

- Unlock Recorder:** To unlock the unit and return the rating to 8
Change Password: To change your password
Change Level: To change the rating level
Temporary Unlock: To temporarily unlock the unit (the unit locks again if you switch it to standby or open the disc tray)

- 2 Select a desired item with [▲, ▼] and press [ENTER]. Actual screens depend on the operation. Follow the on-screen instructions.

Summary of settings

This description shows the initial settings for the unit. For details on menu operation. (→ left)

- Underlined items are the factory default settings.

- indicates settings effective for both DVD and VHS.
- indicates settings effective for DVD only.
- indicates settings effective for VHS only.

■ Channel

Signal Source (RF IN) (→ 17)

Select to suit the type of antenna you are using.

[Antenna] [CableTV]

Set Channels Automatically (→ 17)

Preset Channel Captions (→ 18)

Manual Channel Captions (→ 18)

■ Setup

Off Timer

Select how long the unit remains on when it is not being used.

[2 Hours] [6 Hours] [Off]

Remote Control Code (→ 17)

[Set Code 1] [Set Code 2] [Set Code 3]

Clock Settings

Press [ENTER] to show the following settings.

Set Clock Automatically (→ 20)

Set Clock Manually (→ 17)

Adjust Time Zone (→ 20)

This corrects the time set in Auto Clock Setting.

The status is not displayed on the Setup menu when the Auto Clock Setting is not set.

[-1] [0] [+1]

Quick Start

1 Sec. Quick Start for Recording on DVD-RAM*

* From the power off state, recording on DVD-RAM starts about 1 second after first pressing the [⏪, DVD/VHS POWER] and then sequentially pressing the [●, REC] (Quick Start Mode).

Power consumption is also higher when the unit is turned off if this is set to "On".

[On] [Off]

Restore Default Settings

This returns Setup menus to default settings, except for the clock, channel settings, ratings level, and on-screen language.

[Yes] [No]

■ Disc

Settings for Playback

Press [ENTER] to show the following settings.

Ratings ("Entering a password (Ratings)" → left)

Set a ratings level to limit DVD-Video play.

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.

Changing ratings (When level 0 to 7 is selected)

[Unlock Recorder] [Change Password]

[Change Level] [Temporary Unlock]

Play DVD-Audio in Video Mode

Select "Video Mode (Video On)" to play DVD-Video content on some DVD-Audio.

[Video Mode (Video On)] [Audio Mode (Video Off)]

Video Mode (Video ON)	The setting returns to "Audio Mode (Video Off)" when you change the disc or turn the unit off.
------------------------------	--

Audio Language

[English] [French] [Spanish] [Original] [Other ****]

Subtitle Language

[Automatic] [English] [French] [Spanish] [Other ****]

Menu Language

[English] [French] [Spanish] [Other ****]

Choose the language for audio, subtitles and disc menus. **DVD-V**

- If a language which is not recorded is selected, or if languages are already fixed on the disc, the language set as the default on the disc will be played instead.

Original

The original language of each disc will be selected.

Other ****

This is the language code setting.

Input a code number with the numeric buttons.

(→ 58, "Language code list")

Automatic

If the language selected for "Audio Language" is not available, subtitles of that language will automatically appear if available on the disc.

Settings for Recording

Press [ENTER] to show the following settings.

Recording Time in EP Mode

Select the maximum number of hours for recording in EP mode (→ 24, "Recording modes and approximate recording times (DVD)").

[EP-Extended Play (6H)] [EP-Extended Play (8H)]

EP-Extended Play (6H)	You can record for 6 hours on an unused 4.7 GB disc.
EP-Extended Play (8H)	You can record for 8 hours on an unused 4.7 GB disc.

Video

Still Mode (paused video)

Select the type of picture shown when you pause play.

(→ 68, "Frame and field")

[Automatic] [Field] [Frame]

Field	Select if jittering occurs when "Automatic" is selected.
Frame	Select if you cannot see small text or fine patterns clearly when "Automatic" is selected.

Black Level Control

Select "Normal", "Lighter" or "Darker" to adjust the black level control to the desired setting for picture enhancement.

Press [ENTER] to show the following settings.

Input Level

Adjusts the black level of the input signal.

[Lighter] [Darker]

Output Level (Composite/SVideo)

Adjusts the black level of the output signal from the VIDEO OUT and S VIDEO OUT terminal.

[Lighter] [Darker]

Output Level (Component)

Adjusts the black level of the output signal from the COMPONENT VIDEO OUT (Y/Pb/Pr) terminals.

[Lighter] [Normal] [Darker]

Audio

Dynamic Range Compression

DVD-V (Dolby Digital only)

Change the dynamic range (→ 68) for easier listening in low volume.

[On] [Off]

Multi-channel TV sound (MTS)

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

Select whether to record the main or secondary audio type (SAP) when recording or transferring (copying) to DVD-R, DVD-RW (DVD-Video format) or +R. (You cannot select the audio type on the unit when recording audio to DVD-R, DVD-RW (DVD-Video format) or +R from an external device. Select it on the external device.)

[Main] [Secondary Audio Program (SAP)]

Digital Audio Output

Change the settings when you have connected equipment through the unit's DIGITAL AUDIO OUT terminal (→ 15).

Press [ENTER] to display the menu.

PCM Down Conversion

Select how to output audio with a sampling frequency of 96 kHz or 88.2 kHz.

- Signals are converted to 48 kHz or 44.1 kHz despite the above settings if the signals have a sampling frequency of over 96 kHz or 88.2 kHz, or the disc has copy protection.

[On] [Off]

On	Signals are converted to 48 kHz or 44.1 kHz. (Choose when the connected equipment cannot process signals with sampling frequency of 96 kHz or 88.2 kHz.)
Off	Signals are output as 96 kHz or 88.2 kHz. (Choose when the connected equipment can process signals with sampling frequency of 96 kHz or 88.2 kHz.)

Dolby Digital



Choose whether to output by "Bitstream" which processes Dolby Digital signals on other connected equipment or to convert the signals to "PCM (2ch)" on the unit before output.

[Bitstream] [PCM]

Bitstream	When you have connected the unit to a piece of equipment having Dolby Digital logo.
PCM	When you have connected the unit to a piece of equipment that doesn't have Dolby Digital logo*.

DTS



Choose whether to output by "Bitstream" which processes DTS signals on other connected equipment or to convert the signals to "PCM (2ch)" on the unit before output.

[Bitstream] [PCM]

Bitstream	When you have connected the unit to a piece of equipment having DTS logo.
PCM	When you have connected the unit to a piece of equipment that doesn't have DTS logo*.

* Incorrect settings can cause noise to be output which can be harmful to your ears and speakers, and audio will not be recorded properly on media such as mini discs.

Select Audio Channel for DV Input

You can select the kind of audio when recording from the unit's DV in terminal. (→ 50)

[Stereo 1] [Stereo 2] [Mix]

Stereo 1	Records audio (L1, R1)
Stereo 2	Records added audio such as narration (L2, R2) subsequent to original recording.
Mix	Records both Stereo 1 and Stereo 2.

- Underlined items are the factory default settings.

■ Display /

Status Messages

Choose whether to show status messages automatically or not.
 [Automatic] [Off]

On-screen Language

Choose the language for these menus and the on-screen messages.

[English] [Español] [Français]

Blue Background

Select whether to show the blue background, normally shown when TV reception is poor.

[On] [Off]

FL Display

Changes the brightness of the unit's display.

[Bright] [Dim] [Automatic]

Automatic	The display turns dark during play, and reappears momentarily if a button is pressed. When the unit is turned off, the unit's display disappears. While using this mode the standby power consumption can be reduced.
------------------	---

■ TV Screen

TV Type (→ 18) /

Choose the setting to suit your TV and preference.

[Aspect 4:3 & 480i] [Aspect 4:3 & 480p]
 [Aspect 16:9 & 480i] [Aspect 16:9 & 480p]

4:3 TV Settings for DVD-Video

You can select how to display the image on the TV when you watch 16:9 images (DVD-Video) on a 4:3 standard aspect TV. (→ 68)

[Pan and Scan (Stretch to fit)] [Letterbox (Shrink to fit)]

Pan and Scan (Stretch to fit) 	Video recorded for a widescreen is played with the sides cut off if Pan & Scan was specified. If 16:9 software prohibits Pan & Scan, the image will appear in the letterbox style (with black bands above and below the picture) despite the setting here.
Letterbox (Shrink to fit) 	Video recorded for a widescreen is played in the letterbox style.

4:3 TV Settings for DVD-RAM

You can select how to display the image on the TV when you watch 16:9 images (DVD-RAM) on a 4:3 standard aspect TV. (→ 68)

[4:3 Aspect] [Pan and Scan (Stretch to fit)]
 [Letterbox (Shrink to fit)]

4:3 Aspect	Titles are played as recorded.
Pan and Scan (Stretch to fit)	Video recorded for a widescreen is played with the sides cut off.
Letterbox (Shrink to fit)	Video recorded for a widescreen is played in the letterbox style.

■ VHS

Select Tape Length

Set the length of tape you are using so the unit can show the correct remaining time.

[T120] [T160] [T180]

T120	T30, T60, T90 and T120 tapes
T160	T140 and T160 tapes
T180	T180 tapes

Jet Search (→ 34)

Set the speed for Jet Search when playing EP and VP tapes.

- It is possible to view the picture recorded in EP or VP mode at approx. 27 or 35 times speed.

[×27] [×35]

- Select [×27] if the picture is poor at [×35].

Language code list

Abkhazian: 6566	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Telugu: 8469
Afar: 6565	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Thai: 8472
Afrikaans: 6570	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoan: 8377	Tibetan: 6679
Albanian: 8381	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tigrinya: 8473
Ameharic: 6577	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tonga: 8479
Arabic: 6582	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Turkish: 8482
Armenian: 7289	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkmen: 8475
Assamese: 6583	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Twi: 8487
Aymara: 6589	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Ukrainian: 8575
Azerbaijani: 6590	Faroese: 7079	Japanese: 7465	Mongolian: 7778	Singhalese: 8373	Urdu: 8582
Bashkir: 6665	Fiji: 7074	Javanese: 7487	Nauru: 7865	Slovak: 8375	Uzbek: 8590
Basque: 6985	Finnish: 7073	Kannada: 7578	Nepali: 7869	Slovenian: 8376	Vietnamese: 8673
Bengali, Bangla: 6678	French: 7082	Kashmiri: 7583	Norwegian: 7879	Somali: 8379	Volapük: 8679
Bhutani: 6890	Frisian: 7089	Kazakh: 7575	Oriya: 7982	Spanish: 6983	Welsh: 6789
Bihari: 6672	Galician: 7176	Kirghiz: 7589	Pashto, Pushto: 8083	Sundanese: 8385	Wolof: 8779
Breton: 6682	Georgian: 7565	Korean: 7579	Persian: 7065	Swahili: 8387	Xhosa: 8872
Bulgarian: 6671	German: 6869	Kurdish: 7585	Polish: 8076	Swedish: 8386	Yiddish: 7473
Burmese: 7789	Greek: 6976	Laotian: 7679	Portuguese: 8084	Tagalog: 8476	Yoruba: 8979
Byelorussian: 6669	Greenlandic: 7576	Latin: 7665	Punjabi: 8065	Tajik: 8471	Zulu: 9085
Cambodian: 7577	Guarani: 7178	Latvian, Lettish: 7686	Quechua: 8185	Tamil: 8465	
Catalan: 6765	Gujarati: 7185	Lingala: 7678	Rhaeto-Romance: 8277	Tatar: 8484	

On the unit's display		Page
H□□, F□□ ("□□" stands for a number.)	<ul style="list-style-type: none"> An error has occurred. The number following "H" or "F" depends on the status of the unit. Check the items in the "Error messages" section and the "Troubleshooting guide". If the service number still does not disappear after the check, follow the Reset procedure described below. Reset procedure: ("The unit is on but cannot be operated." → 62) If the service numbers fail to clear, note the service numbers and contact a qualified service person. 	–
SET □ ("□" stands for a number.)	<ul style="list-style-type: none"> The remote control and main unit are using different codes. Change the code on the remote control. 	19
HARD ERR	<ul style="list-style-type: none"> If there is no change after turning the unit on and off, consult the dealer where the unit was purchased. 	–
NoREAD	<ul style="list-style-type: none"> The disc is dirty or badly scratched. The unit cannot record, play, or edit. You have used a lens cleaner and it has finished. Press [▲, OPEN/CLOSE] to eject the disc. 	6, 9 22
PLEASE WAIT ("PLEASE" and "WAIT" are alternately displayed.)	<ul style="list-style-type: none"> Displayed when the unit is started. This is not a malfunction. The unit is carrying out its recovery process. You cannot operate the unit while "PLEASE WAIT" is displayed. 	– –
PROG FULL ("PROG" and "FULL" are alternately displayed.)	<ul style="list-style-type: none"> There are already 16 scheduled recording programs. Delete unnecessary scheduled recording programs. 	29
UNSUPPORT ("UNSUP" and "PORT" are alternately displayed.)	<ul style="list-style-type: none"> You have inserted a disc the unit cannot play or record on. 	7
UNFORMAT ("UNFOR" and "MAT" are alternately displayed.)	<ul style="list-style-type: none"> You have inserted a new DVD-RW/+R/+R DL/+RW or a DVD-RAM/DVD-RW (DVD-Video format) recorded on other equipment. 	54
U59	<ul style="list-style-type: none"> The unit is very warm. The unit switches to standby for safety reasons. Wait for about 30 minutes until the message disappears. Select a position with good ventilation when installing the unit. Do not block the cooling fan on the rear of the unit. 	–
U61	<ul style="list-style-type: none"> There was a power failure or the AC plug was disconnected while the unit was on. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears. 	–
U88	<ul style="list-style-type: none"> There was something unusual detected with the disc while recording, playing or transferring (copying), there was a power failure or the AC plug was disconnected while the unit was on. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears. 	61
U99	<ul style="list-style-type: none"> The unit fails to operate properly. Press [⏻/I, POWER] on the main unit to switch the unit to standby. Now press [⏻/I, POWER] on the main unit again to turn the unit on. 	–

On the TV		Page
Cannot finish recording completely.	<ul style="list-style-type: none"> The program was copy-protected. The disc may be full. There are already 99 recorded titles (+R +R DL +RW 49 recorded titles). 	– – –
Cannot play.	<ul style="list-style-type: none"> You inserted an incompatible disc (Discs recorded in PAL video, etc.). 	–
Cannot record on the disc.	<ul style="list-style-type: none"> The disc may be dirty or scratched. 	9
Unable to format.		
Please check the disc.		
Cannot record. Disc is full.	<ul style="list-style-type: none"> Create space by erasing any unwanted titles. RAM -RW(V) +RW 	38, 52,
Cannot record. The number of titles has exceeded the maximum limit.	<ul style="list-style-type: none"> [Even if you erase recorded content from the DVD-R or +R, there is no increase in disc space. Available recording space on a DVD-RW (DVD-Video format) or +RW increases when the last recorded title is deleted. (The recording space may increase slightly when other titles are deleted.)] Use a new disc. 	53 –
Error has occurred. Please press ENTER.	<ul style="list-style-type: none"> Press [ENTER] to start recovery process. You cannot operate the unit while it is recovering ("SELF CHECK" appears on the unit's display). 	–
No disc	<ul style="list-style-type: none"> You haven't inserted a disc. Correctly insert a disc that the unit can play. The disc is upside down. If it is a single-sided disc, insert it so the label is facing up. 	6, 9, 22 22
No VHS cassette	<ul style="list-style-type: none"> A video cassette is not inserted when recording programs. Insert a video cassette with an accidental erasure prevention tab. 	10, 22
Now recording on DVD. To watch the VHS playback, connect a TV to DVD/VHS COMMON OUT terminal at the back of the unit, and select the appropriate input on the TV.	<ul style="list-style-type: none"> The VHS plays back while recording on DVD. You can watch the VHS playback by connect to the DVD/VHS COMMON terminals. 	14
Please change the disc.	<ul style="list-style-type: none"> There may be a problem with the disc. Press [▲, OPEN/CLOSE] on the main unit to remove it and check it for scratches or dirt. (The unit turns off automatically after you open the tray.) 	9
Please set the clock.	<ul style="list-style-type: none"> The clock is not set when recording programs or setting the scheduled recording. Set the clock. 	17, 20
The VHS cassette is protected.	<ul style="list-style-type: none"> A video cassette without the accidental erasure prevention tab is inserted when recording programs. Use a video cassette with an accidental erasure prevention tab. 	10
This is a non-recordable disc.	<ul style="list-style-type: none"> The unit cannot record on the disc you inserted. Insert a DVD-RAM or unfinalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW. You inserted an unformatted DVD-RAM, DVD-RW, +R, +R DL or +RW. Format the disc with the unit. 	–
This disc is not formatted properly.		54
⊘	<ul style="list-style-type: none"> The operation is prohibited by the unit, disc or cassette. 	30

Frequently asked questions

Set up

		Page
What equipment is necessary to play multi channel surround sound?	<ul style="list-style-type: none"> ●DVD-Video: You can play DVD-Video multi channel surround by digitally connecting an amplifier equipped with a Dolby Digital and a DTS decoder. ●DVD-Audio: This unit plays DVD-Audio in 2 channels. You cannot play multi channel surround sound. 	15 –
Can the headphones and speakers be directly connected to the unit?	<ul style="list-style-type: none"> ●You cannot directly connect to the unit. Connect through the amplifier etc. 	15
The TV has both S VIDEO IN terminal and COMPONENT VIDEO IN terminals. Which terminal should I connect with?	<ul style="list-style-type: none"> ●We recommend the COMPONENT VIDEO IN terminal. Component signal outputs the color difference signals (PB/PR) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors. If the TV is compatible with progressive output, a high quality picture can be output because the unit's component video output terminal outputs a progressive output signal. 	15
Is my TV progressive output compatible?	<ul style="list-style-type: none"> ●All Panasonic TVs that have 480p input terminals are compatible. Consult the manufacturer if you have another brand of TV. 	–

Disc

		Page
Can I play DVD-Video, DVD-Audio and Video CDs bought in another country?	<ul style="list-style-type: none"> ●You can play them if the video standard is NTSC. ●However, you cannot play DVD-Video if its region number does not include "1" or "ALL". 	– Cover
Can a DVD-Video that does not have a region number be played?	<ul style="list-style-type: none"> ●The DVD-Video region number indicates the disc conforms to a standard. You cannot play discs that do not have a region number. 	–
Please tell me about DVD-R, DVD-R DL, DVD-RW, +R, +R DL and +RW compatibility with the unit.	<ul style="list-style-type: none"> ●The unit records and plays DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW, and plays DVD-RW (DVD Video Recording format). ●The unit also records and plays high speed recording compatible discs. ●After recording but before finalizing +R, +R DL discs <ul style="list-style-type: none"> - You may not be able to play and record discs on this unit after recording them on other Panasonic products or other manufacturer's equipment. - You may not be able to play and record discs on other equipment after recording them on this unit. After finalizing the disc, however, you will be able to play it on any DVD-Video compatible player. 	6, 7 6 –
Please tell me about CD-R and CD-RW compatibility with the unit.	<ul style="list-style-type: none"> ●This unit plays CD-R/CD-RW discs which have been recorded in one of the following standards: CD-DA, Video CD, MP3 and still pictures (JPEG/TIFF). Close the session or finalize the disc after recording. This unit can recognize up to 99 folders (groups) and 999 files (tracks) on a disc with MP3 or still pictures (JPEG/TIFF). ●You cannot write to a CD-R or CD-RW with the unit. 	7, 32, 33 7

Recording

		Page
Can I record from a commercially purchased video cassette or DVD?	<ul style="list-style-type: none"> ●Most commercially sold video cassettes and DVD are copy protected; therefore, recording is usually not possible. 	–
Can DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW recorded on the unit be played on other equipment?	<ul style="list-style-type: none"> ●You can play on compatible equipment such as DVD players after finalizing the disc on this unit. It is not necessary to finalize +RW. However, depending on the condition of the recording, the quality of the disc and capabilities of the DVD player, play may not be possible. To enable play on other DVD players, please use "Create DVD Top Menu" in the DVD management menu. 	55
Can I record digital audio signals using the unit?	<ul style="list-style-type: none"> ●You cannot record digital signals. The digital audio terminals on the unit are for output only. (The audio recorded from a digital video camcorder using the DV automatic recording function, for example, is recorded digitally.) 	–
Can a digital audio signal from the unit be recorded to other equipment?	<ul style="list-style-type: none"> ●You can record if using the PCM signal. When recording DVD, change the "Digital Audio Output" settings to the following from the Setup menu. <ul style="list-style-type: none"> - PCM Down Conversion "On" - Dolby Digital "PCM" - DTS "PCM" However, only <ul style="list-style-type: none"> - As long as digital recording from the disc is permitted. - As long as the recording equipment is compatible with 48 kHz of sampling frequency. ●You cannot record MP3 signals. 	57 –
Can I switch to SAP during recording?	<ul style="list-style-type: none"> ●With DVD-RAM, you can, and the audio recorded also changes. Just press [AUDIO]. ●With DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, +RW you cannot. Change before recording with "Multi-channel TV sound (MTS)" in the Setup menu. 	25 57

Troubleshooting guide

Before requesting service, make the following checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the “Customer Services Directory” on page 69 if you reside in the U.S.A., or refer to “Product information” on page 66 if you reside in Canada. In other areas, consult your dealer.

The following do not indicate a problem with the unit:

- Regular disc rotating sound.
- Poor reception due to atmospheric condition.
- Image disturbance during search.
- Periodic interruptions to reception due to satellite broadcasting breaks.
- Operations do not work due to a poor-quality disc. (Try again using a Panasonic disc.)
- The unit freezes due to the activation of one of its safety devices. (Press and hold [⏻/I, POWER] on the main unit for 10 seconds.)

Power

Page

No power	● Insert the AC power supply cord securely into a known active AC outlet.	13
The unit switches to the standby mode.	● This is a power saving feature. Change “Off Timer” in the “Setup” menu, if you would prefer. ● One of the unit’s safety devices is activated. Press [⏻/I, POWER] on the main unit to turn the unit on.	56 –

Displays

Page

The display is dim.	● Change “FL Display” in the Setup menu.	58
“12:00A” is flashing on the unit’s display.	● Set the clock.	17, 20
The recording time display, the transfer (copying) process display and the displayed recording time of MP3 are different from the actual time.	● Times shown may disagree with actual times. ● In DVD-R, DVD-R DL, +R or +R DL the remaining capacity does not increase even if titles are deleted. ● Available recording space on a DVD-RW (DVD-Video format) or +RW increases when the last recorded title is deleted. (The recording space may increase slightly when other titles are deleted.) ● If you repeat recording or editing about 200 times or more, the remaining capacity of the DVD-R, DVD-R DL, +R or +R DL is reduced and then recording or editing may be disabled. (For the second layer on DVD-R DL and +R DL, this happens after about 60 times.) ● The time during fast forward and rewind, or the process during transfer (copy) may not be displayed accurately.	– – – – –
Compared to the actual recorded time, the elapsed time displayed is less.	● The displayed recording/play time is converted from the number of frames at 29.97 frames (equal to 0.999 seconds) to one second. There will be a slight difference between the time displayed and the actual elapsed time (e.g., actual one-hour elapsed time may display as approximately 59 minutes 56 seconds). This does not affect the recording.	–
“U88” is displayed and the disc cannot be ejected.	● The unit is carrying out the recovery process. Do the following to eject the disc. (1) Press [⏻/I, POWER] on the main unit to switch to standby. If the unit doesn’t switch to standby, press and hold [⏻/I, POWER] on the main unit for about 10 seconds. The unit is forcibly switched to standby. (2) While the unit is off, press and hold [■] and [CH, ^] on the main unit at the same time for about 5 seconds. Remove the disc.	–

Operation		Page
Cannot operate the TV.	●Change manufacturer code. Some TVs cannot be operated even if you change the code.	19
	●Press [TV/VIDEO] to change the input mode to "TV".	26
Cannot operate the DVD.	●Press [DRIVE SELECT] to select DVD drive when operating DVD.	11
Cannot operate the VHS.	●Press [DRIVE SELECT] to select VHS drive when operating VHS.	11
The remote control doesn't work.	●The remote control code is wrong. Change to the correct code.	19
	●The batteries are depleted. Replace them with new ones.	9
	●Point the remote control at the remote control sensor on the main unit.	9
	●Remove obstacles between the remote control and main unit.	—
	●Colored glass may abstract the signal reception/transmission.	—
	●Don't place the signal sensor in direct sunlight or in areas that may be subject to sunlight exposure.	—
	●It may be necessary to set the code on the remote control again after changing the batteries.	9
The unit is on but cannot be operated.	●It may be necessary to set the manufacturer code again after changing the batteries.	9
	●Some operations are prohibited by the disc.	—
	●The unit is warm ("U59" appears on the unit's display). Wait until "U59" disappears.	—
Cannot eject a disc.	●One of the unit's safety devices may have been activated.	—
	Reset the unit as follows:	
	(1) Press [⏻, POWER] on the main unit to switch to standby. If the unit doesn't switch to standby, press and hold [⏻, POWER] on the main unit for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC power supply cord, wait for about 1 minute, then reconnect it.	
Startup is slow	(2) Press [⏻, POWER] on the main unit to turn the unit on.	
	●The unit is recording	—
Takes time to read DVD-RAM	●The unit may have a problem. While the unit is off, hold down [■] and [CH, ^] on the main unit simultaneously for about 5 seconds. Remove the disc and consult the dealer.	—
	●Make sure that "Quick Start" is set to "On". Even if "Quick Start" is set to "On", startup is slow if the clock is not set, there was a power failure or the AC plug has just been connected.	56
Takes time to read DVD-RAM	●A few dozen seconds after turning on the unit, you can play a disc or start recording to discs other than DVD-RAM.	—
	●It may take time to read a disc if it is being used for the first time in this unit or it has not been used for a long time.	—

Picture

		Page
TV 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 other equipment. It can be solved by using a signal booster, available from audio-visual suppliers. 	–
The images from the unit do not appear on the TV.	<ul style="list-style-type: none"> Make sure that the TV is connected to the VIDEO OUT terminal, S VIDEO OUT terminal or COMPONENT VIDEO OUT terminals on the unit. 	13–15
Picture is distorted.	<ul style="list-style-type: none"> Make sure that the TV's input setting (e.g., VIDEO 1) is correct. The TV isn't compatible with progressive signals. Press and hold [■] and [▶ DVD] on the main unit at the same time for about 5 seconds. The setting will change to interlace. 	– –
Status messages do not appear.	<ul style="list-style-type: none"> Select "Automatic" in "Status Messages" in the Setup menu. 	58
The blue background does not appear.	<ul style="list-style-type: none"> Select "On" in "Blue Background" in the Setup menu. 	58
The 4:3 aspect ratio picture expands left and right.	<ul style="list-style-type: none"> Use the TV to change the aspect. If your TV does not have that function, set "Progressive" in the Video menu to "Off". 	37
Screen size is wrong.	<ul style="list-style-type: none"> Check the settings for "TV Type", "4:3 TV Settings for DVD-Video", or "4:3 TV Settings for DVD-RAM" in the Setup menu. 	58
There is a lot of after-image when playing video.	<ul style="list-style-type: none"> Set "DNR" in the Video menu to "Off". 	37
When playing DVD-Video using progressive output, one part of the picture momentarily appears to be doubled up.	<ul style="list-style-type: none"> Set "Progressive" in the Video menu to "Off". This problem is caused by the editing method or material used on DVD-Video, but should be corrected if you use interlace output. 	37
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 cannot be seen with certain types of video. 	–

Sound

		Page
No sound.	<ul style="list-style-type: none"> Check the connections and "Digital Audio Output" settings. Check the input mode on the amplifier if you have connected one. 	15, 57
Low volume.	<ul style="list-style-type: none"> Press [AUDIO] to select the audio. 	25, 31
Distorted sound.	<ul style="list-style-type: none"> Set "V. Surround Sound" in the Audio menu to "Off" in the following cases. <ul style="list-style-type: none"> When using discs that do not have surround sound effects such as Karaoke discs. When playing MTS broadcast titles. 	37
Cannot hear the desired audio type.		
Cannot switch audio.	<ul style="list-style-type: none"> You cannot change the audio type when a DVD-R, a DVD-R DL, a DVD-RW (DVD-Video format), a +R, a +R DL or a +RW is in the disc tray. You cannot change the audio type when playing a DVD-R, a DVD-R DL, a DVD-RW (DVD-Video format), a +R, a +R DL or a +RW. (You can select "Main" or "Secondary Audio Program (SAP)" in "Multi-channel TV sound (MTS)" in the Setup menu before recording.) You have used a digital connection. Set "Dolby Digital" to "PCM" or connect using audio cables (analog connection). There are discs whose audio cannot be changed because of how the disc was created. 	– 57 15, 57 –

Recording, Scheduled recording, Transfer (Copying), External input		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.	6
	• The disc is unformatted. Format the disc. RAM -RW(V) +R +R DL +RW	54
	• The write-protect tab on the cartridge is set to "PROTECT" or the disc is protected with "DVD Management".	53
	• Some programs have limitations on the number of times they can be recorded (CPRM).	6, 68
	• The disc is full or nearly full. Delete unneeded titles or use another disc.	38, 52
	• You cannot record on finalized DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or DVD-RW (DVD Video Recording format) discs.	55
	• If you repeatedly insert discs or turn the unit on and off about 50 times or more, the recording or editing of DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, +RW may be disabled.	–
	• A DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, +RW recorded on the unit may not be recordable on other Panasonic DVD recorders.	–
	• The material you are trying to record is copy-protected.	–
	• Scheduled recording will not be activated when in editing or transfer (copy). Scheduled recording will begin after the editing/transfer (copy) is finished.	–
Scheduled recording does not work properly.	• The scheduled recording program is incorrect or different scheduled recording times overlap. Correct the program.	29
	• The clock is not correct. Set the clock.	17, 20
	• Scheduled recording will not be activated during formatting, transfer (copying) and other such operations which should not be interrupted when they are being carried out.	–
Scheduled recording does not stop even when [■, STOP] is pressed.	• If you start recording immediately after turning on the unit while "Quick Start" is set to "On", you cannot then stop recording for a few seconds.	56
The scheduled recording program remains even after recording finishes.	• The scheduled recording program remains if set to daily or weekly.	29
A part or whole of a recorded title has been lost.	• If the power shuts down or the plug is disconnected from the household AC outlet while recording or editing, the program may be lost or the disc may become unusable. We cannot offer any guarantee regarding lost titles or discs. You will have to format the disc (RAM -RW(V) +RW) or use a new disc.	–
Cannot transfer (copy) VHS to DVD.	• The write-protect tab on the cartridge is set to "PROTECT" or the disc is protected with "DVD Management".	53
	• Some video tapes on the market (including rental videos) are copy-protected to prevent illegal reproductions. Copy-protected video tapes cannot be properly recorded.	–
	• You cannot use the transfer (copying) function when the FUNCTIONS window, the Scheduled Recording List screen, etc. are displayed.	–
Cannot transfer (copy) DVD to VHS.	• A video cassette without the accidental erasure prevention tab is inserted. Use a video cassette with an accidental erasure prevention tab.	10
	• Some DVDs on the market (including rental DVD) are copy-protected to prevent illegal reproductions. Copy-protected DVDs cannot be properly recorded.	–
	• You cannot use the transfer (copying) function when the FUNCTIONS window, the Scheduled Recording List screen, etc. are displayed.	–
The sound level after editing is not equal on DVD and on VHS.	• The sound level on DVD and VHS may not match depending on the disc. When the sound level in a particular part of the sound source is soft or loud, the sound may be recorded loudly or softly on a video tape.	–
Stripe-shaped black noise is recorded.	• The device in playback is interfering with the TV because the device is too close to the TV. Move the device away from the TV.	–
Cannot record video or sound from the external device.	• The external device is not correctly connected.	50
	• The proper external input channel (IN1, IN2 or DV) is not selected.	50
The DV automatic recording function does not work.	• If images cannot be recorded or if the recording is aborted, check the connections and DV equipment settings.	50
	• You cannot start recording until the images from the DV equipment appear on the television.	–
	• Recording may not be performed as desired if the time codes on the tape in the DV equipment are not successive.	–
	• Depending on the equipment, the DV automatic recording may not operate properly.	–
	• You can only record audio/video images on a DV tape.	–

Play		Page
Play fails to start even when [▶, PLAY] is pressed. Play starts but then stops immediately.	● Insert the disc correctly with the label facing up.	22
	● The disc is dirty.	9
	● You tried to play a blank disc or a disc that is unplayable on the unit.	7
	● You tried to play a +RW that needs to be finalized on the equipment used for recording.	–
	● When recording to DVD-RAM using EP (8H) mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use EP (6H) mode.	57
Audio and video momentarily pause.	● This occurs between playlist chapters.	–
	● This occurs as scenes change during Quick View.	30
DVD-Video is not played.	● Some DVD-Video cannot be played when you change the ratings level.	56
Alternative sound track and subtitles cannot be selected.	● Multiple languages are not recorded on the disc.	–
	● You may have to use the disc's own menus to select languages.	30
No subtitles.	● When progressive output is on, closed captions cannot be displayed.	–
	● Subtitles are not recorded on the disc.	–
	● Set "Subtitle" in the Disc menu to "On".	36
Angle cannot be changed.	● This function depends on software availability. Angles can only be changed during scenes where different angles are recorded.	–
You have forgotten your ratings password.	● With the tray open, keep pressing [●, REC] and [▶] on the main unit simultaneously for about 5 or more seconds.	–
Quick View does not work.	● This does not work when audio is other than Dolby Digital.	–
	● This does not work when recording is in XP or FR mode.	–
The resume play function does not work.	● Memorized positions are canceled when the unit is turned off or when the tray is opened. The memorized position on the playlist is also canceled when the playlist and title are edited.	–

Edit		Page
Cannot format.	● The disc is dirty. Wipe with a damp cloth and then wipe dry.	9
	● You tried formatting a disc that is not compatible with the unit.	7
Cannot create chapters.	● The unit writes the chapter division information to the disc when you turn it off or remove the disc. The information is not written if there is an interruption in the power before this.	–
Cannot mark the start point or the end point during "Shorten Title" operation.	● These operations are not possible with still pictures.	–
	● You cannot set points if they are too close to each other. You cannot set an end point before a start point.	–
	● When the chapter is too short to delete, use "Combine Chapters" to make the chapter longer.	40
The available recording time doesn't increase even after deleting recordings on the disc.	● Available recording space on the DVD-R, the DVD-R DL, the +R or the +R DL does not increase even after deleting previously recorded titles.	–
	● Available recording space on a DVD-RW (DVD-Video format) or +RW increases when the last recorded title is deleted. (The recording space may increase slightly when other titles are deleted.)	–
Cannot create a playlist.	● You cannot select all the chapters in a title at once as the source of playlist edition if the title also includes still pictures. Select them individually.	–

VHS Picture		Page
OSD messages do not appear.	● Go to Setup and select "Automatic" in "Status Messages". Press [STATUS] to show the on-screen messages constantly.	35, 58
The blue back appears during play.	● You are playing a blank or poor quality part of the tape.	–
	● You can damage the unit if you play dirty or damaged tapes and this can cause the blue back to appear. Consult your dealer.	–

VHS Sound		Page
Cannot hear the desired audio type.	● Press [AUDIO] to select the audio.	31
There is noise when playing a video tape.	● Adjust the tracking.	35
	● The tape is old or damaged.	–

VHS Recording, scheduled recording		Page
"[]" flashes when I try to start recording. Cannot record.	● A video cassette is not inserted. Insert a video cassette with an accidental erasure prevention tab.	22
	● The erasure prevention tab has been removed. Cover the hole with adhesive tape.	10
Cannot record TV program.	● The desired channel is not selected. Select the desired TV program.	–

VHS Play		Page
Cannot play.	● Tapes recorded under a TV system other than NTSC (PAL, SECAM, etc.) cannot be played.	–
The playback screen flickers.	● The video head is dirty.	–
	● The tape is too old or damaged.	–

Product Service

1. **Damage requiring service** — The unit should be serviced by qualified service personnel if:
 - (a) The AC power supply cord or AC adaptor has been damaged; or
 - (b) Objects or liquids have gotten into the unit; or
 - (c) The unit has been exposed to rain; or
 - (d) The unit does not operate normally or exhibits a marked change in performance; or
 - (e) The unit has been dropped or the cabinet damaged.
2. **Servicing** — Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.
3. **Replacement parts** — When parts need replacing ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.
4. **Safety check** — After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

Product information

For product information or assistance with product operation:

In the U.S.A., refer to "Customer Services Directory" on page (→ 69).

In Canada, contact the Panasonic Canada Inc. Customer Care Centre at 1-800-561-5505, or visit the website (www.panasonic.ca), or an authorized Servicentre closest to you.

The 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-ES35V _____
SERIAL NUMBER _____

User memo:

DATE OF PURCHASE _____
DEALER NAME _____
DEALER ADDRESS _____

TELEPHONE NUMBER _____

Specifications

Power supply:	AC 120 V, 60 Hz
Power consumption:	Approx. 29 W
Standby mode: (Display ON)	Approx. 3.2 W
(Display OFF)	Approx. 3.0 W

Recordable discs:

DVD-RAM:	Ver. 2.0 Ver. 2.1/3X-SPEED DVD-RAM Revision 1.0 Ver. 2.2/5X-SPEED DVD-RAM Revision 2.0
DVD-R:	for General Ver. 2.0 for General Ver. 2.0/4X-SPEED DVD-R Revision 1.0 for General Ver. 2.x/8X-SPEED DVD-R Revision 3.0 for General Ver. 2.x/16X-SPEED DVD-R Revision 6.0 for DL Ver. 3.0 for DL Ver. 3.x/4X-SPEED DVD-R for DL Revision 1.0
DVD-RW:	Ver. 1.1 Ver. 1.1/2X-SPEED DVD-RW Revision 1.0 Ver. 1.2/4X-SPEED DVD-RW Revision 2.0
+R:	Ver. 1.0 Ver. 1.1 Ver. 1.2 for DL Ver. 1.0
+RW:	Ver. 1.1 Ver. 1.2/4X-SPEED

Recording system:

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

Recording time:

Max.	8 hours (using 4.7 GB disc)
XP:	Approx. 1 hour SP: Approx. 2 hours
LP:	Approx. 4 hours EP: Approx. 6 hours or 8 hours

Playable discs:

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

Optical pick-up:

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

LASER Specification:

Class 1 LASER Product	
Wave Length:	780 nm (CDs) 662 nm (DVDs)
Laser Power:	No hazardous radiation is emitted with the safety protection

Television system:

TV system:	NTSC system, 525 lines, 60 fields
Antenna reception input:	
TV Channel:	VHF: 2 ch to 13 ch UHF: 14 ch to 69 ch
CATV Channel:	5A & A-5 ch to EEE ch

Quick Start for Recording (Quick Start : ON)

1 Sec. Quick Start for Recording on DVD-RAM*
* From the power off state, recording on DVD-RAM starts about 1 second after first pressing the Power button and then sequentially pressing the REC button (Quick Start Mode).

Video system:

Recording system: (for DVD)	MPEG2 (Hybrid VBR)	
Input:	LINE (pin jack)×2	1.0 Vp-p; 75 Ω
	S connector×2	Y: 1.0 Vp-p; 75 Ω C: 0.286 Vp-p; 75 Ω
Output: (for DVD PRIORITY)	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: (for DVD PRIORITY)	Y, PB, PR ×1 (480i/480p)	Y: 1.0 Vp-p; 75 Ω PB: 0.7 Vp-p; 75 Ω PR: 0.7 Vp-p; 75 Ω

Audio system:

Recording system: (for DVD)	Dolby Digital (2 ch) Linear PCM (XP mode 2 ch)
Analog Input:	LINE (pin jack)×2 Reference input: 309 mVrms FS: 2 Vrms (1 kHz, 0 dB) Input impedance: 22 kΩ
Analog Output: (for DVD PRIORITY)	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: (for DVD)	Recording: 2 channels Playback: 2 channels
Number of track: (for VHS)	HiFi: 2 track Normal: 1 track
Digital Output: (for DVD PRIORITY)	Digital audio optical output connector×1 (PCM, Dolby Digital, DTS)

VHS

Recording format:	VHS Video Cassette System Standard with FM audio
Heads:	4 Helical Scan Heads for Video 2 Helical Scan Heads for FM audio 1 Fixed Head for Normal audio

Tape speed/Recording time:

SP:	33.35 mm/s, 120 min (with T-120 cassette)
EP:	11.12 mm/s, 360 min (with T-120 cassette)
FF/REW time:	FF/REW: Approx. 60 s (with T-120 cassette) Jet REW: Approx. 43 s (with T-120 cassette)

DV Input:

IEEE 1394 Standard, 4 Pin×1

Regional Code:

1

Clock unit:

Quartz-controlled 12-hour digital display

Operating temperature range:

5 °C to 40 °C (41 °F to 104 °F)

Operating humidity range:

10% to 80% RH (no condensation)

Dimensions:

Approx. 430 mm (W)×84 mm (H)×343 mm (D)
[Approx. 16¹⁵/₁₆" (W)×3⁵/₁₆" (H)×13⁷/₈" (D)]

Mass:

Approx. 5.4 kg (Approx. 11.9 lbs)

Note

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

Bitstream

This is a signal compressed and converted into digital form. It is converted back to a multi-channel audio signal, e.g., 5.1-channel, by a decoder.

CPRM (Content Protection for Recordable Media)

CPRM is technology used to protect broadcasts that are allowed to be recorded only once. Such broadcasts can be recorded only with CPRM compatible recorders and discs.

Decoder

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

Down-mixing

This is the process of remixing the multi-channel audio found on some discs into two channels. It is useful when you want to listen to the 5.1-channel audio recorded on DVDs through your TV's speakers. Some discs prohibit down-mixing. If this is the case, this unit can only output the front two channels.

Dynamic range

Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs. Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can hear dialog clearly at low volume.

Film and Video

DVD-Videos are recorded using either film or video. The unit can determine which type has been used, then uses the most suitable method of progressive output.

- Film is 24 or 30 frames per second, with motion picture film generally being 24 frames per second.
- Video is 60 fields per second (2 fields making up 1 frame).

Finalize

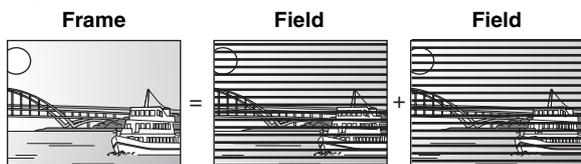
A process that makes play of a recorded CD-R, CD-RW, DVD-R, etc. possible on equipment that can play such media. You can finalize DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R and +R DL on the unit. After finalizing, the disc becomes play-only and you can no longer record or edit. However, finalized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

Formatting

Formatting is the process of making media such as DVD-RAM recordable on recording equipment. You can format DVD-RAM, DVD-RW (only as DVD-Video format) and +RW on the unit. Formatting irrevocably erases all contents on the disc.

Frame and field

Frame refers to the single images that constitute the video you see on your TV. Each frame consists of 2 fields.



- A frame still shows 2 fields, so there may be some blurring between them, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

JPEG (Joint Photographic Experts Group)

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

MP3 (MPEG Audio Layer 3)

An audio compression method that compresses audio to approximately one-tenth of its size without any considerable loss of audio quality. You can play MP3s you have recorded onto CD-R and CD-RW.

Pan & Scan/Letterbox

In general, DVD-Video are produced with the intention that they will be viewed on a widescreen TV (16:9 aspect ratio), so images often don't fit regular TVs (4:3 aspect ratio). 2 styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

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



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



Playback control (PBC)

If a Video CD has playback control, you can select scenes and information with menus displayed on the screen. (The unit is compatible with version 2.0 and 1.1.)

Progressive/Interlace

NTSC, the video signal standard, has 480 interlaced (i) scan lines, whereas progressive scanning uses twice the number of scan lines. This is called 480p.

Using progressive output, you can enjoy the high-resolution video recorded on media such as DVD-Video.

Your TV must be compatible to enjoy progressive video.

Protection

You can prevent accidental erasure by setting writing protection or erasure protection.

Sampling frequency

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

Thumbnail

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

TIFF (Tag Image File Format)

This is a system used for compressing/decoding color still pictures, a common format for storing high quality images on digital cameras and other devices.

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

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

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

Panasonic DVD Recorder Limited Warranty

Limited Warranty Coverage

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

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

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

Carry-In or Mail-In Service

For Carry-In or Mail-In Service in the United States call 1-800-211-PANA (7262) or visit Panasonic Web Site: <http://www.panasonic.com>
For assistance in Puerto Rico call Panasonic Puerto Rico, Inc. (787)-750-4300 or fax (787)-768-2910.

Limited Warranty Limits And Exclusions

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

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

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

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

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

Customer Services Directory

Obtain Product Information and Operating Assistance; locate your nearest Dealer or Servicenter; purchase Parts and Accessories; or make Customer Service and Literature requests by visiting our Web Site at:

<http://www.panasonic.com/consumersupport>

or, contact us via the web at:

<http://www.panasonic.com/contactinfo>

You may also contact us directly at:

1-800-211-PANA (7262),
Monday-Friday 9 am-9 pm; Saturday-Sunday 10 am-7 pm, EST.

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

Accessory Purchases

Purchase Parts, Accessories and Instruction Books online for all Panasonic Products by visiting our Web Site at:

<http://www.pasc.panasonic.com>

or, send your request by E-mail to:

npcparts@us.panasonic.com

You may also contact us directly at:

1-800-332-5368 (Phone) 1-800-237-9080 (Fax Only) (Monday – Friday 9 am to 8 pm, EST.)

Panasonic Services Company

20421 84th Avenue South, Kent, WA 98032

(We Accept Visa, MasterCard, Discover Card, American Express, and Personal Checks)

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

Service in Puerto Rico

Panasonic Puerto Rico, Inc.

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

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

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

Limited Warranty (ONLY FOR CANADA)

Panasonic Canada Inc.

PANASONIC 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

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

LIMITATIONS AND EXCLUSIONS

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

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

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

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

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

WARRANTY SERVICE

FOR PRODUCT OPERATION ASSISTANCE, please contact:

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

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

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

Panasonic Factory Service:

<u>Richmond, British Columbia</u>	<u>Mississauga, Ontario</u>
Panasonic Canada Inc.	Panasonic Canada Inc.
12111 Riverside Way	5770 Ambler Drive
Richmond, BC V6W 1K8	Mississauga, ON L4W 2T3
Tel: (604) 278-4211	Tel: (905) 624-8447
Fax: (604) 278-5627	Fax: (905) 238-2418

IF YOU SHIP THE PRODUCT TO A SERVICENTRE

Carefully pack and send prepaid, adequately insured and preferably in the original carton.
Include details of the defect claimed, and proof of date of original purchase.

Instalación básica

- Antes de hacer la conexión, apague todos los equipos y lea los manuales de instrucciones apropiados.
- El equipo periférico y los cables opcionales se venden por separado a menos que se indique lo contrario.

Para su referencia

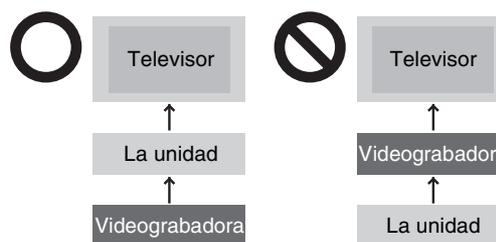
- Las conexiones del equipo descritas son ejemplos.
- El equipo periférico y los cables opcionales se venden por separado a menos que se indique lo contrario.

■ Cuando la unidad no vaya a utilizarse durante mucho tiempo

Para ahorrar energía, desenchufe la unidad de la toma de CA. Esta unidad consume una pequeña cantidad de energía aunque se encuentre apagada (**8 W aproximadamente**).

■ No conecte la unidad mediante una videogradora

Los sistemas de protección de los derechos de autor afectarán las señales de video enviadas mediante una videogradora y la imagen no se mostrará bien en el televisor.



Conexión con un televisor

■ Conexión (con cable de audio/vídeo)

Conecte por orden numérico de **1** a **4**.

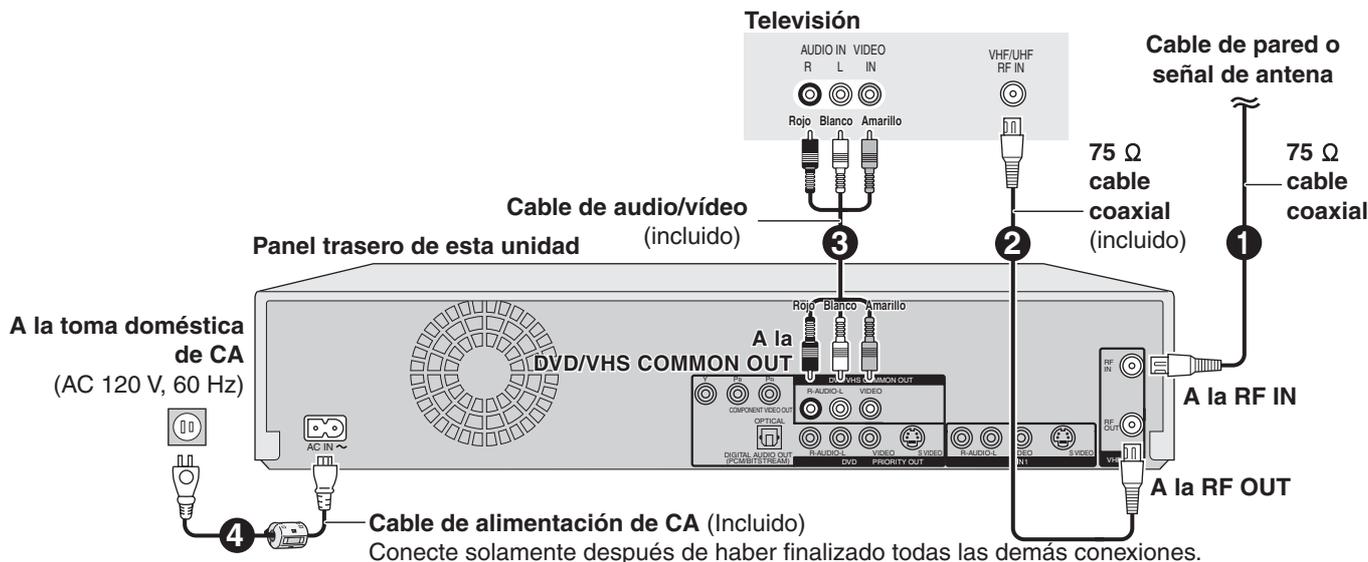
- Después de esta conexión, ajuste el canal de salida RF "OFF" (→ 72), y luego pulse el botón TV/VIDEO del mando a distancia del televisor para seleccionar el modo de entrada AV al terminal del televisor conectado. Puede mirar un vídeo desde esta unidad en su televisor.

■ Conexión (sin cable de audio/vídeo)

No necesita conectar "**3**".

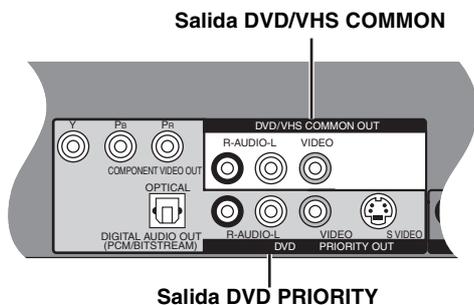
La unidad envía una señal al televisor a través de un cable coaxial de 75 Ω en el canal 3 o 4. Es posible ver una imagen de vídeo en su televisor de la misma manera que la que ve en las emisiones televisivas.

- Después de esta conexión, ajuste el canal de salida RF "CH3" o "CH4" (→ 72).



Salida DVD y salida DVD/VHS

La unidad tiene terminales de salida DVD/VHS COMMON y los de salida DVD PRIORITY.



DVD/VHS COMMON OUT

- Para los terminales de salida DVD/VHS COMMON, pueden lograrse sea las señales DVD sea las VHS.

DVD PRIORITY OUT

- Salvo mientras que graba o va haciendo una grabación programada, con el terminal de salida DVD PRIORITY puede también reproducir una cinta en el DVD.

Para gozar de una más alta calidad de la imagen

■ Conexión al terminal S VIDEO IN

Terminal S VIDEO OUT

Los terminales S VIDEO OUT logran una imagen más viva que la del terminal VIDEO OUT. (El resultado real depende del televisor.) Tras terminar "Conexión con un televisor", conecte el cable S VIDEO. De costumbre puede ver una imagen desde el terminal INPUT2. Cuando quiere reproducir un VHS mientras graba en DVD, cambie al terminal INPUT1.

■ Conexión a los terminales COMPONENT VIDEO IN

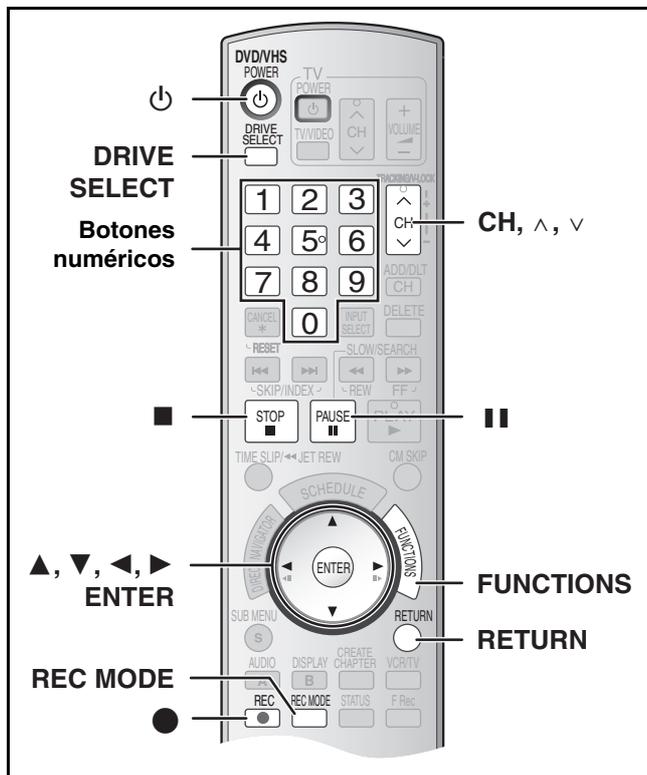
Terminal COMPONENT VIDEO OUT

Estos terminales pueden usarse para el entrelazado o la salida progresiva y proporcionan una imagen más clara que la del terminal S VIDEO OUT.

Tras terminar "Conexión con un televisor", conecte el cable COMPONENT VIDEO.

De costumbre puede ver una imagen desde el terminal COMPONENT VIDEO INPUT. Cuando quiere reproducir un VHS mientras graba en DVD, cambie al terminal INPUT1.

- Conecte a los terminales del mismo color.



Sintonización automática por Plug-in

Preparación

- Encienda el televisor y seleccione la entrada de vídeo apropiada a las conexiones de la unidad (Ejemplo: entrada AV, CH3 o CH4).
- Si conecta la unidad a través de una caja para televisor de cable o un receptor de satélite, sintonice su PBS local para que funcione el ajuste automático del reloj. Si no hay ningún PBS local, ajuste el reloj manualmente.

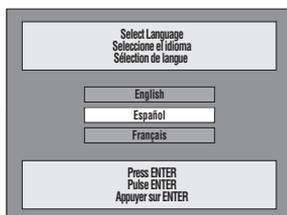
1 Pulse [⏻, DVD/VHS POWER].

2 Pulse [CH, ^, v] para seleccionar un número de canal de salida RF.

Conexión

(sin cable de audio/vídeo): Seleccione "CH3" o "CH4" que visualiza la pantalla a la derecha.

(con cable de audio/vídeo): Seleccione "OFF"



El visualizador de la unidad



El visualizador de la unidad

Cada vez que pulsa el botón:
CH 3 (Ajustes predeterminados) ↔ CH4 ↔ OFF

3 Utilice [▲, ▼] para seleccionar el idioma y pulse [ENTER].

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

5 Pulse [▲, ▼] para seleccionar "Encendido" o "Apagado" y pulse [ENTER].

Si activa la función "Accionamiento rápido", seleccione "Encendido".

Acerca de la función "Accionamiento rápido"

Si ajusta Accionamiento rápido en activado, puede iniciar a grabar al DVD-RAM alrededor de 1 segundo después de que haya pulsado [⏻, DVD/VHS POWER] para encender la unidad.

Cuando haya seleccionado "Encendido", tiene lugar lo siguiente.

- El consumo de energía en espera aumenta por el hecho de que se suministra energía a los mandos de la unidad.

6 Pulse [▲, ▼] para seleccionar "Sintonizador" o "Entrada" y pulse [ENTER].

Cuando no ajusta los canales en esta unidad, seleccione "Entrada". La unidad entonces muestra la pantalla "Ajuste manual del reloj".

Ajuste manualmente el reloj.

7 Pulse [ENTER] para iniciar la sintonización automática por Plug-in.

- La unidad procede con el ajuste automático del reloj. La hora aparece cuando esté terminado dicho ajuste.

■ Cuando aparece la pantalla "No se ha encontrado ningún canal" o la de "Ajust. automat. del reloj no acabado"

Después de apagar la unidad, confirme lo siguiente y vuelva a configurar.

- Compruebe si el cable de antena está firmemente conectado al terminal RF IN.
- Si no ajusta los canales en esta unidad, seleccione "Entrada" en el paso 6. Pantalla "Ajust. automat. del reloj no acabado." Pulse [ENTER] y ajuste manualmente el reloj.

8 Pulse [ENTER].

■ Si el reloj tiene una hora en adelante o retrasada con respecto a la hora real

Seleccione "-1" o "+1" en "Ajustar del huso horario" en el menú CONFIGURACIÓN.

Seleccionar el tipo de televisor

Usted no tiene que cambiar el ajuste cuando está conectado a un televisor de aspecto estándar de 4:3 que no sea compatible con la salida progresiva.

1 Durante la parada

Pulse [FUNCTIONS].

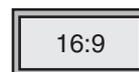
2 Seleccione "Otras funciones" con [▲, ▼] y pulse [ENTER].

3 Seleccione "CONFIGURACIÓN" con [▲, ▼] y pulse [ENTER].

4 Seleccione "Pantalla TV" con [▲, ▼] y pulse [◀, ▶].

5 Seleccione "Tipo TV" [▲, ▼] y pulse [ENTER].

- Aspecto 4:3/Aspecto 16:9:



Aspecto estándar de 4:3 Televisor de aspecto panorámico 16:9

- 480p/480i:

Seleccione "480p" si el televisor es compatible con la salida progresiva.

6 Utilice [▲, ▼] para seleccionar el elemento y pulse [ENTER].

■ Para volver a la pantalla anterior

Pulse [RETURN].

■ Para salir de la pantalla

Pulse [RETURN].

Insertar discos

1 Pulse [**▲**, OPEN/CLOSE] en la unidad principal para abrir la bandeja.

- Puede insertar un disco de cartucho o sin cartucho.

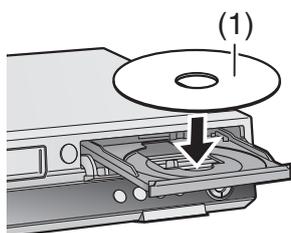
2 Pulse [**▲**, OPEN/CLOSE] en la unidad principal para cerrar la bandeja.

- Si inserta un DVD-RAM con la lengüeta de protección contra la escritura ajustada en "PROTECT", la reproducción inicia automáticamente.

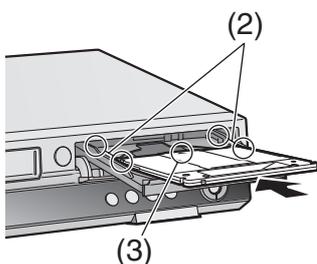
Nota

- Un disco de doble cara tiene que colocarse con la cara que quiere grabar/reproducir mirando hacia abajo.
- No es posible grabar continuamente desde una cara a la otra en un disco de dos caras. Tendrá que expulsar el disco y darlo la vuelta.
- Cuando utilice un DVD-RAM de 8 cm (3") o un DVD-R de 8 cm (3"), quite el disco del cartucho.

Disco sin cartucho



Disco en cartucho



- (1) Insértelo con la cara impresa hacia arriba.
 (2) Inserte completamente hasta que haga un ruido seco.
 (3) Insértelo con la etiqueta arriba y la flecha hacia adentro.

Insertar un videocasete

La superficie a través de la que puede ver el rollo de la cinta tiene que estar de cara hacia arriba. Inserte un videocasete.

- La unidad se enciende automáticamente.

■ Para expulsar un videocasete

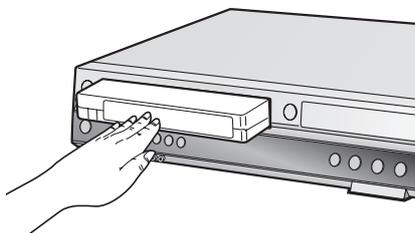
- Puede expulsar el videocasete aun cuando la unidad esté en el modo de espera. Ésta vuelve a la espera una vez que lo haya expulsado.

Para la unidad principal

- Pulse [**▲**, EJECT] en la unidad principal.

Para el mando a distancia

Pulse [DRIVE SELECT] para seleccionar el lado VHS y luego pulse y mantenga pulsado [**■**, STOP] durante 3 segundos o más.



Antes de grabar

- **+RW** El menú del título creado se borra cuando graba en el disco. Vuelva a crear el menú del título usando "Crear menú superior DVD." en Gestión del DVD.

Sólo la principal o SAP pueden grabarse para las emisiones MTS, cuando graba al DVD-R, DVD-R DL, DVD-RW, +R, +R DL, +RW

Si no conecta una caja de cable
 Seleccione "Main" o "SAP" en "Seleccionar MTS" del menú CONFIGURACIÓN.

Si conecta una caja de cable
 Seleccione "Main" o "SAP" en la caja de cable.

Procedimientos de grabación

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

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

- Puede grabar hasta 99 títulos en un disco.

+R **+R DL** **+RW**

- Puede grabar hasta 49 títulos en un disco.

- No es posible grabar emisiones digitales que permiten "Grabación sólo una vez" en el DVD-R, DVD-R DL, DVD-RW, +R, +R DL, +RW o discos DVD-RAM de 8 cm (3"). Utilice un CPRM compatible DVD-RAM
- La grabación se hará en el espacio vacío del disco. Los datos no se escribirán encima de otros.
- Si ya no queda espacio en el disco de grabación, será menester borrar los títulos innecesarios o utilizar un nuevo disco.

Cuando graba en un DVD-R, DVD-R DL, DVD-RW (Formato DVD-Vídeo), +R, +R DL o +RW

- Cuando graba emisiones MTS
 - Si no conecta una caja para televisor de cable
 Seleccione "Main" o "SAP" en "Seleccionar MTS" en el menú CONFIGURACIÓN.
 - Si conecta una caja para televisor de cable
 Seleccione "Main" o "SAP" en el TV box de cable.
- La relación de aspecto de la imagen grabada será 4:3.
- **A fin de reproducir DVD-R, DVD-R DL, DVD-RW (Formato Video DVD) +R, +R DL grabado usando esta unidad en otra fuente de reproducción, antes tiene que finalizar el disco.**

Preparación

- Cancele la protección. **RAM**
- Seleccione la unidad que ve el canal (por ejemplo la entrada AV) en el televisor.
- Seleccione un tipo de audio que quiere grabar. (→ 74)

1 Pulse [**⏻**, DVD/VHS POWER] para encender la unidad.

2 Pulse [DRIVE SELECT] para seleccionar la unidad en la que quiere grabar (DVD o VHS).

3 Inserte un disco.

- Cuando usa un DVD-RAM por la primera vez con esta unidad, formateelo para garantizar una esmerada grabación.

o

Inserte un videocasete que tenga intacta la lengüeta de protección contra el borrado accidental.

4 Pulse [CH, **▲**, **▼**] para seleccionar el canal.

- Para seleccionar con los botones numéricos:

Modo de antena (Ondas hertzianas)	Modo televisor de cable (Cable)
Ej., "5": [0]→[5]	Ej., "5": [0]→[0]→[5]
"15": [1]→[5]	"15": [0]→[1]→[5]
	"115": [1]→[1]→[5]

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

DVD: XP, SP, LP o EP

VHS: SP, EP o VP

6 Pulse [**●**, REC] para empezar a grabar.

- Durante la grabación no se puede cambiar el canal ni el modo de grabación. Puede cambiarlos mientras que la grabación está en pausa, pero el material se graba como un título distinto.

■ Para hacer una pausa en la grabación

Pulse [**■**, PAUSE]. (Pulse de nuevo para reiniciar la grabación.)

- El título no se divide en títulos distintos. **DVD**
- También puede pulsar [**●**, REC] para reiniciar la grabación.

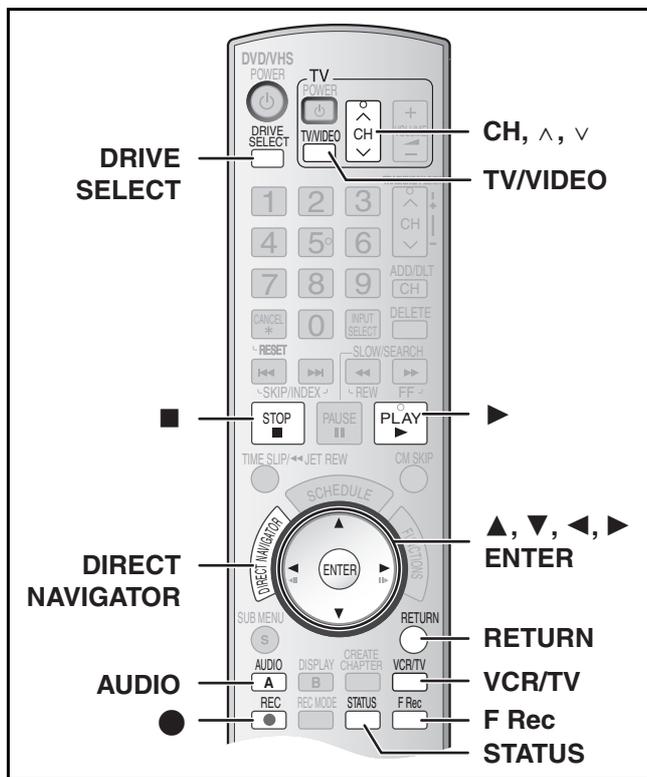
■ Para detener la grabación

Pulse [**■**, STOP].

- Grabado como 1 título hasta el punto donde termina. **DVD**

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

La unidad tarda unos 30 segundos en completar la información para administrar la grabación después de terminar esta última.



■ Modos de grabación y tiempos de grabación aproximados (DVD)

Dependiendo del contenido que está siendo grabado, los tiempos de grabación pueden ser inferiores a los indicados.

	DVD-RAM		DVD-R DVD-RW +R, +RW (4,7 GB)
	Un solo lado (4,7 GB)	Dos lados*1 (9,4 GB)	
XP (Alta calidad)	1 hora	2 horas	1 hora
SP (Normal)	2 horas	4 horas	2 horas
LP (Larga duración)	4 horas	8 horas	4 horas
EP (Duración extralarga)	8 horas (6 horas*2)	16 horas (12 horas*2)	8 horas (6 horas*2)
FR (Grabación flexible)	8 horas máximo	8 horas máximo para una cara	8 horas máximo

	DVD-R DL, +R DL*3 (8,5 GB)	
	Primera capa (L0)	Segunda capa (L1)
XP (Alta calidad)	55 minutos	50 minutos
SP (Normal)	1 hora 50 minutos	1 hora 40 minutos
LP (Larga duración)	3 horas 40 minutos	3 horas 20 minutos
EP (Duración extralarga)	7 horas 25 minutos (5 horas 30 minutos*2)	6 horas 50 minutos (5 horas 15 minutos*2)
FR (Grabación flexible)	7 horas 25 minutos máximo	6 horas 50 minutos máximo

Esta unidad usa una grabación de velocidad variable de transferencia de bits (VBR) que varía la cantidad de datos grabados para adaptar las imágenes, así que los tiempos reales de grabación mostrados por la unidad resultarán diferentes (la diferencia será sobre todo evidente con el DVD-R DL y +R DL).

Para estar seguro, utilice un disco en el que queda bastante tiempo.

- *1 No es posible grabar o reproducir continuamente desde una cara a la otra en un disco de dos caras.
- *2 Cuando "Tiempo de grab. en el modo EP" ha sido ajustado a "EP - Repr. ón ampliada (6H)" en el menú CONFIGURACIÓN. La calidad del sonido es mejor cuando usa "EP - Repr. ón ampliada (6H)" que cuando usa "EP - Repr. ón ampliada (8H)".
- *3 No es posible grabar continuamente de la primera capa a la segunda.

Nota

Cuando grabe en un DVD-RAM utilizando el modo EP (8H), puede que no sea posible reproducir ese disco en reproductores DVD compatibles con DVD-RAM. En este caso, utilice el modo EP (6H).

FR (modo de grabación flexible):

- Puede ajustar el modo FR cuando transfiera (copia) o programa grabaciones programadas.

■ Modos de grabación (VHS)

Modo de grabación

- SP: Puede grabar lo largo mostrado en la cinta.
- EP: 3 veces lo largo del modo SP.
- VP: 5 veces lo largo del modo SP.

- Para lograr una capacidad de grabación más larga, seleccione "EP" o "VP".
- Si la calidad de la imagen es importante para usted o por si desea almacenar la cinta durante un largo período, seleccione "SP".
- La unidad puede reproducir cintas grabadas en el modo LP en otro equipo ("LP" se enciende en el visualizador de la unidad).

modo VP:

- Una cinta grabada por la unidad en el modo VP no puede reproducirse por otras videograbadoras. Se recomienda que se la distinga entre las demás cintas escribiendo "VP" en su etiqueta, etc.
- Cuando reproduce cintas grabadas con el modo VP, necesita más tiempo para que funcione el alineamiento automático y, con unas cintas, podría no funcionar en absoluto. Haga el alineamiento manualmente si fuera éste el caso.

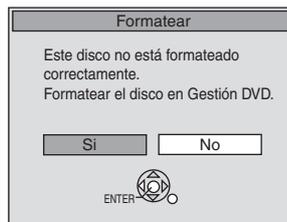
Nota

No puede reproducir una grabación VP en otro equipo.

■ Cuando se visualiza la pantalla de confirmación del formato

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

Cuando inserta un disco nuevo y uno grabado en un ordenador u otro equipo, podría aparecer una pantalla de confirmación del formato. Formatee el disco para usarlo. Sin embargo, todo el contenido grabado se va a borrar.



Pulse [◀, ▶] para seleccionar "Si" y pulse [ENTER].

■ Para formatear un disco

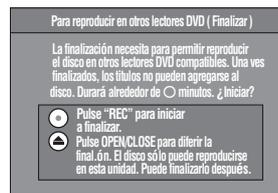
Son necesarios muchos pasos para formatear un disco.

■ Cuando quita un disco grabado

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

Cuando pulsa [▲, OPEN/CLOSE] en la unidad principal mientras que va a parar:

Aparece la siguiente pantalla cuando no haya procesado el disco para reproducir en otro equipo.



Cuando finaliza el disco

Pulse [●, REC].

No puede detener este proceso una vez que lo haya iniciado.

Para especificar un tiempo para detener la grabación –Grabación de un toque

Mientras graba

Pulse [●, REC] para seleccionar el tiempo de grabación.

- En la unidad principal, pulse [●, REC].

El visualizador de la unidad

Cada vez que pulsa el botón:

Contador (cancelar) → OFF 0:30 → OFF 1:00 → OFF 1:30
 ↑ OFF 4:00 ← OFF 3:00 ← OFF 2:00 ←

Selección del audio para grabar

RAM

Pulse [AUDIO].

Estéreo → SAP → Mono

Reproducir DVD mientras graba VHS

Puede reproducir discos mientras graba VHS. La grabación no quedará afectada.

- Reproducción DVD (→ 76)

Para su referencia

- No puede grabar en discos mientras graba VHS.

Reproducir VHS mientras graba DVD

Puede reproducir cintas mientras graba DVD. La grabación no quedará afectada.

- Reproducción VHS (→ 78)

Para su referencia

- No puede grabar en cintas mientras graba DVD.

Ver el televisor mientras graba

Preparación

- Conexión (sin cable de audio/vídeo)
 - Asegúrese de que el indicador TV esté encendido en el visualizador de la unidad. Por si no está encendido, pulse [VCR/TV] para encenderlo.
- Conexión (con cable de audio/vídeo)
 - Pulse [TV/VIDEO] para cambiar el modo de entrada a "TV".

Pulse [CH, ▲, ▼] del televisor para seleccionar el canal TV deseado.

Para su referencia

- Puede también hacerlo si la unidad está realizando una grabación programada.
- La grabación no queda afectada.

Reproducción mientras usted está grabando

RAM

Preparación

- Seleccione el lado DVD pulsando [DRIVE SELECT].

Consejo

- El sonido no se produce durante el avance rápido.

■ Reproducción desde el comienzo del título mientras está grabando—Reproducción de persecución

Puede iniciar a reproducir desde el comienzo del título mientras que sigue grabándolo.

Mientras hace una grabación normal o una programada

Pulse [▶, PLAY].

- La reproducción inicia mientras que procede la grabación.

Para su referencia

- La reproducción no puede tener comienzo hasta que hayan pasado al menos 2 segundos desde el inicio de la grabación.

■ Reproducción de un título previamente grabado mientras graba—Grabación y reproducción simultáneas

Puede reproducir un título grabado anteriormente mientras que graba otro título.

1 Mientras hace una grabación normal o una programada
Pulse [DIRECT NAVIGATOR].

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

- La reproducción inicia mientras que procede la grabación.

■ Para salir de la pantalla DIRECT NAVIGATOR

Pulse [DIRECT NAVIGATOR].

Para su referencia

- Durante la grabación y la reproducción simultáneas, no puede editar ni borrar títulos con el Direct Navigator ni listas de reproducción.
- Aunque inicie a reproducir mientras que la unidad está en espera de la grabación programada, la grabación inicia al llegar la hora establecida.

Grabación flexible

(Grabación que cabe en el espacio restante del disco)

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

La unidad computa una velocidad de grabación que permite adaptarla a la hora establecida (dentro del tiempo que queda en el disco) con la mejor calidad de la imagen.

La utilización de "GRABACIÓN FLEX." es conveniente en este tipo de situaciones.

- Cuando el espacio libre del disco haga que la selección del modo de grabación apropiado sea más difícil
- Cuando usted quiere grabar un programa largo con la mejor calidad de imagen posible

Ej., grabación de un programa de 90 minutos en un disco. Si selecciona el modo XP, el programa no cabrá en un disco.



Es necesario un segundo disco para 30 minutos del programa.

Si selecciona el modo SP, el programa no cabrá en un disco.



Sin embargo, quedarán unos 30 minutos de espacio libre en el disco



Si selecciona "FLEXIBLE RECORDING", el programa cabrá perfectamente en un disco.

Preparación

- Seleccione el lado DVD pulsando [DRIVE SELECT].
- Seleccione el canal para grabar.

1 Durante la parada

Pulse [F Rec].

2 Pulse [◀, ▶] para seleccionar "Hora" y "Min." y pulse [▲, ▼] para ajustar el tiempo de grabación.

- También puede poner el tiempo de grabación con los botones numéricos.
- No puede grabar durante más de 8 horas.

3 Cuando quiere iniciar la grabación

Pulse [▲, ▼, ▶, ▶] para seleccionar "Empezar" y pulse [ENTER].

- Empieza la grabación.

Para salir de la pantalla sin grabar

Pulse [RETURN].

Para detener la grabación al rato de empezar

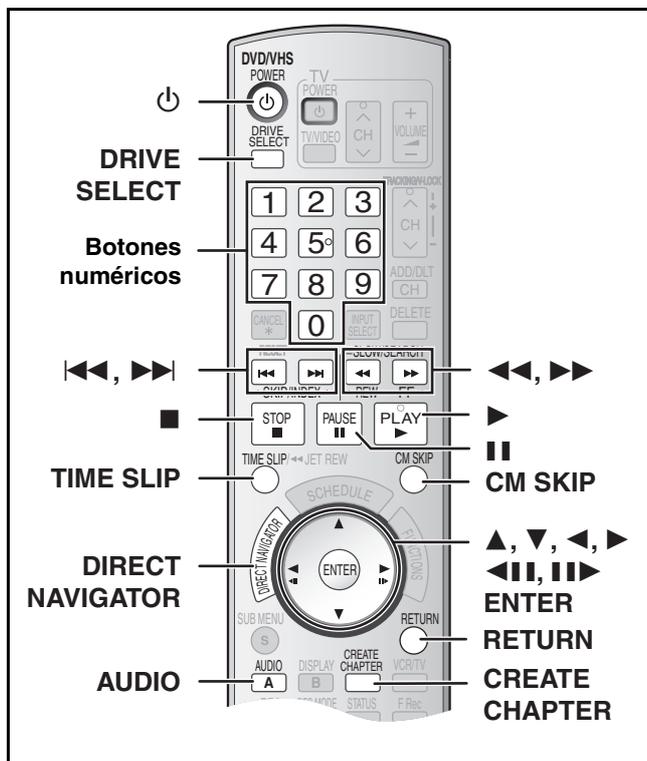
Pulse [■, STOP].

Para mostrar el tiempo restante

Pulse [STATUS].

Para su referencia

- Durante una grabación flexible, en el visualizador de la unidad se encienden todos los indicadores del modo de grabación.
- No es posible cambiar el canal o el modo de grabación mientras que la grabación flexible está en pausa.



Preparación

- Encienda el televisor y seleccione la apropiada entrada de vídeo para adaptar las conexiones a la unidad.
- Seleccione el lado DVD pulsando [DRIVE SELECT].

Reproducir discos

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

1 Pulse [⏻, DVD/VHS POWER] para encender la unidad.

2 Inserte un disco. (→ 73)

3 Pulse [▶, PLAY].

- La bandeja del disco se cierra e inicia la reproducción (La unidad necesita algún tiempo para leer el disco antes de iniciar la reproducción).
- La reproducción empieza desde el título grabado más recientemente.

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

- La reproducción empieza desde el comienzo del disco.

DVD-A DVD-V VCD CD

■ Para detener la reproducción

Pulse [■, STOP].

La posición de detención se memoriza.

Función de reanudación de la reproducción

Pulse [▶, PLAY] para reiniciar la reproducción desde esta posición.

- **VCD** Según el disco, puede no ser eficaz la función de reanudación de la reproducción.

- El punto de detención se elimina cuando:

- Pulsa [■, STOP] muchas veces.
- Abre la bandeja.

- **DVD-A VCD CD** Apaga la unidad.

- Podría aparecer el salva-pantalla a la derecha cuando detiene la reproducción. Vuelva a pulsar [■, STOP] y usted puede usar el sintonizador de la unidad para ver el televisor.

DVD-A DVD-V VCD CD

Salva-pantalla



■ Para poner en pausa la reproducción

Pulse [⏸, PAUSE]. (Pulse de nuevo para reiniciar la reproducción.)

■ Cuando aparece una pantalla de menú en el televisor

VCD

Pulse los botones numéricos para seleccionar un elemento.

Ej.: "5": [0]→[5]

"15": [1]→[5]

DVD-A DVD-V

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

- Algunas veces puede usar los botones numéricos para seleccionar un elemento.

Otros botones usados para obrar en los menús

Lea las instrucciones del disco para más detalles sobre el funcionamiento.

Nota

- Si aparece "⊘" en el televisor, la unidad o el disco prohíben la operación.

Seleccionar títulos grabados para reproducir

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

1 Pulse [DIRECTNAVIGATOR].

2 Utilice [▲, ▼, ◀, ▶] para seleccionar el título que quiere ver y pulse [ENTER].

- Inicia la reproducción.
- Puede también seleccionar títulos insertando un número de 2 cifras usando los botones numéricos.

Ej.: "5": [0]→[5]

"15": [1]→[5]

- Si inserta un número más grande que el número total de títulos, se selecciona el último título.

■ Para eliminar la lista de títulos

Pulse [RETURN].

Para su referencia

- Iconos de la pantalla Direct Navigator

🔒: Título protegido

🔒: Protegido contra copia así que él no se pudo grabar.

x: No puede reproducir

●: En grabación

🔒: Título con restricción "grabación de una sola vez"

Quick View (Reproducción ×1,3)

RAM

Puede ser aumentada la velocidad de reproducción sin distorsionar el audio.

Durante la reproducción

Mantenga pulsado [▶, PLAY].



■ Para volver a la reproducción normal

Pulse [▶, PLAY].

Avance rápido y rebobinado — BÚSQUEDA

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

Durante la reproducción

Pulse [◀◀, SLOW/SEARCH] o [▶▶, SLOW/SEARCH].

Ej., RAM



- Hay 5 velocidades de búsqueda. Aumenta la velocidad cada vez que se pulsa. (+R +RW hasta 3 velocidades)
- Pulse [▶, PLAY] para reiniciar la reproducción.

Para su referencia

- El sonido sólo se produce al primer nivel de avance rápido. En el caso de DVD Audio (salvo las porciones de imágenes en movimiento), CD y MP3, él se produce en todos los niveles.
- Dependiendo del disco puede que la búsqueda resulte imposible.

Salto

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

Durante la reproducción o mientras está en pausa

Pulse [**◀◀**, SKIP] o [**▶▶**, SKIP].

- Cada pulsación aumenta el número de saltos.

Reproducción de cámara lenta

RAM -R -R DL -RW(V) +R +R DL +RW
DVD-A (Partes de imagen móvil solamente) DVD-V -RW(VR) VCD

Durante la pausa

Pulse [**◀◀**, SLOW/SEARCH] o [**▶▶**, SLOW/SEARCH].

- Cuando la reproducción de cámara lenta continúa durante 5 minutos, ésta se detiene automáticamente (excluyendo DVD-A DVD-V VCD).
- Hay 5 velocidades de reproducción. Su velocidad aumenta a medida que se pulse.
- Pulse [**▶**, PLAY] para reiniciar la reproducción.
- VCD Dirección de avance ([**▶▶**, SLOW/SEARCH]) solamente.

Vista de encuadre en encuadre

RAM -R -R DL -RW(V) +R +R DL +RW
DVD-A (Partes de imagen móvil solamente) DVD-V -RW(VR) VCD

Durante la pausa

Pulse [**◀◀◀**] ([**◀◀**]) o [**▶▶▶**] ([**▶▶**]).

- A medida que se pulse se visualiza el encuadre siguiente o el anterior.
- Mantenga pulsado para cambiar en orden avance o retroceso.
- Pulse [**▶**, PLAY] para reiniciar la reproducción.
- VCD Dirección de avance ([**▶▶▶**], [**▶▶**]) solamente.

Reproducción directa

RAM -R -R DL -RW(V) +R +R DL +RW DVD-A DVD-V
-RW(VR) VCD CD

Puede reproducir desde el título, el capítulo o la pista que selecciona.

Durante la reproducción

Pulse los botones numéricos para seleccionar un elemento.

CD (disco MP3, JPEG y TIFF solamente)

Ej.: "5": [0]→[5] "5": [0]→[0]→[5]
"15": [1]→[5] "15": [0]→[1]→[5]

DVD-A

Puede especificarse un número de grupo mientras que está visualizado el salva-pantalla (→ 76).

Ej.: "5": [5]

- Esto sólo funciona durante la parada con algunos discos (el salva-pantalla se visualiza).

Reproducir grupos adicionales

En unos discos caben grupos adicionales. Si después de seleccionar un grupo aparece una pantalla de contraseña, escriba la contraseña con los botones numéricos y pulse [ENTER]. Por lo que respecta a la contraseña, se remite a la funda del disco, etc.

Salto CM

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

Puede saltar aproximadamente 1 minuto con una presión.

Durante la reproducción

Pulse [CM SKIP].

Crear capítulos

RAM

Durante la reproducción

Pulse [CREATE CHAPTER].

- Pulse [**◀◀**, SKIP] o [**▶▶**, SKIP] para saltar al comienzo de un capítulo.
- No puede activar esta función cuando está ejecutando la transferencia (copia).

Salto del tiempo especificado — Time Slip

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

1 Pulse [TIME SLIP].

2 Pulse [**▲**, ▼] para seleccionar el tiempo y pulse [ENTER].

La reproducción salta al tiempo especificado.

- Cada vez que pulsa [**▲**, ▼] el tiempo aumenta [**▲**] o disminuye [**▼**] en intervalos de 1 minuto. (Mantenga pulsado para cambiar a intervalos de 10 minutos.)

Cambio del audio durante la reproducción

Pulse [AUDIO] para seleccionar el tipo de audio.

- Según es el medio de grabación puede seleccionar el tipo de audio.

RAM -RW(VR) VCD

Estéreo → Mono L → Mono R

↑

RAM -RW(VR) [Cuando reproduce una emisión SAP grabada en un DVD-RAM, DVD-RW (Formato de grabación de vídeo DVD)]
Principal ↔ SAP

DVD-A DVD-V

Esto le permite cambiar los elementos como el número de canal de audio y el idioma de la pista de sonido.



Ej., es el inglés el idioma seleccionado. DVD-V

VHS

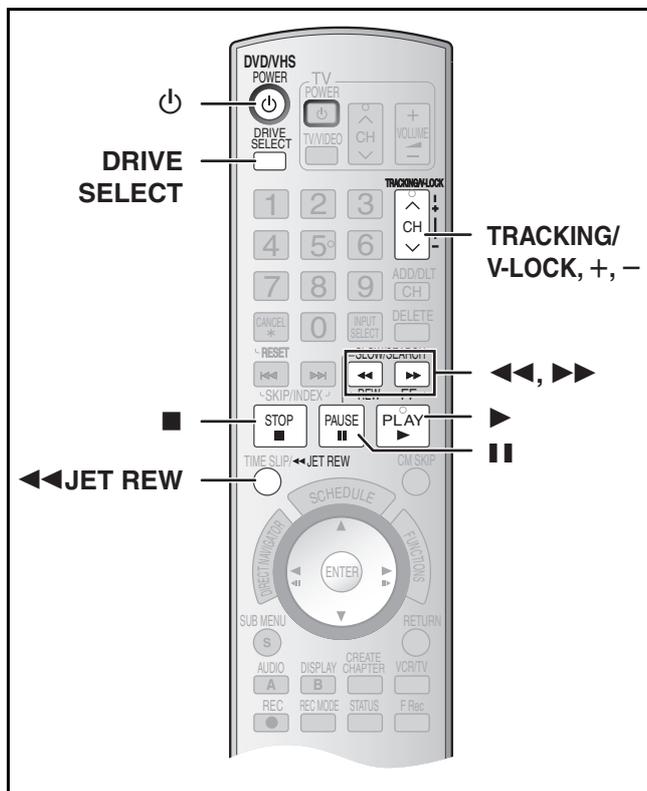
Estéreo → Mono L → Mono R → Sin visualización (pista de audio normal)

↑

Nota

- Si no puede cambiar el tipo de audio cuando para la conexión sólo ha usado un cable óptico digital, ajuste "Dolby Digital" a "PCM". Alternativamente, puede conectar a un amplificador con un cable de Audio/Vídeo y cambiar la entrada en el amplificador para adaptar la conexión.

Reproducción de un videocasete



- 1 Pulse [⏻, DVD/VHS POWER] para encender la unidad.
- 2 Seleccione el lado VHS pulsando [DRIVE SELECT].
- 3 Seleccione la unidad que ve el canal (por ejemplo la entrada AV) en el televisor.
- 4 Inserte una videograbadora. (→ 73)
- 5 Pulse [▶, PLAY].

• La reproducción inicia automáticamente al insertar un videocasete en el que se haya quitado la lengüeta.

■ **Para hacer una pausa en la reproducción**
Pulse [⏸, PAUSE]. (Pulse de nuevo para reiniciar la reproducción.)

■ **Para detener la reproducción**
Pulse [■, STOP].

Nota

- Cuando la unidad está en espera, puede reproducirse el videocasete insertado pulsando [▶, PLAY].
- Cuando la cinta llegue al fin, la unidad se rebobina automáticamente hasta el comienzo. Esta función no obra durante la grabación programada, el avance rápido y la grabación con parada especificada.
- La búsqueda Jet, la localización progresiva, la revisión o la reproducción lenta se cancelarán automáticamente a los 10 minutos en tanto que se pondrán en pausa a los 5 minutos.
- Cuando ve una imagen fija o durante la reproducción lenta, la imagen que aparece en el modo VP podría resultar distorsionada.
- Cuando reproduce una cinta que fue grabada con otra videograbadora, puede necesitar que se ajuste el alineamiento (→ debajo). En unos casos la calidad de la imagen podría resultar aun inferior. Eso se debe a las restricciones del formato.

Avance rápido/Rebobinado

Durante la parada

Pulse [◀◀] (atrás)/[▶▶] (en avance).

Localización progresiva/Revisión

Durante la reproducción

Pulse o mantenga pulsado [◀◀] (atrás)/[▶▶] (en avance).

- Si mantiene pulsado estos botones, la normal reproducción reinicia soltándolos.
- Pulse [▶, PLAY] para reiniciar la normal reproducción.

Búsqueda Jet

Durante la reproducción

Pulse dos veces [◀◀] (atrás)/[▶▶] (en avance). Puede aumentar la velocidad de búsqueda de la localización progresiva/revisión.

- Pulse [▶, PLAY] para reiniciar la normal reproducción.
- Puede seleccionar la velocidad de búsqueda para ver la imagen grabada.
- La imagen grabada en el modo EP o VP podría resultar distorsionada si se reproduce a una velocidad de 35 veces. Puede tener lugar un desplazamiento vertical. Esto no es un funcionamiento defectuoso, pero si ocurre, cambie a una velocidad de 27 veces.
- La imagen puede no ser de color o resultar distorsionada según sea el televisor.

Lenta

Durante la reproducción

Pulse y mantenga pulsado [⏸, PAUSE] durante 2 segundos o más.

- Pulse [▶, PLAY] para reiniciar la normal reproducción.

Rebobinado Jet

Para rebobinar a una más alta velocidad

Pulse [JET REW◀◀].

En la pantalla del televisor se visualiza la indicación "J. REW" (salvo cuando aparece la del tiempo que queda en la cinta).

- Según sea la cinta o la condición de funcionamiento, la velocidad de rebobinado podría cambiar algún tanto.
- Cuando ésta esté rebobinada a su comienzo, el contador de la cinta se repone a "0:00.00".
- Según sea la cinta, esta función podría no obrar.

Reproducción Cuasi S-VHS (SQPB)

Es posible también reproducir cintas grabadas en el sistema S-VHS.

- Según sea el tipo de cinta usada, podría ocurrir algún ruido de imagen.
- No es posible lograr enteramente la alta resolución de la que sea capaz el S-VHS.
- No es posible grabar en el sistema S-VHS con esta unidad.

Reproducción repetida

Durante la reproducción o la parada

Mantenga pulsado [▶, PLAY] durante 5 segundos o más.

- Al terminar el programa, la cinta se rebobina a su comienzo y vuelve a reproducirlo (esto sólo funciona si hay al menos 5 segundos de espacio vacío en el fin del programa). Éste se repite hasta que lo cancele.

■ **Para reiniciar la normal reproducción**

Pulse [▶, PLAY].

■ **Para detener la reproducción**

Pulse [■, STOP].

Ajustar la imagen de reproducción

De costumbre, la unidad hace los ajustes de alineamiento, pero podría necesitar hacerlo manualmente si tiene lugar ruido en una cinta grabada con otro equipo.

Durante la reproducción

Pulse [TRACKING/V-LOCK, +] o [TRACKING/V-LOCK, -].

Repita hasta que desaparezca el ruido.

■ **Para volver al alineamiento automático**

Pulse simultáneamente sea [TRACKING/V-LOCK, +] sea [TRACKING/V-LOCK, -].

■ **Para sacar el ruido de una imagen en pausa**

Inicie la reproducción lenta, luego ajuste el alineamiento.

Nota

- Esta función no obra con unos modelos de televisor y cintas.
- Puede ajustar también el alineamiento con [CH, ▲, ▼] en la unidad principal.

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