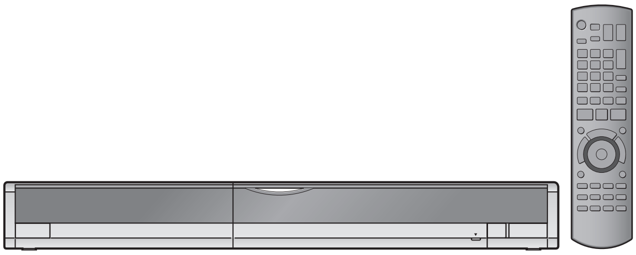
Operating Instructions

Panasonic®

DVD Recorder

Model No. **DMR-EX77**
DMR-EX87



The illustrations in these Operating Instructions show images of the silver model of DMR-EX77.

Instructions/notes regarding DVD-Audio are applicable to the DMR-EX87 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 DVD-Video marked with labels containing "**2**" or "**ALL**".

Example:

2 ALL 2 3 5

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.

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

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

For Germany

Declaration of Conformity No. 4520, 22th January 2007 (DMR-EX77)
Declaration of Conformity No. 4521, 22th January 2007 (DMR-EX87)

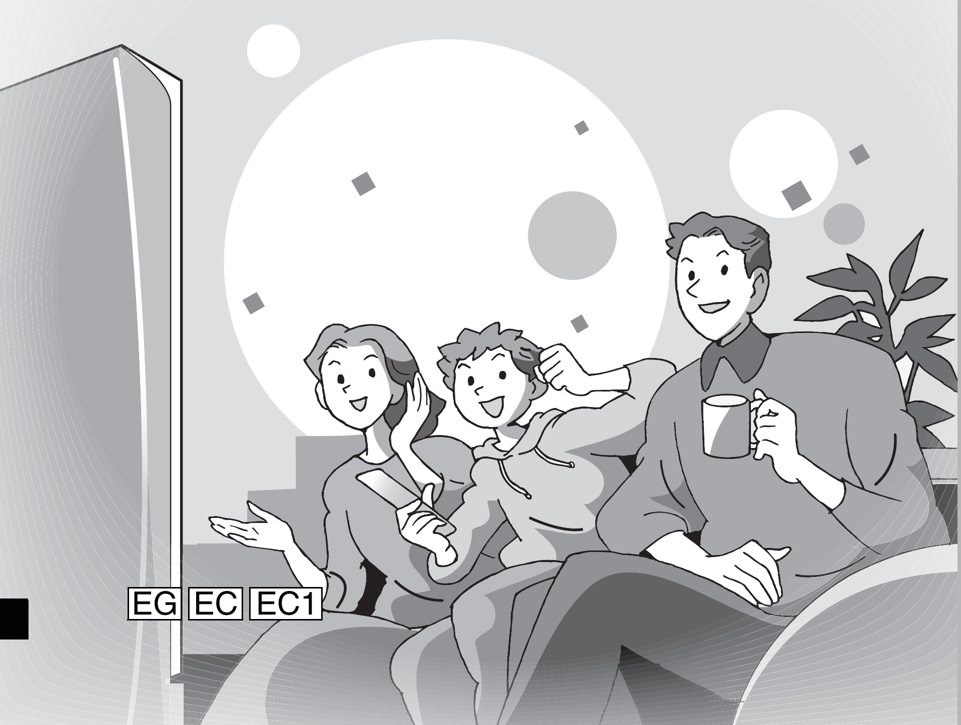
For France, Italy and Spain

Declaration of Conformity No. 4519, 22th January 2007 (DMR-EX77)
Declaration of Conformity No. 4523, 22th January 2007 (DMR-EX87)

Notice for DVB functions

- **Any function related to DVB (Digital Video Broadcasting) will work in areas where DVB-T (MPEG2) digital terrestrial broadcasting is received. Consult your local Panasonic dealer with coverage areas.**
- **This unit has the capability for DVB specifications. But future DVB services cannot be guaranteed.**
- **This unit does not support MHP (Multimedia Home Platform).**

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



EG EC EC1

CAUTION!

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

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE,

- **DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.**
- **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!

- **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.**

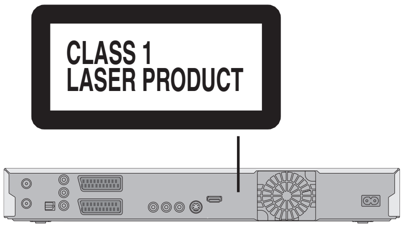
CAUTION

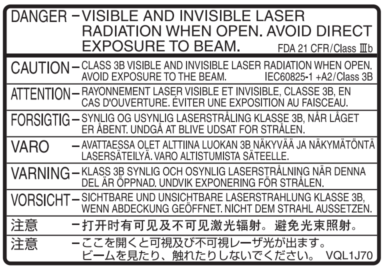
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

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.




DANGER – VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. FDA 21 CFR/Class IIIb
CAUTION – CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1 +A2/Class 3B
ATTENTION – RAYONNEMENT LASER VISIBLE ET INVISIBLE, CLASSE 3B, EN CAS D'OUVERTURE. ÉVITER UNE EXPOSITION AU FAISCEAU.
FORSIGTIG – SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 3B, NÅR LÅGET ER ÅBENT. UNDGÅ AT BLIVE UDSAT FOR STRÅLEN.
VARO – AVATTAESSA OLET ALTTIINA LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTÖNTÄ LASERSÄTEILYÄ. VARO ALTISTUMISTA SÄTEELLE.
VARNING – KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK EXPONERING FÖR STRÅLEN.
VORSICHT – SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG 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光が出ます。ビームを見たり、触れたりしないでください。 VQL1J70

(Inside of product)

Table of contents

Getting started

HDD, disc and card information 4
Important notes for recording 8
HDD (Hard disk drive) handling care 9
Disc and card handling 10
Unit care 10
Included accessories 11
The remote control information 11
Control reference guide 12
- Remote control 12
- Main unit 13
- The unit’s display 13

***STEP 1* Connection** 14
Linked operations with the TV (VIERA Link “HDAVI Control™”/Q Link) 18
***STEP 2* Channel reception settings and TV aspect settings** 20
***STEP 3* Set up to match your television and remote control** 21
- To enjoy progressive video 21

Viewing

Watching analogue and digital broadcasts 23
- Select the channel 23
- Digital channel information 23

Recording

Recording television programmes 24
- Disc Insertion/Ejection 25
- To specify a time to stop recording—One Touch Recording . . . 26
- Recording settings for High Speed Copy 26
- Flexible Recording 27
- Playing while you are recording 27

Timer recording 28
- Using the TV Guide system to make timer recordings (Digital broadcast only) 28
- Operations in the TV Guide system 29
- Using SHOWVIEW number to make timer recordings 30
- Manually programming timer recordings 30
- To cancel recording when recording has already begun 31
- To release the unit from recording standby 31
- Notes on timer recording 31
- Check, change or delete a programme 32
- Relief Recording 32
- Auto Renewal Recording 32

Recording broadcasts from external equipment 33
- Making timer recordings on the television 33
- Recording from digital satellite receiver or analogue decoder . . 33
- Linked timer recordings with external equipment (digital satellite receiver) — EXT LINK 33

Playing back

Playing recorded video contents/ Playing play-only discs 34
- Operations during play 35
- Changing audio during play 36

Playing DivX discs, MP3 discs and still pictures (JPEG) 37
- Regarding DivX discs, MP3 discs and still pictures (JPEG) 37
- Selecting file type to play 38
- Playing DivX discs 38
- Playing MP3 discs 39
- Playing still pictures 40
- Useful functions during still picture play 41

Using on-screen menus/Status message 42
- Using on-screen menus 42
- Status messages 43

Editing

Editing titles/chapters 44
- Editing titles/chapters and playing chapters 44
- Title operations 45
- Chapter operations 45

Creating, editing and playing playlists 46
- Creating playlists 46
- Editing and playing playlists/chapters 47
- Playlist operations 47
- Chapter operations 47

Editing still pictures 48
- Album and picture operation 49

Delete Navigator 50
- Using the DELETE Navigator to delete 50
- Deleting titles or pictures during play 50

Copying

Copying titles or playlists 51
- Copy 52
- Copying using the copying list—Advanced Copy 53
- Copying a finalised DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R and +R DL 55
- Copying SD Video from an SD Card 55

Copying still pictures 56
- Copying using the copying list 56
- Copying all the still pictures on a card—Copy All Pictures 57

Copying from a video cassette recorder 58
- Manual recording 58
- DV automatic recording (DV Auto Rec) 58

Convenient functions

Entering text 59
HDD, disc and card management 60
- Common procedures 60
- Setting the protection 60
- Providing a name for a disc 60
- Deleting all titles and playlists—Delete all titles 61
- Deleting all the contents of a disc or card—Format 61
- Selecting the background style—Top Menu 62
- Selecting whether to show the Top Menu first —Auto-Play Select 62
- Enabling discs to be played on other equipment—Finalise 62
- Creating Top Menu—Create Top Menu 62

FUNCTION MENU window 63
Child Lock 63
Changing the unit’s settings 64
- Common procedures 64
- Summary of settings 64
- Tuning 69
- TV System 72
- Clock Setting 73

Reference

Messages 74
Frequently asked questions 76
Troubleshooting guide 78
Glossary 84
Specifications 86
Safety precautions 87
Index . . . . Back cover

About descriptions in these operating instructions

- These operating instructions are applicable to models DMR-EX77 and DMR-EX87. Unless otherwise indicated, illustrations in these operating instructions are of DMR-EX77 for Germany.
  EX77 : indicates features applicable to DMR-EX77 only.
  EX87 : indicates features applicable to DMR-EX87 only.
  For Germany : indicates features applicable in Germany.
  For France, Italy and Spain : indicates features applicable in France, Italy and Spain.
- **Instructions/notes regarding DVD-Audio are applicable to the DMR-EX87 model only.**
- Pages to be referred to are indicated as “➡ ○○”.

HDD, disc and card information

HDD and discs you can use for recording and play

Disc type	**Hard disk drive (HDD)** ● EX77 160 GB EX87 250 GB	**DVD-RAM** ●4.7 GB/9.4 GB, 12 cm ●2.8 GB, 8 cm
Logo	–	DVD RAM RAM4.7
Indicated in these instructions by	HDD	RAM
Recording format	**DVD Video Recording format** This is a recording format which allows you to record and edit television broadcasts and so on. ●You can delete unwanted parts of a title, create playlists, etc. ●The broadcasts that allow "One time only recording" can be recorded to a CPRM compatible disc.	
Data that can be recorded and played	**Video** **Still pictures**	**Video** **Still pictures**
Re-writable	○	○
Play on other players※2	–	Only on DVD-RAM compatible players.
Compatible with high speed recording※3	–	Up to 5X recording speed discs.
What you can do on this unit (○ : Can do, – : Cannot do)		
Recording broadcasts that allow one copy	○	○ [CPRM (➡ 84) compatible discs only.]
Recording both M 1 and M 2 for bilingual broadcasts※4	○	○
Recording 16:9 aspect picture※4	○	○
Creating and editing playlists	○	○

Disc type	**DVD-R**※1 ●4.7 GB, 12 cm ●1.4 GB, 8 cm	**DVD-R DL**※1 (dual layer on single side) ●**You cannot directly record to a DVD-R DL disc on this unit (➡ 8)**	**DVD-RW** ●4.7 GB, 12 cm ●1.4 GB, 8 cm
Logo	DVD R R4.7	DVD R R DL	DVD R W
Indicated in these instructions by	-R before finalisation	-R DL before finalisation	-RW(V) before finalisation
	DVD-V after finalisation	DVD-V after finalisation	DVD-V after finalisation
Recording format	**DVD-Video format** This recording format is the same as commercially available DVD-Video. ●The broadcasts that allow "One time only recording" cannot be recorded.		
Data that can be recorded and played	**Video**	**Video**	**Video**
Re-writable	–	–	○
Play on other players※2	Only after finalising the disc (➡ 62, 84).	Only on DVD-R DL compatible players after finalising the disc (➡ 62, 84).	Only after finalising the disc (➡ 62, 84).
Compatible with high speed recording※3	Up to 16X recording speed discs.	Up to 8X recording speed discs.	Up to 6X recording speed discs.
What you can do on this unit (○ : Can do, – : Cannot do)			
Recording broadcasts that allow one copy	–	–	–
Recording both M 1 and M 2 for bilingual broadcasts※4	– [Only one is recorded.(➡ 66, Bilingual Audio Selection)]	– [Only one is recorded.(➡ 66, Bilingual Audio Selection)]	– [Only one is recorded.(➡ 66, Bilingual Audio Selection)]
Recording 16:9 aspect picture※4	○	○	○
Creating and editing playlists	–	–	–

(continued on the next page)

HDD and discs you can use for recording and play

(continued)

Disc type	**+R**[1] [5] ●4.7 GB, 12 cm	**+R DL**[1] (double layer on single side) ●**You cannot directly record to a +R DL disc on this unit (➡ 8)**	**+RW**
Logo	–	–	–
Indicated in these instructions by	**+R** before finalisation **DVD-V** after finalisation	**+R DL** before finalisation **DVD-V** after finalisation	**+RW**
Recording format	**+VR (+R/+RW Video Recording) format** This is a format for recording moving pictures to +R/+RW discs. You can playback such discs recorded in this format in a similar way as contents recorded in the DVD-Video format. ●The broadcasts that allow “One time only recording” cannot be recorded. ●After finalising the disc or creating the top menu, you can play the disc on DVD players and other equipment.		
Data that can be recorded and played	Video	Video	Video
Re-writable	–	–	○
Play on other players[2]	Only after finalising the disc (➡ 62, 84).	Only on +R DL compatible players after finalising the disc (➡ 62, 84).	Only on +RW compatible players.
Compatible with high speed recording[3]	Up to 16X recording speed discs.	Up to 8X recording speed discs.	Up to 4X recording speed discs.[6]
What you can do on this unit (○ : Can do, – : Cannot do)			
Recording broadcasts that allow one copy	–	–	–
Recording both M 1 and M 2 for bilingual broadcasts[4]	– [Only one is recorded.(➡ 66, Bilingual Audio Selection)]	– [Only one is recorded.(➡ 66, Bilingual Audio Selection)]	– [Only one is recorded.(➡ 66, Bilingual Audio Selection)]
Recording 16:9 aspect picture[4]	– (The picture is recorded in 4:3 aspect.)	– (The picture is recorded in 4:3 aspect.)	– (The picture is recorded in 4:3 aspect.)
Creating and editing playlists	–	–	–

[1] The amount of the recordable disc space doesn’t increase even if the programme is deleted when you use discs that can only be used for recording once.

[2] **RAM** Can be played on Panasonic DVD Recorders and DVD-RAM compatible DVD players.
If you play a DVD-R DL, +R DL or +RW, use compatible equipment.

[3] The high speed recording discs listed here are compatible with this unit. However, this is not the copy speed.

[4] For further information **(➡ 8, Important notes for recording)**

Note
When “Rec for High Speed Copy” is set to “On”, the restrictions on secondary audio recording are also applied to DVD-RAM. Turn this setting “Off” if high speed copy to DVD-R, etc. is not necessary when recording a programme (The default setting is “On”. ➡ 65).

[5] +R discs recorded with this unit and +R discs recorded with another Panasonic DVD Recorder may be incompatible. However, discs that are finalised are compatible and can be played.

[6] You can play 8X recording speed discs recorded on another equipment.

- We recommend using Panasonic discs and cards. We also recommend using DVD-RAM discs with cartridges to protect them from scratches and dirt.
- You may not be able to record depending on the condition of the discs and you may not be able to play due to the condition of the recording.
- You cannot record programmes that allow “One time only recording” to CPRM compatible DVD-R and DVD-RW on this unit.
- 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.)

Finalise
A process that makes play of a recorded disc possible on equipment that can play such media. After finalising, the disc becomes play-only and you can no longer record or edit. (➡ 62)

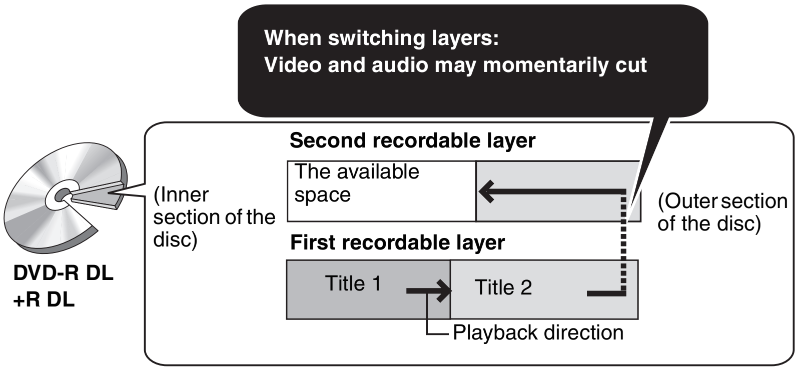
Formatting
Formatting is the process of making media such as DVD-RAM recordable on recording equipment. (➡ 61)
Formatting permanently deletes all contents.

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.



■ Recording modes and approximate recording times (➡ 25)

Play-only discs (12 cm/8 cm)

Disc type	**DVD-Video**		**DVD-Audio (EX87)**	**DVD-RW (DVD Video Recording format)**
Logo	DVD VIDEO	DVD VIDEO	DVD AUDIO	DVD R W
Indicated in these instructions by	DVD-V		DVD-A	-RW(VR)
Instructions	High quality movie and music discs		High fidelity music discs ●Played on this unit in 2 channels.	DVD-RW recorded on another DVD Recorder ●You can play programmes that allow "One time only recording" if they have been recorded to a CPRM compatible disc. ●By formatting (➡ 61) the disc, you can record to it in DVD-Video format and play it on this unit. ●It may be necessary to finalise the disc on the equipment used for recording.

Disc type	**DVD-R**	**DVD-R DL**	**CD**		**Video CD**	**SVCD**
Logo	DVD R R4.7	DVD R R DL	COMPACT disc DIGITAL AUDIO	–	COMPACT disc DIGITAL VIDEO	COMPACT disc SUPER VIDEO
Indicated in these instructions by	**DivX, MP3, JPEG**	**DivX, MP3, JPEG**	CD	**DivX, MP3, JPEG**	VCD	
Instructions	●DVD-R※ with video recorded in DivX ●DVD-R※ with music recorded in MP3 ●DVD-R※ with still pictures recorded in JPEG	●DVD-R DL※ with video recorded in DivX ●DVD-R DL※ with music recorded in MP3 ●DVD-R DL※ with still pictures recorded in JPEG	Recorded audio and music (including CD-R/RW※)	●CD-R and CD-RW※ with video recorded in DivX ●CD-R and CD-RW※ with music recorded in MP3 ●CD-R and CD-RW※ with still pictures recorded in JPEG	Recorded music and video (including CD-R/RW※)	

※ Close the session after recording. Play may be impossible on some discs due to the condition of the recording.

- The producer of the disc can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.
- Operation and sound quality of CDs that do not conform to CD-DA specifications (copy control CDs, etc.) cannot be guaranteed.

Regarding DVD-Audio EX87
Some multi-channel DVD-Audio will prevent down-mixing (➡ 84) of all or part of their contents if this is the manufacturer's intention. Tracks that are prevented from being down-mixed will not play properly on this unit (e.g. audio is played from the front two channels only). Refer to the disc's jacket for more information.

Discs that cannot be played

- 2.6 and 5.2 GB DVD-RAM, 12 cm
- 3.95 and 4.7 GB DVD-R for Authoring
- DVD-R, DVD-R DL, DVD-RW, +R, +R DL recorded on another unit and not finalised (➡ 84).
- Discs recorded with AVCHD format
- DVD-Video with a region number other than "2" or "ALL"
- DVD-Audio (EX77)
- 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" (➡ 72).

- When playing back a title recorded on the HDD, ensure that you match the "TV System" setting to the title (PAL or NTSC) (➡ 72).

Cards you can use on this unit

Type	**SD Memory Card (from 8 MB to 2 GB)** **SDHC Memory Card (4 GB)** **miniSD Card**※ **MultiMediaCard** The card types mentioned above will be referred to as “SD Card” in these operating instructions.
Indicated in these instructions by	**SD**
Data that can be recorded and played	**Still pictures** **Video (SD Video)**
Instructions	You can insert directly into the SD Card slot. ※ A miniSD card adaptor included with the miniSD card is necessary. ●You can play and copy still pictures taken on a digital camera etc. (➡ 40, 56). ●SD Video shot with a Panasonic SD Video camera, etc. can be copied to the HDD or DVD-RAM. (➡ 55) ●SD Video cannot be played directly from the SD Card.

Suitable SD Cards

- When using 4 GB SD Memory Cards, only SD Memory Cards that display the SDHC logo can be used.
- Useable 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.)

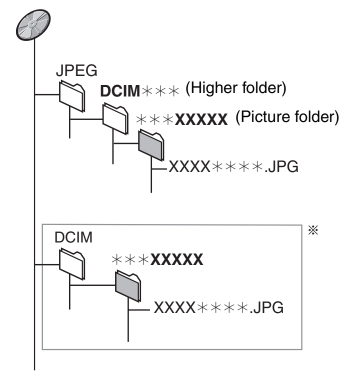
- If the SD Card is formatted on other equipment, the time necessary for recording may be longer. Also, if the SD Card is formatted on a PC, you may not be able to use it on this unit. In these cases, format the card on this unit (➡ 61, 84).
- This unit is compatible with SD Memory Cards that meet SD Card Specifications FAT 12 and FAT 16 formats, as well as SDHC Memory Cards in FAT 32 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 displayed by this unit

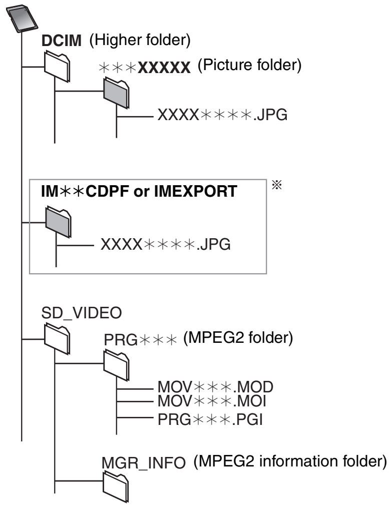
The following 📁 can be displayed on this unit.

∗∗∗: Numbers XXX: Letters

DVD-RAM



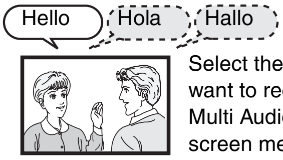
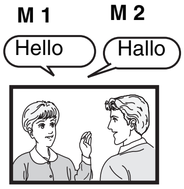
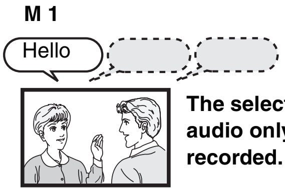
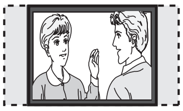
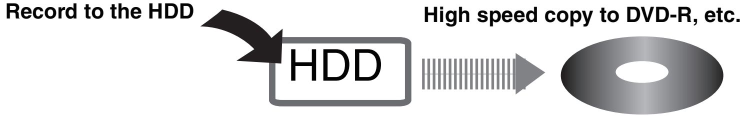
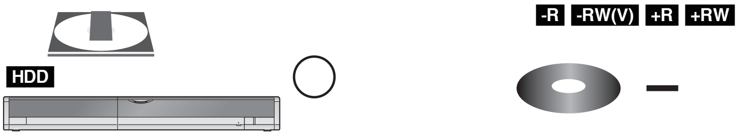
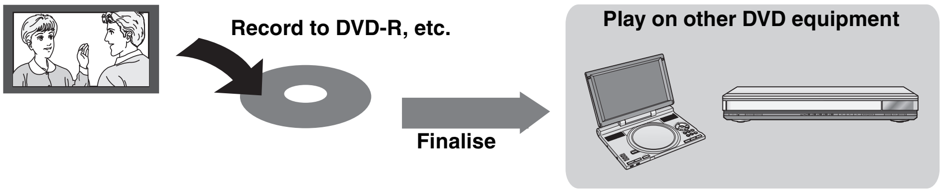
Card



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

- The folder cannot be displayed if the numbers are all “0” (e.g., DCIM000, etc.).
- 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.

Important notes for recording

Selecting Audio for Recording	**Broadcast in multi-channel sound (Digital broadcast only):** You can select the audio language when receiving audio in multi channel broadcast [“Multi Audio” appears at the bottom of digital channel information display (➡ 23)]. However, audio cannot be switched after recording.  Select the audio that you want to record in “DVB Multi Audio” in the on-screen menu (➡ 43). **Bilingual broadcasts (Analogue broadcast only):** **HDD** **RAM** **Both main and secondary audio can be recorded.** You can change the audio during playback. (➡ 36, Changing audio during play) However in the following cases, select whether to record the main or secondary audio: –Recording sound in LPCM (➡ 66, Audio Mode for XP Recording) –“Rec for High Speed Copy” is set to “On” (The default setting is “On”. ➡ 65)  If you record from external equipment –Select both “M 1” and “M 2” on the external equipment. **-R** **-RW(V)** **+R** **+RW** **Select the main or secondary audio before recording** (➡ 66, Bilingual Audio Selection)  **The selected audio only is recorded.** If you record from external equipment –Select “M 1” or “M 2” on the external equipment.
About the aspect when recording a programme	**HDD** **RAM** **-R** **-RW(V)** Recordings will be made using the “Aspect for Recording” in the Setup menu. (The default setting is “4:3” ➡ 65) 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. **+R** **+RW** **Recorded in 4:3 aspect** 
When you want to copy titles in high speed mode from the HDD to DVD-R, etc.	**Set “Rec for High Speed Copy” to “On” before recording to the HDD. (The default setting is “On”. ➡ 65)** 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. 
When recording the “One time only recording” broadcasts	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 (➡ 84) compatible DVD-RAM. **RAM** CPRM compatible discs only.  **(○: 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 (➡ 62).** 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
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.

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

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 saving recorded content to a disc.

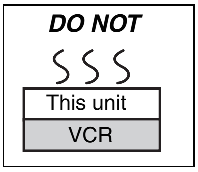
■ Immediately save (backup) all content as soon as you feel there may be a problem with the HDD

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 HDD has been automatically entered energy save mode (➡ below), or 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.)

■ The HDD automatically enters energy save mode

The HDD has been automatically entered energy save mode. (The HDD continues to rotate at high speed while the unit is on. In order to extend the life of the HDD, the HDD will be entered energy save mode if no operation has been performed for 30 minutes while there is no disc on the disc tray.)

- While in energy save mode play or recording may not start right away because the HDD takes time to be re-activated.
- When not using the unit, we recommend removing the disc in the tray in order to set the HDD to the energy save mode.

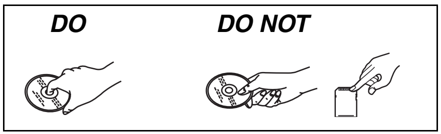
■ Indemnity concerning recorded content

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

Disc and card handling

■ How to hold a disc or card

Do not touch the recorded surface or the terminal surface.

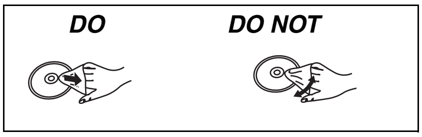


■ Concerning non-cartridge discs

Be careful about scratches and dirt.

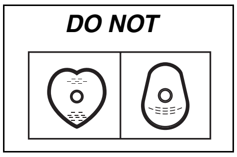
■ If there is dirt or condensation on the disc

Wipe with a damp cloth and then wipe dry.



■ Handling precautions

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



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

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.

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.

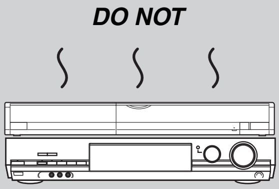
Dust and dirt may adhere to the unit's lens over time, making it impossible to record or play discs.

Use the **DVD lens cleaner** 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 (For France, Italy and Spain)
- This lens cleaner may not be for sale depending on the region.

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

The heat can damage the unit.



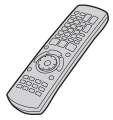
Note

Do not obstruct the rear panel's internal cooling fan.

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

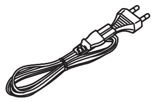
Included accessories

☑ Please check and identify the supplied accessories.
(Product numbers correct as of March 2007. These may be subject to change.)

☐


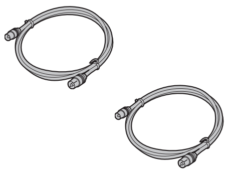
For Germany
(N2QAYB000128)
For France, Italy and Spain
(N2QAYB000129)

1 Remote control

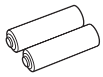
☐


1 AC mains lead

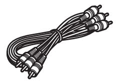
- For use with this unit only. Do not use it with other equipment. Also, do not use cords for other equipment with this unit.

☐


2 RF coaxial cables

☐


2 Batteries
for remote control

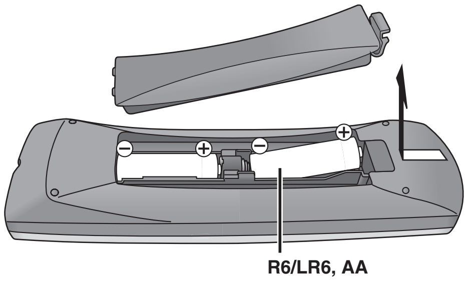
☐


1 Audio/video cable

The remote control information

■ Batteries

- Insert so the poles (+ and −) match those in the remote control.
- When closing the lid, insert it from the − (minus) side.

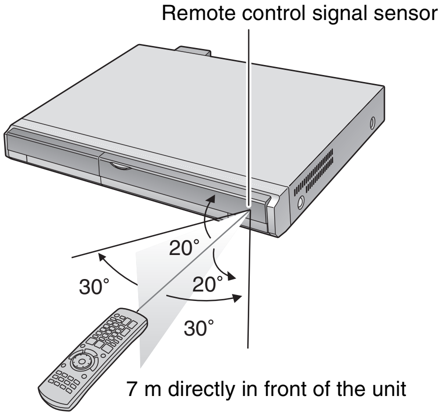


- Do not use rechargeable type batteries.
- Do not mix old and new batteries.
- Do not use different types at the same time.
- Do not heat or expose to flame.
- Do not take apart or short circuit.
- Do not attempt to recharge alkaline or manganese batteries.
- Do not use batteries if the covering has been peeled off.

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

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

■ Use


Remote control signal sensor
20°
30°
20°
30°
7 m directly in front of the unit

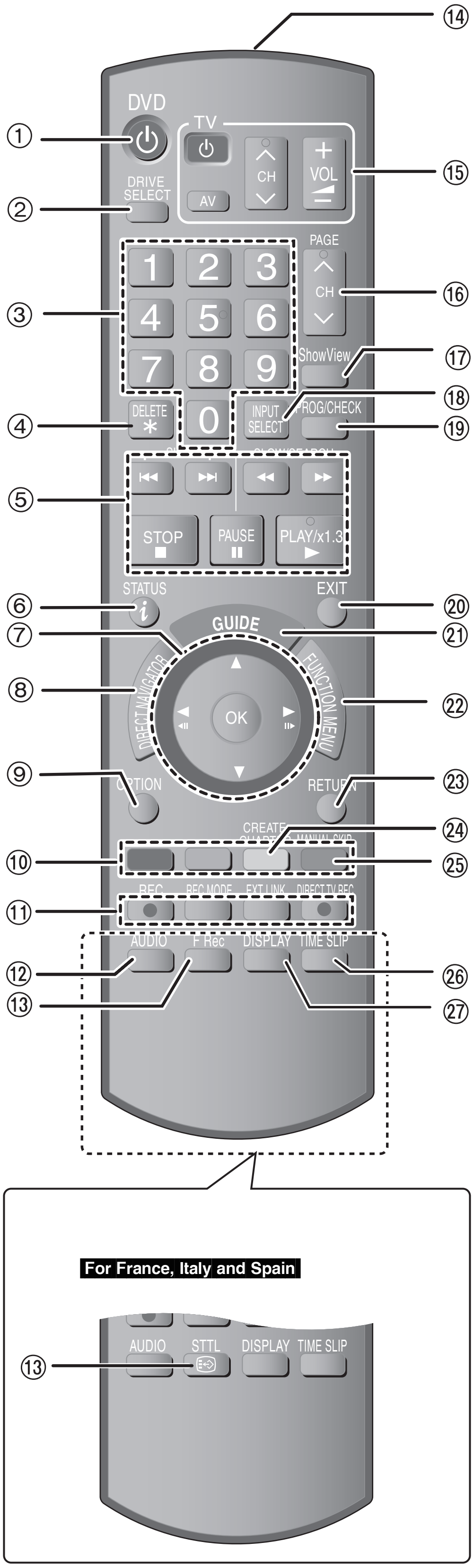
Remote control operations (➡ 12)

Control reference guide

Remote control

Instructions for operations are generally described using the remote control.

For Germany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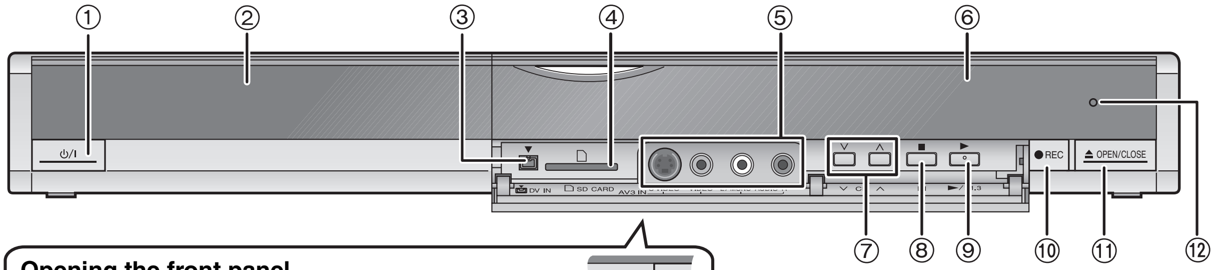
DVD
TV
DRIVE SELECT
AV
CH
VOL
PAGE
ShowView
DELETE
INPUT SELECT
PROG/CHECK
STOP
PAUSE
PLAY/x1.3
STATUS
EXIT
GUIDE
DIRECT NAVIGATOR
FUNCTION MENU
OK
OPTION
RETURN
CREATE CHAPTER
MANUAL SKIP
REC
REC MODE
EXT LINK
DIRECT TV REC
AUDIO
F Rec
DISPLAY
TIME SLIP
For France, Italy and Spain
AUDIO
STTL
DISPLAY
TIME SLIP

① Turn the unit on (➡ 20)
② Select drive HDD, DVD or SD (➡ 24, 34, 40)
Drive changes each time you press [DRIVE SELECT].
③ Select channels and title numbers, etc./Enter numbers
④ To delete unnecessary recorded titles or still pictures (➡ 50)
⑤ Basic operations for recording and play
⑥ Show digital channel information (➡ 23)/Programme information within TV Guide screen (➡ 29)/status messages (➡ 43)
⑦ Selection/OK, Frame-by-frame (➡ 36)
⑧ Show Top Menu/DIRECT NAVIGATOR (➡ 34, 35, 44)
⑨ Show OPTION menu (➡ 44)
This menu is used when playing or editing titles and still pictures, etc.
⑩ Use Colour buttons according to on-screen instructions.
"Red" button for TV Guide screen (➡ 29)/Timer Recording screen (➡ 31)/DIRECT NAVIGATOR (➡ 34)/Edit Profiles screen (➡ 69)/ DVB Manual Tuning screen (➡ 70)/Analogue Manual Tuning screen (➡ 71)
"Green" button for TV Guide screen (➡ 29)/DIRECT NAVIGATOR (➡ 40)/Edit Profiles screen (➡ 69)
"Yellow" button for TV Guide screen (➡ 29)/Edit Profiles screen (➡ 69)
"Blue" button for digital channel information (➡ 23)/TV Guide screen (➡ 29)/Timer Recording screen (➡ 30)/Edit Profiles screen (➡ 69)
⑪ Recording functions
[● REC] Start recording (➡ 24)
[REC MODE] Change recording mode (➡ 24)
[EXT LINK] Linked timer recordings with external equipment (➡ 33)
[● DIRECT TV REC] Direct TV recording (➡ 18)
⑫ Select audio (Analogue broadcast only)(➡ 36)
⑬ **For Germany** Start Flexible Recording (➡ 27)
For France, Italy and Spain
Show subtitles (Subtitles can be viewed if the digital broadcast programme has subtitles.)(➡ 23)
⑭ Transmit the remote control signal
⑮ Television operations (➡ 21)
⑯ Channel select/Change pages in the TV Guide system (➡ 24, 29)
⑰ Show SHOWVIEW screen (➡ 30)
⑱ Input select (AV1, AV2, AV3 or DV) (➡ 33, 58)
⑲ Show Timer Recording screen (➡ 30)
⑳ Exit the menu screen
㉑ Show the TV Guide screen (➡ 28)
㉒ Show FUNCTION MENU window (➡ 63)
By using the FUNCTION MENU window you may access the main functions (Playback, Recording, etc.) quickly and easily.
㉓ Return to previous screen
㉔ Create chapter (➡ 36)
㉕ Skip approx. 30 seconds forward (➡ 36)
㉖ Skip the specified time (➡ 36)
㉗ Show on-screen menu (➡ 42)
Menu for disc playback and switching audio (Digital broadcast) etc.

Main unit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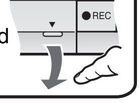
⑥
⏻/I
▼
DV IN
SD CARD
AV3 IN
●REC
≜ OPEN/CLOSE
⑦
⑧
⑨
⑩
⑪
⑫

Opening the front panel

Place your finger on the protruding section below the ▼ and press down to flip open the front panel.



① **Standby/on switch (⏻/I)** (➡ 20)
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 Disc tray (➡ 24, 34)
③ Connection for digital video (DV) camcorder (➡ 58)
④ SD Card slot (➡ below)
⑤ Connection for VCR, camcorder etc. (➡ 16, 58)
⑥ Display (➡ below)
⑦ Channel select (➡ 24)
⑧ Stop (➡ 24, 35)
⑨ Start play (➡ 34)
⑩ Start recording (➡ 24)/Specify a time to stop recording (➡ 26)
⑪ Open/close disc tray (➡ 24, 34)
⑫ Remote control signal sensor

Rear panel terminals (➡ 14–17)

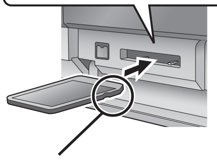
Inserting, Removing the SD Card

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.**
- You can use SD Cards with capacities from 8 MB to 4 GB (➡ 7).

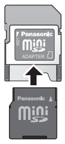
Inserting the card

Press on the centre of the card until it clicks into place.



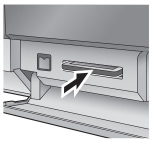
Insert the card label up with the cut-off corner on the right.

If you are using a miniSD card, insert it into the miniSD card adaptor that comes with the card.
Insert and remove this adaptor from the unit.


Panasonic
mini SD
ADAPTER
Panasonic
mini SD

Removing the card

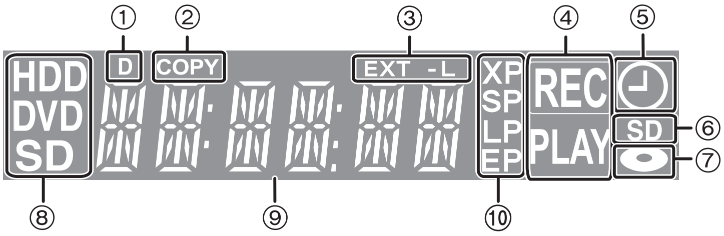
❶ Press on the centre of the card.
❷ Pull it straight out.



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 (➡ 40, 56).
If you remove an SD Card, the HDD drive is automatically selected.

The unit’s display


①
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HDD
DVD
SD
D
COPY
EXT -L
XP
SP
LP
EP
REC
PLAY
SD
⑥
⑦
⑧
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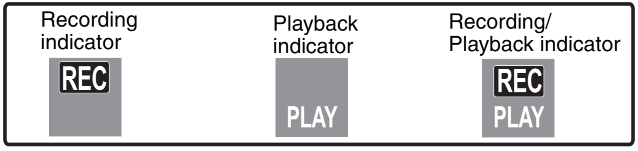
① Digital broadcast indicator
Lights when the unit is receiving digital broadcast or TV Guide data.
② Copying indicator
③ Linked timer recordings with external equipment indicator
④


Recording indicator
REC
Playback indicator
PLAY
Recording/ Playback indicator
REC
PLAY

⑤ Timer recording indicator
⑥ SD Card slot indicator
⑦ Disc indicator
⑧ Drive HDD, DVD or SD indicator
⑨ Main display section indicator
⑩ Recording mode indicator

STEP 1 Connection

Make sure to use the pair of supplied RF coaxial cables

Use the pair of supplied RF coaxial cables only when you make connections to the unit through its RF IN and RF OUT terminals. Striping may appear and disrupt images on the TV if you use different cables for connection.

Using a 21-pin Scart cable

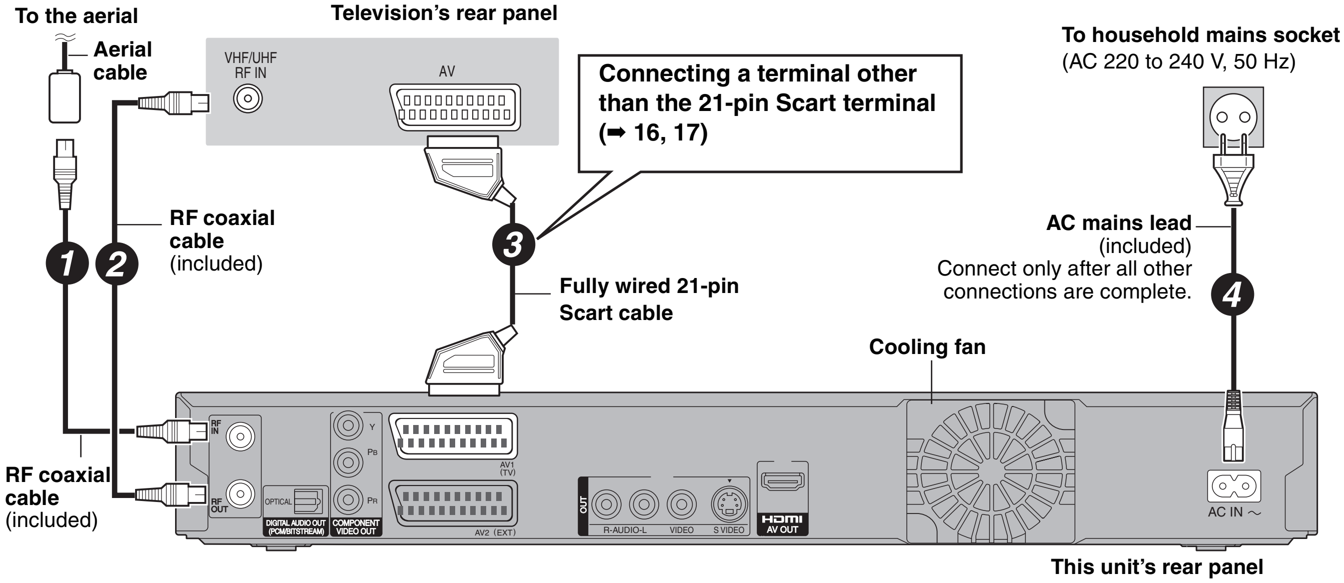
- You can use a variety of Q Link functions by connecting the unit to a Q Link compatible television (➡ 18).
- You can enjoy high-quality viewing by connecting the unit to an RGB compatible television (➡ 85).
  Required setting “AV1 Output” in the Setup menu (➡ 67)

- Before connection, turn off all equipment and read the appropriate operating instructions.
- **Select the connection pattern that matches your environment from pattern A–D. Confirm connections not listed below with your dealer.**

When the unit is not to be used for a long time
To save power, unplug it from the household mains socket. This unit consumes a small amount of power, even when it is turned off **[approx. 2 W (Power Save mode)]**

When “Power Save” is set to “On”, the “Quick Start” function does not work.

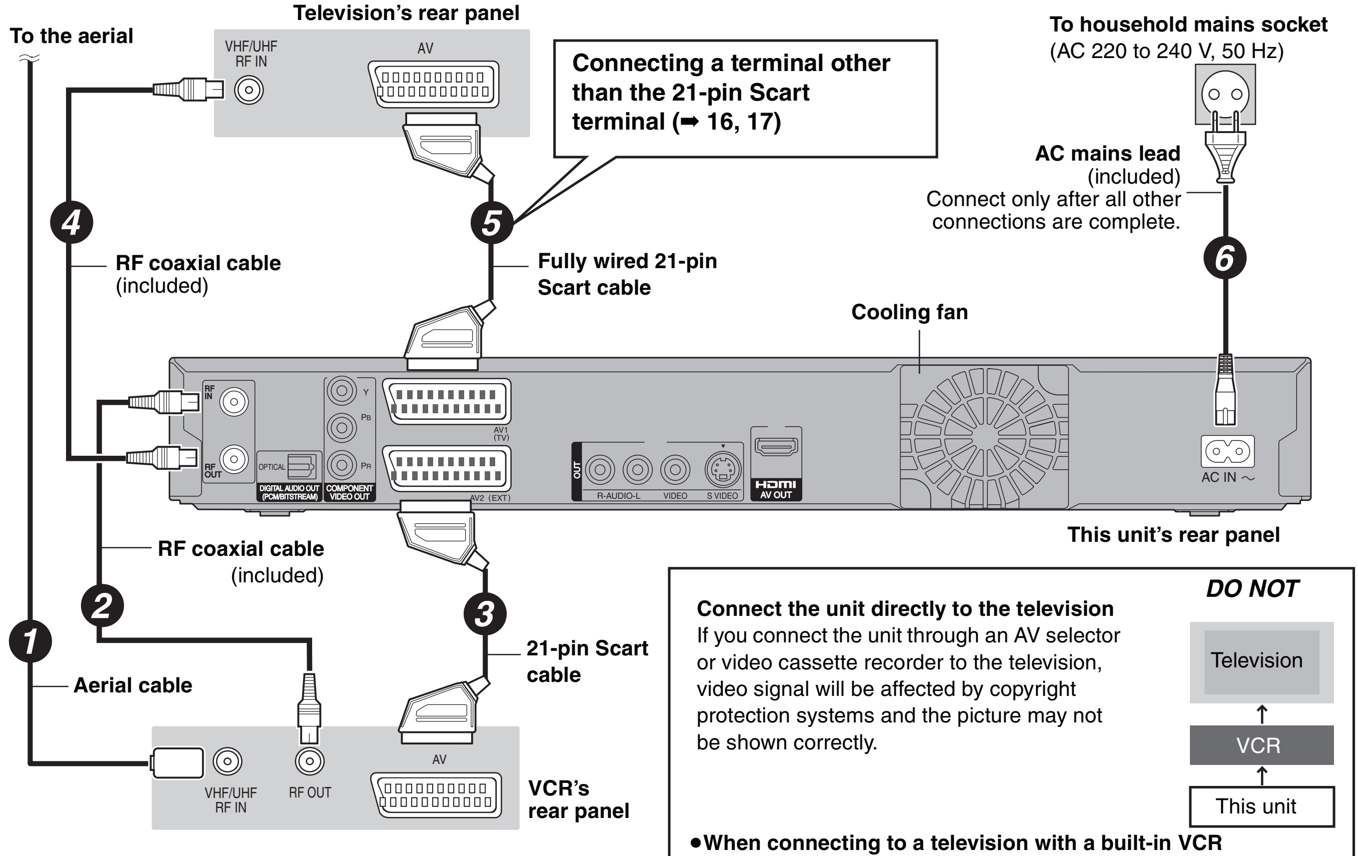
A Connecting a television


To the aerial
Aerial cable
Television’s rear panel
VHF/UHF RF IN
AV
To household mains socket (AC 220 to 240 V, 50 Hz)
RF coaxial cable (included)
1
2
3
Fully wired 21-pin Scart cable
AC mains lead (included)
4
Cooling fan
RF coaxial cable (included)
RF IN
RF OUT
OPTICAL
DIGITAL AUDIO OUT (PCM/BITSTREAM)
Y
PB
PR
COMPONENT VIDEO OUT
AV1 (TV)
AV2 (EXT)
OUT
R-AUDIO-L
VIDEO
S VIDEO
HDMI AV OUT
AC IN ~
This unit’s rear panel

Connecting a terminal other than the 21-pin Scart terminal (➡ 16, 17)

Connect only after all other connections are complete.

B Connecting a television and VCR


To the aerial
Television’s rear panel
VHF/UHF RF IN
AV
To household mains socket (AC 220 to 240 V, 50 Hz)
AC mains lead (included)
4
5
6
RF coaxial cable (included)
Fully wired 21-pin Scart cable
Cooling fan
RF IN
RF OUT
OPTICAL
DIGITAL AUDIO OUT (PCM/BITSTREAM)
Y
PB
PR
COMPONENT VIDEO OUT
AV1 (TV)
AV2 (EXT)
OUT
R-AUDIO-L
VIDEO
S VIDEO
HDMI AV OUT
AC IN ~
This unit’s rear panel
RF coaxial cable (included)
2
3
1
21-pin Scart cable
Aerial cable
AV
VHF/UHF RF IN
RF OUT
VCR’s rear panel

Connecting a terminal other than the 21-pin Scart terminal (➡ 16, 17)

Connect only after all other connections are complete.

DO NOT

Connect the unit directly to the television
If you connect the unit through an AV selector or video cassette recorder to the television, video signal will be affected by copyright protection systems and the picture may not be shown correctly.

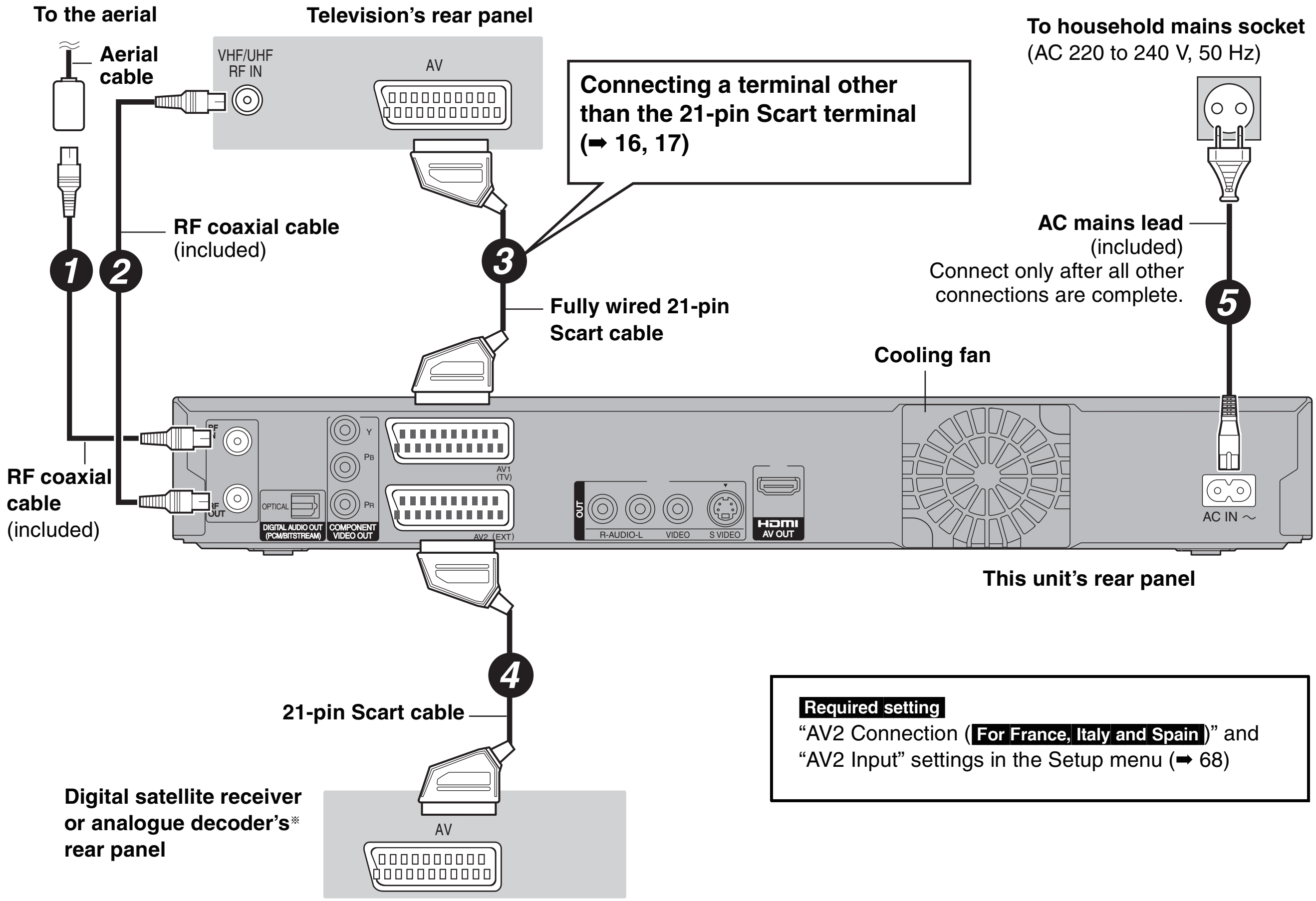
Television
↑
VCR
↑
This unit

- **When connecting to a television with a built-in VCR**
  Connect to the input terminals on the television side if there are both television and VCR input terminals.

Required setting
“AV2 Connection (**For France, Italy and Spain**)” and “AV2 Input” settings in the Setup menu (➡ 68)

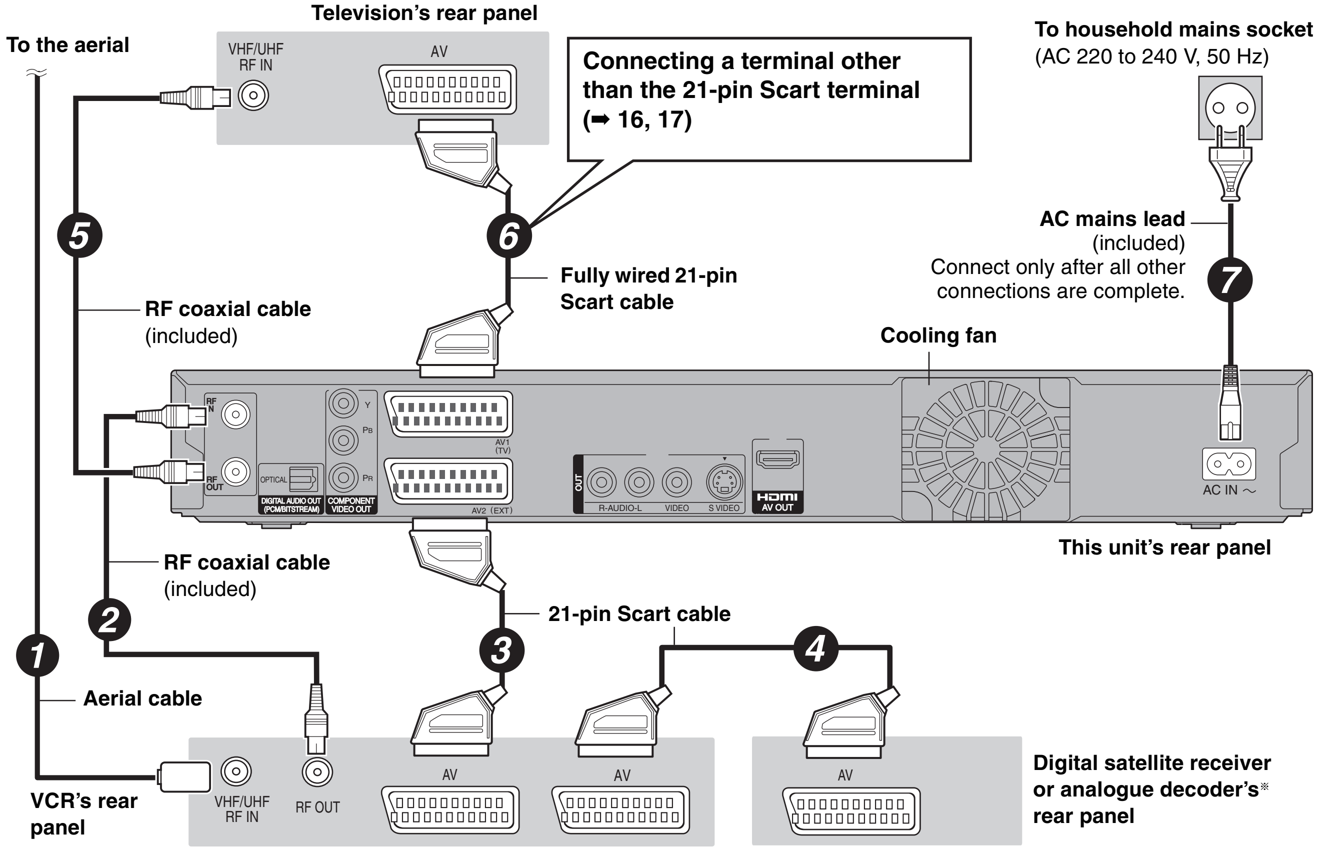
※ Information about the Decoder is for France, Italy and Spain only.

C Connecting a television and digital satellite receiver or analogue decoder※


To the aerial
Aerial cable
Television's rear panel
VHF/UHF RF IN
AV
Connecting a terminal other than the 21-pin Scart terminal (➡ 16, 17)
To household mains socket
(AC 220 to 240 V, 50 Hz)
RF coaxial cable (included)
1
2
3
Fully wired 21-pin Scart cable
AC mains lead
(included)
Connect only after all other connections are complete.
5
Cooling fan
RF IN
RF OUT
OPTICAL
DIGITAL AUDIO OUT (PCM/BITSTREAM)
COMPONENT VIDEO OUT
Y
PB
PR
AV1 (TV)
AV2 (EXT)
OUT
R-AUDIO-L
VIDEO
S VIDEO
HDMI AV OUT
AC IN ~
RF coaxial cable (included)
This unit's rear panel
4
21-pin Scart cable
Digital satellite receiver or analogue decoder's※ rear panel
AV

Required setting
"AV2 Connection (**For France, Italy and Spain**)" and "AV2 Input" settings in the Setup menu (➡ 68)

D Connecting a television and VCR, digital satellite receiver or analogue decoder※


Television's rear panel
To the aerial
VHF/UHF RF IN
AV
Connecting a terminal other than the 21-pin Scart terminal (➡ 16, 17)
To household mains socket
(AC 220 to 240 V, 50 Hz)
5
6
Fully wired 21-pin Scart cable
RF coaxial cable (included)
AC mains lead
(included)
Connect only after all other connections are complete.
7
Cooling fan
RF IN
RF OUT
OPTICAL
DIGITAL AUDIO OUT (PCM/BITSTREAM)
COMPONENT VIDEO OUT
Y
PB
PR
AV1 (TV)
AV2 (EXT)
OUT
R-AUDIO-L
VIDEO
S VIDEO
HDMI AV OUT
AC IN ~
This unit's rear panel
RF coaxial cable (included)
2
21-pin Scart cable
1
3
4
Aerial cable
VCR's rear panel
VHF/UHF RF IN
RF OUT
AV
AV
AV
Digital satellite receiver or analogue decoder's※ rear panel

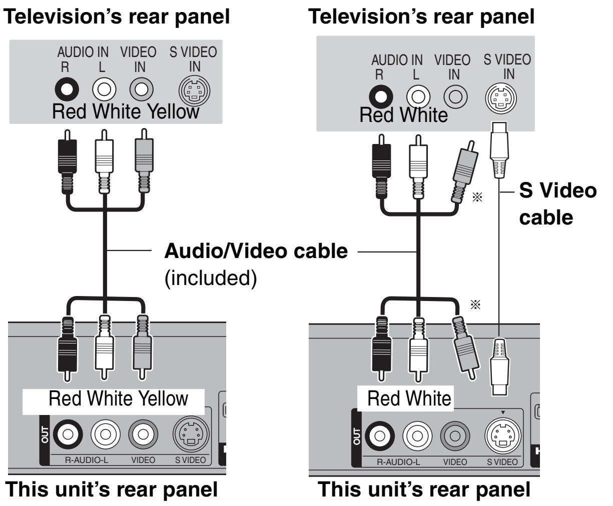
Required setting
"AV2 Connection (**For France, Italy and Spain**)" and "AV2 Input" settings in the Setup menu (➡ 68)
Connect the unit directly to the television (➡ 14, B)

Other connections

※ Leave "Yellow" unconnected.

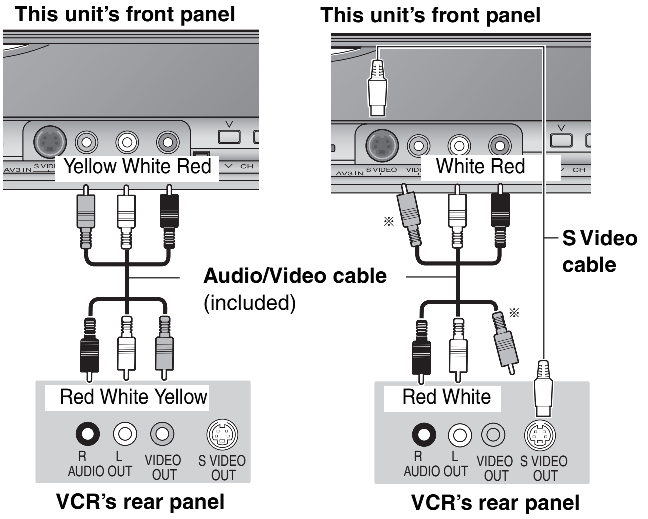
Connecting a television with AUDIO/VIDEO or S VIDEO terminals

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

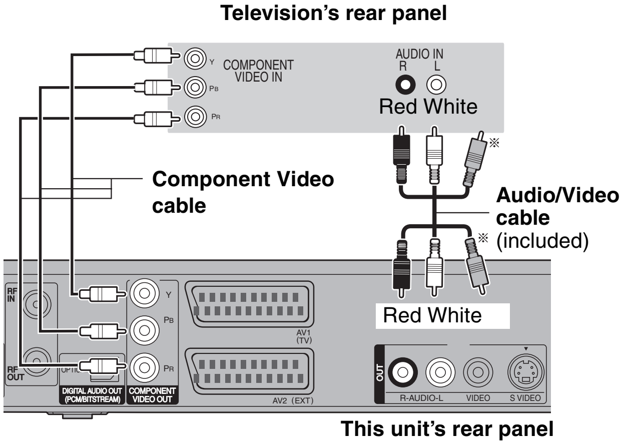

Television's rear panel
AUDIO IN R L
VIDEO IN
S VIDEO IN
Red White Yellow
Television's rear panel
AUDIO IN R L
VIDEO IN
S VIDEO IN
Red White
S Video cable
※
Audio/Video cable (included)
Red White Yellow
Red White
OUT
R-AUDIO-L
VIDEO
S VIDEO
This unit's rear panel
This unit's rear panel

Connecting a VCR with AUDIO/VIDEO or S VIDEO terminals

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


This unit's front panel
This unit's front panel
AV3 IN
S VIDEO
Yellow White Red
White Red
CH
Audio/Video cable (included)
S Video cable
※
Red White Yellow
Red White
R L AUDIO OUT
VIDEO OUT
S VIDEO OUT
VCR's rear panel
VCR's rear panel

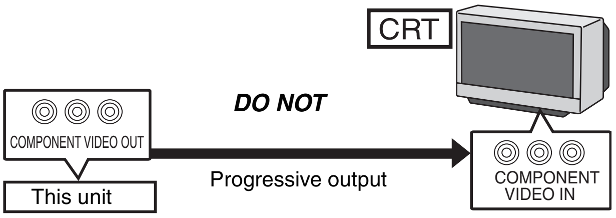
Connecting a television with COMPONENT VIDEO terminals


Television's rear panel
COMPONENT VIDEO IN
Y
PB
PR
AUDIO IN R L
Red White
Component Video cable
Audio/Video cable (included)
※
RF IN
RF OUT
Y
PB
PR
AV1 (TV)
AV2 (EXT)
DIGITAL AUDIO OUT (PCM/BITSTREAM)
COMPONENT VIDEO OUT
Red White
OUT
R-AUDIO-L
VIDEO
S VIDEO
This unit's rear panel

COMPONENT VIDEO terminals can be used for either interlace or progressive output (➡ 85) and provide a purer picture than the S VIDEO OUT terminal.

- ●Connect to terminals of the same colour.

If you have a regular television (CRT: cathode ray tube)
Use component output with progressive "Off" (The default setting ➡ 67), even if it is progressive compatible, because progressive output can cause some flickering. This is the same for multi system televisions using PAL mode.

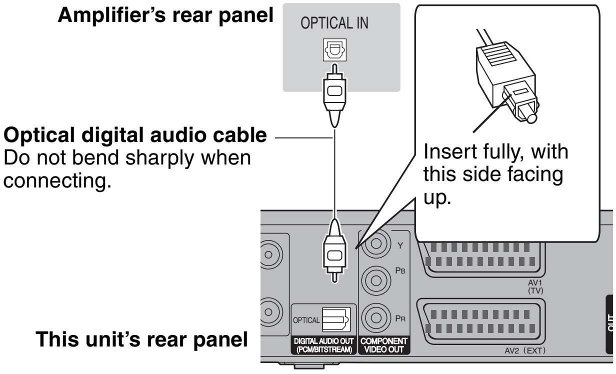

CRT
DO NOT
COMPONENT VIDEO OUT
This unit
Progressive output
COMPONENT VIDEO IN

For progressive output (➡ 21)

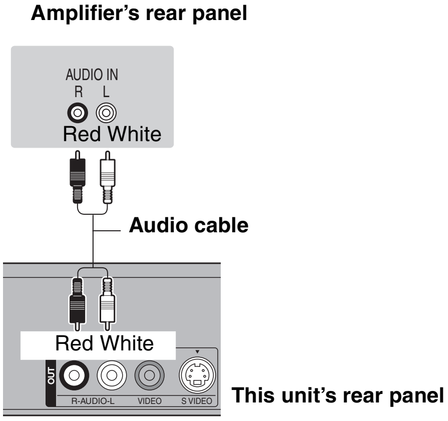
Connecting an amplifier or system component

■ Connecting an amplifier with a digital input terminal

- ●To enjoy multi-channel surround sound DVD-Video, connect an amplifier with Dolby Digital, DTS and MPEG decoders.
  Required setting
  "Digital Audio Output" in the Setup menu (➡ 66)
- ●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 (➡ 67). In this case audio is only output from the amplifier not the television.
- ●Before purchasing an optical digital audio cable (not included), check the terminal shape of the connected equipment.
- ●You cannot use DTS Digital Surround decoders not suited to DVD.
- ● **EX87** Even if using this connection, output will be only 2 channels when playing DVD-Audio.


Amplifier's rear panel
OPTICAL IN
Optical digital audio cable
Do not bend sharply when connecting.
Insert fully, with this side facing up.
OPTICAL
DIGITAL AUDIO OUT (PCM/BITSTREAM)
COMPONENT VIDEO OUT
Y
PB
PR
AV1 (TV)
AV2 (EXT)
OUT
This unit's rear panel

■ Connecting a stereo amplifier


Amplifier's rear panel
AUDIO IN R L
Red White
Audio cable
Red White
OUT
R-AUDIO-L
VIDEO
S VIDEO
This unit's rear panel

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. You can enjoy high quality, digital video and audio with just one cord. When connecting to an HDMI-compatible HDTV (High Definition Television), the output can be switched to 1080p, 1080i or 720p HD video.

- Please use the HDMI cables 5.0 meters or less.

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. [➡ 18, Linked operations with the TV (VIERA Link “HDAVI Control™”/Q Link)]

- **Non-HDMI-compliant cables cannot be utilized.**
- **It is recommended that you use Panasonic’s HDMI cable.**
  Recommended part number: RP-CDHG15 (1.5 m), RP-CDHG30 (3.0 m), RP-CDHG50 (5.0 m), etc.

Connecting with an HDMI compatible television

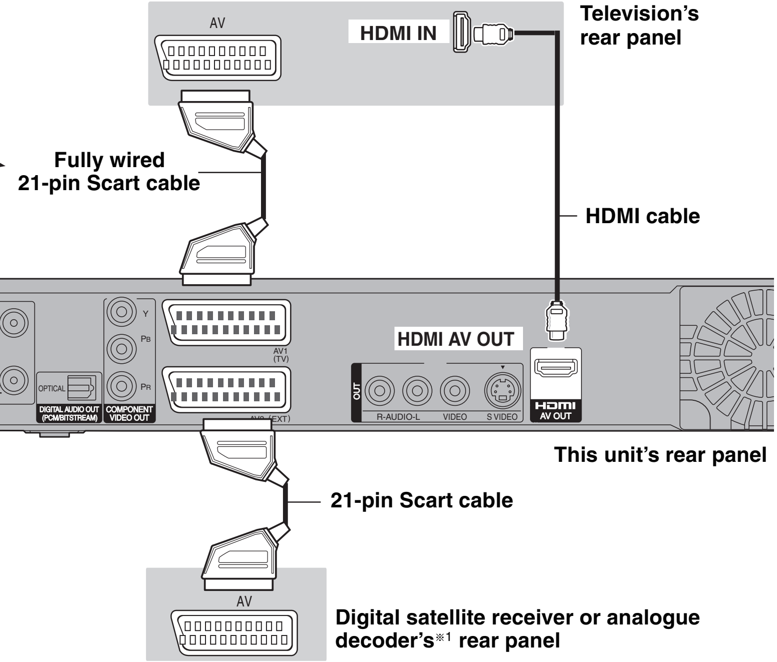
Connecting with a Panasonic TV (VIERA)

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

- Direct TV Recording (➡ 18)
- Watching pictures from digital satellite receiver or analogue decoder
  (In this case, make sure to switch the television input to “AV”.)

Required setting

- Set “VIERA Link” to “On” (➡ 67).
  (The default setting is “On”.)
- Set “Digital Audio Output” to “HDMI and Optical” (➡ 67).
  (The default setting is “HDMI and Optical”.)


AV
HDMI IN
Television’s rear panel
Fully wired 21-pin Scart cable
HDMI cable
RF IN
RF OUT
OPTICAL
DIGITAL AUDIO OUT (PCM/BITSTREAM)
COMPONENT VIDEO OUT
Y
PB
PR
AV1 (TV)
AV2 (EXT)
HDMI AV OUT
OUT
R-AUDIO-L
VIDEO
S VIDEO
HDMI AV OUT
This unit’s rear panel
21-pin Scart cable
AV
Digital satellite receiver or analogue decoder’s※1 rear panel

Note

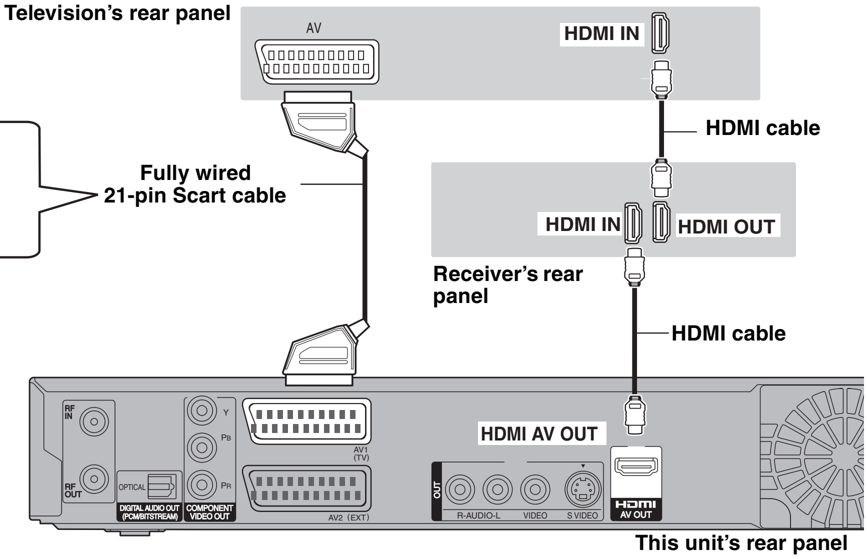
- **EX87** If connecting to a TV incompatible with CPPM (Content Protection for Prerecorded Media) (➡ 84), copy-protected DVD-Audio cannot be output through the HDMI terminal. Connect the audio cables (red, white) or the 21-pin Scart cable※2 to the corresponding terminals.
- If you are connecting to a TV that is only compatible with 2 channel output, audio with 3 channels or more will be down mixed (➡ 84) and output as 2 channels. (Some discs cannot be down mixed.)
- You cannot connect this unit to DVI devices that are incompatible with HDCP.
  For units compatible with HDCP (High-Bandwidth Digital Content Protection) copyright protection that are equipped with a digital DVI input terminal (PC monitors, etc.):
  Depending on the unit, images may not display properly or at all when connecting with a DVI/HDMI switching cable. (Audio cannot be output.)

※1 Information about the Decoder is for France, Italy and Spain only.
※2 Only when this unit is connected to a Panasonic TV (VIERA)

Connecting with an HDMI compatible television and receiver

Connecting with a Panasonic TV (VIERA)
➡ above

Required setting ➡ above


Television’s rear panel
AV
HDMI IN
HDMI cable
Fully wired 21-pin Scart cable
HDMI IN
HDMI OUT
Receiver’s rear panel
HDMI cable
RF IN
RF OUT
OPTICAL
DIGITAL AUDIO OUT (PCM/BITSTREAM)
COMPONENT VIDEO OUT
Y
PB
PR
AV1 (TV)
AV2 (EXT)
HDMI AV OUT
OUT
R-AUDIO-L
VIDEO
S VIDEO
HDMI AV OUT
This unit’s rear panel

Note

- **EX87** If connecting to a receiver incompatible with CPPM (Content Protection for Prerecorded Media) (➡ 84), copy-protected DVD-Audio cannot be output through the HDMI terminal. Connect to the receiver with an optical digital cable or audio cables (red, white).

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

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

What is VIERA Link "HDAVI Control" ?

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 2" function.**
  "HDAVI Control 2" is the newest standard (current as of February, 2007) for Panasonic's HDAVI Control compatible equipment. This standard is compatible with Panasonic's conventional HDAVI equipment.

Preparation

1. Connect this unit to your TV or receiver with an HDMI cable (➡ 17).
2. Set "VIERA Link" to "On" (➡ 67). (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 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 (➡ 14).

For your reference

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)

What you can do with "HDAVI Control" and Q Link

Download from the TV **Q Link**	When you connect the unit to a TV for the first time, the station list data is automatically copied from the TV to the unit and the TV stations are assigned to the programme positions on the unit in the same order as on the TV.
(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], [ShowView], [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], [ShowView], [PROG/CHECK] etc.** ● **DVD-A** (**EX87**) **DVD-V** **CD** **VCD** **SVCD** and **MP3** The TV is automatically turned on when you insert the discs.
Power off link **VIERA Link** **Q Link**	When you set the TV to standby mode, the unit is also automatically set to standby mode. The unit is automatically set to standby mode even if the FUNCTION MENU screen, the status message, or the on-screen menu is displayed during playback or when the unit set to a timer recording. Even if the TV is set to standby mode, the unit will not be set to standby mode at the same time in the following conditions: –when you pressed [● REC] and the unit is recording, –when copying, –when 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 **Q Link**	This function allows you to immediately start recording the programme that you are viewing on the TV. ● When the TV is in the HDMI input mode, this function is not available. Switch to other mode except for the HDMI input mode and use Direct TV Recording. ● When the unit is connected to a Panasonic TV, if you switch TV channels while using Direct TV Recording, the Direct TV Recording stops. ● **However this function does not work if you select the TV channels on this unit.** **Preparation** ● Press [DRIVE SELECT] to select the HDD or DVD drive. The selected drive lights up on the unit's display. ● If you selected the DVD drive Insert a disc. (➡ 24) **Press and hold [● DIRECT TV REC] for 1 second.** Recording starts. **To stop recording** Press [■].

[※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.

Note

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

Easy control only with VIERA remote control

If you connect this unit to the TV that has “HDAVI Control 2” 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.

Using the FUNCTION MENU window to operate this unit

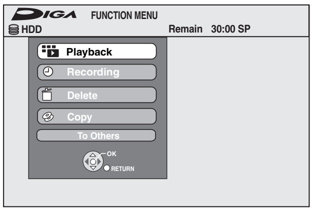
VIERA Link

Refer to the TV operating instructions for operating the TV.

1 Display this unit’s “FUNCTION MENU” window using the TV remote control.

- If this unit is set to standby mode, it will automatically turn on.

2 Select the item you want to operate with the TV remote control, and press [OK].



About the FUNCTION MENU window (➡ 63).

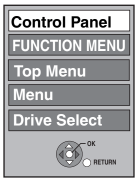
Using the OPTION menu window to operate this unit

VIERA Link

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].

e,g.,



Note

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].

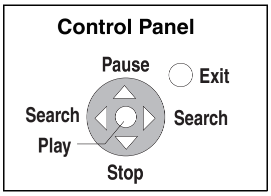
Control Panel	Control Panel is displayed (➡ below).
FUNCTION MENU	FUNCTION MENU window is displayed (➡ above).
Top Menu DVD-V	Top menu is displayed (➡ 35).
Menu DVD-V	Menu is displayed (➡ 35).
Drive Select	Select the HDD, DVD or SD drive
Rotate RIGHT (JPEG)	Rotate the still picture (➡ 41).
Rotate LEFT (JPEG)	
Zoom in (JPEG)	Enlarge or shrink the still picture (➡ 41).
Zoom out (JPEG)	

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.



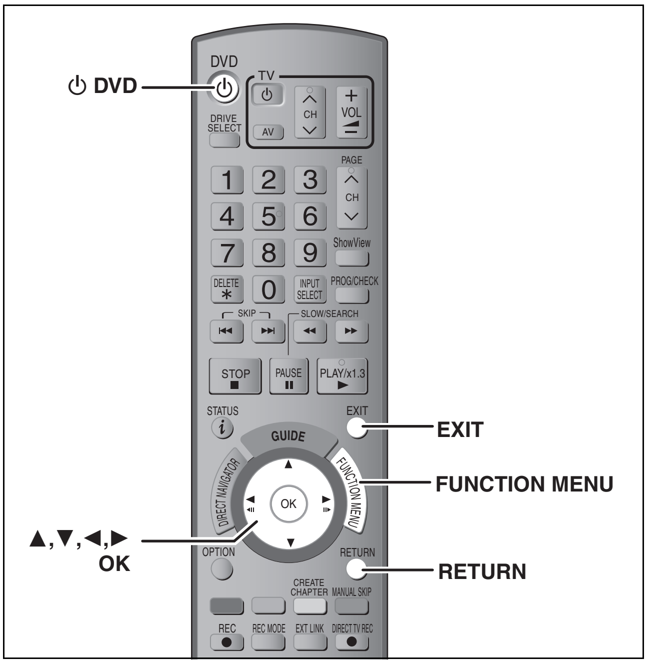
■ When you want to leave the TV on and set only this unit to standby mode

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” (➡ 67).

STEP 2 Channel reception settings and TV aspect settings

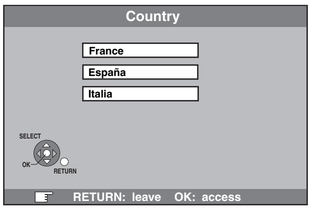

⏻ DVD
▲,▼,◀,▶
OK
EXIT
FUNCTION MENU
RETURN
DVD
TV
DRIVE SELECT
AV
CH
VOL
PAGE
ShowView
DELETE
INPUT SELECT
PROG/CHECK
SKIP
SLOW/SEARCH
STOP
PAUSE
PLAY/x1.3
STATUS
GUIDE
DIRECT NAVIGATOR
FUNCTION MENU
OPTION
CREATE CHAPTER
MANUAL SKIP
REC
REC MODE
EXT LINK
DIRECT TV REC

1 Turn on the television and select the appropriate AV input to suit the connections to this unit.

2 Press [⏻ DVD] to turn the unit on.

For France, Italy and Spain

- **Country setting screen appears on the television.**



Country

France
España
Italia

SELECT
OK
RETURN

RETURN: leave OK: access

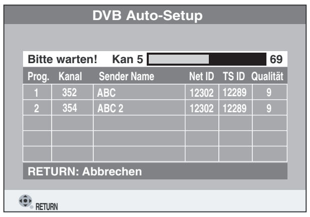
Press [▲, ▼] to select the country and press [OK].

Only the Auto setup screens are displayed in German in the operating instructions. After completing step 3, change the on-screen display to English in the following steps.

① Press [FUNCTION MENU].
② Press [▲, ▼] to select “Weit. Funktionen” and press [OK].
③ Press [▲, ▼] to select “Setup” and press [OK].
④ Press [▲, ▼] to select “Display” and press [▶].
⑤ Press [▲, ▼] to select “Sprachauswahl” and press [OK].
⑥ Press [▲, ▼] to select “English” and press [OK].
⑦ Press [EXIT].

- **DVB Auto-Setup starts.**

  The unit will search for the terrestrial digital channels. TV channels will be located and stored ready for use.
  This takes about 5 minutes.



DVB Auto-Setup

Bitte warten! Kan 5 69

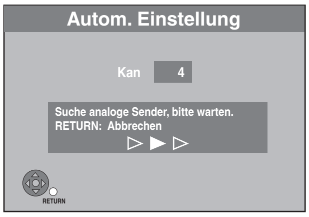
Prog.	Kanal	Sender Name	Net ID	TS ID	Qualität
1	352	ABC	12302	12289	9
2	354	ABC 2	12302	12289	9

RETURN: Abbrechen

When DVB Auto-Setup is completed, analogue Auto-Setup starts. This takes about 8 minutes.

- If you would like to add new TV channels, set them manually (➡ 69).
- When the channel could not be received properly, adjust the position and direction of the aerial.
  For Germany When using an indoor antenna,
  –make sure that there is nothing causing interference.
  –switch “Active Antenna” to “On” in the Setup menu (➡ 68).

  Then repeat the Auto Setup (➡ 72).

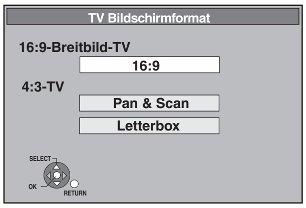


Autom. Einstellung

Kan 4

Suche analoge Sender, bitte warten.
RETURN: Abbrechen

After analogue Auto-Setup is complete, TV aspect setting screen appears.

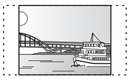


TV Bildschirmformat

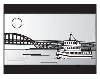
16:9-Breitbild-TV
16:9
4:3-TV
Pan & Scan
Letterbox

SELECT
OK
RETURN

- **16:9**: When connected to a 16:9 widescreen television.
- **Pan & Scan**:When connected to a 4:3 aspect television, side picture is trimmed for 16:9 picture (➡ 85).



- **Letterbox**:When connected to a 4:3 aspect television. Widescreen picture is shown in the letterbox style (➡ 85).



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

When television type and aspect is set, television picture appears. Set up is complete.

To stop partway
Press [RETURN].

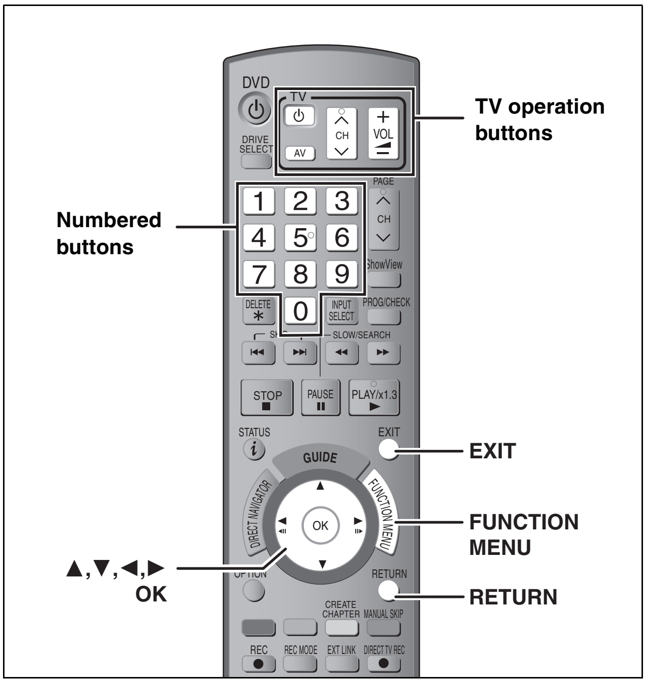
■ If the clock setting menu appears

Set the clock manually (➡ 73).

■ To confirm that stations have been tuned correctly (➡ 70, 71)

■ To restart set up (➡ 72)

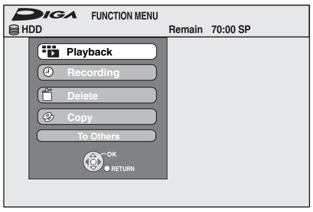
STEP 3 Set up to match your television and remote control


TV operation buttons
Numbered buttons
EXIT
FUNCTION MENU
▲,▼,◄,►
OK
RETURN
DVD
TV
DRIVE SELECT
AV
CH
VOL
PAGE
ShowView
DELETE
INPUT SELECT
PROG/CHECK
SLOW/SEARCH
STOP
PAUSE
PLAY/x1.3
STATUS
GUIDE
DIRECT NAVIGATOR
FUNCTION MENU
OPTION
CREATE CHAPTER
MANUAL SKIP
REC
REC MODE
EXT LINK
DIRECT TV REC

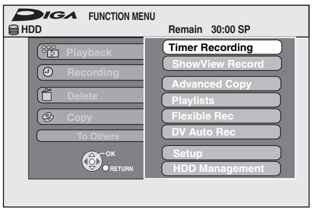
To enjoy progressive video

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 (➡ 85).

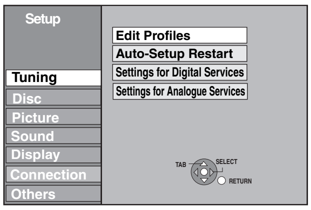
1 Press [FUNCTION MENU].


DIGA
FUNCTION MENU
HDD
Remain 70:00 SP
Playback
Recording
Delete
Copy
To Others
OK
RETURN

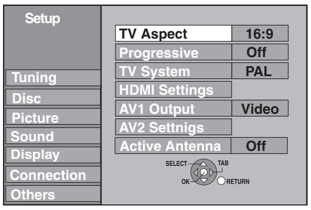
2 Press [▲, ▼] to select "To Others" and press [OK].


DIGA
FUNCTION MENU
HDD
Remain 30:00 SP
Playback
Recording
Delete
Copy
To Others
OK
RETURN
Timer Recording
ShowView Record
Advanced Copy
Playlists
Flexible Rec
DV Auto Rec
Setup
HDD Management

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

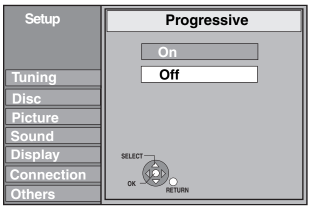

Setup
Tuning
Disc
Picture
Sound
Display
Connection
Others
Edit Profiles
Auto-Setup Restart
Settings for Digital Services
Settings for Analogue Services
TAB
SELECT
RETURN

4 Press [▲, ▼] to select "Connection" and press [►].


TV Aspect 16:9
Progressive Off
TV System PAL
HDMI Settings
AV1 Output Video
AV2 Settnigs
Active Antenna Off

Setup
Tuning
Disc
Picture
Sound
Display
Connection
Others
SELECT
TAB
OK
RETURN

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


Setup
Tuning
Disc
Picture
Sound
Display
Connection
Others
Progressive
On
Off
SELECT
OK
RETURN

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

Output becomes progressive.

Note

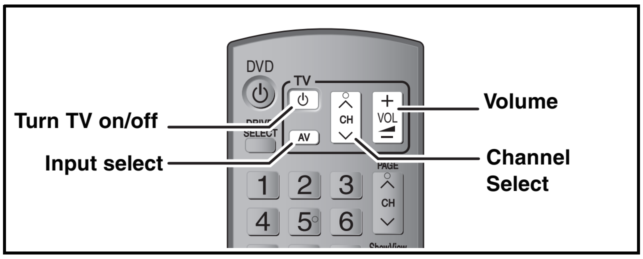
- When connected to a regular television (CRT: Cathode ray tube) or a multi system television using PAL mode, even if it is progressive compatible, progressive output can cause some flickering. Turn off "Progressive" if this occurs (➡ 43).
- Picture will not be displayed correctly if connected to an incompatible television.
- There is no output from the COMPONENT VIDEO OUT terminals if "AV1 Output" in the Setup menu is set to "RGB 1 (without component)" or "RGB 2 (without component)" (➡ 67).

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Television operation

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


Turn TV on/off
Input select
Volume
Channel Select
DVD
TV
AV
CH
VOL
PAGE

1 Point the remote control at the television

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

e.g., 01: [0] ➡ [1] 10: [1] ➡ [0]

(Continued on the next page)

(continued)

Refer to the control reference on page 21.

Manufacturer and Code No.

Brand	Code	Brand	Code
Panasonic	01/02/03/04	METZ	05/28
AIWA	35	MITSUBISHI	05/19/20/47
AKAI	27/30	MIVAR	24
BEJING	33	NEC	36
BEKO	05/71/72/73/74	NOBLEX	33
BENQ	58/59	NOKIA	25/26/27/60/61
BP	09	NORDMENDE	10
BRANDT	10/15	OLEVIA	45
BUSH	05	ONWA	30/39/70
CENTREX	66	ORION	05
CHANGHONG	69	PEONY	49/69
CURTIS	05	PHILCO	41/48/64
DAEWOO	64/65	PHILIPS	05/06/46
DESMET	05	PHONOLA	05
DUAL	05	PIONEER	37/38
ELEMIS	05	PROVIEW	52
FERGUSON	10/34	PYE	05
FINLUX	61	RADIOLA	05
FISHER	21	SABA	10
FUJITSU	53	SALORA	26
FUNAI	63/67	SAMSUNG	32/42/43/65/68
GOLDSTAR	05/50/51	SANSUI	05
GOODMANS	05	SANYO	21/54/55/56
GRADIENTE	36	SCHNEIDER	05/29/30
GRUNDIG	09	SEG	05/69/75/76/77/78
HIKONA	52	SELECO	05/25
HITACHI	05/22/23/40/41	SHARP	18
INNO HIT	05	SIEMENS	09
IRRADIO	30	SINUDYNE	05
ITT	25	SONY	08
JINGXING	49	TCL	31/33/66/67/69
JVC	17/30/39/70	TELEFUNKEN	10/11/12/13/14
KDS	52	TEVION	52
KOLIN	45	TEX ONDA	52
KONKA	62	THOMSON	10/15/44
LG	05/50/51	TOSHIBA	16/57
LOEWE	07/46	WHITE WESTINGHOUSE	05
MAG	52	YAMAHA	18/41

2 Test by turning on the television and changing channels.

- ●Repeat the procedure until you find the code that allows correct operation.
- ●If your television brand is not listed or if the code listed for your television does not allow control of your television, this remote control is not compatible with your television.

Note

If your television brand has more than one code listed, select the one that allows correct operation.

When other Panasonic products respond to this remote control

Change the remote control code on the main unit and the remote control (the two must match) if you place other Panasonic products close together.

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

1 Press [FUNCTION MENU].

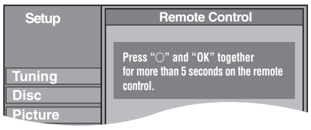
2 Press [▲, ▼] to select "To Others" and press [OK].

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

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

5 Press [▲, ▼] to select "Remote Control" and press [OK].

6 Press [▲, ▼] to select the code ("DVD 1", "DVD 2" or "DVD 3") and press [OK].



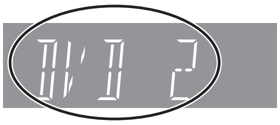
Press "○" and "OK" together for more than 5 seconds on the remote control.

To change the code on the remote control

7 While pressing [OK], press and hold the numbered button ([1], [2] or [3]) for more than 5 seconds.

8 Press [OK].

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



The unit's remote control code

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

Note

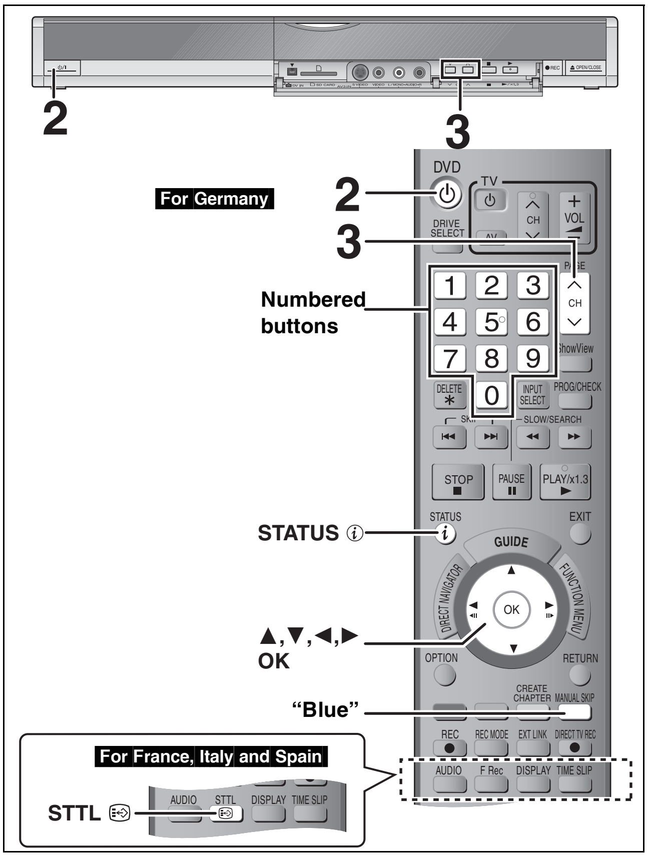
Executing "Shipping Condition" in the Setup menu returns the main unit code to "DVD 1". Change the remote control code to 1 (➡ step 7).

To return to the previous screen

Press [RETURN].

To exit the screen

Press [EXIT].


2
3
For Germany
2
3
Numbered buttons
STATUS
▲,▼,◄,►
OK
"Blue"
For France, Italy and Spain
STTL
DVD
TV
DRIVE SELECT
CH
VOL
1 2 3 4 5 6 7 8 9 0
DELETE
INPUT SELECT
PROG/CHECK
ShowView
SLOW/SEARCH
STOP
PAUSE
PLAY/x1.3
STATUS
EXIT
GUIDE
DIRECT NAVIGATOR
FUNCTION MENU
OK
OPTION
RETURN
CREATE CHAPTER
MANUAL SKIP
REC
REC MODE
EXT LINK
DIRECT TV REC
AUDIO
F Rec
DISPLAY
TIME SLIP
STTL

This unit is a DVD recorder with an integrated DVB tuner. This means that you can receive and record both analogue and terrestrial digital channels without having to connect an additional DVB receiving unit.

Select the channel

1 Turn on the television and select the appropriate AV input to suit the connections to this unit.

2 Press [⏻ DVD] to turn the unit on.

3 Press [∧ ∨ CH] to select the channel.

Everytime you change the station, digital channel information appears automatically (terrestrial digital channels only). Channels are displayed in the order of digital channels first, and then followed by analogue channels.

Only "D" is displayed when receiving digital broadcasts.

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

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

■To select audio

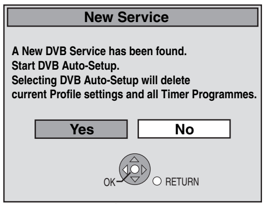
You can select audio from multiple channels when the unit receives multi-channel broadcast (➡ 43, DVB Multi Audio).

■To show subtitles For France, Italy and Spain

- When "Subtitle" appears in digital channel information
  –Press [STTL]. When there are multiple languages, select the subtitle (➡ 43, DVB Subtitle).
  Press again to hide.

■If New service message appears

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.).



New Service

A New DVB Service has been found.
Start DVB Auto-Setup.
Selecting DVB Auto-Setup will delete
current Profile settings and all Timer Programmes.

Yes
No
OK
RETURN

The display/hide setting can be changed (➡ 67, New Service Messages).

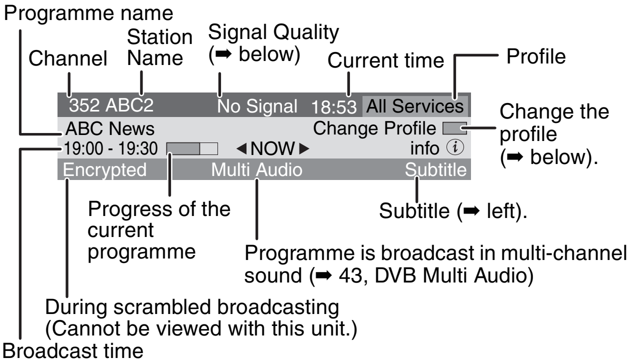
Note (Digital broadcast only)

- This unit can receive Standard Definition (SD) broadcasts, but is unable to receive High Definition (HD) broadcasts.
- This unit can receive free cable television but it cannot receive paid services.
- **For France, Italy and Spain** Programmes are recorded with subtitles when you record them with the subtitles on.
- **For France, Italy and Spain** You cannot switch subtitles during timer recording.

Digital channel information

While stopped

Press [STATUS ⓘ] to show the information screen.


Programme name
Channel
Station Name
Signal Quality (➡ below)
Current time
Profile
352 ABC2
No Signal
18:53
All Services
ABC News
Change Profile
19:00 - 19:30
◄NOW►
info ⓘ
Encrypted
Multi Audio
Subtitle
Change the profile (➡ below).
Progress of the current programme
Subtitle (➡ left).
Programme is broadcast in multi-channel sound (➡ 43, DVB Multi Audio)
During scrambled broadcasting (Cannot be viewed with this unit.)
Broadcast time

To switch information of the current programme and the next programme
Press [◄, ►].
To select the information for other stations
Press [▲, ▼].
- Press [OK] to watch the selected station.

To show detailed information about the programme
Press [STATUS ⓘ] again (only when "infoⓘ" is displayed).

- **Signal Quality**

No Signal:	The digital broadcast signal is not being received.
Bad Signal:	Due to poor signal conditions, etc., the digital broadcast signal has been interrupted.
No Service:	No broadcasts are currently available.

If "No Signal" or "Bad Signal" is displayed, check the following:
- Adjust the position and direction of the aerial.
- Check that the current digital broadcast channel is correctly broadcasting.

■ To change the profile to easily select one of your favourite channels (➡ 69)

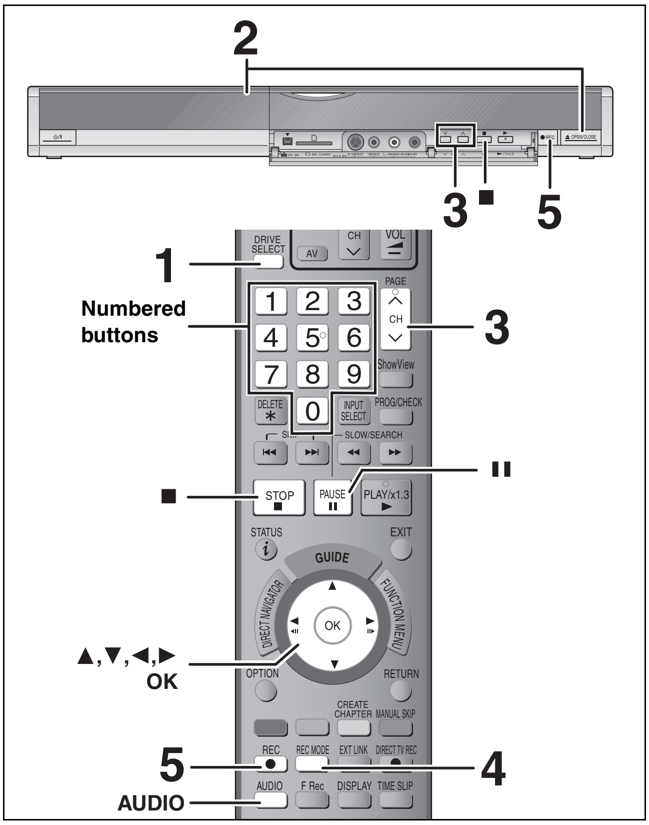
You can press the "Blue" button to change the profile (e.g., TV, Radio, Edit Profiles screen) and then press [▲, ▼] to select the channel.

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

You can change the length of time digital channel information (➡ 67, On-Screen Messages).

Note

- By following the information sent from the station, you can check the programme information.
- 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.



See also "Important notes for recording" (➡ 8).
Depending on the type of disc used for recording or the type of broadcast, there may be restrictions on the title you are trying to record.

- RAM It is not possible to record continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
- +RW You can create Top Menu using "Create Top Menu" (➡ 62). Recording or editing on the disc may delete the menu. In that case, create the menu again.
- For France, Italy and Spain When recording a digital broadcast, select the subtitle you want to record with "DVB Subtitle" in the on-screen menu (➡ 43). However, this cannot be switched after recording.
- When recording a digital radio broadcast or a digital broadcast that is not being received correctly, the digital channel information (➡ 23) is also recorded.

SD
- It is not possible to record onto a card.

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

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

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

The HDD or DVD indicator lights up on the unit's display.

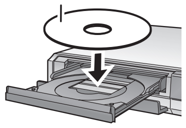
2

If you selected the DVD drive

Press [≜ OPEN/CLOSE] on the main unit to open the tray and insert a disc.

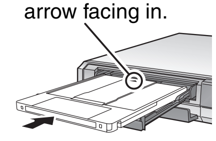
- Press the button again to close the tray.
- When using 8 cm DVD-RAM, or 8 cm DVD-R, remove the disc from the cartridge.

Insert label-up.



■ Cartridge disc

Insert label-up with the arrow facing in.

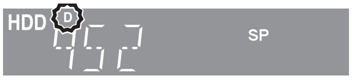


Insert fully.

Automatic drive select function
RAM [Only for discs with the write-protect tab on the cartridge set to "PROTECT" (➡ 60, Cartridge-protection)]
DVD-A (EX87) 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.

3 Press [∧ ∨ CH] to select the channel.

Channels are displayed in the order of digital channels first, and then followed by analogue channels.

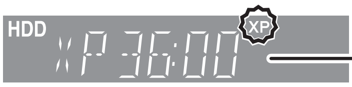


Only "D" is displayed when receiving digital broadcasts.

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

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

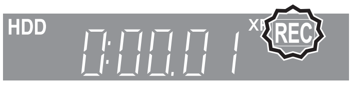
4 Press [REC MODE] to select the recording mode (XP, SP, LP or EP).



Remaining time on the disc

- To record sound using LPCM (XP mode only): Set the "Audio Mode for XP Recording" to "LPCM" in the Setup menu (➡ 66).

5 Press [● REC] to start recording.



Recording will take place on open space on the HDD or on disc. Data will not be overwritten.
- You cannot change the channel or recording mode during recording.
- You can record while the unit is in standby for timer recording. However, once the time for the timer recording to begin is reached, any recording taking place will stop and the timer recording will begin.
- HDD RAM (Analogue broadcast only) When "Rec for High Speed Copy "is set to "Off" (➡ 65), you can change the audio being received by pressing [AUDIO] during recording. (Does not affect the recording of audio.)

■ To pause recording

Press [❚❚].
Press again to restart recording.
You can also press [● REC] to restart.
(Title is not split into separate titles.)

■ To stop recording

Press [■].
- From the start to the end of the recording is called one title.
- -R -RW(V) +R +RW It takes about 30 seconds for the unit to complete recording management information after recording finishes.

In order to play DVD-R, DVD-RW (DVD-Video format) and +R (recorded with this unit) on other DVD players, it is necessary to finalise them (➡ 62).

Note
The unit may take some time in retrieving titles (up to 30 minutes) and may fail in some cases.

Quick Start (➡ 68)

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, the Electronic Program Guide (EPG) displays in less than 1 second. (Quick Start Mode)

- "Quick Start" is set to "On" at the time of purchase.
- Depending on the type of TV or the connected terminal, it may take time to display the screen.

Note
Startup takes up to a minute when:
–You play a disc or start recording to discs other than DVD-RAM.
–You want to make other operations.
–The clock has not been set.

Recording modes and approximate recording times

Depending on the content being recorded, the recording times may become shorter than indicated.
(The times provided on this chart are an estimate.)

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)
	EX77 (160 GB)	**EX87** (250 GB)	Single-sided (4.7 GB)	Double-sided[1] (9.4 GB)			
XP (High picture quality recording mode)	36 hours	55 hours	1 hour	2 hours	1 hour	1 hour 45 min.	1 hour 45 min.
SP (Standard recording mode)	70 hours	111 hours	2 hours	4 hours	2 hours	3 hours 35 min.	3 hours 35 min.
LP (Long recording mode)	138 hours	222 hours	4 hours	8 hours	4 hours	7 hours 10 min.	7 hours 10 min.
EP (Extra long recording mode)[4]	284 hours (212 hours[2])	443 hours (333 hours[2])	8 hours (6 hours[2])	16 hours (12 hours[2])	8 hours (6 hours[2])	14 hours 20 min. (10 hours 45 min.[2])	
FR (Flexible Recording Mode)[4]	284 hours maximum	443 hours maximum	8 hours maximum	8 hours maximum for one side	8 hours maximum	14 hours 20 min.	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" is set to "EP (6 Hours)" in the Setup menu (➡ 65).
The sound quality is better when using "EP (6 Hours)" than when using "EP (8 Hours)".

[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.

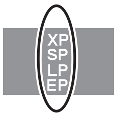
- **RAM** When recording to DVD-RAM using "EP (8 Hours)" mode, play may not be possible on DVD players that are compatible with DVD-RAM. Use "EP (6 Hours)" mode if playback may be on other equipment.

- **HDD** You can record up to 500 titles on HDD. (When continuously recording for long durations, titles are automatically divided every 8 hours.)
- **RAM** **-R** **-RW(V)** You can record up to 99 titles on one disc.
- **+R** **+RW** You can record up to 49 titles on one disc.

FR (Flexible Recording Mode)

You can set FR (Flexible Recording) mode when copying or programming timer recordings.
The unit automatically selects a recording rate between XP and EP (8 Hours) that will enable the recordings to fit in the remaining disc space with the best possible recording quality.
For example with a 90 minute recording to an unused DVD-RAM, the picture quality is adjusted to between "XP" and "SP".

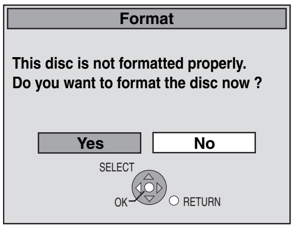
- When recording to the HDD, picture quality is automatically adjusted to precisely fit a copied title on a 4.7 GB disc.
- All the recording modes from XP to EP appear in the display.



Disc Insertion/Ejection

When the format confirmation screen is displayed

RAM **-RW(V)** **+R** **+R DL** **+RW**
When you insert a new disc or a disc recorded on a computer or other equipment, a format confirmation screen is displayed. Format the disc to use it. However, all the recorded contents are deleted.



Format

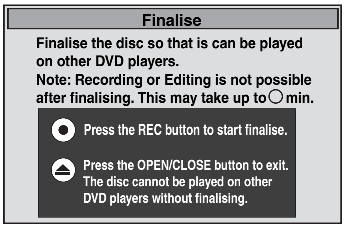
This disc is not formatted properly.
Do you want to format the disc now ?

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

To format a disc
"Deleting all the contents of a disc or card—Format" (➡ 61)

When removing a recorded disc

-R **-R DL** **-RW(V)** **+R** **+R DL**
The following screen appears when you have not processed the disc for play on other equipment.



Finalise

Finalise the disc so that is can be played on other DVD players.
Note: Recording or Editing is not possible after finalising. This may take up to ○ min.

● Press the REC button to start finalise.

⏏ Press the OPEN/CLOSE button to exit.
The disc cannot be played on other DVD players without finalising.

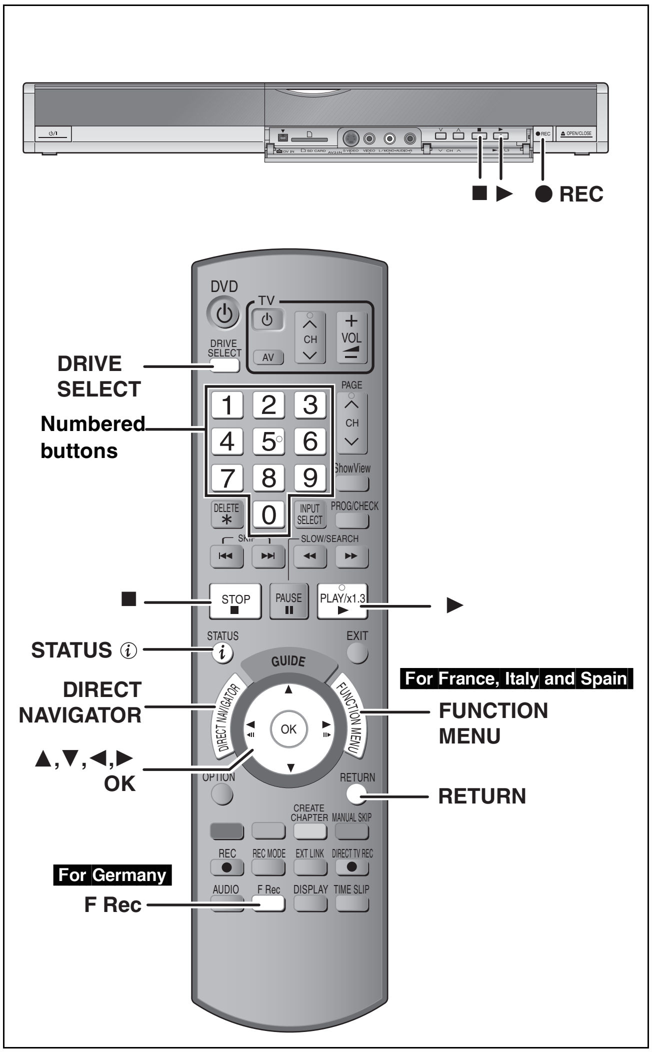
■ To finalise the disc

Press [● REC] on the main unit.

- You cannot stop this process once you have started it.
- If you want to set the background, play menu select or provide a disc name, select "Top Menu" (➡ 62), "Auto-Play Select" (➡ 62) or "Disc Name" (➡ 60) in "DVD Management" before finalising.

■ To open the tray without disc finalisation

Press [⏏ OPEN/CLOSE] on the main unit.


■ ▶ ● REC
DRIVE SELECT
Numbered buttons
■
▶
STATUS ⓘ
DIRECT NAVIGATOR
▲,▼,◀,▶ OK
For France, Italy and Spain
FUNCTION MENU
RETURN
For Germany
F Rec

To specify a time to stop recording—One Touch Recording

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

During recording

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

- You can specify up to 4 hours later.
- The unit display changes as shown below.

OFF 0:30 ⟶ OFF 1:00 ⟶ OFF 1:30 ⟶ OFF 2:00
↖ Counter (cancel) ⟵ OFF 4:00 ⟵ OFF 3:00 ↲

- This does not work during timer recordings (➡ 28) or while using Flexible Recording (➡ 27).
- The unit turns off automatically after the time to stop recording is reached.

To cancel

Press [● REC] on the main unit several times until the counter appears.

- The time to stop recording is cancelled; however, recording continues.

To stop recording

Press [■].

Recording settings for High Speed Copy

When copying in high speed mode to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW, set "Rec for High Speed Copy" to "On" before recording to the HDD. (The default setting is "On". ➡ 65)
However, some restrictions apply:
Refer to the "Selecting Audio for Recording" and "About the aspect when recording a programme" for more information (➡ 8).

Note

If you do not intend to copy titles in high speed mode to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW, set "Rec for High Speed Copy" to "Off".

Flexible Recording

(Recording that fits the remaining disc space)

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

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

■ Using "Flexible Rec" is convenient in these kinds of situations.

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

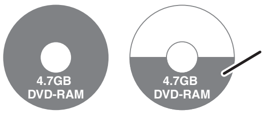
- When the amount of free space on the disc makes selecting an appropriate recording mode difficult
- When you want to record a long programme with the best picture quality possible

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

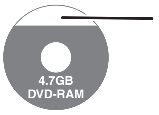
e.g., Recording a 90 minute programme to disc

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



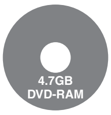
If you try to record a 90 minute programme in XP mode, only the first 60 minutes will fit on the disc and the 30 minute balance will not get recorded.
- Another disc is necessary.

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



However there will be 30 minutes remaining disc space.

If you select "Flexible Rec" the programme will fit one disc perfectly.



▨ Necessary space for recording

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

1 **For Germany**

While stopped

Press [F Rec].

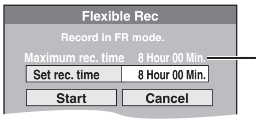
(➡ Go to step 4)

For France, Italy and Spain

Press [FUNCTION MENU].

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

3 Press [▲, ▼] to select "Flexible Rec" and press [OK].



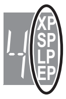
Flexible Rec
Record in FR mode.
Maximum rec. time 8 Hour 00 Min.
Set rec. time 8 Hour 00 Min.

Maximum recording time
This is the maximum recording time in EP (8 Hours) mode.

4 Press [◄, ►] to select "Hour" and "Min." and press [▲, ▼] to set the recording time.
- You can also set the recording time with the numbered buttons.
- You cannot record more than 8 hours.

5 **When you want to start recording**

Press [▲, ▼, ◄, ►] to select "Start" and press [OK].
- Recording starts.
- All the recording modes from XP to EP appear in the display.

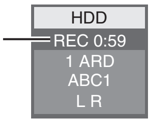


To exit the screen without recording
Press [RETURN].

To stop recording partway
Press [■].

To show the remaining time
Press [STATUS ⓘ].

e.g., HDD



HDD
REC 0:59
1 ARD
ABC1
L R

Playing while you are recording

HDD **RAM**

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

Press [►] (PLAY) during recording.

There is no sound output while searching forward or backward.

To stop play
Press [■].

To stop recording
2 seconds after play stops, press [■].

To stop timer recording
2 seconds after play stops
1 Press [■].
2 Press [◄, ►] to select "Stop Recording" and press [OK].

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

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

1 Press [DIRECT NAVIGATOR] during recording.

2 Press [▲, ▼, ◄, ►] to select a title and press [OK].
- There is no sound output while searching forward or backward.

To stop play
Press [■].

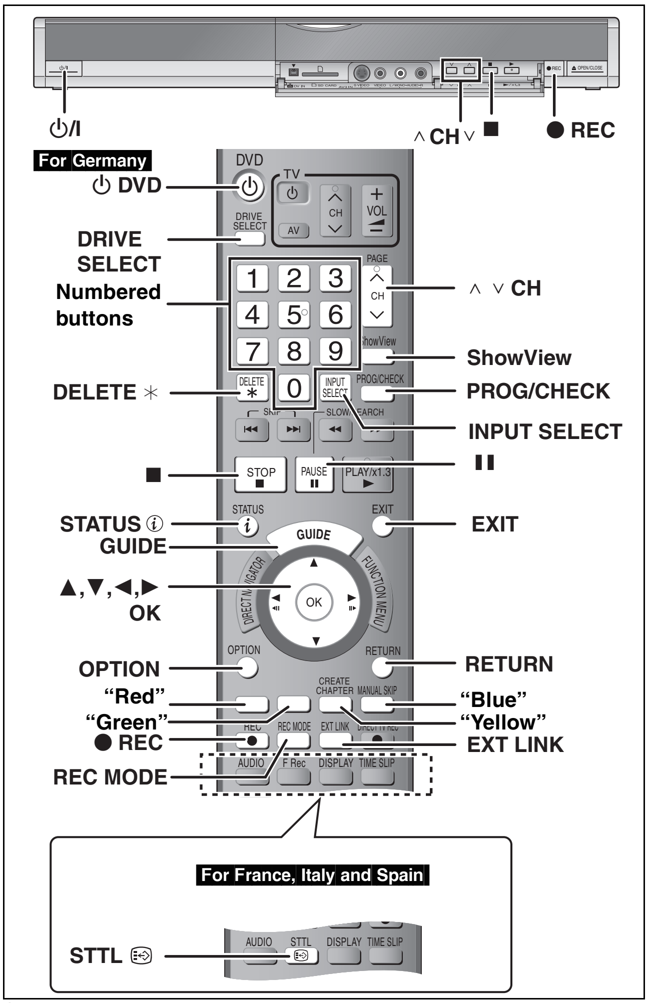
To exit the Direct Navigator screen
Press [DIRECT NAVIGATOR].

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

To stop timer recording
After play stops
1 Press [DIRECT NAVIGATOR] to exit screen.
2 If the recording is on the other drive
Press [DRIVE SELECT] to select the recording drive.
3 Press [■].
4 Press [◄, ►] to select "Stop Recording" and press [OK].

Note
"Chasing playback" and "Simultaneous rec and play" can only be used with programmes of the same encoding system (PAL/NTSC).

Timer recording



See also “Important notes for recording” (➡ 8).
Depending on the type of disc used for recording or the type of broadcast, there may be restrictions on the title you are trying to record.

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

- You can enter up to 32 programmes up to a month in advance. (Each daily or weekly programme is counted as one programme.)

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

- To use a new disc, formatting is necessary.

Preparation

- Turn on the television and select the appropriate video input to suit the connections to this unit.
- If recording to DVD, insert a disc that you can use for recording (➡ 24).
- Make sure that the clock settings are correct (➡ 73).

Using the TV Guide system to make timer recordings (Digital broadcast only)

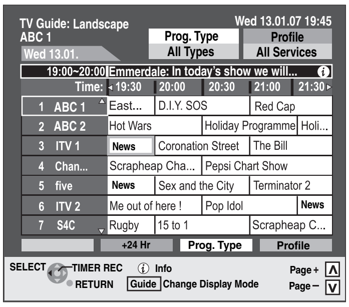
The TV Guide system provides programme information from the digital broadcasts station displayed on the television like a TV programme magazine. Setting up to record a broadcast is easy too. Simply select the desired programme from the displayed list. You can also search for desired programmes by displaying only the programmes in a certain category.

Note

- 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.
- Analogue broadcasts can be recorded manually or with the SHOWVIEW system (➡ 30).
- Programme information about analogue broadcasts is not displayed in the TV Guide system and “No information available for analogue services” is displayed.

Before using the TV Guide system
The television programme list is not displayed immediately after purchasing this unit.

1 Press [GUIDE].

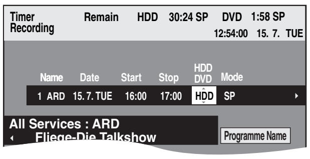


TV Guide: Landscape
ABC 1
Wed 13.01.
Prog. Type: All Types
Profile: All Services
Wed 13.01.07 19:45
19:00~20:00 Emmerdale: In today’s show we will...
Time: 19:30 20:00 20:30 21:00 21:30

1 ABC 1	East...	D.I.Y. SOS	Red Cap
2 ABC 2	Hot Wars	Holiday Programme	Holi...
3 ITV 1	News	Coronation Street	The Bill
4 Chan...	Scrapheap Cha...	Pepsi Chart Show	
5 five	News	Sex and the City	Terminator 2
6 ITV 2	Me out of here !	Pop Idol	News
7 S4C	Rugby	15 to 1	Scrapheap C...

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

3 Press [OK].



Timer Recording
Remain HDD 30:24 SP DVD 1:58 SP
12:54:00 15. 7. TUE

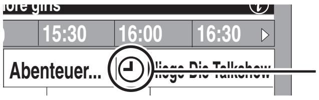
Name	Date	Start	Stop	HDD DVD	Mode
1 ARD	15.7. TUE	16:00	17:00	HDD	SP

All Services : ARD
Fliege-Die Talkshow

- Confirm the programme (start and end time) by using a TV magazine, etc. and make corrections if necessary using [▲, ▼, ◄, ►] (➡ 30, right column, step 3).

4 Press [OK].

The timer programme is stored and the timer icon is displayed.



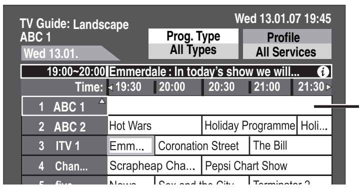
“🕘” lights on the unit’s display to indicate timer recording standby has been activated.
Repeat steps 2–4 to programme other recordings.
Press [⏻ DVD] to turn the unit off.

Note
If “NTSC” has been selected for “TV System” (➡ 72), the TV Guide system cannot be used.

■ To cancel a timer recording on the TV Guide screen

1. Press [▲, ▼, ◄, ►] to select the programme in the TV Guide and press [OK].
   (Confirmation screen appears.)
2. Press [◄] to select “Yes” and press [OK]. (“🕘” in the TV Guide disappears.)

■ When the unit displays “No information available for analogue services” or the empty TV Guide list



TV Guide: Landscape
ABC 1
Wed 13.01.
Prog. Type: All Types
Profile: All Services
Wed 13.01.07 19:45
19:00~20:00 Emmerdale : In today’s show we will...
Time: 19:30 20:00 20:30 21:00 21:30

1 ABC 1			
2 ABC 2	Hot Wars	Holiday Programme	Holi...
3 ITV 1	Emm...	Coronation Street	The Bill
4 Chan...	Scrapheap Cha...	Pepsi Chart Show	

- Some digital broadcast may not send programme information. Set the timer recording manually or with the SHOWVIEW system (➡ 30).

Note

- The receipt of the TV Guide system data is only possible via the aerial input of this unit. The receipt of the TV Guide data via externally connected satellite receivers is not possible.

■ To cancel recording when recording has already begun (➡ 31)

■ To release the unit from recording standby (➡ 31)

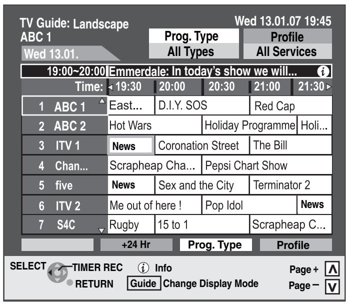
■ Notes on timer recording (➡ 31)

Operations in the TV Guide system

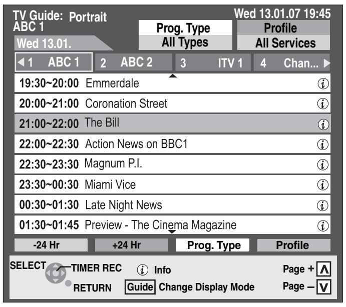
Basic operations

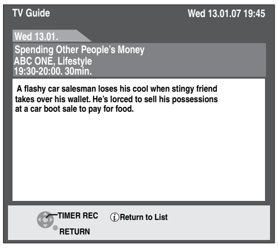
Press [GUIDE] to switch between Landscape view and Portrait view.

Landscape view


TV Guide: Landscape
ABC 1
Wed 13.01.
Wed 13.01.07 19:45
Prog. Type
All Types
Profile
All Services
19:00~20:00 Emmerdale: In today's show we will...
Time: 19:30 20:00 20:30 21:00 21:30
1 ABC 1 East... D.I.Y. SOS Red Cap
2 ABC 2 Hot Wars Holiday Programme Holi...
3 ITV 1 News Coronation Street The Bill
4 Chan... Scrapheap Cha... Pepsi Chart Show
5 five News Sex and the City Terminator 2
6 ITV 2 Me out of here ! Pop Idol News
7 S4C Rugby 15 to 1 Scrapheap C...
+24 Hr
Prog. Type
Profile
SELECT
TIMER REC
Info
RETURN
Guide Change Display Mode
Page +
Page –

Portrait view


TV Guide: Portrait
ABC 1
Wed 13.01.
Wed 13.01.07 19:45
Prog. Type
All Types
Profile
All Services
1 ABC 1
2 ABC 2
3 ITV 1
4 Chan...
19:30~20:00 Emmerdale
20:00~21:00 Coronation Street
21:00~22:00 The Bill
22:00~22:30 Action News on BBC1
22:30~23:30 Magnum P.I.
23:30~00:30 Miami Vice
00:30~01:30 Late Night News
01:30~01:45 Preview - The Cinema Magazine
-24 Hr
+24 Hr
Prog. Type
Profile
SELECT
TIMER REC
Info
RETURN
Guide Change Display Mode
Page +
Page –

To change channels	**Landscape view** Press [▲, ▼] to select a channel. **Portrait view** Press [◄, ►] to select a channel. The TV Guide list appears for this channel.
To view a programme list for another day	●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 browse through the TV Guide list	Press [∧ ∨ CH].
To see programme information (Programmes with the ⓘ symbol)	Press [STATUS ⓘ]. Additional information (programme name, programme duration, broadcast time, description) is available for these programmes.  TV Guide Wed 13.01.07 19:45 Wed 13.01. Spending Other People's Money ABC ONE, Lifestyle 19:30-20:00. 30min. A flashy car salesman loses his cool when stingy friend takes over his wallet. He's lorced to sell his possessions at a car boot sale to pay for food. TIMER REC ⓘReturn to List RETURN Press [▲, ▼] to scroll up and down. **To show other pages** Press [CH ∧] (Previous) or [∨ CH] (Next). Press [STATUS ⓘ] again to return to the programme list.

Selecting the programme from the desired programme type or profile

This function lets you display a TV Guide list sorted by programme type (e.g. Movies, Sport) or profile (e.g. TV, Radio).

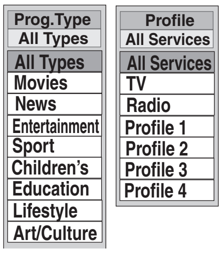
1 **From the desired programme type**

Press the “Yellow” button to display the list of programme type.

From the desired profile

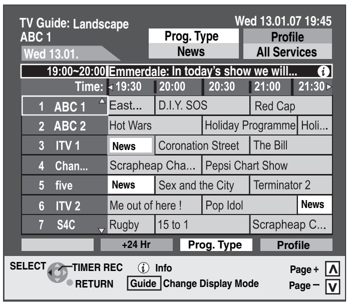
Press the “Blue” button to display the list of profiles.

2 **Press [▲, ▼] to select the desired item.**


Prog.Type
All Types
All Types
Movies
News
Entertainment
Sport
Children's
Education
Lifestyle
Art/Culture
Profile
All Services
All Services
TV
Radio
Profile 1
Profile 2
Profile 3
Profile 4

3 **Press [OK].**

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


TV Guide: Landscape
ABC 1
Wed 13.01.
Wed 13.01.07 19:45
Prog. Type
News
Profile
All Services
19:00~20:00 Emmerdale: In today's show we will...
Time: 19:30 20:00 20:30 21:00 21:30
1 ABC 1 East... D.I.Y. SOS Red Cap
2 ABC 2 Hot Wars Holiday Programme Holi...
3 ITV 1 News Coronation Street The Bill
4 Chan... Scrapheap Cha... Pepsi Chart Show
5 five News Sex and the City Terminator 2
6 ITV 2 Me out of here ! Pop Idol News
7 S4C Rugby 15 to 1 Scrapheap C...
+24 Hr
Prog. Type
Profile
SELECT
TIMER REC
Info
RETURN
Guide Change Display Mode
Page +
Page –

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

Note

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

4 **Press [▲, ▼, ◄, ►] to select the programme.**

To return to the previous TV Guide list before you have selected the programme type or profiles

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

To return to the previous screen

Press [RETURN].

To exit the screen

Press [EXIT].

Refer to the control reference on page 28.

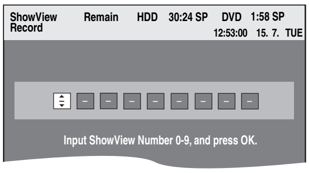
Using SHOWVIEW number to make timer recordings

Entering SHOWVIEW numbers is an easy way of timer recording. You can find these numbers in TV listings in newspapers or magazines.

Note

The SHOWVIEW system is not supported for digital broadcasts.

1 Press [ShowView].



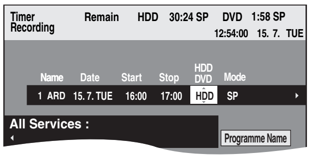
ShowView Record Remain HDD 30:24 SP DVD 1:58 SP
12:53:00 15. 7. TUE

Input ShowView Number 0-9, and press OK.

2 Press the numbered buttons to enter the SHOWVIEW number.

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

3 Press [OK].



Timer Recording Remain HDD 30:24 SP DVD 1:58 SP
12:54:00 15. 7. TUE

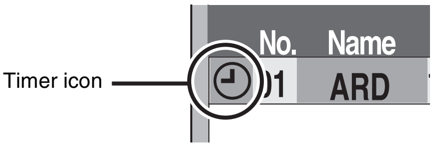
Name	Date	Start	Stop	HDD DVD	Mode
1 ARD	15. 7. TUE	16:00	17:00	HDD	SP

All Services :

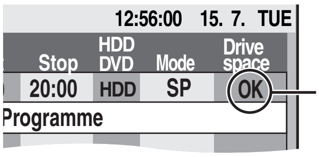
- Confirm the programme (start and end time) by using a TV magazine, etc. and make corrections if necessary using [▲, ▼, ◀, ▶] (➡ right column, step 3).
- When "-- ---" appears in the "Name" column, you cannot set timer recording. Press [▲, ▼] to select desired programme position. After you have entered the information of a TV station, it is kept in the unit's memory.

4 Press [OK].

The timer programme is stored and the timer icon is displayed.



"⏲" lights on the unit's display to indicate timer recording standby has been activated.



Check to make sure "OK" is displayed (➡ 32).

Repeat steps 1–4 to programme other recordings.
Press [⏻ DVD] to turn the unit off.

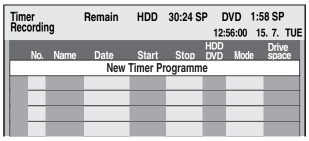
■ To cancel recording when recording has already begun (➡ 31)

■ To release the unit from recording standby (➡ 31)

■ Notes on timer recording (➡ 31)

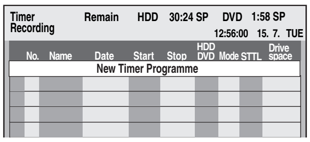
Manually programming timer recordings

1 Press [PROG/CHECK].



Timer Recording Remain HDD 30:24 SP DVD 1:58 SP
12:56:00 15. 7. TUE

For Germany

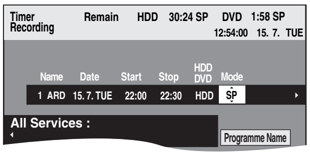


Timer Recording Remain HDD 30:24 SP DVD 1:58 SP
12:56:00 15. 7. TUE

For France, Italy and Spain

2 Press [▲, ▼] to select "New Timer Programme" and press [OK].

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

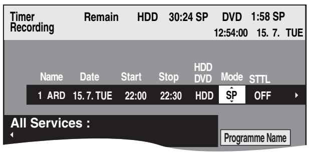


Timer Recording Remain HDD 30:24 SP DVD 1:58 SP
12:54:00 15. 7. TUE

Name	Date	Start	Stop	HDD DVD	Mode
1 ARD	15. 7. TUE	22:00	22:30	HDD	SP

All Services :

For Germany



Timer Recording Remain HDD 30:24 SP DVD 1:58 SP
12:54:00 15. 7. TUE

Name	Date	Start	Stop	HDD DVD	Mode	STTL
1 ARD	15. 7. TUE	22:00	22:30	HDD	SP	OFF

All Services :

For France, Italy and Spain

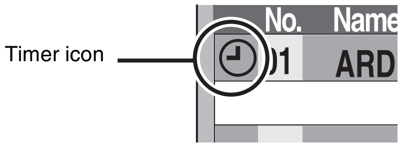
- When "Name" is selected, you can press the "Blue" button to change the profile [e.g., TV, Radio, Edit Profiles screen (➡ 69)] and then press [▲, ▼] to select the channel you want to record.
- Press and hold [▲, ▼] to alter the Start (Start time) and Stop (Finish time) in 30-minute increments.
- You can also set Name (Programme position/TV Station Name), Date, Start (Start time), and Stop (Finish time) with the numbered buttons.
- **Date**

  → Date: Current date up to one month later minus one day
  ↓ ↑
  Daily timer: SUN-SAT→MON-SAT→MON-FRI
  ↓ ↑
  → Weekly timer: SUN→---→SAT
- You can also press [DRIVE SELECT] to select the recording drive.
  When the recording drive is "DVD" and there is not enough remaining space, recording automatically switches to the "HDD" (➡ 32, Relief Recording).
- You can also press [REC MODE] to change the recording mode.
- **HDD RENEW (Auto Renewal Recording)** (➡ 32)
  ON←→OFF
- **Programme Name**
  Press [◀, ▶] to select "Programme Name" and press [OK]. (➡ 59, Entering text)
- **STTL (Subtitles)** (Digital broadcast only)
  For France, Italy and Spain
  ON←→OFF
  When the "Name" column is set in AV1, AV2 or AV3, On/Off setting is unavailable.

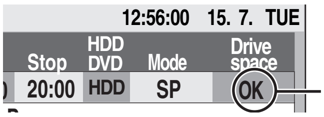
  You can also press [STTL] to switch "STTL" setting. When there are multiple languages, select the subtitle (➡ 43, DVB Subtitle).

4 Press [OK].

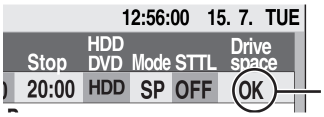
The timer programme is stored and the timer icon is displayed.



"⏲" lights on the unit's display to indicate timer recording standby has been activated.



For Germany
Check to make sure "OK" is displayed (➡ 32).



For France Italy Spain
Check to make sure "OK" is displayed (➡ 32).

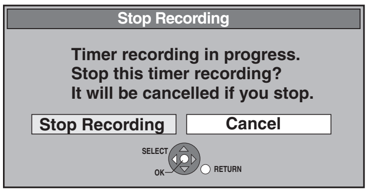
Repeat steps 2–4 to programme other recordings.
Press [⏻ DVD] to turn the unit off.

- ■ **To cancel recording when recording has already begun (➡ right)**
- ■ **To release the unit from recording standby (➡ right)**
- ■ **Notes on timer recording (➡ right)**

To cancel recording when recording has already begun

1 **While the unit is on**

Press [DRIVE SELECT] to select the recording drive and press [■].


Stop Recording

Timer recording in progress.
Stop this timer recording?
It will be cancelled if you stop.

2 Press [◄, ►] to select "Stop Recording" and press [OK].

If you stop a timer recording, it will be cancelled. However, if you have set a weekly or daily timer recording, the recording will start from the next time the timer recording is set.

To release the unit from recording standby

Even when the unit is turned off, you can display the timer recording list by pressing [PROG/CHECK].

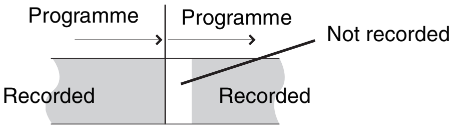
1 Press [PROG/CHECK].

2 Press [▲, ▼] to select the programme and press the "Red" button.

- The timer icon "⏲" (➡ 32) disappears from the timer recording list.
- You cannot cancel timer recording standby mode as long as even one timer icon "⏲" (➡ 32) remains in the timer recording list.
- Press the "Red" button again to activate timer recording standby.

Notes on timer recording

- 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 (➡ 51).
- 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.



Refer to the control reference on page 28.

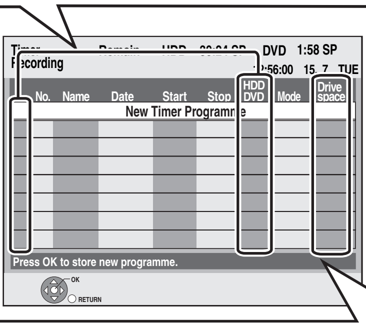
Check, change or delete a programme

Even when the unit is turned off, you can display the timer recording list by pressing [PROG/CHECK].

Press [PROG/CHECK].

Icons

◴	Timer recording standby is activated.
●	This programme is currently recording.
Ⓦ	The times overlap those in another programme. 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 programme starts recording.
Ⓕ	The disc was full so the programme failed to record.
▨	The programme was copy-protected so it was not recorded.
Ⓧ	The programme did not complete recording because the disc is dirty or some other reason.
↻	Timer programmes set to Auto Renewal Recording (➡ right).
↱	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



Press OK to store new programme.

Message displayed in the "Drive space" line

OK:	Displayed if the recording can fit in the remaining space.
→ (Date):	For recordings made daily or weekly, the display will show until when recordings can be made (up to a maximum of one month from the present time) based on the time remaining on the disc.
! :	It may not be possible to record because: ●there is not enough space left ●the number of possible titles has reached its maximum.
Relief:	Timer programmes that will be relief recorded to the HDD.

■ To change a programme

Press [▲, ▼] to select the programme and press [OK]. (➡ 30, right column, step 3)

■ To delete a programme

Press [▲, ▼] to select the programme and press [DELETE ✳].

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].

Programmes that failed to record are deleted from the timer recording list at 4 a.m. two days later.

Relief Recording

When the recording drive is "**DVD**" and there is not enough remaining 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 ("↱" is displayed.) (➡ 34).
- If the time remaining on the HDD is insufficient, as much of the programme as possible will be recorded onto the HDD.

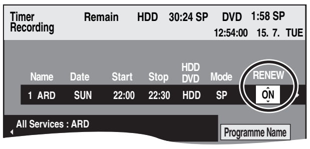
Auto Renewal Recording

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. **Press [PROG/CHECK].**
2. **Press [▲, ▼] to select the programme and press [OK].**
3. **Press [◄, ►] to select "RENEW" column.**
4. **Press [▲, ▼] to select "ON" and press [OK].**



Note

- 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.

Recording broadcasts from external equipment

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

See also “Important notes for recording” (➡ 8).

Making timer recordings on the television

(e.g., of digital broadcasts)

To make a timer recording with your television, connect to a television with a Q Link function (➡ 18) that you can use for setting timer recordings using a fully wired 21-pin Scart cable (➡ 14).

1 Make timer programming on the TV.

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

If you selected the DVD drive, insert a disc (➡ 24).

3 Turn off this unit.

The start and end of recording is controlled by the TV.

To stop recording

Press [■].

Note

- 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” (➡ 45).

Recording from digital satellite receiver or analogue decoder※

※ Information about the Decoder is for France, Italy and Spain only.

Preparation

- Connect a digital satellite receiver or analogue decoder※ to this unit’s input terminals (➡ 15).
- When the output signal from the external equipment is NTSC, change the “TV System” to “NTSC” in the Setup menu (➡ 72).
  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.)
- Press [DRIVE SELECT] to select the HDD or DVD drive.

1 **While stopped**

Press [INPUT SELECT] to select the input channel for the equipment you have connected.

e.g.,If you have connected to AV2 input terminals, select “A2”.

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

3 Select the channel on the other equipment.

4 Press [● REC].

Recording starts.

To skip unwanted parts

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

To stop recording

Press [■].

Linked timer recordings with external equipment (digital satellite receiver) — EXT LINK

To record programmes from digital satellite receiver using timer programming

Preparation

- Make sure you connect the AV2 input terminal of this unit to the Scart terminal of a VCR or a digital satellite receiver with a 21-pin Scart cable (➡ 15).
- Set “AV2 Input” to match the connected equipment in the Setup menu (➡ 68).
- Set “Ext Link” to match the connected equipment in the Setup menu (➡ 68).

1 Make timer programming on the external equipment.

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

If you selected the DVD drive, insert a disc (➡ 24).

3 Press [EXT LINK].

The unit turns off and “EXT-L” lights on the unit’s display to indicate timer recording standby has been activated.

To cancel the external control

Press [EXT LINK] to stop recording or to cancel linked timer recording standby.

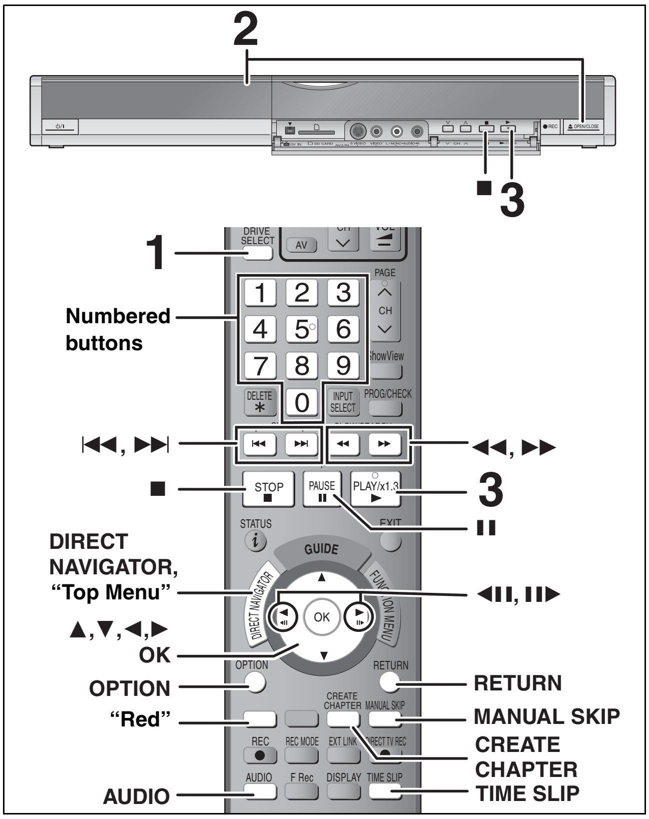
- In order to prevent accidental operation, press [EXT LINK] to cancel the setting after recording is finished.

Note

- 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.
- When “Ext Link” is set to “Ext Link 2”, this function does not work if the input signal is NTSC system.
- 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” (➡ 45).
- When this unit is in EXT LINK standby (“EXT-L” is shown on the unit’s display), the TV Guide data cannot be downloaded.
- While the unit is in EXT LINK standby mode or recording, video picture is from the AV2 input terminal irrespective of “AV1 Output” setting (➡ 67).
- During EXT LINK standby mode or recording, playback is only available from the drive performing the recording.
- When “EXT-L” lights on the unit’s display, Direct TV Recording is unavailable.
- While the unit is in EXT LINK standby mode or recording, most operations on this unit are prohibited ([⏏ OPEN/CLOSE], [⏻/I] etc.). When you operate, press [EXT LINK] to cancel EXT LINK standby mode or recording (This unit turns on and “EXT-L” disappears.).
- **For France, Italy and Spain** When “AV2 Connection” is set to “Decoder”, EXT LINK is not available (➡ 68).

Playing recorded video contents/Playing play-only discs

Instructions/notes regarding DVD-Audio is applicable to the DMR-EX87 model only.



16:9 aspect programmes are recorded in 4:3 aspect in the following cases.
- **-R** **-RW(V)** If you recorded using "EP" or "FR (recordings 5 hours or longer)" recording mode.
- If you recorded to a +R or +RW.
- If you recorded with the "Aspect for Recording" set to "4:3" in the Setup menu (➡ 65).
  However, if you recorded to the HDD or a DVD-RAM and "Rec for High Speed Copy" was set to "Off" in the Setup menu (➡ 65), the aspect will remain 16:9.

It may be possible to adjust the display mode on the TV. Refer to your television's operating instructions.

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

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

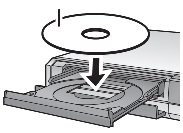
The HDD or DVD indicator lights up on the unit's display.
- It is possible to watch playback from one drive while recording on another (editing is not possible).

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

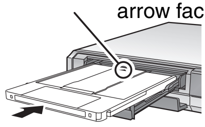
- Press the button again to close the tray.
- When using 8 cm DVD-RAM, or 8 cm DVD-R, remove the disc from the cartridge.

■ **Cartridge disc**

Insert label-up.



Insert label-up with the arrow facing in.



Insert fully.

Automatic drive select function (➡ 24)

3 Press [▶] (PLAY).

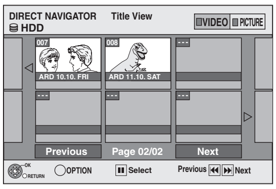
HDD **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **-RW(VR)**
Play starts from the most recently recorded title.
DVD-V **DVD-A** **CD** **VCD** and MP3
Play starts from the beginning of the disc.
DivX
DivX Menu screen appears (➡ 38).
- When using cartridge discs with the write-protect tab in the protect position (➡ 60), play automatically starts when inserted in the unit.

Selecting recorded programmes (titles) to play—Direct Navigator

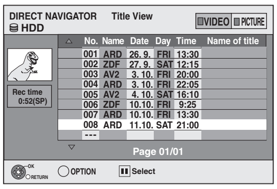
HDD **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **-RW(VR)**
(This function does not work with finalised discs.)

1 Press [DIRECT NAVIGATOR].

- **Thumbnail Display**



- **Table Display**

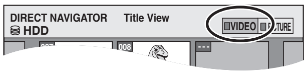


No.	Name	Date	Day	Time	Name of title
001	ARD	26. 9.	FRI	13:30	
002	ZDF	27. 9.	SAT	12:15	
003	AV2	3. 10.	FRI	20:00	
004	ARD	3. 10.	FRI	22:05	
005	AV2	4. 10.	SAT	16:10	
006	ZDF	10.10.	FRI	9:25	
007	ARD	10.10.	FRI	13:30	
008	ARD	11.10.	SAT	21:00	

Switching the Direct Navigator appearance
① Press [OPTION] while Thumbnail Display is displayed.
② Press [▲, ▼] to select "Table Display" and press [OK].
- The display appearance last used is saved even after the unit is turned off.

HDD **To sort Title View for easy searching** (Table Display only)
This function is convenient when searching for one title to playback from many titles.
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 "PICTURE" Direct Navigator screen, the sorted Title View will be cancelled.

2 **HDD** **RAM** Press the "Red" button to select "VIDEO".



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

You can also select titles 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 show other pages
Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [OK]. (Thumbnail Display only)
- You can also press [⏮, ⏭] to show other pages.

To exit the screen
Press [DIRECT NAVIGATOR].

Direct Navigator screen icons

●	Currently recording.
🔒	Title protected.
⧄	Title that was not recorded due to recording protection (Digital broadcasts etc.)
×	Title cannot be played [When copying a title to the HDD, or when data is damaged etc.]
↱	Titles that have been rerouted to the HDD (➡ 32, Relief Recording)
⊠	Title with "One time only recording" restriction (➡ 84, CPRM)
N (NTSC) P (PAL)	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 (➡ 72).

■ When a menu screen appears on the television

DVD-V DVD-A

Press [▲, ▼, ◄, ►] to select the item and press [OK].
Some items can also be selected using the numbered buttons.
If "ENTER" appears on the screen, press [OK].

VCD

Press the numbered buttons to select the item.
e.g., 5: [0] ➡ [5] 15: [1] ➡ [5]

- **To return to the menu screen**

DVD-V Press [DIRECT NAVIGATOR].
You can also return to the menu screen with the following steps.
1 Press [OPTION].
2 Press [▲, ▼] to select "Top Menu" or "Menu" and press [OK].

DVD-A Press [DIRECT NAVIGATOR].

VCD Press [RETURN].

Note

- It is not possible to play continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
- Depending on the disc, it may take time for the menu screen, pictures, sound, etc. to start.
- Discs continue to rotate while menus are displayed. Press [■] when you have finished playback to protect the unit's motor, your television screen and so on.
- 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.
- When playing back a title recorded on the HDD, ensure that you match the "TV System" setting to the recorded title (➡ 72).

Operations during play

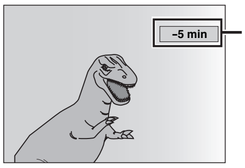
Stop	**Press [■].** The stopped position is memorized. **Resume play function** Press [►] (PLAY) to restart from this position. **Stopped position** ● If [■] is pressed several times, the position is cleared. ● The position is cleared if the tray is opened. ● DVD-A CD VCD and **MP3/**DivX :The position 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. (+R +R DL +RW up to 3 steps) ● Press [►] (PLAY) to restart play. ● Audio is heard during first level search forward. DVD-A (excluding motion picture parts) CD and **MP3** : Audio is heard during all levels of search. DivX : Audio is not heard during all levels of search. ● Depending on the disc, Search may not be possible.
Skip	**During play or while paused, press [❙◄◄] or [►►❙].** Skip to the title, chapter or track you want to play. ● Each press increases the number of skips. ● DivX : Press [❙◄◄] to return to the beginning of the title currently playing.
Starting from a selected title	**Press the numbered buttons.** Play starts from the selected title, chapter or track. ● HDD e.g., 5: [0] ➡ [0] ➡ [5] 15: [0] ➡ [1] ➡ [5] ● **MP3** and **JPEG** e.g., 5: [0] ➡ [0] ➡ [0] ➡ [5] 15: [0] ➡ [0] ➡ [1] ➡ [5] ● DVD-A Selecting groups While stopped (➡ right, Screen saver is displayed on the television.) Input a 1-digit number e.g., 5: [5] ● Other discs (You can select a track with DVD-Audio.) Input a 2-digit number e.g., 5: [0] ➡ [5] 15: [1] ➡ [5] ● This works only when stopped (➡ above, Screen saver is displayed on the television.) with some discs. ● VCD (with playback control) If you press the numbered buttons while stopped (the above screen saver is displayed on the television) you can cancel PBC. (Elapsed play time appears on the unit's display.)
Quick View HDD RAM	**Press and hold [►] (PLAY/×1.3).** Play speed is quicker than normal. ● Press again to return to normal speed.

(Continued on the next page)

Refer to the control reference on page 34.

Operations during play

(continued)

Slow-motion HDD RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A (Motion picture parts only) -RW(VR) VCD	**While paused, press [◀◀] or [▶▶].** The speed increases up to 5 steps. ●Press [▶] (PLAY) to restart play. ● VCD Forward direction [▶▶] only. ●The unit will pause if slow-motion play is continued for approximately 5 minutes (excluding DVD-V DVD-A VCD).
Frame-by-frame HDD RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A (Motion picture parts only) -RW(VR) VCD	**While paused, press [◀] (◀❚❚) or [▶] (❚❚▶).** Each press shows the next frame. ●Press and hold to change in succession forward or backward. ●Press [▶] (PLAY) to restart play. ● VCD Forward direction [▶] (❚❚▶) only.
Skipping the specified time (Time Slip) HDD RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR) (This function does not work with finalised discs.)	**1 Press [TIME SLIP].** **2 Press [▲, ▼] to select the time and press [OK].** Play skips the specified time. ●Each time you press [▲, ▼], the time increases [▲] or decreases [▼] by 1 minute intervals. (Press and hold for 10-minute intervals.)  This automatically disappears after approximately 5 seconds. To show the screen again press [TIME SLIP] again.
Manual Skip HDD RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR) (This function does not work with finalised discs.)	**Press [MANUAL SKIP].** Each time you press, play restarts approximately 30 seconds later.
Create Chapter (➡ 44, Title/Chapter) HDD RAM	**Press [CREATE CHAPTER].** Chapters are divided at the point pressed. ●Press [|◀◀, ▶▶|] to skip to the start of a chapter. ●Chapters cannot be created during EXT LINK standby.

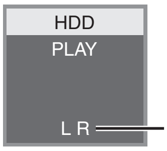
Changing audio during play

(Analogue broadcast only)

Press [AUDIO].

HDD RAM -RW(VR) VCD and DivX

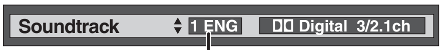
LR→L→R
↑________┘



e.g., "L R" is selected

DVD-V DVD-A

You can change the audio channel number each time you press the button. This allows you to change things like the soundtrack language (➡ 42, Soundtrack).



e.g., English is selected.

Note

You cannot change the audio type in the following cases.

- 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" (➡ 66).
- When "Rec for High Speed Copy" is set to "On" (The default setting is "On" ➡ 65).

Regarding DivX discs, MP3 discs and still pictures (JPEG)

DivX

Playable discs	-R -R DL CD
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. GMC (Global Motion Compensation) is not supported.

MP3

Playable discs	-R -R DL CD
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/44.1kHz/48 kHz
ID3 tags	not compatible

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

Still pictures (JPEG[2])

Playable discs and cards	HDD RAM -R -R DL CD SD
File format	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 Maximum number of folders recognizable:300 folders (including the root folder) HDD RAM SD This unit can handle a maximum of 300 folders (including higher folders)
Number of files[3]	-R -R DL CD Maximum number of files recognizable[1]:3000 files HDD RAM SD This unit can handle a maximum of 3000 files
MOTION JPEG	not supported

---

[1] Total number of recognizable file including MP3, JPEG, DivX and other types 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.

-R -R DL CD

- Compatible formats: ISO9660 level 1 or 2 (except for extended formats) and Joliet
- This unit is compatible with multi-session but reading or play of the disc may take time if there are a lot of sessions.
- Operation may take time to complete when there are many files (tracks) and/or folders (groups) and some files (tracks) may not display or be playable.
- English alphabet and Arabic numerals are displayed correctly. Other characters may not be displayed 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 numbered them.
- This unit is not compatible with packet-write format.
- Depending on the recording conditions, the disc may not play.

HDD RAM SD

- Compatible formats: DCF[4] compliant (Content recorded on a digital camera, etc.)

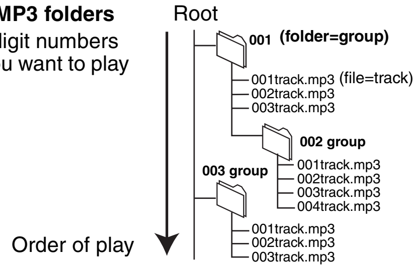
[4] Design rule for Camera File system: unified standard established by Japan Electronics and Information Technology Industries Association (JEITA).

You can play MP3 and still pictures (JPEG) on this unit by making folders as shown below. However depending on how you create the disc (writing software), play may not be in the order you numbered the folders.

-R -R DL CD

Structure of MP3 folders

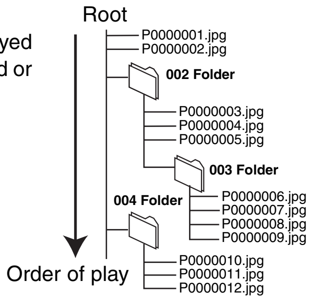
Prefix with 3-digit numbers in the order you want to play them.

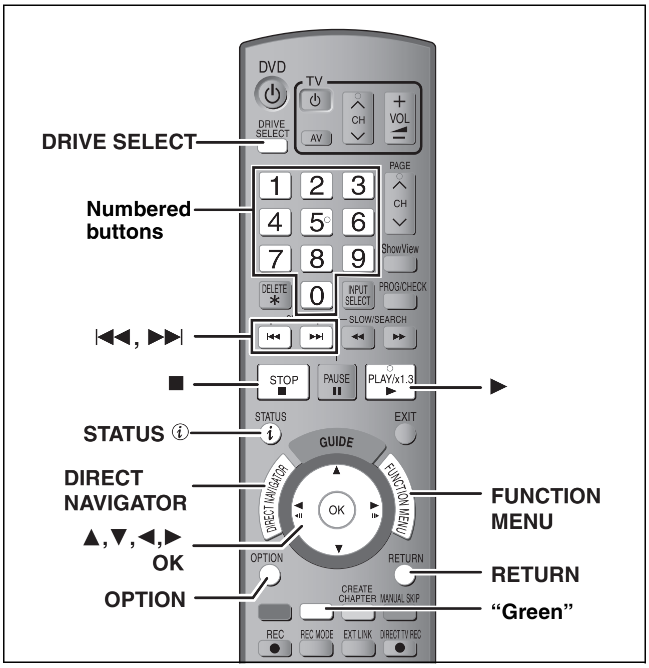

Root
001 (folder=group)
001track.mp3 (file=track)
002track.mp3
003track.mp3
002 group
001track.mp3
002track.mp3
003track.mp3
004track.mp3
003 group
001track.mp3
002track.mp3
003track.mp3
Order of play

-R -R DL CD

Structures of still pictures

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


Root
P0000001.jpg
P0000002.jpg
002 Folder
P0000003.jpg
P0000004.jpg
P0000005.jpg
003 Folder
P0000006.jpg
P0000007.jpg
P0000008.jpg
P0000009.jpg
004 Folder
P0000010.jpg
P0000011.jpg
P0000012.jpg
Order of play


DRIVE SELECT
Numbered buttons
⏮, ⏭
■
STATUS ⓘ
DIRECT NAVIGATOR
▲,▼,◀,▶
OK
OPTION
▶
FUNCTION MENU
RETURN
"Green"

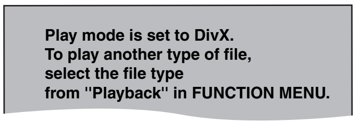
Selecting file type to play

-R **-R DL** **CD**

You can play DVD-R, DVD-R DL and CD-R/CD-RW discs which contain MP3 files, DivX video contents or still pictures that have been recorded on a computer.

The screen shown below is displayed when you insert a disc containing DivX video contents, MP3 files and still pictures (JPEG).

e.g.,



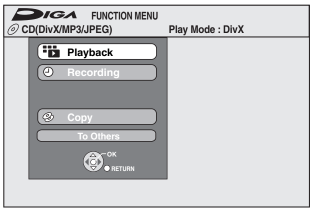
Play mode is set to DivX.
To play another type of file,
select the file type
from "Playback" in FUNCTION MENU.

- When playing the file displayed on the screen
  Press [OK].
- When you want to play files other than the one displayed on the screen
  Follow the steps below.

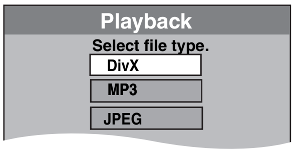
To select file type

1 **Press [RETURN].**

2 **Press [FUNCTION MENU].**


DIGA
FUNCTION MENU
CD(DivX/MP3/JPEG)
Play Mode : DivX
Playback
Recording
Copy
To Others
OK
RETURN

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


Playback
Select file type.
DivX
MP3
JPEG

4 **Press [▲, ▼] to select playback mode and press [OK].**

If "DivX" is selected: Go to "Playing DivX discs" step 2 in the right column.
If "MP3" is selected: Go to "Playing MP3 discs" step 2 on page 39.
If "JPEG" is selected: Go to "Playing still pictures" step 4 on page 40.

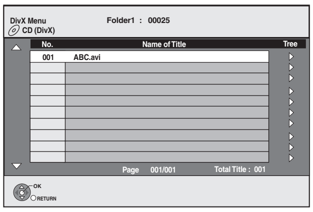
Playing DivX discs

-R **-R DL** **CD**

You can play DVD-R, DVD-R DL and CD-R/CD-RW discs which contain DivX video contents that have been recorded on a computer.

Preparation
Press [DRIVE SELECT] to select the DVD drive.

1 Press [DIRECT NAVIGATOR].


DivX Menu
CD (DivX)
Folder1 : 00025
No.
Name of Title
Tree
001
ABC.avi
Page 001/001
Total Title : 001
OK
RETURN

- Files are treated as titles.
- When the MP3 or JPEG Menu is displayed, perform steps 1–4 in "To select file type" on the left column selecting "DivX" in step 4 to change the playback mode.

2 Press [▲, ▼] to select the title and press [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]

To stop playing
Press [■].

To show other pages
Press [⏮, ⏭].

To exit the screen
Press [DIRECT NAVIGATOR].

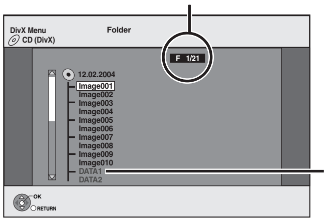
Note

- 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.

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.


DivX Menu
CD (DivX)
Folder
F 1/21
12.02.2004
Image001
Image002
Image003
Image004
Image005
Image006
Image007
Image008
Image009
Image010
DATA1
DATA2
OK
RETURN

You cannot select folders that contain no compatible files.

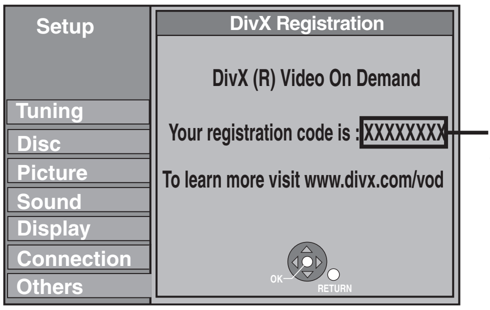
2 **Press [▲, ▼] to select a folder and press [OK].**
The file list for the folder appears.

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.
(➡ 68, "DivX Registration" in "Others" tab)



DivX (R) Video On Demand

Your registration code is : XXXXXXXX

To learn more visit www.divx.com/vod

8 alphanumeric characters

- 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 discs

-R **-R DL** **CD**

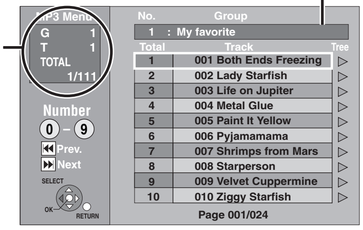
You can play DVD-R, DVD-R DL and CD-R/CD-RW discs which contain MP3 files that have been recorded on a computer.

Preparation
Press [DRIVE SELECT] to select the DVD drive.

1 Press [DIRECT NAVIGATOR].

Selected group

G: Group No.
T: Track No. in the group
TOTAL: Track No./Total tracks in all groups



Total	Track
1	001 Both Ends Freezing
2	002 Lady Starfish
3	003 Life on Jupiter
4	004 Metal Glue
5	005 Paint It Yellow
6	006 Pyjamamama
7	007 Shrimps from Mars
8	008 Starperson
9	009 Velvet Cuppermine
10	010 Ziggy Starfish

- Files are treated as tracks and folders are treated as groups.
- When the DivX or JPEG Menu is displayed, perform steps 1–4 in "To select file type" on page 38 selecting "MP3" in step 4 to change the playback mode.

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

Play starts on the selected track.
- "☞" indicates the track currently playing.
- You can also select the track with the numbered buttons.
  e.g., 5: [0] ➡ [0] ➡ [0] ➡ [5]
  15: [0] ➡ [0] ➡ [1] ➡ [5]

To stop playing
Press [■].

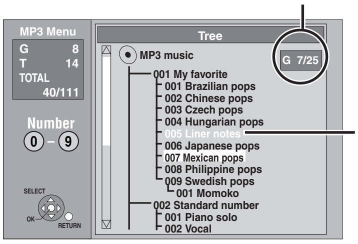
To show other pages
Press [⏮, ⏭].

To exit the screen
Press [DIRECT NAVIGATOR].

Using the tree screen to find a group

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

Selected group No. /Total groups
If the group has no track, "– –" is displayed as group number.



- MP3 music
  - 001 My favorite
    - 001 Brazilian pops
    - 002 Chinese pops
    - 003 Czech pops
    - 004 Hungarian pops
    - 005 Liner notes
    - 006 Japanese pops
    - 007 Mexican pops
    - 008 Philippine pops
    - 009 Swedish pops
      - 001 Momoko
  - 002 Standard number
    - 001 Piano solo
    - 002 Vocal

You cannot select groups that contain no compatible files.

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

The file list for the group appears.

To return to the previous screen
Press [RETURN].

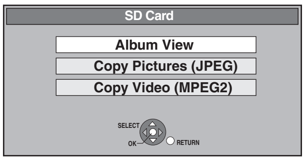
Refer to the control reference on page 38.

Playing still pictures

HDD **RAM** **-R** **-R DL** **CD** **SD**

- You can playback still pictures recorded onto a DVD-R, DVD-R DL or CD-R/CD-RW on a PC.
- You can use SD Cards with capacities from 8 MB to 4 GB (➡ 7).
- You cannot playback still pictures while recording or copying.
- Inserting, Removing the SD Card (➡ 13)

While stopped put the card in the slot, and the menu (➡ below) is automatically displayed.
Press [▲, ▼] to select “Album View”, and then press [OK] to display the Album View screen shown in step 2.

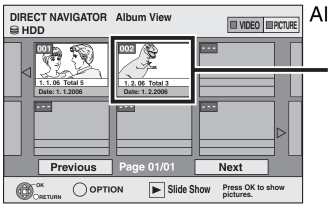

SD Card
Album View
Copy Pictures (JPEG)
Copy Video (MPEG2)
SELECT
OK
RETURN

1 Press [DRIVE SELECT] to select the HDD, DVD or SD drive.

The indicator lights up on the unit’s display.

2 Press [DIRECT NAVIGATOR].

- **HDD** **RAM** **SD**


DIRECT NAVIGATOR Album View
HDD
VIDEO
PICTURE
001
1. 1. 06 Total 5
Date: 1. 1.2006
002
1. 2. 06 Total 3
Date: 1. 2.2006
- - -
Previous
Page 01/01
Next
OK
RETURN
OPTION
Slide Show
Press OK to show pictures.

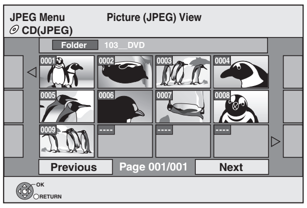
Album View screen

Recording date of the first picture in the album/ 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 [--.--.--].

HDD **RAM** If “VIDEO” is selected, press the “Green” button to select “PICTURE”.

- **-R** **-R DL** **CD**


JPEG Menu Picture (JPEG) View
CD(JPEG)
Folder 103__DVD
0001
0002
0003
0004
0005
0006
0007
0008
0009

Previous
Page 001/001
Next
OK
RETURN

Picture (JPEG) View screen

(➡ Go to step 4)

When the DivX or MP3 Menu is displayed, perform steps 1–4 in “To select file type” on page 38 selecting “JPEG” in step 4 to change the playback mode.

Direct Navigator screen icons

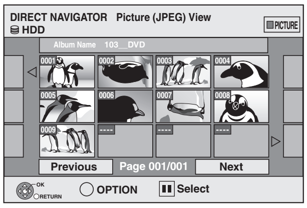
🔒	Picture and folder protected.

To show other pages
Press [▲, ▼, ◄, ►] to select “Previous” or “Next” and press [OK].

- You can also press [⏮, ⏭] to show other pages.

To select the still pictures in another folder (➡ 41)

3 Press [▲, ▼, ◄, ►] to select the album and press [OK].


DIRECT NAVIGATOR Picture (JPEG) View
HDD
PICTURE
Album Name 103__DVD
0001
0002
0003
0004
0005
0006
0007
0008
0009

Previous
Page 001/001
Next
OK
RETURN
OPTION
Select

e.g., HDD

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

- Press [◄, ►] to select the previous or next album.

4 Press [▲, ▼, ◄, ►] to select the still picture and press [OK].

You can also select still pictures with the numbered buttons.
e.g.,
5: [0] ➡ [0] ➡ [0] ➡ [5]
15: [0] ➡ [0] ➡ [1] ➡ [5]
115: [0] ➡ [1] ➡ [1] ➡ [5]
1115: [1] ➡ [1] ➡ [1] ➡ [5]

- Press [◄, ►] to display the previous or next still picture.
- Useful functions during still picture play (➡ 41)

To return to the Album View screen or Picture (JPEG) View screen
Press [RETURN].

To exit the screen
Press [DIRECT NAVIGATOR].

Useful functions during still picture play

Start Slide Show

Slide Show Setting

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

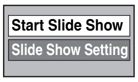
HDD **RAM** **SD**

1 While the Album View screen is displayed
Press [▲, ▼, ◄, ►] to select the album.

2 Press [►] (PLAY).

You can also start Slide Show with the following steps.

1 While the Album View screen is displayed
Press [▲, ▼, ◄, ►] to select the desired album and press [OPTION].
2 Press [▲, ▼] to select "Start Slide Show" and press [OK].


Start Slide Show
Slide Show Setting

-R **-R DL** **CD**

1 While the Picture (JPEG) View screen is displayed
Press [▲, ▼, ◄, ►] to select "Folder" and press [OPTION].

2 Press [▲, ▼] to select "Start Slide Show" and press [OK].

●**To change the display interval**

1 Press [▲, ▼] to select "Slide Show Setting" in step 2 and press [OK].
2 Press [▲, ▼] to select "Display interval".
3 Press [◄, ►] to select the desired interval (0–30 seconds) and press [OK].

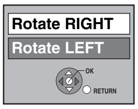
●**Repeat Play**

1 Press [▲, ▼] to select "Slide Show Setting" in step 2 and press [OK].
2 Press [▲, ▼] to select "Repeat Play".
3 Press [◄, ►] to select "On" or "Off" and press [OK].

Rotate

1 While playing
Press [OPTION].

2 Press [▲, ▼] to select "Rotate RIGHT" or "Rotate LEFT" and press [OK].


Rotate RIGHT
Rotate LEFT
OK
RETURN

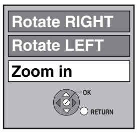
●Rotation information will not be stored.
–**-R** **-R DL** **CD** Still pictures
–When disc or album is protected
–When played on other equipment
–When copying pictures

●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 in
Zoom out

1 While playing
Press [OPTION].

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


Rotate RIGHT
Rotate LEFT
Zoom in
OK
RETURN

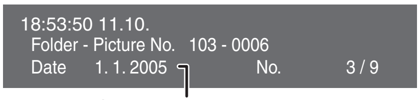
●To return the picture to its original size, press [▲, ▼] to select "Zoom out" in step 2 and press [OK].
●When zooming in, the picture may be cut off.
●The enlargement information will not be stored.
●The "Zoom in/Zoom out" function is only available for still pictures smaller than 640 × 480 pixels.

Properties

While playing

Press [STATUS ⓘ] twice.

e.g., HDD



18:53:50 11.10.
Folder - Picture No. 103 - 0006
Date 1. 1. 2005 No. 3 / 9

Shooting date

To exit the picture properties screen

Press [STATUS ⓘ].

■ To select the still pictures in another folder

(➡ 7, Structure of folders displayed by this unit)

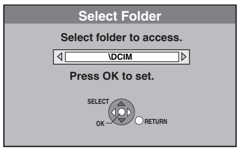
RAM **SD**

To switch to another higher folder

(Only if there is a multiple number of higher folders recognizable)

① While the Album View screen is displayed
Press [OPTION].

② **Press [▲, ▼] to select "Select Folder" and press [OK].**



Select Folder

Select folder to access.

\DCIM

Press OK to set.

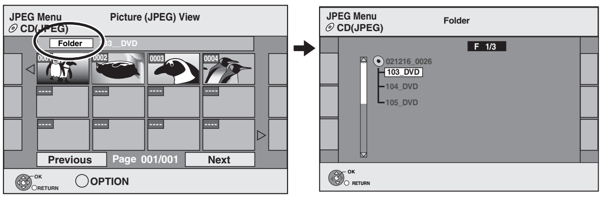
SELECT
OK
RETURN

③ **Press [◄, ►] to select the higher folder and press [OK].**

-R **-R DL** **CD**

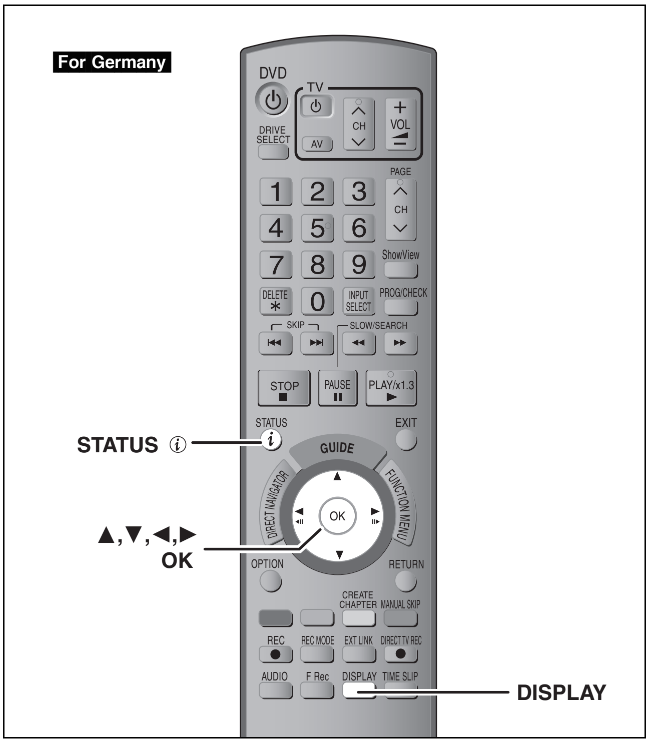
① While the Picture (JPEG) View screen is displayed
Press [▲, ▼, ◄, ►] to select "Folder" and press [OK].

② **Press [▲, ▼] to select the folder and press [OK].**


JPEG Menu
CD(JPEG)
Picture (JPEG) View
Folder
103__DVD
0001
0002
0003
0004
Previous
Page 001/001
Next
OK
RETURN
OPTION
JPEG Menu
CD(JPEG)
Folder
F 1/3
021216_0026
103_DVD
104_DVD
105_DVD
OK
RETURN

Using on-screen menus/Status message

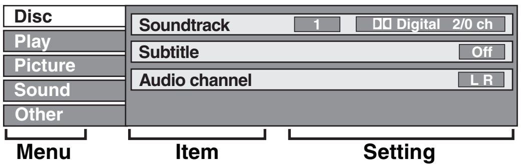
Instructions/notes regarding DVD-Audio is applicable to the DMR-EX87 model only.



Using on-screen menus

Common procedures

1 Press [DISPLAY].



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

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

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

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

4 Press [▲, ▼] to select the setting.

- Some items can be changed by pressing [OK].

To clear the on-screen menus
Press [DISPLAY].

Disc menu—Setting the disc content

Soundtrack※
HDD RAM -R -R DL -RW(V) +R +R DL +RW -RW(VR)
The disc's audio attributes appear.
DVD-V DVD-A
Select the audio and language (➡ right, Audio attribute, Language).
VCD (SVCD) and DivX
Select the soundtrack number.
- Soundtrack numbers are displayed even when there is only one audio type.

Subtitle※
DVD-V DVD-A
Turn the subtitle on/off and select the language (➡ below, Language).
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.

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.

Angle※ DVD-V DVD-A

Change the number to select an angle.

Audio channel HDD RAM -RW(VR) VCD and DivX

(➡ 36, Changing audio during play)

STILL-P (Still picture) DVD-A

Selects the play method for still pictures.
Slide Show: Plays according to the default order on the disc.
Page: Select the still picture number and play.
- RANDOM: Plays in random order.
- Return: Returns to the default still picture on the disc.

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.

PBC (Playback control) (➡ 85) VCD

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

※ With some discs, you may only be able to make changes using the menus (➡ 35) on the disc.

- The display changes according to the disc content. You cannot change when there is no recording.

Audio attribute

LPCM/PPCM/DD Digital/DTS/MPEG:	Signal type
k (kHz):	Sampling frequency
b (bit):	Number of bits
ch (channel):	Number of channels

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		

Play menu—Change the play sequence

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.

Repeat Play

● All	CD VCD
● Chapter	HDD RAM -R -R DL -RW(V) +R +R DL +RW DVD-V -RW(VR)
● Group	DVD-A and **MP3**
● PL (Playlist)	HDD RAM -RW(VR)
● Title	HDD RAM -R -R DL -RW(V) +R +R DL +RW DVD-V -RW(VR)
● Track	DVD-A CD VCD and **MP3**

Select "Off" to cancel.

Picture menu—Change the picture quality

Playback NR

Reduces noise and picture degradation.

Progressive※ (➡ 85)

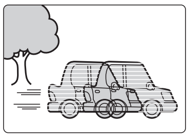
Select “On” to enable progressive output.
Select “Off” if the picture is stretched horizontally.

Transfer※ [When “Progressive” (➡ above) is set to “On”.]

Select the method of conversion for progressive output to suit the type of title being played (➡ 84, Film and video).

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.

AV-in NR (Only when AV1, AV2, AV3 or DV is selected)

Reduces video tape noise while copying.

- **Automatic:** Noise reduction only works on picture input from a video tape.
- **On:** Noise reduction works for input video.
- **Off:** Noise reduction is off. You can record the input signal as it is.

※ Only when you have set “Progressive” to “On” in the Setup menu (➡ 21).

Sound menu—Change the sound effect

DVB Multi Audio
[Digital channel 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.

For Germany
- English
- German
- Italian
- French
- Spanish
- Original※

For France, Italy and Spain
- English
- German
- Italian
- French
- Spanish
- Catalan
- Basque
- Galician
- Corsican
- Original※

※ “Original” is displayed when a broadcast is only available in the original language.

V.S.S.
HDD RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A -RW(VR)
(Dolby Digital, MPEG, 2-channel or over only)

Enjoy a surround-like effect if you are using two front speakers only.
- Turn V.S.S. off if it causes distortion. (Check the surround function on the connected equipment.)
- V.S.S. does not work for bilingual recordings.

Dialog Enhancer
HDD RAM -R -R DL -RW(V) +R +R DL +RW DVD-V DVD-A -RW(VR) and **DivX**
(Dolby Digital, 3-channel or over only, including a centre channel)

The volume of the centre channel is raised to make dialogue easier to hear.

Other menu—Change the display position

DVB Subtitle For France, Italy and Spain
[Digital channel only]

You can set the desired subtitles if more than one subtitle track can be selected.
- DVB Subtitle cannot be selected during playback or recording.
- Depending on the broadcast, the items that can be selected will differ.

- English
- German
- Italian
- French
- Spanish
- Catalan
- Basque
- Galician
- Corsican

Position

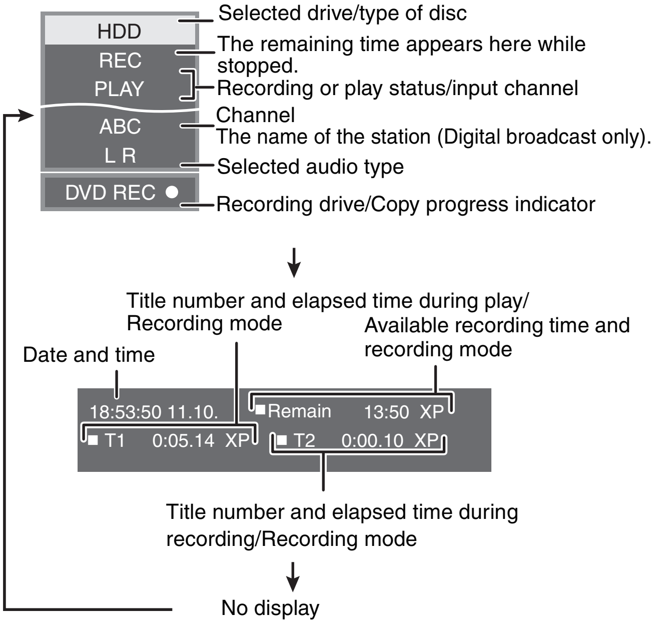
1–5: The higher the setting the lower the on-screen menu moves.

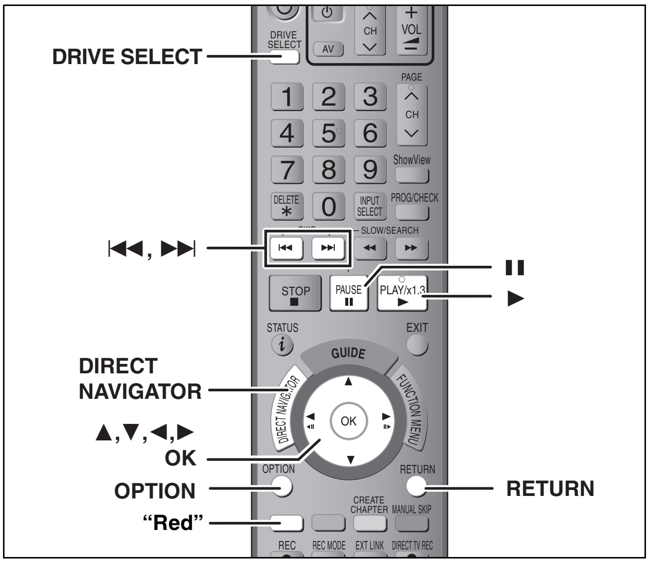
Status messages

During playback or recording

Press [STATUS ⓘ].

The display changes each time you press the button.

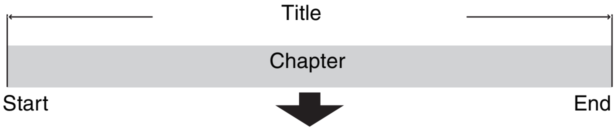

HDD
REC
PLAY
ABC
L R
DVD REC ●
Selected drive/type of disc
The remaining time appears here while stopped.
Recording or play status/input channel
Channel
The name of the station (Digital broadcast only).
Selected audio type
Recording drive/Copy progress indicator
Title number and elapsed time during play/Recording mode
Available recording time and recording mode
Date and time
18:53:50 11.10.
■Remain 13:50 XP
■ T1 0:05.14 XP
■ T2 0:00.10 XP
Title number and elapsed time during recording/Recording mode
No display


DRIVE SELECT
⏮, ⏭
❚❚
▶
DIRECT NAVIGATOR
▲,▼,◀,▶
OK
OPTION
RETURN
"Red"

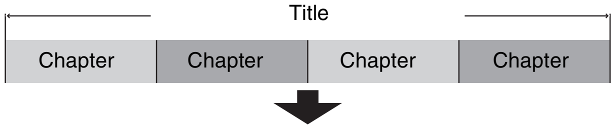
HDD **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **-RW(VR)**
(You cannot edit finalised discs.)

Title/Chapter

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


Title
Chapter
Start
End

HDD **RAM** You can divide a title into multiple chapters. Each section between the division points becomes a chapter.
(➡ 36, 45, Create Chapter)


Title
Chapter
Chapter
Chapter
Chapter

HDD **RAM** You can change the order of chapters and create a playlist (➡ 46).

- The maximum number of items on a disc:

HDD

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

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

–Titles:	99 (**+R** **+R DL** **+RW** 49 titles)
–Chapters:	Approx. 1000 (**+R** **+R DL** **+RW** Approx. 254) (Depends on the state of recording.)

Note

- Once deleted, divided or partially deleted, recorded content cannot be restored to its original state. Make certain before proceeding.
- You cannot edit during recording or copying, etc.
- Restricted recording information remains even after editing (e.g. dividing a title etc).
- **+R** **+R DL** Each time you edit a title the information is saved to the free space on the disc. If you do this numerous times, the amount of free space decreases.
  We recommend that you edit on the HDD and then copy to disc.

Editing titles/chapters and playing chapters

You can modify (remove unnecessary parts, divide, etc.) recorded programmes.

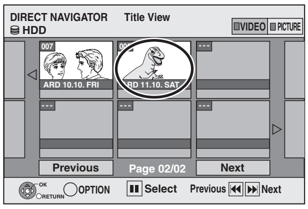
Preparation

- Turn on the television and select the appropriate video input to suit the connection to this unit.
- Turn the unit on.
- Press [DRIVE SELECT] to select the drive containing the recorded title to be edited.
- **RAM** Release protection (➡ 60).

1 **During play or while stopped**
Press [DIRECT NAVIGATOR].

2 **HDD** **RAM**
Press the "Red" button to select "VIDEO".

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


DIRECT NAVIGATOR Title View
HDD
VIDEO
PICTURE
007
ARD 10.10. FRI
ARD 11.10. SAT
Previous
Page 02/02
Next
OK
RETURN
OPTION
Select
Previous
Next

Title View screen

To show other pages

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

- You can also press [⏮, ⏭] to show other pages.

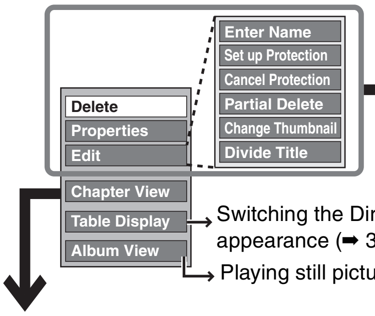
Multiple editing

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

4 **Press [OPTION].**

5 **Press [▲, ▼] to select the operation and press [OK].**

- If you select "Edit", press [▲, ▼] to select the operation and press [OK]. (➡ 45)


Enter Name
Set up Protection
Cancel Protection
Partial Delete
Change Thumbnail
Divide Title
Delete
Properties
Edit
Chapter View
Table Display
Album View

Refer to "Title operations" (➡ 45).

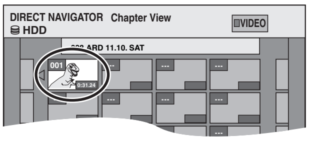
Switching the Direct Navigator appearance (➡ 34)

Playing still pictures (➡ 40, step 3)

■ If you select "Chapter View"

6 **Press [▲, ▼, ◀, ▶] to select the chapter.**

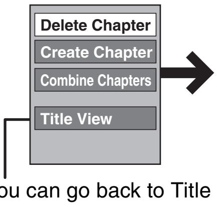
To start play ➡ Press [OK].
To edit ➡ Step 7.


DIRECT NAVIGATOR Chapter View
HDD
VIDEO
ARD 11.10. SAT
001
0:31.24

Chapter View screen

- **To show other pages/Multiple editing (➡ above)**

7 **Press [OPTION], then [▲, ▼] to select the operation and press [OK].**


Delete Chapter
Create Chapter
Combine Chapters
Title View

Refer to "Chapter operations" (➡ 45).

- You can go back to Title View.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [DIRECT NAVIGATOR].

Title operations

After performing steps 1–5 (➡ 44)

Delete※

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

Press [◄, ►] to select “Delete” and press [OK].

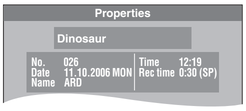
- **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
- The available recording space on DVD-R, DVD-R DL, +R or +R DL does not increase when you delete titles.
- Available recording space on DVD-RW (DVD-Video format) and +RW increases only when the last recorded title is deleted. It does not increase if other titles are deleted.

Properties

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

Information (e.g., time and date) is shown.

- Press [OK] to exit the screen.


Properties

Dinosaur

No. 026
Date 11.10.2006 MON
Name ARD
Time 12:19
Rec time 0:30 (SP)

Enter Name

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

You can give names to recorded titles.
(➡ 59, Entering text)

Set up Protection※

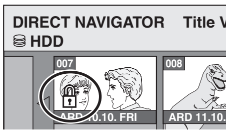
Cancel Protection※

HDD **RAM** **+R** **+R DL** **+RW**

If set, this will protect the title from accidental deletion.

Press [◄, ►] to select “Yes” and press [OK].

The lock symbol appears when the title is protected.


DIRECT NAVIGATOR Title V
HDD
007
008
ARD 10.10. FRI
ARD 11.10.

Partial Delete

HDD **RAM**

(➡ below, For your reference)

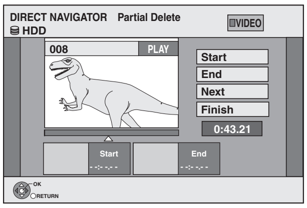
You can remove unnecessary part of the recording.

① **Press [OK] at the start point and end point of the section you want to delete.**

② **Press [▲, ▼] to select “Finish” and press [OK].**

- Select “Next” and press [OK] to delete other sections.

③ **Press [◄, ►] to select “Delete” and press [OK].**


DIRECT NAVIGATOR Partial Delete
VIDEO
HDD
008
PLAY
Start
End
Next
Finish
0:43.21
Start
End
OK
RETURN

Change Thumbnail

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

(➡ below, For your reference)

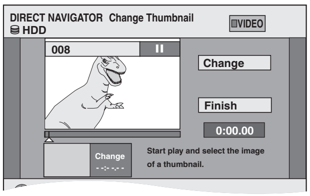
You can change an image to be shown as the thumbnail picture in the Title View.

① **Press [►] (PLAY) to start play.**

② **Press [OK] when the image you want to use as a thumbnail is shown.**

To change the thumbnail
Restart play and press **[▲, ▼]** to select “Change”, then press [OK] at the point you want to change.

③ **Press [▲, ▼] to select “Finish” and press [OK].**


DIRECT NAVIGATOR Change Thumbnail
VIDEO
HDD
008
Change
Finish
0:00.00
Change
Start play and select the image of a thumbnail.

Divide Title

HDD **RAM**

(➡ below, For your reference)

You can divide a title into two.

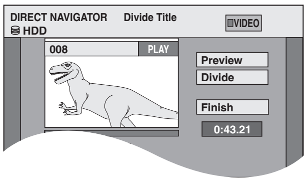
① **Press [OK] at the point you want to divide the title.**

② **Press [▲, ▼] to select “Finish” and press [OK].**

③ **Press [◄, ►] to select “Divide” and press [OK].**

To confirm the division point
Press [▲, ▼] to select “Preview” and press [OK]. (The unit plays 10 seconds before and after the division point.)

To change the division point
Restart play and press [▲, ▼] to select “Divide”, then press [OK] at the point where you want to divide the title.


DIRECT NAVIGATOR Divide Title
VIDEO
HDD
008
PLAY
Preview
Divide
Finish
0:43.21

Note

- The divided titles retain the title name and CPRM property (➡ 84) of the original title.
- Video and audio just before and after the dividing point may momentarily cut out.

※ Multiple editing is possible.

Chapter operations

After performing steps 1–7 (➡ 44)

Delete Chapter※

HDD **RAM**

Press [◄, ►] to select “Delete” and press [OK].

- **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
- Select “Combine Chapters” (➡ below) when you only want to delete the division point between chapters. (The recorded contents will not be deleted.)

Create Chapter

HDD **RAM**

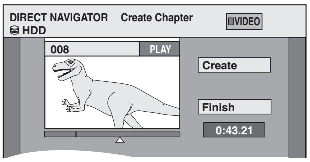
(➡ below, For your reference)

Select the point where you want to start a new chapter while viewing the title.

① **Press [OK] at the point you want to divide.**

- Repeat this step to divide at other points.

② **Press [▲, ▼] to select “Finish” and press [OK].**


DIRECT NAVIGATOR Create Chapter
VIDEO
HDD
008
PLAY
Create
Finish
0:43.21

Combine Chapters

HDD **RAM**

Press [◄, ►] to select “Combine” and press [OK].

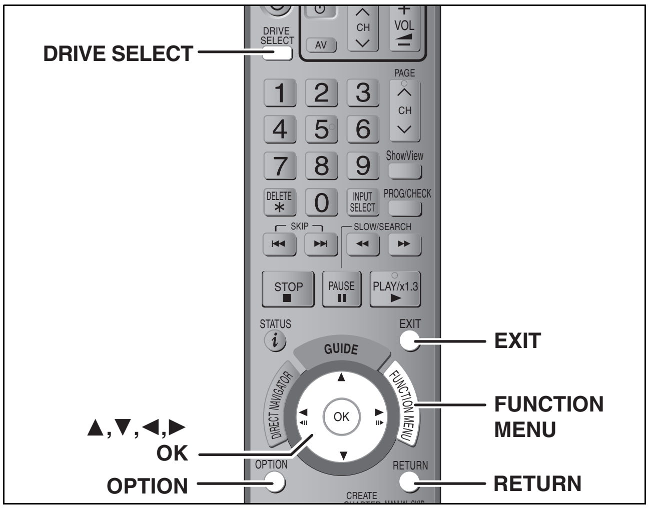
- The selected chapter and following chapter are combined.

※ Multiple editing is possible.

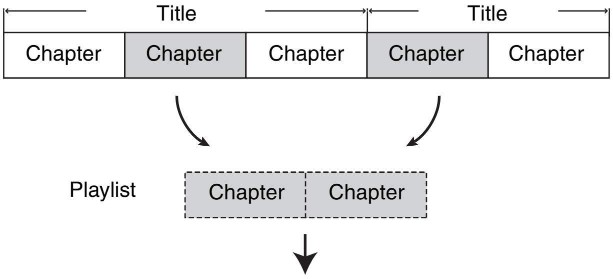
For your reference

- Use search (➡ 35), Time Slip (➡ 36) to find the desired point.
- To find the desired point correctly, use Slow-motion (➡ 36) and Frame-by-frame (➡ 36).
- To skip to the start or end of a title, press [|◄◄] (start) or [►►|] (end).

Creating, editing and playing playlists


DRIVE SELECT
EXIT
FUNCTION MENU
▲,▼,◄,►
OK
OPTION
RETURN

You can arrange the chapters (➡ 44) to create a playlist.


Title
Title
Chapter
Chapter
Chapter
Chapter
Chapter
Playlist
Chapter
Chapter

Copying (➡ 51) a playlist will create a title.

- ●Playlists are not recorded separately so this doesn't use much capacity.
- ●Editing chapters in a playlist does not modify the source titles and source chapters.
- ●You cannot create or edit playlists while recording or copying.

HDD **RAM**

- ●The maximum number of items on a disc:
  - –Playlists: 99
  - –Chapters in playlists: Approx. 1000 (Depends on the state of recording.)
- ●If you exceed the maximum numbers of items for a disc, all the items entered will not be recorded.

Creating playlists

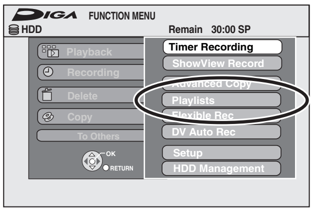
HDD **RAM**

Preparation

- ●Turn on the television and select the appropriate Video input to suit the connection to this unit.
- ●Turn the unit on.
- ●Press [DRIVE SELECT] to select the drive containing the recorded title to be edited.
- ●**RAM** Release disc or cartridge protection (➡ 60).
- ●You cannot create or edit a playlist while recording or while copying.
- ●Playlists must be made in accordance with the encoding system currently selected in "TV System" (➡ 72).

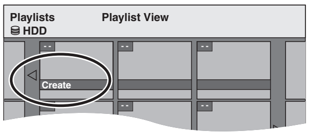
1 Press [FUNCTION MENU].

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


DIGA FUNCTION MENU
HDD
Remain 30:00 SP
Playback
Recording
Delete
Copy
To Others
OK
RETURN
Timer Recording
ShowView Record
Advanced Copy
Playlists
Flexible Rec
DV Auto Rec
Setup
HDD Management

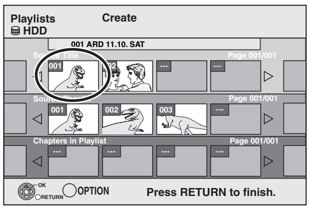
3 Press [▲, ▼] to select "Playlists" and press [OK].

4 Press [▲, ▼, ◄, ►] to select "Create" and press [OK].


Playlists
HDD
Playlist View
Create

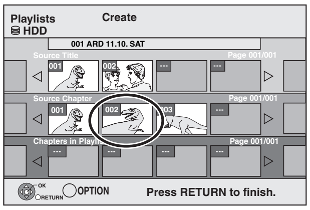
5 Press [◄, ►] to select the source title and press [▼].

- ●Press [OK] to select all the chapters in the title, then skip to step 7.


Playlists
HDD
Create
001 ARD 11.10. SAT
Source Title
Page 001/001
Source Chapter
Chapters in Playlist
OK
RETURN
OPTION
Press RETURN to finish.

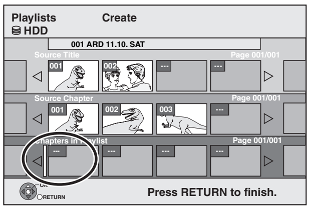
6 Press [◄, ►] to select the chapter you want to add to a playlist and press [OK].

Press [▲] to cancel.


Playlists
HDD
Create
001 ARD 11.10. SAT
Source Title
Source Chapter
Chapters in Playlist
Page 001/001
OK
RETURN
OPTION
Press RETURN to finish.

- ●You can also create a new chapter from the source title. Press [OPTION] to select "Create Chapter" and press [OK] (➡ 45, Create Chapter).

7 Press [◄, ►] to select the position to insert the chapter and press [OK].


Playlists
HDD
Create
001 ARD 11.10. SAT
Source Title
Source Chapter
Chapters in Playlist
Page 001/001
RETURN
Press RETURN to finish.

- ●Press [▲] to select other source titles.
- ●Repeat steps 6–7 to add other chapters.

8 Press [RETURN].

All the selected scenes become the playlist.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Editing and playing playlists/chapters

HDD RAM
-RW(VR) (Play only)

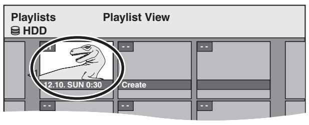
1 **Press [FUNCTION MENU].**

2 **Press [▲, ▼] to select “To Others” and press [OK].**

3 **Press [▲, ▼] to select “Playlists” and press [OK].**

4 **Press [▲, ▼, ◄, ►] to select the playlist.**

To start play ➡ Press [OK].
To edit ➡ Step 5.

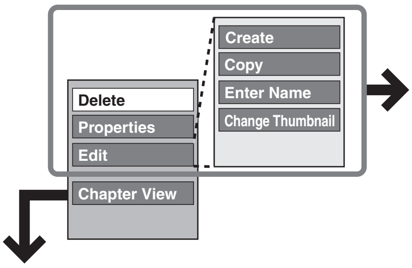

Playlists
Playlist View
HDD
12.10. SUN 0:30
Create

Playlist View screen

- **To show other pages/Multiple editing (➡ 44)**

5 **Press [OPTION], then [▲, ▼] to select the operation and press [OK].**

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

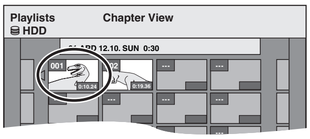

Create
Copy
Enter Name
Change Thumbnail
Delete
Properties
Edit
Chapter View

Refer to “Playlist operations”.

■ If you select “Chapter View”

6 **Press [▲, ▼, ◄, ►] to select the chapter.**

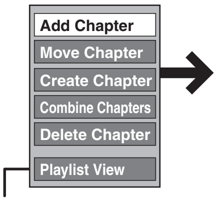
To start play ➡ Press [OK].
To edit ➡ Step 7.


Playlists
Chapter View
HDD
01 ABD 12.10. SUN 0:30
001
002
0:10.24
0:19.36

Chapter View screen

- **To show other pages/Multiple editing (➡ 44)**

7 **Press [OPTION], then [▲, ▼] to select the operation and press [OK].**


Add Chapter
Move Chapter
Create Chapter
Combine Chapters
Delete Chapter
Playlist View

Refer to “Chapter operations”.

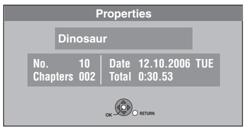
- You can go back to Playlist View.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Playlist operations

After performing steps 1–5 (➡ left)

Delete※ HDD RAM	**Press [◄, ►] to select “Delete” and press [OK].** **Once deleted, the playlists are lost and cannot be restored.** Make certain before proceeding.
Properties HDD RAM -RW(VR)	Playlist information (e.g., total time and date) is shown. ● Press [OK] to exit the screen.  Properties Dinosaur No. 10 Date 12.10.2006 TUE Chapters 002 Total 0:30.53
Create HDD RAM	(➡ 46, Creating playlists, Step 5–8)
Copy※ HDD RAM	**Press [◄, ►] to select “Copy” and press [OK].** ● The copied playlist becomes the newest one in the playlist view screen.
Enter Name HDD RAM	You can give names to playlists. (➡ 59, Entering text)
Change Thumbnail HDD RAM	(➡ 45, Change Thumbnail)

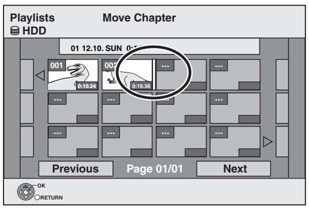
※ Multiple editing is possible.

Chapter operations

HDD RAM

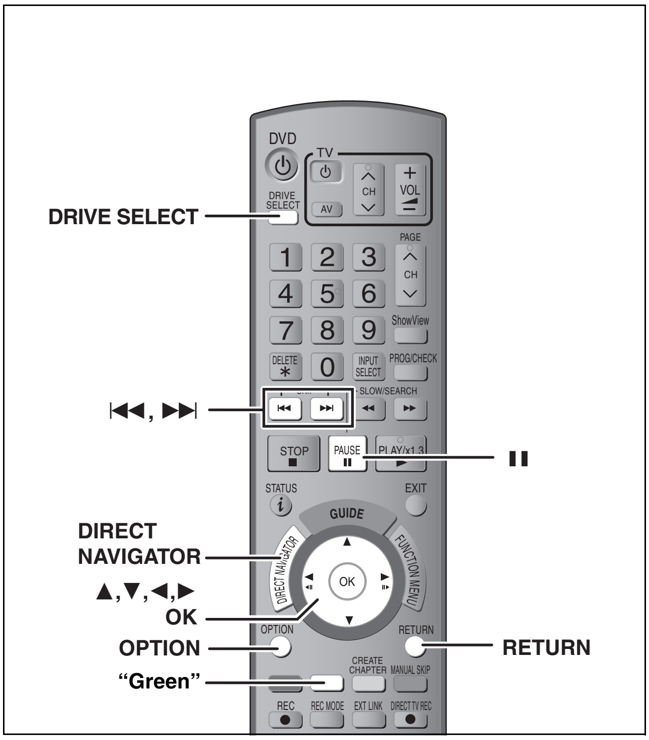
After performing steps 1–7 (➡ left)

- Editing chapters in a playlist does not modify the source titles and source chapters.

Add Chapter	(➡ 46, Creating playlists, Step 5–7)
Move Chapter	**Press [▲, ▼, ◄, ►] to select the position to insert the chapter and press [OK].**  Playlists Move Chapter HDD 01 12.10. SUN 001 002 0:10.24 0:19.36 Previous Page 01/01 Next OK RETURN
Create Chapter	(➡ 45, Create Chapter)
Combine Chapters	(➡ 45, Combine Chapters)
Delete Chapter※	(➡ 45, Delete Chapter) The playlist itself is deleted if you delete all the chapters in it.

※ Multiple editing is possible.

Editing still pictures


DRIVE SELECT
⏮, ⏭
❚❚
DIRECT NAVIGATOR
▲,▼,◄,►
OK
OPTION
“Green”
RETURN

HDD **RAM** **SD**

- ●You can edit pictures and albums.
- ●You can use SD Cards with capacities from 8 MB to 4 GB (➡ 7).
- ●You cannot edit still pictures recorded on DVD-R, DVD-R DL and CD-R/CD-RW.

Preparation

- ●Press [DRIVE SELECT] to select the HDD, DVD or SD drive.
- ●**RAM** **SD** Release protection (➡ 60, Setting the protection).

1 Press [DIRECT NAVIGATOR].

2 **HDD** **RAM**

Press the “Green” button to select “PICTURE”.

3 Editing an album:

Select the album to be edited and press [OPTION].

●When you want to create an album using “Create Album”, press [OPTION] without selecting album.

Editing a still picture:

1 Select the album which contains the still picture to edit and press [OK].

2 Select the still pictures to edit and press [OPTION].

To show other pages

Press [▲, ▼, ◄, ►] to select “Previous” or “Next” and press [OK].

●You can also press [⏮, ⏭] to show other pages.

Multiple editing

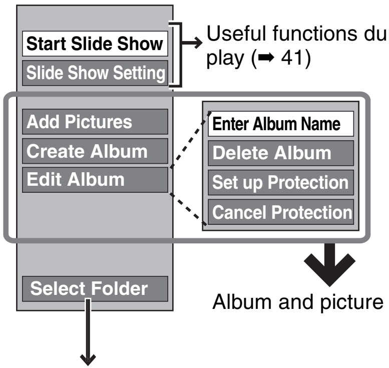
Select with [▲, ▼, ◄, ►] and press [❚❚]. (Repeat.)
A check mark appears. Press [❚❚] again to cancel.

●**To switch to another higher folder (➡ 41)**

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

■To edit the album

(e.g., **SD**)


Start Slide Show
Slide Show Setting
Add Pictures
Create Album
Edit Album
Enter Album Name
Delete Album
Set up Protection
Cancel Protection
Select Folder

Useful functions during still picture play (➡ 41)

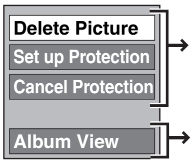
Album and picture operation (➡ 49)

RAM **SD**

This is only displayed when there are other higher folders that can be viewed.
To switch to another higher folder (➡ 41)

■To edit still picture

(e.g., **SD**)


Delete Picture
Set up Protection
Cancel Protection
Album View

Album and picture operation (➡ 49)

You can go back to Album View.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [DIRECT NAVIGATOR].

Album and picture operation

After performing steps 1–4, page 48

Delete Picture※
Delete Album※

HDD RAM SD

Press [◄, ►] to select "Delete" and press [OK].

- **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
- When deleting an album, files other than the still picture files inside the album will also be deleted. (This does not apply to folders under the album concerned.)

Enter Album Name

HDD RAM SD

You can give names to albums.
(➡ 59, Entering text)

- Album names input using this unit may not be displayed on other equipment.

Set up Protection※
Cancel Protection※

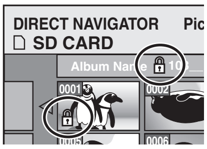
HDD RAM SD

If set, this will protect the still picture or album from accidental deletion.

Press [◄, ►] to select "Yes" and press [OK].

The lock symbol appears when the still picture or album is protected.

- Even if the protection setting is used by this unit to protect an album, the album may be deleted by another unit.

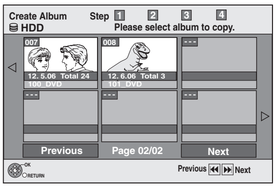

DIRECT NAVIGATOR Pic
SD CARD
Album Name 10
0001
0002
0005
0006

Add Pictures
Create Album

HDD RAM SD

① **Press [◄, ►] to select "Start" or "Yes" and press [OK].**

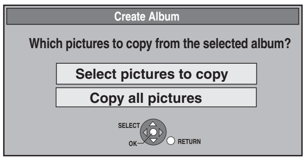
e.g.,


Create Album
Step 1 2 3 4
HDD
007
008
12. 5.06 Total 24
100_DVD
12. 6.06 Total 3
101_DVD
Previous
Page 02/02
Next
OK
RETURN
Previous
Next

Please select album to copy.

② **Press [▲, ▼, ◄, ►] to select the album that contains the still picture you want to add and press [OK].**

e.g.,


Create Album
Select pictures to copy
Copy all pictures
SELECT
OK
RETURN

Which pictures to copy from the selected album?

RAM SD

To switch to another higher folder

1 Press [OPTION].
2 Select "Select Folder" and press [OK].
3 Press [◄, ►] to select the higher folder and press [OK].

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

- If "Select pictures to copy" is selected
  Select the still picture you want to add and press [OK].
- If "Copy all pictures" is selected
  All the still pictures in the album will be copied.

④ **Press [◄, ►] to select "Yes" or "No" and press [OK].**

- If you want to continue copying, select "Yes" and go to step ②.

Only for "Create Album"

⑤ **Press [◄, ►] to select "Yes" or "No" and press [OK].**

- If "Yes" is selected:
  You can give names to albums. (➡ 59, Entering text)
- If "No" is selected:
  The recording date of the first picture in the album becomes the album name. (If there is no recording date information, the date will appear as [--.--.----].)

Copy to DVD-RAM

HDD

Copy to HDD

RAM

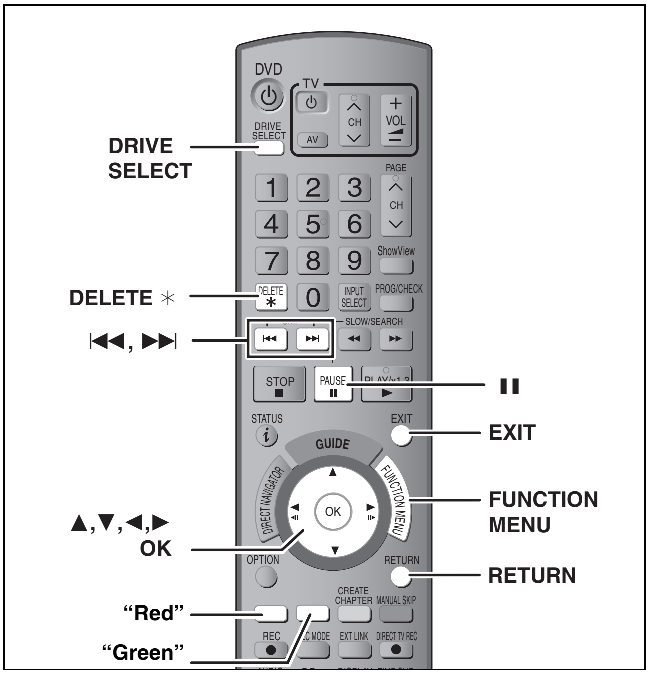
Press [◄] to select "Start" and press [OK].

You cannot copy if multiple albums are selected.

※ Multiple editing is possible.

Note

- Timer recordings do not start when performing "Add Pictures", "Create Album", "Copy to DVD-RAM" or "Copy to HDD".
- You cannot perform "Add Pictures" or "Create Album" to a higher folder.


DRIVE SELECT
DELETE ✱
|◀◀, ▶▶|
❚❚
EXIT
FUNCTION MENU
▲,▼,◀,▶
OK
RETURN
"Red"
"Green"

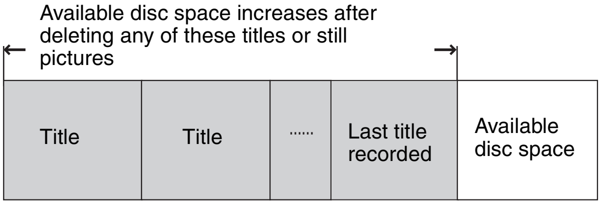
HDD RAM -R -R DL -RW(V) +R +R DL +RW SD
(You cannot delete items on finalised discs.)

- **A title or a picture cannot be restored once it is deleted.** Make certain before proceeding.
- You cannot delete while recording or copying.

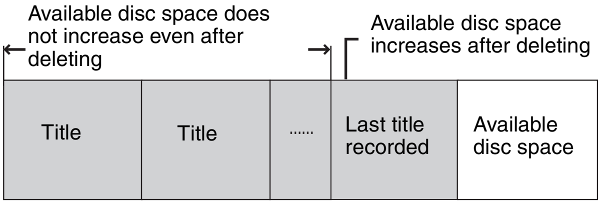
Preparation
- Press [DRIVE SELECT] to select the HDD, DVD or SD drive.
- RAM SD Release protection (➡ 60, Setting the protection).

■ Available disc space after deleting

- HDD RAM SD If you delete a recorded title (or a still picture), the space deleted becomes available for recording.


Available disc space increases after deleting any of these titles or still pictures
Title
Title
……
Last title recorded
Available disc space

- -RW(V) +RW Available recording space increases only when the last recorded title is deleted.

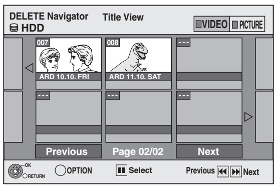

Available disc space does not increase even after deleting
Available disc space increases after deleting
Title
Title
……
Last title recorded
Available disc space

- -R -R DL +R +R DL Available space does not increase even after the contents are deleted.

Using the DELETE Navigator to delete

1 **Press [FUNCTION MENU].**

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


DELETE Navigator
Title View
HDD
VIDEO
PICTURE
007
008
ARD 10.10. FRI
ARD 11.10. SAT
Previous
Page 02/02
Next
OK
RETURN
OPTION
Select
Previous
Next

HDD RAM To switch to the other view
Press the "Green" button to select "PICTURE".
Press the "Red" button to select "VIDEO".

3 **If you want to delete a title:**

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

If you want to delete an album:

Press [▲, ▼, ◀, ▶] to select the album and press [DELETE ✱].

If you want to delete a still picture:

① **Press [▲, ▼, ◀, ▶] to select the album that contains the still picture you want to delete and press [OK].**
② **Press [▲, ▼, ◀, ▶] to select the still picture and press [OK].**

You can confirm the titles or pictures etc. that you have selected using the option menu.
- Refer to option menu operations for the "Title View" (➡ 44, step 5).
- Refer to option menu operations for the "Album View" (➡ 48, step 4).
- Refer to option menu operations for the "Picture (JPEG) View" (➡ 48, step 4).

To show other pages
Press [|◀◀, ▶▶|] to show other pages.

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

4 **Press [◀] to select "Delete" and press [OK].**
The title, album or the picture is deleted.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Deleting titles or pictures during play

1 **While playing**

Press [DELETE ✱].
You cannot delete a picture during a Slide Show.

2 **Press [◀, ▶] to select "Delete" and press [OK].**
The title or the picture is deleted.

Copying titles or playlists

		Copy		Advanced Copy	
Features		Easy copying from HDD to DVD with no difficult settings.		Make a copy list and then copy. You can set the unit to copy titles or playlists in the way you want.	
Copy direction	**HDD → DVD**	○		○	
	DVD → HDD	–		○ RAM -RW(VR) +RW DVD-V (Only from a finalised disc)	
High speed mode copy[※1]		○		○ 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 (➡ 55)		–	–	○ HDD RAM only	–
Copying playlists[※4]		–	–	○	○
Are chapters maintained?		○	–[※5]	○	–[※5]
Are thumbnails maintained?		○	–[※6]	○[※7]	–[※6]
Recording and Playing while Copying		–	–	○[※8]	–

[※1] **To high speed copy titles (or playlists created from those titles), set "Rec for High Speed Copy" to "On" before recording to the HDD (The default setting is "On". ➡ 65).**
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.

- When arranging multiple titles for copying, if any titles are recorded with "Rec for High Speed Copy" to "Off", then you cannot perform with high-speed copy.
- 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.
- SD Video titles copied to the HDD from an SD Card.
- +R +R DL +RW Titles recorded in "EP" mode and "FR (recordings 5 hours or longer)" mode. (Displayed ▶▶!)

[※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 (➡ 62).

[※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 from an SD Card.)
–You cannot perform chasing play or edit, etc. while copying.
–You cannot play a playlist while copying titles with "One time only recording" restriction (➡ 8).
–Still pictures 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 sec.	62x	2 min. 30 s.	24x	2 min. 30 s.	24x						
EP (8H)		1 min. 30 s.	40x	48 sec.	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 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.

Note

- 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.

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.

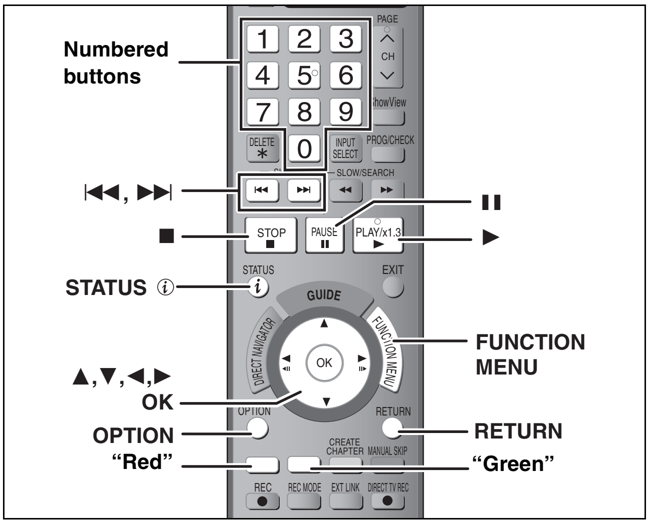
You cannot copy to DVD-R DL and +R DL in the following cases.
–When there is not enough free space on the HDD. (When copying to a new blank disc, if you intend to fill a new disc when copying to it, the equivalent of up to 4 hours of free space in SP mode is needed on the HDD.)
–When the number of titles 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. (➡ 5)

Regarding copying of the broadcasts that allow "One time only recording"

You can copy a recorded title to a CPRM (➡ 84) 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 (➡ 45).
- 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.



Before copying

When copying a title with main and secondary audio

- Select the audio type for recording bilingual broadcast from "Bilingual Audio Selection" (➡ 66) when:
  - –Copying to a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW.
  - –When "Audio Mode for XP Recording" is set to "LPCM" (➡ 66) and you are copying in XP mode.

■ 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.

Rec for High Speed Copy (➡ 65)	Copy speed
Only titles recorded with "Rec for High Speed Copy" set to "On". ※	High speed
Only titles recorded with "Rec for High Speed Copy" set to "Off".	Normal speed
When making a copy of multiple titles that were recorded with "Rec for High Speed Copy" set to "On" and "Off".	

※ In the following cases, even if "Rec for High Speed Copy" is set to "On", 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 and "Aspect for Recording" do not match.
- 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.

Note

Titles and playlists recorded using a different encoding system (PAL or NTSC) from the TV system currently selected on the unit cannot be copied.

Preparation

- Insert a disc that you can use for copying (➡ 4, 5).
- Confirm that there is enough remaining disc space.

Copy

DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R and +R DL are automatically finalised (➡ 84). 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.

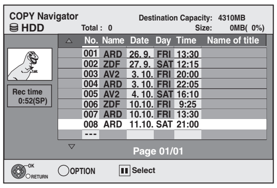
HDD → **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW**

(You cannot copy to finalised discs.)

When copying in normal speed, recording mode will be set to FR. (However, if there is still not enough space after setting to FR mode, copy will not be performed.)

1 Press [FUNCTION MENU].

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



COPY Navigator Destination Capacity: 4310MB
HDD Total : 0 Size: 0MB(0%)

Rec time 0:52(SP)

No.	Name	Date	Day	Time	Name of title
001	ARD	26. 9.	FRI	13:30	
002	ZDF	27. 9.	SAT	12:15	
003	AV2	3. 10.	FRI	20:00	
004	ARD	3. 10.	FRI	22:05	
005	AV2	4. 10.	SAT	16:10	
006	ZDF	10.10.	FRI	9:25	
007	ARD	10.10.	FRI	13:30	
008	ARD	11.10.	SAT	21:00	

Page 01/01

3 Press [▲, ▼] to select the title you want to copy and press [OK].

To show other pages

Press [⏮, ⏭] to show other pages.

Multiple editing

Select with [▲, ▼] and press [❚❚]. (Repeat.)
Press [OK] to register.

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

4

After you start copying DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R and +R DL discs, they become play-only and you can no longer record or edit.

Press [◄, ►] to select "Start" and press [OK].

Copy starts.

To return to the previous screen

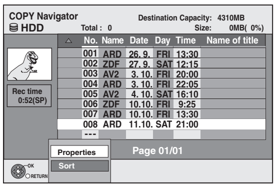
Press [RETURN].

■ To stop copying (➡ 54)

■ COPY Navigator/Copying list icons and functions (➡ 54)

■ To check the properties of a title and sort COPY Navigator

1 Press [▲, ▼] to select the title and press [OPTION].



COPY Navigator Destination Capacity: 4310MB
HDD Total : 0 Size: 0MB(0%)

Rec time 0:52(SP)

No.	Name	Date	Day	Time	Name of title
001	ARD	26. 9.	FRI	13:30	
002	ZDF	27. 9.	SAT	12:15	
003	AV2	3. 10.	FRI	20:00	
004	ARD	3. 10.	FRI	22:05	
005	AV2	4. 10.	SAT	16:10	
006	ZDF	10.10.	FRI	9:25	
007	ARD	10.10.	FRI	13:30	
008	ARD	11.10.	SAT	21:00	

Page 01/01

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

Properties:

The name, recording date, channel etc. of the selected title are shown.

Sort:

Press [▲, ▼] to select the item and 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.

Note

- 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 (➡ 65).
- 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 (➡ 53).

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

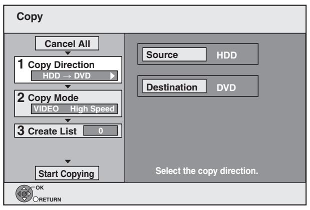
You can order titles and playlists as desired for copy to disc.

See also “Before copying” (➡ 52).

1 Press [FUNCTION MENU].

2 Press [▲, ▼] to select “To Others” and press [OK].

3 Press [▲, ▼] to select “Advanced Copy” and press [OK].


Copy
Cancel All
1 Copy Direction
HDD → DVD
2 Copy Mode
VIDEO High Speed
3 Create List 0
Start Copying
Source HDD
Destination DVD
Select the copy direction.
OK
RETURN

- 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” and press [▶].**
② **Press [▲, ▼] to select “Source” and press [OK].**
③ **Press [▲, ▼] to select the drive and press [OK].**
④ **Press [▲, ▼] to select “Destination” and press [OK].**
⑤ **Press [▲, ▼] to select the drive and press [OK].**
The same drive as the copy source cannot be selected.
⑥ **Press [◀] to confirm.**

5 Set the recording mode.

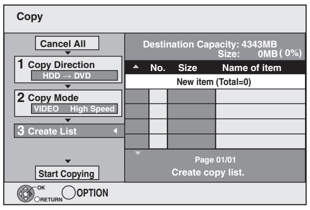
- If you are not going to change the recording mode, press [▼] (➡ step 6).

① **Press [▲, ▼] to select “Copy Mode” and press [▶].**
② **Press [▲, ▼] to select “Format” and press [OK].**
③ **Press [▲, ▼] to select “VIDEO” and press [OK].**
④ **Press [▲, ▼] to select “Recording Mode” and press [OK].**
⑤ **Press [▲, ▼] to select the mode and press [OK].**
⑥ **Press [◀] to confirm.**

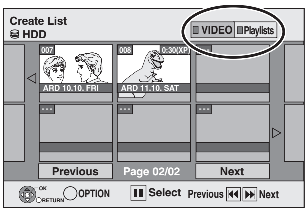
6 Register titles and playlists for copy.

- If you are going to copy a registered list without making any changes to it (➡ step 7).

① **Press [▲, ▼] to select “Create List” and press [▶].**


Copy
Cancel All
1 Copy Direction
HDD → DVD
2 Copy Mode
VIDEO High Speed
3 Create List
Start Copying
Destination Capacity: 4343MB
Size: 0MB (0%)
No. Size Name of item
New item (Total=0)
Page 01/01
Create copy list.
OK
RETURN
OPTION

② **Press [▲, ▼] to select “New item” and press [OK].**
③ **Press the “Red” button to select “VIDEO” or press the “Green” button to select “Playlists”.**


Create List
HDD
VIDEO
Playlists
007
ARD 10.10. FRI
008
0:30(XP)
ARD 11.10. SAT

Previous
Page 02/02
Next
OK
RETURN
OPTION
Select
Previous
Next

④ **Press [▲, ▼, ◀, ▶] to select the titles or playlists and press [OK].**

- 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 select a multiple number of items together, press [❚❚] to add the check mark and press [OK] (➡ below, Multiple editing).**
- **To show other pages (➡ below)**
- **To edit the copying list (➡ 54)**

You can register a multiple number of titles and playlists on the copying list by repeating steps ②–④.
You cannot start copying when the value of the “Size” (➡ 54) exceeds 100% (“Destination Capacity” is not sufficient).

⑤ **Press [◀] to confirm.**

7 Press [▲, ▼] to select “Start Copying” and press [OK].

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 (➡ 65).

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” and 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.

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

Multiple editing
Select with [▲, ▼, ◀, ▶] and press [❚❚]. (Repeat.)
Press [OK] to register to the list.
- A check mark appears. Press [❚❚] again to cancel.
- When you switch between the “VIDEO” and “Playlists” tab, the check mark is cancelled.

(Continued on the next page)

(Continued)

Refer to the control reference on page 52.

■ To stop copying

Press and hold [RETURN] for 3 seconds.
(You cannot stop while finalising)

When High-speed copying
All titles that have completely copied at the point cancelled are copied.

When 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 canceled 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.

■ To return to the previous screen

Press [RETURN].

■ Recording and playing while copying

You can record and play using the HDD while high speed copying. (Only when high speed copying without finalising)

- Still pictures cannot be played.
  Press [OK] to cancel the screen display.
- **To confirm the current progress**
  Press [STATUS ⓘ].

Note

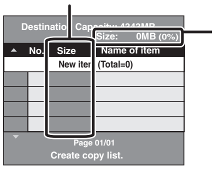
- Timer recordings executed while copying are recorded to the HDD regardless of the recording drive settings.
  (Only when high speed copying without finalising)

COPY Navigator/Copying list icons and functions

COPY Navigator/Copying list indicators

▶▶◎	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, +R DL, +RW) **+R DL** ▶▶! is displayed, but copy cannot be performed.
☒	Title with “One time only recording” restriction (➡ 8, When recording the “One time only recording” broadcasts)
➪	Titles deleted from the HDD by “One time only recording” restriction after copying. (➡ 8, When recording the “One time only recording” broadcasts)
(!)	Title or playlist contains still picture(s) ● Still picture(s) cannot be copied.
🄽 **(NTSC)** 🄿 **(PAL)**	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.

Data size of each registered item



Size:
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.

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.

■ To edit the copying list

Delete All
Add
Delete
Move

Select the item in step 6–④ (➡ 53, right column)

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.
Press [▲, ▼, ◄, ►] to select the playlists and titles to be added and press [OK].

Delete:
Delete the selected items.
Press [◄, ►] to select “Yes” and press [OK].
You can also delete multiple items (➡ 53, Multiple editing).

Move:
Move selected items or change the order of items on the copying list.
Press [▲, ▼] to select the destination and press [OK].

To cancel all registered copying setting and lists
After performing steps 1–3 (➡ 53, left column)

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 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.

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.
- When "Rec for High Speed Copy" (➡ 65) is set to "On" and you make a copy, the copy will be made using the picture size selected in "Aspect for Recording" (➡ 65) of the Setup menu.

- **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: DVD-Audio (**EX87**), Video CD, Audio CD and so on.

Preparation
- Insert the finalised disc (➡ 34).

After performing steps 1–5 ("Format" is automatically set to "DVD-Video") (➡ 53, Copying using the copying list–Advanced Copy)

6 Set "Copy Time".

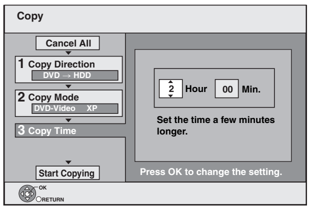
- If you are not going to change the setting (➡ step 7).

■Setting the unit to copy according to the set time

① Press [▲, ▼] to select "Copy Time" and press [▶].
② Press [▲, ▼] to select "Time Setting" and press [OK].

- Setting the unit to copy all the content on the disc
  ③ Press [▲, ▼] to select "Off" and 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" and press [OK].
  ④ Press [▲, ▼] to select "Copy Time" and press [OK].



Copy

1 Copy Direction: DVD → HDD
2 Copy Mode: DVD-Video XP
3 Copy Time: 2 Hour 00 Min.

Set the time a few minutes longer.

Press OK to change the setting.

⑤ Press [◀, ▶] to select "Hour" and "Min." and 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.

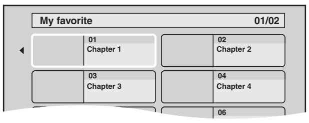
7 Press [▲, ▼] to select "Start Copying" and press [OK].

Press [◀, ▶] to select "Yes" and 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 (➡ 62).

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.)

To return to the previous screen
Press [RETURN].

To stop copying
Press [■].
You can also press and hold [RETURN] for 3 seconds to stop copying.

- If stopped partway, copying will be up to that point.

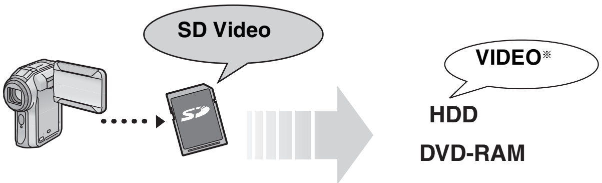
Note

- The screen saver 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 (➡ 53, Copying using the copying list–Advanced Copy).

Copying SD Video from an SD Card

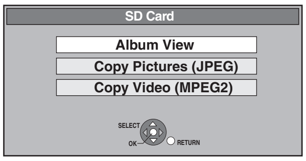
Motion pictures encoded in the MPEG2 format, which have been taken by a Panasonic SD Video Camera, digital video camera etc, can be stored on HDD or DVD-RAM.
(All the recordings on the same date become a title.)

- 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.



※ Conventionally recorded programmes

The display below automatically appears when you insert a card into the SD Card slot while stopped.
Press [▲, ▼] to select "Copy Video (MPEG2)" and press [OK].
Then go to step 7 on page 53.

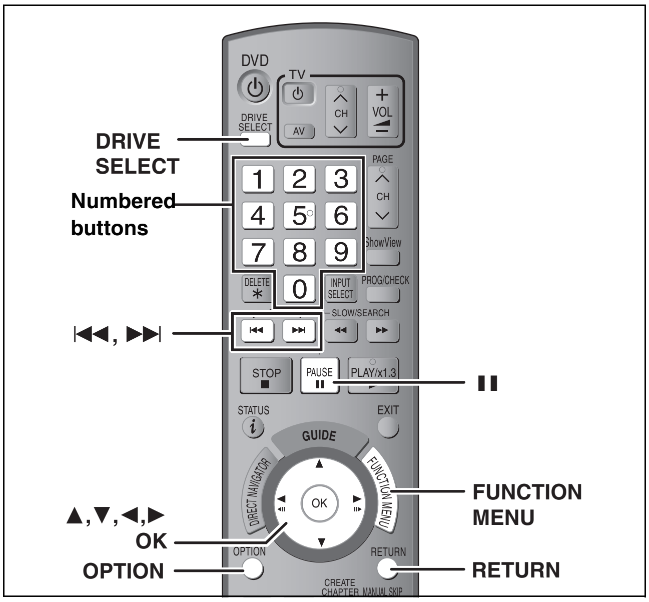


How to copy
Refer to "Copying using the copying list–Advanced Copy" (➡ 53)
Please set the items in step 4 and 5 as shown below.

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.

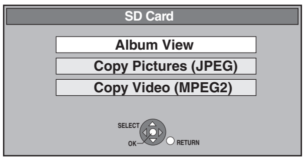

DRIVE SELECT
Numbered buttons
|◀◀, ▶▶|
❚❚
FUNCTION MENU
▲,▼,◀,▶
OK
OPTION
RETURN

HDD **RAM** **SD**

- You can use SD Cards with capacities from 8 MB to 4 GB (➡ 7).
- 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.

SD

While stopped put the card in the slot, and the menu (➡ below) is automatically displayed.
Press [▲, ▼] to select "Copy Pictures (JPEG)", press [OK] and then go to step 4 on page 57, "Copying all the still pictures on a card—Copy All Pictures".


SD Card
Album View
Copy Pictures (JPEG)
Copy Video (MPEG2)
SELECT
OK
RETURN

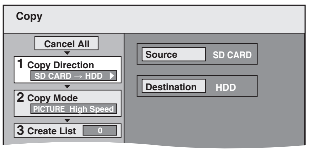
Press [RETURN] to exit the screen.

Copying using the copying list

1 Press [FUNCTION MENU].

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

3 Press [▲, ▼] to select "Advanced Copy" and press [OK].


Copy
Cancel All
1 Copy Direction
SD CARD → HDD
2 Copy Mode
PICTURE High Speed
3 Create List
0
Source
SD CARD
Destination
HDD

- 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" and press [▶].**
② **Press [▲, ▼] to select "Source" and press [OK].**
③ **Press [▲, ▼] to select the drive and press [OK].**
④ **Press [▲, ▼] to select "Destination" and press [OK].**
⑤ **Press [▲, ▼] to select the drive and press [OK].**
The same drive as the copy source can be selected.
⑥ **Press [◀] to confirm.**

5 Set the recording mode.

- If you are not going to change the recording mode, press [▼] (➡ step 6).

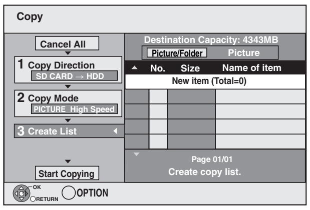
① **Press [▲, ▼] to select "Copy Mode" and press [▶].**
② **Press [▲, ▼] to select "Format" and press [OK].**
③ **Press [▲, ▼] to select "PICTURE" and press [OK].**
"Recording Mode" is automatically set to "High Speed".
④ **Press [◀] to confirm.**

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.


Copy
Cancel All
1 Copy Direction
SD CARD → HDD
2 Copy Mode
PICTURE High Speed
3 Create List
Start Copying
Destination Capacity: 4343MB
Picture/Folder
Picture
No.
Size
Name of item
New item (Total=0)
Page 01/01
Create copy list.
OK
RETURN
OPTION

■ To register individual still pictures

① **Press [▲, ▼] to select "Create List" and press [▶].**
② **Press [▲, ▼] to select "New item" and press [OK].**
③ **Press [▲, ▼, ◀, ▶] to select the still picture and press [OK].**

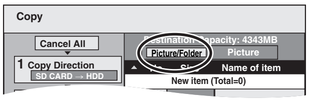
- **To select a multiple number of items together, press [❚❚] to add the check mark and press [OK] (➡ 57, Multiple editing).**
- **To show other pages (➡ 57)**
- **To select the still pictures in another folder (➡ 57)**
- **To edit the copying list (➡ 57)**

You can register a multiple number of still pictures on the copying list by repeating steps ②–③.

④ **Press [◀] to confirm.**

■ To register on a folder by folder basis

① **Press [▲, ▼] to select "Create List" and press [▶].**
② **Press [▲, ▼] to select "Picture/Folder" and press [OK].**


Copy
Cancel All
1 Copy Direction
SD CARD → HDD
Destination Capacity: 4343MB
Picture/Folder
Picture
Name of item
New item (Total=0)

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 [OK].**

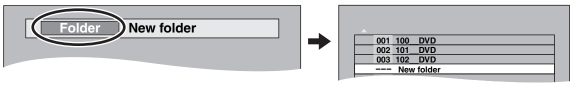
- **To select a multiple number of items together, press [❚❚] to add the check mark and press [OK] (➡ 57, Multiple editing).**
- **To show other pages (➡ 57)**
- **To switch to another higher folder (➡ 57)**
- **To edit the copying list (➡ 57)**

You can register a multiple number of folders on the copying list by repeating steps ④–⑤.

⑥ **Press [◀] to confirm.**

7 Press [▲, ▼] to select "Start Copying" and press [OK].

- For individual still pictures only
When specifying another folder as the copying destination, select "Folder".


Folder
New folder
001 100__DVD
002 101__DVD
003 102__DVD
--- New folder

8 Press [◀, ▶] to select "Yes" and press [OK] to start copying.

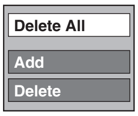
To stop copying
Press and hold [RETURN] for 3 seconds.

To return to the previous screen
Press [RETURN].

To show other pages
Press [▲, ▼, ◄, ►] to select "Previous" or "Next" and press [OK].
- You can also press [⏮, ⏭] to show other pages.

Multiple editing
Select with [▲, ▼, ◄, ►] and press [❚❚]. (Repeat.)
Press [OK] to register to the list.
- A check mark appears. Press [❚❚] again to cancel.

■ To edit the copying list



Select the item in step 6–③ (for a still picture) or 6–⑤ (for a folder) (➡ 56, right column)

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.
Press [▲, ▼, ◄, ►] to select the still picture or folder to be added and press [OK].

Delete:
Delete the selected items.
Press [◄, ►] to select "Yes" and press [OK].
You can also delete multiple items (➡ above, Multiple editing).

To cancel all registered copying settings and lists
After performing steps 1–3 (➡ 56)

1 Press [▲, ▼] to select "Cancel All" and press [OK].
2 Press [◄, ►] to select "Yes" and press [OK].

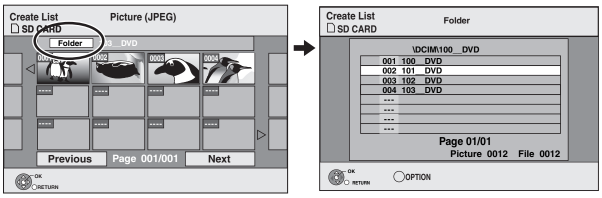
- The settings and lists may be cancelled in the following situations.
  –When a title or still picture has been recorded or deleted at the copy source
  –When steps have been taken, for instance, to turn off the unit, remove the card, open the tray, change the copy direction, etc.

■ To select another folder

(➡ 7, Structure of folders displayed by this unit)

① **Press [▲, ▼, ◄, ►] to select "Folder" and press [OK].**
If you want to switch to another higher folder (➡ below).

② **Press [▲, ▼] to select the folder and press [OK].**



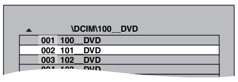
You can also select folders with the numbered buttons.

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

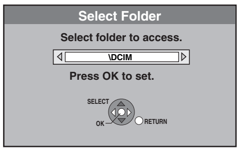
- The still pictures of different folders cannot be registered on the same list.

To switch to another higher folder

- Only when selecting the source folder
  If there is a multiple number of higher folders recognizable, while the screen on the right appears



1 Press [OPTION] and press [OK].
2 Press [◄, ►] to select the higher folder and press [OK].
  You cannot register a folder with a different higher folder to the same list.
3 Press [▲, ▼] to select the desired folder and press [OK].



Select folder to access.

Press OK to set.

Copying all the still pictures on a card—Copy All Pictures

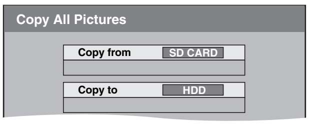
SD → **HDD** or **RAM**

Preparation
Press [DRIVE SELECT] to select the SD drive.

1 Press [FUNCTION MENU].

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

3 Press [▲, ▼] to select "Copy All Pictures" and press [OK].



Copy from: SD CARD
Copy to: HDD

4 Press [▲, ▼] to select "Copy to" and press [◄, ►] to select the drive.

5 Press [▲, ▼, ◄, ►] to select "Copy" and press [OK].

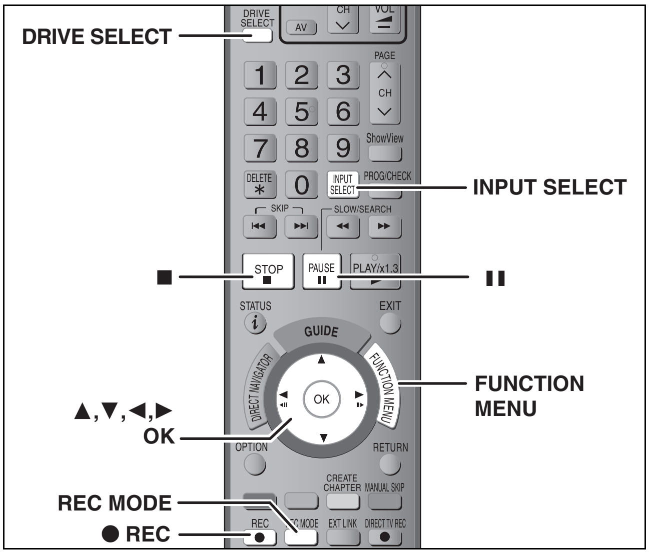
To stop copying
Press and hold [RETURN] for 3 seconds.

To return to the previous screen
Press [RETURN].

Note

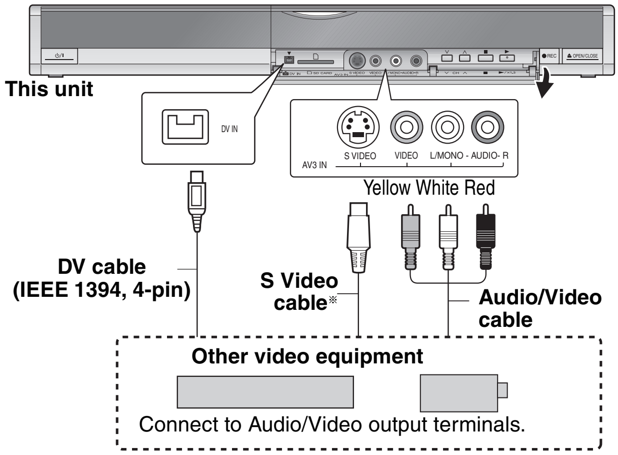
- When copying the still pictures on a folder by folder basis (➡ 56) or card by card basis (➡ above, Copy All Pictures), files other than the still picture files inside the folder will also be copied. (This does not apply to the lower folders contained inside the folders.)
- If still pictures are already 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 (➡ 37), copying will stop partway through.
- When a name has not been input for the copy source folder, the folder's name may be changed from the source folder. It is recommended that you input a folder name before copying (➡ 49, Enter Album Name).
- You cannot copy the information about the picture rotation.
- The sequence in which the still pictures are registered on the copy list may not be the same at the copy destination.

Copying from a video cassette recorder



e.g., Connecting to the AV3 or DV input terminals on the front

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



If the audio output of the other equipment is monaural
Connect to L/MONO on the AV3 input terminals at the front.

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

When recording from the unit's DV terminal

- ●Select the type of audio recording from "Audio Mode for DV Input" in the Setup menu (➡ 66).
- ●When recording from DV equipment (e.g., digital video camcorder), you can record audio/video recordings from DV tape only.
- ●When "Rec for High Speed Copy" (➡ 65) is set to "On" and you make a copy, the copy will be made using the picture size selected in "Aspect for Recording" (➡ 65) of the Setup menu.

About the aspect when recording a programme (➡ 8)

Note
If it becomes time for a timer recording to start while copying, the recording will start and the copying will stop.

Manual recording

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

Preparation

- ●Press [DRIVE SELECT] to select the HDD or DVD drive.
- ●Press [REC MODE] to select the recording mode.
- ●When recording bilingual programmes (➡ 8, Selecting Audio for Recording)
- ●When the output signal from the external equipment is NTSC, change the "TV System" to "NTSC" in the Setup menu (➡ 72). 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.)
- ●To reduce noise in input from a video cassette recorder, set "AV-in NR" to "On" in the on-screen menu (➡ 43).
- ●Check the time on the unit is correct.

1 While stopped
Press [INPUT SELECT] to select the input channel for the equipment you have connected.

e.g., If you have connected to AV3 input terminals, select "A3".

2 Start play on the other equipment.

3 When you want to start recording
Press [● REC].

Recording starts.

To skip unwanted parts
Press [❚❚] to pause recording. (Press again to restart recording.)

To stop recording
Press [■].

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.

- ●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.

DV automatic recording (DV Auto Rec)

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

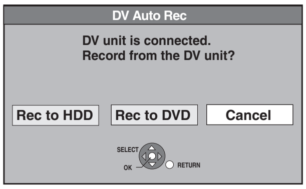
HDD **RAM** When the "DV Auto Rec" function is used, programmes are recorded as a title while at the same time chapters are created at each break in the images and the playlist is created automatically.

Preparation

1. Turn off the main unit and DV equipment, then connect the equipment with the unit's DV input terminal (➡ left column).
2. Turn on the main unit and DV equipment.
3. Press [REC MODE] to select the recording mode.
4. Pause play of the DV equipment at the point you want recording to start.

- ●When the output signal from the external equipment is NTSC, change the "TV System" to "NTSC" in the Setup menu (➡ 72).

After preparation is completed, the following screen appears.



DV unit is connected.
Record from the DV unit?

Press [◄, ►] to select "Rec to HDD" or "Rec to DVD" and press [OK].

You can proceed to step 4.

- ●When the screen is not displayed, press [DRIVE SELECT] to select HDD or DVD and then continue from step 1.

1 Press [FUNCTION MENU].
2 Press [▲, ▼] to select "To Others" and press [OK].
3 Press [▲, ▼] to select "DV Auto Rec" and press [OK].
4 Press [◄, ►] to select "Rec" and press [OK].

Recording starts.

When recording finishes
The confirmation screen appears. Press [OK] to finish DV automatic recording.

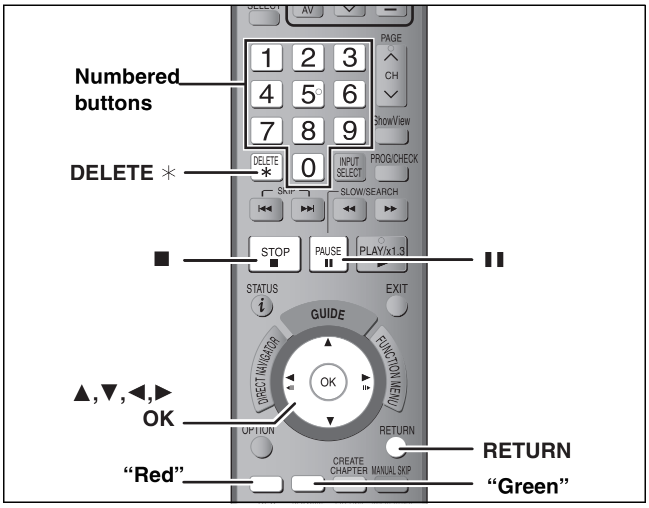
To stop recording
Press [■].

Note

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

If the DV automatic recording function does not work properly, check the connections and DV equipment settings, and turn the unit off and back on.
If that does not work, follow the instructions for manual recording (➡ left column).

Entering text


Numbered buttons
DELETE ✻
■
❚❚
▲,▼,◀,▶
OK
RETURN
"Red"
"Green"

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

You can give names to recorded titles, etc.

The maximum number of characters:

HDD RAM	Characters
Title	64 (44※)
Playlist	64
Album of still pictures	36
Disc (RAM)	64

※ Title name for timer recording

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

SD	Characters
Album of still pictures	36

Broadcast	Characters
Profile 1–4	12

Note

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

1 Show Enter Name screen.

Title (timer recording)
Select "Programme Name" in step 3 on page 30, right column.

Title
Select "Enter Name" in step 5 on page 44.

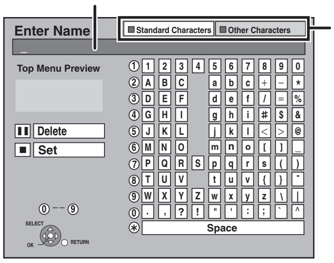
Playlist
Select "Enter Name" in step 5 on page 47.

Disc
Select "Disc Name" in step 4 of "Providing a name for a disc" on page 60.

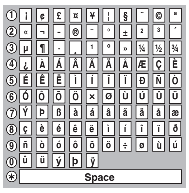
Album of still pictures
Select "Enter Album Name" in step 4 on page 48, "To edit the album".

Profile 1–4
Press the "Red" button in step ② of the right column on page 69, "To change the name of a profile in the "Profile" column".

Name field: shows the text you have entered


Enter Name
Standard Characters
Other Characters
Top Menu Preview
❚❚ Delete
■ Set
⓪ – ⑨
SELECT
OK
RETURN
Space

Press the "Red" button or "Green" button to select character type and press [OK].
"Standard Characters":
(➡ left, Alphabet characters, etc.)
"Other Characters":
(➡ below, Umlaut characters, accented characters, etc.)

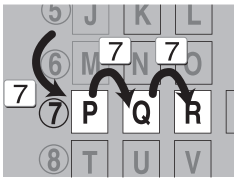


2 Press [▲, ▼, ◀, ▶] to select a character and press [OK].

Repeat this step to enter other characters.

- **To delete a character**
  Press [▲, ▼, ◀, ▶] to select the character in the name field and press [❚❚]. (The selected characters are deleted.)
- **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].**


7
7
7
⑤ J K L
⑥ M N O
⑦ P Q R
⑧ T U V

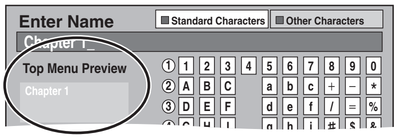
- **To enter a space**
  Press [DELETE ✻] and press [OK].

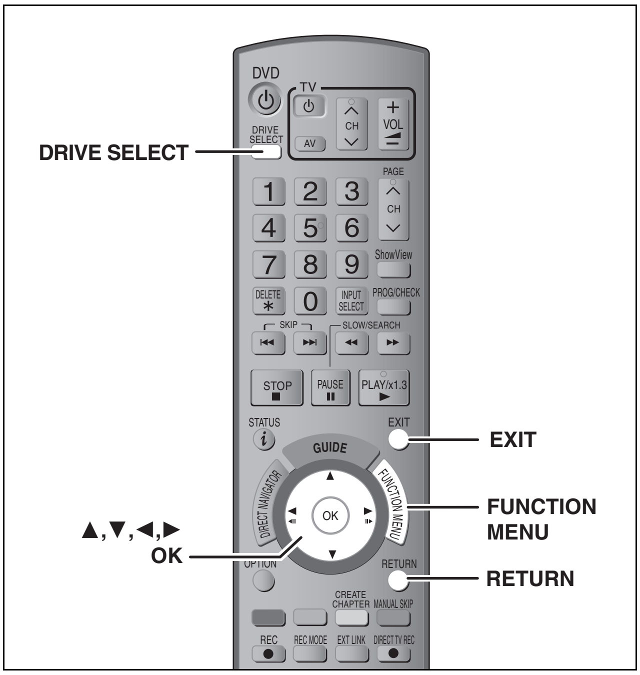
3 Press [■] (Set).

"Writing..." appears then the screen returns to the Title view screen and so on.

To end partway
Press [RETURN].
Text is not added.

For your reference
If you enter a long name, only part of it is shown in the Top Menu after finalisation (➡ 62). When entering a title name, the name that will appear in the Top Menu can be previewed in "Top Menu Preview" window.


Enter Name
Standard Characters
Other Characters
Chapter 1
Top Menu Preview
Chapter 1


DRIVE SELECT
EXIT
FUNCTION MENU
▲,▼,◄,►
OK
RETURN

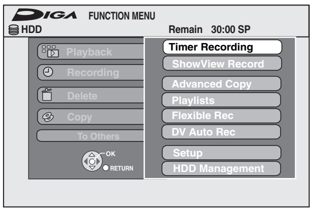
HDD **RAM** **-R** **-R DL** **-RW(V)** **+R** **+R DL** **+RW** **-RW(VR)**
SD

- ●You can use SD Cards with capacities from 8 MB to 4 GB (➡ 7).

Common procedures

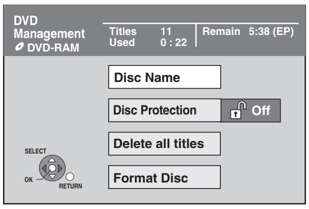
1 Press [FUNCTION MENU].

2 Press [▲, ▼] to select “To Others” and press [OK].


FUNCTION MENU
HDD
Remain 30:00 SP
Playback
Recording
Delete
Copy
To Others
OK
RETURN
Timer Recording
ShowView Record
Advanced Copy
Playlists
Flexible Rec
DV Auto Rec
Setup
HDD Management

3 Press [▲, ▼] to select “HDD Management”, “DVD Management” or “Card Management” and press [OK].

e.g., **RAM**


DVD Management
DVD-RAM
Titles 11
Used 0 : 22
Remain 5:38 (EP)
Disc Name
Disc Protection
Off
Delete all titles
Format Disc
SELECT
OK
RETURN

- ●When HDD has been selected, “Delete all titles” and “Format HDD” are displayed.
- ●When SD has been selected, “Format Card” only is displayed.

Setting the protection

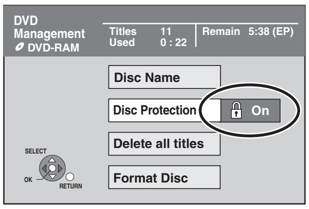
RAM

Preparation
- ●Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (➡ left)

4 Press [▲, ▼] to select “Disc Protection” and press [OK].

5 Press [◄, ►] to select “Yes” and press [OK].


DVD Management
DVD-RAM
Titles 11
Used 0 : 22
Remain 5:38 (EP)
Disc Name
Disc Protection
On
Delete all titles
Format Disc
SELECT
OK
RETURN

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

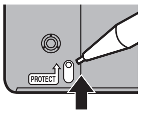
To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

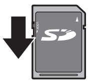
Cartridge-protection

For a DVD-RAM with a cartridge

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



SD
Switch the write-protect switch to the “LOCK” position.



Providing a name for a disc

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

You can provide a name for each disc.

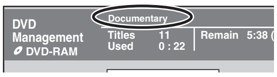
Preparation
- ●Press [DRIVE SELECT] to select the DVD drive.
- ●**RAM** Release protection (➡ above).

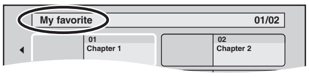
After performing steps 1–3 (➡ left)

4 Press [▲, ▼] to select “Disc Name” and press [OK].

(➡ 59, Entering text)

- ●The disc name is displayed in the DVD Management window.
- ●**-R** **-R DL** **-RW(V)** **+R** **+R DL** With a finalised disc, the name is displayed on the Top Menu.
- ●**+RW** The disc name is displayed only if you play the disc on other equipment.


Documentary
DVD Management
DVD-RAM
Titles 11
Used 0 : 22
Remain 5:38 (


My favorite
01/02
01
Chapter 1
02
Chapter 2

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Deleting all titles and playlists—Delete all titles

HDD RAM

Preparation

- Press [DRIVE SELECT] to select the HDD or DVD drive.
- Release protection (➡ 60).

After performing steps 1–3 (➡ 60)

4 Press [▲, ▼] to select "Delete all titles" and press [OK].

5 Press [◄, ►] to select "Yes" and press [OK].

6 Press [◄, ►] to select "Start" and press [OK].

A message appears when finished.

7 Press [OK].

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Note

- **Once deleted, the recorded contents are lost and cannot be restored.** Make certain before proceeding.
- Deleting all video titles will result in all playlists also being deleted.
- Still picture data (JPEG) or computer data cannot be deleted.
- Delete does not work if one or more titles are protected.

Deleting all the contents of a disc or card—Format

HDD RAM -RW(V) +RW -RW(VR)
+R +R DL (New disc only)
SD

Preparation

- Press [DRIVE SELECT] to select the HDD, DVD or SD drive.
- Release protection (➡ 60).

Note

Formatting deletes all contents (including computer data), and they cannot be restored. Check carefully before proceeding. The contents are deleted when you format a disc or card even if you have set protection.

After performing steps 1–3 (➡ 60)

4 Press [▲, ▼] to select "Format HDD", "Format Disc" or "Format Card" and press [OK].

5 Press [◄, ►] to select "Yes" and press [OK].

6 Press [◄, ►] to select "Start" and press [OK].

A message appears when formatting is finished.

Note

- Formatting normally takes a few minutes; however, it may take up to a maximum of 70 minutes (RAM).
- **Do not disconnect the AC mains lead while formatting.** This can render the disc or the card unusable.

7 Press [OK].

Note

- 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 on the disc.
- You can format DVD-RW only as DVD-Video format on this unit.

To stop formatting RAM
Press [RETURN].

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

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Refer to the control reference on page 60.

Selecting the background style—Top Menu

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

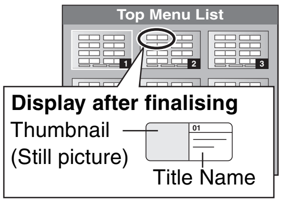
You can select the background that will be displayed as the DVD-Video top menu after finalising or Create Top Menu (+RW).

Preparation
Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (➡ 60)

4 Press [▲, ▼] to select "Top Menu" and press [OK].

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



- You can change thumbnails displayed in the top menu. (➡ 45, Change Thumbnail)

Selecting whether to show the Top Menu first—Auto-Play Select

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

You can select whether to show the top menu after finalising.

Preparation
Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (➡ 60)

4 Press [▲, ▼] to select "Auto-Play Select" and press [OK].

5 Press [▲, ▼] to select "Top Menu" or "Title 1" and press [OK].

Top Menu: The top menu appears first.
Title 1: The disc content is played without displaying the top menu.

Enabling discs to be played on other equipment—Finalise

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

Make selections from "Top Menu" and "Auto-Play Select" (➡ above) before finalising the disc.

Preparation
Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (➡ 60)

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

5 Press [◀, ▶] to select "Yes" and press [OK].

6 Press [◀, ▶] to select "Start" and press [OK].

A message appears when finalising is finished.

Note
- You cannot cancel finalising.
- Finalising takes up to 15 minutes.
  (-R DL +R DL Finalising takes up to 60 minutes.)
- **Do not disconnect the AC mains lead while finalising.**
  This will render the disc unusable.

7 Press [OK].

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

After finalising
- **-R -R DL +R +R DL The disc becomes play-only and you can no longer record or edit.**
- **-RW(V) You can record and edit the disc after formatting (➡ 61) although it becomes play-only after finalising.**
- When copying in high speed, chapters will be replicated.
- -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.
- There is a pause of several seconds between titles and chapters during play.

	Before finalising	After finalising
Recording/Editing/Entering name	○	–
Play on other players	–	○

- You cannot finalise discs recorded on other manufacturer's equipment.
- If you finalise discs recorded on Panasonic equipment other than this unit, the background selected as "Top Menu" may not be displayed.
- Discs finalised on this unit may not be playable on other players due to the condition of the recording.

Visit Panasonic's homepage for more information about DVDs.
http://www.panasonic-europe.com

Creating Top Menu—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.
You cannot use the Top Menu for playing on this unit.

Make selections from "Top Menu" and "Auto-Play Select" (➡ left column) before creating top menu.

Preparation
Press [DRIVE SELECT] to select the DVD drive.

After performing steps 1–3 (➡ 60)

4 Press [▲, ▼] to select "Create Top Menu" and press [OK].

5 Press [◀, ▶] to select "Yes" and press [OK].

6 Press [◀, ▶] to select "Start" and press [OK].

Creating Top Menu starts. You cannot cancel creating.
Creating Top Menu can take a few minutes.

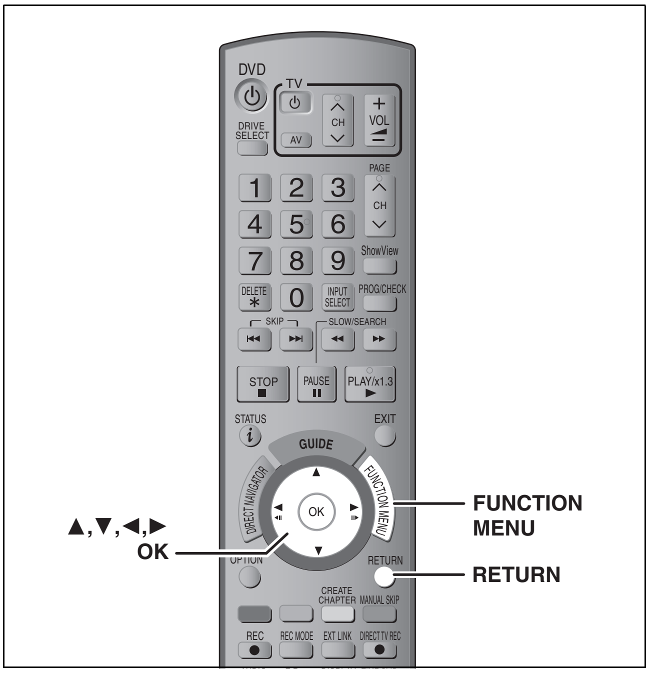
7 Press [OK].

Note
- You can record or edit discs after creating the Top Menu. But the created menu is deleted when you record or edit disc. In such cases, create the Top Menu again by using "Create Top Menu".

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

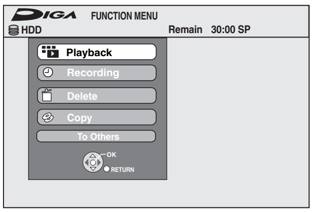
FUNCTION MENU window


DVD
TV
DRIVE SELECT
AV
CH
VOL
PAGE
ShowView
DELETE
INPUT SELECT
PROG/CHECK
SKIP
SLOW/SEARCH
STOP
PAUSE
PLAY/x1.3
STATUS
EXIT
GUIDE
DIRECT NAVIGATOR
FUNCTION MENU
OK
OPTION
RETURN
CREATE CHAPTER
MANUAL SKIP
REC
REC MODE
EXT LINK
DIRECT TV REC
▲,▼,◄,►
OK
FUNCTION MENU
RETURN

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

1 Press [FUNCTION MENU].

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

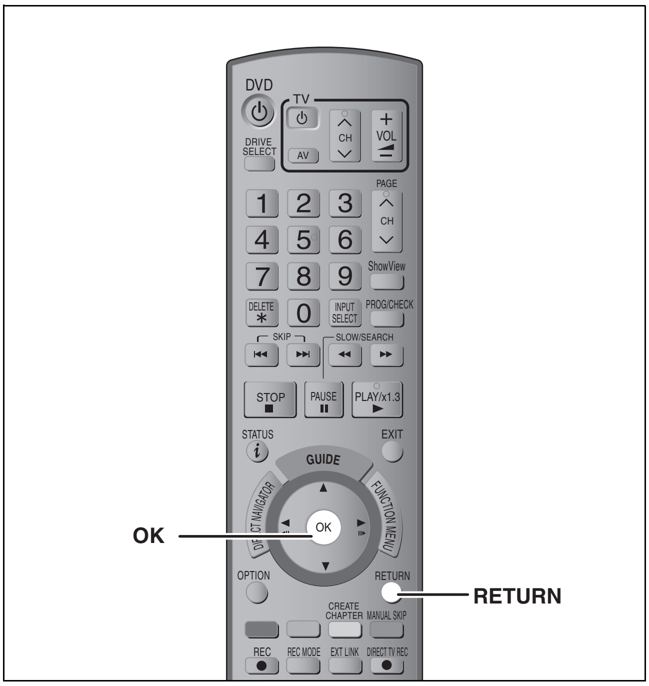

DIGA
FUNCTION MENU
HDD
Remain 30:00 SP
Playback
Recording
Delete
Copy
To Others
OK
RETURN

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

- If you select “To Others” and press [OK], the following screen appears. Press [▲, ▼] to select an item and press [OK].
- If you press [RETURN], you can return to the previous screen.

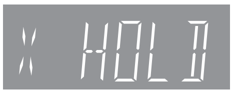
To exit the FUNCTION MENU window
Press [FUNCTION MENU].

Child Lock


DVD
TV
DRIVE SELECT
AV
CH
VOL
PAGE
ShowView
DELETE
INPUT SELECT
PROG/CHECK
SKIP
SLOW/SEARCH
STOP
PAUSE
PLAY/x1.3
STATUS
EXIT
GUIDE
DIRECT NAVIGATOR
FUNCTION MENU
OK
OPTION
RETURN
CREATE CHAPTER
MANUAL SKIP
REC
REC MODE
EXT LINK
DIRECT TV REC
OK
RETURN

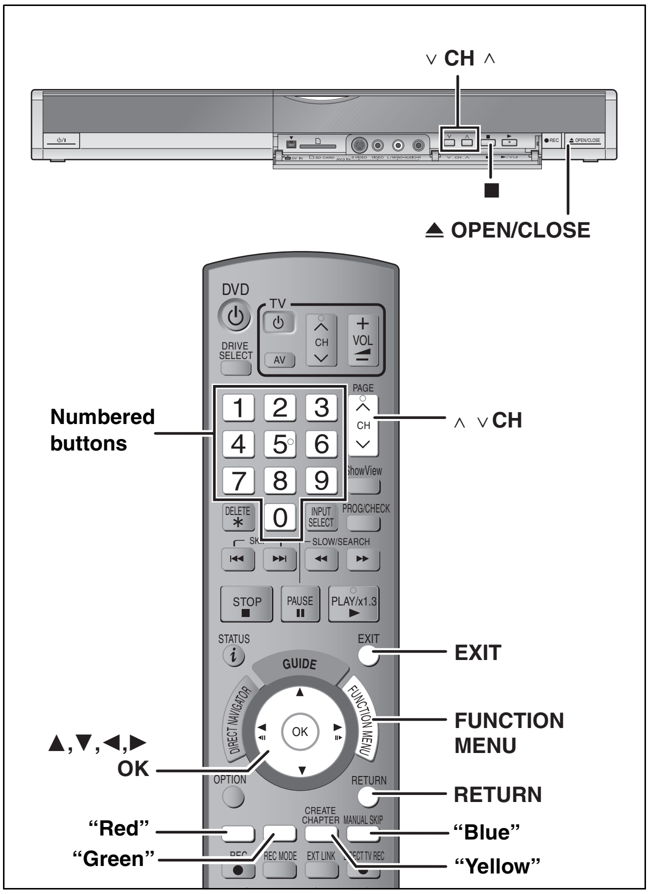
The Child Lock deactivates all buttons on the unit and remote control. Use it to prevent other people from operating the unit.

Press and hold [OK] and [RETURN] simultaneously until “X HOLD” appears on the unit’s display.



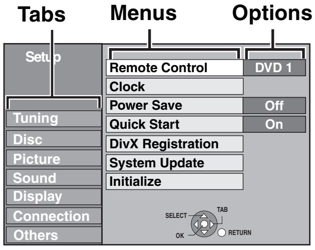
If you press a button while the Child Lock is on, “X HOLD” appears on the unit’s display and operation is impossible.

To cancel the Child Lock
Press and hold [OK] and [RETURN] simultaneously until “X HOLD” disappears.


∨ CH ∧
■
≜ OPEN/CLOSE
Numbered buttons
∧ ∨CH
EXIT
FUNCTION MENU
▲,▼,◀,▶
OK
RETURN
"Red"
"Green"
"Blue"
"Yellow"

Common procedures

1. **Press [FUNCTION MENU].**
2. **Press [▲, ▼] to select "To Others" and press [OK].**
3. **Press [▲, ▼] to select "Setup" and press [OK].**
4. **Press [▲, ▼] to select the tab and press [▶].**


Tabs
Menus
Options
Setup
Tuning
Disc
Picture
Sound
Display
Connection
Others
Remote Control
DVD 1
Clock
Power Save
Off
Quick Start
On
DivX Registration
System Update
Initialize
SELECT
TAB
OK
RETURN

5. **Press [▲, ▼] to select the menu and press [OK].**
6. **Press [▲, ▼] to select the option and press [OK].**

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

Note
There may be differences in operation methods. If this happens, follow the on-screen instructions for the operation.

Summary of settings

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

Tabs	Menus	Options (Underlined items are the factory presets.)
Tuning	**Edit Profiles (➡ 69)**	You can edit terrestrial digital or analogue channels into different four profiles.
	Auto-Setup Restart (➡ 72)	You can restart the channel settings for terrestrial digital and analogue channels.
	Settings for Digital Services ●Press [OK] to show the following settings.	
	DVB Manual Tuning (➡ 70)	You can set channels manually that the DVB Auto Setup could not complete successfully.
	Add New DVB Services (➡ 69)	You can search for newly added terrestrial digital channels to receive.
	Signal Condition (➡ 70)	You can check the condition of digital broadcast signals.
	DVB Preferred Language ●Press [OK] to show the following settings.	You can select up to 2 different subtitles (**For France, Italy and Spain**) and audio tracks to be used when audio and subtitles digital broadcasts are received. Select the order of priority. If the selected language is not available, then the original language will be selected.
	Multi-Audio **Multi-Audio (alternative)**	**For Germany** ●English ●German ●Italian ●French ●Spanish **For France, Italy and Spain** ●English ●German ●Italian ●French ●Spanish ●Catalan ●Basque ●Galician ●Corsican
	Subtitle For France, Italy and Spain **Subtitle (alternative) For France, Italy and Spain**	●English ●German ●Italian ●French ●Spanish ●Catalan ●Basque ●Galician ●Corsican

Tabs	Menus	Options (Underlined items are the factory presets.)
Tuning	**Settings for Analogue Services** ●Press [OK] to show the following settings.	
	Manual Tuning (➡ 71)	You can delete channels and set analogue channel details.
	Download from TV	When you connect the unit to a Q Link compatible TV with a fully wired 21-pin Scart cable, you can downloaded channel information from TV.
Disc	**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.	●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. ●Unlock Recorder ●Change Password ●Change Level ●Temporary Unlock
	DVD-Audio Video mode Playback (EX87) Select "On" to play DVD-Video content on some DVD-Audio.	●On: The setting returns to "Off" when you change the disc or turn the unit off. ●Off
	Soundtrack Choose the language for audio, subtitle and disc menus. DVD-V ●Some discs start in a certain language despite any changes you make here. ●In case of English/French/German/Italian/Spanish/Dutch/Swedish languages, when you make download from TV, and Country setting (For France, Italy and Spain) of Auto-Setup in plug-in, the language ("Soundtrack"/"Menus") will be same and "Subtitle" will set to "Automatic". ●Enter a code (➡ 73) with the numbered buttons when you select "Other ✻✻✻✻". When the selected language is not available on the disc, the default language is played. There are discs where you can only switch the language from the menu screen (➡ 35).	●English[1] ●German[2] ●French ●Italian ●Spanish ●Dutch ●Swedish ●Original: The original language of each disc will be selected. ●Other ✻✻✻✻
	Subtitle	●Automatic: If the language selected for "Soundtrack" is not available, subtitles of that language will automatically appear if available on that disc. ●English ●German ●French ●Italian ●Spanish ●Dutch ●Swedish ●Other ✻✻✻✻
	Menus	●English[1] ●German[2] ●French ●Italian ●Spanish ●Dutch ●Swedish ●Other ✻✻✻✻
	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 (➡ 25, Recording modes and approximate recording times).	●EP (6 Hours):You can record for 6 hours on an unused 4.7 GB disc. ●EP (8 Hours):You can record for 8 hours on an unused 4.7 GB disc. The sound quality is better when using "EP (6 Hours)" than when using "EP (8 Hours)".
	Aspect for Recording Sets the aspect ratio when recording or copying. ●When recording or copying to the HDD or DVD-RAM with "Rec for High Speed Copy" set to "Off", programme will be recorded in the original aspect ratio.	●16:9 ●4:3 ●In the following cases, even when set to "16:9", recordings will be made or copied in 4:3. –-R -R DL -RW(V) When the recording mode is set to "EP" or "FR (recordings 5 hours or longer)" mode. –When recording or copying to a +R, +R DL and +RW.
	Rec for High Speed Copy You can copy recorded titles from the HDD to DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW using high speed mode. However, screen size, etc. is restricted (➡ right). We recommend turning the setting "Off" 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.	●On: You can high-speed copy to DVD-R, etc. Press [◄, ►] to select "Yes" and press [OK]. ●The following restrictions are applied to recorded titles. –Recordings are made using the aspect ratio set in "Aspect for Recording" (➡ above). –Select the type of audio in advance from "Bilingual Audio Selection" (➡ 66). –You are no longer able to switch the audio when watching a programme on an input channel on the TV connected to this unit (e.g., AV1, etc). ●Off
	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).

[1] For France, Italy and Spain The default setting.

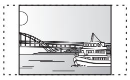
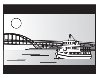
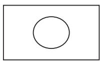
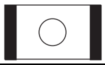
[2] For Germany The default setting.

(continued on the next page)

(continued)

Refer to the control reference on page 64.

Tabs	Menus	Options (Underlined items are the factory presets.)
Picture	**Comb Filter** Select the picture sharpness when recording. The setting is fixed with "On" if you set "TV System" to "NTSC" (➡ 72).	●On: Pictures become clear and vivid. Normally, use this setting. ●Off: Select it when recording noisy pictures.
	Still Mode Select the type of picture shown when you pause play (➡ 84, Frames and fields).	●Automatic ●Field: Select if jittering occurs when "Automatic" is selected. (The picture is coarser.) ●Frame: Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected. (The picture is clearer and finer.)
	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. 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	**Dynamic Range Compression** **DVD-V** (Dolby Digital only) Change the dynamic range for late night viewing.	●On ●Off
	Bilingual Audio Selection (Analogue broadcast only) Select whether to record the main or secondary audio type when: –Recording or copying to a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW. –"Rec for High Speed Copy" is set to "On". –Recording or copying sound in LPCM (➡ below, "Audio Mode for XP Recording").	●M 1 ●M 2 You cannot select the audio on this unit when recording from an external source, such as when copying from a video cassette recorder (except from DV equipment connected to this unit's DV input terminal). Select on the other equipment. When recording from the unit's DV terminal, select the type of audio recording from "Audio Mode for DV Input" (➡ below).
	Digital Audio Output Change the settings when you have connected equipment through this unit's DIGITAL AUDIO OUT terminal (➡ 16). ●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 settings across 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 a 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 a sampling frequency of 96 kHz or 88.2 kHz.)
	Dolby Digital Select how to output the signal. Select "Bitstream" if the connected equipment decodes the signal. Select "PCM" if this unit decodes the signal and outputs it as 2 channels. **Note** Not making the proper settings may result in noise or some trouble for digital recording.	●Bitstream: When connecting to equipment displaying the Dolby Digital logo. ●PCM: When connecting to equipment not displaying the Dolby Digital logo.
	DTS	●Bitstream: When connecting to equipment displaying the DTS logo. ●PCM: When connecting to equipment not displaying the DTS logo.
	MPEG	●Bitstream: When connected to equipment with a built-in MPEG decoder. ●PCM: When connected to 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 (➡ 84) ●LPCM (➡ 85) –The picture quality of LPCM recordings may be lower than that of normal XP mode recordings. –The audio recording becomes Dolby Digital even if you selected LPCM when using a recording mode other than XP. –When recording a bilingual broadcast, select the type of audio in advance from "Bilingual Audio Selection" (➡ above).
	Audio Mode for DV Input You can select the kind of audio when recording from the unit's DV input terminal (➡ 58).	●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" (➡ above).

Tabs	Menus	Options (Underlined items are the factory presets.)
Display	**Language** Choose the language for these menus and on-screen messages.	**For Germany** ●English ●Deutsch **For France, Italy and Spain** ●English ●Français ●Italiano ●Español
	On-Screen Messages Choose the approximate time until the digital channel information screen (➡ 23) disappears automatically. The length of time the control panel (➡ 19) 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.
	Grey Background Select "Off" if you do not want to have the unit show the grey background when tuner reception is weak.	●On ●Off
	FL Display Changes the brightness of the unit's display. This setting is fixed with "Automatic" if you set "Power Save" (➡ 68) to "On".	●Bright ●Dim ●Automatic: The display turns dark during play and disappears when the unit is turned off. It reappears momentarily if a button is pressed. While using this mode, the standby power consumption can be reduced.
	New Service Messages (➡ 23) 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.
Connection	**TV Aspect (➡ 20)** Set to match the type of television connected.	●16:9: When connected to a 16:9 widescreen television. ●Pan & Scan: When connected to a 4:3 aspect television, side picture is trimmed for 16:9 picture (➡ 85).  ●Letterbox: When connected to a 4:3 aspect television. Widescreen picture is shown in the letterbox style (➡ 85). 
	Progressive (➡ 21) This setting is fixed with "Off" if you set "AV1 Output" to "RGB 1 (without component)" or "RGB 2 (without component)".	●On ●Off
	TV System (➡ 72)	●PAL ●NTSC
	HDMI Settings※ ●Press [OK] to show the following settings.	
	HDMI Video Format You can only select items compatible with the connected equipment. This setting normally does not need to be changed. However if you are concerned about output picture quality, it may be improved by changing the setting. Still pictures play at a resolution equivalent to 480p regardless of the settings.	●576i/480i ●576p/480p ●720p ●1080i ●1080p: When setting video output to "1080p", we recommend using a Panasonic HDMI cable 5 meters or less in length to prevent video distortion. To enjoy High Quality Video up-converted to 1080p, you need to connect the unit to 1080p compatible HDTV. ●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 images on the TV screen.	●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 and connected to a TV with an HDMI cable and you want to enjoy the highest quality of audio from discs (➡ 16).
	VIERA Link Set to use "HDAVI Control" function when connected with an HDMI cable to a device that supports "HDAVI Control".	●On ●Off: Select when you do not want to use "HDAVI Control".
	AV1 Output Selects the output from the AV1 terminal. Select "RGB 1 (without component)" or "RGB 2 (without component)" for RGB output. Select "Video (with component)" or "S Video (with component)" for component output (progressive output). Set according to the signal and terminal of the connected TV. **For France, Italy and Spain** When a decoder is connected, do not set to "RGB 1 (without component)". ●If this unit is connected with an HDMI cable, you cannot select "RGB 1 (without component)" or "RGB 2 (without component)".	●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.

※ 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.

(continued on the next page)

(continued)

Refer to the control reference on page 64.

Tabs	Menus	Options (Underlined items are the factory presets.)
Connection (continued)	**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 ●RGB ●Video ●S Video
	AV2 Connection For France, Italy and Spain This setting is fixed with "Ext" if you set "TV System" to "NTSC" (➡ 72).	●Decoder: When a decoder is connected to descramble the scrambled signals (e.g., C+decoder). ●Ext: When the VCR or a digital satellite receiver is connected.
	Ext Link This setting cannot be made when the "TV System" is set to "NTSC" (➡ 72).	●Ext Link 1: When a digital satellite receiver which transmits a special control signal recordings via the 21-pin Scart cable is connected. Start and stop timings of recording are controlled by the control signal. ●Ext Link 2: When external equipment with a timer function is connected. When it turns on, recording starts. When it turns off, recording stops.
	Active Antenna For Germany Set this item when using indoor antenna.	●On Select this when you will use indoor antenna. ●Off:
Others	**Remote Control (➡ 22)**	●DVD 1 ●DVD 2 ●DVD 3
	Clock (➡ 73)	
	Power Save ●Refer to the following when "Power Save" is set to "On". –"FL Display" is automatically set to "Automatic" (➡ 67). –The "Quick Start" function does not work. (It is automatically turned to "Off".) –When the unit is off, Pay TV programmes cannot be watched on the TV because the signal from the connected decoder is not looped through.	●On: Power consumption is minimized when the unit is turned to standby (➡ 86). ●Off: (If "Quick Start" is set to "On", "Power Save" is automatically turned to "Off".)
	Quick Start The Quick Start feature enables this unit to be ready to start recording as quick as approx. 1 second* after turning it on. You can start recording soon after deciding you want to record something. *Only when recording to the HDD or DVD-RAM. ●Startup takes up to a minute when: –You play a disc or start recording to discs other than DVD-RAM. –You want to make other operations. –The clock has not been set.	●On ●Off: Standby power consumption is less than when this is set to "On". (If this is set to "On", "Power Save" is automatically turned to "Off".)
	DivX Registration ●You need this registration code to purchase and play DivX Video-on-Demand (VOD) content (➡ 39).	
	System Update In order to update this unit's software, the EPG download, and to support system changes made by broadcasts, this unit periodically performs software updates. ●Press [OK] to show the following settings.	●Update data and EPG download information is sent by an unscheduled digital broadcast. In order to receive these updates, you must be able to receive digital broadcasts. ●An update will take approximately 60 minutes. While the update is in progress, "SW-DL" appears on the unit's display. You cannot operate the unit until the update is complete. Removing the AC mains lead while the update is in progress may damage the unit. ●An EPG download will take approximately 60 minutes. While the EPG download is in progress, "GUIDE" appears on the unit's display. The EPG download can be interrupted by switching on the unit, since the download will continue in the background.
	EPG Download in Standby	●On: When you set this unit to standby mode, EPG data is downloaded automatically. ●Off
	Software Update in Standby	●On: When you set this unit to standby mode, software updates are downloaded automatically. ●Off
	EPG/Software search period Selects the time to automatically perform EPG download and updates when the unit is set to standby mode. This can only be set when "EPG Download in Standby" and "Software Update in Standby" is set to "On". ●If there is a programmed recording set for the time you have selected, the programmed recording will be given priority.	●Automatic: The unit will give priority to searching for EPG download and update data at midnight. ●02:00–06:00 ●06:00–10:00 ●10:00–14:00 ●14:00–18:00 ●18:00–22:00 ●22:00–02:00
	Software Update Search Now Start the search for new software manually. A new software version is announced by a message. Do not turn your unit off during the update. This could result in the loss of data. A message shows that the update has finished. If a new software version is not going to be broadcast for the next few days, a corresponding message also appears.	●If applicable update data is found, press [◄, ►] to select "Yes" and press [OK].
	Initialize ●Press [OK] to show the following settings.	
	Shipping Condition All the settings except for the ratings level, ratings password and time settings return to the factory preset. The timer recording programmes are also cancelled.	●Yes ●No
	Default Settings All the settings other than the programmed channels, time settings, country settings (For France, Italy and Spain), language settings, disc language settings, ratings level, ratings password, remote control code, return to the factory presets.	●Yes ●No

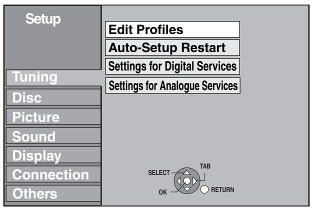
Tuning

1 Press [FUNCTION MENU].

2 Press [▲, ▼] to select “To Others” and press [OK].

3 Press [▲, ▼] to select “Setup” and press [OK].

4 Press [▲, ▼] to select “Tuning” and press [▶].


Setup
Tuning
Disc
Picture
Sound
Display
Connection
Others
Edit Profiles
Auto-Setup Restart
Settings for Digital Services
Settings for Analogue Services
SELECT
TAB
OK
RETURN

Edit Profiles

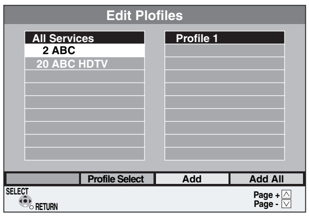
You can create four profiles of channels for making viewing and recording easier. Editing these profiles does not affect the channel setting itself.

- ●Timer recording may not work correctly if you edit the profiles during timer recording standby.

After performing steps 1–4

5 Press [▲, ▼] to select “Edit Profiles” and press [OK].

6 Press the “Green” button to select the profile.


Edit Plofiles
All Services
2 ABC
20 ABC HDTV
Profile 1
Profile Select
Add
Add All
SELECT
RETURN
Page +
Page -

■ To add channels to a profile

After performing steps 1–6

① Press [▲, ▼] to select the channel in the “All Services” column and 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

After performing steps 1–6

① Press [▶]※ .

② Press [▲, ▼] to select the channel in the “Profile” column to move and press the “Green” button.

③ Press [▲, ▼] to select the new position of the channel and 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

After performing steps 1–6

① Press [▶]※ .

② Press [▲, ▼] to select the channel in the “Profile” column and 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

After performing steps 1–6

① Press [▶]※ .

② Press the “Red” button.

(➡ 59, Entering text)

※ When the station name of the “All Services” column is highlighted

---

To browse through the list
Press [∧ ∨ CH].

To exit the screen
Press [EXIT].

Add New DVB Services

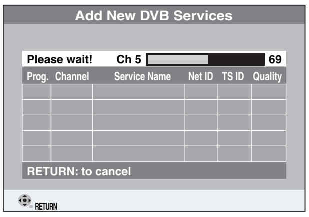
You can search for newly added terrestrial digital channels to receive.

After performing steps 1–4

5 Press [▲, ▼] to select “Settings for Digital Services ” and press [OK].

6 Press [▲, ▼] to select “Add New DVB Services” and press [OK].

The unit starts searching for newly available terrestrial digital channels. This takes about 5 minutes.


Add New DVB Services
Ch 5
69
Prog.
Channel
Service Name
Net ID
TS ID
Quality
RETURN

Please wait!

RETURN: to cancel

A message is displayed when the search is finished.
“No new services found.” is displayed when no new services can be found.

7 Press [OK] to save the newly found channels.

To stop partway
Press [RETURN].
The channels found before stopping are not saved.

To exit the screen
Press [EXIT].

Refer to the control reference on page 64.

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:

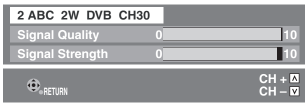
① Press [EXIT] to exit the screen.
② Press [∧ ∨ CH] to select a digital channel. "D" appears on the unit's display.
③ Display the Setup menu again (➡ 69).

After performing steps 1–4 (➡ 69)

5 Press [▲, ▼] to select "Settings for Digital Services " and press [OK].

6 Press [▲, ▼] to select "Signal Condition" and press [OK].

The quality and strength of the signal are shown.
Press [∧ ∨ CH] to select the channel.



2 ABC 2W DVB CH30
Signal Quality 0 10
Signal Strength 0 10

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:
  - –adjust the position and direction of the aerial.
  - –adjust the aerial reception with "DVB Manual Tuning" in the Setup menu (➡ right).
  - –check that the current digital broadcast channel is correctly broadcasting.

To exit the screen
Press [EXIT].

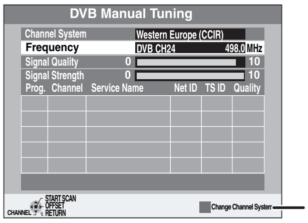
DVB Manual Tuning

You can set channels manually that the DVB Auto Setup could not complete successfully.

After performing steps 1–4 (➡ 69)

5 Press [▲, ▼] to select "Settings for Digital Services " and press [OK].

6 Press [▲, ▼] to select "DVB Manual Tuning" and press [OK].



DVB Manual Tuning

Channel System: Western Europe (CCIR)
Frequency: DVB CH24 498.0 MHz
Signal Quality 0 10
Signal Strength 0 10

Prog.	Channel	Service Name	Net ID	TS ID	Quality

If there is no picture, press the "Red" button and select the correct channel system.

7 Press [▲, ▼] to select the channel you want to set.

8 Press [◄, ►] to adjust the frequency.

- The frequency rises and falls in steps of 0.5 MHz.
- Adjust the frequency by checking the signal strength and signal quality displays.
  [Refer to "Signal Condition" (➡ left) for signal quality and signal strength.]

9 Press [OK] to start scan.

The set channel is displayed in the table.

10 Press [EXIT] and press [∧ ∨ CH] to check that applicable channels have been selected.

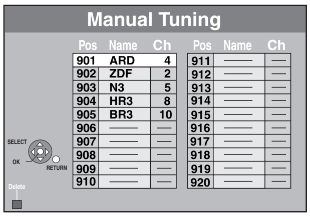
Analogue Manual Tuning

You can delete analogue channels and set the analogue channel details.

After performing steps 1–4 (➡ 69)

5 Press [▲, ▼] to select "Settings for Analogue Services " and press [OK].

6 Press [▲, ▼] to select "Manual Tuning" and press [OK].



Manual Tuning

Pos	Name	Ch	Pos	Name	Ch
901	ARD	4	911	—	—
902	ZDF	2	912	—	—
903	N3	5	913	—	—
904	HR3	8	914	—	—
905	BR3	10	915	—	—
906	—	—	916	—	—
907	—	—	917	—	—
908	—	—	918	—	—
909	—	—	919	—	—
910	—	—	920	—	—

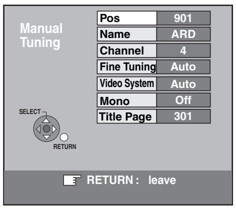
To delete a programme position

Press [▲, ▼, ◀, ▶] to select a programme position and press the "Red" button.

■ To change the tuning settings for individual programme position

7 Press [▲, ▼, ◀, ▶] to select a programme position and press [OK].

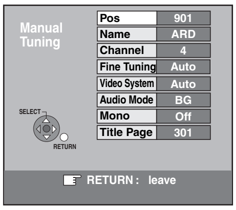
For Germany



Manual Tuning

Pos 901
Name ARD
Channel 4
Fine Tuning Auto
Video System Auto
Mono Off
Title Page 301

For France, Italy and Spain



Manual Tuning

Pos 901
Name ARD
Channel 4
Fine Tuning Auto
Video System Auto
Audio Mode BG
Mono Off
Title Page 301

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

Pos	**Programme position in the table** (You cannot change the programme position.)
Name	**To enter or change the name of a TV station** Press [▲, ▼, ◀, ▶] to enter station name and press [OK]. If the station name needs a blank space, select the blank between "Z" and "∗".
Channel	**To enter newly available TV stations or change the channel number of an already tuned TV station** Press [▲, ▼] or the numbered buttons to enter the channel number of the desired TV station. Wait a few moments until the desired TV station has been tuned. After the desired TV station is tuned, press [OK].
Fine Tuning	**To obtain the best tuning condition** Press [▲, ▼] to adjust the best tuning condition and press [OK]. ●Press [▶] to return to "Auto".
Video System	**To select the video system type** Press [▲, ▼] to select "PAL" or "SECAM" if the picture lacks colour, and press [OK]. Auto: This unit automatically distinguishes PAL and SECAM signals. PAL: For receiving PAL signals. SECAM: For receiving SECAM signals.
Audio Mode **For France, Italy and Spain**	**To select the audio reception type** If sound quality is poor, press [▲, ▼] to select "BG" or "L" and press [OK]. BG: PAL B.G.H/SECAM B.G L: SECAM L, L'
Mono	**To select the type of sound to be recorded** Press [▲, ▼] to select "On" if the stereo sound is distorted due to inferior reception conditions, or if you want to record the normal (mono) sound during a stereo, bilingual or NICAM broadcast, and press [OK].
Title Page	**To enter the Teletext title page for a channel** Entering title page number allows the unit to automatically record programme and station names. Press [▲, ▼] or numbered buttons to enter the number and press [OK]. ●To find the correct title page for the station, refer to its Teletext TV guide.

You can make the following two settings by selecting the external input channel (AV1, AV2, AV3) in step 6.

- Video System (Auto/PAL/SECAM)
  In order to record properly, make the appropriate settings to match the connected equipment.
- Title Page (Auto/Off)

Refer to the control reference on page 64.

Auto-Setup Restart

You can restart auto channel setting for terrestrial digital and analogue channels if set up (➡ 20) fails for some reason.

After performing steps 1–4 (➡ 69)

5. **Press [▲, ▼] to select “Auto-Setup Restart” and press [OK].**
   The confirmation screen appears.
6. **Press [◄, ►] to select “Yes” and press [OK].**

You can also use the following method to restart Auto-Setup.
When the unit is on and stopped
Press and hold [∨ CH] and [CH ∧] on the main unit until the Auto-Setup screen appears.
All the settings except for the ratings level, ratings password and time settings return to the factory preset. The timer recording programmes are also cancelled.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

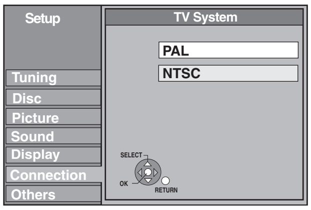
List of TV Reception Channels

Tuner System	Channel Coverage	VHF	UHF	CATV
PAL-BGH SECAM-BG	CCIR	E2 – E12 A – H2 (Italy)	21 – 69	S01 – S05 (S1 – S3) S1 – S20 (M1 – U10) S21 – S41
SECAM-LL’	France	2 – 10	21 – 69	B – Q (100.5 – 299.5 MHz) S21 – S41 (299.25 – 467.25 MHz)
DVB-T	Germany France Italy Spain	5 – 12 5 – 10 D – H2 5 – 12	21 – 69 21 – 69 21 – 69 21 – 69	–

TV System

Change the setting to match the equipment you are connecting with, or to match the title when there are both PAL and NTSC titles on the HDD.

1. **Press [FUNCTION MENU].**
2. **Press [▲, ▼] to select “To Others” and press [OK].**
3. **Press [▲, ▼] to select “Setup” and press [OK].**
4. **Press [▲, ▼] to select “Connection” and press [►].**
5. **Press [▲, ▼] to select “TV System” and press [OK].**



6. **Press [▲, ▼] to select the TV system and press [OK].**
   - ●**PAL** (factory preset)
     - –Select when connecting to a PAL or Multi-system television. Titles 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 a NTSC television. Television programmes cannot be recorded properly.
     - –Select to record NTSC input from other equipment.
     - –HDD Select when playing a NTSC input title recorded on the HDD.
7. **Press [◄, ►] to select “Yes” and press [OK].**

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

■ To change the setting all at once (PAL⟷NTSC)

While stopped, keep pressing [■] and [⏏ OPEN/CLOSE] on the main unit simultaneously for 5 or more seconds.

Note

- ●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.)
- ●If “NTSC” has been selected, the TV Guide system cannot be used.

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 time is not set correctly use the settings listed in the method below.
In the case of a power failure, the clock setting remains in memory for approximately 60 minutes.

1 Press [FUNCTION MENU].

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

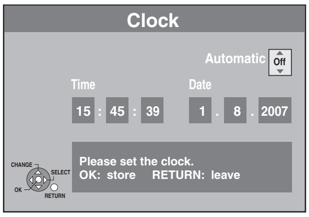
3 Press [▲, ▼] to select "Setup" and press [OK].

4 Press [▲, ▼] to select "Others" and press [►].

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

For Germany

e.g., This screen appears while receiving a digital broadcast.



Clock

Automatic: Off

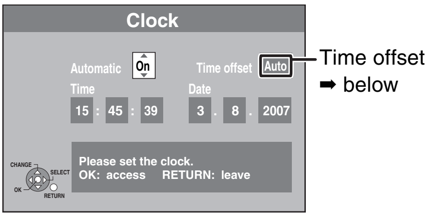
Time: 15 : 45 : 39

Date: 1 . 8 . 2007

Please set the clock.
OK: store RETURN: leave

For France, Italy and Spain

e.g., This screen appears while receiving a digital broadcast.



Clock

Automatic: On

Time offset: Auto

Time: 15 : 45 : 39

Date: 3 . 8 . 2007

Please set the clock.
OK: access RETURN: leave

6 Press [▲, ▼] to select "Off" of "Automatic" and press [OK].

7 Press [◄, ►] to select the item you want to change.

The items change as follows:
Hour⟷Minute⟷Second⟷Day⟷Month⟷Year
↑_______________________________________↑

Reset the clock regularly to maintain accuracy.
(Monthly accuracy +/– 15 seconds.)

8 Press [▲, ▼] to change the setting.

You can also use the numbered buttons for setting.

9 Press [OK] when you have finished the settings.

The clock starts.

To return to the previous screen
Press [RETURN].

To exit the screen
Press [EXIT].

■ To change the time offset **For France, Italy and Spain**

When the time is not correct, select the region that matches where you live and set "Time offset" (from –2h to +2h).

1 Press [▲, ▼] to set "Automatic" to "On" and press [OK] in step 6.
2 Press [▲, ▼] to select the correct time offset and press [OK].
Auto clock setting starts. This takes a few minutes.
"Automatic clock setting completed." screen is displayed.
3 Press [RETURN].

Language code list

Enter the code with the numbered buttons.

Abkhazian:	6566
Afar:	6565
Afrikaans:	6570
Albanian:	8381
Amharic:	6577
Arabic:	6582
Armenian:	7289
Assamese:	6583
Aymara:	6589
Azerbaijani:	6590
Bashkir:	6665
Basque:	6985
Bengali; Bangla:	6678
Bhutani:	6890
Bihari:	6672
Breton:	6682
Bulgarian:	6671
Burmese:	7789
Byelorussian:	6669
Cambodian:	7577
Catalan:	6765
Chinese:	9072
Corsican:	6779
Croatian:	7282
Czech:	6783
Danish:	6865
Dutch:	7876
English:	6978
Esperanto:	6979
Estonian:	6984
Faroese:	7079
Fiji:	7074
Finnish:	7073
French:	7082
Frisian:	7089
Galician:	7176
Georgian:	7565
German:	6869
Greek:	6976
Greenlandic:	7576
Guarani:	7178
Gujarati:	7185
Hausa:	7265
Hebrew:	7387
Hindi:	7273
Hungarian:	7285
Icelandic:	7383
Indonesian:	7378
Interlingua:	7365
Irish:	7165
Italian:	7384
Japanese:	7465
Javanese:	7487
Kannada:	7578
Kashmiri:	7583
Kazakh:	7575
Kirghiz:	7589
Korean:	7579
Kurdish:	7585
Laotian:	7679
Latin:	7665
Latvian, Lettish:	7686
Lingala:	7678
Lithuanian:	7684
Macedonian:	7775
Malagasy:	7771
Malay:	7783
Malayalam:	7776
Maltese:	7784
Maori:	7773
Marathi:	7782
Moldavian:	7779
Mongolian:	7778
Nauru:	7865
Nepali:	7869
Norwegian:	7879
Oriya:	7982
Pashto, Pushto:	8083
Persian:	7065
Polish:	8076
Portuguese:	8084
Punjabi:	8065
Quechua:	8185
Rhaeto-Romance:	8277
Romanian:	8279
Russian:	8285
Samoan:	8377
Sanskrit:	8365
Scots Gaelic:	7168
Serbian:	8382
Serbo-Croatian:	8372
Shona:	8378
Sindhi:	8368
Singhalese:	8373
Slovak:	8375
Slovenian:	8376
Somali:	8379
Spanish:	6983
Sundanese:	8385
Swahili:	8387
Swedish:	8386
Tagalog:	8476
Tajik:	8471
Tamil:	8465
Tatar:	8484
Telugu:	8469
Thai:	8472
Tibetan:	6679
Tigrinya:	8473
Tonga:	8479
Turkish:	8482
Turkmen:	8475
Twi:	8487
Ukrainian:	8575
Urdu:	8582
Uzbek:	8590
Vietnamese:	8673
Volapük:	8679
Welsh:	6789
Wolof:	8779
Xhosa:	8872
Yiddish:	7473
Yoruba:	8979
Zulu:	9085

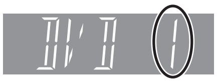
Messages

On the television

		Page
Authorisation Error.	● 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)	**38, 39**
Cannot finish recording completely.	● The programme was copy-protected. ● The HDD or disc may be full. ● The maximum number of program has been exceeded.	**—** **—** **24**
Cannot playback. **TV system is different from the setting.** **To playback, please change the TV System in Setup.**	● 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.	**72**
Cannot record to the disc.	● The disc may be dirty or scratched.	**10**
Unable to format.		
Cannot play on this unit.	● You tried to play a non-compatible image. ● Turn the unit off and re-insert the card.	**37** **13**
Cannot output Audio with HDMI because of copyright protection. **EX87**	● Should you connect equipment that does not support CPPM audio from a CPPM copy protected DVD-Audio, audio cannot be output from HDMI AV OUT terminal. Connect the audio cables (red, white), optical digital cable, or the 21-pin Scart cable※ to the corresponding terminals. ※ Only when this unit is connected to a Panasonic TV (VIERA)	**17**
Cannot record. Disc is full.	● **HDD** **RAM** **-RW(V)** **+RW** Create space by deleting any unnecessary titles. [Even if you delete recorded content from the DVD-R, DVD-R DL, +R or +R DL there is no increase in disc space. Available space on DVD-RW (DVD-Video format) and +RW increases only when the last recorded title is deleted.] ● Use a new disc.	**45, 50, 61** **—**
Cannot record. Maximum number of titles exceeded.		
No Disc	● The disc may be upside down.	**—**
No folders.	● There is no compatible folder in this unit.	**7, 37**
No SD CARD **No valid SD card.**	● 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.	**13** **7**
Not enough space in the copy destination.	● 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.	**45, 49, 50, 61** **54, 57**
This is a non-recordable disc.	● 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. ● You inserted an unformatted DVD-RAM, DVD-RW, +R, +R DL or +RW. ● 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.	**4–5** **61** **—**
This disc is not formatted properly. Format it using DVD Management in FUNCTION MENU.		
Not enough space on HDD. Space of 4 hours (in SP mode) is necessary. **Maximum number of titles is recorded on HDD. Please delete unnecessary titles.**	● **-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.	**50**
Rental Expired.	● The DivX VOD content has zero remaining plays. You cannot play it. (DivX)	**39**
🛇	● The operation is prohibited by the unit or disc.	**—**

On the unit's display

The following messages or service numbers appear on the unit's display when something unusual is detected during startup and use.

		Page
DVD □ ("□" stands for a number.)	●The remote control and main unit are using different codes. Change the code on the remote control.  Press and hold [OK] and the indicated number button at the same time for more than 5 seconds.	**22**
HARD ERR※	●If there is no change after turning the unit on and off, consult the dealer where the unit was purchased.	—
GUIDE	●TV Guide data is being downloaded.	**68**
No AUDIO※ EX87	●When connecting to CPPM incompatible equipment with an HDMI cable, CPPM copy protected DVD-Audio cannot output audio through the HDMI AV OUT terminal. Connect the audio cables (red, white), optical digital cable or the 21-pin Scart cable※ to the corresponding terminals. ※ Only when this unit is connected to a Panasonic TV (VIERA)	**17**
NoERAS	●You cannot delete items on this disc. The disc may be damaged. Use a new disc.	—
NoREAD	●The disc is dirty or badly scratched. The unit cannot record, play, or edit. ●This message may appear when the DVD lens cleaner has finished cleaning. Press [▲ OPEN/CLOSE] on the main unit to eject the disc.	**10** **10**
NoWRIT	●You cannot write to this disc. The disc may be damaged. Use a new disc.	—
PLEASE WAIT※	●There was a power failure or the AC plug was disconnected while the unit was on. The unit is carrying out its recovery process. This process restores the unit to normal operation. The unit is not broken. Wait until the message disappears.	—
PROG FULL※	●There are already 32 timer programmes. Delete unnecessary timer programmes.	**32**
SP 35:50 **LP 151h** "SP","LP" and the numbers are examples.	●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	●The unit is performing a software update.	**68**
UNFORMAT※	●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.	**61**
UNSUPPORT※	●You have inserted a disc the unit cannot play or record on.	**4–6**
F74	●The HDMI connection could not be authenticated due to a transfer malfunction. Consult the dealer where the unit was purchased.	—
F75	●The HDMI connection could not be authenticated due to an internal data malfunction. Consult the dealer where the unit was purchased.	—
U50 For Germany	●A short circuit was detected in the aerial input. Please check your aerial.	—
U59	●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	●(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.	—
U72 **U73**	●The HDMI connection acts unusually. –The connected equipment is not HDMI compatible. –The HDMI cable is too long. Please use a cable 5.0 meters or less. –The HDMI cable is damaged.	—
U76	●HDMI cannot be output because you are connected to a model that does not support copyright protection.	—
U80 **U81** **U99**	●The unit fails to operate properly. Press [⏻/I] on the main unit to switch the unit to standby mode. Now press [⏻/I] on the main unit again to turn the unit on.	—
U88	●(When a disc is inserted) Displays when there was something unusual detected with the disc while 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.	**78**
H□□ or F□□	●There is something unusual. (The service number displayed after H and F depends on the unit's condition.) ●Check the unit using the troubleshooting guide. If the service number does not disappear, do the following. 1. Disconnect the plug from the household mains socket, wait a few seconds, then reconnect it. 2. Press [⏻/I] to turn the power on. (The unit may be fixed.) If the service number does not disappear despite after doing the above, request service from the dealer. Inform the dealer of the service number when requesting service.	— **78–83**
X HOLD	●The Child Lock function is activated. Press and hold [OK] and [RETURN] simultaneously until "X HOLD" disappears.	**63**

※The message are alternately displayed.

Frequently asked questions

Refer to the following items if you have any doubts about unit operations.

Set up		**Page**
Which aerial is suitable for receiving digital terrestrial broadcasts?	●You can use your current aerial. Room rod aerials are also suitable. Use an indoor antenna if the reception is poor. Consult your local TV aerial installer.	—
Can this unit receive or record High Definition (HD) broadcasts?	●No, this unit cannot receive or record High Definition (HD) broadcasts.	—
What equipment is necessary to play multi channel surround sound?	●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. ● **EX87** An amplifier supporting CPPM and the HDMI standard (version 1.1 or later) must be connected to this unit to play multi-channel audio on a DVD-Audio.	**16, 17** **17**
Are the headphones and speakers directly connected to the unit?	●You cannot directly connect them to the unit. Connect through the amplifier etc.	**16, 17**
The television has a Scart terminal and component video input terminal. Which should I connect with?	●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.	**14–16**
Is my television progressive output compatible?	●All Panasonic televisions that have 576 (625)/50i · 50p, 480 (525)/60i · 60p input terminals are compatible. Consult the manufacturer if you have another brand of television.	—

Disc		
Can I play DVD-Video, DVD-Audio and Video CDs bought in another country?	●You cannot play DVD-Video if their region number does not include “2” or “ALL”. Refer to the disc’s jacket for more information. ● **EX77** You cannot play DVD-Audio.	**Cover** —
Can a DVD-Video that does not have a region number be played?	●The DVD-Video region number indicates the disc conforms to a standard. You cannot play discs that do not have a region number. You also cannot play discs that do not conform to a standard.	—
Please tell me about disc compatibility with this unit.	●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). ●This unit also records and plays high speed recording compatible DVD-R, DVD-R DL, DVD-RW, +R, +R DL, +RW discs.	**4–6** —
Please tell me about CD-R and CD-RW compatibility with this unit.	●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). ●You cannot write to a CD-R or CD-RW with this unit.	**6, 37** —

Recording		
Can I record from a commercially purchased video cassette or DVD?	●Most commercially sold video cassettes and DVD are copy protected; therefore, recording is usually not possible.	—
Can DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW recorded on this unit be played on other equipment?	●You can play on compatible equipment such as DVD players after finalising the disc on this unit. However, depending on the condition of the recording, the quality of the disc and capabilities of the DVD player, play may not be possible. ●If you play a DVD-R DL, +R DL or +RW, use compatible equipment.	— —
Can I record digital audio signals using this unit?	●You cannot record digital signals from other equipment. The digital audio terminals on this unit are for output only. (The audio recorded using the unit’s DV input terminal from a digital video camcorder, for example, is recorded digitally.)	—
Can a digital audio signal from this unit be recorded to other equipment?	●You can record if using the PCM signal. When recording DVD, change the “Digital Audio Output” settings to the following in the Setup menu. –PCM Down Conversion: On –Dolby Digital/DTS/MPEG: PCM However, only as long as digital recording from the disc is permitted and the recording equipment is compatible with a sampling frequency of 48 kHz. ●You cannot record MP3 signals.	**66** —
(Analogue broadcast only) Can I switch to bilingual broadcast during recording?	●With HDD and DVD-RAM, you can. Just press [AUDIO]. (When “Rec for High Speed Copy” is set to “Off”) ●With DVD-R, DVD-RW (DVD-Video format), +R, +RW you cannot. Change before recording with “Bilingual Audio Selection” in the Setup menu.	**36** **66**
Can I high speed copy to a disc?	●Yes, you can. (When “Rec for High Speed Copy” was set to “On” before recording the programme.) Depending on the disc type, the maximum speed varies.	**51**

TV Guide

		Page
Is it possible to programme a recording, with a start and end time that are different from the TV Guide system?	● You can manually change the start and end time of programmes in the Timer Recording menu.	**30**
Can I receive TV Guide system data via a connected satellite receiver or a Set Top Box?	● 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.	**30, 33**
What happens when I unplug my unit from the household mains socket?	● The TV Guide system data will not be updated. If the unit is disconnected from the household mains socket for a longer period of time, then the TV Guide data is lost. Make sure that the time is set correctly again.	—

Troubleshooting guide

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 do not indicate a problem with this unit:

- Regular disc rotating sounds.
- Poor reception due to atmospheric conditions.
- Image disturbance during search.
- Interruptions in reception due to periodic satellite broadcasting breaks.
- A sound is heard when the HDD goes into energy save mode, or operations are slow to respond in energy save mode.
- Operations do not work due to a poor-quality disc. (Try again using a Panasonic disc.)
- **The unit freezes due to one of its safety devices being activated. (Press and hold [⏻/I] on the main unit for 10 seconds.)**
- When the HDD has been automatically placed in the energy save mode (➡ 9), or the unit is turned on or off, there may be an unexpected sound. This does not indicate a problem with this unit.

Power		**Page**
No power. **The unit does not turn on pressing [⏻ DVD].**	● Insert the AC mains lead securely into a known active household mains socket. ● 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.	**14, 15** **33**
The unit switches to standby mode.	● One of the unit’s safety devices is activated. Press [⏻/I] on the main unit to turn the unit on.	—
The power is turned off automatically.	● If you connected this unit to a “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.	**18**

Displays

The display is dim.	● Change “FL Display” in the Setup menu.	**67**
“0:00” is flashing on the unit’s display.	● Set the clock.	**73**
The time recorded on the disc and the available time shown do not add up. **The displayed time of this unit is different from the actual recording time or MP3 recording time.**	● Times shown may disagree with actual times. ● Available recording space on DVD-RW (DVD-Video format) or +RW increases only when the last recorded title is deleted. It does not increase if other titles are deleted. ● Even if you delete recorded content from the DVD-R, DVD-R DL, +R or +R DL, there is no increase in disc space. ● More disc space than the actual recording time is used after recording or editing the DVD-R, DVD-R DL, +R or +R DL 200 times or more. ● While searching, the elapsed time may not display correctly.	— — — — —
The clock is not correct.	● 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.	**73**
Compared to the actual recorded time, the elapsed time displayed is less. **(Only when recording in NTSC)**	● The displayed recording/play time is converted from the number of frames at 29.97 frames (equal to 0.999 seconds) to one second. There will be a slight difference between the time displayed and the actual elapsed time (e.g., actual one-hour elapsed time may display as approximately 59 minutes 56 seconds). This does not affect the recording.	—
“U88” is displayed and the disc cannot be ejected.	● The unit is carrying out the recovery process. Do the following to eject the disc. 1 Press [⏻/I] on the main unit to switch the unit to standby. If the unit doesn’t switch to standby, press and hold [⏻/I] on the main unit for about 10 seconds. The unit is forcibly switched to standby. 2 While the unit is off, press and hold [■] and [CH ∧] on the main unit at the same time for about 5 seconds. Remove the disc.	—

TV screen and video

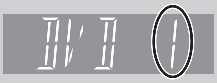
Television reception worsens after connecting the unit.	● This can occur because the signals are being divided between the unit and other equipment. It can be solved by using a signal booster, available from audio-visual suppliers. If it is not solved by using a signal booster, consult the dealer.	—
The digital channel information or control panel does not appear.	● Select the length of time (3–10 sec.) that the “On-Screen Messages” in the Setup menu will be displayed. ● The digital channel information will not appear during playback or recording. ● Analogue broadcasts do not support the digital channel information. ● The control panel is only displayed when connected to a TV with “HDAVI Control 2” function.	**67** — — **19**
The grey background does not appear.	● Select “On” in “Grey Background” in the Setup menu.	**67**
Picture does not appear during timer recording.	● 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.**	● Use the television to change the aspect. If your television does not have that function, set “Progressive” in the Picture menu to “Off”. ● Check the settings for “TV Aspect” in the Setup menu. ● If you connect an HDMI cable, set “Aspect for 4:3 Video” to “16:9” in the Setup menu. ● Set “Rec for High Speed Copy” to “On”, and set the “Aspect for Recording” to “4:3”. It may be possible to adjust the display mode on the TV. Refer to your television’s operating instructions.	**43** **67** **67** **65**

TV screen and video (continued)

		Page
Titles recorded with 16:9 aspect are stretched vertically.	●16:9 aspect programmes are recorded in 4:3 aspect in the following cases. –-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. –If you recorded with the “Aspect for Recording” set to “4:3” in the Setup menu. When you want to record 16:9 programme in the same aspect, set “Rec for High Speed Copy” to “On”, and set the “Aspect for Recording” to “16:9”. It may be possible to adjust the display mode on the TV. Refer to your television’s operating instructions.	— — 65
There is a lot of after-image when playing video.	●Set “Playback NR” in the Picture menu to “Off”.	43
When playing DVD-Video using progressive output, one part of the picture momentarily appears to be doubled up.	●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 interlace output.	43
There is no apparent change in picture quality when adjusted with the Picture menu in the on-screen menus.	●The effect is less perceivable with some types of video.	—
The images from this unit do not appear on the television. **Picture is distorted.**	●Make sure that the television is connected to the AV1 terminal, VIDEO OUT terminal, S VIDEO OUT terminal, COMPONENT VIDEO OUT terminals or HDMI terminal on this unit. ●Make sure that the television’s input setting (e.g., AV 1) is correct. ●Progressive output is set to on but the connected television is not progressive compatible. Press and hold [■] and [▶] (PLAY) on the main unit at the same time for more than 5 seconds to cancel this setting. 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.	14–17 — — 72 — —
The picture is distorted during play, or video will not play correctly.	●You may be playing a TV programme recorded with poor reception or unfavorable weather conditions. ●The picture may be distorted or a black screen may appear briefly between recorded titles in the following situations: –between titles recorded with different recording modes. –between scenes recorded with different aspect ratios. –between scenes recorded with different resolutions. –between playlist chapters.	— —

Sound

No sound. **Low volume.** **Distorted sound.** **Cannot hear the desired audio type.**	●Check the connections and the “Digital Audio Output” settings. Check the input mode on the amplifier if you have connected one. ●Press [AUDIO] to select the audio. ●Turn off V.S.S. in the following cases. –When using discs that do not have surround sound effects such as Karaoke discs. –When playing bilingual broadcast programmes. ●EX87 DVD-A The disc may have a restriction on the method of audio output. This unit cannot playback multi-channel discs that prevent down-mixing unless the unit is connected with an HDMI cable to an amplifier supporting CPPM and the HDMI standard (version 1.1 or later). Refer to the disc jacket for more information. ●Audio may not be output due to how files were created. (DivX) ●Audio may not be heard when more than 4 devices are connected with HDMI cables. Reduce the number of connected devices. ●The sound effects will not work when the bitstream signal is output from the HDMI AV OUT terminal or the OPTICAL DIGITAL AUDIO OUT terminal. ●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. ●If recording to the HDD or a DVD-RAM when “Rec for High Speed Copy” is set to “On”, you can only record either the main or secondary audio of a bilingual broadcast. If you do not intend to copy the title to a DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL or +RW set “Rec for High Speed Copy” in the Setup menu to “Off”.	14–16, 66 36 43 — — — — 67 — 65
Cannot switch audio.	●You cannot switch the audio in the following cases. –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 “Rec for High Speed Copy” is set to “On”. (The default setting is “On”). ●The amplifier is connected using an optical digital cable or an HDMI cable. You cannot switch the audio if “Dolby Digital” is set to “Bitstream”. Set “Dolby Digital” to “PCM” or connect using audio cables. ●There are discs for which audio cannot be changed because of how the disc was created.	— 66 65 16, 17, 66 —

Operation		Page
Cannot operate the television. **The remote control doesn't work.**	●Change the manufacturer code. Some televisions cannot be operated even if you change the code. ●The remote control and main unit are using different codes. Change the code on the remote control.  Press and hold [OK] and the indicated number button at the same time for more than 5 seconds. ●The batteries are depleted. Replace them with new ones. ●You are not pointing the remote control at the main unit's remote control signal sensor during operation. ●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 sunlight exposure. ●It may be necessary to set the code on the remote control again after changing the batteries. ●It may be necessary to set the manufacturer code again after changing the batteries. ●The child lock function is activated.	**21** **22** **11** — — — **21–22** **21** **63**
The unit is on but cannot be operated.	●Recording drive or playback drive has not been selected properly. ●Some operations may be prohibited by the disc. ●The unit is hot ("U59" appears on the display). Wait for "U59" to disappear. ●One of the unit's safety devices may have been activated. Reset the unit as follows: 1 Press [⏻/I] on the main unit to switch the unit to standby. If the unit doesn't switch to standby, press and hold [⏻/I] on the main unit for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC mains lead, wait one minute, then reconnect it. 2 Press [⏻/I] on the main unit to switch it on. If the unit still cannot be operated, consult the dealer.	**24, 34** — — —
HDD activation is slow.	●The HDD is in energy save mode.	**9**
Cannot eject disc.	●The unit is recording. ●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. ●The unit may have a problem. While the unit is off, press and hold [■] and [CH ∧] on the main unit at the same time for about 5 seconds. Remove the disc and consult the dealer. If the Child Lock function is activated, above operation does not work. Cancel the Child Lock function.	— **33** **63**
Cannot tune channels. **Cannot download channel presets from the television.**	●Check the connections. ●You must connect to a television equipped with the Q Link function with a fully wired 21-pin Scart cable to download channel presets.	**14–15** —
Startup is slow.	●Make sure that "Quick Start" is set to "On". ●Startup takes time in the following situations: –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.	**68** —

Recording, timer recording and copying

		Page
Cannot record. Cannot copy.	●You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto. ●The disc is unformatted. Format the disc. RAM -RW(V) +R +R DL +RW ●The write-protect tab on the cartridge is set to PROTECT, or the disc is protected with DVD Management. ●Some programmes have limitations on the number of times they can be recorded (CPRM). ●You cannot record when there is not enough space or when the number of titles has reached its limit. Delete unwanted titles or use a new 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. –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 discs. However, you can record and copy again if you format DVD-RW. ●Due to peculiarities of DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW you may be unable to record onto them if you either insert and remove the disc or switch the unit on and off while a disc is loaded, a total of fifty times. ●DVD-R, DVD-R DL, DVD-RW (DVD-Video format), +R, +R DL and +RW recorded on this unit may not be recordable on other Panasonic DVD Recorders. ●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.	**4, 5** **61** **60** **84** **45, 50, 61** — **45, 50, 61** — — — —
Digital broadcasts cannot be recorded or copied.	●Some digital broadcasts are copyright protected with "One time only recording". This type of programme can only be recorded or copied to the HDD or a CPRM compatible DVD-RAM.	—
Cannot record from external equipment.	●Check that the connection is correct. ●Select the input channel ("AV2", "AV3" or "DV") for the equipment you have connected.	**14–15, 58** —
Timer recording does not work properly.	●The timer programme is incorrect or different timer programme times overlap. Correct the programme. ●The programme is not in timer recording standby. (The timer icon "⏲" in the timer recording list is not on.) ●Set the clock.	**32** **32** **73**
Timer recording does not stop even when [■] is pressed.	●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" disappears.) ●If you start recording immediately after turning on the unit while "Quick Start" is set to "On", you cannot then stop recording for a few seconds.	**31** **33** —
A part or whole of a recorded title has been lost.	●If there is a power failure or the plug is disconnected from the household mains socket while recording or editing, the title may be lost or the HDD/disc may become unusable. You will have to format the disc (HDD RAM -RW(V) +RW) or use a new disc. We cannot offer any guarantee regarding lost programmes or discs.	— **61**
The programme name and the recorded title do not match.	●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.	●When recording to the HDD, set "Rec for High Speed Copy" to "On" in the Setup menu. (The default setting is "On"). ●+R +R DL +RW If recorded in "EP" or "FR (recordings 5 hours or longer)" mode, you cannot perform high-speed copy. ●+R +R DL +RW Titles recorded on other Panasonic DVD recorders with "Rec for High Speed Copy" set to "On", and then copied to the HDD on this unit may not copy to +R, +R DL or +RW discs with high-speed copy.	**65** — —
When copying, it takes a long time even when high speed mode is selected.	●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. ●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.	●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.	—
The DV automatic recording function does not work.	●If images cannot be recorded or if the recording is aborted, check the connections and DV equipment settings. ●You cannot start recording until the images from the DV equipment appear on the television. ●Recording may not be performed as desired if the time codes on the tape in the DV equipment are not successive. ●Depending on the equipment, the DV automatic recording may not operate properly. ●The audio/video recordings are recorded on other than a DV tape.	**58** — — — **58**

Play

		Page
Play fails to start even when [▶] (PLAY) is pressed. Play starts but then stops immediately.	●Insert the disc correctly with the label facing up. ●The disc is dirty. ●You tried to play a blank disc or disc unplayable on this 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 (8 Hours)" mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use "EP (6 Hours)" mode. ●You cannot play discs during DV automatic recording. ●If playing DivX VOD content, refer to the homepage where you purchased it. (DivX)	34 10 4–6 — — 65 — 39
Audio and video momentarily pause.	●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. ●-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.	— — — 5
DVD-Video is not played.	●You have set a ratings level to limit DVD-Video play. Change this setting. ●Ensure disc is for the correct DVD-Video region number, and is not defective.	65 Cover
Alternative soundtrack and subtitles cannot be selected.	●The languages are not recorded on the disc. ●You may not be able to use the on-screen menus to change the soundtrack and subtitles on some discs. Use the disc's menus to make changes.	— 35
No subtitles.	●Subtitles are not recorded on the disc. ●Turn the subtitles on. Set "Subtitle" on the on-screen menu to "On".	— 42
Angle cannot be changed.	●Angles can only be changed during scenes where different angles are recorded.	—
You have forgotten your ratings password. You want to cancel the ratings level.	●The ratings level returns to the factory preset. While the disc tray is open, press [DRIVE SELECT] to select the DVD drive, then press and hold [● REC] and [▶] (PLAY) on the main unit at the same time for 5 or more seconds ("INIT" will appear on the unit's display).	—
Quick View does not work.	●This does not work when audio is other than Dolby Digital. ●This does not work when recording is in XP or FR mode.	— —
The resume play function does not work.	●Memorized positions are cancelled when –press [■] several times. –open the disc tray (excluding HDD). –DVD-A (EX87) SD CD VCD turn off the power. –if a recording or timer recording was executed.	—
The Video CD picture does not display properly.	●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.	72 —
Time Slip, Manual Skip, etc. does not work.	●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.	— 72
It takes time before play starts.	●This is normal on DivX video. (DivX)	—
Picture stops.	●Picture may stop if the DivX files are greater than 2 GB. (DivX)	—
Cannot see the beginning of the title played.	●(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.	—

Edit

Available disc space does not increase even after deleting a title.	●Available disc space does not increase after deleting on DVD-R, DVD-R DL, +R or +R DL. ●Disc space increases only when the last recorded title is deleted on DVD-RW (DVD-Video format) and +RW. The disc space does not increase when any other titles are deleted.	50 —
Cannot edit.	●You may not be able to edit on the HDD if there is no available space. Delete any unwanted titles to create empty space.	50
Cannot format.	●The disc is dirty. Wipe with a damp cloth and then wipe dry. ●You tried formatting a disc that you may not be able to use in this unit.	10 4–6
Cannot create chapters. Cannot mark the start point or the end point during "Partial Delete" operation.	●The unit writes the chapter division information to the disc when you turn it off or remove the disc. The information is not written if there is an interruption to the power before this. ●These operations are not possible with still pictures. ●You cannot set points if they are too close to each other. You cannot set an end point before a start point.	— — —
Cannot delete chapters.	●When the chapter is too short to delete, use "Combine Chapters" to make the chapter longer.	45
Cannot create a playlist.	●You cannot select all the chapters at once in a title if the title also includes still pictures. Select them individually.	—

Still pictures

Cannot display Direct Navigator screen.	●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.	●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.)	60
The contents of the card cannot be read.	●The card format is not compatible with the unit. (The contents on the card may be damaged.) This unit is compatible with SD Memory Cards that meet SD Card Specifications FAT 12 and FAT 16 formats, as well as SDHC Memory Cards in FAT 32 format. ●The card contains a folder structure and/or file extensions that are not compatible with this unit. ●Turn off and then turn on the unit again. ●You can use SD Cards with capacities from 8 MB to 4 GB. ●This unit cannot play AVCHD format motion pictures on an SD Card.	7, 37 7 — — —
Copying, deleting and setting protection takes a long time.	●When there are a lot of folders and files, it may sometimes take a few hours. ●When repeating copying or deleting, it may sometimes take a long time. Format the disc or card.	— 61

TV Guide

		Page
The TV Guide System does not receive any data.	●Check whether the clock is properly set. ●If signal quality is bad (ghost images or limited reception), the TV Guide system may not be able to receive any data.	73 —
“No Data” is displayed for some or all stations.	●Some stations are not supported by the TV Guide system. ●Analogue broadcasts are not supported by the TV Guide system. ●Programme the Timer recording manually or via ShowView.	— — 30
The TV Guide information is not displayed properly.	●There was a programme change. Check the current programme, e.g. on the Web site for the TV Guide system provider or station provider. ●Programme information about analogue broadcasts is not displayed.	— —
The TV Guide data transfer was interrupted.	●The TV Guide system shows the data that was received up to the interruption. ●The programme information may be incomplete.	— —
The TV Guide data is not updated.	●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 display), then the data update may also not work. ●Make sure that the time is set correctly. ●Check whether “Off” is set under “EPG Download in Standby” and change the setting in the Setup menu.	— — 68

Digital broadcast

Digital broadcasts cannot be received.	●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. ●For Germany Switch “Active Antenna” to “On” in the Setup menu if you are using an indoor antenna.	— — 68
After DVB Auto-Setup only some or no DVB channels are found.	●Check to ensure your area is covered by DVB transmissions. ●Check that the aerial and antenna cable are designed for DVB. However, use the included RF coaxial cable shown in STEP 1, Connections “A” or “B”. 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.	— — 14
Picture regularly breaks up on some channels. “No Signal” message is displayed.	●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 1, Connections “A” or “B”. ●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. ●When “No Signal” message is displayed, check aerial connection. ●Adjust the aerial reception with “DVB Manual Tuning” in the Setup menu.	70 — 14 — — 70
Picture very infrequently breaks up on some or all channels.	●Electrical atmospheric interference caused by local or distant lighting 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.	— —

VIERA Link

VIERA Link doesn’t work.	●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. ●If the connection for the equipment connected with HDMI 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. 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.	— 67 — —

To reset this unit

To return all the settings other than the main ones to the factory preset	●Select “Yes” in “Shipping Condition” in the Setup menu. All the settings except for the ratings level, ratings password and time settings return to the factory preset. The timer recording programmes are also cancelled. ●Select “Yes” in “Default Settings” in the Setup menu. All the settings other than the programmed channels, time settings, country settings (For France, Italy and Spain), language settings, disc language settings, ratings level, ratings password, remote control code, return to the factory presets. ●Press and hold [∨ CH] and [CH ∧] on the main unit until the country setting screen (For France, Italy and Spain) appears. All the settings except for the ratings level, ratings password and time settings return to the factory preset. The timer recording programmes are also cancelled.	68 68 —
To reset the ratings level settings	●While the disc tray is open, press [DRIVE SELECT] to select the DVD drive, then press and hold [● REC] and [▶] (PLAY) on the main unit at the same time for 5 or more seconds.	—
To restore the unit if it freezes due to one of the safety devices being activated	●Press and hold [⏻/I] on the main unit for 10 seconds. (The settings remain.)	—

Other

After performing an update, you can no longer receive broadcasts.	●Depending on the content of the update, some settings may have returned to the preset values. Fix the settings again.	—

Glossary

Bitstream
This is the digital form of multi-channel audio data (e.g., 5.1 channel) before it is decoded into its various channels.

CPPM (Content Protection for Prerecorded Media) (EX87)
A copy protection system used for DVD-Audio files. This unit supports CPPM.

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.

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 television's speakers. Some discs prohibit down-mixing and this unit can then only output the front two channels.
EX87 DVD-A Tracks that do not allow down-mixing will not play correctly on this unit except when connecting with an HDMI cable to an amplifier that meets HDMI standards (Ver. 1.1 or later) and is CPPM compatible.

Drive
In the instance of this unit, this refers to the hard disk (HDD), disc (DVD) and SD Card (SD). These perform the reading and writing of data.

DTS (Digital Theater Systems)
This surround system is used in many movie theaters. There is good separation between the channels, so realistic sound effects are possible.

Dynamic range
Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs.
Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can listen at low volumes but still hear dialogue clearly.

Film and video
DVD-Videos are recorded using either film or video. This unit can determine which type has been used, then uses the most suitable method of progressive output.

Film: 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.

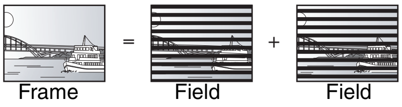
Video: Recorded at 25 frames/50 fields per second. (PAL discs) or 30 frames/60 fields per second (NTSC discs). Generally appropriate for TV drama programmes or animation.

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, +R DL on this unit.
After finalising, the disc becomes play-only and you can no longer record or edit. However, finalised DVD-RW can be formatted for recording again.

Folder
This is a place on the hard disk, disc or SD Card where groups of data are stored together. In the case of this unit, it refers to the place where still pictures (JPEG) and MPEG2 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 Cards and the HDD or unused +R and +R DL on this unit.
Formatting permanently deletes all contents.

Frames and fields
Frames refer to the single images that constitute the video you see on your television. Each frame consists of two fields.



- A frame still shows two fields, so there may be some blurring, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

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), 1080p (1125p)] from HDMI AV OUT terminals. 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 colour still pictures. If you select JPEG as the storage system on digital cameras, etc., the data will be compressed to 1/10–1/100 of its original size. The benefit of JPEG is less deterioration in picture quality considering the degree of compression.

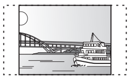
LPCM (Linear PCM)
These are uncompressed digital signals, similar to those found on CDs. LPCM sound is available when recording in XP mode.

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.

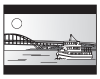
MP3 (MPEG Audio Layer 3)
An audio compression method that compresses audio to approximately one tenth of its size without any considerable loss of audio quality. You can play MP3 you have recorded onto DVD-R, DVD-R DL, CD-R and CD-RW.

Pan&Scan/Letterbox
In general, DVD-Video are produced with the intention that they be viewed on a widescreen television (16:9 aspect ratio), so images often don't fit regular (4:3 aspect ratio) televisions. Two styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

Pan & Scan:The sides are cut off so the picture fills the screen.



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



Playback control (PBC)
If a Video CD has playback control, you can select scenes and information with menus.
(This unit is compatible with version 2.0 and 1.1.)

Progressive/Interlace
The PAL video signal standard has 576 (or 625) interlaced (i) scan lines, whereas progressive scanning, called 576p (or 625p), uses twice the number of scan lines. For the NTSC standard, these are called 480i (or 525i) and 480p (or 525p) 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 576 (625)/50i · 50p, 480 (525)/60i · 60p input terminals are progressive compatible.

Protection
You can prevent accidental deletion by setting writing protection or deletion 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 list.

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.

Specifications

Recording system DVD-RAM : DVD Video Recording format
DVD-R : DVD-Video format[1]
DVD-R DL (Dual Layer) : DVD-Video format[1]
DVD-RW : DVD-Video format[1]
+R
+R DL (Double Layer)
+RW

Recordable discs
DVD-RAM: 2X SPEED (Ver. 2.0), 2-3X SPEED (Ver. 2.1), 2-5X SPEED (Ver. 2.2)
DVD-R: 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: 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 time Maximum 8 hours (using 4.7 GB disc)
XP: Approx. 1 hour, SP: Approx. 2 hours
LP: Approx. 4 hours, EP: Approx. 6 hours/8 hours

EX77
Maximum Approx. 284 hours with 160 GB HDD (EP 8 hours mode)
XP: Approx. 36 hours, SP: Approx. 70 hours
LP: Approx. 138 hours, EP: Approx. 212 hours/284 hours

EX87
Maximum Approx. 443 hours with 250 GB HDD (EP 8 hours mode)
XP: Approx. 55 hours, SP: Approx. 111 hours
LP: Approx. 222 hours, EP: Approx. 333 hours/443 hours

Playable discs
DVD-RAM : DVD Video Recording format
DVD-R : DVD-Video format, MP3, JPEG, DivX
DVD-R DL (Dual Layer) : DVD-Video format, MP3, JPEG, DivX
DVD-RW : DVD-Video format, DVD Video Recording format
+R, +R DL (Double Layer), +RW
DVD-Video, DVD-Audio (EX87), CD-Audio (CD-DA), Video CD, CD-R/CD-RW (CD-DA, Video CD, SVCD[2], MP3, JPEG, DivX)
SVCD[2]

Internal HDD capacity EX77 160 GB EX87 250 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 (Pickup)
Wave length:
CD 780 nm wave length
DVD 662 nm wave length
Laser power:
No hazardous radiation is emitted with the safety protection

Audio
Recording system: Dolby Digital 2ch, 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)

HDMI Output 19 pin type A: 1 pc
- This unit supports “HDAVI Control 2” function.

Video
Video system:
SECAM (only input)/PAL colour signal, 625 lines, 50 fields
NTSC colour signal, 525 lines, 60 fields
Recording system: MPEG2 (Hybrid VBR)
Video in (SECAM/PAL/NTSC):
AV1/AV2 (21 pin), AV3 (pin jack) 1 Vp-p 75 Ω, termination
S-Video in (SECAM/PAL/NTSC):
AV2 (21 pin), AV3 (S terminal) 1 Vp-p 75 Ω, termination
RGB in (PAL): AV2 (21 pin) 0.7 Vp-p (PAL) 75 Ω, termination
Video out (PAL/NTSC):
AV1/AV2 (21 pin), Video Out (pin jack) 1 Vp-p 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

Television system

Tuner system	Channel coverage
PAL-BGH SECAM-BG (CCIR)	VHF: E2–E12, A–H2 (Italy) UHF: 21–69 CATV: S01–S05 (S1–S3), S1–S20 (M1–U10), S21–S41
SECAM-LL’ (France)	VHF: 2–10 UHF: 21–69 CATV: B–Q (100.5 to 299.5 MHz), S21–S41 (299.25 to 467.25 MHz)
DVB-T (Germany)	VHF: 5–12 UHF: 21–69
DVB-T (France)	VHF: 5–10 UHF: 21–69
DVB-T (Italy)	VHF: D–H2 UHF: 21–69
DVB-T (Spain)	VHF: 5–12 UHF: 21–69

RF converter output: Not provided

SD card
Slot: SD Menory Card slot: 1 pc
Compatible media: SD Memory Card[3], SDHC Memory Card[4], MultiMediaCard
Format: FAT 12, FAT 16[5] (In case of SD Memory Card/MultiMediaCard)
FAT 32[5] (In case of SDHC Memory Card)

Still picture (JPEG)
Image file format:
JPEG conforming DCF (Design rule for Camera File system), sub sampling; 4:2:2 or 4:2:0
Number of pixels: Between 34 × 34 and 6144 × 4096
Thawing time: Approx. 1.9 sec (6 M pixels, JPEG)

Video (SD Video)
Codec: MPEG 2 (SD-Video Entertainment Video Profile)
File Format: SD-Video format conforming
Video Recording conversion and transfer is possible from card to HDD or DVD-RAM disc.
After Video Recording conversion and transfer to HDD or DVD-RAM disc, the playback is possible.

DV input IEEE 1394 Standard, 4 pin : 1 pc

Others
Region code: # 2
Operating temperature: 5 °C to 40 °C
Operating humidity range: 10 % to 80 % RH (no condensation)
Power supply: AC 220 to 240 V, 50 Hz
Power consumption: EX77 Approx. 35 W EX87 Approx. 36 W
Dimensions (W×D×H): 430 mm×330 mm×59 mm
Mass: Approx. 4.2 kg

Power consumption in standby mode:
Approx. 2 W (Power Save mode)
EX77 Approx. 16 W (Quick Start mode)
EX87 Approx. 17 W (Quick Start mode)

Note
Specifications are subject to change without notice.

[1] It is compatible to a DVD-Video format after finalised.
[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.)
[4] Class is not supported.
[5] Long file name is unsupported.

- Useable capacity will be less. (SD Card)

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 power 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 power source if it is not to be used for a long time.

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
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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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Index

- **Active Antenna** 68
- **Adjust the audio quality (Sound menu)** 43
- **Adjust the picture quality (Picture menu)** 43
- **Album**
  - Edit 48
  - Play 40
- **Angle** 42
- **Aspect** 20
- **Audio**
  - Digital broadcast (DVB Multi Audio) 43, 64
  - Playback 36
- **Auto Renewal Recording** 32
- **AV2 settings** 68
- **Change Thumbnail** 45
- **Channel**
  - Select 23
  - Settings 71
- **Chapter** 36, 44
- **Chasing playback** 27
- **Child Lock** 63
- **Cleaning**
  - Disc 10
  - Lens 10
  - Main unit 10
- **Clock settings** 73
- **Connection**
  - Aerial 14, 15
  - Amplifier, system component 16
  - Digital receiver, satellite receiver, analogue decoder 15
  - DV input terminal 58
  - HDMI 17
  - Television 14–17
  - Video cassette recorder 14–16
- **Copy**
  - SD Card (SD Video) 55
  - Still picture 56
  - Title/Playlist 51
- **Country setting** 20
- **C+decoder** 15, 17, 68
- **CPPM** 84
- **CPRM** 84
- **Create Chapter** 36, 45
- **Create playlists** 46
- **Delete**
  - Album 49
  - All titles 61
  - Chapter 45, 47
  - Playlist 47
  - Still picture 49
  - Title 45
- **Digital Audio Output settings** 66, 67
- **Digital broadcast**
  - Digital channel information 23
  - DVB Multi Audio 43, 64
  - DVB Subtitle 43, 64
  - New service 23, 67
  - Recording 24
  - Select the channel 23
  - Signal Condition 70
  - System Update 68
  - Timer 28
- **Direct Navigator** 34, 40, 44, 48
- **Direct TV Recording** 18
- **Discs** 4–6
- **Display**
  - Digital channel information 23
  - Status messages 43
- **Divide Title** 45
- **DivX** 37–39, 84
- **DV automatic recording** 58
- **DVD-Audio multi-channel play** 76
- **Edit**
  - Chapter 44
  - Playlists 46
  - Still picture 48
  - Title 44
- **Enabling discs to be played on other equipment – Finalise** 62
- **Encrypted** 23
- **Finalise** 5, 62, 84
- **Flexible Recording** 27
- **Format** 5, 61, 84
- **FR (Flexible Recording Mode)** 25
- **FUNCTION MENU window** 63
- **GUIDE** 28
- **HDAVI Control** 18, 67
- **HDMI** 17, 67, 84
- **High Speed Copy** 26, 65
- **Initialize** 68
- **JPEG** 37, 85
- **Language**
  - Code list 73
  - Disc menu 65
  - On-screen 67
  - Soundtrack 42, 65
  - Subtitle 42, 65
- **Linked timer recordings with external equipment (digital satellite receiver) – Ext Link** 33, 68
- **LPCM** 66, 85
- **Manual Skip** 36
- **Menu**
  - DivX 38
  - MP3 39
  - Setup 64
- **Mode**
  - Recording 25
  - Still Mode 66
- **MP3** 37, 39
- **Name**
  - Album 49
  - Disc 60
  - Entering text 59
  - Playlist 47
  - Title 30, 45
- **New Service** 23, 67
- **Partial Delete** 45
- **Picture settings** 43, 66
- **Playlist** 46
- **Power Save** 68
- **Progressive** 21, 43, 85
- **Properties**
  - Playlist 47
  - Still picture 41
  - Title 45
- **Protection**
  - Album 49
  - Card 60
  - Cartridge 60
  - Disc 60
  - Still picture 49
  - Title 45
- **Q Link** 18
- **Quick Start** 24
- **Quick View** 35
- **Ratings level settings** 65
- **Recording** 24
  - Aspect 8, 65
  - Auto Renewal 32
  - Direct TV Recording 18
  - DV automatic recording 58
  - External Link 33
  - Flexible Recording 27
  - Important notes 8
  - Mode 25
  - Relief 32
  - Satellite 33
  - Timer 28–32
- **Relief Recording** 32
- **Remote control code** 22
- **Repeat Play** 42
- **Resume play function** 35
- **Satellite**
  - Connection 15
  - Recording 33
  - Timer 33
- **SD Card** 7, 13
- **Select the channel** 23
- **Setup menu** 64
- **ShowView** 30
- **Signal Condition** 70
- **Simultaneous rec and play** 27
- **Soundtrack** 42
- **Still picture**
  - Copy 56
  - Edit 48
  - Play 40
- **Subtitle**
  - Disc 42
  - Digital broadcast (DVB Subtitle) 43, 64
- **Switch the audio/subtitles on the disc (Disc menu)** 42
- **System Update** 68
- **Time Slip** 36
- **Timer recording** 28–32
- **Tuning**
  - Analogue broadcast 71
  - Digital broadcast 70
  - Settings 72
- **TV Guide** 28
- **TV System (PAL/NTSC)** 72
- **VIERA Link** 18, 67

Environment friendly printed on chlorine free bleached paper.

Matsushita Electric Industrial Co., Ltd.
Web Site: http://panasonic.net

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RQT8860-1L
F0307YK1057