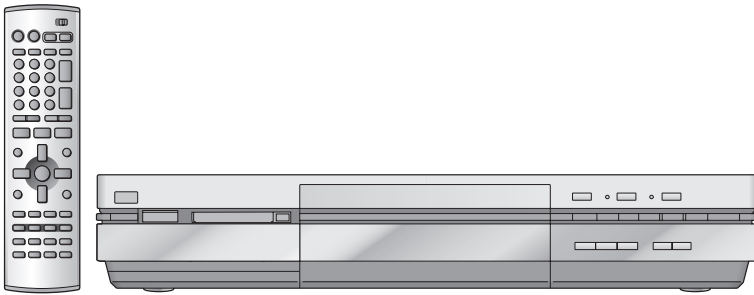


Panasonic



DVD Video Recorder Operating Instructions

Model No. **DMR-E100H**



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



Web Site: <http://www.panasonic-europe.com>

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■ Before Use

Warning and Important Information

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 EQUIPMENT
TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND
ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH
AS VASES, SHALL BE PLACED ON THE EQUIPMENT.**

**As this equipment gets hot during use, operate it in a well
ventilated place;
do not install this equipment in a confined space such as
a book case or similar unit.**

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

- SD logo is a trademark.
- Portions of this product are protected under copyright law and are provided under license by ARIS/SOLANA/4C.

■ Important

Your attention is drawn to the fact that the recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

■ For your safety

Do not remove outer cover.

Touching internal parts of the unit is dangerous, and may seriously damage it.

To prevent electric shock, do not remove cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.

■ Disposal of old equipment

Batteries, packaging and old equipment should not be disposed of as domestic waste, but in accordance with the applicable regulations.



■ Cautions before you operate this unit

Avoid:

- Humidity and dust.
- Extreme heat such as direct sunlight.
- Magnets or electromagnetic objects.
- Touching internal parts of the unit.
- Water or some other liquid.
- Lightning. (Disconnect the aerial plug from the unit during lightning storms.)
- Anything heavy on the unit.
- Connecting or handling the equipment with wet hands.
- Using a cell phone near the unit because it may cause noise affecting the picture and sound.

Do:

- Wipe the unit with a clean and dry cloth.
- Install the unit in a horizontal position.
- Keep the unit, TV and other equipment switched off until all connections are finished.

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

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

■ Notes on these instructions

- Company names, product names and all other names in these instructions are the trademarks or registered trademarks of their respective corporations.
- These operating instructions describe operations mainly using the remote control.
- The contents of the screens used in these instructions may not necessarily match what you will see on your screen.

■ Displays

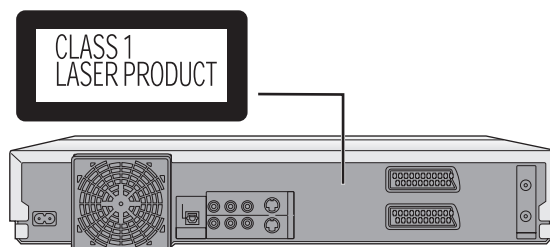
The displays shown in these instructions are examples. Actual displays depend on discs.

- In certain circumstances, icons will be displayed in gray and will not respond if clicked on. This means that the function represented by the icon is disabled.

Manufactured under license from Dolby Laboratories.

"Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

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



Inside of unit

DANGER	• VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	• VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC60825-1)
ATTENTION	• RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	• SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	• AVATTAESSA OLET ALTIIN NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	• SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
ADVARSEL	• SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	• SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注意	• 打开时有可见及不可见激光辐射。避免激光束照射。
注意	• ここを開くと可視及び不可視のレーザー光が出ます。 ビームを直接見たり、触れたりしないでください。 RQLS0233

Before Use

Dear Customer

May we take this opportunity to thank you for purchasing this Panasonic DVD Video Recorder. We would particularly advise that you carefully study the Operating Instructions before attempting to operate the unit and that you note the listed precautions.

Caution for AC Mains Lead

For your safety please read the following text carefully

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-amperes and it is approved by ASTA or BSI to BS 1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt, please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue; Neutral, Brown; Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol .

How to replace the Fuse

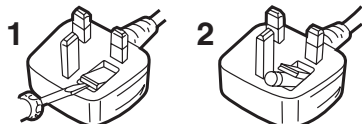
- There are two types of the AC mains lead assembly:

(A) and (B) as shown.

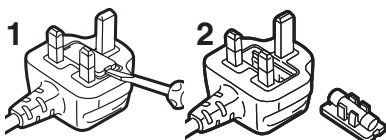
1 Open the fuse compartment with a screwdriver.

2 Replace the fuse and fuse cover.

TYPE (A)



TYPE (B)



Checking the Accessories

Sales and Support Information

Customer Care Centre

- For UK customers: 08705 357357
- For Republic of Ireland customers: 01 289 8333
- Visit our website for product information
- E-mail: customer.care@panasonic.co.uk

Technical Support for AV Software

- For callers in UK: 08701 505610
- For callers in ROI: 0044 8701 505610

Direct Sales at Panasonic UK

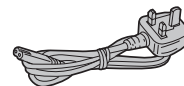
- Order accessory and consumable items for your product with ease and confidence by phoning our Customer Care Centre Monday–Friday 9:00am–5:30pm. (Excluding public holidays)
- Or go on line through our Internet Accessory ordering application at www.panasonic.co.uk.
- Most major credit and debit cards accepted.
- All enquiries transactions and distribution facilities are provided directly by Panasonic UK Ltd.
- It couldn't be simpler!
- Also available through our Internet is direct shopping for a wide range of finished products, take a browse on our website for further details.

Check that you have the accessories shown



Tick off as you unpack the accessories.

- ☐ AC Mains lead
RJA0053-3X



- ☐ Audio/Video Cable
K2KA6CA00001



- ☐ RF lead to connect this unit and TV
K1TWACC00001 or K2KF2BA00001



- ☐ Batteries for the Remote Control
R6 size



- ☐ Remote Control
EUR7624KD0



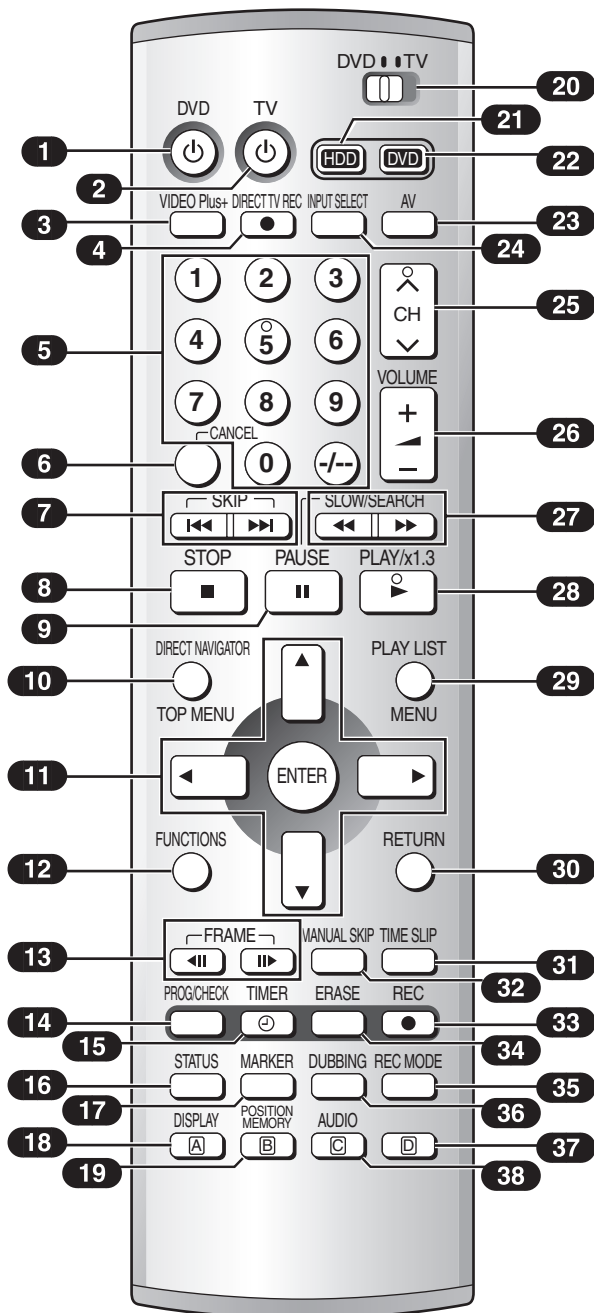
- ☐ DVD-RAM disc

- ☐ Guarantee Card

- ☐ Quick Start Guide

Control reference guide

Remote control



	Page
1 DVD on/off button (DVD, )	16
• To switch the unit from on to standby mode or vice versa. In the standby mode, the unit is still connected to the mains.	
2 TV on/off button (TV, )	8
3 VIDEO Plus+ button (VIDEO Plus+)	18, 30
4 Direct TV recording button ( , DIRECT TV REC)	28
5 Numeric buttons (0–9, – / –)	8
6 Cancel button (CANCEL)	23
7 Skip buttons ( ,  , SKIP)	21
8 Stop button ( , STOP)	20
9 Pause button ( , PAUSE)	20
10 Top menu and Direct Navigator button (TOP MENU, DIRECT NAVIGATOR)	20, 39
11 Cursor buttons ( ,  ,  , )	
Enter button (ENTER)	18
12 Functions button (FUNCTIONS)	29
13 Frame buttons ( ,  , FRAME)	21
14 Manual programming and check button (PROG/CHECK)	30
15 Timer recording button ( , TIMER)	30
16 Status display button (STATUS)	28, 65
17 Marker button (MARKER)	23
18 Display button (DISPLAY)	23
19 Position memory button (POSITION MEMORY)	21
20 DVD/TV switch (DVD, TV)	8
21 HDD button (HDD)	19
22 DVD button (DVD)	19
23 TV input mode selector (AV)	8
24 Input select button (INPUT SELECT)	55
25 Channel up/down buttons (CH,  , )	26
26 TV volume up/down buttons (VOLUME, +, –)	8
27 Slow/Search buttons ( ,  , SLOW/SEARCH)	21
28 Play button ( , PLAY/×1.3)	20
29 Menu and Play List button (MENU, PLAY LIST)	20, 43
30 Return button (RETURN)	16
31 Time slip button (TIME SLIP)	22, 25
32 Manual skip button (MANUAL SKIP)	22
33 Recording button ( , REC)	26
34 Erase button (ERASE)	20
35 Recording mode button (REC MODE)	26
36 Dubbing button (DUBBING)	33
37 D button	8
38 Audio button (AUDIO)	22, 62

Before Use

Batteries

- Do not use rechargeable type batteries.

Do not;

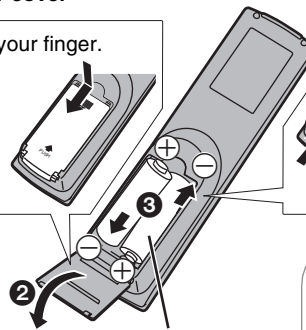
- mix old and new batteries.
- use different types at the same time.
- heat or expose to flame.
- take apart or short circuit.
- attempt to recharge alkaline or manganese batteries.
- use batteries if the covering has been peeled off.

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

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

Opening the rear cover

- Slide it with your finger.



R6, AA, UM-3

Closing the rear cover

Slide into place.

- When the cover comes off

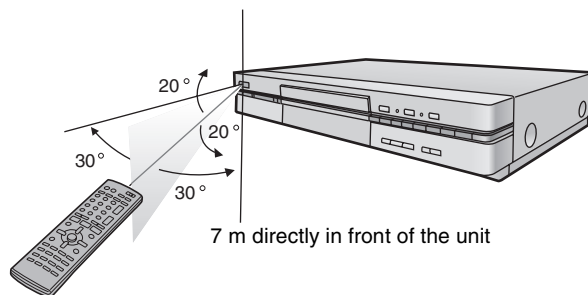


Use

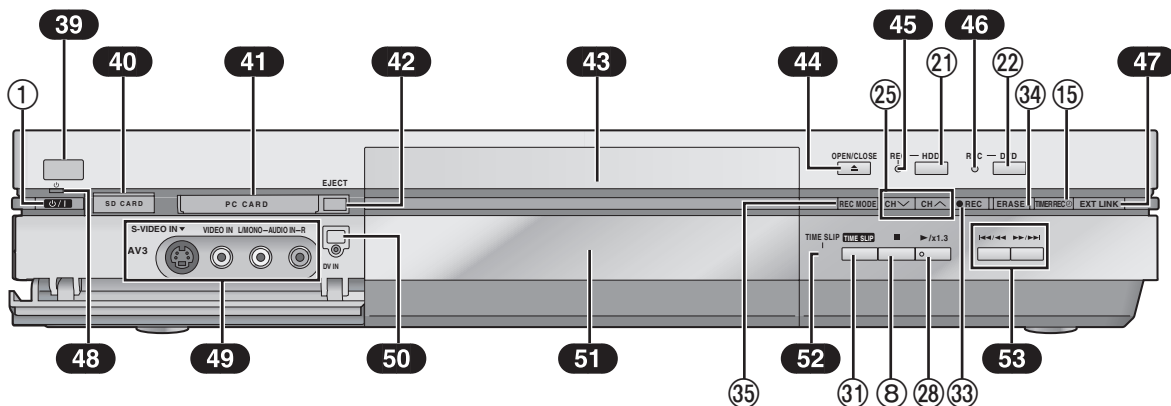
Aim at the sensor, avoiding obstacles, at a maximum range of 7 m directly in front of the unit.

- Keep the transmission window and the unit's sensor free from dust.
- Operation can be affected by strong light sources, such as direct sunlight, and the glass doors on cabinets.
- Switch [DVD, TV] to "DVD".

Remote control signal sensor



Main unit



	Page
39 Remote control signal sensor	6
40 SD card slot (SD CARD)	48
41 PC card slot (PC CARD)	48
42 PC card eject button (EJECT)	48
43 Disc tray	19
44 Disc tray open/close button (▲, OPEN/CLOSE)	19
45 HDD record lamp (HDD REC)	19
46 DVD record lamp (DVD REC)	19
47 External link button (EXT LINK)	28
48 Standby indicator	

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

49 AV3 input terminals (AV3)	57
50 DV input terminal (DV IN)	57
51 Display	7
52 Time slip indicator (TIME SLIP)	22, 25
• While both recording and play are activated, this indicator lights up.	
53 Skip/Slow/Search buttons (◀◀/◀, ▶/▶▶)	21

Buttons such as ① function the same as the buttons on the remote control. (page 5)

Before Use

The unit's display

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



Stopped:
 Play stopped without the resume function



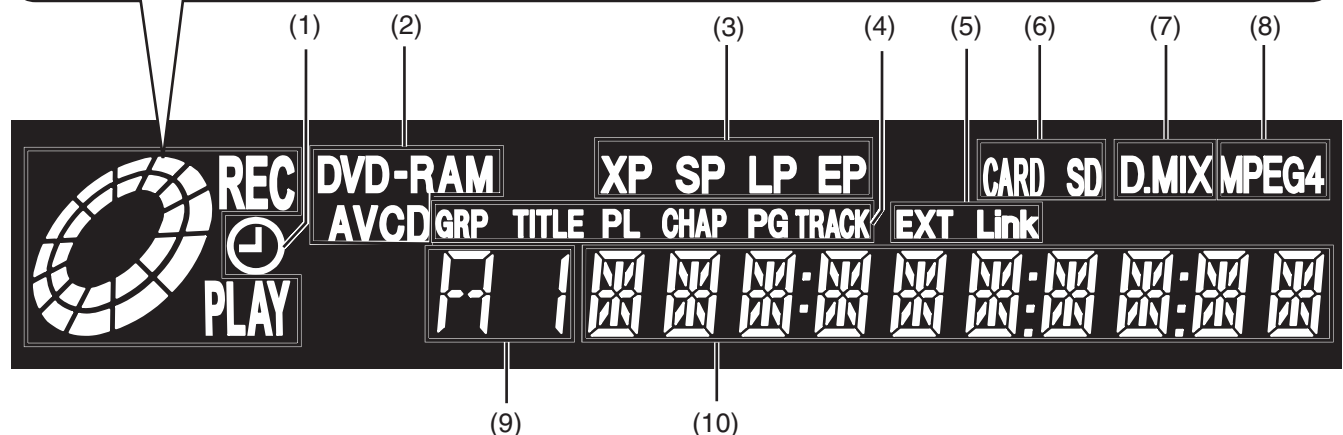
Rotating (REC, PLAY):
 Chasing play, Simultaneously recording and play



Stopped:
 Play stopped with the resume function



Rotating (PLAY): playing
Stopped (PLAY): play paused



(1) Timer programme display (⌚) (pages 30, 31)

On:

When a programme for timer recording is on.

Flashes:

When there are less than 10 minutes to go before timer recording is programmed, but the unit is not on standby.

(2) Disc type

(3) Recording mode (page 26)

XP SP LP EP (all on): FR mode (page 27)

(4) The display mode of the main display section

GRP: group number

TITLE: title number

PL: play list number

CHAP: chapter number

PG: programme number

TRACK: track number

(5) External link display (page 28)

On:

When a linked timer recording with external device is in standby mode, or being performed.

(6) SD/PC Card indicator (CARD=PC card, SD=SD card)

On:

When a SD or PC card is set in the unit.

Flashes:

When a SD or PC card is being read/written to.

(7) Down-mix indicator (D.MIX)

On:

When a multi-channel soundtrack is downmixed to 2 channel output.

(8) MPEG4 indicator

On:

When the SD VIDEO (MPEG4) can be simultaneously recorded.

(9) Channel

(10) Main display section

Remaining recording time/PG (recorded programme on the HDD/DVD-RAM)/Title etc. of the currently selected drive (HDD/DVD)

• Remaining recording time:

(For example)

1 hour→Displayed as "R 1:00"

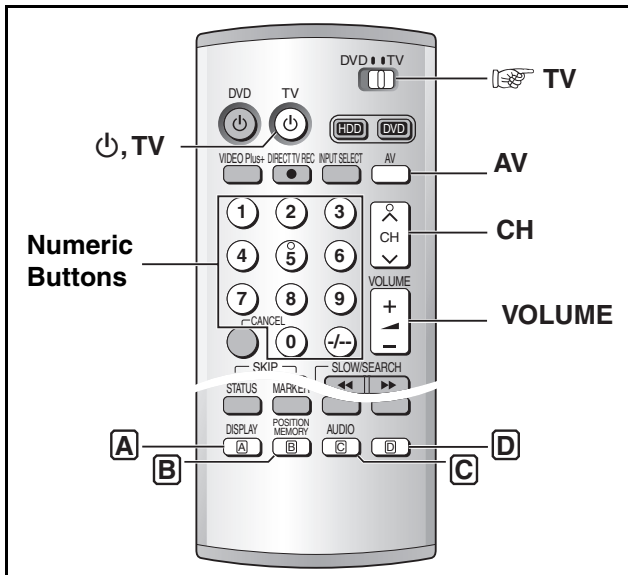
Note

• A half mirror is used for the unit's display so the display may occasionally be difficult to see depending on surrounding conditions.

• If the unit is carrying out a timer recording, the ⌚ of the unit's display and HDD/DVD record lamp light.

Before Use

TV operation



You can control TVs by entering the remote control code.

Preparation

- Turn on the TV.

1 Refer to the chart below for the code for your TV.

2 Press and hold [TV,] and enter the 2-digit code with the numeric buttons.

- e.g.: "01": [0] → [1].

- After entering the code, test the remote control by turning on the TV and changing channels.

Note

- If there is more than one code, repeat the procedure until you find the code that allows correct operation.
- If your TV brand is not listed or if the code listed here does not allow control of your TV, this remote is not compatible with your TV.

Operation:

On and off:	[TV,
Video input mode:	[AV]
Channels:	[CH, ,
Volume:	[VOLUME, +, -]
Numeric:	[0-9, -/-]

Button

[TV,
[AV]
[CH, ,
[VOLUME, +, -]
[0-9, -/-]

List of TVs Compatible with the unit's Remote Control Manufacture and Code No.

Panasonic	01, 02, 03, 04, 44	GOODMANS	05, 06, 31	NOKIA	25, 26, 27	SANYO	21
AIWA	35	GRUNDIG	09	NORDMENDE	10	SBR	06
AKAI	27, 30	HITACHI	22, 23, 31, 40, 41, 42	ORION	37	SCHNEIDER	05, 06, 29, 30, 31
BLAUPUNKT	09	INNO HIT	34	PHILIPS	05, 06	SELECO	06, 25
BRANDT	10, 15	IRRADIO	30	PHONOLA	31, 33	SHARP	18
BUSH	05, 06	ITT	25	PIONEER	38	SIEMENS	09
CURTIS	31	JVC	17, 39	PYE	05, 06	SINUDYNE	05, 06, 33
DESMET	05, 31, 33	LOEWE	07	RADIOLA	05, 06	SONY	08
DUAL	05, 06	METZ	28, 31	SABA	10	TELEFUNKEN	10, 11, 12, 13, 14
ELEMIS	31	MITSUBISHI	06, 19, 20	SALORA	26	THOMSON	10, 15
FERGUSON	10	MIVAR	24	SAMSUNG	31, 32, 43	TOSHIBA	16
GOLDSTAR/LG	31	NEC	36	SANSUI	05, 31, 33	WHITE WESTINGHOUSE	05, 06

■ The 3 methods for switching to the AV input on your Panasonic TV

Your Panasonic TV uses one of 3 different methods for switching between TV reception and the AV input(s). Follow the steps on the switching methods A, B and C to determine which one your Panasonic TV uses.

A

- 1) Switch [DVD, TV] to "TV".
- 2) Press [AV] to switch to the AV input.
Each press of [AV] switches between "TV reception" and "AV input(s)".

B (for the remote control code No.44)

- 1) Switch [DVD, TV] to "TV".
- 2) Press [AV].
Colour bars for selecting the AV input appear on the TV screen.
- 3) Follow the instructions displayed on the TV screen to select the desired AV input from the displayed colour bars for the AV input by pressing [A], [B], [C] or [D] on the remote control.

C (for the remote control code No.01)

- 1) Switch [DVD, TV] to "TV".
- 2) Press [AV].
The last previously selected AV input indication appears on the TV screen. The indications for selecting another AV input also appear, but they disappear a few seconds later.
- 3) Before the indications for selecting another AV input disappear, press [A], [B], [C] or [D] to select the desired AV input.
With the following four buttons, you can move and select as follows:
[A]: Move left
[B]: Move down
[C]: Move up
[D]: Move right

Before Use

Discs

Discs you can use

- On DVD-Audio, DVD-Video and Video CD, the producer of the material can control how these discs are played. This means that you may not be able to control play of a disc with some operations described in these operating instructions. Read the disc's information for details. The features you can use with the different types of discs are as follows.

Disc type	Logo	Indication	Possible operations*					Example of configuration														
			A	B	C	D	E															
DVD-RAM 4.7 GB / 9.4 GB, 12 cm (5") 2.8 GB 8 cm (3")		RAM	☐	☐	☐	☐	☐	Programme <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> Scene (Play List)... <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1	2	3	4	5	1	2	3	4	5				
1	2	3	4	5																		
1	2	3	4	5																		
DVD-R 4.7 GB 12 cm (5"), 1.4 GB 8 cm (3") for General Ver.2.0 4.7 GB 12 cm (5") for General Ver.2.0/4×-SPEED DVD-R Revision 1.0		DVD-R Not finalized	☐	☐	☐ **	☒	☒	Programme <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1	2	3	4	5									
		1	2	3	4	5																
DVD-V Finalized	☒	☐	☒	☒	☒	Title <table><tr><td colspan="3">1</td><td colspan="2">2</td></tr></table> Chapter <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1			2		1	2	3	4	5						
1			2																			
1	2	3	4	5																		
DVD-Audio (Play is in stereo only.)		DVD-A	☒	☐	☒	☒	☐	Group <table><tr><td colspan="3">1</td><td colspan="2">2</td></tr></table> Track <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1			2		1	2	3	4	5				
1			2																			
1	2	3	4	5																		
DVD-Video		DVD-V	☒	☐	☒	☒	☐	Title <table><tr><td colspan="3">1</td><td colspan="2">2</td></tr></table> Chapter <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1			2		1	2	3	4	5				
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1	2	3	4	5																		
Audio CD (Including discs recorded with MP3.)		CD	☒	☐	☒	☒	☒	Track <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1	2	3	4	5									
	1	2	3	4	5																	
—	MP3	☒	☐	☒	☒	☒	Group <table><tr><td colspan="3">1</td><td colspan="2">2</td></tr></table> Track <table><tr><td>1</td><td>2</td><td>3</td><td>1</td><td>2</td></tr></table> Total track <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1			2		1	2	3	1	2	1	2	3	4	5
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Video CD		VCD	☒	☐	☒	☒	☐	Track <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>	1	2	3	4	5									
1	2	3	4	5																		

* Possible operations (○: OK X: NG)

A Recording **B** Playback **C** Programme erase/Titling **D** Creating play lists **E** Selecting audios

** The remaining of the disc will not be increased even if erased.

For your reference

- Functions that can use the card (page 11) are indicated by **SD** (SD card) **CARD** (PC card).
- Functions that can use the internal hard disk (page 11) are indicated by **HDD**.

Before Use

Features

DVD-RAM

This capable of rewriting and editing. There are 2 types of DVD-RAM, single-sided and double-sided. The capacity of the double-sided disc is 9.4 GB.

- This unit is compatible with the Content Protection for Recordable Media (CPRM) system so you can record broadcasts that allow one copy, such as some CATV broadcasts, onto 4.7 GB/9.4 GB DVD-RAM (these are CPRM compatible). It is not possible to record onto DVD-R or 2.8 GB DVD-RAM.
- This unit cannot record to discs containing both PAL and NTSC signals. (However, both types of programme may be recorded onto the HDD.) Play of discs recorded with both PAL and NTSC on another unit is not guaranteed.
- DVD-RAMs recorded on this unit cannot be played on incompatible players.
- We recommend using Panasonic's DVD-RAM, which is confirmed the compatibility with this unit.
- The aspect ratio of the recorded images will be the same as that of the originals.

DVD-R

This is a recordable disc with high compatibility and storage stability. (You cannot rewrite it.) This unit is capable of recording of DVD-R from 1× speed to 4× speed.

- You can play DVD-R on compatible DVD players by finalizing it on this unit.
- The aspect ratio of the recorded images will be 4:3.
- DVD-R can be recorded only either of bilingual audio (M1 or M2). Select the desirable audio type in "Bilingual Audio Selection" (page 60).
- Some broadcasts carry signals that allow you to copy once, but you cannot record them with DVD-R. Use DVD-RAM to record these kinds of broadcast.
- Before finalizing, erasing programmes will not increase the disc's available time.
- After finalizing, these DVD-R can no longer be recorded on or edited.
- This unit may not be able to play back DVD-Rs other than Panasonic's product depending on the recording condition.
- DVD-R recorded by this unit cannot be recorded by other Panasonic's DVD recorders in some cases.
- If you use DVD-R which is compatible with high speed, you can record from HDD to DVD-R with ×24 speed at its maximum (in the case of a programme of Dolby Digital recorded in EP mode). The programmes stored on HDD can be quickly recorded on DVD-R.

DVD-Audio

This is a disc for music with high sound quality.

- In this unit, it is played with 2 channels (stereos).

DVD-Video

This is a marketed software with high picture quality which already includes movies or music.

- This unit can play discs with marks (region number) shown on the right.



Audio-CD

This is a marketed software which already includes music or audio. This is a CD-R or a CD-RW including music recorded in MP3 compression technology.

- This unit can play finalized CD-R/CD-RW (audio recording disc) recorded under CD-DA (digital audio), Video CD or MP3 format. Some CD-R or CD-RW may not be played due to the condition of the recording.

Video-CD

This is a marketed software which already includes music or audio.

Discs that cannot be played

- DVD-Video with a region number other than the number for this unit or "ALL"
- Some DVD-R
- DVD-ROM
- CD-ROM
- CVD
- MV-Disc
- Divx Video Disc, etc.
- Play of non-standard Video CDs and Super Video CDs is not guaranteed.
- DVD-RAM (2.6 GB/5.2 GB)
- DVD-RW
- CDV
- SVCD
- PD
- + RW
- CD-G
- SACD
- Photo CD

Audio format logos

	Dolby Digital (pages 56, 66) This unit can play Dolby Digital in stereo (2 channels). Connect an amplifier with a built-in Dolby Digital decoder to enjoy surround sound.
	DTS Digital Surround (pages 56, 66) Connect this unit to equipment that has a DTS decoder to enjoy DVDs with this mark.

Which Disc Types and Programme Types (on HDD) are Playable on What TV

When you use either PAL or NTSC discs or playback a programme recorded on HDD using PAL or NTSC, refer to this table.

TV type	Disc/Programmes recorded on HDD	Yes/No
Multi-system TV	PAL	Yes
	NTSC	Yes
NTSC TV	PAL	No
	NTSC	Yes*1
PAL TV	PAL	Yes
	NTSC	Yes*2(PAL60)

*1 If you select "NTSC" in "TV System" (page 61), the picture may be clearer.

*2 If your TV is not equipped to handle PAL 525/60 signals the picture will not be appear correctly.

- When playing back a programme recorded on the HDD, ensure that you match the "TV System" setting to the encoding system you are using i.e. for PAL recordings set "TV System" to "PAL", for NTSC recordings set to "NTSC" (page 61).

Discs and accessories

DVD-RAM

You can also record signals which allow you to copy once, onto these discs.

- 9.4 GB, double-sided, type 4 cartridge:
LM-AD240E
- 4.7 GB, single-sided, type 2 cartridge:
LM-AB120E
(set of 3, LM-AB120E3)
- 4.7 GB, single-sided, non-cartridge:
LM-AF120E
(set of 3, LM-AF120E3)

DVD-R

- 4.7 GB, single-sided, non-cartridge:
LM-RF120E

DVD-RAM/PD Disc cleaner:

LF-K200DCA1

DVD-RAM/PD Lens cleaner:

LF-K123LCA1

■ Before Use

HDD (Hard disk drive)

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

■ During setup

- Do not place in an enclosed area so that the rear cooling fan and the cooling vents on the side are covered up.
- Place the unit on a surface that is flat and not subject to vibration or impact.
- Place in an area where condensation does not occur.

Conditions where condensation may occur

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

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

■ While operating

- Do not remove the AC mains plug from the household AC outlet, or flip the power breaker switch.
- Do not move the unit or subject to vibration or impact.

→ When moving the unit:

- 1 Press [DVD, ⏮] to switch the unit off. (Wait until "BYE" disappears from the display.)
- 2 Remove the AC mains plug from the household AC outlet.
- 3 Wait 2 minutes before moving.

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

■ In the event of a power failure

If a power failure occurs, contents in the process of playback/recording (including contents in SD VIDEO (MPEG4)) may be damaged.

■ Safeguards against accidental loss

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

■ When "HDD SLEEP" appears on the unit's display

To keep the lifetime of HDD, HDD is automatically paused. (The [HDD] lamp blinks and then turns off.)

- HDD starts when pressing [HDD].
- You cannot record or play back on HDD soon after it is paused because it takes time to be started.
- If you do not operate this unit without a disc for 30 minutes or more, HDD is paused.

We recommend removing discs when you do not use this unit.

HDD remaining time

This unit records using a VBR (Variable bit recording) data compression system to vary recorded data segments to match video data segments which may cause differences in the displayed amount of time and space remaining for recording. If the remaining time is insufficient, erase any unwanted programmes to create enough space before you start recording. (Erasing a play list will not increase the amount of time.)

SD/PC CARD

■ Cards capable of displaying and saving

SD card slot	PC card slot
• SD Memory Card*1*2*3 • MultiMediaCard*1*2*3	• SD Memory Card*2*4 • MultiMediaCard*2*4 • CompactFlash*2*4 • SmartMedia*2*4 • MEMORY STICK*2*4 • xD-Picture Card*2*4 • Microdrive*2*4 • ATA Flash PC Card*2 • Mobile hard disk*3*5*6

*1 You can dub, edit or play back SD VIDEO (MPEG4).

*2 You can dub, edit or play back still pictures (JPEG, TIFF).

*3 You can dub SD VIDEO (MPEG2) to HDD or DVD-RAM.

- You can also dub SD VIDEO (MPEG2) recorded by other equipment such as Panasonic video cameras of the future model. (page 34)

*4 A PC Card adapter conforming to PC Card standards is necessary.

*5 Content saved on SD media storage (SV-PT1).

*6 Still pictures (JPEG, TIFF) and SD VIDEO (MPEG4) in the cards can be played, and dubbed to HDD and DVD-RAM.

■ Compatible with: FAT 12 or FAT 16

- We recommend using Panasonic SD Memory Card.
- Only use the memory cards recommended (refer to the left).
- You cannot use SD Memory Card with the capacity of 2 GB or more.
- Format a memory card on this unit when using for the first time (pages 52, 53). Note that the memory card may no longer be usable on other equipment once formatted on this unit.
- SD Memory Card may be disabled if you format it on a computer.
- Files created by other equipment may not be displayed on this unit correctly (e.g. you cannot play back the files, the picture or the title is not correct, etc.). Similarly, files created by this unit may not be correctly displayed on other equipment.
- Some of SD Memory Card cannot be used.

■ Regarding Write Protect

For cards provided with a write protect switch, if the switch is on, they will not be written, erased or formatted.

Before Use

Still pictures/SD VIDEO (MPEG4)

Still pictures that can be displayed/saved

- This unit can play DCF*¹ compliant JPEG and TIFF files taken on a digital camera.

*¹ Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).

Picture definition:

Compatible in the range of 320×240–6144×4096 (sub sampling is 4:2:2 or 4:2:0)

- This unit can handle **300 folders** (including header folders) and **3,000 files** at its maximum. Files and folders exceeding the maximum cannot be displayed, copied or erased.
- Audio, video and still pictures (MOTION JPEG etc.) that are not compliant with the DCF standard and still pictures other than JPEG and TIFF cannot be displayed.
- Still pictures created or edited on a computer may not be playable.
- TIFF is compatible with uncompressed RGB chunky formats. Other types of TIFF files cannot be played.
- When playing TIFF files, it may take time for them to be displayed.
- When there are many folders and files, it may take a long time to display, copy or erase.
- Folder titles that were input on equipment other than this unit may not be displayed properly.
- When saving still pictures on HDD, it is recommended that you copy them to the memory card or DVD-RAM also (page 50).

About SD VIDEO (MPEG4)

- Compatible formats: SD-Video format conforming (ASF)
Video: MPEG4 conforming/Audio: G.726 conforming (Monaural)
- Maximum bit rate: 64 kbps–1050 kbps
- Average bit rate: 60 kbps–768 kbps
- Pixels: 176×144 (QCIF), 320×240 (QVGA)
- Frame note: 6 fps–15 fps
- It is compatible up to 999 files.

Folders that can be displayed/saved

Still pictures (denoted as Filename : xxxxxxxx.JPG) saved in folders () as shown below can be displayed/saved.

Folders below () the compatible folder (including the still pictures inside those folders) cannot be displayed or saved.

() : Valid folder*²

() : Upper level folder

*: Numbers
xx: Letters

*² Valid folder:

This term indicates a folder which is recognized by this unit and which contains still pictures the unit is capable of displaying.

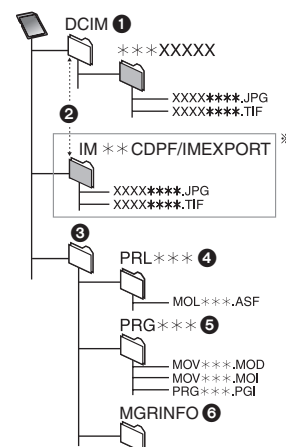
- Folders made on a computer will not be recognized by this unit. If using a folder made by a computer, refer to the folder structure below.

Folder structure

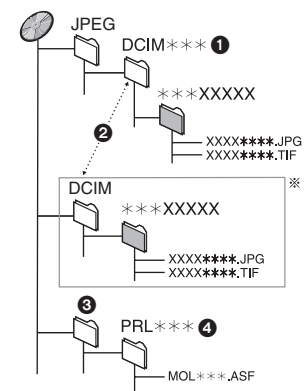
- ※ Folders can be created on other equipment. However, these folders cannot be selected as a copy destination of still pictures.
- The folder cannot be displayed if the numbers are all "0" (e.g., DCIM000 etc.).
- This unit may not be able to display or use some folder you have created on a computer.
- If you enter folder names or title names on other equipment, the picture files may not be displayed correctly or may be disabled.

- 1 Still picture folder
- 2 Press [◀, ▶] to change between folders. (page 48)
- 3 SD VIDEO (SD VIDEO folder)
- 4 (MPEG4 folder)
- 5 (MPEG2 folder)
- 6 (Folder for management information on MPEG2)

Card



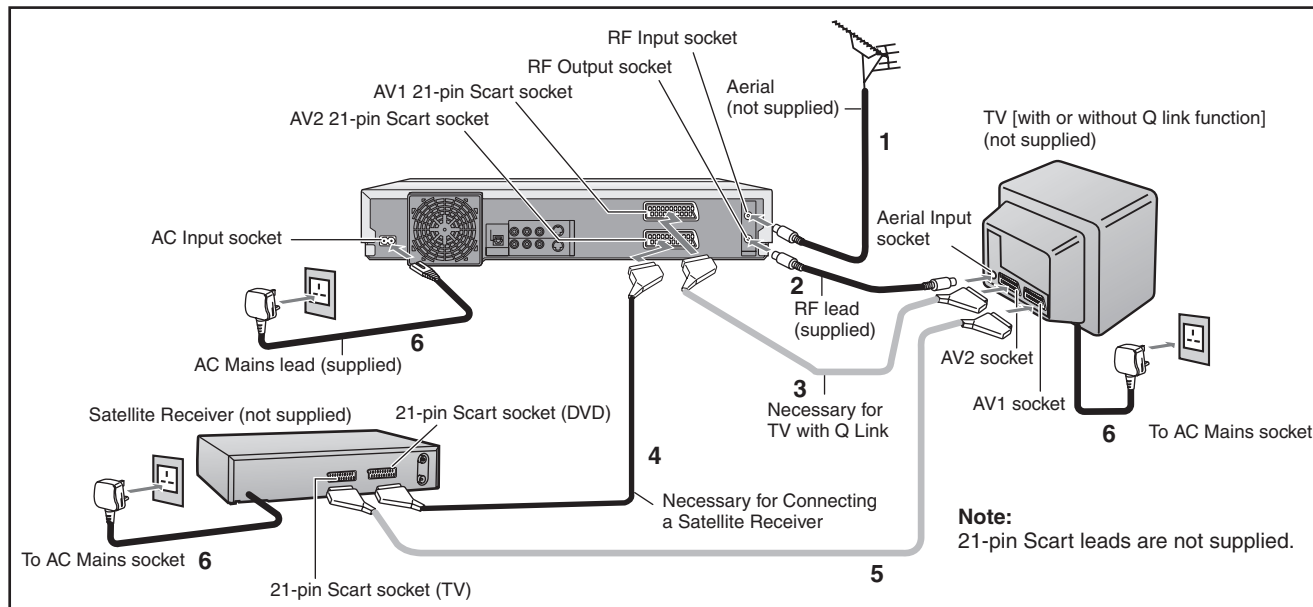
DVD-RAM



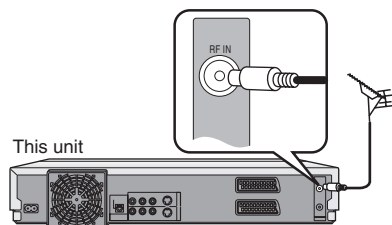
Before Use

Connections (with Scart leads)

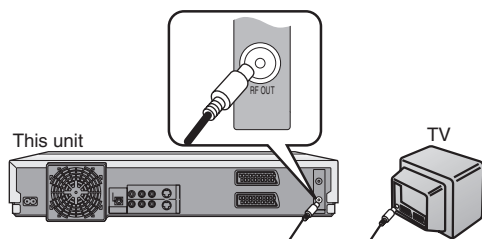
Follow the step-by-step guide below.



1 Connect the aerial to the RF Input socket of the DVD Recorder.

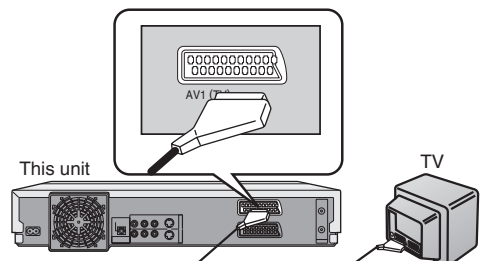


2 Connect the RF lead from the RF Output socket of the DVD Recorder to the TV aerial input socket.



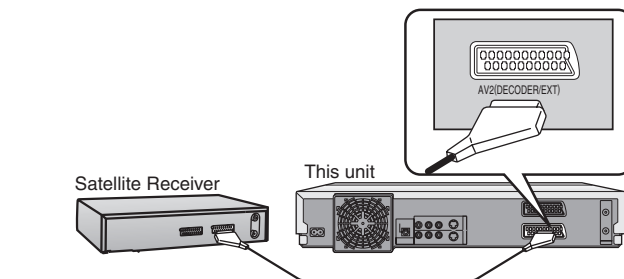
3 Connect the AV1 21-pin scart socket to TV scart socket (optional).

- This is necessary for Download from TV with Q Link function.
- If you use Panasonic TV with RGB output capability and want to receive RGB signals, connect this unit to the AV1 socket on the TV.



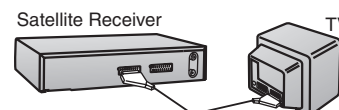
4 Connect the AV2 21-pin scart socket to the DVD Recorder Scart Socket on your Satellite Receiver/Digital Sat receiver.

- If you are not connecting a Satellite Receiver, skip this step.



5 Connect the TV scart socket of your Satellite Receiver to the AV1 scart socket of your TV (optional).

- If you are not connecting a Satellite Receiver, skip this step.



6 Plug the TV, DVD Recorder and Satellite Receiver into the mains as shown at top of the page.

Hints:

- Q Link offers a range of convenient functions. For example, downloading of the tuning positions of all available TV stations into your unit's memory if you connect the unit to your TV with a fully wired 21-pin Scart cable (not supplied). Features similar to Q Link have different names and may not work the same. [Q Link] is a registered trademark of Panasonic. [DATA LOGIC] is a registered trademark of Metz. [Easy Link] is a registered trademark of Philips. [Megalogic] is a registered trademark of Grundig. [SMARTLINK] is a registered trademark of Sony.

For details, refer to your TV's operating instructions or consult your dealer.

- Unlike in most commercially available 21-pin Scart cables, all 21 pins of one plug on a fully wired 21-pin Scart cable are connected to the matching pins on the other end of the cable.

Reference:

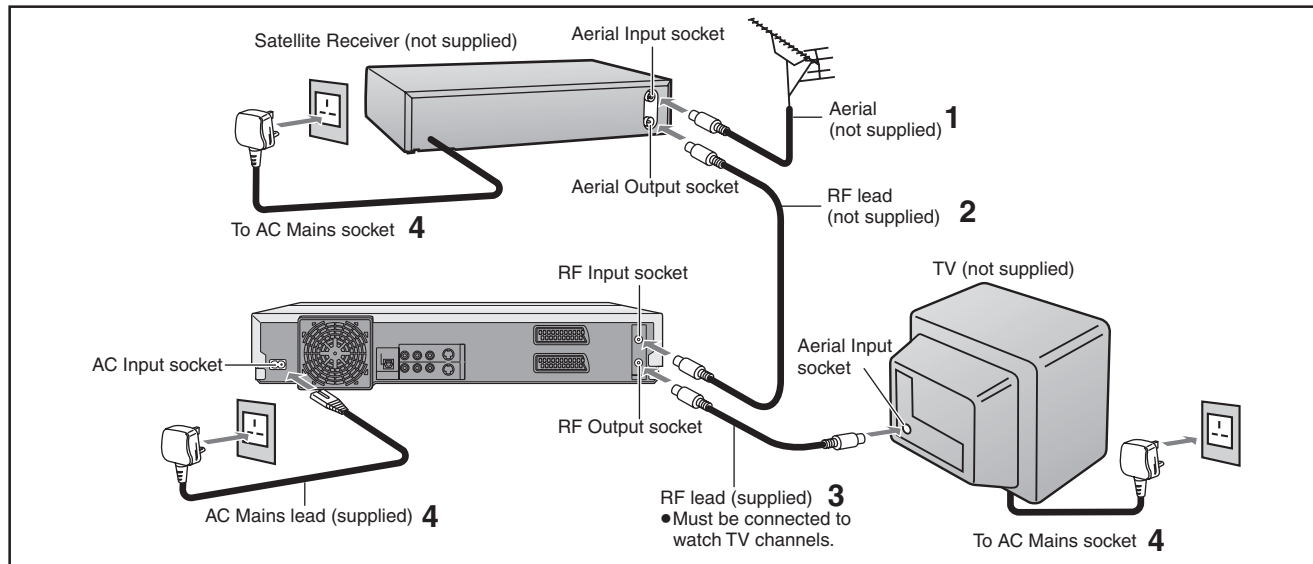
- If the TV set is equipped with a 21-pin scart socket that features Y/C signal separation, set the "AV1 Output" to "S-Video" (see page 61) so that you can play back with high picture quality and use a fully-wired 21-pin Scart lead (not supplied) to connect the DVD Recorder to the TV.

Before Use

Connections (without Scart leads)

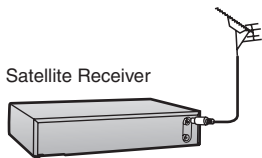
If you do not have any scart leads and your TV is not Q Link type, you can connect your DVD Recorder to a TV and Satellite Receiver using RF leads.

Using this connection method may however be difficult to obtain a clear picture from the Satellite Receiver. For this reason it is not recommended for inexperienced users. (See preferred connection on page 13.)

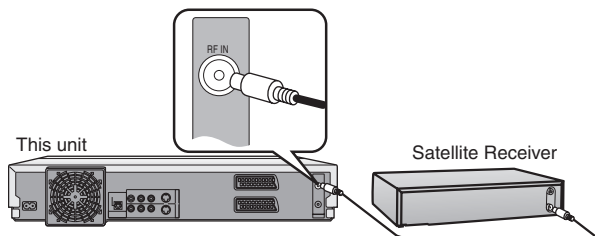


1 Connect the aerial to the aerial input socket of the Satellite Receiver.

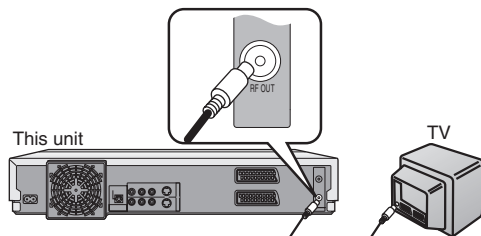
- If you do not have a Satellite Receiver, connect the aerial to the RF Input socket of the DVD Recorder and go to step 3.



2 Connect the aerial from Satellite Receiver to the RF Input socket.



3 Connect the RF Output socket to the TV aerial socket.



4 Plug the TV, DVD Recorder and Satellite Receiver into the mains as shown at top of the page.

Notes:

- Switch on your Satellite Receiver; to ensure reliable tuning, select either [SKY ONE] or [SKY NEWS].
- If, after Auto Setup is complete, the programme position of the satellite receiver is not to your preference, or "SAT" name is not shown in the programme list, you can rearrange the programme position and enter "SAT" name manually (See page 64).

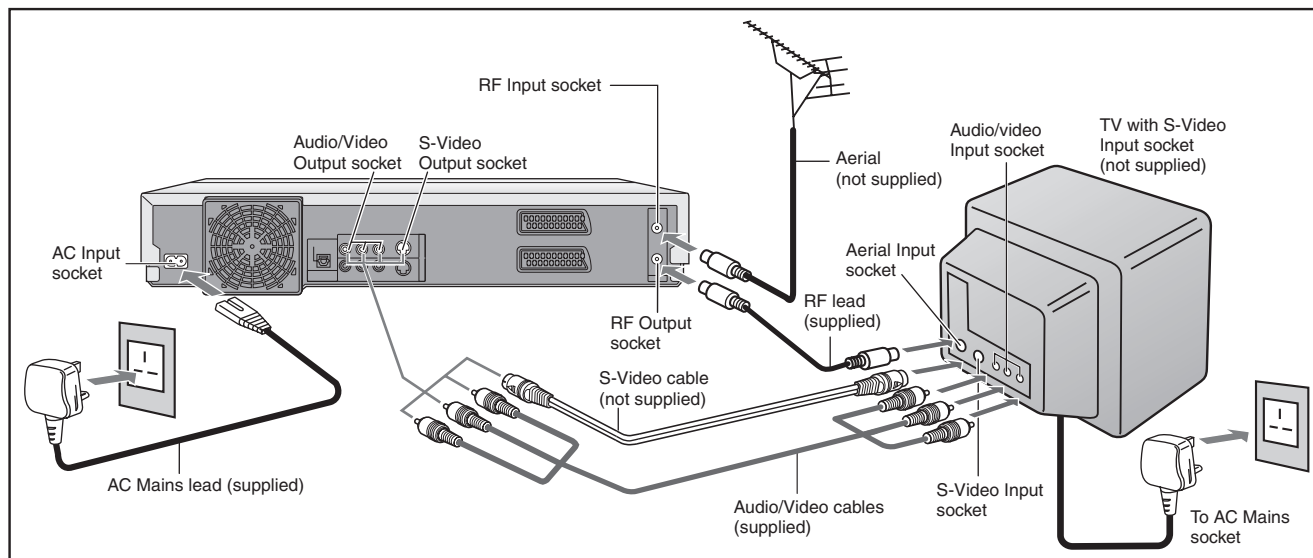
Before Use

Connections (with S-Video cable)

Connections and preparations for a TV with S-Video socket.

The conventional video sockets of DVD Recorder's output (input) a combination of the luminance signal (Y) and colour signal (C) which are recorded on the disc. The S (Separate)-Video socket allows separate transmission of signals in order to obtain clearer pictures.

The connection with S-Video Cable can also be used for playback of any disc. The "S" in the "S-Video socket" stands for "SEPARATED Y/C" not for "S-VHS".



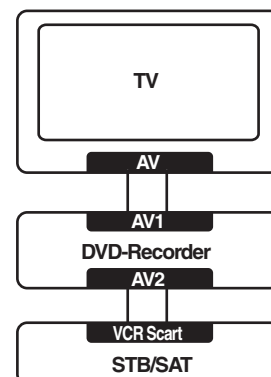
Recording from Set Top Boxes (STB) or other Satellite Receivers (SAT)

Recording video signal by "Sky personal Planner" and "External Link 1" Functions

To record programmes from satellite receiver using "Sky Personal Planner" function together with the "External Link1" function of this DVD Recorder:

- Make connections as shown.
- Change the settings in the SETUP menu as follows (page 61).
 - "AV2 Input" set to "Video"
 - "AV2 Connection" set to "Ext Link 1"
 - "AV1 Output" set to "RGB" or "S-Video" or "Video" to suit the AV terminal of your TV.
- Set up Personal Planner programmes as required.
- Press [EXT LINK] on the main unit.

"External Link1" function can only be used with the "Sky Personal Planner" function for timer recording of video signal from the "VCR Scart" terminal of the Sky Digital Set Top Box.



Recording RGB Signals

Most Satellite Receivers are capable of outputting RGB signals for viewing on TV through a Scart terminal (called "TV Scart" on a Sky Digital STB).

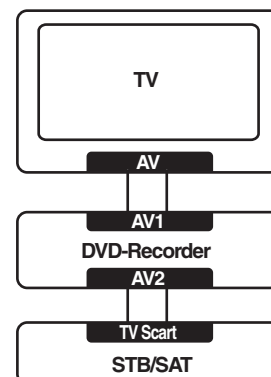
In the case of a Sky Digital STB, recording of RGB signals from the "TV Scart" terminals is possible, but the "Personal Planner" function for timer recording cannot be used in conjunction with the "External Link1" function of this DVD Recorder.

To record programmes by RGB signals:

- Make connections as shown.
- Set your Sky Digital STB to output "RGB" signals.
- Change the settings in the SETUP menu as follows (page 61).
 - "AV2 Input" set to "RGB"
 - "AV2 Connection" set to "NORMAL"
 - "AV1 Output" set to "RGB" or "S-Video" or "Video" to suit the AV terminal of your TV.
- Set up Personal Planner programmes as required.
- Follow the steps for setting up timer programming.

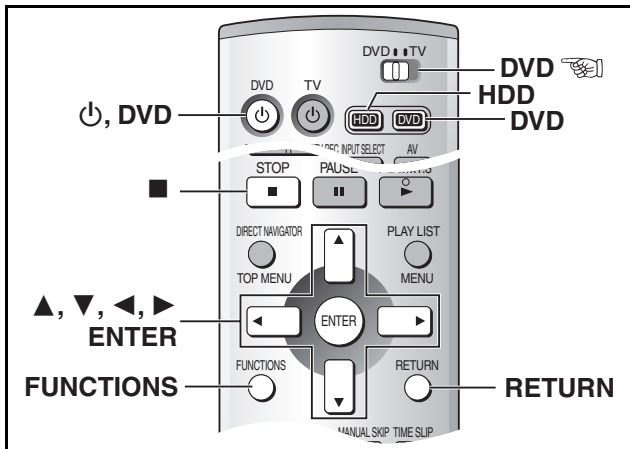
After setting Personal Planner programmes as required, Sky Digital STB must be left on (not set to standby) to ensure continuous output of RGB signals.

It is not possible to use the "External Link 1" function of the DVD Recorder for timer recording of RGB signals from the Sky Digital STB.



Before Use

Auto Setup (with Q Link Functions)



If you do not have a Q Link TV, ignore this page and go to page 17. The Preset Download function can automatically copy the tuning position of all available TV stations into the DVD Recorder's memory when you connect the DVD Recorder using a fully-wired 21-pin Scart lead to a TV equipped with the Q Link function.

Preparation

Perform the following operation steps exactly as described to ensure that the Preset Download function works correctly.

- First of all, make sure that the DVD Recorder is switched off.

To Set Up this DVD Recorder with a brand-new Q Link TV

1 Switch the TV on.

The TV automatically starts to tune all available TV stations and to adjust the clock. (This is called Auto Setup function.)

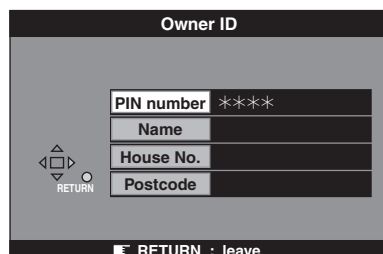
- When the TV has finished its own auto setup, the DVD Recorder is automatically switched on, and the downloading of the setup data from the TV to the DVD Recorder starts.



Indication during downloading

2 When Download has finished, the screen for the Owner ID setting menu appears. Press [ENTER] and the numeric buttons to enter a 4-digit PIN number.

- Make sure that you will remember the PIN number (make a note of it).



Menu for Owner ID setting

3 Press [ENTER] and [▼]. The cursor moves to "Name".

4 Press [▶].

5 Press [▲, ▼, ◀, ▶] to select a letter and then press [ENTER].

- Repeat this to enter the name.

6 Enter "House No." and "Postcode" in the same way.

7 Press [RETURN].

The Owner ID setting disappears.

Hint:

- If you use a Panasonic Q Link TV and perform the operation step 1 above, starting the downloading of the setup data will automatically display the "Download" indication. However, in case of a TV of another make, the "Download" indication may not appear. In this case, select the AV input on your TV if you want to see the "Download" indication.

Notes:

- The explanations in this book refer to Panasonic Q Link TV and DVD Recorder, however they may also apply to other makes of TV and DVD Recorder with similar functions to Q Link. (See page 13 for details.)
- If you accidentally switch on the DVD Recorder before the TV, downloading of the setup data from the TV may not be performed correctly. In this case, follow the steps below.
 - 1) Wait until the Auto Setup is complete on both the TV and the DVD Recorder.
 - 2) Press [FUNCTIONS] to display the top window on the TV screen and then use [▲, ▼, ◀, ▶] to select "SETUP" and press [ENTER].
 - 3) Use [▲, ▼, ◀, ▶] to select "Tuning" and then "Download".
 - 4) Press [ENTER] and select "Yes". Downloading of the setup data from the TV to the DVD Recorder starts.
 - 5) When the programme position and the current time appear in the DVD Recorder display, downloading is complete.

To Set Up this DVD Recorder with an existing Q Link TV

1 Switch the TV on.

2 Select the AV input on your TV.

3 Press [DVD, ⏻] to switch the DVD Recorder on.

- Downloading of the setup data starts automatically.

4 To set up the Owner ID, repeat the steps 2–7 above.

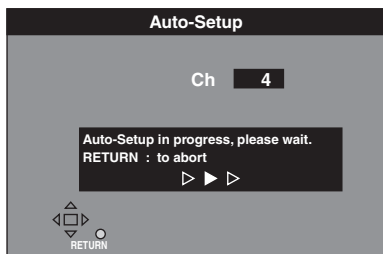


Before Use

Auto Setup (without Q Link Functions)

Auto Setup automatically tunes all available stations and sets the DVD Recorder's clock to the current date and time.

- 1 **Switch the TV on.**
- 2 **Select the AV input on your TV.**
- 3 **Press [DVD, ] to switch the DVD Recorder on.**



- Auto Setup starts. This takes about 5 minutes.
- (If connected to your TV using the RF lead only)
Select an unused channel pre-set on your TV and tune it to the RF output channel number shown on the DVD Recorder display (or until you can clearly see the Auto Setup screen). Store the new video playback channel (refer to the instructions for your TV).

- 4 **To set up the Owner ID, repeat the steps 2–7 on the previous page.**

Removing Interference

TV screen



The 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.**

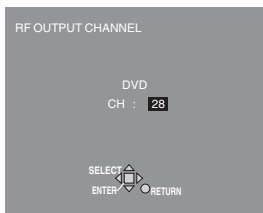
The RF output channel number is displayed on the unit display.

- 2 **Press the numeric buttons, [], [] or [CH, ], [] to select a channel number, which differs by 2 or 3 from the present channel number.**

- (For example, if the original channel number was 28, enter 31.)

<Before Changing>

<After Changing>

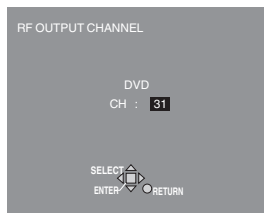


Test pattern indication

Unit display



Indication when the RF output channel is 28 (example)



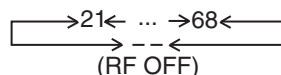
Test pattern indication

Unit display



Indication after changing the RF output channel to 31 (example)

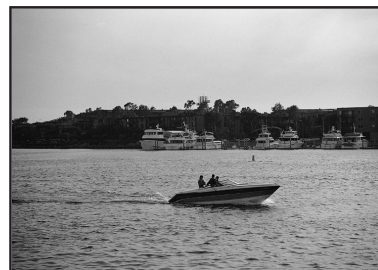
- Set the RF output channel of the DVD Recorder to [—] (RF OFF) when the DVD Recorder is connected to the TV via the 21-pin Scart cable.
Press the numeric (0) button or [CH, ], [] to display [—].
Skip the step 4, if using a 21-pin Scart cable.



- 3 **Retune your TV until you receive the Test pattern.**

- It may be necessary to repeat steps 1 and 2 above until you can see the Test pattern clearly.

- 4 **Press [ENTER] to finish this setting.**



The clear picture

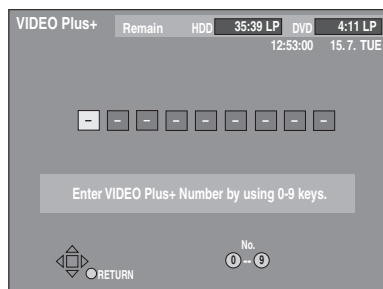
Before Use

Video Plus+ Codes for Satellite Receivers/Cable TV

This unit is not designed to control (switch on or change channel) your satellite receiver or Cable TV box, however, it can be taught to recognise Video Plus+ Codes for Satellite stations. The Satellite receiver or Cable TV box must be switched on and the correct station selected. Some receivers have their own timer facility for this purpose. Please refer to your Satellite Receiver/Cable TV box instructions for use of such timer facilities.

For your unit to recognise the Video Plus+ Codes for each satellite station, you must teach your unit which channel or AV input to record from for the first time. Otherwise when setting a VIDEO Plus+ recording, the [—] symbol will appear in the channel position indicating that the unit does not know which channel position to set. Once you have set the channel/AV input once the unit will remember it whenever you use a Video Plus+ Code for the station again.

- 1 Turn on the TV and the unit. Select video playback channel on the TV.
- 2 Press [VIDEO Plus+].



- 3 Enter a Video Plus+ Code from a Satellite TV Guide for a satellite channel, e.g. Sky 1 using the numeric buttons.
 - If you make a mistake, use [◀] to go back.
- 4 Press [ENTER]. [—] will appear instead of a channel number/AV input.

- 5 Use [▲, ▼, ◀, ▶] to select the channel or AV input that is to be used for recording from the satellite channel.

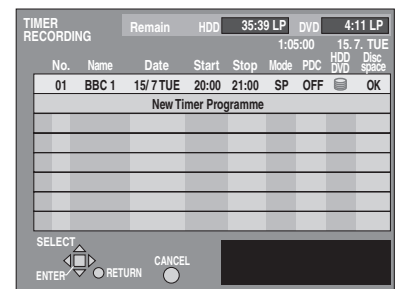
- 6 Press [ENTER] to memorise the setting.

- The unit will now automatically set the programme position or AV input correctly when a VIDEO Plus+ recording is set for this satellite station in the future.



- 7 Use [▲] to select the programme that you have just set.

- Now press [CANCEL] to delete it from the timer recording list. It is no longer needed.



- 8 Repeat steps 2—7 above until you have set and deleted dummy timer recordings for each of the satellite stations that you will make VIDEO Plus+ recordings from.
- 9 Press [RETURN] when you have finished.

Selecting TV screen type

The aspect ratio is initially set to 4:3 for a regular TV. You do not have to change this if you have a regular 4:3 aspect TV.

Preparation

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

- 1 Press [DVD, ⏻] to turn this unit on.
- 2 Press [FUNCTIONS].

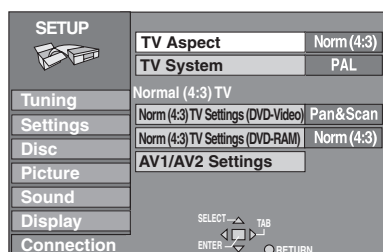
The FUNCTIONS window appears (page 29).

- 3 Select "SETUP" with [▲, ▼, ◀, ▶] and press [ENTER].



Screen displayed when selecting an HDD drive (page 19) (example):

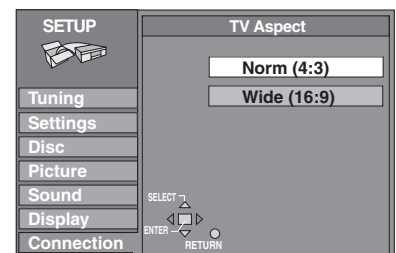
- 4 Select "Connection" with [▲, ▼] and press [◀] or [▶].



- 5 Select "TV Aspect" with [▲, ▼] and press [ENTER].

- 6 Use [▲, ▼] to select the TV aspect and press [ENTER].

- 4:3 (factory setting)
- 16:9



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

For your reference

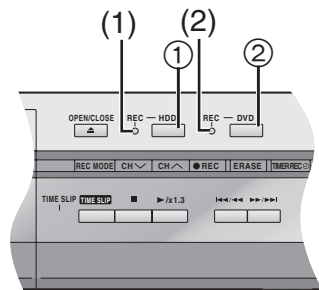
Apart from "TV Aspect", other settings also affect how video appears on your TV. Check the following if video doesn't appear correctly on your TV.

- "Connection"—"Norm (4:3) TV Settings (DVD-RAM)" or "Norm (4:3) TV Settings (DVD-Video)" (page 61).
- The video setting on the disc. How video appears is often specified by the disc itself.
- The video settings on your TV.

Before Use

Selecting between HDD and DVD drives

This unit incorporates an HDD and a DVD drive. Select the drive (HDD/DVD) you intend to use—you may carry out recording and playback on the drive selected. The HDD/DVD mode lamp on the front panel of the unit will light when you select a drive. The lit lamp indicates the current drive.



To use the HDD:

Press [HDD].

- The HDD button on the front panel will light (green).
- It blinks when HDD pauses or starts from the pause.

To use the DVD:

Press [DVD].

- The DVD button on the front panel will light (green).
- The DVD button blinks when a disc is read.

For your reference

- It is possible to watch playback from one drive while recording from another (editing is not possible).
- When switching drives, the functions (playback, record or pause etc.) operate with respect to the current drive. For example, if you are recording using DVD and playing back using the HDD, pressing [■, STOP] will stop the HDD playback. To stop the DVD recording, select the DVD drive before pressing [■, STOP].
- HDD drive and DVD drive cannot perform playback simultaneously.
If one drive is selected, the another will stop playback (if in progress).
- It is not possible to record a programme to both HDD and DVD simultaneously.
- When the HDD drive is selected and a disc is being read after the disc tray has been opened/closed, the DVD mode lamp will flash. It is not possible to switch between HDD/DVD drives while a disc is being read.

Regarding the HDD/DVD record lamp

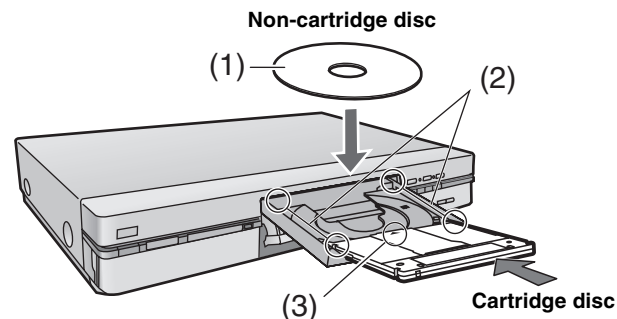
When recording on the HDD drive, the HDD record lamp will light (red).

When recording on the DVD drive, the DVD record lamp will light (red).

Inserting discs

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

You can insert a cartridge or non-cartridge disc.



- (1) Insert label-up.
- (2) Insert inside the tray's guides.
- (3) Insert label-up with the arrow facing in.

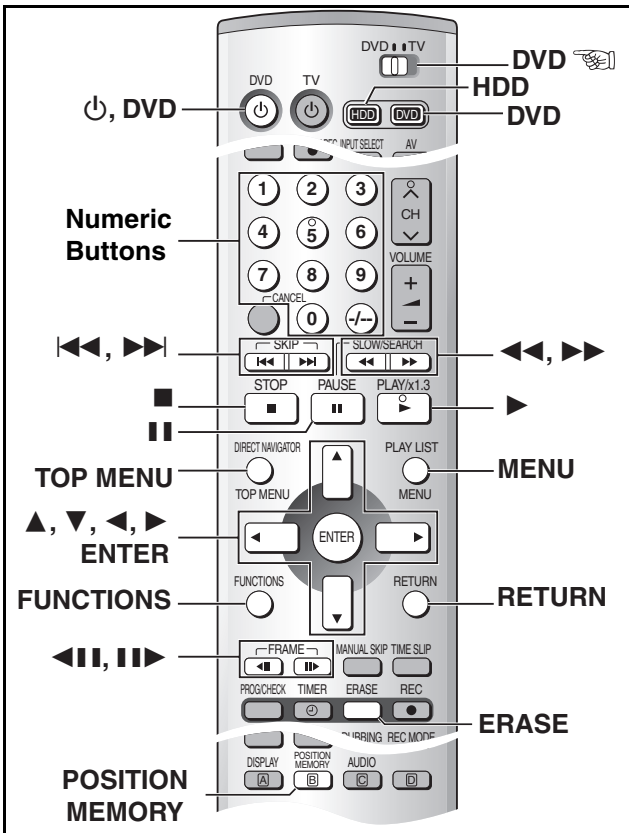
Note

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

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" (page 69), play starts automatically.

■ Playback



Playing discs/programmes recorded on HDD

HDD **RAM** **DVD-A** **DVD-R** **DVD-V** **CD** **VCD** **MP3**

Regarding the HDD (Hard Disk Drive)

When using this unit for the first time, the HDD has nothing recorded on it. You must record a programme etc. to the HDD before you can enjoy playback.

- 1 Press [DVD, - 2 Press [HDD] or [DVD] to select the playback drive. (page 19)

- 3** When DVD mode was selected above:
Insert a disc. (page 19)

- 4 Press [▶, PLAY/×1.3].**

The disc tray closes and play begins.
(The unit takes some time to read the disc
before play starts.)

- Playback start from the most recently recorded programme.

HDD

RAM

DVD-R
- Playback start from the beginning of the disc.

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

■ To stop play

Press [■, STOP]. (page 21, Starting play from where you stopped it)

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



■ To pause play

Press [■, PAUSE]. (Press again to restart playing.)

When a menu screen appears on the TV

DVD-A **DVD-V** **VCD**

VCD

Press the numeric buttons to select an item.

e.g.: “5”: $[0] \rightarrow [5]$.

“15”: $[1] \rightarrow [5]$.

DVD-A **DVD-V**

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

- You can also use the numeric buttons to select an item.

Other buttons used to operate menus

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

- You can return to menus after starting play by pressing [TOP MENU] (DVD-A DVD-V) or [MENU] (DVD-V), or [RETURN] (VCD).

Note

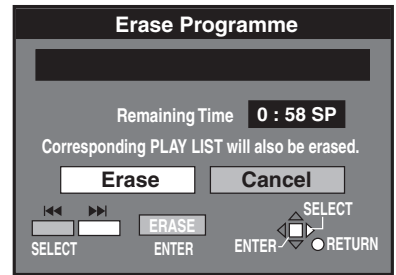
- If “” appears on the TV, the operation is prohibited by the unit or disc.
- When playing back a programme recorded on the HDD, ensure that you match the “TV System” setting to the encoding system you are using i.e. for PAL recordings set “TV System” to “PAL”, for NTSC recordings set to “NTSC” (page 61).

Erasing a programme that is being played

HDD RAM DVD-R

You can erase the programmes while playing.

- 1 During play
Press
[ERASE].
- 2 Use [◀] to
select
“Erase” and
press
[ENTER].



- On the main unit, press [**⏮/⏪**] and [**ERASE**].

For your reference

- It is not possible to erase a programme when you are carrying out simultaneous recording and play (page 25). **[RAM]**
- It is not possible to erase a programme that is in the process of being recorded.
- The available recording time on DVD-R does not increase when you erase programmes.

■ Playback

Quick View (Play ×1.3)

HDD **RAM** (Only with Dolby Digital)

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



During Play

Press and hold [▶, PLAY/×1.3].

■ To return to normal speed.

Press [▶, PLAY/×1.3].

Note

- Output is in PCM when using a digital connection ([A] page 56).
- This is cancelled when you perform skip, pause, or when play reaches a point where a programme recorded in sound other than Dolby Digital starts.
- This does not work if the setting is “Off” in “PLAY ×1.3 & Audio during Search” (page 60).
- This does not work when recording is in XP or FR mode during simultaneous recording and play (page 25). **RAM**

Starting play from where you stopped it (Resume Function)

HDD **RAM** **DVD-R** **DVD-A** **DVD-V** **CD** **VCD** **MP3**

1 During play

Press [■, STOP].

- The unit memorises the position.

2 Press [▶, PLAY/×1.3].

- Play starts from where you stopped it.



■ To cancel the resume function

Press [■, STOP] while the unit remembers the position.

(The position is also cleared when you turn the unit off.)



Position Memory

HDD **RAM** **DVD-R** **DVD-A** **DVD-V** **CD** **VCD** **MP3**

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

1 During play

Press [POSITION MEMORY].

The message “Position Memorized” appears on the TV.

2 After switching the unit to standby and back on

Press [▶, PLAY/×1.3].

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

Note

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

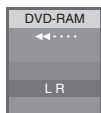
- The position is cleared when you open the disc tray.
- RAM**
- Positions remain memorised even after the disc tray is opened.
- You cannot mark positions if the disc is write-protected with DISC INFORMATION (page 37) or with the write protect tab (page 69). Release the protection before marking position.

Fast forward and rewind—SEARCH

HDD **RAM** **DVD-R** **DVD-A** **DVD-V** **CD** **VCD** **MP3**

During play

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



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

- There are 5 search speeds. Each press increases the search speed.
- Press [▶, PLAY/×1.3] to restart playback.
- Sound is output only in the first level of fast forward. In the case of DVD-A (except parts of moving picture), CD and MP3, it is output in all levels.

- You can turn this sound off if you want to (page 60, “Sound”—“PLAY ×1.3 & Audio during Search”).

Slow-motion play

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

While paused

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

- Press and hold [◀◀/▶▶] or [▶▶/▶▶] on the main unit.
- It pauses automatically when the slow motion play is continued for about 5 minutes.

- The speed increases up to 5 steps.
- Press [▶, PLAY/×1.3] to restart playback.
- Backward ([◀◀], [◀◀/▶▶]) does not work with Video CDs.

Frame-by-frame viewing

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

While paused

Press [◀II, FRAME], [II▶, FRAME], [◀] or [▶].

- Each press shows the next or previous frame.
- Press [▶, PLAY/×1.3] to restart playback.
- Backward ([◀II], [◀]) does not work with Video CDs.

Skipping

HDD **RAM** **DVD-R** **DVD-A** **DVD-V** **CD** **VCD** **MP3**

During play or while paused

Press [◀◀, SKIP] or [▶▶, SKIP].

You can skip programmes, scenes and tracks each time you press them.

For your reference

- When the marker (page 23) is set, you can skip the marker position.

Direct Play

HDD **RAM** **DVD-R** **DVD-A** **DVD-V** **CD** **VCD** **MP3**

Starting play from a selected programme, title, chapter or track.

During play or while stopped

Press the numeric buttons to select the item.

e.g.: “5”: [0]→[5]. **HDD** **MP3** “5”: [0]→[0]→[5]
“15”: [1]→[5]. “15”: [0]→[1]→[5]

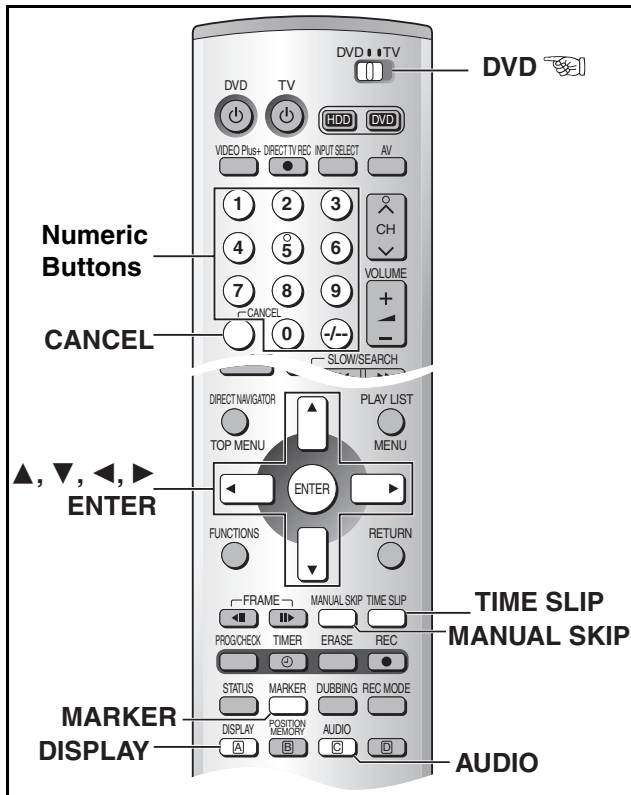
DVD-A

- A group number can be specified while the screen saver is displayed.
e.g.: “5”: [5]
- **Playing bonus groups**
Some discs contain bonus groups. If a password screen appears after selecting a group, enter the password with the numeric buttons and press [ENTER]. Refer also to the disc’s jacket.



- To playback still pictures (page 48)
- To playback SD Video (MPEG4) (page 53)

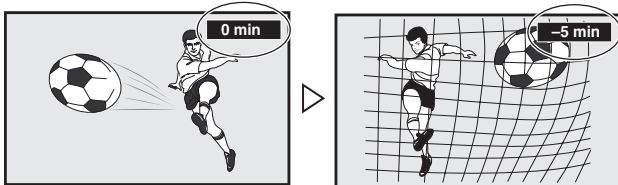
■ Playback



Selecting an amount of time to skip—Time Slip

HDD RAM DVD-R

- 1 During play
Press [TIME SLIP].



- 2 Within 5 seconds
Press [▲, ▼] to enter the time and press [ENTER].

- Play skips the time you entered.
- Press to alter in one-minute units. Press and hold to alter in 10-minute units.

Manual Skip

HDD RAM DVD-R

You can skip for approximately 30 seconds by one press.

- During play
Press [MANUAL SKIP].

Changing audio

HDD RAM DVD-A DVD-V VCD

You can change the audio being played.

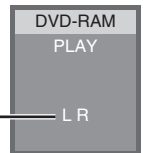
- During play
Press [AUDIO] to select the audio type.

HDD RAM VCD (page 65)

LR→L→R

e.g.: RAM

"L R" is selected



DVD-A DVD-V (page 46)

You can change the audio channel number by pressing the button.
This allows you to change items like the soundtrack language.



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

Note

If you cannot change the audio type when you have used only an optical digital cable for connection, set "Dolby Digital" to "PCM" (page 60). Alternatively, you may connect to an amplifier with an Audio/Video cable and change the input on the amplifier to suit the connection.

You cannot switch the audio mode in the following cases.

- When a DVD-R disc is inserted in the disc tray while DVD drive is selected.
- When the recording mode is set to "XP" and "Audio Mode for XP Recording" is set to "LPCM" (page 60).
- When "DVD-R Rec for High Speed mode" is set to "On". (page 59)

■ Playback

Marking places to play again — MARKER

HDD RAM DVD-R

You can mark up to 999 points on a disc to return to later.

DVD-A DVD-V CD VCD MP3

You can mark up to 5 points on a disc to return to later.

■ Marking positions directly

During play

Press [MARKER].

- One marker is added.

■ Using DISPLAY menus to mark positions

Displaying the marker icon

1 During play

Press [DISPLAY].

e.g.: When DVD-RAM is used



2 Select “Play” with [▲, ▼] and press [▶].



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

HDD RAM DVD-R

DVD-A DVD-V CD VCD MP3



Marking positions

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

- One marker is added.

When marking positions 11 and above

HDD RAM DVD-R

1 Use [◀, ▶] to highlight “1–10”.

2 Use [▲, ▼] to select “11–20”.

3 Use [▶].

- The first asterisk is highlighted.

4 Press [ENTER] to mark a position.

To play from a marked position

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

- Play starts from the marked position.

■ To clear a marker

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

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

■ To clear the DISPLAY menus

Press [DISPLAY].

Note

HDD RAM

- This feature doesn't work while using a play list.
- Markers cannot be added to or removed from protected discs (pages 37, 69).

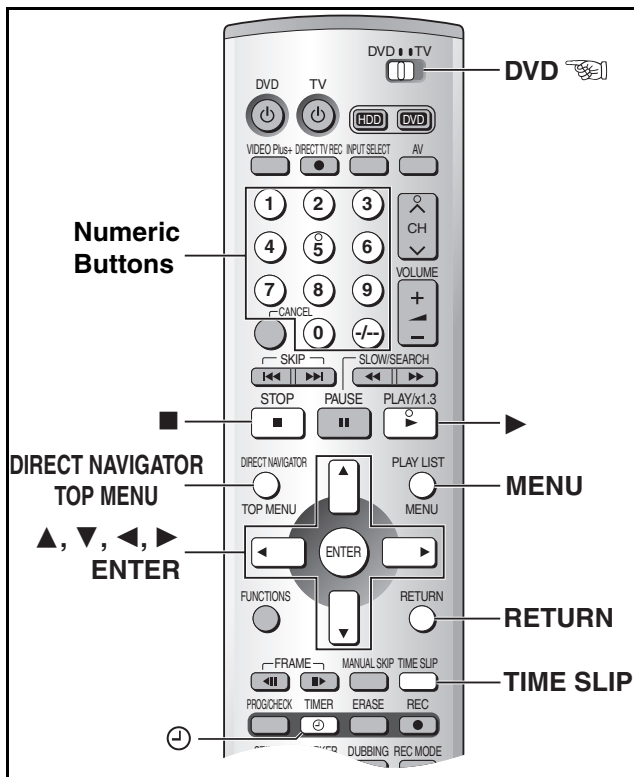
HDD RAM DVD-R

- Markers are ordered by time. This means that the marker numbers can be changed when you add and erase markers.
- Markers are cleared when you finalize DVD-R (page 38).

DVD-A DVD-V CD VCD MP3

- This feature only works if the elapsed playing time of the disc is shown on the unit's display.
- All the markers are cleared when the disc tray is opened.

■ Playback



Using menus to play MP3 discs

MP3

This unit can play MP3 files recorded on CD-R/RW with a computer. Files are treated as tracks and folders are treated as groups. "Total" means total number of all MP3 files (all tracks in all groups) recorded in the disc.

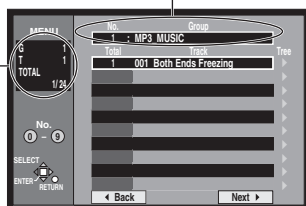
1 During stop or play

Press **[TOP MENU]** or **[MENU]**.

- The file list appears.

G:
The Group Number
T:
Track Number in the Group
TOTAL:
Selected Track Number/
Total Track Number

Selected Group No. and Name



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

Play continues to the last track in the last group.

- "—" indicates the track currently playing.
- You can also select the track with the numeric buttons, directly.
e.g.: The track "006.mp3" of Group "002" of the illustration on top right,
"6": [0] → [0] → [6]
The track "010.mp3" of Group "003" of the illustration on top right,
"10": [0] → [1] → [0]

■ To show other pages

Select **◀ Back** or **Next ▶** with **[▲, ▼, ◀, ▶]** and press **[ENTER]**.

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

■ To exit the file list

Press **[TOP MENU]**, **[MENU]** or **[RETURN]**.

Note

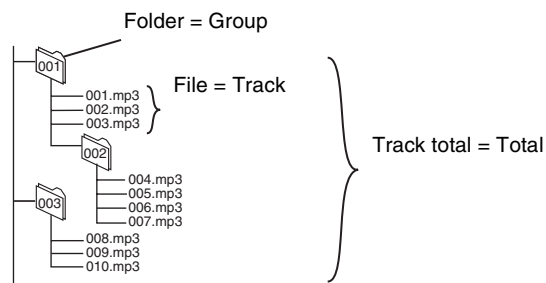
- Sometimes the counter may not display correctly during fast forward/rewind of VBR recorded MP3.
- If you play a MP3 track that includes still picture data, it will take some time before the music itself starts playing and the elapsed time will not be displayed during this time. Even after the track starts, the correct play time will not be displayed.
- Maximum number of tracks and groups recognizable: 999 tracks and 99 groups
- Compatible compression rate: from 32 kbps to 320 kbps
- Compatible sampling rate: 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz

■ Limitations on MP3

- This unit is compatible with multi-session but if there are a lot of sessions it takes more time for play to start. Keep the number of sessions to a minimum to avoid this.
- This unit cannot play files recorded using packet write.
- If the disc includes both MP3 and other types of audio data (e.g. WMA or WAV), the unit plays only the MP3.
- If the disc includes both MP3 and normal audio data (CD-DA), the unit plays the type recorded in the inner part of the disc.
- Depending on how you create MP3 files, they may not play in the order you numbered them or may not play at all.
- This unit cannot play MP3 data recorded on SD Memory Card.

■ Naming folders and files

At the time of recording, give folder and file names a 3-digit numeric prefix in the order you want them to play (this may not work at times).



- Discs must conform to ISO9660 level 1 or 2 and Joliet (except for extended formats).
- MP3 files must have the extension ".MP3" or ".mp3".
- This unit is not compatible with ID3 tags.
- English alphabets and Arabic numerals are indicated properly. Other characters may not be indicated properly.

■ Using the tree screen to find a group

1 While the file list is displayed

Press **[▶]** to display the tree screen.



Selected Group Number/
Total Group Number

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

- The folder in which has no MP3 files is indicated in black. You cannot select groups including no MP3 files.

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

- The file list for the group appears.

For your reference

- Press **[◀, ▶]** to jump layers in the tree screen.

■ To return to the file list

Press **[RETURN]**.

Recording

Playing while you are recording

HDD RAM

Hint

- Sound is not output while fast-forwarding.

Chasing play

HDD RAM

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

While recording or timer recording

Press [▶], PLAY/×1.3].

Time slip indicator lights.

For your reference

- Chasing play can only be used with programmes of the same encoding system (PAL/NTSC).
- Play cannot be started until at least 2 seconds after recording starts.

Simultaneous recording and play

You can start play of the programme you are recording or play a programme previously recorded.

While recording or timer recording

1 Press [DIRECT NAVIGATOR].

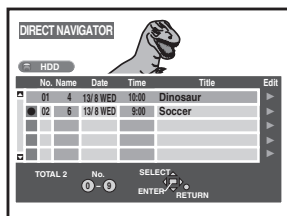
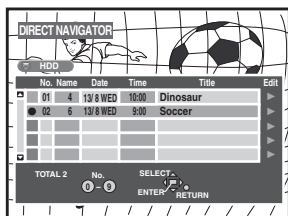
Time slip indicator lights.

2 Use [▲, ▼] to select a programme and press [ENTER].

e.g.,

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

Programme 1 is played back while programme 2 (sport) is being recorded.



For your reference

- During simultaneous recording and play, you cannot edit or erase with the direct navigator or play lists.
- If you start play while the unit is on standby for timer recording, recording starts when the time you set is reached.

TIME SLIP

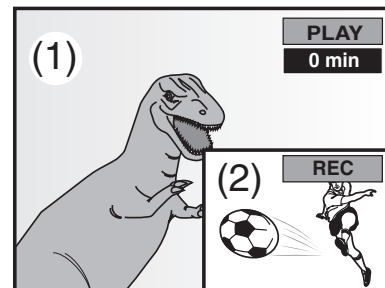
You can play the programme being recorded to check that it is being recorded correctly. You can also check parts that were recorded previously.

While recording or timer recording

1 Press [TIME SLIP].

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

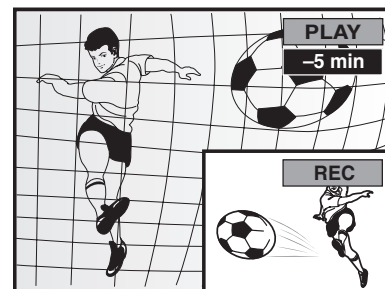
- (1) Play images (30 seconds before)
- (2) Current recording



2 Within 5 seconds

Press [▲, ▼] to enter the time.

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



To show the play images in full

Press [TIME SLIP].

- Press [TIME SLIP] to return to the picture-in-picture screen.

For your reference

- The image on the small screen may be distorted or flicker depending on the scene. However, this does not affect the image recorded.

To stop play and recording

- 1) Press [■, STOP]. Play stops. (Wait 2 or more seconds)
- 2) Press [■, STOP]. Recording stops.
 - You cannot stop recording with [■, STOP] during timer recording. To stop timer recording, press [⊖, TIMER].

Watching the TV while recording

Preparation

Switch [DVD, TV] to "TV".

1 Press [AV] to change the input mode to "TV".

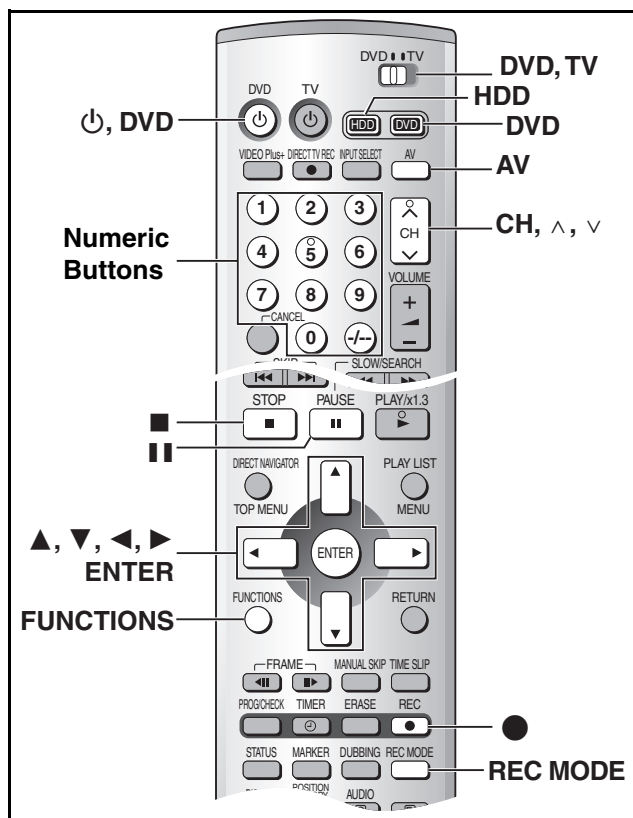
2 Press [CH, ▲, ▼] to change channels.

- You can also select the channel with the numeric buttons.

For your reference

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

Recording



Recording TV programmes

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

To check the remaining time and the current mode (page 65)

- Recording will take place on open space in the HDD or on disc. Data will not be overwritten.
- If there is no space left on the recording drive, you will need to erase unwanted programmes (page 40) or use a new disc.

Preparation

- Release protection (disc → page 37, cartridge → page 69). **RAM**
- Confirm there is sufficient empty space for recording on the HDD. (page 26)
- You can dub recorded picture on DVD-R with High Speed only when the pictures were recorded with setting "DVD-R Rec for High Speed mode" to "On" in advance. (page 59) **HDD**

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

2 Press [HDD] or [DVD] to select the recording drive. (page 19)

3 When DVD mode was selected above:

Insert a disc. (page 19)

- When using a DVD-RAM for the first time with this unit, format it to ensure accurate recording (page 38, "Format").

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

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

- To record sound using LPCM (possible only in XP mode), set "Audio Mode for XP Recording" to "LPCM". (page 60)

6 Press [, REC] to start recording.

- The HDD or DVD record lamp on the main unit lights.

To pause recording

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

- The programme cannot be divided.
- The HDD or DVD record lamp on the main unit flashes.

To stop recording

Press [, STOP].

To enjoy SD VIDEO (MPEG4) programmes **HDD**

- If you set "MPEG4 Rec Mode" (page 59) to "SF", "F", "N" or "E" in advance, you can record SD VIDEO (MPEG4) on HDD simultaneously with the recording of the programme. The recorded SD VIDEO (MPEG4) programmes can be dubbed when dubbing them on SD Memory Card in "High Speed" mode (page 34).
- You cannot directly record on SD Memory Card.
- The audio for the SD VIDEO (MPEG4) is monaural. You can select the audio for bilingual broadcasting on "Bilingual Audio Selection" (page 60).
- The aspect ratio of the recorded picture is 4:3.
- Set the item in "SD CARD capacity" (page 59) according to the capacity of your card. The recording of the programme is divided according to the setting. The programme is divided even the recording is stopped or paused. ("When dubbing programmes to DVD-RAM or DVD-R (X1-X4) in High Speed mode", page 33)

SD VIDEO (MPEG4) Title

- When recording SD VIDEO (MPEG4) programme, it is automatically divided by "SD CARD capacity" (page 59) to be recorded within the capacity of SD Memory Card.
- In case of a TV station with Teletext information, the title of the TV programme is entered automatically, provided the "Title page" is correctly set. (page 64)
- If a programme is divided before entering its title by Teletext information, the title is not entered to the divided programmes. Until the title of the programme is entered by Teletext information, serial numbers (e.g. "MOL****") are automatically given as the title of divided programmes.
- When the title of the programme is entered, it becomes effective to all subsequent programmes.
- In case of a TV station with Teletext information, it may take over 30 minutes to get the title or may fail to get.

Recording modes and approximate recording times in hours

The time shown below is an approximation at the moment of purchase. The available recording time depends on the content of recording.

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

* If you set "MPEG4 Rec Mode" (page 59) to "SF", "F", "N" or "E", the available recording time is reduced.

FR (Flexible recording):

- You can use this function in dubbing or timer recording.
- When dubbing content stored on the HDD, the picture quality is automatically adjusted to fit on 4.7 GB DVD-RAM/R discs.
- The picture quality is automatically adjusted among "XP", "SP", "LP" and "EP" according to the remained capacity of the disc.
- All of recording mode indicators on the unit's display are lit during FR.

For your reference

- 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 programme.
- Even if you try to switch from HDD to DVD or vice versa while recording, the channel will not be changed. Also, it is not possible to record a programme to both HDD and DVD simultaneously.

RAM **DVD-R**

Discs cannot be recorded correctly if you try to record PAL system when they already contain records using NTSC. For any one DVD-RAM/DVD-R disc, programme is recorded using only one TV system (PAL or NTSC) that is defined by the first programme recorded on the disc. However, both types of programme (PAL/NTSC) may be recorded onto the HDD.

Recording

- You can record up to 250 programmes on HDD, 99 on a disc. (1 programme may be recorded continuously for 6 hours at its maximum.)
- **HDD**
 - When a programme is being recorded, or the unit is on standby for timer recording, only programmes of the same encoding system as selected in "TV System" (i.e. either PAL or NTSC) (page 61) can be played.
- DVD-R has limitations on recording (page 10).
- In RGB recording, set "AV2 Input" to "RGB (PAL only)". (page 61)

Recording/Dubbing/Moving of a programme

This unit incorporates copyright protection technology for recording equipment known as CPRM (page 10). With some programmes recording, dubbing and/or moving may not be possible.

(1)	(2)
(6) → HDD	(7) → RAM DVD-R *4 SD *5
(3) (6) → RAM	(7) → HDD SD *5
(6) → DVD-R	(8)
(4) *6 (6) → HDD	(9) → RAM
(6) → RAM	(7) → HDD *8
(6) →	(10)
(5) (6) →	(11)
(1) Recording limit	(7) Dub
(2) Usable Media	(8) You cannot dub.
(3) Copy free	(9) Move
(4) Recording limited to one time	(10) You cannot record on DVD-R.
(5) Recording not possible	(11) You cannot record/dub on any media.
(6) Record	

- *1 You can dub pictures on DVD-R in High Speed if you set "DVD-R Rec for High Speed mode" to "On" (page 59).
- *2 If you set "MPEG4 Rec Mode" (page 59) to "SF", "F", "N" or "E" in advance, you can record SD VIDEO (MPEG4) simultaneously with the recording of the programme.
- *3 When recording an SD VIDEO (MPEG4) programme without recording limits after recording programmes with recording limits, the first 10 seconds or around of the SD VIDEO (MPEG4) programme may not be recorded.
- *4 You can dub except SD VIDEO (MPEG4).
- *5 You can dub SD VIDEO (MPEG4) only.
- *6 You cannot record or dub programmes with recording limits as SD VIDEO (MPEG4).
- *7 Pictures are erased from HDD when moving them to DVD-RAM.
- *8 It can be dubbed to the HDD but cannot be played back due to the copy right protection for the contents.

Move:

This is when a programme is moved to another storage media. The original programme will be erased.

When using DVD-R

- You can play DVD-R on compatible DVD players by finalizing them on this unit, effectively making them into DVD-Video.
- The video is recorded in a 4:3 aspect irrespective of the video signal input.

When using DVD-R or discs with LPCM recording or setting "DVD-R Rec for High Speed mode" to "On"

• When recording bilingual TV broadcast while receiving a bilingual TV broadcast

You can use the SETUP menus to select which audio type is recorded, either "M1" or "M2". "M1" is the default setting. (page 60, "Sound"—"Bilingual Audio Selection")

• When recording bilingual audio with connecting to a decoder or a digital receiver

Select the audio type either "M1" or "M2" on the connected devices. (You cannot select the audio type on this unit.)

• During play

The audio type selected for recording is played. This is displayed as "LR".

Recording sound using LPCM

To obtain higher quality recordings using LPCM, prepare as follows:

- 1) Select "LPCM" in the SETUP menu, "Sound"—"Audio Mode for XP Recording" (page 60).
- 2) Set recording mode to "XP".

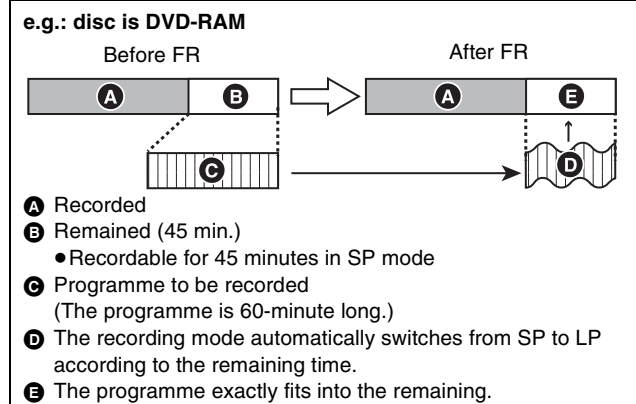
Note

- Sound recordings under LPCM require more information than usual. Consequently the picture quality of LPCM recordings may be less than that of normal XP mode recordings.

Flexible recording mode (FR)

HDD RAM DVD-R

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.



1 While stopped

Press **[FUNCTIONS]**. (page 29)

2 Select "FLEXIBLE REC" with [▲, ▼, ◀, ▶] and press [ENTER].



3 Press [▲, ▼, ◀, ▶] to set the recording time.

- Maximum recording time is 6 hours.

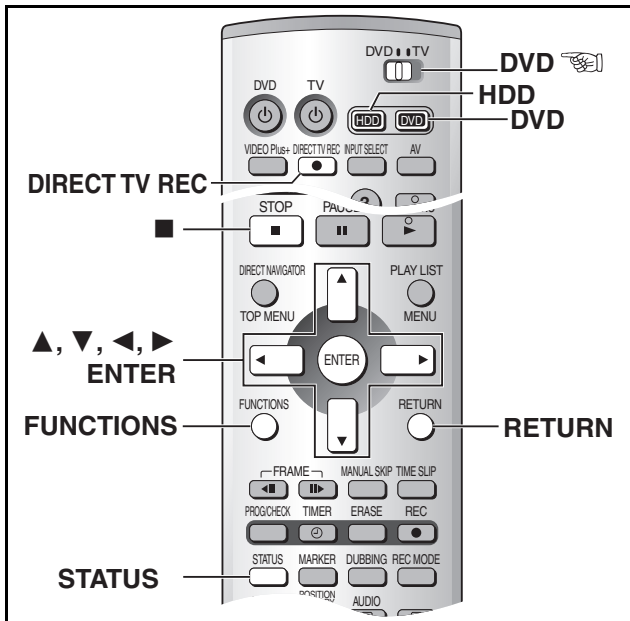
4 Select "Start" with [▲, ▼, ◀, ▶] and press [ENTER].

- Recording starts.

For your reference

- It is not possible to change channel or recording mode while flexible recording is paused.
- FR is not activated in EXT LINK (page 28) and DV AUTO REC (page 55).

■ Recording



One Touch Recording

HDD RAM DVD-R

Main unit only

This is a simple way to make timer recordings when you are in a hurry or before you go to bed. You can set the time up to 4 hours in advance.

While recording

Press [●, REC] on the main unit to select the recording time.

The time increases as illustrated by each press of the button. The counter decreases in 1-minute units after you set a time. You can change the time again with the same operation. When the time you set is reached, recording stops and the unit switches to standby.

Unit's Display

(Counter) → 30 → 60 → 90
↑240 ← 180 ← 120 ←

OFF 30

■ To cancel

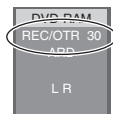
During recording, press [●, REC] until the counter appears.

- Recording continues.

■ To show the time remaining until recording finishes

Press [STATUS] several times.

- It is displayed in the unit of minute.



For your reference

- This does not work during timer recordings 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.

Direct TV Recording

This function allows you to immediately start recording the same programme that you are viewing on the TV.

The programme position selected on the unit automatically changes to that of the TV programme that you are viewing on the TV.

Conditions for the Direct TV Recording function:

- Your TV must be equipped with the [Q Link] function.
- The unit must be connected to the TV via a fully-wired 21-pin Scart cable.

1 Press [HDD] or [DVD] to select the recording drive. (page 19)

2 When DVD mode was selected above:

Insert a disc. (page 19)

3 Press [DIRECT TV REC].

- Recording of the TV programme that you are viewing on the TV starts.

4 Press [■, STOP] to stop recording.

Note

- When you stop recording, the unit automatically switches back to the previously selected programme position.

EXT LINK

HDD RAM DVD-R

If an external equipment (e.g., a satellite receiver) with a timer function is connected to the AV2 socket of this unit by a 21-pin cable, it is possible to control the recording of the unit with the equipment. For the connection to the external equipment, see page 57.

Preparation

- Make sure that "AV2 Connection" is set to "Ext Link 1" or "Ext Link 2". (page 61)
- Timer programming has to be done on the external equipment and switch to the timer recording standby mode. Refer to the equipment's operating instructions.

1) Press [EXT LINK] on the unit to switch the unit over to the timer recording standby mode.

- As long as a video picture is being transmitted by the Satellite or Digital Receiver, the unit will record it. The notice is displayed on the TV screen.

(Only when [Ext Link 2] is selected)

To delete it, press [ENTER].

2) To cancel the external control, turn off the timer recording standby mode of the unit by pressing [EXT LINK] again.

DVD now recording this programme.

Yes

Cancel

For your reference

- To switch TV automatically to the picture from the unit in playback mode, connect the AV1 socket of this unit to the TV by a 21-pin cable.
- This function does not work with some equipment. Refer to the equipment's operating instructions.
- The beginning of recordings may not be recorded correctly in some cases.
- When "AV2 Connection" is set to "Ext Link 2", this function does not work if the input signal is NTSC system.
- The play picture or menu picture is not output from AV2 socket during Linked timer recording standby mode.

Recording

Using the FUNCTIONS window

Preparation

Switch [DVD, TV] to "DVD".

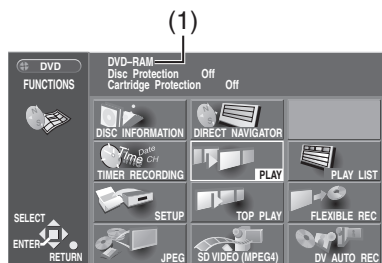
About the FUNCTIONS window

Most of the features and functions of this unit can also be controlled with icons. The examples show the FUNCTIONS window when a DVD drive is selected and a DVD-RAM is being used. Actual menus depend on the type of disc being used.

Disc display

(1) Disc title

- The disc's title is displayed if one is recorded. You can enter titles with "Enter Title" in DISC INFORMATION (page 37).



Using the FUNCTIONS window

HDD **RAM** **DVD-R** **DVD-A** **DVD-V** **CD** **VCD** **MP3**

- Press **[HDD]** or **[DVD]** to select the drive you wish to use. (page 19)
- While stopped
Press **[FUNCTIONS]**.
- Use **[▲, ▼, ◀, ▶]** to select an item.
 - Refer to the relevant pages for details.
- Press **[ENTER]**.
 - Your selection is entered and the FUNCTIONS window disappears. If the operation requires further selections, another screen appears.

To clear the FUNCTIONS window

Press **[FUNCTIONS]** or **[RETURN]**.

FUNCTIONS window icons

DISC INFORMATION



Enter Title: (page 37)
Disc Protection: (page 37)
Erase all programmes: (page 37)
Format: (page 38)
Top Menu: (page 38)
Auto-Play Select: (page 38)
Finalize: (page 38)

TIMER RECORDING



Timer recording (pages 30–32)

SETUP



Settings for the unit and discs: Settings depend on the type of disc (pages 59–61)

JPEG



Album: (page 49)
Slide Show: (page 49)
Copy: (page 50)
Copy all of card: (page 51)
Erase: (page 51)
Protect: (page 51)
Print (DPOF): (page 51)
Others: (page 52)

DIRECT NAVIGATOR



Play: (page 39)
Erase: (page 40)
Enter Title: (page 40)
Properties: (page 40)
Protection: (page 40)
Partial Erase: (page 41)
Divide: (page 41)
Change thumbnail: (page 41)

PLAY



Disc play: (page 20)

RESUME PLAY



Start play from the point you stopped play: (page 21)

TOP PLAY



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

Play will begin with the oldest programme on the disc.

DVD-V

Play will avoid playing the introductory parts and begin playing the contents immediately. (The performance of this function varies from disc to disc.)

SD VIDEO (MPEG4)



Play: (page 53)
Erase all programmes: (page 53)
Format SD CARD: (page 53)
Erase: (page 54)
Enter Title: (page 54)
Properties: (page 54)
Protection: (page 54)

DUBBING (Displayed when the HDD drive is selected.)



Dubbing programmes or play list: (page 34)

PLAY LIST



Playing play lists: (page 43)
Playing Scenes: (page 43)
Edit: (pages 44, 45)
PL Copy: (page 45)
PL Erase: (page 45)
Enter Title: (page 45)
Properties: (page 45)

FLEXIBLE REC



Flexible recording mode: (page 27)

DV AUTO REC



Display the DV input recording screen: (page 55)

TOP MENU

MENU

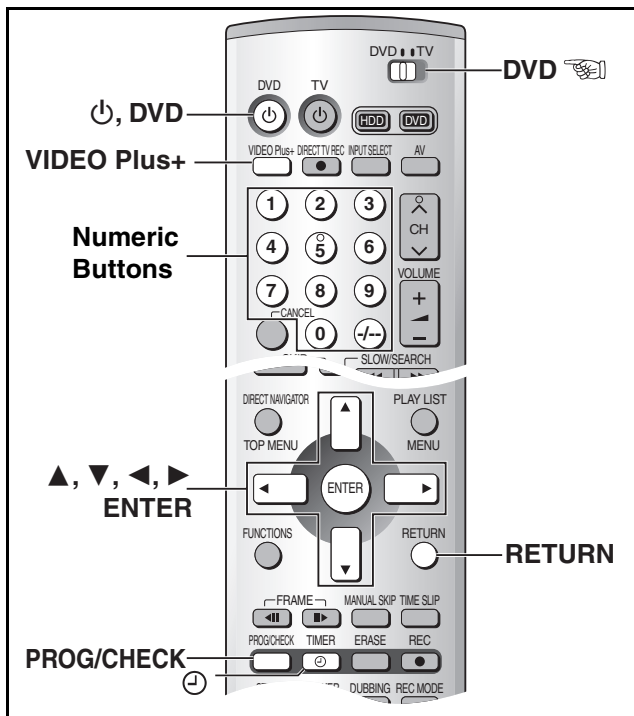


When a menu screen appears on the TV (page 20)

Functions displayed depends on the type of disc.

Some icons will be darken and cannot be selected because of the conditions of discs such as protection, etc.

■ Timer Recording



HDD RAM DVD-R

You can enter up to 32 programmes up to a month in advance.

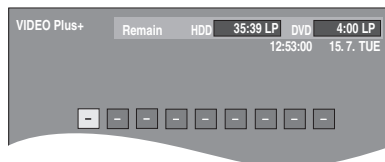
Preparation

- Release protection (disc → page 37, cartridge → page 69). **RAM**
- Confirm there is sufficient empty space for recording on the HDD or disc. (page 26)

Using VIDEO Plus+

You can easily set the unit for a timer recording of a programme by entering the programme's VIDEO Plus+ number, which can be found in the TV sections of newspapers or in TV guides.

1 Press [VIDEO Plus+] button.



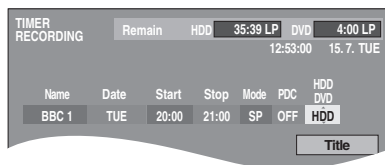
2 Press the numeric buttons to enter the VIDEO Plus+ number.

Press [◀] to move back to correct digit.



3 Press [ENTER].

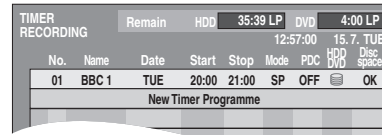
Confirm the programme and correct it if necessary using [▲, ▼, ◀, ▶].



If "—" appears under "Name", use [▲, ▼] to select desired programme position.

- After you have entered the information of a TV station, it is kept in the unit's memory.
- "Invalid Entry" is displayed when you enter the wrong code. Reenter the code.
- To select the recording drive (page 19)
- To enter the title of the programme
Press [◀, ▶] to select "Title" and press [ENTER] (page 36).

4 If the programme is correct Press [ENTER].



5 Press [RETURN].

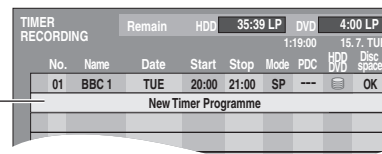
To put unit on recording standby

Press [⏻, TIMER]. (Ensure "⏻" lights on the unit's display.)

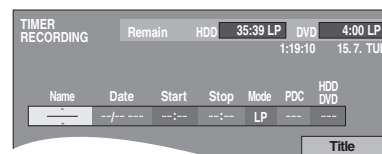
Manual programming

1 Press [PROG/CHECK].

Highlighted line is ready for programming.

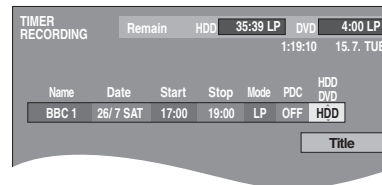


2 Press [ENTER].



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

- You may use the numeric buttons to enter "Name", "Date", "Start" and "Stop".



- **Name** (Programme Position/TV Station Name)

- **Date**

You can also make a daily or weekly programme.

- **Start (start time)/Stop (finish time)**

The time increases or decreases in 30-minute increments if you hold the button.

- **Mode (Recording mode)**

XP↔SP↔LP↔EP↔FR↔XP... (pages 26, 27)

- **PDC**

ON↔OFF (— —) (page 31)

- **HDD/DVD**

Specify the recording drive.

- **RENEW (Auto Renewal Recording)** **HDD**

Only when you set daily or weekly recording onto HDD.

("Auto Renewal Recording", page 32)

OFF↔ON

- **Title**

Select "Title" and press [ENTER], then refer to page 36 for entering title.

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

- To continue programming:
Repeat steps 2, 3, and 4.

5 Press [RETURN].

To put unit on recording standby

Press [⏻, TIMER]. (Ensure "⏻" lights on the unit's display.)

■ Timer Recording

■ PDC Function

If a TV programme starts earlier or later from original schedule, recording start and stop can synchronize with the actual broadcasting.

Conditions for correct operation of the PDC function:

- The TV station must broadcast PDC signals.
- The programme starting time must be set correctly to the starting time listed in the newspaper/magazine.

To activate the PDC Function:

Use [▲, ▼] to make the “ON” indication appear.

Note

- If the disc is protected (pages 37, 69), the unit switches to standby but does not go on standby for recording. Check the disc carefully.
- If the unit is not put in the timer recording standby mode at the latest 10 minutes before the programme starts, the [⏻] flashes on the unit display. In this case, press the [⏻, TIMER] to put the unit in the timer recording standby mode.
- When recording more than one programme in a row, for HDD and DVD-RAM the first few seconds, and for DVD-R about the first 30 seconds of all programmes from the second one onwards will not be recorded.
- When the unit is carrying out a timer recording:
 - You may utilize playback.
- If the unit is turned on when it is in timer recording standby mode, a message screen will be displayed. When in this state the unit can be used for playback*, SD VIDEO (MPEG4) and JPEG operations, but it is not possible to use the tuner on the unit to view TV broadcasts.

* The unit can only play the currently set TV system if the unit is in timer recording standby mode.



■ Relief Recording

In relief recording:

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

- If the space remaining on the HDD is insufficient, the programme will be recorded onto the HDD as long as possible.
- If there is no disc in the tray or the disc cannot be recorded on, the recording drive will be altered to HDD.
- The recording mode will not be altered.
- You may check which programmes have been recorded by referring to the programme list in Direct Navigator (page 39) on the HDD.
- Relief recording is not activated when recording the programme with PDC and it is extended so that it no longer fits on the disc.

■ To release the unit from recording standby

For example, if you want to record something else before the programme start time:

Press [⏻, TIMER].

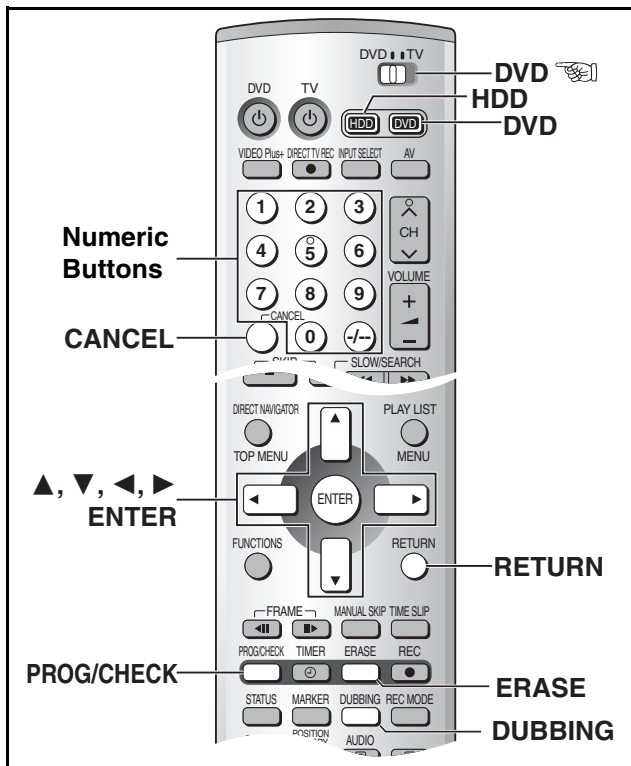
The unit turns on and “⏻” goes out.

- Be sure to press [⏻, TIMER] before the programme start time to put the unit on recording standby. The programme only works if “⏻” is on.

■ To stop recording while a programme is working

Press [⏻, TIMER].

■ Timer Recording



Auto Renewal Recording

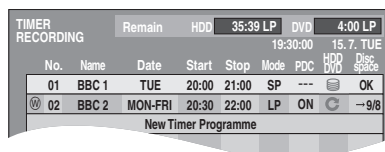
HDD

This is activated only when selecting HDD for the destination of recording.

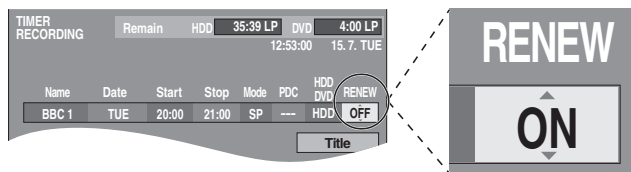
If you record a programme onto HDD repeatedly everyday or every week using timer recording, the unit will record the new programme over the old one.

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

- 1 While the timer recording list is displayed Use [▲, ▼] to select the programme and press [ENTER].



- 2 Select "RENEW" with [◀, ▶].



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

The timer recording list reappears.

Note

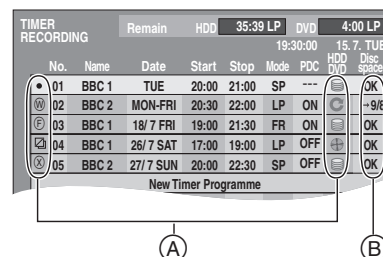
- If a programme set for Auto Renewal Recording is write protected (page 40), the programme will not be overwritten. Instead, the programme set for recording will be saved as a separate programme, and then will be overwritten in the next Auto Renewal Recording.
- When play back the HDD, Auto Renewal Recording will not be carried out. The programme supposed to be renewed will be recorded as a separate programme.
- Play list scenes made from programmes that were set for Auto Renewal Recording are erased along with auto renewal.
- You cannot select auto renewal when "SF", "F", "N" or "E" is selected on "MPEG4 Rec Mode" (page 59).
- When there is not enough space on the HDD, the programme may not be overwritten completely (even if repeating a renewal recording).

Check, change or delete programmes

- 1 Press [PROG/CHECK].

Icon explanations (A)

- Now recording
- W The programme is overlapped.
- F The disc was full. (no enough space)
- Ⓜ The TV programme is not allowed to record by copy-guard.
- ✕ Recording stopped (Dirty disc, etc.)



Auto Renewal Recording HDD

The programme will be automatically overwritten.

Relief Recording

Programmes rerouted to the HDD because of insufficient remaining space

Recording drive: HDD DVD

Disc space (B)

OK: Recordable.

→ (Date): The last day of daily or weekly recording.

! : Recording stopped (no disc or protected disc, etc.)

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

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

e.g.: "5": [0]→[5]

"15": [1]→[5]

- Use [◀, ▶] to move to the page preceding or following the one on display.

- 3 Press [CANCEL] or [ERASE] to delete, or press [ENTER] to change.

The timer recording setting screen appears.

- 4 If you pressed [ENTER] in step 3,

Use [▲, ▼, ▶, ◀] to change and press [ENTER].

- 5 Press [RETURN].

For your reference

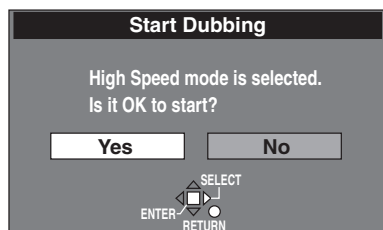
- Programmes that failed to record are not deleted (indicated in gray), but deleted from the list at 4 a.m. the day after tomorrow automatically.

Advanced Operations

One Touch Dubbing

- When playing back programmes and play lists on HDD, they can be dubbed to DVD-RAM or DVD-R. ([HDD] → [RAM] [DVD-R])
- When playing back SD VIDEO (MPEG4) on HDD or DVD-RAM, they can be dubbed to SD Memory Card. ([HDD] [RAM] → [SD])

- 1 During playback programmes, play lists and SD VIDEO (MPEG4) Press [DUBBING].
- 2 Select "Yes" with [◀] and press [ENTER].



To stop dubbing halfway through

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

- Stopping dubbing in High Speed mode partway through will cancel the recording and any data recorded up to that point will be lost. In all other recording modes, if dubbing is stopped halfway through, the record up to that point will be counted as one complete programme. (Once you recorded on DVD-R, the remaining capacity is reduced.)

Note

- This function works while the direct navigator, play list screen or playback list for SD VIDEO (MPEG4) is displayed.
- The recording mode is set as follows. (When the remaining capacity is insufficient, the recording mode is set to FR.)
 - When dubbing to DVD-RAM or SD Memory Card, High Speed mode is activated.
 - In the case of dubbing to DVD-R,
 - When dubbing a programme recorded with setting "DVD-R Rec for High Speed mode" (page 59) to "On" or a Play list created by such programme, High Speed mode is activated.
 - When dubbing a programme recorded with setting "DVD-R Rec for High Speed mode" to "Off", the recording mode in the dubbing source is selected. In the case of play list created by such programme, the recording mode is set to FR.
- It is not possible to activate timer recording during dubbing.
- Programmes with recording limitations (including play lists made from that programmes) cannot be dubbed.

Approximate recording time

When a SD VIDEO (MPEG4) is recorded on Panasonic SD Memory Card

- Not all of the capacity is available for recording or dubbing because the copy right information is also included.
- Upper approximate time is applicable when recording pictures with slow motions and bottom one is applicable when recording pictures with quick motions.

SD Card capacity	MPEG4 Rec Mode			
	SF (Super Fine)	F (Fine)	N (Normal)	E (Economy)
8 MB	1 min. 1 min.	2 min. 2 min.	4 min. 3 min.	9 min. 8 min.
16 MB	2 min. 2 min.	5 min. 4 min.	9 min. 6 min.	20 min. 19 min.
32 MB	5 min. 4 min.	10 min. 9 min.	18 min. 13 min.	43 min. 41 min.
64 MB	10 min. 8 min.	21 min. 19 min.	38 min. 28 min.	1h28min. 1h24min.
128 MB	21 min. 16 min.	43 min. 40 min.	1h18min. 57 min.	2h58min. 2h50min.
256 MB	42 min. 32 min.	1h26min. 1h19min.	2h36min. 1h53min.	5h56min. 5h40min.
512 MB	1h24min. 1h5min.	2h55min. 2h40min.	5h16min. 3h49min.	11h57min. 11h26min.
1 GB	2h43min. 2h6min.	5h37min. 5h9min.	10h47min. 7h21min.	23h0min. 21h59min.
2 GB	5h26min. 4h12min.	11h14min. 10h19min.	20h15min. 14h42min.	46h1min. 43h59min.

- For further information about "SD CARD capacity" and "MPEG4 Rec Mode", refer to page 59.

When dubbing programmes to DVD-RAM or DVD-R (×1-×4) in High Speed mode

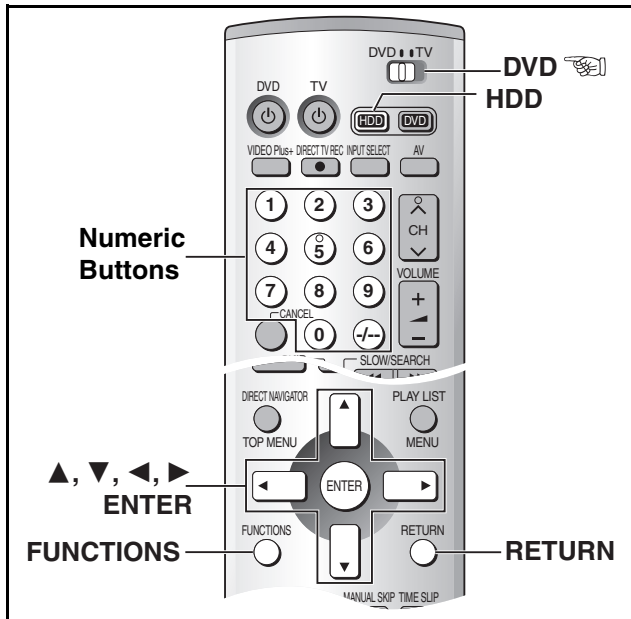
- Record from the HDD onto a DVD-RAM and DVD-R (×4 speed disc) quickly.
- Recording from the HDD to a DVD-RAM or DVD-R cannot be used with images for which only single-generation recording is allowed. When recording these images to a DVD-RAM, the original image on the HDD is erased.

		HDD			
		Recording mode/Recording programme			
		XP/1 hour	SP/2 hour	LP/4 hour	EP/6 hour
A	Recording time	30 min.	30 min.	30 min.	30 min.
	Recording speed	×2	×4	×8	×12
B	Recording time	15 min.	15 min.	15 min.	15 min.
	Recording speed	×4	×8	×16	×24

A DVD-RAM

B DVD-R (×4 speed disc)

Advanced Operations



Dubbing programmes, play list or SD VIDEO

SD CARD HDD RAM DVD-R

Available media

- SD: SD Memory Card, MultiMediaCard
- PC: Mobile hard disk

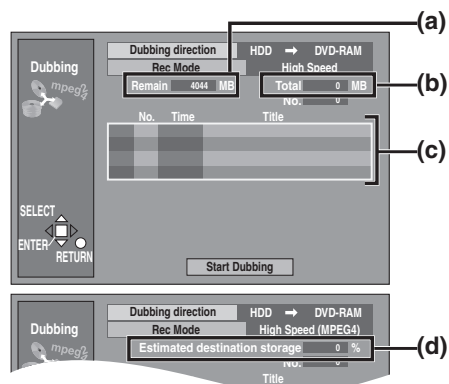
- Programmes, play lists and SD VIDEO (MPEG4) are registered on the list in the order to be dubbed. (They are dubbed up to 250 programmes to HDD, 99 programmes to DVD and 999 SD VIDEO (MPEG4) programmes to HDD/DVD.)
- You can also dub them in High Speed mode. When using DVD-R which is compatible with high speed recording, you can save the time for dubbing.
- Dubbing a play list will create a programme.
- When you dub SD VIDEO (MPEG2) recorded by the equipment such as the future Panasonic video cameras with "High Speed (MPEG2)" on this unit, the SD VIDEO (MPEG2) is converted to the compatible format for this unit, and then you can playback it.

Preparation

- Press [HDD] to select the HDD drive. (page 19)
- Confirm there is sufficient empty space for recording on the HDD. (page 26)
- When dubbing bilingual channel sound to DVD-R or dubbing sound using LPCM, the setting at "Bilingual Audio Selection" is given priority (page 60).

"Dub" and "dubbing" have the same meaning as "copy" in this operating instruction.

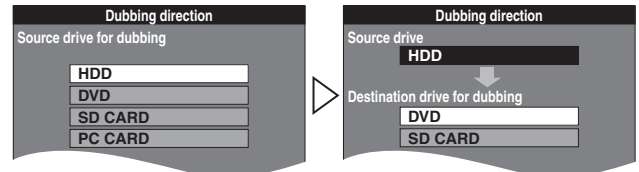
- 1 While stopped
Press [FUNCTIONS]. (page 29)
- 2 Select "DUBBING" with [▲, ▼, ◀, ▶] and press [ENTER].



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

- (a) Available recording capacity
- (b) The total capacity of programme you will dub
 - In "MPEG2→4" mode, this value is based on the estimation with the pictures of the largest information. When dubbing pictures with less motions, you may dub the programme if this exceeds "Total" in some cases. Refer to "When a SD VIDEO (MPEG4) is recorded on Panasonic SD Memory Card" (page 33).
- (c) Dubbing list table
- (d) "Estimated destination storage" (appears only when "High Speed (MPEG4)" is set.):
 - The rate of the SD VIDEO (MPEG4) registered in the dubbing list against the capacity of the dubbing.

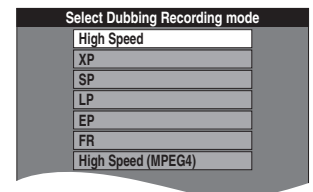
3 Select "Dubbing direction" with [▲, ▼] and press [ENTER].



- (1) Use [▲, ▼] to select the source drive and press [ENTER].
 - When you select the source drive, the possible destination drive is automatically displayed.
- (2) Use [▲, ▼] to select the destination drive and press [ENTER].

4 Select "Rec Mode" with [▲, ▼] and press [ENTER].

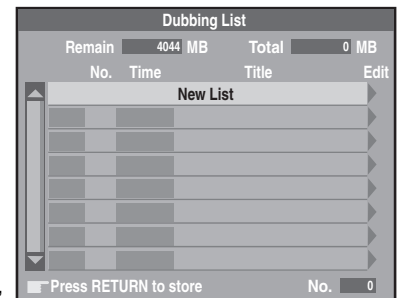
- After selecting "Dubbing direction", the possible recording mode is automatically displayed.



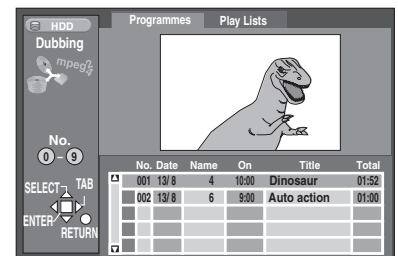
- (1) Use [▲, ▼] to select the recording mode and press [ENTER].

5 Select items for dubbing.

- (1) Use [▲, ▼] to select the dubbing list table and press [ENTER]. Dubbing List appears.
- (2) Use [▲, ▼] to select "New List" and press [ENTER].



- (2) Use [▲, ▼] to select "New List" and press [ENTER]. Dubbing select screen appears.
- (3) Select "Programmes" or "Play Lists" with [◀, ▶].



- When there are folders on mobile hard disk other than displayed, you can move them with [◀◀, SKIP] or [▶▶, SKIP].
- (4) Use [▲, ▼] to select the programme or play list for dubbing and press [ENTER].
 - To register more, repeat steps 5-(2) to 5-(4) (Check that the dubbing list "Total" does not exceed the "Remain" indicated).
 - You can also select the programme or play list with the numeric buttons.

6 Press [RETURN] to store.

- The screen shown in step 2 reappears.

Advanced Operations

7 While the screen in step 2 is displayed

Use [▲, ▼] to select “Start Dubbing” and press [ENTER].

The confirmation screen will be displayed.

Select “Yes” with [◀] and press [ENTER] to start dubbing.

- If “Total” is larger than “Remain”, you cannot start dubbing. (You can start dubbing in “MPEG2→4” mode.)

Note

- For further information on recording limits, refer to “Recording/Dubbing/Moving of a programme” (page 27).
- It is not possible to activate timer recording during dubbing.
- When dubbing programmes or play lists including bilingual broadcasting, select the audio in “Bilingual Audio Selection” (page 60)
 - When dubbing to DVD-R
 - When dubbing in LPCM
 - When dubbing in “MPEG2→4”
- The information such as title is dubbed as it is. (Marker is dubbed only in “High Speed” mode. Protection information is not dubbed in “MPEG2→4”.)
- Select the “TV System” (PAL/NTSC) of the programme you wish to dub. (page 61)
- Regarding the time until dubbing ends (High Speed mode)
 - You can dub Dolby Digital audio programmes in high speed. Dubbing LPCM audio programmes take about ×1 speed.
 - The current progress indicator is corrected each time the program being dubbed changes.
 - When there are programmes mixed with LPCM audio and Dolby Digital audio, the dubbing time display may fluctuate significantly.
 - When dubbing SD VIDEO (MPEG4) programmes, the time display may fluctuate.

Dubbing direction	Recording mode				
	A	B	C	D	E
HDD→DVD (RAM)	○	○	×	○*2	×
HDD→DVD (DVD-R)	○*1	×	×	○*2	×
HDD→SD CARD	×	○	×	×	○*3
DVD (RAM)→HDD	○	○	×	×	×
DVD (RAM)→SD CARD	×	○	×	×	○*3
SD/PC CARD→HDD	×	○	○	×	×
SD/PC CARD→DVD	×	○	○	×	×

- A** High Speed
- B** High Speed (MPEG4)
- C** High Speed (MPEG2)
- D** XP, SP, LP, EP and FR
- E** MPEG2→4

- For PC card, only Mobile hard disc is compatible.

*1 You cannot dub programmes and play lists in High Speed mode without the indication of “▶▶▶”.

Refer to “When dubbing programmes to DVD-RAM or DVD-R (×1–×4) in High Speed mode” (page 33).

*2 If you select the higher recording mode than that of the dubbing source, the picture quality of the dubbed contents cannot be improved. (You can prevent the deterioration of the contents.)

*3 If “MPEG4 Rec Mode” to “Off”, the data cannot be converted, and if it is set to “SF”, you cannot dub to a MultiMediaCard. (page 59)

High Speed:

This mode performs recording at high speed. Using this mode allows you to dub using less time than the actual duration of the programme. Note that it is not possible to view the picture during high speed dubbing.

To add or remove from the dubbing list

While the Dubbing List (step 5-(1)) is displayed

- 1) Use [▲, ▼] to select the dubbing list and press [▶].
- 2) Use [▲, ▼] to select an item and press [ENTER].
 - If you choose “Add”, carry out steps 5-(3) and 5-(4). The item will be added above the programme selected in step 1 of this operation.
 - If you select “Erase” or “Erase All”, a confirmation screen will be displayed. Use [◀, ▶] to select “Yes” or “No” and press [ENTER]. (Return to Dubbing List.)

Note

- On HDD, the items remain on the dubbing list until it is erased. On DVD-RAM, the items are erased when the disc is removed or the power is turned off.
- When erasing the source programme or play list (when recording, erasing or dubbing in the case of SD VIDEO (MPEG4) programme), all dubbing lists are erased.

To stop dubbing halfway through

Keep pressing [RETURN] for 3 or more seconds.

- When stopping dubbing partway through, the contents are dubbed up to the point. In High Speed mode, programmes are erased unless they are completely dubbed. (Once you recorded on DVD-R, the remaining capacity is reduced.)

Icon explanations:

➡ (Move):

This programme is moved due to the recording limitation. (page 27)

! :

This programme or play list includes still pictures.

- You cannot dub still pictures in the programme.
- You cannot convert SD VIDEO (MPEG4).

⏮ :

Programmes recorded with setting “DVD-R Rec for High Speed mode” to “On” or play lists created by such programmes. (page 59)

- When the programmes or play lists apply to the following cases,

“⏮” is not indicated.

- The play list which has different scenes in recording mode
- The play list including scenes created by multiple programmes (recorded by “FR” recording mode)
- The play list including multiple audio (e.g. Dolby Digital and LPCM is mixed.)
- The programme which is repeated partial erasure.

⏮ :

Programmes with recording limitation

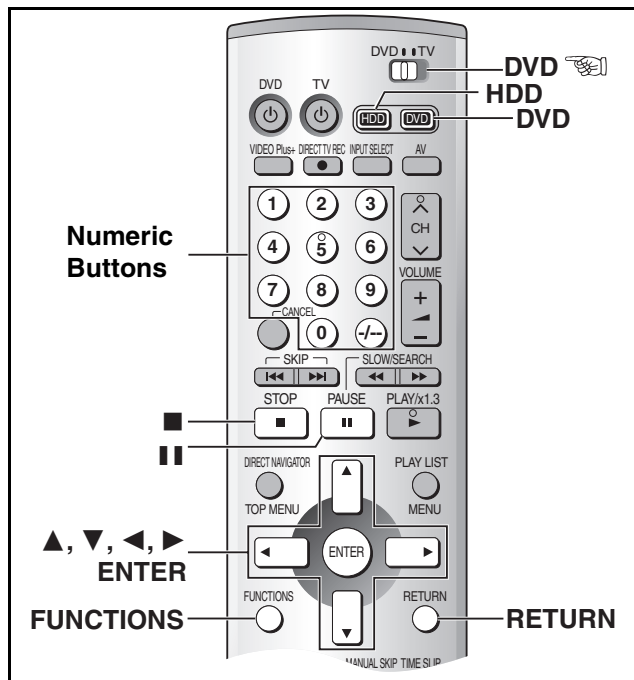
- If a programme with recording limitations is dubbed from HDD to DVD-RAM, the programme is moved (i.e. it is moved to another storage media). The original programme (including play list scenes made from that programme) are erased. However, if the programme with recording limitation is protected, it cannot be moved.
- Programmes with recording limitations and play lists cannot be registered on the same dubbing list.
- Play lists made from programmes with recording limitations cannot be dubbed.

N/P (N: NTSC, P: PAL):

Displayed when you dubbed using a different encoding system from that of the TV system currently selected on the unit.

- To play back a programme dubbed using a different encoding system from that of the TV system currently selected, alter the TV system setting on this unit to suit (page 61).

Advanced Operations



Entering titles

SD CARD HDD RAM DVD-R

You can:

- Title discs with the DISC INFORMATION in the FUNCTIONS window (page 37).
- Title programmes with the DIRECT NAVIGATOR (page 40).
- Title play lists with the PLAY LIST screen (page 45).
- Title programmes while setting timer recording (page 30).
- Title folders of still pictures (page 49).
- Title programmes of SD VIDEO (MPEG4) (page 54).

You can enter up to:

- 64 characters (HDD, DVD-RAM)
 - A maximum of 44 characters is possible when inputting a title from the timer recording menu.
- 40 characters for a disc title (DVD-R)
- 44 characters for a programme title (DVD-R)
- 36 characters for a folder title of still pictures
- 44 characters for a programme of SD VIDEO (MPEG4)

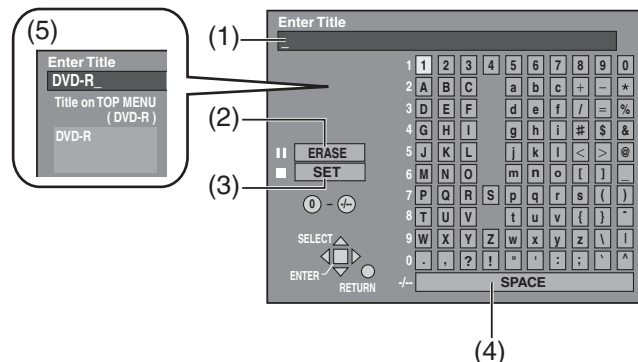
Preparation

- Insert a recorded disc.
- Release protection.
 - Disc (page 37), programme (page 40), cartridge (page 69)
- Write Protect (page 11) **SD CARD**

1 After the titling screen appears

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

- You can enter the following characters.



- (1) This window shows the text you have entered (Title field)
- (2) ERASE [**■**, PAUSE]
- (3) SET (when you have finished entering text) [**■**, STOP]
- (4) SPACE
- (5) The title displayed on the menu screen after finalizing of the DVD-R appears. **DVD-R**

To enter other characters

Repeat step 1.

2 Press [**■**, STOP].

The title is entered and the screen disappears.

- (You can also finish entering the title by selecting "SET" with [**▲**, **▼**, **◀**, **▶**] and pressing [**ENTER**].)

Regarding entering characters

- To erase characters
 - Press [**■**, PAUSE]. (You can also erase characters by select "ERASE" with [**▲**, **▼**, **◀**, **▶**] and pressing [**ENTER**].)
- To enter a space
 - You may enter a space by pressing [**-/-**] and then press [**ENTER**].

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**].
- You may enter a space by pressing [**-/-**] and then [**ENTER**].



To correct a character

- 1) Use [**▲**, **▼**, **◀**, **▶**] to select the character you want to correct in the title field.
- 2) Press [**■**, PAUSE]. (You can also erase characters by using [**▲**, **▼**, **◀**, **▶**] to select "ERASE" and pressing [**ENTER**].)
- 3) Use [**▲**, **▼**, **◀**, **▶**] to select the correct character and press [**ENTER**].

Note

- If you enter a long title, it is partially shown in the programme list (page 39) and play list screen (page 43).
- Still picture folder titles
 - Titles are saved in the "TITLE.DVD" folder and can only be displayed on this unit.
 - Input is not possible if the destination lacks sufficient space or has exceeded the maximum number of allowable files.
 - The title may not appear correctly if input was done using other equipment.

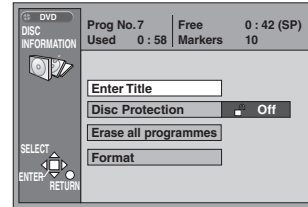
Advanced Operations

DISC INFORMATION

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

- 1** Press **[HDD]** or **[DVD]** to select the drive. (page 19)
- 2** While stopped
Press **[FUNCTIONS]**. (page 29)
- 3** Select “DISC INFORMATION” with **[▲, ▼, ◀, ▶]** and press **[ENTER]**.
- 4** Use **[▲, ▼]** to select desired item and press **[ENTER]**.

e.g., DVD-RAM



e.g., DVD-R



After this operation, skip to the item and follow.

- **To stop partway**
Press **[RETURN]**.

► Enter Title

RAM **DVD-R**

Each disc can be given a different title.

- 5** Enter the title. (page 36)

Note

- You cannot give DVD-R titles once they have been finalized.

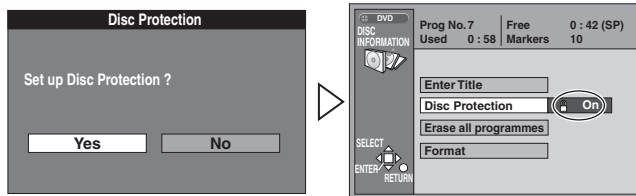
► Disc Protection

RAM

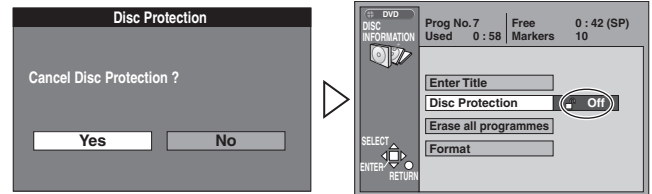
This allows you to protect discs from accidental erasure.
This allows you to release disc protection.

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

- To protect



- To release protection

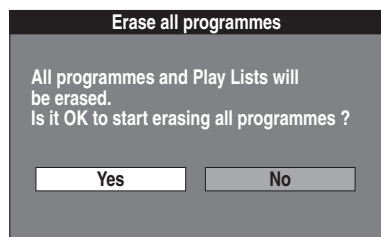


► Erase all programmes

HDD **RAM**

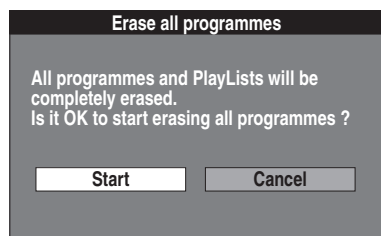
All programmes and play lists created from them will be erased irretrievably when you use this procedure. Check carefully before proceeding.

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



- 6** Select “Start” with **[◀]** and press **[ENTER]**.

All programmes and play lists are erased.



Note

- Computer data can not be erased.
- The disc title will also be erased.
- If protection is active on even one programme (page 40), you cannot erase all programmes.

For your reference

- Nothing will be erased if the disc is write-protected. (pages 37, 69)

Advanced Operations

► Format

HDD

All contents on the HDD will be erased.

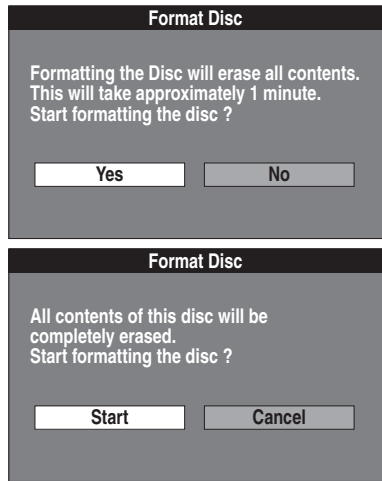
RAM

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

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

- 6** Select “Start” with [◀] and press [ENTER].

- Formatting starts. The message “Formatting is complete” appears when formatting is finished.



All recordings are irretrievably erased when a disc is formatted. Ensure that there are no programmes to keep in the disc before formatting.

Note

- **Do not turn the unit off or disconnect the AC mains lead while the message “Formatting the disc” is on the TV.** This can render the disc unusable. (This can take up to max. 1 minute (HDD)/max. 70 minutes (DVD-RAM). If it takes more than 2 minutes, you can cancel formatting by pressing [RETURN]. The disc must be reformatted if you do this.)
- All data on the disc/HDD is erased when it is formatted, including recordings made with this unit and still pictures (JPEG). However, the data written by a computer are not erased.

For your reference

- DVD-R and CD-R/RW cannot be formatted.

RAM

- The disc cannot be formatted if the write protect tab (page 69) is switched to “PROTECT”. Release the protection to continue.
- The message “Unable to format” appears when trying to format discs this unit cannot use.

► Top Menu

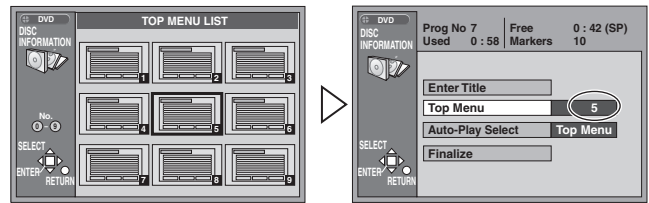
DVD-R

After finalizing, the background (9 types) that will be displayed for the top menu on DVD video equipment can be selected.

- 5** Use [▲, ▼, ◀, ▶] to select a desired background and press [ENTER].

Note

- If DVD-R recorded by other Panasonic recorder is finalized by this unit, the background may not be changed to the picture selected on “Top Menu”.
- You can change the picture displayed on the Top Menu. (“Change thumbnail”, page 41)



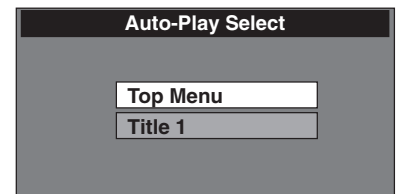
► Auto-Play Select

DVD-R

After finalizing, the screen that will be displayed for the beginning on DVD video equipment can be selected.

- 5** Use [▲, ▼] to select desired item and press [ENTER].

- When “Title 1” is selected, the “Top Menu” screen is not displayed, and it play from the beginning of the disk.



► Finalize

DVD-R

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

The menu you create with this unit can also be used on the player.

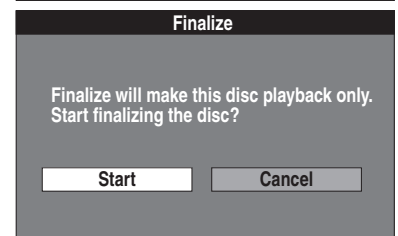
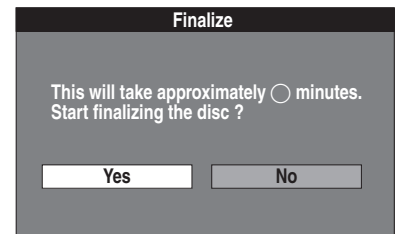
- 5** Select “Yes” with [◀] and press [ENTER].

- 6** Select “Start” with [◀] and press [ENTER].

- Finalizing starts. The message “Finalizing is finished” appears when finalizing is finished.

Note

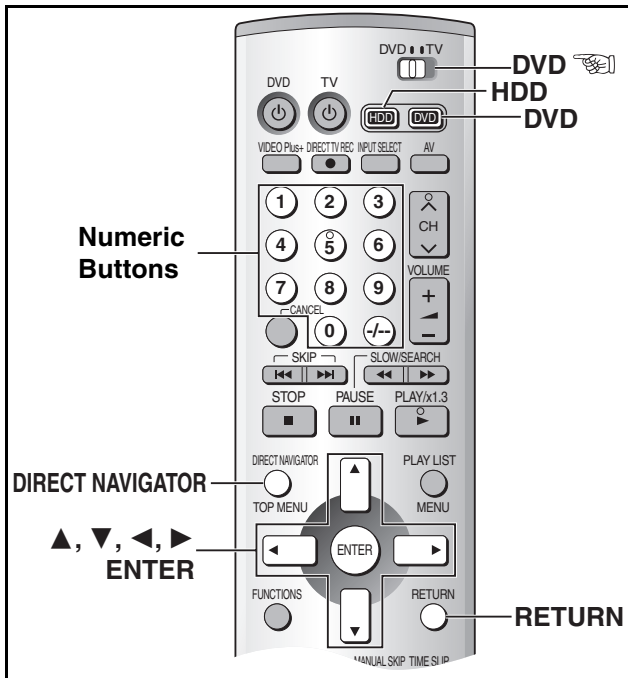
- Do not turn the unit off or disconnect the AC mains lead while the message “Finalizing the Disc” is on the TV. This can render the disc unusable.
- You can only finalize DVD-R that were recorded on this unit.
- You cannot record on DVD-R that have been finalized.
- Finalizing takes up to about 15 minutes.
- The programme is paused for a few seconds at the joint between the programmes.
- Programmes directly recorded on DVD-R, or programmes dubbed for 5 minutes or more in the mode except High Speed mode are divided as “Chapter” per about 5 minutes.
- When dubbed in High Speed mode, markers and scene segments (play lists) are treated as chapter cutoff points.



Advanced Operations

Using the DIRECT NAVIGATOR

Selecting programmes to play



HDD RAM DVD-R

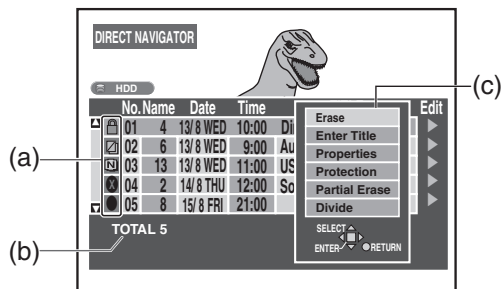
A list of programmes is created as you record them. You can use this list to find the programmes you want to play.

- The lists of programmes recorded in the HDD and the DVD are displayed separately. It is necessary to select the playback drive (HDD/DVD) you wish.

Preparation

- For the HDD:
 - Confirm that something has been recorded on the HDD.
- For the disc:
 - Insert a disc that has been recorded on.

About the programme list



(a) Write-protected (page 40):

Copy-protected:

- Displayed when you have recorded a programme that has copy protection from broadcast.

NTSC: /PAL:

Displayed when you recorded using a different encoding system from that of the TV system currently selected on the unit.

- Alter the TV system setting on this unit to suit (page 61).

Unable to play: X

- Displayed if you cannot play the programme.

Currently recording: ●

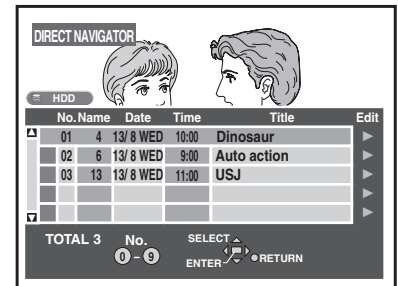
Recorded on the HDD since there is no disc in the tray or there is not sufficient empty space for recording on the disc (Relief Recording) HDD:

Programmes that are permitted to be recorded only once

HDD:

1 Press [HDD] or [DVD] to select the playback drive. (page 19)

2 Press [DIRECT NAVIGATOR].



3 Use [▲, ▼] to select the programme you want to watch and press [ENTER].

- You can also select programmes by entering a 3-digit (HDD)/2-digit (DVD-RAM/DVD-R) number with the numeric buttons. If you enter a number larger than the total number of programmes, the last programme is selected.

e.g.: HDD programmes

"5": [0]→[0]→[5]

"15": [0]→[1]→[5]

DVD-RAM/DVD-R programmes

"5": [0]→[5]

"15": [1]→[5]

To clear the programme list

Press [RETURN].

For your reference

- The direct navigator works while stopped, playing or recording.
- Titles are only displayed if you have given the programme a title.
- In case of a TV station with Teletext information, the title of the TV programme is entered automatically, provided the "Title page" is correctly set. (page 64)

(b) Total number of programmes

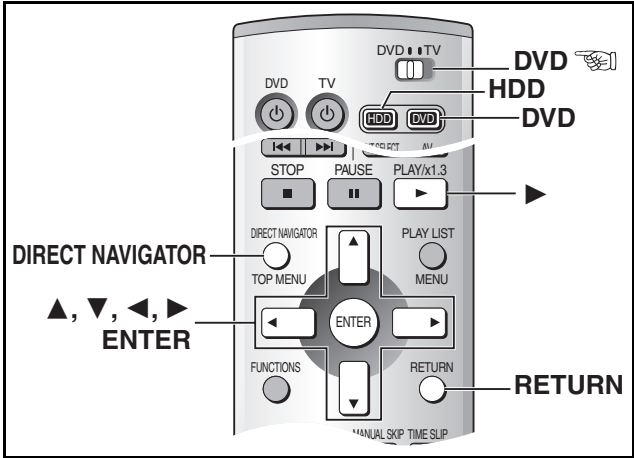
(c) Sub menu

- Displayed when you use [▶]. (You can see this during simultaneous recording and play, but you are unable to operate it.)

For your reference

- The list can show up to 250 programmes on HDD, 99 on one disc that you have recorded.

DIRECT NAVIGATOR



For your reference

- When using DVD-R, “Protection”, “Partial Erase” and “Divide” are not displayed in the submenu.
- Release protection (disc → page 37, cartridge → page 69). **RAM**

- When the programme is protected (page 40), you can only access “Properties” and “Protection”. Release the protection to access other items. **HDD** **RAM**

- 1** Press [HDD] or [DVD] to select the playback drive. (page 19)
- 2** Press [DIRECT NAVIGATOR].
- 3** Use [▲, ▼] to select desired programme.
- 4** Use [▶] so the submenu appears.
- 5** Use [▲, ▼] to select desired item and press [ENTER].

Erase
Enter Title
Properties
Protection
Partial Erase
Divide

- **To stop partway**
Press [RETURN].

► Erase

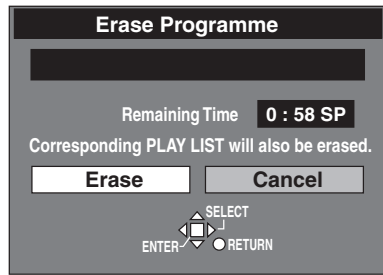
HDD RAM DVD-R

The programme is irretrievably erased when you use this procedure and cannot be retrieved. Check the programme carefully before erasing to ensure it isn't one you want to keep.

- 6** Select “Erase” with [◀] and press [ENTER].

For your reference Corresponding PLAY LIST will also be erased.

- The disc's available recording time may not increase after erasing short programmes.
- The available recording time on DVD-R does not increase when you erase programmes.



► Enter Title

HDD RAM DVD-R

- 6 Enter or edit the title.** (page 36)

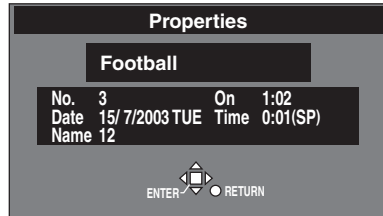
For your reference

- The full title is shown in the “Properties” screen, but if you enter a long title, only part of it is shown in the programme list.

► Properties

HDD RAM DVD-R

You can check the contents of a selected programme.



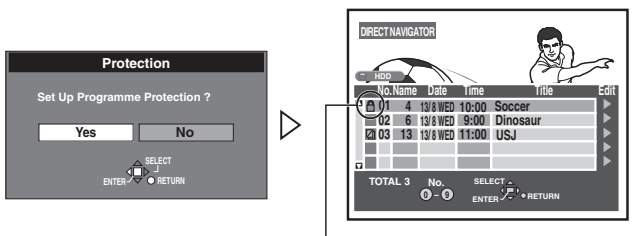
► Protection

HDD **RAM** ●To quit protection

You can prevent accidental erasure of programmes by write-protecting them.

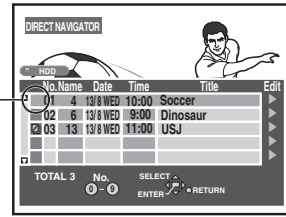
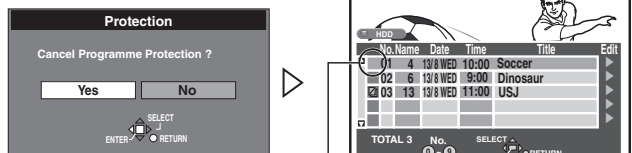
- 6** Select “Yes” with [**◀**] and press [**ENTER**].

- To protect



The padlock mark appears.

- To quit protection



The padlock mark disappears.

For your reference

Programmes will be erased even if they are protected if you format the disc with DISC INFORMATION (page 38).

■ Advanced Operations

► Partial Erase

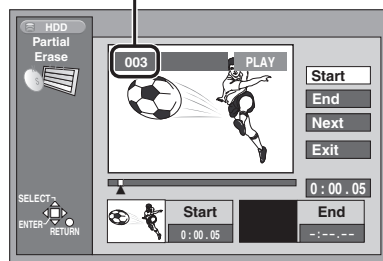
HDD RAM

The specified parts of the programme are erased irretrievably when you use this procedure.

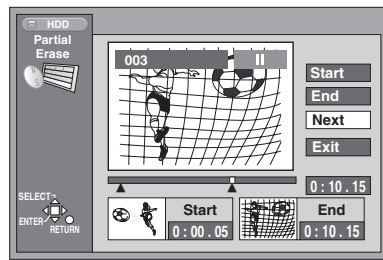
Check the programme carefully before erasing.

- 6 Press [ENTER] at the start point of the part you want to erase.** ("To find the desired points", page 42)

Current programme number



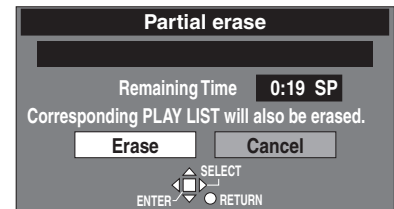
- 7 Press [ENTER] at the end point of the part you want to erase.**



- 8 Select "Exit" with [▲, ▼] and press [ENTER].**

- 9 Select "Erase" with [◀] and press [ENTER].**

- Play lists created with the erased part are also erased.



■ To erase another part of the same programme

After storing the point in "Start" and "End", select "Next" in step 8 and perform step 9, then repeat steps 6–9.

For your reference

- Use search and slow-motion to find the points.
- You may not be able to specify start and end points within 3 seconds of each other.
- You cannot specify start and end points if the picture recorded is stalled.
- The unit pauses when the programme reached to the end during this procedure.
- The disc's available recording time may not increase after erasing short parts of programmes.

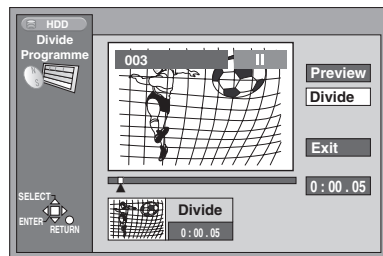
► Divide

HDD RAM

You can divide a selected programme into two.

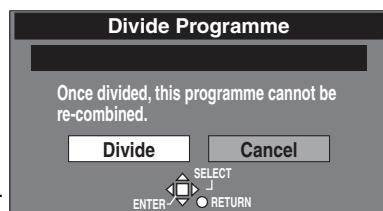
You must make sure of dividing a programme because it cannot be recovered after the procedure.

- 6 Press [ENTER] at the point you want to divide the programme.** ("To find the desired points", page 42)



- 7 Select "Exit" with [▲, ▼] and press [ENTER].**

- 8 Select "Divide" with [◀] and press [ENTER].**
- The programme is divided at the point.



■ To change the point to divide

Select "Divide" in step 6, then repeat steps 6–8.

■ To check the division point

By selecting "Preview" in step 6 and pressing [ENTER], play will begin from 10 seconds prior to the division point to 10 seconds after the division point.

You can make sure that the division point is appropriate.

Note

- A little portion of the recording directly preceding the division point may be lost.

For your reference

- The divided programmes retain the title of the original programme. They also remain CPRM property (page 10) of the original.
- Use search and slow-motion to find the points.
- 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 programme is more than 250 (HDD)/99 (DVD-RAM).

► Change thumbnail

DVD-R

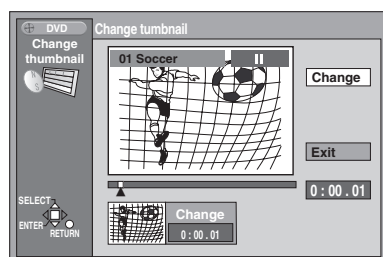
You can select the still picture to be displayed after finalizing.

Usually, the top scene of the programme (scene of 1 second after starting) appears. However, you can select your favourite scene in the programme.

- 6 Press [PLAY/×1.3] to play.**

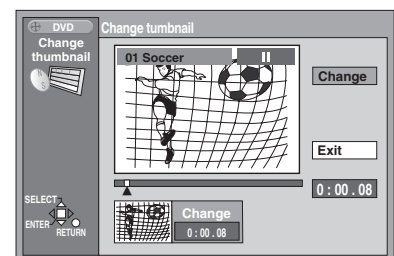
- 7 Press [ENTER] at the point you want to display.**

("To find the desired points", page 42)



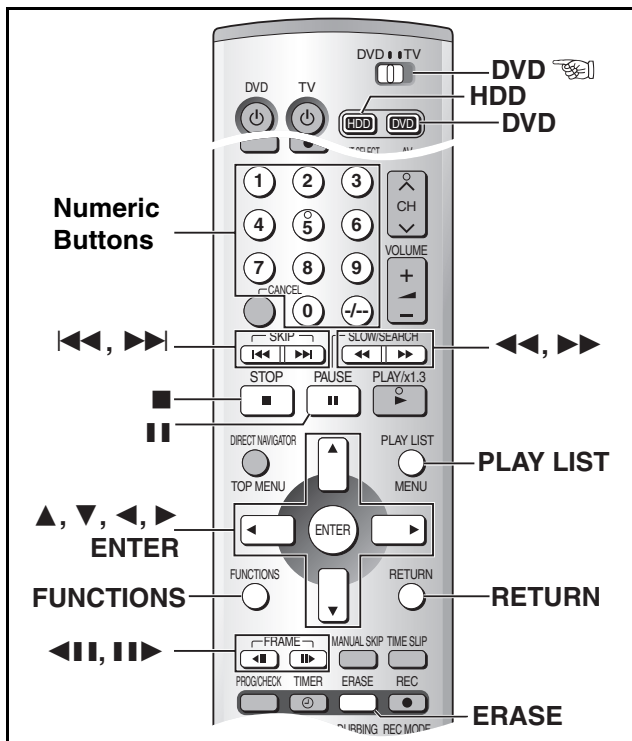
- 8 Press [ENTER] to change.**

- A scene of display is changed at the point.
- You cannot select the top and end of the programme.



Advanced Operations

Creating play lists



HDD **RAM**

You can create a play list by gathering your favorite scenes from your recordings. You can also edit the created play lists.

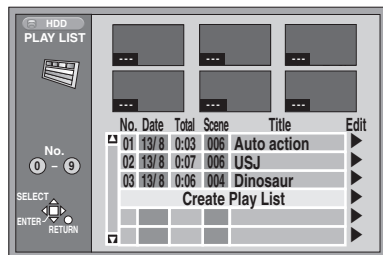
Preparation

- The lists of programmes recorded in the HDD and the DVD are displayed separately. It is necessary to select the playback drive (HDD/DVD) you wish. (page 19)
- Release protection (disc → page 37, cartridge → page 69). **RAM**

1 While stopped

Press **[PLAY LIST]**.

2 Press **[▲, ▼]** to select “Create Play List” and press **[ENTER]**.



3 Press **[ENTER]** at the start point.

HDD:

The location of the whole programme's start point

DVD-RAM:

The location of the whole disc's start point

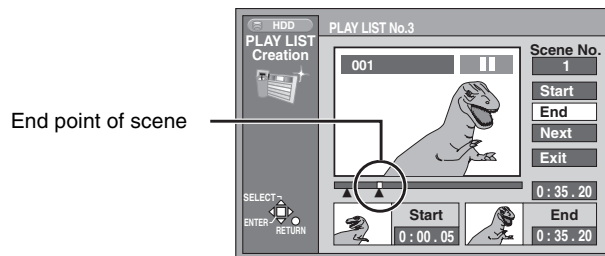


To find the desired points

You can take the following operation.

- Playback – Press **[PLAY/x1.3]**.
- Cue/review – Press **[◀, SLOW/SEARCH]**, **[▶, SLOW/SEARCH]** while playing.
- Slow-motion – Press **[■, PAUSE]** and then **[◀, SLOW/SEARCH]**, **[▶, SLOW/SEARCH]**.
- Frame step – Press **[■, PAUSE]** and then **[◀, FRAME]**, **[▶, FRAME]** or **[◀, ▶]** (Cursor).
- You can select other programmes with **[◀, SKIP]** and **[▶, SKIP]**.

4 Press **[ENTER]** at the end point.



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

The play list screen appears.

To stop partway through

Press **[RETURN]**.

To clear the play list screen

Press **[RETURN]**.

To specify other scene

After storing the point in “Start” and “End”, select “Next” after step 4 and press **[ENTER]**, then repeat steps 3 and 4.

For your reference

- One disc can have a maximum of 99 play lists and 999 scenes. These numbers may be reduced under some conditions.
- Play lists must be made in accordance with the encoding system currently selected in “TV System”, i.e. either PAL or NTSC (page 61).
- You may not be able to specify start and end points if the material is still pictures recorded on other equipment.
- The play list created from the programmes recorded with setting “DVD-R Rec for High Speed mode” (page 59) to “On” can be dubbed in High Speed mode. However, you cannot dub the play lists created from the following materials.
 - The play list which has different scenes in recording mode
 - The play list including scenes created by multiple programmes (recorded by “FR” recording mode)
 - The play list including multiple audio (e.g. Dolby Digital and LPCM is mixed.)

Advanced Operations

Using PLAY LIST

HDD RAM

Preparation

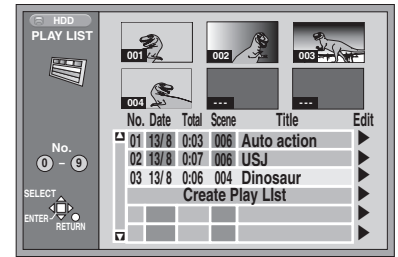
Create play lists first (page 42).

- 1 Press [HDD] or [DVD] to select the playback drive. (page 19)
- 2 Press [PLAY LIST].

Scenes are not displayed if you have not yet created a play list with the disc.

To clear the play list screen

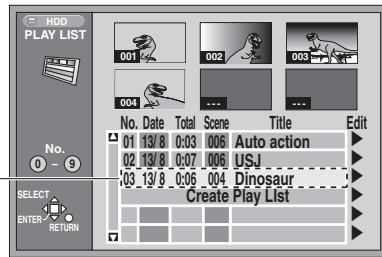
Press [RETURN].



▶ Playing play lists

- 3 Use [▲, ▼] to select the desired play list and press [ENTER].

The play list you select is played.



To stop play list play

Press [■, STOP]. (The play list appears.)

For your reference

- You can also select play lists from the list in step 3 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 play lists, the last play list is selected.

▶ Playing Scenes

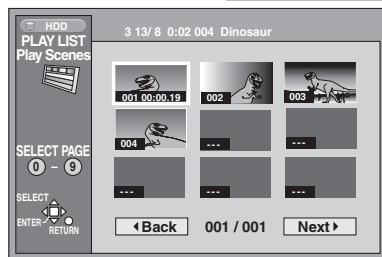
- 3 Use [▲, ▼] to select the play list containing desired scenes and press [▶].

Play Scenes
Edit
PL Copy
PL Erase
Enter Title
Properties

- 4 Select "Play Scenes" with [▲, ▼] and press [ENTER].

- 5 Use [▲, ▼, ◀, ▶] to select desired scenes and press [ENTER].

- The scene you select is played.



About the play list scene screen

- (a) Play list information

This shows the play list number, date of creation (date/month), total play time, and the number of scenes it contains and title (if entered).

- (b) Scenes

- (c) ☒

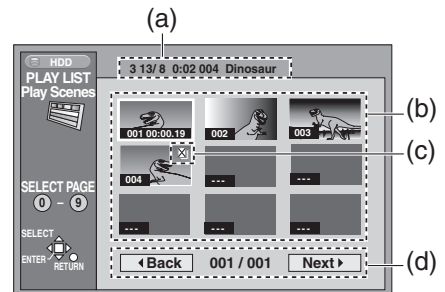
This picture illustration may be shown in the play list scene display on the HDD. This indicates pictures that are permitted to be recorded only once.

- (d) Turning pages

If there are more than 9 scenes, use [▲, ▼, ◀, ▶] to select "◀ Back" or "Next ▶" and press [ENTER] to move to the previous page or next page. You can also enter the 3-digit number with the numeric buttons.

e.g.: "5": [0]→[0]→[5]

"15": [0]→[1]→[5]



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

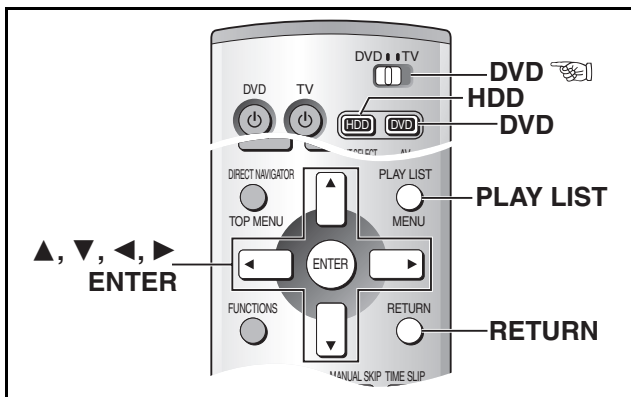
- 1) Press [ERASE].

- A confirmation message will be displayed.

- 2) Use [◀] to select "Yes" and press [ENTER].

■ Advanced Operations

Using PLAY LIST to edit programmes



HDD RAM

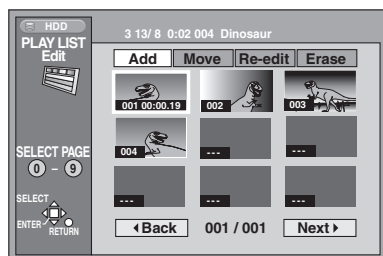
For your reference

- You can fast-forward, rewind, pause, and slow-motion while playing scenes just as you can during normal play.
- Release protection (disc → page 37, cartridge → page 69). **RAM**

► Edit

► Add

- Use [**◀**, **▶**] to select “Add” and press [**ENTER**].



- Use [**▲**, **▼**, **◀**, **▶**] to select one scene after the position to add another and press [**ENTER**].

- Press [**HDD**] or [**DVD**] to select the playback drive. (page 19)
- Press [**PLAY LIST**].
- Use [**▲**, **▼**] to select the play list you want to edit and press [**▶**].
- Use [**▲**, **▼**] to select desired item and press [**ENTER**].

Play Scenes

Edit

PL Copy

PL Erase

Enter Title

Properties

- To stop partway
Press [**RETURN**].

- Press [**ENTER**] at the start point of the scene. (“To find the desired points”, page 42)
- Press [**ENTER**] at the end point of the scene.
- Select “Exit” with [**▲**, **▼**] and press [**ENTER**].



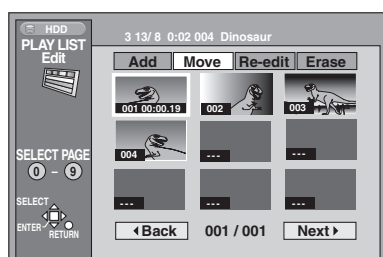
The new scene is inserted before the highlighted scene.

■ To add other scenes

- Use [**▲**, **▼**] after step 8 to select “Next” and press [**ENTER**].
- Repeat steps 7, and 8.

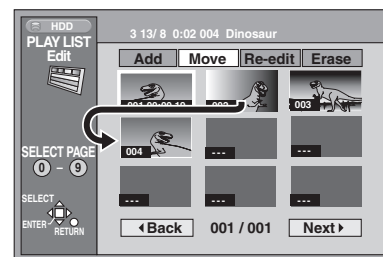
► Move

- Select “Move” with [**◀**, **▶**] and press [**ENTER**].



- Use [**▲**, **▼**, **◀**, **▶**] to select the scene to be moved and press [**ENTER**].

- Use [**▲**, **▼**, **◀**, **▶**] to select the scene currently in the position to which you want to move the scene and press [**ENTER**].



- The scene is moved and inserted before the highlighted scene.

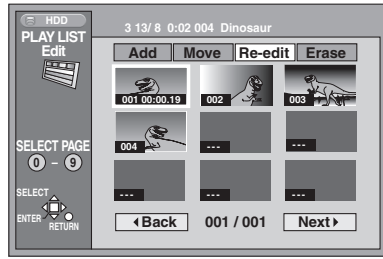
■ To move another scenes

Repeat steps 6 and 7.

Advanced Operations

► Re-edit

- 5 Select "Re-edit" with [**◀**, **▶**] and press [**ENTER**].
- 6 Use [**▲**, **▼**, **◀**, **▶**] to select the scene you want to re-edit and press [**ENTER**].
- 7 Press [**ENTER**] at the start point of the scene. ("To find the desired points", page 42)



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

- 9 Select "Exit" with [**▲**, **▼**] and press [**ENTER**].



The re-edit scene replaces the old one.

■ To re-edit another scenes

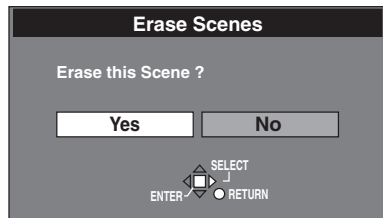
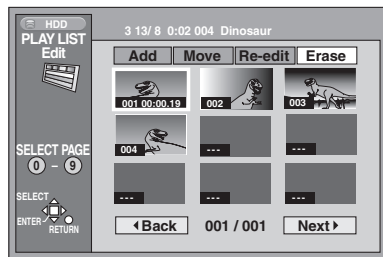
- (1) Select "Next" or "Back" with [**▲**, **▼**] after step 8 and press [**ENTER**] until you find the scene you want to re-edit.
- (2) Repeat steps 7 to 8 to continue re-editing other scenes.

For your reference

- You cannot specify an end point before a start point.

► Erase

- 5 Select "Erase" with [**◀**, **▶**] and press [**ENTER**].
- 6 Use [**▲**, **▼**, **◀**, **▶**] to select the scene to be erased and press [**ENTER**].



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

The selected scene is erased from the play list.

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

■ To erase other scenes

Repeat steps 6 and 7.

Note

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

► PL Copy

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

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



► PL Erase

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

The play list is erased.

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



► Enter Title

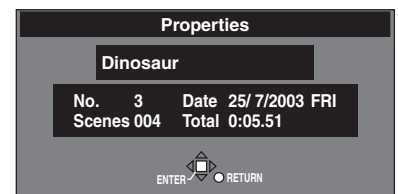
- 5 Enter the title. (page 36)

For your reference

- The full title is shown in the Properties screen, but if you enter a long title, only part of it is shown in the play list screen.

► Properties

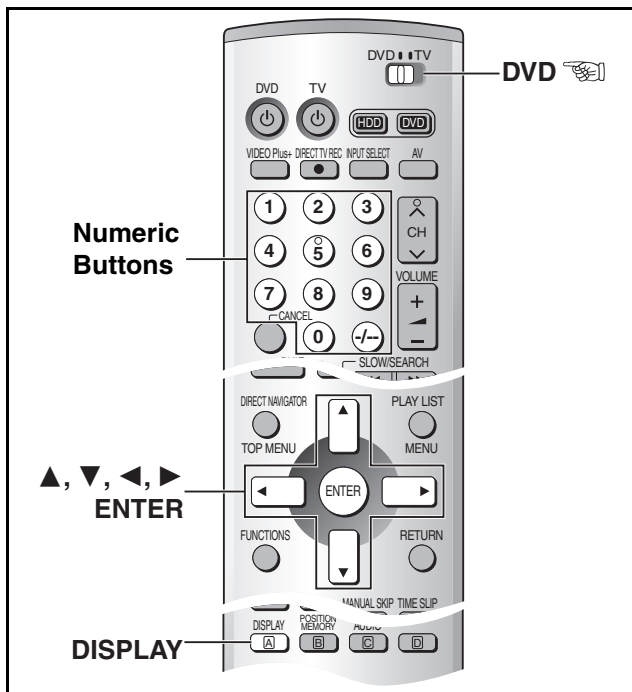
Play list information (e.g., time and date is shown.)



- Even if you erase the play lists or the scenes, the original programme is not erased.

Advanced Operations

Using DISPLAY menus



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

Remote control only

DISPLAY menus contain information about the disc or unit. These menus allow you to perform following operations:

- You can change the subtitle and the angle when using DVD-Video.
- You can enjoy the repeat play.
- You can change the setting of picture and sound when playing back on the HDD or the DVD.

Disc menu

HDD RAM DVD-R DVD-A DVD-V VCD

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

Soundtrack

Soundtrack language DVD-A DVD-V

(See [A] Soundtrack/Subtitle language)

Change the number to select a soundtrack.

Audio attribute HDD RAM DVD-R DVD-A DVD-V

(See [B] Audio attributes)

Karaoke vocals, on and off (Karaoke DVD-V only)

Solo: ON ↔ OFF

Duet: OFF ↔ V1 + V2 ↔ V1 ↔ V2 ↔ OFF...

Subtitle

Subtitle language DVD-A DVD-V

(See [A] Soundtrack/Subtitle language)

Change the number to select a subtitle language.

Subtitles on/off HDD RAM DVD-R DVD-A DVD-V

Turn the subtitles on or off.

Angle DVD-A DVD-V

Change the number to select an angle.

STILL-P DVD-A

Page

Still picture number

- When "Return" is displayed, select it and press [ENTER] to return to the default page.
- When "RANDOM" is displayed, select it and press [ENTER], the picture changes randomly each time you press [ENTER].

Slide show (Display only)

Common procedures

1 Press [DISPLAY].

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

Menu

Item

Setting

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

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

4 Select the setting with [▲, ▼].

- Some options require different operations. Follow the on-screen instructions and the instructions described later.

When you are finished

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.

Audio channel HDD RAM VCD

Select the audio channel. (page 22)

PBC VCD

Playback control on/off

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

[A] Soundtrack/Subtitle language

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

[B] Audio attributes

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

k (kHz): Sampling frequency

b (bit): Number of bits

ch (channel): Number of channels

For your reference

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

Advanced Operations

► Play menu

HDD RAM DVD-R DVD-A DVD-V **CD VCD MP3**

Disc	Repeat Play	OFF
Play	Marker	1-10 *****
Picture		
Sound		

■ Repeat play

HDD RAM DVD-R DVD-A DVD-V **CD VCD MP3**

During play

Use [▲, ▼].

Disc	Repeat Play	OFF
Play	Marker	1-10 *****
Picture		
Sound		

The display changes as illustrated.

HDD RAM DVD-R
PRG (PROGRAMME) ↔ ALL ↔ OFF

DVD-V
Chapter ↔ Title ↔ OFF

CD VCD
Track ↔ ALL ↔ OFF

DVD-A MP3
Track ↔ Group ↔ OFF

Repeat play (See below)

You can play a programme, play list, chapter, title, or track repeatedly.

Marker (page 23)

You can mark points on a disc to return to later.

While playing a play list

HDD RAM
PL (PLAY LIST) ↔ OFF

If the Video CD has playback control

- 1) While stopped (the screen saver is on the TV), press the numeric buttons to select a track. (page 21)
- 2) Do the above operation.



Note

- Repeat play may not work as desired with some discs.
- Repeat play does not work if the disc's elapsed play time is not shown on the unit's display.
- You cannot use repeat play to an entire DVD-Audio, DVD-Video, MP3 discs or all the play lists on a DVD-RAM.
- While playing back, you can set the repeat play. When stopped, the repeat play operation is cancelled.
- [DUBBING] or [ERASE] does not work while in repeat play mode.

► Picture menu

HDD RAM DVD-R DVD-A DVD-V **VCD**

Disc	MODE	Normal
Play	DNR	ON
Picture		
Sound		

MODE

To select the picture mode during play

Normal: Normal mode

Soft: Soft mode

Fine: Fine mode

Cinema: Cinema mode (mellows movie, enhances detail in dark scenes.)

DNR

You can turn on and off the recommended settings for DNR.
ON ↔ OFF

► Sound menu

HDD RAM DVD-R DVD-A DVD-V

Disc	V. S. S.	OFF
Play	Dialog Enhancer	OFF
Picture		
Sound		

V.S.S.

HDD RAM DVD-R DVD-V

(Only for Dolby Digital with 2 or more channels)

Enjoy a surround-like effect if you are using 2 front speakers only. The effect is broadened and sound seems to come from virtual speakers on either side if the disc has surround signals recorded on it.

Natural ↔ Emphasis ↔ OFF ↔ Natural...

Note

- V.S.S. will not work, or will have less effect, with some discs, even if you select "Natural" or "Emphasis".
- Turn V.S.S. off if it causes distortion.

Dialog Enhancer

DVD-A DVD-V

(Dolby Digital, 3-channel or over only, including a center channel)

The volume of the center channel is raised to make dialog easier to hear.

ON ↔ OFF

Advanced Operations

Playing still pictures

Inserting/Removing the SD/PC Card

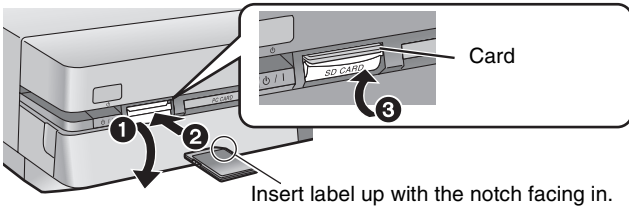
SD CARD

Only insert or remove the SD/PC card after turning the unit off.

- When the card indicator in the unit display is flashing, the card is being read from or written to. **Do not turn off the power or remove the card. Such action may result in malfunction or loss of the card's contents.**
- It is not possible to open the disc tray while the still pictures screen is displayed.

SD card slot

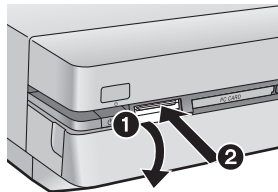
Inserting the card



- 1 Press down.
- 2 Turn the label up with the notch facing in.
- 3 Lift the tab until it clicks into place flush with card.

Removing the card

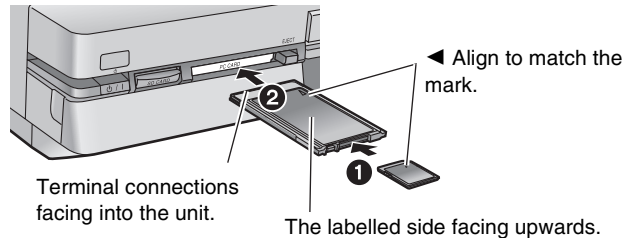
- 1 Press down.
 - 2 Press on the center of the card.
- Raise the guard after removing the card.



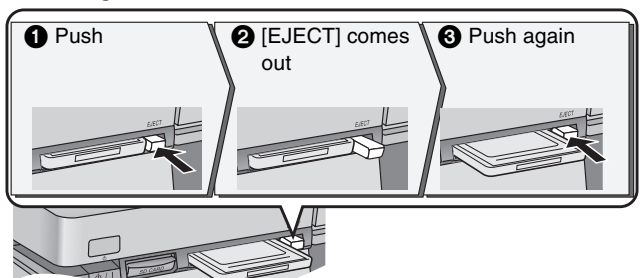
PC card slot

Inserting the card

- Hold the edge of the card and insert until it fits into place.
- Some cards need the adaptor. (page 11)
- When using the adaptor, do not press the card directly.

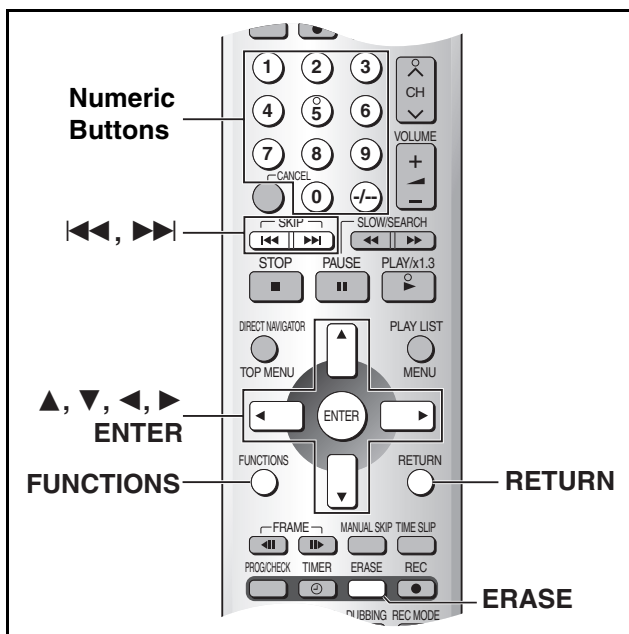


Removing the card



- If using the adaptor, remove the adaptor and card together.
- If the eject button does not come out, press the card in once more and then repeat steps 1–3 to remove the PC card.

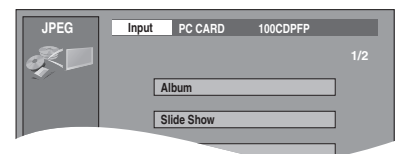
Selecting the folder (Input)



SD CARD HDD RAM

- 1 While stopped
Press [FUNCTIONS]. (page 29)
- 2 Select "JPEG" with [▲, ▼, ◀, ▶] and press [ENTER].

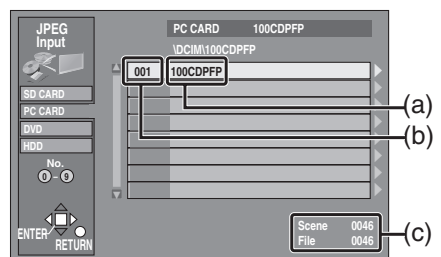
3 Check if "Input" is selected and press [ENTER].



- A list of the valid folders in the drive appears.

- (a) Folder name
- (b) Folder number
- (c) Numbers* of scenes (still pictures) and files in the selected folder

* They don't include numbers in the folders lower than the folder selected currently.



4 Press [◀] and [▲, ▼] to select the drive (SD CARD/PC CARD/DVD/HDD) and press [▶].

5 Use [▲, ▼] to select the still picture folder.

- If there are folders other than displayed, you can move to them with [◀◀, SKIP] or [▶▶, SKIP]. ("Folder structure", page 12)

6 Press [ENTER].

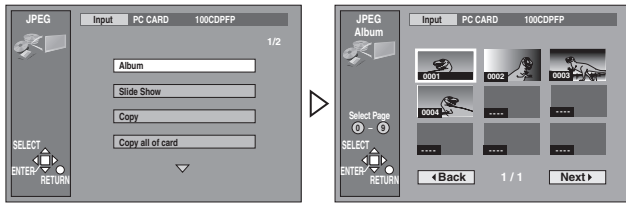
Advanced Operations

► Displaying still pictures (Album)

SD **CARD** **HDD** **RAM**

You can display a list of the still pictures or display pictures one by one from any folder existing on the card, HDD or DVD-RAM.

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



■ To display still pictures one by one

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

- The selected still picture is displayed in full size.

- You can also select a page of still pictures with the numeric buttons.

e.g.: “2”: [0] → [0] → [2]

“12”: [0] → [1] → [2]

- If there are more than 9 still pictures, select “Next ▶” with [▲, ▼, ▶] and press [ENTER]. Select “◀ Back” to move back.
- While in the Slide Show, it is possible to perform this function.

■ To select the next or previous still picture

While in still picture display, use [◀, ▶].

[▶] : next still picture

[◀] : previous still picture

The still picture changes every time the button is pressed.

■ To stop still picture display

Press [RETURN]. (The still picture list containing the picture you first selected will be displayed.)

► To display still pictures one by one with constant interval (Slide Show)

SD **CARD** **HDD** **RAM**

The still pictures in the folder selected will be displayed one by one with a constant interval.

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

- The still pictures in the folder selected are displayed in numerical order.

■ To change the display interval (page 52)

■ To select the next or previous still picture

While in still picture display, use [◀, ▶].

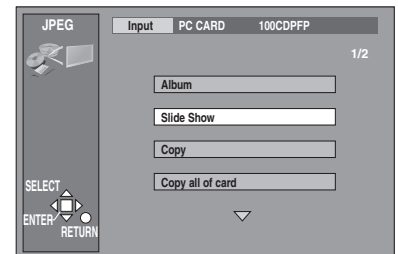
[▶] : next still picture

[◀] : previous still picture

The still picture changes every time the button is pressed.

■ To stop slide show

Press [RETURN]. (Menu screen appears.)



To erase still pictures

(Still pictures are erased irretrievably by this procedure.)

While in still picture display

- 1) Press [ERASE].
- 2) Select “Erase” with [◀, ▶] and press [ENTER].

Note

- While in the Slide Show, it is possible to perform this function.

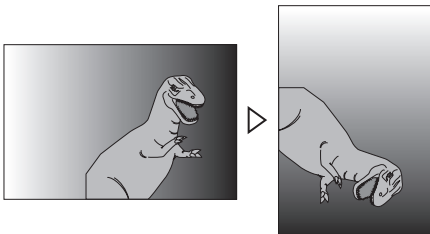
SD **CARD** **RAM**

- When the card is protected (page 11) or the disc is protected (pages 37, 69), it is not possible to erase the still pictures.

To rotate still picture

While in still picture display

- 1) Press [ENTER].
- 2) Select “ROTATE RIGHT” or “ROTATE LEFT” with [▲, ▼] and press [ENTER].



- Whole of the still picture is rotated and displayed.
- Rotation information will not be stored.

Note

- While in the Slide Show, it is possible to perform this function.

To display information about the still pictures

While in still picture display, press [ENTER].

(Date, folder number, file number and number of pages are displayed.)

Note

- While in the Slide Show, it is possible to perform this function.

To give a folder a title

It is possible to enter up to 36 characters.

After selecting the still picture folder for display (step 5 of “Selecting the folder (Input)”, page 48),

- 1) Select “Folder title” with [▶] and press [ENTER].
- 2) Enter the title. (page 36)

Note

- Titles inputted using this unit will not be displayed on other equipment.
- Folder titles entered using this unit will only be displayed using this unit. Folders entered using this unit are written to the TITLE.DVD file.
- If there is not enough space for the entry or if the limit for the number of files has been exceeded (page 12), the title cannot be entered.

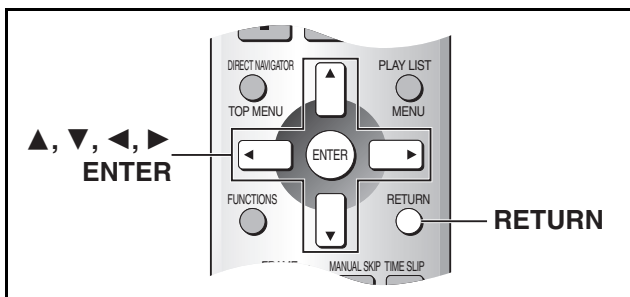
SD **CARD** **RAM**

- When the card is protected (page 11) or the disc is protected (pages 37, 69), it is not possible to erase the still pictures.

■ Advanced Operations

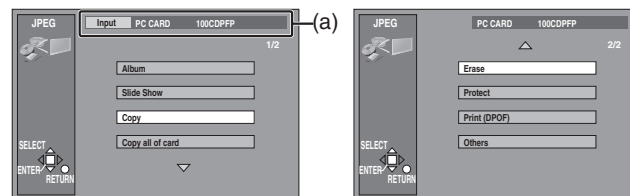
Editing still pictures

Common procedures



You cannot access “Copy”, “Copy all of card”, “Erase”, “Protect”, “Print (DPOF)” and “Format” when the card is write-protected (page 11) or the disc is protected (pages 37, 69). Release the protection to use these functions.

- 1** Select the still picture folder for edit (step 1–6 of “Selecting the folder (Input)”, page 48).
- 2** Use [▲, ▼] to select desired item and press [ENTER].



(a) Folder that is selected currently

- To stop partway**
Press [RETURN].

Select a desired folder or still pictures

■ To select still pictures one by one

Use [▲, ▼, ◀, ▶] to select a still picture and press [ENTER]. (A check mark ☒ appears on the still picture.)

- Repeat this if you copy more than one still picture.

■ To select all the still pictures in the folder

Select “Folder” or “Whole” with [▲, ▼, ◀, ▶] and press [ENTER].

(A check mark ☒ appears on the folder’s name; check marks inputted separately will be erased.)

To cancel check marks:

Use [▲, ▼, ◀, ▶] to select the folder or still picture with the check mark and press [ENTER].

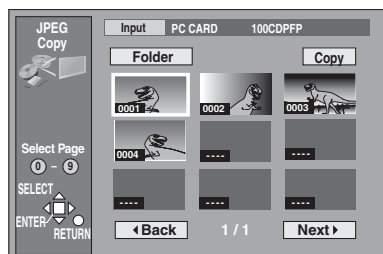
► Copy

SD **CARD** **HDD** **RAM**

You can copy the whole folder or selected still pictures to PC card, HDD or DVD-RAM. (maximum 300 folders, 3000 files)

3 Select a desired folder or still pictures.

(“Select a desired folder or still pictures”, See above)



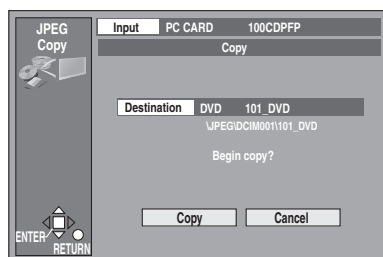
4 Select “Copy” with [▲, ▼, ◀, ▶] and press [ENTER].

- The confirmation screen appears.

5 Select the destination drive.

While the confirmation screen is displayed,

- (1) Select “Destination” with [▲, ▼] and press [ENTER].
- (2) Use [◀, ▶, ▲, ▼] to select the drive.
- (3) Use [▶, ▲, ▼] to select the folder and press [ENTER].



to select the folder and press [ENTER].

- Some folders (※ of page 12) cannot be copied to.

6 Select “Copy” with [▼, ◀, ▶] and press [ENTER].

- Copying still pictures begins.

For your reference

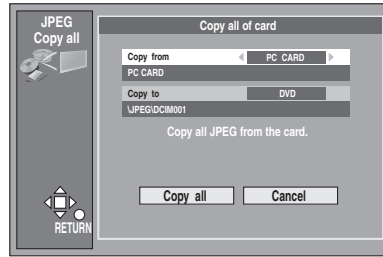
- When there is no folder in the destination drive, a new folder will be created.
- When there is a folder in the destination drive, copying will continue from the last of the existing still pictures.
- When copying a folder, any files in the folder besides the still pictures are also copied.
- Folders lower than the folder to be copied will not be copied.
- If the space on the destination drive runs out or the number of files/folders to be copied exceeds the maximum, copying will stop partway through.
- If no title has been entered for the folder at the destination drive, the title from the copying source will be entered. It is recommended entering the title at the copying source.
- After copying, it may take some time to download the copying source information.
- Print (DPOF) number setting (page 51) is not transferred.

Advanced Operations

► Copy all of card

SD CARD

You can copy the all contents of the card to HDD or DVD-RAM. (maximum of 300 folders, 3000 files)



3 Confirm that

“Copy from” is selected and [◀, ▶] use to select “SD CARD” or “PC CARD”

4 Confirm that “Copy to” is selected and use [◀, ▶] to select “HDD” or “DVD”.

5 Select “Copy all” with [▼, ▶] and press [ENTER].

- All still pictures are copied, and the screen shown in step 4 reappears.

For your reference

- A new folder will be created in the destination drive.
- All compatible files in the folder are copied even if not still pictures.
- Folders lower than the folder to be copied will not be copied.
- If the space on the destination drive runs out or the number of files/folders to be copied exceeds the maximum, copying will stop partway through.
- After copying, it may take some time to download the copying source information.
- Print (DPOF) number setting (page 51) is not transferred.

Note

- Still pictures are copied, but invalid files and folders will not copied. (page 12)

► Erase

SD CARD HDD RAM

You can erase the whole folders or selected still pictures.

Once activated, materials including protected still pictures cannot be recovered. Check it carefully before proceeding.

3 Select a desired folder or still pictures.

(“Select a desired folder or still pictures”, page 50)

4 Select “Erase” with [▲, ▼, ▶] and press [ENTER].

- The confirmation screen appears.

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

- Selected still pictures are erased, and the still picture select screen reappears.

For your reference

- When you erase folders, files other than still pictures in the folder are also erased.
- Folders lower than the folder to be erased will not be erased.
- To erase files other than still pictures, select the folder containing the file and erase.

► Protect

SD CARD HDD RAM

You can set/release protection for whole folders or for individual still pictures.

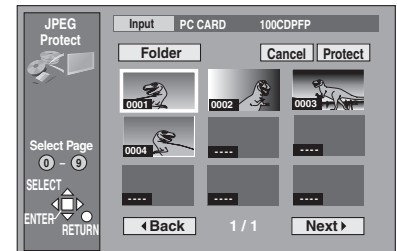
3 Select a desired folder or still pictures. (“Select a desired folder or still pictures”, page 50)

4 Use [▲, ▼, ▶] to select “Protect”/“Cancel” and press [ENTER].

- The confirmation screen appears.

5 Use [◀] to select “Yes” and press [ENTER].

- The padlock mark appears/disappears on the selected folder or still picture.



► Print (DPOF)

SD CARD

You can select a whole folder or individual pictures for printing and specify the number of prints to be made (maximum 999 files).

3 Select a desired folder or still pictures.

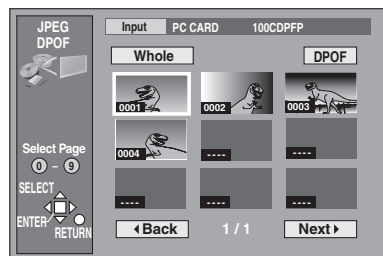
(“Select a desired folder or still pictures”, page 50)

4 Select “DPOF” with [▲, ▼, ▶] and press [ENTER].

- The confirmation screen appears.

5 Confirm that “Number of prints” is selected and use [◀, ▶] to set number of pages (0 to 9).

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



- The DPOF mark appears if you set one or more pictures to print.



■ To change print (DPOF) settings

While the JPEG DPOF screen is displayed.

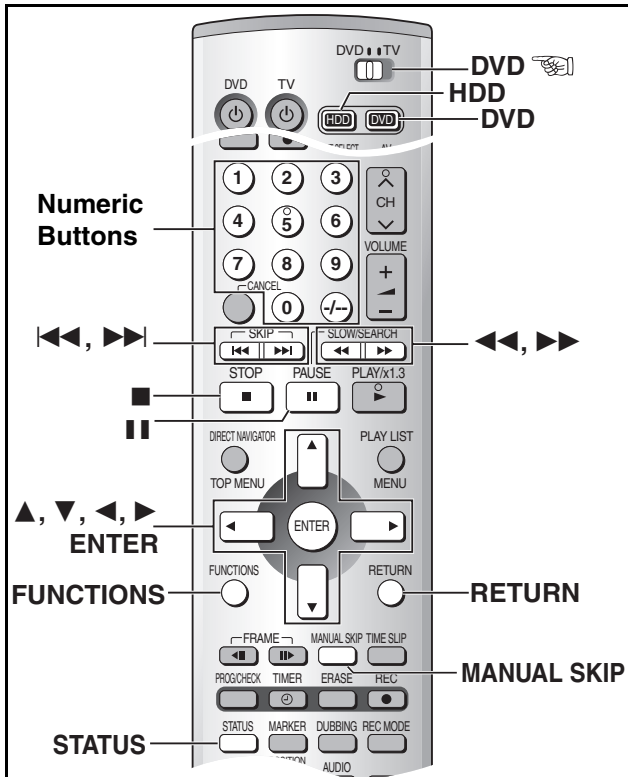
- 1) Use [▲, ▼, ▶] to select “Whole” or a still picture with DPOF mark and press [ENTER].
- 2) Select “DPOF” with [▲, ▼, ▶] and press [ENTER].
- 3) Use [◀, ▶] to change the print setting
 - The print setting will be cancelled if you set number of pages to “0”.
- 4) Select “Set” with [▲, ▼, ▶] and press [ENTER].

For your reference

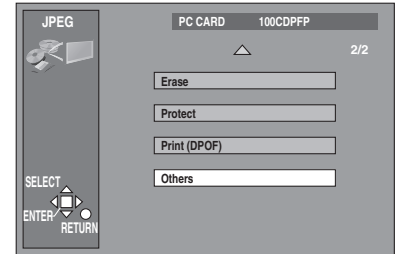
- Settings cannot be made for folders and files not in accordance with DCF standards.
- Print settings (DPOF) made here may not be viewable on other equipment.
- Settings cannot be made if there is no remaining space on the SD/PC Card.
- All settings made on other equipment will be cancelled except the number of prints.

Advanced Operations

Others



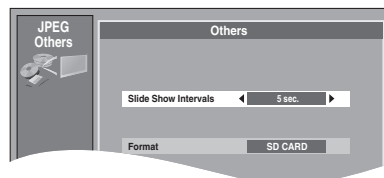
- 1 While stopped
Press [FUNCTIONS]. (page 29)
- 2 Select "JPEG" with [▲, ▼, ◀, ▶] and press [ENTER].
- 3 Select "Others" with [▼] and press [ENTER].



Slide Show Intervals

SD CARD HDD RAM

You can set the display interval of slide show. (page 49)



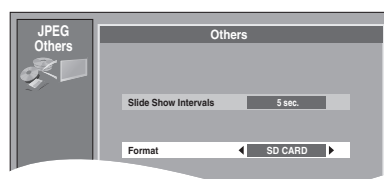
- 4 Confirm that "Slide Show Intervals" is selected and use [◀, ▶] to select the desired timing between still pictures (0–30 seconds) (in units of 1 second).
- 5 Press [ENTER].

Format

SD CARD

You can erase all still pictures in the SD/PC cards.

Once activated, recorded contents (including protected still pictures and computer data) will be completely erased. Check it carefully before proceeding.



- 4 Select "Format" with [▲, ▼] and use [◀, ▶] to select "SD CARD" or "PC CARD" and then press [ENTER].

• The confirmation screen appears.

- 5 Select "Yes" with [◀] and press [ENTER].
• The confirmation screen appears.
- 6 Select "Start" with [◀] and press [ENTER].
Format begins.
- 7 Press [ENTER] to complete the procedure.

Note

- The cards formatted on this unit may not be usable on other equipment.

Advanced Operations

Editing SD VIDEO (MPEG4) programmes

You can organize the recorded programme by erasing or other operation.

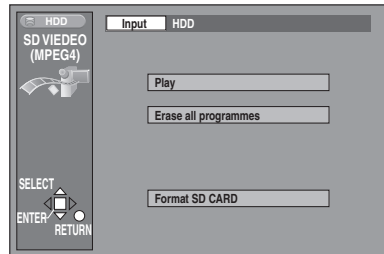
- Check available cards (page 11).

Preparation

- Release protection (disc → page 37, cartridge → page 69, card → page 11).
- Insert a disc or card (pages 19, 48)

- 1 While stopped, Press [FUNCTIONS]. (page 29)

- 2 Select "SD VIDEO (MPEG4)" with [▲, ▼, ◀, ▶] and press [ENTER].



- 3 Check if "Input" is selected and press [ENTER].

- 4 Select the drive (HDD/DVD/SD CARD/PC CARD) with [▲, ▼] and press [ENTER].

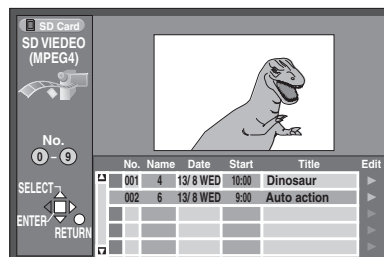
- 5 Use [▲, ▼] to select a desired item and press [ENTER].

■ To stop it halfway
Press [RETURN].

► Play

SD CARD HDD RAM

- 6 Use [▲, ▼] to select the desired programme.
- 7 Press [ENTER] to play.



- The picture is enlarged according to the display frame in this unit (320×240). Therefore, the aspect ratio may differ from that of the original picture.
- You can also select the programme by entering a 3-digit number with the numeric buttons.
- When there are many folders on Mobile hard disk other than displayed, you can move to them with [◀◀, SKIP] or [▶▶, SKIP].
- The recording date may differ from that of the original data.
- In case of a TV station with Teletext information, the title of the TV programme is entered automatically, provided the "Title page" is correctly set. (page 64)
- In case of a TV station with Teletext information, it may take over 30 minutes to get the title or may fail to get.

Icon explanation

- 🔒 The programme is not allowed to record by copy-guard.
- ✕ The programme cannot be played.
- 🔊 The audio cannot be output in this programme.
- 📄 The title cannot be entered on this programme.

► Erase all programmes

SD HDD RAM

- 6 Select "Yes" with [◀] and press [ENTER].
- 7 Select "Start" with [◀] and press [ENTER].

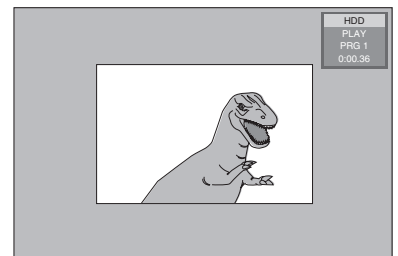
All MPEG4 programmes are erased.

For your reference

- Keep pressing [RETURN] for 3 seconds or more to cancel. (The programmes are erased until this unit recognizes the cancellation.)
- When All erase is carried out, the files which are not compatible with this unit may be erased.

The following operation is possible on the SD VIDEO (MPEG4) playback screen.

- To stop: Press [■, STOP].
- To pause: Press [⏸, PAUSE].
- For Fast forward or rewind (SEARCH): Press [◀◀, SLOW/SEARCH] or [▶▶, SLOW/SEARCH].
 - When pressing these buttons, only the time display goes forward or backward while a part of the SD VIDEO (MPEG4) is displayed as a still picture.
 - There are 3 search speeds. Each press increases the search speed.
- To skip: Press [◀◀, SKIP] or [▶▶, SKIP]. (page21)
- For manual skip: Press [MANUAL SKIP]. (page22)
- To erase: Press [ERASE], then select "Erase" with [◀] and press [ENTER].
- To dub: "One Touch Dubbing", page 33.



- You can turn on and off the indication on the upper right of the screen by [STATUS].

For your reference

When playing back SD VIDEO (MPEG4), the recording mode cannot be displayed because the bit rate is changed according to the picture quality. You can check the bit rate of the recorded programme in "Properties" (page 54).

► Format SD CARD

SD

To erase all of contents of the card or to use unformatted card.

- 6 Select "Yes" with [◀] and press [ENTER].
- 7 Select "Start" with [◀] and press [ENTER].

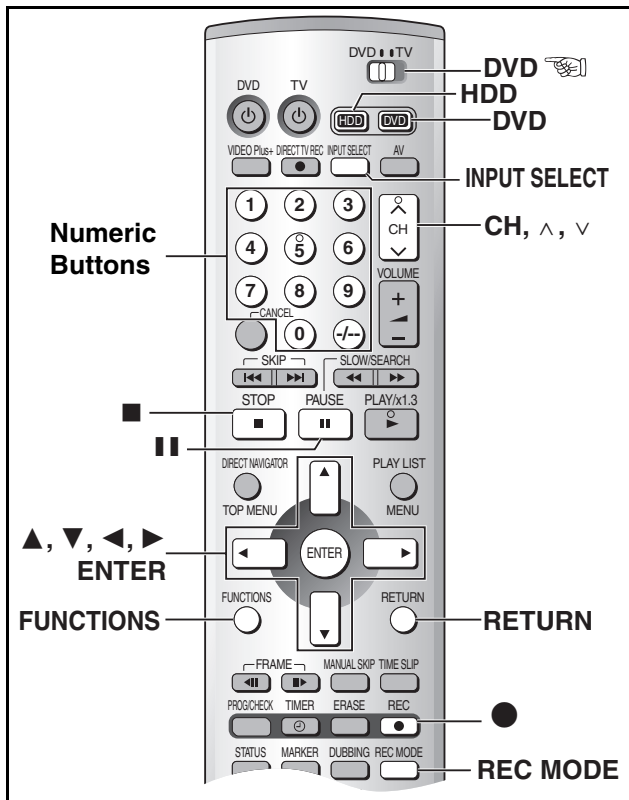
- Formatting starts.

For your reference

- Do not turn the unit off or disconnect the AC mains lead until the ending message (only in All Erase and SD Card format) appears. The card may be disabled.
- Once erasing and formatting are carried out, materials including the data from a computer cannot be recovered. Check them carefully before proceeding. (When formatting in SD Card format programme protect is set on them, all programmes are erased even if they are protected.)

Advanced Operations

Using Play to edit programmes



1 Select the desired programme for edit (step 1–6 of “Play”, page 53).

2 Press [▶] so the submenu appears.

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

Erase
Enter Title
Properties
Protection

▶ Erase

SD HDD RAM

4 Select “Erase” with [◀] and press [ENTER].

• When erase is carried out, the files which are not compatible with this unit may be erased.

▶ Enter Title

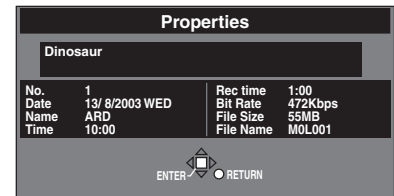
SD HDD RAM

4 Enter or edit the title. (page 36)

▶ Properties

SD CARD HDD RAM

You can check the contents of a selected programme.



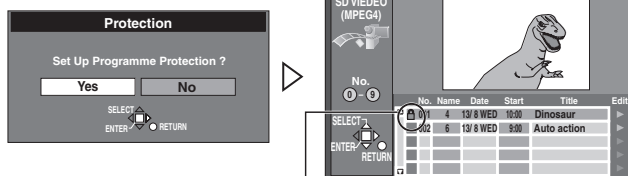
▶ Protection

SD HDD RAM

You can prevent accidental erasure of programmes by write-protecting them.

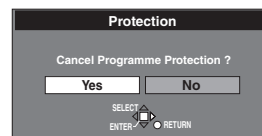
4 Select “Yes” with [◀] and press [ENTER].

• To protection

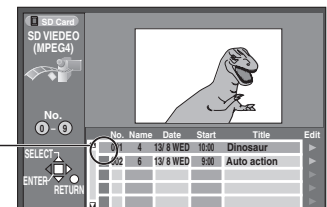


The padlock mark appears.

• To release protection



The padlock mark disappears.



Child Lock

The child lock deactivates all buttons on the unit and remote control. Use it to prevent other people from operating the unit.

To activate the child lock

Hold down [ENTER] and [RETURN] simultaneously until “X HOLD” appears on the display.

• If you press a button while the child lock is on, “X HOLD” appears on the display and operation is disabled.

To cancel the child lock

Hold down [ENTER] and [RETURN] simultaneously until “X HOLD” disappears.

• If you cannot cancel the Child Lock, press [RETURN] and then operate this unit.

■ Advanced Operations

Recording from an external device

Preparation

- Press [HDD] or [DVD] to select the recording drive. (page 19)
- Release protection (disc → page 37, cartridge → page 69). **[RAM]**
- Confirm there is sufficient empty space for recording on the HDD. (page 26)

For your reference

- Select the "TV System" (PAL/NTSC) of the programme you wish to record (page 61).
- About recording from DV equipment
 - We recommend connecting one piece of DV equipment at a time.
 - When recording from DV equipment, you can determine the audio setting at "Audio Mode for DV Input". (page 60)

Manual Recording

[HDD] [RAM] [DVD-R]

When connected to DV equipment/non-DV equipment

Connect the other equipment to this unit's input terminals (page 57).

- Use a DV cable to connect the DV equipment.

1 Press [REC MODE] to select the recording mode. (page 26)

- It is also possible to perform the flexible recording (FR). (page 27)

2 While stopped

Press [CH, ^, v] or [INPUT SELECT] to select the input channel.

- Select AV1, AV2, AV3, AV4 or DV.

3 Start play on the other equipment.

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

■ To skip unwanted parts

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

Note

- Stop play on the other equipment as well.
- This unit does not support recording the signal from a personal computer.
- When recording bilingual programmes
 - When "M1" and "M2" is selected on the connected equipment, you can choose the audio mode in playback. However, when you record SD VIDEO (MPEG4) to HDD simultaneously, select "M1" or "M2" on the connected equipment. **[HDD] [RAM]**
 - Select "M1" or "M2" on the connected equipment. (You cannot select the audio mode in playback.) **[DVD-R]**

For your reference

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

DV Automatic Recording (DV AUTO REC)

[HDD] [RAM]

Preparation

- Connect the DV equipment to the DV input terminal on the front panel. (page 57)
- Pause play of the DV equipment at the point you want recording to start.

1 Press [REC MODE] to select the recording mode. (page 26)

2 While stopped

Press [FUNCTIONS]. (page 29)

3 Use [▲, ▼, ◀, ▶] to select "DV AUTO REC" and press [ENTER].

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

DV AUTO REC screen appears.

- Recording starts.

■ When recording finishes

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

For your reference

- Do not operate the DV equipment during recording since this will cause recording to stop.
- When this unit detect the parts recorded by the DV equipment.
 - Play lists are automatically created.
 - The recording is divided into scenes.
 - The date of the first recording will be the programme's title.
 - The marker is automatically registered.
- You cannot record and play simultaneously.
- The date and time information on the tape of the DV equipment will not be recorded.
- SD VIDEO (MPEG4) programmes cannot be recorded despite setting "MPEG4 Rec Mode" (page 59) to "SF", "F", "N" or "E".
- You can connect only 1 DV equipment to this unit.
- Depending on the connected DV equipment, video or audio may not be input properly.

Note

- You cannot control this unit from the digital video equipment even if using the DV cable.
- The DV input on this unit is for use with DV cameras only.
- When the "DV AUTO REC" does not work:
 - Check the connection and the setting.
 - Turn the power off.
 - Turn the power on again.
 - When the problem still persists, follow the "Manual Recording" above.
- The DV equipment name may not be shown correctly.

■ To stop recording

Press [■, STOP].

■ Advanced Operations

Connecting external equipments

First of all, please disconnect AC mains leads of all units which you are going to connect with before connecting and disconnecting cables.

■ Enjoying more powerful sound

Refer to the relevant pages for details.

Enjoying 5.1-channel surround sound with Dolby Digital and DTS 	Digital connection Connect to an amplifier with built-in decoders.	See below [A]	SET UP—Sound • Set “PCM Down Conversion” to “On”. • Set “Dolby Digital” and “DTS” to suit the equipment. Change speaker settings on the amplifier.	Page 60 —
To enjoy stereo 	Analog connection Connect to an analog amplifier or system component. Digital connection Connect to a digital amplifier or system component.	See below [B] See below [A]	SET UP—Sound • Set “PCM Down Conversion” to “Off”. SET UP—Sound • Set “PCM Down Conversion” to “On”. • Set “Dolby Digital” to “PCM”. • Set “DTS” to “Off”.	Page 60 Page 60

■ Other uses

Record to digital recording equipment or cassette deck (See below [A] [B])

Record from a video cassette recorder (page 57)

Use connection [B] to enjoy discs recorded with a sampling frequency of 96 kHz. (page 58)

Note

You can enjoy Dolby Digital in stereo with this unit alone. (This unit does not have a DTS decoder.)

DVD-A

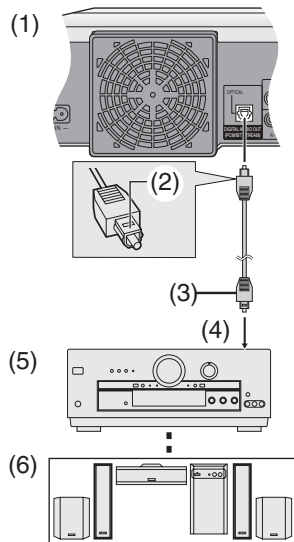
Even if using this connection, output will be only 2 channels.

Connecting a digital amplifier or system component [A]

- (1) Rear panel of this unit
- (2) Insert fully, with this side facing up. (Do not bend when connecting.)
- (3) Optical digital audio cable (not supplied)
- (4) To optical digital input
- (5) Amplifier or system component (with or without decoders) (not supplied)
- (6) Speakers (not supplied)
• Example: 6 speakers

For your reference

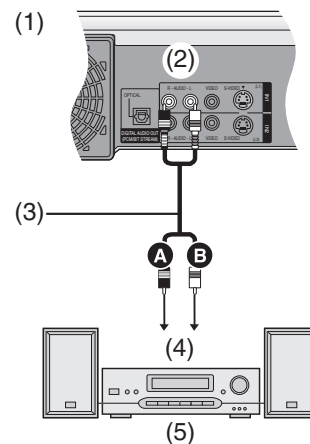
- The DTS decoder must be compatible with the signals recorded on DVD.
- During Quick View, the Digital Audio Output will change to PCM Output.



You can record the digital signal directly onto digital recording equipment.
 The signals on DVDs will be converted to 48 kHz/16 bit linear PCM.
 When recording DVDs, ensure the following conditions are met.

- There is no copy guard recorded on the disc.
- The recording equipment can handle a sampling frequency of 48 kHz/16 bit.
- You cannot record MP3.

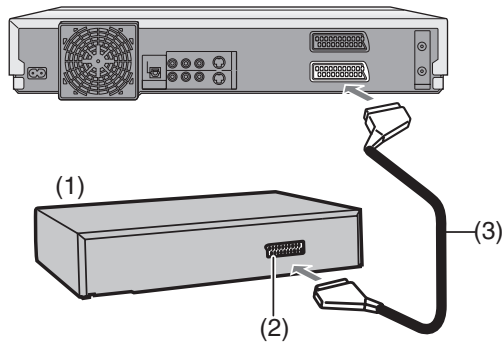
Connecting an analog amplifier or system component [B]



- (1) Rear panel of this unit
- (2) To AUDIO OUT (L/R)
- (3) Audio cable (not supplied)
 A Red (R)
 B White (L)
- (4) Audio input (L/R)
- (5) 2-channel analog amplifier or system component (not supplied)

■ Advanced Operations

Connecting a decoder, satellite receiver or digital receiver



- (1) Decoder, satellite receiver or digital receiver (not supplied)
- (2) 21-pin Scart socket
- (3) 21-pin Scart cable (not supplied)

Connect a 21-pin Scart cable (not supplied) to the AV2 21-pin Scart socket on this unit and to the 21-pin Scart socket on the decoder, satellite receiver or digital receiver.

Connect the mains lead of decoder, satellite receiver or digital receiver to an AC mains socket.

- If you connect an other equipment with RGB output capability to the AV2 socket on this unit, the output signal of the equipment must be set to RGB when you have set "AV2 Input" to "RGB (PAL only)".

Note for decoder

- Decoder here means the device used to decode scrambled broadcasts (Pay TV).
- Set "AV2 Connection" to "DECODER". (page 61)
- [RGB] means separate Red/Green/Blue colour signals. If you connect a TV equipped with RGB input capability to the AV1 socket on this unit, and a decoder equipped with RGB output capability to the AV2 socket, the TV can receive RGB signal input from the decoder via the unit.

Note for satellite receiver and digital receiver

- Set "AV2 Connection" to "Ext Link 1" or "Ext Link 2". (page 61)

Connecting an external device

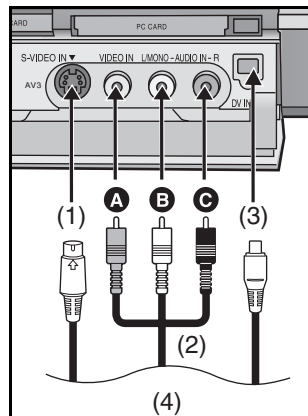
When connecting to the AV3/DV input terminals on the front of the unit

- You can also connect to the AV4 input terminals on the rear of the unit.

Before connecting any cables, first make sure that the power for both units is off. Then after connecting any cable, turn on the both units.

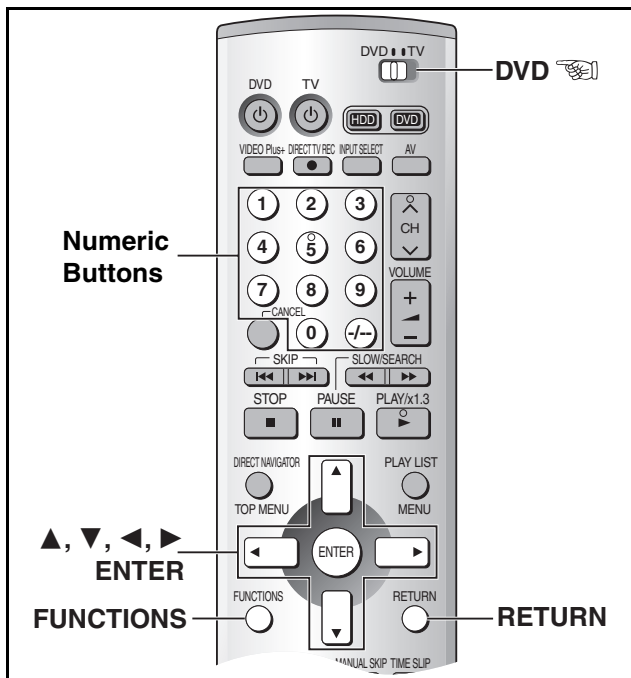
Note

- 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 DV input on this unit is for use with DV cameras only.



- (1) S video cable (not supplied)
- (2) Audio/Video cable (not supplied)
 - A Yellow (VIDEO)
 - B White (L)
 - C Red (R)
- (3) 4-pin DV cable (not supplied)
- (4) Other playback equipment

Various Setting

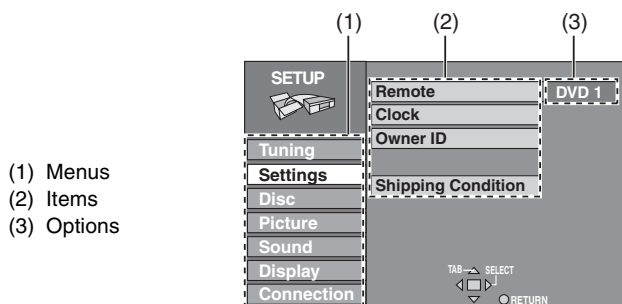


Changing the unit's settings

Common procedures

Use the following procedure to change the settings if necessary.

- 1 While stopped
Press [FUNCTIONS]. (page 29)
- 2 Select "SETUP" with [▲, ▼, ◀, ▶] and press [ENTER].



- (1) Menus
- (2) Items
- (3) Options

- 3 Use [▲, ▼] to select the menu's tab and press [◀] or [▶].
- 4 Use [▲, ▼] to select the item to be changed and press [ENTER].
- 5 Use [▲, ▼] to select an option 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 cancelled unless you press [ENTER].

When you are finished

Press [FUNCTIONS].

For your reference

- The unit retains these settings.

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. (page 59)

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".

- 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 the item with [▲, ▼] and press [ENTER].
Actual screens depend on the operation. Follow the on-screen instructions.

Digital output

Change these settings when you have connected equipment through this unit's OPTICAL DIGITAL AUDIO OUT terminal.

PCM Down Conversion

Off (Factory preset):

When you have used audio cables to connect the unit to other equipment (analog connection [B] page 56).

On:

When you have used an optical digital cable to connect the unit to other equipment (digital connection [A] page 56). Output is limited to 48 kHz/16 bit.

Output of audio with a sampling frequency of 96 kHz

Audio is output as follows in accordance with the connections and settings you make.

Setting	Connection	
	[A] (digital)	[B] (analog)
Off	No output*	Output as 96 kHz
On	Converted and output as 48 kHz/16 bit	Converted and output as 48 kHz

- * Audio is output at 96 kHz if the DVD is unprotected, but the connected equipment must be able to handle such signals in order to play them.

■ Various Setting

Summary of settings

This description shows the initial settings for this unit. See page 58 for details on menu operation.

• Underlined items are the factory presets.

■ Tuning (pages 64, 65)

Manual

Auto-Setup Restart

Download

■ Settings

Remote (page 62)

Clock (page 63)

Owner ID

[PIN number] [Name] [House No.] [Postcode]

Shipping Condition

All settings in the SETUP screen return to the factory settings. (except for the ratings level and the password, and owner ID settings)

[Yes] [No]

■ Disc DVD-A DVD-V

Setting the language of disc menu, audio and subtitle for playing the DVD-Video.

- Some discs are designed to start in a certain language despite any changes made here.
- If a language which is not recorded is selected, or if languages are already fixed in the disc, the language set as the default in the disc will be played instead.

Soundtrack

Choose the audio language.

[English] [French] [German] [Italian] [Spanish] [Original]
[Other ****]

Subtitle

Choose the subtitle language.

[Automatic] [English] [French] [German] [Italian]
[Spanish] [Other ****]

Menus

Choose the language for disc menus.

[English] [French] [German] [Italian] [Spanish]
[Other ****]

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. (See below, "Language code list".)

Automatic

If the language selected for "Soundtrack" is not available, subtitles of that language will automatically appear if available on that disc.

Ratings (page 58)

You can set a limit on DVDs unsuitable for some audiences (e.g. children). You cannot change the settings and play the limited DVDs unless you enter a password.

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 0–7 is selected)

[Unlock Recorder] [Change Level]

[Change Password] [Temporary Unlock]

DVD-Video Mode

Select how to play pictures contained on some DVD-Audio.

The setting returns to "Off" when you change the disc or turn the unit off.

[On]: You can play DVD-Video content on DVD-Audio.

[Off]: DVD-Audio are played as DVD-Audio.

DVD-R Rec for High Speed mode

You can dub discs to DVD-R in High Speed by setting this to "On" before recording to HDD.

[On] [Off]

On

" " is indicated on the dubbing list (page 34)

When setting to "On", will use settings below.

• "Bilingual Audio Selection" [M1] or [M2]

• "Hybrid VBR Resolution" [Fixed]

• "TV Aspect" [Norm (4:3)]

MPEG4 Rec

MPEG4 Rec Mode

You can select the recording mode to record SD VIDEO (MPEG4) to HDD.

[SF (Super Fine)] [F (Fine)] [N (Normal)]

[E (Economy)] [Off]

- The picture quality becomes better in the order of "E", "N", "F", and "SF".
- When "SF" is selected, you cannot dub on MultiMediaCard.
- When setting auto renewal recording (page 32), you cannot select "SF/F/N/E".

SD CARD capacity

Select the proper item according to the capacity of the card. Programmes are divided according to this setting and then recorded on HDD. Therefore, you can dub them to the SD Memory Card exactly without extra operation.

[8 MB] [16 MB] [32 MB] [64 MB] [128 MB]

[256 MB] [512 MB] [1 GB] [2 GB]

Language code list

Abkhazian: 6566	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Telugu: 8469
Afar: 6565	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Thai: 8472
Afrikaans: 6570	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoan: 8377	Tibetan: 6679
Albanian: 8381	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tigrinya: 8473
Ameharic: 6577	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tonga: 8479
Arabic: 6582	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Turkish: 8482
Armenian: 7289	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkmen: 8475
Assamese: 6583	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Twi: 8487
Aymara: 6588	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Ukrainian: 8575
Azerbaijani: 6590	Faroeese: 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	

■ Various Setting

Underlined items are the factory presets.

■ Picture

Rec Resolution

Select the picture sharpness when recording.

[Fine] [Normal]

Fine	Pictures become clear and vivid. Normally, use this setting.
Normal	Select it when recording noisy pictures.

- This setting is fixed with "Fine" if you set "TV System" to "NTSC".

Hybrid VBR Resolution

Switch between automatic and fixed hybrid VBR resolution when recording.

[Automatic] [Fixed]

Automatic	The unit automatically switches resolution during recording according to the image. The unit reduces block noise, which occurs during MPEG compression, by selecting the optimum rate.
Fixed	The resolution is fixed to ensure the resolution rate is not reduced.

Still Mode

Select the type of picture shown when you pause play.

[Automatic] [Field] [Frame]

Field	Still pictures are less blurred. Select if jittering occurs when "Automatic" is selected.
Frame	Sharper frame stills are obtained. Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected.

Seamless Play

You can select the picture quality on the seams of the scenes in the play list.

[On] [Off]

On	The scenes in play lists created with this unit are played seamlessly. This may cause shifting of the points where scenes change. Some play lists cannot be played seamlessly. • Seamless Play does not work with programmes recorded in different audio or when using Quick View.
Off	The points where scenes in play lists are played accurately, but this may cause the picture to freeze for a moment when scenes change.

■ Sound

PLAY ×1.3 & Audio during Search

[HDD] [RAM] [DVD-R] [DVD-A] [DVD-V] [VCD] (page 21)

Choose whether to operate the Quick View (Play ×1.3) or not and whether to have sound during search.

[On] [Off]

[DVD-A]

- You may hear sound regardless of this setting with some discs.

Dynamic Range Compression

[DVD-V] (Dolby Digital only)

Change the dynamic range for late night viewing.

[On] [Off]

Bilingual Audio Selection

Select the type of audio in bilingual broadcasting. (page 27)

- When recording/dubbing to DVD-R
- When recording/dubbing in LPCM or MPEG4
[M1] [M2]
- The bilingual audio cannot be switched in this unit in the following cases.
 - When recording audio from an external input to DVD-R.
 - When SD VIDEO (MPEG4) is simultaneously recorded from the external input.

Digital Audio Output

(Press [ENTER] to show the following settings. To return to the previous screen, press [RETURN].)

PCM Down Conversion (page 58)

Choose whether to convert 96 kHz LPCM signals to 48 kHz/16 bit.

[On] [Off]

- Select "On" when using a copyright protected disc, since the audio output does not work.

Dolby Digital

Choose whether to output Dolby Digital bitstream signals for decoding on other equipment or to convert them to PCM signals for 2-channel output.

[Bitstream] [PCM]

Bitstream	When you have connected a unit with a built-in Dolby Digital decoder.
PCM	When you have connected a unit that doesn't have a built-in Dolby Digital decoder.*

DTS

Choose whether to output DTS bitstream signals for decoding on other equipment or to not.

[Bitstream] [Off]

Off	When you have connected a unit that doesn't have a built-in DTS decoder.*
Bitstream	When you have connected a unit with a built-in DTS decoder.

MPEG

Choose whether to output MPEG bitstream signals for decoding on other equipment or to convert them to PCM signals for 2-channel output.

[Bitstream] [PCM]

Bitstream	When you have connected a unit with a built-in MPEG decoder.
PCM	When you have connected a unit that doesn't have a built-in MPEG decoder.*

- * Set "Dolby Digital" to "PCM", "DTS" to "Off" and "MPEG" to "PCM" if the other equipment doesn't have decoders. Incorrect settings can cause noise to be output which can be harmful to your ears and speakers, and audio will not be recorded properly to digital recording equipment.

Audio Mode for XP Recording

Choose the audio type when recording with XP mode.

[Dolby Digital] [LPCM]

- Even if "LPCM" is set, sound becomes "Dolby Digital" in recording mode other than XP mode.

Audio Mode for DV Input

You can select the kind of sound when recording from the unit's DV terminal. (page 55)

[Stereo 1] [Stereo 2] [Mix]

Stereo 1	Records sound (L1, R1) when DV recording is taking place.
Stereo 2	Records added sound such as narration (L2, R2) subsequent to original recording.
Mix	Records both Stereo 1 and Stereo 2. • L1+L2 are recorded in L and R1+R2 are recorded in R. In the case of bilingual broadcast, Stereo 1 is recorded when recording to DVD-R or if recording in LPCM. Details of recording are given in "Bilingual Audio Selection" (See above).

■ Various Setting

Underlined items are the factory presets.

■ Display

On-Screen Messages

Choose whether to show on-screen messages automatically or not.

[Automatic] [Off]

Grey Background

Select whether to show the grey background, normally shown when TV reception is poor.

[On] [Off]

Channel Guide

[On] [Off]

On	The Channel Guide will appear for a few seconds when time the channel is changed with [CH, v, ^].
Off	The Channel Guide will not appear.

FL Display

Changes the brightness of the unit's display.

[Bright] [Dim]

■ Connection

TV Aspect

Choose the setting to suit your TV and preference.

[Norm (4:3)] [Wide (16:9)]

TV System

[PAL] [NTSC]

PAL	Select when connecting to a PAL or Multi-system TV. Programmes recorded using NTSC are played as PAL60. Select to record TV programmes and PAL input from other equipment. ● HDD : Select this when playing a PAL input programme recorded on the HDD.
NTSC	Select when connecting to a NTSC TV. Select to record NTSC input from other equipment. TV programmes cannot be recorded properly. ● HDD : Select this when playing a NTSC input programme recorded on the HDD.

- To change the TV system (PAL/NTSC) setting:
While stopped, keep pressing [■, STOP] and [▲, OPEN/CLOSE] on the main unit for 5 or more seconds.
- If the playback picture on the TV screen from a Video CD isn't shown correctly:
 - When connecting to Multi-system TV, select "NTSC". (After viewing the disc, return the setting to "PAL".)
 - When connecting to PAL TV, the lower part of the picture cannot be displayed correctly during the fast forward and rewind.

Norm (4:3) TV Settings (DVD-Video)

You can select how to reflect the image on the TV, when you watch 16:9 images (DVD-Video) on 4:3 TV.

[Pan & Scan] [Letterbox]

Pan & Scan 	Video recorded for a widescreen is played with the sides cut off if the pan & scan was specified by the producer of the disc. 16:9 software prohibited pan & scan style will appear in the letterbox style (with black bands above and below the picture) despite the setting here.
Letterbox 	Video recorded for a widescreen is played in the letterbox style.

Norm (4:3) TV Settings (DVD-RAM)

You can select how to reflect the image on the TV, when you watch 16:9 images (DVD-RAM) on 4:3 TV.

[Norm (4:3)] [Pan & Scan] [Letterbox]

Norm (4:3)	Programmes played as recorded.
Pan & Scan	Video recorded for a widescreen is played with the sides cut off if the pan & scan format is specified at the time of recording.
Letterbox	Video recorded for a widescreen is played in the letterbox style.

AV1/AV2 Settings

(Press [ENTER] to show the following settings. To return to the previous screen, press [RETURN].)

AV1 Output

[Video] [S-Video] [RGB] (page 57)

AV2 Input

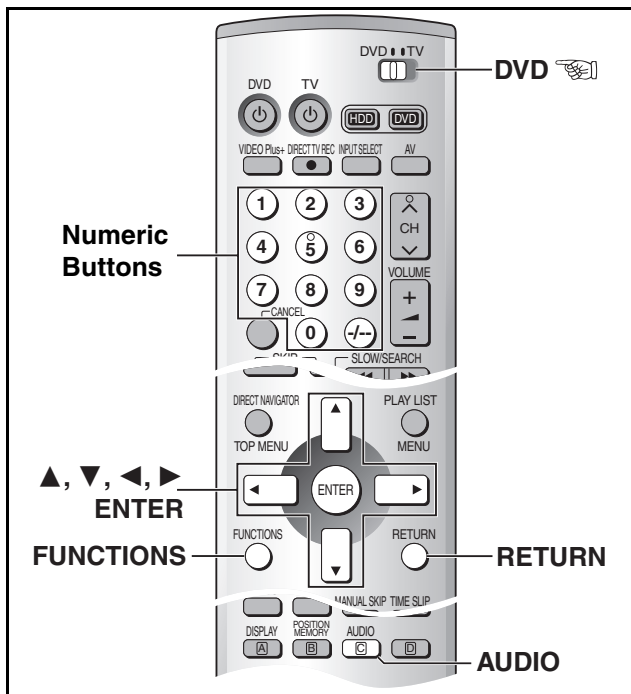
[Video] [S-Video] [RGB (PAL only)]

AV2 Connection

[NORMAL] [DECODER] [Ext Link 1] [Ext Link 2]

NORMAL	When the VCR or a satellite receiver is connected.
DECODER	When a decoder is connected.
Ext Link 1	When a digital receiver which transmits a special control signal recordings via the 21-pin Scart cable (e.g. F.U.N. receiver (TU-DSF30/S3)) is connected for the linked timer recordings.
Ext Link 2	When an external equipment with a timer function is connected for the linked timer recordings.

- If you connect an other equipment with RGB output capability to the AV2 socket on this unit, the output signal of the equipment must be set to RGB when you have set "AV2 Input" to "RGB (PAL only)".
- This setting is fixed with "NORMAL" if you set "TV System" to "NTSC".



To Manually Adjust the Audio Recording Level

The unit adjusts the recording level automatically to prevent sound distortion due to excessive peaks.
You can adjust manually the audio recording level.

- 1 Before recording, keep pressing [AUDIO] for 3 or more seconds.

To adjust the left (L) and right (R) channels simultaneously:

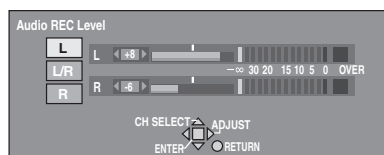
- 2 Confirm that "L/R" is selected and use [◀, ▶] to adjust the audio recording level.

- 3 Press [ENTER] to exit the On Screen Display.

To adjust the left (L) and right (R) channels individually:

- 2 Use [▲, ▼] to select either the left (L) or right (R) channel and individually adjust their audio recording level with [◀, ▶].

Example:
When the left (L) channel is selected.



- 3 Press [ENTER] to exit the On Screen Display.

For your reference

- It is not possible to adjust the audio recording level when recording from DV equipment.

Remote Setting

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

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

- 1 While stopped
Press [FUNCTIONS]. (page 29)
- 2 Select "SETUP" with [▲, ▼, ◀, ▶] and press [ENTER].
• The SETUP screen appears.
- 3 Select "Settings" tab with [▲, ▼] and press [◀] or [▶].
- 4 Select "Remote" with [▲, ▼] and press [ENTER].
- 5 Select "DVD 1", "DVD 2" or "DVD 3" with [▲, ▼] and press [ENTER].
The remote control code on the unit has been set.
- 6 While pressing [ENTER] on the remote control, press the numeric buttons ([1], [2], or [3]) corresponding to the code you selected in step 5.
The remote control code on the remote control has been set.
- 7 Press [RETURN].

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



The unit's remote control code

If you are trying to use this unit's remote control, change its code to match the unit's (→ step 6).

■ Various Setting

Clock Settings

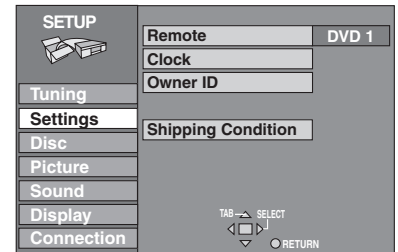
Usually, the units Auto Setup or Download function automatically adjusts the clock to correct time.

Under some reception conditions, however, the clock cannot be set automatically.

In this case, follow the operation steps below to manually set the clock.

- 1 While stopped
Press [FUNCTIONS]. (page 29)
- 2 Select "SETUP" with [▲, ▼, ◀, ▶] and press [ENTER].

- 3 Select "Settings" tab with [▲, ▼] and press [◀, ▶].



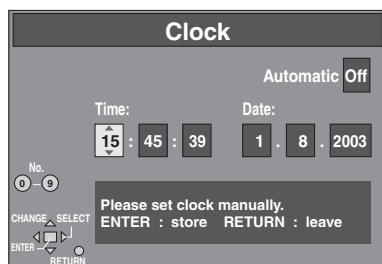
- 4 Select "Clock" with [▲, ▼] and press [ENTER].

Note

- In case of a power failure, an automatic back-up system automatically maintains the operation of the clock for approximate 120 minutes.

► Manual Clock Setting

- 5 Select "Off" of "Automatic" with [▲, ▼] and press [ENTER].

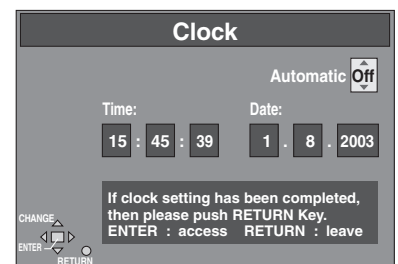


- 6 Use [◀, ▶] to select the item to be changed.

- The items change as follows:
Hour↔Minute↔Second↔Day↔Month↔Year↔Hour...

- 7 Use [▲, ▼] to change the setting and press [ENTER].

- You can also use the numeric buttons for setting.



- 8 Press [RETURN].

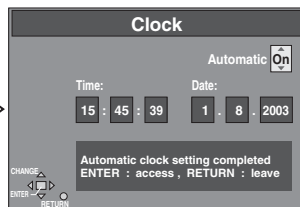
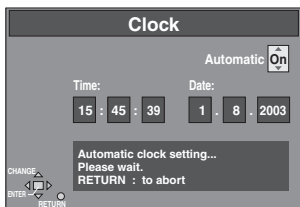
- The SETUP screen reappears and the clock starts.

► Auto Clock Setting

If a TV station transmits a signal for time setting, the Automatic time correction function is activated and time is corrected automatically.

- 5 Select "On" of "Automatic" with [▲, ▼] and press [ENTER].

- Auto clock setting starts.
- Under adverse reception conditions, etc., the automatic time correction function may not work. In this case, the indication for "Automatic" is automatically reset to "Off". If the reception conditions improve later on, it may be possible to activate this function.



- 6 Press [RETURN].

■ To stop auto clock setting

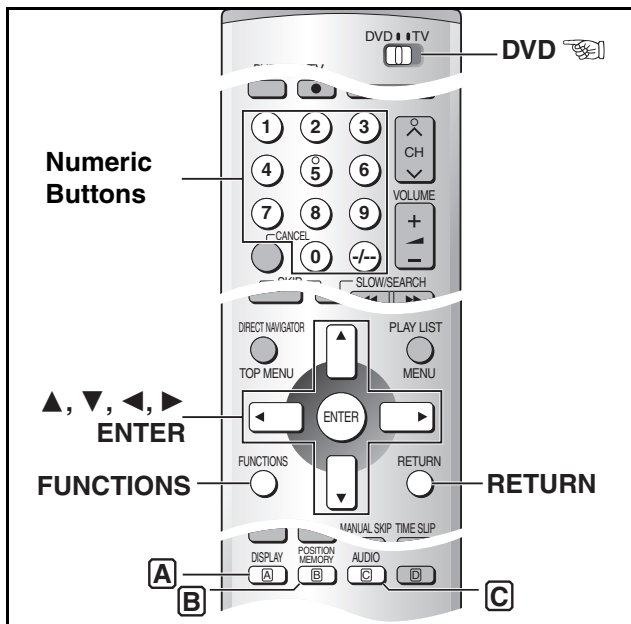
Press [RETURN].

Note

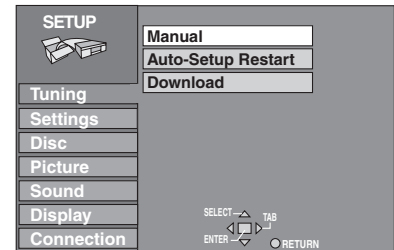
- When "Automatic" on the Clock setting menu is set to "On", the automatic time correction function checks and if necessary adjusts the time several times every day.

■ Various Setting

Channel Settings

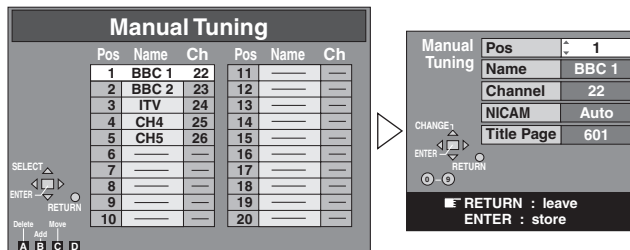


- 1 While stopped
Press **[FUNCTIONS]**. (page 29)
- 2 Select **"SETUP"** with **[▲, ▼, ◀, ▶]** and press **[ENTER]**.
- 3 Select **"Tuning"** tab with **[▲, ▼]** and press **[◀, ▶]**.



► Selecting the manual tuning

- 4 Select **"Manual"** with **[▲, ▼]** and press **[ENTER]**.
- 5 Use **[▲, ▼]** to select the desired TV station and press **[ENTER]**.
 - The TUNING BOX screen appears.



■ Handling the TUNING BOX screen

Use **[▲, ▼, ◀, ▶]** to select the desired field and press **[ENTER]**.

Pos:

To change the order in which the TV stations are assigned to the programme positions.

Press the numeric buttons to enter the number of the desired programme position.

Name:

To enter or change the name of a TV station.

Use **[▲, ▼, ◀, ▶]** to enter station name and press **[ENTER]**.

- If the station name needs a blank space, select the blank between **[Z]** and **[*]**.

Channel:

To enter newly available TV stations or change the channel number of an already tuned TV station.

Press the numeric buttons to enter the channel number of the desired TV station.

- Wait a few moments until the desired TV station has been tuned.
- After the desired TV station is tuned, press **[ENTER]**.

NICAM:

To select the type of sound to be recorded.

Use **[▲, ▼]** to select **"Auto"**.

- Select **"Off"** if you want to record the normal (mono) sound during a stereo, bilingual or NICAM broadcast, or if the stereo sound is distorted due to inferior reception conditions.

Title Page:

To select the title extraction from TV guide of broadcaster.

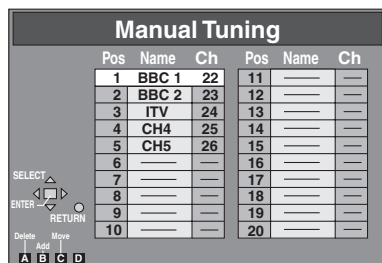
Use **[▲, ▼]** to select the number between 100 and 899.

- In case of a TV station with Teletext information, the title of the TV programme is entered automatically, provided the "Title page" is correctly set.
- In case of a TV station with Teletext information, the name of the TV station is recorded automatically.
- In case of a TV station with Teletext information, it may take over 30 minutes to get the title or may fail to get (pages 36, 40).

6 Press **[RETURN]**.

► Adding, deleting, and moving channels

- 4 Select **"Manual"** with **[▲, ▼]** and press **[ENTER]**.
- 5 Use **[▲, ▼, ◀, ▶]** to select the desired TV station and use the **[A], [B], [C]** buttons to select **"Delete"**, **"Add"**, **"Move"**.



To insert a blank programme position "Add":

Press **[B]**.

To move a TV station to another programme position "Move": Press **[C]**, and then use **[▲, ▼]** to select the new programme position to which you want to assign the TV station. Press **[ENTER]**.

6 Press **[RETURN]**.

Note

- If downloading of the setup data has been performed, only the instruction indication **"Delete"** appears.

Hint

- If you have performed Manual Tuning to enter TV stations, the **"—"** indication may appear under **[Pos/Name]** on the display when programming a VIDEO Plus+ timer recording.

To delete a programme position **"Delete"**: Press **[A]**.

Various Setting

► Auto-Setup Restart, Download

You can use the SETUP menus to start Auto Channel setting.

- 4** Select “Auto-Setup Restart” or “Download” with [▲, ▼] and press [ENTER].

- The confirmation screen appears.

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

- **Auto-Setup Restart**
 - Auto Setup restarts.
- **Download**
 - Download starts.

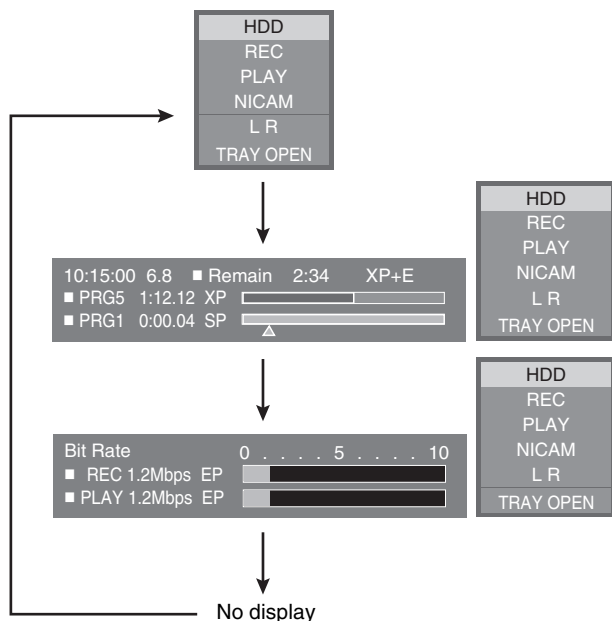
Status displays

Changing the information displayed

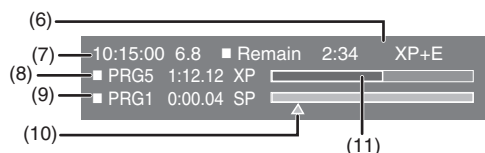
Displays appear on the TV when operating the unit to show you what operation was performed and what condition the unit is in.

Press [STATUS] to change the information displayed.

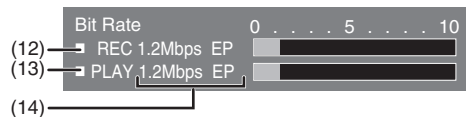
The display changes each time you press the button.
For example, HDD



Indicates the status of the disc tray when the HDD drive is selected.



- (6) **Available recording time and recording mode**
(e.g.: “2:34 XP” indicates 2 hours and 34 minutes in XP mode)
- (7) **The current date and time**
- (8) **Recording time**
 - Shows recording time, recording mode and a rough guide to how much space has been used for recording on the disc.
- (9) **Elapsed play time**
- (10) **Play position**
- (11) **Amount of recording space used**



- (12) **Video bit-rate when recording**
- (13) **Video bit-rate when playing**
- (14) **Bit-rate display**
 - Shows as Mbps (Mega-bit(s) per second) during play and recording, or kbit (kilo bit(s)) while paused.
 - The method of calculating bit-rate for recording and playing is different so there may be differences in the figures displayed. (Values are approximate.)

Display examples

- (1) **Currently selected drive (HDD/Disc Indication Display)**
- (2) **Current recording or play status, input channel**
 - Shows the current state of the unit and the input channel.
 - REC:** Recording
 - DV AUTO REC:** Recording DV AUTO REC
 - PAUSE:** Recording paused
 - PLAY:** Playing
 - PLAY ×1.3:** Quick Viewing (Play ×1.3)
 - II:** Playing Paused
 - ▶▶:** Fast forwarding (5 speeds)
 - ◀◀:** Rewinding (5 speeds)
 - ▶:** Slow-motion (5 speeds)
 - ◀:** Reverse slow-motion (5 speeds)
- (3) **Audio type**
 - Automatic indication of the type of sound system which the programme being watched (NICAM/MONO) is broadcast.
- (4) **Sound mode**
 - LR, L, R:** when you have changed the audio with the remote control's [AUDIO]
- (5) **Status of other, currently unselected drive**
 - HDD recording/DVD recording :** the recording drive is indicated
 - TRAY OPEN/TRAY CLOSE :**

For your reference

- These displays may not be shown if “On-Screen Messages” in the “Display” menu is set to “Off” (page 61). If set to “Automatic”, displays (1), (2), (3), (4) and (5) appear for 5 seconds and then disappear.

Helpful Hints

Maintenance and Handling

Maintenance

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

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

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

Use the recommended **DVD-RAM/PD lens cleaner (LF-K123LCA1)** about once every year, depending on frequency of use and the operating environment.

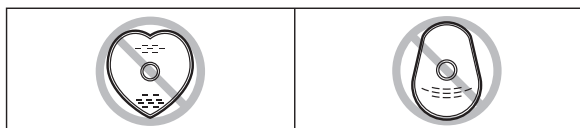
Read the lens cleaner's instructions carefully before use.

- The lens cleaner may sound during use, but this does not mean a malfunction.
- "NO READ" appears on the unit's display when cleaning finishes.

The precision parts in this unit are readily affected by the environment, especially temperature, humidity, and dust. Observe the following points to ensure continued listening and viewing pleasure.

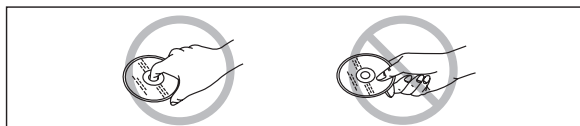
Disc handling

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



How to hold a disc

Do not touch the recorded surface.



If there is dirt or condensation on the disc

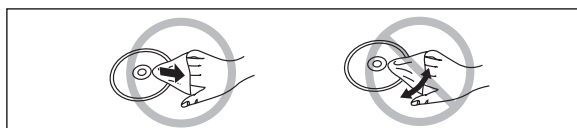
If the disc is dirty, wipe with a damp cloth and then wipe dry. Moisture may condense on discs after they are brought inside from the cold.

DVD-RAM and DVD-R

- Clean and dry with an optional DVD-RAM/PD disc cleaner (**LF-K200DCA1**, where available). Do not use other cleaners or clothes to clean DVD-RAM and DVD-R.
- Never use cloths or cleaners for CDs, etc.

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

Wipe with a damp cloth and then wipe dry.



Handling precautions

- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not attach labels or stickers to discs. (Do not use discs with exposed adhesive from tape or left over peeled-off stickers.)
- Do not use scratch-proof protectors or covers.
- Do not use discs printed with label printers except the product by Panasonic.
- Do not use discs that are badly warped or cracked.

Do not place or store discs in the following places

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

Glossary

Bitstream

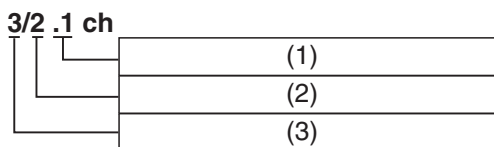
This is the compressed form of digital signals. A decoder decodes these signals into 5.1 surround and multi-channel signals.

Channel (when referring to DVD)

Sound is divided into channels based on the sound's role. For example, 5.1 channel

- Front speakers—1 left channel and 1 right channel
- Center speaker—1 channel
- Surround speakers—1 left channel and 1 right channel
- Subwoofer—1 channel×0.1 (the ratio of bass to the total amount of sound output)

Examples as shown in the status display



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

Dolby Digital

This is a method of coding digital signals developed by Dolby Laboratories. Not only stereo (2 channel) audio, these signals can also be 5.1-channel audio. A large amount of audio information can be recorded on one disc by this method.

DPOF (Digital Print Order Format)

DPOF is the standard printing format for still picture data. It is used at a photo studio to print out the still picture data taken with a digital camera etc. or when you print out using a domestic printer.

Drive

In this instruction, drive means the hard disk (HDD) and DVD. These perform the reading and writing of data. Select them by pressing [HDD] and [DVD].

DTS Digital Surround

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. DTS soundtracks are produced with the assumption that all channels will be used.

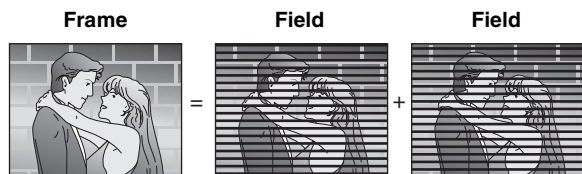
Finalize

This process allows DVD-R to be played on compatible equipment.

Helpful Hints

Frame and field

Frames are the still pictures that go together to make a moving picture. A frame consists of 2 fields.



- A frame still consists of 2 alternating fields, so the picture may appear blurred, but overall quality is high.
- A field still is not blurred, but it has only half the information of a frame still so picture quality is lower.

Hard disk (HDD)

This is a mass data storage device used in computers etc. It spins a disk which has a surface treated with magnetic fluid and reads/writes large amounts of data at high speed by bringing magnetic head close to the disk.

JPEG (Joint Photographic Experts Group)

This is a system used for compressing/decoding colour still pictures.

If you select JPEG as the storage system on digital cameras etc., the data will be compressed to 1/10 — 1/100 of its original size. The feature of JPEG is less deterioration in picture quality considering the degree of compression.

Linear PCM

These are uncompressed digital signals. CDs are recorded with 44.1 kHz/16 bit PCM, while DVDs use PCM between 48 kHz/16 bit and 96 kHz/24 bit, allowing playback with greater quality sound. The linear PCM signals output from the DIGITAL AUDIO OUT, OPTICAL terminal are stereo (2 channel). LPCM sound is available when recording in XP mode.

MPEG2/MPEG4 (Moving Picture Experts Group)

They are standards for colour motion pictures to be effectively compressed or expanded.

MPEG2 is a compression technology used for DVD, etc. This unit adopts MPEG2 when recording programmes.

MPEG4 is a compression technology designed for use on mobile devices and network. It can record pictures with high efficiency even in low bit rate.

Pan&Scan/Letterbox

In general, DVD-Video are produced with the intention to be viewed on a widescreen TV with an aspect ratio of 16:9.

This means you can view most of material with the intended aspect ratio on a widescreen TV.

Material with this ratio will not fit onto a standard TV with an aspect ratio of 4:3. 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 screen so the picture appears in an aspect ratio of 16:9.



Playback control (PBC)

This is a method of playing Video CDs. You can select parts to play by using menus recorded on the disc.

Play list

This is a collection of scenes. It enables you to play these scenes in succession or to select specific ones.

TIFF (Tag Image File Format)

A still picture data standard.

A common format for storing high quality images on digital camera's and other devices.

Q Link

This function works only if the unit is connected via a fully-wired 21-pin Scart cable to a TV featuring the Q Link or similar function. Q Link offers the following functions:

- 1) Download from the TV*
When you connect the unit to a TV, the station list data is automatically copied from the TV to the unit, and the TV stations are assigned to the programme positions on the unit in the same order as on the TV.
- 2) Direct TV Recording
By simply pressing [DIRECT TV REC], you can at once record the same programme that you are watching.
- 3) TV/DVD Auto On*
Even if the TV and the unit are off (standby mode), pressing [▶, PLAY/×1.3], [TOP MENU, DIRECT NAVIGATOR], [VIDEO Plus+] or [PROG/CHECK] automatically turns on both the TV and the unit.
If the TV is off and the unit is on, when you press the [FUNCTION] or the [▶, PLAY/×1.3], or insert the disc (except DVD-RAM and DVD-R), the TV automatically is turned on.
- 4) DVD Auto Standby*
When you turn the TV off, the unit is also turned off. However, this function works in the stop mode.
This function does not work during the following operations: Preset Download, Auto Setup, Auto Clock Setting and Manual Tuning.
This function does also not work when the DVD drive is selected and an audio CD is in the disc tray.

- 5) On-screen Messages*

When you are watching a TV programme, the following messages appear on the TV screen to inform you of the unit's condition:

Message	Message appears when:
This programme has already started	A timer recording has just started.
Set DVD to timer standby mode	The unit is not in the timer standby mode 10 minutes before the programmed start time of a timer recording (message appears every minute during the 10 minutes).
DVD is in timer recording mode	[●, REC] or [VIDEO Plus+] was pressed while the unit is in the timer recording mode.

• Depending on the type of TV used, the above messages may not appear correctly.

* The operations marked with asterisk are only available if the unit is connected to a TV featuring the Q Link function.

Helpful Hints

PDC

PDC (Programme Delivery Control)

Programme Delivery Control adjusts the start and stop time of a timer recording automatically to ensure the recording starts and finishes in line with the programme broadcast. This is useful when a programme over-runs the published times.

The station must be transmitting PDC and the exact time must be set for PDC to work.

The unit detects whether a station is transmitting PDC only during the tuning process.

If PDC is introduced or discontinued by a station you will need to re-tune the unit before it becomes aware of this.

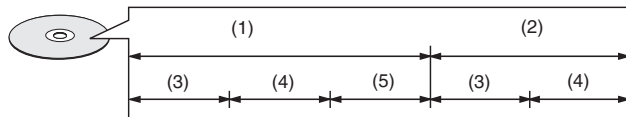
PDC transmissions are not currently nation-wide so please check with your local broadcaster for more information.

The beginnings of recordings may not be recorded correctly in some cases.

Title/Chapter (DVD-Video)

DVD-Video are divided into large sections (titles) and smaller sections (chapters). The numbers allocated to these sections are called title numbers and chapter numbers.

Example

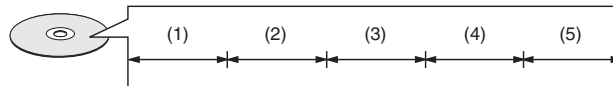


- (1) Title 1
- (2) Title 2
- (3) Chapter 1
- (4) Chapter 2
- (5) Chapter 3

Track

This is the smallest division on CD, and Video CD.

Example



- (1) Track 1
- (2) Track 2
- (3) Track 3
- (4) Track 4
- (5) Track 5

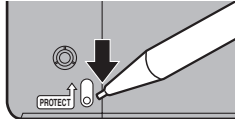
Error messages

On the unit's display

Indications	Unit status	Solutions	Page
NO READ	The disc is dirty or badly scratched.	- Follow the instructions in "Maintenance and Handling" to clean the disc if it is dirty. - The disc is not available if it is scratched and this display doesn't disappear.	66
	It can not be read for the disc which doesn't cope with it.	Exchange a disc.	—
	The DVD-RAM/PD lens cleaner has finished cleaning.	Take the cleaner out of the unit.	—
UNSUPPORT	You have inserted a disc the unit cannot play or record on.	Insert a disc the unit can play or record on.	9
U14	The unit is hot.	- The unit switches to standby automatically for safety reasons and cannot be operated. Wait for about 30 minutes for the service number to disappear. - Select a position with good ventilation when installing the unit. - Do not block the cooling fan on the rear of the unit.	—
U99	The unit fails to operate properly.	Press [⏻/I] to switch the unit to standby. Now press [⏻/I] again to turn the unit on.	—
REMOTE DVD	The remote control and main unit are using different codes.	Change the code on the remote control or main unit.	62
SELF CHECK	A power failure occurred or the AC mains plug was disconnected while the power was ON. However, self check is also activated when this unit is normally turned on.	The unit is carrying out its recovery process. Wait until the message disappears.	—
HDD SLEEP	The HDD is paused to extend its lifetime.	Press [HDD] to start.	—

Helpful Hints

On the TV

Error messages	Causes and solutions	Page
No disc.	- You haven't inserted a disc. Correctly insert a disc that this unit can play. - The disc is upside down. If it is a single-sided disc, insert it so the label is facing up.	19 19
This is a non-recordable disc. Cannot record.	The unit cannot record on the disc you inserted. The unit cannot record onto finalized DVD-R, DVD-Audio, DVD-Video, CDs, or Video CDs. Insert a DVD-RAM or unfinalized DVD-R.	9
This disc is not properly formatted. Formatting is necessary using DISC INFORMATION.	You inserted an unformatted DVD-RAM. Format the disc with this unit.	38
Cannot write into this card	You cannot format a Microdrive or Mobile hard disk on this unit.	—
This disc cannot be read.	You inserted an incompatible disc.	9
Please check write protect tab on the disc. Cannot record.	The write protect tab on the cartridge is set to "PROTECT". Use a ballpoint pen or similar to release the write protection. 	—
Cannot playback this programme. TV system is different from the setting. To playback this programme, please change the TV System in SETUP.	You tried to play a programme recorded using a different encoding system from that of the TV system currently selected on the unit. → Alter the TV system setting on this unit to suit.	61
Cannot edit with recording.	You tried to erase a programme when you were carrying out simultaneous recording and play. It is not possible to erase a programme that is in the process of recording. → Stop recording.	25
Contents of this disc are protected.	- The programme is write-protected. Release the protection. - The disc is write-protected. Release the disc protection.	40 37
Cannot finish recording completely.	- The programme was copy-protected. - No space left on HDD or the disc. → Create space by erasing any unwanted programmes. HDD RAM → Use a new disc. RAM DVD-R - Recording was not completed for some other reason.	— 20, 40 — —
Cannot record on the disc.	- The disc is scratched. Use another disc. - The disc is dirty. Clean the disc as described in these operating instructions. → You inserted an incompatible disc.	— 66
HDD is full. Disc is full.	No space left on HDD or the disc. → Create space by erasing any unwanted programmes. HDD RAM → Use a new disc. RAM DVD-R	20, 40 —
This disc may not be played in your region.	You tried to play a disc with a region number different from this unit's region number. This unit can only play discs with the region numbers compatible with this unit.	10
Your selection exceeds the recorder's rating limit.	A ratings level has been set for DVD-Video with this unit. Temporarily unlock the unit with "Ratings" in the disc menu.	58
Cannot dub from the disc.	Dubbing prohibited disc in tray. → Dubbing is not possible.	—
No PC card.	The card is not inserted. If this message is displayed with a compatible card already inserted, turn off the power, remove and then re-insert the card.	48
No valid PC card.	The card format does not match.	11
No SD card.	The card inserted is not compatible.	11
No valid SD card.	- Mobile hard disk is not inserted. - Just finish the format of Mobile hard disk.	— —
Please check write protect tab.	- Release the protection on the card. - Release the protection on the DVD-RAM.	11 —
Error has occurred. Please press ENTER.	- You can operate the unit using the [ENTER] only. - After you press the [ENTER], turn off the unit and then turn it on. Recovery starts.	— —
Please check the disc.	Check the discs for dirt or scratches.	66
Please change the disc.	- You can operate the unit using the [▲], OPEN/CLOSE only. - Press [▲], OPEN/CLOSE to open the tray and eject a disc, the unit becomes off. - To continue play or recording, insert an another disc.	— — —
Finalizing is necessary for compatible playback.	To enable playback of your DVD-R on compatible equipment, it is necessary to finalize it.	38
No folder	There is no compatible folder in this unit.	12
Cannot write.	- The card is currently protected. → Release the write protection. - There is no space remaining. → Erase any unwanted files (still pictures).	11 51

Troubleshooting guide

Before requesting service, check the below items. If you have doubt about the check points, or if the remedies indicated in the chart do not solve the problem, consult your dealer.

Power

No power	● Insert the AC mains lead securely into the household AC outlet.
The unit is on but cannot be operated.	● The unit is hot ("U14" appears on the display). Wait until "U14" disappears. ● Recording drive or playback drive have not been selected properly. ● One of the unit's safety devices may have activated. Reset the unit as follows: (1) Press [⏻/I] on the main unit to switch to standby. If the unit doesn't switch to standby, press and hold [⏻/I] for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC mains lead, wait one minute, then reconnect it. (2) Press [⏻/I] to turn the unit on.
The unit switches to standby automatically.	● One of the unit's safety devices may have activated. Press [⏻/I] to turn the unit on.
Cannot eject a disc.	● Press [⏻/I] to turn the unit off. Hold down [■, STOP] and [CH, ^] on the main unit simultaneously for about 5 seconds.

Picture

Page

TV reception worsens after connecting the unit.	● This can occur because the signals are being divided between the unit and the TV. It can be solved by using a signal booster, available from audio-visual suppliers. Consult your dealer if reception does not improve. ● Due to inherent characteristics of the HDD, the picture may occasionally be disturbed. This is normal.	—
Screen size is wrong.	● Check the settings on your TV. ● Check the settings for "TV Aspect", "Norm (4:3) TV Settings (DVD-Video)" or "Norm (4:3) TV Settings (DVD-RAM)" in the Connection menu.	61
The picture flickers.	● Adjust the TV's vertical frequency. Read the TV's operating instructions or consult your dealer.	—
On-screen messages do not appear.	● Go to Display in the SETUP menus and select "Automatic" for "On-Screen Messages". Press [STATUS] to show the on-screen messages constantly.	61
The grey background does not appear.	● Go to Display in the SETUP menus and select "On" for "Grey Background".	61

Sound

Page

No sound.	● Check the connections.	13–15
Low volume.	● Check the input mode on the amplifier if you have connected it.	56
Distorted sound.	● Turn V.S.S. OFF.	47
Cannot hear the desired audio type.	● Press [AUDIO] on the remote control to select the desired audio type. DVD-R ● Go to Sound in the SETUP menus and choose the correct setting with "Bilingual Audio Selection". ● If "D.MIX" does not appear in the display when playing multi-channel DVD-Audio, audio output will be the front two speakers only. ● You cannot change the DVD-Audio audio type if the software producer has restricted play in stereo.	22 60 7 —
Cannot switch audio during stereo or NICAM broadcasts.	● The audio cannot be switched (The audio can be selected in "Bilingual Audio Selection" before recording.) - When a DVD-R disc is inserted in the disc tray while DVD drive is selected. - When the recording mode is set to "XP" and "Audio Mode for XP Recording" is set to "LPCM". - When "DVD-R Rec for High Speed mode" is set to "On". ● You have used digital connection. Connect to other equipment using audio cables (analog connection). ● The audio may not be changed in some discs due to the control by the producer of the material. ● The audio for the SD VIDEO (MPEG4) is monaural.	60 — 60 59 15, 56 — —

Helpful Hints

Displays		Page
The display is dim.	Go to Display in the SETUP menus and change the display's brightness with "FL Display".	61
The recording time display, the dubbing process display and the displayed recording time of MP3 are different from the actual time. The actual remaining capacity is less than the value on the display or the screen.	- The time on the unit's display and the remaining recording time on the screen may be indicated less or more than actual value. - The time during fast forward and rewind, or the process during dubbing may not be displayed accurately. - When recording still pictures or SD VIDEO (MPEG4), the remaining capacity becomes less than when recording other materials. - In DVD-R, the remaining capacity does not increase even if programmes are erased. - When dubbing pictures with less motions in "MPEG2→4", they may be dubbed within small amount of capacity.	– – – – –

Play		Page
Play fails to start even when [▶] is pressed. Play starts but then stops immediately. "NO READ", "UNSUPPORT", "NO DISC", or "NO PLAY" appears on the unit's display.	- Insert the disc correctly with the label facing up. - This unit cannot play discs other than DVD-RAM, DVD-R, DVD-Audio, DVD-Video, Video CD, CD and MP3 disc. - The disc is dirty. Clean it. - The disc may be badly scratched. - You inserted a blank DVD-RAM or DVD-R.	19 9 66 66 –
No response when buttons pressed.	- If "⊖" appears on the TV, the operation is prohibited by the unit or disc. - If the unit is not operating at all, press [⊖, TIMER] to switch the unit to standby, then press [⊖, TIMER] again to turn the unit on. The unit may not be operating correctly due to lightning, static electricity, or some other external factor. - The Child Lock function is activated.	– – 54
A title or chapter doesn't play when it is selected.	Some titles and chapters on DVD-Video are not played when you have changed the ratings level.	58
Picture distorted during search.	Some distortion is normal.	–
Alternative soundtrack and subtitles cannot be selected.	- The languages are not recorded on the disc. - You may have to use the disc's own menus to select languages.	– –
Soundtrack/subtitle language is different from the one selected with the SETUP menus.	The language is not recorded on the disc.	59
No subtitles.	- Subtitles are not recorded on the disc. - Turn the subtitles on.	– 46
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.	Return the unit's settings to the initial state (factory setting). With the tray open, keep pressing [◀◀/▶▶] and [▶▶/▶▶] on the main unit simultaneously for 5 or more seconds.	–

Remote control		Page
The remote control doesn't work.	- The unit is on standby to make a timer recording ("⊖" on the unit's display is on). [DVD, TV] is not switched to "DVD". Switch to "DVD" when operating this unit. - The remote control code is wrong. Change to the correct code. - The batteries are depleted. Replace them with new ones. - Point the remote control at the remote control sensor on the main unit. - Remove obstacles between the remote control and main unit. - The Child Lock function is activated. - If you repeat inserting of discs or turning this unit on and off 50 times or more, the recording or editing of DVD-R may be disabled.	30, 31 6 62 6 6 – 54 –
Cannot operate the TV.	- The remote control code is wrong. Change to the correct code. Some TVs cannot be operated even if you change the code. [DVD, TV] is not switched to "TV". Switch to "TV" when operating the TV.	8 8

MPEG4	
Can not operate with other equipment.	If the card dubbed by this unit is played back by other equipment, it may not be played back depending on the equipment.

Helpful Hints

Recording, timer recording and dubbing

		Page
Cannot record.	- You haven't inserted a disc or the inserted disc is not compatible. Insert a disc the unit can record onto. - The disc is unformatted. Format the disc so this unit can record on it. - The write protect tab on the cartridge is set to "PROTECT". Use a ballpoint pen or similar to release the write protection. - Recording is not possible unless you set "Disc Protection" in "DISC INFORMATION" to "Off". - HDD or the disc is full or nearly full. Delete unneeded programmes or use another disc. - The material you are trying to record is copy-guarded. - Tried to record to a DVD-R that has already been finalized. - Timer recording will not be activated when in editing or dubbing. Timer recording will begin after the editing/dubbing is finished. - If you repeat recording or editing 200 times or more, the remaining capacity of the DVD-R is reduced and then the recording or editing may be disabled.	9 38 69 37 40 — — — —
VIDEO Plus+ programming does not work properly.	The clock is wrong. Go to "Settings" in the "SETUP" menus and correct the clock with "Clock".	63
Timer recording does not work properly.	- The timer programme is incorrect. Correct the programme and check them when you are finished. - The unit is not on standby for timer recording. ("⊖" on the unit's display is not on.) - Different timer programme times overlap. - The clock is wrong. Go to "Settings" in the "SETUP" menus and correct the clock with "Clock". - Timer recording will not be activated during formatting, dubbing, editing of still pictures and other such operations which are not suitable for interruption when they are being carried out.	30, 32 — 32 63 —
The unit switches to standby while making a timer recording.	The unit switches to standby while making a timer recording if the disc runs out of space. Use a disc that has enough space to record the programme.	—
The timer programme remains even after recording finishes.	The programme remains if you select weekly or daily setting.	30, 32
The available recording time doesn't increase even after erasing all recordings on the disc.	- The available recording time does not increase if you erase data written by the DVD-RAM drive of a computer. Format the disc if necessary. - If the disc is dirty, wipe with the DVD-RAM/PD lens cleaner (optional) before formatting. - Available recording space on the DVD-R does not increase even after erasing previously recorded programming.	38 — —
A part or whole of a recorded programme has been lost.	If the power breaks down or the plug is disconnected from the household AC outlet while recording or editing, the programme may be lost or the disc may become unusable. →We cannot offer any guarantee regarding lost programmes or discs. You will have to format the HDD/disc or use a new disc.	—
It takes too much time when dubbing to DVD-R in High Speed mode.	- It takes more time to dub many files or files including LPCM than usual. - The disc is not compatible with high speed recording.	35 —
Cannot dub to DVD-R in High Speed mode.	"DVD-R Rec for High Speed mode" is not set to "On". - Dubbing to DVD-R in High Speed mode is possible only when the DVD-R is compatible with dubbing in high speed.	59 —
The birl of DVD-R is loud.	When recording to DVD-R or dubbing in High Speed mode, the birl of the disc may be louder than usual.	—
Can we dub DVD-R with ×24 speed?	When the programme is recorded in EP mode, and it is dubbed in High Speed mode on DVD-R which is compatible with high speed recording, the dubbing speed is 24 times faster than usual (e.g. When the recording is 6 hours long, it is dubbed in 15 minutes.).	—

Still pictures

The contents of the card cannot be read.	- The memory card format is not valid with the unit. →Format using FAT 12 or FAT 16 with other equipment or format the memory card with this unit. (Mobile hard disk is also FAT 32 compatible.) - The unit tried to display still picture files that were in a folder level that is not valid. - The still picture file is not JPEG or TIFF. →This unit displays still pictures (JPEG and TIFF) that comply with DCF standard. - Turn off and then turn on the unit again.
Copying, erasing and setting protection takes a long time.	- When there are a lot of folders and files, it may sometimes take a few hours. - When repeating copying or erasing, it may sometimes take a long time. Format the disc or memory card.
The tray won't open/close.	The tray cannot be opened or closed while playing back the still pictures or displaying the editing screen. Press [RETURN] for a while to clear the screen.
The PC card cannot be removed.	Make sure the PC card has been slotted home firmly before attempting to remove.
Timer recording began in the middle of editing a still picture.	If it comes to the time scheduled for timer recording, the recording may start even though you are editing.

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

Helpful Hints

Specifications

Power supply:	AC 220–240 V, 50 Hz
Power consumption:	48 W
Recording System:	DVD Video Recording Standards (DVD-RAM) DVD Video Standards (DVD-R)
Recordable discs:	DVD-RAM: 12 cm 4.7 GB, 12 cm 9.4 GB, 8 cm 2.8 GB DVD-R: 12 cm 4.7 GB, 8 cm 1.4 GB (for General Ver.2.0) 12 cm 4.7 GB (for General Ver.2.0/4×-SPEED DVD-R Revision 1.0)
Recording Time:	Maximum 6 hours (with 4.7 GB disc) XP: Approx. 1 hour SP: Approx. 2 hours LP: Approx. 4 hours EP: Approx. 6 hours Maximum 106 hours (with built-in 80 GB HDD) XP: Approx. 17 hours SP: Approx. 34 hours LP: Approx. 68 hours EP: Approx. 106 hours
Playable discs:	DVD-RAM: 12 cm 4.7 GB, 12 cm 9.4 GB, 8 cm 2.8 GB DVD-R: 12 cm 4.7 GB, 8 cm 1.4 GB (for General Ver.2.0) 12 cm 4.7 GB (for General Ver.2.0/4×-SPEED DVD-R Revision 1.0) DVD-Video, DVD-Audio, Video CD, CD-Audio (CD-DA), CD-R/RW (MP3, CD-DA, Video CD formatted discs)
Built-in HDD Capacity:	80 GB
Drive Unit	High Speed Drive (correspond to 4 times speed with DVD-R disc)
LASER Specification	
Class 1 LASER Product	
Wave Length:	779–791 nm, 653–662 nm
Laser Power:	No hazardous radiation is emitted with the safety protection
Audio	
Recording System:	Dolby Digital 2ch, Linear PCM 2ch (XP mode), G.726 (MPEG4)
Audio In:	AV1/AV2 (21 pin) AV3/AV4 (pin jack)
Input Level:	Standard: 0.5 Vrms, Full scale: 2 Vrms at 1 kHz
Input Impedance:	More than 10 kohm
Audio Out:	AV1/AV2 (21 pin) Audio Out (pin jack)
Output Level:	Standard: 0.5 Vrms, Full scale: 2 Vrms at 1 kHz
Output Impedance:	less than 1 kohm
Digital Audio Out:	Optical terminal (PCM, Dolby Digital, DTS, MPEG)
Television System	
Tuner System:	PAL–I
Channel Coverage	UHF: CH21–68
RF Converter Output:	UHF: CH21–68 71 ±3 dBμ
Video	
Video System:	PAL colour signal, 625 lines, 50 fields NTSC colour signal, 525 lines, 60 fields
Recording System:	MPEG2 (Hybrid VBR), MPEG4 (VBR)
Video In:	AV1/AV2 (21 pin), AV3/AV4 (pin jack) 1 Vp-p 75 ohm, termination
S-Video In:	AV2 (21 pin), AV3/AV4 (S terminal) 1 Vp-p 75 ohm, termination
RGB In:	AV2 (21 pin) 0.7 Vp-p (PAL) 75 ohm, termination
Video Out:	AV1/AV2 (21 pin), Video Out (pin jack) 1 Vp-p 75 ohm, termination
S-Video Out:	AV1 (21 pin), S-Video Out (S terminal) 1 Vp-p 75 ohm, termination
RGB Out:	AV1 (21 pin) 0.7 Vp-p (PAL) 75 ohm, termination
DV-Input:	4-pin
SD/PC Card Slot	
SD Card Slot:	SD Memory Card Slot
PC Card Slot:	PC Card Type II
Still Picture (JPEG, TIFF)	
Compatible Media (SD Card Slot):	SD Memory Card, MultiMediaCard

Compatible Media (PC Card Slot):	A PC Card adaptor conforming to PC Card Standards, ATA Flash PC Card, PC Card Adaptor (SD Memory Card, xD-Picture Card, Microdrive, MultiMediaCard, CompactFlash, SmartMedia, MEMORY STICK), Mobile hard disk
Format:	FAT12, FAT16
Image File Format:	JPEG conforming to DCF (Design rule for Camera File system), (Sub sampling 4:2:2 or 4:2:0) TIFF (Uncompressed RGB chunky), DPOF Compatible
Number of pixels:	320×240 to 6144×4096
Thawing Time:	Approx. 7 sec. (2 M pixels)
SD Video (MPEG4, MPEG2)	
Compatible Media (SD Card Slot):	SD Memory Card, MultiMediaCard (restricted to fine, normal, economy of MPEG4)
Compatible Media (PC Card Slot):	Mobile hard disk (Only read)
MPEG4	
Codec:	Video: MPEG4 conforming, Audio: G.726 conforming
Number of pixels:	super fine/fine: 320×240 (QVGA), normal/economy: 176×144 (QCIF)
Recording rate (max.):	super fine: 1050 kbps, fine: 430 kbps, normal: 300 kbps, economy: 100 kbps (include Audio transfer rate as 32 kbps)
File format:	SD-Video format conforming (ASF)
MPEG2	Video Recording conversion and transfer is possible from card to HDD or DVD-RAM disc. After Video Recording conversion and transfer to HDD or DVD-RAM disc, the playback is possible.
Codec:	MPEG2 (SD-Video Entertainment Video Profile)
File format:	SD-Video format conforming
Others	
Dimensions (W)×(H)×(D):	Approx. 430×79×296 mm
Mass:	Approx. 5.5 kg
Operating Temperature:	5°C–40°C
Operating Humidity range:	10%–80% RH (no condensation)

Note

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

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