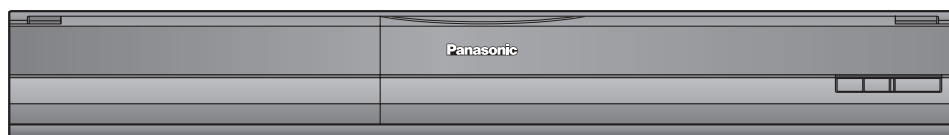


Operating Instructions

DVD Recorder

Model No. **DMR-EX88EB**
DMR-EX78EB

DIGA



The illustrations in these Operating Instructions show images of DMR-EX78.

Dear customer

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully.

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

Please keep this manual for future reference.

Note: "EB" on the packaging indicates the United Kingdom.



Trademark of the DVB Digital Video Broadcasting Project (1991 to 1996)

EX88 Declaration of Conformity No. 5134, 16th November 2007

EX78 Declaration of Conformity No. 5133, 16th November 2007

Notice for DVB functions

This DVD Recorder is for viewing and recording free to view channels only, not Pay TV or encrypted channels.

This unit does not have an analogue broadcast tuner.

- This unit has the capability for DVB specifications. But future DVB services cannot be guaranteed.

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

Region number supported by this unit

Region numbers are allocated to DVD recorders and DVD-Video according to where they are sold.

- The region number of this unit is "2".
- The unit will play DVDs marked with labels containing "2" or "ALL".

Example:



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

Features

Enjoy Digital Broadcast!

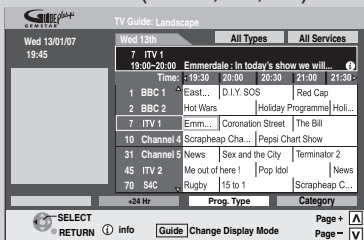
Receives digital terrestrial broadcast using an integrated DVB tuner

- Watching Television (→ 19)
- Register and instantly call up favourite programmes with Edit Profiles (→ 70)
- Digital Channel Information (→ 46)

Easy to Find and Select!

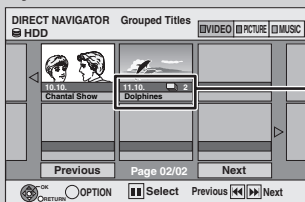
You can easily find programmes you want to watch and set them for timer recording.

- GUIDE Plus+ (→ 19, 22, 34)



Direct Navigator Grouped Titles screen

Two or more titles recorded in the Daily/weekly or series timer recording mode are bundled and displayed as one item.



Grouped title

High Quality Picture

HDMI™ (V.1.3 with Deep Colour)

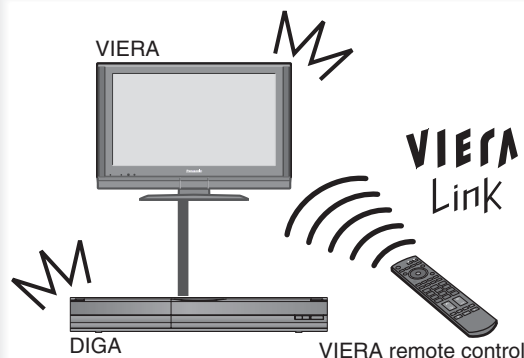
- Connection with HDMI terminal (→ 12)
- Deep Colour (→ 96)

Convenient Functions!

Linked operations with the TV

You can enjoy linked operations with the TV and receiver by using VIERA Link or Q Link.

- Linked operations with the TV (VIERA Link "HDAVI Control™"/Q Link) (→ 44)



Linked timer recordings with external equipment

You can set the Timer Recordings on Digital STB/Satellite Receiver when it is connected to this unit with SCART cable.

- EXT LINK (→ 28)

Freeview Playback functions

- Guide Link (→ 22)
- Series recording (→ 31)
- Split recording (→ 22)

Pause the TV programme you are watching

- Pause Live TV (→ 43)

Digital Switchover

Starting in late 2007 and ending in 2012, TV services in the UK will go completely digital, TV region by TV region. If you are missing any channels, it may be that they are not available in your area, or that your aerial needs upgrading.

If you have any questions, please call Digital UK on **08456 50 50 50** or visit **www.digitaluk.co.uk**. Digital Switchover will cover a period of several weeks. When it starts some Digital TV programmes will be missing.

You will need to retune your DVD Recorder each time this happens to recover your digital programmes.

To retune your DVD Recorder → "Auto-Setup Restart" in the Setup menu (→ 71)

Accessories



Please check and identify the supplied accessories. Use numbers indicated in parentheses when asking for replacement parts.

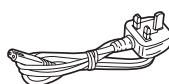
(Product numbers correct as of March 2008. These may be subject to change.)



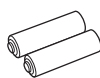
- ☐ 1 Remote control (N2QAYB000127)



- ☐ 1 RF coaxial cables (K1TWACC00001)



- ☐ 1 AC mains lead (K2CT3CA00004)
• For use with this unit only. Do not use it with other equipment. Also, do not use cords for other equipment with this unit.



- ☐ 2 Batteries for remote control (R6 Size)



- ☐ 1 Audio/video cable (K2KA6BA00003)

Sales and Support Information

Customer Care Centre

- For customers within the UK: 0844 844 3852
- For customers within the Republic of Ireland: 01 289 8333
- Visit our website for product information
- E-mail: customer.care@panasonic.co.uk

Direct Sales at Panasonic UK

- Order accessory and consumable items for your product with ease and confidence by phoning our Customer Care Centre Monday–Thursday 9:00am–5:30pm, Friday 9:30am–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.

*Interested in purchasing an extended guarantee?
Please call 0870 240 6284 or visit our website
www.panasonic.co.uk/guarantee.*



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-ampere and that it is approved by ASTA or BSI to BS1362.

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 dealer.

CAUTION!

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 stated 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 these colours 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 which is marked with the letter N or coloured Black or Blue.

The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL  OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

Before use

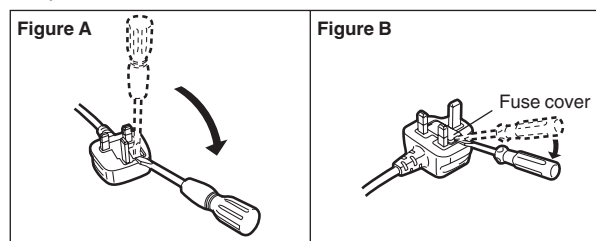
Remove the connector cover.

How to replace the fuse

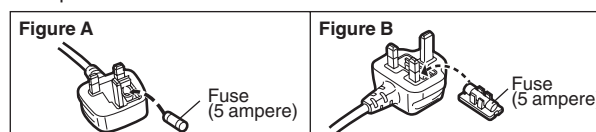
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.



2. Replace the fuse and close or attach the fuse cover.



Safety precautions

Placement

Set the unit up on an even surface away from direct sunlight, high temperatures, high humidity, and excessive vibration. These conditions can damage the cabinet and other components, thereby shortening the unit's service life.

Do not place heavy items on the unit.

Voltage

Do not use high voltage power sources. This can overload the unit and cause a fire.

Do not use a DC power source. Check the source carefully when setting the unit up on a ship or other place where DC is used.

AC mains lead protection

Ensure the AC mains lead is connected correctly and not damaged. Poor connection and lead damage can cause fire or electric shock. Do not pull, bend, or place heavy items on the lead.

Grasp the plug firmly when unplugging the lead. Pulling the AC mains lead can cause electric shock.

Do not handle the plug with wet hands. This can cause electric shock.

Foreign matter

Do not let metal objects fall inside the unit. This can cause electric shock or malfunction.

Do not let liquids get into the unit. This can cause electric shock or malfunction. If this occurs, immediately disconnect the unit from the AC mains supply and contact your dealer.

Do not spray insecticides onto or into the unit. They contain flammable gases which can ignite if sprayed into the unit.

Service

Do not attempt to repair this unit by yourself. If sound is interrupted, indicators fail to light, smoke appears, or any other problem that is not covered in these instructions occurs, disconnect the AC mains lead and contact your dealer or an authorized service centre. Electric shock or damage to the unit can occur if the unit is repaired, disassembled or reconstructed by unqualified persons.

Extend operating life by disconnecting the unit from the AC mains if it is not to be used for a long time.

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Plays all versions of DivX® video (including DivX®6) with standard playback of DivX® media files.
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About descriptions in these operating instructions

- These operating instructions are applicable to models DMR-EX78 and DMR-EX88. Unless otherwise indicated, illustrations in these operating instructions are of DMR-EX78.
- **EX78** : indicates features applicable to DMR-EX78 only.
- **EX88** : indicates features applicable to DMR-EX88 only.
- **Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.**
- Pages to be referred to are indicated as "→ ○ ○".

HDD (Hard disk drive) handling care

The HDD is a high precision recording instrument and because of its long recording capability and high speed operation it is a very special device that is easily susceptible to damage.

As a basic rule, save important content to a disc as backup.

■ The HDD is a device that is not built to withstand vibration/shock or dust

Depending on the setup environment and handling of the HDD some content may become damaged and play and recording may no longer be possible. Especially during operation, do not subject the unit to any vibration, shock, or remove the AC mains lead from the household mains socket. In the event of a power failure during recording or play, the content may be damaged.

■ The HDD is a temporary storage device

The HDD is not an everlasting storage device for recorded content. Use the HDD as a temporary storage place for one-off viewing, editing, or copying. It is recommended to save the recorded content on a disc or to keep the original data or CDs that they were copied from.

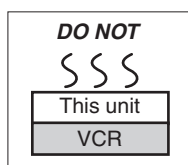
■ Immediately save (backup) all content as soon as you feel there may be a problem with the HDD

If there is an irregularity within the HDD, repetitive strange sounds or problems with picture (block noise, etc.) may result. Using the HDD in this condition may worsen the problem and in the worst case the HDD may no longer be usable. As soon as you notice this type of problem, copy all content to disc and request service. Recorded content (data) on a HDD that has become unusable is unrecoverable.

- When the unit is turned on or off, there may be an unexpected sound. This does not indicate a problem with this unit.

■ Setup precautions

- Do not place in an enclosed area where the rear cooling fan and the cooling vents on the side are covered up.
- Place the unit on a surface that is flat and not subject to vibration or impact.
- Do not place on anything that generates heat like a video cassette recorder, etc.
- Do not place in an area often subject to temperature changes.
- Place in an area where condensation does not occur. Condensation is a phenomenon where moisture forms on a cold surface when there is an extreme change in temperature. Condensation may cause internal damage to the unit.
- Conditions where condensation may occur
 - When there is an extreme change in temperature (moving from a very hot location to a very cold location, or vice versa, or when subjected to an air conditioner or when cooled air directly impacts the unit). When the HDD (warms during operation) is subjected to cold air, condensation may form on the inside of the HDD and may cause damage to the HDD heads, etc.
 - When there is high humidity or a lot of steam in the room.
 - During the rainy season.



In the above situation, **without turning the unit on**, let the unit adjust to the room temperature and wait 2–3 hours until condensation is gone.

■ Cigarette smoke etc. causes malfunction or breakdown

The unit may breakdown if cigarette smoke or bug spray/vapor, etc. gets inside the unit.

■ While operating

- Do not move the unit or subject to vibration or impact. (The HDD may become damaged.)
- Do not remove the AC mains lead from the household mains socket, or flip the power breaker switch.

While the unit is on, the HDD is rotating at high speed. Sound or movement due to rotation is normal.

■ When moving the unit

- ① Turn the unit off. (Wait until "BYE" disappears from the display.)
- ② Remove the AC mains lead from the household mains socket.
- ③ Move only after the unit has come to a complete stop (approx. 2 minutes) in order to avoid subjecting to vibration and shock. (Even after turning the unit off, the HDD continues operating for a short time.)

■ HDD recording time remaining

This unit records using a VBR (Variable bit rate) data compression system to vary recorded data segments to match video data segments which may cause differences in the displayed amount of time and space remaining for recording.

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

■ Indemnity concerning recorded content

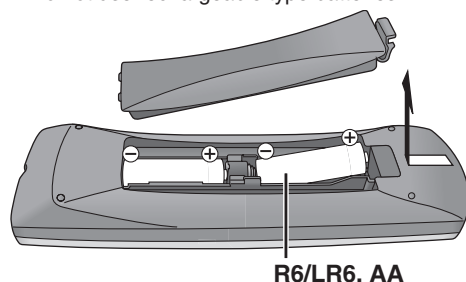
Panasonic does not accept any responsibility for damages directly or indirectly due to any type of problems that result in loss of recording or edited content (data), and does not guarantee any content if recording or editing does not work properly. Likewise, the above also applies in a case where any type of repair is made to the unit (including any other non-HDD related component).

Remote Control Information/Unit Care

Remote Control Information

About batteries

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



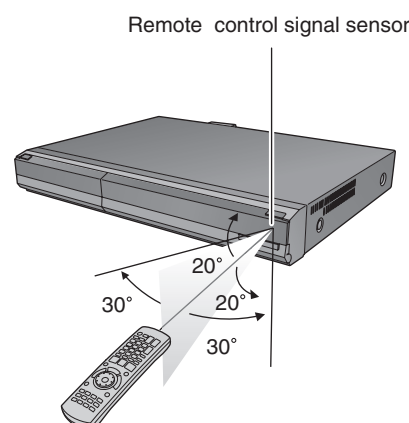
- Do not mix old and new batteries.
- Do not use different types at the same time.
- Do not heat or expose to flame.
- Do not leave the battery(ies) in an automobile exposed to direct sunlight for a long period of time with doors and windows closed.
- Do not take apart or short circuit.
- Do not attempt to recharge alkaline or manganese batteries.
- Do not use batteries if the covering has been peeled off.

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

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

Using the remote control

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



Unit Care

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

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

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

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

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

Use the **DVD lens cleaner** (not included) about once every year, depending on frequency of use and the operating environment. Carefully read the lens cleaner's instructions before use.

DVD lens cleaner: RP-CL720E

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

The heat can damage the unit.



Select a position with good ventilation when installing the unit. Do not block the cooling fan on the rear of the unit.

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

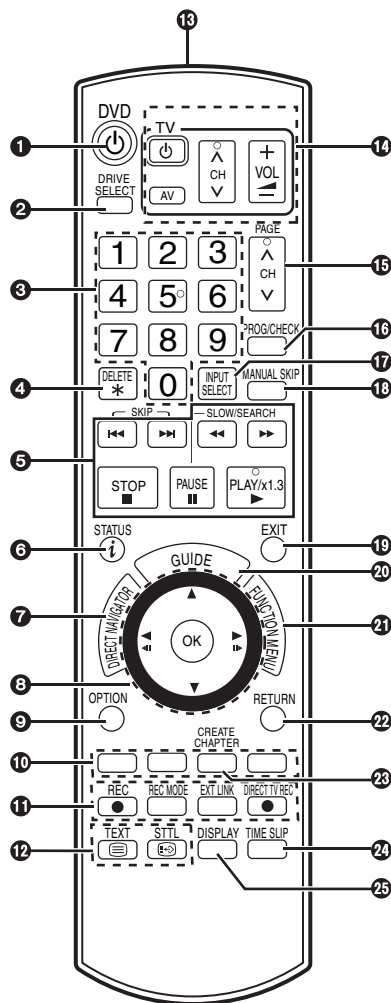
The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material due to a problem with the unit or recordable media, and accepts no responsibility and offers no compensation for any subsequent damage caused by such loss.

Examples of causes of such losses are

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

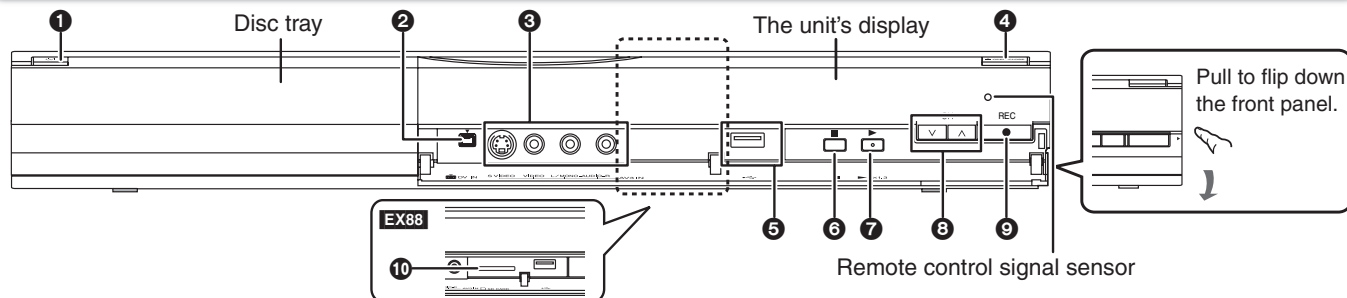
Location of Parts/Controls

Remote Control



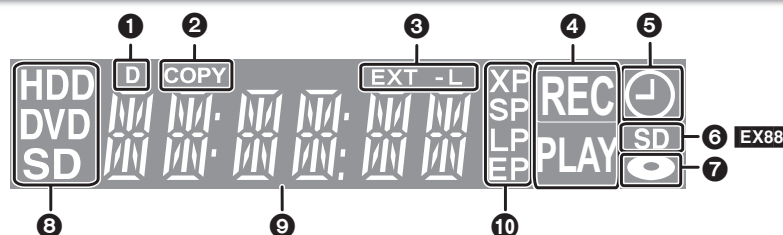
- 1 Turn the unit on or off (→ 13)
- 2 Select drive [HDD, DVD or SD (**EX88**)] (→ 20, 21, 40)
- 3 Select channels and title numbers etc./
Enter numbers..... (→ 13)
- 4 To delete unwanted recorded titles, still pictures or
music..... (→ 23, 55)
- 5 Basic operations for recording and play
- 6 Show the digital channel information
/Programme information within GUIDE Plus+ screen
/Show status messages (→ 34, 46, 47)
- 7 Show DIRECT NAVIGATOR..... (→ 36, 38)
- 8 Selection/OK, Frame-by-frame (→ 13, 37)
- 9 Show OPTION menu..... (→ 36, 41, 48, 50)
This menu is used when playing or editing titles and still
pictures, etc.
- 10 Use Colour buttons according to on-screen instructions.
-for switching the DIRECTNAVIGATOR screen
-for switching Video/Playlists
-for GUIDE Plus+ operations
-disactivating timer programme
-for selecting programme category
-for editing profiles
- 11 Recording function
[● REC]: Start recording..... (→ 21)
[REC MODE]: Change recording mode (→ 21)
[EXT LINK]: Linked timer recordings with external equipment..... (→ 28)
[● DIRECT TV REC]: Direct TV recording (→ 26)
- 12 DVB function
[TEXT (T)]: Show Digital TEXT (MHEG) service..... (→ 46)
[STTL (S)]: Show subtitles..... (→ 46)
- 13 Transmission window
- 14 TV operations (→ 77)
- 15 Channel select/Change pages in the
GUIDE Plus+ list (→ 21, 34)
- 16 Show timer recording list (→ 30)
- 17 Input select (Tuner, AV1, AV2, AV3, DV) (→ 19, 28, 29)
- 18 Skip approx. 1 minute forward (→ 37)
- 19 Exit the menu screen
- 20 Show the GUIDE Plus+ screen (→ 19, 22, 34)
- 21 Show FUNCTION MENU window (→ 43)
By using the FUNCTION MENU window you may access the
main functions (Playback, Recording, etc.) quickly and easily.
- 22 Return to previous screen
- 23 Create chapters..... (→ 37)
- 24 Skip the specified time (→ 37)
- 25 Show menu for disc playback etc./Change DVB multi
audio (→ 66)

Main Unit



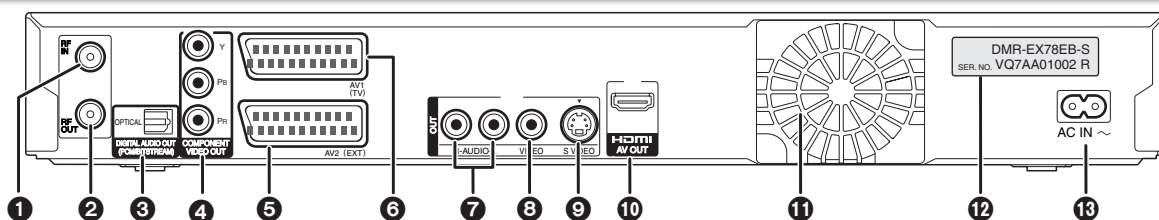
- 1 Standby/on switch (⏻/⏻) (→ 13)
Press to switch the unit from on to standby mode
or vice versa. In standby mode, the unit is still
consuming a small amount of power.
- 2 DV IN terminal (for a digital video
camcorder) (→ 29)
- 3 AV3 input terminals (→ 29)
- 4 Disc tray open/close button (→ 20)
- 5 USB port..... (→ 81)
- 6 Stop button (→ 20, 21)
- 7 Play/x1.3 button..... (→ 20)
- 8 Channel Select button (→ 21)
- 9 Start recording button..... (→ 21)
- 10 **EX88** SD card slot..... (→ 81)

The Unit's Display



- | | |
|---|---|
| <p>1 Digital broadcast indicator
Lights when the unit is receiving digital broadcast or GUIDE Plus+ data.</p> <p>2 Copying indicator</p> <p>3 Linked timer recordings with external equipment indicator..... (→ 28)</p> <p>4 Recording/Playback indicator</p> <p>5 Timer recording indicator..... (→ 22)</p> <p>On:
When a Timer recording programme is registered</p> <p>Flashes:
The Timer recording indicator flashes when the unit cannot go to Timer recording standby.</p> | <p>6 EX88 SD card slot indicator</p> <p>7 Disc indicator
This indicator lights up when a disc that is supported by this unit is inserted.</p> <p>8 Drive [HDD, DVD or SD (EX88)] indicator</p> <p>9 Main display section
Current time/playback counter, various messages.</p> <p>10 Recording mode indicator</p> |
|---|---|

Rear Panel

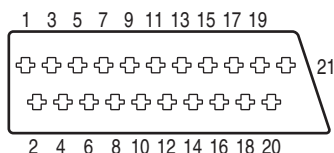


- | | |
|---|--|
| <p>1 Aerial input terminal (→ 10, 11, 78)</p> <p>2 Aerial output terminal (→ 10, 11, 78)</p> <p>3 Digital audio output terminal..... (→ 80)</p> <p>4 COMPONENT VIDEO OUT (PROGRESSIVE/INTERLACE) terminals (→ 79)
Y = Luminance signal (brightness), P_B = Chrominance signal (colour difference), P_R = Chrominance signal (colour difference)</p> <p>5 AV2 (EXT) 21-pin Scart terminal (→ 11, 78)
Connection of an external unit</p> | <p>6 AV1 (TV) 21-pin Scart terminal..... (→ 10, 11, 78)
TV set connection</p> <p>7 AUDIO output terminals..... (→ 79, 80)</p> <p>8 VIDEO output terminal (→ 79)</p> <p>9 S VIDEO output terminal (→ 79)</p> <p>10 HDMI AV OUT terminal (→ 12, 80)
Digital audio and video output terminal</p> <p>11 Cooling fan</p> <p>12 Serial number</p> <p>13 AC IN~ = Power supply
Connection for the AC mains lead</p> |
|---|--|

21-pin Scart terminal

The 21-pin Scart terminal transmits both input and output signals for picture and sound. TVs equipped with the same type of terminal can be connected here. This type of terminal is also called Peritel, Euro Connector and Euro AV.

- When the unit is connected to a Q Link-compatible TV with a fully wired 21-pin Scart cable, you can use convenient functions of Q Link.



AV1 Scart terminal (TV)

- | | |
|----|-------------------------------|
| 1 | Audio output CH2 (R) |
| 2 | Audio input CH2 (R) |
| 3 | Audio output CH1 (L) |
| 4 | Audio ground |
| 5 | Blue ground |
| 6 | Audio input CH1 (L) |
| 7 | Blue output |
| 8 | Switching voltage output |
| 9 | Green ground |
| 10 | Q Link control signal |
| 11 | Green output |
| 12 | Reserved |
| 13 | Red ground |
| 14 | Blanking ground |
| 15 | Red output/chrominance output |
| 16 | Blanking output |
| 17 | Video output ground |
| 18 | Video input ground |
| 19 | Video output/luminance output |
| 20 | Video input |
| 21 | Ground |

AV2 Scart terminal (EXT)

- | | |
|----|-----------------------------|
| 1 | Audio output CH2 (R) |
| 2 | Audio input CH2 (R) |
| 3 | Audio output CH1 (L) |
| 4 | Audio ground |
| 5 | Blue ground |
| 6 | Audio input CH1 (L) |
| 7 | Blue input |
| 8 | Switching voltage input |
| 9 | Green ground |
| 10 | Reserved |
| 11 | Green input |
| 12 | Reserved |
| 13 | Red ground |
| 14 | Blanking ground |
| 15 | Red input/chrominance input |
| 16 | Blanking input |
| 17 | Video output ground |
| 18 | Video input ground |
| 19 | Video output |
| 20 | Video input/luminance input |
| 21 | Ground |

Basic Connection

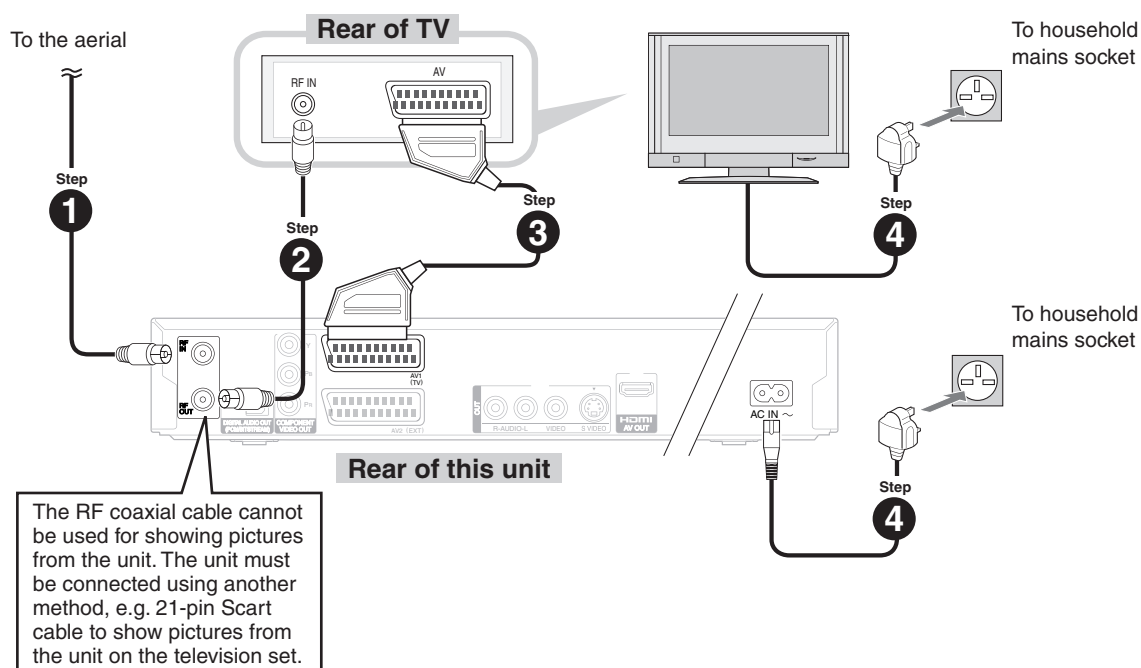
Use of the RF coaxial cable

- Keep the RF coaxial cables as far away as possible from other cables.
- Do not roll up the RF coaxial cables.

- Before connection, turn off the mains for all connected equipment and read the appropriate operating instructions.

Be sure to read the Caution for AC Mains Lead on page 3.

Connecting to a Television only



Connections other than the 21-pin Scart cable ▶ 12, 79

- 1 Aerial cable to the “**RF IN**” on the unit.
- 2 RF coaxial cable (included) from the “**RF OUT**” on the unit to the “**RF IN**” on the TV.
- 3 21-pin Scart cable from the “**AV1 (TV)**” on the unit to the “**AV**” on the TV.
- 4 AC mains lead (included) from the “**AC IN~**” on the unit and the TV to a household mains socket.

After completing the above connections, proceed to the TV Tuning (→ 13).

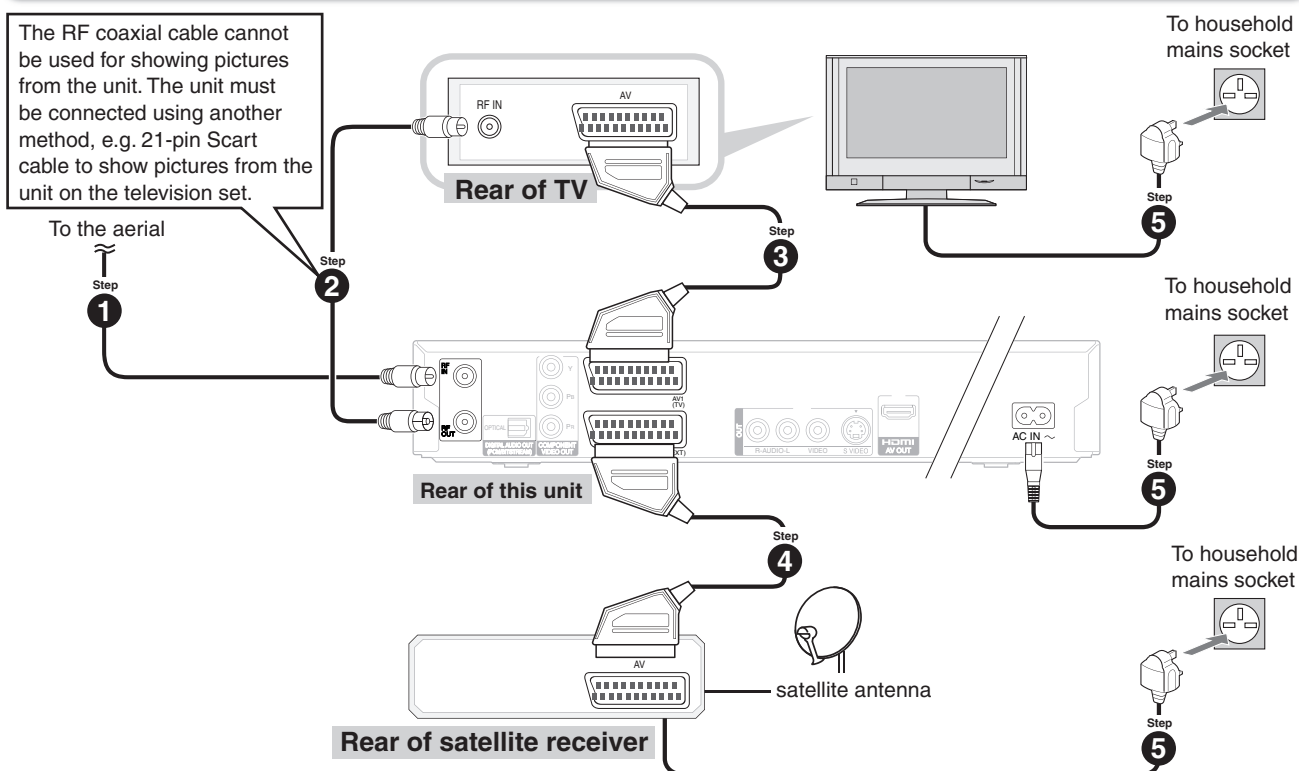
Using a fully wired 21-pin Scart cable

- You can use a variety of Q Link functions by connecting the unit to a Q Link compatible television (→ 44).
- You can enjoy high-quality viewing by connecting the unit to an RGB compatible television.
- “AV1 Output” in the Setup menu is set to “RGB 1 (without component)” or RGB 2 (without component)” (→ 75)
- “AV2 Input” settings in the Setup menu (→ 75)

- Before connection, turn off the mains for all connected equipment and read the appropriate operating instructions.

Be sure to read the Caution for AC Mains Lead on page 3.

Adding a Satellite Receiver: Connecting to a Television and a Satellite Receiver



Connections other than the 21-pin Scart cable ▶ 12, 79

- 1 Aerial cable to the “**RF IN**” on the unit.
- 2 RF coaxial cable (included) from the “**RF OUT**” on the unit to the “**RF IN**” on the TV.
- 3 21-pin Scart cable from the “**AV1 (TV)**” on the unit to the “**AV**” on the TV.
- 4 21-pin Scart cable from the “**AV**” on the satellite receiver to the “**AV2 (EXT)**” on the unit.
- 5 AC mains lead (included) from the “**AC IN~**” on the unit, the TV and the satellite receiver to a household mains socket.

After completing the above connections, proceed to the TV Tuning (→ 13).

To view satellite programmes

Refer to “Watching Satellite Programmes” (→ 19)

To record satellite programmes

Refer to “Recording from a Satellite Receiver” (→ 28)

Basic Connection

- You can enjoy high-quality picture by adding the HDMI cable connection to the 21-pin Scart cable connection between this unit and your TV on page 10, 11.

Connecting to a TV with an HDMI (High Definition Multimedia Interface) Cable

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

- **This unit incorporates HDMI™ (V.1.3 with Deep Colour) technology** that can reproduce greater colour gradation (4096 steps) when connected to a compatible TV.
A lower colour gradation (256 steps), without deep colour, will be reproduced if connected to a TV which does not support deep colour.
The unit will automatically set appropriate output to suit the connected TV.
- Video sources converted to 1920×1080 resolution, while of high quality, will exhibit somewhat lower subjective image resolution than true, native 1080p full-HD sources. See dealer for details.
- Please use High Speed HDMI Cables that have the HDMI logo (as shown on the cover).

Regarding VIERA Link “HDAVI Control™” function

When connecting with a Panasonic TV (VIERA) or a receiver equipped with the “HDAVI Control” function, linked operations would be possible. [→ 44, Linked Operations with the TV (VIERA Link “HDAVI Control™/Q Link)]

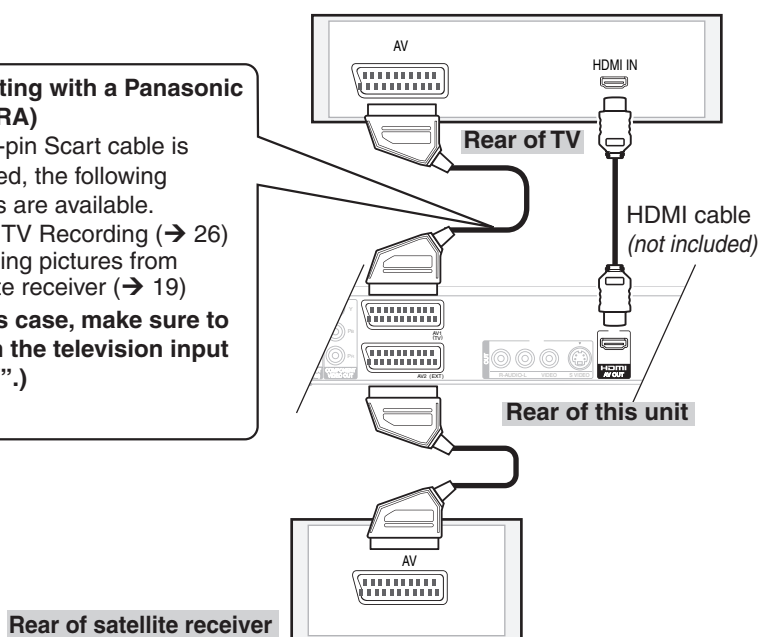
- It is recommended that you use Panasonic's HDMI cable.
Recommended part number: RP-CDHG10 (1.0 m), RP-CDHG15 (1.5 m), RP-CDHG20 (2.0 m), RP-CDHG30 (3.0 m), RP-CDHG50 (5.0 m), etc.
- Non-HDMI-compliant cables cannot be utilised.

Connecting with a Panasonic TV (VIERA)

If the 21-pin Scart cable is connected, the following functions are available.

- Direct TV Recording (→ 26)
- Watching pictures from satellite receiver (→ 19)

(In this case, make sure to switch the television input to “AV”.)



- Set “Digital Audio Output” to “HDMI and Optical” (→ 75).
(The default setting is “HDMI and Optical”).

To enjoy High Quality Video up-converted to 1080p, you need to connect the unit to 1080p compatible HDTV and set “HDMI Video Format” in the Setup menu to “1080p” (→ 75).



Notes

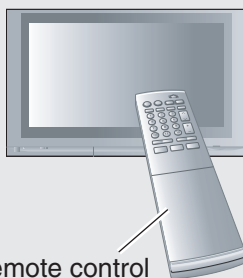
- If connecting to equipment that is only audio compatible with 2 channel audio output, audio with 3 channels or more will be down-mixed (→ 96) and output as 2 channels, even if connecting with an HDMI cable (some discs cannot be down-mixed).
- For display units compatible with HDCP (High-Band width Digital Content Protection) that are equipped with a digital DVI input terminal (PC monitors, etc.):
Depending on the unit, picture may not display properly or at all when connecting with a DVI/HDMI switching cable (audio cannot be output).

Setting the Channels and Clock

Preparation:

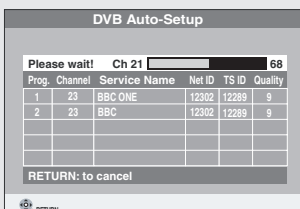
- Turn on the mains for the television (and connected equipment) and select the appropriate AV input to suit the connections to this unit.
- These are the first settings you make upon buying the unit. You don't need to make these settings again.

TV's remote control



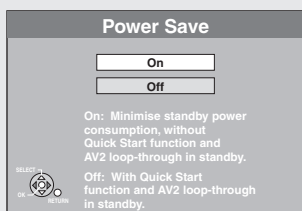
- 1 to turn the unit on.

DVB Auto-Setup starts. The unit will search for the digital terrestrial channels. This takes about 5 minutes.



- 2 **Power Save Function:**
▲, ▼ to select "On" or "Off" then

- Set to "On" to reduce power consumption in standby mode.
- Refer to the following chart for the Power Save function features when the unit is turned off.



Power Save	On	Off
Power consumption	Approx. 2 W	Approx. 15 W
Watching the picture from the satellite receiver connected to the AV2 terminal	Cannot do	Can do
Startup time	Not quick	Quick*
Front display	Turns off	Stays lighted

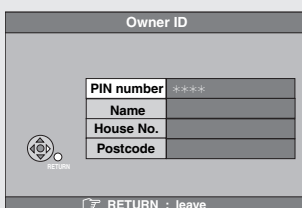
*e.g., GUIDE Plus+ list is displayed within 1 second after [GUIDE] is pressed while the unit is off.

- 3 When setup has completed, the confirmation screen appears.



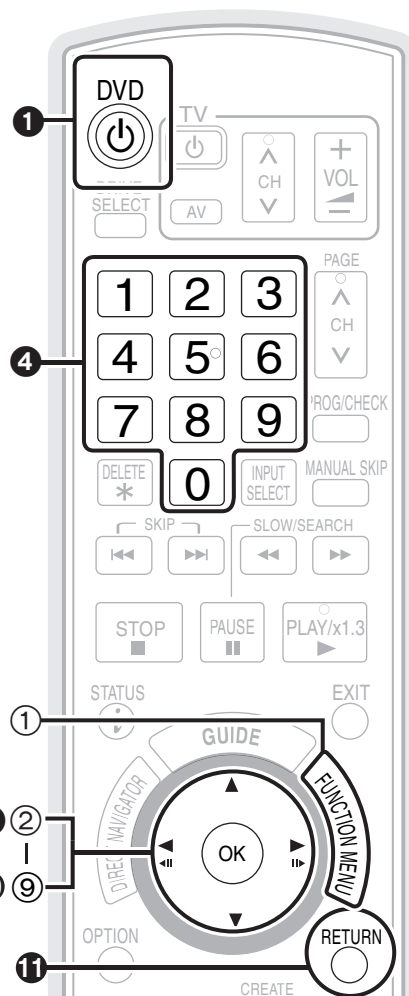
- 4 The Owner ID settings screen appears.
▶ and press the numbered buttons to enter your choice of a 4-digit PIN number.

Make a note of the PIN number (don't forget), as it is not possible to return to the factory preset.



- 5 to store the PIN number.

(continued on the next page)



Tips

To cancel Auto-Setup
Press [RETURN].

- If the unit displays "No stations found !"
Press [▶] to select "No" and press [OK]. Go to step 2. After you have performed steps 2-11, turn off the unit and confirm the cable or aerial input is connected to the RF IN terminal. Restart the Auto-Setup again (→ 71).
- If the clock setting menu appears or the clock is not correct, set the clock manually (→ 14).


Restarting the Auto-Setup (→ 71)

To correct the PIN number

1. Press [◀, ▶] to select the digit.
2. Press the numbered buttons to enter the digit.


- When this unit is not operated for approximately 5 minutes while the screen is being displayed, the screen saver may be displayed.
You can turn this function off (→ 74, "Screen Saver").

Setting the Channels and Clock


6 ◀ to select “Yes”, then 
The cursor moves to “Name”.

7 ▶ to enter the name.

8 ▲, ▼ to select a letter, then ▶ to move to next character.
Repeat this to enter the name.

9  to store the name.

10 ▼ and ▶ and then repeat steps **8**, **9** to enter and store “House No.” and “Postcode”.

11  RETURN
The Owner ID settings screen disappears.

• Auto setup for your unit is complete. You can now make your favourite channels and store them in the required order in the profiles. (→ 70)

Tips

To correct the character

1. Press [◀, ▶] to select the character.
2. Press [▲, ▼] to correct the character.

To display the Owner ID information on TV

Press and hold [■] on the main unit for more than 5 seconds.
The PIN number is not displayed.
After 30 seconds this menu automatically disappears.

Clock Setting


This unit usually obtains time and date information from digital broadcasts and automatically corrects the time several times a day.

However, if the clock is not set correctly, adjust the clock.

- In the case of a power failure, the clock setting remains in memory for approximately 60 minutes.


1 With the unit stopped




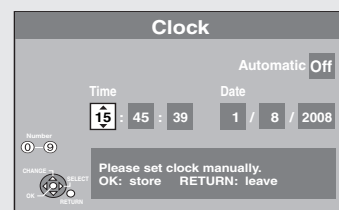
2 ▲, ▼ to select “To Others”, then 

3 ▲, ▼ to select “Setup”, then 

4 ▲, ▼ to select “Others”, then ▶.


5 ▲, ▼ to select “Clock”, then 

6 ▲, ▼ to select “Off” of “Automatic”, then 



7 ◀, ▶ to select the item you want to change.
The items change as follows:
Hour↔Minute↔Second↔Day↔Month↔Year

8 ▲, ▼ to change the setting.
You can also use the numbered buttons for setting.

9  to confirm new date and time and to initiate the clock.

Tips

To return to the previous screen

Press [RETURN].





To exit the screen

Press [EXIT].

Notes

If a TV station transmits a time setting signal, and when “Automatic” in the Clock setting menu is set to “On”, the automatic time correction function checks the time and if necessary it is adjusted several times every day.

Usable Discs for Recording and Playback

Disc type	Data that can be recorded and played	Rewritable	Play on other players ^{※1}	Recording 16:9 aspect picture ^{※2}	Copy-once recording (CPRM) (→ 24)	Standard symbol
Hard disk drive (HDD)	Video Still picture Music	○	—	○	○	HDD
DVD-RAM 	Video Still picture	○	○	○	○ CPRM (→ 96) compatible discs only.	RAM
DVD-R 	Video	—	○	○	—	-R before finalisation DVD-V after finalisation
DVD-R DL 	Video	—	○	○	—	-R DL before finalisation DVD-V after finalisation
DVD-RW 	Video	○	○	○	—	-RW(V) before finalisation DVD-V after finalisation
+R	Video	—	○	— (4:3 aspect)	—	+R before finalisation DVD-V after finalisation
+R DL	Video	—	○	— (4:3 aspect)	—	+R DL before finalisation DVD-V after finalisation
+RW	Video	○	○	— (4:3 aspect)	—	+RW

○: Can do, —: Cannot do

^{※1} **-R -R DL -RW(V) +R +R DL**

Finalisation needed for playback on other equipment (→ 69).

RAM can be played back on Panasonic DVD recorders and DVD-RAM compatible DVD players.

-R DL, **+R DL** or **+RW** can be played back only on equipment compatible with these discs.

^{※2} For further information (→ 24, Important Notes for Recording)

- **RAM -RW(V) +R +R DL +RW** To use a new disc, formatting is necessary (→ 68).
- **+RW** If the disc failed to play on other equipment, we recommend you create top menu (→ 69).
- Use of Panasonic discs is recommended.
For available recording times for different discs under different recording modes, see "Recording Modes and Durations" on page 25.
- Formatting and/or recording/initializing constraints may prevent you from playing or recording certain discs.

- Please see specifications (→ 98) for compatible disc versions and recording speeds.



Notes

- **RAM** will show an increase in available space whenever a title has been erased.
- **-RW(V)** and **+RW** discs will only show an increase in available space when their last title has been erased.
- **-R -R DL +R +R DL** The discs will show no increase in available space after deleting titles.
- You may not be able to record depending on the condition of the discs and you may not be able to play them due to the condition of the recording.

You cannot directly record to a DVD-R DL and +R DL disc on this unit.

Record to the HDD and then copy to the disc.

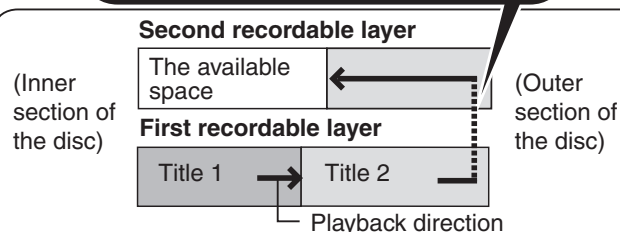
When playing DVD-R DL (Dual Layer, single-sided) and +R DL (Double Layer, single-sided)

DVD-R DL (Dual Layer, single-sided) and +R DL (Double Layer, single-sided) discs have two writable layers on one side. If there is not enough space on the first layer to record a programme, the remainder is recorded on the second layer. When playing a title recorded on both layers, the unit automatically switches between layers and plays the title in the same way as a normal programme. However, video and audio may momentarily cut out when the unit is switching layers.










**DVD-R DL
+R DL**

**When switching layers:
Video and audio may momentarily cut**



HDD and Disc Handling

Play-only Discs

Disc type	Standard symbol	Uses
DVD-Video 	DVD-V	High quality movie and music discs
DVD-RW (DVD Video Recording format) 	-RW(VR)	DVD-RW video recorded on another DVD recorder* • You can play programmes that allow "One time only recording" if they have been recorded onto a CPRM compatible disc. • By formatting (→ 68) the disc, you can record onto it in DVD-Video format. • It may be necessary to finalise the disc on the equipment used for recording.
DVD-R 	-R	• DVD-R* and DVD-R DL* with video recorded in DivX (→ 18) • DVD-R* and DVD-R DL* with still pictures recorded in JPEG (→ 18)
DVD-R DL 	-R DL	• DVD-R* and DVD-R DL* with music recorded in MP3 (→ 18)
Audio CD 	CD	• CD-R* and CD-RW* with video recorded in DivX (→ 18) • CD-R* and CD-RW* with still pictures recorded in JPEG (→ 18) • CD-R* and CD-RW* with music recorded in MP3 (→ 18) • Recorded audio and music (including CD-R/RW*) You can record tracks to this unit's HDD.
Video CD 	VCD	• Recorded music and video (including CD-R/RW*)
SVCD 		

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

- You can play still pictures (JPEG) and MP3 format data recorded on DVD-R, DVD-R DL or CD-R/RW. You can also play CD-DA, Video CD and SVCD (conforming to IEC62107) format data recorded on CD-R/RW. Close the session or finalise the disc after recording.
- The producer of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.

Discs that Cannot be Played

- 2.6/5.2 GB DVD-RAM, 12 cm
- 3.95/4.7 GB DVD-R for Authoring
- DVD-R, DVD-R DL, DVD-RW, +R, +R DL recorded on another unit and not finalised (→ 96).
- Discs recorded with AVCHD format
- DVD-Video with a region number other than "2" or "ALL"
- DVD-Audio
- Blu-ray, HD DVD
- DVD-ROM, +R 8 cm, CD-ROM, CDV, CD-G, Photo CD, CVD, SACD, MV-Disc, PD

Types of disc or title recorded on HDD for the type of connected TV

When you use the discs recorded either PAL or NTSC, or playback a title recorded on HDD using PAL or NTSC, refer to this table.
(○: Possible to view, —: Impossible to view)

TV type	Disc/Titles recorded on HDD	Yes/No
Multi-system TV	PAL	○
	NTSC	○
PAL TV	PAL	○
	NTSC	○ ^{*1} (PAL60)
NTSC TV	PAL	—
	NTSC	○ ^{*2}

*1 If your television is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.

*2 Select "NTSC" in "TV System" (→ 75).

- When playing back a title recorded on the HDD, ensure that you match the "TV System" setting to the title (PAL or NTSC) (→ 75).

USB Memory and Card Handling

USB memories you can use on this unit

Compatible USB memories	USB memories which are defined as USB mass storage class, and digital cameras that use PTP protocol: – USB memories that support USB 1.0/1.1 and USB 2.0 Full Speed/High Speed. EX78 USB memories for USB 2.0 High Speed work as USB 2.0 Full Speed. ●USB memories of up to 128 GB can be used. ●USB memories that support bulk only transfer. CBI (Control/Bulk/Interrupt) is not supported. ●Digital Cameras which require additional programme installation when connected to a PC are not supported. ●MTP (Media Transport Protocol) device is not supported. ●A multi-port USB card reader is not supported.		
Format	FAT16 and FAT32 file systems are supported. ●UDF/NTFS/exFAT file system is not supported. ●Depending on the sector size, some files may not work. ●Only the first partition on USB memories with multi-partition is supported.		
Standard symbol	USB		
Data that can be recorded and played (○: Possible, –: Impossible)			
File format	DivX	MP3	Still pictures (JPEG)
Playing	○	○	○
Copying to HDD	–	○	○
Instructions	You can play DivX files recorded with a computer onto the USB memory (→ 38).	You can play and copy to HDD MP3 files recorded with a computer onto the USB memory (→ 39, 64).	You can play and copy to HDD or DVD-RAM still pictures recorded with a computer onto the USB memory (→ 40, 62).

- Despite meeting the conditions mentioned above, there may be USB memories that cannot be used for this unit.
- **EX88** If a Panasonic digital video camera with HDD is connected to this unit's USB port, you can copy the SD Video shot with the camera to this unit's HDD or DVD-RAM.
- This unit's USB port does not support bus-powered USB device.

Cards Usable on this Unit **EX88**

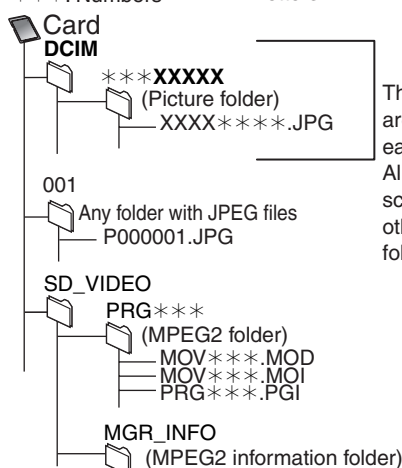
Type	• SD Memory Card, (from 8 MB to 2 GB) • SDHC Memory Card (from 4 GB to 16 GB) • MultiMediaCard * Including miniSD Card and microSD Card The card types mentioned above will be referred to as "SD card" in these operating instructions.
Standard symbol	SD
Data that can be recorded and played	Still pictures Video (SD Video)
Instructions	You can insert directly into the SD card slot. * A mini SD Card and a micro SD Card must be used with the adaptor that comes with the card. • You can play and copy still pictures taken on a digital camera, etc. (→ 40, 62) • SD Video shot with a Panasonic SD Video camera, etc. can be copied to the HDD or DVD-RAM (→ 61). • SD Video cannot be played directly from the SD card.

Suitable SD cards

- When using SD cards 4 GB or larger, only SD cards that display the SDHC logo can be used.
- Usable memory is slightly less than the card capacity.
- Please confirm the latest information on the following website.
<http://panasonic.co.jp/pavc/global/cs> (This site is in English only.)
- If the SD card is formatted on other equipment, the time necessary for recording may be longer. Also, if the SD card is formatted on a PC, you may not be able to use it on this unit. In these cases, format the card on this unit (→ 68, 96).
- This unit is compatible with SD Memory Cards that meet SD Card Specifications FAT12 and FAT16 formats, as well as SDHC Memory Cards in FAT32 format.
- SDHC Memory Cards used for recording with this unit can only be used with other SDHC Memory Card-compatible equipment. SDHC Memory Cards cannot be used with equipment that is only compatible with SD Memory Cards.
- This unit cannot play AVCHD format motion pictures on an SD card.
- We recommend using a Panasonic SD card.
- Keep the Memory Card out of reach of children to prevent swallowing.

Structure of folders

***: Numbers XXX: Letters



These folders are shown earlier in the Album View screen than other still picture folders.

DivX files, MP3s and Still Pictures (JPEG)

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

DivX File information

Playable media	-R -R DL CD USB
File format	DivX Files must have the extension ".DIVX", ".divx", ".AVI" or ".avi".
Number of folders	Maximum number of folders recognizable: 300 folders (including the root folder)
Number of files	Maximum number of files recognizable*1: 200 files
Support version	Plays all versions of DivX video (including DivX 6) with standard playback of DivX media files. Certified to the DivX Home Theater Profile. Video -Number of stream: Up to 1 -Codec: DIV3, DIV4, DIVX, DV50 -Picture size: 32 x 32 to 720 x 576 -FPS (Frame Per Second): Up to 30 fps Audio -Number of stream: Up to 8 -Format: MP3, MPEG, AC3 -Multi channel: AC3 is possible. MPEG multi is 2 ch conversion.



MP3 File Information

Playable media	HDD -R -R DL CD USB
File format	MP3 Files must have the extension ".mp3" or ".MP3".
Number of folders (groups)	Maximum number of folders (groups) recognizable: 300 folders (groups) (including the root folder)
Number of files (tracks)	Maximum number of files (tracks) recognizable*1: 3000 files (tracks)
Bit rates	32 kbps to 320 kbps
Sampling frequency	16 kHz/22.05 kHz/24 kHz/ 32 kHz/44.1 kHz/48 kHz
ID3 tags	compatible (HDD USB)

Still Picture (JPEG*2) Information

Playable media	HDD RAM -R -R DL CD USB SD
File format	JPEG Files must have the extension ".jpg" or ".JPG".
Number of pixels	Between 34×34 and 6144×4096 (Sub sampling is 4:2:2 or 4:2:0)
Number of folders*3	-R -R DL CD USB Maximum number of folders recognizable: 300 folders HDD RAM SD This unit can handle a maximum of 300 folders
Number of files*3	-R -R DL CD USB Maximum number of files recognizable*1: 3000 files HDD RAM SD This unit can handle a maximum of 3000 files
MOTION JPEG	not compatible

- If there is a large amount of still picture data etc. within an MP3 file, play may not be possible.

*1 Total number of recognizable file including DivX, JPEG, MP3 and other type of files is 4000.

*2 It may take a few moments for still pictures to display.

*3 When there are many files and/or folders, some files may not display or be playable.



Notes

HDD RAM SD

- Compatible formats: DCF* compliant (Content recorded on a digital camera, etc.)
- * Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA)

-R -R DL CD

- Compatible formats: ISO9660 level 1 or 2 (except for extended formats) and Joliet
- This unit is compatible with multi-session; however, reading or play of the disc may take time if there are a lot of sessions.
- Operation may take time to complete when there are many files (tracks) and/or folders (groups); some files (tracks) may not display or be playable.
- Images recorded at a very high resolution may take a long time to display.
- English alphabetical characters and Arabic numerals are displayed correctly. Other characters may not display correctly.
- The display order on this unit may differ from how the order is displayed on a computer.
- Depending on how you create the disc (writing software), files (tracks) and folders (groups) may not play in the order you number them.
- This unit is not compatible with packet-write format.
- Depending on the recording conditions, the disc may not play.



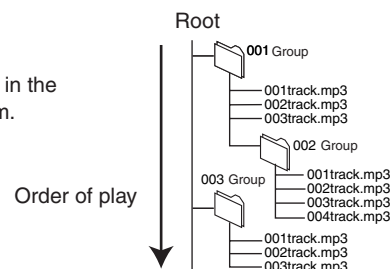
Tips

You can play MP3s and still pictures (JPEG) on this unit by making folders as shown below. However depending on the method of writing data (writing software), play may not be in the order you number the folders.

Structure of MP3 folders

-R -R DL CD USB

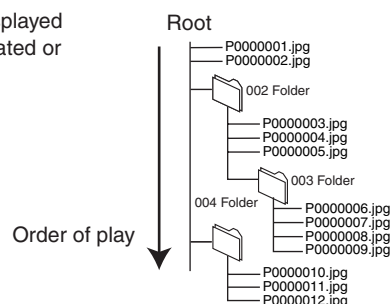
Prefix with 3-digit numbers in the order you want to play them.



Structure of still pictures (folders)

-R -R DL CD USB

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



RAM

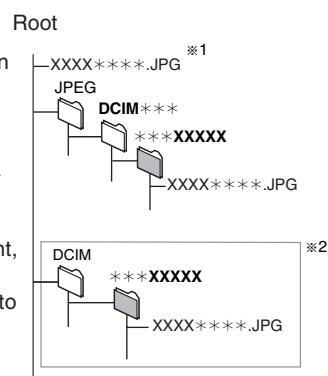
The following can be displayed on this unit.

***: Numbers XXX: Letters

*1 Still pictures on the root folder can also be displayed.

*2 Folders can be created on other equipment. However, these folders cannot be selected as a copying destination.

• If a folder name or file name has been input using other equipment, the name may not be displayed properly or you may not be able to play or edit the data.



Watching Television

Refer to “GUIDE Plus+ system” (→ 34) for detail information.


Preparation:

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

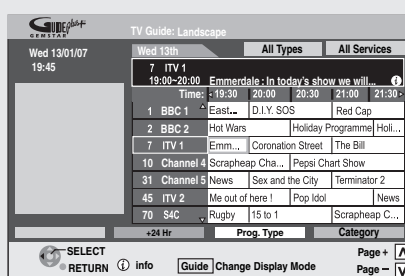
This DVD recorder has a tuner which allows it to directly receive and record digital terrestrial channels.




Important:


This unit does not have an analogue broadcast tuner.

- 1  to turn the unit on.

- 2 
 –The GUIDE Plus+ list appears.



- 3   to select the current programme, then .

- 4   to select “View” then .

Selecting a Channel without the GUIDE Plus+ system

To select desired channel
Press [ ,  CH].

To directly enter Channels


You can also select channels with the numbered buttons.


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

Watching Satellite Programmes

Preparation:

- Connect a satellite receiver to this unit's input terminals (→ 11).
- Turn on the satellite receiver.
- Turn on the television and select the appropriate video input to suit the connections to this unit.

- 1  to turn the unit on.

- 2  to select the “AV2”.



Tips

To select Digital TEXT (MHEG) and subtitles (→ 46)

To select change DVB Multi Audio (→ 67, DVB Multi Audio)



Notes

- The GUIDE Plus+ list is not displayed immediately after initial tuning is done.



Tips

- When “Power Save” is set to “Off” (→ 76), you can watch the Satellite Programme without turning the unit on.



Notes

- You cannot watch satellite programmes during timer recording.

Playback


Refer to “Advanced Playback” (→ 36–37) for detail information.


Preparation:

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

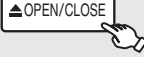
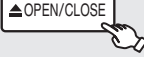
Playing Discs

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

1  to turn the unit on.



2  to select the HDD or DVD drive.

3 If you selected the DVD drive


 to open the tray (Button located on front of the unit).
 – Insert a disc (→ 81) and press [ OPEN/CLOSE] again to close the tray.

4  to start playback.

Stopping Play

- Press [ STOP].
- The stopped position is memorized.
 - (Resume play function)**
 - The stopped position is cleared when you press [ STOP] several times.

Pausing Play

- Press [ PAUSE].
- Press again to restart play.

Menu Screens on the TV







DVD-V **VCD**

Generally, menu screens that appear on the TV may be navigated as follows:
 e. g.,

DVD TOP MENU

- ▶ **Play**
- Chapter List
- Audio Tracks
- Subtitles
- Trailer

DVD-V

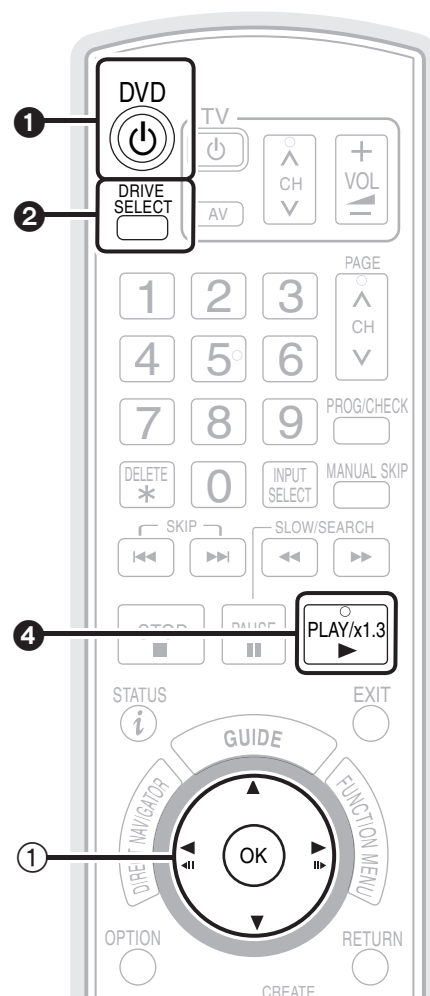
1     to select an item, then  

You can sometimes use the numbered buttons to select an item.

VCD

Press the numbered buttons to select an item.



e. g., “5”:  →  “15”:  → 



Tips

To return to the menu screen

DVD-V




1. Press [OPTION].
2. Press [, ] to select “Top Menu” or “Menu” and press [OK].

VCD

Press [RETURN].



Notes

- **HDD** **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **-RW(VR)**
Playback starts from the most recent recording.
- **DVD-V** **VCD**
Playback starts from the point specified by the disc.
- **CD**
Playback starts from the beginning of the disc.
- Depending on the disc type, playing may automatically start without pressing [ PLAY].
- The unit takes some time to read the disc before play starts.
- Discs continue to rotate while menus are displayed. Press [ STOP] when you finish to preserve the unit's motor and your television screen.
- If “” appears on the TV, the operation is prohibited by the unit or disc.


Recording Television Programmes


Refer to “Important Notes for Recording” (→ 24) and “Advanced Recording” (→ 25 to 27) for detail information on recording.


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

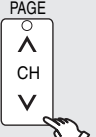
Preparation:

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- **RAM** If the disc is protected, release protection (→ 68).

1  to turn the unit on.


2  to select the HDD or DVD drive.

3 If you selected the DVD drive
 to open the tray (Button located on front of the unit).
 – Insert a disc with enough remaining blank space and press [▲ OPEN/CLOSE] again to close the tray.
 – When the format confirmation screen is displayed (→ 26).

4  to select desired channel.


HDD ^D 452 SP

- To select with the numbered buttons (→ 19).
- When no channel setting is performed on the unit and broadcast is recorded directly from the satellite receiver, select a channel on the connected equipment and press [INPUT SELECT] to select “AV2”.

5  to select the recording mode.

HDD XP 1P55:00

Recording mode (→ 25) Remaining time

6  to start recording.

HDD XP REC 0:00:01

Elapsed recording time

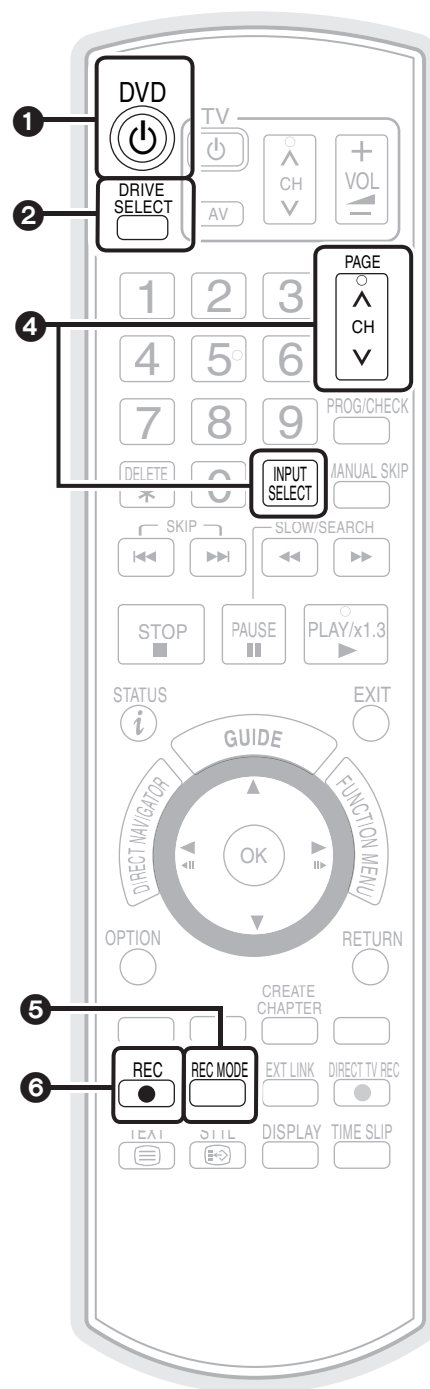
Pausing Recording

Press [■ PAUSE].

- Press again to restart recording.
(The title is not divided.)

Stopping Recording

Press [■ STOP].



Tips

- **-RW(V) +R +RW**
To use a new disc, formatting is necessary.



Notes

- **-R -RW(V) +R +RW**
It takes about 30 seconds for the unit to complete recording management information after recording finishes.
- You cannot change the channel or recording mode during recording.
- This unit cannot record NTSC signals to discs that already have PAL signal recordings. (However, both types of programmes can be recorded onto the HDD.)

Timer Recording

What is Freeview Playback?

Freeview Playback is the functions that enable timer recordings be controlled by the signal sent from the broadcaster. "Guide Link", "Series recording" (→ 31), and "Split Programme" are available.

"Guide Link" — If you set a timer recording from the TV Guide, the recording's start and stop times can be controlled by the broadcaster, e.g. delayed start.

This is indicated by "Guide Link" in the Timer Recording screen in step ② (→ below).

"Split Programme" — If a programme is separated into 2 or more parts by some other programmes e.g. news, this unit pauses recording during the gap.

This is indicated by "Split" in the Timer Recording screen in step ② (→ below).

When setting timer from the 1st split programme, other parts of the programme will be automatically set and indicated by the timer mark on the TV Guide, but not shown on the timer recording list.

If you set a timer recording from the TV Guide, the recording's start and stop times are controlled by the signal sent from the broadcaster. If the signal is not sent correctly, the recording may lack the beginning or the ending part of the programmes.

In order to make the timer recording work successfully, we recommend you set the start time earlier and the end time later by some minutes, up to a maximum of 10 minutes for Guide Link to function.

e.g. When you set the timer recording for a programme that will start at 10:00 and end at 11:00, set "9:58" and "11:05" in step ③ (→ below).

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

Preparation:

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- Turn on this unit.
- If recording to DVD, insert a disc that you use for recording (→ 15).
- Confirm that the clock on the unit's display is set to the correct time.

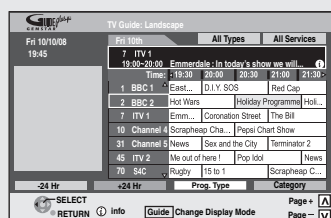
1



—The GUIDE Plus+ list appears.

2

▲, ▼, ◀, ▶ to select the future programme, then



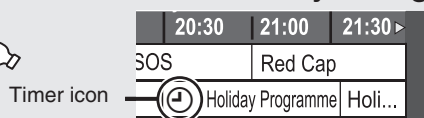
"Guide Link" and "Split" are displayed here.

- If "Selection Screen" appears, press [▲, ▼] to select "Single Timer Rec", then press [OK]. Refer to "Series recording" (→ 31) for "Series Timer Rec".

3

Confirm the programme (start and end time) by TV magazine, etc. and correct if necessary using

▲, ▼, ◀, ▶, then



- The settings are stored and the timer programme is on.
- The timer icon is displayed.
- "ⓐ" lights on the unit's display to indicate timer recording standby has been activated.
- Repeat steps ②–③ to programme other recordings.
- Press [DVD ⓐ] to turn the unit off.

"Guide Link" will not be displayed and will not function under the following conditions.

- Timer programmes set manually (→ 30).
- Timer programmes set from the TV Guide are modified or start/stop time changed by more than 10 minutes from original time.

(Series): Series recording (→ 31) is set.

(Split): The programme is split in two or more parts by other programmes. This unit pauses recording during the gap between the parts of the programme.



Tips

To check programmes (→ 32)

To cancel a timer recording programming

1. Press [▲, ▼, ◀, ▶] to select the programme (the timer icon is displayed) and press [OK].
2. While "Delete" is selected, press [OK].
3. Press [◀, ▶] to select "Yes" and press [OK].
– The timer icon disappears.



Notes

- The GUIDE Plus+ list is not displayed immediately after initial tuning is done.
- The GUIDE Plus+ system will not work if the clock is not set correctly.
- If "NTSC" has been selected for "TV System" (→ 75), the GUIDE Plus+ system cannot be used.
- "FR" recording mode is not available when the timer programme is controlled by "Guide Link".
- If you set a timer recording that will overlap with other timer recordings, the "Overlapped Timer Recording" screen appears to help you resolve the overlapping.
Follow the on-screen instructions.

Deleting Titles

Preparation:


- Turn on the television and select the appropriate video input to suit the connections to this unit.
- **RAM** If the disc is protected, release protection (→ 68).
- Press [▲ OPEN/CLOSE] and insert a disc. Press [▲ OPEN/CLOSE] again to close the tray.

Important:

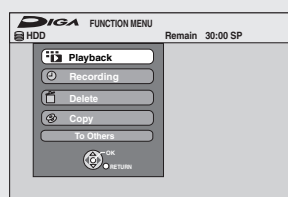
Once deleted, contents cannot be recovered.


Delete Navigator

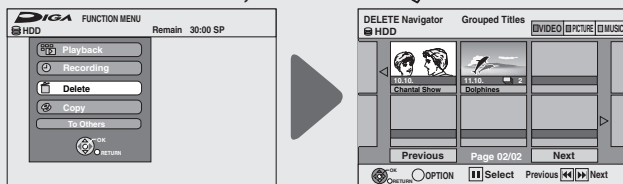
HDD RAM -R -R DL -RW(V) +R +R DL +RW

- 1  to select the HDD or DVD drive.

- 2 With the unit stopped



- 3 ▲, ▼ to select “Delete”, then 



HDD RAM When “VIDEO” is not selected, press the “Red” button to select “VIDEO”.

- 4 ▲, ▼, ◀, ▶ to select the title, then 
A check mark is displayed. Repeat this step until you select all necessary items.
• Press [||] again to cancel.

- 5 

- 6 ◀ to select “Delete”, then 



Tips

To return to the previous screen
Press [RETURN].

To view other pages
Press [▲, ▼, ◀, ▶] to select “Previous” or “Next”, then press [OK].
• You can also press [◀◀, ▶▶] to view other pages.

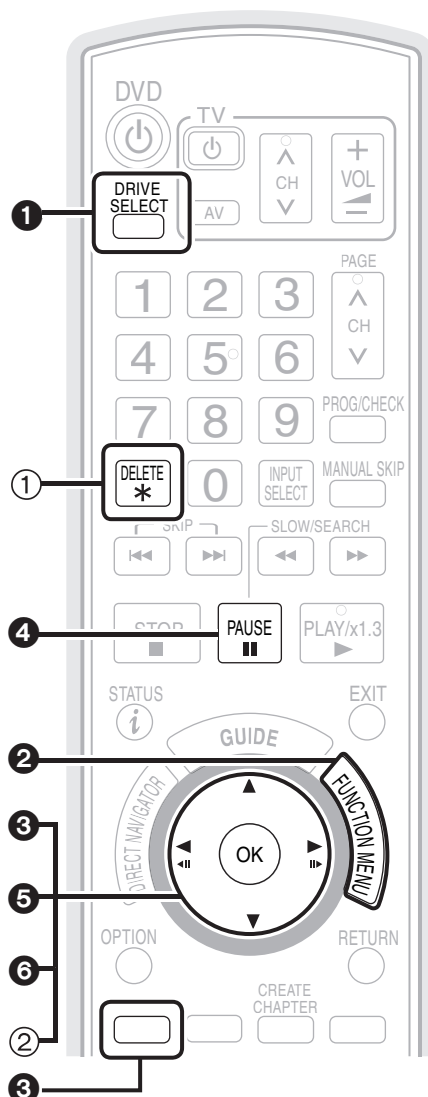
Deleting Titles During Playback

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

- 1 During playback



- 2 ◀ to select “Delete”, then 



Notes

- You cannot delete while recording or copying.
- **+R +R DL +RW** Even if you have set protection on other equipment, such titles are deleted.



Tips

- **HDD RAM** Deleting an item increases the available disc space by the amount of space taken by the item deleted.
- **-R -R DL +R +R DL** Available disc space does not increase after deletion.
- **-RW(V) +RW** Available disc space increases when you delete the last title (the recording space may increase slightly when other titles are deleted).

Important Notes for Recording

Selecting audio for recording

Broadcast in multi-channel sound:

You can select audio language when received audio in multi-channel broadcast ("Multi-Audio" appears at the bottom of digital channel information display). However, audio cannot be switched after recording.



Select the audio that you want to record in "DVB Multi Audio" in the on-screen display (→ 67).

About the aspect when recording a programme

HDD RAM (When "Recording Format" is set to "Video format")
-R -RW(V)

The original aspect used for the source programme will also be used with the recording.

However, in the following case, programme will be recorded in 4:3.

- **-R -RW(V)** Programme recorded using "EP" or "FR" (recordings 5 hours or longer)" recording modes will be recorded in 4:3 aspect.

HDD RAM (When "Recording Format" is set to "VR format")
The programme will be recorded in the original aspect.

+R +RW

The programme will be recorded in 4:3 aspect.



When you want to copy titles in high speed mode from the HDD to DVD-R, etc.

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

Set "Recording Format" to "Video format" before recording to the HDD.

(The default setting is "Video format". → 72)

You can copy titles in high speed mode (max. speed is 75X*); however, the audio and aspect settings (→ above) are necessary before recording to the HDD.

* Depending on the disc, max. speed may vary.



In the following cases, high speed mode does not work.

- **+R +R DL +RW** Titles recorded in "EP" mode and "FR (recordings 5 hours or longer)" mode
- **+R +R DL +RW** Titles recorded in 16:9 aspect
- **-R -R DL -RW(V)** Titles recorded in 16:9 aspect using "EP" mode or "FR" (recordings 5 hours or longer) mode

Copy-once recording

It is not possible to record the broadcasts that allow "One time only recording" onto DVD-R, DVD-RW, +R, +RW or 8 cm DVD-RAM discs. Use the HDD or CPRM (→ 96) compatible DVD-RAM.

RAM CPRM compatible discs only

12 cm



HDD



-R -RW(V) +R +RW



(○: Can do, —: Cannot do)

- "One time only recording" titles can only be transferred from the HDD to CPRM compatible DVD-RAM (They are deleted from the HDD). They cannot be copied.
- Even when copying to videotape the title may not be copied correctly because of the copy guard.
- You cannot copy a playlist created from "One time only recording" titles.

Playing the disc on other DVD players

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

The disc must be finalised after recording or copying (→ 69).

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

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

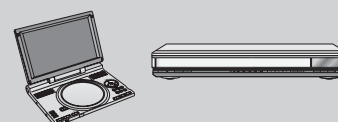


Record to DVD-R, etc.



Finalise

Play on other DVD equipment



+RW

If the disc failed to play on other equipment, we recommend you create top menu (→ 69).

Recording to DVD-R DL and +R DL

You cannot directly record to a DVD-R DL and +R DL disc on this unit.

Record to the HDD and then copy to the disc.

Recording Modes and Durations

Recording Mode	HDD		DVD-RAM		DVD-R, DVD-RW, +R, +RW (4.7 GB)	DVD-R DL ^{※3} , (8.5 GB)	+R DL ^{※3} (8.5 GB)
	EX78 (250 GB)	EX88 (400 GB)	Single-sided (4.7 GB)	Double-sided ^{※1} (9.4 GB)			
XP (High quality)	55 hours	89 hours	1 hour	2 hours	1 hour	1 hour 45 minutes	1 hour 45 minutes
SP (Standard play)	110 hours	178 hours	2 hours	4 hours	2 hours	3 hours 35 minutes	3 hours 35 minutes
LP (Long play)	221 hours	357 hours	4 hours	8 hours	4 hours	7 hours 10 minutes	7 hours 10 minutes
EP (Extra long play) ^{※4}	441 hours (331 hours ^{※2})	712 hours (534 hours ^{※2})	8 (6 ^{※2}) hours	16 (12 ^{※2}) hours	8 (6 ^{※2}) hours	14 hours 20 minutes (10 hours 45 minutes ^{※2})	
FR (Flexible Recording) ^{※4}	441 hours maximum	712 hours maximum	8 hours maximum	8 hours maximum for one side	8 hours maximum	14 hours 20 minutes	Approximately 9 hours with video quality equivalent to LP mode.

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

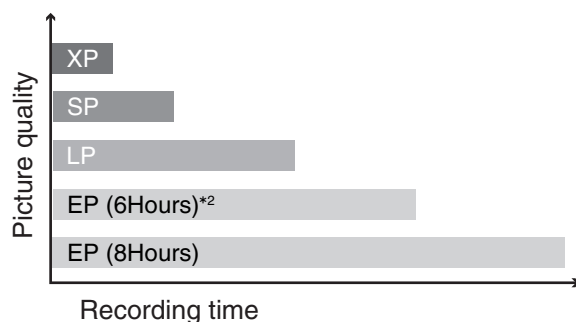
^{※2} When "Recording time in EP mode" has been set to "EP (6Hours)" in the Setup menu (→ 72).

The sound quality is better when using "EP (6Hours)" than when using "EP (8Hours)".

^{※3} You cannot record directly to DVD-R DL and +R DL discs with this unit. The table shows the recording time when copying.

+R DL You cannot copy in "EP" or "FR (recordings 5 hours or longer)" mode.

^{※4} When recording to the HDD in "EP" or "FR (recordings 5 hours or longer)" mode, you cannot perform high-speed copy to +R, +R DL or +RW discs.



Notes

- This unit uses variable bit rate (VBR) recording which varies the amount of data recorded to suit the picture quality, so actual recording times and remaining recording times shown by the unit will be different. (**-R DL** **+R DL** The difference will be especially noticeable.)
Use a disc enough remaining blank space.
- When recording to DVD-RAM using EP (8Hours) mode, play may not be possible on DVD players, even if they are compatible with DVD-RAM. In this case use EP (6Hours) mode.



Tips

- Maximum number of titles to a disc

HDD 499 titles on HDD

RAM -R -R DL -RW(V) 99 titles on a disc

+R +R DL +RW 49 titles on a disc

- FR (Flexible recording mode)**

Using "Flexible Recording" is convenient in these kinds of situations:

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

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

HDD

- When you want to record a title to HDD so that it can then be copied to fit one 4.7 GB disc perfectly
You do not need to edit the recorded title, or change the recording mode when copying, to fit the disc space
e.g., Recording a 90 minutes programme to 4.7 GB DVD-RAM disc:

- If you select XP mode, the programme will not fit on one disc.



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

- If you select SP mode, the programme will fit on one disc.



However there will be 30 minutes remaining disc space.

- If you select "Flexible Recording" the programme will fit on one disc perfectly.



You can set FR mode when programming timer recordings and flexible recording (→ 27).

Advanced Recording

When the format confirmation screen is displayed

Formatting is the process of making media such as DVD-RAM recordable on recording equipment.

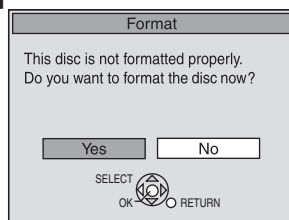
Important:

Formatting permanently deletes all disc contents (including the contents that have been recorded on a PC), regardless of protection status of disc.

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

The following screen may appear when inserting a new disc or a disc that has been recorded on another equipment.

Only format the disc if you intend to use it for recording.



Do not format if you intend to view pre-recorded titles or contents from the disc.

◀ to select "Yes", then



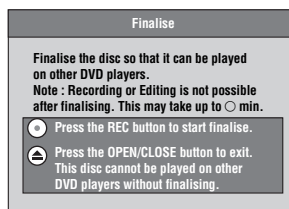
Tips

Refer to "Formatting Discs or Cards" (→ 68) for more detail of formatting.

When removing a Recorded or Copied Disc

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

After recording or copying, if you press [**▲** OPEN/CLOSE] to eject the disc, the following screen may appear.



Finalising

DVD-R, etc. recorded or copied on this unit cannot be played on other players immediately after recording or copying. Using the Finalise feature allows you to play these discs on other players. (However, once the disc is finalised you will no longer be able to record or copy onto the disc.)



to start finalising.

or



to eject the disc without finalising.



Notes

- You cannot stop finalising once you have started it.



Tips

- If you want to provide the disc with a name or set play menu select, select "Disc Name" (→ 68), "Auto-Play Select" (→ 69) or "Top Menu" (→ 69) in "DVD Management" before finalising.
- Refer to "Finalising" (→ 69) for more detail of finalising.

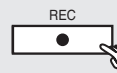
Specifying the Recording Time

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

This function allows specifying the length of recording time up to 4 hours.

During recording

On the main unit



repeatedly until the desired time is reached.

– The recording time and the unit's display changes as follows:

Counter (Cancel) → OFF 0:30 → OFF 1:00

↑
OFF 4:00

↓
OFF 1:30

↑ OFF 3:00 ← OFF 2:00 ←



Notes

- This function does not work during timer recording or Flexible Recording.
- Recording stops and the set time is cleared if you press [**■** STOP].
- The unit turns off automatically after recording finished.

Direct TV Recording

HDD

This function allows you to immediately start recording the programme that you are viewing on the TV without having to change the channels on this unit. You can use the function when you connect the unit to a Q Link compatible TV using the 21-pin Scart cable.

1



Press and hold for about 1 second.

–The titles are recorded to the HDD.



Tips

To stop recording
Press [**■** STOP].



Notes

- When Digital TEXT (MHEG) (→ 46) is displayed, Direct TV recording is unavailable.
- When the unit is connected to a Panasonic TV, if you switch TV channels while using Direct TV recording, the Direct TV recording stops.
- When "EXT-L" lights on the unit's display (→ 28), Direct TV recording is unavailable.

Flexible Recording

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

The unit sets the best possible picture quality that fits the programme within the remaining disc space.

The recording mode becomes FR mode. Refer to "FR (Flexible Recording)" (→ 25).

Preparation:

- Select the channel or the external input to record.
- Press [DRIVE SELECT] to select the HDD or DVD drive.

1 With the unit stopped



2 ▲, ▼ to select "To Others", then



3 ▲, ▼ to select "Flexible Rec", then



4 ◀, ▶ to select "Hour" and "Min." and ▲, ▼ to set the recording time.

– You can set "Hour" and "Min." using the numbered buttons.

5 When you want to start recording ▲, ▼, ◀, ▶ to select "Start", then



– Recording starts.



Notes

- You cannot record more than 8 hours.

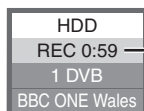


Tips

To exit the screen
Press [EXIT].

To stop recording partway
Press [■ STOP].

To show the remaining recording time
Press [STATUS ⓘ] to show the remaining recording time.



Remaining time

Playing while you are recording

Chasing Playback

HDD RAM

Allows playback from the beginning of the title you are recording.

During recording



Tips

- **To stop play**
Press [■ STOP] once.
- **To stop recording**
2 seconds after play stops, press [■ STOP].

Simultaneous Record and Playback

HDD RAM

Allows playback of a previous title, while recording something else.

- You can also change the drive and play while recording. Press [DRIVE SELECT].

1

During recording



2

▲, ▼, ◀, ▶ to select the title to play, then



Tips

To stop play
Press [■ STOP].

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

- To stop recording**
After play stops
1. Press [DIRECT NAVIGATOR] to exit the screen.
 2. If the recording is on the other drive
Press [DRIVE SELECT] to select the recording drive.
 3. Press [■ STOP].



Notes

- During playing while you are recording, you cannot edit or delete titles.

Recording from a Satellite Receiver

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

Manual Recording

- This unit cannot record NTSC signals to discs that already have PAL signal recordings. (However, both types of programmes can be recorded onto the HDD.)


Preparation:

- **RAM** If the disc is protected, release protection (→ 68).
- Connect a satellite receiver to this unit's input terminals (→ 11).
- When the output signal from the external equipment is NTSC, change the "TV System" to "NTSC" in the Setup menu (→ 75).


- 1 With the unit stopped.




to select "AV2" for the satellite receiver you have connected.

- 2  to select the HDD or DVD drive.

– If you selected the DVD drive, insert a disc (→ 81).

- 3  to select the recording mode.

- 4 Select the channel on the satellite receiver.

- 5  to start recording.



Tips

To skip unwanted parts

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

To stop recording

Press [STOP].


Linked timer recordings with external equipment (SKY Digital STB/satellite receiver) — EXT LINK


To record programmes from a SKY Digital STB/satellite receiver using timer programming

Preparation:

- **RAM** If the disc is protected, release protection (→ 68).
- Make sure you connect the AV2 terminal of this unit to "VCR Scart Terminal" of a SKY Digital STB/satellite receiver with a 21-pin scart cable (→ 11).
- Set the "AV2 Input" and "Ext Link" to match the connected equipment in the Setup menu (→ 75).

- 1 Make timer programming on SKY Digital STB/satellite receiver.
– Refer to the equipment's operating instructions.

- 2  to select the HDD or DVD drive.
– If you selected the DVD drive, insert a disc (→ 81).

- 3 
 - The unit turns off and "EXT-L" lights on the unit's display to indicate timer recording standby has been activated.
 - While the unit is in EXT LINK standby mode or recording, most operations on this unit are prohibited ([OPEN/CLOSE], [EJECT] etc.). When you operate, press [EXT LINK] to cancel EXT LINK standby mode or recording (The unit turns on and "EXT-L" disappears.).



Tips

To cancel the external control

Press [EXT LINK] to stop recording or to cancel linked timer recording standby (The unit turns on and "EXT-L" disappears.).

Manual timer recordings (→ 30)

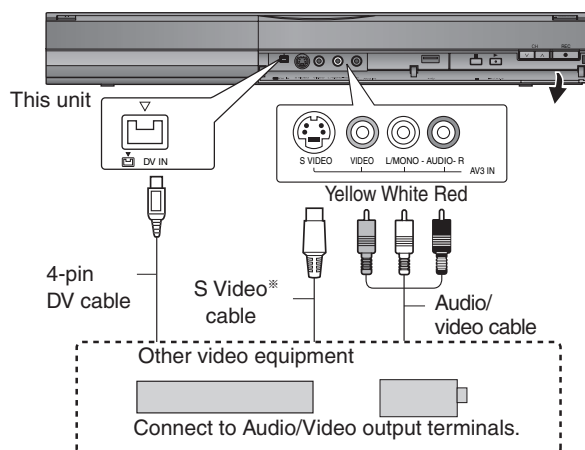


Notes

- In order to prevent accidental operation, press [EXT LINK] to cancel the setting after recording is finished.
- This function does not work when "TV system" is set to "NTSC" in the setup menu (→ 75).
- This function does not work with some equipment. Refer to the equipment's operating instructions.
- The beginnings of recordings may not be recorded correctly in some cases.
- Programmes are recorded as one title on this unit when the end time of the earlier timer recording and the start time of the later timer recording are close to each other.
- **HDD RAM** To divide the titles, go to "Divide Title" (→ 49).
- While the unit is in EXT LINK standby mode or recording, video picture is from the AV2 terminal irrespective of "AV1 Output" setting (→ 75).

Recording from an External Device

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



*You can get a sharper, clearer picture by connecting with an S Video cable instead of the yellow video cable.

- If the audio output of the external device is monaural, connect to L/MONO on the AV3 input terminals at the front.



Notes

- When timer recording starts while recording from an external device, timer recording takes priority and recording from the external device stops.
- If video is copied from another piece of equipment to this unit, then the video quality will be degraded.

Preparation:

- When the output signal from the external device is NTSC, change the “TV System” to “NTSC” in the Setup menu (→ 75). This unit cannot record NTSC signals to discs that already have PAL signal recordings. (However, both types of programmes can be recorded onto the HDD.)

Recording from a VCR, etc.

Preparation:

- Press [DRIVE SELECT] to select the HDD or DVD drive.
- Press [REC MODE] to select the recording mode (→ 25).
- To reduce noise in input from a video cassette recorder, set “Input NR” to “On” in the on-screen display (→ 67).

- 1 **INPUT SELECT** to select the input where your external device is connected.
– Front panel inputs are AV3.

- 2 Start play on the external device.

- 3 **REC** at the point you want to start recording to the disc.



Tips

To skip unwanted parts

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

To stop recording

Press [■ STOP].

The confirmation screen appears. Press [OK].

- Using Flexible Recording (→ 27), you can record the content of a video cassette (approx. 1–8 hours) to a 4.7 GB disc with the best possible quality of recording without wasting disc space.



Notes

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

Recording from a DV Camcorder

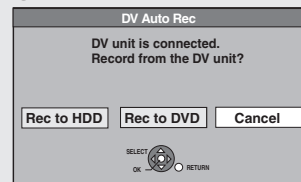
HDD RAM Programmes are recorded as a single item; breaks in the images create chapters and playlists are created automatically.

Preparation:

- 1 Turn off the main unit and DV equipment, then connect the equipment with the unit's DV input terminal (→ left).
- 2 Turn on the main unit.

- 1 Turn on the DV equipment and pause play at the point you want to start recording.

“DV Auto Rec” screen may appear.



When “DV Auto Rec” screen does not appear


Perform steps 1 (→ above).


1. Press [DRIVE SELECT] to select the HDD or DVD drive.
2. Press [FUNCTION MENU].
3. Press [▲, ▼] to select “To Others”, then press [OK].
4. Press [▲, ▼] to select “DV Auto Rec”, then press [OK].


You can proceed to step 3 (→ 30).

(Continued on the next page)

Recording from an External Device

2 ◀, ▶ to select “Rec to HDD” or “Rec to DVD”, then 

3  to select the recording mode (→ 25).

4 ◀ to select “Rec”, then 



Tips

When recording finishes

The confirmation screen appears.

Press [OK] to finish DV camcorder recording.

To stop recording

Press [■ STOP].

The confirmation screen appears. Press [OK].

If the DV camcorder recording function does not work properly, check the connections and DV equipment settings, and turn the unit off and back on. If that does not work, follow the instructions on page 29.



Notes

- Only one piece of DV equipment (e.g., digital video camcorder) can be connected to the unit via the DV input terminal.
- It is not possible to operate the unit from the connected DV equipment.
- The DV input on this unit is for use with DV equipment only. (It cannot be connected to a computer, etc.)
- The DV equipment name may not be shown correctly.
- Depending on the DV equipment, the images or audio may not be input properly.
- Date and time information is not recorded, even if displayed on the camcorder.
- You cannot record and play simultaneously.

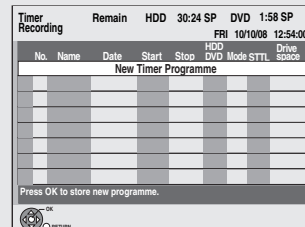
Advanced Timer Recording


Manual timer recordings

Preparation:

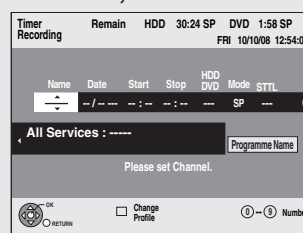
- Turn on the television and select the appropriate video input to suit the connections to this unit.
- **RAM** If the disc is protected, release protection (→ 68).
- Insert a disc with enough remaining blank space.
- Confirm that the clock on the unit's display is set to the correct time.
- If connected via a satellite receiver, set channel there before timer recording starts.

1 



2 ▲, ▼ to select “New Timer Programme”, then 

3 ◀, ▶ to move through the items and ▲, ▼ to set the items.



Name: – TV Station Name/External Input

- When recording satellite programmes, select “AV2”.
- You can press the “Blue” button to change the category [e.g., Free Services, Radio, Registered Profiles (→ 70, Edit Profiles)]

Date: – You can set a daily or weekly programme (→ right, Tips).

Start (start time)/Stop (end time):

- Hold button to change in 30-minute increments or decrements.

Drive: – HDD or DVD

When the recording drive is “DVD” and there is not enough remaining space, recording automatically switches to the “HDD” (→ 33, Relief Recording).

Mode: – Recording mode (→ 25)

STTL [Subtitles (→ 46)]:

- ON/OFF

RENEW – Auto Renewal Recording (→ 33)

(HDD) ON/OFF

Programme Name:

Press [OK] (→ 47, Entering Text).

4



– The timer icon is displayed in left column.



- “⏸” lights on the unit’s display to indicate timer recording standby has been activated.
- Repeat steps 2–4 to programme other recordings.
- Press [DVD] to turn the unit off.



Notes

- “⏸” on the unit’s display flashes when the unit cannot go to timer recording standby.
- If two timer recording times overlap, the first recording always has priority. The second recording will start only after the first recording has finished.
- Recorded subtitles cannot be deleted later.
- A Timer Recording will not start while a disc is being formatted, deleted or finalised. The recording begins afterwards.
- When “Name” is set in AV1, AV2 or AV3, STTL setting is unavailable.



Tips

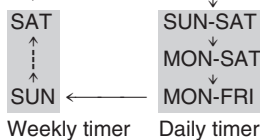
To exit the timer recording list

Press [PROG/CHECK].

• “Date” Setting

Each press of [▲] changes items in the order below.
(Each press of [▼] changes items in the reverse order.)

Current date → --- → One month later
 minus one day



Titles recorded using the same daily or weekly timer are bundled and displayed as a “group” in the Direct Navigator screen (→ 36) except when using Auto Renewal Recording

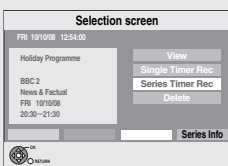
- You can also use the numbered buttons to enter “Name”, “Date”, “Start” and “Stop”.
- You can also press [DRIVE SELECT] to switch the drive, [REC MODE] to switch “Mode” and press [STTL] to switch “STTL”.

Series recording

You can record all the episodes of a series by setting just one timer recording using the GUIDE Plus+ system.
After performing steps 1–2 (→ 22)

3

▲, ▼ to select “Series Timer Rec.”, then OK



4



- You cannot change Name, Date and Start/Stop.
- This unit automatically records the programmes that are identified to be of the same series by the GUIDE Plus+ data.
- Titles recorded using series recording are bundled and displayed as a “group” in the Direct Navigator screen (→ 36) except when using Auto Renewal Recording.



Series recording icon



Tips

To check the schedule of the series

Press the “blue” button after performing steps 1–2 (→ 22).

Series Information			
Fri 10/10/08 10:35			
Name	Date	Contents	
S BBC2	Wed 12/05 21:30-22:30	Decameron 1	
S BBC2	Wed 12/12 21:30-22:30	Decameron 2	
S BBC2	Wed 12/19 21:30-22:30	Decameron 3	
S BBC2	Wed 12/26 21:30-22:30	Decameron 4	
BBC2	Wed 1/3 21:30-22:30	Decameron 1	

[S]: The episode to be recorded

[R]: Repeat programme



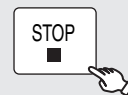
Notes

- If the unit cannot record the first run, the unit will record the repeat programme if it is available. However, this unit will not record the repeat programme, if any part of the first run is recorded.
- The series recording will be cancelled if there has been no episode of the series for 13 weeks.

To cancel a timer recording in progress

1

While the unit is on



– Confirmation screen appears.

2

◀ to select “Stop Recording”, then OK



Notes

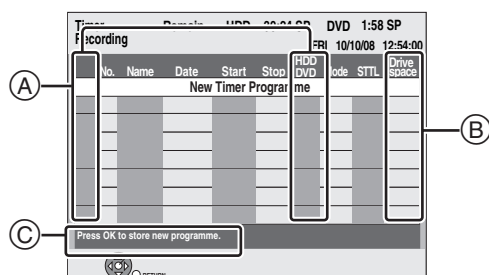
- Recording stops and the timer programme is deleted. (Daily and weekly timer programmes remain and timer recording will start from the next time the timer recording is set.)

Advanced Timer Recording

Check, Change, Delete Programmes, or Resolve Overlapping

The timer recording list can be viewed even when the unit is off.

- 1** then , to select the programme



A Timer Recording screen icons

- : Timer programme is active.
- : Currently recording
- : Programmes are overlapped. Recording of the programme with the later start time starts when the earlier programme finishes recording.
- : You stopped a weekly or daily timer recording. The icon disappears the next time the timer recording starts recording.
- : The disc was full. (not enough space)
- : The TV programme may not be recorded due to copy-protect.
- : Recording stopped (Dirty disc, etc.)
- : Timer programmes set to Auto Renewal Recording (→ 33).
- : Titles that have been rerouted to the HDD (Displayed while recording.)
- HDD**: Recording drive is set to HDD
- DVD**: Recording drive is set to DVD

B Drive space

- OK:** Recordable
- (Date):** For recordings made daily or weekly, the display will show until when recordings can be made (up to one month ahead from the present time) based on the time remaining on the disc.
- !:** It may not be possible to record because:
- there is no more space left.
 - the number of possible titles has reached its maximum.
- Relief:** Timer programmes that will be relief recorded to the HDD.

C Channel name, programme name and other information are displayed.

- 2a** to delete.

– You cannot delete programmes that are currently recording.

- 2b** to modify the programme.

, , , to make changes, then

- 2c** When a programme with is selected

then follow the on-screen instructions to resolve overlapping.

– If the programme was set from the TV Guide, the available repeat programmes are displayed. Press [,] to select, then press [OK].



Tips

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

You can also delete a programme with the following steps

1. Press [,] to select the programme and press [OPTION].
2. Press [,] to select "Delete" and press [OK].

To exit the timer recording list

Press [PROG/CHECK].



Notes

- Recording may fail if there are changes to the station's programming.
- "⊙" disappears from the unit's display when no timer programme is set or when all timer programmes are deactivated.
- "-----" is displayed on a series recording item if there will be no episode of the series for the next 8 days. We recommend you delete the "-----" item after you confirm the last episode of the series is recorded.
- The "Guide Link" function may not work if you manually change the stat/end time by over 10 minutes.
- Programmes that failed to record are deleted from the timer recording list at 4 a.m. two days later.

To deactivate timer programme (e.g. to interrupt a daily or weekly timer programming)

The timer recording list can be viewed even when the unit is off.

After performing steps **1** (→ left)

- 2** (Red)

– "⊙" (→ left) disappears from the timer recording list.

– Press the "Red" button again to activate timer programme.



Tips

You can deactivate the timer programme in the following procedure as well.

Perform steps **1-2** (→ above)

1. Press [OPTION]
2. Press [,] to select "Timer Off", then press [OK].

Relief Recording

When the recording drive is “DVD” and there is not enough remaining blank space, recording automatically switches to the “HDD”. If there is no disc in the tray or the disc cannot be recorded on or when timer recording starts while copying, the recording drive will be altered to the HDD.

- The Direct Navigator shows which programmes were relief-recorded (“I” is displayed.) (→ 36).
- If the time remaining on the HDD is insufficient, as much of the programme as possible will be recorded onto the HDD.

Auto Renewal Recording

HDD

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.

1



2

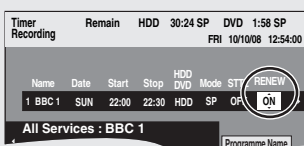
▲, ▼ to select the programme, then

3

◀, ▶ to select “RENEW” column.

4

▲, ▼ to select “ON”, then



Notes

- If a programme set for Auto Renewal Recording is protected or while play back is taking place from the HDD, or while copying, the programme will not be overwritten. Instead the programme set for recording will be saved as a separate programme, and this programme will be the one to be overwritten when the next Auto Renewal Recording takes place.
- Playlists made from programmes that were set for Auto Renewal Recording are deleted along with auto renewal.
- When there is not enough space on the HDD, the programme may not be recorded completely.

Making timer recordings on the television

HDD

To make a timer recording with your television, connect to a television with a Q Link function (→ 44) that you can use for setting timer recordings using a fully wired 21-pin Scart cable (→ 10,11).

1

Make timer programming on the TV.

2



to turn the unit off.

- The start and end of recording is controlled by TV.
- The titles are recorded to the HDD.



Tips

To stop recording
Press [■ STOP].

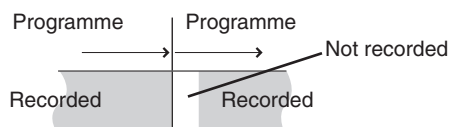


Notes

- When this unit is in EXT LINK standby (“EXT-L” on the unit’s display lights), recording from TV does not start.
 - Programmes are recorded as one title on this unit when the end time of the earlier timer recording and the start time of the later timer recording are close to each other.
- To divide the titles, go to “Divide Title” (→ 49).

Notes on timer recording

- When a timer recording is set, DVDs that were recorded using a different TV system cannot be played unless the TV system is changed in the Setup menu (→ 75) or the timer recording has completed or has been cancelled.
- Timer recordings are activated regardless of whether the unit is turned on/off.
- Timer recordings begin when the set time is reached even when playing.
- Timer recordings do not begin while editing or copying in normal speed mode (→ 56).
- If the unit is turned on when timer recording begins, it remains turned on after recording finishes. It does not turn off automatically. You can turn the unit off during timer recording.
- If the unit is not put in the timer recording standby mode at the last 10 minutes before the programmed timer recording starting time, the “⊖” flashes on the unit’s display.
- When you programme successive timer recordings to start immediately one after the other, the unit cannot record the part at the beginning of the later programmes.



- The “Overlapped Timer Recording” screen may be displayed immediately after you turn on this unit, if new overlapping occurred. Refer to “Check, Change, Delete Programmes, or Resolve Overlapping” (→ 32).

GUIDE Plus+ system

What is the GUIDE Plus+ system?

The GUIDE Plus+ system gives you an overview of digital television and radio programmes up to 7 days in advance. For many of these programmes, you can select additional information provided by the stations. You can search the programme preview according to various topics such as sport, films etc., according to categories such as TV or radio. You can easily find the desired programmes and set Timer recording.

Landscape view

Broadcast date
Broadcast time

Advertisement

Timer icon
(→ 22)

Selected programme

Logo of the Gemstar branding partner

The Gemstar branding partner will supply the rating information in the programme information and the recommended group in the Prog.Type list.

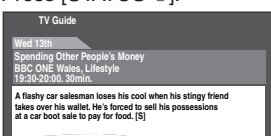
Landscape view:
The GUIDE Plus+ system offers detailed information such as what programme is broadcast on what channel and what time as if you see a TV programme magazine, which is convenient to check the status of Timer recording.

Portrait view:
This is convenient to narrow down channels to search for the programme you want to watch.

To switch between Landscape view and Portrait view
Press [GUIDE].

Portrait view

Using the GUIDE Plus+ list

To change channels	Landscape view Press [▲, ▼] to select a channel. Portrait view Press [◀, ▶] to select a channel. The GUIDE Plus+ list appears for this channel.
To view a programme list for another day	<ul style="list-style-type: none"> Jump ahead 24 hours Press the "Green" button to jump ahead by one day. Jump back 24 hours Press the "Red" button. You can only jump back to the current date. Past information cannot be viewed.
To change the page of the GUIDE Plus+ list	Press [^, v CH].
To see programme information (programme name, programme duration, broadcast time, description) (Programmes with the ⓘ symbol)	Press [STATUS ⓘ].  <ul style="list-style-type: none"> Press [▲] and [▼] to scroll up and down. To show other pages Press [^ CH] (Previous) or [v CH] (Next). To return to the GUIDE Plus+ list Press [STATUS ⓘ]
To return to the previous screen	Press [RETURN].
To exit the screen	Press [EXIT].



Notes

- The receipt of the GUIDE Plus+ system data is only possible via the aerial input of this unit. The receipt of the GUIDE Plus+ data via externally connected satellite receivers is not possible.
- The GUIDE Plus+ system setup will not work if the clock is not set correctly or the wrong postcode is selected.

View advertisement

Enter your postcode when using this function for the first time (→ 76, Post Code) and leave the unit in standby over night to capture the information. If you have already entered your postcode in Owner ID (→ 13), you do not have to enter again.

If you enter an incorrect postcode for your area, or no postcodes are entered, advertisement may not be displayed correctly.

To display advertisement information

Press [OPTION].

- To display the latest advertisement, you will need to update the information.
- To update the information continuously, this unit must be left in standby mode over night.

To change advertisements

Press [▲, ▼].

To return to TV Guide

Press [RETURN].



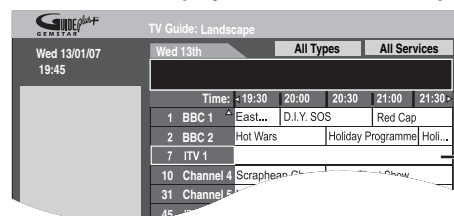
Notes

- Some advertisements are for future programmes and you can set the timer recording of the programmes using the advertisement screen. Follow the on-screen instructions.
- The information from the GUIDE Plus+ system will not be lost even if the unit is turned off at the mains outlet.



Tips

When the unit displays "No Data" or the empty GUIDE Plus+ list:



- Some digital broadcast may not send programme information. Set the timer recording manually (→ 30, Manual timer recordings).

Selecting the programme from the desired programme type or category

This function lets you display a GUIDE Plus+ list sorted by programme type (e.g. Movies, Sport) or category (e.g. Free Services, Radio).

1a



to display the list of programme type.

1b



to display the list of categories.

All Types	All Services
All Types	All Services
Movie	Free Services
News & Fact...	Radio
Entertainment	Data
Sport	Profile 1
Children's	Profile 2
Education	Profile 3
Lifestyle	Profile 4
Drama	

2

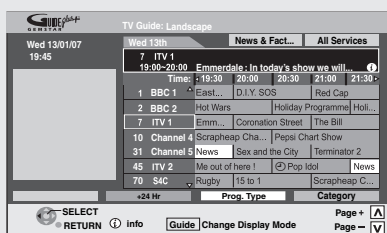


to select the desired item.

3



- A list appears with all programmes of the selected item.
- When you select the landscape view, the unit displays in grey programmes that do not belong to the selected programme type.



e. g.,
Programme type,
“News & Fact...” is
selected in step 2
of Landscape view.

4



to select the programme.



Notes

- The broadcasters allocate individual programmes to topic areas. This function does not work properly unless the information which distinguishes the programme type and categories sent from broadcast stations is correct.



Tips

To return to the previous GUIDE Plus+ list before you have selected the programme type or categories

Select “All Types” of the programme type and “All Services” of the categories in step 2 above.

To return to the previous screen

Press [RETURN].

To exit the screen

Press [EXIT].



Notes

- If the unit is disconnected from the AC mains, all programme data are lost.
- The programme list is available immediately if this unit has found a digital station and loaded the information in the memory. This process can take a while depending on the particular station.
- The programme list data are continuously downloaded in the background when the unit is turned on. That means that the programme list can sometimes change while you are looking at it.

If the “Overlapped Timer Recording” screen appears

If you set a timer recording that will overlap with other timer recordings using the GUIDE Plus+ system, the “Overlapped Timer Recording” screen appears to help you eliminate the overlapping. Follow the on-screen instructions.

Advanced Playback

Selecting Titles to Play

You can easily select and play recorded programmes by using DIRECT NAVIGATOR.

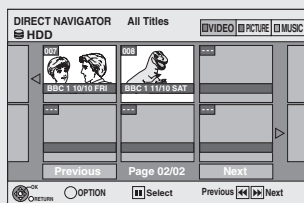
HDD **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **-RW(VR)**

1




HDD **RAM**

When "VIDEO" is not selected, press the "Red" button to select "VIDEO".



2

▲, ▼, ◀, ▶ to select the title you want to watch, then 



Tips

To select the title with the numbered buttons

e.g., **HDD** **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **-RW(VR)**

5: [0] → [0] → [5] 5: [0] → [5]
 15: [0] → [1] → [5] 15: [1] → [5]
 115: [1] → [1] → [5]

To view other pages











Press [▲, ▼, ◀, ▶] to select "Previous" or "Next", then press [OK]. (Thumbnail Display only)

– You can also press [◀◀, ▶▶] to view other pages.

To exit the DIRECT NAVIGATOR screen

Press [DIRECT NAVIGATOR].

DIRECT NAVIGATOR screen icons

-  Protected.
-  Not recorded due to recording protection (Digital broadcasts, etc.)
-  It cannot be played because data is damaged, etc.
-  Currently recording.
-  Titles that have been rerouted to the HDD (→ 33, Relief Recording)
-  "One time only recording" restriction (→ 96, CPRM)
-  Groups of titles (**HDD** only)
-  Title that was recorded but has not yet been played (**HDD** only)
-  (NTSC) Title recorded using a different encoding system from that of the TV system currently selected on the unit.
-  (PAL) • Alter the "TV System" setting on this unit to suit (→ 75).

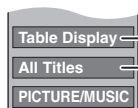
Switching the Direct Navigator appearance

"Grouped Titles"/"All Titles" **HDD**

"Table Display"/"Thumbnail Display"

- 1 While the Direct Navigator screen is displayed Press [OPTION].
- 2 Press [▲, ▼] to select the item and press [OK].

e.g.,



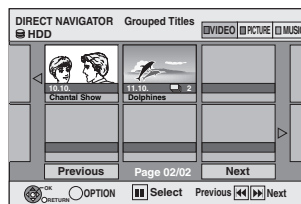
"Table Display" or "Thumbnail Display"


"Grouped Titles" or "All Titles" **HDD**

Grouped Titles screen

Two or more titles recorded in the Daily/weekly or series timer recording mode are bundled and displayed as one item.

(in Thumbnail Display)

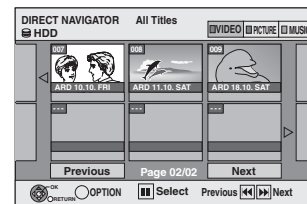


Select the item marked with  and press [OK] to display the bundled titles.

All Titles screen

Displays all titles.

(in Thumbnail Display)



To sort the titles for easy searching

HDD (All Titles screen in Table Display only)

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

1 Press [OPTION].

2 Press [▲, ▼] to select "Sort" and press [OK].

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

If you select an item other than "No."

- The Direct Navigator screen will reappear after playback of the selected title has finished. (You cannot play titles continuously.)
- Skip and Time Slip will only function with the title currently being played back.
- If you exit the Direct Navigator screen, or switch to another Direct Navigator screen, the sort will be cancelled.

To play grouped titles **HDD**

1 Press [▲, ▼, ◀, ▶] to select the group and press [OK].

2 Press [▲, ▼, ◀, ▶] to select the title and press [OK].

To edit the group of titles **HDD**

HDD (Grouped Titles screen only)

1 Press [▲, ▼, ◀, ▶] to select a title or a group and press [II].

A check mark is displayed. Repeat this step until you select all necessary titles.

• Press [II] to cancel.

2 Press [OPTION].

3 Press [▲, ▼] to select the option and press [OK].

Create Group:

Press [◀, ▶] to select "Create Grouping" and press [OK].

Selected titles are bundled to form a group.

Release Grouping

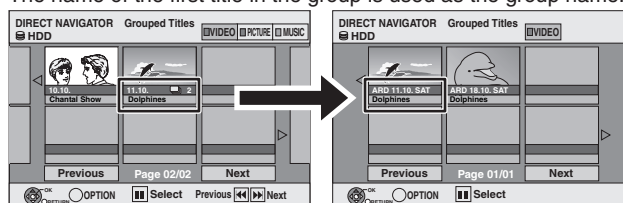
Press [◀, ▶] to select "Release Grouping" and press [OK].

• When a group of titles has been selected, all the titles in the group are released.

• When a title in a group has been selected, the title is released from the group.

Regarding the group name

The name of the first title in the group is used as the group name.



To change the group name

1 Press [▲, ▼, ◀, ▶] to select the group and press [OPTION].

2 Press [▲, ▼] to select "Edit" and press [OK].

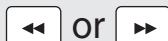
3 Press [▲, ▼] to select "Enter Name" and press [OK].

4 Enter the name. (→ 47, Entering Text)

• Even if the group name is changed, the title names in the group will not be changed.

Search

During playback



- There are 5 search speeds. Each press increases the search speed. (**+R** **+R DL** **+RW** up to 3 speeds)
- Press [**▶** PLAY] to restart normal playback.



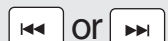
Tips

Depending on the disc, search may not be possible.

Skip

You can skip to the beginning (or the end) of Title/Chapter. Skip is operated for each chapter.

During playback or while paused



- Each press increases the number of skips.
- DivX: Press [**◀◀**] to return to the beginning of the title currently playing.

Quick View (Play ×1.3)

HDD **RAM**

Allows you to increase the play speed slightly without distorting the audio.

During playback



(Press and hold.)

- Press again to return to normal speed.

Direct Play

During playback, you can access specific titles or scenes through direct entry of the numbered buttons.

1 2 3

• **HDD**

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

4 5 6

• **MP3 and JPEG**

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

7 8 9

• **Other discs**

Input a 2-digit number
e.g., 5: [0] → [5]
15: [1] → [5]

DELETE *

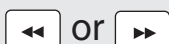
0

INPUT SELECT

Slow-motion Play

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

While paused



- There are 5 slow-motion speeds. Each press increases the speed.
- Press [**▶** PLAY] to restart normal playback.



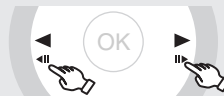
Notes

- If continued for approx. 5 minutes, slow-motion play pauses automatically (except **DVD-V** **VCD**).
- **VCD** allow slow-motion in the forward direction only.

Frame-by-Frame Viewing

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

While paused



- Each press shows the next or previous frame.
- Press and hold to advance or reverse frame-by-frame in succession.
- Press [**▶** PLAY] to restart normal playback.



Notes

- **VCD** allow Frame-by-Frame in the forward direction only.

Time Slip

HDD **RAM**

-R **-R DL** **-RW(V)** **+R** **+R DL** (This function does not work with finalised discs.)

+RW **-RW(VR)**

Use to skip in 1-minute or 10-minute increments.

1

During playback



2

▲, **▼** to select the time, then

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



Manual Skip

HDD **RAM**

-R **-R DL** **-RW(V)** **+R** **+R DL** (This function does not work with finalised discs.)

+RW **-RW(VR)**

Skips approx. 1 minute forward with each press.

During playback



Create Chapters

HDD **RAM**

When creating chapters in your favourite scenes, you can easily reach the head of scene using [**◀◀**, **▶▶**] (SKIP) or play on Chapter View. (→ 50)

During playback



Tips

- Chapters cannot be created during EXT LINK standby (→ 28).

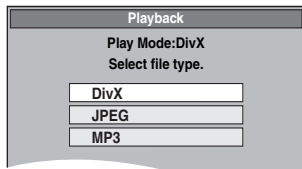
Playing DivX, MP3 and Still Pictures (JPEG)

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

Showing the menu screen

-R -R DL CD

- 1 Insert the disc.
- 2 If the disc contains different file types



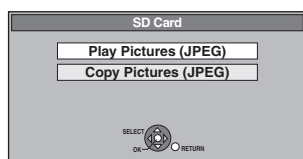
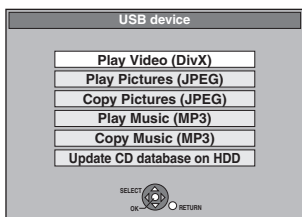
Press [▲, ▼] to select the item and press [OK].

Otherwise,

Press [DIRECT NAVIGATOR].

USB SD

- 1 Insert the USB memory or the SD card.

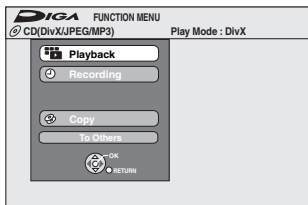


- 2 Press [▲, ▼] to select the item and press [OK].

Changing the file type to play

-R -R DL CD USB

- 1 Press [RETURN] several times to exit the menu.
- 2 Press [FUNCTION MENU].



3 -R -R DL CD

Press [▲, ▼] to select "Playback" and press [OK].

USB

1 Press [▲, ▼] to select "To Others" and press [OK].

2 Press [▲, ▼] to select "USB device" and press [OK].

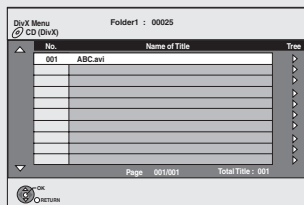
- 4 Press [▲, ▼] to select the item and press [OK].

Playing DivX video contents

-R -R DL CD USB

You can play DivX video contents recorded with a computer onto DVD-R, DVD-R DL, CD-R/CD-RW and USB memory.

- 1 Show DivX Menu screen.
(→ left, Showing the menu screen)



- 2 ▲, ▼ to select the title, then [OK]
Play starts on the selected title.

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

e.g., 5: [0] → [0] → [5]

15: [0] → [1] → [5]



Tips

To stop playing

Press [■].

To show other pages

Press [◀, ▶].

To exit the screen

Press [DIRECT NAVIGATOR].



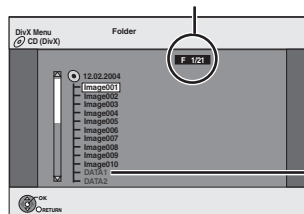
Notes

- Picture sizes set at the recording time may prevent the unit from showing pictures in the adequate aspect. You may be able to adjust the aspect through the TV.
- Successive play is not possible.
- Playback is not possible if recording is performed on the HDD drive or the DVD drive.

Using the tree screen to find a folder

- 1 While the file list is displayed
Press [▶] while a title is highlighted to display the tree screen.

F: Selected folder no./Total folder no. including DivX title.



You cannot select folders that contain no compatible files.

- 2 Press [▲, ▼] to select a folder and press [OK].
The file list for the folder appears.



Tips

To return to the previous screen

Press [RETURN].

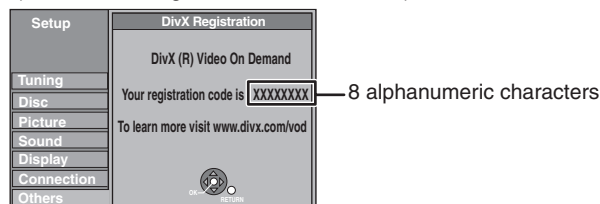
Regarding DivX VOD content

DivX Video-on-Demand (VOD) content is encrypted for copyright protection. In order to play DivX VOD content on this unit, you first need to register the unit.

Follow the on line instructions for purchasing DivX VOD content to enter the unit's registration code and register the unit. For more information about DivX VOD, visit www.divx.com/vod

Display the unit's registration code.

(→ 76, "DivX Registration" in "Others" tab)



- After playing DivX VOD content for the first time, another registration code is then displayed in "DivX Registration". Do not use this registration code to purchase DivX VOD content. If you use this code to purchase DivX VOD content, and then play the content on this unit, you will no longer be able to play any content that you purchased using the previous code.
- If you purchase DivX VOD content using a registration code different from this unit's code, you will not be able to play this content. ("Authorisation Error." is displayed.)

Regarding DivX content that can only be played a set number of times

Some DivX VOD content can only be played a set number of times. When you play this content, the remaining number of plays is displayed. You cannot play this content when the number of remaining plays is zero. ("Rental Expired." is displayed.)

When playing this content

- The number of remaining plays is reduced by one if
 - you press [⏮ DVD].
 - you press [■].
 - you press [DIRECT NAVIGATOR].
 - you press [◀◀] or [◀, ▶▶] etc. and arrive at another content or the start of the content being played.
 - timer recording starts on the HDD.
 - you press [DRIVE SELECT] to change the drive.
- Resume functions do not work.

Playing MP3

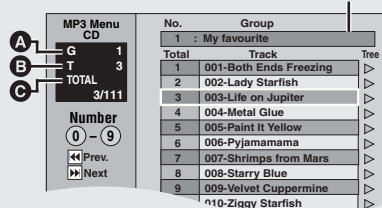
-R -R DL CD USB

You can play MP3 files recorded with a computer onto a DVD-R, DVD-R DL, CD-R/CD-RW and USB memory.

- You cannot play MP3 files on the USB memory while recording or copying.

1 Show MP3 Menu screen.

(→ 38, Showing the menu screen)
Selected group



- A:** Group No.
- B:** Track No. in the group
- C:** Track No./Total tracks in all groups

2 ▲, ▼ to select a track, then to play.



Tips

- "1" indicates the track currently playing.

To stop playing

Press [■].

To exit the menu screens

Press [DIRECT NAVIGATOR].

To view other pages

Press [◀◀, ▶▶].

To select the track with the numbered buttons

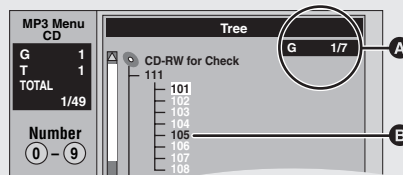
e.g., "5": [0] → [0] → [0] → [5]

"15": [0] → [0] → [1] → [5]

Using the Tree Screen to Find a Group

1 From the track list

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



- A:** Selected Group No./Total Group No.
If the group has no compatible track, "--" is displayed as the group number.
- B:** You cannot select a group that contains no compatible track.

2 ▲, ▼ to select a group, then



– The track list for the selected group appears.



Tips

To return to the track list

Press [RETURN].

Playing Divx, MP3 and Still Pictures (JPEG)

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

Playing still pictures

HDD RAM SD
-R -R DL CD USB

- You can play still pictures recorded with a computer onto a DVD-R, DVD-R DL, CD-R/CD-RW and USB memory.

1 Show Album View screen.

-R -R DL CD USB SD

(→ 38, Showing the menu screen)

HDD RAM

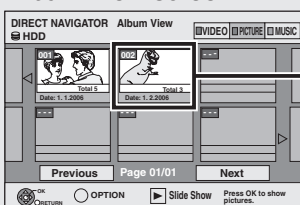
While stopped

1 Press [DRIVE SELECT] to select the drive.

2 Press [DIRECT NAVIGATOR].

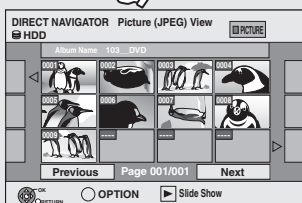
When "PICTURE" is not selected, press the "Green" button to select "PICTURE".

Album View screen



Regarding Album View screen → right

2 ▲, ▼, ◀, ▶ to select the album, then OK



e.g., HDD

3 ▲, ▼, ◀, ▶ to select the still picture, then OK



Notes

- You can use 8 MB to 2 GB SD memory cards, 4 GB to 16 GB SDHC memory cards (→ 17). For inserting and removing SD cards (→ 81).
- Still pictures cannot be played during recording or copying.



Tips

DIRECT NAVIGATOR screen icons



Picture and folder protected.



Album that has not yet been viewed (**HDD RAM**)

To stop viewing a picture

Press [■ STOP].

To return to the Album View screen or Picture (JPEG) View screen

Press [RETURN].

To exit the menu screens

Press [DIRECT NAVIGATOR].

To view other pages

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

– You can also press [◀◀, ▶▶] to view other pages.

To select the still picture or album with the numbered buttons

Album

e.g., "5": [0] → [0] → [5]

"15": [0] → [1] → [5]

"115": [1] → [1] → [5]

Still picture

e.g., "5": [0] → [0] → [0] → [5]

"15": [0] → [0] → [1] → [5]

"115": [0] → [1] → [1] → [5]

"1115": [1] → [1] → [1] → [5]

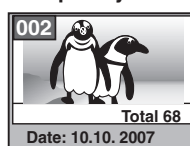
Regarding Album View screen

Still pictures copied from USB memories and SD cards are grouped by the shooting date in the HDD or DVD-RAM.

You can arrange these still pictures and create an album (→ 53).

HDD RAM

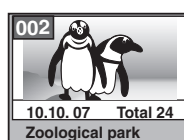
Grouped by date



Number of pictures/Shooting date

HDD RAM -R -R DL CD USB SD

Album



Shooting date/Number of pictures/Album name

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

Slide Show

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

From the Album View screen

▲, ▼, ◀, ▶ to select an album, then



You can also start Slide Show with the following steps.

- ① From the Album View screen
Press [▲, ▼, ◀, ▶] to select the desired album, then press [OPTION].
- ② Press [▲, ▼] to select “Start Slide Show”, then press [OK].



Tips

To stop the Slide Show

Press [■ STOP].

To change the rate at which pictures are displayed

- 1 In step ② above, press [▲, ▼] to select “Slide Show Setting”, then press [OK].
- 2 Press [▲, ▼] to select “Display interval”.
- 3 Press [◀, ▶] to select desired interval (0 to 30 seconds), then press [OK].

To repeat play

- 1 In step ② above, press [▲, ▼] to select “Slide Show Setting”, then press [OK].
- 2 Press [▲, ▼] to select “Repeat Play”.
- 3 Press [◀, ▶] to select “On”, then press [OK].

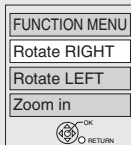
Rotate Pictures

- 1 While playing a picture

OPTION



- 2 ▲, ▼ to select “Rotate RIGHT” or “Rotate LEFT”, then



Notes

To return to the picture to its original position

Press [▲, ▼] to select the opposite rotation in step ②, then press [OK].

- Rotation information will not be stored.
 - **-R -R DL CD USB** Still pictures
 - When disc or album is protected
 - When played on other equipment
 - When copying pictures
 - When changing date
- If you remove the SD card while the DIRECT NAVIGATOR screen is displayed, picture rotation information may not be properly stored. Remove the SD card after you exit the DIRECT NAVIGATOR screen.

Zoom

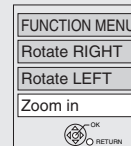
- 1 While playing a picture

OPTION



- 2 To zoom in:

▲, ▼ to select “Zoom in”
then



Notes

To return to the picture to its original size

Press [▲, ▼] to select “Zoom out” in step ②, then press [OK].

- When zooming in, the still picture may be cut off.
- “Zoom in” information is not stored.
- “Zoom in” and “Zoom out” do not work with images that have a resolution larger than 640×480 pixels.

Picture Properties

Picture information is shown (e.g., shooting date).

While playing a picture

STATUS



twice to display picture properties.

18:53:50 11/10.
Folder - Picture No. 103 - 0006
Date 1/1/2005 No. 3/9

Shooting Date

STATUS



again to exit.



Notes

- Depending on the camera or editing software; shooting dates may not be displayed correctly.

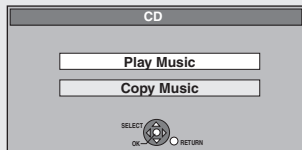
Playing music

To play music CD

Preparation

Press [DRIVE SELECT] to select the DVD drive

- 1 Insert a music CD.
The menu is automatically displayed.



- 2 ▲, ▼ to select "Play Music", then

The unit starts accessing the Gracenote® database (→ 64) and searches for the title information.

If search results indicate that multiple titles were found Press [▲, ▼] to select the appropriate title and press [OK].

- 3 ▲, ▼, to select the track, then

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



Tips

To exit the screen

Press [DIRECT NAVIGATOR].

Playback continues

To play music recorded on HDD

Copying music to HDD → 64

Preparation

Press [DRIVE SELECT] to select the HDD drive.

1



When "MUSIC" is not selected, press the "Yellow" button to select "MUSIC".

- 2 ▲, ▼ to select "Play CD on HDD" or "Play MP3 on HDD" and press then

- 3 ▲, ▼, to select the album (CD)/group (MP3), then

- You can also select the album (CD)/group (MP3) with the numbered buttons.

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

4

▲, ▼, to select the track, then

- You can also select the track with the numbered buttons.
CD

e.g., "5": [0] → [5], "15": [1] → [5]

MP3

e.g., "5": [0] → [0] → [0] → [5]

"15": [0] → [0] → [1] → [5]

"115": [0] → [1] → [1] → [5]

"1115": [1] → [1] → [1] → [5]



Tips

To return to the previous screen

Press [RETURN].

To exit the screen

Press [DIRECT NAVIGATOR].

Note

- You cannot play music tracks on HDD while recording or copying.
- When this unit is not operated for approximately 5 minutes while the screen is being displayed, the screen saver is displayed if "Screen Saver" is set to "On" in the Setup menu. To return to the previous screen, press [OK].

Useful functions during music play

Operations during play

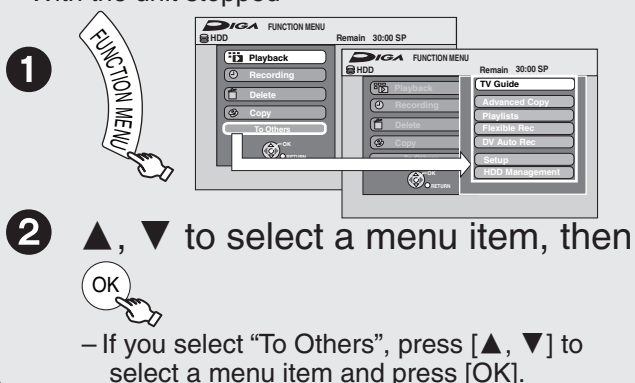
Stop	Press [■]. The stopped position is memorized. Press [▶] (PLAY) to restart from this position. • If [■] is pressed several times, the position is cleared. • The position is cleared if the unit is turned off.
Pause	Press [⏸]. Press [⏸] again or [▶] (PLAY) to restart play.
Search	Press [◀◀] or [▶▶]. The speed increases up to 5 steps. Press [▶] (PLAY) to restart play.
Skip	During play or while paused, press [◀◀] or [▶▶]. Skip to the track you want to play. Each press increases the number of skips.
Repeat Play HDD	You can select the item which you want to repeat. While playing ① Press [OPTION]. ② Press [▲, ▼] to select "Repeat Play Setting" and press [OK]. ③ Press [▲, ▼] to select the item and press [OK]. • Select "Off" to cancel repeat play.
Sort HDD	You can change the order of the Album View (CD)/Group View (MP3) alphabetically. While Album View (CD) screen or Group View (MP3) screen is displayed ① Press [OPTION]. ② Press [▲, ▼] to select "Sort" and press [OK]. ③ Press [▲, ▼] to select "Album Name" or "Group Name" and press [OK]. To cancel the sorted screen Press [▲, ▼] to select "No." and press [OK].
Properties HDD CD	While Track View (CD/MP3) screen is displayed ① Press [OPTION]. ② Press [▲, ▼] to select "Properties" and press [OK]. To exit the Properties screen, press [OK].

Convenient Functions

FUNCTION MENU Windows

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

With the unit stopped



Playback ▶ 36

You can select and play recorded programmes, change the Play Mode (**DivX**, **JPEG**, **MP3**) etc.

Recording ▶ 30

You can make timer recording settings.

Delete ▶ 23

You can delete recorded titles using Delete Navigator.

Copy ▶ 58

You can copy recorded titles using Copy Navigator.

TV Guide ▶ 19, 22

You can easily find programmes you want to watch and set them for timer recording.

Advanced Copy ▶ 59

You can make a copy list and then copy.

Copy New Pictures (EX88) ▶ 62

You can copy the new still pictures on an SD card.

Playlists ▶ 51

You can create playlists by grouping your favourite chapters.

Flexible Rec ▶ 27

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

DV Auto Rec ▶ 29

DV automatic recording function

Setup ▶ 70

You can change the unit's settings using Setup menu.

HDD/DVD Management, Card Management (EX88) ▶ 68

You can manage the HDD, discs or cards through formatting, finalising and other operations.

Copy Music CD ▶ 64

You can start copying music CD to the HDD.

USB device ▶ 38

This unit displays the menu to help you start USB operations.
• “USB device” appears when a compatible USB device is connected.

To pause the TV programme you are watching—Pause Live TV

You can pause the TV programme you are watching using this unit's tuner and resume later by temporarily saving it on the HDD. This is useful when you have to briefly stop watching TV to run an errand.

If you stop Pause Live TV function, then the TV programme temporarily saved on the HDD will be deleted.

- 1 Turn on the television and select the appropriate AV input to suit the connections to this unit.**
- 2 Turn on this unit and press [▲ ▼ CH] to select the channel.**
- 3 When you want to pause the TV programme Press [II].**



This icon indicates that the Pause Live TV is working.

- 4 When you want to pause Press [▶] (PLAY).**
 - The programme is saved on the HDD in SP recording mode (→ 25) regardless of the recording mode and the drive selected before starting saving.
 - At least 1 hour up to 8 hours of TV programmes can be temporarily saved on the HDD. (This may vary depending on the HDD free space.)

Operations during Pause Live TV

Search	Press [◀◀, ▶▶]
Pause	Press [II]. • Press [▶] (PLAY) to restart.
Quick View	Press and hold [▶] (PLAY/× 1.3). • Press again to return to the normal speed.
Slow-motion	While paused, press [◀◀] or [▶▶]. The speed increases up to 5 steps. • Press [▶] (PLAY) to restart play.
Stop Pause Live TV	① Press [■]. ② Press [◀, ▶] to select “Yes” and press [OK].



Notes

- The Pause Live TV function automatically stops when a timer recording starts.
- The Pause Live TV function does not work if the clock is not set.
- The Pause Live TV function does not work
 - while recording
 - while timer recording
 - while EXT LINK recording, etc.
- You cannot change audio or subtitle during resume play.
- The first 30 minutes is deleted every 30 minutes after the HDD is full or the saving lasts 8 hours.
- The Pause Live TV function stops automatically 24 hours after started.

Linked Operations with the TV (VIERA Link “HDAVI Control™”/Q Link)

You can enjoy linked operations with the TV and receiver by using “VIERA Link” or Q Link.

What is VIERA Link “HDAVI Control”?

VIERA Link

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

- VIERA Link “HDAVI Control”, based on the control functions provided by HDMI which is an industry standard known as HDMI CEC (Consumer Electronics Control), is a unique function that we have developed and added. As such, its operation with other manufacturers' equipment that supports HDMI CEC cannot be guaranteed.
- This unit supports “HDAVI Control 3” function.
“HDAVI Control 3” is the newest standard (current as of December, 2007) for Panasonic's HDAVI Control compatible equipment. This standard is compatible with Panasonic's conventional HDAVI equipment.
- Please refer to individual manuals for other manufacturers' equipment supporting VIERA Link function.

Preparation:

1. Connect this unit to your TV using an HDMI cable and a fully wired 21-pin Scart cable (→ 12), or to your receiver using an HDMI cable (→ 80).
2. Set “VIERA Link” to “On” (→ 75). (The default setting is “On”.)
3. Set the “HDAVI Control” operations on the connected equipment (e.g., TV).
 - When using HDMI2 terminal of VIERA as “HDAVI Control”, set the input channel to HDMI2 on VIERA.
4. Turn on all “HDAVI Control” compatible equipment and select this unit's input channel on the connected TV so that the “HDAVI Control” function works properly.

Also when the connection or settings are changed, repeat this procedure.

What is Q Link?

Q Link

Q Link is a convenient function that offers linked operations of this unit and a Panasonic TV. You can use this function by connecting the equipment with a fully wired 21-pin Scart cable.

Preparation:

- Connect this unit to your TV with a fully wired 21-pin Scart cable (→ 10, 11).



Notes

The following systems from other manufacturers have similar function to Q Link from Panasonic.

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

- Q Link (registered trademark of Panasonic)
- DATA LOGIC (registered trademark of Metz)
- Easy Link (registered trademark of Philips)
- Megalogic (registered trademark of Grundig)
- SMARTLINK (registered trademark of Sony)

(When the TV is on) Easy playback

VIERA Link Q Link

When the TV is on and the following operations are performed, the TV's input will automatically switch to HDMI input mode (VIERA Link) or AV input mode (Q Link) and the TV displays the corresponding action.

(Picture or sound may not be available for the first few seconds.)

Press [FUNCTION MENU]^{*1}, [▶ PLAY]^{*2}, [DIRECT NAVIGATOR], [GUIDE], [PROG/CHECK] etc.

(When the TV is off) Power on link

VIERA Link Q Link

When the TV is off and the following operations are performed, the TV will automatically turn on and displays the corresponding action.

(Picture or sound may not be available for the first few seconds.)

Press [FUNCTION MENU]^{*1}, [▶ PLAY]^{*2}, [DIRECT NAVIGATOR], [GUIDE], [PROG/CHECK] etc.

Power off link

VIERA Link Q Link

When you turn the TV off, the unit is also automatically turned off. The unit is automatically turned off even if the FUNCTION MENU screen, the status message or the on-screen display is displayed, during playback or when the unit is set to a timer recording.

Even if the TV is turned off, the unit will not be turned off at the same time when recording, copying, finalising etc,

- When this unit is connected to an “HDAVI Control” compatible Panasonic receiver with an HDMI cable, the receiver will also turn off.

Direct TV Recording

VIERA Link^{*3} Q Link

This function allows you to immediately start recording the programme that you are viewing on the TV (→ 26).

- The titles are recorded to the HDD.

To stop recording

Press [■ STOP].

^{*1} This button is available only when this unit is on.

^{*2} When this button is pressed, the playback image is not immediately displayed on the screen and it may not be possible to watch the contents from where playback started.

In this case, press [◀◀] or [◀◀] to go back to where playback started.

^{*3} This function is available with the TV which has “HDAVI Control 3” function.

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

Easy control only with VIERA remote control

If you connect this unit to the TV that has “HDAVI Control 2” or “HDAVI Control 3” function with an HDMI cable, you can enjoy using more convenient functions.

You can operate this unit using the following buttons on the TV remote control.

[▲, ▼, ◀, ▶], [OK], [RETURN], [EXIT], [OPTION] and the coloured buttons.

Use the remote control for this unit to operate any other buttons (numbered buttons, etc.) that are not listed above.

- The operation of this unit may be interrupted when you press buttons on the TV remote control other those listed above.
- The TV displays the TV tuner’s picture when the linked operation is finished.
- Refer to TV operating instructions for operating the TV.

Using the FUNCTION MENU window to operate this unit **VIERA Link**

This function is available with the TV which has “HDAVI Control 2” or “HDAVI Control 3” function.

- 1 **Display this unit’s “FUNCTION MENU” window using the TV remote control.**
 - If this unit is turned off, this unit will turn on automatically.
- 2 **Select the item you want to operate with the TV remote control, and press [OK].**

Pause live TV programme **VIERA Link**

This function is available with the TV which has “HDAVI Control 3” function.

You can pause the TV programme you are watching and resume later by temporarily saving it on the HDD. This is useful when you have to briefly stop watching TV to run an errand.

If you stop the Pause Live TV function, then the TV programme temporarily saved on the HDD will be deleted.

- 1 **When you want to pause the TV programme**
Turn on the “Pause Live TV” function using the TV remote control.
 - This unit turns on automatically.
- 2 **When you want to resume**
Display the Control Panel (→ below) and press [OK].
 - The TV programme resumes.



Tips

To stop Pause Live TV
Press [▼] while the Control Panel is displayed.

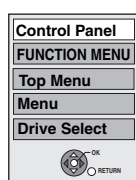
Refer to “Notes” on page 43, “To pause the TV programme you are watching—Pause Live TV”.

Using the OPTION menu window to operate this unit **VIERA Link**

This function is available with the TV which has “HDAVI Control 2” or “HDAVI Control 3” function.

By using the TV remote control, you can play discs using the “Control Panel” (→ below) and display the Top Menu for DVD-Video.

- 1 **Press [OPTION].**



Control Panel	Control Panel is displayed (→ below)	Drive Select	Select the HDD,DVD or SD drive
Function Menu	FUNCTION MENU window is displayed (→ above)	Rotate RIGHT/ Rotate LEFT (JPEG)	Rotate the still pictures (→ 41)
Top Menu DVD-V	Top Menu is displayed (→ 20)		
Menu DVD-V	Menu is displayed (→ 20)	Zoom in /Zoom out (JPEG)	Enlarge or shrink the still picture (→ 41)

- You cannot use the OPTION menu while the Top Menu for DVD-Video is displayed and while DVD-Video is copying.
- 2 **Select an item then press [OK].**

Using the Control Panel

Using the “Control Panel”, you can operate search backward, search forward, stop, etc. with the TV remote control.

Perform steps 1 and 2 of “Using the OPTION menu window to operate this unit” (→ above).

The Control Panel is displayed (→ right)

- While playing a title or DVD-Video, etc.
 - [▲]: Pause, [▼]: Stop, [◀]: Search backward, [▶]: Search forward, [OK]: Play, [EXIT]: Exit the screen.
- While playing still pictures
 - [▼]: Stop, [◀]: View previous picture, [▶]: View next picture, [EXIT]: Exit the screen.



Notes

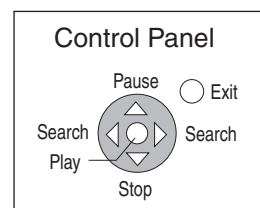
- These functions may not work normally depending on the equipment condition.
- About “HDAVI Control” function, read the operating instructions of the connected equipment (e.g., TV) too.

When you want to leave the TV on and set only this unit to standby mode

Press [DVD] on this unit’s remote control and set to standby mode.

When not using “HDAVI Control”

Set “VIERA Link” in the Setup menu to “Off” (→ 75).




Information Messages



Digital Channel Information

You can display the information about programmes (programme name, broadcast time, etc.).

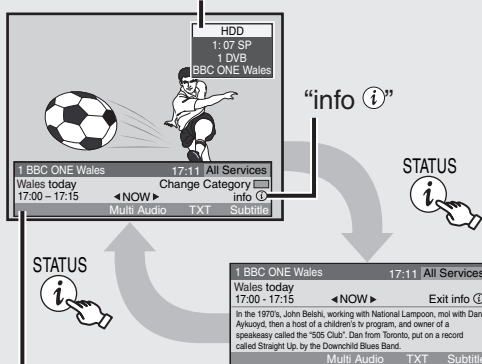
With the unit stopped

STATUS  to show the screen information.

When the digital channel information is being displayed,

– Press [STATUS ] again and detailed information will be displayed (only when “info ” is displayed).

Status message (→ 47)



Digital channel information

Detailed information

Programme name and Broadcast time



Encrypted

During scrambled broadcasting (You cannot watch the broadcast).

Multi Audio

Programme is broadcast in multi-channel sound (→ 67, DVB Multi Audio).

TXT

Digital TEXT is possible.

Subtitle

Subtitle can be displayed.



Tips

To switch information of the current programme and the next programme

Press [◀, ▶].

- NOW: current programme
- NEXT: next programme

To select the information of another channel

Press [▲, ▼].

- Press [OK] to watch the selected channel.

To change the length of time digital channel information is displayed for

(→ 74, On-Screen Messages)



Notes

- Everytime you change the channel, digital channel information appears automatically. They disappear again after a short time.
- If you record a digital radio broadcast or a digital broadcast that is not being received correctly, digital channel information is also recorded and will remain visible during playback.

Showing the Digital TEXT (MHEG)

When “TXT” appears in digital channel information



to show the Digital TEXT.

– Press again to hide.



Notes

- During recording the Digital TEXT function is not possible.
- The Digital TEXT function depends on respective stations.
- When subtitle is on or the digital channel information is displayed, the Digital TEXT function does not work.



Tips

To view another page of Digital TEXT (MHEG)

Press [▲, ▼] to select another page and press [OK].

- You can also use the numbered buttons to select another page.

Quickly access to certain topic areas and navigation

Use colour buttons according to on-screen instructions.

Showing Subtitles

When “Subtitle” appears in digital channel information



to show subtitles.

– Press again to hide.



Notes

- Programmes are recorded with subtitles when you record them with the subtitles on.
- You cannot switch subtitles during timer recording.



Tips

To select subtitle language (→ 74, DVB Preferred Subtitles)

Changing the Category

You can select one of your favourite channels by changing the category [such as Free Services, Radio and Registered Profiles (→ 70)].

When digital channel information is displayed



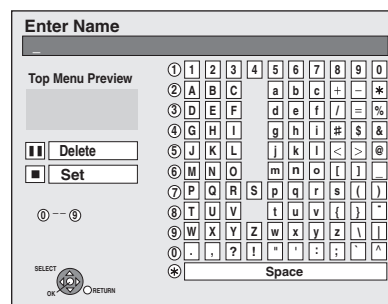
to change the category.

– Press [▲, ▼] to select the channel.

Entering Text

You can give names to recorded titles, etc.

1 When viewing the Enter Name screen.



2 Press [▲, ▼, ◀, ▶] to select a character, then press [OK].

– Repeat this step to enter other characters.

3 Press [■ STOP] when you've finished entering text.



Tips

Using the numbered buttons to enter characters

e.g.: entering the letter "R"

1. Press [7] to move to the 7th row.
2. Press [7] twice to highlight "R".
3. Press [OK].

To enter a space

Press [DELETE *], then press [OK].

To delete a character

Press [■ PAUSE] on a character in the name field.

To cancel in the middle

Press [RETURN].

- Characters will not be saved.



Notes

If you enter a long name, only part of it is shown in the Top Menu after finalisation (→ 69). When entering a title name, the name that will appear in the Top Menu can be previewed in "Top Menu Preview" window.



Signal Quality

No Signal:	The digital broadcast signal is not being received.
No Service:	No broadcasts are currently available.

If "No Signal" is displayed, check the following:

- Check that the aerial is correctly positioned.
- Check that the current digital broadcast channel is correctly broadcasting.

Status Messages

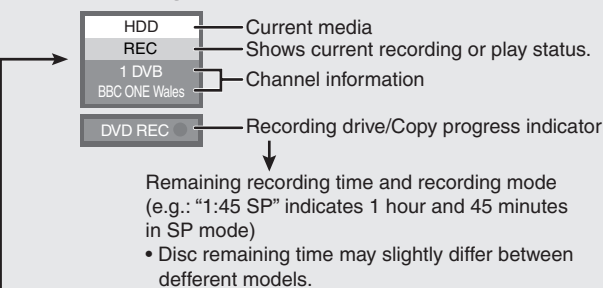
The following messages and displays appear to let you know what operations are being performed and the status of the unit.

During playback and/or recording

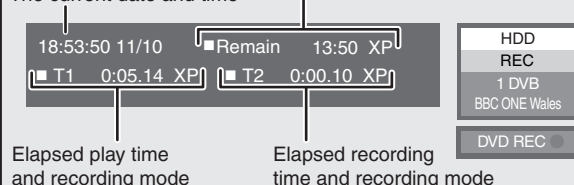
STATUS



Keep pressing to cycle through available displays.



The current date and time



- When using Pause Live TV

The time when the picture currently displayed was broadcasted



New Service Message

When a new DVB channel is added this unit will be informed automatically. Then the confirmation message appears. If you select "Yes" on the display, Auto-Setup starts (all channel settings and all created profiles are deleted. The timer recording programmes are also cancelled.).



Tips

The display/hide setting can be changed (→ 74).

Titles—Editing

HDD RAM

-R -R DL -RW(V) +R +R DL (You can not edit finalised discs.)

+RW -RW(VR)

You can edit titles on the DIRECT NAVIGATOR screen: deleting unwanted parts of titles such as commercials, changing Thumbnail, dividing and deleting titles, etc.



Tips

- **Maximum numbers of titles on a disc**

HDD
499

RAM

-R -R DL -RW(V)
99

+R +R DL +RW

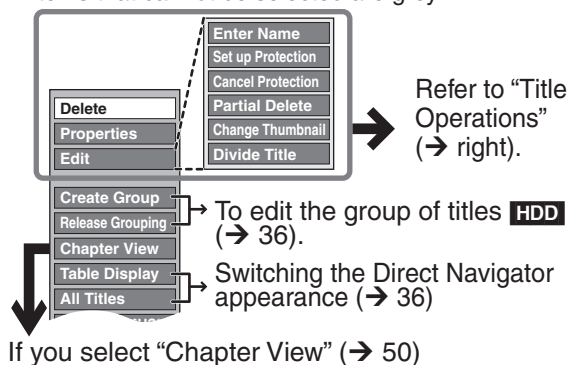
+R +R DL +RW
49

Accessing the Title View

Preparation:

- **RAM** Release protection (disc, cartridge → 68, Setting Protection).

- 1 Press [DRIVE SELECT] to select the drive.
- 2 Press [DIRECT NAVIGATOR].
HDD RAM When "VIDEO" is not selected, press the "Red" button to select "VIDEO".
- 3 Press [▲, ▼, ◀, ▶] to select a title.
– Multiple editing (→ below, Tips)
- 4 Press [OPTION] to display the menu list.
 - To view more options.
– Press [▲, ▼] to select "Edit", then press [OK].
 - Items that cannot be selected are grey.



Notes

- You cannot edit during recording or copying, etc.
- **+R +R DL** Management information is recorded in unused sections when you edit discs. The available space on these discs decreases each time you edit their contents.
We recommend that you edit on the HDD and then copy to disc.



Tips

To exit the menu screens

Press [DIRECT NAVIGATOR].

To view other pages

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

– You can also press [◀◀, ▶▶] to view other pages.

Multiple editing

(Only Delete, Set up Protection/Cancel Protection)

Select with [▲, ▼, ◀, ▶], then press [■ PAUSE]. (Repeat.)

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

Title Operations

Delete

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

Use to delete unneeded titles.

Important: Once deleted, contents cannot be recovered.

Perform steps 1–4 of "Accessing the Title View" (→ left).

- 5 Press [▲, ▼] to select "Delete", then press [OK].
- 6 Press [◀] to select "Delete", then press [OK] to confirm.



Notes

- **HDD RAM** Deleting an item increases the available disc space by the amount of space taken by the item deleted.
- **-R -R DL +R +R DL** Available disc space does not increase after deletion.
- **-RW(V) +RW** Available disc space increases when you delete the last title (the recording space may increase slightly when other titles are deleted).
- Available disc space may not increase after deleting a short title.

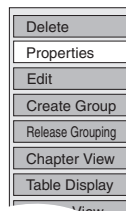
Properties

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

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

Perform steps 1–4 of "Accessing the Title View" (→ left).

- 5 Press [▲, ▼] to select "Properties", then press [OK].



Enter Name

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

You can give a name for the title.

Perform steps 1–4 of "Accessing the Title View" (→ left).

- 5 Press [▲, ▼] to select "Enter Name", then press [OK].

Entering Text (→ 47)

- **HDD** Even if the group name is changed, the title names in the group will not be changed.

Set up Protection/Cancel Protection

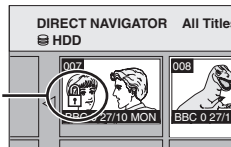
HDD RAM +R +R DL +RW

Use to prevent accidental erasure of titles.

Perform steps ①–④ of “Accessing the Title View” (→ 48).

- ⑤ Press [▲, ▼] to select “Set up Protection” or “Cancel Protection”, then press [OK].
- ⑥ Press [◀] to select “Yes”, then press [OK].

The lock symbol appears when the title is protected.



Partial Delete

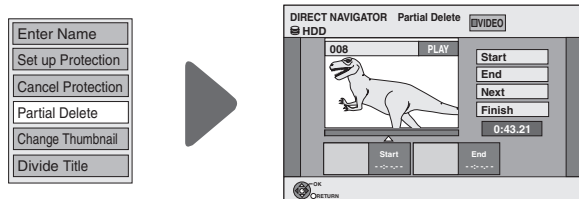
HDD RAM

Use to remove unwanted parts of titles, such as commercials.

Important: Once deleted, the parts cannot be recovered.

Perform steps ①–④ of “Accessing the Title View” (→ 48).

- ⑤ Press [▲, ▼] to select “Partial Delete”, then press [OK].



- ⑥ Press [OK] to set the “Start” point and then press [OK] again to set the “End” point of the section you want to erase.
 - For quicker editing (→ below, Tips)
 - To delete multiple sections: press [▲, ▼] to select “Next”, and repeat this step.
- ⑦ Press [▲, ▼] to select “Finish”, then press [OK].
- ⑧ Press [◀] to select “Delete”, then press [OK] to confirm.



Notes

- You may not be able to specify start and end points within 3 seconds of each other.
- Available disc space may not increase after erasing short parts of titles.

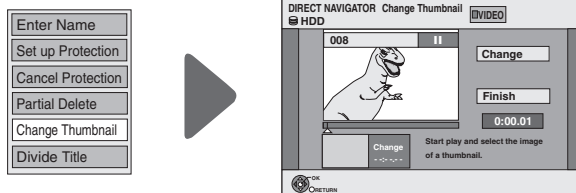
Change Thumbnail

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

Changes the thumbnail picture shown in the Title View screen.

Perform steps ①–④ of “Accessing the Title View” (→ 48).

- ⑤ Press [▲, ▼] to select “Change Thumbnail”, then press [OK].



- ⑥ Press [▶ PLAY] to start play.
- ⑦ Press [OK] at the point you want to use as the thumbnail.
 - For quicker editing (→ below, Tips)
 - To change the thumbnail: Restart play and press [▲, ▼] to select “Change”, then press [OK] at the point you want to use as the thumbnail.
- ⑧ Press [▲, ▼] to select “Finish”, then press [OK].

Divide Title

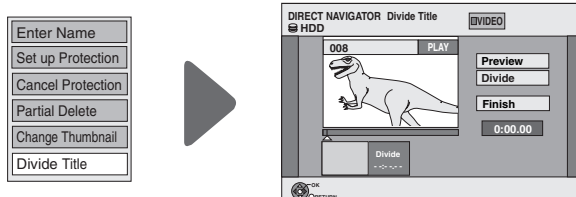
HDD RAM

You can divide a title into two.

Once divided, titles cannot be recombined.

Perform steps ①–④ of “Accessing the Title View” (→ 48).

- ⑤ Press [▲, ▼] to select “Divide Title”, then press [OK].



- ⑥ Press [OK] at the point you want to divide.
 - For quicker editing (→ below, Tips)
 - Selecting “Preview”, then pressing [OK] plays the title from 10 seconds prior, to 10 seconds after the division point.
 - To change the point to divide at: Press [▲, ▼] to select “Divide”, then press [▶ PLAY] to bring to the point where you want to divide, then press [OK].
- ⑦ Press [▲, ▼] to select “Finish”, then press [OK].
- ⑧ Press [◀] to select “Divide”, then press [OK].
 - The title is divided at that point.



Notes

- Divided titles retain the name of the original.
- A short amount of video and audio just before and after the division point get cut out.
- You cannot divide a title when the resulting parts are too short.
- **HDD** Divided titles form a group of titles.



Tips

For quicker editing

- Use Search (→ 37) or Time Slip (→ 37) to find the desired point.
- To skip to the start or end of a title press [◀◀] (start) or [▶▶] (end).
- For better precision, use Slow-motion (→ 37) and Frame-by-Frame (→ 37).

Chapters—Creating, Editing

HDD RAM

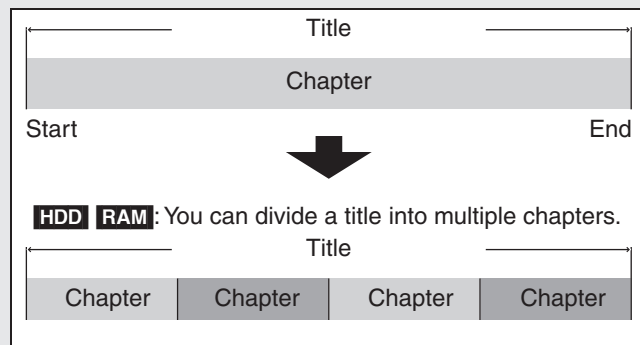
When creating chapters in your favourite scenes, you can easily reach the head of scene using [**◀◀**, **▶▶**] (SKIP) or play on Chapter View.



Tips

• Title/Chapter

Normally, programmes are recorded as a single item consisting of one chapter.



HDD RAM: You can divide a title into multiple chapters.

– **HDD RAM**: You can change the order of chapters and create a playlist (→ 51).

• Maximum numbers of chapters on a disc

HDD	RAM	-R	-R DL	-RW(V)	+R	+R DL	+RW
Approx. 1000 per title	Approx. 1000				Approx. 254		

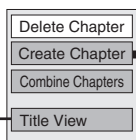
Accessing the Chapter View

Allows viewing and editing chapters individually.

- 1 Press [DRIVE SELECT] to select the drive.
- 2 Press [DIRECT NAVIGATOR].
HDD RAM When “VIDEO” is not selected, press the “Red” button to select “VIDEO”.
- 3 Press [**▲**, **▼**, **◀**, **▶**] to select a title.
- 4 Press [OPTION] to display the OPTION menu.



- 5 Press [**▲**, **▼**] to select “Chapter View” then press [OK].
- 6 Press [**▲**, **▼**, **◀**, **▶**] to select a chapter.
– Multiple editing (→ right, Tips)
- 7a To play
Press [OK].
- 7b To edit
Press [OPTION] to display the menu list.



Refer to “Chapter Operations” (→ right).

You can go back to the Title View.



Tips

To exit the menu screens

Press [DIRECT NAVIGATOR].

To view other pages

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

– You can also press [**◀◀**, **▶▶**] to view other pages.

Multiple editing

(Only Delete Chapter)

Select with [**▲**, **▼**, **◀**, **▶**], then press [|| PAUSE]. (Repeat.)

– A check mark appears. Press [|| PAUSE] again to cancel.

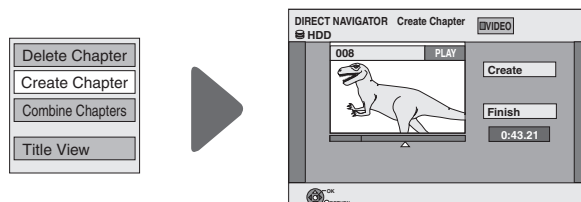
Chapter Operations

Create Chapter

You can divide a title into multiple chapters.

Perform steps 1–7b of “Accessing the Chapter View” (→ left).

- 8 Press [**▲**, **▼**] to select “Create Chapter”, then press [OK].



- 9 Press [OK] at the point you want to divide.

– For quicker editing (→ 49, Tips)
– Repeat this step to create additional chapters.

- 10 Press [**▲**, **▼**] to select “Finish”, then press [OK].



Notes

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

Delete Chapter

You can delete the chapters for each title.

Important: Once deleted, recorded contents cannot be recovered.

Perform steps 1–7b of “Accessing the Chapter View” (→ left).

- 8 Press [**▲**, **▼**] to select “Delete Chapter”, then press [OK].
- 9 Press [**◀**] to select “Delete”, then press [OK].

Combine Chapters

You can combine the divided chapters.

Perform steps 1–7b of “Accessing the Chapter View” (→ left).

- 8 Press [**▲**, **▼**] to select “Combine Chapters”, then press [OK].
- 9 Press [**◀**] to select “Combine”, then press [OK].
– The selected chapter gets combined with the next chapter.

Creating, Editing and Playing Playlists

HDD RAM

-RW(VR) (play only)

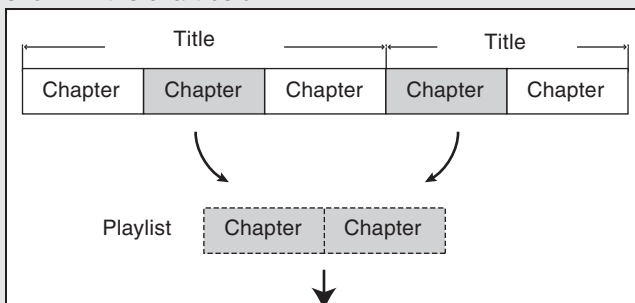
You can create playlists by grouping your favourite scenes (chapters) from the recorded titles and edit the created playlists.



Tips

HDD RAM

A playlist is a compilation of your favourite chapters as shown in the chart below.



Copying (→ 56) a playlist will create a title.

- Editing playlists doesn't modify titles.
- Playlists are not recorded separately so this doesn't use much capacity.

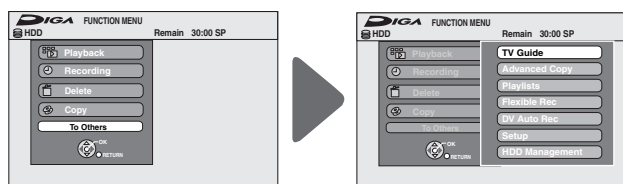
Accessing the Playlist View

Preparation:

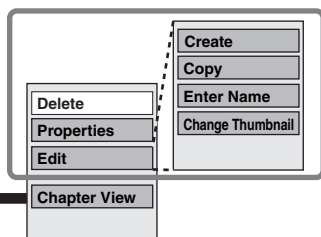
- Press [DRIVE SELECT] to select the drive containing the recorded title to be edited.
- **RAM** Release protection (disc, cartridge → 68, Setting Protection).

With the unit stopped

- 1 Press [FUNCTION MENU].
- 2 Press [▲, ▼] to select "To Others", then press [OK].



- 3 Press [▲, ▼] to select "Playlists", then press [OK].
- 4a To play
Press [▲, ▼, ◀, ▶] to select the playlist to play, then press [OK].
- 4b To create
Press [▲, ▼, ◀, ▶] to select "Create", then press [OK] (→ right, Creating Playlists).
- 4c To edit
Press [▲, ▼, ◀, ▶] to select the playlist, then press [OPTION].
– Multiple editing (→ 50, Tips)



If you select "Chapter View" (→ 52)

Refer to "Editing Playlists/Chapters" (→ right).

Creating Playlists

HDD RAM

Perform steps 1–4b of "Accessing the Playlist View". (→ left)

- 5 Press [◀, ▶] to select the source title, then press [▼].
– Press [OK] to select all the chapters in the title, then skip to step 7.
- 6 Press [◀, ▶] to select the source chapter you want to add to a playlist and press [OK].
– Press [▲] to cancel.
– Press [OPTION] to select "Create Chapter", then press [OK] if you want to create a new chapter in the source title (→ 50).
- 7 Press [◀, ▶] to select the position to insert the chapter, then press [OK].
– Press [▲] repeatedly to return to step 5, if you want to add additional source titles.

Chapters are registered to the playlist. Repeat steps 6 and 7 to add other chapters.

- 8 Press [RETURN] to finish and exit the screen.



Notes

- Playlists cannot be created while recording or copying.
- You are allowed a maximum of 99 playlists, with approximately 1000 chapters per playlist.

Editing Playlists/Chapters

Properties

HDD RAM -RW(VR)

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

Perform steps 1–4c of "Accessing the Playlist View". (→ left)

- 5 Press [▲, ▼] to select "Properties", then press [OK].



Tips

To exit the screen
Press [OK].

Delete

HDD RAM

Use to delete unneeded playlists.

Once deleted, playlists contents cannot be recovered (titles are not affected).

Perform steps 1–4c of "Accessing the Playlist View". (→ left)

- 5 Press [▲, ▼] to select "Delete", then press [OK].
- 6 Press [◀] to select "Delete", then press [OK] to confirm.



Tips

To delete during play

1. Press [DELETE *]. A confirmation message displays.
2. Press [◀] to select "Delete", then press [OK] to confirm.

Creating, Editing and Playing Playlists

Edit

HDD RAM

You can create and copy playlists, and change thumbnail.

Perform steps ①–④c of “Accessing the Playlist View” (→ 51).

- ⑤ Press [▲, ▼] to select “Edit” then press [OK].
- ⑥ Press [▲, ▼] to select desired operation from the menu displayed location then press [OK] (→ below).

Create	① Press [▲, ▼] to select “Create” then press [OK]. (→ 51, Creating Playlists)
Copy	① Press [▲, ▼] to select “Copy” then press [OK]. ② Press [◀] to select “Copy” then press [OK].
Enter Name	① Press [▲, ▼] to select “Enter Name” then press [OK]. ② Enter a name for the playlist. (→ 47, Entering Text).
Change Thumbnail	① Press [▲, ▼] to select “Change Thumbnail” then press [OK]. ② Press [▶ PLAY], Time Slip (→ 37), Slow-motion (→ 37), or Search (→ 37) to find the desired point. ③ Press [OK] at the image you wish you use for your thumbnail. ④ Press [▲, ▼] to select “Finish” then press [OK]. – The thumbnail picture is now changed.



Tips

To exit the menu screens

Press [EXIT].

Multiple editing

(Only Delete, Copy)

Select with [▲, ▼, ◀, ▶], then press [|| PAUSE]. (Repeat.)

– A check mark appears. Press [|| PAUSE] again to cancel.

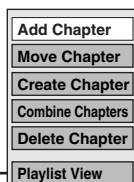
Chapter View

HDD RAM

You can add, move, divide, combine or delete chapters in the playlist.

Perform steps ①–④c of “Accessing the Playlist View” (→ 51).

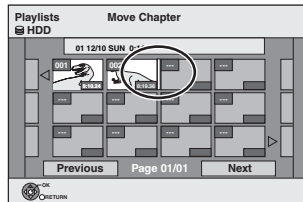
- ⑤ Press [▲, ▼] to select “Chapter View” then press [OK].
- ⑥ Press [▲, ▼, ◀, ▶] to select a chapter.
– Multiple editing (→ right, Tips)
- ⑦a To play
Press [OK].
- ⑦b To edit
Press [OPTION] to display the menu list.



Refer to “Chapter Operations”
(→ right)

You can go back to the Playlist View.

Chapter Operations

Add Chapter	① Press [▲, ▼] to select “Add Chapter” then press [OK]. (→ 51, Creating Playlists)
Move Chapter	① Press [▲, ▼] to select “Move Chapter” then press [OK]. ② Press [▲, ▼, ◀, ▶] to select the position to insert the chapter then press [OK]. 
Create Chapter	① Press [▲, ▼] to select “Create Chapter” then press [OK]. ② Press [▶ PLAY], Time Slip (→ 37), Slow-motion (→ 37), or Search (→ 37) to find the desired point. ③ Press [OK] at the point you want to divide. ④ Press [▲, ▼] to select “Finish” then press [OK].
Combine Chapters	① Press [▲, ▼] to select “Combine Chapters” then press [OK]. ② Press [◀] to select “Combine” then press [OK]. – The selected chapter gets combined with the next chapter.
Delete Chapter	① Press [▲, ▼] to select “Delete Chapter” then press [OK]. ② Press [◀] to select “Delete” then press [OK].



Tips

To exit the menu screens

Press [EXIT].

To view other pages

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

– You can also press [◀◀, ▶▶] to view other pages.

Multiple editing

(Only Delete Chapter)

Select with [▲, ▼, ◀, ▶], then press [|| PAUSE]. (Repeat.)

– A check mark appears. Press [|| PAUSE] again to cancel.

For quicker editing

– To skip to the start or end of a playlist/chapter, press [◀◀] (start) or [▶▶] (end).

Still Pictures and Music—Editing

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

Accessing the Album (still picture)/Picture View

Preparation:

- **RAM SD** Release protection (disc, cartridge, card → 68, Setting Protection)

1 Show Album View screen.

-R -R DL CD USB SD

(→ 38, Showing the menu screen)

HDD RAM

While stopped

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

2. Press **[DIRECT NAVIGATOR]**.

When "PICTURE" is not selected, press the "Green" button to select "PICTURE".

Editing an album:

2a Press **[▲, ▼, ◀, ▶]** to select the album.

– Multiple editing (→ below, Tips)

– When you want to create an album using "Create Album", press **[OPTION]** without selecting album.

Editing a still picture:

2b 1. Press **[▲, ▼, ◀, ▶]** to select the album which contains the still picture to edit, then press **[OK]**.

2. Press **[▲, ▼, ◀, ▶]** to select the still picture.

– Multiple editing (→ below, Tips)

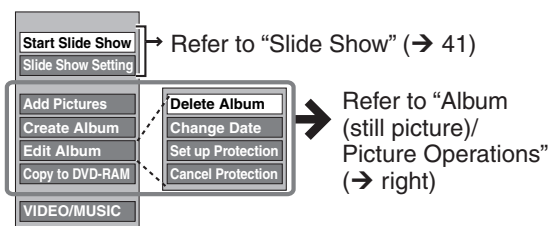
3 Press **[OPTION]** to display the menu list.

To view more options

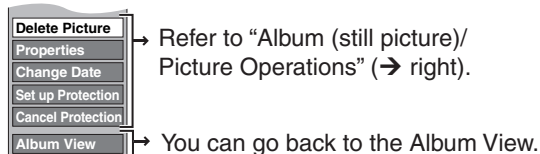
Press **[▲, ▼]** to select "Edit Album", then press **[OK]**.

- Items that cannot be selected are grey.

e.g., **HDD** Editing an album



e.g., **HDD** Editing a still picture



Tips

To view other pages

Press **[▲, ▼, ◀, ▶]** to select "Previous" or "Next", then press **[OK]**.

– You can also press **[◀◀, ▶▶]** to view other pages.

Multiple editing

Select with **[▲, ▼, ◀, ▶]**, then press **[■ PAUSE]**.

(Repeat.)

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

To return to the previous screen

Press **[RETURN]**.

To exit the menu screens

Press **[DIRECT NAVIGATOR]**.

Album (still picture)/Picture Operations



Notes

- Timer recordings do not start when performing "Change Date", "Copy to DVD-RAM", "Copy to HDD", "Add Pictures" or "Create Album".

Add Pictures/Create Album

HDD RAM SD

Perform steps 1–3 of "Accessing the Album (still picture)/Picture View" (→ left).

4 Press **[▲, ▼]** to select "Add Pictures" or "Create Album", then press **[OK]**.

5 Press **[◀]** to select "Start" or "Yes", then press **[OK]**.

6 Press **[▲, ▼, ◀, ▶]** to select the album containing picture to add, then press **[OK]**.

7 Press **[▲, ▼]** to select "Select pictures to copy" or "Copy all pictures", then press **[OK]**.

- If "Select pictures to copy" is selected

Press **[▲, ▼, ◀, ▶]** to select the picture, then press **[OK]**.

- If "Copy all pictures" is selected

All the still pictures in the album will be copied.

8 Press **[▶]** to select "No" to finish copying, then press **[OK]**.

- If you want to continue copying, select "Yes" and repeat steps 6–7.

Only when you select "Create Album"

9 Press **[◀, ▶]** to select "Yes" or "No", then press **[OK]**.

- If "Yes" is selected

You can give a name for the album (→ 47, Entering Text).

- If "No" is selected

The album name is automatically given.

Delete Album/Delete Picture

HDD RAM SD

Important: Once deleted, contents cannot be recovered.

- When deleting an album, non-picture files in the album will also be deleted. (This does not apply to subordinate folders in the album.)

Perform steps 1–3 of "Accessing the Album (still picture)/Picture View" (→ left).

4 Press **[▲, ▼]** to select "Delete Album" or "Delete Picture", then press **[OK]**.

5 Press **[◀]** to select "Delete", then press **[OK]**.


Still Pictures and Music—Editing

Set up Protection/Cancel Protection

HDD RAM SD

Set protection to prevent pictures from being accidentally deleted.

Perform steps ①–③ of “Accessing the Album (still picture)/Picture View” (→ 53).

- ④ Press [▲, ▼] to select “Set up Protection” or “Cancel Protection”, then press [OK].
- ⑤ Press [◀] to select “Yes”, then press [OK].
 - The lock symbol “” appears when the still picture or album is protected.



Notes

- Even if you set protection using this unit, album may be deleted by other equipment.

Enter Album Name

HDD RAM SD

Perform steps ①–③ of “Accessing the Album (still picture)/Picture View” (→ 53).

- ④ Press [▲, ▼] to select “Enter Album Name”, then press [OK].
 - You can give a name for the album (→ 47, Entering Text).



Notes

- Album names entered using this unit may not display on other equipment.

Change Date

HDD RAM

You can change the date of this picture.

Perform steps ①–③ of “Accessing the Album (still picture)/Picture View” (→ 53).

- ④ Press [▲, ▼] to select “Change Date”, then press [OK].
- ⑤ Press [◀, ▶] to select the item and press [▲, ▼] to change.
- ⑥ Press [OK].

Copy to DVD-RAM/Copy to HDD

HDD RAM

Perform steps ①–③ of “Accessing the Album (still picture)/Picture View” (→ 53).

- ④ Press [▲, ▼] to select “Copy to DVD-RAM” or “Copy to HDD”, then press [OK].
- ⑤ Press [◀, ▶] to select “Start”, then press [OK].



Notes

- You cannot copy if multiple albums are selected.
- Timer recordings do not start when performing “Copy to DVD-RAM” or “Copy to HDD”.

Properties

HDD RAM -R -R DL CD USB SD

Information (e.g., image size and file size) is shown.

Perform steps ①–③ of “Accessing the Album (still picture)/Picture View” (→ 53).

- ④ Press [▲, ▼] to select “properties”, then press [OK].
 - To exit the Properties screen, press [OK].

Accessing the Album (CD)/Group (CD)/Track View

HDD

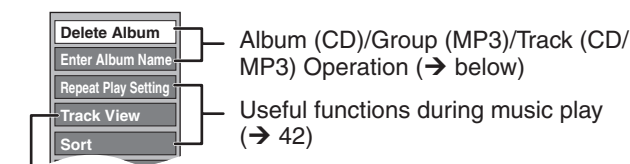
Preparation:

- Press [DRIVE SELECT] to select the HDD drive.

- 1 Press [DIRECT NAVIGATOR].
– When “MUSIC” is not selected, press the “Yellow” button to select “MUSIC”.
- 2 Press [▲, ▼] to select “Play CD on HDD” or “Play MP3 on HDD” and press [OK].
- 3 Editing an album/group
Press [▲, ▼] to select the album/group and press [OPTION].
Editing a track
1. Press [▲, ▼] to select the album/group and press [OK].
2. Press [▲, ▼] to select the track and press [OPTION].
- 4 Press [▲, ▼] to select the operation and press [OK].

To edit the album (CD)/group (MP3)

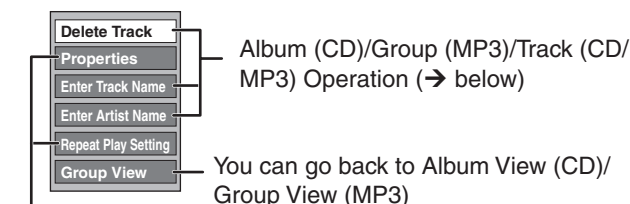
e.g., Album View (CD)



→ below

To edit the track (CD/MP3)

e.g., Track View (MP3)



Useful functions during music play → 42



Tips

To return to the previous screen

Press [RETURN].

To exit the screen

Press [DIRECT NAVIGATOR].

Album (CD)/Group (MP3)/Track (CD/MP3) Operation

After performing step 1-4 (above)

Delete Album (CD) Delete Group (MP3) Delete Track (MP3)	Press [◀, ▶] to select "Delete" and press [OK]. • Once deleted, the recorded contents are lost and cannot be restored. Make certain before proceeding.
Enter Album Name (CD) Enter Group Name (MP3) Enter Track Name (CD/MP3)	You can give names to albums/groups and tracks. (→ 47, Entering text)
Enter Artist Name (CD/MP3)	You can edit the artist name of the track. (→ 47, Entering text)



Notes

- Timer recordings do not start while editing music.

Deleting still pictures and music using Delete Navigator

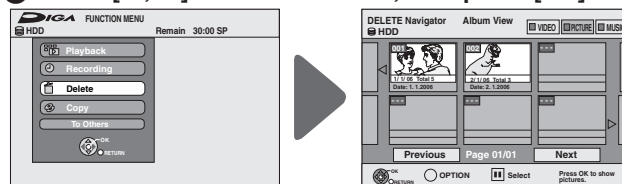
Preparation:

- **RAM SD** Release protection (disc, cartridge, card → 68, Setting Protection)

HDD RAM SD

Important: Once deleted, contents cannot be recovered.

- 1 Press [DRIVE SELECT] to select the HDD, DVD or SD drive.
- 2 Press [FUNCTION MENU].
- 3 Press [▲, ▼] to select “Delete”, then press [OK].



4 HDD RAM

Press the colour button to select “PICTURE” or “MUSIC”.

HDD If you pressed the “Yellow” button, press [▲, ▼] to select “Delete CD on HDD” or “Delete MP3 on HDD” and press [OK].

Deleting an album (still picture), album (CD) or group (MP3):

- 5a Press [▲, ▼, ◀, ▶] to select the album, then press [DELETE *].

Deleting a still picture or track (MP3):

- 5b 1. Press [▲, ▼, ◀, ▶] to select the album or group which contains the still picture or track to delete and press [OK].
2. Press [▲, ▼, ◀, ▶] to select the still picture or track and press [OK].

- 6 Press [◀, ▶] to select “Delete”, then press [OK].



Notes

- You cannot delete while recording or copying.
- You cannot delete a track (CD) individually.



Tips

To view other pages

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

– You can also press [◀◀, ▶▶] to view other pages.

Multiple editing

Select with [▲, ▼, ◀, ▶], then press [||| PAUSE]. (Repeat.)

– A check mark appears. Press [||| PAUSE] again to cancel.

– Deleting an item increases the available space by the amount of space taken by the item deleted.

To return to the previous screen

Press [RETURN].

To exit the screen

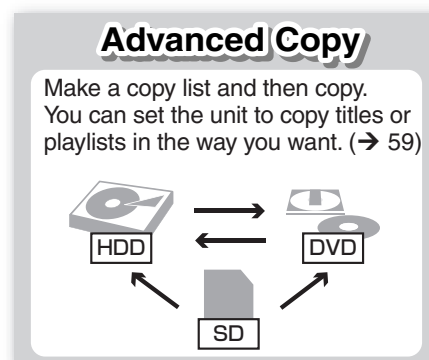
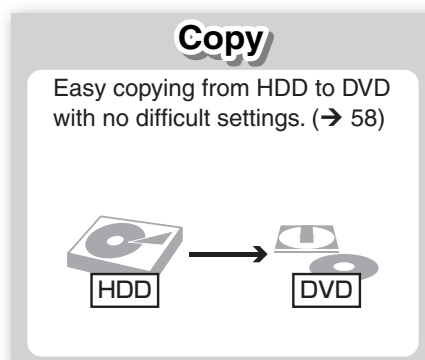
Press [EXIT].

Copying titles or playlists

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

With this unit, you can select a copy method from the two types listed below.

(About copying still pictures → 62)



Features

		Copy	Advanced Copy		
Copy direction	HDD → DVD	○	○		
	DVD → HDD	—	○ RAM -RW(VR) +RW DVD-V (Only from a finalised disc)		
High speed mode copy ^{*1} (→ below, Important)		○	○ DVD-V You cannot perform high-speed copy with finalised discs. +RW You cannot perform high-speed copy from +RW to HDD.		
Changing recording mode		—	○ ^{*2}		
Finalise ^{*3}		-R -R DL -RW(V) +R +R DL Automatically finalised	-R -R DL -RW(V) +R +R DL Can be selected		
		High speed mode	Normal speed mode	High speed mode	Normal speed mode
Copying SD Video from an SD card (EX88) (→ 61)		—	—	○ HDD RAM only	—
Copying playlists ^{*4}		—	—	○	○
Are chapters maintained?		○	— ^{*5}	○	— ^{*5}
Are thumbnails maintained?		○	— ^{*6}	○ ^{*7}	— ^{*6}
Recording and Playing while Copying		—	—	○ ^{*8}	—

○: Can do, —: Cannot do

Important

^{*1} To high speed copy titles (or playlists created from those titles), set “Recording Format” to “Video format” before recording to the HDD (The default setting is “Video format”. → 72).

However in the following cases, copying to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW using the high speed mode does not work.

- Playlists created from titles using a variety of recording modes or multiple titles using FR recording mode
- Playlists mixed with a variety of audio types (Dolby Digital and LPCM, etc.)
- Titles that contain many deleted segments
- **EX88** Titles that have been copied to the HDD from an SD card or a Panasonic digital video camera with HDD (SD Video)
- **+R** **+R DL** **+RW** Titles recorded in “EP” mode and “FR (recordings 5 hours or longer)” mode. (Displayed ►►! → 57)
- **+R** **+R DL** **+RW** Titles recorded in 16:9 aspect.
- **-R** **-R DL** **-RW(V)** Titles recorded in 16:9 aspect using “EP” mode or “FR” (recordings 5 hours or longer) mode

^{*2} If you select a recording mode with better picture quality than the original, the picture quality does not improve. (However it does prevent against degradation of picture quality.)

+R DL You cannot copy in “EP” or “FR (recordings 5 hours or longer)” mode.

^{*3} You cannot select “Top Menu” or “Auto-Play Select”.

If you want to set auto-play select or the background colour, select “Top Menu” or “Auto-Play Select” in “DVD Management” before copying (→ 69).

^{*4} You cannot copy playlists with a play time more than 8 hours.

When you copy a playlist, it will become a title in the destination drive.

^{*5} **RAM** **-R DL** **+R DL** **+RW**: One title becomes one chapter.

-R **-RW(V)** **+R**: Chapters are created automatically (**-R** **-RW(V)** about 5-minutes **+R** about 8-minutes) when finalising after copying the disc.

^{*6} Thumbnails return to the default position.

^{*7} When copying playlists, the thumbnails may not reflect changes made to them.

^{*8} Possible only with titles on the HDD

[However it is not possible when copying with automatic finalisation or when copying SD Video (**EX88**).]

— You cannot perform chasing play or edit, etc. while copying.

— You cannot play a playlist while copying titles with “One time only recording” restriction (→ 24).

— Still pictures or music cannot be played.

■ Approximate copying times (Max. speed)

(excludes time required to write data management information)

HDD		5X Speed DVD-RAM		12X Speed DVD-R ^{*1}		4X Speed DVD-R DL ^{*2}		4X Speed DVD-RW ^{*3}		8X Speed +R ^{*4}		4X Speed +R DL ^{*2}		4X Speed +RW	
Recording Mode	Recorded	Required time	Speed	Required time	Speed	Required time	Speed	Required time	Speed	Required time	Speed	Required time	Speed	Required time	Speed
XP	1 hour	12 min.	5X	5 min. 46 s.	10X	15 min.	4X	15 min.	4X	8 min. 20 s.	7X	15 min.	4X	15 min.	4X
SP		6 min.	10X	2 min. 30 s.	24X	7 min. 30 s.	8X	7 min. 30 s.	8X	3 min. 45 s.	16X	7 min. 30 s.	8X	7 min. 30 s.	8X
LP		3 min.	20X	1 min. 21 s.	44X	3 min. 45 s.	16X	3 min. 45 s.	16X	1 min. 53 s.	32X	3 min. 45 s.	16X	3 min. 45 s.	16X
EP (6H)		2 min.	30X	58 s.	62X	2 min. 30 s.	24X	2 min. 30 s.	24X						
EP (8H)		1 min. 30 s.	40X	48 s.	75X	1 min. 53 s.	32X	1 min. 57 s.	31X						

• The above values indicate the quickest possible times and speeds to high speed copy a one hour title recorded on the HDD to a high speed recording compatible disc. Depending on what part of the disc is being written to, the features of the disc, etc., the times and speeds will vary.

^{*1} In this unit, copying with a 16X Speed DVD-R disc will be performed at the same speed as with a 12X Speed DVD-R disc.

^{*2} In this unit, copying with a 8X Speed discs, DVD-R DL and +R DL, will be performed at the same speed as with a 4X Speed discs, DVD-R DL and +R DL.

^{*3} In this unit, copying with a 6X Speed DVD-RW disc will be performed at the same speed as with a 4X Speed DVD-RW disc.

^{*4} In this unit, copying with a 16X Speed +R disc will be performed at the same speed as with a 8X Speed +R disc.



Notes

- When recording or playing while copying, the unit may not use the maximum recording speed.
- Depending on the condition of the disc, the unit may not copy using the maximum speed.
- When copying titles in high speed mode to high speed recording compatible DVD-RAM 5X, DVD-R 8X, +R 8X or +RW 4X, the sound of the disc rotating becomes louder than normal. If you want copy to perform more quietly, select "Normal (Silent)" in "DVD Speed for High Speed Copy" in the Setup menu (→ 72).

Copy restrictions

Regarding copying to DVD-R DL (Dual Layer, single-sided) and +R DL (Double Layer, single-sided)

When not copying in high speed mode, titles are temporarily copied at normal speed to the HDD and then copied at high speed to DVD-R DL and +R DL. The titles that were temporarily copied to the HDD are then deleted.

You cannot copy to DVD-R DL and +R DL in the following cases.

- When there is not enough free space on the HDD. (When copying to a new blank disc, if you intend to fill a new disc when copying to it, the equivalent of up to 4 hours of free space in SP mode is needed on the HDD.)
- When the number of titles recorded to the HDD and the number of titles to be copied to the DVD-R DL and +R DL is greater than 500 in total.

When playing a title recorded on both layers, video and audio may momentarily cut out when the unit is switching layers. (→ 15)

Regarding copying of the broadcasts that allow "One time only recording"

You can copy a recorded title to a CPRM (→ 96) compatible DVD-RAM, however, the title is deleted from the HDD.

- Titles or playlists cannot be copied from DVD-RAM to the HDD.
- Titles will not be copied if they are protected (→ 49).
- You cannot copy playlists created from "One time only recording" titles.
- Titles with recording limitations and playlists cannot be registered on the same copying list.

COPY Navigator/Copying list icons and functions

Depending on the icon, you may be informed about the on-screen display.



Titles and playlists that can be copied in high speed mode to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, +RW



Titles and playlists that can be copied in high speed mode to DVD-R, DVD-R DL, DVD-RW (DVD-Video format) (However, titles and playlists cannot be copied in high speed mode to +R or +RW)

+R DL is displayed, but copy cannot be performed, even in normal speed mode.



Title with "One time only recording" restriction (→ 24, Copy-Once recording)



Titles deleted from the HDD by "One time only recording" restriction after copying. (→ 24, Copy-Once recording)



Title or playlist contains still picture(s)
• Still picture(s) cannot be copied.



Title or playlist recorded using a different encoding system from that of the TV system currently selected on the unit.
• Titles and playlists displaying these marks cannot be selected.

Copying titles or playlists

Before copying

Speed and recording mode when copying

HDD ↔ **RAM**: High speed

HDD → **-R -R DL -RW(V) +R +R DL +RW**: Refer to the following table.

"Recording Format" setting (→ 72)	Copy speed
Only titles recorded with "Recording Format" set to "Video format".	High speed
Only Titles recorded with "Recording Format" set to "VR format".	Normal speed

When making a copy of multiple titles that were recorded with "Recording Format" set to "Video format" and "VR format".

* In the following cases, even if "Recording Format" is set to "Video format", copy will perform at normal speed.

- **+R +R DL +RW** When the copying source was recorded in "EP" or "FR (recordings 5 hours or longer)" mode.
- When the copy destination (disc) does not have enough space.
- When the title aspect for the copying source is 16:9:
 - **+R +R DL +RW**
 - **-R -R DL -RW(V)** copying source was recorded in "EP" or "FR (recordings 5 hours or longer)" mode.

Preparation:

- Insert a disc that you can use for copying (→ 15, 81).
- Confirm that there is enough remaining disc space.

Titles and playlists recorded using a different encoding system (PAL or NTSC) from the TV system currently selected on the unit cannot be copied.

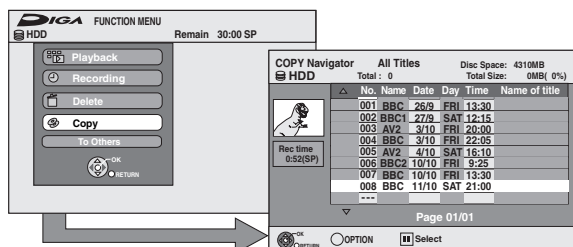
Copy

DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R and +R DL are automatically finalised (→ 96). After finalising, the discs become play-only and you can also play them on other DVD equipment. However, you can no longer record or edit.

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

(You cannot copy to finalised discs.)

- 1 Press **[FUNCTION MENU]**.
- 2 Press **[▲, ▼]** to select "Copy", then press **[OK]**.

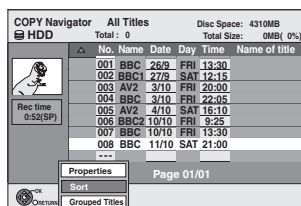


- 3 Press **[▲, ▼]** to select the title you want to copy, then press **[II]**.
A check mark is displayed. Repeat this step until you select all necessary items.
 - Press **[II]** again to cancel.
- 4 Press **[OK]**.
- 5 Press **[◀]** to select "Start", then press **[OK]**.

Check the properties of a title and sort COPY Navigator

Perform steps 1–2 of "Copy".

- 3 Press **[▲, ▼]** to select the title, then press **[OPTION]**.



Properties	Press [▲, ▼] to select "Properties", then press [OK] . The name, recording date, channel etc. of the selected title are shown.
Sort (All Titles screen only):	<ol style="list-style-type: none">1 Press [▲, ▼] to select "Sort", then press [OK].2 Press [▲, ▼] to select the item, then press [OK]. This changes the way that titles are displayed. You can select to display titles by No., recording date, day, channel, recording start time and title name. (You cannot select a title if it has a check mark.) If you close the COPY Navigator screen, the display order is cancelled.



Notes

- If you register multiple titles, they are copied in order from the title at the top of the screen and not in the order you registered them. To change the order that titles are copied, create a copying list and then copy the contents of the list (→ 59).



Tips

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

To stop copying (→ 60)
COPY Navigator/Copying list icons and functions (→ 57)

Copying using the copying list —Advanced Copy

HDD ↔ RAM +RW

-RW(VR) → HDD

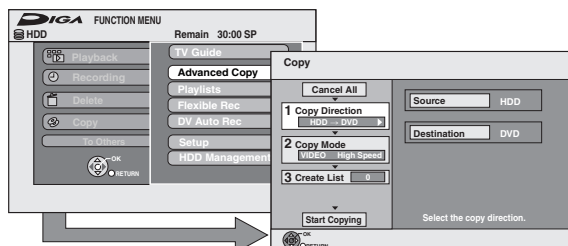
HDD → -R -R DL -RW(V) +R +R DL

SD → HDD RAM

You can order titles and playlists as desired for copy to disc.

See also “Before copying” (→ 58).

- 1 Press [FUNCTION MENU].
- 2 Press [▲, ▼] to select “To Others”, then press [OK].
- 3 Press [▲, ▼] to select “Advanced Copy”, then press [OK].



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

4 Set the copy direction.

– If you are not going to change the copying direction, press [▼] (→ step 5).

- 1 Press [▲, ▼] to select “Copy Direction”, then press [▶].
- 2 Press [▲, ▼] to select “Source”, then press [OK].
- 3 Press [▲, ▼] to select the drive, then press [OK].
- 4 Press [▲, ▼] to select “Destination”, then press [OK].
- 5 Press [▲, ▼] to select the drive, then press [OK].
The same drive as the copy source cannot be selected.
- 6 Press [◀] to confirm.

5 Set the recording mode.

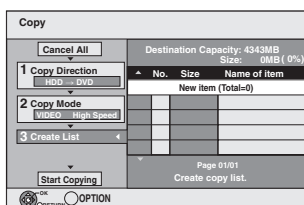
– If you are not going to change the recording mode, press [▼] (→ step 6).

- 1 Press [▲, ▼] to select “Copy Mode”, then press [▶].
- 2 Press [▲, ▼] to select “Format”, then press [OK].
- 3 Press [▲, ▼] to select “VIDEO”, then press [OK].
- 4 Press [▲, ▼] to select “Recording Mode”, then press [OK].
- 5 Press [▲, ▼] to select the mode, then press [OK].
- 6 Press [◀] to confirm.

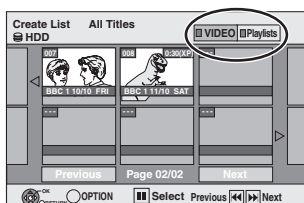
6 Register titles and playlists for copy.

– If you are going to copy a registered list without making any changes to it (→ step 7).

- 1 Press [▲, ▼] to select “Create List”, then press [▶].



- 2 Press [▲, ▼] to select “New item”, then press [OK].
- 3 Press the “Red” button to select “VIDEO” or press the “Green” button to select “Playlists”.



- 4 Press [▲, ▼, ◀, ▶] to select the title or playlist, then press [II].

A check mark is displayed. Repeat this step until you select all necessary items.

- Press [II] again to cancel.
- The items will be copied in the order of the copying list. If you want to specify the order, repeat selecting one item at a time.
- When you switch between the “VIDEO” and “Playlists” tab, the check mark is cancelled.
- When copying to a disc using high speed mode, -R -R DL -RW(V) : only items indicated with “▶▶▶” or “▶▶▶!” can be registered.
- R +R DL +RW : only items indicated with “▶▶▶” can be registered.

– To view other pages (→ 60)

- 5 Press [OK] to confirm.

– To edit the copying list (→ below)

You cannot start copying when the value of the “Size” exceeds 100% (“Destination Capacity” is not sufficient) (→ 60, About the data size for copying).

- 6 Press [◀] to confirm.

- 7 Press [▲, ▼] to select “Start Copying”, then press [OK].

- 8 Press [◀] to select “Yes” and press [OK] to start copying.

HDD → -R -R DL -RW(V) +R +R DL

Press [◀, ▶] to select “Copy & Finalise” or “Copy Only”, then press [OK].

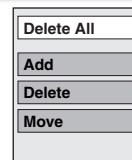
– If “Copy & Finalise” is selected

After finalising, the discs become play-only and you can also play them on other DVD equipment. However, you can no longer record or edit.

Edit the copying list

Select the item in step 6–5 (→ above)

- 6–6 Press [OPTION].



Delete All	Delete all items registered on the copying list. 1. Press [▲, ▼] to select “Delete All”, then press [OK]. 2. Press [◀, ▶] to select “Yes”, then press [OK].
Add	Add new items to the copying list. 1. Press [▲, ▼] to select “Add”, then press [OK]. 2. Press [▲, ▼, ◀, ▶] to select the title or playlist and press [II]. A check mark is displayed. Repeat this step until you select all necessary items. • Press [II] again to cancel. 3. Press [OK].
Delete	Delete the selected items. 1. Press [▲, ▼] to select “Delete”, then press [OK]. 2. Press [◀, ▶] to select “Yes”, then press [OK].
Move	Move selected items or change the order of items on the copying list. 1. Press [▲, ▼] to select “Move”, then press [OK]. 2. Press [▲, ▼] to select the destination, then press [OK].

Copying titles or playlists

Cancel all registered copying setting and lists

After performing steps ①–③ (→ 59)

- ④ Press [▲, ▼] to select “Cancel All”, then press [OK].
 - ⑤ Press [◀] to select “Yes”, then press [OK].
- The settings and lists may be cancelled in the following situations.
 - When a title, still picture, etc. has been recorded or deleted at the copy source
 - When steps have been taken, for instance, to turn off the unit, open the tray, change the copy direction, etc.

About the data size for copying

Data size of each registered item

Destination	Copy Mode	Size	OMB (0%)
No.	Size	Name of item	(Total=0)

Page 01/01
Create copy list.

Data size recorded to the copy destination

- When copying at normal speed, the total data size will change according to the recording mode.
- The total data size shown may be larger than the sum of the data sizes for each registered item, because of data management information being written to the copy destination, etc.



Tips

To view other pages

Press [▲, ▼, ◀, ▶] to select “Previous” or “Next”, then press [OK].
– You can also press [◀◀, ▶▶] to show other pages.

Multiple editing

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

– A check mark appears. Press [|| PAUSE] again to cancel.

To stop copying

Press and hold [RETURN] for 3 seconds.
(You cannot stop while finalising)

To return to the previous screen

Press [RETURN].

Recording and playing while copying

You can record or play using the HDD while high speed copying. (Only when high speed copying without finalising)
– Still pictures and music recorded on the HDD cannot be played.

Press [OK] to cancel the screen display.

– To confirm the current progress

Press [STATUS ①].



Notes

When you stop High-speed copying

All titles that have completely copied at the point cancelled are copied.

When you stop Normal Speed copying

Copies until the point cancelled. However titles with “One time only recording” restriction, only titles that have completely copied at the point cancelled are copied to the disc. Titles that are cancelled before the copy is complete are not copied and remain on the HDD.

– **-R DL +R DL** If copy is cancelled during the step while temporarily copying to the HDD, then nothing will be copied. However, if copy is cancelled during the step while copying to disc from the HDD, then only titles completely copied at the point cancelled are copied.

Even if the title was not copied to the DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW, the amount of remaining writable disc space becomes less.

- Timer recordings executed while copying are recorded to the HDD regardless of the recording drive settings. (Only when high speed copying without finalising)
- To play DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R and +R DL on other players, it is necessary to finalise them after copy.

Copying a finalised DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R and +R DL

DVD-V → HDD

You can copy the content of finalised DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, and +R DL to the HDD and re-edit. While playing a disc, the content being played is copied to the HDD according to the set time.

- If you perform search, frame-by-frame or pause while copying, that portion of title is not recorded.
- **Operations and on screen displays during copy are also recorded.**
- Almost all DVD-Video on sale have been treated to prevent illegal copying, and cannot be copied.
- The following cannot be copied: Video CD, Audio CD and so on.

Preparation:

- Insert the finalised disc (→ 81).

After performing steps ①–⑤ (“Format” is automatically set to “DVD-Video”) (→ 59, Copying using the copying list–Advanced Copy)

⑥ Set “Copy Time”.

– If you are not going to change the setting (→ step ⑦).

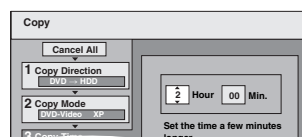
Setting the unit to copy according to the set time

- ① Press [▲, ▼] to select “Copy Time”, then press [▶].
 - ② Press [▲, ▼] to select “Time Setting”, then press [OK].
- Setting the unit to copy all the content on the disc
- ③ Press [▲, ▼] to select “Off”, then press [OK].
 - ④ Press [◀] to confirm.

Copy will continue until there is not enough available recording space on the HDD.

– Setting the copying time

- ③ Press [▲, ▼] to select “On”, then press [OK].
- ④ Press [▲, ▼] to select “Copy Time”, then press [OK].



- ⑤ Press [◀, ▶] to select "Hour" and "Min.", then press [▲, ▼] to set the recording time.
- ⑥ Press [OK].
- ⑦ Press [◀] to confirm.

Copying to the HDD continues for the set time even after the content being played finishes.

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

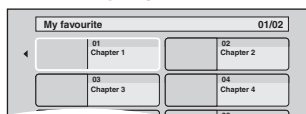
⑦ Press [▲, ▼] to select "Start Copying", then press [OK].

Press [◀] to select "Yes", then press [OK] to start copying. The disc top menu is displayed.

- Disc play automatically begins from title 1 when "Title 1" is selected from the "Auto-Play Select" menu when finalising the disc (→ 69).

⑧ When the top menu is displayed

Press [▲, ▼, ◀, ▶] to select the title you want to start copying, and press [OK].



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



Tips

To return to the previous screen
Press [RETURN].

To stop copying

Press [■ STOP].

You can also press and hold [RETURN] for 3 seconds to stop copying.

- If stopped partway, copying will be up to that point.



Notes

- If you perform search, frame-by-frame or pause while copying, that portion of title is not recorded.
- The screen on the right is recorded at the beginning.
- The content is recorded as 1 title from the start of copy to the end.
- If play does not begin automatically or if the top menu does not display automatically, press [▶ PLAY] to start.
- Even if you copy a high quality video/audio DVD, the original picture and audio quality cannot be exactly replicated.
- If you want to copy a title from a finalised DVD-RW (DVD Video Recording format), create a copy list and then copy (→ 59, Copying using the copying list–Advanced Copy).

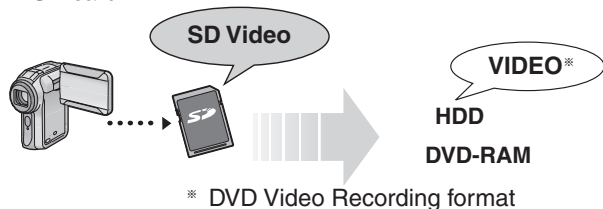


Copying SD Video from an SD card EX88

Motion pictures encoded in the MPEG2 format, which have been taken by a Panasonic SD Video Camera, digital video camera etc, can be stored on HDD or DVD-RAM.

(All the recordings on the same date become a title.)

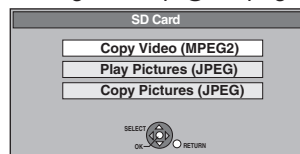
- You cannot playback SD Video on an SD card with this unit.
- You must copy the files to the HDD or a DVD-RAM.
- You cannot playback or record while copying SD Video.
- This unit cannot copy AVCHD format motion pictures from an SD card.



The display below automatically appears when you insert a card into the SD card slot while stopped.

Press [▲, ▼] to select "Copy Video (MPEG2)", then press [OK].

Then go to step ⑦ on page 59.



How to copy

Refer to "Copying using the copying list–Advanced Copy" (→ 59)

Please set the items in step ④ and ⑤ as shown below.

Copy Direction:

Source: SD CARD

Copy Mode:

Format: VIDEO

- SD Video on an SD card are automatically registered on the copy list.
- If there are no SD Video on an SD card, "Copy Video (MPEG2)" is not displayed.

Copying SD Video from a video equipment EX88

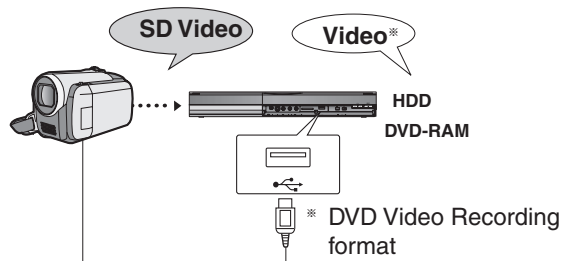
Motion pictures encoded in the MPEG2 format, which have been taken by a Panasonic digital video camera with HDD etc, can be copied from the camera's HDD to this unit's HDD or DVD-RAM.

(All the recordings on the same date become a title.)

- You cannot playback SD Video in the camera's HDD with this unit.

You must copy the files to the HDD or a DVD-RAM.

- You cannot playback or record while copying SD Video.

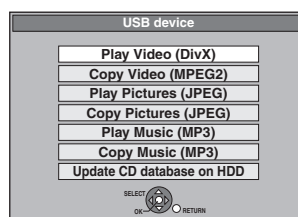


Preparation

- 1 Turn on both this unit and the camera.
 - 2 Connect the camera to this unit.
 - 3 Select the appropriate mode that makes the camera ready for data transfer (such as "PC CONNECT") on the camera.
- Refer to the camera's operating instructions for detail.

The display below automatically appears when you connect the camera to this unit.

Press [▲, ▼] to select "Copy Video (MPEG2)" and press [OK]. Then go to step ⑦ on page 59.



- SD Video on the camera are automatically registered on the copy list.
- If there are no SD Video on the camera, "Copy Video (MPEG2)" is not displayed.

Copying Still Pictures

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

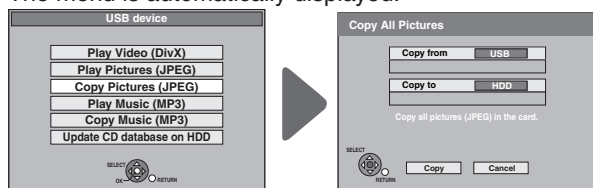
HDD RAM USB SD

- SDHC Memory Cards used for recording with this unit can only be used with other SDHC Memory Card-compatible equipment. SDHC Memory Cards cannot be used with equipment that is only compatible with SD Memory Cards.
- You cannot copy pictures recorded to DVD-R, DVD-R DL or CD-R/CD-RW.
- Still pictures copied from USB memories or SD cards are grouped by the shooting date in the HDD or DVD-RAM.

Copying all the still pictures on the USB memory—Copy All Pictures

USB → HDD or RAM

- While stopped
Insert the USB memory (→ 81).
The menu is automatically displayed.



- Press [▲, ▼] to select “Copy Pictures (JPEG)” and press [OK].
- Press [▲, ▼] to select “Copy to”, then press [◀, ▶] to select the drive.
- Press [▲, ▼, ▶] to select “Copy”, then press [OK].



Tips

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

To return to the previous screen
Press [RETURN].



Notes

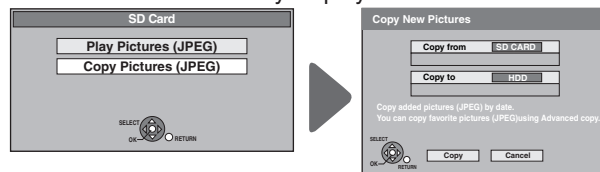
- The structure of folders on the USB memory may not be the same at the copy destination.
- If the space on the destination drive runs out or the number of files/folders to be copied exceeds the maximum (→ 18), copying will stop partway through.
- You cannot copy the information about the picture rotation.

Copying new still pictures on the SD card—Copy New Pictures EX88

SD → HDD or RAM

This unit saves information about imported still pictures. Therefore, if still pictures are imported from the same SD card, then only new still pictures will be imported.

- While stopped
Insert the SD card (→ 81).
The menu is automatically displayed.



- Press [▲, ▼] to select “Copy Pictures (JPEG)” and press [OK].
- Press [▲, ▼] to select “Copy to”, then press [◀, ▶] to select the drive.
- Press [▲, ▼, ▶] to select “Copy”, then press [OK].



Tips

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

To return to the previous screen
Press [RETURN].



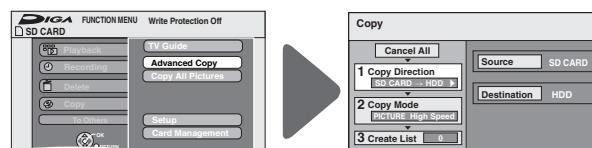
Notes

- This unit saves the information on up to 12,000 still pictures and 30 SD cards. If additional still pictures are imported, then the older information will be deleted.
- If the space on the destination drive runs out or the number of files/folders to be copied exceeds the maximum (→ 18), copying will stop partway through.
- You cannot copy the information about the picture rotation.

Copying using the copying list

HDD RAM SD

- Press [FUNCTION MENU].
- Press [▲, ▼] to select “To Others”, then press [OK].
- Press [▲, ▼] to select “Advanced Copy”, then press [OK].



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

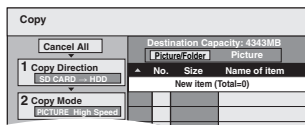
- Set the copy direction.
– If you are not going to change the copying direction, press [▼] (→ step 6).
 - Press [▲, ▼] to select “Copy Direction”, then press [▶].
 - Press [▲, ▼] to select “Source”, then press [OK].
 - Press [▲, ▼] to select the drive, then press [OK].
 - Press [▲, ▼] to select “Destination”, then press [OK].
 - Press [▲, ▼] to select the drive, then press [OK].
The same drive as the copy source can be selected.
 - Press [◀] to confirm.
- Set the copy mode.
– If you are not going to change the recording mode, press [▼] (→ step 6).
 - Press [▲, ▼] to select “Copy Mode”, then press [▶].
 - Press [▲, ▼] to select “Format”, then press [OK].
 - Press [▲, ▼] to select “PICTURE”, then press [OK].
“Recording Mode” is automatically set to “High Speed”.
 - Press [◀] to confirm.

6 Register still pictures for copy.

- If you are going to copy a registered list without making any changes to it (→ step 7).

You can register still pictures or still picture folders.

- Still pictures and folders cannot be registered on the same list.



To register individual still pictures

- Press [▲, ▼] to select "Create List", then press [▶].
- Press [▲, ▼] to select "New item", then press [OK].
- Press [▲, ▼, ◀, ▶] to select the still picture, then press [III].
A check mark is displayed. Repeat this step until you select all necessary items.
 - Press [III] again to cancel.
 - The items will be copied in the order of the copying list. If you want to specify the order, repeat selecting one item at a time.
 - To show other pages (→ right)
 - To select another folder (→ right)
- Press [OK] to confirm.
 - To edit the copying list (→ below)
- Press [◀] to confirm.

To register on a folder by folder basis

- Press [▲, ▼] to select "Create List", then press [▶].
- Press [▲, ▼] to select "Picture/Folder", then press [OK].



- Press [▲, ▼] to select "Folder", then press [OK].
- Press [▲, ▼] to select "New item", then press [OK].
- Press [▲, ▼] to select the folder, then press [III].
A check mark is displayed. Repeat this step until you select all necessary items.
 - Press [III] again to cancel.
 - The items will be copied in the order of the copying list. If you want to specify the order, repeat selecting one item at a time.
 - To show other pages (→ right)
- Press [OK] to confirm.
 - To edit the copying list (→ below)
- Press [◀] to confirm.

7 Press [▲, ▼] to select "Start Copying", then press [OK].

- Only when copying individual still pictures from **HDD** **RAM** to **SD**

When specifying another folder as the copying destination, select "Folder".



8 Press [◀] to select "Yes", then press [OK] to start copying.

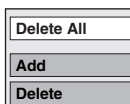
Edit the copying list

Select the item in step 6–4 (for a still picture) or 6–6 (for a folder) (→ above)

- 6–5 Press [OPTION].

or

- 6–7 Press [OPTION].



Delete All	Delete all items registered on the copying list. <ol style="list-style-type: none"> Press [▲, ▼] to select "Delete All", then press [OK]. Press [◀] to select "Yes", then press [OK].
Add	Add new items to the copying list. <ol style="list-style-type: none"> Press [▲, ▼] to select "Add", then press [OK]. Press [▲, ▼, ◀, ▶] to select the still picture or folder to be added, then press [III]. Press [OK].

Delete

Delete the selected items.

- Press [▲, ▼] to select "Delete", then press [OK].
- Press [◀] to select "Yes", then press [OK].

Cancel all registered copying setting and lists

After performing steps 1–3 (→ 59, Copying using the copying list)

- Press [▲, ▼] to select "Cancel All", then press [OK].
- Press [◀, ▶] to select "Yes", then press [OK].

- The settings and lists may be cancelled in the following situations.
 - When a title, still picture, etc. has been recorded or deleted at the copy source
 - When steps have been taken, for instance, to turn off the unit, remove the card, open the tray, change the copy direction, etc.



Tips

To stop copying

Press and hold [RETURN] for 3 seconds.

To return to the previous screen

Press [RETURN].

To show other pages

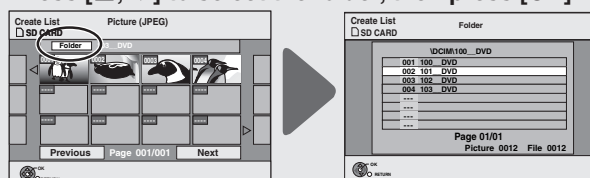
Press [▲, ▼, ◀, ▶] to select "Previous" or "Next", then press [OK].

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

To select another folder

After performing steps 6–2 (→ left, To register individual still pictures)

- Press [▲, ▼, ◀, ▶] to select "Folder", then press [OK].
- Press [▲, ▼] to select the folder, then press [OK].



You can also select folders with the numbered buttons.

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

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



Notes

- The sequence in which the still pictures are registered on the copy list may not be the same at the copy destination.
- If still pictures are already contained inside the copy destination folder, the new still pictures are recorded following the existing still pictures.
- If the space on the destination drive runs out or the number of files/folders to be copied exceeds the maximum (→ 18), copying will stop partway through.
- You cannot copy the information about the picture rotation.

Copying music to HDD

You can store the two formats of music data in this unit's HDD.

Music CD (CD-DA)

When copying music CDs, this unit makes access to the internal Gracenote® Database to obtain title information. The album name, track name and artist name are assigned automatically allowing you find the track easily when playing back.

MP3

You can copy MP3 files from the USB memory.

About the Gracenote® Database

The Gracenote® Database is a database used to search and retrieve CD title information.

When a CD is inserted or recording from a CD begins, the unit will automatically search for and obtain information about the inserted CD.

The Gracenote Database comes pre-installed on this unit, so titles and artist information can be obtained. Please note however that the newest CD titles, etc. may not be registered yet to the internal database. This unit has an internal database containing information for approximately 350,000 album titles. You can update the internal database (→ 65).

If there are CDs with very similar title information, then the incorrect title information may be obtained. If no title suggestions are found, then track name, and artist name will be blank.

In these cases, enter the CD title information manually, after recording to the HDD has completed.

Copying music from a CD

CD → HDD

All tracks on the music CD (CD-DA) are recorded on the HDD. (Cannot record track-by-track.)

- **One CD is recorded on the HDD as one album.**

- **Audio quality: LPCM**

- **The maximum number of albums on HDD: 300**
(Depends on the remaining capacity.)

If titles or pictures are recorded, then the number of albums that can be recorded will be reduced.

Preparation

Press [DRIVE SELECT] to select the DVD drive.

1 Insert a music CD.

The menu is automatically displayed.

2 Press [▲, ▼] to select "Copy Music" and press [OK].

The unit starts accessing the Gracenote® Database and searches for the title information.

If search results indicate that multiple titles were found

Press [▲, ▼] to select the appropriate title and press [OK].

3 Press [◀, ▶] to select "Copy" and press [OK].

Recording starts.



Tips

To stop recording

Press and hold [RETURN] for 3 seconds.

- The recording is cancelled, then no tracks on the CD will be recorded.

To return to the previous screen

Press [RETURN].



Notes

- While recording, no other operations can be performed. Timer recordings will not proceed.
- Tracks recorded on the HDD cannot be transferred to a disc, USB memory or SD card.
- CDs which have SCMS (Serial Copy Management System) restrictions cannot be recorded to the HDD.

Copying music from a USB memory

USB → HDD

You can copy MP3 files recorded on USB memory devices to the HDD by file or folder.

- One folder is recorded on the HDD as one group.

- The maximum number of groups on HDD: 300

The maximum number of tracks on HDD: 3000
(Depends on the remaining capacity.)

If titles or pictures are recorded, then the number of groups that can be recorded will be reduced.

- 1 While stopped
Insert the USB memory (→ 81).
The menu is automatically displayed.

- 2 Press [▲, ▼] to select "Copy Music" and press [OK].
"Copy Direction" and "Copy Mode" are automatically set to "USB→HDD" and "MUSIC, High Speed", respectively.

- 3 Register MP3 files for copy.
 - If you are going to copy a registered list without making any changes to it (→ step 4).
You can register MP3 files or MP3 file folders.
 - MP3 files and folders cannot be registered on the same list.

To register individual MP3 files

- 1 Press [▲, ▼] to select "Create List" and press [▶].
- 2 Press [▲, ▼] to select "New item" and press [OK].
- 3 Press [▲, ▼] to select the folder and press [OK].
- 4 Press [▲, ▼] to select the MP3 file and press [■].
A check mark is displayed. Repeat this step until you select all necessary items.
 - Press [■] again to cancel.
 - The items will be copied in the order of the copying list. If you want to specify the order, repeat selecting one item at a time.
- 5 Press [OK].
 - To edit the copying list (→ 65)
- 6 Press [◀] to confirm.

To register on a folder by folder basis

- ① Press [▲, ▼] to select "Create List" and press [▶].
- ② Press [▲, ▼] to select "Track/Folder" and press [OK].
- ③ Press [▲, ▼] to select "Folder" and press [OK].
- ④ Press [▲, ▼] to select "New item" and press [OK].
- ⑤ Press [▲, ▼] to select the folder and press [■].
A check mark is displayed. Repeat this step until you select all necessary items.
 - Press [■] again to cancel.
 - The items will be copied in the order of the copying list. If you want to specify the order, repeat selecting one item at a time.
- ⑥ Press [OK].
 - To edit the copying list (→ below)
- ⑦ Press [◀] to confirm.

4 Press [▲, ▼] to select "Start Copying" and press [OK].

- For individual files only

When specifying an existing folder as the copying destination

- ① Press [▲, ▼] to select "Folder" and press [OK].
- ② Press [▲, ▼] to select the folder and press [OK].

When creating a new folder as the copying destination

- ① Press [◀, ▶] to select "Yes" and press [OK].
- ② Enter the folder name (→ 47, Entering Text).

5 Press [◀, ▶] to select "Yes" and press [OK] to start copying.



Tips

To stop copying

Press and hold [RETURN] for 3 seconds.

To return to the previous screen

Press [RETURN].



Notes

- The sequence in which the MP3 files are registered on the copy list may not be the same at the copy destination.
- If MP3 files are already contained inside the copy destination folder, the new MP3 files are recorded following the existing MP3 files.

To edit the copying list

Select the item in step 3-⑤ (for a MP3 file) (→ 64) or 3-⑥ (for a folder) (→ above).

- ① Press [OPTION].
- ② Press [▲, ▼] to select the operation and press [OK].

Delete All:

Delete all items registered on the copying list.

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

Add:

Add new items to the copying list.

- ① Press [▲, ▼] to select the MP3 file or folder and press [■].
A check mark is displayed. Repeat this step until you select all necessary items.
 - Press [■] again to cancel selection.
- ② Press [OK].

Delete:

Delete the selected items.

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

To cancel all registered copying settings and lists

After performing steps 1-2 (→ 64, Copying music from a USB memory)

- ① Press [▲, ▼] to select "Cancel All" and press [OK].
 - ② Press [◀, ▶] to select "Yes" and press [OK].
- The settings and lists may be cancelled in the following situations.
 - When a file has been recorded or deleted at the copy source
 - When steps have been taken, for instance, to turn off the unit, remove the USB memory, open the tray, change the copy direction, etc.



Notes

- If the space on the destination drive runs out or the number of files/folders to be copied exceeds the maximum (→ 25), copying will stop partway through.

To update Gracenote® Database

To update the database with information on CDs that were recently released, follow the instructions below.

Preparing the update data

- ① Visit the following website.
<http://panasonic.net/pavc/support/gn/>
- ② Download the data to your USB memory.
 - USB memory 1 GB or larger is required.
 - Refer to the instruction on the website for more information.

Updating the database on this unit

- ③ Turn on this unit.
- ④ Insert the USB memory (→ 81).
The menu is automatically displayed.
- ⑤ Press [▲, ▼] to select "Update CD database on HDD" and press [OK].
- ⑥ Press [◀, ▶] to select "Update" and press [OK].
 - Updating takes up to 20 minutes.
 - Do not disconnect the USB memory and the AC mains lead while updating.
 - Once started, you cannot cancel updating. A message appears when updating is finished.
- ⑦ Press [OK].



Notes

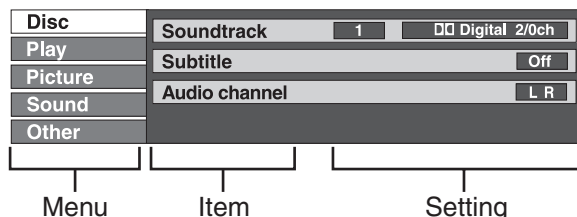
- Timer recordings do not start while updating.
- Updating overwrites the internal database forcibly regardless of whether the data in the USB memory is the latest or not. Make sure you download the latest version from the website.
- Some of the CD title information in the database may be deleted after updating the database.
- No name will be assigned after copying a CD to HDD if the CD title information of the CD is not registered in the database. Even if the CD title information of that CD is added to the database by updating later, the information will not be assigned to the track/album already copied on the HDD. (The names will be still blank.)
- Depending on the situation of Panasonic or Gracenote, upgrading the Gracenote® Database and providing it through the Web may be discontinued without notice.

Setting On-Screen Display

Accessing the On-Screen Display

When playing discs (except for JPEG discs), you can display and set the options including disc audio, subtitle, image quality, sound effect, Repeat Play, etc. In addition, when receiving the multi-channel broadcast, you can change the audio settings. Menu options will differ based on disc type and contents.

1 Press [DISPLAY].



2 Press [▲, ▼] to select a menu, then press [▶].

3 Press [▲, ▼] to select an item, then press [▶].

4 Press [▲, ▼] to select a setting.

Follow the on-screen prompts to change individual settings.



Notes

- Some settings may not be changeable, based on the unit's current activity (playing, stopped, etc.) and disc contents.



Tips

To exit the on-screen display
Press [DISPLAY].

Disc Menu

HDD **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **DVD-V**
-RW(VR) **VCD** and **DivX**

You can change the settings of disc audio, subtitle, etc.

Soundtrack

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

The disc's audio attributes appear (→ below, Audio attributes).

DVD-V

Select the audio and language (→ below, Audio attributes, Soundtrack/Subtitle language).

VCD (SVCD) and DivX

Select the soundtrack number.

- Soundtrack numbers are displayed even when there is only one audio type.

Subtitle

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

(Only discs that contain subtitle on/off information)

Turn the subtitle on/off.

- Subtitle on/off information cannot be recorded using this unit.

DVD-V

Turn the subtitle on/off and select the language (→ below, Soundtrack/Subtitle language).

VCD (SVCD) and DivX

Turn the subtitle on/off and select the subtitle number.

- Subtitle numbers are displayed even if there are not multiple subtitles.

Audio channel

HDD **RAM** **-RW(VR)** **VCD** and **DivX**

Change audio during playback.

LR / L / R

Source Select (DivX)

- Automatic:** The constructing method of the DivX contents is automatically distinguished and output.
- Interlace:** Select when the disc contents were recorded using interlace.
- Progressive:** Select when the disc contents were recorded using progressive.

Angle

DVD-V

Change the number to select an angle.

PBC (Playback control → 96) VCD

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

Soundtrack/Subtitle language

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

Audio attributes

LPCM/Digital/DTS/MPEG: Signal type

k (kHz): Sampling frequency

b (bit): Number of bits

ch (channel): Number of channels



Notes

- You cannot make a change when there is no recording.
- Some discs allow changes to soundtracks, subtitles, and angles only by using the disc's menus (→ 20).

Play Menu

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

Repeat Play

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

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

Select "Off" to cancel.

Picture Menu

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

You can change the progressive output setting and the noise reduction setting when playing discs or of images from the connected device.

Playback NR

"On" reduces noise and picture degradation.

Progressive [Only when you have set "Progressive" to "On" in the Setup menu (→ 74).]

Select "On" to enable progressive output.

- Select "Off" if the picture is stretched horizontally.

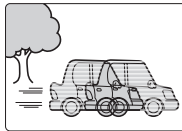
Transfer [Only when you have selected "On" in "Progressive" (→ above)]

Select the method of conversion for progressive output to suit the type of material being played.

When the output signal is PAL

(When the tray is opened, the setting will return to "Auto".)

- Auto: Automatically detects the film and video content, and appropriately converts it.
- Video: Select when using "Auto", and the content is distorted.
- Film: Select this if the edges of the film content appear jagged or rough when "Auto" is selected. However, if the video content is distorted as shown in the illustration to the right, then select "Auto".



When the output signal is NTSC

- Auto1 (normal): Automatically detects the film and video content, and appropriately converts it.
- Auto2: In addition to "Auto1", automatically detects film contents with different frame rates and appropriately converts it.
- Video: Select when using "Auto1" and "Auto2", and the content is distorted.

Input NR

Reduces noise during recording.

- Automatic: Noise reduction only works on picture input from a video tape.
- On: Noise reduction works for any video input.
- Off: Noise reduction is off. Select when you want to record input as is.

Sound Menu

You can change the settings of audio when receiving the multi-channel broadcast, and also change the settings of sound effect when playing discs.

DVB Multi Audio

[MPEG Audio only]

If more than one audio channel is output, you can set the desired channel before recording.

- DVB Multi Audio cannot be selected during playback or recording.
- Depending on the broadcast, the items that can be selected will differ.

English 1/ English 2

V.S.S.

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

(Dolby Digital, MPEG Audio with 2.0 or over channels only)

This function does not work for bilingual recordings.

- Enjoy a surround-sound effect if you are using 2 front speakers (L/R) only.
- Turn off if it causes distortion.

Natural/Emphasis/Off

Dialog Enhancer

HDD RAM -R -R DL -RW(V) +R +R DL +RW DVD-V
-RW(VR) and DivX

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

When "On", the volume of the centre channel is raised to make dialogue easier to hear.

Other Menu

Position

Change where this menu screen appears on your TV.

HDD, DVD and Card Management

Instructions/notes regarding SD cards and SD drive are applicable to the DMR-EX88 model only.

You can manage discs or cards through formatting, finalising and other operations.

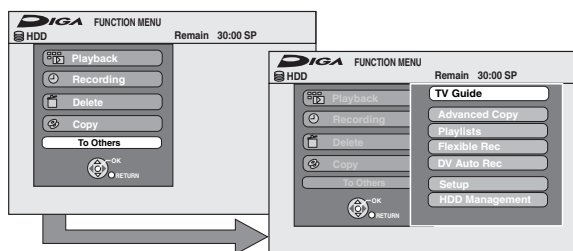
Accessing the Management Menus

Preparation:

- **RAM SD** Release protection (disc, cartridge, card → below).
- Insert a disc or card.

With the unit stopped

- 1 Press [DRIVE SELECT] to select the HDD, DVD or SD drive.
- 2 Press [FUNCTION MENU].
- 3 Press [▲, ▼] to select "To Others", then press [OK].



- 4 Press [▲, ▼] to select "HDD Management", "DVD Management" or "Card Management", then press [OK].



Tips

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Setting Protection

RAM

Use to prevent accidental erasure of disc.

Perform preparation steps 1–4 of "Accessing the Management Menus" (→ above).

- 5 Press [▲, ▼] to select "Disc Protection", then press [OK].
- 6 Press [◀] to select "Yes", then press [OK].

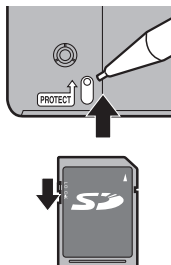
Protection of cartridge disc or card

RAM (With a cartridge)

With the write-protect tab in the protect position, you cannot record to, edit, format, or erase from the disc.

SD

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



Naming Discs

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

You can give a name for the disc.

Perform preparation steps 1–4 of "Accessing the Management Menus" (→ above).

- 5 Press [▲, ▼] to select "Disc Name", then press [OK].
Entering Text (→ 47).



Tips

- The disc name is displayed in the DVD Management window.
- With finalised discs and +RW created Top Menu, the name is displayed on the Top Menu.

Deleting All Titles

You can delete all titles on HDD or the single-sided DVD-RAM at once.

Important: Once deleted, contents cannot be recovered.

HDD RAM

Perform preparation steps 1–4 of "Accessing the Management Menus" (→ left).

- 5 Press [▲, ▼] to select "Delete all titles", then press [OK].
- 6 Press [◀] to select "Yes", then press [OK].
- 7 Press [◀] to select "Start", then press [OK].
– A message appears when deleting is finished.
- 8 Press [OK] to complete.



Notes

- Deleting does not work if one or more titles are protected.
- Still picture data (JPEG), music data or computer data cannot be deleted.

Formatting Discs or Cards

HDD RAM -RW(V) +RW -RW(VR)

+R +R DL (New disc only)

SD

Formatting is the process of making media such as DVD-RAM recordable on recording equipment.

You can record or edit after formatting the finalised DVD-RW.

Important: Once formatted, contents cannot be recovered.

Perform preparation steps 1–4 of "Accessing the Management Menus" (→ left).

- 5 Press [▲, ▼] to select "Format HDD", "Format Disc" or "Format Card", then press [OK].
- 6 Press [◀] to select "Yes", then press [OK].
- 7 Press [◀] to select "Start", then press [OK].
– Formatting starts (**RAM** may take up to a maximum of 70 minutes).
– A message appears when formatting is finished.
- 8 Press [OK] to complete.



Notes

- Do not disconnect the AC mains lead while formatting. This can render the disc or the card unusable.
- When a disc or card has been formatted using this unit, it may not be possible to use it on any other equipment.
- **-R -R DL CD** Formatting cannot be performed.
- **-RW(V) -RW(VR)** You can format only as DVD-Video format on this unit.
- **RAM** Pressing [RETURN] during format will cancel the process.
The disc must be reformatted if you do this.
- **RAM SD** The disc or card cannot be formatted if the write protect tab or switch (→ left) is switched to "PROTECT" or "LOCK". Release the protection to continue.
- The message "Unable to format" appears when trying to format discs the unit cannot use.

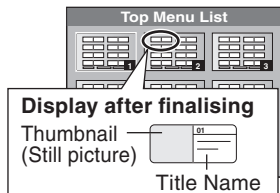
Selecting the background style—Top Menu

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

You can select the background that will be displayed as the DVD-Video top menu after finalising or Create Top Menu (**+RW**).

Perform preparation steps ①–④ of “Accessing the Management Menus” (→ 68).

- ⑤ Press **[▲, ▼]** to select “Top Menu”, then press **[OK]**.
- ⑥ Press **[▲, ▼, ◀, ▶]** to select the background, then press **[OK]**.



- You can change thumbnails displayed in the top menu. (→ 49, Change Thumbnail)

Selecting Whether to Show the Top Menu First —Auto-Play Select

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

Before finalising a disc, select whether the top menu shows after finalising.

Perform preparation steps ①–④ of “Accessing the Management Menus” (→ 68).

- ⑤ Press **[▲, ▼]** to select “Auto-Play Select”, then press **[OK]**.
- ⑥ Press **[▲, ▼]** to select “Top Menu” or “Title 1”, then press **[OK]**.
 - Top Menu:
The Top Menu appears first.
 - Title 1:
The disc content is played without displaying the Top Menu.

Finalising

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

You can play these discs on compatible DVD players by finalising it on the unit, effectively making it into DVD-Video that complies with DVD-Video standards. The menu you create with the unit can also be used on most DVD players.

Perform preparation steps ①–④ of “Accessing the Management Menus” (→ 68).

- ⑤ Press **[▲, ▼]** to select “Finalise”, then press **[OK]**.
- ⑥ Press **[◀]** to select “Yes”, then press **[OK]**.
- ⑦ Press **[◀]** to select “Start”, then press **[OK]**.
 - Finalising starts and cannot be cancelled (may take up to 15 minutes) (**-R DL +R DL** up to 60 minutes)
 - A message appears when finalising is finished.
- ⑧ Press **[OK]** to complete.



Notes

- Do not disconnect the AC mains lead while finalising. This can render the disc unusable.
 - When finalising a high-speed recording compatible disc, it may take longer than displayed on the confirmation screen (approximately 4 times longer).
 - After finalising
 - **-R -R DL +R +R DL** The disc becomes play-only and you can no longer record or edit it.
 - **-RW(V)** You can record and edit the disc after formatting although it becomes play-only after finalising.
 - When copying in high speed, chapters will be replicated.
 - The disc finalised on the unit may not be playable on other players depending on the condition of the recording.
 - There is a pause of several seconds between titles and chapters during playback.
 - **-R -RW(V)** Titles are divided into about 5-minute (**+R** 8 minute) chapters, if*:
 - the titles were directly recorded to the disc.
 - the titles were copied using any mode other than the high speed mode (excluding **-R DL +R DL**).
- * This time varies greatly depending on the condition and mode of recording.



Tips

- After you have finished recording or copying and try to eject the disc, a screen asking if you want to finalise the disc appears (→ 26).

Create Top Menu

+RW

+RW discs contain no Top Menu data. Top Menu is a convenient function. We recommend you create the menu before playing a +RW disc on other equipment.

Perform preparation steps ①–④ of “Accessing the Management Menus” (→ 68).

- ⑤ Press **[▲, ▼]** to select “Create Top Menu”, then press **[OK]**.
- ⑥ Press **[◀]** to select “Yes”, then press **[OK]**.
- ⑦ Press **[◀]** to select “Start”, then press **[OK]**.
 - “Create Top Menu” cannot be cancelled once started.
 - “Create Top Menu” takes a few minutes.
- ⑧ Press **[OK]** to complete.



Notes

- Recording or editing on the disc may delete the Top Menu. In that case, create the Top Menu again.
- You cannot use the Top Menu for playing on this unit.

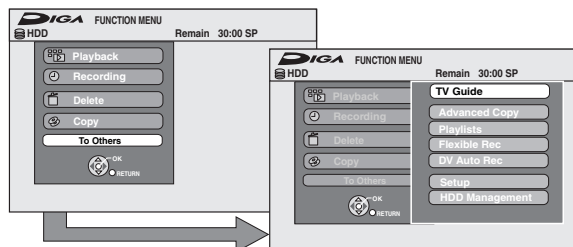
Setup Menu

You can change the unit's settings using Setup menu.

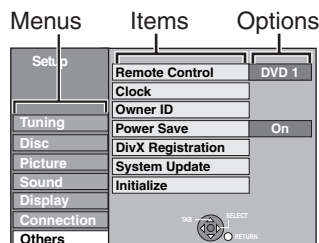
Accessing the Setup Menu

With the unit stopped

- 1 Press [FUNCTION MENU].
- 2 Press [▲, ▼] to select "To Others" and press [OK].



- 3 Press [▲, ▼] to select "Setup", then press [OK].
- 4 Press [▲, ▼] to select a menu, then press [▶] to go to the item list.



- 5 Press [▲, ▼] to select an item to change, then press [OK].
- 6 Press [▲, ▼] to select the option, then press [OK].



Notes

- Changed settings remain intact even when switching the unit to standby mode.



Tips

To return to the previous screen

Press [RETURN]. Even if you have changed an option, the change is not activated until you press [OK].

To exit the screen

Press [EXIT].

Channel Settings



To Others



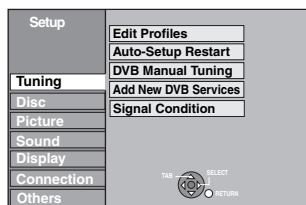
Setup

(→ left, Accessing the Setup menu)

All factory default settings are indicated with "Underlined" text.

Tuning

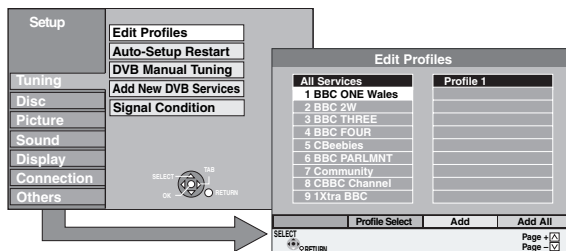
▲, ▼ select "Tuning" → ▶ → ▲, ▼ select item → OK



Edit Profiles

You can create four profiles of channels for making viewing and recording easier. Editing these profiles does not affect the channel setting itself.

- Timer recording may not work correctly if you edit the profiles during timer recording standby.
- Channel numbers cannot be changed, due to broadcast restrictions.



To select the profile

Press the "Green" button.

To add channels to a profile

- 1 Press [▲, ▼] to select the channel in the "All Services" column, then press the "Yellow" button.
 - Repeat this step to add other channels.
 - Press the "Blue" button to add all the available channels to the profile. (Only when no channels have been added to the profile.)
- 2 Press [OK] to save the profile.

To change the order of channels of a profile

- 1 Press [▶]*.
- 2 Press [▲, ▼] to select the channel in the "Profile" column to move, then press the "Green" button.
- 3 Press [▲, ▼] to select the new position of the channel then press the "Green" button.
 - Repeat the steps 2–3 to move other channels.
- 4 Press [OK] to save the profile.

To delete channels on a profile

- 1 Press [▶]*.
- 2 Press [▲, ▼] to select the channel in the "Profile" column, then press the "Yellow" button.
 - Repeat this step to delete other channels.
 - Press the "Blue" button to delete all the channels from the profile.
- 3 Press [OK] to save the profile.

Deleting a channel from a profile does not affect the channel itself.

You can still select the channel from the "All Services" profile.

To change the name of a profile in the "Profile" column

- 1 Press [▶]*.
- 2 Press the "Red" button.

(→ 47, Entering Text)

* When the station name of the "All Services" column is highlighted



Tips

To browse through the list
Press [\wedge \vee CH].

Auto-Setup Restart

You can restart auto channel setting for digital terrestrial channels if set up (\rightarrow 13) fails for some reason.

However, if you perform "Auto-Setup Restart", all channel settings and all created profiles are deleted.

Press [\blacktriangleleft] to select "Yes", then press [OK].



Tips

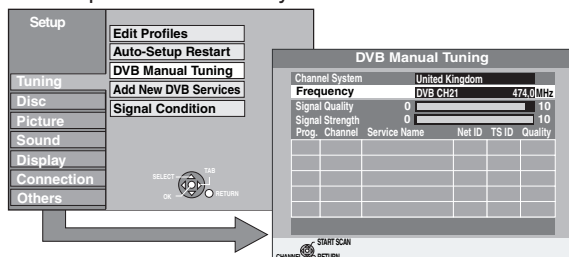
- You can also use the following method to restart Auto-Setup. (All the settings except for the ratings level, ratings password, Owner ID and Clock return to the factory preset. The timer recording programmes are also cancelled.)

When the unit is turned on and stopped, press and hold [CH \wedge] and [CH \vee] on the main unit simultaneously for about 5 seconds.

- Auto-Setup screen appears.

DVB Manual Tuning

You can set channels manually if the DVB Auto Setup could not be completed successfully.



- Press [\blacktriangle , \blacktriangledown] to select the channel you want to set.
 - Select the channel by checking the signal strength and signal quality displays. [Refer to "Signal Condition" (\rightarrow right) for signal strength and signal quality.]
- Press [OK] to start scan.
 - The set channel is displayed in the table.

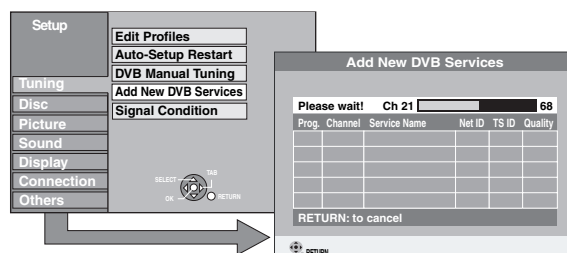
DVB Manual Tuning						
Channel System		United Kingdom				
Frequency		DVB CH21			474.0 MHz	
Signal Quality		0			10	
Signal Strength					10	
Prog.	Channel	Service Name	Net ID	TS ID	Quality	
1	22	BBC ONE Wales	12290	514	7	
2	22	BBC 2W	12290	514	7	
3	22	BBC THREE	12290	514	7	
3 services found.						

START SCAN

- Press [EXIT] and press [\wedge \vee CH], check that applicable channels have been selected.

Add New DVB Services

You can search for newly added digital terrestrial channels to receive.



- The unit starts searching for newly available digital terrestrial channels. This takes about 5 minutes.
- The bar over the table shows you the search progress. At the end of the search, the number of found new digital stations appears.
- "No new services found.", is displayed when no new services can be found.

Press [OK] to save the newly found channels.



Tips

To cancel in middle

Press [RETURN].

The channels found before stopping are not saved.

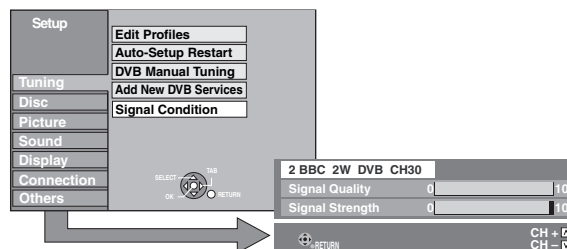
Signal Condition

You can check the quality and strength of digital broadcast signals.

Realign the aerial if you are receiving a poor signal.

When "Signal Condition" is displayed in grey and cannot be selected:

- Press [EXIT] to exit the screen.
- Press [\wedge \vee CH] to select a digital channel. "D" appears on the unit's display.
- Display the Setup menu again



The quality and strength of the signal are shown. Press [\wedge \vee CH] to select the channel.

Signal Quality

Below 2 (display red):	The signal quality is so poor that there may be interference in the pictures and sound.
2-5 (display orange):	The signal quality is basically adequate, but brief interference in the pictures and sound is possible in isolated case.
Over 5 (display green):	Optimum picture and sound quality.

Signal Strength

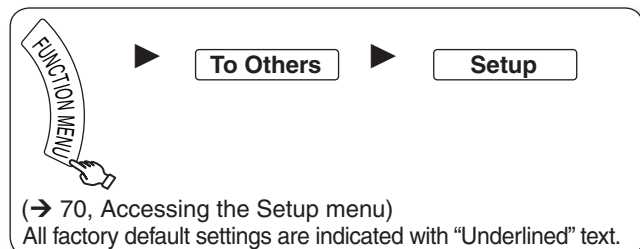
The display for signal strength is grey. "0" means signal strength 0%, "10" means signal strength 100%.

If the signal is too strong, the display will change from grey to red.

Reduce the signal amplification at your aerial.

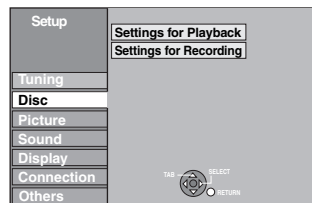
- When the signal is weak:
 - check that the aerial is correctly positioned
 - adjust the aerial reception with "DVB Manual Tuning" in the Setup menu (\rightarrow left).
 - check that the current digital broadcast channel is correctly broadcasting.

Playback/Recording Settings



Disc

▲, ▼ select “Disc” → ► → ▲, ▼ select item → OK



Settings for Playback

Press [OK] to show the following settings.

Ratings

Set a ratings level to limit DVD-Video play.

Follow the on-screen instructions. Enter a 4-digit password with the numbered buttons when the password screen is shown.

Do not forget your password.

● 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 settings (When level 0 to 7 is selected)

[Unlock Recorder] [Change Password] [Change Level] [Temporary Unlock]

Soundtrack

[English] [German] [French] [Italian] [Spanish] [Original] [Other *****]

Subtitle

[Automatic] [English] [German] [French] [Italian] [Spanish] [Other *****]

Menus

[English] [German] [French] [Italian] [Spanish] [Other *****]



Notes

DVD-V Choose the language for audio, subtitles and disc menus. If a language which is not recorded is selected, or if languages are already fixed on the disc, the language set as the default on the disc will be played instead.

[Original] The original language of each disc will be selected.

[Other *****] This is the language code setting. Input a code number with the numbered buttons (→ 95, “Language code list”).

[Automatic] If the language selected for “Soundtrack” is not available, subtitles of that language will automatically appear if available on the disc.

Settings for Recording

Press [OK] to show the following settings.

Recording time in EP mode

Select the maximum number of hours for recording in EP mode.

[EP (6Hours)] You can record for 6 hours on an unused 4.7 GB disc.

[EP (8Hours)] You can record for 8 hours on an unused 4.7 GB disc.

Recording Format

Titles recorded to the HDD with “Recording Format” set to “Video format” can be copied to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW using high speed mode.

We recommend turning the setting “VR format” if high speed copy to DVD-R, etc. is not necessary when recording a programme. This setting is effective when recording from a television programme or external equipment (including DV equipment), or when copying from a finalised DVD-Video disc. [VR format] High speed copy from HDD is possible only to DVD-RAM.

[Video format] You can high-speed copy to DVD-R, etc. Press [◀, ▶] to select “Yes” and press [OK].

- In some cases, copying to DVD-R, etc. using the high speed mode does not work (→ 56, “Important”)

DVD Speed for High Speed Copy

Select the speed of high-speed copying (When using high-speed copy compatible DVD-RAM 5X, DVD-R, +R 8X or +RW 4X discs). [Maximum]

[Normal (Silent)] Selecting “Normal (Silent)” means the noise generated by this unit is less than “Maximum”, however the time required for copying will double (approximately).

Picture and Sound Settings

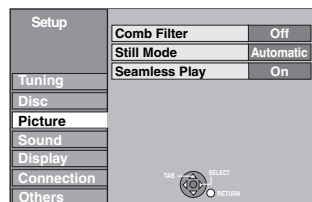


► **To Others** ► **Setup**

(→ 70, Accessing the Setup menu)
All factory default settings are indicated with "Underlined" text.

Picture

▲, ▼ select "Picture" → ► → ▲, ▼ select item → **OK**



Comb Filter

Select the picture sharpness when recording.
The setting is fixed with "On" if you set "TV System" to "NTSC" (→ 75).

- [On] Select it to record clear picture.
- [Off] Normally, use this setting.

Still Mode

Select the type of picture shown when you pause play (→ 96, Frame and Field).

- [Automatic] Select if jittering occurs when "Automatic" is selected.
- [Field] Select if you cannot see small text or fine patterns clearly when "Automatic" is selected.

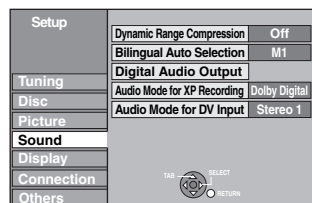
Seamless Play

Select the play mode between playlist chapter segments and partially deleted titles.

- [On] The chapters in playlists are played seamlessly. This does not work when there are several audio types included on the playlist and when using Quick View (Play ×1.3). Additionally, the positioning of chapter segments may change slightly.
- [Off] The points where chapters in playlists change are played accurately, but the picture may freeze for a moment.

Sound

▲, ▼ select "Sound" → ► → ▲, ▼ select item → **OK**



Dynamic Range Compression

DVD-V (Dolby Digital only)
Change the dynamic range (→ 96) for easier listening in low volume.

- [On] [Off]

Bilingual Audio Selection

When recording bilingual programmes from equipment connected to the DV IN terminal of this unit, select whether to record the main or secondary audio type.

- [M 1] [M 2]

Digital Audio Output

Change the settings when you have connected equipment through the unit's DIGITAL AUDIO OUT terminal (→ 80).
Press [OK] to show the following settings.

PCM Down Conversion

- Select how to output audio with a sampling frequency of 96 kHz or 88.2 kHz.
- Signals are converted to 48 kHz or 44.1 kHz despite the above settings if the signals have a sampling frequency of over 96 kHz or 88.2 kHz, or the disc has copy protection.
- [On] Signals are converted to 48 kHz or 44.1 kHz.
(Choose when the connected equipment cannot process signals with sampling frequency of 96 kHz or 88.2 kHz.)
- [Off] Signals are output as 96 kHz or 88.2 kHz. (Choose when the connected equipment can process signals with sampling frequency of 96 kHz or 88.2 kHz.)

Dolby Digital*

Choose whether to output by "Bitstream", which processes Dolby Digital signals on other connected equipment, or to convert the signals to "PCM (2ch)" on the unit before output.



- [Bitstream] When you have connected the unit to a piece of equipment having Dolby Digital logo.
- [PCM] When you have connected the unit to a piece of equipment that doesn't have Dolby Digital logo.

DTS*

Choose whether to output by "Bitstream", which processes DTS signals on other connected equipment or to convert the signals to "PCM (2ch)" on the unit before output.



- [Bitstream] When you have connected the unit to a piece of equipment having DTS logo.
- [PCM] When you have connected the unit to a piece of equipment that doesn't have DTS logo.

MPEG*

- Choose whether to output by "Bitstream" which processes MPEG audio signals on other connected equipment or to convert the signals to "PCM (2ch)" on the unit before output.
- [Bitstream] When you have connected the unit to a piece of equipment with a built-in MPEG decoder.
- [PCM] When you have connected the unit to a piece of equipment without a built-in MPEG decoder.

Audio Mode for XP Recording

Choose the audio type when recording or copying with XP mode.

- [Dolby Digital] (→ 96)
- [LPCM] (→ 96)
 - The picture quality of LPCM recordings may be lower than that of normal XP mode recordings.
 - The audio recording becomes Dolby Digital even if you selected LPCM when using a recording mode other than XP.

Audio Mode for DV Input

You can select the kind of audio when recording from the unit's DV IN terminal (→ 29).

- [Stereo 1] Records audio (L1, R1)
 - [Stereo 2] Records added audio such as narration (L2, R2) subsequent to original recording.
 - [Mix] Records both Stereo 1 and Stereo 2.
- When recording bilingual broadcast, select the type of audio in advance from "Bilingual Audio Selection" (→ left).

* Incorrect settings can cause noise to be output which can be harmful to your ears and speakers, and audio will not be recorded properly on media such as mini discs.

Display and Connection Settings



► **To Others** ► **Setup**

(→ 70, Accessing the Setup menu)

All factory default settings are indicated with “Underlined” text.

Display

▲, ▼ select “Display” → ► → ▲, ▼ select item → **OK**

Setup	DVB Preferred Subtitles	English
	On-Screen Messages	5 sec.
Tuning	FL Display	Bright
Disc	New Service Message	Automatic
Picture	Screen Saver	On
Sound		
Display		
Connection		
Others		

DVB Preferred Subtitles

Choose the subtitle language for digital broadcast.

If the selected subtitle is not available, then the available subtitle will be shown.

[English] [Welsh] [Gaelic]
 [English for hearing impaired]
 [Welsh for hearing impaired]
 [Gaelic for hearing impaired]

On-Screen Messages

Choose the approximate time until the digital channel information screen (→ 46) disappears automatically.

The length of time the control panel (→ 45) is displayed can also be changed, but “Off” does not work.

[Off]: The digital channel information is not displayed.
 [3 sec.] [5 sec.] [7 sec.] [10 sec.]

FL Display

Changes the brightness of the unit’s display.

Regardless of the setting, when “Power Save” (→ 76) is “On” and this unit is turned off, the unit’s display is turned off.

[Bright]
 [Dim]

New Service Message

When a new DVB channel is added, this unit will be informed automatically. Then the confirmation message appears. If you select “Yes” on the display, Auto Setup starts (all channel settings and all created profiles are deleted. The timer recording programmes are also cancelled.).

[Automatic]
 [Off] The Service Messages are not shown.

Screen Saver

[On] When this unit is not operated for approximately 5 minutes, the screen saver is displayed. To return to the previous screen, press [OK].

[Off]

Connection

▲, ▼ select “Connection” → ► → ▲, ▼ select item



Setup	TV Aspect	16:9
	Progressive	Off
Tuning	TV System	PAL
Disc	HDMI Settings	
Picture	AV 1 Output	RGB 2
Sound	AV 2 Settings	
Display		
Connection		
Others		

TV Aspect

This setting needs to be changed when connected to a 4:3 standard aspect TV.

Press [▲, ▼] to select the TV Aspect, then press [OK].

[16:9] [4:3] [Letterbox]



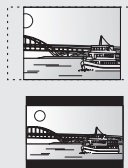
Notes

Aspect 4:3/16:9

4:3 standard aspect television

16:9 widescreen television

- 16:9: When connected to a 16:9 widescreen television.
- 4:3: When connected to a 4:3 aspect television, side picture is trimmed for 16:9 picture (→ 96, Pan & Scan).
- Letterbox: When connected to a 4:3 aspect television, widescreen picture is shown in the letterbox style (→ 96).



Progressive

You can enjoy progressive video by connecting this unit’s COMPONENT VIDEO OUT terminals to an LCD/plasma television or LCD projector compatible with progressive scan (→ 97).

Before this setting, set “AV1 Output” to “Video (with component)” or “S Video (with component)” (→ 75)

Press [▲, ▼] to select “On”, then press [OK].

[On] Output becomes progressive.

[Off]

This setting is fixed with “Off” and there is no output from the COMPONENT VIDEO OUT terminals if you set “AV1 Output” to “RGB 1 (without component)” or “RGB 2 (without component)” (→ 75).



Notes

- When connected to a regular television (CRT: Cathode ray tube) or a multi-system television using PAL mode, even if it is progressive compatible, progressive output can cause some flickering. Turn off “Progressive” if this occurs (→ 67).
- Picture will not be displayed correctly if connected to an incompatible television.

TV System

Change this setting if you connect an NTSC television or to record NTSC video from another source.

1. Press [**▲**, **▼**] to select the TV System, then press [OK].

[PAL]

- Select when connecting to a PAL or Multi-system television. Programmes recorded using NTSC are played as PAL 60.
- Select to record television programmes and PAL input from other equipment.
- **HDD** Select when playing a PAL input title recorded on the HDD.

[NTSC]

- Select when connecting to an NTSC television. Television programmes cannot be recorded properly.
- Select to record NTSC input from other equipment.
- **HDD** Select when playing an NTSC input title recorded on the HDD.

The confirmation screen appears.

2. Press [**◀**] to select “Yes”, then press [OK].



Tips

To change the setting all at once (PAL↔NTSC)

While stopped, press and hold [**■**] and

[**▲** OPEN/CLOSE] on the main unit simultaneously for about 5 seconds.

HDMI Settings^{*1}

- Press [OK] to show the following settings.

HDMI Video Format^{*2}

You can only select items compatible with the connected equipment. If you are concerned about output picture quality, it may be improved by changing the setting.

- To enjoy High Quality Video up-converted to 1080p, you need to connect the unit directly to 1080p compatible HDTV. If this unit is connected to an HDTV through other equipment, it must also be 1080p compatible.

[576i/480i] [576p/480p] [720p] [1080i]

[1080p] When setting video output to “1080p”, we recommend using High Speed HDMI Cables that have the HDMI logo (as shown on the cover).

[Automatic] Automatically selects the output resolution best suited to the connected television (1080p, 1080i, 720p, 576p/480p or 576i/480i).

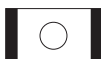
Aspect for 4:3 Video

To play a 4:3 title when connected with an HDMI cable, set how to show pictures on a 16:9 widescreen television. 4:3 picture from HDMI output will be slightly smaller than that from the other outputs, e.g. Scart and component, this is not a malfunction of the unit.

[4:3] Picture output expands left or right.



[16:9] Picture is output as original aspect with side panels.



Digital Audio Output

[HDMI and Optical]

[Optical Only]

Select when this unit is connected to an amplifier with an optical digital audio cable (→ 80) and connected to a TV with an HDMI cable (→ 80) and you want to enjoy the highest quality of audio from discs.

VIERA Link

[On]

[Off] Select when you do not want to use “HDAVI Control”.

AV1 Output

Set according to the terminal of the connected TV.

Select “Video (with component)” or “S Video (with component)” for component output (progressive output).

[Video (with component)]

Select when a TV is connected that can receive a composite signal.

[S Video (with component)]

Select when a TV is connected that can receive an S Video signal.

[RGB 1 (without component)]

Select when a TV is connected that can receive an RGB signal.

If you always would like to view the picture from the unit in RGB signal, select this mode. The TV screen will automatically switch to display the picture from the unit when the unit is turned on.

[RGB 2 (without component)]

Select when a TV is connected that can receive an RGB signal.

If you would like to switch to display the picture from the unit only when playback or viewing menus, select this mode.

- If this unit is connected with an HDMI cable, you cannot select “RGB 1 (without component)” or “RGB 2 (without component)”.

AV2 Settings

Set to match the connected equipment.

- Press [OK] to show the following settings.

AV2 Input

Set to “RGB/Video” or “RGB” when receiving or recording RGB output from external equipment.

[RGB/Video] The unit automatically detects whether the input signal from the AV2 terminal is an RGB signal or other signals and makes settings.

[RGB]

[Video]

[S Video]

Ext Link

This setting cannot be made when the “TV System” is set to “NTSC” (→ left)

[Ext Link 1] When this unit is connected to a satellite receiver with a 21-pin Scart cable and this unit receives a control signal.

Start and stop timings of recording are controlled by the control signal.

[Ext Link 2] When external equipment with a timer function is connected.

Recording is continued while the image signal is being sent to the unit from the external equipment.

Recording is stopped when the image signal is halted by turning the external equipment off.

^{*1} Depending on the connected equipment, some items may be shaded in grey on the display and cannot be selected, or you may not be able to change the settings.

^{*2} Choose the setting to suit your TV and preference.

System Settings



(→ 70, Accessing the Setup menu)

All factory default settings are indicated with “Underlined>

Other Settings

Child Lock

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

Press and hold [OK] and [RETURN] at the same time until “X HOLD” appears on the unit’s display.



If you press a button while the Child Lock is on, “X HOLD” appears on the unit’s display and operation is impossible.



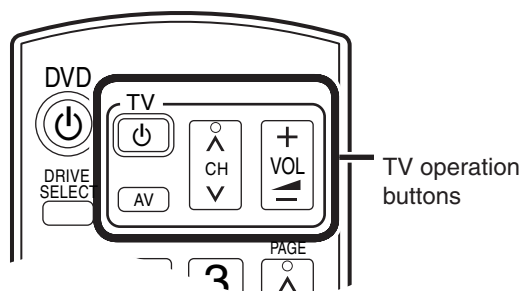
Tips

To cancel the Child Lock

Press and hold [OK] and [RETURN] at the same time until “X HOLD” disappears.

Using the Unit’s Remote Control to Operate the TV

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



- ❶ Point the remote control at the TV.
- ❷ While pressing and holding [TV], enter the code from the table below using the numbered buttons.
e.g., 01: press [0] → [1]
- ❸ Test the TV functions of the remote control for operability.
 - If the functions do not work, repeat steps ❶ to ❸ using different codes, if available. Some TVs may not be compatible with the unit’s remote control.

Remote Control Codes for the TV

Manufacturer	Code No.
Panasonic	01 / 02 / 03 / 04
AIWA	35
AKAI	27 / 30
BEJING	33
BEKO	05 / 71 / 72 / 73 / 74
BENQ	58 / 59
BP	09
BRANDT	10 / 15
BUSH	05
CENTREX	66
CHANGHONG	69
CURTIS	05
DAEWOO	64 / 65
DESMET	05
DUAL	05
ELEMIS	05

Manufacturer	Code No.
FERGUSON	10 / 34
FINLUX	61
FISHER	21
FUJITSU	53
FUNAI	63 / 67
GOLDSTAR	05 / 50 / 51
GOODMANS	05
GRADIENTE	36
GRUNDIG	09
HIKONA	52
HITACHI	05 / 22 / 23 / 40 / 41
INNO HIT	05
IRRADIO	30
ITT	25
JINGXING	49
JVC	17 / 30 / 39 / 70
KDS	52
KOLIN	45
KONKA	62
LG	05 / 50 / 51
LOEWE	07 / 46
MAG	52
METZ	05 / 28
MITSUBISHI	05 / 19 / 20 / 47
MIVAR	24
NEC	36
NOBLEX	33
NOKIA	25 / 26 / 27 / 60 / 61
NORDMENDE	10
OLEVIA	45
ONWA	30 / 39 / 70
ORION	05
PEONY	49 / 69
PHILCO	41 / 48 / 64
PHILIPS	05 / 06 / 46
PHONOLA	05
PIONEER	37 / 38
PROVIEW	52
PYE	05
RADIOLA	05
SABA	10
SALORA	26
SAMSUNG	32 / 42 / 43 / 65 / 68
SANSUI	05
SANYO	21 / 54 / 55 / 56
SCHNEIDER	05 / 29 / 30
SEG	05 / 69 / 75 / 76 / 77 / 78
SELECO	05 / 25
SHARP	18
SIEMENS	09
SINUDYNE	05
SONY	08
TCL	31 / 33 / 66 / 67 / 69
TELEFUNKEN	10 / 11 / 12 / 13 / 14
TEVION	52
TEX ONDA	52
THOMSON	10 / 15 / 44
TOSHIBA	16 / 57
WHITE WESTINGHOUSE	05
YAMAHA	18 / 41

Additional Connections

Using a fully wired 21-pin Scart cable

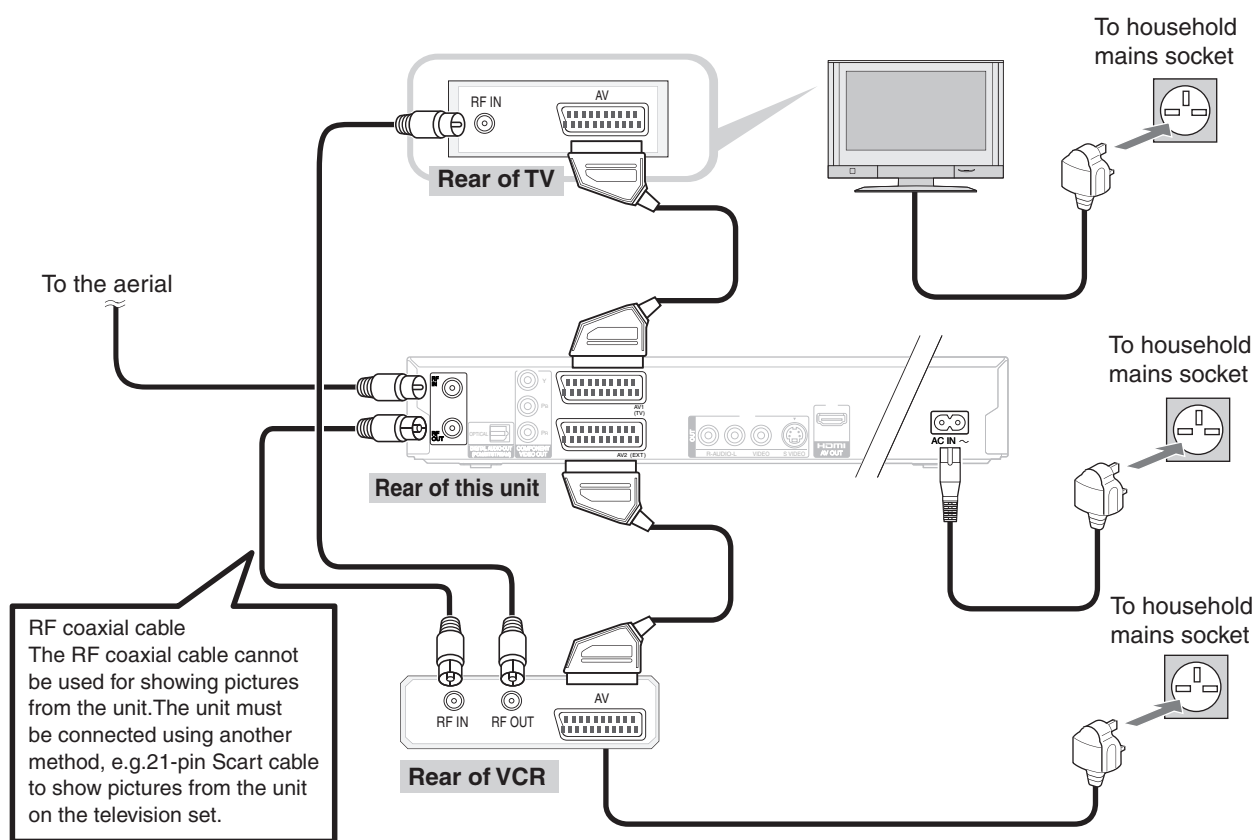
- You can use a variety of Q Link functions by connecting the unit to a Q Link compatible television (→ 44).
- You can enjoy high-quality viewing by connecting the unit to an RGB compatible television.
- “AV1 Output” in the Setup menu is set to “RGB 1 (without component)” or “RGB 2 (without component)” (→ 75).
- Make “AV2 Input” settings in the Setup menu (→ 75).

Use of the RF coaxial cable

- Keep the RF coaxial cables as far away as possible from other cables.
- Do not roll up the RF coaxial cables.

- Before connection, turn off the mains for all connected equipment and read the appropriate operating instructions. Be sure to read the Caution for AC Mains Lead on page 3.

Adding a VCR: Connecting to a Television and a Video Cassette Recorder



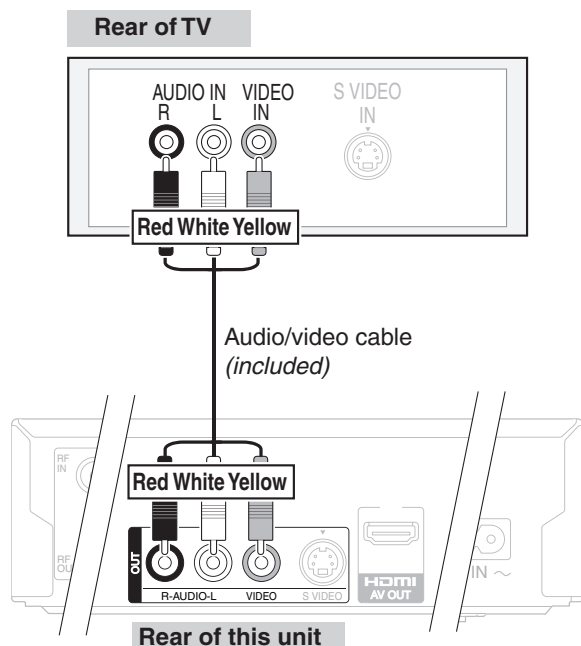
After completing the above connections, proceed to the TV Tuning (→ 13).

To recording from a VCR

Refer to “Recording from an External Device” (→ 29).

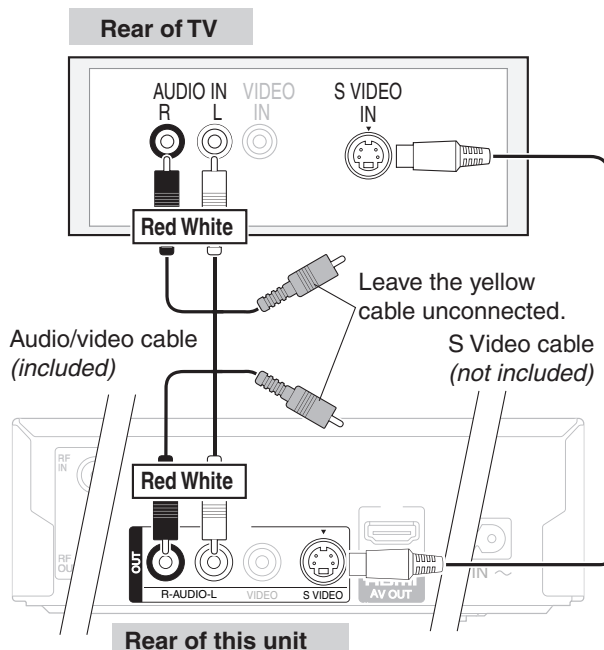
- You can connect this unit to a TV using the audio/video (AV) cable (included), S-Video cable (not included) or component cables (not included) instead of the 21-pin Scart cable (→ 10, 11, 78).

Using an Audio/Video Cable (included)



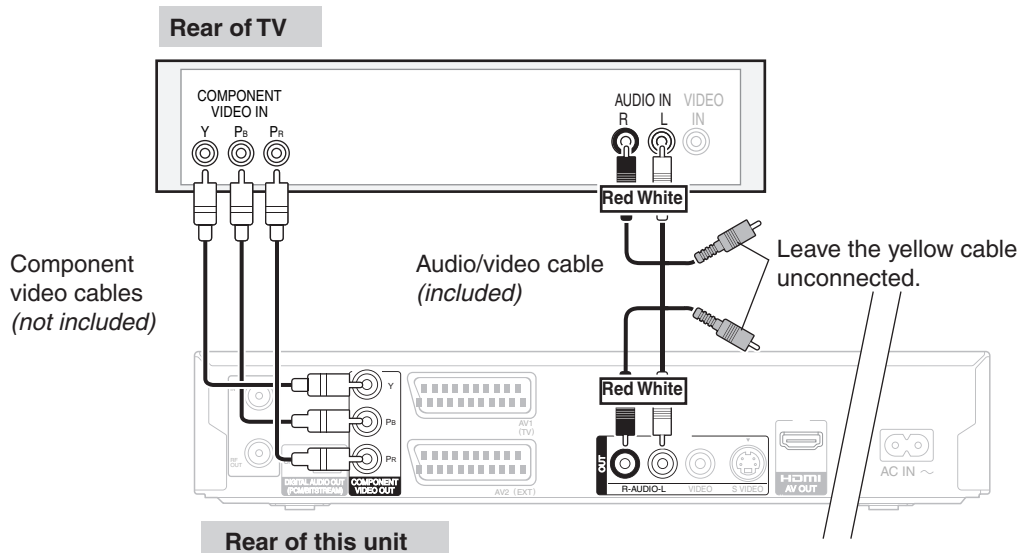
Using an S Video Cable (S Video Cable not included)

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



Using Component Video Cables (Component Video Cables not included)

The COMPONENT VIDEO OUT terminals on this unit can be used for either interlace or progressive output (→ 97) to provide a purer picture than the S VIDEO OUT terminal.

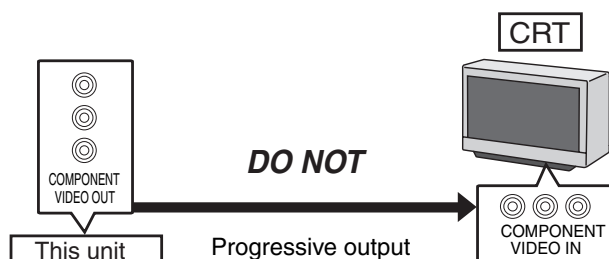


- For progressive output (→ 67)



Notes

- If you have a regular television (CRT: cathode ray tube) Use component output with progressive “Off” (Factory setting → 74), even if it is progressive compatible, because progressive output can cause some flickering. This is the same for multi-system televisions using PAL mode.

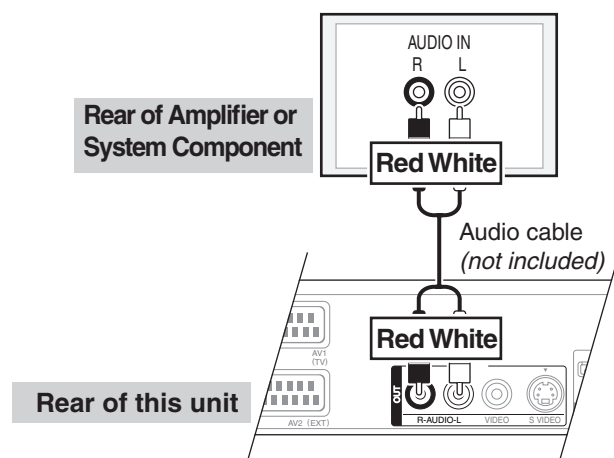


Additional Connections

- You can improve sound quality by connecting this unit to an amplifier or system component using the audio cable or the optical digital audio cable.

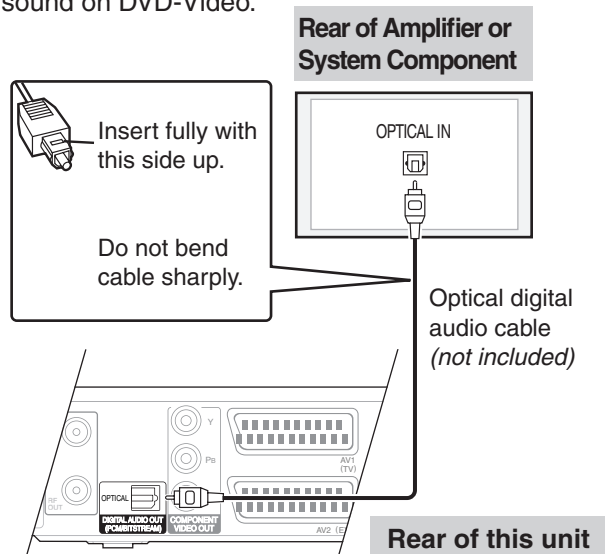
Using an Audio Cable for Better Sound

Use this connection to play sound through speakers connected to an amplifier or system component.



Using an Optical Digital Audio Cable for Better Sound (Optical Digital Audio Cable not included)

This method allows you to enjoy multi-channel surround sound on DVD-Video.



- Connect an amplifier or system component with a built-in decoder displaying these logo marks or MPEG decoder.
- Adjust settings in "Digital Audio Output" (→ 73).



Notes

- When this unit is connected to an amplifier with an optical digital audio cable and connected to a television with an HDMI cable, you can enjoy the highest quality of audio from the disc by setting "Digital Audio Output" to "Optical Only" in the Setup menu (→ 75). In this case audio is only output from the amplifier not the television.
- You cannot use DTS Digital Surround decoders not meant for DVD.
- Before purchasing an optical digital audio cable, check the terminal shape of the equipment to be connected.

Connecting with an HDMI (High Definition Multimedia Interface) Terminal

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

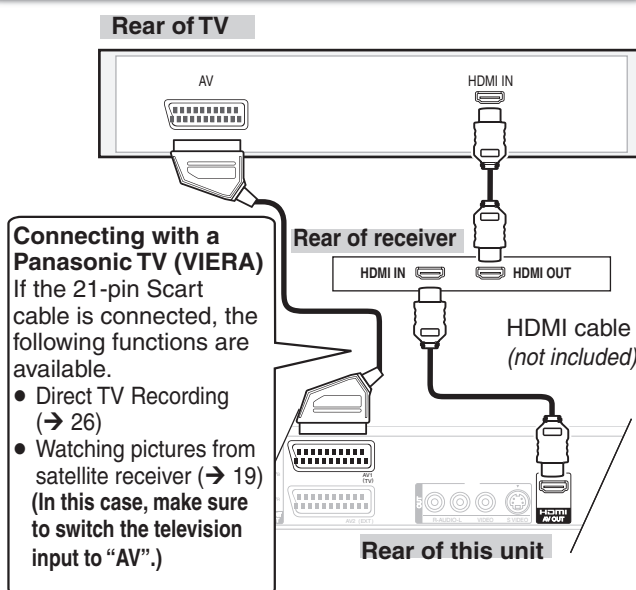
- Please use High Speed HDMI Cables that have the HDMI logo (as shown on the cover).

Regarding VIERA Link "HDAVI Control™" function

When connecting with a Panasonic TV (VIERA) or a receiver equipped with the "HDAVI Control" function, linked operations would be possible. [→ 44, Linked Operations with the TV (VIERA Link "HDAVI Control™"/Q Link)]

- It is recommended that you use Panasonic's HDMI cable.
Recommended part number: RP-CDHG10 (1.0 m), RP-CDHG15 (1.5 m), RP-CDHG20 (2.0 m), RP-CDHG30 (3.0 m), RP-CDHG50 (5.0 m), etc.
- Non-HDMI-compliant cables cannot be utilised.

Using an HDMI (High Definition Multimedia Interface) Cable



Connecting with a Panasonic TV (VIERA)
If the 21-pin Scart cable is connected, the following functions are available.

- Direct TV Recording (→ 26)
- Watching pictures from satellite receiver (→ 19) (In this case, make sure to switch the television input to "AV".)

- Set "Digital Audio Output" to "HDMI and Optical" (→ 75). (The default setting is "HDMI and Optical".)



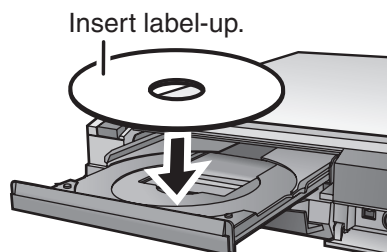
Notes

- If connecting to equipment that is only compatible with 2 channel audio output, audio with 3 channels or more will be down-mixed (→ 96) and output as 2 channels, even if connecting with an HDMI cable (some discs cannot be down-mixed).
- For display units compatible with HDCP (High-Band width Digital Content Protection) that are equipped with a digital DVI input terminal (PC monitors, etc.): Depending on the unit, picture may not display properly or at all when connecting with a DVI/HDMI switching cable (audio cannot be output).

Media Handling (Disc/USB Memory/SD Card)

Inserting Discs

- 1 Press [**▲** OPEN/CLOSE] to open the tray.
 - Insert a disc.



- 2 Press [**▲** OPEN/CLOSE] to close tray.



Notes

- When using 8 cm DVD-RAM or 8 cm DVD-R, remove the disc from the cartridge.
- It is not possible to record or play continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.

Automatic drive select function

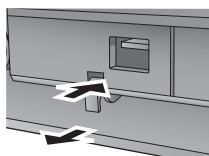
RAM [Only for discs with the write-protect tab on the cartridge set to "PROTECT" (→ 68, Setting Protection)]

DVD-V VCD CD

- If the unit is recording to the HDD or stopped, it automatically switches to the DVD drive when a disc is inserted.
- If you eject a disc and close the disc tray, the HDD drive is automatically selected.

Inserting/Removing the USB memory

Inserting the USB memory



- Before inserting any USB memory to this unit, ensure that the data stored therein has been backed up.
- Check the orientation of the USB connector and insert it straight in.
- Insert an USB device while the unit is stopped, so the "USB device" screen is displayed. Select an item and press [OK] to switch to the USB-related operations (→ 38, 62).

Removing the USB memory

- Complete all USB-related operations and pull the USB memory straight out.
- If a USB memory being accessed is pulled out, then the data may be damaged.

Inserting/Removing the SD Card EX88

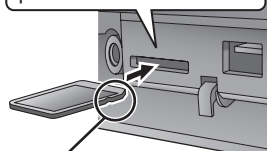
When the card indicator ("SD") on the unit's display is flashing, the card is being read from or written to. Do not turn off the unit or remove the card.

Such action may result in malfunction or loss of the card's contents.

- **Inserting foreign objects can cause a malfunction.**

Inserting the card

Press on the centre of the card until it clicks into place.

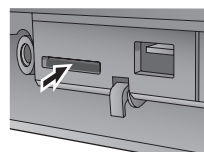


Insert the card label up with the cut-off corner on the right.

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



Removing the card



- 1 Press on the centre of the card.
- 2 Pull it straight out.

Automatic drive select function

- If you insert an SD card while the unit is stopped, the "SD Card" screen is displayed. Select an item and press [OK] to switch to the SD drive (→ 38, 62).
- If you remove an SD card, the HDD drive is automatically selected.

Disc and Card Care

RAM Use cartridges to protect them from scratches and dirt.

Holding a disc or card

Handle discs by the edges to avoid inadvertently scratching or getting oil from your fingers on the disc. Do not touch the signal surface of discs (the shiny side) or the terminal surface (the metal part) of SD cards.

Cleaning discs or cards

Discs are not indestructible and occasionally dirt or condensation may appear. Clean by gently wiping with a soft, dry lint-free cloth in a straight line from the centre of the disc to the edge of the disc. Return discs and SD cards to their cases when not in use; this helps to protect against scratches and dirt.

Storing discs and cards

- Do not place or store discs and cards in the following locations:
 - Direct sunlight
 - Very dusty or humid areas
 - Near a heat source
 - Places that undergo extreme shifts in temperature (condensation can occur)
 - Where static electricity or electromagnetic waves occur
- Keep the Memory Card out of reach of children to prevent swallowing.

Discs to avoid

- Discs that are not perfectly circular in shape
- Warped discs, which may not balance properly in your unit, causing improper operation or damage to the unit
- Cracked discs
- Discs with exposed adhesive (from removed stickers or labels, such as may occur with rental discs or improperly cared-for discs that were previously labeled or re-labeled)

Frequently Asked Questions

Setup		Page
How can I enjoy High Quality Video up-converted to 1080p?	<ul style="list-style-type: none"> Connect the unit to 1080p compatible HDTV using an HDMI cable. Set "HDMI Video Format" in the Setup menu to "1080p". 	12, 75
What equipment is necessary to play multi-channel surround sound?	<ul style="list-style-type: none"> You cannot playback multi-channel sound on this unit without other equipment. You must connect this unit with an HDMI cable or an optical digital cable to an amplifier with a built-in (Dolby Digital, DTS or MPEG) decoder. 	80
Can the headphones and speakers be directly connected to the unit?	<ul style="list-style-type: none"> You cannot directly connect to the unit. Connect through the amplifier, TV, etc. 	–
The television has a Scart terminal and component video input terminal. Which terminal should I connect with?	<ul style="list-style-type: none"> If you have a regular television (CRT: cathode ray tube) we recommend using the Scart terminal. You can enjoy high-quality RGB video from this unit by connecting to an RGB compatible television. If you have an LCD/plasma television or LCD projector compatible with progressive scan, connect through the component video terminals for high quality progressive video. If you have a CRT television or a multi-system television using PAL mode that is compatible with progressive scan, we cannot recommend progressive output as some flickering can occur. 	10, 11, 78, 79
Is my TV progressive output compatible?	<ul style="list-style-type: none"> All Panasonic televisions that have 625 (576)/50i · 50p, 525 (480)/60i · 60p input terminals are compatible. Consult the manufacturer if you have another brand of TV. 	–

Discs		Page
Can I play DVD-Video, and Video CDs bought in another country?	<ul style="list-style-type: none"> You cannot play DVD-Video if their region number does not include "2" or "ALL". Refer to the disc's jacket for more information. 	Cover
Can a DVD-Video that does not have a region number be played?	<ul style="list-style-type: none"> Discs either without region encoding or region code 2 will not play on this unit. 	–
What are the constraints regarding DVD-R, DVD-R DL, DVD-RW, +R, +R DL, and +RW compatibility with the unit?	<ul style="list-style-type: none"> This unit records and plays DVD-R, DVD-RW (DVD-Video format), +R, and +RW, and plays DVD-RW (DVD Video Recording format). However you cannot directly record to a DVD-R DL or +R DL disc on this unit (playback and copy are possible). 	15, 16
	<ul style="list-style-type: none"> This unit also records and plays high speed recording compatible discs. 	98
	<ul style="list-style-type: none"> After recording but before finalising these discs: <ul style="list-style-type: none"> You may not be able to play and record discs on this unit after recording them on other Panasonic products or other manufacturers' equipment. You may not be able to play and record discs on other equipment after recording them on this unit. After finalising the disc, however, you will be able to play it on any DVD-Video compatible player. 	–
What are the constraints regarding CD-R and CD-RW compatibility with the unit?	<ul style="list-style-type: none"> This unit plays CD-R/CD-RW discs which have been recorded in one of the following standards: CD-DA, Video CD, SVCD (conforming to IEC62107), DivX, MP3 and still pictures (JPEG). Close the session or finalise the disc after recording. This unit can recognize up to 300 folders (groups) and 3000 files (tracks) on a disc with MP3 or still pictures (JPEG). 	16, 18
	<ul style="list-style-type: none"> You cannot write to a CD-R or CD-RW with the unit. 	–

Recording		Page
Can I record from a commercially purchased video cassette or DVD?	<ul style="list-style-type: none"> Most commercially sold video cassettes and DVDs are copy protected; therefore, recording is usually not possible. 	–
Can DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, and +RW recorded on the unit be played on other equipment?	<ul style="list-style-type: none"> You can play these discs on compatible equipment such as DVD players after finalising the disc on this unit. <ul style="list-style-type: none"> +RW It is not necessary to finalise +RW. To enable play on other DVD players, please use “Create Top Menu” in the DVD Management menu. In any case, ability to play a disc depends on the condition of the recording, the quality of the disc, and the capability and format constraints of the DVD player. If you play a DVD-R DL, +R DL or +RW, use compatible equipment. 	69 – –
Can a digital audio signal from the unit be recorded to other equipment?	<ul style="list-style-type: none"> You can record if using the PCM signal. When recording DVD, change the “Digital Audio Output” settings to the following via the Setup menu: <ul style="list-style-type: none"> – PCM Down Conversion: “On” – Dolby Digital: “PCM” – DTS: “PCM” – MPEG: “PCM” However, only <ul style="list-style-type: none"> – As long as digital recording from the disc is permitted. – As long as the recording equipment is compatible with 48 kHz sampling frequency. You cannot record MP3 signals. 	73 –

GUIDE Plus+		Page
Is it possible to programme a recording, with a start and end time that are different from the GUIDE Plus+ system?	<ul style="list-style-type: none"> You can manually change the start and end time of programmes in the Timer Recording menu. (Except the programmes set to “Series Timer Rec.”) 	30
Can I receive GUIDE Plus+ system data via a connected satellite receiver or a Set Top Box?	<ul style="list-style-type: none"> No, only via the built-in tuner. To perform timer recordings with satellite receivers or Set Top Boxes, please use the External Link feature or your unit’s manual timer programming. 	28, 30
What happens when I unplug my unit from the household mains socket?	<ul style="list-style-type: none"> The GUIDE Plus+ system data will not be updated. If the unit is disconnected from the AC mains for a longer period of time, then the GUIDE Plus+ data is lost. Make sure that the time is set again appropriately. 	–

DVB-T		Page
Which aerial is suitable for receiving digital terrestrial broadcasts?	<ul style="list-style-type: none"> Any (terrestrial) roof aerial can be used. However, depending on the area where you live, a new aerial may be necessary. Consult your local TV aerial installer. 	–
Can this unit receive or record High Definition (HD) broadcasts?	<ul style="list-style-type: none"> No, this unit cannot receive or record High Definition (HD) broadcasts. 	–

USB		Page
What can or cannot be done using the USB port on this unit?	<ul style="list-style-type: none"> You can play DivX, MP3 or still picture (JPEG) files on a USB memory. 	38
	<ul style="list-style-type: none"> You can copy still pictures (JPEG) files on a USB memory to the HDD or DVD-RAM. 	62
	<ul style="list-style-type: none"> You can copy MP3 files on a USB memory to the HDD. 	64
	<ul style="list-style-type: none"> EX88 You can connect a video equipment and copy SD Video to the HDD or DVD-RAM. 	61
	<ul style="list-style-type: none"> Data on the HDD or a disc cannot be transferred to a USB memory. 	–
	<ul style="list-style-type: none"> Data on a USB memory cannot be edited or a USB memory cannot be formatted on this unit. 	–
	<ul style="list-style-type: none"> Some USB memories cannot be used with this unit. 	17

Music		Page
What will happen if I try to record the same CD multiple times?	<ul style="list-style-type: none"> New album will be made following the existing album. 	–
Can I transfer the music tracks from HDD to the disc or USB memory?	<ul style="list-style-type: none"> No, you cannot. 	–

On the Unit's Display		Page
H□□, F□□ (“□” stands for a service number.)	<ul style="list-style-type: none"> An error has occurred. The number following “H” or “F” depends on the status of the unit. Check the items below and in the Troubleshooting Guide. If the service number still does not disappear after the check, reset the unit (→ 86, “To restore the unit if it freezes”). If the service numbers fail to clear, note the service numbers and contact a qualified service person. 	–
DVD □ (“□” stands for a number.)	<ul style="list-style-type: none"> The remote control and the main unit are using different codes. Change the code on the remote control. 	86
GUIDE	<ul style="list-style-type: none"> GUIDE Plus+ data is being downloaded. 	76
HARD ERR*	<ul style="list-style-type: none"> If there is no change after turning the unit on and off, consult the dealer where the unit was purchased. 	–
NoERAS	<ul style="list-style-type: none"> You cannot delete items on this disc. The disc may be damaged. Use a new disc. 	–
NoREAD	<ul style="list-style-type: none"> The disc is dirty or badly scratched. The unit cannot record, play, or edit. The disc may be incompatible or of poor quality. You have used a lens cleaner and it has finished operation. Press [▲ OPEN/CLOSE] on the main unit to eject the disc. 	81 15, 16 7
NoWRIT	<ul style="list-style-type: none"> You cannot write to this disc. The disc may be damaged. Use a new disc. 	–
FINAL	<ul style="list-style-type: none"> When the screen asking if you want to finalise the disc appears, the message is displayed. 	26
PLEASE WAIT*	<ul style="list-style-type: none"> Displayed when the unit is started. This is not a malfunction. The unit is carrying out its recovery process. You cannot operate the unit while the message is displayed. 	– –
PROG FULL*	<ul style="list-style-type: none"> There are already 32 timer recording programmes. Delete unnecessary timer recording programmes. 	32
REMOVE	<ul style="list-style-type: none"> The USB device is drawing too much power. Remove the USB device. 	–
SP 35:50, LP 151h “SP”, “LP” and the numbers are examples.	<ul style="list-style-type: none"> Available space on the HDD or disc. The example “SP 35:50” is displayed when less than 100 hours are available and the example “LP 151h” is displayed when over 100 hours are available. “SP” and “LP” are recording modes, “35:50” means “35 hours 50 minutes” and “151h” means “151 hours”. 	–
SW-DL	<ul style="list-style-type: none"> The unit is performing a software update. 	76
UNSUPPORT*	<ul style="list-style-type: none"> You have inserted a disc the unit cannot play or record onto. You tried to operate with a non-compatible USB memory. 	15, 16 17
UNFORMAT*	<ul style="list-style-type: none"> You inserted an unformatted DVD-RAM, DVD-RW, +RW, an unused +R, +R DL or DVD-RW (DVD-Video format) that has been recorded on other equipment. Format the disc to use it. However all the recorded contents on the disc are deleted. 	68
F74	<ul style="list-style-type: none"> The HDMI connection could not be authenticated due to a transfer malfunction. Consult the dealer where the unit was purchased. 	–
F75	<ul style="list-style-type: none"> The HDMI connection could not be authenticated due to an internal data malfunction. Consult the dealer where the unit was purchased. 	–
U59	<ul style="list-style-type: none"> The unit is hot. The unit switches to standby for safety reasons. Wait for about 30 minutes until the message disappears. Select a position with good ventilation when installing the unit. Do not block the cooling fan on the rear of the unit. 	–
U61	<ul style="list-style-type: none"> (When a disc is not inserted) Displays when a malfunction has occurred during recording, playback or copy. This is displayed when the unit is in the recovery process to return to normal operation; it is not broken. Once the display disappears you can use the unit again. 	–
U76	<ul style="list-style-type: none"> HDMI cannot be output because you are connected to a model that does not support copyright protection. 	–
U80, U81, U99	<ul style="list-style-type: none"> The unit fails to operate properly. Press [⏻/I] on the main unit to switch the unit to standby mode. Press [⏻/I] on the main unit again to turn the unit on. 	–

* The message are alternately displayed.

U88	<ul style="list-style-type: none"> There was something unusual detected with the disc while recording, playing or copying; there was a power failure or the AC mains lead was disconnected while the unit was on. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears. 	–
X HOLD	<ul style="list-style-type: none"> The Child Lock function is activated. Press and hold [OK] and [RETURN] at the same time until “X HOLD” disappears. 	77

On the TV		Page
Authorisation Error.	<ul style="list-style-type: none"> You are trying to play the DivX VOD content that was purchased with a different registration code. You cannot play the content on this unit. (DivX) 	39
Cannot finish recording completely.	<ul style="list-style-type: none"> The programme was copy-protected. The HDD or disc may be full. The maximum number of title has been exceeded. 	– – 25
Cannot play.	<ul style="list-style-type: none"> You inserted an incompatible disc. 	16
Cannot playback. TV system is different from the setting. To playback, please change the TV System in Setup.	<ul style="list-style-type: none"> You tried to play a title 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. 	75
Cannot record to the disc.	<ul style="list-style-type: none"> The disc may be dirty or scratched. 	81
Unable to format.		
Please check the disc.		
Cannot play on this unit.	<ul style="list-style-type: none"> You tried to play a non-compatible image. Turn the unit off and re-insert the card. 	18 81
Cannot record. Disc is full.	<ul style="list-style-type: none"> HDD RAM -RW(V) +RW Create space by erasing unwanted titles. Even if you erase recorded content from the DVD-R, DVD-R DL, +R or +R DL there is no increase in disc space. Available recording space on a DVD-RW (DVD-Video format) or +RW disc increases when the last title is deleted (space may increase slightly when you delete other titles). Use a new disc. 	23, 48, 68 –
Cannot record. Maximum number of titles exceeded.		
No Disc	<ul style="list-style-type: none"> You haven't inserted a disc. Correctly insert a disc that the unit can play. The disc is upside down. If it is a single-sided disc, insert it so the label is facing up. 	15, 16, 81 81
No folders.	<ul style="list-style-type: none"> There is no compatible folder in this unit. 	17
No SD CARD No valid SD card.	<ul style="list-style-type: none"> The card is not inserted. If this message is displayed with a compatible card already inserted, turn off the unit, remove and then re-insert the card. The format of the card inserted is incomplete. 	17, 18 68
Not enough space in the copy destination.	<ul style="list-style-type: none"> Create space by deleting any unnecessary items. Delete one or more items registered on the copy list to ensure that the “Destination Capacity” is not exceeded. 	23, 48, 68 59, 63
Please set clock.	<ul style="list-style-type: none"> Set the clock. 	14
This is a non-recordable disc.	<ul style="list-style-type: none"> The unit cannot record on the disc you inserted. Insert a DVD-RAM or unfinalised DVD-R, DVD-RW (DVD-Video format), +R, or +RW disc. The disc may be incompatible or of poor quality. 	15 15, 16 68
This disc is not formatted properly. Format it using DVD Management in FUNCTION MENU.	<ul style="list-style-type: none"> You inserted an unformatted DVD-RAM, DVD-RW, +R, +R DL or +RW disc. Format the disc with the unit. You cannot directly record to a DVD-R DL and +R DL disc on this unit. Record to the HDD and then copy to the disc. 	–
Not enough space on HDD. Space of 4 hours (in SP mode) is necessary. Maximum number of titles is recorded on HDD. Please delete unwanted titles.	<ul style="list-style-type: none"> -R DL +R DL It is not possible to copy when there is not enough free space on the HDD or when the total number of the recorded titles on the HDD and the titles to be copied are greater than 500. Delete unwanted titles from the HDD. 	23, 48, 68
Rental Expired.	<ul style="list-style-type: none"> The DivX VOD content has zero remaining plays. You cannot play it. (DivX) 	39
⊙	<ul style="list-style-type: none"> The operation is prohibited by the unit or disc. 	–

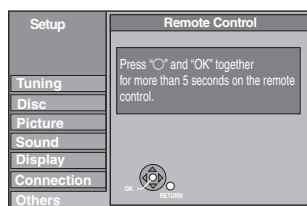
Troubleshooting Guide

When Other Panasonic Products Respond to this Remote Control

Use this function to synchronize the codes for the remote control and the main unit when there are other Panasonic products close to your unit.

With the unit stopped

- 1 Press [FUNCTION MENU].
- 2 Press [▲, ▼] to select "To Others", then press [OK].
- 3 Press [▲, ▼] to select "Setup", then press [OK].
- 4 Press [▲, ▼] to select "Others", then press [▶].
- 5 Press [▲, ▼] to select "Remote Control", then press [OK].
- 6 Press [▲, ▼] to select the code ("DVD 1", "DVD 2" or "DVD 3") and press [OK].



- 7 While pressing and holding [OK], press and hold the numbered button [1], [2] or [3] corresponding to the code set in step 6 for more than 5 seconds to set.
- 8 Press [OK] to complete.

When the following indicator appears on the unit's display



- Change the code on the remote control to match the code displayed for the main unit (→ step 7).



Tips

To return to the previous screen

Press [RETURN].

To exit the screen

Press [EXIT].

To Reset This Unit

To reset the unit's settings

All the settings except for the ratings level, ratings password, Owner ID and Clock return to the factory preset. The timer recording programmes are also cancelled.

On the main unit

Press and hold [▼ CH] and [CH ▲] for about 5 seconds.

- Refer to Tips of "Auto-Setup Restart" (→ 71) for detail information.

To reset the ratings level settings

With the unit stopped

- 1 Press [▲ OPEN/CLOSE] to open the disc tray.
- 2 Press [DRIVE SELECT] to select the DVD drive.

On the main unit

- 3 Press and hold [● REC] and [▶/x1.3] for about 5 seconds.

To restore the unit if it freezes

On the main unit

Press and hold [⏻/I] for more than 10 seconds.

- The unit is turned off.

Before requesting service, make the following checks. If you are in doubt about some of the check points, or if the solutions indicated in the chart do not solve the problem, consult your dealer for instructions.

The following does not indicate a problem with the unit:

- Regular disc rotating sound.
- Poor reception due to atmospheric conditions.
- Image disturbance during search.
- Periodic interruptions to the reception due to satellite broadcasting breaks.
- Operations are slow to respond in power save mode.
- Operations are not working due to a poor-quality disc. (Try again using a Panasonic disc.)
- The unit freezing due to the activation of one of its safety devices (→ 86, To restore the unit if it freezes).
- When the unit is turned on or off, there may be an unexpected sound. This does not indicate a problem with this unit.

General Issues	Power	Page
No power.	<ul style="list-style-type: none"> • Insert the AC mains lead securely into a known active household mains socket. 	10, 11, 78
The unit does not turn on pressing [⏻ DVD].	<ul style="list-style-type: none"> • Linked timer recordings with external equipment is in recording standby ("EXT-L" on the unit's display blinks when [⏻ DVD] is pressed). Press [EXT LINK] to cancel the recording standby. 	28
The unit switches to standby mode.	<ul style="list-style-type: none"> • One of the unit's safety devices is activated. Press [⏻/I] on the main unit to turn the unit on. 	–
The unit is turned off automatically.	<ul style="list-style-type: none"> • If you connected this unit to an "HDAVI Control" compatible TV with an HDMI cable, or connected this unit to a Q Link-compatible TV with a fully wired 21-pin Scart cable, this unit will be automatically set to standby mode when the TV is set to standby mode. 	44

General Issues	Displays	Page
The display is dim.	<ul style="list-style-type: none"> • Change "FL Display" in the Setup menu. 	74
"0:00" is flashing on the unit's display.	<ul style="list-style-type: none"> • Set the clock. 	14
The displayed time of this unit is different from the actual recording time or MP3 recording time.	<ul style="list-style-type: none"> • Times shown may disagree with actual times. • -R -R DL +R +R DL The remaining capacity does not increase even if titles are deleted. • Available space on a DVD-RW (DVD-Video format) or +RW disc increases when you delete the last title (space may increase slightly when you delete other titles). • If you record or edit about 200 times or more, the remaining capacity of DVD-R, DVD-R DL, +R, and +R DL is reduced and then recording or editing may be disabled (for the second layer on DVD-R DL and +R DL, this happens after about 60 times). • The time during searching may not be displayed accurately. 	– – – – –
The clock is not correct.	<ul style="list-style-type: none"> • Under adverse reception conditions, etc., the automatic time correction function may not work. In this case, "Automatic" is automatically turned to "Off". If re-setting the Auto Clock Setting does not work, set the time manually. 	14
Compared to the actual recorded time, the elapsed time displayed is less. (Only when recording in NTSC)	<ul style="list-style-type: none"> • The displayed recording/play time is converted from the number of frames at 29.97 frames (equal to 0.999 seconds) to one second. There will be a slight difference between the time displayed and the actual elapsed time (e.g., actual one-hour elapsed time may display as approximately 59 minutes 56 seconds). This does not affect the recording. 	–

Troubleshooting Guide

General Issues	Operation	Page
Cannot operate the TV with unit's remote control.	<ul style="list-style-type: none"> Change the manufacturer code on the remote control. It may be necessary to set the code on the remote control again after changing the batteries. 	77 86
The remote control doesn't work.	<ul style="list-style-type: none"> 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 the main unit. Remove dust from the transmission window and the unit's sensor. Coloured glass may obstruct the signal reception/transmission. Don't place the signal sensor in direct sunlight or in areas that may be subject to sun exposure. It may be necessary to set the manufacturer code again after changing the batteries. The Child Lock function is activated. 	86 7 7 – – – 77 77
The unit is on but cannot be operated.	<ul style="list-style-type: none"> Recording drive or playback drive has not been selected properly. Some operations may be prohibited by the disc. The unit is warm ("U59" appears on the unit's display). Wait until "U59" disappears. One of the unit's safety devices may have been activated. Reset the unit as follows: Press [⏻/I] on the main unit to switch to standby mode, If the unit doesn't switch to standby mode, reset the unit (→ 86, "To restore the unit if it freezes"). The unit cannot be operated while performing an update. "SW-DL" appears on the unit's display while it is updating. Please wait until the "SW-DL" disappears. 	20, 21 – 84 – 76
"U88" is displayed and the disc cannot be ejected.	<ul style="list-style-type: none"> The unit is carrying out the recovery process. The disc may be defective. Do the following to eject the disc. Try another disc. (1) Press [⏻/I] on the main unit to switch to standby mode. If the unit doesn't switch to standby mode, reset the unit (→ 86, "To restore the unit if it freezes"). (2) While the unit is turned off, press and hold [■] and [CH ^] on the main unit at the same time for about 5 seconds. (Ejection may take extra time depending on discs.) 	–
Cannot eject a disc.	<ul style="list-style-type: none"> The unit is recording. The unit may have a problem. Eject the disc as in (2) above. Linked timer recordings with external equipment is in recording standby ("EXT-L" on the unit's display blinks when [⏻ DVD] is pressed.) Press [EXT LINK] to cancel the recording standby. If the Child Lock function is activated, above operation does not work. Cancel the Child Lock function. 	– – 28, 77
Startup is slow.	<ul style="list-style-type: none"> Startup takes time in the following situations: <ul style="list-style-type: none"> A disc other than a DVD-RAM is inserted. The clock is not set. Immediately after a power failure or the AC mains lead is connected. When the unit is connected with an HDMI cable. When "Power Save" is set to "Off", startup becomes faster than when "Power Save" is "On". 	– 76

General Issues	GUIDE Plus+	Page
The GUIDE Plus+ system does not receive any data.	<ul style="list-style-type: none"> Check whether the clock is properly set. If signal quality is bad (ghost images or limited reception), the GUIDE Plus+ system may not be able to receive any data. 	14 –
"No Data" is displayed for some or all stations.	<ul style="list-style-type: none"> Some stations are not supported by the GUIDE Plus+ system. Programme the Timer recording manually. 	– 30
The GUIDE Plus+ information is not displayed properly.	<ul style="list-style-type: none"> There was a programme change or GUIDE Plus+ information from a broadcast station was possibly not correctly transmitted. Check the current programme, e.g. on the Web site for the GUIDE Plus+ system provider or station provider. 	–

The GUIDE Plus+ data is not updated.	<ul style="list-style-type: none"> The unit must be in standby mode in order to update the data. If the unit is in EXT LINK mode ("EXT-L" lights up in the unit's display), then the data update may also not work. Make sure that the time is set correctly. Check whether "Off" is set under "TV Guide Download in Standby" and change the setting in System Update in the Setup menu. 	–
		14 76

Digital broadcasts cannot be received.	<ul style="list-style-type: none"> Check the connections. Digital broadcast may not have started in your region yet. The aerial may not be pointing in the direction of the TV station, or the direction of the aerial may have changed due to strong winds or vibration. If problem persists consult your local TV aerial installer. 	10, 11, 78
		–
TV reception worsens after connecting the unit.	<ul style="list-style-type: none"> This can occur because the signals are being divided between the unit and other equipment. It can be solved by using a signal booster, available from electronics retailers. 	–
After DVB Auto-Setup only some or no DVB channels are found.	<ul style="list-style-type: none"> Check to ensure your area is covered by DVB transmissions. Check that the aerial and antenna cable are designed for DVB. Use the included RF coaxial cable shown in STEP 2, Basic Connection. If you live within 5–10 km of DVB transmission towers, a combined VHF/UHF aerial should be adequate. Outside this area, separate VHF and UHF aerials provide superior reception performance. 	– 10, 11
Picture regularly breaks up on some channels, "No Signal" message is displayed.	<ul style="list-style-type: none"> Check "Signal Condition". If "Signal Quality" or "Signal Strength" are displayed in red or constantly changing, check aerial. If problem persists consult your local TV aerial installer. Check that the aerial and antenna cable are designed for DVB. Use the included RF coaxial cable shown in STEP 2, Basic Connection. Interference (known as impulse noise) from household appliances such as light switches, fridges, etc. may cause picture break up and/or audio distortion. Use a high quality quad shielded coaxial cable fly lead between this unit and antenna wall socket to minimise impulse noise pickup. If problem persists consult your local TV aerial installer. Check aerial connection. Adjust the aerial reception with "DVB Manual Tuning". 	71
		10, 11 –
Picture very infrequently breaks up on some or all channels.	<ul style="list-style-type: none"> Electrical atmospheric interference caused by local or distant lightning storms or heavy rain with wind in "leafy" locations may cause pictures to break up and audio to mute or distort momentarily. Impulse noise interference from an infrequently used electrical appliance, or a passing vehicle or lawn mower with a "noisy" ignition system. 	–
		–
Unusual station sorting.	<ul style="list-style-type: none"> The station sorting of this unit is pre-defined. Use profiles to sort the stations as you want them. 	70
The digital channel information does not appear.	<ul style="list-style-type: none"> Select the length of time (3–10 sec.) in the "On-Screen Messages" in the Setup menu The digital channel information will not appear during playback or recording 	74
		–
No Digital TEXT	<ul style="list-style-type: none"> When subtitle is on or additional information in the digital channel information is displayed, Digital Text does not work. 	–
After the auto setup, there aren't any stations in the station list although found stations were displayed during auto setup.	<ul style="list-style-type: none"> "Shipping Condition" was performed or the unit was in the delivery status. The auto setup was then started and interrupted. Do an auto setup again and let it continue right through to the end. The data is only saved after this has been completed. 	–
The Signal Strength is over 100% (> 10)	<ul style="list-style-type: none"> Reduce the signal amplification at your aerial. 	71

Troubleshooting Guide

General Issues		VIERA Link	Page
VIERA Link doesn't work.	<ul style="list-style-type: none">● Check the HDMI cable connection. Check that "HDMI" is displayed on the front display when the power for the main unit is set to On.● Make sure that "VIERA Link" is set to "On".● Check the "HDAVI Control" settings on the connected device.● Some functions may not work if depending on the version of "HDAVI Control" of the connected equipment. This unit supports "HDAVI Control 3" functions.● If the connection for the equipment connected with an HDMI cable was changed, or if there was a power failure or the plug was removed from the household mains socket, "HDAVI Control" may not work. In this case, perform the following operations.<ol style="list-style-type: none">1. When the HDMI cable is connected to all equipment with the power on, turn the TV (VIERA) on again.2. Change the TV (VIERA) settings for the "HDAVI Control" function to off, and then set to on again. (For more information, see the VIERA operating instructions.)3. Switch the VIERA input to HDMI connection with this unit, and after this unit's screen is displayed, check that "HDAVI Control" is working.	<div>–</div> <div>75</div> <div>–</div> <div>–</div>	
The control panel does not appear.	<ul style="list-style-type: none">● The control panel is only displayed when connected to a TV with "HDAVI Control 2" function.	45	

General Issues		USB	Page
The contents of the USB memory cannot be read.	• Remove the USB memory from the USB port and then insert again. If this does not solve the problem, turn off and turn on the unit again.	–	
	• Check that the USB memory is inserted correctly.	81	
	• The format of the USB memory or of its contents is not compatible with the unit. (The contents on the USB memory may be damaged.)	17, 18	
	• The USB memory contains a folder structure and/or file extensions that are not compatible with this unit.	18	
	• Turn off and then turn on the unit again.	–	
	• USB memories connected using a USB extension cable or a USB hub may not be recognized by this unit.	–	
	• Some USB memories cannot be used with this unit.	17	
	• If inserted during playback, recording or copying etc., the USB memory may not be recognized by this unit.	–	

Playback Issues		Picture	Page
The images from this unit do not appear on the TV. Picture is distorted.	<ul style="list-style-type: none">● Make sure recorder is connected to an appropriate AV input of the TV.● Make sure the TV's input setting (e.g., AV 1) is correct.● The TV isn't compatible with progressive signals. Press and hold [■] and [▶/×1.3] on the main unit for about 5 seconds. The setting will change to interlace.● The unit's "TV System" setting differs from the TV system used by the disc now playing. While stopped, keep pressing [■] and [▲ OPEN/CLOSE] on the main unit for 5 or more seconds. The system switches from PAL to NTSC or vice versa.● When this unit is connected with an HDMI cable, use a disc that matches with this unit's TV system.● Picture may not be seen when more than 4 devices are connected with HDMI cables. Reduce the number of connected devices.	10, 11, 12, 78, 79 — — 75 — —	
Picture does not appear during timer recording.	<ul style="list-style-type: none">● Timer recordings work regardless of whether the unit is on or off. To confirm the timer recording is going to work properly, turn the unit on.	—	
The 4:3 aspect ratio picture expands left and right. Screen size is wrong.	<ul style="list-style-type: none">● Use the TV to change the aspect. If your TV does not have that function, set "Progressive" in the Picture menu to "Off".● If you connect an HDMI cable, set "Aspect for 4:3 Video" in the Setup menu to "16:9".● Check the settings for "TV Aspect" in the Setup menu. It may be possible to adjust the display mode on the TV. Refer to your television's operating instructions.	67 75 74	
The screen changes automatically.	<ul style="list-style-type: none">● The display may turn to the screen saver mode automatically if there is no operation for 5 minutes or more. Press [OK] to return to the previous screen.● Set "Screen Saver" in the Setup menu to "Off" to turn off the screen saver function.	— 74	

Playback Issues	Picture (Continued)	Page
Titles recorded with 16:9 aspect are stretched vertically.	<ul style="list-style-type: none"> 16:9 aspect programmes are recorded in 4:3 aspect in the following cases. <ul style="list-style-type: none"> -R -R DL -RW(V) If you recorded or copied using “EP” or “FR (recordings 5 hours or longer)” recording mode. If you recorded or copied to a +R, +R DL or +RW. <p>It may be possible to adjust the display mode on the TV. Refer to your television’s operating instructions.</p>	– –
There is a lot of after-image when playing video.	<ul style="list-style-type: none"> Set “Playback NR” in the Picture menu to “Off”. 	67
When playing DVD-Video using progressive output, one part of the picture momentarily appears to be doubled up.	<ul style="list-style-type: none"> Set “Progressive” in the Picture menu to “Off”. This problem is caused by the editing method or material used on DVD-Video, but should be corrected if you use interlaced output. 	67
There is no apparent change in picture quality when making adjustments in the Picture menu using the on-screen display.	<ul style="list-style-type: none"> The effect cannot be seen with certain types of video. 	–
Cannot see the beginning of the title played.	<ul style="list-style-type: none"> (If connecting to a TV that supports VIERA Link with an HDMI cable) When [▶ PLAY] is pressed on this unit’s remote control, but you may not be able to see the beginning of the title played until the picture is displayed on the TV. Using [◀◀], return to the beginning of the title. 	–
The picture is distorted during play, or video will not play correctly.	<ul style="list-style-type: none"> You may be playing a TV programme recorded with poor reception or unfavourable weather conditions. The picture may be distorted or a black screen may appear briefly between recorded titles in the following situations: <ul style="list-style-type: none"> between titles recorded with different recording modes. between scenes recorded with different aspect ratios. between scenes recorded with different resolutions. between playlist chapters. 	– –

Playback Issues	Sound	Page
No sound. Low volume. Distorted sound. Cannot hear the desired audio type.	<ul style="list-style-type: none"> Check the connections and the “Digital Audio Output” settings. Check the input mode on the amplifier if you have connected one. Check if TV is muted. Check if amplifier is muted. Sound is not output while fast-forwarding during chasing playback and simultaneous record and playback. Set “V.S.S.” in the Sound menu to “Off” in the following cases: <ul style="list-style-type: none"> When using discs that do not have surround sound effects, such as Karaoke discs When playing bilingual broadcast programmes Audio may not be output due to how files were created. (DivX) The sound effects will not work when the bitstream signal is output from the HDMI AV OUT terminal or the DIGITAL AUDIO OUT terminal. Audio may not be heard when more than 4 devices are connected with HDMI cables. Reduce the number of connected devices. To output audio from a device connected with an HDMI cable, set “Digital Audio Output” to “HDMI and Optical” in the Setup menu. Depending on the connected equipment, the sound may be distorted if this unit is connected with an HDMI cable. 	73, 80 – – – 67 – – – 75 –
Cannot switch audio.	<ul style="list-style-type: none"> You cannot switch the audio in the following cases. <ul style="list-style-type: none"> When a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW disc is in the disc tray while DVD drive is selected. When the recording mode is XP and “Audio Mode for XP Recording” is set to “LPCM”. When recording a digital broadcast with multiple audio channels, this will record only the audio channel selected in “DVB Multi Audio” in the on-screen display. The audio channel cannot be switched during playback. You have used a digital connection. Set “Dolby Digital” to “PCM” or connect using audio cables (analogue connection). There are discs whose audio cannot be changed due to how the disc was created. 	– 73 67 73, 80 –

Troubleshooting Guide

Playback Issues	Operation	Page
Play fails to start even when [▶ PLAY] is pressed. Play starts but then stops immediately.	<ul style="list-style-type: none"> ● Insert the disc correctly with the label facing up. ● The disc is dirty. ● You tried to play a blank disc or a disc that is unplayable on the unit. ● You tried to play a +RW that needs to be finalised on the equipment used for recording. ● You may be able to copy a "One time only recording" title that was recorded to DVD-RAM using a different Panasonic DVD Recorder to this unit's HDD, but play is not possible due to copyright protection. ● When recording to DVD-RAM using EP (8Hours) mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use EP (6Hours) mode. ● You cannot play discs during DV automatic recording. ● If playing DivX VOD content, refer to the homepage where you purchased it. (DivX) ● Make sure that the TV is turned on. If the menu or messages are displayed, follow the on-screen instructions. 	81 81 15, 16, 18 – – 72 – 39 –
Audio and video momentarily pause.	<ul style="list-style-type: none"> ● This occurs between playlist chapters. ● This occurs between chapters and with partially deleted titles on finalised DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW that have been copied using the high speed mode. ● This occurs as scenes change during Quick View (Play ×1.3). ● -R DL +R DL When playing a title recorded on both layers, the unit automatically switches between layers and plays the title in the same way as a normal programme. However, video and audio may momentarily cut out when the unit is switching layers. 	– – – 15
DVD-Video is not played.	<ul style="list-style-type: none"> ● Ensure the DVD-Video region number for the disc is correct, and the disc is not defective. ● You have set a ratings level to limit DVD-Video play. Change this setting. 	Cover 72
Alternative soundtrack and subtitles cannot be selected.	<ul style="list-style-type: none"> ● The languages are not recorded on the disc. ● You may have to use the disc's own menus to select languages and audio tracks. 	– 20
No subtitles.	<ul style="list-style-type: none"> ● Subtitles are not recorded on the disc. ● Set "Subtitle" in the Disc menu to "On". 	– 66
Angle cannot be changed.	<ul style="list-style-type: none"> ● This function depends on software availability. Angles can only be changed during scenes where different angles are recorded. 	–
You have forgotten your ratings password.	<ul style="list-style-type: none"> ● With the tray open, press [DRIVE SELECT] to select the DVD drive, then press and hold [● REC] and [▶/×1.3] on the main unit simultaneously for about 5 or more seconds. 	–
Quick View (Play ×1.3) does not work.	<ul style="list-style-type: none"> ● This does not work when audio is other than Dolby Digital. ● This does not work while recording in XP or FR mode. 	– –
The resume play function does not work.	<ul style="list-style-type: none"> ● Memorized positions are cancelled when <ul style="list-style-type: none"> – press [■] several times. – open the disc tray. – SD (EX88) CD VCD USB turn off the power. – a recording or timer recording was executed. 	–
The Video CD picture does not display properly.	<ul style="list-style-type: none"> ● When connecting to Multi-system TV, select "NTSC" in "TV System" in the Setup menu. ● When connecting to PAL TV, the lower part of the picture cannot be displayed correctly during search. 	75 –
Time Slip, Manual Skip, etc. does not work.	<ul style="list-style-type: none"> ● These functions do not work with finalised discs. ● Time Slip does not work when the unit's "TV System" settings are different from the title recorded on the disc. 	– 75
It takes time before play starts.	<ul style="list-style-type: none"> ● This is normal on DivX video. (DivX) 	–
Picture stops.	<ul style="list-style-type: none"> ● Picture may stop if the DivX files are greater than 2 GB. (DivX) 	–
Cannot see the beginning of the title played.	<ul style="list-style-type: none"> ● (If connecting to a TV that supports VIERA Link with an HDMI cable) When [▶ PLAY] is pressed on this unit's remote control, you may not be able to see the beginning of the title played until the picture is displayed on the TV. Using [◀◀], return to the beginning of the title. 	–

Cannot record. Cannot copy.	<ul style="list-style-type: none"> • You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto. • RAM -RW(V) +R +R DL +RW The disc is unformatted. Format the disc. • The write-protect tab on the cartridge is set to "PROTECT" or the disc is protected with the "DVD Management" settings. • Some programmes have limitations on the number of times they can be recorded (CPRM). • The disc is full or nearly full. Delete unneeded titles (HDD RAM -RW(V) +RW) or use another disc. • You cannot directly record to a DVD-R DL or +R DL disc on this unit. Record to the HDD and then copy to the disc. • -R DL +R DL In the following situations, you cannot copy. Delete unnecessary titles from the HDD and then copy. <ul style="list-style-type: none"> – If there is not enough space available on the HDD (If you will copy titles from the HDD to a blank disc and fill the entire disc, HDD disc space equivalent to 4 hours of SP mode recording is necessary). – If the number of recorded titles and the number of titles to be copied has exceeded 500. • You cannot record and copy on finalised DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL discs. However, you can record and copy again if you format DVD-RW. • If you repeatedly insert discs or turn the unit on and off about 50 times or more, the recording or editing of DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL, and +RW discs may be disabled. • DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW discs recorded on this unit may not be recordable on other Panasonic DVD Recorders. • The broadcast you are trying to record is copy-protected. • This unit cannot record NTSC signals to discs that already have PAL signal recordings. (However, both types of programmes can be recorded onto the HDD.) Play of discs recorded with both PAL and NTSC on another unit is not guaranteed. • Some broadcasts are copyright protected. 	15 68 68 24, 96 23, 48, 68 – 23, 48, 68 – – – – 75 15, 24, 96
Timer recording does not work properly.	<ul style="list-style-type: none"> • The timer programme is incorrect or different timer programme times overlap. Correct the programme. • The programme is not in timer recording standby. ("⊙" in the timer recording list is not on.) <ol style="list-style-type: none"> 1 Press [PROG/CHECK]. 2 Press [▲, ▼] to select the programme and press the "Red" button. • The clock is not correct. Set the clock. • The programme information in the GUIDE Plus+ system may not be correct. It is recommended to modify the start and end times to allow a margin of a few minutes. 	32 32 14 22
Timer recording does not stop even when [■ STOP] is pressed.	<ul style="list-style-type: none"> • Make sure that the recording drive is selected. Press [DRIVE SELECT] to select the recording drive. • When using the linked timer recording with external equipment, press [EXT LINK]. ("EXT-L" on the unit's display disappears.) 	21 28
The timer programme remains even after recording finishes.	<ul style="list-style-type: none"> • The timer programme remains if set to daily or weekly. 	30, 32

(Continued on the next page)

Troubleshooting Guide

Recording Issues	Recording/Timer Recording/Copying/External input (Continued)	Page
Part or all of a recorded title has been lost.	<ul style="list-style-type: none"> If the power shuts down or the AC mains lead is disconnected from the household mains socket while recording or editing, the title may be lost or the HDD/disc may become unusable. We cannot offer any guarantee regarding lost titles or discs. You will have to format the disc (HDD RAM -RW(V) +RW) or use a new disc. 	–
Stripe-shaped black noise is recorded.	<ul style="list-style-type: none"> An external playback device is interfering with the TV because the device is too close to the TV. Move the device away from the TV. 	–
The programme name and the recorded title do not match.	<ul style="list-style-type: none"> There was a programme change after timer recording was set but the recorded title still has the old programme name. 	–
Cannot copy to a DVD-R, etc, disc using the high speed mode.	<ul style="list-style-type: none"> When recording to the HDD, set “Recording Format” to “Video format” in the Setup menu. (The default setting is “Video format”). 	72
	<ul style="list-style-type: none"> In the following cases, high speed mode does not work, even if the titles were recorded with “Recording Format” set to “Video format”. <ul style="list-style-type: none"> +R +R DL +RW If recorded in “EP” or “FR (recordings 5 hours or longer)” mode. +R +R DL +RW If recorded in 16:9 aspect. -R -R DL -RW(V) If recorded in 16:9 aspect using “EP” mode or “FR” (recordings 5 hours or longer) mode 	56
	<ul style="list-style-type: none"> +R +R DL +RW Titles recorded on other Panasonic DVD recorders with “Recording Format” (“Rec for High Speed Copy”) set to “Video format” (“On”), and then copied to the HDD on this unit may not copy to +R, +R DL or +RW discs with high-speed copy. 	–
	<ul style="list-style-type: none"> Use a disc that is compatible with high speed recording. Even if the disc is high speed recording compatible, the maximum speed may not be possible due to the condition of the disc. 	–
	<ul style="list-style-type: none"> It takes longer than normal to copy many titles. You cannot high speed copy to DVD-R titles longer than 6 hours when using other Panasonic DVD Recorders that are not compatible with EP (8 Hours) mode recording. 	–
An unusually loud sound is coming from the rotating DVD-R, etc.	<ul style="list-style-type: none"> When recording or high speed copying to a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW the sound of the disc rotating may be louder than normal, however, this is not a problem. 	–
Cannot record video or sound from the external device.	<ul style="list-style-type: none"> The external device is not correctly connected. 	29
	<ul style="list-style-type: none"> The proper external input channel (AV2, AV3, or DV) is not selected. Press [INPUT SELECT] to change. 	–
The DV auto recording function does not work.	<ul style="list-style-type: none"> If images cannot be recorded or if the recording is aborted, check the connections and the DV equipment settings. 	29
	<ul style="list-style-type: none"> You cannot start recording until the images from the DV equipment appear on the television. 	–
	<ul style="list-style-type: none"> Recording may not be performed as desired if the time codes on the tape in the DV equipment are not successive. 	–
	<ul style="list-style-type: none"> Depending on the equipment, the DV automatic recording may not operate properly. 	–
	<ul style="list-style-type: none"> You can only record audio/video images on a DV tape. 	–

Recording Issues	Music	Page
Tracks could not be copied to the HDD.	<ul style="list-style-type: none"> If there are copyright protected tracks such as SCMS restrictions, they will not be copied. 	–
	<ul style="list-style-type: none"> Recording from CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed. 	–
	<ul style="list-style-type: none"> Bonus tracks may not be copied. 	–
ID3 tag of a MP3 file is not completely displayed.	<ul style="list-style-type: none"> Only the track name and artist name can be displayed with this unit. 	–

Editing Issues	HDD, DVD & SD	Page
Cannot edit.	<ul style="list-style-type: none"> You may not be able to edit on the HDD if there is no available space. Delete any unwanted titles to create empty space. 	23, 48 68
Cannot format.	<ul style="list-style-type: none"> The disc is dirty. Wipe with a damp cloth and then wipe dry. 	81
	<ul style="list-style-type: none"> Disc may be defective or of poor quality. 	–
	<ul style="list-style-type: none"> You tried formatting a disc that is not compatible with the unit. 	68

Cannot create chapters.	<ul style="list-style-type: none"> The unit writes the chapter division information to the disc when you turn it off or remove the disc. 	–
Cannot mark the start point or the end point during “Partial Delete” operation.	<ul style="list-style-type: none"> The information is not written if there is an interruption in the power. These operations are not possible with still pictures. You cannot set points if they are too close to each other. You cannot set an end point before a start point. 	–
Cannot delete chapters.	<ul style="list-style-type: none"> When the chapter is too short to delete, use “Combine Chapters” to make the chapter longer HDD RAM. 	50
The available recording time doesn't increase even after deleting titles on the disc.	<ul style="list-style-type: none"> Available space on DVD-R, DVD-R DL, +R, or +R DL does not increase even after deleting previous titles. Available space on DVD-RW (DVD-Video format) or +RW increases when you delete the last title. 	–
Cannot create a playlist.	<ul style="list-style-type: none"> You cannot select all the chapters in a title at once as the source of playlist editing if the title also includes still pictures. Select them individually. 	–

Cannot display Direct Navigator screen.	<ul style="list-style-type: none"> This screen cannot be displayed during recording or copy or while the unit is standing by for linked timer recording with external equipment. 	–
Cannot edit or format a card. (EX88)	<ul style="list-style-type: none"> Release the card's protection setting. (With some cards, the “Write Protection Off” message sometimes appears on the screen even when protection has been set.) 	68
The contents of the card cannot be read. (EX88)	<ul style="list-style-type: none"> Remove the card from the slot and then insert again. If this does not solve the problem, turn off and turn on the unit again. The card format is not compatible with the unit. (The contents on the card may be damaged.) <p>This unit is compatible with SD Memory Cards that meet SD Card Specifications FAT12 and FAT16 formats, as well as SDHC Memory Cards in FAT32 format.</p> <ul style="list-style-type: none"> The card contains a folder structure and/or file extensions that are not compatible with this unit. You can use SD Memory Cards with capacities from 8 MB to 2 GB and SDHC Memory Cards with capacities from 4 GB to 16 GB. This unit cannot play AVCHD format motion pictures or MPEG4 on an SD card. 	– 17 17 – –
Copying, deleting, and setting protection takes a long time. (EX88)	<ul style="list-style-type: none"> When there are a lot of folders and files, it may sometimes take a few hours. When repeating copying or deleting, it may sometimes take a long time. <p>Format the disc or card.</p>	– 68

Language code list

Enter the code with the numbered buttons.

Abkhazian: 6566	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Telugu: 8469
Afar: 6565	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Thai: 8472
Afrikaans: 6570	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoan: 8377	Tibetan: 6679
Albanian: 8381	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tigrinya: 8473
Amharic: 6577	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tonga: 8479
Arabic: 6582	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Turkish: 8482
Armenian: 7289	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkmen: 8475
Assamese: 6583	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Twi: 8487
Aymara: 6589	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Ukrainian: 8575
Azerbaijani: 6590	Faroese: 7079	Japanese: 7465	Mongolian: 7778	Singhalese: 8373	Urdu: 8582
Bashkir: 6665	Fiji: 7074	Javanese: 7487	Nauru: 7865	Slovak: 8375	Uzbek: 8590
Basque: 6985	Finnish: 7073	Kannada: 7578	Nepali: 7869	Slovenian: 8376	Vietnamese: 8673
Bengali, Bangla: 6678	French: 7082	Kashmiri: 7583	Norwegian: 7879	Somali: 8379	Volapük: 8679
Bhutani: 6890	Frisian: 7089	Kazakh: 7575	Oriya: 7982	Spanish: 6983	Welsh: 6789
Bihari: 6672	Galician: 7176	Kirghiz: 7589	Pashto, Pushto: 8083	Sundanese: 8385	Wolof: 8779
Breton: 6682	Georgian: 7565	Korean: 7579	Persian: 7065	Swahili: 8387	Xhosa: 8872
Bulgarian: 6671	German: 6869	Kurdish: 7585	Polish: 8076	Swedish: 8386	Yiddish: 7473
Burmese: 7789	Greek: 6976	Laotian: 7679	Portuguese: 8084	Tagalog: 8476	Yoruba: 8979
Byelorussian: 6669	Greenlandic: 7576	Latin: 7665	Punjabi: 8065	Tajik: 8471	Zulu: 9085
Cambodian: 7577	Guarani: 7178	Latvian, Lettish: 7686	Quechua: 8185	Tamil: 8465	
Catalan: 6765	Gujarati: 7185	Lingala: 7678	Rhaeto-Romance: 8277	Tatar: 8484	

Bitstream

This is a signal compressed and converted into digital form. It is converted back to a multi-channel audio signal, e.g., 5.1-channel, by a decoder.

CPRM (Content Protection for Recordable Media)

CPRM is technology used to protect broadcasts that are allowed to be recorded only once. Such broadcasts can be recorded only with CPRM-compatible recorders and discs.

Decoder

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

Deep Colour

This unit incorporates HDMI™ (V.1.3 with Deep Colour) technology that can reproduce greater colour gradation (4096 steps) when connected to a compatible TV.

You can enjoy exceptionally rich, natural-looking colours, with smooth, detailed gradation and minimal colour banding.

[A lower colour gradation (256 steps), without deep colour, will be reproduced if connected to a TV which does not support deep colour. The unit will automatically set appropriate output to suit the connected TV.]

DivX

DivX is a popular media technology created by DivX, Inc. DivX media files contain highly compressed video with high visual quality that maintains a relatively small file size.

Dolby Digital

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

When recording on this unit Dolby Digital (2 channel) is the default audio.

Down-mixing

This is the process of remixing the multi-channel audio found on some discs into two channels. It is useful when you want to listen to the 5.1-channel audio recorded on DVDs through your TV's speakers. Some discs prohibit down-mixing. If this is the case, this unit can only output the front two channels.

Drive

In the instance of this unit, this refers to the hard disk (HDD), disc (DVD) and SD card (SD) (EX88). These perform the reading and writing of data.

DTS (Digital Theater Systems)

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

Dynamic range

Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs. Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can hear dialogue clearly at low volume.

Film and Video

DVD-Video are recorded using either film or video. The unit can determine which type has been used, then uses the most suitable method of progressive output.

- Film:** Recorded at 25 frames per second (PAL discs) or 24 frames per second (NTSC discs). (NTSC discs recorded at 30 frames per second as well.)
Generally appropriate for motion picture films.
- Video:** Recorded at 25 frames/50 fields per second. (PAL discs) or 30 frames/60 fields per second (NTSC discs). Generally appropriate for TV drama programmes or animation.

Finalise

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

Folder

This is a place on the hard disk, disc or SD card (EX88) where groups of data are stored together. In the case of this unit, it refers to the place where still pictures (JPEG) and MPEG2 (EX88) are stored.

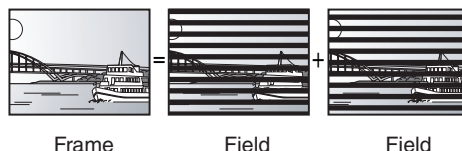
Formatting

Formatting is the process of making media such as DVD-RAM recordable on recording equipment.

You can format DVD-RAM, DVD-RW (only as DVD-Video format), +RW, SD card (EX88) and the HDD or unused +R and +R DL on this unit. Formatting irrevocably erases all contents.

Frame and Field

Frame refers to the single images that constitute the video you see on your TV. Each frame consists of 2 fields.



- A frame still shows 2 fields, so there may be some blurring between them, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

HDD (Hard disk drive)

This is a mass data storage device used in computers, etc. A disk with a surface that has been treated with magnetic fluid is spun and a magnetic head is brought in close proximity to facilitate the reading and writing of large amounts of data at high speed.

HDMI (High-Definition Multimedia Interface)

Unlike conventional connections, it transmits uncompressed digital video and audio signals on a single cable. This unit supports high-definition video output [720p (750p), 1080i (1125i) and 1080p (1125p)] from HDMI AV OUT terminal. To enjoy high-definition video a high definition compatible television is required.

JPEG (Joint Photographic Experts Group)

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

LPCM (Linear PCM)

These are uncompressed digital signals, similar to those found on CDs.

MPEG2 (Moving Picture Experts Group)

A standard for efficiently compressing and expanding colour video. MPEG2 is a compression standard used for DVD and satellite based digital broadcasting. This unit records programmes using MPEG2. SD Video files shot with a Panasonic SD video camera, etc. can be copied to the HDD or a DVD-RAM disc.

MP3 (MPEG Audio Layer 3)

An audio compression method that compresses audio to approximately one-tenth of its size without any significant loss of audio quality.

Pan & Scan/Letterbox

In general, DVD-Video are produced with the intention that they will be viewed on a widescreen TV (16:9 aspect ratio), so images often don't fit regular TVs (4:3 aspect ratio). 2 styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

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



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



Playback control (PBC)

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

Progressive/Interlace

The PAL video signal standard has 625 (or 576) interlaced (i) scan lines, whereas progressive scanning, called 625p (or 576p), uses twice the number of scan lines. For the NTSC standard, these are called 525i (or 480i) and 525p (or 480p) respectively.

Using progressive output, you can enjoy the high-resolution video recorded on media such as DVD-Video.

Your television must be compatible to enjoy progressive video.

Panasonic televisions with 625 (576)/50i · 50p, 525 (480)/60i · 60p input terminals are progressive compatible.

Protection

You can prevent accidental erasure by setting writing protection or erasure protection.

RGB

This refers to the three primary colours of light, red (R), green (G), and blue (B) and also the method of producing video that uses them. By dividing the video signal into the three colours for transmission, noise is reduced for even higher quality images.

Sampling frequency

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

Signal Quality

This is the guide for checking the aerial direction. The numbered values displayed do not indicate the strength of the signal, but the quality of the signal (the signal to noise ratio, or "S/N"). The channels you can receive are affected by weather conditions, seasons, time (day/night), region, length of the cable that is connected to the aerial, etc.

Thumbnail

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

1080i

In one high-definition image, 1080 (1125) alternating scan lines pass every 1/50th of a second to create an interlace image. Because 1080i (1125i) more than doubles current television broadcasts of 480i (525i), the detail is much clearer and creates a more realistic and rich image.

1080p

In one high-definition image, 1080 (1125) scan lines pass at the same time every 1/50th of a second to create a progressive image. Since progressive video does not alternate scan lines like interlace, there is a minimal amount of screen flicker.

720p

In one high-definition image, 720 (750) scan lines pass at the same time every 1/50th of a second to create a progressive image. Since progressive video does not alternate scan lines like interlace, there is a minimal amount of screen flicker.

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Specifications

Power supply:	AC 220 V to 240 V, 50 Hz
Power consumption:	Approx. 36 W
Standby mode: (Power Save mode)	Approx. 2 W
(Quick Start mode)	Approx. 15 W

Recordable discs:

DVD-RAM:	2X SPEED (Ver. 2.0), 2–3X SPEED (Ver. 2.1) 2–5X SPEED (Ver. 2.2)
DVD-R (SL):	1X SPEED (Ver. 2.0), 1–4X SPEED (Ver. 2.0) 1–8X SPEED (Ver. 2.0), 1–16X SPEED (Ver. 2.1)
DVD-R (DL):	2–4X SPEED (Ver. 3.0), 2–8X SPEED (Ver. 3.0)
DVD-RW:	1X SPEED (Ver. 1.1), 1–2X SPEED (Ver. 1.1) 2–4X SPEED (Ver. 1.2), 2–6X SPEED (Ver. 1.2)
+R (SL):	2.4X SPEED (Ver. 1.0), 2.4–4X SPEED (Ver. 1.1) 2.4–8X SPEED (Ver. 1.2) 2.4–16X SPEED (Ver. 1.3)
+R (DL):	2.4X SPEED (Ver. 1.0), 2.4–8X SPEED (Ver. 1.1)
+RW:	2.4X SPEED (Ver. 1.1), 2.4–4X SPEED (Ver. 1.2)

Recording system:

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

Recording time:

Max. 8 hours (using 4.7 GB disc)	
XP: Approx. 1 hour	SP: Approx. 2 hours
LP: Approx. 4 hours	EP: Approx. 6 hours or 8 hours

EX78

Maximum Approx. 441 hours with 250 GB HDD (EP 8 hours mode)
XP: Approx. 55 hours, SP: Approx. 110 hours
LP: Approx. 221 hours, EP: Approx. 331 hours/441 hours

EX88

Maximum Approx. 712 hours with 400 GB HDD (EP 8 hours mode)
XP: Approx. 89 hours, SP: Approx. 178 hours
LP: Approx. 357 hours, EP: Approx. 534 hours/712 hours

Playable discs:

DVD-RAM:	DVD Video Recording format
DVD-R:	DVD-Video format, MP3 ^{*1} , JPEG ^{*1} , DivX ^{*1}
DVD-R DL (Dual Layer):	DVD-Video format, MP3 ^{*1} , JPEG ^{*1} , DivX ^{*1}
DVD-RW:	DVD Video Recording format, DVD-Video format
+R	
+R DL (Double Layer)	
+RW	
DVD-Video, CD-Audio (CD-DA), Video CD, SVCD ^{*2}	
CD-R/CD-RW:	CD-DA ^{*1} , Video CD ^{*1} , SVCD ^{*1,2} , MP3 ^{*1} , JPEG ^{*1} , DivX ^{*1}

Internal HDD capacity: **EX78** 250 GB **EX88** 400 GB

Optical pick-up:

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

LASER Specification

Class 1 LASER Product	
Wave Length:	780 nm (CDs) 662 nm (DVDs)
Laser Power:	No hazardous radiation is emitted with the safety protection

Television system

Tuner System:	DVB-T
Channel Coverage:	UK
UHF:	21 to 68 ch

RF converter output: Not provided

Video

Video system:	PAL colour signal, 625 lines, 50 fields NTSC colour signal, 525 lines, 60 fields
Recording system:	MPEG2 (Hybrid VBR)

Video In (PAL/NTSC):

AV1/AV2 (21 pin), AV3 (pin jack) 1 Vp-p 75 Ω, termination

S-Video In (PAL/NTSC):

AV2 (21 pin), AV3 (S terminal) 1 Vp-p 75 Ω, termination

Video Out (PAL/NTSC):

AV1/AV2 (21 pin), Video Out (pin jack) 1 Vp-p 75 Ω, termination

RGB In (PAL): AV2 (21pin) 0.7 Vp-p (PAL) 75 Ω, termination

S-Video Out (PAL/NTSC):

AV1 (21 pin), S-Video Out (S terminal) 1 Vp-p 75 Ω, termination

RGB Out (PAL/NTSC):

AV1 (21 pin), 0.7 Vp-p (PAL) 75 Ω, termination

Component video output (NTSC 480p/480i, PAL 576p/576i)

Y: 1.0 Vp-p 75 Ω, termination

P_B: 0.7 Vp-p 75 Ω, termination

P_R: 0.7 Vp-p 75 Ω, termination

Audio

Recording system: Dolby Digital (2 ch), Linear PCM (XP mode)

Audio In: AV1/AV2 (21 pin), AV3 (pin jack)

Input Level: Standard: 0.5 Vrms, Full scale: 2.0 Vrms at 1 kHz

Input Impedance: More than 10 kΩ

Audio Out: AV1/AV2 (21 pin), Audio Out (pin jack)

Output Level: Standard: 0.5 Vrms, Full scale: 2.0 Vrms at 1 kHz

Output Impedance: Less than 1 kΩ

Digital Audio Out: Optical terminal (PCM, Dolby Digital, DTS, MPEG)

DV Input: IEEE 1394 Standard, 4 Pin :1pc

USB

USB port: TypeA: 1 pc

USB standard: **EX88** USB 2.0 High Speed

EX78 USB 2.0 Full Speed

Format: FAT16, FAT32

HDMI Output: 19 pin type A :1pc

HDMI™ (V.1.3 with Deep Colour)

This unit supports "HDAVI Control 3" function.

SD Card (**EX88**)

Slot: SD Memory Card Slot: 1pc

Compatible media: SD Memory Card^{*3}, SDHC Memory Card, MultiMediaCard

Format: FAT12, FAT16^{*4} (In case of SD Memory Card, MultiMediaCard)
FAT32^{*4} (In case of SDHC Memory Card)

Still Picture (JPEG)

Image File Format: JPEG conforming DCF (Design rule for Camera File system)

Number of pixels: Between 34×34 and 6144×4096

Sub sampling: 4:2:2, 4:2:0

Thawing time: Approx. 1.9 sec (6 M pixels, JPEG)

Video (SD-Video)^{*5}

Codec: MPEG 2 (SD-Video Entertainment Video Profile)

File Format: SD-Video format conforming

Quick Start for Recording & EPG Display (Power Save: Off)

1 Sec. Quick Start for Recording & EPG Display^{*}

(when connecting to TV using 21-pin Scart, Component Video, Video or S-Video terminals)

^{*} From the power on, recording on, DVD-RAM and HDD starts in about 1 second after the REC button is pressed. If the GUIDE button is pressed while the unit is off, Electronic Program Guide (EPG) displays in less than 1 second. (Quick Start Mode).

Others

Regional Code: # 2

Operating temperature range: 5 °C to 40 °C

Operating humidity range: 10 % to 80 % RH (no condensation)

Dimensions (W × H × D): 430 mm × 59 mm × 326 mm

Mass: Approx. 4.2 kg

^{*1}Finalising is necessary for compatible playback.

^{*2}Conforming to IEC62107

This unit is not compatible with "Chaoji VCD" available on the market including CVD, DVCD and SVCD that do not conform to IEC62107.

^{*3}Includes miniSD cards. (A miniSD adaptor needs to be inserted.)

Includes microSD cards. (A microSD adaptor needs to be inserted.)

^{*4}Long file name is unsupported.

^{*5}Video Recording conversion and transfer is possible from card or Panasonic digital video camera with HDD etc, to HDD or DVD-RAM disc. After Video Recording conversion and transfer to HDD or DVD-RAM disc, the playback is possible.



Notes

- Specifications are subject to change without notice.
- Usable capacity will be less (SD Card).

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.

CAUTION!

- DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.
- DO NOT OBSTRUCT THE UNIT'S VENTILATION OPENINGS WITH NEWSPAPERS, TABLECLOTHS, CURTAINS, AND SIMILAR ITEMS.
- DO NOT PLACE SOURCES OF NAKED FLAMES, SUCH AS LIGHTED CANDLES, ON THE UNIT.
- DISPOSE OF BATTERIES IN AN ENVIRONMENTALLY FRIENDLY MANNER.

WARNING:

- TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE,
- DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.
 - USE ONLY THE RECOMMENDED ACCESSORIES.
 - DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

THIS UNIT IS INTENDED FOR USE IN MODERATE CLIMATES.

This product may receive radio interference caused by mobile telephones during use. If such interference is apparent, please increase separation between the product and the mobile telephone.

The socket outlet shall be installed near the equipment and easily accessible.

The mains plug of the power supply cord shall remain readily operable.

To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from AC receptacle.

CLASS 1
LASER PRODUCT



(Back of product)

DANGER - VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. FDA 21 CFR/Class IIb	
CAUTION - CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1+A2/Class 3B	
ATTENTION - RAYONNEMENT LASER VISIBLE ET INVISIBLE, CLASSE 3B. EN CAS D'OUVERTURE, EVITER UNE EXPOSITION AU FAISCEAU.	
FORSIGTIG - SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 3B. NÅR LÅGET ER ÅBENT, UNDGÅ AT BLIVE UDSAT FOR STRÅLEN.	
VARO - AVATTAESSA OLET ALTIIN LUKKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTELYÄ. VÄRÖ ALTISTUMISTA SÄTEELI.	
WARNING - KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA OEL ÄR ÖPPNAD. UNDVIK EXPOSERING FÖR STRÅLEN.	
VORSICHT - SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG KLASSE 3B. WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.	
注意 - 打开时有可见及不可见激光辐射。避免光束照射。	
注意 - ここを開くと可視及び不可視レーザー光が出ます。ビームを見たり、触れたりしないでください。VOL1J70	

(Inside of product)

- For your safety, be sure not to connect or handle the equipment with wet hands.
- Your attention is drawn to the fact that recording pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

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Matsushita Electric Industrial Co., Ltd.

Web Site: <http://panasonic.net>

Pursuant to at the directive 2004/108/EC, article 9(2)
Panasonic Testing Centre
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(En)

RQT9078-1B
F0208YU1038