

Panasonic®

Operating Instructions

DVD Recorder

Model No. DMR-EX95V



DIGA



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

Read the operating instructions, the safety precautions, and the information on setting up the unit on page 3 thoroughly before you connect, operate or adjust any settings on the unit.

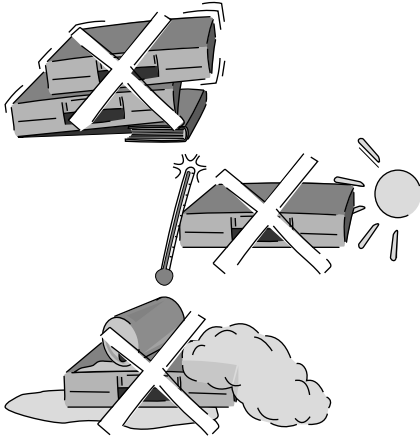
Trademark of the DVB Digital Video Broadcasting Project (1991 to 1996)
Declaration of Conformity No.3955, 12th January 2006



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Safety Precautions



Voltage: Only use power sources complying with the specifications for this device.

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.

Service: Never attempt to repair this unit by yourself. If a problem occurs that is not described in these operating instructions, disconnect the power supply and contact your dealer or an authorised after sales service centre.

**Install this device in a horizontal position.
Do not place anything heavy on it.**

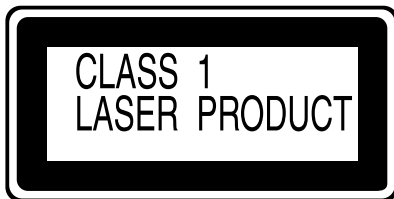
**Keep this device away from high temperatures and avoid changes in temperatures.
Keep away from liquids, humidity and dust.**

The socket outlet shall be installed near the equipment and easily accessible or the mains plug or an appliance coupler shall remain readily operable.

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.

DANGER – VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. FDA 21 CFR Class III	
注意	— 打开时有可见及不可见激光辐射。避免光束照射。
注意	— ここを開くと可視及び不可視レーザー光が出ます。ビームを直たり、離れたりしないでください。
CAUTION – CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1 +A2(Class 3B)	
ATTENTION – RAYONNEMENT LASER VISIBLE ET INVISIBLE. CLASSE 3B. EN CAS D'OUVERTURE, EVITER UNE EXPOSITION AU FAISCEAU.	
FÖRSIGTIG – SYNLIIG OG USYNLIIG LASERSTRÅLING KLASSE 3B. NÅR LÅGET ER ÅBENT, UNNGÅ ÅT BLIVE UDSAT FOR STRÅLEN.	
VARO – AVATTAESSA OLET ALTIINA LUOKAN 3B NÄKYVÄÄ JA NÄKYMÄTONTA LASERSÄTELYÄ. VÄRÖ ALITSTUIMISTA SÄTEELY.	
WARNING – KLASSE 3B SYNLIIG OCH OSYNLIIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD, UNDVIK EXPONERING FÖR STRÅLEN.	
VORSICHT – SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG KLASSE 3B. WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.	
CAUTION – VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM. IEC60825-1	
ATTENTION – RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.	
ADVARSEL – SYNLIIG OG USYNLIIG LASERSTRÅLING VED ÅBNING. UNNGÅ UDSÆTTELSE FOR STRÅLING.	
VARO! – AVATTAESSA OLET ALTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTELYÄ. ÄLÄ KATSO SÄTEESSEN.	
WARNING – SYNLIIG OCH OSYNLIIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD, BETRÄKTA EJ STRÅLEN.	
VORSICHT – SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG. WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHL AUSSETZEN.	
ADVARSEL – SYNLIIG OG USYNLIIG LASERSTRÅLING NÄR DEKSEL ÅPNEES. UNNGÅ EKSPONERING FOR STRÅLEN. VOL1167	

Inside of product



Back of product, see page 9.

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

CAUTION!

- DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.
- 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!

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.

THIS UNIT IS INTENDED FOR USE IN MODERATE CLIMATES.



If you see this symbol, read page 4.

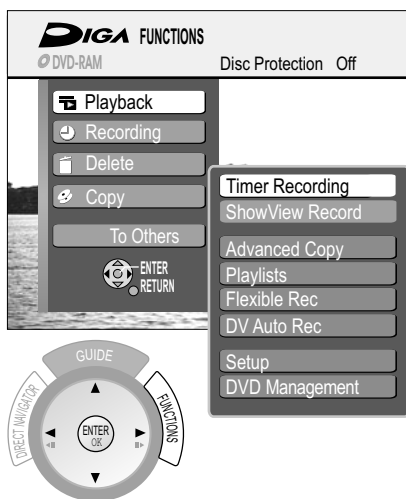
The model and serial number of this product can be found on the back of the unit. Please note them and keep for future reference.

Model No. Serial No.

Information about the unit

Menu FUNCTIONS

35



- Press **FUNCTIONS** on the remote to start the FUNCTIONS menu.
- Select the unit menu with the navigation buttons **▲▼◀▶** and **ENTER**.
- Press **RETURN** to leave the menu.

DVB

Digital Video Broadcasting

DVB-T

This unit is a DVD Recorder with integrated tuner. You can receive and record both analog and terrestrial digital channels (DVB-T) without an additional reception unit (Set Top Box).



DivX-compatible

DivX files can be played back from CD-R/CD-RW and DVD-R.

GUIDE

The TV Guide gives you a preview of the TV programmes for the next 7 days from your digital stations. Simply select each programme to store it for Timer programming.

DV interface

You can connect your digital camcorder directly to this unit via the DV IN connection. This way it's easy to copy your movies.

Licence information

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



Dolby Digital

Method of encoding digital signals. The signals are very much compressed in the process to enable recordings of large volumes of data. Manufactured under license from Dolby Laboratories. Dolby and the double-D symbol are trademarks of Dolby Laboratories.



DTS (Digital Theater Systems)

Sound system used in cinemas or movie theaters all over the world. "DTS" and "DTS 2.0 + Digital Out" are trademarks of Digital Theater Systems, Inc.

MP3 or MPEG 1 Audio Layer 3 is a file compression format used for digital audio files. It provides files of an extremely small size and may cause a consequential loss of quality. MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

HDAVI Control™ is a trademark of Matsushita Electric Industrial Co., Ltd.



SD Logo is a trademark.

miniSD™ is a trademark of SD Card Association.



HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

The HDMI connection makes it easy to connect up your multimedia units. One single cable transmits both digital video data and digital audio data. HDMI is the world's first complete digital consumer AV interface complying with a non-compression standard.

-If you see this symbol-

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Before you start

Dear customer


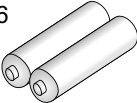


Thank you for your trust and your decision to purchase this top-quality unit. Panasonic is one of the leading manufacturers of entertainment electronics units. We are sure that you will be completely satisfied with this unit.

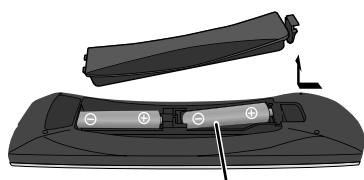
Matsushita Electric Industrial Co., Ltd.

<http://www.panasonic.co.jp/global/>

Included Accessories



Remote Control EUR7659YP0	AC mains lead RJA0043-1C 
Batteries AA, UM3 or R6 	Audio/Video cable K2KA6BA00003 
Operating Instructions Guarantee Card	RF Coaxial cable K1TWACC00001 



R6/LR6, AA

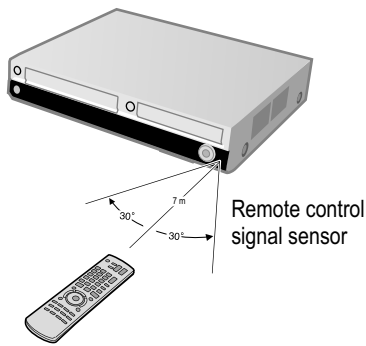
Inserting batteries

- The batteries last for about a year, depending on how often you use the remote control unit.
- Do not mix old with new batteries, or batteries of different types.
- Only use batteries without any harmful substances (lead, cadmium, mercury).
- Do not use rechargeable type batteries.
- Remove the batteries if the remote control unit will remain unused for longer periods of time.
- Do not heat or short-circuit the batteries. Immediately remove used-up batteries and replace with batteries of type AA, UM3 or R6.
- Be sure to put in the batteries the right way round + and -.

Dispose of **batteries**, packaging material and the unit according to statutory regulations. They must not be thrown into the household refuse.



Remote Control



Point the remote control at the sensor of the unit. Avoid obstacles along the transmission path. The maximum reach of the remote control is 7 metres directly in front of the unit. Make sure that the transmission window and the sensor on the unit are clean. The process can be impaired by direct sunlight and glass cabinet doors.

Child protection

You can lock the buttons on the unit and the remote control.

- Press and hold the **RETURN** and **ENTER** buttons until [X HOLD] appears in the display. The buttons on the unit are locked.
- To unlock the child protection, repeat the process until [X HOLD] disappears.

Operating a television

Change the code on the remote control to control your TV.

- Press and hold the **TV** on and off button.
- Enter the two-digit code for your television.

Trademark	Code	Trademark	Code	Trademark	Code	Trademark	Code
Panasonic	01-04,45	GOODMANS	05,06,31	NOKIA	25-27	SANYO	21
AIWA	35	GRUNDIG	09	NORDMENDE	10	SBR	06
AKAI	27,30	HITACHI	22,23,31,40-42	ORION	37	SCHNEIDER	05,06,29-31
BLAUPUNKT	09	INNO HIT	34	PHILIPS	05,06	SELECO	06,25
BRANDT	10,15	IRRADIO	30	PHONOLA	31,33	SHARP	18
BUSH	05,06	ITT	25	PIONEER	38	SIEMENS	09
CURTIS	31	JVC	17,39	PYE	05,06	SINUDYNE	05,06,33
DESMET	05,31,33	LOEWE	07	RADIOLA	05,06	SONY	08
DUAL	05,06	METZ	28,31	SABA	10	TELEFUNKEN	10-14
ELEMIS	31	MITSUBISHI	06,19,20	SALORA	26	THOMSON	10,15,44
FERGUSON	10	MIVAR	24	SAMSUNG	31,32,43	TOSHIBA	16
GOLDSTAR/LG	31	NEC	36	SANSUI	05,31,33	WHITE WESTINGHOUSE	05,06

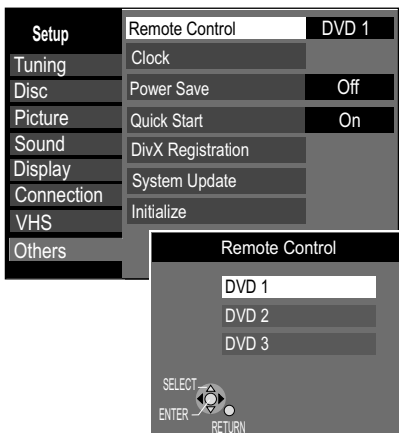
Some television models of the listed brands (e.g. older Panasonic units) cannot be controlled via the remote control.

Switching to AV input on your Panasonic television

- Press **AV**.
Switches between TV reception and AV input each time the button is pressed.

Setting up the remote control

If you are using another Panasonic unit at the same location, change the setting of the remote control so that you can operate the units independently of each other.



Set up the remote control for the unit.

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [Setup] with **▲▼** and confirm with **ENTER**.
- Select [Others] with **▲▼**, [Remote Control] with **▶** and confirm with **ENTER**.
- Select [DVD 1, 2 or 3] with **▲▼** and confirm with **ENTER**.

Apply the selected setting [DVD 1, 2 or 3] to the remote control.


- Press and hold **ENTER** and press the appropriate number button 1, 2 or 3 for at least 2 seconds.
- Exit the menu with **RETURN**.


If the remote control setting does not match that of the unit, DVD 1, 2 or 3 appears on the unit's display.

- Press **ENTER** and press the appropriate number key 1, 2 or 3 simultaneously for at least 2 seconds.

If you want to operate two units independently of each other using the same remote control, then change the the remote control setting.


Remote Control


- 
Standby/on switch
 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.


- 
DRIVE SELECT
 Select the DVD, HDD, SD or VHS drive.


- Direct entry using the number buttons**
 Selection of channels, title numbers, etc.


VCD	5: 0 5	15: 1 5
JPEG MP3	5: 0 0 5	15: 0 1 5
JPEG	5: 0 0 0 5	15: 0 0 1 5


- 
 Delete a function.
VHS: RESET = Reset the tape counter.

- 
SKIP = Skip chapters, titles or pictures. 28
VHS: INDEX = Find the beginning of a recording. 30


- 
 Stop a recording or playback.
VHS: Stop jet rewind.
 Press for more than 3 seconds to eject the cassette.


- 
 Detailed information appears on the screen. Status displays. 21


- 
 Direction buttons in the menu guide. Select **▲▼◀▶** groups or titles.


- 
 Launch the sub-menu.


- DIRECT NAVIGATOR** = Launch the Title View. 37


- 
RED button: Menu guide

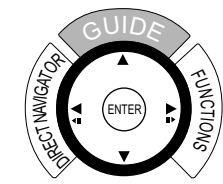
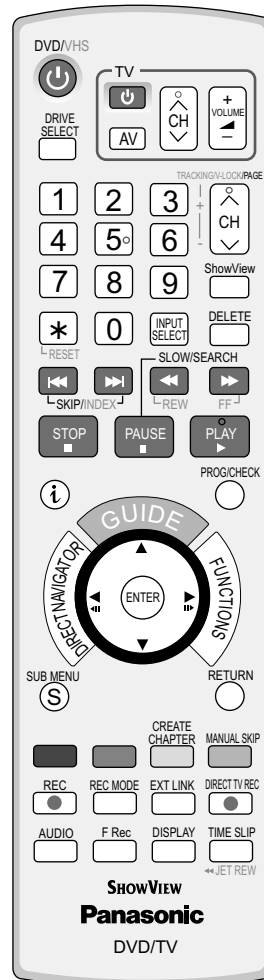
- 
GREEN button: Menu guide

- 
 Recording 33




- 
 Record mode button (XP, SP, LP, EP) 33


- 
 Select the audio channel/soundtrack. 29


- 
 Flexible Recording 63





ENTER = Select or save a setting.
◀▶ = Frame or slow-motion playback.


- 
 Switch the TV on and off.
- 
 Select the AV input on the TV set.
- 
CH = Select the programme position on the TV set.
VOLUME = TV volume control.


- 
CH = Programme selection button
VHS: TRACKING/LOCK+/- = Optimise the playback picture. 31


- 
 ShowView Record menu. 52


- 
 Delete a title.


- 
 Switch button to switch AV input between tuner, AV1, AV2, AV3 (front) and DV IN.

- 
SLOW = Slow-motion playback. 28
SEARCH = Search during playback.
- VHS: REW** = Jet rewind 30
FF = Fast forward from **STOP** mode.
REW = Rewind
FF = Forward search during playback.


- 
 Pause a recording or playback. 28
VHS: Press and hold for more than 2 seconds for slow-motion playback. 30


- 
 Start playback. 27
HDD | RAM Quick View: You can increase the playback speed. 29
VHS: Playback or repeat playback 30


- 
 Check or change a Timer Recording. 51


- 
 Return to the previous menu.


- GUIDE** = Launch the TV Guides. 46
- FUNCTIONS** = Launch the selection menu. 35


- 
YELLOW button: Menu guide
DVD/HDD: Divide a recording into chapters. 28

- 
BLUE button: Menu guide
DVD/HDD: Jump ahead 30 seconds. 28

- 
 Timer Recording with external recording control. 52

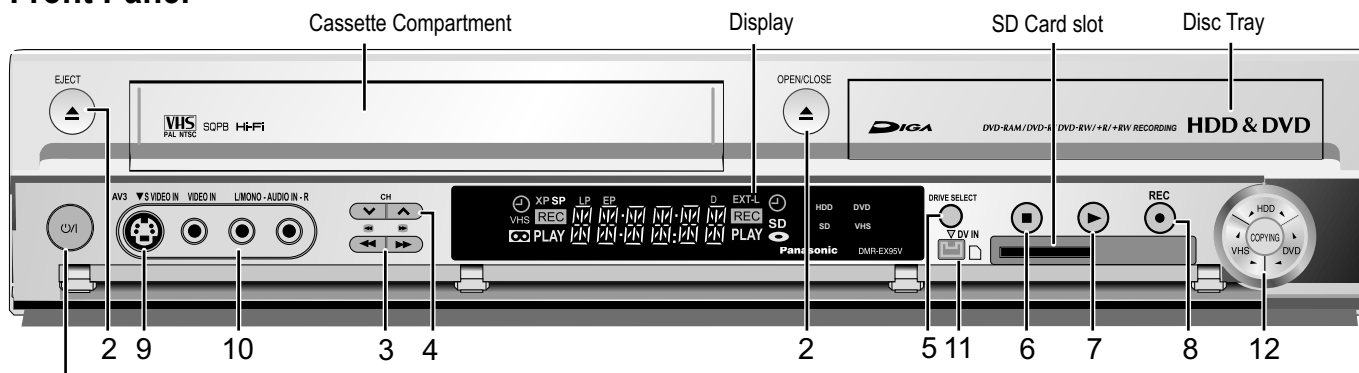
- 
 Direct TV recording to DVD, HDD, VHS. 34

- 
DVD/HDD: Picture and sound settings. 76

- 
DVD/HDD: TIME SLIP = Select the time frame. 29
VHS: ◀JET REW = Jet rewind to the beginning of the tape. 30

You can also switch on the unit from Standby mode using the **PLAY ▶, GUIDE, DIRECT NAVIGATOR, PROG/CHECK** and **ShowView** buttons.

Front Panel



1 **Standby/on switch** : 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. Switching this unit into standby mode does not disconnect it from the mains.

1 Standby/on switch	2 EJECT : Eject the cassette. OPEN/CLOSE : Open and close the disc tray.	3 Forward/rewind Search during playback	4 CH Channel select button
5 DRIVE SELECT Drive select	6 STOP	7 PLAY Playback Quick View	8 REC : Record
9 S VIDEO input AV3	10 AV3 VIDEO IN LMONO-AUDIO IN-R AV3 input terminal	11 DV IN DV input	12 Copy

Displays

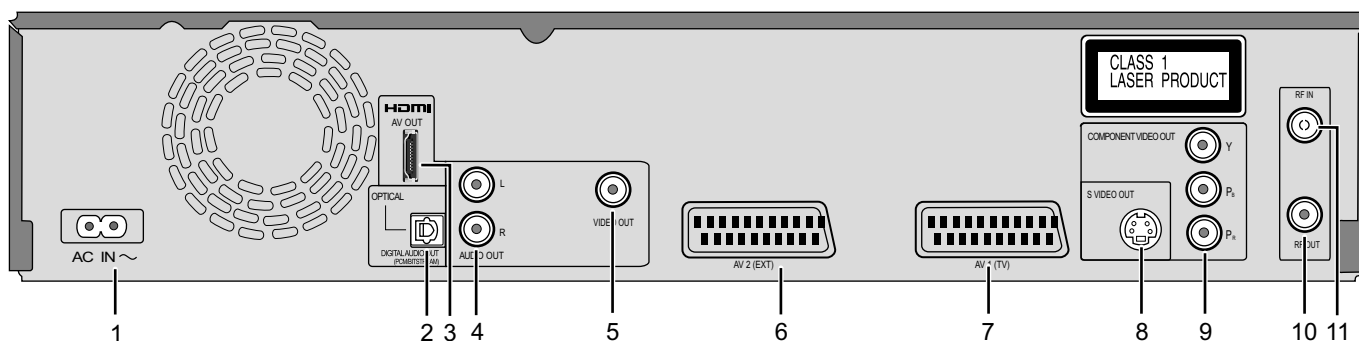
	Shows Timer mode or Timer recording.		
HDD DVD VHS SD	The selected drive is being displayed.	XP, SP LP, EP	Recording mode / All on: FR mode Flexible recordings/Timer Recordings.
	The inserted medium is being shown.	D	Digital channel
	The selected drive is recording. Flashes shortly before a Timer Recording starts.	EXT-L	External-Link: A Timer Recording is being made from an external unit.
PLAY	The selected drive is playing.		Current time, recording/playback counter, various messages.




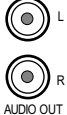


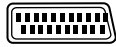

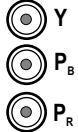


Other messages

PLEASE WAIT	Please wait.	COPY	Copying is taking place.
DVD 1, 2, 3	Wrong remote control code.	STOP	A function has been stopped (copying).
SETUP	You are in the Setup menu.	PROG FULL	All 32 timer programme positions are full.
READ	Disc is being read.	UNSUPPORT	Disc format is not supported.
No READ	Disc cannot be read.	UNFORMAT	Disc is unformatted.
FINAL	DVD is being finalized.	SW-DL	Software Download.
No CASSETTE	No cassette has been inserted.	X HOLD	Child protection is active.
No DISC	No disc has been inserted.	GUIDE	EPG Download.
PROTECT	Disc is write-protected.	99PER	99 % - Copying is finished.
JETREW	A cassette is being jet-rewind.	SLIDE	Slideshow running.
OFF0:30	The recording time is set to 30 minutes.	No FIN	Finalization not possible during the recording.
REPEAT	Repeat playback is on.	HDMI	HDMI unit is connected.
START	A function (copying) is beginning.		
To DVD	Copying from VHS to DVD-RAM.		

Error messages

Rear Panel



1	 AC IN~ = Power supply Connection for the AC mains lead.	2	 OPTICAL Digital audio output
3	 HDMI AV OUT Digital audio output	4	 L R AUDIO OUT Audio output, right/left channel
5	 VIDEO OUT Video output	6	 AV2 (EXT) = 21-pin Scart terminal External unit connection
7	 AV1 (TV) = 21-pin Scart terminal TV connection	8	 S VIDEO OUT S VIDEO output terminal
9	 Y P _B P _R COMPONENT VIDEO OUT Y = Luminance signal (brightness) P _B = Chrominance signal (colour difference) P _R = Chrominance signal (colour difference)	10	 RF OUT Aerial output
		11	 RF IN Aerial input

The outputs of 3, 4, 5, 8 and 9 are dedicated to modules of digital signal processing (DVD).

The video and audio outputs of 6 and 7 are dedicated to modules of digital (DVD) or analogue (VHS) signal processing.

Both groups of outputs are used for analogue and digital sources. But there are limitations, e.g.: During recording or scheduled recording on DVD, the VHS playback is only possible on outputs of 6 and 7.

For a conventional tube television, we recommend using the Scart terminal. You retain a high-quality RGB video picture with an RGB-compatible television.

- If you want to use a progressive-capable LCD/plasma television or LCD projector, connect it to COMPONENT VIDEO OUT to get a high quality progressive video picture.

Connections

Select the connection pattern that matches your environment from patterns A-E.
 Choose from one of the connection types A-E that suits your requirement.
 Before connection, turn off all connected equipment and read the appropriate operating instructions.

Use of the supplied RF coaxial cables

To prevent interference patterns from appearing on your TV, use only the supplied RF coaxial cables when you connect this unit to your TV and aerial outlet or aerial cable, as shown in connection types A-E.

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

A

Connecting to a television only

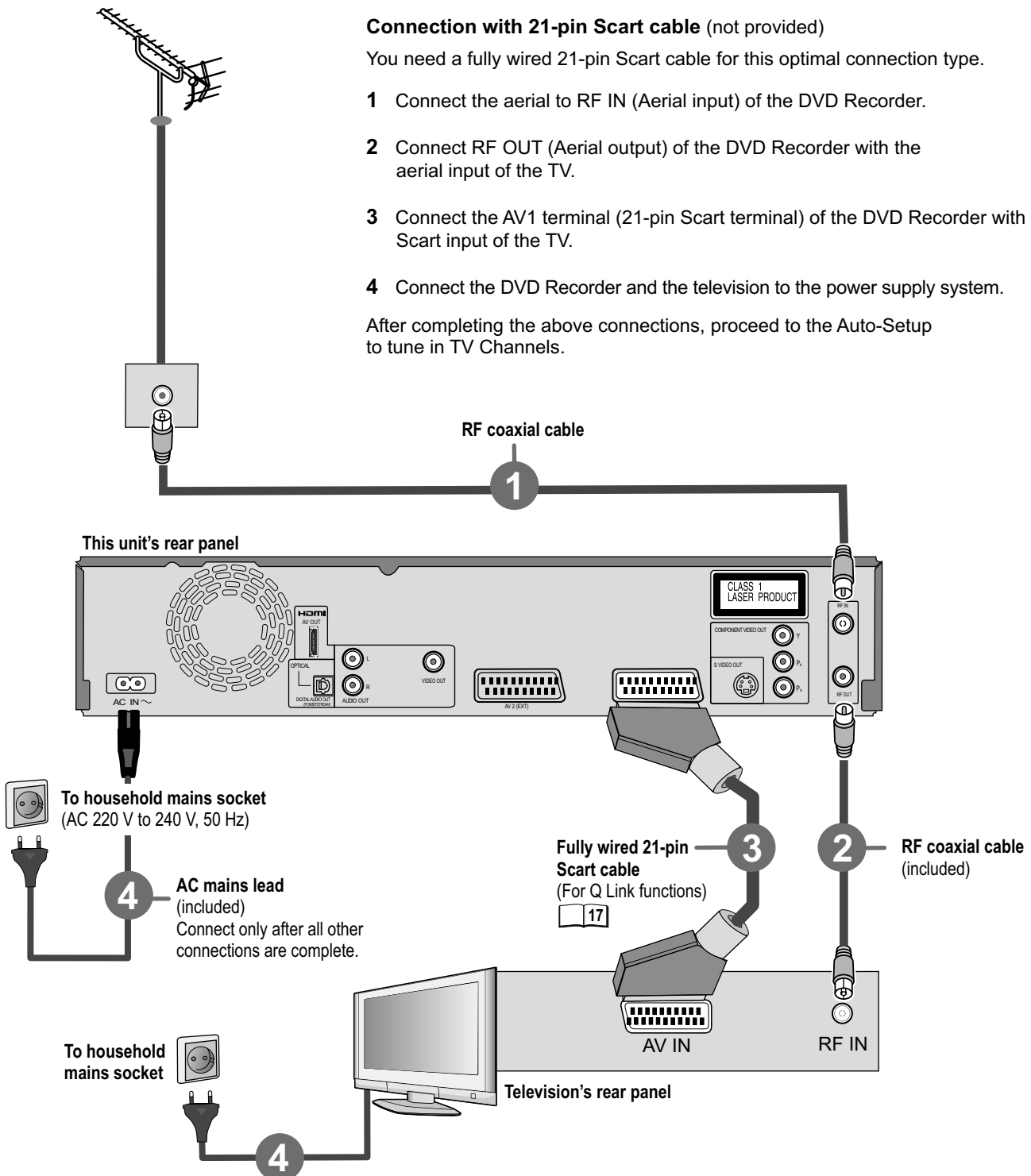
Connection with 21-pin Scart cable (not provided)

You need a fully wired 21-pin Scart cable for this optimal connection type.

- 1 Connect the aerial to RF IN (Aerial input) of the DVD Recorder.
- 2 Connect RF OUT (Aerial output) of the DVD Recorder with the aerial input of the TV.
- 3 Connect the AV1 terminal (21-pin Scart terminal) of the DVD Recorder with the Scart input of the TV.
- 4 Connect the DVD Recorder and the television to the power supply system.

After completing the above connections, proceed to the Auto-Setup to tune in TV Channels.

11



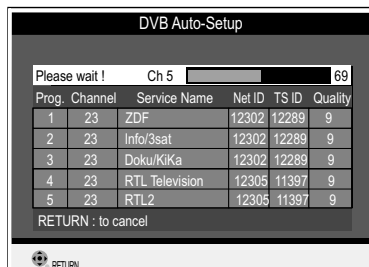
Auto Setup

Automatic setup of the unit

After being switched on for the first time, the unit proceeds with an automatic station search for digital channels. This is followed by the search for analogue channels.

- Turn on the television and select the AV input that this unit is connected to.
- Switch the unit on using the **Standby/on**-switch.

1 DVB Auto-Setup (Tuning digital channels)



Depending on different countries or regions, the digital TV programme has its own selection of operating frequency channels, frequency bands, transmission parameters and frequencies. The unit automatically searches for all available digital television stations.

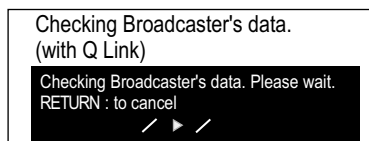
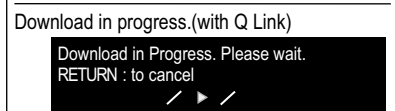
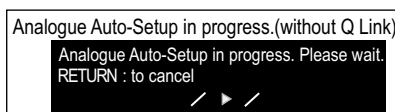
Active Antenna

If an active aerial is connected to the unit, which is energised by the unit, no station was found during auto setup. Switch [Active Antenna] to [On] in the [Setup] menu. Then repeat the auto setup. After the auto setup, you can check the signal attributes in the [Setup] menu.

69

64

2 Auto-Setup (Tuning analogue channels)



Analogue Auto-Setup (without Q Link)

The auto setup saves all available television stations and takes approx. 5 minutes. If the station also broadcasts Date and Time, the time will be set automatically. If the automatically set time is incorrect, you can set this manually.

Download from TV with QLink (Registered trademark of Panasonic)

If your television is equipped with the Q Link feature, the stations are downloaded through the transfer of the station table.

In order to be able to use Q Link, the unit must be connected to a TV with Q Link or a similar feature via a fully wired 21-pin Scart cable.

70

Checking Broadcaster's data (with Q Link)

Once the station data have been adopted from the television set, the analogue stations are sorted accordingly.

You can repeat the station search again.

64



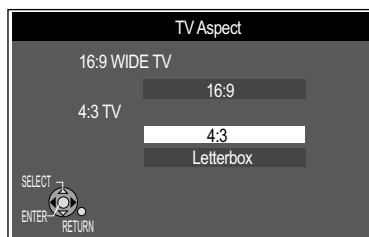
Setting the date and time (if not found automatically)

If the Date and Time are not transferred via a television station, the Clock menu appears.

- Use ▲▼ or 0-9 and ► to select the Time and Date.
- Confirm the change with **ENTER**.

An incorrect date or time affects the programmed recording of television programmes (note summer and winter time).

3 TV Aspect



- Select the desired screen format with ▲▼ and confirm with **ENTER**.

Auto setup for your unit is complete.

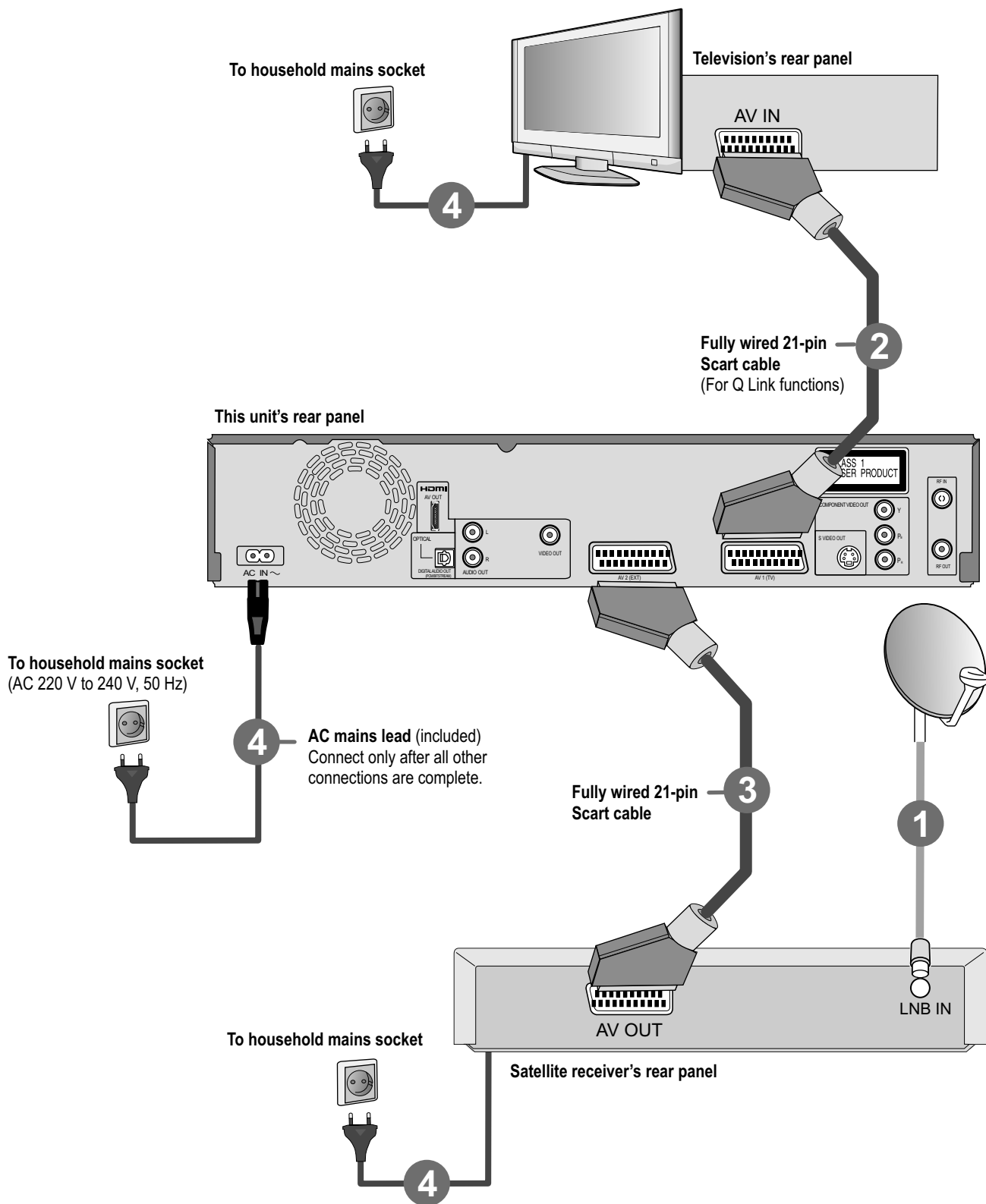
The availability of stations may differ regionally.

You can now select your favourite stations and store them in the required order in the profiles.

20

Connecting to a television and satellite receiver

Ⓑ



Connection of Set Top Box or satellite receiver

If you receive your television programme via a satellite receiver (digital/analogue), connect your DVD Recorder as a downstream unit.

If your television supports Q Link, use a fully wired 21-pin Scart cable to connect it to the TV. The stations automatically downloaded through [Download from TV].

If your television supports RGB, set the AV1 Output to RGB 1 or RGB 2 in the [Setup] menu.



- 1 Connect the aerial (SAT) to the LNB IN (aerial input) of the external unit.
- 2 Connect the RF OUT (aerial output) of the external unit with the RF IN (aerial input) of the DVD Recorder.
- 3 Connect the RF OUT (aerial output) of the DVD Recorders with the RF IN (aerial input) of the television unit.
- 4 Connect the AV1 terminal (21-pin Scart terminal) of the DVD Recorder with the Scart input of the television unit.
- 5 Connect the external unit with a 21-pin Scart cable to the Av2 connection of the DVD Recorder.
- 6 Connect the DVD Recorder, the TV and the external unit to the power supply system.
- 7 Switch on the external unit and the DVD Recorder.



- Turn on the television and select the AV input that this unit is connected to. [Auto-Setup] follows automatically and it ends with the note: [No stations found !].
- Select [No] with ► and confirm with **ENTER**.
The available stations are downloaded from the external unit.
- Select with ▲▼ the required TV picture format and confirm with **ENTER**.
- Switch the DVD Recorder to AV2 with **CH** ◊ . You see the television picture from the external unit.

The date and time are not set automatically. Set them manually.

View / record satellite programmes

- Press **INPUT SELECT** to select the input channel AV2 or put this unit in standby mode.

The TV Guide does not show any information if you have connected the unit to a satellite receiver only.

Connection with Audio/Video cable

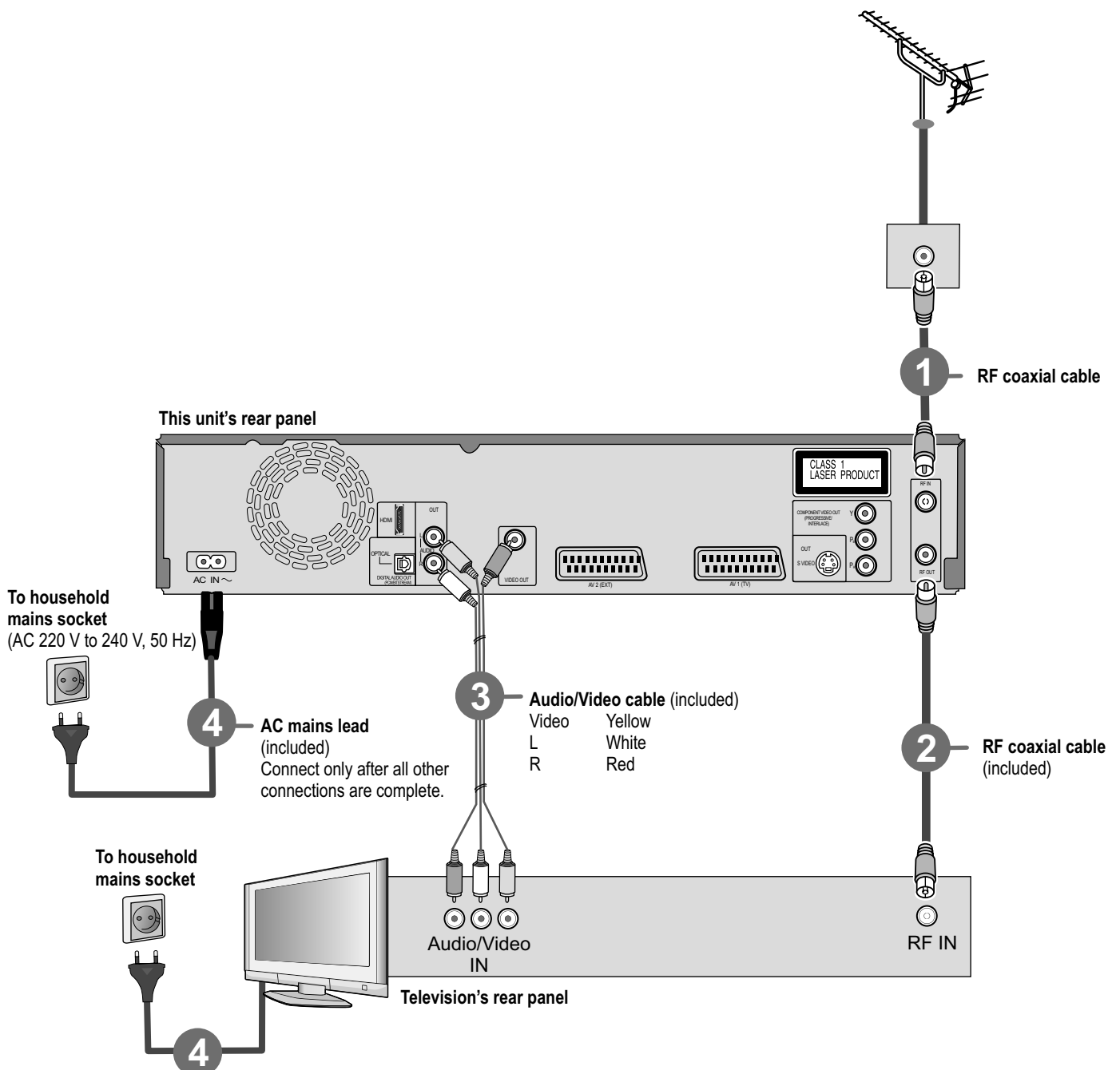
©

You can use this frequently used standard connection with the provided accessories.

- 1 Connect the aerial to RF IN (Aerial input) of the DVD Recorder.
- 2 Connect RF OUT (Aerial output) of the DVD Recorder with the aerial input of the TV.
- 3 Connect the AUDIO OUT (L/R) and VIDEO OUT of the DVD Recorder with the audio/video of the television.
- 4 Connect the DVD Recorder and the television to the power supply system.

After completing the above connections, proceed to the Auto-Setup to tune in TV channels.

11



Connection with S VIDEO cable

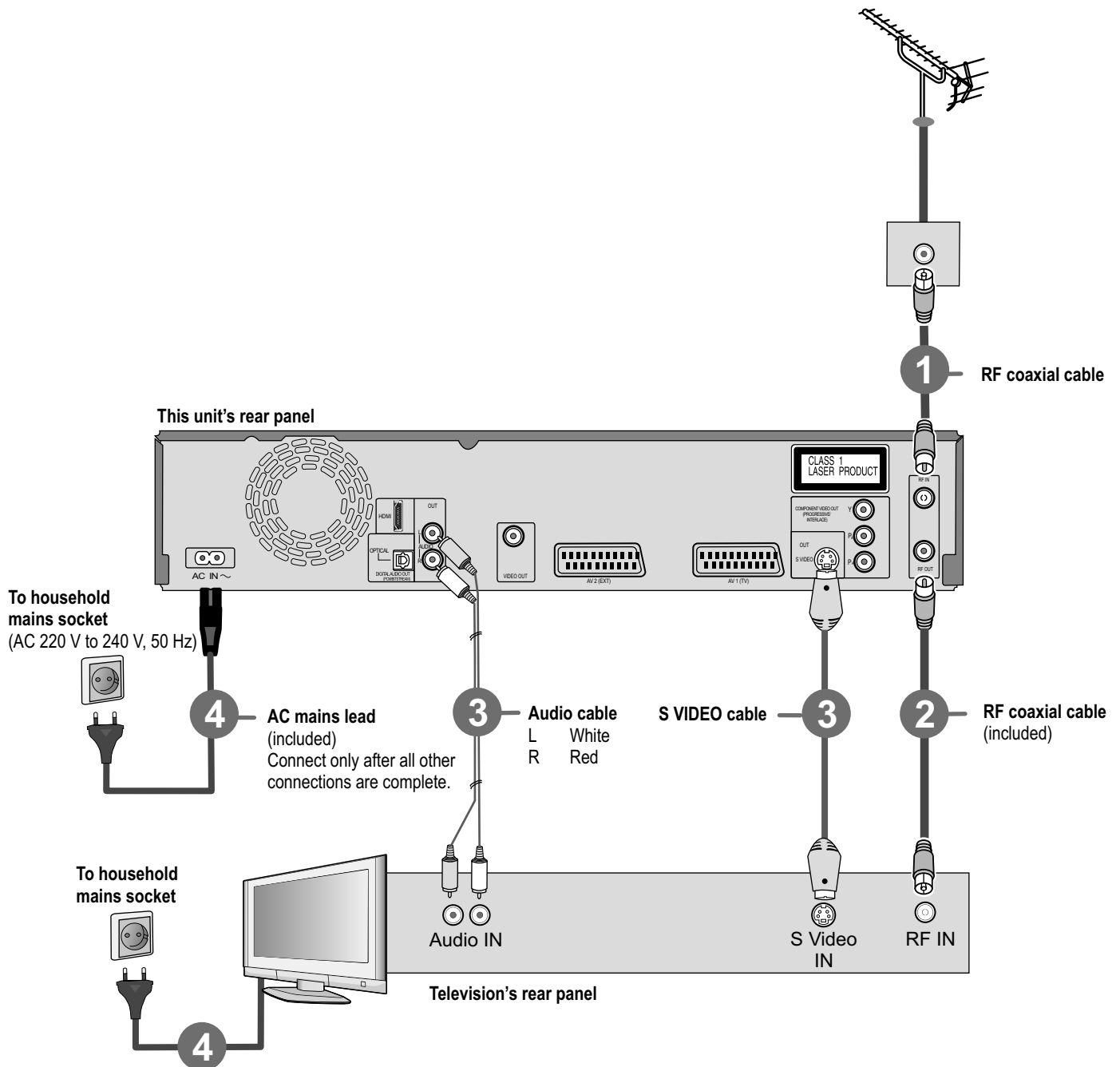
D

Depending on the television, the connection with the S VIDEO cable results in a higher quality picture than the connection with an Audio/Video cable.

- 1 Connect the aerial to RF IN (Aerial input) of the DVD Recorder.
- 2 Connect RF OUT (Aerial output) of the DVD Recorder with the aerial input of the TV.
- 3 Connect AUDIO OUT (L/R) and S VIDEO OUT of the DVD Recorder with the S VIDEO and audio input of the TV.
- 4 Connect the DVD Recorder and the television to the power supply system.

After completing the above connections, proceed to the Auto-Setup to tune in TV channels.

11



Connection with HDMI cable (not included)

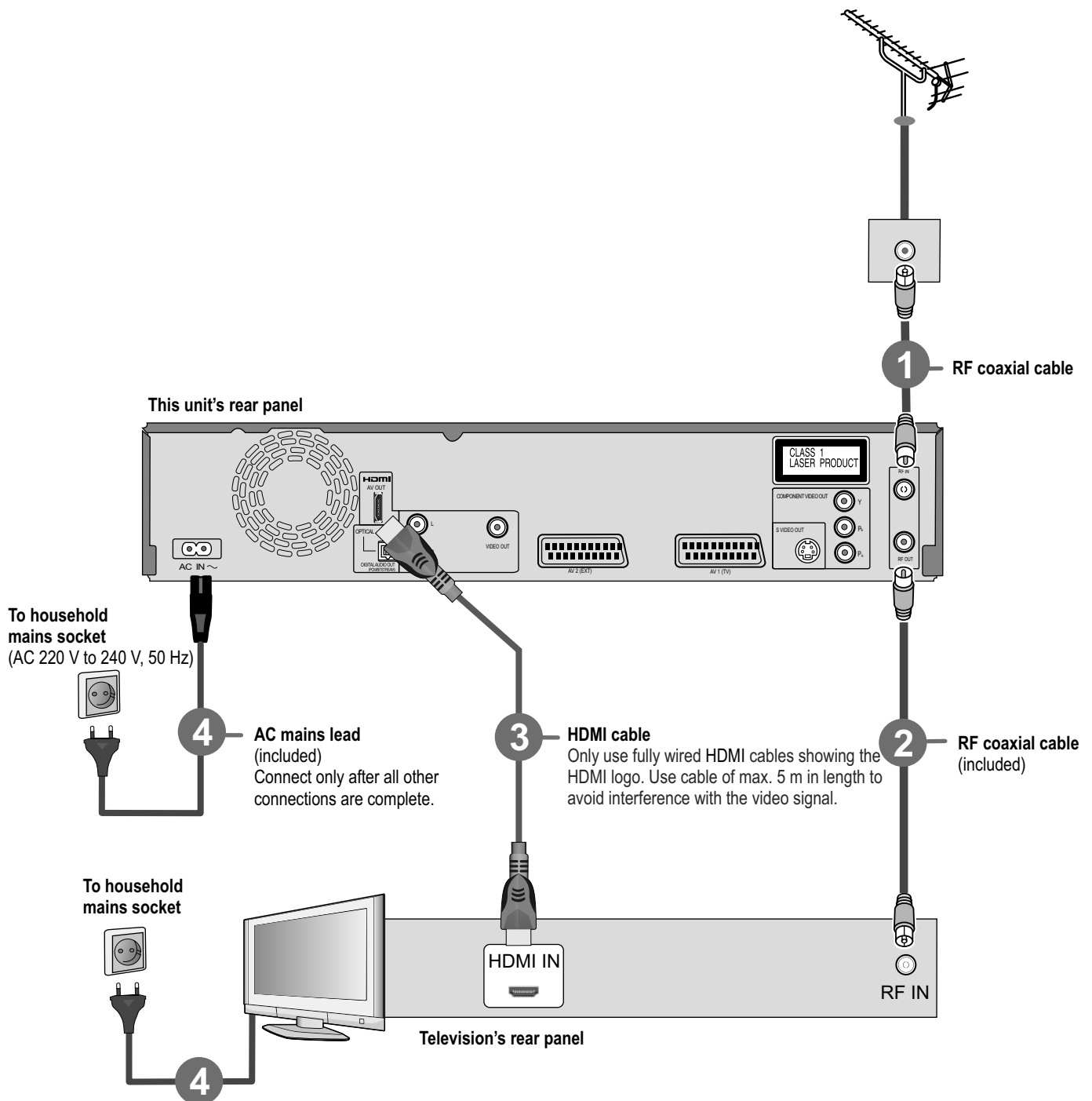
E

The HDMI connection can be used only with units that are suited for HDMI.

- 1 Connect the aerial to RF IN (Aerial input) of the DVD Recorder.
- 2 Connect RF OUT (Aerial output) of the DVD Recorder with the aerial input of the TV.
- 3 Connect HDMI AV OUT of the DVD Recorder with the HDMI input of the TV.
- 4 Connect the DVD Recorder and the television to the power supply system.

After completing the above connections, proceed to the Auto-Setup to tune in TV channels.

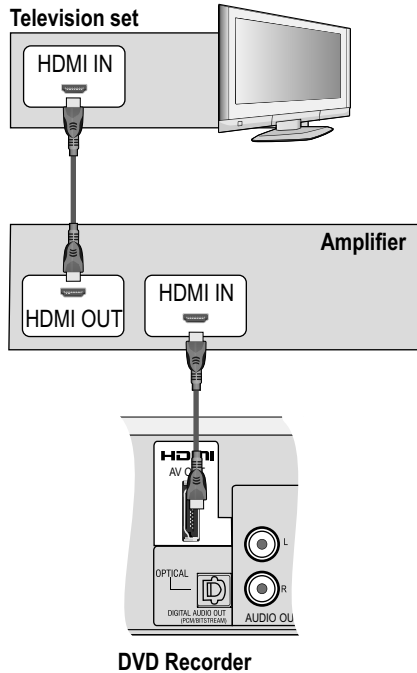
11



Connection with HDMI cable (not included)



Connection to an amplifier



HDMI™ (High Definition Multimedia Interface)

If you connect the DVD Recorder to an HDMI-compatible unit, just one cable transfers a high quality digital audio and video signal without interference.

- Once an HDAVI Control compatible unit has been connected to the HDMI terminal, switch the units on and automatically selects the input channel for the DVD Recorder. Repeat the procedure if there is any change to the HDMI terminal.

The audio signal cannot be transmitted via HDMI if an externally connected unit does not support CPPM (Content Protection for Prerecorded Media), or when playing a DVD audio with copy protection. In this case, use an audio cable. 18

If a connected TV only supports dual-channel audio, then an audio signal with 3 or more channels is down-converted, with output through 2 audio channels. It is not always possible to down-convert all discs. 68

Titles where down-converting is not possible can only be reproduced via HDMI through an amplifier which corresponds to the HDMI Ver. 1.1 standard or higher and is CPPM compatible.

Connect an amplifier complying with the HDMI Ver. 1.1 standard and adjust the setting in the [Setup] menu to [HDMI and Optical]. Now you can enjoy the full audio sound. 70

For HDCP (High-Bandwidth Digital Content Protection) compatible units with DVI (Digital Visual Interface) connection (e.g. PC monitors): depending on the unit, it is possible that a DVI/HDMI adapter does not reproduce the video signal perfectly. The audio signal is not transmitted in this case.

If you connect this unit with an HDMI cable to a Panasonic television set with HDAVI control function, then both units can be controlled. If you connect this unit with an fully wired 21 pin scart cable you can use the Q Link functions to control the television and this unit. You can use both kinds of connection at the same time.

Settings for control with HDMI and Q Link:



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

- Easy Link (Trademark of Philips)
- SMARTLINK (Trademark of Sony)
- DATA LOGIC (Trademark of Metz)
- Megalogic (Trademark of Grundig)

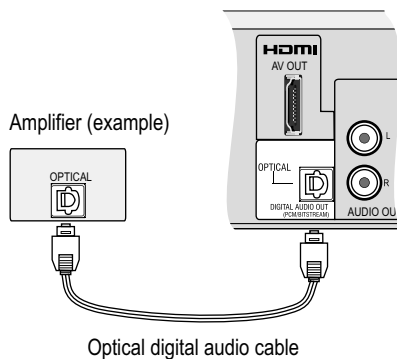
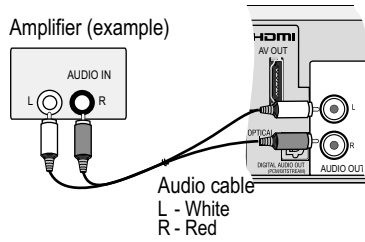
For details, refer to your television's operating instructions or consult your dealer.

A TV takes a certain time to change over the input channel for the DVD Recorder automatically. It is therefore possible that the television set does not display the playback at the start of the title. Press **SKIP** or **SLOW/SEARCH** to return to the start of the playback.

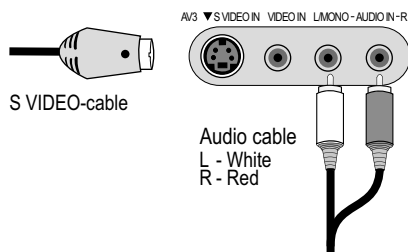
Control via Q Link and HDMI (HDAVI Control)

	<p>Automatic input changeover (Easy Playback) If you start the playback function or select a menu (e.g. Direct Navigator, Timer Recording), the TV automatically switches to the input channel for the DVD Recorder. If you are recording on the DVD drive, the TV does not automatically change to the input channel.</p>
	<p>Direct TV recording Press DIRECT TV REC to directly record the programme you are currently watching. You do not need to enter anything else.</p>
	<p>Power on link If you start the playback function or e.g. select the menu Direct Navigator or Timer Recording or by inserting a disc, the television set switches on and automatically selects the input channel for the DVD Recorder. If you are recording on the DVD drive, the TV does not automatically change to the input channel. TV/DVD automatic switch-on If the TV set and DVD Recorder are switched off (in standby), both units are switched on automatically by pressing PLAY, DIRECT NAVIGATOR, GUIDE, ShowView or PROG/CHECK.</p>
	<p>Power off link If the television set is switched off, this unit automatically switches off as well. The unit also switches off while the menu FUNCTIONS, DISPLAY or status messages are being displayed, and even when a Timer-controlled recording has been programmed or during playback. The unit does not switch off during a recording with the REC button, the Copying function or while a disc is being finalized.</p>
	<p>Download from TV (analogue channels only) Station transfer from television set. During [data transfer from TV], data for the station list are automatically downloaded from the TV set. The stations are stored in the same presets of the DVD Recorder as on your TV set. This unit allows for Timer Recordings using the programming function of the television (e.g. IDTV).</p>

External units



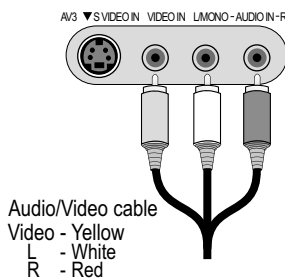
Push the jack all the way into the socket with this side facing up.



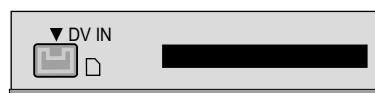
S VIDEO-cable

AV3 ▼ S VIDEO IN VIDEO IN L/MONO - AUDIO IN-R

Audio cable
L - White
R - Red



Audio/Video cable
Video - Yellow
L - White
R - Red



It is not possible to copy to a VHS cassette via DV input.

For all connections described:

Before you connect cables, make sure that all units are switched off. Switch on the units after you have connected the cables.

Connecting an analogue amplifier or an analogue system component

In order to enjoy stereo or Dolby Pro Logic, connect a corresponding amplifier or an analogue audio component.

- Connect the AUDIO OUT (L/R) output e.g. with a Dolby Pro Logic amplifier.
- Connect the audio cable according to the colours and markings on the connection terminal (white/L, red/R).

Connecting a digital amplifier or a digital system component

If an amplifier equipped with Dolby Digital, DTS or an MPEG-decoder is connected, a DVD-Video-Disc with multi-channel surround sound can be played back.

- Connect an amplifier with a Dolby Digital, DTS or an MPEG decoder.
- Use an Optical digital audio cable.
- Change the [Digital Audio Output] setting in the Setup menu [Sound]

68

You cannot use DTS Digital Surround decoders that are not suitable for DVD.

If the unit is connected to the television set with an HDMI cable and you are using the DIGITAL AUDIO OUT (Optical) for audio output, change the HDMI settings [Digital Audio Output] to [Optical Only] in the [Setup] menu.

70



Connect this unit to a device with a DTS decoder in order to be able to play DVDs with this symbol.



This unit can record and playback stereo sound in Dolby Digital (dual channel). DVD-Vs can be played back in multi-channel sound.

Connection to AV3 (e.g. camcorder)

If the audio output of the other unit is mono, connect it to the L/MONO terminal. Both the left and the right channel will be recorded.

- Select one of the two connection options.
The connection with S VIDEO cable and audio cable (L/R) delivers the best quality.

Connection to DV input

DV means digital video and is a video standard.

You can connect a DV-compatible camcorder to the DVD Recorder. The DV IN connection is available for this purpose.

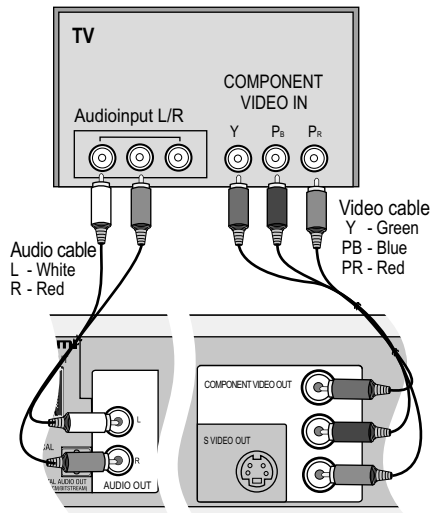
The DVD Recorder cannot be controlled via an external unit that is connected to the DV IN terminal.

Before you connect the DV cable, make sure that all units are switched off. After you have connected the cable, switch on the units.

- Connect the DV output of the DV unit (e.g. digital camcorder) with the DV input terminal of the DVD Recorder. Use a DV cable.
- After you have connected the cable, switch on both units.

The DV input of this unit is only intended for DV units. For example, a computer cannot be connected. Some DV units do not allow for proper input of the picture and sound signal.

COMPONENT VIDEO OUT



COMPONENT VIDEO OUT terminal

The terminals can be used for INTERLACE or PROGRESSIVE output and deliver a clearer picture than the S VIDEO OUT terminal.

Connections via these terminals output the colour difference signals (P_B/P_R) and the brightness signal (Y) separately.

Colours can be reproduced true to the original colour.

The properties of the COMPONENT VIDEO input terminal are dependent on the TV or screen.

- Connect the COMPONENT VIDEO OUT sockets of the unit with the COMPONENT VIDEO IN of the TV unit. Use a Video cable.
- Always connect terminals with the same colour.
- Connect the audio cables to the corresponding audio input terminal on the TV.

Setup	TV Aspect	4:3
Tuning	Progressive	On
Disc	TV System	PAL
Picture	HDMI Settings	
Sound	AV1 Output	Video
Display	AV2 Settings	
Connection	Active Antenna	Off
VHS		
Others		

AV1 Output		
	Video (with component)	
	RGB 1 (without component)	
	RGB 2 (without component)	
RGB output is available all the time while this unit is on.		

Connecting a TV with COMPONENT VIDEO input terminals

If your TV with LCD or plasma screen supports the progressive process, connect it to the COMPONENT VIDEO OUT terminal.

If you want to enjoy full progressive video, set Progressive to [On].

If the AV1 Output setting in the Setup menu is set to [RGB 1/2 (without component)], there is no output to the COMPONENT VIDEO OUT terminal.

Set this option to [Video (with component)].

If the unit is connected to the TV via the S VIDEO OUT or the AV1 terminal, output is Interlace regardless of the settings.

69

Setup	TV Aspect	4:3
Tuning	Progressive	On
Disc	TV System	PAL
Picture	HDMI Settings	
Sound	AV1 Output	Video
Display	AV2 Settings	
Connection	Active Antenna	Off
VHS		
Others		

Press FUNCTIONS.

- Select [To Others] with ▲▼ and confirm with ENTER.
- Select [Setup] with ▲▼ and confirm with ENTER.
- Select [Connection] with ▲▼, [Progressive] with ►, ▲▼ and confirm with ENTER.
- Select the option [On] with ▲▼ and confirm with ENTER.
- Press RETURN several times, in order to return to the television picture.

Progressive television picture

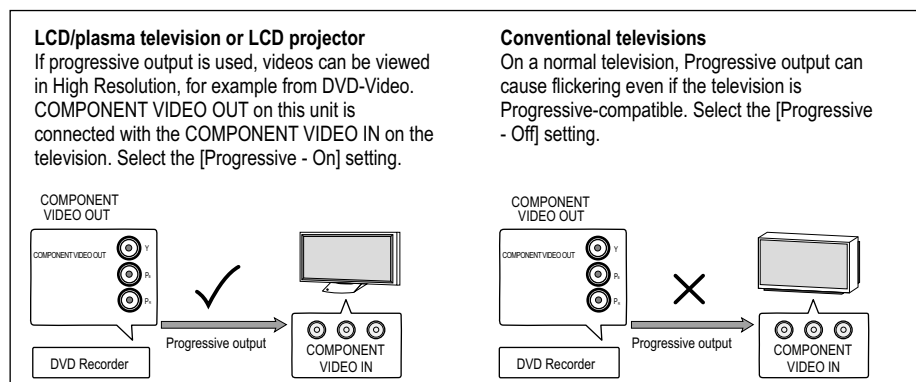
The progressive picture aspect ratio (height to width) is set to 16:9. DVD-Video with a picture aspect ratio of 16:9 is properly displayed. However, video material with an image page ratio of 4:3 is shown stretched from right to left. If it is possible to adjust the picture aspect ratio on your television, select the setting [Progressive - On].

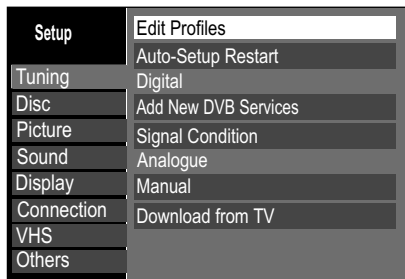
With a normal television, the progressive output can cause the picture to flicker, even if the television is progressive-compatible.

Select the setting [Progressive - Off].

69

Progressive-compatible televisions (PAL)

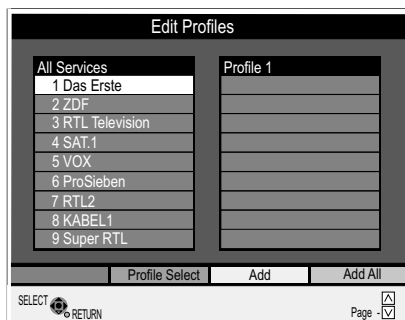




Creating new profiles

You can create four different profiles where you can put together your favourite analog and digital TV stations (99 entries). The profiles are stored in the TV Guide.

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and press **ENTER** to confirm.
- Select [Setup] with **▲▼** and press **ENTER** to confirm.
- Select [Edit Profiles] with **▶** and press **ENTER** to confirm.
You will now see the menu Edit Profiles.



- Use **PAGE** to scroll backwards or forwards page for page through the two tables.

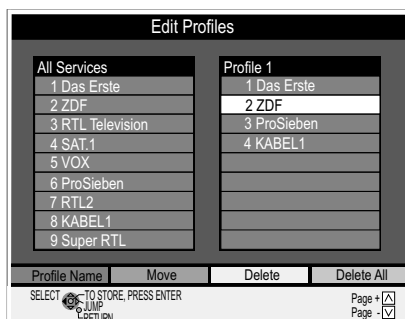
Profile Select

Four different profiles are available.

- Use the **GREEN** button to select a profile.

Add

- Select the required station in the left table with **▲▼**.
- Use the **YELLOW** button to accept the selected station.
Every station can only be added to the profile once.
- Press **ENTER** to save the profile.



Add All

- Use the **BLUE** button to add all available stations to the profile.
- Press **ENTER** to save the profile.

Edit profile

- Use **▶** to go to the column of the selected profile.
Use the coloured buttons to edit the profiles.

Profile Name

- Press the **RED** button to change the profile name.

Move

You can change the order of stations in the selected profile.

- Select the required station with **▲▼**.
- Use the **GREEN** button to mark the station.
- Move the station to the required position with **▲▼**.
- Press the **GREEN** button again to insert the station.
- Press **ENTER** to save the profile.

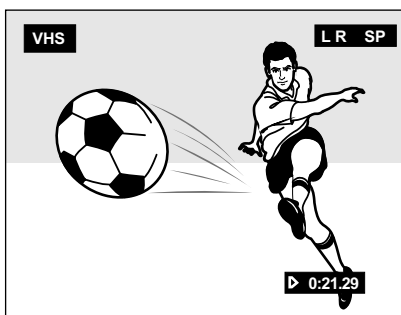
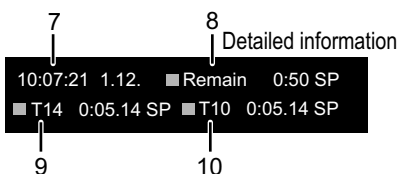
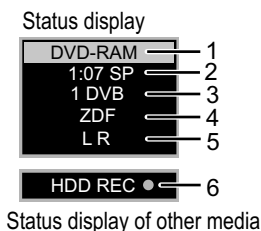
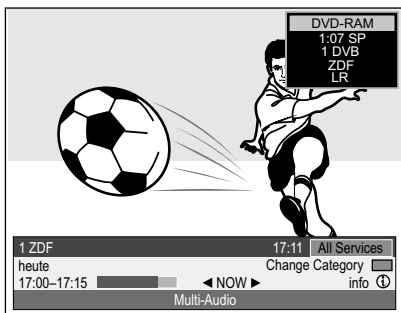
Delete

- Select the required station with **▲▼**.
- Use the **YELLOW** button to delete the station from the profile.
- Press **ENTER** to save the profile.

Delete All

- Use the **BLUE** button to delete all stations from the profile.
- Press **ENTER** to save the profile.

STATUS displays



Screen information

Every time you change the station, a status display and banner appear automatically. They disappear again after a short time. You can change how long they appear for in the setup menu.

68

- Press **ⓘ** to show the screen information again.

Status displays

You can switch off display of the screen information in the setup menu.

68

- 1: Current medium
- 2: Current recording playback status and remaining time
- 3: Current station position. DVB shows a digital station.
- 4: Current station
- 5: Sound mode: LR,L,R: Soundtrack was changed with the **AUDIO** button.
- 6: Status display and recording status of other media.

REC Record	▶▶ Fast forward (5 stages)	◀◀ Rewind (5 stages)
PAUSE Pause	⏪ Slow motion (5 stages)	◀◀ Slow-motion rewind (5 stages)
PLAY Playback	▶▶ PLAY/x1.3 Quick View	⏸ Pause playback

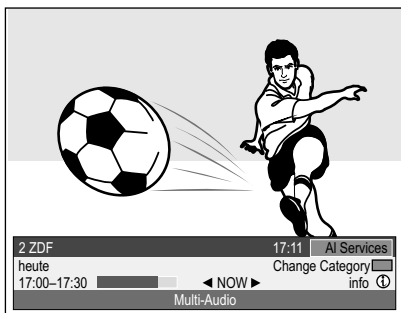
You can display detailed information only during playback or recording (VHS only recording). They are not recorded.

- 7: Current date and time
- 8: Available recording time and recording mode: e.g. 0:50 SP shows 50 minutes in SP mode.
- 9: Title number: shows the recording mode and the elapsed play time of the title.
VHS: Current tape counter.
- 10: Title number: shows the recording mode and the recording time of the title.

VHS screen information

- Press **ⓘ** during playback. Each time the button is pressed, the display switches between tape counter and remaining tape time

VHS	Current medium	
LR SP	LR, L, R: The soundtrack can be changed with the AUDIO button. SP: Selected recording mode.	
▷REMAIN: 0:24	Remaining tape time: The display depends on the correct setting of the tape length.	70
▷ 0:21.29	Tape counter: It is automatically set to 0:00.00 when a video cassette is inserted. Use * / RESET to reset the counter to 0:00.00.	
R▷ 0:21.29	Repeat	30



The banner contains information about the current (NOW) and following (NEXT) programme. It cannot be selected during playback or recording. Banners can only be selected for digital stations.

- Press **ⓘ** to display the banner.
- Use **◀▶** to change between NOW and NEXT.
- Use **CH** **↕** to select the available stations. The television picture of the selected station appears with the corresponding banner.
- Use **▲▼** to select the banner of the available stations. The television picture does not change to the corresponding station. The current station is stored in yellow.
- Press **ENTER** to watch the selected station.

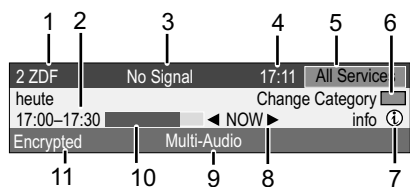
Additional information about a programme

For these programmes, ⓘ appears in the banner.

- Select the detailed programme information with ⓘ
- Move up and down in the text box with **▲▼**.
This information remains visible until you press ⓘ again.

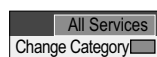
Change Category

- Press ⓘ to display the banner
- Press the **BLUE** button to change the category.



On selecting a radio station or if the banner shows [No Signal], [Bad Signal], [Encrypted] or [No Service], the banner cannot disappear and is included in any current recording.

1	Programme position and name of the current station.	
2	Title and airtime of the current programme.	
3	Signal quality of the current station: No signal; Bad signal. No service = a programme is not transmitted at the moment.	64
4	The current time.	
5	Selected Category: All Service, TV, Radio, Profile 1-4	20
6	Press the BLUE button to change the category.	
7	Detailed information on the current programme.	
8	NOW: Information on the current programme. NEXT: Information on the next programme.	
9	Programme is broadcast in multi-channel sound. Press DISPLAY . Select Audio - [DVD Multi Audio].	77
10	Shows the progress of the current programme.	
11	Station with an encrypted signal.	



No banners with information are displayed for analogue stations.

- Press ⓘ to launch a banner to change the category.
- Press the **BLUE** button to change the category.
The banner disappears after 5 seconds.

- - Hard disk drive (HDD) 250 GB rewritable	<div style="border: 1px solid black; display: inline-block; padding: 2px;">HDD</div>
---	--



Hard disk

The hard disk is only a temporary memory.

Your HDD (Hard disk drive) is a high-precision recording unit with a particularly long recording capacity and high recording speed.

The recording is made in DVD Video Recording format (VR).

24

Films or parts of films can be edited and deleted. Deleting films releases previously used storage space. Creating playback lists does not take up any additional storage space.

As well as the TIME SLIP function, dual-channel sound and 16:9 format are also supported.

The hard disk automatically goes into the SLEEP mode if no function is selected for longer than 30 minutes and no disc is placed in the drive. An unexpected noise may be caused when switching on and off or during the SLEEP mode. The unit is working normally.

Your hard disk is a short-term memory medium. You should not use it for permanent data storage of recordings. Use your hard disk to view, edit and save recordings on a disc. If you encounter any problems, save the entire contents of your hard disk on another medium (disc). Please take the unit to your customer service. Recordings on a damaged hard disk cannot be rescued.

The unit must not be moved or exposed to vibrations or jolts because otherwise this would damage the hard disk.

Do not disconnect the mains plug during recording or playback. This can cause data loss.

Cigarette smoke, insect spray and other vapours must not penetrate the unit because otherwise this can cause faults.

Do not place the unit on any appliance which gives off heat. Do not erect the unit in places where condensation occurs, for example

- rooms with high humidity levels
- in the direct air flow of an air-conditioning system
- rooms with great fluctuations in temperature

Condensation forms as moisture on a cold surface which is exposed to a sudden extreme change in temperature. This condensation can damage the hard disk and other parts inside the unit.

In such cases, do not switch the unit on. Wait for approx. two to three hours for the moisture to evaporate.

When changing the location of the unit,

- switch the unit off. Wait until "BYE" goes off in the display.
- disconnect the mains plug from the terminal.
- do not lift the unit up until it has stopped completely (after approx. 2 minutes), because the hard disk runs on for a brief period after switching off.

Panasonic does not assume any liability for direct or indirect problems resulting in the loss of recordings or edited contents (data) and does not guarantee that the recorded or edited contents will work perfectly. This also applies to any repairs to the unit (also refers to parts which are not linked to the hard disk). No compensation is made for lost recordings or discs which have become defective.

DVD-RAM: DVD Video Recording format		
	DVD-RAM 4.7 GB 12 cm 9.4 GB 12 cm 2.8 GB 8 cm rewritable	RAM

DVD-R: DVD-Video format +R : +VR format		
	DVD-R 4.7 GB 12 cm 1.4 GB 8 cm writable	-R
--	+R 4.7 GB 12 cm writable	+R

DVD-RW: DVD-Video format +RW : +VR format		
	DVD-RW(V) 4.7 GB, 12 cm 1.4 GB, 8 cm rewritable	-RW(V)
--	+RW 4.7 GB, 12 cm 1.4 GB, 8 cm rewritable	+RW

DVD-R DL: DVD-Video format +R DL : +VR format		
	DVD-R DL 8.5 GB 12 cm, writable	-R DL
--	+R DL 8.5 GB 12 cm, writable	+R DL

Playback and recording discs

DVD-RAM

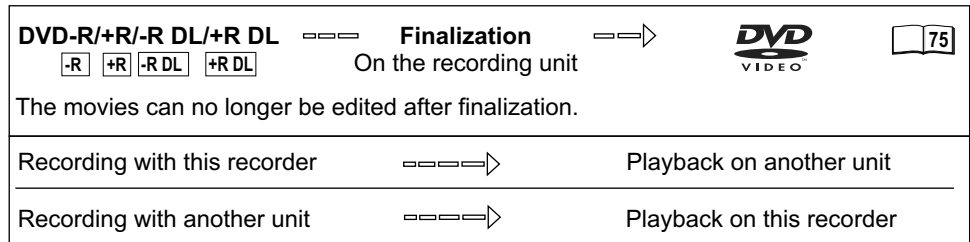
The DVD-RAM can be compared with the hard disk and can be written to 100,000 times on average. The disc can only be played on DVD-RAM-compatible players. The recording occurs in DVD Video Recording format (VR). Movies and parts of movies can be edited and deleted. The deletion of movies frees previously used storage space. The creation of playlists does not require any additional storage space. Dual-channel sound and 16:9 format are supported in addition to the TIME SLIP function.

DVD Video Recording format (VR)

This format enables recording and playback. Digital programmes limited to "one-time recording" can be recorded to a CPRM-compatible disc. You can record to a CPRM-compatible DVD-RAM. Playback is only possible with a compatible DVD player. Use a DVD-RAM to record in DVD Video Recording format.

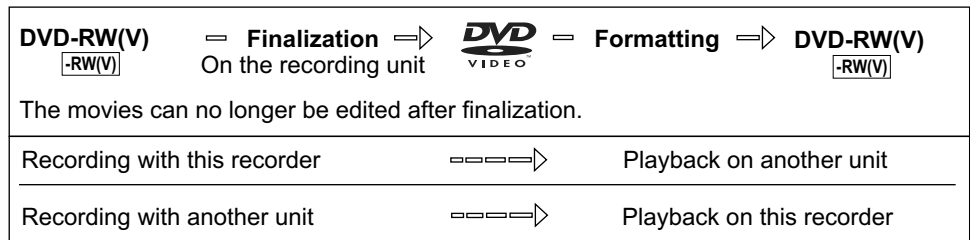
DVD-R/+R (Recordable)

The DVD-R/+R can only be recorded once. Movies or parts of them can be deleted during processing, but storage space is still taken up and cannot be used for other movies. Through finalization, the DVD-R/+R becomes DVD-V that can be played on other units.



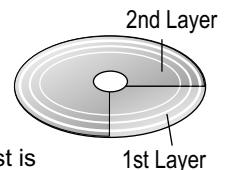
DVD-RW(V)+RW (Rewritable)

DVD-RW(V)+RW is rewritable and erasable. You must format this disc to be able to rewrite it again. Through finalization, the DVD-RW(V) becomes a DVD-V that can be played on other units. A finalized DVD-RW(V) can be reformatted and rewritten. Formatting deletes all data! A +RW becomes a DVD-V by creating a Top Menu.



DVD-R DL / +R DL (Double Layer DVD / Dual Layer DVD)

The data are saved on two parallel layers. You have more space available. If the laser changes layers during playback, brief image and sound distortions may occur.



If there is not enough capacity to record a title on the first layer, the rest is recorded on the second layer. During the playback of a title recorded on two layers, the unit automatically switches between the layers and plays the title back like a normal title. You cannot record directly on a DVD-R DL/+R DL with this unit. You can record on the hard disc and then copy the recording to the DVD disc.

DVD-Video format (V)

This recording format is the standard DVD-Video. Digital programmes that are limited to "one-time recording" cannot be recorded. Not for recording and playback of still pictures.

+VR format

Digital programmes limited to "one-time recording" can not be recorded. Not for recording and playback of still pictures.

	DVD-RW (DVD-VR format) 12 cm/ 8 cm, playable only	-RW/VR
	DVD-Video 12 cm/ 8 cm, playable only	DVD-V
	DVD-Audio 12 cm/ 8 cm, playable only	DVD-A
	CD CD-R/RW 12 cm/ 8 cm, playable only	CD
	Video CD CD-R/RW 12 cm/ 8 cm, playable only	VCD

Playback discs

A DVD-RW that was recorded on another DVD recorder is played back in DVD-RW (VR) format on this unit. Programmes limited on "one-time recording" can be played back. If you format the disc, you can record and play it in DVD-Video format with this unit.

High-quality video and music discs.

Digital-quality music discs. Playback in stereo.

Music and audio recordings, music in MP3 format, pictures in JPEG and TIFF format.

Music and video recordings.
SVCD in compliance with IEC62107.

DivX **MP3** **JPEG** You can play DivX, MP3 and JPEG/TIFF data from a finalized CD-R, CD-RW or DVD-R. Depending on the recording conditions, playback may nonetheless be faulty.

Some DVD-Audio discs with multi-channel sound are designed by the manufacturer to prevent inter-mixing on the entire disc or at certain places. Depending on the disc type, the regional code and the recording conditions, it may not be possible to play the discs in some cases.

See the jewel case for more information.

Regional codes



DVD-Video only

DVD-Videos with the regional code 2 or ALL can be played with this unit. The code is listed on the backside of the unit. England and Continental Europe: 2.



Only play round discs.

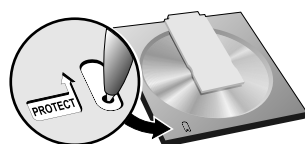


Do not touch the disc recording surface.

Cartridge discs

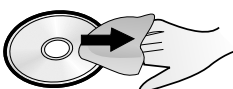
RAM

With active write-protection, you can neither record to the disc nor edit or delete content.



Cartridge write-protection

Remove the 8-cm disc from the cartridge before using it with this unit.



Non playable discs

- 2.6 GB and 5.2 GB DVD-RAM, 12 cm.
- 3.95 GB and 4.7 GB DVD-R for Authoring.
- DVD-R that was recorded in DVD Video Recording format (VR).
- DVD-R (V), DVD-R DL, DVD-RW (V), +R, +R DL that was recorded on another unit and not finalized.
- Blu-ray, DVD-ROM, +R (8 cm), CD-ROM, CDV, CD-G, photo CD, CVD, SACD, MV disc, PD, "Chaoji VCD" that can be purchased in stores, including CVD, DVCD and SVCD that are not IEC62107-compliant, etc.

Handling discs

If the surface of a disc, which has no Cartridge or was removed from one, is scratched, dirty, dusty or has finger prints, playback or processing can be impaired. Such impairments can also occur when the disc is placed back in the Cartridge.

Note: Only write on the label side of the disc. Use a soft, oil-based felt-tip pen. Do not use a ball-point pen or any other hard writing instrument. Do not affix stickers or labels to the disc. When not in use, put the disc in its case or Cartridge.

Cleaning the DVD-RAM

Clean the disc with a special DVD-RAM cleaner (optional) and read the cleaner instructions thoroughly before use. Bad scratches and stubborn dirt may not be able to be removed so that recording, editing or playback is still compromised even after cleaning. The disc should then no longer be used.

Do not use benzine, alcohol, water, cleaning sprays, household cleaners or other solvents.

DVD lens cleaner (RP-CL720E)

Compatible models: Only for Panasonic's DVD recorders.

Do NOT use this cleaner with any other Panasonic DVD products or with the DVD products of any other companies since doing so may damage the products.

Cleaning DVD-Videos, Video-CDs and CDs

Wipe with a moist and then with a dry cloth.

SD Card



-- **SD Memory Card** SD
miniSD™ Card
MultimediaCard
 8 MB to 2 GB (Maximum)
 Pictures

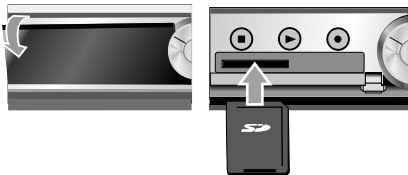
Use an SD card for playback and transfer (copying) pictures taken for example with a Digital Camera. MPEG2 moving pictures can be copied to the hard disk or DVD-RAM. Direct playback of MPEG2 moving pictures from the SD card is not possible

If the SD Memory Card was formatted with another unit, under certain circumstances you may possibly not be able to use it with this unit. In this case, reformat the card with this unit.

Caution! All saved data are deleted during formatting.

The usable memory can deviate from the card capacity.

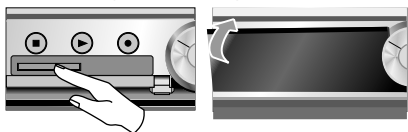
Inserting the storage card



Inserting the storage card

- Opening the cover. Press the protruding section to open the cover to the slot.
- 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.

Removing the storage card



Removing the storage card

- Press on the centre of the card. Pull it straight out.
- Closing the cover. Press down.



Write-protection

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



Use an appropriate adapter for miniSD™ cards.

When the write-protection device is activated, you can neither record nor edit or delete the contents of the SD Card.

This unit supports SD Memory Cards that are formatted with FAT 12 and FAT 16 systems (based on SD Memory Card spec.).

Additional information is available on the Internet

<http://panasonic.co.jp/pavc/global/cs>



Do not touch the memory card contacts.

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

SD Card

```

graph TD
    Root[SD Card] --- DCIM[DCIM (Subfolder)]
    Root --- SD_VIDEO[SD_VIDEO]
    Root --- IM[IM**CDPF or IMEXPORT]
    DCIM --- P1[***XXXXX (Picture folder)]
    P1 --- P1_1[XXXX***.JPG]
    P1 --- P1_2[XXXX***.TIF]
    SD_VIDEO --- P2[PRG *** (MPEG2 folder)]
    P2 --- P2_1[MOV *** MOD]
    P2 --- P2_2[MOV *** MOI]
    P2 --- P2_3[PRG *** PGI]
    SD_VIDEO --- P3[MGR_INFO (MPEG2 information folder)]
    IM --- I1[XXXX***.JPG]
    IM --- I2[XXXX***.TIF]
        
```

This unit can display the following folders:
 ***: Numbers / XXX : Letters

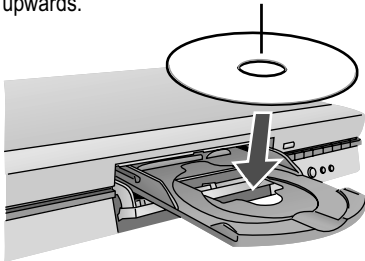
SD Card folder structure

SD Card Slot	SD Memory Card Slot 1pc
Still Picture	JPEG, TIFF
Compatible media	SD Memory Card (includes mini SD™ Cards), Multi Media Card
Format	FAT12, FAT16
Image File Format	JPEG conform DCF (Design rule for Camera File system) TIFF (Uncompressed RGB chunky), DPOF Compatible
Sub sampling	4:2:2, 4:2:0
Number of pixels	between 34x34 and 6144x4096
Thawing Time	Approx. 3 sec (6M pixels)
SD Video	MPEG2
Compatible media	SD Memory Card (includes mini SD™ Cards, a mini SD™ Adaptor needs to be inserted)
Codec	MPEG2 (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.

Playback



Insert with label facing upwards. In the case of double-sided discs, the label of the side that you want to play should be facing upwards.



Insert a Cartridge disc in the direction of the arrow, label facing upwards.



Preparation

- Turn on the television and select the AV input that this unit is connected to.
- Switch on the DVD Recorder and select the required DVD/HDD drive with **DRIVE SELECT**.
- Press **OPEN/CLOSE** on the unit to open the disc tray.
- Insert a disc in the disc tray and close it.
It may take some time to read the disc!

Playback

- Press **PLAY** to start playback.
Playback begins with the last title recorded.
- Disc playback stops when a Timer Recording starts.

Playback of a selected title

- During playback, use the number buttons to select the desired title, chapter or piece and confirm with **ENTER**.
- When the screen saver is shown, you can enter a group number. On some discs, this function is only available when playback stops.

Playback starts automatically

Playback always starts at the beginning of the disc. If the disc has its own disc menu, then this is displayed. The operation of the disc menu depends on the inserted disc.

Due to the programme structure determined by the manufacturer, all described functions may not be available.

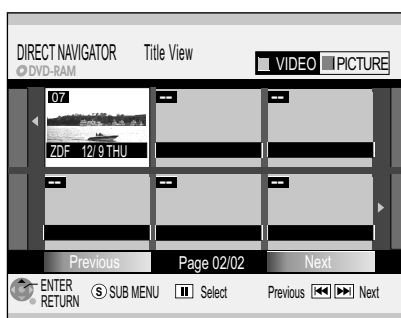
Direct input via the number buttons

5: 15:
 5: 15:
 5: 15:

- In the case of VCD, use the number buttons to select the number of the title.
- In the case of DVD-A/DVD-V, use or the number buttons to select a title and confirm with **ENTER**.

Use the following buttons to launch the disc menu again:
 DVD-V: **SUB MENU**, DVD-A: **DIRECT NAVIGATOR**, VCD: **RETURN**

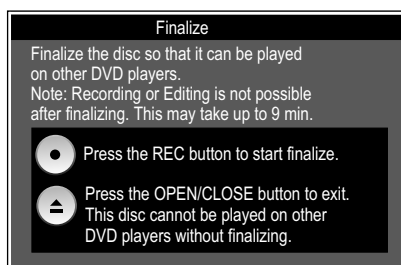
If appears on the television unit, the procedure is interrupted by the unit or the disc.



Selecting programmes/titles for playback

Use the **DIRECT NAVIGATOR** button to launch the menu during playback, recording and in **STOP** mode.

- Press **DIRECT NAVIGATOR**.
- Select the desired title with and confirm with **ENTER**. Playback starts.
- Press **RETURN** to exit the menu.
You can select other pages with **SKIP** Previous or Next.



Auto finalize

Auto finalization is always offered before an unfinalized disc is ejected. You can only play an unfinalized disc on this DVD Recorder.

- Press **OPEN/CLOSE** on the unit.
- Press **REC** on the unit to start the finalization.
- After successful finalization, the disc is ejected automatically.
It can now be played on any DVD unit.
- If you do not want to finalize the disc, press **OPEN/CLOSE** on the unit again.



Pausing playback

- Press **PAUSE** to pause playback.
- Press **PAUSE** again to resume playback.



Stopping playback

- Press **STOP** .
Playback stops and the television picture appears.
- During playback of DVD-A, DVD-V, VCD and CD press **STOP** twice to return to the television picture.

Saving the playback position

- Press **STOP** during playback. The unit saves the position.
- Press **PLAY** to resume playback from the saved position.
- To cancel this function, press **STOP** several times.
This function is not available if playback was started from DIRECT NAVIGATOR or from Playlists.

SLOW/SEARCH



Slow-motion playback

Not

- Press **SLOW/SEARCH** in **PAUSE** mode.
The speed can be controlled in 5 levels. With some disc formats, the **PAUSE** function is switched on after 5 minutes.
- Press **PLAY** to resume normal playback.

Forwards only.

Moving pictures only.

SLOW/SEARCH



Fast forward

- Press **SLOW/SEARCH** during playback.
Each time the button is pushed, the fast forward speed increases by one level up to a maximum of five levels. Maximum 3 levels.
- Press **PLAY** to resume playback.

The sound is only output at the first fast forward speed.

With DVD-Audio (except for moving pictures), CDs and MP3s, the sound is output at all fast forward speeds.

CREATE CHAPTER



Dividing a recording into chapters

- Press **CREATE CHAPTER** during playback.
During playback, press **SKIP** or **SKIP** to skip a chapter.



Skipping

- Press **SKIP** during playback or **PAUSE** mode to skip chapters, titles or pictures.
With DVD-Rs (DivX) and CDs (DivX), you can only skip backwards.

MANUAL SKIP



MANUAL SKIP

Not

- Press **MANUAL SKIP** during playback.
Playback jumps forward approx. 30 seconds.



Frame playback

Not

- Press in **PAUSE** mode.
Each time the button is pressed, the next or the previous frame is displayed.
- Press **PLAY** to resume playback.

Forwards only.

Moving pictures only.

Playback

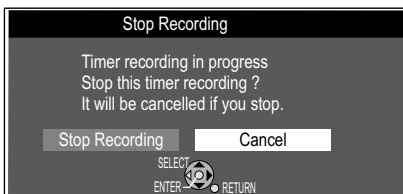


TIME SLIP

TIME SLIP

Not DVD-A DVD-V VCD CD

- Press **TIME SLIP** during playback.
- Use **▲▼** to select the time span by which playback is to jump forward or backward. Each time the button is pressed, the time span increases or decreases in minute increments.
- For recordings that are longer than 10 minutes, the time span increases or decreases in 10-minute increments when the button is held down longer.
- Press **ENTER** to confirm the selected time.



Delayed playback

HDD RAM

Playback can be started while the unit is still recording. You can watch the recording without stopping the current recording.

- Press **STOP ■** to end playback.
- After 2 seconds, press **STOP ■** again to stop the recording.
- If a Timer Recording is to be stopped, use **◀** to select [Stop Recording] and confirm with **ENTER**.



Quick View (PLAY/x1.3)

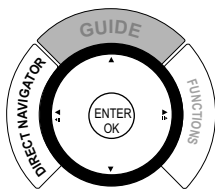
HDD RAM

You can increase the playback speed without negative effects on the sound.

- Press and hold **PLAY ►** during playback.
- Press **PLAY ►** again to return to normal speed.

With a digital connection, playback is in PCM.

Quick View is paused if you press **PAUSE ■■** or the playback of a programme begins, which was not recorded with Dolby Digital. Quick View does not function during simultaneous recording and playback in XP or FR mode.



Simultaneous recording and playback

You can play a different title during the current recording.

Recording to DVD-RAM/HDD - Playback from DVD-RAM/HDD

- Press **DIRECT NAVIGATOR** during the recording or Timer Recording. The title view appears.
- Select a title with **▲▼◀▶** and confirm with **ENTER**. Playback of the selected title begins.
- Use **STOP ■** to end playback. Playback during recording standby \odot does not affect Timer Recordings. Recording begins at the programmed time.

Recording to DVD/HDD - Playback from VHS

- Select the VHS drive with **DRIVE SELECT**.
- Select **PLAY ►** to start playback.
- Select **STOP ■** to end playback.

Recording to VHS - Playback from DVD/HDD

- Select the DVD or HDD drive with **DRIVE SELECT**.
- Select **DIRECT NAVIGATOR**.
- Select a title with **▲▼◀▶** and confirm with **ENTER**. Playback of the selected title starts.
- Select **STOP ■** to end playback.

HDD/DVD-RAM functions possible during playback in each case

DVD PLAY ►

- (HDD) REC
- (DVD) REC
- (VHS) REC

HDD PLAY ►

- (HDD) REC
- (DVD) REC
- (VHS) REC

Changing the audio channel

AUDIO

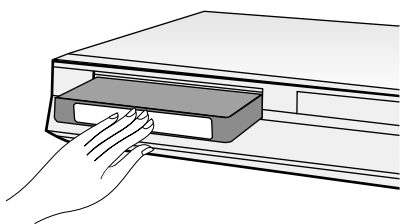
For disc formats RAM, -RW(VR), -R(DivX), CD(DivX), VCD

- Press **AUDIO** during playback.

DISPLAY

For disc formats DVD-A, DVD-V

- Press **DISPLAY** during playback.
- Depending on the disc, select the audio channel or the sound track. LR \Rightarrow L \Rightarrow R



The tape automatically rewinds when the end is reached. This function is not available during a Timer Recording.

Preparation

- Switch on the DVD Recorder and use **DRIVE SELECT** to select the VHS drive.
- Enter a recorded video cassette.



Playing a video cassette

- Press **PLAY ►** to start playback.
Playback starts automatically if a video cassette was inserted and its write-protection strip was removed.

Repeat playback

The video recorder repeats the recording until the end is reached.

- Press **PLAY ►** for more than 5 seconds. **R ▸** and the tape play time or remaining tape play time appears on the screen.



Stopping playback

- Press **STOP ■**.



Pausing playback

- Press **PAUSE ||** during playback.
Press **PAUSE ||** again to resume playback.

Slow-motion playback during playback

- Press **PAUSE ||** for more than 2 seconds.
- Press **PLAY ►** to resume playback.
Slow-motion playback is automatically cancelled after 10 minutes.

Frame playback during playback

- Press **PAUSE ||**.
- Press **PLAY ►** to resume playback.
Frame playback is automatically cancelled after 5 minutes.

SLOW/SEARCH



Forwards ►► or backwards ◀◀ search

- Press **►►** or **◀◀** during playback.
Press the button twice (JET SEARCH) to increase the search speed. If you press and hold the button, the search starts for the length that the button is pressed.
- Press **PLAY ►** to resume playback.
The forwards/backwards search is cancelled after 10 minutes.

FF ►► Fast forward / REW ◀◀ Jet rewind

- In **STOP** mode, press **►►** or **◀◀**.
- Press **STOP ■** to end the forward/rewind function.

◀◀ JET REW

To quickly rewind to the beginning of the cassette.

Approx. 43 seconds for a E180 cassette.

Depending on the video cassette or the operating condition, the rewind speed may vary. If the tape rewinds to the beginning, the counter is reset to 0:00.00.



VHS Index Search System (VISS)

This unit records special index signals to the cassette tape for each recording. The index search function uses these signals to quickly find the beginning of the desired recording. Up to 20 index signals can be used.

- Press **INDEX** during playback or in **STOP** mode.
►► tape forwards/**◀◀** tape rewinds. If an index signal was found, the unit automatically begins playback. With each push of the button, the number of jumps is increased.
- Press **STOP ■** to end the search.
If the index signals are too close together, the feature may fail. The recordings should be at least 5 minutes long.

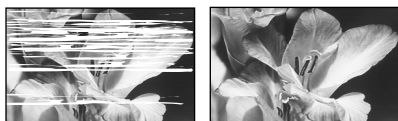
S-VHS Quasi Playback (SQPB)

It is possible to play cassettes that were recorded on an S-VHS unit. The picture quality is the same as a VHS recording. Depending on the video tape used, slight picture distortions may occur.

An S-VHS recording is not possible with this unit.

Manual tracking

The unit sets tracking automatically. If a cassette was recorded on another unit, it may be necessary to set tracking manually.



The picture shows interference or is blurred during playback.

- During normal playback or in slow motion, press **TRACKING/V-LOCK +/-** until the blurriness disappears.

If freeze frames are blurry, first switch the unit to slow motion and then adjust the tracking.

Tracking cannot be controlled on some video cassettes. This does not indicate functional problems.

Automatic tracking

- Press **TRACKING/V-LOCK +** and **-** at the same time to return to automatic tracking.

On some TVs, the picture can move up or down when special playback functions are used.

This does not indicate functional problems.

Handling video cassettes

If the video cassette is not in use, remove it from the unit and store it in its jacket. Avoid recording on the same tape section multiple times in order to avoid wearing out the video tape prematurely.

Carefully insert the cassette into the video recorder to avoid damage.

Do not expose the video cassette to high humidity, temperature or dust particles.

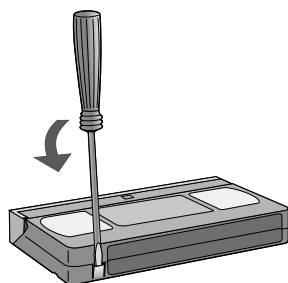
Do not store the video cassette near magnetic waves, such as television sets.

Do not use defective cassettes and do not try to repair them.

Do not open the housing or the protective flap on the front side of the cassette and do not touch the tape.

Use high-quality name-brand cassettes, such as those made by Panasonic.

When playing cassettes recorded on another VHS-Recorder, there may be a slight decrease in picture quality.



Write-protecting cassettes

Remove the write-protection tab to protect cassettes from accidentally being erased.

If you want to record to a protected cassette, cover the gap with adhesive tape.

Cleaning video heads

Use a cleaning tape to clean the video heads.

Recording



Before recording

You can record to DVD-RAM, DVD-R, DVD-RW(V), -R DL, +R DL, +R or +RW with this unit. DVD-R/-RW is the most common medium. DVD-Video format is used to record to discs. The format is compatible with most DVD Video players and DVD-ROM drives in computers.

Maximum number of recordable titles							
HDD	RAM	-R	-RW(V)	-R DL	+R	+RW	+R DL
500			99				49

Programmes in 16:9 format are recorded in 4:3 format.
16:9 format is used to record to DVD-RAM or HDD.

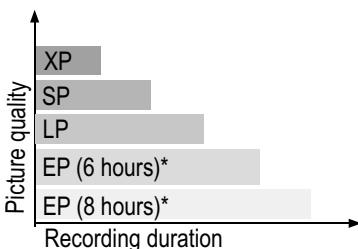
Titles in PAL or NTSC format can be displayed on the following TV sets:

TV type	Disc/HDD	Yes/No
Multi system TV	PAL	Yes
	NTSC	Yes
NTSC-TV	PAL	No
	NTSC	Yes
PAL-TV	PAL	Yes
	NTSC	Yes (PAL60)

Discs suitable for recording

Rewritable			Writable			
RAM	-RW	+RW	-R	+R	-R DL	+R DL
x2	x1	x2.4	x1	x2.4	x4	x2.4
x3	x2	x4	x4	x4		
x5	x4	x8*	x8	x8		
	x6		x16	x16		

* Playback only



* Only if Recording time in EP mode is set to [EP (6 Hours)] in the Setup menu [66]

Disc protection

Protect your recordings from accidental deletion or overwriting.
Album: [44][49] Pictures: [44][49] Recordings: [38][49] The entire disc: [74]

If you activated write-protection, remove it before processing.

Conventional DVD-Vs are usually equipped with copy protection and cannot be copied.

CPRM (Content Protection for Recordable Media)

[HDD] [RAM]

This unit is compatible with the CPRM copy-protection system for recordable media. When using a CPRM-compatible disc, a programme can be recorded once. Programmes broadcast with this copy-protection system cannot be recorded to DVD-R or 2.8 GB DVD-RAM.

HDCP (High Bandwidth Digital Content Protection) is copy protection which is transferred via HDMI connections and partly via DVI. The units must be able to decode this copy protection for playback.

Formatting

[74]

If using an unformatted disc, you must format it before the first recording. Formatting prepares the media, such as a recordable DVD-RAM, for recording. All data is irreversibly erased.

For recording

The recording is saved to free areas on the disc. If there is no more space left on the disc/HDD, you must delete recordings or use a new disc. Continuous recording or playback of both sides of a double-sided disc is not possible. After the end of the recording, the unit needs approx. 30 seconds to record data for recording management.

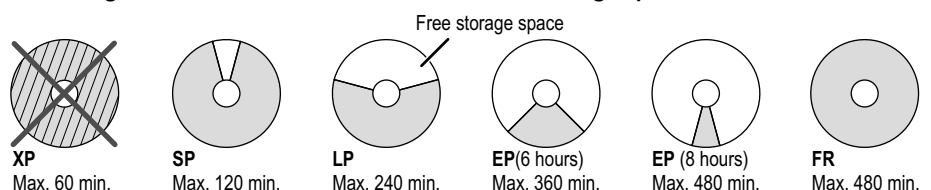
Under certain circumstances, digital sound signals may not be recorded in their original format. Digital programmes limited to "one-time recording" can only be recorded to 12-cm DVD-RAM.

You cannot record on the hard disk and on a DVD at the same time. The internal hard disk saves up to 443 hours of your recordings when set to [EP (8 Hours)]. [HDD] Longer recordings are divided into 8-hour segments.

Remaining recording time on the hard disk

This unit records with a data compression system (VBR - Variable bit rate). The length of the programmed recording is adjusted variably to the video data being recorded. This is why the display of the remaining recording time can differ from the remaining recording length. If there is not enough storage space for a recording, delete old titles from the hard disk. Deleting playback lists does not enlarge the storage space.

Recording a 90-minute title to a disc with 4.7 GB of storage space.



It is not possible to record a 90-minute title in XP mode. The available storage space is used optimally in FR mode. The title is recorded in the best possible quality.

Recording



You cannot record to DVD/HDD and VHS at the same time.

DVD: Insert a disc.

If you activated write-protection, cancel it.



VHS: Insert a video cassette with an intact write-protection tab.

- Press **FUNCTIONS**.
- In the Setup menu, select the appropriate tape length under VHS.
- Confirm with **ENTER**.
- Press **RETURN** several times, in order to return to the television picture.
- Select the DVD, HDD or VHS drive with **DRIVE SELECT**.



REC

Record

- Press **REC** to start a recording.
After the recording is complete, it takes some time for the unit to process the unit control information.



Pause the recording

- Press **PAUSE** to pause the recording.
- Press **PAUSE** again or **REC** to resume recording.

The title is not divided.

VHS: If the recording is paused for more than 5 minutes, the unit switches to **STOP** mode.

Approx. recording times in hours

	HDD 250 GB	DVD-RAM		-R,-RW(V) +R, +RW 4,7 GB
		single- sided 4,7 GB	double- sided 9,4 GB	
XP	55	1	2	1
SP	111	2	4	2
LP	222	4	8	4
EP: 6h	333	6	12	6
EP: 8h	443	8	16	8

DVD/HDD recording of TV programmes

- Select the station with **CH** or the number buttons.
 - Select the recording mode with **REC MODE**.
Switch between SP, LP, EP and XP with each push of the button.
 - Press **REC** to start the recording.
 - Select **STOP** to stop the recording.
If you resume recording, a new title will be created.
 - Press **REC** again to resume recording.
You can play VHS cassettes while recording. The recording to DVD is not impaired.
- With **AUDIO**, you can switch the incoming audio channel during the recording. It has no effect on the recorded audio channel.

Approx. recording times in hours

	-R DL 8,5 GB	+R DL 8,5GB
XP	1:45	1:45
SP	3:35	3:35
LP	7:10	7:10
EP: 6h	10:45	
EP: 8h	14:20	

REC MODE

Changing the recording mode

- Press **REC MODE** in **PAUSE** or **STOP** mode.
Switch between SP, LP, EP and XP (XP only with DVD) each time the button is pressed. The material is recorded as a separate title with each switch.
- With the [EP mode (8Hours)] setting, playback on DVD-RAM-compatible DVD players may not be possible.
Select [EP mode (6Hours)].



Recording time for E-240 cassettes

SP-Normal mode: approx. 4 hrs.
LP-Long-play mode: approx. 8 hrs.
EP-Extra long-play mode: approx. 12 hrs.

Use SP if you value a high-quality picture.

VHS recording of TV programmes

- Select the station with **CH** or the number buttons.
- Select the tape speed with **REC MODE**.
Switch between SP, LP and EP each time the button is pressed.
- Press **REC** to start the recording.
- Select **STOP** to stop the recording.
- Press **REC** again to resume recording.
You can playback discs while recording. The recordings to VHS are not impaired.
When using an S-VHS cassette, the recording is in conventional VHS.

DVD/HDD playback during recording



During the recording, you can the playback from the beginning of the programme.

- Press **PLAY** during recording or Timer Recording.
At least 2 second must have elapsed since the beginning of the recording.

Recording



DVD/HDD: This function is not possible with Flexible Rec. If the channel or recording mode (XP, SP, LP, EP) is changed while recording is paused, the time is deleted.

VHS: If the tape speed is changed during the recording, a slight picture distortion will occur at that point.

Specifying a time as the recording duration

This function is not available for Timer Recordings.

- Press **● REC** on the unit during recording.
The recording time changes each time the button is pressed on the unit display:
OFF ⇒ 0:30 ⇒ 1:00 ⇒ 1:30 ⇒ 2:00 ⇒ 3:00 ⇒ 4:00 ⇒ OFF
- Press **■ STOP**. The recording is paused and the time setting is deleted.
The unit switches itself off at the end of the recording if no functions are being executed on another drive.

Timer Recording with the television set

If your television set is equipped with the Q Link function and the possibility of programming with Timer Recording, then you can do a Timer Recording with the television set. To do so, connect the DVD Recorder with a fully wired 21-pin Scart cable to the television set.

- Program the Timer Recording on your television set.
- Press **DRIVE SELECT** on the DVD Recorder to select the HDD or DVD drive.
- Switch the DVD Recorder to the Standby mode.
The television set controls the beginning and end of the recording.
- Press **■ STOP** to end the recording.

The recording will not start if the DVD Recorder is in Timer or EXT LINK standby. If several Timer Recordings follow on in quick succession, they are recorded as one title.

Direct TV recording

If your TV is equipped with Q Link, you can record a TV programme that you are currently watching. Other settings are not necessary. The recorder automatically switches to the appropriate station.

- Press **DIRECT TV REC** for 3 seconds. Recording begins.
- Press **■ STOP** to stop the recording.

Recording from an external unit, e.g. a camera

- Connect the external unit to the AV3 input terminal on the front side of the unit.
- Select one of the two connection options.
The S VIDEO cable and audio cable (L/R) connection delivers the best quality.
You cannot receive signals from PCs with this unit.

Recording to VHS: Insert a video cassette with an intact write-protection tab.

- Select the VHS drive with **DRIVE SELECT**.
- Select the recording mode with **REC MODE**.
- In **STOP** mode, use **INPUT SELECT** to select input channel AV3.
- Press **▶ PLAY**.
- At the point where you wish to start recording press **■ PAUSE**.
- Press **● REC**.
- Start playback on the external unit.
- Then press **■ PAUSE** to start the recording.
- Use **■ STOP** to stop the recording.



Recording to DVD/HDD: Insert a recordable disc.

If you activated the write-protection, cancel it.

- Select the DVD or HDD drive with **DRIVE SELECT**.
- Select the recording mode with **REC MODE**.
- In **STOP**-mode use **INPUT SELECT** to select input channel AV3.
- Start playback on the external unit.
- Press **● REC** at the point where you want to start the recording.
- Use **■ STOP** to stop the recording.

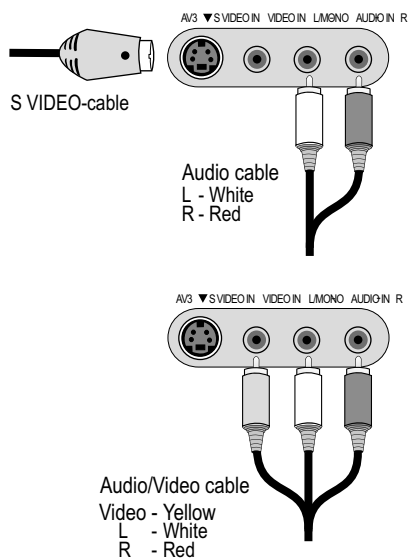
Selecting the sound track to record for programmes with dual-channel sound Not

Analogue channels

- Before recording, select Sound setting Bilingual Audio Selection [M1] or [M2] in the Setup menu. 
Select [M1] or [M2] on an external unit before recording.
- If the output signal of the external unit is an NTSC signal, set the TV System to [NTSC] in the Setup menu. 

Digital channels

- Press **DISPLAY** and select Audio setting [DVB Multi Audio].

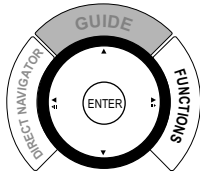


Recording in dual-channel audio

On DVD-RAM or HDD, both channels of a programme in dual-channel sound are recorded.

Use **AUDIO** to switch between the two recorded sound tracks.

FUNCTIONS



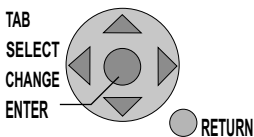
You can access the main functions via FUNCTIONS.

The illustrations show DVD-RAM menus. The menu entries may differ depending on the disc or the medium.

- Press **FUNCTIONS**. During Recording or Timer Recording, some menus have a grey background and cannot be selected.
- Select a menu with **▲▼** and confirm with **ENTER**.
- Select the following page with **▲▼** [To Others] and confirm with **ENTER**. Press **RETURN** to return to the first page.
- Press **FUNCTIONS** to exit the selection menu.



Playback	DIRECT NAVIGATOR menu	37
Recording	TV Guide menu	46
Delete	DELETE Navigator	49
Copy	Copy menu	49
TIMER RECORDING	Timer programming in the Timer Recording menu	50
ShowView Record	ShowView Record menu	52
Advanced Copy	Advanced Copy menu	53
Playlists	Playlists menu	59
Copy All Pictures	Copy pictures (only for SD card)	62
Flexible Rec	Record in FR-Modus	63
DV Auto Rec	Record the DV signal	63
Setup	Change the unit setup	64
HDD Management	Formatting and deleting all titles from HDD	73
Card Management	Formatting SD cards	73
DVD Management	Formatting and finalizing discs, write-protection	74



TAB: Select submenu with **▲▼◀▶**.

SELECT: Select setting or option.

CHANGE: Change the option



ENTER: Select or save a setting.

RETURN: Back to the previous screen.
Exit a menu.

The FUNCTIONS menu cannot be launched during playback.
Stop playback with **STOP ■**.

Notes on the menus

Selecting a title or chapter

- Select a title or chapter with **▲▼◀▶** or **0-9**.

Selecting other pages

- Select [Previous] or [Next] with **▲▼◀▶** and confirm with **ENTER**.

Cancelling a function

- Depending on the specific entry, select [No] or [Cancel] with **▲▼◀▶** and confirm with **ENTER**.

You can also cancel a function with **RETURN**.

Starting playback

- Start playback of the selected title or chapter with **ENTER**.

For faster processing

In addition to fast forward, slow motion playback and frame playback, there are other function available for faster processing.

Jump to the beginning/end of a title/chapter with **PAUSE II** and **SKIP ◀▶▶▶**.

Find the position for a marking with **SKIP ◀▶▶▶**, **SLOW/SEARCH ◀▶▶**, **TIME SLIP**, **MANUAL SKIP** or **◀▶**.

You can jump between set markers with **SKIP ◀▶▶▶**.

Editing several elements **■**

You can process several chapter or titles at the same time.

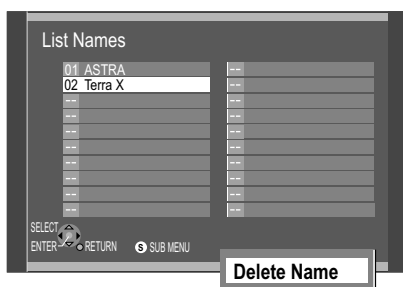
Functions such as Copy, Set up Protection or Delete are marked with the symbol **■**.

- Select the desired title with **▲▼◀▶** and press **PAUSE II**.
A check appears. Repeat this process to select other titles.
- Press **PAUSE II** again to clear the selection.



Top Menu Preview

In the DIRECT NAVIGATOR, select the setting [EnterName]. The Top Menu Preview also appears. The later display of the title is shown. Add blanks, hyphens etc. to write the title as you want it.



Entering text

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

You can give titles to your programmes or discs in the different menus and while setting up the Timer Recording.

Entering a title or disc name using the menu

- Select the desired character with **▲▼◀▶** and confirm with **ENTER**.
By inserting spaces, hyphen or dashes, you can enter the title you want. Select **PAUSE II** to delete a letter.
- Press **STOP ■** to apply the name/title.
Use the **RED** and **GREEN** button to switch between [Standard Characters] and [Other Characters].

Enter a title using the number buttons, e.g.: the letter "R"

- Press [7] to switch to the 7th line.
- Press [7] twice to select "R" and confirm with **ENTER**.

Working with List Names

In the case of recurring programmes, save time entering the title by saving it in the title list.

Save a disc name or title in List Names

- After entering a title, press **SKIP ►►**.
- In the next screen, select [Add] with **◀** and confirm with **ENTER**.

Using a disc name or title from List Names

- Open List Names with **◀◀ SKIP**.
- Select the disc names or title with **▲▼◀▶** and press **ENTER**.
- Press **STOP ■** to apply the name/title.

Deleting a disc name or title from the List Names

- Open List Names with **◀◀ SKIP**.
- Select the title or name with **▲▼◀▶** and press **SUB MENU**.
- Confirm [Delete Name] with **ENTER**.
- In the next screen, select [Delete] with **◀** and confirm with **ENTER**.

Symbols

	The title is being recorded.
	Timer mode is active.
	A daily or weekly Timer Recording was stopped. The icon disappears when next Timer Recording starts.
	The title overlaps other recordings.
	DVD/HDD was full so the programme failed to record.
	The programme cannot be played due to damaged data or could not be recorded for another reason.
	The title is write-protected.
	The programme was copy-protected; the title was not recorded.
	The title was redirected from DVD to HDD.
	Title that can only be copied once.
HDD	The title is being recorded to HDD.
DVD	The title is being recorded to DVD.
	The title is being refreshed automatically.
	The title has been selected.
	Titles and playlists that can be copied in High Speed mode to a DVD-R etc., but not +R, +R DL and +RW.
	Titles and playlists that can be copied in High Speed mode to a DVD-R etc.
	The title is provided for one-time copying and will be deleted after it is copied.
	Titles or playlists with pictures (pictures cannot be copied). !
	The title or the playlist was recorded with a TV system other than the one currently selected. Title and playlists with these markings possibly cannot be played back.
	To playback this title/playlist, switch your TV system.

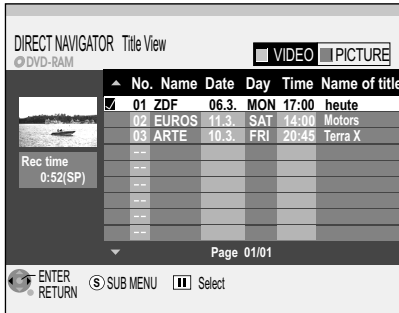
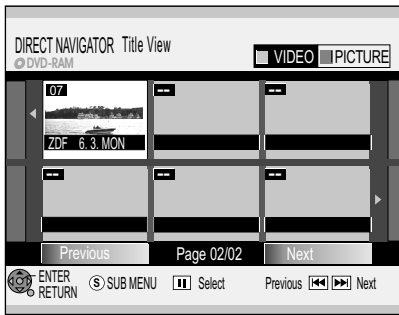
FUNCTIONS



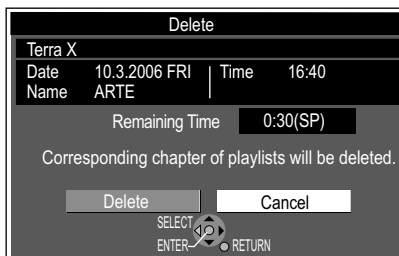
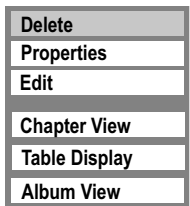
Playback



DIRECT NAVIGATOR

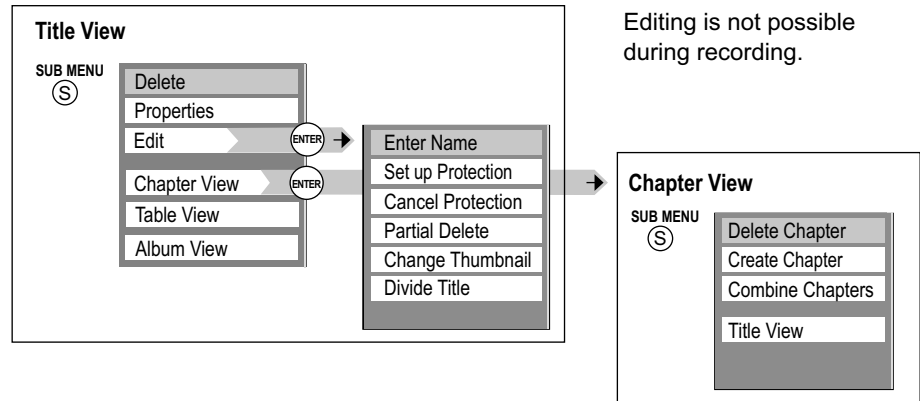


VIDEO RED button: Title View
PICTURE GREEN button: Album View (JPEG)



Overview of DIRECT NAVIGATOR

You can archive, edit or start playback after selecting a title in DIRECT NAVIGATOR. The DIRECT NAVIGATOR cannot be called if the VHS drive is selected.



Editing is not possible during recording.

Changing the display in DIRECT NAVIGATOR

- Press **SUB MENU**.
- Use **▲▼** to select [Table Display] or [Thumbnail Display] and press **ENTER**. The last display used is still saved when the unit is switched off.

Launching the DIRECT NAVIGATOR menu

- Press **FUNCTIONS**.
- Confirm [Playback] with **ENTER**. The DIRECT NAVIGATOR menu appears.

Playback

- Select a title with **▲▼◀▶** and start playback with **ENTER**.

Edit

- Press **SUB MENU** to edit a title.
- Select the desired option with **▲▼** and confirm with **ENTER**.

Delete

Not **[RW(VR)]**

When you execute this process, the title will be deleted and cannot be restored.

- Confirm [Delete] with **ENTER**.
- Select [Delete] with **◀** and confirm with **ENTER**.

The available recording time may remain the same after deleting a short title.

[HDD] [RAM] The storage space of a deleted title becomes available for a new recording.

[-R] [-R DL] [+R] [+R DL] The storage space is not released by deleting titles.

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

Properties

Information on the title, such as name, date and time, is displayed.

- Select [Properties] with **▲▼** and confirm with **ENTER**.

Table Display/Thumbnail Display Switching the Title View.

The last view used is still saved when the unit is switched off.

Album View/Title View: VIDEO (RED button / PICTURE (GREEN button) Change to Album View.

Sort: Sorting in the Table Display of the Title View. **[HDD]**

The titles can be sorted according to the following options:

No., Name, Date, Day, Start Time, Name of title. The set search option is underlined.

- Use **▲▼** to select the desired option and confirm with **ENTER**.

Editing several elements

Select the desired title with **▲▼◀▶** and press **PAUSE II**.

A check appears. Repeat this process to select other titles.

Press **PAUSE II** again to clear the selection.

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

Editing titles in the SUB MENU

- Select [Edit] with **▲▼** and confirm with **ENTER**.
- In the submenu, select the desired option with **▲▼** confirm with **ENTER**.

Enter Name

Not **-RW(VR)** **36**

Enter or change the title of the programmes.
The full name is displayed in the Properties submenu.

Set up Protection

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

- Select [Yes] with **◀** and confirm with **ENTER**. **🔒** is displayed.

Cancel Protection

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

- Select [Yes] with **◀** and confirm with **ENTER**. **🔒** disappears.

Partial Delete

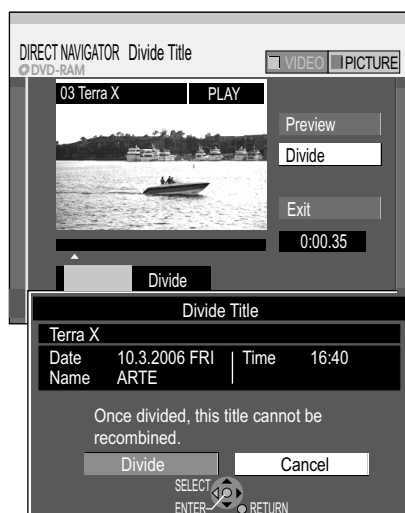
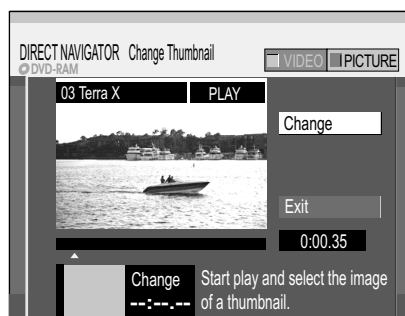
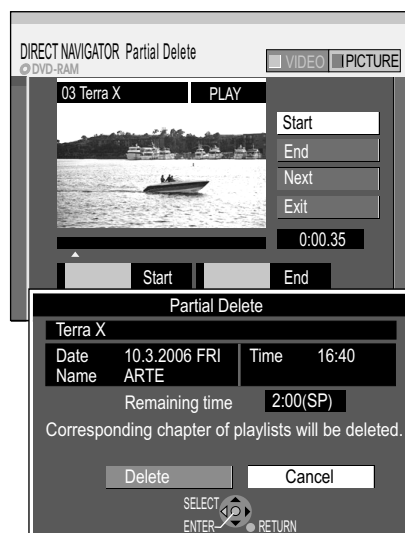
HDD **RAM**

Make sure that you really want to delete parts of the recording.

- At the desired start point, confirm [Start] with **ENTER**.
- At the desired end point, confirm [End] with **ENTER**.
- If you want to carry out the deletion, select [Exit] with **▲▼** and confirm with **ENTER**.
- In the next screen, select [Delete] with **◀** and confirm with **ENTER**.
You exit the menu after the deletion.

- To delete other parts, confirm [Next] with **ENTER**.
- Select [Delete] with **◀** and confirm with **ENTER**.
After each deletion, you can select the next start and end point.
- To exit the menu, select [Exit] with **▲▼** and press **ENTER**.

You may not be able to identify a start and end point if they are less than 3 seconds apart or if recorded image is a still picture. The unit switches to **PAUSE** mode at the end of the title. The available recording time on the disc may remain the same after deletion.



Change Thumbnail

Not **-RW(VR)**

You can select any position in a title as the thumbnail for the title view.

- Press **PLAY ▶** to start playback.
- At the position which is to be displayed as the new thumbnail, confirm [Change] with **ENTER**. The select thumbnail is displayed.
- Confirm [Exit] with **ENTER**. The selected thumbnail is displayed in the title view.

Divide Title

HDD **RAM**

You can divide a selected title. A divided title cannot be joined together again.

- At the position where the title is to be divided, confirm [Divide] with **ENTER**.
- Confirm [Preview] with **ENTER**. A section will be played back from 10 seconds before to 10 seconds after the dividing point.
- Confirm [Exit] with **ENTER**.
- In the next screen, select [Divide] with **◀** and confirm with **ENTER**.

A short section of the recording right before the dividing point may be lost. The divided titles retain the name of the original title.

You cannot use this function if the resulting sections are extremely short or if you have saved more than 99 titles to DVD-RAM (500 titles to HDD).

You can jump to the beginning/end of a title/chapter with **PAUSE II** and **SKIP ◀◀▶▶**. Find the position for a marker with **SKIP ◀◀▶▶**, **SLOW/SEARCH ◀▶▶**, **TIME SLIP**, **MANUAL SKIP** or **◀▶**.

You can jump between set markers with **SKIP ◀◀▶▶**.

Editing several elements **☑**

Select the desired title with **▲▼◀▶** and press **PAUSE II**. A check appears. Repeat this process to select other titles. Press **PAUSE II** again to clear the selection.

FUNCTIONS



Playback



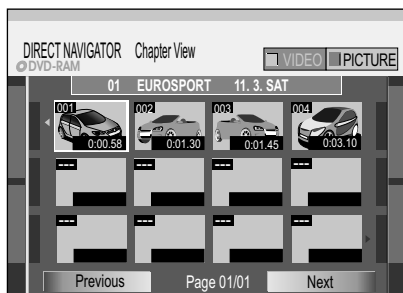
DIRECT NAVIGATOR

Delete	Delete Chapter
Properties	Create Chapter
Edit	Combine Chapters
Chapter View	Title View
Table Display	
Album View	

Editing chapters in the SUB MENU

HDD RAM

- Press **FUNCTIONS**.
- Confirm [Playback] with **ENTER**.
- Select the desired title with **▲▼◀▶** in the Title View menu.
- Press **SUB MENU**.
- Select [Chapter View] with **▲▼** and confirm with **ENTER**.
- Select the desired chapter with **▲▼◀▶**.
- Press **SUB MENU**.
- Select the desired option with **▲▼** in the submenu and confirm with **ENTER**.



Delete Chapter

- Select [Delete] with **◀** and confirm with **ENTER**.

Create Chapter

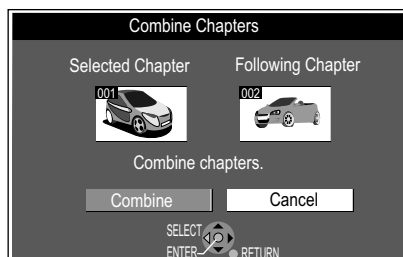
Divide the title into chapters. Determine the points where a new chapter needs to begin. The chapters can be selected later during playback with **SKIP ◀▶▶▶**.

- Press **ENTER** at the position where you want to create the chapter.
- Repeat this step to create additional chapters.
- Select [Exit] with **▼** and confirm with **ENTER**.

A short section right before the dividing point may be lost.

Combine Chapters

- Select [Combine] with **◀** and confirm with **ENTER**.
The selected chapter is combined with the following chapter.



Title View Return to Title View

You can jump to the beginning/end of a title/chapter with **PAUSE ||** and **SKIP ◀▶▶▶**. Find the position for a marker with **SKIP ◀▶▶▶**, **SLOW/SEARCH ◀▶▶**, **TIME SLIP**, **MANUAL SKIP** or **◀▶**. You can jump between set markers with **SKIP ◀▶▶▶**.

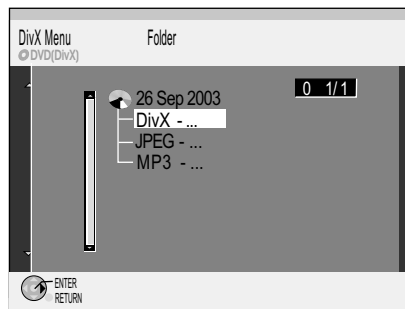
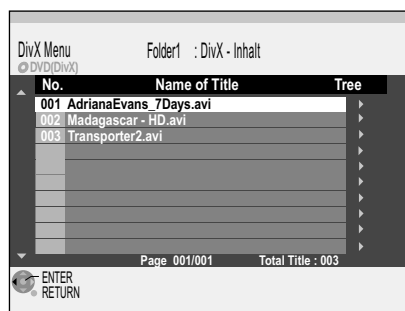
Editing several elements

Select the desired title with **▲▼◀▶** and press **PAUSE ||**. A check appears. Repeat this process to select other titles. Press **PAUSE ||** again to clear the selection.

FUNCTIONS



Playback



If you do not want to play DivX data, change the presetting in the FUNCTIONS menu to the desired format.

DivX Format

DVD(DivX), CD(DivX)
DivX 3.11, 4.x, 5.x
GMC (Global Motion Compensation) is not supported.

Maximum number of folders 300
Recognizable folders per disc on this unit (including the root folder)

Maximum number of DivX files 200
Recognizable DivX files per disc on this unit

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

DivX playback



DivX (Direct-Video-eXpress) is a format for saving compressed audio and video data and is developed by DivXNetworks. It is based on MPEG-4, but saves in a much more compact manner to approx. one-tenth the size of the uncompressed file format with satisfactory quality. Thus, the content of a DVD (approx. 8 GB) can be saved to a conventional CD-ROM (650 MB) in DivX format.

DivX files must always be played with the version with which they were compressed, since newer DivX versions are not compatible with older versions.

Starting playback

The disc only contains DivX data:

- Press **PLAY** ►.
- Select a title with ▲▼ and confirm with **ENTER**. Playback begins.

Selecting a Folder

- Press ► to switch to [Tree].
- Select the desired Folder with ▲▼◀▶ and confirm with **ENTER**. The contents of the selected Folder are displayed.

In addition to DivX data, the disc also contains MP3- and/or JPEG data:

- Confirm the message regarding the preset play mode with **ENTER**.
- Press **PLAY** ►.
- Select a title with ▲▼ and confirm with **ENTER**. Playback begins.

Repeat playback of DivX titles is not possible. During playback, you cannot launch titles using the number buttons.

A warning message appears if a Timer Recording is programmed.

CD-R/CD-RW/DVD-R with DivX-, JPEG-, MP3 data can only be read. A disc that only contains DivX-, JPEG-, MP3 files from a PC can be played. If the disc contains titles in DVD Video Recording format (VR) and PC data, only the titles in VR format can be played back.

Playing DivX with limited playback options



DivX Video On Demand is encrypted for copyright reasons. Register the unit in order to be able to play encrypted titles. Follow the online instructions during registration. You will need the registration code of the unit.

After you have played an encrypted title for the first time, a new registration code appears in the DivX Registration menu. Do not use this new registration code to purchase other encrypted titles. If you obtain and play titles with this second code, the registration for the first code will expire. The titles obtained with it can no longer be played.

If you acquire a registration code which does not belong to this unit, you cannot play the contents.

- Press **PLAY** ►.
- Select a title with ▲▼ and confirm with **ENTER**. The number of playback options for this title is displayed. It ends with 0.
- Select [Yes] with ◀▶ and confirm with **ENTER**. Playback begins. It is not possible to save a playback position.

Do not press the following buttons during playback:

DVD/VHS, **STOP** ■, **SKIP** ◀▶▶, **SLOW/SEARCH** ◀▶▶

The number of playback options is reduced by 1 each time.



Official DivX Certified™ product.

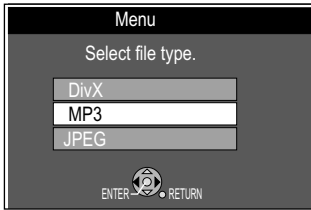
Plays DivX@5, DivX@4, DivX@3, and DivX@ VOD video content (in compliance with DivX Certified™ technical requirements).

DivX, DivX Certified, and associated logos are trademarks of DivXNetworks, Inc. and are used under license.

FUNCTIONS



Playback



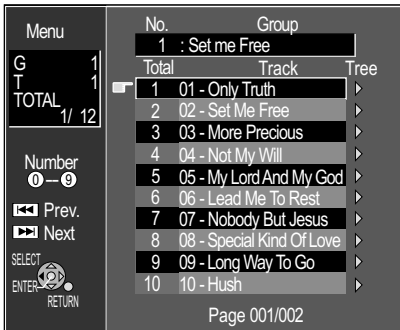
MP3 playback

-R **CD**

This unit can play MP3 that were recorded with a computer. Files are captured as tracks and folders as groups. "TOTAL" includes all pieces in all groups on the disc.

In addition to MP3 data, the disc also contains JPEG and/or JPEG data: After a disc is inserted, a message appears regarding the preset playback mode.

- Confirm the message with **ENTER**.
- Press **FUNCTIONS** and confirm [Menu] with **ENTER**.
- Select the desired file type with **▲▼** and confirm with **ENTER**.

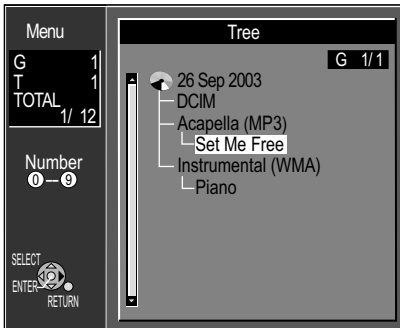


Starting playback

- Press **DIRECT NAVIGATOR** to launch the Menu screen.
- Select the desired track with **▲▼** or **[0]-[9]** and confirm with **ENTER**. Playback takes place up to the last track in the selected group.
- Press **STOP** to end playback. Use **DIRECT NAVIGATOR** or **RETURN** to exit the screen.

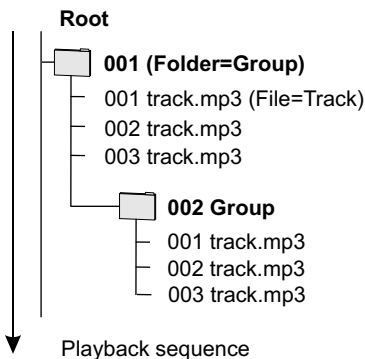
Browse through the pages with **SKIP**. The lists of groups follow one after the other.

- ☞ Shows the track currently being played
- TOTAL:** Selected track number/ Total number of tracks numbers
- G:** Group number
- No.:** Selected group number
- T:** Track number in the group
- Group:** Selected group name



Selecting a group

- Press **▶** to switch to the Tree menu.
- Select the desired group with **▲▼◀▶** and confirm with **ENTER**. The contents of the selected group are displayed.



MP3 folder structure

DVD(MP3), CD(MP3)

Format

ISO9660 level 1 or 2 (except for extended formats), Joliet

Compatible compression rate 32kbps ~320kbps

Compatible sampling rate 16kHz, 22.05kHz, 24kHz, 32kHz, 44.1kHz, 48kHz

This unit is not compatible with ID3 tags.

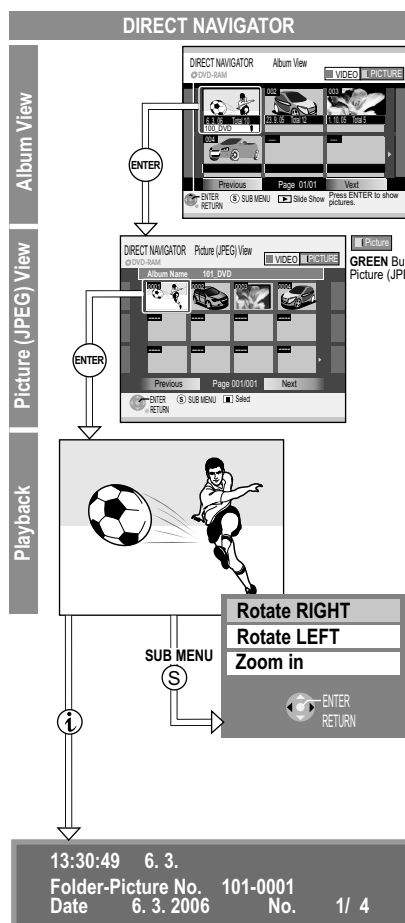
Maximum number of folders 300 Recognizable folders per disc on this unit (including the root folder)

Maximum number of MP3 files 3000 Recognizable MP3 files per disc on this unit*

This unit is compatible with multi-session.

This unit is not compatible with packet writing.

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



JPEG/TIFF playback from DVD-RAM/SD

HDD RAM SD

Picture playback

If you have saved pictures in JPEG format on DVD-RAM, you can playback and edit these using the Album View function.

The albums are displayed with preview pictures. To playback the pictures, an album must be selected and opened.

- Press **DIRECT NAVIGATOR**.
- **HDD** **RAM** In the title view, press **SUB MENU**. Select [Album View] with **▲▼** and press **ENTER** to confirm.
- In the Album View select the required album with **▲▼◀▶** and press **ENTER** to confirm.
- Select the required picture in the Picture (JPEG) View with **▲▼◀▶** or **0-9** and press **ENTER** to start the playback
- Press **STOP** to stop the playback.

SUB MENU during picture playback

HDD RAM SD -R CD

- Press **SUB MENU**.
- Select the required option with **▲▼** and press **ENTER** to confirm.

Rotate pictures

- Press **SUB MENU** during playback.
- Select the desired setting with **▲▼** and confirm with **ENTER**.

Zoom in/Zoom out (Only available for pictures smaller than 640 x 480 pixels.)

- Press **SUB MENU** during playback.
 - Select [Zoom in] with **▲▼** and confirm with **ENTER**.
 - To switch back to the original size, confirm [Zoom out] with **ENTER**.
- The rotation and zooming of pictures is not saved.

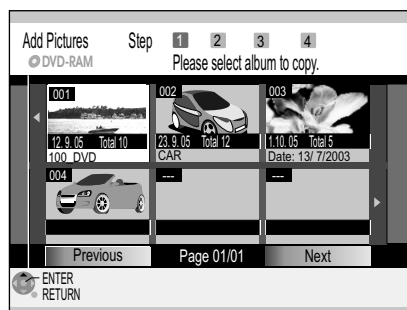
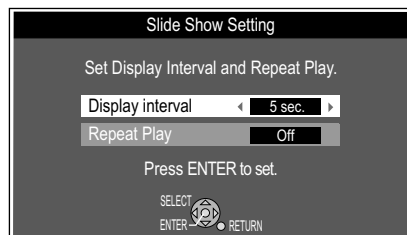
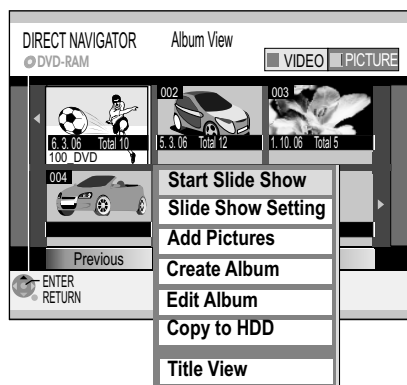
If TIFF fixed images are played back or if there are a lot of files, sessions and/or folders, it can take a relatively long time to display the data.

Display picture properties

- During playback, press **i** twice to launch the display.
- Press **i** again to exit the display.
- Press **RETURN** to return to the Album View.

JPEG (Joint Photographic Experts Group), a system for compressing/decoding colour still pictures. Despite strong compression, there is only a slight loss of picture quality.

TIFF (Tag Image File Format), a system for compressing/decoding colour still pictures. It enables digital cameras and other units to save high-quality pictures.



Album View

Slide Show from the Album View

- Select the required Album from the Album View with **▲▼◀▶**.
- Press **PLAY ▶**.

SUB MENU in the Album View

- Press **SUB MENU**.
- Select the required option with **▲▼** and press **ENTER** to confirm.

Start Slide Show

The pictures of the selected folder are played back automatically in succession in the selected display interval. The Slide Show is repeated if you have set [Repeat Play] to [On] in [Slide Show Setting].

- Press **STOP ■** to stop the Slide Show.

Slide Show Setting

You can set the Display Interval for each picture, together with Repeat Play of the Slide Show.

- Select [Display interval] with **◀▶** for each picture.
- For Repeat Play of the Slide Show select [Repeat Play] with **▲▼** and change the setting with **◀▶**.
- Press **ENTER** to confirm

Add Pictures

HDD RAM SD

Pictures are assigned to the selected album from other albums.

- Select [Start] with **◀** and press **ENTER** to confirm.

Step 1 • Select the required album with **▲▼◀▶** and press **ENTER** to confirm.

Step 2 Use [Copy Pictures] to copy individual pictures or [Copy Album] to copy a complete album.

- Select [Copy Pictures] or [Copy Album] with **▲▼**.
- Press **ENTER** to confirm.
- Copy pictures: select the pictures you want to copy and press **ENTER** to confirm.

Step 3 The pictures of the selected Album are copied.

Step 4 • To continue copying, select [Yes] with **◀** and press **ENTER** to confirm. Repeat steps 1-3.

- To end copying, press **ENTER** to confirm [No].

Create Album

To create a new album, pictures must already exist on the disc or SD card. Pictures from the selected album are copied into the new album on being created.

- Select [Yes] with **◀** and press **ENTER** to confirm.

Step 1 • Select the required Album which you would like to copy the pictures with **▲▼◀▶** and press **ENTER** to confirm.

Step 2 Use [Copy Pictures] to copy individual pictures or [Copy Album] to copy a complete album.

- Select [Copy Pictures] or [Copy Album] with **▲▼**.
- Press **ENTER** to confirm.
- Copy pictures: select the pictures you want to copy and press **ENTER** to confirm.

Step 3 The pictures of the selected Album are copied.

Step 4 • To continue copying, select [Yes] with **◀** and press **ENTER** to confirm. Repeat steps 1-3.

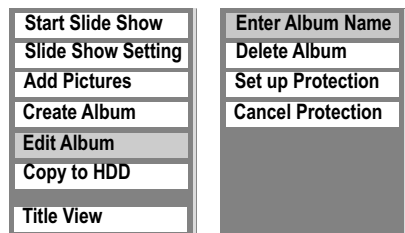
- To end copying, press **ENTER** to confirm [No].

Select [Yes] to give the Album a name.

Enter the Album name.

If you select [No], then the date is saved as name of the Album.

Editing several elements
 Select the desired title with **▲▼◀▶** and press **PAUSE II**.
 A check appears. Repeat this process to select other titles.
 Press **PAUSE II** again to clear the selection.



SUB MENU in the AlbumView

- Press **SUB MENU**.
- Select the required option with **▲▼** and press **ENTER** to confirm.

Edit Album

- Select [Edit Album] with **▲▼** and press **ENTER** to confirm.
- Select the required option with **▲▼** and press **ENTER** to confirm.

Enter Album Name Enter the Album name.

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Delete Album

The selected Album is deleted and cannot be recovered.

- Select [Delete] with **◀** and press **ENTER** to confirm.

Set up Protection/Cancel Protection

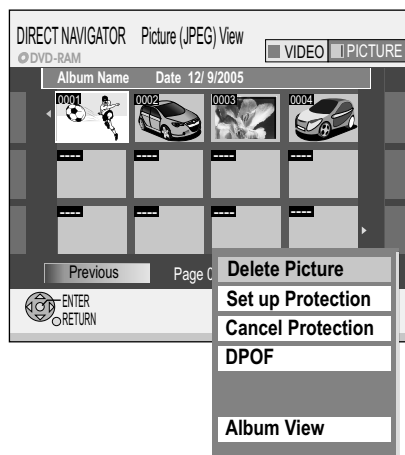
You can set up or remove cancel protection for pictures.

- Select [Yes] with **◀** and press **ENTER** to confirm.

Copy to HDD / Copy to DVD-RAM

The pictures of the album are copied on the hard disk or on a DVD-RAM.

- Select [Start] with **◀** and press **ENTER** to confirm.



SUB MENU in the Picture (JPEG) View

HDD RAM SD

- Select an Album in the Album View with **▲▼◀▶** and press **ENTER** to confirm.
- Press **SUB MENU** in the Picture (JPEG) View
- Select the required option with **▲▼** and press **ENTER** to confirm.

Delete Picture

The selected picture is deleted and cannot be recovered.

- Select [Delete] with **◀** and press **ENTER** to confirm.

Set up Protection/Cancel Protection

You can set up or remove cancel protection for pictures.

- Select [Yes] with **◀** and press **ENTER** to confirm.

DPOF

SD

The number of desired picture copies in the selected folder is determined.

- Use **◀▶** or the numeric buttons to select the number and confirm with **ENTER**.
The pictures are marked in Picture (JPEG) View.
The number 0 resets the setting. Settings previously made with other units are reset.

DPOF (Digital Print Order Format) is the standard format for printing pictures recorded with a digital camera etc. It enables automatic printing in a photo shop or on your own printer.
The print settings (DPOF) made with this unit may not be able to be viewed on other units. If the folder or the files are not compatible with the DCF standard or there is not enough space on the card, the setting cannot be performed.

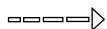
Album View

Return to Album View.

Editing several elements

Select the desired title with **▲▼◀▶** and press **PAUSE II**.
A check appears. Repeat this process to select other titles.
Press **PAUSE II** again to clear the selection.

FUNCTIONS



Playback



DIRECT NAVIGATOR



JPEG/TIFF playback from CD/DVD-R

The Disc contains JPEG data as well as JPEG data. After inserting the disk, the message appears referring to the preset playback mode.

- Press **ENTER** to confirm.
- Press **FUNCTIONS** and press **ENTER** to confirm the menu.
- Select the required file type with **▲▼** and press **ENTER** to confirm.
- Press **DIRECT NAVIGATOR**. The screen Picture (JPEG) View appears.

Playback of single pictures

- Select the required picture with **▲▼◀▶** or with **[0]-[9]** and press **ENTER** to start playback.
- Stop picture playback with **STOP ■** or **DIRECT NAVIGATOR**.

Folder

- Select [Folder] with **▲**.
- Press **SUB MENU**.
- Select the required option with **▲▼** and press **ENTER** to confirm.

Start Slide Show 43

Slide Show Setting 43

Change Folder

- Select [Folder] with **▲** and press **ENTER** to confirm. The available folders are shown.
- Select the required folder with **▲▼** and press **ENTER** to confirm.

You can select a folder directly and open it. It may be possible that you cannot open folders not created with this unit.

Root

- P0000001.jpg
- P0000002.jpg
- 002 Folder
 - P0000003.jpg
 - P0000004.jpg
 - P0000005.jpg
- 003 Folder
 - P0000006.jpg
 - P0000007.jpg
 - P0000008.jpg

Playback sequence ↓

JPEG folder structure

DVD(JPEG), CD(JPEG) Format ISO9660 level 1 or 2 (except for extended formats), Joliet

Compatible pixels between 34x34 and 6144x4096 pixels

Sub Sampling 4 : 2 : 2 or 4 : 2 : 0

This unit is not compatible with MOTION JPEG.

Maximum number of folders 300 Recognizable folders per disc on this unit (including the root folder)

Maximum number of JPEG files 3000 Recognizable JPEG files per disc on this unit*

This unit is compatible with multi-session.
This unit is not compatible with packet writing.

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

FUNCTIONS



FUNCTIONS



Recording



TV Guide

The TV Guide gives you a 7-day preview of the programme for your digital television and radio stations. For many of these programmes, you can select additional information provided by the stations.

You can sort the programme preview according to various topics such as sport, films etc. and according to categories such as TV or radio.

The TV Guide does not show any information if you have connected the unit to a satellite receiver.

- Press **FUNCTIONS**.
- Select [Recording] with **▲▼** and press **ENTER** to confirm. The TV Guide programme preview now appears.
- Press **RETURN** to return to the television picture.

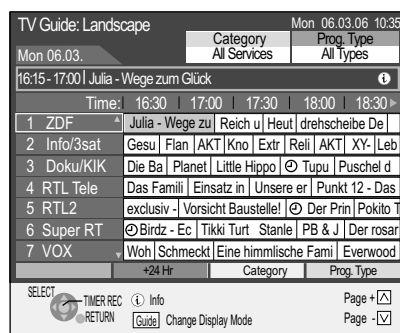
The programme preview is available immediately if your DVD Recorder has found a digital station and loaded the information in the memory. This process can take a while depending on the particular station.

The programme preview data are continuously downloaded in the background when the unit is switched on. That means that the programme preview can sometimes change while you are looking at it.

If the unit is disconnected from the power, all programme data are lost

No programme preview is broadcast for analogue stations. You can recognise analogue stations from the station number. Example: 1 ARD - digital station

901 (A) ARD - analog station



Landscape view

The TV Guide offers you a Landscape view and a Portrait view.

When you select the TV Guide for the first time, the Landscape view appears.

In the upper part of the screen there is a time bar divided into 30 minute steps. When you select a programme, the detailed title and the air time appear in the line above the time bar.

Moving in the Landscape view

- Move around in the programme preview with **▲▼◀▶**.
- The programme preview only shows current and future programmes.
- Scroll through the programme preview page for page with **PAGE** ◊.

Go forward 24 hours:

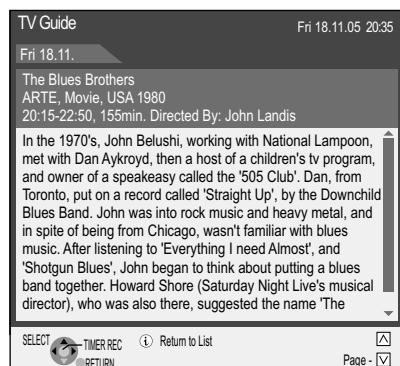
- Press the **GREEN** button to go forwards one day.

Go back 24 hours:

- Press the **RED** button. You can only go back as far as the current date.

Changing station in the Landscape view

- Go to the station column with **◀** and select a station with **▲▼**. The selected station is marked in yellow.
- Press **ENTER** to confirm the station in order to see the programme that is currently running.



Additional information about a programme

The selected programme appears in the title bar. Press **ⓘ** to see additional information about a programme. You will then see **ⓘ** at these programmes in the title bar. You can have this information displayed. The contents of the information depends on the particular station and cannot be influenced by the unit.

- Press **ⓘ**. The information about the programme appears.
- Scroll through the longer information sentence by sentence with **▲▼** or section by section with **PAGE** ◊.
- Press **ⓘ** to leave the information.

Changing between the views

- Press **GUIDE** to change between Landscape view and Portrait view.

FUNCTIONS



FUNCTIONS



Recording



TV Guide

TV Guide: Portrait		Mon 06.03.06 10:35	
Category	Prog. Type		
All Services	All Types		
1 ZDF	2 Info/3sat	3 Doku/KIK	4 RTL Tele
12:15 - 13:00	drehscheibe Deutschland		
13:00 - 14:00	ARD-Mittagsmagazin		
14:00 - 14:15	heute - in Deutschland		
14:15 - 15:00	Wunderbare Welt		
15:00 - 15:15	heute - Sport		
15:15 - 16:00	Ich heirate eine Familie		
16:00 - 16:15	heute - in Europa		
16:15 - 17:00	Julia - Wege zum Glück		
-24 Hr	+24 Hr	Category	Prog. Type
SELECT	TIMER REC	Info	Page +
RETURN	Guide	Change Display Mode	Page -

Portrait view

The station bar is positioned horizontally over the programme preview. You can see the programme of one station at a time. The programme that is currently running is at the top of the list when you select this function.

Moving in the Portrait view

- Move around in the programme preview of the selected station with ▲▼. Only current and future programmes are shown.
- Scroll through the programme page by page with PAGE ◁▷.

Go forwards 24 hours:

- Press the **GREEN** button to go forwards one day.

Go back 24 hours:

- Press the **RED** button. You can only go back as far as the current date.

Changing station in the Portrait view

- Go to the station column with ▲ and select a station with ◀▶. The selected station is marked yellow.
- Press **ENTER** to confirm the station in order to see the programme that is currently running.

TV Guide: Portrait		Mon 06.03.06 12:45	
Category	Prog. Type		
All Services	All Types		
1 ZDF	2 Info/3sat	3 Doku/KIK	
Mo 06.	15:15 - 16:00	Ich heirate eine Familie	Movies
	16:15 - 17:00	Julia - Wege zum Glück	News
	18:05 - 19:00	SOKO 5113	Entertainment
	20:15 - 21:45	Solo für Schwarz Der To	Sport
	22:15 - 00:25	Rob Roy	Children's
Di 10.	00:44 - 02:05	Kleines Fernsehspiel	Education
	10:30 - 11:15	Julia - Wege zum Glück	Lifestyle
	11:15 - 11:35	Reich und Schön	Art/Culture
		Category	Prog. Type
SELECT	ENTER		
RETURN			

Prog. Typ Display according to topic areas

You can limit the TV Guide display with [Prog. Typ]. That means that you can select a programme preview sorted according to topic areas (e.g. Movies, Sport).

- Press the **BLUE** button.
- Select the required topic area with ▲▼. Select between: All Types, Movies, News, Entertainment, Sport, Children's, Education, Lifestyle, Art/Culture.
- Press **ENTER** to confirm. The selected topic area is marked pale in the programme display. The Landscape view shows all programmes which do not belong to your choice in grey. The Portrait view only shows you the programmes which match your selection.

The station companies allocate individual programmes to topic areas. If the selection is not complete, this is not an error in the unit.

TV Guide: Portrait		Mon 06.03.06 12:45	
Category	Prog. Type		
All Services	All Types		
1 ZDF	2 Info/3sat	3 All Services	4 RTL Tele
12:15 - 13:00	drehscheibe	TV	
13:00 - 14:00	ARD-Mittags	Radio	
14:00 - 14:15	heute - in De	Profile 1	
14:15 - 15:00	Wunderbare	Profile 2	
15:00 - 15:15	heute - Sport	Profile 3	
15:15 - 16:00	Ich heirate ei	Profile 4	
16:00 - 16:15	heute - in Europa		
16:15 - 17:00	Julia - Wege zum Glück		
		Return	Prog. Type
SELECT	ENTER		
RETURN			

Display according to Category

You can sort your programme preview according to categories, using the Category function for this purpose. You can limit the view for example to All Services, TV, Radio or a Profile which you have put together yourself.

You can put together your favourite stations and sort them in a Profile. The sub-points Profile 1 to 4 can only be selected if these have been created first. If you have given the profiles names, these appear in the display.

- Press the **YELLOW** button to select the Category function.
- Select the required Category or Profile with ▲▼: Choose between: All Services, TV, Radio, Profile 1, Profile 2, Profile 3, Profile 4.
- Press **ENTER** to confirm.

FUNCTIONS



FUNCTIONS



Recording



TV Guide

Programming the timer in the TV Guide

The TV Guide makes it easy to set a programme for recording.

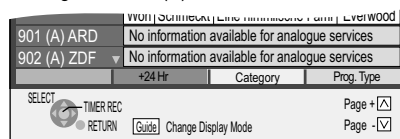


Timer Recording menu for digital stations

The data required for programming have been taken from the TV Guide.

- Press **ENTER** to confirm the programming. After the message [This programme has been stored], the new TV Guide appears again. The set programme is marked with a ☺. Timer Recording starts automatically at the set time.
- Changing the preset data: 50
- Change Programme Name: 36

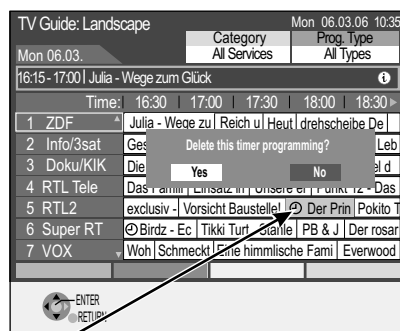
Analogue station (A)



Timer Recording menu for analogue stations (A)

- Select the required programme in the programme preview.
- Press **ENTER** to confirm. The Timer Recording screen now appears.

The TV Guide does not contain information for analogue programmes. You can set programmes broadcast by analogue stations with the Timer Recording menu. 50



☺ Marking for a timer-set programme

Deleting a Timer Recording

You can delete a Timer Recording which has not started yet, directly in the TV Guide.

- Select the set programme in the programme preview with **▲▼◀▶** and press **ENTER** to confirm.
- Press **ENTER** to confirm [Yes]. The setting is deleted.

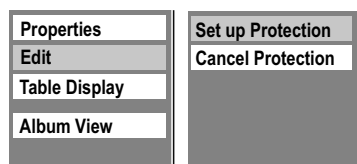
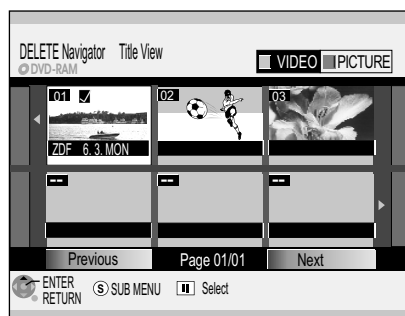
Stopping a current Timer Recording

- Press **STOP** during the Timer Recording.
- In the following screen, select [Stop Recording] with **◀** and press **ENTER** to confirm. The recording is stopped and the Timer programming is deleted.

Automatic title transfer

When programmes are recorded from the TV Guide, the name of the selected programme is transferred automatically for the recording. If an analogue station broadcasts teletext, the unit automatically records the name of the programme and the station, on condition that the Title page setting has been entered correctly 65
It can take approx. 10 minutes to find the title with this unit, and sometimes this fails.

FUNCTIONS



Properties

Information on a title is displayed, such as name, date and time.

Table View/Album View

Changing the title view. The last used display remains saved even when the unit is switched off.

Delete

Deleting titles

You can delete titles or write-protect recordings so that they are not accidentally deleted or overwritten.

- Press **FUNCTIONS**.
- Select [Delete] with **▲▼** and confirm with **ENTER**.
- Select the title that you want to delete with **▲▼◀▶** and confirm with **ENTER**.
- Select [Delete] with **◀** and confirm with **ENTER**. Deleted titles cannot be restored later on.
- Press **SUB MENU** to edit a title.

Set up Protection/Cancel Protection of titles

- Select [Edit] with **▲▼** and confirm with **ENTER**.
- Select the desired option with **▲▼** and confirm with **ENTER**.
- Select [Yes] with **◀** and confirm with **ENTER**.

Deleting pictures

- Select [Album View] with **▲▼◀▶** and press **ENTER** to confirm.
- Select an album with **▲▼◀▶** and press **ENTER** to confirm.
- Select the picture that you want to delete with **▲▼◀▶** and press **ENTER** to confirm.
- Select [Delete] with **◀** and press **ENTER** to confirm.

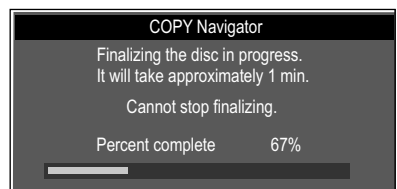
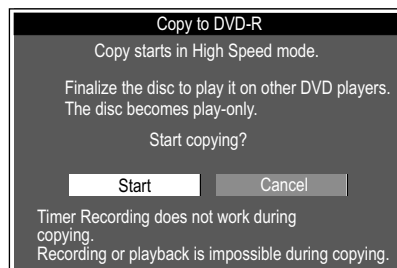
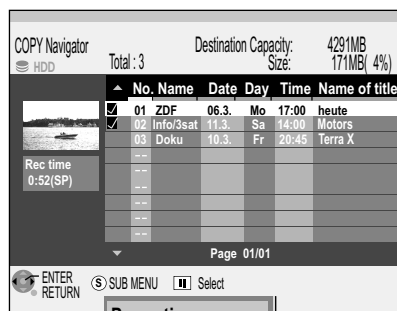
Deleting albums

- Select an album in the Album View menu with **▲▼◀▶** and press **SUB MENU**.
- Press **ENTER** to confirm [Delete Album].
- Select [Delete] with **◀** and press **ENTER** to confirm.

Set up Protection/Cancel Protection of pictures or albums

- Select the desired option with **▲▼** and confirm with **ENTER**.
- Select [Yes] with **◀** and confirm with **ENTER**.

FUNCTIONS



Copy

COPY Navigator

[HDD] => [RAM] [-R] [-R DL] [-RW(V)] [+R] [+R DL] [+RW]

With this function, you can copy titles from HDD to DVD in just a few steps. Other media apart from RAM are finalized after copying. These can then be played back on other players. Further recording on finalized discs is not possible.

Copying in High Speed Mode is only possible if the titles had originally been recorded in High Speed Mode on HDD.

While copying in High Speed Mode, the unit makes noises which can be reduced.

66

- Press **FUNCTIONS**.
- Select [Copy] with **▲▼** and press **ENTER** to confirm.
- Select the title you want to copy with **▲▼** and press **ENTER** to confirm.
- Select [Start] with **◀** and press **ENTER** to confirm. Copying begins.

[-R] [-R DL] [-RW(V)] [+R] [+R DL] Finalization begins directly after copying and ends automatically. This procedure cannot be stopped.

Editing with the submenu

- Press **SUB MENU**.
- Select the required option and press **ENTER** to confirm..

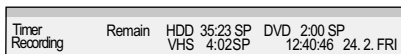
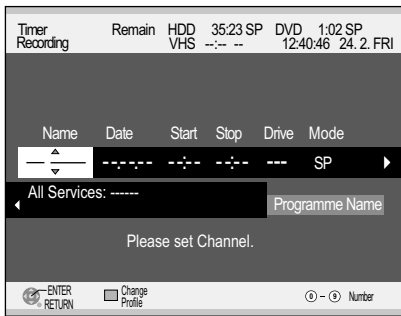
Properties 37

Sort 37

Editing several elements

Select the desired elements Select the desired title with **▲▼◀▶** and press **PAUSE II**. A check appears. Repeat this process to select other titles. Press **PAUSE II** again to clear the selection.

FUNCTIONS ⇒ To Others ⇒ Timer Recording



The remaining time of a VHS cassette will only be displayed after using a function like playback, fast forward or such.

If you did not insert a cassette or disc, the following message appears:



Manual programming

Make sure that there is a recordable disc or cassette in the selected drive. Otherwise, the Timer Recording will not run.

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Confirm [Timer Recording] with **ENTER**.
The Timer Recording screen appears.
- Confirm [New Timer Programme] with **ENTER**.
- Switch to the next entry with **◀▶** and change the setting with **▲▼**.

Name : Select the programme position/name of the TV station with **▲▼**.

Date : One-time, daily or weekly programming.

Start/Stop : Start time/end of recording. If you press and hold the **▲▼** buttons, the time increases/decreases in 30-minute intervals. You can also use the number buttons for these entries.

Drive : Select the drive.

Mode : Recording mode DVD/HDD: XP, LP, EP, SP, FR

: Recording mode VHS: SP, LP, EP, AUTO

RENEW : [On]: For HDD, the date is set to daily or e.g. [MON - SAT].

The old recording is overwritten with the new recording.

[Off]: The recordings take place continuously.

- To enter the title of the recording, select [Programme Name] with **◀▶** and confirm with **ENTER**.
- Enter the desired name in the Programme Name menu.
- Press **STOP ■** to apply the name.
- After you have made your changes, save the programming with **ENTER**.
- To enter other programmes, select [New Timer Programme].

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The unit automatically switches to timer mode at the start time.

REC flashes in the unit's display one minute before the recording is set to start.

A Timer Recording does not start while a disc is being formatted, deleted or finalized. The recording begins afterwards.

HDD RAM If you programmed the Timer programmes one after the other in sequential order, the first few seconds of the second Timer Recording are not recorded. With other types of discs, it is approx. 30 seconds.

If you receive your TV programme via a satellite receiver (digital/analogue)

On the external unit, select the station with the programme that you want to record.

The station must not be changed during the recording.

It is always the programme on this set station which is recorded.

Name : Select AV2 as the name of the TV station with **▲▼**.

Change Profile

To change the station name manually, you can select the station from the preset categories and profiles.

- Press the **BLUE** button in the Name box to see the first station of the corresponding category or preset profile.
- Select the required station with **▲▼** and press **ENTER** to confirm.

Automatic SP/LP switching during a VHS recording

AUTO: If there is insufficient recording time left on a video cassette, the SP/LP function switches the video recording speed to LP; NTSC to EP. This ensures that the programme is recorded in full. Should the remaining recording time on the video cassette still not be sufficient even in LP mode, then the programme will not be recorded in full. Automatic switching to EP mode is not possible.

Backup recording

The unit automatically switches over to HDD if the selected DVD does not have sufficient storage space for the programmed recording.

If a Timer Recording starts on DVD while the COPYING function is active, the unit automatically saves the recording on HDD.

PROG/CHECK



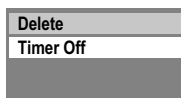
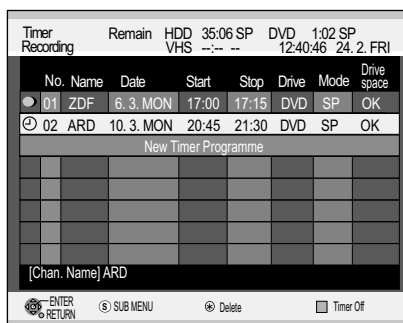
Checking or changing Timer Recordings

Check the settings and correct them if necessary.

- Press **PROG/CHECK**.

Checking or changing

- Select the desired Timer programming with **▲▼** and press **ENTER**.
- Select the position that you want to change with **▲▼◀▶** and confirm with **ENTER**. Programmes that are currently being recorded cannot be changed.



Timer Off/On

If you have regular e.g. weekly Timer programmings, you can suspend the recording if you wish to record another programme at the same time, for example.

Your Timer programming is retained. You do not need to delete and re-enter it later on. The recording is suspended just once.

- Select the desired Timer programming with **▲▼**.
- Press **SUB MENU**.
- Select [Timer Off] and confirm with **ENTER**.

- To switch the timer back on, press **SUB MENU**.
- Select [Timer On] and press **ENTER**.

You can also press the **RED** button to interrupt or switch on a Timer programming.

If you want to interrupt a weekly Timer programming for a longer period, delete it using *****.

Delete

- Select the desired Timer programming with **▲▼**.
- Press **SUB MENU**.
- Select [Delete] and confirm with **ENTER**.

Programmes that are currently being recorded cannot be deleted. First stop the recording.

You can also delete a Timer programming using *****.

Stop Recording

You can stop a current Timer Recording.

- Select the current Timer Recording with **▲▼**.
- Press **SUB MENU**.
- Select [Stop Recording] and confirm with **ENTER**.

The Timer Recording ends and is thereby deleted.

If you stop a regular Timer programming (e.g. a weekly recording), it is marked as stopped and not deleted.

The programming is retained for the following recordings.

Description of the symbols on page 36.



Drive space

OK: There is sufficient storage space available for the programmed recording.

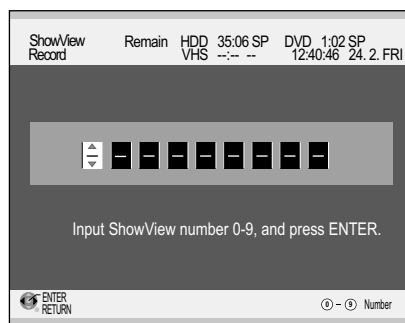
— : Storage space will not be calculated.

➔ **(Date)**: The existing storage space is displayed for daily or weekly recordings. The display indicates whether there is enough storage space on the disc.

! : The disc was not inserted, it is write-protected or there is insufficient storage space available.

Relief: Backup recording

FUNCTIONS => To Others => ShowView Rec



ShowView Record

Entering a ShowView Code causes the data for programmes provided by broadcasters to be saved. The appropriate codes can be found in newspapers and TV guides. You can programme up to 32 programmes per month in advance.

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Confirm [ShowView Record] with **ENTER**.
- Enter the ShowView Code with the number buttons.
Delete a number with **◀**.
- Confirm the ShowView Code with **ENTER**.

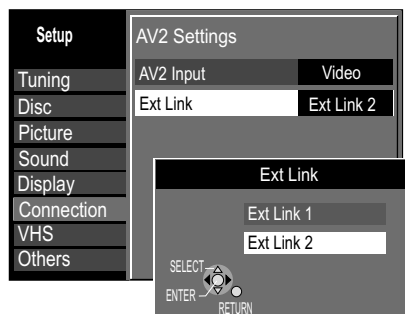


The Timer Recording screen appears with the transferred data. Missing or incorrectly transferred data can be corrected as described on page 50.

- Press **ENTER** to save the programme.

SHOWVIEW™

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Timer Recording via external units

Setting for external units (EXT LINK)

You control the recording function via an external unit (e.g. a receiver) with **EXT LINK**. Connect the unit to the AV2 terminal with a 21-pin Scart cable.

- Press **FUNCTIONS**, select [To Others] with **▲▼** and press **ENTER**.
- Select [Setup] with **▲▼** and press **ENTER**.
- Select [Connection] with **▲▼** and [AV2 Settings] with **▶, ▲▼** and press **ENTER**.
- Select [Ext Link] with **▲▼** and confirm with **ENTER**.
- Select [Ext Link 1] or [Ext Link 2] with **▲▼** and confirm with **ENTER**.
- Press **RETURN** several times, in order to return to the television picture.

The beginning of the recording may not be recorded correctly.

Recording programming on an external unit

The programming for a Timer Recording takes place on an external unit. Read the operating instructions for your external unit.

EXT LINK

Switching the DVD Recorder to recording standby mode

- Select recording drive DVD or VHS with **DRIVE SELECT**.
- Press **EXT LINK**.
Recording standby mode for **EXT LINK**-controlled recordings is activated. The selected drive and EXT-L appear on the display.

The recording begins if an appropriate signal is received from a connected unit. As long as a signal is transmitted by the external unit, the selected drive will record it.

Switching off recording standby mode

- Press **EXT LINK** to switch off recording standby mode.
EXT-L disappears from the display.

Prematurely cancelling recording

- Stop the transfer of the recording signal on the external unit.
- Press **EXT LINK** to switch off recording standby mode.
EXT-L disappears from the display.

Playback during Ext Link mode

HDD RAM

- Press **DIRECT NAVIGATOR**.
- Select a title with **▲▼◀▶** and start playback with **ENTER**.
- Press **STOP ■** or **DIRECT NAVIGATOR** to end playback.
- Press **RETURN** to leave the **DIRECT NAVIGATOR**.

Ext Link 1: For digital receivers that send a special recording control signal, e.g. the F.U.N. receiver (TU-DSF41).

Ext Link 2: External recording control for satellite or digital receivers (video signal). The Ext Link 2 setting cannot be used if the input signal is in NTSC format.

FUNCTIONS => To Others => **Advanced Copy**

HDD Information about high speed copying

66

The High Speed Mode allows for fast copying of titles, pictures and playlists. In the setup mode, set the [Rec for High Speed Copy] to [On]. For copying to high speed compatible discs, press **ENTER** to confirm [DVD Speed for High Speed Copy].

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

But in the following cases, copying in High Speed Mode does not work:

- the playback lists consist of titles with differing recording modes
- the playback lists consist of several titles with the FR recording mode
- the playback lists contain different audio modes
- the titles contain many deleted segments
- when copying titles with MPEG2 moving pictures from SD card to HDD
- **+R +R DL +RW** titles recorded in FR and EP mode (min. 5 hours long) (displayed by ►►!)

If you select a recording mode with higher quality than the original, this does not improve the picture quality. However, this does prevent the picture quality from deteriorating.

Notes for copying to DVD-R DL/+R DL

If you are not copying in high speed mode, the titles are copied temporarily on the hard disk at normal speed and then to the DVD-R DL/+R DL at high speed. The temporary titles are then deleted from the hard disk again. Copying to DVD-R DL/+R DL is not possible if

- there is not enough storage space on the hard disk.

- the number of titles on the hard disk and the number of titles copied to the DVD-R DL/+R DL together exceed 500.

If the disc does not have sufficient storage space, the unit switches to the FR Mode. If the unit is not copying in the High Speed Mode, titles are copied in the original recording mode and playback lists in the FR Mode.

Timer-controlled recording takes place during copying always on HDD, regardless of which recording drive was selected.

When recording titles limited for one-off copying, no playback list can be reproduced. Titles limited for one-off copying are deleted from the hard disk after copying onto CPRM-compatible DVD-RAM.

Titles with recording limitations and playback lists cannot be transferred to the same copying list.

If you stop recording a title in the middle in the High Speed Mode, the corresponding title is not recorded. Even if the title was not copied to DVD-R, DVD-RW or +R, the remaining capacity of the disc is reduced.

Recording and playback while copying in High Speed Mode

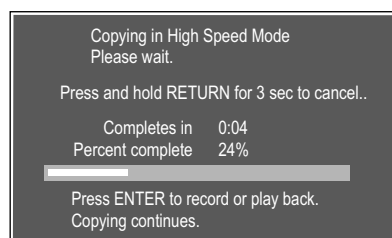
HDD RAM Recording and playback is possible while copying in High Speed Mode but with the following exceptions:

- delayed playback is not possible and the copy list cannot be edited
- does not apply when copying with automatic finalization
- does not apply when copying MPEG2 moving pictures to an SD card
- no playback of freeze frames
- no playback of playback lists when copying titles which only allow one-off recording.

- Press **ENTER** to switch the screen display off. This does not affect the copying process.

- You can select information about the copying process with ④.

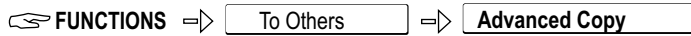
If copying a title in High Speed Mode is stopped in the middle, the affected title is recorded.



Approximate copying time (at maximum speed)

HDD Recording mode/time	5x High Speed compatible RAM		16x High Speed compatible -R		4x High Speed compatible -R DL		4x High Speed compatible -RW(V)		8x High Speed compatible +R		2.4x High Speed compatible +R DL		4x High Speed compatible +RW(V)	
	Time needed	Speed	Time needed	Speed	Time needed	Speed	Time needed	Speed	Time needed	Speed	Time needed	Speed	Time needed	Speed
XP	12 min.	5x	6 min.	10x	15 min.	4x	15 min.	4x	8 min.35	7x	25 min.	2.4x	15 min.	4x
SP	6 min.	10x	2 min.25	25x	7 min.30	8x	7 min.30	8x	4 min.10	14x	12 min.30	4.8x	7 min.30	8x
LP 1 Hr	3 min.	20x	1 min.15	48x	3 min.45	16x	3 min.45	16x	2 min.25	25x	6 min.15	7.2x	3 min.45	16x
EP(6 Hr)	2 min.	30x	52 sec.	69x	2 min.30	24x	2 min.30	24x						
EP(8 Hr)	1.5 min.	40x	42 sec.	86x	1 min.53	32x	1 min.53	32x						

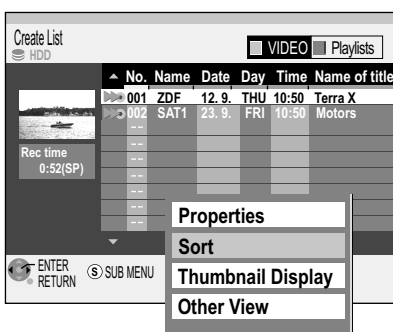
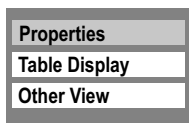
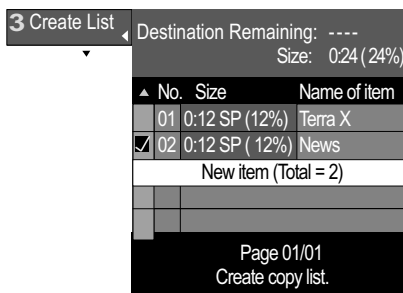
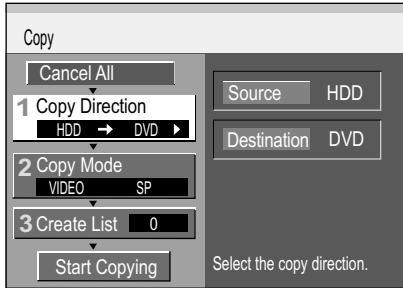
FUNCTIONS



Copy titles and playlists with a copy list

HDD ⇔ RAM +RW
 -RW(VR) ⇒ HDD
 HDD ⇒ -R -R DL -RW(V) +R +R DL
 RAM -RW(VR) ⇒ VHS

Titles and playlists can be compiled and copied in a copy list.



- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [Advanced Copy] with **▲▼** and confirm with **ENTER**.
- Select the desired option with **▲▼**.

Cancel All

All created settings are deleted!

- Select [Yes] with **◀** and confirm with **ENTER**.
 The dubbing settings may also be erased if
 - titles, pictures, etc. were recorded or erased from the copy source,
 - the unit was switched off or the disc tray was opened,
 - the copy direction was changed.

1 Copy Direction

- Select [Source] with **▶** and press **ENTER** to confirm.
- Select the corresponding source drive with **▲▼** and press **ENTER** to confirm.
- Select [Destination] with **▼** and press **ENTER** to confirm.
- Select the corresponding target drive with **▲▼** and press **ENTER** to confirm.
- Return to [Copy Direction] with **◀** and select [Copy Mode] with **▼**.

2 Copy Mode

- Select [Format] with **▶** and press **ENTER** to confirm.
- Select [VIDEO] or [PICTURE] with **▲▼** and press **ENTER** to confirm.
- Select [Recording Mode] with **▶** and press **ENTER** to confirm.
- Select the recording quality/ the copy speed with **▲▼** and press **ENTER** to confirm.
- Return to [Copy Mode] with **◀** and select [Create List] with **▼**.
 (Note: NTSC only REC MODE SP, EP).

3 Create List

You can create a copy list from existing titles/playlists.

- Select [New Item] with **▶** and confirm with **ENTER**.

Titles

- In the Create List menu, select the required title with **▲▼◀▶** and press **ENTER** to confirm. Select several titles with **PAUSE II**.
 The title is copied to the copy list.

Playlists

- Press the **GREEN** button in the Create List menu.
- Select the required playlist with **▲▼◀▶** and press **ENTER** to confirm. Select several playlists with **PAUSE II**.
 The playlist is copied to the copy list.

SUB MENU in Create List menu

- Press **SUB MENU** in the Create List menu.
- Select the desired option with **▲▼** and press **ENTER** to confirm.

Properties

Information on a title is displayed, such as name, date and time.

Table Display

Change to Table Display.

Other View

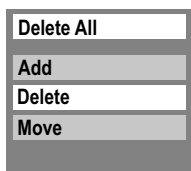
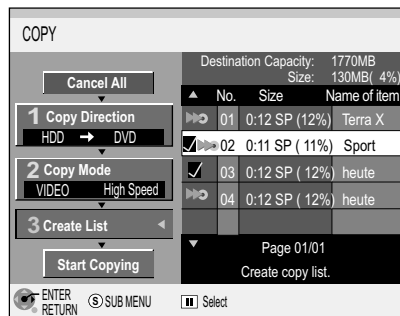
Change between Playlists and VIDEO display.

Sort

The SUB MENU in the Table Display also offers the option [Sort] for selection. You can sort the titles or playlists according to No., Name, Date, Day, Time or Name of title.

- Select the required setting with **▲▼** and press **ENTER** to confirm.
 The setting is marked with a coloured bar.

FUNCTIONS



SUB MENU in the copy list

The inserted titles/playlists can be edited in the copy list using the SUB MENU.

- Press **SUB MENU**.
- Select the desired option with **▲▼** and confirm with **ENTER**.

Delete All

All items registered in the dubbing list will be erased.

- Select [Yes] with **◀** and confirm with **ENTER**.

Add

Add new items to the copy list.

- Select the desired title with **▲▼◀▶** and confirm with **ENTER**.

Delete

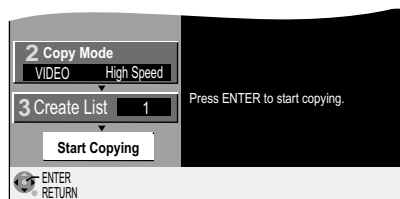
Erase the selected items.

- Select [Yes] with **◀** and confirm with **ENTER**.

Move

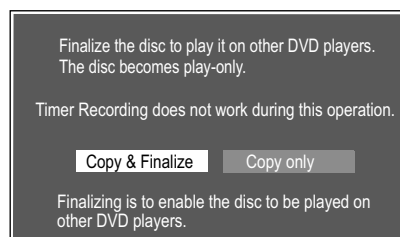
The selected items are moved in the dubbing list and the order is changed.

- Select the desired position with **▲▼** and confirm with **ENTER**.



Start Copying

- Return to [Create List] with **◀**. Select [Start Copying] with **▼** and confirm with **ENTER**.
- Select [Yes] with **◀** and confirm with **ENTER**.
- Press **RETURN** for 3 seconds to stop copying.
- **[HDD] [RAM]** Press **ENTER** to record or watch television while copying.



Finalizing

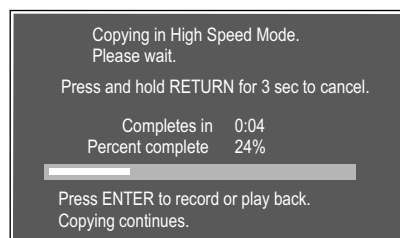
Media apart from RAM can be finalized after copying and then played on other DVD players. After a disc has been finalized, no more recording is possible.

[-R] [-R DL] [-RW(V)] [+R] [+R DL] Before finalizing, in the [Setup] [DVD Management] menu, select whether the playback should begin as a title or Top Menu. 75

[RAM] [-R DL] [+R DL] [+RW] A title becomes a chapter

Chapters are created automatically **[-R] [-RW(V)]** (approx. every 5 min.), **[+R]** (approx. every 8 min.), if the Disc is finalized after copying.

- Select [Copy & Finalize] with **◀** and press **ENTER** to confirm. Finalizing begins immediately after copying and finishes automatically. This procedure cannot be stopped.
- If you do not want to finalize, select [Copy Only] and press **ENTER** to confirm.

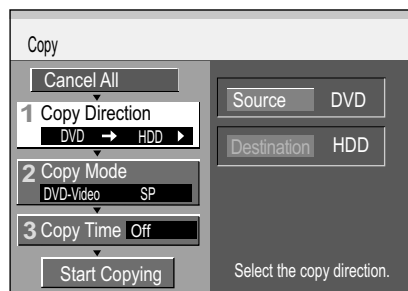


Copying in High Speed Mode

[-R] [-R DL] [-RW(V)] [+R] [+R DL] In the case of high-speed recordings only those programmes marked with **▶▶** can be selected. Dubbing cannot begin if the Size value is more than 100% of the storage place on the destination drive.

Transfer chapters when copying in High Speed Mode: yes
Transfer chapters when copying in Normal Speed Mode: no

FUNCTIONS ⇒ To Others ⇒ Advanced Copy



Time-triggered copying

DVD-V ⇒ HDD
 VHS S-VHS ⇒ RAM -R -RW(V) -R DL +R +R DL
 DVD-V ⇒ VHS

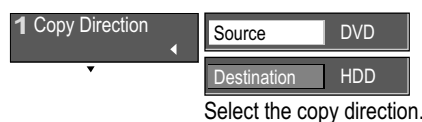
The entire cassette/disc can be copied or the duration of the copying can be determined.
 The titles are transferred without chapters.

- Press **FUNCTIONS**.
- Select [To Others] with ▲▼ and confirm with **ENTER**.
- Select [Advanced Copy] with ▲▼ and confirm with **ENTER**.
- Select the desired option with ▲▼.

Cancel All

All created settings are cancelled!

- Select [Yes] with ◀ and confirm with **ENTER**.



Select the copy direction.

1 Copy Direction

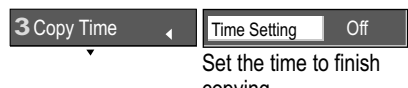
- Select [Source] with ▶ and press **ENTER** to confirm.
- Select the source drive with ▲▼ and press **ENTER** to confirm.
- Select [Destination] with ▼ and press **ENTER** to confirm.
- Select the destination drive with ▲▼ and press **ENTER** to confirm.
- Return to [Copy Direction] with ◀ and select [Copy Mode] with ▼.



Press **ENTER** to change the setting.

2 Copy Mode

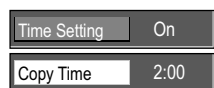
- Select [Recording Mode] with ▶ and confirm with **ENTER**.
- Select the desired recording mode [XP, SP, LP, EP or FR] with ▲▼ and confirm with **ENTER**. The format is detected automatically.
- Return to [Copy Mode] with ◀ and select [Copy Time] with ▼.



Set the time to finish copying.

3 Copy Time

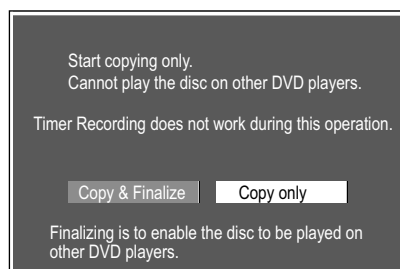
- Select [Time Setting] with ▶ and confirm with **ENTER**.
- Select [On] or [Off] with ▲▼ and confirm with **ENTER**.
 [On]: Select [Copy Time] with ▼ and confirm with **ENTER**.
 Change the time setting with ▲▼◀▶ and confirm with **ENTER**.
 [Off]: When the copy time is switched off, the entire disc/VHS cassette is copied if there is sufficient space on the destination drive.
- Return to [Copy Time] with ◀ and select [Start Copying] with ▼.



Press **ENTER** to change the setting.

Recording mode FR and time setting [Off]

Copying starts after the tape rewinds to the beginning. Titles are automatically created for each index signal.



Finalizing

Before copying starts, you can select whether you want to finalize the disc after copying.

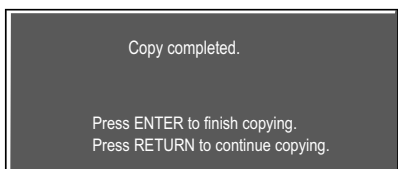
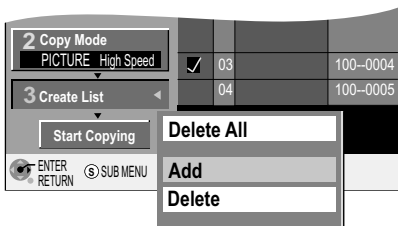
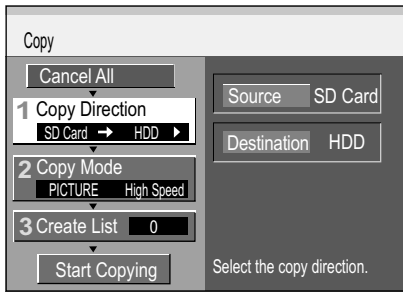
- Confirm [Copy Only] with **ENTER** if the disc just needs to be copied.
- Select [Copy&Finalize] with ◀ and confirm with **ENTER** if the disc needs to be finalized after copying.
 Finalization cannot be cancelled.

Start Copying

- Press **ENTER** to start copying.
- Select [Yes] with ◀ and confirm with **ENTER**.
- Press **RETURN** for 3 seconds to end copying.

The screen displays are also recorded during copying. In the case of a DVD-Video, the original picture and sound quality may not be fully achieved.

FUNCTIONS ⇒ To Others ⇒ Advanced Copy



Copy pictures

Only pictures can be copied with the SD Card.

HDD | RAM | SD ⇌ HDD | RAM | SD

If the source drive is also the target drive, only pictures can be copied.

- Press **FUNCTIONS**.
- Select [To Others] with ▲▼ and confirm with **ENTER**.
- Select [Advanced Copy] with ▲▼ and confirm with **ENTER**.
- Select the desired option with ▲▼.

1 Copy Direction

- Select [Source] with ► and press **ENTER** to confirm.
- Select the source drive with ▲▼ and press **ENTER** to confirm.
- Select [Destination] with ▼ and press **ENTER** to confirm.
- Select the destination drive with ▲▼ and press **ENTER** to confirm.
- Return to [Copy Direction] with ◀ and select [Copy Mode] with ▼.

2 Copy Mode

- Select [Format] with ► and confirm with **ENTER**.
- Confirm [PICTURE] with **ENTER**.
- Return to [Copy Mode] with ◀ and select [Create List] with ▼.

3 Create List

Create a copy list from the existing pictures.

- Select [New Item] with ► and confirm with **ENTER**.

Change folder

- Select [Folder] with ▲ in the [Create List Picture (JPEG)] menu and press **ENTER** to confirm.
- Press **ENTER** to confirm the required folder.

Picture

- In the [Create List Picture (JPEG)] menu, select the required picture with ▲▼◀▶ and press **ENTER** to confirm.
- The pictures are copied to the copy list.

Copy folder

- Select picture/folder in the copy list with ▲ and press **ENTER** to confirm.
- Press **ENTER** to confirm the folder.
- Select [New item] with ▼ [New item] and press **ENTER** to confirm.
- Press **ENTER** to confirm the required folder.
- The folder is copied to the copy list.

SUB MENU in Create List menu

- Press **SUB MENU** in the Create List menu.
- Select the desired option with ▲▼ and press **ENTER** to confirm.

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Start Copying

- Return to [Create List] with ◀.
- Select [Start Copying] with and confirm with **ENTER**.
- Select [Yes] with ◀ and press **ENTER** to confirm if you want to copy the pictures to a new folder.
- Press **ENTER** if you don't want to copy any more.
- If you want to copy other pictures, press **RETURN** and repeat steps 1 to 3.

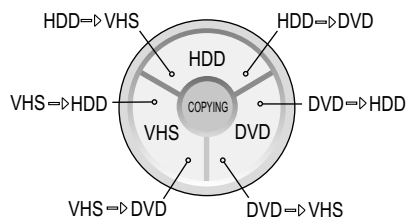
Editing several elements

Select the desired title with ▲▼◀▶ and press **PAUSE II**. A check appears. Repeat this process to select other titles. Press **PAUSE II** again to clear the selection.

COPYING



HDD	⇒	RAM	-R	-RW(V)	+R	+R DL	-R DL	+RW
HDD	RAM	-R	-RW(V)	-R DL	-RW(VR)	⇒	VHS	
+R DL	+R	+RW	⇒	VHS				
RAM	-RW(VR)	+RW	⇒	HDD				
VHS	⇒	HDD	RAM	-R	-RW(V)	+R	+RW	
S-VHS	⇒	HDD	RAM	-R	-RW(V)	+R	+RW	



On the front of the unit

COPYING

You can copy directly between VHS, HDD and DVD.

COPYING from HDD to DVD or VHS copies the title/playlist which is currently being played or is stopped in resume mode.

If no title/playlist is selected, copying is not possible.

COPYING from DVD to HDD copies all the titles/playlists from the DVD.

COPYING from DVD to VHS copies all the titles/playlists from the DVD if no title has been selected. If a title/playlist is currently being played or has been stopped in resume mode, the selected title and then all following titles/playlists are copied right to the last recording on the DVD.

COPYING from VHS to DVD/HDD starts at the selected position and copies till the end of the cassette.

The copying button at the front of the unit lights during COPYING.

Preparation

Insert a video cassette or a disc.

- Use **REC MODE** to select the recording mode on the target drive.
- Select the desired start positions for VHS.
- Press **FUNCTIONS**, confirm DIRECT NAVIGATOR with **ENTER**, or use **▲▼** to select [To Others] ⇒ **ENTER** ⇒ PLAYLISTS ⇒ **ENTER**.
- Use **▲▼◀▶** to select the desired title and confirm with **ENTER**.
- Press **STOP ■**, to activate the title for the COPYING.
- Press **RETURN** to leave the menu.

[HDD] [RAM] [-RW(V)] When copying from HDD/DVD to VHS or VHS to HDD/DVD, use **DISPLAY** to select the desired audio channel for dual-channel sound.

Start COPYING

- Switch HDD, DVD and VHS to **STOP** mode.
- Press **HDD-**, **VHS-** or **DVD-COPYING** for the desired copy direction. COPY blinks on the display of the unit.
- Hold **HDD-**, **VHS-** or **DVD-COPYING** for approx. 3 seconds. COPY disappears and the copy procedure starts.
- To cancel the copy procedure, press **RETURN** for 3 seconds or **STOP ■**.

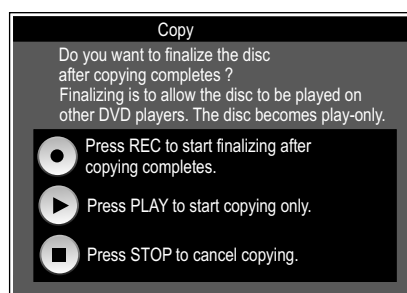
When copying from HDD/DVD to VHS, the recording begins at the beginning of the title. No other functions are possible during the copy procedure from HDD/DVD to VHS.

Finalizing

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

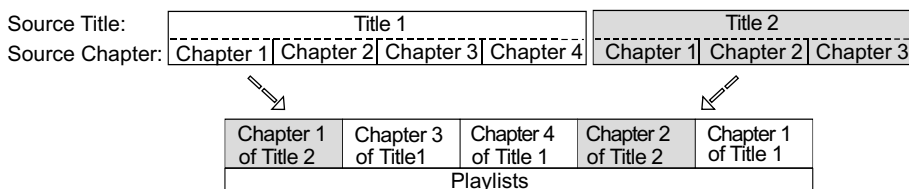
Before copying starts, you can select whether you want to automatically finalize the disc after copying.

- Press **PLAY** if you only want to copy on the disc.
- Press **REC** if the disc needs to be finalized after copying. Finalization cannot be cancelled.
- Press **STOP** to stop copying.



FUNCTIONS => To Others => Playlists

Use this function to edit your movies/recordings made by a recorder or camcorder. You can remove unwanted scenes (e.g. commercials) or change the sequence. You can also divide your recordings (titles) into chapters. You can create a playlist with your favourite chapters and edit this later.



Insert a recorded disc.

If you activated write-protection, deactivate it.

RAM

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [Playlists] with **▲▼** and confirm with **ENTER**.

Creating a playlist

HDD RAM

You can create a playlist from both source titles and source chapters.

- Select the free field [Create] with **▲▼◀▶** and confirm with **ENTER**.

1 Selecting a Source Title

- Select the desired source title with **◀▶** and press **SUB MENU**.
- Confirm [Create Chapter] with **ENTER**.
A complete source title can be inserted directly into Chapters in Playlists with **ENTER**.

2 Creating a Source Chapter

- Select the chapter section with **ENTER**. The length of the chapter sections is displayed as a time entry.
- Stop playback with **PAUSE II**.
- Locate the position for an exact chapter marker with **◀▶▶▶**.
- Select [Exit] with **▼** and confirm with **ENTER**.

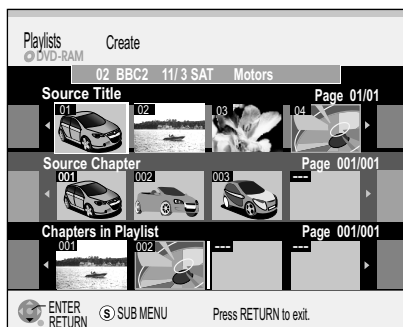
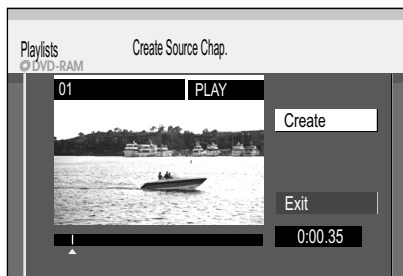
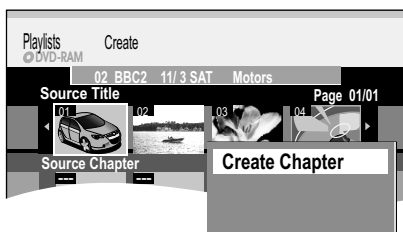
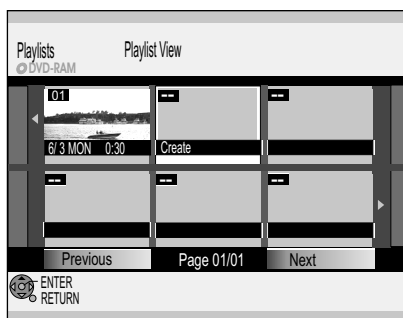
3 Inserting a chapter into the playlist

- Switch from Source Title to Source Chapter with **▼**.
- Select a source chapter that you want to add to the playlist with **◀▶** and confirm with **ENTER**.
- Select the position where the source chapter should be inserted into the Chapters in Playlists with **◀▶** and confirm with **ENTER**.
You cannot select a position when inserting the first chapter. Repeat step 3 to add another chapter.
- Return to the Playlist View with **RETURN**.

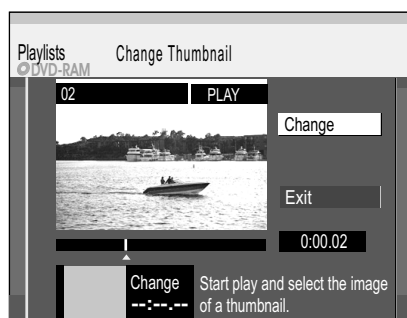
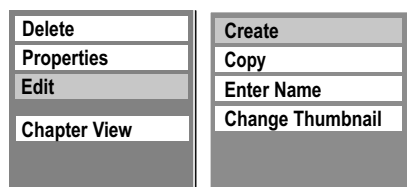
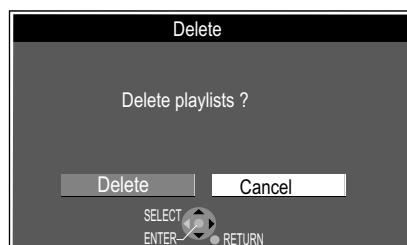
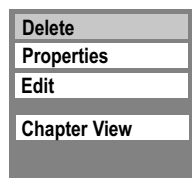
You can also insert a Source Title as a chapter into the playlist.

- Select a Source Title with **▲▼◀▶** and confirm with **ENTER**.
- Select the position where the Source Title should be inserted in Chapters in Playlists with **◀▶** and confirm with **ENTER**.

Jump to the beginning/end of a title/chapter with **PAUSE II** and **SKIP ◀▶▶▶**.
Locate the position for a marker with **SKIP ◀▶▶▶**, **SLOW/SEARCH ◀▶▶▶**, **TIME SLIP**, **MANUAL SKIP** or **◀▶**.
You can jump between set markers with **SKIP ◀▶▶▶**.



FUNCTIONS => To Others => Playlists



Launching the Playlists menu

HDD | RAM | -RW(VR)

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [Playlists] with **▲▼** and confirm with **ENTER**.

Playback

- Select a playlist with **▲▼◀▶** and start playback with **ENTER**.

Edit

- Select a playlist with **▲▼◀▶**.
- Press **SUB MENU**.

Delete

HDD | RAM

This procedure deletes the playlist and it cannot be restored. The source titles are retained.

- Confirm [Delete] with **ENTER**.
- Select [Delete] with **◀** and confirm with **ENTER**.

Properties

HDD | RAM | -RW(VR)

Information on the playlist, such as chapter, date and time, is displayed.

- Select [Properties] with **▲▼** and confirm with **ENTER**.

Editing playlists in the SUB MENU.

HDD | RAM

- Select [Edit] with **▲▼** and confirm with **ENTER**.
- Select the desired option in the sub menu.

Create

Please read Creating a playlist.

Copy

- Select [Copy] with **◀** and confirm with **ENTER**.

Enter Name

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Change or enter the title of the programme. If you enter a long name, it is only partially displayed.

Change Thumbnail

You can select any position in a title as the thumbnail for the Playlist View.

- Press **PLAY ▶** to start playback.
- At the position to be displayed as the new thumbnail, confirm [Change] with **ENTER**. The selected thumbnail is displayed.
- Confirm [Exit] with **ENTER**.

The selected thumbnail is added to the Playlist View.

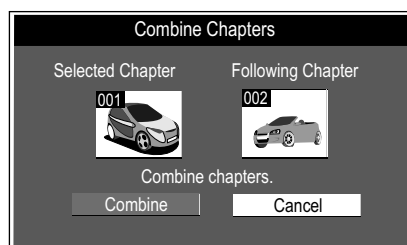
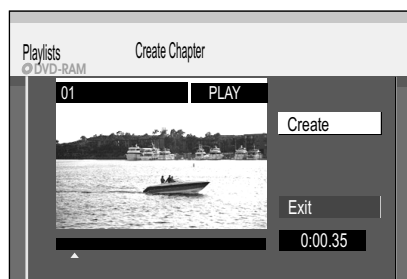
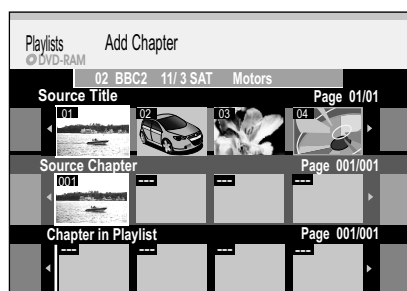
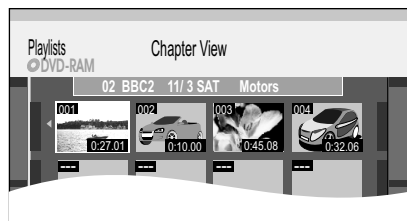
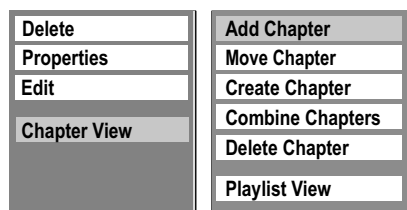
Jump to the beginning/end of a title/chapter with **PAUSE II** and **SKIP ◀◀▶▶**.
Locate the position for a marker with **SKIP ◀◀▶▶**, **SLOW/SEARCH ◀▶▶**,
TIME SLIP, **MANUAL SKIP** or **◀▶**.

You can jump between set markers with **SKIP ◀◀▶▶**.

Editing several elements

Select the desired title with **▲▼◀▶** and press **PAUSE II**.
A check appears. Repeat this process to select other titles.
Press **PAUSE II** again to clear the selection.

FUNCTIONS => To Others => Playlists



Editing chapters in the SUB MENU

HDD RAM

- Press **FUNCTIONS**.
 - Use [To Others] with **▲▼** and confirm with **ENTER**.
 - Select [Playlists] with **▲▼** and confirm with **ENTER**.
 - Select a playlist in the Playlist View with **▲▼◀▶**.
 - Press **SUB MENU**.
 - Select [Chapter View] with **▲▼** and confirm with **ENTER**.
-
- Select the desired chapter with **▲▼◀▶** and press **SUB MENU** again.
 - Select the desired option in the sub menu with **▲▼** confirm with **ENTER**.

Add Chapter

You can create a new chapter from the Source Title.

- Select a Source Title with **▲▼◀▶** and press **▼**.
- Select a Source Chapter with **◀▶** and confirm with **ENTER**.
Cancel the process with **▲**.
- Select the position where the chapter is to be inserted with **◀▶** and confirm with **ENTER**.
- Repeat the steps to add another chapter.
You can select other source titles with **▲**.
- Exit the menu with **RETURN**.

Move Chapter

- Select the position where the chapter is to be moved to with **▲▼◀▶** and confirm with **ENTER**.

Create Chapter

Divide the title into chapters. Identify the points where a new chapter is to start. The chapters can be selected later during playback with **SKIP ◀▶▶▶**.

- Press **ENTER** at the position where you want to create the chapter. Repeat this step to create a chapter at another location.
- Select [Exit] with **▼** and confirm with **ENTER**.
A short section of the recording right before the separation point may be lost.

Combine Chapters

- Select [Combine] with **◀** and confirm with **ENTER**.
The selected chapter is combined with the next chapter.

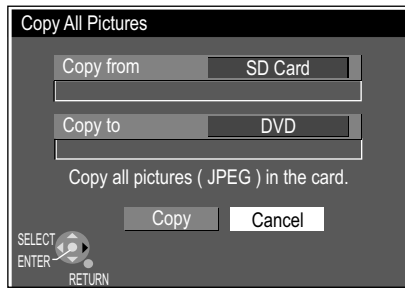
Delete Chapter

- Select [Delete] with **◀** and confirm with **ENTER**.
The original title is not deleted when the chapter is deleted.

Playlist View: Return to Playlist View.

Jump to the beginning/end of a title/chapter with **PAUSE ||** and **SKIP ◀▶▶▶**.
Locate the position for a marker with **SKIP ◀▶▶▶**, **SLOW/SEARCH ◀▶▶▶**,
TIME SLIP, **MANUAL SKIP** or **◀▶**.
You can jump between set markers with **SKIP ◀▶▶▶**.

Editing several elements
Select the desired title with **▲▼◀▶** and press **PAUSE ||**.
A check appears. Repeat this process to select other titles.
Press **PAUSE ||** again to clear the selection.

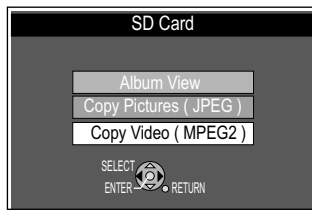


Copying all pictures of an SD card

SD => HDD | RAM

You can copy the entire contents of the SD card onto DVD or HDD with the function [Copy All Pictures].

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [Copy All Pictures] with **▲▼** and confirm with **ENTER**.
- Select [Copy] with **◀** and press **ENTER** to confirm.
- To stop copying prematurely, press and hold **RETURN** for 3 seconds.
- To exit copying, press **ENTER**.
- To do another copy, press **RETURN**.
- Repeat the steps stated above.



Automatic detection of an SD card

SD cards are detected automatically on being inserted.

- Place the SD card in the SD card slot.

For viewing pictures from your SD Card:

- Confirm [Album View] with **ENTER**.

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For copying pictures from your SD Card:

- Select [Copy Pictures (JPEG)] with **▼** and press **ENTER** to confirm.

For copying videos in MPEG2 format from your SD Card:

- Select [Copy Video (MPEG2)] with **▼** and press **ENTER** to confirm.

The copied folders are placed behind the folders already on the DVD/HDD.

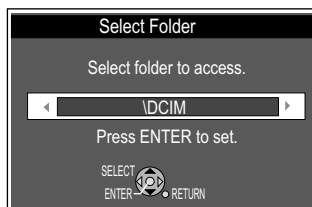
The print setting DPOF is not transferred during copying. The order in which the pictures are registered in the copying list may possibly not correspond to the order in the copying target.

If you copy the pictures folder for folder or card for card, all other files in this folder will be copied as well as the picture files. However, this does not apply to sub-folders contained in the folder.

If the target folder already contains pictures, the new pictures are recorded after the existing ones.

If the target drive does not have enough capacity or the number of files/folders being copied exceeds the maximum, then the copying process is stopped prematurely.

If the copying source folder has no name, this folder may be given another name on the copying target. Give the folder a name before copying.



Select Folder

In the album view, you can select another folder in the submenu under [Select Folder]. You can select a folder directly and open it. It may be possible that folders which were not created with this unit cannot be opened.

- In the following menu, select [Album View] with **▲▼** and press **ENTER** to confirm.
- Press **SUB MENU** and press **ENTER** to confirm [Select Folder].
- Select the required folder with **◀▶** and press **ENTER** to confirm.

Copy Video (MPEG2) (only available when saved on the SD Card)

All videos in MPEG2 format on the SD Card are copied. You cannot use this unit to play MPEG2 videos directly from the SD Card. First copy the MPEG2 videos to DVD-RAM or HDD.

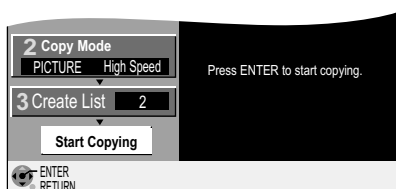
Moving pictures coded in MPEG2 format recorded with a Panasonic SD video camera, digital video camera etc. Can be saved on HDD or DVD-RAM (all recordings on one day are saved as one title). Playback or recording is not possible while copying MPEG2 pictures.

The menu [Copy] appears. The copy list will be created automatically. You can change the [Copy Direction] to DVD or change the copy list.

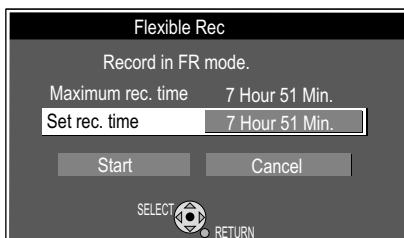
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- Confirm [Start Copying] with **ENTER**.

- To stop copying prematurely, press and hold **RETURN** for 3 seconds.



FUNCTIONS ⇒ To Others ⇒ Flexible Rec



When a Timer Recording starts, recording in FR mode is cancelled.

Flexible recording mode (FR)

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

The unit calculates the best possible recording quality between XP and EP. It is adjusted for the space available on the disc. This function is not available during an EXT LINK recording.

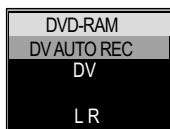
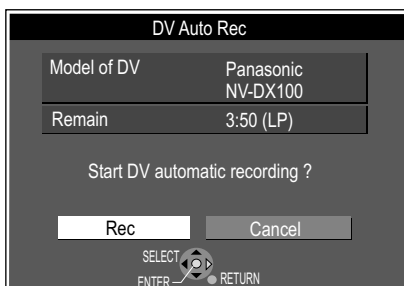
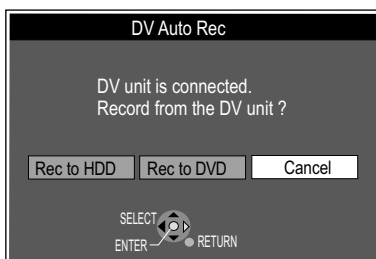
HDD Titles recorded to HDD in FR mode are recorded such that they can later be exactly copied to a 4.7GB disc. The title has not be edited for copying to disc or the recording mode (XP-EP) does not need to be changed.

- Select the station with **CH** ◊ or the number buttons.
 - Press **FUNCTIONS**.
 - Select [To Others] with **▲▼** and confirm with **ENTER**.
 - Select [Flexible Rec] with **▲▼** and confirm with **ENTER**.
 - Select [Hour] or [Min.] with **◀▶** and change the recording time with **▲▼**.
 - Go back to [Set rec. time] with **◀▶**.
 - Select [Start] with **▲▼**, ◀ and confirm with **ENTER**. Recording begins.
 - Press **STOP ■** to cancel the recording before it has ended.
- The channel and recording mode cannot be changed in **PAUSE** mode.

Displaying the available recording time

- Press **Ⓜ** multiple times.

FUNCTIONS ⇒ To Others ⇒ DV Auto Rec



This unit cannot be controlled from a connected DV unit. The DV input of this unit is only designed for DV units. (A computer etc. cannot be displayed.) The name of the DV unit may not be displayed correctly. Some DV units do not enable proper input of the picture and sound signal. The date and time information on the tape in the DV unit is not recorded. Simultaneous recording and playback is not possible.

Automatic detection of a camcorder at DV IN

HDD RAM

- Connect your Camcorder with a DV cable to the DV IN input of the DVD Recorder. The DVD Recorder automatically detects the Camcorder.
 - Select [Rec to DVD] or [Rec to HDD] with **◀▶** and confirm with **ENTER**.
 - Confirm [Rec] with **ENTER**. Recording begins.
- Not all DV units are detected automatically. In this case, copy with the [DV Auto Rec] function in the **FUNCTIONS** menu.

Recording via DV input

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

The programmes (e.g. via a digital video unit) are recorded as one title.

HDD **RAM** Each time the picture is interrupted, a chapter is created and a playlist is automatically created.

Switch off this unit and the DV unit (e.g. digital camcorder) before you connect it to the DV terminal.

If the VHS drive is selected, change to the DVD drive with **DRIVE SELECT**.

- In the Setup menu under Audio Mode for DV Input, select [Stereo 1/2] or [Mix]. **68**
- Set the DV unit to Pause at the desired start position.
- Press **REC MODE** to select the recording mode SP, LP, EP, XP.
- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [DV Auto Rec] with **▲▼** and confirm with **ENTER**.
- Confirm [Rec] with **ENTER**. Recording begins.
- Confirm the message at the end of the recording with **ENTER**.
- To prematurely stop the recording, press **STOP ■**. Confirm the message to prematurely stop the recording with **ENTER** or **RETURN**.

Manual recording via DV input

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

- Start playback on your external DV unit.
- Press Pause at the desired start position.
- Select the DV channel with **INPUT SELECT**.
- Select the recording mode with **REC MODE**.
- Press **● REC** on the DVD Recorder.
- Start playback on the external DV unit.
- End the recording on the DVD Recorder with **STOP ■**.
- End playback on the DV unit.

Recording cannot be cancelled with **PAUSE II**.

FUNCTIONS

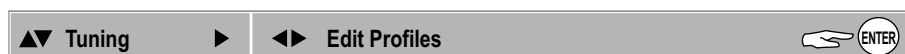


FUNCTIONS => To Others => Setup

Setup	Edit Profiles
Tuning	Auto-Setup Restart
Disc	Digital
Picture	Add New DVB Services
Sound	Signal Condition
Display	Analogue
Connection	Manual
VHS	Download from TV
Others	

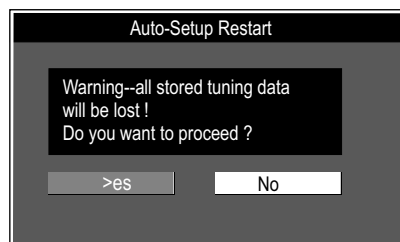
Setup menu overview

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [Setup] with **▲▼** and confirm with **ENTER**.
- Select the desired sub menu with **▲▼** and switch to setup with **▶**.
- Select the desired setting with **▲▼** and confirm with **ENTER**.
- Select the desired option with **▲▼** and confirm with **ENTER**. Follow the menu guide. The unit saves your settings.
- Press **RETURN** multiple times to exit the menus.



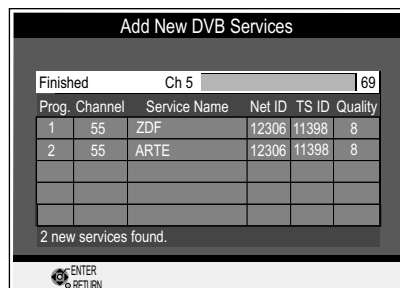
Creating new profiles

You can find the description of this setting on page 20.



Auto-Setup Restart

- Select [Yes] with **◀** and confirm with **ENTER**. The station search begins.
- To cancel the process, select [No] with **▶** and confirm with **ENTER** or press **RETURN**.
- Press **RETURN** to prematurely end the station search. All station settings and all adjusted profiles are deleted.



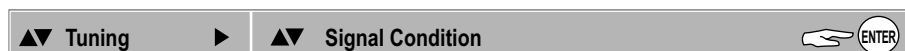
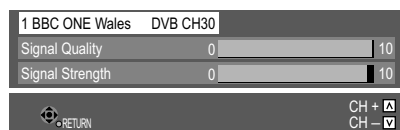
Add New DVB Service

The unit looks for new digital stations.

The station search is automatic.

The bar over the table shows you the search progress. At the end of the search, the number of found new digital stations appears.

- Press **RETURN** to stop the station search prematurely. The channels found before stopping are not saved.



Signal Condition

The display in the [Signal Condition] menu shows the quality and strength of the selected digital station.

- You can select and check the stations consecutively with **CH** **◊**. The signal display is only for digital stations.



Signal Quality

Display red; signal quality below 2: the signal quality is poor so that there may be interference in the pictures and sound.

Display orange; signal quality 2-5: the signal quality is basically adequate, but brief interference in the pictures and sound is possible in isolated cases.

Display green; signal quality over 5: optimum picture and sound quality.

Signal Strength

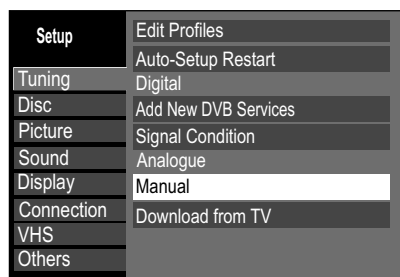
The display for signal strength is grey. 0 means signal strength = 0 %, 10 means signal strength = 100%.

The signal strength can also be 100 % (> 10). In this case, the display is red.

FUNCTIONS

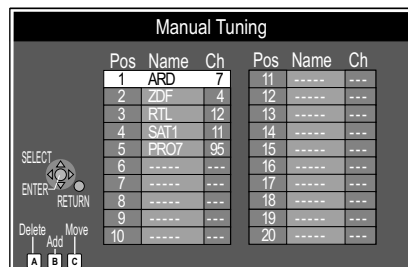


FUNCTIONS => To Others => Setup



Entering a new television station

- Select a free station location with ▲▼◀▶ and confirm with **ENTER**.
- Enter the channel with ▲▼ or [0] - [9].
- The channel tuning starts. Wait a moment until the desired station is set and confirm the setting with **ENTER**.



Options available for tuning the channels			Station position in the station table.
Pos			
Name	▶ [A-Z, 0-9, -, +, *]	ENTER	Set the station name.
Channel	◀ [1-141]	ENTER	Set the channel.
Fine Tuning	◀ [Auto] [Man.] [Man.]	ENTER	Fine tune picture interference.
Mono	◀ [On] [Off]	ENTER	Switch from stereo to mono
Title Page	◀ [100-899]	ENTER	Select the video text page which supplies the station information.

Your digital channels can be found at positions 1 to 900.
Your analogue channels can be found at positions 901 to 999.

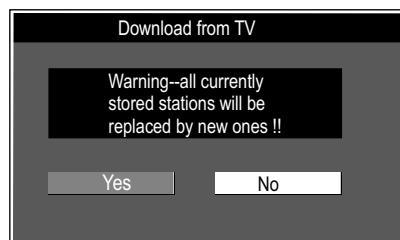


Changing the name of the television station

- Select the name of the station with ▲▼◀▶ and confirm with **ENTER**.
- Select [Name] with ▲▼ and the name field with ▶.
The cursor jumps to the first letter **A**RD1.
- Change the letter with ▲▼.
- Select the next letter with ▶, **A**RD1.
- Press **ENTER**. The new name is saved in the station table.

Deleting television stations

- Select the station that you want to delete with ▲▼◀▶.
- Press the **RED** button to delete the station.
The station position settings are deleted.



Download from TV (with Q Link or similar functions)

- Select [Yes] with ◀ and confirm with **ENTER**. Data transfer begins.
- To cancel the procedure, use to select [No] with ▶ and confirm with **ENTER** or press **RETURN**.
- To prematurely end the data transfer, press **RETURN**.

FUNCTIONS



FUNCTIONS => To Others => Setup

Setup	Settings for Playback
Tuning	Ratings Level 8
Disc	DVD-Audio Video mode Playback Off
Picture	Soundtrack English
Sound	Subtitle Automatic
Display	Menus English
Connection	
VHS	
Others	

▲▼ Disc	▶	▲▼ Setting	ENTER	▲▼ Option	ENTER								
Ratings			[8] [1-7] [0]										
<p>You can restrict the playback of DVD-Video after entering a password. 8 Allows all titles. 1-7 Prevents the playback of DVD-Video with the registered security levels. 0 Blocks all titles.</p> <p>Changing the security level</p> <table border="0"> <tr> <td>Unlock Recorder</td> <td>Return to level 8</td> </tr> <tr> <td>Change Password</td> <td>Change the password</td> </tr> <tr> <td>Change Level</td> <td>Change the authorisation level</td> </tr> <tr> <td>Temporary Unlock</td> <td>You can temporarily authorise a disc for playback.</td> </tr> </table> <p>The security level is retained if you switch to standby or open the disc tray.</p>						Unlock Recorder	Return to level 8	Change Password	Change the password	Change Level	Change the authorisation level	Temporary Unlock	You can temporarily authorise a disc for playback.
Unlock Recorder	Return to level 8												
Change Password	Change the password												
Change Level	Change the authorisation level												
Temporary Unlock	You can temporarily authorise a disc for playback.												
DVD-Audio Video mode Playback			[On] [Off]										
<p>On: You want to play DVD-Video content from a DVD-Audio. If you change the disc or switch off the unit, the setting is reset to [Off].</p>													
Soundtrack Subtitle Menus			[DVD-V]										
<p>Select the language for audio, subtitles and disc menus. Under [Other], enter the language code for another language.</p>													

Setup	Settings for Recording
Tuning	Recording time in EP mode EP (8Hours)
Disc	Rec for High Speed Copy On
Picture	DVD Speed for High Speed Copy Maximum
Sound	
Display	
Connection	
VHS	
Others	

Recording time in EP mode			[EP (6Hours)] [EP (8Hours)]		
<p>Select the maximum number of hours for recording in EP mode. EP (6 Hours): Recording time on a 4.7 GB disc. EP (8 Hours): Recording time on a 4.7 GB disc. The sound quality is lower.</p>					
Rec for High Speed Copy			[On] [Off]		
<p>On: Enables copying from HDD to a DVD-R, -R DL, +R DL, DVD-RW(V) (DVD-Video format), +RW oder +R in high-speed mode. Titels are saved in 4:3 format. When recording a dual channel sound programme, only the main or only the secondary sound can be recorded. Select the audio type you want to copy under [Bilingual Audio Selction]. 16:9 format programmes (wide picture) are also recorded in 4:3 format.</p>					
DVD Speed for High Speed Copy			[Maximum] [Normal (Silent)]		
<p>When using high-speed compatible DVD-RAM 5x, DVD-R-, +R 8x or +RW 4x discs. In the [Normal (Silent)] setting, this unit generates less noise than in the [Maximum] setting. The time required for copying is doubled.</p>					

FUNCTIONS



FUNCTIONS => To Others => Setup

Setup	Comb Filter	Off
Tuning	Still Mode	Automatic
Disc	Seamless Play	On
Picture		
Sound		
Display		
Connection		
VHS		
Others		

▲▼ Picture	▶	▲▼ Setting	ENTER	▲▼ Option	ENTER
------------	---	------------	-------	-----------	-------

Comb Filter | [On] [Off]

On: The picture is clear and contour-rich. The setting is always set to [On] if you selected [TV System - NTSC].
Off: If the picture to be recorded is distorted.

Still Mode | [Automatic] [Field] [Frame]

Select how the still picture should be displayed.
Field: Select this function if the picture is distorted with the setting [Automatic].
Frame: Select this function if small text or line structures are not displayed clearly with the setting [Automatic].

Every full picture consists of two half pictures. Distortions are possible in a full picture, but as a rule the picture quality is better than in the half picture. The half picture appears to be coarse-grained but is not distorted.

Seamless Play | [RAM] [-RW(VR)] | [On] [Off]

Seamless playback of a chapter in a playlist.
On: The chapter in a playlist are playback seamlessly. This is only possible if the playlist contains the same audio types. This function is not possible with Quick View. The position of the chapter segments may change slightly.
Off: The boundaries of the chapters in the playlist are followed exactly, but the picture may freeze for a short period of time.

List of language codes													
Abkhazian	6566	Burmese	7789	Frisian	7089	Javanese	7487	Marathi	7782	Scots Gaelic	7168	Thai	8472
Afar	6565	Byelorussian	6669	Galician	7176	Kannada	7578	Moldavian	7779	Serbian	8382	Tibetan	6679
Afrikaans	6570	Cambodian	7577	Georgian	7565	Kashmiri	7583	Mongolian	7778	Serbo-Croat.	8372	Tigrinya	8473
Albanian	8381	Catalan	6765	German	6869	Kazakh	7575	Nauru	7865	Shona	8378	Tonga	8479
Ameharic	6577	Chinese	9072	Greek	6976	Kirghiz	7589	Nepali	7869	Sindhi	8368	Turkish	8482
Arabic	6582	Corsican	6779	Greenlandic	7576	Korean	7579	Norwegian	7879	Singhalese	8373	Turkmen	8475
Azerbaijani	6590	Dutch	7876	Guarani	7178	Kurdish	7585	Oriya	7982	Slovak	8375	Twì	8487
Bashkir	6665	English	6978	Gujarati	7185	Laotian	7679	Pashto	8083	Slovenian	8376	Ukrainian	8575
Basque	6985	Esperanto	6979	Hausa	7265	Latin	7665	Persian	7065	Somali	8379	Urdu	8582
Bengali	6678	Estonia	6984	Hebrew	7387	Latvian	7686	Polish	8076	Spanish	6983	Uzbek	8590
Bhutani	6890	Faroese	7079	Hindi	7273	Lingala	7678	Portuguese	8084	Sudanese	8385	Vietnamese	8673
Bihari	6672	Fiji	7074	Hungarian	7285	Lithuanian	7684	Punjabi	8065	Swahili	8387	Volapük	8679
Breton	6682	Finnish	7073	Icelandic	7383	Macedonian	7775	Quechua	8185	Swedish	8386	Welsh	6789
Bulgarian	6671	French	7082	Indonesian	7378	Malagasy	7771	Rhaeto-Rom.	8277	Tagalog	8476	Wolof	8779
				Interlingua	7365	Malay	7783	Romanian	8279	Tajik	8471	Xhosa	8872
				Irish	7165	Malayalam	7776	Russian	8285	Tamil	8465	Yiddish	7473
				Italian	7384	Maltese	7784	Samoan	8377	Tatar	8484	Yoruba	8979
				Japanese	7465	Maori	7773	Sanskrit	8365	Telugo	8469	Zulu	9085

FUNCTIONS



FUNCTIONS => To Others => Setup

Setup	Dynamic Range Compression	Off
Tuning	Bilingual Audio Selection	M1
Disc	Digital Audio Output	
Picture	Audio Mode for XP Recording	Dolby Digital
Sound	Audio Mode for DV Input	Stereo1
Display		
Connection		
VHS		
Others		

Setup	Digital Audio Output	
Tuning	PCM Down Conversion	Off
Disc	Dolby Digital	Bitstream
Picture	DTS	Bitstream
Sound	MPEG	PCM
Display		
Connection		
VHS		
Others		

Dolby Digital
Bitstream
PCM

Setup	Language	English
Tuning	On-Screen Messages	5 sec
Disc	Grey Background	On
Picture	FL Display	Bright
Sound		
Display		
Connection		
VHS		
Others		

▲▼ Sound	▶	▲▼ Setting	ENTER	▲▼ Option	ENTER
Dynamic Range Compression [DVD-V] [On] [Off] (Dolby Digital Only)					
<p>On: The level of quieter passages increases and the level of louder passages decreases. The audio can be clearly understood even when the volume is lowered.</p>					
Bilingual Audio Selection [-R -R DL -RW(V) +R +R DL +RW] [M 1] [M 2]					
<p>If you want to record programmes that are broadcast in dual-channel sound, you can select between the original language [M1] or another available language [M2]. If you are copying from an external source or from a tape position, select the sound track on the other unit.</p>					
Digital Audio Output [PCM Down Conversion] [Dolby Digital] [DTS] [MPEG]					
<p>Select the appropriate setting if you have connected an external unit to the DIGITAL AUDIO OUT of the DVD Recorder.</p>					
PCM Down Conversion [On] [Off]					
<p>Select the audio output mode for a scan frequency of 96 kHz or 88.2 kHz. Despite this setting, signals are converted to 48 kHz or 44.1 kHz if they have a scan frequency over 96 kHz or 88.2 kHz or if the disc is copy-protected.</p> <p>On: The connected unit cannot process signals with a scan frequency of 96 kHz or 88.2 kHz. Signals are converted with 48 kHz or 44.1 kHz.</p> <p>Off: The connected unit can process signals with a scan frequency of 96 kHz or 88.2 kHz. Signals are output as 96 kHz or 88.2 kHz.</p>					
Dolby Digital, DTS, MPEG [Bitstream] [PCM]					
<p>Bitstream: The connected unit can decode the corresponding signal.</p> <p>PCM: If the connected unit cannot decode the corresponding signal, the setting must be changed to [PCM]. Otherwise, the loud noise can lead to damage to your hearing or loudspeakers. Make the necessary changes depending on your audio system.</p>					
Audio Mode for XP Recording [Dolby Digital] [LPCM]					
<p>Selection of the audio type when copying in XP mode. The picture quality of LPCM recordings may be worse than with normal recordings in XP mode.</p>					
Audio Mode for DV Input [-R -R DL -RW(V) +R +R DL +RW] [Stereo 1] [Stereo 2] [Mix]					
<p>Select the audio type when copying from the DV input.</p> <p>Stereo 1: Original sound; Stereo 2: Voice-over, Mix: Original sound + voice-over</p>					

▲▼ Display	▶	▲▼ Setting	ENTER	▲▼ Option	ENTER
Language [English][Deutsch]					
<p>Select the menu language.</p>					
On-Screen Messages [Off][3 sec][5 sec][7 sec][10 sec]					
<p>You can set the duration of on-screen displays.</p>					
Grey Background [On] [Off]					
<p>On: The grey background is displayed when there is no analogue television reception.</p>					
FL Display [Bright] [Dim]					
<p>Dim: The display goes dark during playback. It lights up again when a button is pushed. If the unit is switched off, the display turns off.</p>					

FUNCTIONS



FUNCTIONS => To Others => Setup

Setup	TV Aspect	4:3
Tuning	Progressive	Off
Disc	TV System	PAL
Picture	HDMI Settings	
Sound	AV1 Output	Video
Display	AV2 Settings	
Connection	Active Antenna	Off
VHS		
Others		

▲▼ Connection ▶	▲▼ Setting	ENTER	▲▼ Option	ENTER
TV Aspect		[16:9] [4:3] [Letterbox]		
<p>Select the TV screen format of your television. Programmes in 16:9 format are recorded in 4:3 format. 16:9 format is used to record to RAM. Letterbox: Black bars appear on the upper and lower edges of the screen.</p>				
Progressive		[On] [Off]		
<p>On: The signal is displayed in full-picture quality using COMPONENT VIDEO OUT. Changeover not possible when HDMI Video Format is set to [Automatic] and when using the HDMI connection.</p>				
TV System		[PAL] [NTSC]		
<p>PAL: You connect the unit to a PAL- or multi-system television. Programmes that were recorded with NTSC are played as PAL60. NTSC: You connect the unit to an NTSC television. Programmes that were recorded with NTSC are played as NTSC.</p>				
HDMI Settings		Settings		70
<p>HDMI (High Definition Multimedia Interface) is a digital interface for Audio and Video. One single cable transfers both digital video data (picture data) and also digital audio data. There is no longer any need to convert analogue-digital or digital-analogue. HDMI works without data compression so that there is therefore no quality loss from the system.</p>				
AV1 Output		[Video (with component)] [RGB 1 (without component)] [RGB 2 (without component)]		
<p>Video (with component): Factory-default settings RGB 1 (without component): RGB output is available all the time while this unit is on. RGB 2 (without component): RGB output is available only during playback or on-screen display. If RGB 1 or 2 is set, there is no signal available on COMPONENT VIDEO OUT. If the unit is connected to HDMI, [Video (with component)] is switched on automatically.</p>				

AV-Link function

Switching between television reception and the signal from the DVD Recorder. This function is only possible if the AV1 Output is set to [Video (with component)] or [RGB 2 (without component)].
 DVD recorder signal: Press **ENTER + 0**.
 DVD appears on the display.
 Television reception: Press the buttons again.
 TV appears on the display.

Setup	AV2 Settings
Tuning	AV2 Input RGB / Video
Disc	Ext Link Ext Link 2
Picture	
Sound	
Display	
Connection	
VHS	
Others	

AV2 Input
RGB / Video
RGB
Video
S Video

Not NTSC:

RGB / Video, S Video, Ext Link 1, Ext Link 2

AV2 Settings	AV2 Input	Perform the settings in the following submenu for the connected unit.
	Ext Link	
AV2 Input		[RGB / Video] [RGB] [Video] [S Video]
<p>RGB / Video: Is detected automatically. RGB, Video, S Video: Input is switched to the selected signal.</p>		
Ext Link		[Ext Link1] [Ext Link 2]
<p>Ext Link 1: For digital receivers that send a special recording control signal, for example, the F.U.N. receiver (TU-DSF41) Ext Link 2: External recording control for satellite or digital receivers (video signal).</p>		
Active Antenna		[On] [Off]
<p>On: when connecting an aerial supplied via the power circuit of the DVD Recorder. Start the Auto-Setup again after making the adjustment and check the Signal Condition. 64</p>		

FUNCTIONS



FUNCTIONS => To Others => Setup

Setup	TV Aspect	4:3
Tuning	Progressive	Off
Disc	TV System	PAL
Picture	HDMI Settings	
Sound	AV1 Output	Video
Display	AV2 Settings	
Connection	Active Antenna	Off
VHS		
Others	HDMI Video Format	576p / 480p
	Aspect for 4:3 Video	4:3
	Digital Audio Output	HDMI/Optical
	Control with HDMI / Q Link	HDMI/Q Link

▲▼ Connection ▶	▲▼ HDMI	ENTER	▲▼ Option	ENTER
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HDMI Video Format [Automatic] [576i / 480i] [576p / 480p] [720p] [1080i]

Select the screen resolution of your connected television set.
Automatic: Automatically selects the setting belonging to the connected unit. If you are not satisfied with the picture quality, a change in the setting may possibly result in an improvement. You can only select the settings supported by the connected unit.

Aspect for 4:3 Video [4:3] [16:9]

Use this setting if you want to replay videos in 4:3 format on the connected television set in 16:9 format. (Only possible for an HDMI resolution of [720p] or [1080i].) The output is depending on the TV unit.
4:3: Picture is output as original aspect.
16:9: Picture is output as 16:9 aspect with side panels.

Digital Audio Output [HDMI/Optical] [Optical Only]

HDMI/Optical: Both outputs are activated with one signal.
Optical Only: Only the optical output is activated with one signal.

Control with HDMI / Q Link [HDMI and Q Link] [Q Link Only]

HDMI and Q Link: Simultaneous interaction of HDMI and Q Link functions. Select this setting if you have connected a unit via HDMI.
Q Link Only: If your TV set is equipped with the Q Link function, select this setting for the link.
 Select the screen resolution of your connected television set.

	HDMI and Q Link	only Q Link (via AV1)	only HDMI
Easy Playback	✓	✓	✓
Direct TV recording	✓ (not via HDMI)	✓	—
Power on link	✓	✓	✓
Power off link	✓	✓	✓
Download from TV	✓ (not via HDMI)	✓	—

Setup	Tape Length	Auto (E-240)
Tuning	Playback Colour System	Automatic
Disc	SQPB	Automatic
Picture		
Sound		
Display		
Connection		
VHS		
Others		

▲▼ VHS	▶	▲▼ Setting	ENTER	▲▼ Option	ENTER
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Tape Length [Auto (E-240)] [E-195] [E-260] [E-300]

Setting for the tape length of the cassette in use.

Playback Colour System [Automatic] [PAL] [MESECAM]

Automatic: Differentiates between PAL and MESECAM.
PAL: If the PAL system is used.
MESECAM: If the MESECAM system is used.

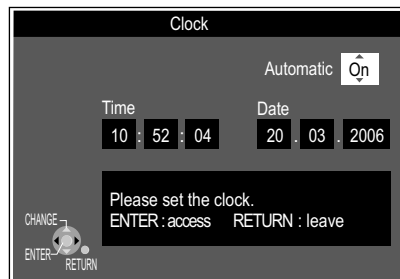
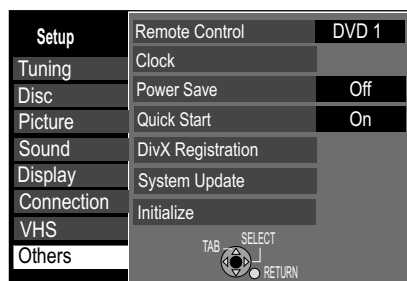
SQPB [Automatic] [On] [Off]

Automatic: The unit detects the recording type.
On: Playback of an S-VHS cassette in quasi S-VHS format.
Off: Playback of recordings in VHS format.

FUNCTIONS



FUNCTIONS => To Others => Setup



Others	Setting	Option
Remote Control		[DVD 1] [DVD 2] [DVD 3]
<p>Change the code of the remote control so that you can simultaneously operate another Panasonic DVD unit.</p>		
Clock		
<p>Clock setting</p> <p>The clock will normally be set correctly during Auto-Setup however, under certain circumstances the DVD Recorder cannot set the clock automatically. In this case follow the operation steps below to manually set the clock.</p> <ul style="list-style-type: none"> Switch with ▲▼ automatic mode to [Off] and confirm with ENTER. Change with ▲▼ and ► Time and Date. Confirm the change with ENTER. <p>Don't forget to change summer time and winter time.</p> <p>Activating the automatic time correction function</p> <p>The correct time for the clock can be automatically maintained when the DVD Recorder is tuned to a station that transmits a time signal.</p> <ul style="list-style-type: none"> Switch with ▲▼ automatic mode to [On] and confirm with ENTER. <p>The automatic setting of the clock begins.</p> <p>Under adverse reception conditions, etc., the Automatic time correction function may not work. In this case the indication for Clock setting is automatically reset to [Off]. If the reception conditions improve later on, it is possible to activate this function. If the Clock setting is set to [On], do not set it to [Off], otherwise the automatic time correction function is deactivated.</p> <p>This DVD Recorder uses a 24-hour-clock.</p> <p>In the event of a power failure an automatic back-up system maintains the clock for approximate 60 minutes.</p> <p>When the Clock setting is set to [On], the automatic time correction function checks and if necessary adjusts the time several times every day. The automatic time correction function only works when the DVD Recorder is in standby, it does not work in the TimerRecording mode.</p>		
Power Save		[On] [Off]
<p>On: Power-save feature in Standby mode.</p> <p>The brightness of the display field in power-save mode cannot be changed.</p> <p>The Quick Start setting is set to [Off]. If you want to connect an external unit via the AV2 Scart terminal, the DVD Recorder must be switched back on from Standby mode.</p> <p>Off: The brightness of the display field can be changed.</p>		
Quick Start		[On] [Off]
<p>On: The unit switches on from Standby mode in approx. 1 second.</p> <p>In Standby mode, more power is used and Power Save is set to [Off].</p>		
DivX Registration		
<p>In order play purchased or borrowed DivX files on this unit, you need the individual registration code for the unit. The code is displayed here. Please write it down.</p>		
Initialize		[Shipping Condition] [Default Settings]
<p>Shipping Condition: All settings, except for the security levels with the associated password, the time settings and the owner ID are reset to the factory-default settings.</p> <p>Default Settings: All settings, except for the programmed channels, time, country, language and disc language settings, the security levels including password, the remote control code and the owner ID are reset to the factory-default settings.</p>		

FUNCTIONS



FUNCTIONS => To Others => Setup

Setup	System Update
	EPG Download in Standby <input type="checkbox"/> On
	Software Update in Standby <input type="checkbox"/> On
Tuning	EPG / Software search period Automatic
Disc	Software Update Search Now
Picture	DVB Version: 0.16
Sound	
Display	
Connection	SELECT
Others	ENTER RETURN

System Update

A new software has been found.
Update your software ?

▲▼ Others	▶ ▲▼ Setting	ENTER	▲▼ Option	ENTER
System Update		 [EPG Download in Standby] [Software Update in Standby] [EPG / Software search period] [Software Update Search Now]		
EPG Download in Standby		[On] [Off]		
<p>On: EPG data are loaded in standby mode.</p>				
Software Update in Standby		[On] [Off]		
<p>The software is automatically updated when the unit is in standby mode. This is shown in the unit display. If the unit is in standby to record, the timer-controlled recordings are not affected. If you want to prevent the automatic updates, select the setting [Software Update in Standby - Off].</p>				
EPG / Software search period		[Automatic]		
<p>[Automatic] [02:00 - 06:00] [06:00 - 10:00] [10:00 - 14:00] [14:00 - 18:00] [18:00 - 22:00] [22:00 - 02:00]</p> <p>Automatic: the unit searches for new software once within 24 hours. [02:00 - 06:00] and others: the software search only starts within the set time period. If the setting [EPG Download in Standby] and [Software Update in Standby] is set to [Off], then the [EPG / Software Search Period] settings are invalid.</p>				
Software Update Search Now				
<p>Start the search for new software manually. A new software version is announced by a message. Do not switch 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 until the next few days, a corresponding message also appears.</p>				

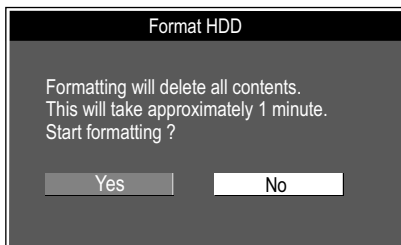
FUNCTIONS => To Others => HDD Management



- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [HDD Management] with **▲▼** and confirm with **ENTER**.
- Select the desired menu with **▲▼** and confirm with **ENTER**.
- Return to the **FUNCTIONS** menu with **FUNCTIONS**.

Delete all Titles

- Confirm [Delete all Titles] with **ENTER**.
- In the next screen, select [Yes] with **◀** and confirm with **ENTER**.
- In the security question, select [Start] with **◀** and confirm with **ENTER**.
All titles and playlists are deleted and cannot be restored. Protected discs or titles cannot be deleted. If at least one title is protected, it cannot be deleted.

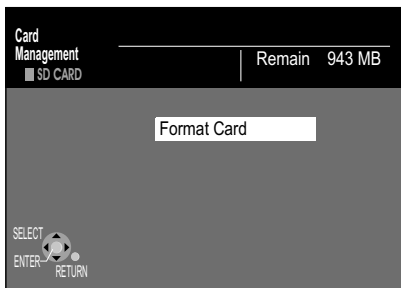


Format HDD

The formatting process deletes all data from the HDD.

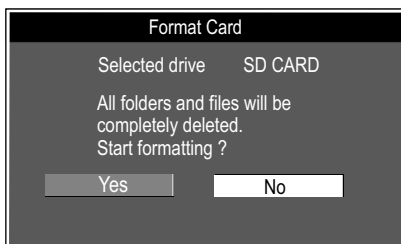
- Select [Yes] with **◀** and confirm with **ENTER**.
- Select [Start] with **◀** and confirm with **ENTER**. The formatting process begins. A message appears upon completion.
- Press **ENTER**.

FUNCTIONS => To Others => Card Management



If you activated write-protection, deactivate it.

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [Card Management] with **▲▼** and confirm with **ENTER**.
- Select the desired menu with **▲▼** and confirm with **ENTER**.
- Return to the **FUNCTIONS** menu with **FUNCTIONS**.

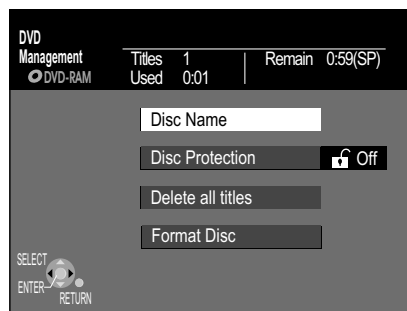


Format Card

The formatting process deletes all data from the card.

- Select [Yes] with **◀** and confirm with **ENTER**.
- Select [Start] with **◀** and confirm with **ENTER**. The formatting process begins. A message appears upon completion.
- Press **ENTER**.

FUNCTIONS => To Others => DVD Management



If you activated write-protection, deactivate it. [RAM]

- Press **FUNCTIONS**.
- Select [To Others] with **▲▼** and confirm with **ENTER**.
- Select [DVD Management] with **▲▼** and confirm with **ENTER**.
- Select the desired menu with **▲▼** and confirm with **ENTER**.
- Return to the **FUNCTIONS** menu with **FUNCTIONS**.

Disc Name [36]

- Enter the name. The name is displayed in the DVD Management window. You cannot name a disc after it has been finalized.

Disc Protection [RAM]

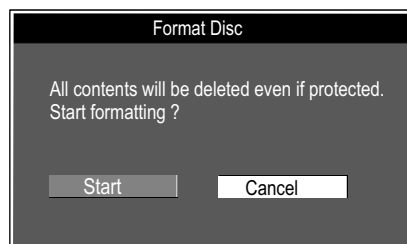
This procedure makes it possible to activate or deactivate write-protection.

- Select [Yes] with **◀** and confirm with **ENTER**.
Disc Protection On: The padlock is closed.
- To deactivate write-protection, select [Yes] with **◀** and confirm with **ENTER**.
Disc Protection Off: The padlock is opened.



Delete all Titles [RAM]

- Confirm [Delete all Titles] with **ENTER**.
- In the next screen, select [Yes] with **◀** and confirm with **ENTER**.
- In the security question, select [Start] with **◀** and confirm with **ENTER**.
All titles and playlists are deleted and cannot be restored. Protected discs or titles cannot be deleted. If at least one title is protected, it cannot be deleted.



Format Disc

[RAM] [-RW(V)] [+RW] [-RW(VR)] [+R] [+RDL] Only for new discs

Some discs are not formatted. They must be formatted before they can be used in this unit. The formatting process deletes all data from the disc. The estimated duration of the formatting process is displayed in the menu.

- Select [Yes] with **◀** and confirm with **ENTER**.
- Select [Start] with **◀** and confirm with **ENTER**. The formatting process begins. A message appears upon completion.
- Press **ENTER**.

Do not unplug the unit while the disc is being formatted or finalized.

The formatting process deletes all data, including the recordings created with this unit.

FUNCTIONS => To Others => DVD Management



Top Menu

Before finalizing the disc, you can select one of 9 different colour schemes for the disc menu.

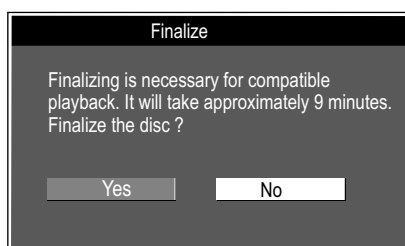
- Select with ▲▼ the corresponding menu from 1-9 and confirm with **ENTER**.

Auto-Play Select

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

Before finalization, you can select whether playback should start from the beginning of the disc or whether it should be launched from a disc menu.

- Select [Top Menu] or [Title 1] with ▲▼ and confirm with **ENTER**.
If [Top Menu] is selected, the disc menu appears first.
If [Title 1] is selected, playback begins at the beginning of the disc.



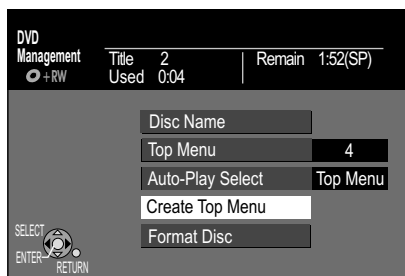
Finalize

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

The discs become DVD-Videos in DVD-Video format through finalization. They can be played on all DVD Players that support DVD-Video format.

- Select [Yes] with ◀ and confirm with **ENTER**.
- Select [Start] with ◀ and press **ENTER**. The finalization process begins. A message is displayed upon completion.
- Press **ENTER**.

You can only finalize DVDs that were recorded on this unit. You can no longer record to DVDs that have already been finalized. A finalized DVD-RW(V) can be recorded again after it is reformatted.



Create Top Menu

+RW

With a +RW, you have the option of creating a Top Menu.

The Top Menu created can be used for playback on another DVD-Player.

- Select [Create Top Menu] with ▲▼ and confirm with **ENTER**.
- In the following menu, select [Yes] with ◀ and confirm with **ENTER**.
- Select [Start] with ◀ and confirm with **ENTER**. The Top Menu is created.
The procedure concludes with the message: Top Menu was created.
Return to DVD Management with **ENTER**.

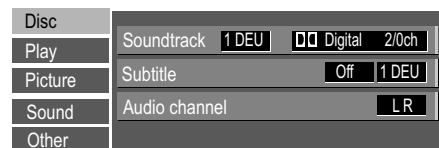
Picture and sound settings



DISPLAY menus contain information on the disc or the unit. With DVD-Videos, you can use the repeat function, change subtitles and the angle, change the picture and sound settings for DVD playback. Depending on the status of the unit (playback, STOP), there are some entries that cannot be selected or changed.



- Press **DISPLAY** to launch the menu.
- Press **DISPLAY** again to exist the menu.



Subtitles, sound track and recording angle can only be selected if they were recorded on the disc. For some discs, they can only be changed via the disc menus. When bilingual recordings are played back, "1+1 ch" is displayed.

▲▼ Disc ▶	▲▼ Option ▶	▲▼ Setting																								
	Soundtrack	<p>Soundtrack lang. <input type="button" value="DVD-A"/> <input type="button" value="DVD-V"/></p> <p>Select the sound and the language.</p> <p>Sound properties <input type="button" value="RAM"/> <input type="button" value="-R"/> <input type="button" value="-R DL"/> <input type="button" value="-RW(V)"/> <input type="button" value="+R"/> <input type="button" value="+R DL"/> <input type="button" value="+RW"/> <input type="button" value="-RW(VR)"/></p> <p>The disc sound properties are displayed. LPCM/PPCM/Dolby Digital, DTS and MPEG: signal type, ch (channel): number of channels, k (kHz): scan frequency, b (bit): number of bits</p> <p><input type="button" value="VCD"/> <input type="button" value="DivX"/></p> <p>Select the audio channel.</p>																								
	Subtitle	<p>[On] [Off] <input type="button" value="DVD-A"/> <input type="button" value="DVD-V"/></p> <p>Switch subtitles on or off, select the language.</p> <p><input type="button" value="RAM"/> <input type="button" value="-R"/> <input type="button" value="-R DL"/> <input type="button" value="-RW(V)"/> <input type="button" value="+R"/> <input type="button" value="+R DL"/> <input type="button" value="+RW"/> <input type="button" value="-RW(VR)"/></p> <p>Only for discs with the Subtitle On/Off setting. The Subtitle On/Off setting cannot be recorded with this unit.</p> <p><input type="button" value="VCD"/></p> <p>Switch subtitles on or off, select the number of the subtitle.</p>																								
	Language	<table border="0"> <tr> <td>ENG: English</td> <td>DAN: Danish</td> <td>THA : Thai</td> </tr> <tr> <td>FRA : French</td> <td>POR: Portuguese</td> <td>POL : Polish</td> </tr> <tr> <td>DEU : German</td> <td>RUS: Russian</td> <td>CES : Czech</td> </tr> <tr> <td>ITA : Italian</td> <td>JPN : Japanese</td> <td>SLK : Slovak</td> </tr> <tr> <td>ESP : Spanish</td> <td>CHI : Chinese</td> <td>HUN: Hungarian</td> </tr> <tr> <td>NLD : Dutch</td> <td>KOR: Korean</td> <td>FIN : Finnish</td> </tr> <tr> <td>SVE : Swedish</td> <td>MAL: Malay</td> <td>* : Others</td> </tr> <tr> <td>NOR: Norwegian</td> <td>VIE : Vietnamese</td> <td></td> </tr> </table> <p>* Others: Enter the appropriate language code. <input type="button" value="67"/></p>	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	
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	Audio Channel	<p>L+R / L / R <input type="button" value="RAM"/> <input type="button" value="-RW(VR)"/> <input type="button" value="VCD"/> <input type="button" value="DivX"/></p> <p>Change audio during playback.</p>																								
	Source select	<p><input type="button" value="DivX"/></p> <p>[Automatic] The unit detects whether the DivX content was recorded as full or half picture.</p> <p>[Progressive] The picture may look blurry, but the overall quality is very good.</p> <p>[Interlace] Contains only half the information of a full picture (Interlace) and the picture quality is poorer.</p>																								
	Angle	<p><input type="button" value="DVD-A"/> <input type="button" value="DVD-V"/></p> <p>Select another recording angle.</p>																								
	Still Picture	<p><input type="button" value="DVD-A"/></p> <p>[Slide Show] Select the still image playback type. Disc playback in the original sequence.</p> <p>[Page] Select the still image number and playback. RANDOM: Playback in random order. Return to the standard page: Select [Return] and press ENTER.</p>																								
	PBC	<p><input type="button" value="VCD"/> <input type="button" value="DivX"/></p> <p>PBC shows whether the menu playback control is on/off.</p>																								

Picture and sound settings



▲▼ Play ▶	▲▼ Option ▶	▲▼ Setting
	Repeat Play	<p>[On] [Off]</p> <p>The function is only available if the elapsed time is displayed.</p> <p> <input type="checkbox"/> CD <input type="checkbox"/> VCD ▶ Track ↔ All ↔ Off ◀ </p> <p> <input type="checkbox"/> RAM <input type="checkbox"/> -R <input type="checkbox"/> -R DL <input type="checkbox"/> -RW(V) <input type="checkbox"/> +R <input type="checkbox"/> +R DL <input type="checkbox"/> +RW <input type="checkbox"/> DVD-V <input type="checkbox"/> -RW(VR) <input type="checkbox"/> HDD ▶ Title ↔ Chapter ↔ Off ◀ </p> <p> <input type="checkbox"/> DVD-A <input type="checkbox"/> MP3 ▶ Track ↔ Group ↔ Off ◀ </p> <p>During playback of a playlist <input type="checkbox"/> HDD <input type="checkbox"/> RAM <input type="checkbox"/> -RW(VR)</p> <p>▶ PL (Playlists) ↔ Off ◀</p> <p>If the Video-CD has playback control, select a track in STOP mode with the number buttons.</p>

▲▼ Picture ▶	▲▼ Option ▶	▲▼ Setting
	Playback NR	[On] [Off] Reduces screen interference.
	Progressive	[On] [Off] Select [On] to activate full picture output.
	Transfer	<p>[Progressive - On] Select the appropriate conversion method for full-picture output.</p> <p>PAL output signal</p> <p>[Auto] Film and video content is detected and converted appropriately.</p> <p>[Video] If problems occur with the [Auto] setting.</p> <p>[Film] Select Video or Film if the video content is is not displayed correct with the Auto setting.</p> <p>NTSC output signal</p> <p>[Auto 1] Film and video content is detected and converted appropriately.</p> <p>[Auto 2] Movies with different picture frequencies are converted</p> <p>[Video] If content does not display correct with the [Auto 1] or [Auto 2] settings.</p>
	Copy NR	<p>[Automatic]</p> <p>[On]</p> <p>[Off]</p> <p>Reduces noise during tape recording. Only for AV1, AV2, AV3 or DV.</p> <p>Only with picture input from a video cassette.</p> <p>Noise reduction is activated for video input.</p> <p>The input signal can be recorded unchanged.</p>

▲▼ Audio ▶	▲▼ Option ▶	▲▼ Setting
	DVB Multi Audio	If more than one audio channel is broadcast, you can set the desired channel here (only applies to digital channels).
	V.S.S.	<p> <input type="checkbox"/> RAM <input type="checkbox"/> -R <input type="checkbox"/> -R DL <input type="checkbox"/> -RW(V) <input type="checkbox"/> +R <input type="checkbox"/> +R DL <input type="checkbox"/> +RW <input type="checkbox"/> DVD-A <input type="checkbox"/> DVD-V <input type="checkbox"/> -RW(VR) </p> <p>[Natural]</p> <p>[Emphasis]</p> <p>[Off]</p> <p>Surround sound effect with 2 front speakers. Only with Dolby Digital with 2 or more channels. Switch off V.S.S. if this causes problems. V.S.S. does not work with recordings in dual-channel sound.</p>
	Dialog Enhancer	<p> <input type="checkbox"/> RAM <input type="checkbox"/> -R <input type="checkbox"/> -R DL <input type="checkbox"/> -RW(V) <input type="checkbox"/> +R <input type="checkbox"/> +R DL <input type="checkbox"/> +RW <input type="checkbox"/> DVD-A <input type="checkbox"/> DVD-V <input type="checkbox"/> -RW(VR) <input type="checkbox"/> DivX </p> <p>[On] [Off]</p> <p>Dolby Digital, only with 3 or more channels, including a center channel. The volume is increased so that dialogue is easier to understand.</p>

▲▼ Other ▶	▲▼ Option ▶	▲▼ Setting
	Position	[1 - 5] Position of the OSD displays on the screen.

If you need help

CUSTOMER SERVICE

Should problems occur, please try to resolve them by referring to the error sources described here. If this does not help, you should contact your dealer or customer service.

Normal disc revolution sounds, atmospheric interference during reception, picture interference while fast-forwarding, and limited reception of the satellite programs are not signs of a defective unit.

If the disc cannot be played due to poor quality, try it again with a disc from Panasonic.

Page

ERROR CODES		
	<ul style="list-style-type: none"> ‣ The unit is malfunctioning. 	
The error code H□□, U□□ or F□□ appears.	<ul style="list-style-type: none"> ‣ The numbers following H, U or F indicate the status of the unit. • Switch the unit to Standby mode with ⏻/I. If the unit does not switch to Standby mode, press ⏻/I for approx. 10 seconds or unplug it for a minute and then plug it back in. • Press ⏻/I to switch on the unit. If this does not solve the problem, contact customer service with the displayed error code. 	
Error code U50	<ul style="list-style-type: none"> ‣ Short-circuit in the active aerial. Check the connection. 	
Error code U59	<ul style="list-style-type: none"> ‣ The unit is hot and switches to Standby mode for safety reasons. ‣ Wait approx. 30 minutes until the message disappears. Place the unit in a well ventilated location. Do not block the vents at the back of the unit. 	
Error code U61	<ul style="list-style-type: none"> ‣ The unit has found an error during recording or playback without an inserted disc. The unit proceeds with the recovery procedure. This procedure restores the normal operating mode. The unit is not defect. Please wait until the message goes off. 	
Error code U71	<ul style="list-style-type: none"> ‣ The connected unit is not suitable for connection to HDMI. 	
Error code U72 Error code U73	<ul style="list-style-type: none"> ‣ The HDMI connection does not work perfectly. ‣ The connected unit is not suitable for connection to HDMI. ‣ The HDMI cable is too long. ‣ The HDMI cable is broken. 	
Error code U88	<ul style="list-style-type: none"> ‣ A problem occurred during recording or playback of a disc. The unit is not defective, but is performing a restore procedure. Wait until the error message disappears from the display. 	
HARD ERR	<ul style="list-style-type: none"> ‣ The unit is not functioning properly. • Switch the unit off and back on again. If this does not solve the problem, contact customer service. 	
The unit automatically switches to Standby mode.	<ul style="list-style-type: none"> ‣ One of the unit's safety devices may have been activated. • Press ⏻/I to switch on the unit. 	
FUNCTION		
Unit not functioning.	<ul style="list-style-type: none"> ‣ Check the connection to the power supply. ‣ The unit is in Standby mode for a Timer programming via external units. EXT-L appears in the display. • Press EXT LINK to switch off recording standby mode. • To cancel a recording prematurely, stop the transfer of the recording signal on the external unit. • Press EXT LINK to switch off recording standby mode. 	52
The disc cannot be ejected.	<ul style="list-style-type: none"> ‣ The unit is currently recording. • With the unit switched off, press STOP ■ and CH ^ on the unit at the same time and hold for about 5 seconds. Contact your dealer. ‣ The above procedure cannot be executed if the child protection feature is activated. • Switch off child protection. 	6
Access to the HDD is slow.	<ul style="list-style-type: none"> • The HDD is in SLEEP mode. ("HDD SLP" appears in the display of the unit.) 	

If you need help

		Page
PICTURE		
No picture.	‣ Check the connection to the TV, e.g. AV1.	10
	‣ The PROGRESSIVE output is activated, but the connected TV is not progressive-capable.	19
There is picture interference.	• Press and hold STOP ■ and PLAY ► on the unit at the same time for more than 5 seconds. The function is switched to half-picture (INTERLACE).	19
	‣ The [TV System] setting does not match that on the disc. • In STOP mode, press and hold STOP ■ and OPEN/CLOSE ▲ on the unit for more than 5 seconds. This switches the unit from PAL to NTSC or vice versa.	69
Television reception worsens when the unit is connected.	‣ Check the antenna connection and the alignment of your antenna. You may need to use a signal amplifier.	
The TV picture format is not set correctly.	‣ Check the [TV Aspect] setting in the Connection Setup menu.	69
No on-screen messages.	‣ Change the [On-Screen Messages] setting the Display Setup menu.	68
Poor picture in spite of good signal quality.	‣ Overmodulation makes the signal strength display go to red. • Readjust the picture with your room aerial until the picture quality improves.	64
SOUND		
No sound. Distorted sound. Volume set to quiet.	‣ Check the connections.	10
	‣ If you connected an amplifier, check the input mode. ‣ Switch off the V.S.S. function if it causes problems.	77
It is not possible to hear the desired sound type.	• Press AUDIO to select the desired sound type. • Change the appropriate setting in the Sound Setup menu. ‣ The sound cannot be switched on some discs.	68
The sound cannot be set for stereo or NICAM broadcasts.	‣ Connect external units with audio cables even if you use a digital connection.	18
	‣ You can change the sound type when using DVD-RAM or HDD.	76
REMOTE CONTROL		
No functions.	‣ An incorrect remote control code was selected.	6
	‣ Check the batteries.	5
	‣ Point the remote control at the sensor on the unit.	6
	‣ Child protection has been activated.	6
The TV cannot be operated.	‣ An incorrect remote control code was selected.	6
DISPLAY		
The display light is weak.	‣ Change the [FL Display] setting in the Display Setup menu.	68
"0:00" blinks on the unit display.	‣ No time. Set the time in the Others [Clock] Setup menu.	71

If you need help

		Page
PLAYBACK		
Playback does not start.	<ul style="list-style-type: none"> ‣ No disc or video cassette inserted. ‣ The disc is dirty or badly scratched. ‣ You inserted a disc that is not suitable for playback. ‣ You inserted a blank disc. 	25
DVD-Video will not play.	<ul style="list-style-type: none"> ‣ Some DVD-Videos cannot be played if the security level has been changed. 	66
No reaction when PLAY ► is pressed.	<ul style="list-style-type: none"> ‣ ⓪ appears on the screen. The procedure is being prevented by the unit or the disc. ‣ Child protection has been activated. 	27 6
A title or chapter is not played back after being selected.	<ul style="list-style-type: none"> ‣ Some titles or chapters of DVD-Videos are not played back if the security level has been changed. 	66
Soundtrack/subtitles cannot be selected or do not match the language selected in the Setup menu.	<ul style="list-style-type: none"> ‣ The subtitles were not recorded on the disc or are not switched on. 	66
	<ul style="list-style-type: none"> ‣ The languages were not recorded on the disc. 	76
	<ul style="list-style-type: none"> ‣ You may need to use the disc menu to select the languages. 	27
The angle cannot be changed.	<ul style="list-style-type: none"> ‣ The angle perspective can only be changed for scenes that were recorded from different angles. 	76
You forgot your security password.	<ul style="list-style-type: none"> • Select the DVD drive and, while the disc tray is open, press and hold ● REC and PLAY ► on the unit for at least 5 seconds. 	
RECORDING		
Cannot record.	<ul style="list-style-type: none"> ‣ The video cassette is write-protected. 	31
	<ul style="list-style-type: none"> ‣ Check whether the inserted disc is suitable for recording. 	74
	<ul style="list-style-type: none"> ‣ The disc is not formatted. Format the disc. 	74
	<ul style="list-style-type: none"> ‣ The write-protection device on the cartridge is set to "PROTECT". Deactivate the write-protection. 	74
	<ul style="list-style-type: none"> ‣ Deactivate the write-protection in the DVD Management menu. 	74
	<ul style="list-style-type: none"> ‣ The material that you want to record is copy-protected. The number of possible copies is limited with some programmes. 	32
Discs containing PAL and NTSC signals cannot be recorded.		
Some or all recorded programmes were lost.	<ul style="list-style-type: none"> ‣ If there is a power cut during recording or processing or if the unit is unplugged from the power supply the programme may be lost or the disc may be damaged. Reformat the disc or use a new disc. 	74
Timer Recording is not functioning.	<ul style="list-style-type: none"> ‣ The Timer programming is defective, different Timer programmes overlap each other. Correct the programming. 	50
	<ul style="list-style-type: none"> ‣ Check the clock setting. 	71
Timer Recording cannot be cancelled.	<ul style="list-style-type: none"> • With an EXT LINK-controlled recording via an external unit, press EXT LINK. The EXT-L display disappears. ‣ If you want to cancel the recording prematurely, stop the transfer of recording signal on the external unit. Press EXT LINK to switch off recording standby. 	52
SOFTWARE UPDATE		
When are the software updates broadcast ?	<ul style="list-style-type: none"> ‣ The unit shows automatically when a software update has been broadcast, and also automatically updates the software if this function has not been switched off in the Setup menu. 	72

If you need help

		Page
TV GUIDE		
The displayed information is wrong.	<ul style="list-style-type: none"> ‣ The broadcasting companies are responsible for the information. Deviations are possible when changes are made at the last minute. 	
No or incomplete data.	<ul style="list-style-type: none"> ‣ Date/time incorrectly set. ‣ The signal is too weak or no signal was found. Check the aerial. Realign the aerial and check the values with the signal quality in the [Setup] menu. ‣ The broadcasting companies are responsible for the information. Deviations are possible when changes are made at the last minute. 	71 64
EPG database empty or incomplete after switching on.	<ul style="list-style-type: none"> ‣ Downloading the data was not possible. Switch the unit to standby over night. ‣ Activate the EPG Download in the [Setup] menu. 	72
No current data in spite of active EPG download function.	<ul style="list-style-type: none"> ‣ Downloading the data was not possible. Switch the unit to standby over night ‣ Make sure that no Timer Recording was carried out during the time chosen for the EPB download. 	
DVB-T		
No station found. Time not set.	<ul style="list-style-type: none"> ‣ The signal is too weak or no signal was found. Check the aerial. Realign the aerial and check the values with the signal quality in the [Setup] menu. ‣ In the Setup menu, switch the active aerial on if you are using an active aerial. ‣ Repeat the auto setup. 	64 69 64
Date/time incorrectly set.	<ul style="list-style-type: none"> ‣ The transfer did not work. Repeat the Automatic Time Setting. 	71
Unusual station sorting.	<ul style="list-style-type: none"> ‣ The station sorting of this unit is pre-defined. Use profiles to sort the stations as you want them. 	
No teletext	<ul style="list-style-type: none"> ‣ This DVD Recorder does not support teletext. 	
No automatic station allocation in ShowView.	<ul style="list-style-type: none"> ‣ No unique code for the digital stations. Allocate the stations manually when programming for the first time. The DVD Recorder will then recognise the stations correctly in future. 	
Which aerial is suitable for receiving DVB-T?	<ul style="list-style-type: none"> ‣ Any (terrestrial) roof aerial can be used. Room rod aerials are also suitable. Use an active room aerial if the reception is poor. 	
After the auto setup, there aren't any stations in the station list although found stations were displayed during auto setup.	<ul style="list-style-type: none"> ‣ [Shipping Condition] was performed or the unit was in the delivery status. The auto setup was then started and interrupted. Do an auto setup again and let it continue right through to the end. The data are only saved after this has been completed. 	
EXTERNAL INPUT		
Video or audio is not recorded from an external unit.	<ul style="list-style-type: none"> ‣ The external unit is not connected correctly. ‣ The incorrect input channel AV2, AV3 or DV IN was selected. 	12 18

If you need help

Page

HDMI		
Which accessories are required to hear multi-channel Surround Sound?	<ul style="list-style-type: none"> ‣ Multi-channel sound can only be played back with this unit if it is connected with an HDMI cable or a digital audio optical fibre cable to an amplifier with an integrated decoder. 	
Switching on takes longer in spite of the Quick Start function.	<ul style="list-style-type: none"> ‣ All units connected by HDMI are checked while switching on. This can take a while. 	
No picture on the television set.	<ul style="list-style-type: none"> ‣ Check whether the television set and DVD Recorder are connected correctly with the HDMI cable. If the external unit has been connected correctly, the HDMI message appears briefly on the display of the DVD Recorder. ‣ If more than four units are connected with HDMI cables, you may possibly not be able to see a picture. Reduce the number of connected units. ‣ If the unit is connected via COMPONENT VIDEO OUT to a television unit which is not progressive-compatible, no unit can be connected with HDMI. The [Progressive] setting is automatically switched to [On] in the Setup if a unit is connected up with HDMI. 	69
Wrong screen format.	<ul style="list-style-type: none"> ‣ If a television set is connected via HDMI AV OUT, in the [Setup] menu, set the setting [Aspect for 4:3 Video] to [4:3]. ‣ Check the setting [TV Aspect] in the [Setup] menu. 	70 69
Part of the picture appears duplicated some of the time when using the output. COMPONENT VIDEO OUT	<ul style="list-style-type: none"> ‣ Do not connect this unit to the television set with an HDMI cable. ‣ In the Setup menu, set the [Progressive] setting to [Off]. 	69
No sound. Low volume. Sound with interference. The required audio type cannot be heard.	<ul style="list-style-type: none"> ‣ The amplifier connected via HDMI does not support CPPM and the HDMI Ver. 1.1. Standard. No Multi Audio-Disc can be played back. ‣ The sound is not played back if the Bitstream Signal is output from HDMI AV OUT or OPTICAL DIGITAL AUDIO OUT. ‣ If more than four units are connected with HDMI cables, you may possibly not hear any sound. Reduce the number of connected units. ‣ If the unit is connected with an HDMI cable to a television set and OPTICAL DIGITAL AUDIO OUT is used as audio output, in the [Setup] menu, set the setting [Digital Audio Output] to [Off]. ‣ When one or several units are connected via HDMI AV OUT, it is possible for there to be interference with the sound. Select another connection type. 	70
HDAVI Control is not working.	<ul style="list-style-type: none"> ‣ In the [Setup] menu, change the setting [Control with HDMI / Q Link] to [HDMI and Q Link]. ‣ Use a fully wired HDMI cable. ‣ The connected unit possibly does not support HDAVI control. 	70
COPYING		
Unusually loud sounds coming from the rotating DVD-R etc.	<ul style="list-style-type: none"> • When recording or high-speed dubbing to a DVD-R, DVD-RW (DVD-Video format) and +R, the rotation sound is louder than normal. This is not a malfunction. 	
It is not possible to copy to a DVD-R etc. in high-speed mode.	<ul style="list-style-type: none"> • When recording to the HDD (Hard disk drive), set [Rec for High Speed dubbing] in the SETUP menu to [On]. 	66
Copying even takes a relatively long time in high-speed mode.	<ul style="list-style-type: none"> • Depending on the condition of the disc, even high-speed-compatible discs may not allow recording at maximum speed. 	

Specifications

Power source AC 220V-240V 50 Hz Power consumption 38 W Power Save approx. 3W	Dimensions approx. 430 mm (W) x 84 mm (H) x 352 mm (D) Weight approx. 6.4 kg Operating temperature 5°C - 40°C Operating humidity 35% - 80% RH no condensation
VHS Recording format VHS Video Cassette System Standard with FM audio Heads 4 Helical Scan Heads for Video 2 Helical Scan Heads for FM audio 1 Fixed Head for Normal audio	Tape Speed/Recording Time (with E-240 tape) PAL,MESECAM: SP: 23.39 mm/s 240 min. LP: 11.7 mm/s 480 min. EP: 7.8 mm/s 720 min. NTSC: SP: 33.35 mm/s 168 min. EP: 11.12 mm/s 505 min.
Television system PAL 625 lines, 50Fields, NTSC, 525 lines, 60 Fields Tuner System PAL-BG, SECAM-BG DVB-T Ch coverage CCIR Termination 75Ohm Antenna reception input VHF: CH E2 - E12 CH 05 - 12 UHF: CH 21 - 69 CH 21 - 69 CATV: CH S01 - S05(S1-S3), S1-S20 (M1-U10), S21-S41 Active Antenna output 5V switched, 50mA max., over current protected.	Audio system Recording system (for DVD) Dolby Digital (2ch), Linear PCM (XP mode 2ch) Analog Input AV1 SCART } Reference: -6dBV, at 1kHz AV2 SCART } Full scale: +6dBV, at 1kHz AV3 RCA } Input Impedance > 10kOhm Analog Output AV1 SCART } Reference: -6dBV, at 1kHz AV2 SCART } Full scale: +6dBV, at 1kHz Line RCA } Output Impedance < 1kOhm Number of channels (for DVD) Recording: 2 channels Playback: 2 channels Number of track (for VHS) HiFi: 2 track Normal: 1 track Digital output 1 Digital Audio Optical Connector (PCM, Dolby Digital, DTS, MPEG)
Video system Recording System MPEG 2 (Hybrid VBR) Input (PAL, NTSC) AV1 SCART CVBS: 1.0 Vpp; 75Ohm AV2 SCART CVBS: 1.0 Vpp; 75Ohm Y: 1.0 Vpp, C: 0.3 Vpp; (PAL); 75Ohm (RGB: PAL) RGB: 0.7 Vpp; 75Ohm AV3 RCA CVBS: 1.0 Vpp; 75Ohm AV3 S VIDEO Y: 1.0 Vpp, C: 0.3 Vpp; (PAL); 75Ohm Output AV1 SCART CVBS: 1.0 Vpp; (PAL); 75Ohm RGB: 0.7 Vpp; (PAL); 75Ohm AV2 SCART CVBS: 1.0 Vpp; 75Ohm Line RCA CVBS: 1.0 Vpp; 75Ohm S-VIDEO Y: 1.0 Vpp, C: 0.3 Vpp; (PAL); 75Ohm Component Video Output CPN RCA Y: 1.0 Vpp, P _s : 0.7 Vpp, P _r : 0.7 Vpp; 75Ohm (PAL,NTSC: 625i/625p, 525i/525p)	HDMI output 19 pin type A, Version 1.2a (EDID Ver. 1.3) Internal HDD Capacity 250 GB DV Input (PAL, NTSC) IEEE1394 Standard 4Pin SD Card Slot Memory Card Slot
Recording System DVD-RAM DVD Video Recording format DVD-R DVD-Video format DVD-R DL (Dual Layer) DVD-Video format DVD-RW DVD-Video format +R, +R DL (Double Layer), +RW	Playable Disc DVD-RAM DVD Video Recording format DVD-R DVD-Video format, DivX, JPEG, MP3 DVD-R DL (Dual Layer) DVD-Video format DVD-RW DVD-Video format, DVD Video Recording format +R, +R DL (Double Layer), +RW DVD-VIDEO, DVD-Audio CD-Audio (CD-DA), Video CD CD-R/CD-RW (CD-DA, Video CD, SVCD, MP3, JPEG, DivX formatted discs) SVCD
Recording Time Max. 8 hours (using 4.7 GB disc) XP: Approx. 1hour SP: Approx. 2hours LP: Approx. 4hours EP: Approx. 6 / 8 hours Max. Approx. 443 hours with 250GB HDD (EP 8H mode) XP: Approx. 55hour SP: Approx. 111hours LP: Approx. 222hours EP: Approx. 333/443 hours	Regional Code #2 Recordable discs DVD-RAM Ver.2.0 Ver.2.1/3X-SPEED DVD-RAM Revision 1.0 Ver.2.2/5X-SPEED DVD-RAM Revision 2.0 for General Ver.2.0 DVD-R for General Ver.2.0/4X-SPEED DVD-R Revision 1.0 for General Ver.2.x/8X-SPEED DVD-R Revision 3.0 for General Ver.2.x/16X-SPEED DVD-R Revision 6.0 for DL Ver.3.0 DVD-RW for DL Ver.3.x/4X-SPEED DVD-R for DL Revision 1.0 Ver.1.1 Ver. 1.x/2X-SPEED DVD-RW Revision 1.0 Ver. 1.x/4X-SPEED DVD-RW Revision 2.0 Ver. 1.x/6X-SPEED DVD-RW Revision 3.0 +R Ver.1.0, Ver.1.1, Ver.1.2, Ver. 1.3, for DL Ver. 1.0 +RW Ver. 1.1, Ver.1.2/4X-SPEED
SVCD Format IEC62107 This unit is not compatible with "Chaoji VCD" available on the market including CVD, DCVD and SVCD that do not conform to IEC62107.	
Optical pick-up System with 1 lens, 1 laser diode (twin wave length) LASER specification LASER product of class 1 Wave Length 780 nm (CDs) 662 nm (DVDs) Laser Power No hazardous radiation is emitted with the safety protection.	
Quick Start for Recording & EPG (Quick Start: [ON]) 1 sec Quick Start for Recording (HDD, DVD-RAM) and EPG Display (When connecting to TV using SCART, Component Video, Video or S-Video Terminals). From power on the recording starts in about 1 sec. after the REC button is pressed. If the GUIDE button is pressed while the unit is off, the EPG is displayed in about 1sec.	

Note: The values given for weight and dimension are approximate values. The technical data can be changed without advanced notice.

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