

Panasonic®

Operating Instructions

DVD Recorder

Model No. DMR-EH80VEB

AVHDD
HARD DISK DRIVE



Dear customer: Before connecting, operating or adjusting this product, please read the instructions completely.
Please keep this manual for future reference.

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Before you start

Dear customer

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

Matsushita Electric Industrial Co., Ltd.

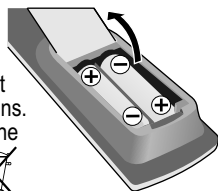
<http://www.panasonic.co.jp/global/>

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.



Preparation

1. **Read the operating instructions**, the safety precautions, and the information on setting up the unit on pages 4 - 5 thoroughly before you connect, operate or adjust any settings on the unit.

2. **Insert the batteries into the remote control.**

3. **Connect the device to your television.**

Connecting with 21-pin Scart cable

Connecting with RF cable (Aerial cable)

Connecting with Audio/Video cable

Connecting with S VIDEO cable



4. **The automatic settings start after the unit is switched on.**

The station settings of all receivable television stations are automatically transferred from the teletext data to the DVD Recorder.

With Q Link function and 21-pin Scart socket:

During [Download from TV], the station settings of all receivable television stations are automatically transferred from your television set to the DVD Recorder.



Connecting with 21-pin Scart cable:

Setup with Q Link

Setup without Q Link (Automatic Tuning)



Connecting with RF cable (Aerial cable):

Auto-Setup with RF cable (Aerial cable) (Automatic Tuning)



Connecting with Audio/Video cable / S VIDEO cable:

Setup without Q Link (Automatic Tuning)



5. **The basic settings of the unit are complete.**

You can change the basic settings in the SETUP menu.

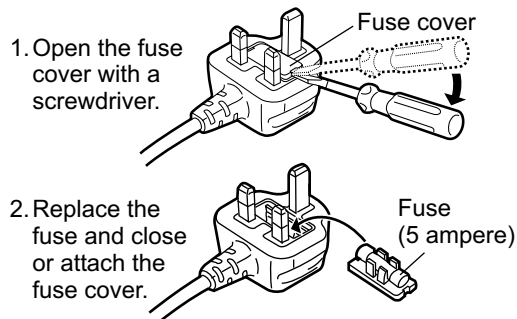




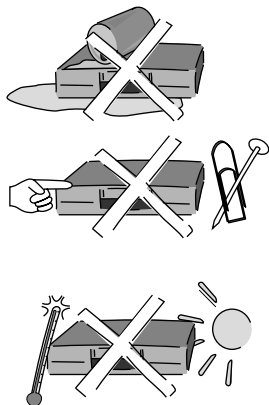
Important safety warnings

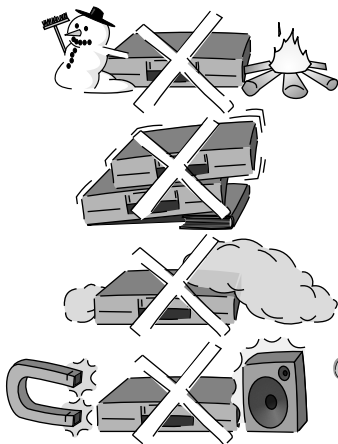
- The moulded three pin mains plug is supplied for your safety and convenience and must NOT be cut off.
- A 5 amp fuse is fitted in the mains plug. If the fuse has to be replaced, it must be of the same rating and approved by ASTA or BSI to BS1362. Check for the ASTA mark  or the BSI mark  on the body of the fuse.

To replace the fuse, open the fuse compartment with a screwdriver as shown and replace the fuse and the cover securely.



- To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service engineer only.
- **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.
- Do not insert metal object into the slots or openings of the unit.
- This unit is not disconnected from a.c. mains while it remains connected to a live mains outlet, even if it has been turned off.
- 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 unit is intended for use in moderate climates.





Inside of product

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

CAUTION!

Caution

- Avoid exposing the unit to direct sunlight or other heat sources.
- Avoid sudden change in temperature or humidity, dew or condensation may form, causing malfunction.
- Dispose of batteries in accordance with the instructions given in this book.
- Place the unit on a flat, stable surface. Do not place heavy object on top of the unit.
- Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast materials may infringe copyright laws.
- This unit is designed for indoor use only.
- Do not use in area with strong magnetic fields, e.g. near transmitting antenna.
- 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.
- 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.
- 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 by yourself. Refer servicing to qualified personnel.

**CLASS 1
LASER PRODUCT**

Care and maintenance

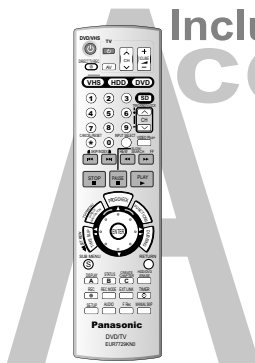
- The cabinet can be wiped clean with a damp cloth, disconnect from mains before cleaning. Do not use detergent or solution containing benzol or petroleum.
- Video heads clogging can occur with use, when this happens picture and sound will become distorted during playback. Purchase a head cleaning tape or consult your dealer. Note that video head cleaning is not covered by the warranty.

Back of product, see page 16

Included accessories



Check that you have the accessories and items shown



☐ Remote control
EUR7729KN0

☐ Guarantee Card

Included accessories

☐ AC mains lead
RJA0044-3C



☐ RF cable



K1TWACC00001

☐ Quick Start Guide

☐ Batteries for the remote control
R6 size



☐ Audio/Video cable



K2KA6CA00001

☐ Operating Instructions

Panasonic[®]

Sales and Support Information

Customer Care Centre

- For customers within the UK:
08705 357357
- Visit our website for product information: **www.panasonic.co.uk**
- E-mail:
customer.care@panasonic.co.uk

Direct Sales at Panasonic UK

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

New functions

Your DVD Recorder saves data in the highest quality to a quickly accessible HDD and e.g. to DVD-RAM. Thus, there are many new features available that outperform older storage media.

Immediate recording

The unit finds available storage space on its own without overwriting your old data. To start recording right away, press the record button **• REC**.

Quick start

After switching the unit on, use the Quick Start feature to begin recording to DVD-RAM or HDD after approx. one second.

Recording to HDD (hard disk drive)

The internal HDD saves up to 355 hours of your recordings when set to [EP 8 Hours]. You can copy (DUBBING) your data at high speeds from Hard disk drive (HDD) to DVD-RAM, DVD-R, DVD-RW (DVD-Video format) or +R.

SD Card drive

You can copy (DUBBING) and save photos directly from the SD Card to the HDD or e.g. to DVD-RAM.

Immediate playback

Start the desired title directly from DIRECT NAVIGATOR.

Playback during recording **HDD RAM**

The title can be played back during recording.

Simultaneous recording and playback **HDD RAM**

Another previously recorded title can be played back during recording.

Time Slip **HDD RAM**

Playback can be started while the unit is still recording. Without stopping the current recording, you can watch the recording from the beginning or from any desired point.

Remote control

DVD/VHS



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.

Buttons to switch between VHS, HDD, DVD and SD.

VHS HDD DVD



Press the corresponding button to operate the desired element.

SD



The unit is switched on from standby mode.

Number buttons - direct input e.g.:

VCD

5: 0 + 5

15: 1 + 5

MP3 JPEG 5: 0 + 0 + 5

15: 0 + 1 + 5

CANCEL/RESET



Cancel button

INPUT SELECT



Switch button of the AV input between AV1, AV2, AV3 (front), TP (DVD), DC (VHS), DV.



A/V channel



CH: Channel select button.

TV



Turn the television set on and off.

12



Select the AV input on the television set.



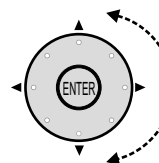
CH: Select the channel on the television set.

VOLUME: Volume control of the television set.

Navigation

Using the Smart Wheel

- Press ◀▶▲▼ to select the position (left, right, up, down).



The wheel can also be turned to select the parameter.
If the Smart Wheel is pressed while it is being turned, ◀▶▲▼ may be activated.

- Press ENTER to confirm.

Remote control

HDD/DVD Functions

Basic 

SKIP/INDEX



SKIP: Skip chapters, titles or pictures.

REW SLOW SEARCH FF



SLOW/SEARCH: Search or slow motion playback



Stops a recording or playback.



Pauses a recording or playback.



Playback: starts playback
The unit is switched on from standby mode.

HDD RAM PLAY/x1.3: You can increase the playback speed. Hold **PLAY** during playback.

42

Navigation 



DIRECT NAVIGATOR TITLE VIEW

TOP MENU: Main menu of DVD-Video.

73



FUNCTIONS selection menu.

70



Direction buttons in the menu navigation.
Selection of groups ◀▶▶ or titles.

Still picture or time loop playback.

ENTER: Select or save a setting.

SUB MENU

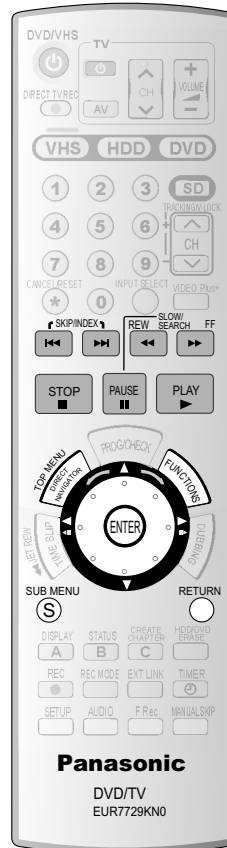


Launch sub menus.

RETURN



Exit a menu.



VHS Functions

Basic 

SKIP/INDEX



INDEX: Search for the beginning of a recording.

REW SLOW SEARCH FF



REW/FF: Fast forward or rewind from stop mode.
Forward or reverse scene search during playback mode.



Stops recording, replay or forward/reverse action.
Press and hold more than 3 seconds to remove cassette.



Pauses a recording or playback.
Press and hold more than 2 seconds for slow-motion.



Playback: starts playback
The unit is switched on from standby mode.

Press and hold more than 3 seconds for repeat playback

Navigation 



FUNCTIONS selection menu

116



Direction buttons in the menu navigation.

ENTER: Select or save a setting.

RETURN



Exit a menu.

Remote control

HDD/DVD Functions

REC ■■■ =

	Record	
	TIMER RECORDING menu	
	VIDEO Plus+ menu	
	Switch timer on and off.	
	Record with external recording control	
	Direct TV record to DVD or HDD	
	Record mode button (XP, SP, LP, EP)	
	FLEXIBLE REC menu	
	DUBBING menu	



VHS Functions

REC ■■■ =

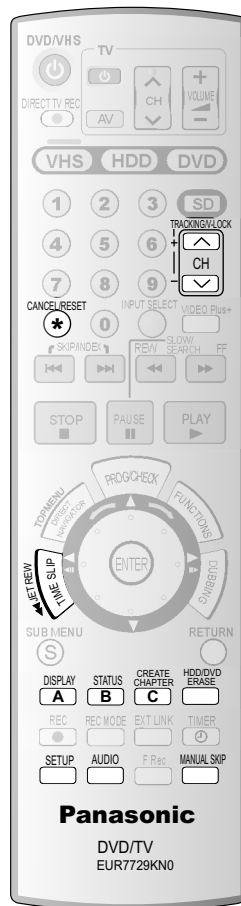
	Record	
	TIMER RECORDING menu	
	VIDEO Plus+ menu	
	Switch timer on and off.	
	Record with external recording control	
	Direct TV record to DVD or HDD	
	Record mode button (SP, LP, EP)	
	DUBBING menu	

Remote control

HDD/DVD Functions Comfort

DISPLAY A	Launch the DISPLAY menu.	112 113
STATUS B	Detail information appears on the screen.	114
CREATE CHAPTER C	Split the recording into chapters.	42
HDD/DVD ERASE 	Erase a title or a chapter.	74
SETUP 	Launch the SETUP menu.	94
AUDIO 	Depending on the disc, select the audio channel or the sound track.	42
MANUAL SKIP 	Jumps forward 30 seconds.	40
 TIME SLIP:	Select the timeframe to be skipped.	43

- A** A: Delete station or selection buttons in the menus
- B** B: Add station or selection buttons in the menus.
- C** C: Move station or selection buttons in the menus.

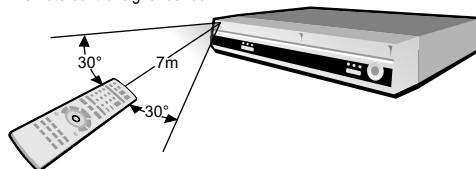


VHS Functions Comfort

TRACKING/LOCK +  -	TRACKING/V-LOCK + / - Optimisation of the playback picture.	51
STATUS B	Detail information appears on the screen.	115
SETUP 	Launch the SETUP menu.	94
AUDIO 	Press several times to select sound playback mode.	42
CANCEL/RESET *	Reset of the tape counter.	115
 JET REW:	For fast rewinding to the beginning of the tape.	50

Remote control

Remote control signal sensor



Point the remote control at the unit's sensor. Avoid obstacles in the path of the transmission. The maximum range of the remote control is 7 m directly in front of the unit. Keep the transmission window and the unit sensor clean. The procedure can be impaired by direct sunlight or doors of glass cabinets.

Child lock

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

- Press and hold **RETURN** and **ENTER** until **X HOLD** appears in the display. The unit is now locked.
- To unlock the child lock, repeat the procedure until **X HOLD** disappears.

Operating a television set

Change the remote control code to operate your television set.

- Press and hold the **TV** on and off switch button.
 - Enter the two-digit code for your television set.
- The input must be repeated after batteries are changed.

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 brands listed above, (e.g. older Panasonic units), cannot be operated using the remote control.

Switching to AV input on your Panasonic television set

- Press **AV**. Each press of the button switches between TV reception and AV input.

Remote control

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



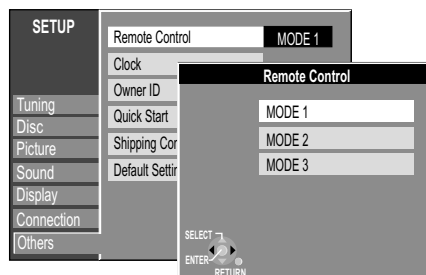
Setting the remote control

Setting the remote control mode for unit.

- Press **FUNCTIONS** in stop mode.
- Use **▲▼** to select [To Others] and confirm with **ENTER**.
- Use **▲▼** to select SETUP and confirm with **ENTER**.
- Use **▲▼** to select [Others], **▶** to select [Remote Control] and confirm with **ENTER**.
- Use **▲▼** to select the desired mode [MODE 1, 2 or 3] and confirm with **ENTER**.

Select the desired mode on the remote control.

- Press and hold the **ENTER** button for approx. 2 seconds and, at the same time, enter the number that corresponds with the selected mode (1, 2 or 3).
- Press **RETURN** to exit the menu.



Setting options

MODE1: Select this setting for normal use.

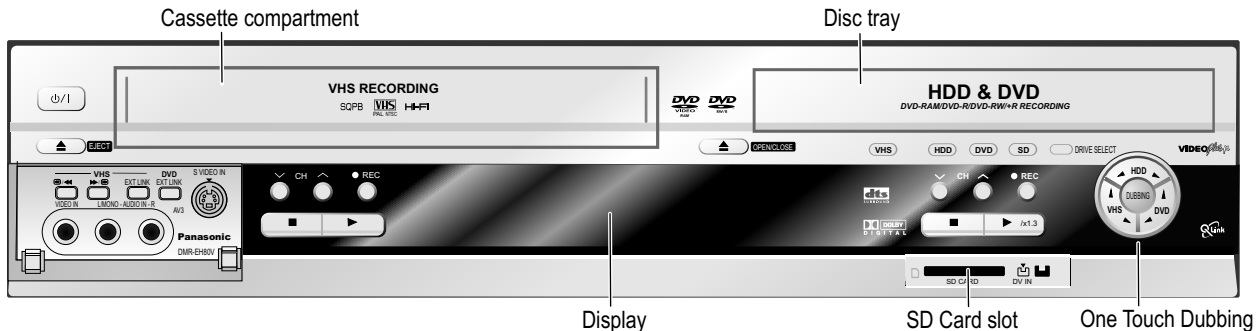
If the mode of the remote control does not correspond with that of the unit, [REMOTE MODE 1 / 2 / 3] will appear on the unit display.

- Press and hold the **ENTER** button for approx. 2 seconds and, at the same time, enter the number that corresponds to the displayed mode (1, 2 or 3).

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

The input must be repeated after batteries are changed.

Front panel



Front connections	
	AV3 input terminal
	S VIDEO input (AV3)
 DV IN	DV IN input

		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 display	 DRIVE SELECT	Drive selection HDD, DVD, SD
VHS		HDD/DVD	
 EJECT	Remove cassette	 OPEN/CLOSE	Open and close the disc tray
 CH 	Channel select button	 CH 	Channel select button
 REC	Record	 REC	Record
 ■	Stop	 ■	Stop
 ▶	Playback	 / x1.3	Playback / x1.3
Front access			
 VHS 	Search or fast forward	 VHS/DVD EXT LINK	Recording with external recording control

Display



TIMER-controlled recording.

Blinking: There are less than 10 minutes until the start of a programmed **TIMER** recording.

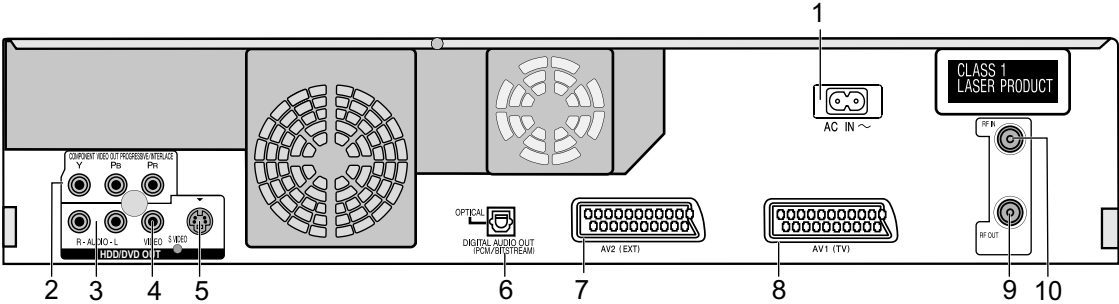
The device is not set to **TIMER** standby mode.

Information displays in VHS mode		Information displays in DVD/HDD mode	
	VHS operating state, e.g. playback, search		Disc is being read.
	Tape Remain indicator		Disc type e. g.: DVD-RAM, DVD-R, DVD-Video, Video-CD, DVD-RW (VR).
SP, LP, EP	Tape speed SP: normal recording duration LP: double the recording duration EP: triple the recording duration	XP, SP, LP, EP	Record mode All on: FR mode (for flexible recordings or TIMER -controlled recordings)
	Channel display A1, A2, A3 DC		Channel display TRK Track number GRP Group number TTL Title number PL Number of Playlist
S-VHS	S-VHS Dubbing display during a dubbing procedure		

Other displays

PB	Playback		Current time, recording/playback counter, various messages
REC	Record		
	Medium display.		SD Card has been inserted.
	Copy direction display	EXTL	External Link display On: A TIMER -controlled recording is being performed by an external device.

Rear panel



1	AC IN~ = Power supply
---	-----------------------

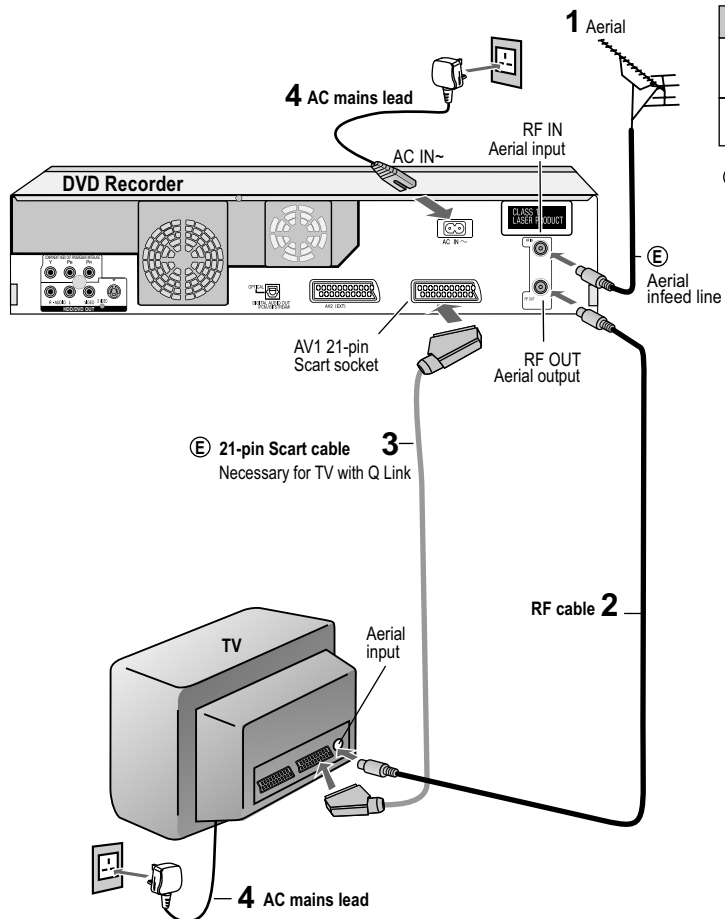
HDD/DVD OUT	
2	COMPONENT VIDEO OUT Y = Luminance signal (luminance) Pb = Chrominance signal (colour difference) Pr = Chrominance signal (colour difference)
3	R-AUDIO-L = Audio output right/left channel
4	VIDEO = Video output
5	S VIDEO = S VIDEO out connector
6	OPTICAL = Digital audio output

VHS/DVD COMMON	
7	AV2 (EXT) 21-pin Scart socket = connection of an external unit
8	AV1 (TV) 21-pin Scart socket = TV connection
9	RF IN = Aerial input
10	RF OUT = Aerial output

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

If you want to use a progressive scan-capable LCD/plasma television or LCD projector, connect it to the component video outputs for a high-quality progressive video picture.

Connecting with a 21-pin Scart cable



Connecting the TV	Setup
With Q Link function and 21-pin Scart socket	Download from TV 20
With a 21-pin Scart cable	Automatic setup 21

Ⓔ = Extra equipment for the connection shown: Aerial infeed line
21-pin Scart cable

Follow the steps below.

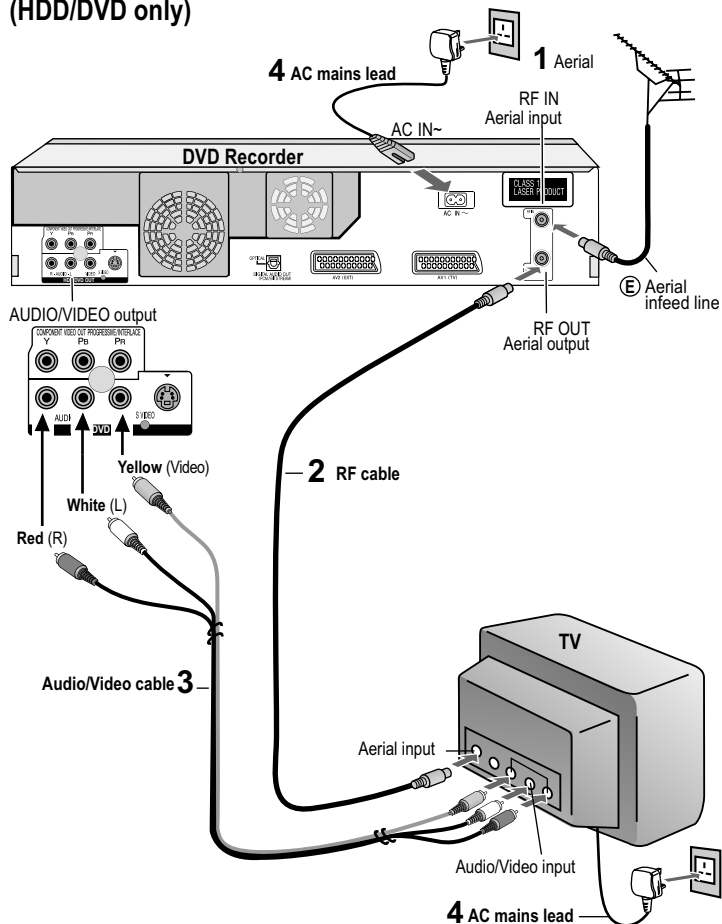
Disconnect the power from all units.

- 1 Connect the aerial to the RF IN (aerial input) of the DVD Recorder.
- 2 Connect the RF OUT (aerial output) of the DVD Recorder to the aerial input of the television set.
- 3 Connect the AV1 socket (21-pin Scart socket) of the DVD Recorder to the Scart input of the television set.
- 4 Plug the DVD Recorder and the television set into the AC mains socket.

If your television supports Q Link or RGB, connect it to the DVD Recorder with a fully wired 21-pin Scart cable.

SETUP - Connections - [AV1 Output]

Connecting with Audio/Video cable (HDD/DVD only)



Connecting the TV	Setup
With an Audio/Video cable	Automatic setup  21

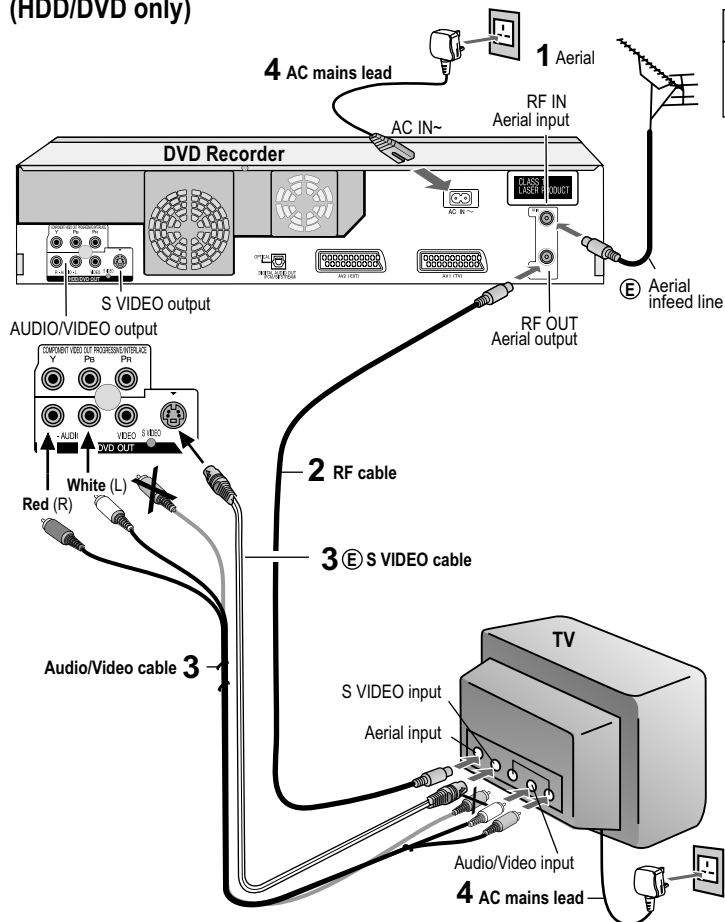
Ⓔ = Extra equipment for the connection shown: Aerial infeed line

Follow the steps below.

Disconnect the power from all units.

- 1 Connect the aerial to the RF IN (aerial input) of the DVD Recorder.
- 2 Connect the RF OUT (aerial output) of the DVD Recorder to the aerial input of the television set.
- 3 Connect the HDD/DVD OUT (AUDIO L/R, VIDEO) of the DVD Recorder to the input of the television set.
- 4 Plug the DVD Recorder and the television set into the AC mains socket.

Connecting with S VIDEO cable (HDD/DVD only)



Connecting the TV	Setup
With an S VIDEO cable and an Audio cable	Automatic setup 21

Ⓔ = Extra equipment for the connection shown: S VIDEO cable, Aerial infeed line

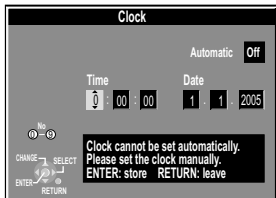
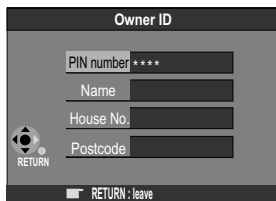
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Disconnect the power from all units.

- 1 Connect the aerial to the RF IN (aerial input) of the DVD Recorder.
- 2 Connect the RF OUT (aerial output) of the DVD Recorder to the aerial input of the television set.
- 3 Connect the AUDIO/VIDEO OUT (AUDIO L/R) of the DVD Recorder to the input of the television set. Connect the S VIDEO OUT of the DVD Recorder to the input of the television set.
- 4 Plug the DVD Recorder and the television set into the AC mains socket.

The S VIDEO connection delivers a clearer picture than the VIDEO OUT connection.

Setup with Q Link



Download from TV using QLink (Registered trademark of Panasonic)

You can download the tuning positions for analogue channels from the TV set. Time and date will be set automatically by the Auto Clock Setting function.

Note that you must first perform a station search.

If you have a Panasonic television, [Download from TV] will be displayed automatically at the beginning of the station transfer.

- Switch your television on and select the AV channel.
- Switch the unit on using the **Standby/on switch**.

The unit starts the station transfer.

The station transfer is complete when the Owner ID screen appears.

Owner ID

You can complete the Owner ID now or skip this step and do it later. To do it later, press the **RETURN** button. Your DVD Recorder is now ready to use.

- To set the Owner ID now, use ► and press the **Numeric** buttons or ▲▼► to enter a four-digit PIN number. Press ◀, to correct the digit.
- Be sure to remember the PIN number (write it down).
- Press the **ENTER** button twice to confirm.
- Enter the [Name], [House No] and [Postcode] in the same way, using ▲▼◀►.
- Press the **ENTER** button to confirm each entry.
- Press the **RETURN** button to leave the Owner ID screen.
- You will now see the TV picture. Your DVD Recorder is now ready to use.

If the clock setting menu appears

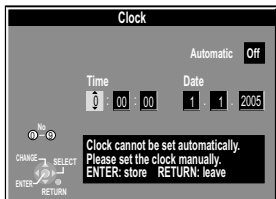
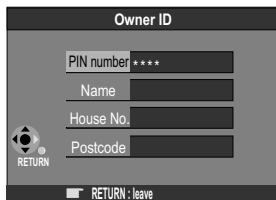
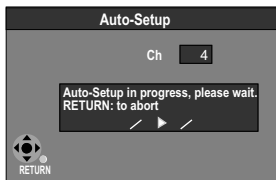
(Auto clock set was not possible due to a weak signal)

- Press ▲▼◀► to set the correct time and date and press **ENTER** to finish this setting.

Mind that a wrong date or time will influence the programmed recording of TV programmes (don't forget to change summer time and winter time).

*If Auto-Setup has previously been completed the DVD Recorder will not start Auto-Setup automatically. In this case you can re-start Auto-Setup again. See page 97. If you want to cancel Auto-Setup before it has finished, press the **RETURN** button. You can restart Auto-Setup again. See page 97.*

Setup without Q Link (Automatic tuning)



Auto-Setup

The automatic setup saves all available TV stations. If the station also broadcasts date and time, then the clock is also set automatically.

- Switch on your television and select the AV channel.
- Use the **Standby/on switch** to switch the unit on.

Automatic setup starts and takes approx. 5 minutes.

The station transfer is complete when the Owner ID screen appears.

Owner ID

You can complete the Owner ID now or skip this step and do it later. To do it later, press the **RETURN** button. Your DVD Recorder is now ready to use.

- To set the Owner ID now, use **▶** and press the **Numeric** buttons or **▲▼▶** to enter a four-digit PIN number. Press **◀**, to correct the digit.
- Be sure to remember the PIN number (write it down).
- Press the **ENTER** button twice to confirm.
- Enter the [Name], [House No] and [Postcode] in the same way, using **▲▼◀▶**.
- Press the **ENTER** button to confirm each entry.
- Press the **RETURN** button to leave the Owner ID screen.
- You will now see the TV picture. Your DVD Recorder is now ready to use.

If the clock setting menu appears

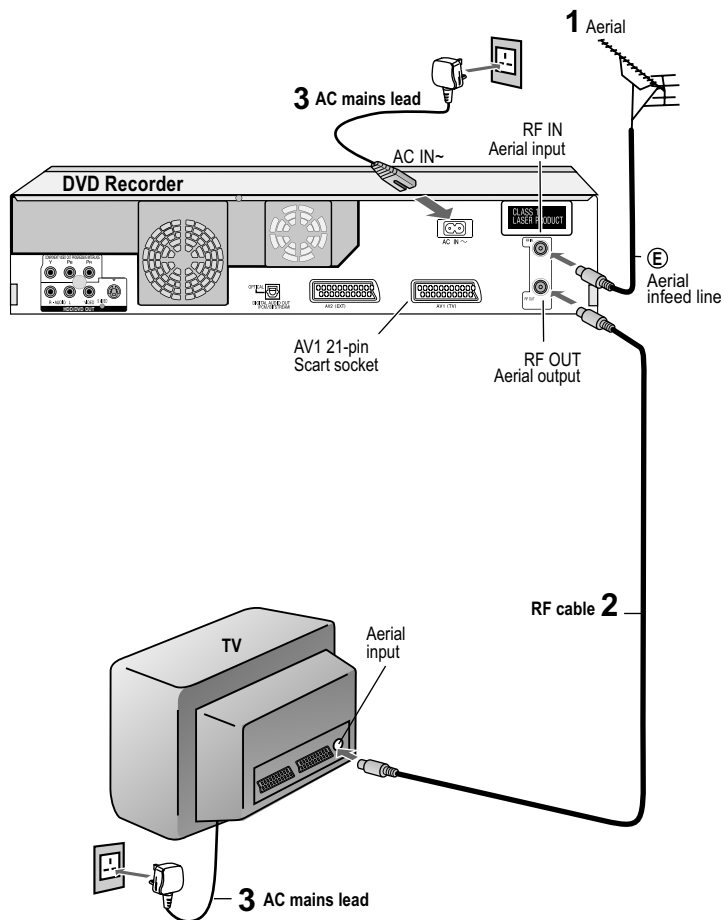
(Auto clock set was not possible due to a weak signal)

- Press **▲▼◀▶** to set the correct time and date and press **ENTER** to finish this setting.

Mind that a wrong date or time will influence the programmed recording of TV programmes (don't forget to change summer time and winter time).

*If Auto-Setup has previously been completed the DVD Recorder will not start Auto-Setup automatically. In this case you can re-start Auto-Setup again. See page 97. If you want to cancel Auto-Setup before it has finished, press the **RETURN** button. You can restart Auto-Setup again. See page 97.*

Connecting with RF cable (Aerial cable)



Since optimal picture quality cannot be achieved, the connection with the RF cable is not recommended.

You can connect the DVD Recorder to your TV set by using a RF cable (Aerial cable).

Follow the steps below.

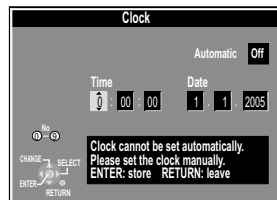
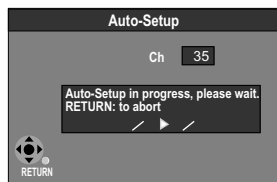
Disconnect the power from all units.

- 1** Connect aerial to the RF IN (Aerial input) connector of the DVD Recorder.
- 2** Connect the DVD Recorder's RF OUT (Aerial output) to the TV set's Aerial in connector.
- 3** Connect DVD Recorder and TV set to the AC mains socket.

Follow the steps for Auto-Setup on page 21.

Ⓔ = Extra equipment for the connection shown:
RF cable (Aerial cable)

DVD Display



Auto-Setup with RF cable (Aerial cable) (Automatic tuning)

- Turn on your television set.
- With the **Standby/on switch** turn on the DVD Recorder. Automatic tuning for all available TV stations begins. Approximate duration is 5 minutes.
- While Auto-Setup is running, the first digit of the DVD Recorder display will flash. After a while it will stop flashing and the RF output channel number will be displayed.
- Select an unused channel pre-set on your TV and tune it to the RF output channel number shown on the DVD Recorder display (or until you can clearly see the Auto-Setup screen). Store the new RF output channel (refer to the instructions for your TV).
- After Automatic tuning has finished, the Owner ID screen will appear.

In some cases, the RF output channel may interfere with the TV stations transmitted in your area. This may prevent you from seeing the On-Screen Display clearly. Please see page 24 for removing the interference before restarting Auto-Setup (page 97).

Owner ID

You can complete the Owner ID now or skip this step and do it later. To do it later, press the **RETURN** button. Your DVD Recorder is now ready to use.

- To set the Owner ID now, use **▶** and press the **Numeric** buttons or **▲▼▶** to enter a four-digit PIN number. Press **◀**, to correct the digit.
- Be sure to remember the PIN number (write it down).
- Press the **ENTER** button twice to confirm.
- Enter the [Name], [House No] and [Postcode] in the same way, using **▲▼◀▶**.
- Press the **ENTER** button to confirm each entry.
- Press the **RETURN** button to leave the Owner ID screen.
- You will now see the TV picture. Your DVD Recorder is now ready to use.

If the clock setting menu appears

(Auto clock set was not possible due to a weak signal)

- Press **▲▼◀▶** to set the correct time and date and press **ENTER** to finish this setting.

Mind that a wrong date or time will influence the programmed recording of TV programmes (don't forget to change summer time and winter time).

Removing interference / Changing RF output channel



TV screen
The picture with interference



On-Screen Display
Test pattern indication

DVD display



Indication when the RF output channel is 21 (example)



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



Test pattern indication



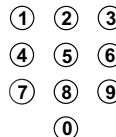
The clear picture

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

- Select **HDD** or **DVD**. **HDD** **DVD**
- Press the **FUNCTIONS** button for more than 5 seconds. The RF output channel number is displayed on the DVD display.



- Press the **Numeric** buttons or use the Channel (**CH**) button to select a channel number, which differs at least by 2 or 3 from the present channel number. (For example, if the original channel number was 28, enter 31.)



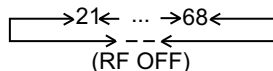
- Retune your TV until you receive the Test pattern. It may be necessary to repeat steps above until you can see the Test pattern clearly. If using a Scart cable please see the note below.



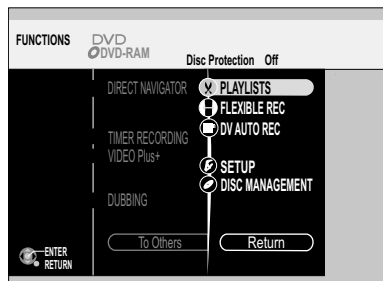
- Press **ENTER** to finish this setting.

Set the RF output channel of the DVD Recorder to [- -] (RF OFF) if the DVD Recorder is connected to the TV via the 21-pin Scart cable.

- Press **FUNCTIONS** for about 5 seconds. The preset channel will be displayed on the DVD display.
- Press channel select buttons **CH** or **0** to invoke [- -].
- Confirm with **ENTER**.



Checking the settings after Auto-Setup



- Press **FUNCTIONS** to display the FUNCTIONS Menu.
- Press **▼▲** to select [To Others] and then press **ENTER**.
- Press **▼▲** to select SETUP and then press **ENTER**.
- Press **►** to select [Manual] and then press **ENTER** to display the list of tuned TV stations and confirm that all available TV stations have been set correctly.

If station name is [****]:

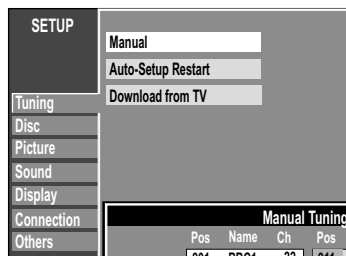
The asterisks indicate that a station was found during Auto-Setup but has not been named (due to a weak signal).

The stations in the list with asterisks will need to be named manually. See page 95.

If station name is [- - - -]:

The dashes represent unused channel positions.

You can set stations manually if desired. See page 95.



RETURN



- Press **RETURN** to exit the On Screen Display.

When the station names have not been set correctly, see page 96 for details.

If no stations were found, confirm all connections of the DVD Recorder again and restart the Auto-Setup. See page 97 for details.

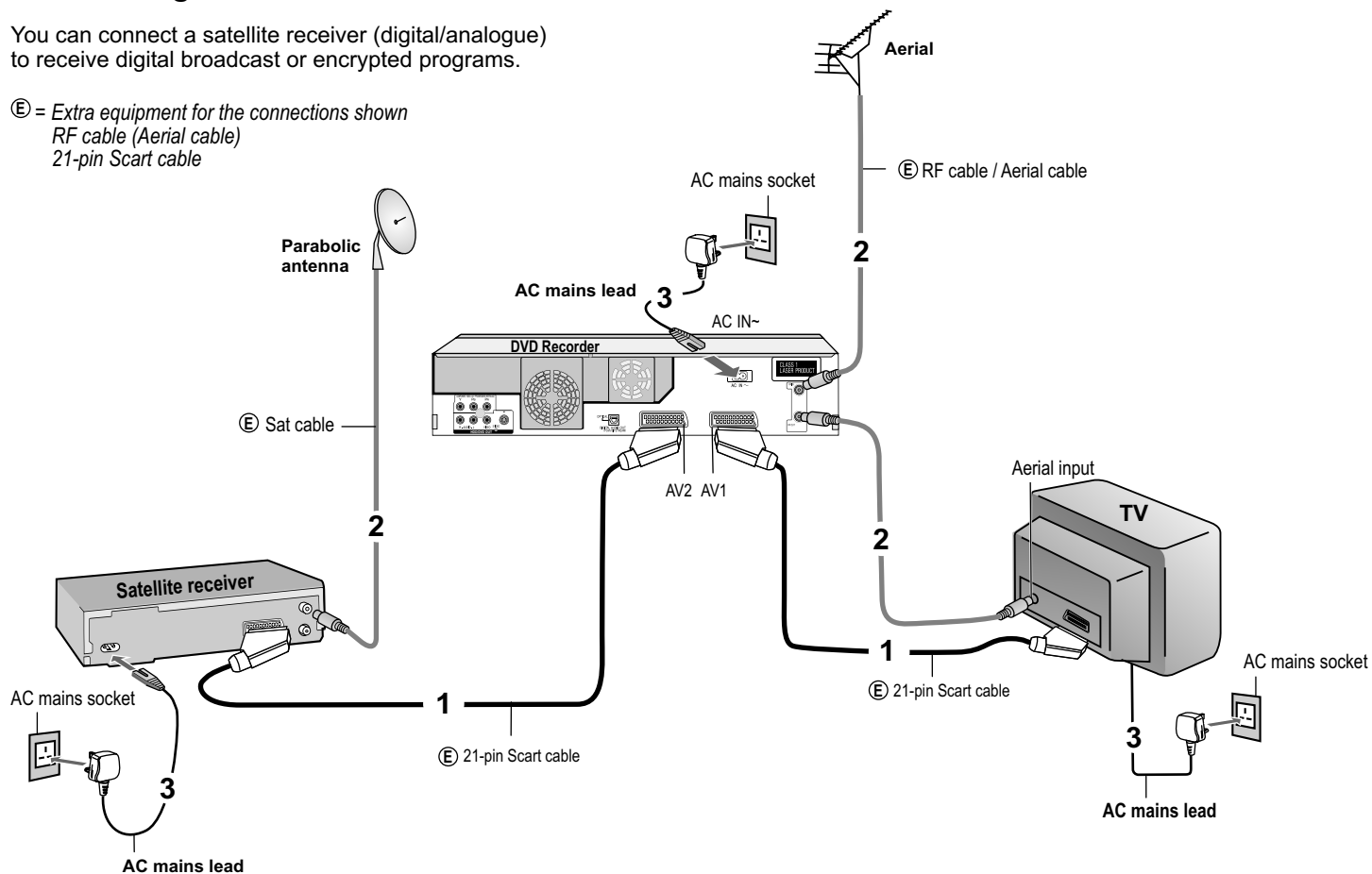
Manual Tuning					
Pos	Name	Ch	Pos	Name	Ch
901	BBC1	22	911	----	---
902	BBC2	23	912	----	---
903	ITV	24	913	----	---
904	CH4	25	914	----	---
905	CH5	26	915	----	---
906	****	30	916	----	---
907	----	---	917	----	---
908	----	---	918	----	---
909	----	---	919	----	---
910	----	---	920	----	---

TV reception channels

Connecting to a satellite receiver

You can connect a satellite receiver (digital/analogue) to receive digital broadcast or encrypted programs.

Ⓔ = Extra equipment for the connections shown
RF cable (Aerial cable)
21-pin Scart cable



Follow the steps below.

Disconnect the power from all units.

- 1** Connect a 21-pin Scart cable (fully wired) to the AV2 21-pin Scart socket of the DVD Recorder and to the 21-pin Scart socket of the satellite receiver.
Connect a 21-pin Scart cable (fully wired) to the AV1 21-pin Scart socket of the DVD Recorder and to the 21-pin Scart socket of the TV set.
- 2** Connect aerial to the RF IN (Aerial input) of the DVD Recorder.
Connect the parabolic antenna to the Aerial in connector of the satellite receiver.
Connect the DVD Recorder's RF OUT (Aerial output) to the TV set's Aerial in connector.
- 3** Connect the satellite receiver, DVD Recorder and TV set to the AC mains supply.

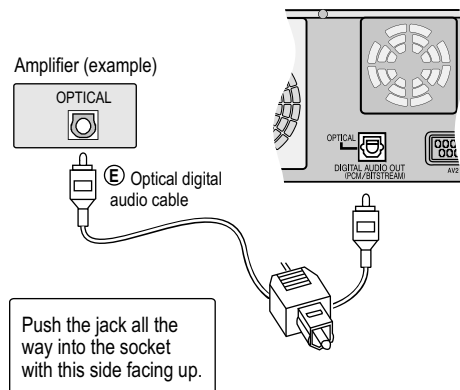
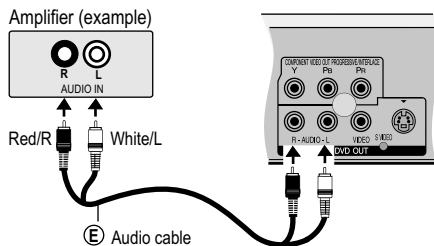
Switch on the TV set and DVD Recorder.
Set the settings for AV2 according to the connected satellite receiver.



Switch on the satellite receiver. Then follow page 21 for Auto-Setup with 21-pin Scart cable.

External devices

Ⓔ = Extra equipment for the connections shown



Connecting an analogue amplifier or an analogue system component

Before you connect the cable, make sure that the power to both devices is turned off. After you have connected the cables, switch both devices on.

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

- Connect the analogue output (L/R) e.g. to a Dolby Pro Logic amplifier.
- As described, connect the Audio cable according to the colours and markings of the connection sockets (white/L, red/R).

Connecting a digital amplifier or a digital system component

Before you connect the cable, make sure that the power to both devices is turned off. After you have connected the cables, switch both devices on.

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

- Connect an amplifier with a Dolby Digital-, DTS- or MPEG decoder.
- Use an Optical digital audio cable.
- In the Sound SETUP menu, change the [Digital Audio Output] setting according to your connected digital amplifier.

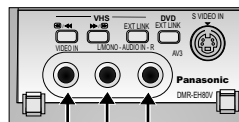
You cannot use DTS Digital Surround decoders that are not suitable for DVD.

DOLBY This device can playback stereo **DIGITAL** sound in Dolby Digital (2 channels). Connect an amplifier with built-in Dolby Digital decoder in order to be able to enjoy Surround Sound.

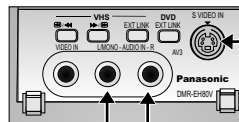
DIGITAL
dts
SURROUND Connect this unit to a device with a DTS decoder in order to be able to play DVDs with this symbol.

External devices

Ⓔ = Extra equipment for the connections shown



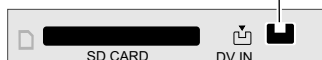
Audio/Video cable
A Yellow (Video)
B White (L)
C Red (R)



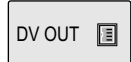
S VIDEO -cable

Audio cable (L/R)
A White (L)
B Red (R)

DV-IN Front connection



DV unit (example)



Ⓔ = Extra equipment DV cable

Connecting to the AV3 input sockets (e.g. Camcorder)

Before you connect the cable, make sure that the power to both devices is turned off. After you have connected the cables, switch both devices on.

If the audio output of the other device is mono, connect it to the L/MONO socket. Both the left and the right channels will be recorded if the connection is made via the L/MONO socket.

Choose one of the two connection possibilities.

Connection with S VIDEO cable and audio cable (L/R) produces the best quality.

DV-IN connection

Before you connect the DV cable, make sure that the power to both devices is turned off.

- Connect the DV output of the DV unit (e.g. digital camcorder) to the DV input socket of the DVD Recorder.
Use the DV cable.
- After you have connected the cables, switch both devices on.

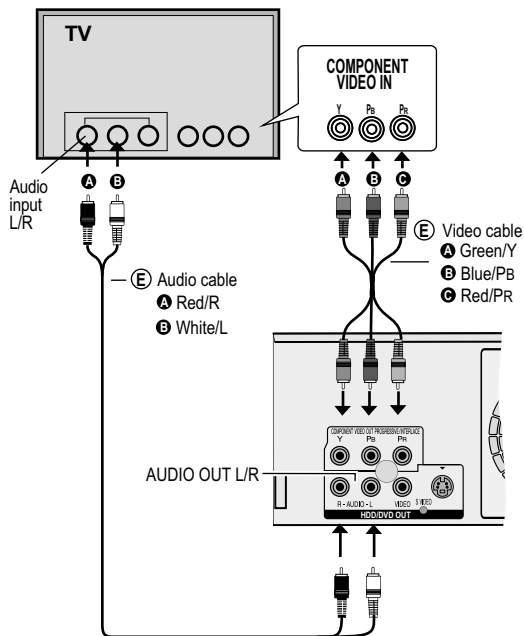
The DVD Recorder cannot be controlled by the connected DV unit.

The DV input of this unit is only intended for DV units. A computer e.g. cannot be connected. Some DV units do not allow for proper input of the picture and sound signal.

COMPONENT VIDEO OUT

(HDD/DVD only)

Ⓔ = Extra equipment for the connections shown



COMPONENT VIDEO OUT socket

These sockets can be used for interlace or progressive output and deliver a clearer picture than the S VIDEO OUT socket. Connections via these sockets output colour difference signals (Pb/P_r) and luminance signal (Y) separately. Colours can be reproduced true to colour. The properties of the COMPONENT VIDEO input socket are dependent on the television set or screen.

Always connect sockets of the same colour. Connect the Audio cable to the corresponding audio input sockets of the television.

Connecting a television with COMPONENT VIDEO input sockets

If your television with LCD or plasma screen supports the progressive procedure, connect it to the COMPONENT VIDEO OUT sockets. If you want to enjoy progressive-quality video, set Progressive to [On].

- Press **FUNCTIONS** in stop mode.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Use **▼▲** to select SETUP and confirm with **ENTER**.
- Use **▼▲** to select [Connection], **▶**, **▼▲** to select [Progressive] and confirm with **ENTER**.
- Use **▼▲** to select the [On] option and confirm with **ENTER**.

If the AV1 Output setting in the SETUP menu is set to [RGB (without component)], no output will take place to the COMPONENT VIDEO OUT sockets. Set this option to [Video (with component)].

If the unit is connected to the television via the VIDEO OUT, the S VIDEO OUT or the AV1 socket, output takes place in the interlace format regardless of the settings.

COMPONENT VIDEO OUT

Progressive television picture

The progressive aspect ratio (height to width) is set to 16:9.

DVD-Video with an aspect ratio of 16:9 will be displayed properly.

However, video material with an aspect ratio of 4:3 will be displayed stretched to the right and left.

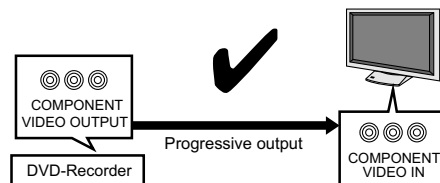
If it is possible to adjust the aspect ratio of your television for progressive images, set the Progressive setting to [On].

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Information for Progressive-compatible televisions (PAL)

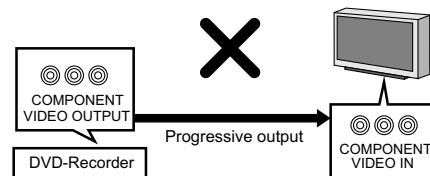
LCD/plasma TVs or LCD projectors

If Progressive output is used, videos can be viewed at a high resolution, e.g. from DVD-Video.
The Component Video Output of this unit is connected with the television set. Set Progressive to [On].



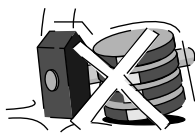
Conventional TVs

In normal televisions, progressive output can lead to flickering, even if the television is progressive-compatible. Make sure that the Progressive setting is set to [Off].



Your HDD (Hard disk drive) is a highly precise recording unit with a particularly long recording capacity and a high recording speed. Be careful with the unit since it can be easily damaged.

Always save an additional backup copy of important data on a disc!



- Your HDD is sensitive to vibrations, jolts and dust. Improper handling or the wrong operating environment can lead to data loss. In some cases, the unit may no longer record or playback correctly. In particular, be sure to operate the HDD in a jolt- and vibration-free environment. Do not unplug the unit during recording or playback. Otherwise, data may be lost.
- Your HDD is a temporary storage medium. It should not be used to permanently save recordings. Use your HDD for one-time viewing, editing and saving recordings to a disc.
- Immediately save all HDD content to another medium (disc) if you detect any problems. Irregularities are manifested in repeated, inexplicable noises and picture distortions. Should you detect problems, refrain from using your HDD. In the worst case, you will destroy the HDD. Please take the unit to customer service. Recordings saved to a damaged HDD cannot be recovered.
- An unexpected sound may occur when switching the unit on and off or when the HDD automatically goes into SLEEP mode. This is not a problem. The unit is functioning properly.



Moisture and condensation

- Do not expose your HDD to extreme fluctuations in temperature (e.g. transport from a warmer to a colder or a colder to a warmer environment or direct exposure to cold air in air-conditioned rooms). Moisture may collect inside the unit and destroy the HDD read and write heads or other parts. Let the unit sit for 2 to 3 hours so that it can adjust to room temperature after a change in location and any potential moisture can dry. Then you can operate the unit.

Handling your HDD



During operation

Do not expose your HDD to jolts and vibrations.

This can damage the HDD.

Do not unplug or turn off the power during operation.

The HDD spins at a very high speed.

Sounds or movements are normal due to the rotational speed.

If you want to transport the unit

- Switch the unit off. (Wait until "BYE" disappears from the display.)
- Unplug the unit.
- Note that the HDD continues to run for a short period of time after the unit has been switched off. Only transport the unit if the HDD has come to a complete stop (after approx. 2 minutes) to prevent damage from vibrations and jolts.

Remaining recording time on the HDD

This unit records with a VBR (Variable bit rate) data compression system. This means that the length of the programmed recording is variably adjusted based on the video data to be recorded. Thus, there may be differences in the display of the remaining recording time and the remaining recording length.

If there is not enough storage space for a recording, delete old titles from the HDD to free up storage space for a recording. (The deletion of playlists does not increase the storage space!)

Liability for recorded data

Panasonic is in no way liable for direct or indirect problems resulting in the loss of recordings or edited content (data) and does not guarantee the error-free functioning of the recorded or edited content. This also applies to the servicing of the unit (also applies to components that are not connected to the HDD).

"HDD SLP (SLEEP)" appears in the display

Your HDD automatically went into SLEEP mode. When the unit is switched on, the HDD spins at a high speed. To extend the lifetime of the HDD, it goes into SLEEP mode if no function is called for more than 30 minutes and there is no disc in the DVD drive.

- Press HDD to activate it.
- If the HDD is in SLEEP mode, it needs a short period to power up. Thus, recordings or playbacks do not start right away.
- Please always remove discs from the HDD when you are not using the unit so that the HDD will go into SLEEP mode.

Disc formats



Playback and recording discs					
— —	HDD (Hard disk drive)	200GB rewritable	HDD	TIME SLIP function, CPRM compatible, supports 2 channel sound, 16:9 format, creation of playback lists, deleting individual titles frees up storage space, Temporary storage	Video / pictures
	DVD-RAM	4,7GB / 9,4GB, 12cm 2,8GB, 8cm rewritable	RAM	TIME SLIP function, CPRM compatible, supports 2 channel sound, 16:9 format, creation of playback lists, deleting individual titles frees up storage space	Video / pictures
	DVD-R (DVD-Video format)	4,7GB, 12cm 1,4GB, 8cm writable	unfinalised -R finalised DVD-V		Video
— —	+R	4,7GB, 12cm writable	unfinalised +R finalised DVD-V		Video
	DVD-RW (DVD-Video format)	12cm / 8cm rewritable	unfinalised -RWV finalised DVD-V		Video
Playback discs					
	DVD-Video	12cm / 8cm playback only	DVD-V	High-quality video and music discs.	
	DVD-Audio	12cm / 8cm playback only	DVD-A	Music discs in digital quality. Playback in 2-channel sound.	
	DVD-RW (DVD-VR format)	12cm / 8cm playback only	-RWVR	Unfinalised CPRM compatible discs with "one time only recorded" recording. Recorded on another DVD recorder.	
— —	+RW	12cm / 8cm playback only	DVD-V	Recorded on another DVD recorder. The disc must be finalised eventually.	
	Audio CD CD-R/RW	12cm / 8cm playback only	CD	Music and audio recordings.	
— —		12cm / 8cm playback only		Music in MP3 format, pictures in JPEG and TIFF format. Max. 999 titles / 99 groups.	
	Video CD CD-R/RW	12cm / 8cm playback only	VCD	Music and video recordings. SVCD conforming to IEC62107.	

Due to the disc programme structure set by the manufacturer, not all described functions may be able to be used. Depending on the disc type, the regional code and the recording conditions, it may not always be possible to play the discs listed.

Disc formats



RAM Cartridge discs

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



Cartridge write protection

Remove 8cm discs from the cartridge before you use them on the unit.

Discs recorded with PAL or NTSC signals:

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

DVD Video Recording format (VR)

This format enables the free editing of recordings. Digital programmes that allow "one time only recording" can be recorded once on a CPRM-compatible DVD-RAM. Playback is only possible on compatible units.

DVD-Video format (V)

This format corresponds with the commercially available DVD-Video. Recordings made with this unit must be finalised in order to be played back on a DVD player. Digital programmes that allow "one time only recording" can not be recorded. The DVD-Video format can be recorded on DVD-R or DVD-RW.

RAM The disc can only be played back on DVD-RAM-compatible players.

RAM You can use the playback and the DIRECT NAVIGATOR while the unit is in timer-standby mode.

Still images (JPEG/TIFF) recorded on a CD-R/RW as well as CD-DA, Video CD and MP3-format data can be played back. After the recording, the session must be ended or the disc must be finalised.

New or previously used (e.g. in computers) DVD-RAMs or DVD-RWs may need to be formatted before recording with this unit.



DualDiscs may not always play without errors.

RAM CPRM (Content Protection for Recordable Media)

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

Discs that cannot be played back: Some DVD-R; DVD+R; DVD-R DL/DVD+R DL; DVD-RAM (2.6 GB/5.2 GB); DVD-ROM; CD-ROM; CDV; SVCD that do not conform to EIC62107; SACD; MV-Disc; PD; Photo CD; DivX Video Disc, Blu Ray, etc. The playback of non-standard video CDs is not guaranteed.



Copying from HDD to DVD in high-speed mode **-R -RW/+R**

You can copy titles from the HDD to DVD in high-speed mode. Before the titles are saved to the HDD, please perform the following settings:

- In the SETUP menu, set the setting for Rec for High Speed dubbing to [On].



Please note the following when copying in high-speed mode:

16:9-format programmes are recorded in 4:3 format.

With dual-channel-sound programmes, only the main sound (M1) or the extra sound (M2) can be recorded.

Some television stations broadcast a main sound (M1) and extra sound (M2). The desired sound must be selected before recording dual-channel-sound programmes.

- In the SETUP menu, select Sound for Bilingual Audio Selection [M1] or [M2].



If an external unit is connected, select sound channel (M1) or (M2) on the external unit.

After recording is complete, it takes approx. 30 seconds for the unit to process the information. The first 30 seconds of a recording may be missing if you perform successive **TIMER**-controlled recordings.

In order to playback a DVD-R, DVD-RW (DVD-Video format) or +R recorded using this unit on another unit, the disc may need to be finalised.

The disc may also not be able to be played back on other units even after finalising.

SD Memory Card



Memory Cards

SD Memory Card miniSD™ Card MultiMediaCard	8MB to 1GB (Maximum)		For playing back and copying (DUBBING) pictures that were recorded e.g. with a digital camera. Setting the DPOF feature (page 46).	Pictures
--	-------------------------	--	---	----------

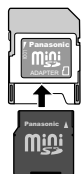
Use an appropriate adapter for miniSD™ cards.

If the SD Memory Card has been formatted with another device, the recording can take longer than usual. If the SD Memory Card was formatted with a PC, 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.

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



write protection

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.

Suitable SD storage cards

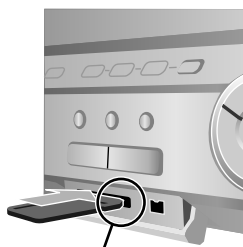
8 MB	16 MB	32 MB	64 MB	128 MB	256 MB	512 MB	1 GB (Maximum)
------	-------	-------	-------	--------	--------	--------	----------------

Inserting the storage card

Open the SD slot.



Insert the card until it locks in place.



Insert card with label facing up and corner to the right.

Removing the storage card

Press the storage card to disengage and remove.



Close the SD slot.



Playback

Playback functions

DVD / HDD

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Playback



Preparation

- Switch your television on and select the appropriate AV channel.
- Switch the DVD Recorder on and select the desired drive with **HDD** or **DVD**.  



Playback

-  • Press **PLAY** ►.
-  • Press **OPEN/CLOSE** ▲ to open the disc tray.
- Place the disc in the disc tray.
 - Press **PLAY** ►.

The disc tray is closed and playback begins.
The reading of the disc may take some time!

      Playback begins with the last recorded title.

    Playback begins at the beginning of the disc.



PAUSE during playback

- Press **PAUSE** ■■ during the playback.
- Press **PAUSE** ■■ again to resume playback.



Resuming playback

- Press **STOP** ■ during the playback.
The unit saves the position.
The position is deleted if you switch the unit off.
- Press **PLAY** ► to resume playback from the saved position.
- To cancel the function, press **STOP** ■ several times.



Cancelling playback

- Press **STOP** ■ to watch TV via the unit's tuner.

- Press **STOP** ■ during the playback.
- Press **STOP** ■ again to watch TV via the unit's tuner.

Direct playback

Starting the playback from a selected title, chapter or track.

- During playback, use the numeric buttons to select the desired entry.

5: 0 + 5

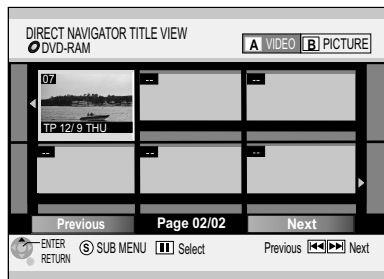
15: 1 + 5

  5: 0 + 0 + 5

15: 0 + 1 + 5

 While the screensaver is displayed, you can enter a group number.
This function is not available for some discs if playback is stopped.

Playback



DIRECT NAVIGATOR:

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Symbols 72



Selecting programmes/titles for playback

You can display the menu during playback, recording and in stop mode using the **DIRECT NAVIGATOR** button.

- Press **DIRECT NAVIGATOR**.
- Use **▼▲◀▶** to select the desired title and confirm with **ENTER**.
- Press **RETURN** to exit the menu.

*You can select other pages using **SKIPI◀◀** Previous or **▶▶I** Next.*

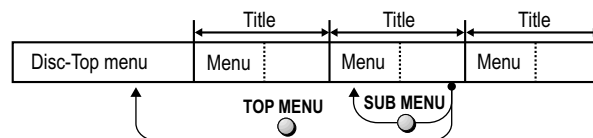
A menu appears on the television screen

- Use the numeric buttons to select an entry.
e.g.: number 5: + or number 15: +
- Use **▼▲◀▶** or the numeric buttons to select an entry and confirm with **ENTER**.

If appears on the television screen, this function is not possible by the unit or the disc.

The operation of the disc menu depends on the inserted disc. If you launch the main menu with **TOP MENU**, another menu may appear than when you press **SUB MENU**.

- Use the numeric buttons or **◀▶▼▲** to select the desired entry and confirm with **ENTER**.



MANUAL SKIP

MANUAL SKIP

- Press **MANUAL SKIP** during playback.
Playback jumps forward 30 seconds each time this button is pressed.



Slow-motion playback

Not 

- Press **SLOW/SEARCH** ◀◀, ▶▶ in pause mode.
Speed can be controlled in 5 stages.
- Press **PLAY** ▶ to resume normal playback.

HDD **RAM** **-R** **-RWV** **+R** The pause feature is automatically switched on after approx. 5 minutes.

VCD Only for forwards direction.

DVD-A Only motion pictures

Fast forward/rewind

- Press **SLOW/SEARCH** ◀◀, ▶▶ during playback.
As long as the button is pressed, the search speed increases in 5 stages.
- Press **PLAY** ▶ to resume playback.

You can change the search speed also by turning the Smart Wheel.

HDD **RAM** **-R** **-RWV** **+R** Sound is only output at the first fast-forward speed.

DVD-A **CD** **MP3** In the case of DVD-Audio (except motion picture parts), CD and MP3, sound is output in all speed levels.



Skipping chapters, titles or pictures

- Press **SKIP** ◀◀, ▶▶ during playback or pause to skip chapters, titles or pictures.
Each press increases the number of skips.

◀|| ▶|| Single-frame playback

Not 

- Press ◀||, ▶|| in pause mode.
Each press of the button shows the next or the previous frame.
- Press **PLAY** ▶ to resume playback.

VCD Only for forwards direction.

DVD-A Only motion pictures

Playback



Quick View (Play/ x1.3) HDD RAM

Increase playback speed without negative effects on sound.

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



Output takes place in PCM with a digital connection.

*Quick View is cancelled if **SKIP** ◀◀, ▶▶ or **PAUSE** ■ is pressed or playback of a programme begins that was not recorded with Dolby Digital.*

Quick View does not function during simultaneous recording and playback in XP or FR mode .



Splitting a recording into chapters HDD RAM

- Press **CREATE CHAPTER** during playback.

*During playback press ◀◀ **SKIP** or **SKIP** ▶▶ to skip the chapter.*



Changing the audio channel

- Press **AUDIO**. HDD RAM L/RWVR VCD

DVD-A DVD-V You can change the number of the audio channel, e.g. the language setting, by pressing the appropriate button.



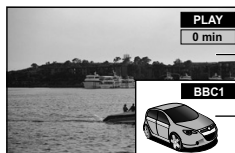
*If you cannot change the sound track, select the [PCM] setting in the **SETUP** menu for Dolby Digital.*

Playback



TIME SLIP **HDD** **RAM** **◀R** **▶RWW** **◀R** **▶RWW**

- Press **TIME SLIP**.
- Use **▲▼** to select the time that the playback should jump forward or back.
If you press and hold the buttons, the time span increases or decreases minute-by-minute. If you hold the buttons, time increases in 10- minutes units.
- Press **ENTER** to confirm the selected time.
- Press **PLAY ▶** to hide the picture in picture.



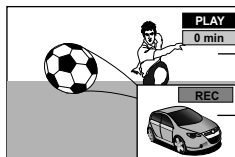
The TV picture is shown as picture-in-picture.

Playback picture

Currently received picture (receive channel).
The receive channel can be switched using the **CH ▲, ▼** button. This is not possible during a recording.

Delayed playback **HDD** **RAM**

Playback can be started while the unit is still recording. Without stopping the current recording, you can view the recording from the beginning.

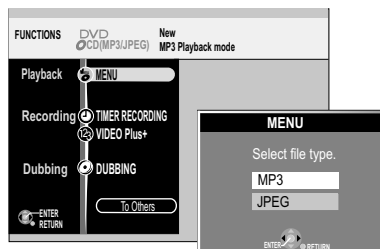


Playback started 30 seconds ago.

Image currently being recorded.

- Press **STOP ■** to end the playback.
- After 2 seconds, press **STOP ■** again to stop the recording.
Use **⌚ TIMER** to stop a **TIMER**-controlled recording.

MP3 playback



CD (MP3/JPEG)

The following information on the file type appears at the beginning:
Playback mode is set to MP3.

Select "JPEG" from MENU in FUNCTIONS if you play pictures (JPEG).

- Confirm the information with **ENTER**.
- Press **FUNCTIONS** and confirm **MENU** with **ENTER**.
- Use **▲▼** to select the desired file type and confirm with **ENTER**.

CD (MP3)

This unit can play MP3 files that were recorded with a computer on a CD-R/RW. Files are captured as tracks and folders as groups.

"TOTAL" includes all tracks in all groups of the disc.

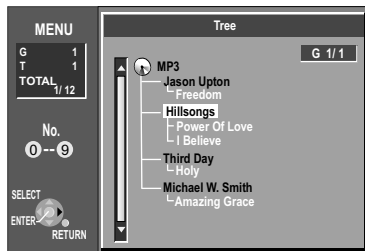
- Use **DIRECT NAVIGATOR** to launch the MENU screen.
- Use **▲▼** to select the desired track and confirm with **ENTER**.
Playback continues until the last track of the selected group.
To select a track via the numeric buttons, press e.g. for track no. 8: ① ② ③ .
- Use **DIRECT NAVIGATOR** or **RETURN** to exit the MENU screen.

Use SKIP ◀◀, ▶▶ to select other tracks/groups or pages. After all tracks in a group have been displayed, the next group is listed.



Selecting a group using the tree structure

- After selecting a Track in the file list, press **▶**.
The tree structure appears on the screen.
- Use **▲▼** to select the desired Group.
- Use **◀▶** to switch between different levels in the screen of the tree structure.
- Confirm with **ENTER**. The selected Group is displayed in the file list.
- Use **▲▼** to select the desired Track and confirm with **ENTER**.

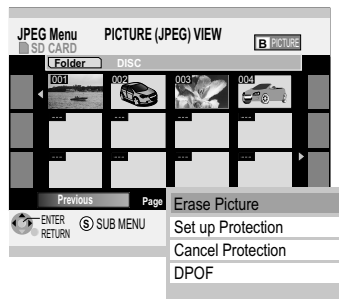


Shows the track currently being played.

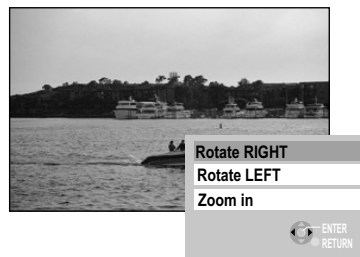
G : Group number
T : Track number in the group

TOTAL: Selected track number / Total number of track numbers
No.: Selected group number
Group: Selected group name

JPEG playback



Several pictures can be selected and edited with **PAUSE** ■■.



The rotating and enlarging of pictures is not saved.

Use **STOP** ■ or **DIRECT NAVIGATOR** to return to PICTURE (JPEG) VIEW.

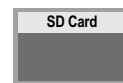
Picture playback

- Press **DIRECT NAVIGATOR**.
- **HDD RAM** If TITLE VIEW appears, press the **GREEN** button, to switch to PICTURE. The PICTURE (JPEG) VIEW appears on the screen.
- Use **▼▲◀▶** to select the desired picture and start picture playback using **ENTER**.

To select a picture using the numeric buttons, press e.g. for picture no. 8: **0** + **0** + **0**

Displaying the picture properties

- Select the desired picture and press **ENTER**.
- Press **STATUS** twice.
- Press **STATUS** again to exit the display.



Rotating pictures

- Press **SUB MENU** during playback.
- In the sub-menu, use **▲▼** to select the desired setting and confirm with **ENTER**.
- Use **STOP** ■ or **DIRECT NAVIGATOR** to return to PICTURE (JPEG) VIEW.

Zoom in / Zoom out (only available for still pictures smaller than 640 x 480 pixels)

- Press **SUB MENU** during playback.
- In the sub menu, use to select [Zoom in] and confirm with **ENTER**.
- To switch back to the original size, confirm [Zoom out] with **ENTER** in the sub-menu.

Editing a picture

Press **SUB MENU** in PICTURE (JPEG) VIEW.

- Select the desired setting **▲▼** in the submenu and confirm with **ENTER**.

Erase Picture	Select ◀▶ [Erase] to delete the pictures and confirm with ENTER .
Set up Protection Cancel Protection DPOF	46
Other View HDD RAM	Return to TITLE VIEW.

JPEG playback



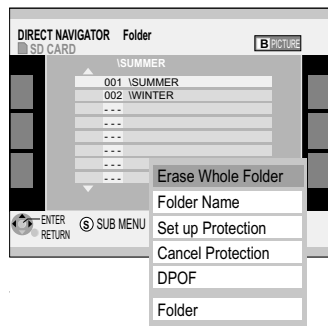
Folder

- Press **DIRECT NAVIGATOR**.
- **HDD RAM** If TITLE VIEW appears, press the **GREEN** button to switch to PICTURE.
The PICTURE (JPEG) VIEW appears on the screen.



Select Folder

- Use **▲▼** to select [Folder] in PICTURE (JPEG) VIEW.
Confirm [Folder] with **ENTER**.
- In order to display the content of the folder, use **▲▼** to select the desired folder and confirm with **ENTER**.
- Press **SUB MENU** to edit the selected folder.
- In the submenu, use **▲▼** to select the desired setting and confirm with **ENTER**.
Use **PAUSE** to select and edit several folders.

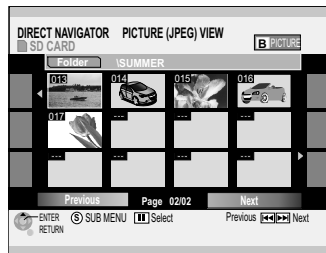


The print settings (DPOF) made with this unit may not be able to be viewed on other units.
If the folder or the files are not compatible with the DCF standard or there is not enough space on the card, the setting cannot be performed.

Editing folders **HDD RAM SD**

Erase Whole Folder	The selected folder and its contents are permanently deleted. (Even data that is not displayed with this unit). • Select ◀▶ [Erase] and confirm with ENTER .
Folder Name	Change the name of the selected folder. Names created with this unit may not be able to be displayed by other units.
Set up Protection Cancel Protection	By protecting the folder, the folder and the pictures within the folder cannot be deleted. Protection is displayed by . • Select ◀▶ [Yes] and confirm with ENTER .
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.
Folder SD	You can directly select and open a Folder. Folders that were not created with this unit may not be able to be opened under certain circumstances.

JPEG playback



Paging in the DIRECT NAVIGATOR

- Use **▼▲◀▶** to select [Previous] or [Next] and confirm with **ENTER** or press **SKIP** **◀◀▶▶**.

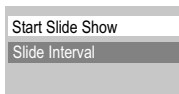
Selecting several objects

- Use **▼▲◀▶** to select the desired title and press **PAUSE** **■** to add it to the selection or deselect it.

Slide Show

The pictures in the selected folder are automatically played back one after the other. The display duration for each picture is determined with the [Slide Interval] setting.

- Use **▲▼** to select [Folder] in PICTURE (JPEG) VIEW and press **SUB MENU**. Use **▲▼** to select the desired option in the submenu and confirm with **ENTER**.



Slide Interval

- Press **SUB MENU**.
- Use **▲▼** to select [Slide Interval] and confirm with **ENTER**.
- Use **◀▶** to select the display duration of the individual pictures in the Slide Show.
- Confirm with **ENTER**.

Start Slide Show

- Press **SUB MENU** again and confirm [Start Slide Show] with **ENTER**. The pictures in the folder are displayed in the selected interval. The Slide Show stops after the last picture. Use **STOP** **■** or **DIRECT NAVIGATOR** to return to PICTURE (JPEG) VIEW.

JPEG/MP3 format



The unit can process up to a maximum of 999 files and 99 folders (including higher folders). If TIFF-format pictures are to be played back or if there are a lot of files and/or folders, the procedure can take quite some time. Some files may not be able to be displayed or played back. MOTION JPEG is not supported.

Folder structure

MP3	JPEG
CD Root 001 (Folder=Group) 001 track .mp3 (Files=Tracks) 002 track .mp3 003 track .mp3 002 Group 001 track .mp3 002 track .mp3 003 track .mp3 Playback sequence	HDD RAM CD SD DISC - JPEG - DCIM *** (Subfolder) *** XXXXX (Picture folder) - XXXX .JPG - XXXX .TIF - DCIM *** XXXXX - XXXX .JPG - XXXX .TIF CARD - DCIM (Subfolder) *** XXXXX (Picture folder) - XXXX .JPG - XXXX .TIF - IM***CDDF or IMEXPORT - XXXX .JPG - XXXX .TIF This unit can display the following. *** : Numbers / XXX : Letters
MP3 format The discs must correspond with the formats ISO9660 Level 1 or 2 and Joliet. Compatible compression rate: between 32 kbps and 320 kbps Compatible scan rate: 44.1 kHz and 48 kHz JPEG format File format: JPEG, TIFF (uncompressed RGB chunky format) Number of pixels: 34x34 through 6144x4096 (sub scanning 4:2:2 or 4:2:0) <i>The files must have the extension ".mp3" or ".MP3". Give the folders and file names three-digit prefix numbers during recording to set the desired playback sequence. Latin letters and Arabic numerals will be displayed correctly. Other characters may not display properly.</i>	<i>Folders can be created on another unit. However, these folders cannot be selected as the target for a copy procedure. A folder in which all numbers are "0" (e.g. DCIM000) cannot be displayed.</i> <i>If a folder or file name was entered using another unit, the name may not be displayed properly and the data may not be able to be played back or edited.</i>

Playback



Before playback

If you have connected the unit with an audio/video cable, an S VIDEO cable or via COMPONENT OUT, you must set the TP channel. The TP channel enables the VHS playback in high quality, e.g. via COMPONENT OUT or as RGB to AV1.

- Press **HDD/DVD** and **CH** $\wedge$, $\vee$ several times to select the TP channel.

Using video cassettes

If the video cassette is not being used, remove it from the unit and store it in a sleeve.

Avoid recording on the same tape section several times in order to prevent the cassette from wearing out prematurely.

Carefully insert the cassette into the DVD Recorder to avoid damage.

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

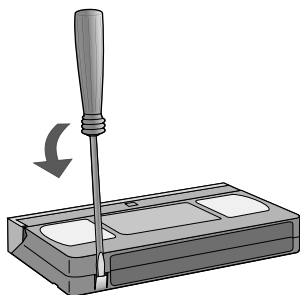
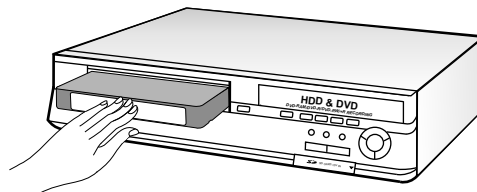
Do not use defective cassettes and do not try to repair them.

Do not open the housing of the cassette.

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

Use high-quality, brand-name tapes, for example from Panasonic.

During the playback of cassettes that were recorded on a different VHS recorder, you may experience a lower picture quality.



Write protection of cassettes

To protect against the accidental erasing of cassettes, break out the write protection tab. If you want to record on a protected cassette, cover the hole with a piece of tape.

Cleaning the video heads

Use a cleaning tape to clean the video heads.

Playback

Switch the unit on and insert a recorded video cassette.



Playback

- Press **PLAY** ► to start the playback.

*From standby mode, you also start playback using **PLAY** ►.*
The tape automatically rewinds when the end is reached.
*This function is not available during a **TIMER**-controlled recording.*
Playback automatically starts when you insert a video cassette whose write-protection tab was removed.



Ending playback

- Press **STOP** ■ to end playback.



PAUSE during playback

- Press **PAUSE** ■■.
- 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 automatically stops after 10 minutes.*

Still picture during playback

- Press **PAUSE** ■■.
 - Press **PLAY** ► to resume playback.
- Still picture automatically stops after 5 minutes.*



Image search forwards ►► or backwards ◀◀

- During playback, press ►► or ◀◀.
- The search speed increases by pressing the button twice (JET SEARCH).
- If you press and hold the button, the image search lasts as long as the button is depressed.
- Press **PLAY** ► to resume playback.

The image search forwards/backwards automatically stops after 10 minutes.

Fast forwarding ►► or rewinding ◀◀

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



JET REW

For fast rewinding to the beginning of the cassette.
Approx. 43 second with an E180 cassette.

Depending on the video cassette or the operating conditions, the rewind speed varies and may not be possible. The counter is reset to "0:00.00" when the tape is rewound to the beginning.

Repeat playback

The DVD Recorder repeats the recordings of a cassette until the end of the recording.

- Press **PLAY** ► for more than 5 seconds during playback or in stop mode. [RP] appears in the DVD Recorder's display.
- Press **PLAY** ► to restart normal playback.
- Press **STOP** ■ to end the playback.

Playback



VHS index search system (VISS)

This unit records special index signals with each recording. The index search function uses these signals. Thus, you can quickly find the beginning of a desired recording. You can search for up to 20 index signals.

- Press **INDEX** during normal playback or in stop mode.
▶▶ tape forwards / ◀◀ tape rewinds.
The unit automatically begins playback when the index signal is found.
The number of jumps increases with each press of the button.
- Press **STOP** ■ to end the search.

If the index signals are too close together, this function may not work. Thus, the recordings should be at least 5 minutes long.

VHS playback with high picture quality

You can play video cassettes in a high picture quality via the TP channel (copy input channel) in progressive or RGB mode. The television must be RGB- or progressive-capable.

- Press **DVD/HDD** and use **CH** ^, v to select the TP channel.
- Press **VHS** and then **PLAY** ▶. Playback begins.

S-VHS Quasi Playback (SQPB)

It is possible to playback cassettes that were recorded on an S-VHS unit. The picture quality is similar to a VHS recording. Depending on the video tape used, slight image distortions can occur. An S-VHS recording is not possible with this unit.

Setting the track position manually

The unit automatically sets the track position. If a cassette was recorded on another unit, it may be necessary to set the track position manually if you experience distortions.

The picture is noisy or unclear during playback.

- During normal or slow-motion playback, press **TRACKING/V-LOCK** + / -, until the noise disappears.
If the still picture is noisy, first switch the unit to slow-motion and then set the track position.

Some video cassettes do not allow the track position to be controlled.

This is not a functional problem.



Control the track position automatically

- Press **TRACKING/V-LOCK** + and - simultaneously to go back to automatic tracking.

With some televisions, the picture can be displaced up or down during some special playback functions.

These are not functional problems.

Recording

Recording functions

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VHS

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Recording



Recording information

It is not possible to simultaneously record to the Hard disk drive (HDD) and a DVD. Continuous recording or playback of both sides of double-sided disc is not possible. Digital sound signals cannot be recorded.

Digital programmes that are restricted to one-time recording cannot be recorded on DVD-R, DVD-RW, +R or 8cm DVD-RAM discs. Record them onto the Hard disk drive (HDD) or a CPRM-compatible DVD-RAM.

Automatic title transfer

If the station transmits teletext information and the Title Page is set properly, the programme and station names are recorded automatically. 95

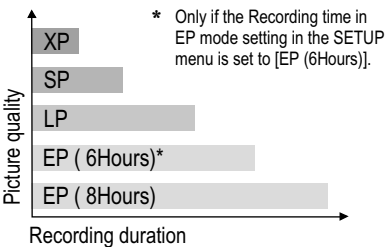
Launching the titles with this unit can take approx. 10 minutes and may fail in some cases.

Maximum titles				
HDD	RAM -R -RWV +R	+R	SD	
500	99	49	It is not possible to record to storage cards.	

The recording is saved to free space. If there is no more space left on the target drive, you must delete recordings or use a new disc.

Recording modes and approximate recording times in hours

	HDD (200GB)	DVD-RAM		DVD-R -RW +R (4.7GB)
		Single-sided (4.7GB)	Double-sided (9.4GB)	
XP (High Quality)	44	1	2	1
SP (Normal)	89	2	4	2
LP (Long Play)	177	4	8	4
EP (6 Hours)	266	6	12	6
EP (8 Hours)	355	8	16	8



If you want to play a disc recorded using this unit on another playback unit, you first have to finalise the disc.



Recording



Other functions available during playback

HDD REC ● 

 **PLAY**

 **PLAY**

 **REC** or  **PLAY**

DVD REC ● 

 **PLAY**

 **PLAY** 

 **REC** or  **PLAY**

Recording information

RAM If you have activated the write-protection, cancel it.

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RAM **RAM** If you use an unformatted DVD-RAM or DVD-RW you must format it before the first recording.

109

You can only change the channel or the record mode in pause mode. The material is then recorded as a separate title.

HDD Long recordings are divided into 8-hour segments.

R **RAM** **RAM** Once the recording is complete, the unit needs about 30 seconds to record administration data.

RAM When recording on DVD-RAM in [EP mode (8Hours)], playback may not be possible on DVD-RAM-compatible DVD players. In this case, select [EP mode (6Hours)]. [EP (6Hours)] provides better sound quality than [EP (8Hours)].

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Almost all videos and DVD-Videos available in stores are copy protected. The content of such media cannot be copied with this unit.

Selecting an audio channel to be recorded in two-channel sound

- In the Sound SETUP menu, select the Bilingual Audio Selection [M1] or [M2] setting.

HDD **RAM** Using AUDIO, you can change the received audio channel during the recording. It has no effect on the recorded audio channel.

R **RAM** **RAM** When recording dual-channel or multi-audio TV programmes on DVD-R, DVD-RW or +R, only one audio channel can be recorded.

Recording television programmes

- Use **CH** $\wedge$, $\vee$ or the number buttons to select the TV channel or use **INPUT SELECT** to select the AV channel for externally connected devices.
- Press **REC MODE** to select the recording mode.
- Press **● REC** to start the recording.
- Press **STOP ■** to stop the recording.

Up until the recording is stopped, it counts as 1 title.

Once the recording is complete, the unit needs about 30 seconds to record administration data.

Pause during recording

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

The title is not divided.

DIRECT TV REC



Direct TV recording

If your television is equipped with Q Link functionality, you can directly record the programme that you are watching on TV. The programme position shown on the unit automatically switches to the appropriate TV programme.



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



The unit automatically switches to the last selected drive (HDD or DVD) and records the title via the TP channel. You cannot record on VHS Cassette with this function. The recording is not started if there is no space available on the automatically selected drive.

Recording



One touch recording (OTR) HDD RAM -R -RWV -R

- During record, press **● REC** on the unit to set recording time (up to 240 minutes). The unit display changes with each press of the button:

Counter → OFF 30 → OFF 60 → OFF 90 → OFF 120 → OFF 180 → OFF 240 → Counter

*This is not possible with FLEXIBLE REC or **TIMER**-controlled recordings.*

The unit does not switch off after the recording ends.

*If you press **STOP**, the recording will be stopped and the time setting deleted.*

If the channel or the recording mode (XP-EP) is changed in recording pause mode, the time is deleted.

Playback during recording HDD RAM

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

- Press **PLAY ►** during the recording or **TIMER**-controlled recording.

The playback can only begin if at least 2 seconds have passed since the start of the recording.



Current recording

Simultaneous recording and playback HDD RAM

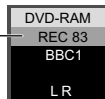
- Press **DIRECT NAVIGATOR** during the recording or **TIMER**-controlled recording.
- Use **◀▶▶▶** to select a title and confirm with **ENTER**.
- Press **DIRECT NAVIGATOR** again without selecting a title to exit the title view.

*If you start the playback while the unit is in standby mode for a **TIMER**-controlled recording, the recording will begin at the programmed time.*

 DVD / HDD



The available time in minutes.



FLEXIBLE REC (FR)

RAM -R -RWV -R The unit calculates the best possible recording quality between XP and EP. It is adjusted to fit the space available on the disc. This function is not possible during an EXT LINK recording.

HDD Titles recorded to the Hard disk drive (HDD) in FR mode are recorded such that they can later be exactly copied to a 4.7GB disc.

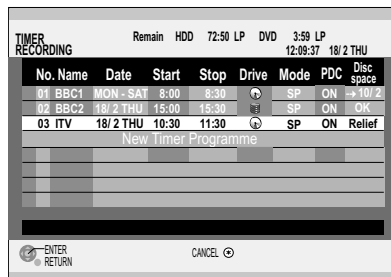
The title has not to be edited for copying to disc or the recording mode (XP-EP) does not need to be changed.

- In stop mode, press **FUNCTIONS**.
 - Use **▲▼** to select [To Others] and press **ENTER**.
 - Use **▲▼** to select **FLEXIBLE REC** and press **ENTER**.
 - Use **▲▼◀▶** or the numeric buttons to select the required recording time.
 - Use **▲▼◀▶** to select [Start] and confirm with **ENTER**. The recording begins.
 - Press **RETURN** to exit the **FLEXIBLE REC** window.
 - Press **STOP ■** to cancel the recording before the end has been reached.
- Neither the channel nor the recording mode can be changed in PAUSE mode.*

Displaying the available recording time

- Press **STATUS** several times.

TIMER-controlled recordings



Manual programming

- Press **PROG/CHECK**. The **TIMER RECORDING** screen appears.
- Confirm the highlighted line with **ENTER**.
- Use **▲▼** to select the name of the TV station.
*If [-] is displayed under Name, use **▲▼** to select the desired programme position.*
- Use **◀▶** to select the option. Use **▼▲** to change the option.
[Name], [Date], [Start], [Stop], [Drive], [Mode], [PDC], [RENEW]
Name, Date, Start and Stop can also be entered using the numeric buttons.

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- If you want to enter the programme name, use **◀▶** to select [Programme Name] and confirm with **ENTER**.
- Once you have made all changes, save the programme with **ENTER**.
- To continue programming, select [New Timer Programme].
- Press **⏸** **TIMER** to switch the unit to timer standby mode.
The **⏸** symbol lights up in the unit display.
- To cancel or pause the recording, press **⏸** **TIMER** again.

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HDD RAM If you record several programmes in a row, the first few seconds of the following programme are not recorded on the HDD or disc,
-R -RWIV +R approx. 30 seconds.

TIMER-controlled recordings



Options in the TIMER RECORDING menu

Name: Programme position/name of the TV station

Date: You can also programme titles to be recorded on a daily or weekly basis.

Start: Start time / **Stop:** Stop time

If you press and hold the ▲▼ buttons, the time increases/decreases in 30-minute increments.

Drive: Selection of the recording medium.

If you selected DVD as the recording medium and there is not enough space on the inserted DVD, the recording automatically switches to HDD.

Mode: Recording mode (XP, SP, LP, EP, FR)

If you selected PDC [ON], recording mode FR is not possible.

PDC: [On] or [OFF]

HDD RENEW: [On] or [OFF]

For timer recordings that are repeated daily or weekly, the previous title is overwritten. Weekly or daily must first be selected under Date.

Programme Name: You can enter the title of the programme.

PDC function

Programme Delivery Control adjusts the start and stop time of a timer recording automatically to ensure the recording starts and finishes in line with the programme broadcast. This is useful when a programme exceeds the published times.

The station must be transmitting PDC and the exact time must be set for PDC to work. The DVD Recorder detects whether a station is transmitting PDC only during the tuning process. If PDC is introduced or discontinued by a station you will need to re-tune the DVD Recorder before it becomes aware of this. PDC transmissions are not currently nation-wide so please check with your local broadcaster for more information.

TIMER-controlled recordings



No.	Name	Date	Start	Stop	Drive	Mode	PDC	Disc space
01	BBC1	MON - FRI	8:00	8:30	⊕	SP	ON	⇒ 10/2
02	BBC2	18/2 THU	15:00	15:30	⊕	SP	ON	OK
03	ITV	18/2 THU	10:30	11:30		SP	ON	!
New Timer Programme								
⊕ ENTER RETURN CANCEL ⊖								

Symbols in the
TIMER RECORDING menu



Storage space on the disc

- OK:** There is enough storage space available on the disc for the recording.
If VPS/PDC is switched on during the recording, then the entire programme will probably not be recorded.
- **(Date):** For recordings that are made daily or weekly, the display indicates whether there is enough storage space on the disc.
- !:** Is displayed if the disc is not in the unit, is write-protected or does not have enough storage space.
- Relief:** Backup recording



Checking, changing or deleting TIMER RECORDINGS

- Press **PROG/CHECK**.
- Use **▲▼** to select the TIMER RECORDING.

Checking or changing

Check the settings or correct them if necessary using **ENTER** and **▲▼◀▶**. Confirm your changes with **ENTER**.
Programmes that are currently being recorded cannot be changed.

Deleting

Delete a programme with * **CANCEL/RESET**.
Programmes that are currently being recorded cannot be deleted.

*If you selected PDC [On], **TIMER-controlled recordings** are deleted from the list after two days.*

Make sure that the unit is switched to timer standby mode.
The ⊕ symbol lights up in the unit display.

Backup recording

If there is not enough storage space available on the inserted disc at the start of the **TIMER-programmed recordings** to DVD, the unit automatically saves the recording to HDD (not with PDC programmed programmes that are overrun).
If a **TIMER-programmed recording** to DVD starts while the **DUBBING** function is active, the unit automatically saves the recording to HDD.

TIMER-controlled recordings



Please take notice of the recording information.

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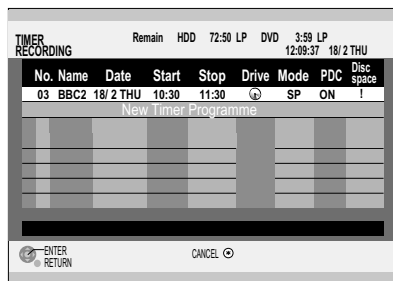
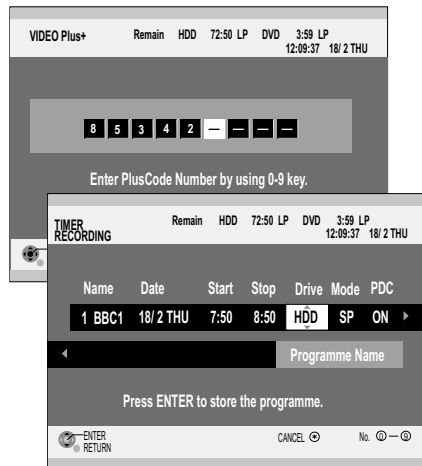
HDD RAM LR -RWVW +R You can programme up to 32 programmes per month in advance.

VIDEO Plus+



Programming recordings with VIDEO Plus+

By entering a VIDEO Plus+ number, the **TIMER**-controlled recording is easy to set. The appropriate codes can be found in newspapers and TV guides.



- Press **VIDEO Plus+**.
- Enter the VIDEO Plus+ number using the number buttons.
Use **◀** to delete a number.
- Confirm the VIDEO Plus+ number with **ENTER**.
The **TIMER RECORDING** menu is displayed.

If [—] is displayed under Name, use **▲▼** to select the desired programme position.

- Use **▲▼** to select the desired drive (HDD, DVD).
- Use **◀▶** to select the option. Use **▼▲** to change the option.
[Name], [Date], [Start], [Stop], [Drive], [Mode], [PDC], [RENEW]
Name, Date, Start and Stop can also be entered using the numeric buttons.

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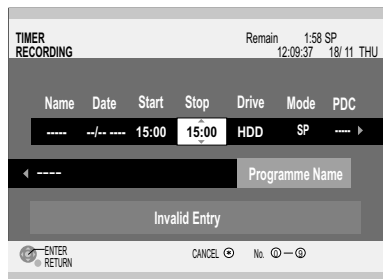
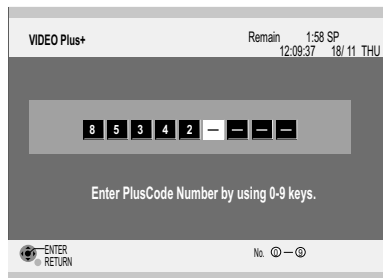
- If you want to enter the programme name, use **◀▶** to select [Programme Name] and confirm with **ENTER**.
- Once you have performed all changes, save the programme with **ENTER**.

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- Press **⏸ TIMER** to switch the unit to timer standby mode.
The **⏸** symbol lights up in the unit display.
- To cancel or pause the recording, press **⏸ TIMER** again.

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

TIMER recording from sat with VIDEO Plus+



VIDEO Plus+ codes for satellite receivers

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

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

VIDEO Plus+



- Press the **VIDEO Plus+** button.
- Enter a VIDEO Plus+ Code from a Satellite TV Guide for a satellite channel, e.g. Sky 1 using the **Numeric** buttons. Press **◀** to correct any mistakes.
- Press the **ENTER** button. [- -] will appear instead of a channel number/AV input.
- Press the **CH** button to select the channel or AV input that is to be used for recording from the satellite channel.
- Press the **ENTER** button to memorise the setting. The DVD Recorder will now automatically set the programme position or AV input correctly when a VIDEO Plus+ recording is set for this satellite station in the future.
- Press **▲▼** to select the programme that you have just set. Now press the **CANCEL/RESET** button to delete it from the timer recording list. It is no longer needed.
- Repeat the steps above until you have set and deleted dummy timer recordings for each of the satellite stations that you will make VIDEO Plus+ recordings from.
- Press **RETURN** when you have finished.

Recording



Recording time for E-240 cassettes

SP - Normal mode: approx. 4 hours

LP - Long-Play-mode: approx. 8 hours

EP - Extra-Long-Play-mode: approx. 12 hours

If you value a high-quality picture, select SP.

Functions available during recording

VHS REC ●

REC and PLAY

REC or PLAY *

PLAY

* Only if HDD is stopped.

Recording television programmes

- Insert a video cassette with an intact write-protection tab.
- Use **CH** Δ , ∇ to select the channel.
- Press **REC MODE** to select the tape speed.

With each press of the button, the display switches from: SP $\rightarrow$ LP $\rightarrow$ EP $\rightarrow$ SP.

- Press ● **REC** to start the recording.
- Press **STOP** ■ to stop the recording.
- Press **PAUSE** ■■ to pause the recording.

*If the recording is paused for more than 5 minutes, the unit switches to stop mode. If you press ● **REC** again, the recording will start again.*

Even with an S-VHS video cassette, you cannot perform recordings in the S-VHS system with this unit. The recording takes place in the normal VHS system.

Displaying the approximate time remaining on the cassette

- Press **FUNCTIONS**.
 - Select the desired tape length in the VHS FUNCTIONS menu.
 - Press **STATUS** several times until the time remaining on the tape appears in the unit display. With each press of the button, the display changes as follows: Current time $\rightarrow$ Operating state and tape counter $\rightarrow$ Time remaining $\rightarrow$ Current time
- Depending on the video cassette used, the time remaining on the video cassette may not be displayed correctly.*



One touch recording (OTR)

- During the recording, press ● **REC** on the unit to set recording time (up to 240 minutes). With each press of the button, the display of the unit changes: Counter $\rightarrow$ OFF 30 $\rightarrow$ OFF 60 $\rightarrow$ OFF 90 $\rightarrow$ OFF 120 $\rightarrow$ OFF 180 $\rightarrow$ OFF 240 $\rightarrow$ Counter
- If you press **STOP** ■, the recording will be stopped and the time setting will be deleted.

*This is not possible for **TIMER**-controlled recordings or for recordings via an external device. If the tape speed is changed during the recording, a brief image distortion will appear at that spot.*

TIMER-controlled recordings



Timer recording 1 / 3					
Name	Date	Start	Stop	PDC	
1 BBC1	19/11	10:30	11:30	SP ON	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	

⬅ : select **ENTER** : access
CANCEL : delete **RETURN** : return

Timer recording 1 / 3					
Name	Date	Start	Stop	PDC	
1 BBC1	19/11	10:30	11:30	SP ON	
2 ITV	---	---	---	SP ON	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	
-----	-----	-----	-----	-----	

⬅ : select **ENTER** : store
CANCEL : delete **RETURN** : return



Manual programming

- Press **PROG/CHECK**. The Timer recording screen appears.
- Confirm the highlighted line with **ENTER**.
- Use **▲▼** to select the name of the TV station.
If [- -] is displayed under Name, use **▲▼** to select the desired programme position.
- Use **▶** to switch to the next field and change the entry with **▲▼**.
Name, Date, Start and Stop can also be entered using the number buttons.
Name: Programme position/name of the TV station
Date: You can also programme titles to be recorded on a daily or weekly basis.
Start: Start time / **Stop:** Stop time
Press and hold the **▲▼** buttons to increase/decrease the time in 30-minute increments.
PDC: [ON] or [OFF]

- Once you have made all changes, save the programme with **ENTER**.
- Press **⏻ TIMER** to switch the unit to timer standby mode.
The **⏻** symbol lights up in the unit display.
- To cancel or pause the recording, press **⏻ TIMER** again.
The **⏻** symbol turns off.

Checking, changing or deleting programmes

- Press **PROG/CHECK**.
- Use **▲▼** to select the programme to record.

Checking or changing

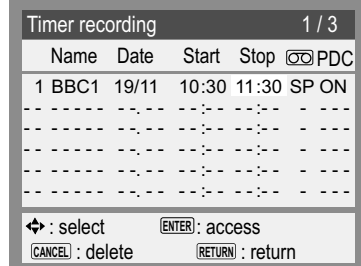
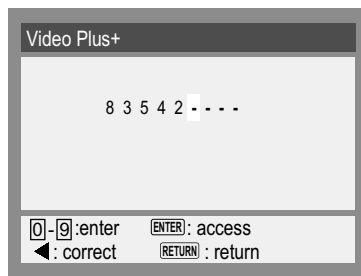
Check the settings or correct them if necessary using **ENTER** and **▲▼◀▶**. Confirm your changes with **ENTER**.
Programmes that are currently being recorded cannot be changed.

Deleting

Delete a programme with *** CANCEL/RESET**.
Programmes that are currently being recorded cannot be deleted.

Make sure that the unit is switched to timer standby mode. The **⏻** symbol lights up in the unit display.

TIMER-controlled recordings



VIDEO Plus+



Programming recordings with VIDEO Plus+

- Insert a video cassette with intact write-protection tab.
- Press **VIDEO Plus+**.
- Enter the VIDEO Plus+ number using the number buttons.
Use **◀** to delete a number.
- Confirm the VIDEO Plus+ number with **ENTER**.

In the Timer recording screen, check the start and end time and the PDC signal.

*If [- -] is displayed under Name, use **▲▼** to select the desired programme position.*

- Use **◀▶**, **▲▼** to select the recording mode [A, SP, LP, EP].
- Save the programme using **ENTER**.
- Press **⏸** **TIMER** to switch the unit to timer standby mode.

The **⏸** symbol lights up in the unit display.

Automatic SP/LP switching

A: If the remaining tape time is not sufficient to start a programmed recording, then the SP/LP function switches to the LP tape speed. This ensures that the entire programme is recorded. If the remaining time on the tape is also not enough in LP mode, then the programme cannot be recorded in full. An automatic switching to EP mode is not possible.

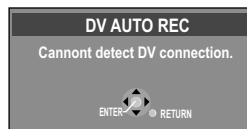
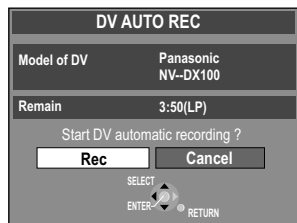
PDC function

If the television station sends PDC signals, the beginning and end of a recording are synchronised with the current air time.

The programme start time must be set correctly to the start time given in the magazine.

When recording in the NTSC system, the function may not work.

Recording via DV input



This unit cannot be controlled from a connected DV unit.

The DV input of this unit is only intended for DV units. (A computer etc. cannot be connected.) The name of the DV unit may not be displayed correctly.

Some DV units do not allow proper input of the picture and sound signal.

The date and time information of the track in the DV unit is not recorded.

Simultaneous recording and playback is not possible.

Recording via DV input HDD RAM

The programmes (e.g. via a digital video unit) are recorded as one title. A new chapter is created at each break in the picture 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 socket.



- Select Audio Mode for DV Input before dubbing.
- Pause the DV unit at the desired start position.
- Press **REC MODE** to select recording mode.
- Press **FUNCTIONS**.
- Use **▲▼** to select [To Others] and confirm with **ENTER**.
- Use **▲▼** to select [DV AUTO REC] and confirm with **ENTER**.
- Confirm [REC] with **ENTER**. Recording begins.
- To end the recording early, press **STOP ■**.
- Close the following message with **ENTER** or **RETURN**.
- If the recording ends automatically, confirm the message with **ENTER**.

Manual recording via DV input

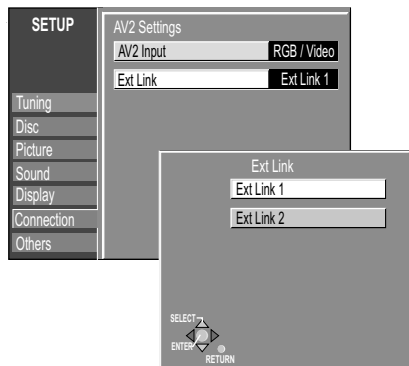
- Start the playback on your external DV unit.
- Press Pause at the desired start position.



- Use **INPUT SELECT** to select the DV channel.
- If you want to record to VHS, switch the unit to VHS and use **INPUT SELECT** to select the DC channel. (The DV signal is transferred via HDD/DVD.)
- Use **REC MODE** to select the recording mode.
- Press **● REC** to start the recording and start the playback on the external DV unit.
- Use **STOP ■** to end the recording.

⏮ ⏪ ⏩ ⏭ *The recording cannot be stopped with **PAUSE ■■**.*

TIMER-controlled recordings via external devices



Ext Link 1:

For digital receivers that send a special recording control signal, e.g. the SKY SATELLITE RECEIVER.

Ext Link 2:

External recording control for satellites or digital receivers (video signal).

If the television is connected to the AV1 connection via the 21-pin Scart cable, the picture to be recorded appears on the screen.

The beginning of the recording may not be recorded correctly in certain cases.

The Ext Link 2 setting cannot be used if the input signal is in NTSC format.

Before TIMER recordings via external devices

You control the recording function via an external device (e.g. receiver) using **EXT LINK**. Connect the external device with a 21-pin Scart cable to the AV2 socket. Adjust the Ext Link function for the connected device.

Switch the remote control to **HDD** or **DVD**.

- Press **FUNCTIONS**, use **▼▲** to select [To Others] and press **ENTER**.
- Use **▼▲** to select **SETUP** and press **ENTER**.
- Use **▼▲** to select **Connection**, **▶**, **▼▲** to select **AV2 Settings** and press **ENTER**.
- Use **▼▲** to select **Ext Link** and confirm with **ENTER**.
- Use **▼▲** to select [Ext Link 1] or [Ext Link 2] and confirm with **ENTER**.

TIMER recordings via external devices (EXT LINK)

The programming of the recording must take place on the external device. The recording begins when a corresponding signal is received from the connected device. As long as a video picture is transmitted by the external device, the selected element records it. Stop the transmission at the external device in order to stop the recording.



- Press **EXT LINK**.

Standby mode for **TIMER**-controlled recordings is activated on the selected drive. EXT L lights up on the display.

During standby mode, you can play HDD/DVD (playback is only possible from the unit selected for recording) or VHS cassettes or record to VHS.



- Switch the remote control to **VHS**.

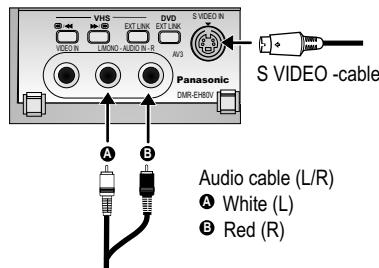
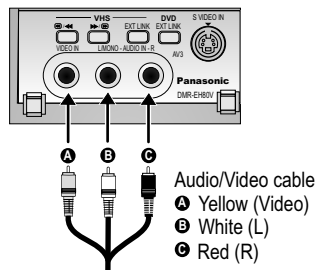
- Press **EXT LINK**. The VHS element switches to record standby mode. EXT L lights up on the display.

During standby mode, you can play or record HDD/DVD.

Switching off control via the external device

- Press **EXT LINK** to end the recording or to switch off the standby mode for the **TIMER**-controlled recording. The EXT L display turns off.

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



Choose one of the two connection possibilities.

Connection with S VIDEO cable and audio cable (L/R) produces the best quality.



Connect the external device to the AV3 input sockets on the front side of the unit.

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Recording to VHS

Insert a video cassette with intact write-protection tab.



- Press **REC MODE** to select the recording mode.
- In stop mode, use **INPUT SELECT** to select the input channel AV3.
- Press **PLAY ►**. At the point where you want to begin recording, press **PAUSE ■■**.
- Press **• REC**.
- Start the playback on the external device.
- Press **PAUSE ■■** to start recording.
- Use **STOP ■** to stop recording.

Recording to HDD/DVD

HDD RAM **•R** **•RW(V)** **•R**

RAM If you activated the write-protection, deactivate it.



- Press **REC MODE** to select the recording mode.
- In stop mode, use **INPUT SELECT** to select the input channel AV3.
- Start the playback on the external device.
- Press **• REC** at the point where you want to begin recording.
- Use **STOP ■** to stop recording.

Press **PAUSE ■■** to pause recording. Press the button to resume recording.

Recording of bilingual programmes

HDD RAM If [M1] and [M2] are selected on the connected device, you can choose the audio mode during playback.

•R **•RW(V)** **•R** Select [M1] or [M2] on the connected device. You cannot select the audio mode during playback.

If the output signal of the external device is an NTSC signal, set the TV system in the **SETUP** menu to [NTSC].

This unit cannot record signals from PCs.

Manually copying



DC channel (copy input channel)

If you select the DC channel, the VHS element can receive and record video/audio signals from HDD or DVD.



- To select the DC channel press **CH** $\wedge$, $\vee$ or **INPUT SELECT** several times.

TP channel (copy input channel)

If you select the TP channel, the HDD/DVD element can receive video/audio signals from VHS and copy to HDD or DVD.



- To select the TP channel press **CH** $\wedge$, $\vee$ or **INPUT SELECT** several times.

You cannot select the DC channel and the TP channel at the same time.

Manually copying from VHS to HDD or DVD



- Start the playback.
- Press **PAUSE** $\blacksquare$ where you want to start recording.
- Use **REC MODE** to select the recording mode.
- Use **INPUT SELECT** to select the TP channel.
- Press $\bullet$ **REC** to start recording.
- Use **STOP** $\blacksquare$ to stop recording.

Manually copying from HDD or DVD to VHS



- Start the desired title.
- Press **PAUSE** $\blacksquare$ where you want to start recording.
- Use **REC MODE** to select the recording mode.
- Use **INPUT SELECT** to select the DC channel.
- Press **PLAY** $\blacktriangleright$. Press **PAUSE** $\blacksquare$ where you want to start the recording.
- Press $\bullet$ **REC**.
- Then press **PAUSE** $\blacksquare$ to start recording.
- Use **STOP** $\blacksquare$ to stop recording.

*You can not execute the copying procedure while the HDD/DVD or VHS unit is in standby mode for the **TIMER**-controlled recordings. Cancel the standby mode.*

When copying from HDD/DVD to VHS, the index signal for each title is recorded automatically.

When copying from VHS to HDD/DVD, the title is automatically created for each index signal.

Copying from SD Card



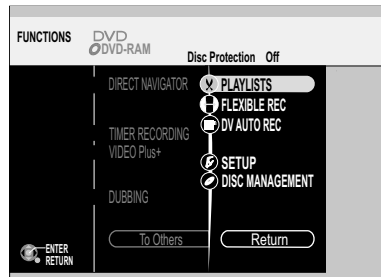
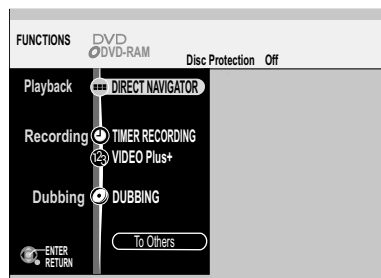
Please take notice of the recording information.



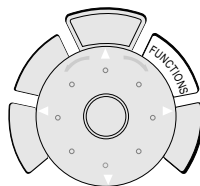
FUNCTIONS selection menu



The illustrations show DVD-RAM menus.
The menu entries can be different
depending on the disc or medium



You can access the main functions via the FUNCTIONS selection menu.



- Press **FUNCTIONS** in stop mode.
- Use **▼▲** to select a menu and confirm with **ENTER**.
- To view the second screen page, use **▼▲** to select [To Others] and confirm with **ENTER**.
- To return to the first page, use **▼▲** to select [Return] and confirm with **ENTER**.
- Press **FUNCTIONS** to exit the selection menu.

DIRECT NAVIGATOR	Edit titles and chapters, protect recordings.	73 : 77
TIMER RECORDING	Programme recordings	58 : 60
VIDEO Plus+	Programme recordings with VIDEO Plus+.	61 : 62
DUBBING	Copy e.g. from HDD to DVD.	78 : 87
PLAYLISTS	Create and edit playlists.	88 : 92
FLEXIBLE REC	Automatic selection of the recording mode.	57
DV AUTO REC	Record via a digital video unit.	66
SETUP	Change the unit's default settings.	94 : 107
DISC MANAGEMENT	Format and finalize discs, write protection.	108 : 111
COPY ALL PICTURES	Copy all pictures from an SD Card.	93
CARD MANAGEMENT	Format the SD Card.	109

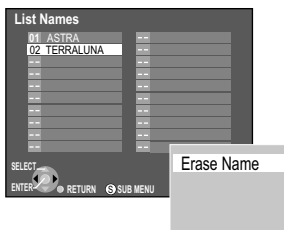
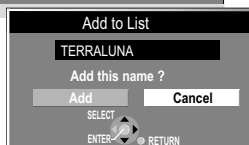
FUNCTIONS selection menu



Entering text **HDD RAM -R -RWV +R SD**

You can give discs or programmes titles in various menus:

In **DIRECT NAVIGATOR**, in **PLAYLISTS**, in **DISC MANAGEMENT** and when setting the **TIMER**-controlled recording.



Entering a Disc Name or Title via the Menu

- Use **▲▼◀▶** to select the desired character and confirm with **ENTER**.
- Use **PAUSE ||** to delete a letter.
- If you want to save the name/title in the List Names, press **SKIP ▶▶I**.
- Use **◀** to select [Add] in the next screen and confirm with **ENTER**.
- If you press **STOP ■**, the name/title is saved.

In the box under the title in TOP MENU, you can double-check how the title will later appear when called from TOP MENU. If necessary, enter spaces, hyphens or dashes as desired.

Entering a Title via the Number Buttons, For Example: the Letter "R"

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

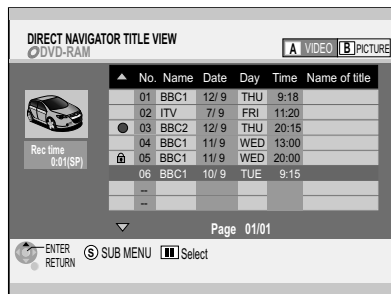
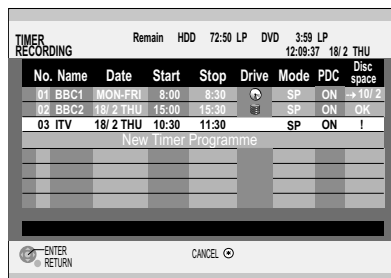
Erasing a Disc Name or Title from List Names

- Use **◀◀ SKIP** to open List Names.
- Use **▼▲◀▶** to select the title or name and press **SUB MENU**.
- Confirm [Erase Name] with **ENTER**.
- Use **◀** to select [Erase] in the next screen and confirm with **ENTER**.

Selecting a Disc Name or Title from List Names

- Use **◀◀ SKIP** to open List Names.
- Use **▼▲◀▶** to select the disc name or title confirm with **ENTER**.

FUNCTIONS selection menu



Editing several elements

- Use **▼▲◀▶** to select the desired title and press **PAUSE ■■**. A **✓** appears. Repeat this process to select other titles.
- Press **PAUSE ■■** again to cancel.

Symbols

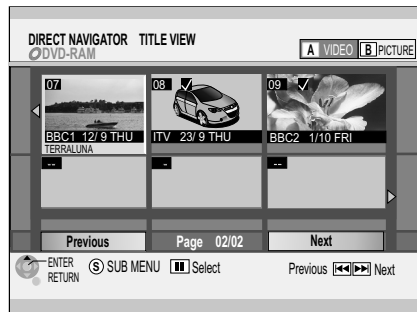


- The title is currently being recorded.
- Ⓜ The title overlaps other recordings.
- Ⓢ HDD/DVD was full or the maximum number of titles or scenes was reached, so that the title could not be recorded.
- ✕ The programme cannot be played back due to damaged data or cannot be recorded for another reason.
- 🔒 The title is write-protected.
- 🔒 The television programme was copy-protected so that the title could not be recorded.
- ➔ The title was redirected from DVD to HDD.
- 📺 Title with restriction for one-time copying.
- 📀 The title is being recorded to HDD.
- 📀 The title is being recorded to DVD.
- 🔄 The title is being refreshed automatically.
- ☑ The title is selected.
- ➡ 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).

N (NTSC) **P** (PAL)

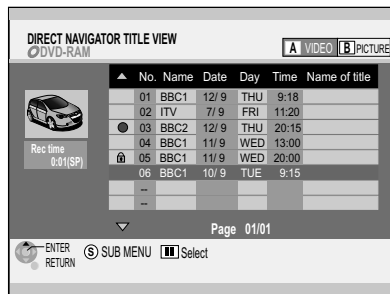
The title or the playlist was recorded with a TV system other than that currently set in the unit. Titles and playlists with these markings cannot be played back. Switch your TV system to play back these titles/playlists.

FUNCTIONS selection menu



A VIDEO B PICTURE

- A Button A: Select video view
- B Button B: Select picture view



DIRECT NAVIGATOR

In DIRECT NAVIGATOR, you can archive, edit or start recordings after selecting a title.

Direct access:

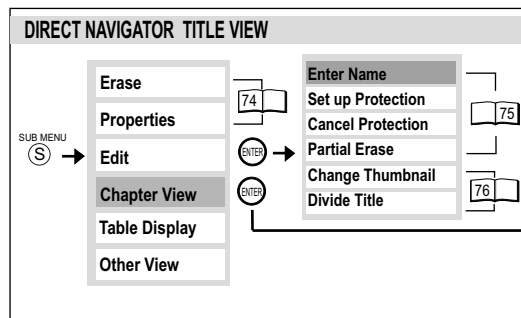
- Press **DIRECT NAVIGATOR** on your remote control.
- The DIRECT NAVIGATOR menu is displayed.

Access via the FUNCTIONS menu: Press **FUNCTIONS** in stop mode.

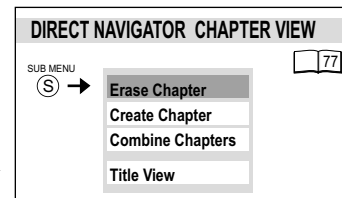
- Confirm DIRECT NAVIGATOR with **ENTER**.
- Use **▼▲◀▶** [Previous] or [Next] to select other pages and press **ENTER**.
- Select the desired title and start playback with **ENTER**.

Editing titles and chapters with the SUB MENU

- You can access further sub-menus with **SUB MENU**.



Editing is not possible during a recording.

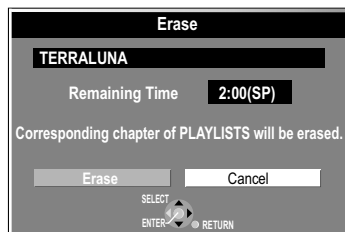
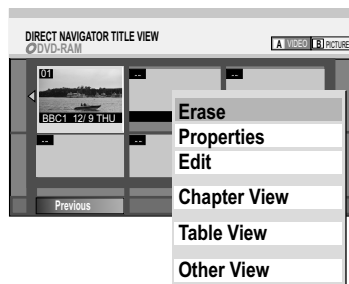


Changing the display in DIRECT NAVIGATOR

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



FUNCTIONS selection menu



DIRECT NAVIGATOR

Edit Title

- Press **SUB MENU** in DIRECT NAVIGATOR.
- Use **▼▲** to select the desired option and confirm with **ENTER**.

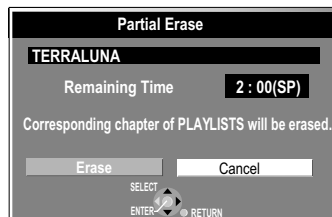
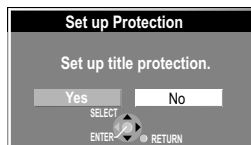
Erase HDD RAM -R -RWV +R HDD/DVD ERASE ☐	When you perform this procedure, the title is deleted and cannot be recovered. • Confirm [Erase] with ENTER. • Use ◀ to select [Erase] and confirm with ENTER. <i>The available recording time may remain the same after erasing short titles. The recording time on DVD-R/+R remains the same.</i> <i>To edit several elements, use ▼▲◀▶ to select the desired title and press PAUSE .</i>
Properties HDD RAM -R -RWV +R -RWVR	Information on the playback list, e.g. time and date, is displayed. • Use ▼▲ to select [Properties] and confirm with ENTER.
Edit	 75
Chapter View	 77
Sort HDD	Sorting in TITLE VIEW (only Table Display) The titles can be sorted according to the following options: No., Name, Date, Day, Start Time, Name of title • Use ▼▲ to select the desired option and confirm with ENTER. The set search option is underlined in TITLE VIEW.
Thumbnail View Table Display	Switching the TITLE VIEW <i>The last view used is still saved when the unit is switched off.</i>
Other View	Displaying VIDEO or PICTURE VIDEO: Display of video data (display also with GREEN button). PICTURE: Display of picture data (display also with RED button).



FUNCTIONS selection menu



Erase	
Properties	
Edit	Enter Name
Chapter View	Set up Protection
Table View	Cancel Protection
Other View	Partial Erase
	Change Thumbnail
	Divide Title



DIRECT NAVIGATOR

Edit Title

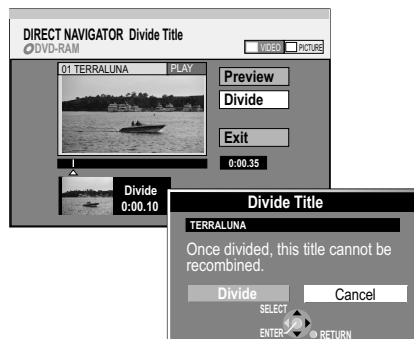
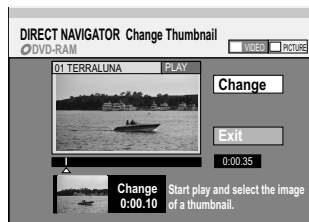
- Press **SUB MENU** in DIRECT NAVIGATOR.
- Use **▼▲** to select [Edit] and confirm with **ENTER**.
- Use **▼▲** to select the desired option and confirm with **ENTER**.

Enter Name HDD RAM -R -RWV -R	The complete name is displayed in the sub menu [Properties]. • Confirm [Enter Name] with ENTER. • Change or enter the title of the programme.	
Set up Protection Cancel Protection HDD RAM	If movies are protected, they cannot be deleted. Protection is indicated by . • Use ◀ to select [Yes] and confirm with ENTER. <i>To edit several elements, use ▼▲◀▶ to select the desired title and press PAUSE ■■.</i>	
Partial Erase HDD RAM <i>Before you start erasing, make sure that you really want to erase the recordings.</i>	• At the desired start point, confirm [Start] with ENTER. • At the desired end point, confirm [End] with ENTER. • Confirm [Next] with ENTER. • In the following screen, use ◀ to select [Erase] and confirm with ENTER. After the erase procedure, you can select the next start and end point. • Confirm [Next] again with ENTER. • Use ▼▲ to select [Erase] and press ENTER. • To exit the menu, use ▼▲ to select [Exit] and press ENTER. <i>Use PAUSE ■■ and SKIP ◀◀, ▶▶ to jump to the beginning or end of a title. You can search for begin and end points with SLOW/SEARCH ◀◀, ▶▶ or TIME SLIP.</i> <i>You may not be able to detect begin and end points if they are less than 3 seconds apart or if the recorded picture was a still image.</i> <i>The unit switches to pause, when the end of the track is reached.</i> <i>The available recording time on the disc may remain the same after the erase process.</i>	

FUNCTIONS selection menu



Erase	
Properties	
Edit	Enter Name
Chapter View	Set up Protection
Table View	Cancel Protection
Other View	Partial Erase
	Change Thumbnail
	Divide Title



DIRECT NAVIGATOR

Edit Title

- Press **SUB MENU** in DIRECT NAVIGATOR.
- Use **▼▲** to select [Edit] and confirm with **ENTER**.
- Use **▼▲** to select the desired option and confirm with **ENTER**.

Change Thumbnail

HDD RAM -R -RWV -R

You can select an image to be displayed as a preview in the title view.

- Press **PLAY** ► to start the playback.
- Press **ENTER** at the image that you want to display.
- Confirm [Exit] with **ENTER**. The displayed preview is exchanged for this image.

*Use **PAUSE** ■ and **SKIPI** ◀◀, ▶▶ to jump to the beginning or end of a title. You can search for particular points with **SLOW/SEARCH** ◀◀, ▶▶ or **TIME SLIP**.*

Divide Title

HDD RAM

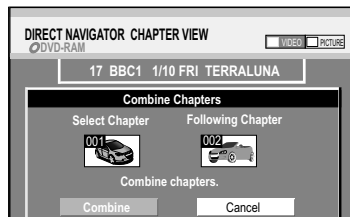
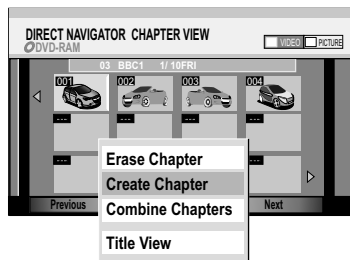
You can divide a selected title. A divided title cannot be recombined again.

- Use **▼▲** to select [Divide Title] and confirm with **ENTER**.
- With **SLOW/SEARCH** ◀◀, ▶▶ and **PAUSE** ■, find the spot where you want to divide the title and confirm [Divide] with **ENTER**.
- Confirm [Preview] with **ENTER**. The playback will take place 10 seconds before to 10 seconds after the dividing point.
- Use **▼▲** to select [Exit] if you want skip the preview.
- Confirm [Exit] with **ENTER**.
- In the Divide Title screen, use ◀ to select [Divide] and confirm with **ENTER**.

This function cannot be used if the resulting sections are extremely short or if the total number of the title is more than 99 (DVD-RAM).

A short section of the recording right before the dividing point can be lost. The divided titles have the same name as the original title.

FUNCTIONS selection menu



DIRECT NAVIGATOR

Playing back chapters

- Press **SUB MENU** in DIRECT NAVIGATOR.
- Use **▼▲** to select Chapter View and confirm with **ENTER**.
- Use **▼▲◀▶** [Previous] or [Next] to select additional pages and press **ENTER**.
- Select the desired chapter and start playback with **ENTER**.

Editing chapters

- Use **▼▲◀▶** to select the desired chapter in the CHAPTER VIEW menu.
- Press **SUB MENU**.
- Use **▼▲** to select the desired option and confirm with **ENTER**.

Erase Chapter HDD RAM HDD/DVD ERASE ☐	If you execute this procedure, the chapter will be deleted and cannot be restored. • Use ◀ to select [Erase] and confirm with ENTER. <i>To edit several elements, use ▼▲◀▶ to select the desired title and press PAUSE ■■.</i>
Create Chapter HDD RAM	Subdivide the titles into chapters. Determine the points where a new chapter should begin. The chapters can be selected later during playback with SKIP ◀◀, ▶▶. • Press ENTER where you want to create the chapter. • Repeat this step to create more chapters. • Use ▼ to select [Exit] and confirm with ENTER. <i>A short section of the recording right before the dividing point may be lost.</i>
Combine Chapters HDD RAM	The selected chapter will be combined with the following chapter. • Use ◀ to select [Combine] and confirm with ENTER.
Title View HDD RAM	Return to TITLE VIEW.



FUNCTIONS selection menu



DUBBING

Dubbing overview

79

Information on high-speed copying

80

Dubbing information

Recording and playback during dubbing

81

Dubbing with the dubbing list

82

Titles and playlists can be dubbed to the disc in the desired order.

Editing the playlist

84

Deleting all saved dubbing settings and lists

Timer-controlled Dubbing

85

A finalized DVD-R, DVD-RW (DVD-Video format), +R etc. can be dubbed to the HDD and edited again. While the disc is playing, the material is dubbed to the Hard disk drive (HDD) according to the set time.

One Touch Dubbing

87

Preparing for Dubbing

Starting Dubbing

Almost all videos and DVD-Videos available for purchase are copy-protected. The content of such media cannot be copied with this unit.

FUNCTIONS selection menu



DUBBING

Different media formats with different dubbing methods can be copied with this unit.

Dubbing overview

Dubbing with the dubbing list [82:84]

Cancel All

Destination Capacity: 4080MB
Size: 1306MB (32%)

1 Dubbing Direction
HDD → DVD

2 Dubbing Mode
VIDEO SP

3 Create List

Start Dubbing

No.	Size	Name of item
01	0:12 SP (2%)	TERRALUNA
02	0:11 SP (10%)	CARS
03	0:12 SP (8%)	Sharks
04	0:12 SP (12%)	Animal World

New Item (Total = 4)

Page 01/01
Create dubbing list.

HDD ↔ RAM

HDD ← -RW(VR)

HDD → -R +R -RW(V)

HDD RAM -RW(VR) → VHS

HDD RAM SD ↔ HDD RAM SD only pictures

Titles and playlists can be compiled and dubbed in a dubbing list.
Only pictures can be dubbed with the SD Card.

Timer-controlled Dubbing [85:86]

Cancel All

Time Setting On

1 Dubbing Direction
VHS → DVD

2 Dubbing Mode
VHS-Video SP

3 Dubbing Time

Start Dubbing

Dubbing Time 2:00

Destination Capacity: 2:14

Press ENTER to change settings.

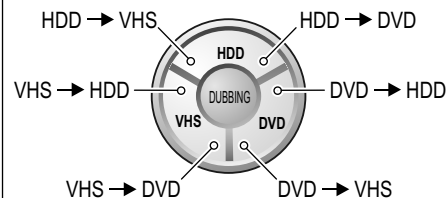
DVD-V → HDD [VHS]

[VHS] → HDD RAM -R -RW(V) +R

[S-VHS] → HDD RAM -R -RW(V) +R

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

One Touch Dubbing [87]



HDD → RAM -R -RW(V) +R

RAM -RW(VR) → HDD

RAM -R -RW(V) +R -RW(VR) HDD → [VHS]

[VHS] → HDD RAM -R -RW(V) +R

[S-VHS] → HDD RAM -R -RW(V) +R

A title can be dubbed with just one push of the button without other settings being required. You can copy directly between VHS, HDD and DVD.

FUNCTIONS selection menu



DUBBING

Information on high-speed copying

Copy direction **HDD** **RAM** **→** **RAM** **←** **RWV** **→** **R** Information on dubbing with the dubbing list.

HDD ⇒ RAM	In high-speed mode, it is possible to copy from HDD to RAM and vice versa.
HDD ⇒ RAM	In normal-speed mode, it is only possible to copy from HDD to RAM.
HDD ← RWV	In high-speed mode, it is possible to copy from DVD-RW(VR) to HDD.
HDD ⇒ R → R RWV	In high-speed mode and in normal-speed mode, it is possible to copy from HDD to DVD-R/+R and DVD-RW(V). <i>Before recording to the HDD, set the Rec for High Speed dubbing setting in the Disc SETUP menu to [On].</i>
HDD ← DVD-V	In normal-speed mode, it is possible to copy from DVD-V (finalized discs or non-copy-protected DVD-Video) to HDD.

Approximate dubbing duration

For a title recorded to the HDD with a recording time of 1 hour, the dubbing duration in high-speed mode is between 1 and 15 minutes depending on the recording mode and the high-speed compatible disc.

Recording mode	5x High Speed compatible RAM	8x High Speed compatible R	4x High Speed compatible RWV	8x High Speed compatible R
XP	approx. 12 min.	approx. 8.7 min.	approx. 15 min.	approx. 8.7 min.
SP	approx. 6 min.	approx. 3.8 min.	approx. 7.5 min.	approx. 3.8 min.
LP	approx. 3 min.	approx. 1.9 min.	approx. 3.8 min.	approx. 1.9 min.
EP(6Hours)	approx. 2 min.	approx. 1.3 min.	approx. 2.5 min.	approx. 1.3 min.
EP(8Hours)	approx. 1.5 min.	approx. 56 sec.	approx. 1.9 min.	approx. 56 sec.

- Playlists cannot be copied in high-speed mode if
- The playlists are made up of different recording modes or the FR recording mode.
 - The playlists contain different audio modes.
 - The titles contain many deleted segments.

FUNCTIONS selection menu



DUBBING

Dubbing information

Recording and playback during dubbing

During dubbing in high-speed mode, you can record to the HDD or play back from it.

- Press **ENTER** to switch off the screen display.
- Use **STATUS** to display information on the dubbing procedure.

Time-lapsed playback, editing, etc. are not possible during dubbing.

Regardless of the selected recording drive, the timer recording is always saved to HDD during dubbing.

A playlist cannot be played back if titles were restricted for one-time copying only.

If the dubbing of a title in high-speed mode stops in the middle, the affected title will not be recorded. Even if the title was not dubbed to the DVD-R, DVD-RW or +R, the remaining capacity of the disc is decreased.

[R] [RWW] [R] If a title is to be copied from the HDD in high-speed mode, you must set [Rec for High Speed dubbing] to [On] in the SETUP menu before recording to the HDD.

98

When recording a dual-channel sound programme, only the main or only the additional sound can be recorded.

In the SETUP menu, use [Bilingual Audio Selection] to select option [M1] or [M2].

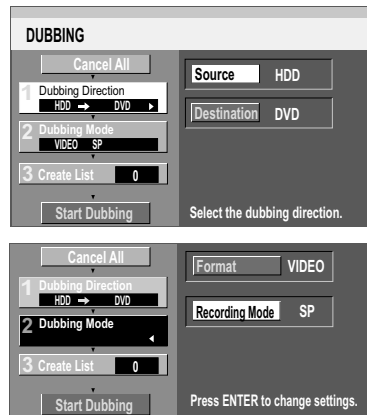
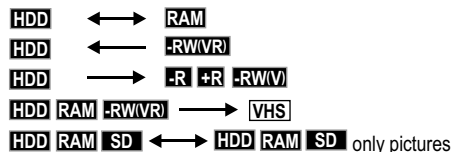
100

If you want to record from an external unit, select option [M1] or [M2] on the external unit.

16:9-format programmes (widescreen) are recorded in 4:3 format.

The disc can then only be played back on other players if they were finalized after dubbing.

FUNCTIONS selection menu



DUBBING

Dubbing with the dubbing list

Titles and playlists can be compiled and dubbed in the desired order.

- Press **FUNCTIONS**.
- Select DUBBING and confirm with **ENTER**.
- Use ▼▲ and ► to select the desired option.

Cancel All

All saved dubbing settings and lists will be erased.

- In the DUBBING screen, use ▲▼ to select [Cancel All] and confirm with **ENTER**.
- Use ◀▶ to select [Yes] and confirm with **ENTER**.

The dubbing settings may also be erased if

- titles, pictures, etc. were recorded or erased from the dubbing source,
- the unit was switched off or the disc tray was opened,
- the dubbing direction was changed, etc.

Dubbing Direction

- Use ▼▲ to select the [Source] or [Destination] and confirm with **ENTER**.
- Use ▼▲ to select the desired drive and confirm with **ENTER**.
The source and destination drives cannot be the same.
- Use ◀ to return to [Dubbing Mode].

Dubbing Mode

- Use ▼▲ to select [Format] or [Recording Mode] and confirm with **ENTER**.
Format: Select whether you want to transfer video or pictures.
Recording Mode: Select the recording quality or the copy speed (High Speed, XP-EP, FR).
- Use ▼▲ to select the desired setting and confirm with **ENTER**.
- Use ◀ to return to [Dubbing Mode].

Create List

You can create a copy list from the existing titles and PLAYLISTS.

Start Dubbing

DVD drive speed

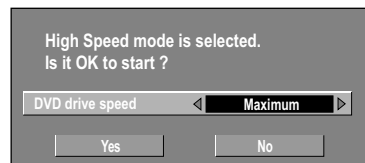
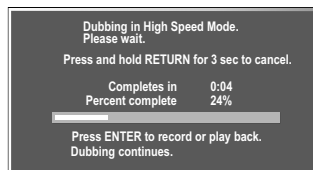
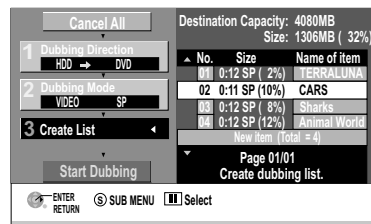
53 63

83

83

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FUNCTIONS selection menu



DUBBING

Create List

You can create a copy list from the existing titles and PLAYLISTS.

- Confirm [New item] with **ENTER**.
- In the Create List screen, use **▼▲◀▶** to select the desired title and confirm with **ENTER**. The title is transferred to the copy list.
- Use **◀** to return to [Create List].

*In order to edit several elements, use **▼▲◀▶** to select the desired title and press **PAUSE** ■■ appears.*

*In the case of high-speed recordings to DVD-R, DVD-RW (DVD-Video format) or +R, 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.

Editing the dubbing list

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Start Dubbing

- Use **▼▲** to select [Start Dubbing] and confirm with **ENTER**.
- When the screen appears, use **▲◀▶** to select the speed of the DVD.
- Use **◀** to select [Yes] and confirm with **ENTER**.
- Press **RETURN** for 3 seconds to stop DUBBING early.

During the dubbing procedure, you can continue to record to or playback from the Hard disk drive (HDD)(only High Speed Mode).

- Confirm the screen with **ENTER**.
The dubbing procedure is executed in the background.
- Press **STATUS** to display information on the procedure.

DVD drive speed **RAM -R +R**

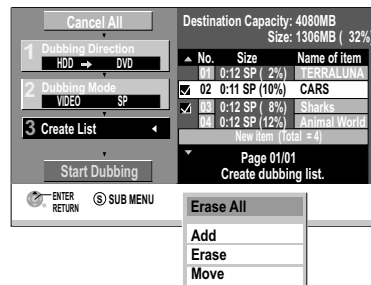
- When dubbing to a 5x high-speed-compatible DVD-RAM, 8x high-speed-compatible DVD-R or +R in high-speed mode, use **▲◀▶** to select the speed of the DVD.
- Use **◀▶** to select [Maximum] or [Normal (Silent)] and confirm [Yes] with **▼◀**.

With [Normal (Silent)], the sounds made by this unit are quieter than at [Maximum]; however, the time required for dubbing almost doubles.

FUNCTIONS selection menu



DUBBING



Editing the dubbing list

- In the DUBBING screen, use ▼▲ to select [Create List] and ► to select [New item].
- Use ▼▲ to select the desired title and press **SUB MENU**.
- Select the desired option ▼▲ and confirm with **ENTER**.

Erase All: All items registered in the dubbing list will be erased.

- Use ◀▶ to select [Yes] and confirm with **ENTER**.

Add: Add new items to the dubbing list.

- Use ▼▲◀▶ to select the desired playlist or title and confirm with **ENTER**.

Erase: Erase the selected items.

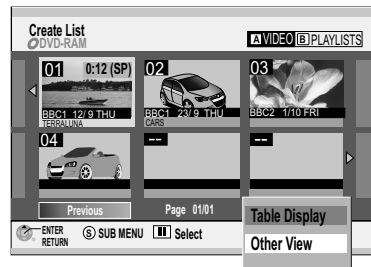
- Use ◀▶ to select [Yes] and confirm with **ENTER**.

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

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

*In order to edit several elements, use ▼▲◀▶ to select the desired title and press **PAUSE** ■.*

✓ appears.



Changing the view:

You can select between different views in the Create List screen (Table Display, Thumbnail Display and Other View).

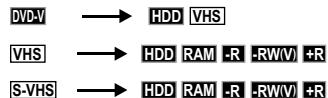
- In the Create List screen, select **SUB MENU**.
- Use ▼▲ to select the desired view and confirm with **ENTER**.

VIDEO/PICTURE and PLAYLISTS view:

- Press **SUB MENU** in the Create List screen.
- Use ▼▲ to select [Other View] and confirm with **ENTER**.
- Confirm the following message with **ENTER**.

You can also change the view with the **GREEN** PLAYLISTS button and the **RED** VIDEO/PICTURE button.

FUNCTIONS selection menu



DUBBING

Timer-controlled Dubbing

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

The procedures and screen displays are also recorded during the dubbing.

Video cassettes and DVD-Video discs available for purchase are usually copy-protected and cannot be dubbed.

DVD-Audio, Video CDs, Audio CDs cannot be dubbed.

The original picture and sound quality may not be retained during dubbing, even if the source is a high-quality Video-DVD.

S-VHS dubbing settings



- Press **FUNCTIONS**.
- Use **▼▲** to select DUBBING and confirm with **ENTER**.
- Use **▼▲** and **▶** to select the desired option.

Cancel All: All created settings and copy lists will be erased!

- Use **◀** to select [Yes] and confirm with **ENTER**.

Dubbing Direction

- Use **▶** to select [Source] and confirm with **ENTER**.
- Use **▼▲** to select DVD or VHS and confirm with **ENTER**.
- Use **◀** to return to [Dubbing Direction] and use **▼** to select [Dubbing Mode].

Dubbing Mode



Dubbing Time



Start Dubbing



FUNCTIONS selection menu



DUBBING

Dubbing Mode

- Use **▶** to select [Recording Mode] and confirm with **ENTER**.
- Use **▼▲** to select the desired recording mode [XP, SP, LP, EP, FR] and confirm with **ENTER**. The format is automatically identified.
- Use **◀** to return to [Dubbing Mode] and use **▼** to select [Dubbing Time].

For VHS the recording modes XP and FR are not possible.

Dubbing Time

- Use **▶** to select [Time Setting] and confirm with **ENTER**.
- Use **▼▲** to select [On] or [Off] and confirm with **ENTER**.

[Off]:

When the copy time is switched off, the entire disc/cassette is dubbed, provided that there is sufficient space on the destination drive.

Recording Mode FR and Time Setting [Off]:

DUBBING starts after the cassette is rewound. Titles for each index signal are automatically created for each index signal.

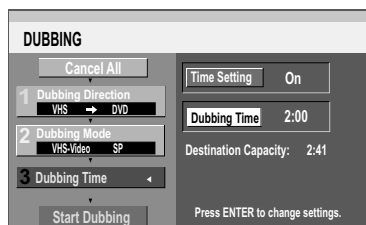
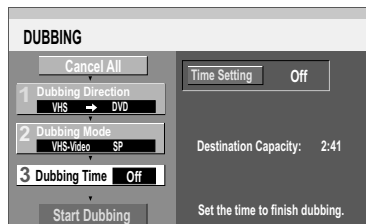
[On]:

DUBBING starts at the desired start position.
No titles are created.

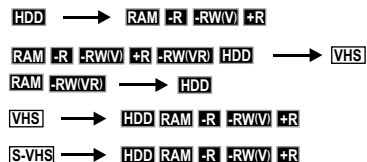
- Use **▼▲◀▶** or the numeric buttons to change the time setting and confirm with **ENTER**.

Start Dubbing

- Use **◀** to return to [Dubbing Time] and use **▼** to select [Start Dubbing].
- Press **ENTER** to start the copy procedure.
- Use **◀** to select [Yes] and confirm with **ENTER**.
DUBBING ends with the selected time setting.
- Press **RETURN** for 3 seconds to stop DUBBING early.



DUBBING / Copying



One Touch Dubbing

You can copy directly between VHS, HDD and DVD.

(HDD) (DVD) The title that is currently running can be dubbed with just one push of the button without other settings being required.

One Touch Dubbing from HDD to DVD/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.

One Touch Dubbing from DVD to HDD copies all the titles/playlists from the DVD.

One Touch Dubbing 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.

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DUBBING 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.

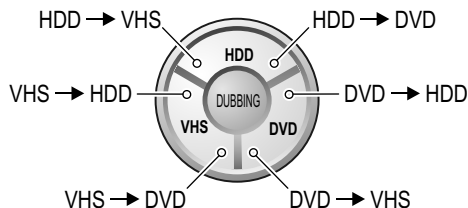
For HDD or DVD, the title/playlist that is currently playing or that was played last will be copied in full.

- 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 DUBBING.
- Press **RETURN** to leave the menu.

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

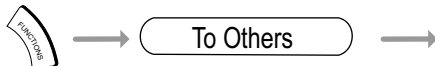
Starting DUBBING

- Switch HDD, DVD and VHS to stop mode.
- Press **HDD-**, **VHS-** or **DVD- DUBBING** for the desired copy direction. **START** blinks on the display of the unit.
- Hold **HDD-**, **VHS-** or **DVD- DUBBING** for approx. 3 seconds. **START** 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.

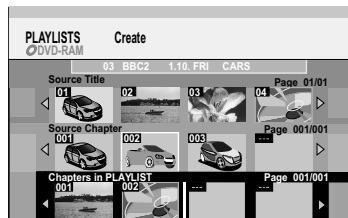
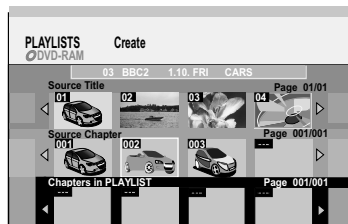
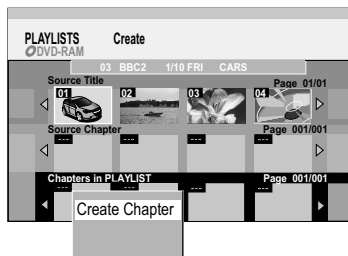
FUNCTIONS selection menu



PLAYLISTS

HDD RAM You can create and then edit a playlist from your favourite chapters of your recording.

RAM Insert a recorded disc. If write protection is activated, deactivate it.



Creating a Playlist

- Press **FUNCTIONS** in stop mode.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Confirm PLAYLISTS with **ENTER**.
- In PLAYLIST VIEW, use **▼▲◀▶** to select the free [Create] field and confirm with **ENTER**.

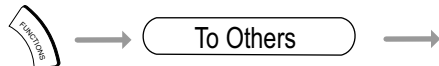
Create Source Chap.

- In the [Create] menu, use **◀▶** to select the Source Title and press **SUB MENU**.
- Confirm [Create Chapter] with **ENTER**.
- In the [Create Source Chap.] Menu, use **ENTER** to select the chapter sections.
To place an exact chapter marking, use **PAUSE ■■** to stop the playback. Use **SLOW/SEARCH ◀▶, ▶▶, SKIP ◀◀, ▶▶, TIME SLIP** or **◀▶** to select the position.
- Use **▼** to select [Exit] and confirm with **ENTER**.

Adding Chapters to PLAYLISTS

- In the [Create] menu, use **◀▶** to select a Source Title and use **▼** to go to [Source Chapter].
- Use **◀▶** to select the Source Chapter that you want to add to the playlist and confirm with **ENTER**.
- Use **◀▶** to select the position where the chapter should be inserted into the PLAYLISTS and confirm with **ENTER**.
To add another chapter, repeat the steps. Use **▲** to select additional Source Titles.
- Use **RETURN** to go back to PLAYLIST VIEW.
If you confirm a selected source title with **ENTER**, the entire title is saved into the PLAYLISTS.

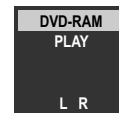
FUNCTIONS selection menu



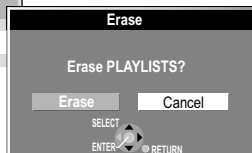
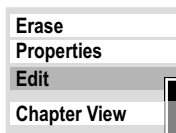
PLAYLISTS

Select / Edit Playlists

- Press **FUNCTIONS**.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Confirm **PLAYLISTS** with **ENTER**.
- Use **▼▲◀▶** to select a playlist.
- You can play the playlist with **ENTER**.



- With **SUB MENU**, the sub-menu for editing the playlist appears.



Erase

- Confirm [Erase] with **ENTER**.
- In the next screen, use **◀** to select [Erase].
An erased playlist cannot be restored.
- Confirm [Erase] with **ENTER**

*To edit several elements, use **▼▲◀▶** to select the desired title and press **PAUSE** ■■*



Properties

- Use **▼▲** to select [Properties] and confirm with **ENTER**.
Information on the playlist, e.g. chapter and date, is displayed.

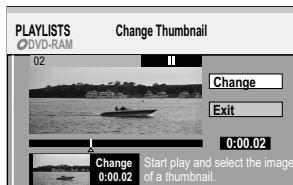
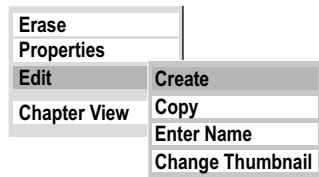
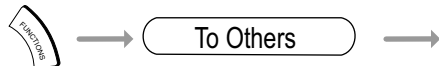
Edit



Chapter View



FUNCTIONS selection menu



PLAYLISTS

Edit Playlists

- Press **FUNCTIONS**.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Confirm PLAYLISTS with **ENTER**.
- Use **▼▲◀▶** to select a playlist.
- Press **SUB MENU**
- Use **▼▲** to select [Edit] and confirm with **ENTER**.
- In the sub-menu, select the desired option.

Create

- Confirm [Create] with **ENTER**.
Please read Creating a Playlist.

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Copy

- Use **▼▲** to select [Copy] and confirm with **ENTER**.
- In the following screen, use **◀** to select [Copy] and confirm with **ENTER**.
*To edit several elements, use **▼▲◀▶** to select the desired title and press **PAUSE** ■■*

Enter Name

If you enter a long name, it is only partially displayed.

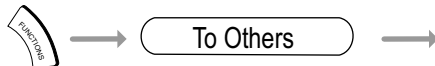
71

Change Thumbnail

You can select an image to be displayed as the preview in TITLE VIEW. The image will be displayed as the preview for approx. 1 second after the beginning of the title.

- Use **▼▲** to select [Change Thumbnail] and confirm with **ENTER**.
- In the Change Thumbnail menu, press **PLAY ▶** to start the playback.
- Press **ENTER** at the selected spot.
- Confirm [Exit] with **ENTER**.
The displayed preview is exchanged for this image.

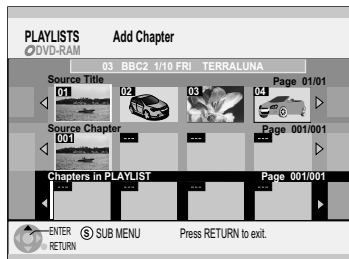
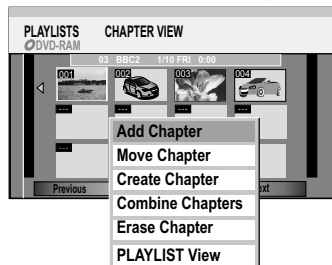
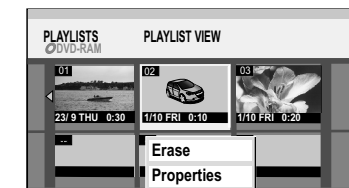
FUNCTIONS selection menu



PLAYLISTS

Edit Chapters

- Press **FUNCTIONS**.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Confirm PLAYLISTS with **ENTER**.
- In PLAYLIST VIEW, use **▼▲◀▶** to select a playlist.
- Press **SUB MENU**.
- Use **▼▲** to select [Chapter View] and confirm with **ENTER**.
- In CHAPTER VIEW, use **▼▲◀▶** to select the desired chapter and press **SUB MENU**.
- In the sub-menu, use **▼▲** to select the desired option and confirm with **ENTER**.

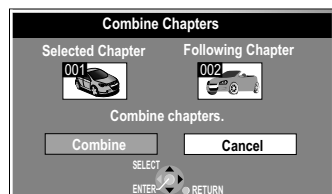
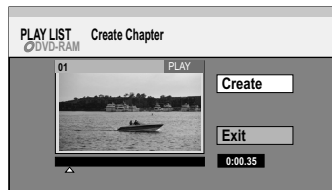
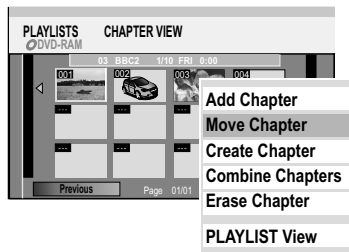
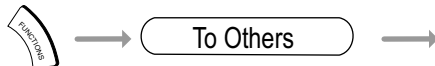


Add Chapter

You can create a new chapter from the Source Title.

- In the [Add Chapter] menu, use **▼▲◀▶** to select a Source Title and press **▼**.
- Use **◀▶** to select a Source Chapter and confirm with **ENTER**. Use **▲** to cancel the process.
- Use **◀▶** to select the position where the chapter is to be inserted and confirm with **ENTER**.
- To add another chapter, repeat the steps. Use **▲** to select other Source Titles.
- Use **RETURN** to go back to CHAPTER VIEW.

FUNCTIONS selection menu



PLAYLISTS

Edit Chapters

- In CHAPTER VIEW, use **▼▲◀▶** to select the desired chapter and press **SUB MENU**.
- In the sub-menu, use **▼▲** to select the desired option and confirm with **ENTER**.

Move Chapter

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

Create Chapter

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

For quick editing

Use **PAUSE ■** and **SKIPI ◀◀, ▶▶** to jump to the start or end of a title.
Find the start and end points with **SLOW/SEARCH ◀◀, ▶▶** or **TIME SLIP**.

Combine Chapters

- In the next screen, use **◀** to select [Combine] and confirm with **ENTER**.
The selected chapter is combined with the next chapter.

Erase Chapter

- In the next screen, use **◀** to select [Erase] and confirm with **ENTER**.
The original title is not erased by erasing the chapter.
*To edit several elements, use **▼▲◀▶** to select the desired title and press **PAUSE ■***

PLAYLIST View: Return to PLAYLIST VIEW.

FUNCTIONS selection menu



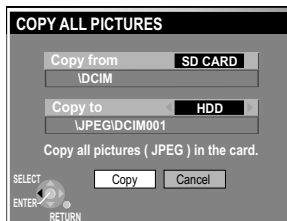
To Others



COPY ALL PICTURES



SD → HDD RAM



Copying all pictures from an SD Card

You can copy all content from an SD Card to HDD or DVD using the COPY ALL PICTURES function.

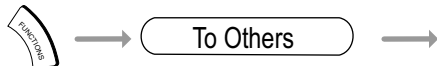
- To select the SD drive, press **SD**.
- Press **FUNCTIONS**.
- Use ▼▲ to select [To Others] and confirm with **ENTER**.
- Confirm COPY ALL PICTURES with **ENTER**.
- In COPY ALL PICTURES, use ▼ and ► to select the folder that you want to view.
- Use ▼ and ► to select HDD or DVD and confirm with **ENTER**.
- Use ▼ and ◀ to select [Copy] and confirm with **ENTER**.
- Press **RETURN** for 3 second to stop the COPY ALL PICTURES procedure early.
- To continue copying, press **RETURN**.
- To exit the screen, press **ENTER**.

The copied folders are placed behind the already existing folders.

The DPOF print setting is not dubbed during copying.

The order in which the pictures are registered in the copy list may not match that of the copy destination.

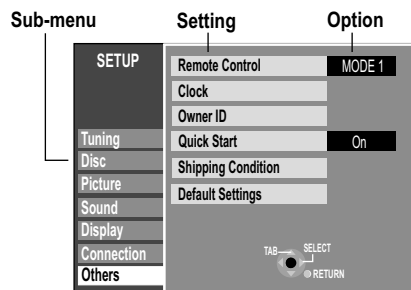
FUNCTIONS selection menu



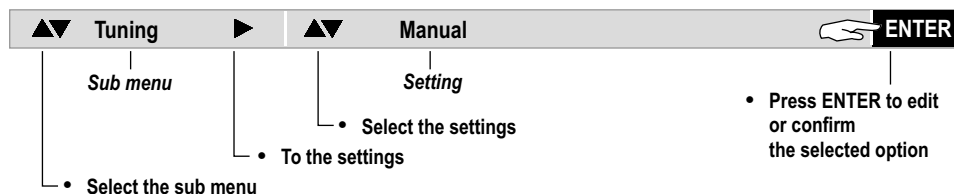
- Press **FUNCTIONS** in stop mode.
- Use **▲▼** to select [To Others] and confirm with **ENTER**.
- Use **▲▼** to select SETUP and confirm with **ENTER**.
- Use **▲▼** to select the desired sub menu and use **▶** to switch to setting.
- Use **▲▼** to select the desired setting and confirm with **ENTER**.
- Use **▲▼** to select the desired option and confirm with **ENTER**.

Follow the menu navigation. The unit saves your settings.

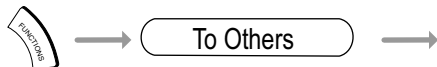
- Use **◀** to return to the sub menu and use **RETURN** to exit the menu.
- Use **FUNCTIONS** to return to the FUNCTIONS menu.



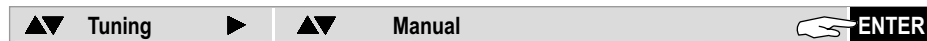
Menu navigation in the SETUP menu



FUNCTIONS selection menu

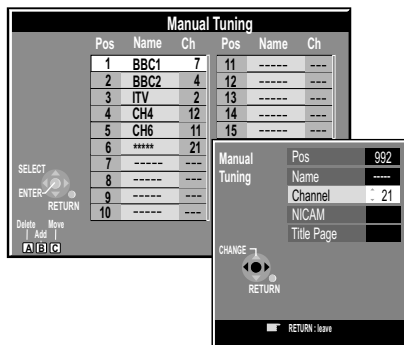
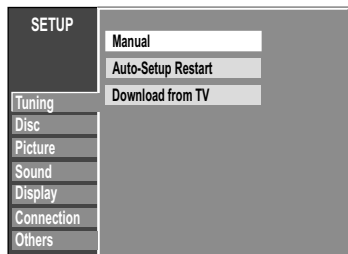


SETUP



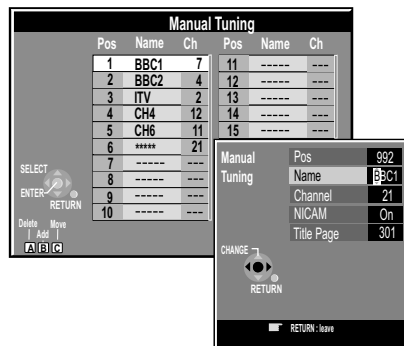
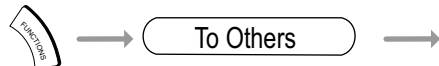
Entering a new television station

- Use ◀▶▲▼ to select an empty station position and confirm with **ENTER**.
- Enter the channel using ▲▼ or Ⓢ - Ⓢ.
- The channel tuning starts. Wait until the desired station is set and confirm the settings with **ENTER**.



Options available for tuning the channels. Not every model supports all of the functions.		
Pos		Station position.
Name		Station name setting.
Channel		Channel setting.
NICAM	On / Off	Automatic NICAM detection / Mono
Title Page		The station title is obtained from the TV guide.

FUNCTIONS selection menu



SETUP

▲▼ Tuning ▶

▲▼ Manual

ENTER

Changing the name of the television station

- Use ▼▲◀▶ to select the name of the television station and confirm with **ENTER**.
- Use ▼▲ to select [Name] and use ▶ to select the name field.
The cursor jumps to the first letter **B**BC1.
- Change the letter using ▲▼.
- Use ▶ to select the next letter **B**BC1
- Press **ENTER**. The new name is saved in the station table.

Deleting television stations

- Use ▼▲◀▶ to select the station that you want to delete.
- Press **RED** button to delete the station.
The settings of the programme position are deleted.

Inserting an empty programme position

(If the station table was not created using Q Link or similar functions)

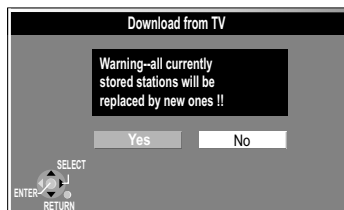
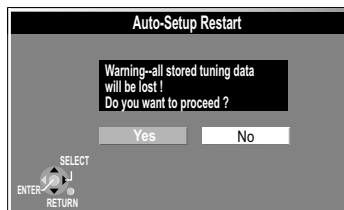
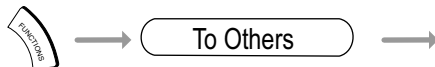
- Use ▼▲◀▶ to select the programme position in front of which an empty programme position is to be inserted.
- Press **GREEN** button. An empty programme position is inserted.

Moving television stations

(If the station table was not created using Q Link or similar functions)

- Use ▼▲◀▶ to select the station that you want to move.
- Press **YELLOW** button.
- Use ▼▲ to select a new position and confirm with **ENTER**.

FUNCTIONS selection menu



SETUP



Auto-Setup Restart

- Use ◀ to select [Yes] and confirm with **ENTER**.
The station search begins.
- To cancel the process, use ▶ to select [No] and confirm with **ENTER** or press **RETURN**.
- To stop the station search early, press **RETURN**.



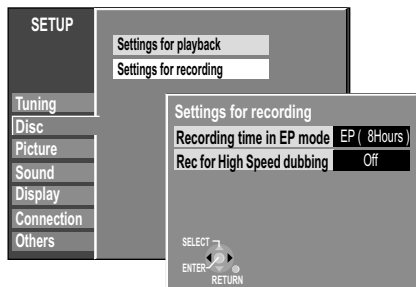
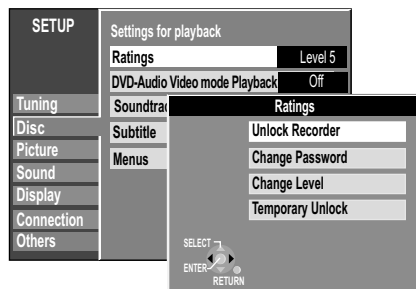
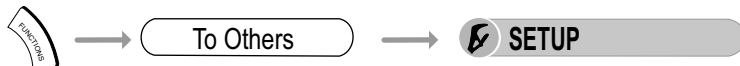
Download from TV (with Q Link or similar functions)

- Use ◀ to select [Yes] and confirm with **ENTER**.
The data transfer begins.
- To cancel the process, use ▶ to select [No] and confirm with **ENTER** or press **RETURN**.
- To stop the data transfer early, press **RETURN**.

List of language codes

Abkhazian	6566	Bihari	6672	Esperanto	6979	Hindi	7273	Latin	7665	Oriya	7982	Sindhi	8368	Tigrinya	8473
Afar	6565	Breton	6682	Estonia	6984	Hungarian	7285	Latvian	7686	Pashio	8083	Singhalese	8373	Tonga	8479
Afrikaans	6570	Bulgarian	6671	Faroeese	7079	Icelandic	7383	Lingala	7678	Persian	7065	Slovak	8375	Turkish	8482
Albanian	8381	Burmese	7789	Fiji	7074	Indonesian	7378	Lithuanian	7684	Polish	8076	Slovenian	8376	Turkmen	8475
Ameharic	6577	Byelorussian	6669	Finnish	7073	Interlingua	7365	Macedonian	7775	Portuguese	8084	Somali	8379	Twi	8487
Arabic	6582	Cambodian	7577	French	7082	Irish	7165	Malagasy	7771	Punjabi	8065	Spanish	6983	Ukrainian	8575
Armenian	7289	Catalan	6765	Frisian	7089	Italian	7384	Malay	7783	Quechua	8185	Sundanese	8385	Urdu	8582
Assamese	6583	Chinese	9072	Galician	7176	Japanese	7465	Malayalam	7776	Rhaeto-Rom.	8277	Swahili	8387	Uzbek	8590
Aymara	6589	Corsican	6779	Georgian	7565	Javanese	7487	Maltese	7784	Romanian	8279	Swedish	8386	Vietnamese	8673
Azerbaijani	6590	Croatian	7282	German	6869	Kannada	7578	Maori	7773	Russian	8285	Tagalog	8476	Volapük	8679
Bashkir	6665	Czech	6783	Greek	6976	Kashmiri	7583	Marathi	7782	Samoan	8377	Tajik	8471	Welsh	6789
Basque	6985	Danish	6865	Greenlandic	7576	Kazakh	7575	Moldavian	7779	Sanskrit	8365	Tamil	8465	Wolof	8779
Bengali	6678	Dutch	7876	Guarani	7178	Kirghiz	7589	Mongolian	7778	Scots Gaelic	7168	Tatar	8484	Xhosa	8872
Bhutani	6890	English	6978	Gujarati	7185	Korean	7579	Nauru	7865	Serbian	8382	Telugo	8469	Yiddish	7473
				Hausa	7265	Kurdish	7585	Nepali	7869	Serbo-Croat.	8372	Thai	8472	Yoruba	8979
				Hebrew	7387	Laotian	7679	Norwegian	7879	Shona	8378	Tibetan	6679	Zulu	9085

FUNCTIONS selection menu



▲▼ Disc ▶ ▲▼ Settings ◀ ▼▲ Options ▶ ENTER ENTER	
Ratings You can restrict the playback of DVD-Video by entering a password. 8 Allows all titles. 1-7 Stops playback of DVD-Video with registered security levels. 0 Locks all titles.	Changing the Security Level [Unlock Recorder] Return to level 8 [Change Password] Change the password [Change Level] Change the unlock level [Temporary Unlock] You can temporarily unlock a disc for playback. The unit is locked again when you switch to standby or open the disc tray.
DVD-Audio Video mode Playback	[On] [Off] On: You want to play the DVD-Video content of a DVD-Audio. If you change discs or turn the unit off, the setting is reset to [Off].
Soundtrack Subtitle Menus	DVD-V Select the language for Soundtrack, Subtitle and Menus. Under [Other], enter the language code for a different language.
Recording time in EP mode	[EP (6Hours)] [EP (8Hours)] Select the maximum number of hours for recording in EP mode. EP (6Hours): Recording time on a 4.7-GB disc. EP (8Hours): Recording time on a 4.7-GB disc. The sound quality is lower.
Rec for High Speed dubbing	[On] [Off] On: Enables dubbing from HDD to a DVD-R, DVD-RW (DVD-Video format) or +R in high-speed mode. Titles are saved in 4:3 format. Select the audio type to be copied under [Bilingual Audio Selection].

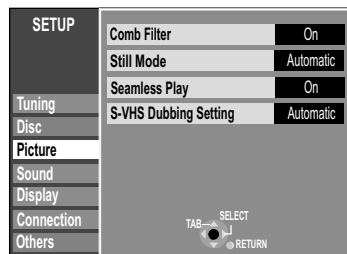
FUNCTIONS selection menu



To Others



SETUP



Picture	Settings	Options
Comb Filter	[ON] [Off] On: The picture becomes clear and contour-rich. This setting is always set to [On] if you have selected [TV System - NTSC]. Off: If the picture to be recorded is grainy.	
Still Mode	[Automatic] [Field] [Frame] Select the display of the still image. Field: Select this function, if the picture is disturbed with the [Automatic] setting. Frame: Select this function if small text or line structures are not displayed clearly with the [Automatic] setting. <i>Frames are still images that together form a moving picture. A full frame is made up of 2 half frames. The picture can appear noisy but the overall quality is good. A half frame only contains half of the information of a full frame and has a poorer picture quality.</i>	
Seamless Play	[On] [Off] Seamless playback of the chapters in the PLAYLIST. On: The chapters of the playlist are played back 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 chapter delineation points in the playlist will be retained exactly, but the picture can freeze for a short period of time.	
S-VHS Dubbing Setting	[Automatic] [SQPB] If you are dubbing a video tape to DVD that was recorded in S-VHS or in S-VHS ET format, select [Automatic] or [SQPB]. Automatic: Plays and dubs the tape in S-VHS quality. You can dub the tape with its original resolution. SQPB: Plays and dubs the tape in VHS quality. You cannot attain the original resolution from S-VHS.	

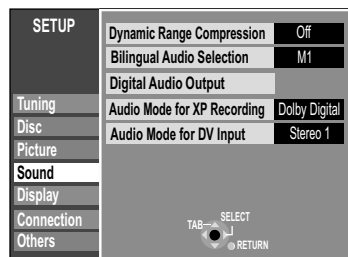
FUNCTIONS selection menu



To Others

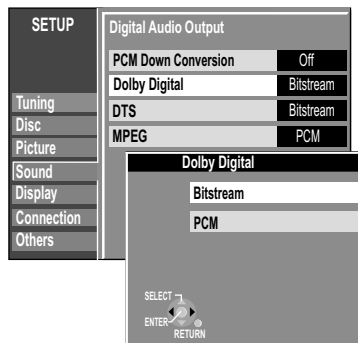
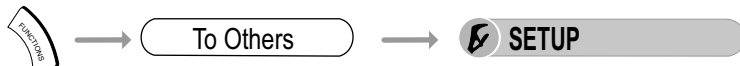


SETUP



▲▼ Sound ▶	▶ Settings ENTER ▼▲ Options ENTER
Dynamic Range Compression Dolby Digital <i>(only Dolby Digital)</i>	[ON] [Off] On: The level of quiet sections is increased and the level of loud sections is decreased. The sound is still clearly audible when the volume is decreased.
Bilingual Audio Selection [L] [RW] [R]	[M 1] [M 2] If you want to record programmes on discs that were broadcast in dual channel tone, you can choose between the original language [M 1] or another available language [M 2]. If you are copying from an external source or a tape position to discs, select the sound track on the other unit.
Digital Audio Output	101
Audio Mode for XP Recording	[Dolby Digital] [LPCM] Selection of the audio type when dubbing in XP mode. The picture quality of LPCM recordings may be worse than with normal recordings in XP mode.
Audio Mode for DV Input	[Stereo 1] [Stereo 2] [Mix] Selection of the audio type when dubbing from DV input. Stereo 1: Original sound Stereo 2: Redubbing Mix: Original sound + redubbing

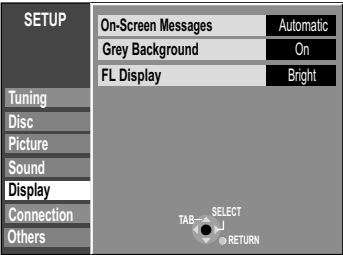
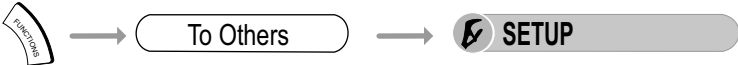
FUNCTIONS selection menu



▲▼ Sound ► ▲▼ Digital Audio Output ENTER ▼▲ Options ENTER

Digital Audio Output	PCM Down Conversion	Dolby Digital	DTS	MPEG
Select the appropriate setting if an external unit is connected to the DIGITAL AUDIO OUT of the DVD Recorder.				
PCM Down Conversion	[ON] [Off] Select the audio output mode at a scanning 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 scanning frequency of more than 96 kHz or 88.2 kHz or a disc is copy-protected. ON: The connected unit cannot process signals with a scan frequency of 96 kHz or 88.2 kHz. Signals are converted to 48 kHz or 44.1 kHz. 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.			
Dolby Digital DTS MPEG	[Bitstream] [PCM] Bitstream: The connected unit can decode the corresponding signal. PCM: If the connected unit cannot decode the corresponding signal, the setting must be switched to [PCM]. Otherwise, strong noise can cause damage to hearing or loudspeakers. Perform settings based on your audio system.			

FUNCTIONS selection menu



▲▼ Display ▶

▲▼ Settings

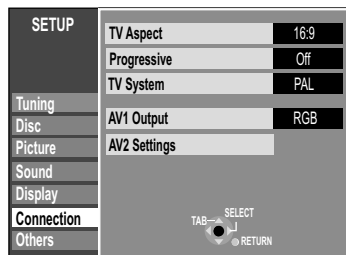
▶ ENTER

▼▲ Options

▶ ENTER

On-Screen Messages	[Automatic] [Off] Automatic: The screen messages are displayed on the screen.
Grey Background	[ON] [Off] On: The grey background is displayed when there is no television reception.
FL Display	[Bright] [Dim] Changes the brightness of the unit display.

FUNCTIONS selection menu



▲▼ Connection ▶ ▲▼ Settings ▶ ENTER ▼▲ Options ▶ ENTER	
TV Aspect	[16:9] [4:3] [Letterbox] Select the TV picture format of your television set. <i>Letterbox: Black strips appear at the top and bottom of your screen.</i>
Progressive	[ON] [Off] Only COMPONENT VIDEO OUT. On: In COMPONENT VIDEO OUT mode, the signal is displayed in full picture quality.
TV System	[PAL] [NTSC] PAL: You connect the unit to a PAL or multi-system television set. Programmes that were recorded with NTSC are played back as PAL60. NTSC: You connect the unit to an NTSC television set. Programmes that were recorded with NTSC are played back as NTSC.
AV1 Output	[Video (with component)] [RGB (without component)] Switch to RGB for an improved picture quality. If RGB is set, no signal is available at COMPONENT VIDEO OUT. RGB is not available for VHS playback.
AV2 Settings	104

FUNCTIONS selection menu

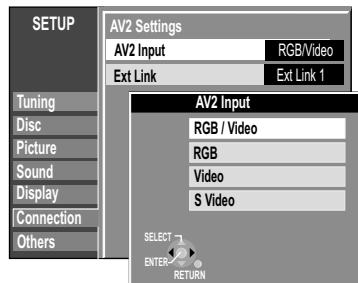
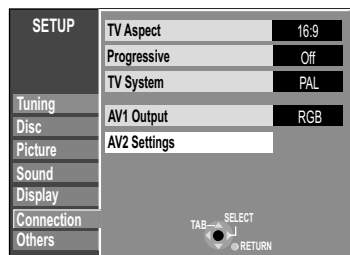


To Others



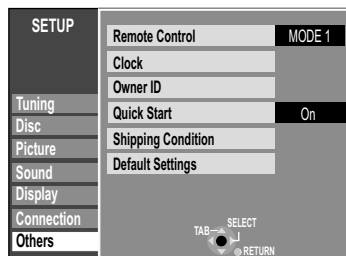
SETUP

▼▲ Connection ►



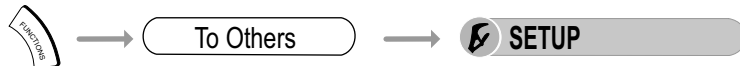
▲▼ AV2 Settings		ENTER	▼▲ Settings	ENTER	▼▲ Options	ENTER
AV2 Settings 	AV2 Input	Perform the settings in the following sub-menus for the connected device.				
	Ext Link					
AV2 Input	[RGB / Video] [RGB] [Video] [S Video] RGB / Video: Is detected automatically. RGB, Video, S Video: Input is switched to the selected signal.					
Ext Link	[Ext Link 1] [Ext Link 2] 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 satellites or digital receivers (video signal).					

FUNCTIONS selection menu



▼▲ Others ▶	▶▲ Settings	ENTER	▼▲ Options	ENTER
Remote Control	[MODE 1] [MODE 2] [MODE 3] Change the code of the remote control so that you can also use another Panasonic DVD unit at the same time.			13
Clock	Set the date and time.			106
Owner ID	Secure the unit with your own PIN number and your own personal information.			107
Quick Start	[ON] [Off] On: The device is ready for use from standby mode after approx. 2 seconds. Standby mode uses more power.			
Shipping Condition	All settings except for the security levels with associated password and the time settings are reset to their factory settings.			
Default Settings	All settings except for the programmed channels, time, country, language and disc-language settings, the security levels including password and the remote-control code are reset to the factory settings.			

FUNCTIONS selection menu



Clock setting

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.

- Use **▲** to switch automatic mode to [Off] and confirm with **ENTER**.
- Use **▲▼** and **▶** to change Time and Date.
- Confirm the change with **ENTER**.

Activating the automatic time correction function

The correct time for the clock can be automatically maintained when the DVD Recorder is tuned to a station that transmits a time signal.

- Use **▲** to switch automatic mode to [On] and confirm with **ENTER**.
The automatic setting of the clock begins.

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 MANUAL. If the reception conditions improve later on, it is possible to activate this function.

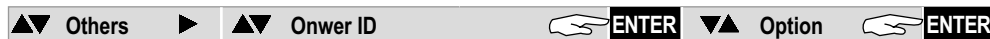
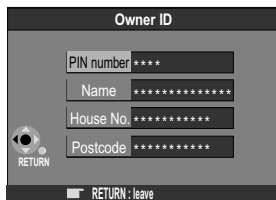
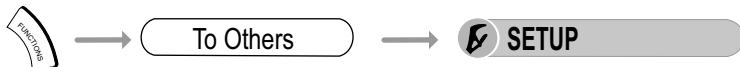
If the Clock setting is set to AUTO, do not set it to MANUAL, otherwise the automatic time correction function is deactivated.

This DVD Recorder uses a 24-hour-clock.

In the event of a power failure an automatic back-up system maintains the clock for approximate 60 minutes.

When the Clock setting is set to AUTO, 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 timer recording mode. Don't forget to change summer time and winter time.

FUNCTIONS selection menu



Owner ID

- Use ► and press the numeric buttons or ▲▼► to enter a four-digit PIN number.
- Press ◀ to correct the digit.
- Press the **ENTER** button twice to confirm.
- Enter the [Name], [House No] and [Postcode] in the same way, using ▲▼◀►.
- Press the **ENTER** button to confirm each entry.
- Press the **RETURN** button to leave the Owner ID screen.

DVD / HDD

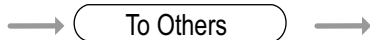
To display the Owner ID information on TV

- On the unit press **STOP** for more than 5 seconds.

The PIN number is not displayed.

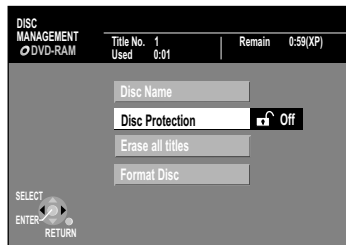
After 30 seconds this menu automatically disappears.

FUNCTIONS selection menu



To Others

DISC MANAGEMENT

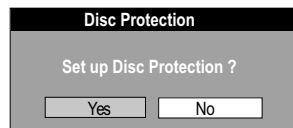


- Press **FUNCTIONS** in stop mode.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Use **▼▲** to select DISC MANAGEMENT and confirm with **ENTER**.
- Use **▼▲** to select the desired menu and confirm with **ENTER**.
- Use **FUNCTIONS** to return to the FUNCTIONS menu.

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

71

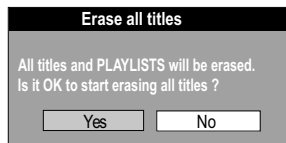
- Enter the name. The name is displayed in the FUNCTIONS window.
You cannot give a name to a DVD-R / +R / -RW(V) after it has been finalised.



Disc Protection **RAM**

This procedure allows you to activate or deactivate write protection.

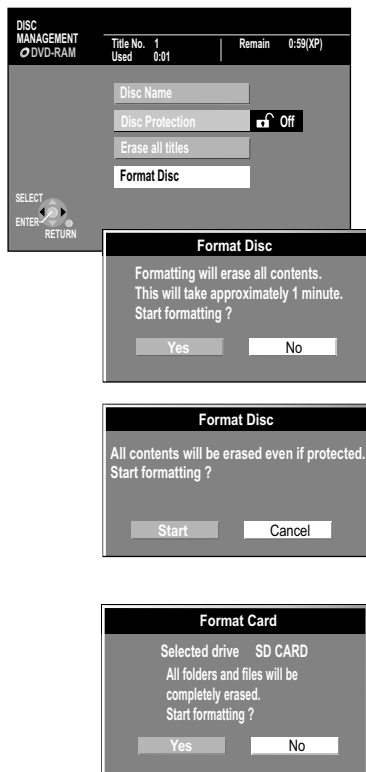
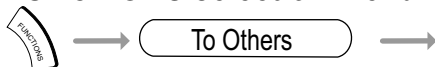
- Use **◀** to select [Yes] and confirm with **ENTER**.
Write Protection On: The padlock is closed.
- To deactivate write protection, use **◀** to select [Yes] and confirm with **ENTER**.
Write Protection Off: The padlock is open.



Erase all titles **HDD** **RAM**

- Confirm [Erase all titles] with **ENTER**.
- In the following screen, use **◀** to select [Yes] and confirm with **ENTER**.
In the confirmation message, use **◀** to select [Start] and confirm with **ENTER**.
All titles and PLAYLISTS will be erased and cannot be restored.
Protected discs or titles cannot be erased.

FUNCTIONS selection menu



DISC MANAGEMENT

CARD MANAGEMENT

RAM SD If write protection is activated, deactivate it.

- Press **FUNCTIONS** in stop mode.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Use **▼▲** to select DISC MANAGEMENT or CARD MANAGEMENT and confirm with **ENTER**.
- Use **▼▲** to select the desired menu and confirm with **ENTER**.
- Use **FUNCTIONS** to return to the FUNCTIONS menu.

Format Disc **HDD RAM -RW/V -RW/V**

Some discs are not formatted. Before you can use them in this unit, they must be formatted. The formatting erases all data on the disc.

- Use **◀** to select [Yes] and confirm with **ENTER**.
- Use **◀** to select [Start] and confirm with **ENTER**.

The formatting process begins. After it is complete, a message is displayed.

- Press **ENTER**.
- Press **RETURN** to stop the formatting process.

Format SD Card **SD**

The formatting erases all data on the SD Card.

- Use **◀** to select [Yes] and confirm with **ENTER**.
 - In the confirmation message, use **◀** to select [Start] and confirm with **ENTER**.
- The formatting process begins. After it is complete, a message is displayed.
- Press **ENTER**.
 - Press **RETURN** to stop the formatting process.

RAM If the formatting process takes more than 2 minutes, an error may have occurred. The formatting can be cancelled and restarted.

Do not unplug the unit while the disc is being formatted.

During formatting, all data is erased, including recordings created with this unit.

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



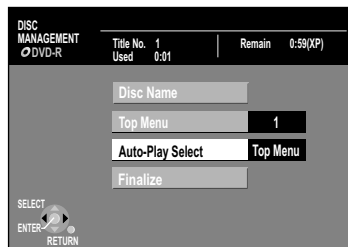
FUNCTIONS selection menu



To Others



DISC MANAGEMENT



- Press **FUNCTIONS**.
- Use **▼▲** to select [To Others] and confirm with **ENTER**.
- Use **▼▲** to select DISC MANAGEMENT and confirm with **ENTER**.
- Use **▼▲** to select the desired menu and confirm with **ENTER**.
- Use **FUNCTIONS** to return to the FUNCTIONS menu.

Top Menu **⏮ ⏪ ⏩ ⏭**

Before finalizing the disc, you can select one of 9 different colour schemes for the disc menu.

- Use **▼▲** to select the corresponding menu from 1-9 and confirm with **ENTER**.



Auto-Play Select **⏮ ⏪ ⏩ ⏭**

Before finalization, you must select the start menu to be shown at the beginning of the DVD-V.

- Use **▼▲** to select [Top Menu] or [Title 1] and confirm with **ENTER**.

If [Top Menu] is selected, the disc menu appears first.

If [Title 1] is selected, the playback begins at the beginning of the disc.

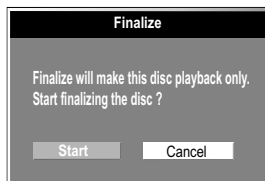
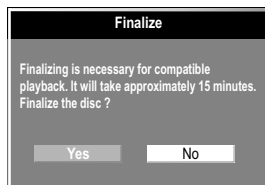
FUNCTIONS selection menu



To Others



DISC MANAGEMENT



Finalize **R RWV +R**

Finalizing turns DVD-Rs into DVD-Videos in DVD-Video format . They can be replayed on all DVD players which play the DVD-Video format.

- Use **◀** to select [Yes] and confirm with **ENTER**.
- Use **◀** to select [Start] and confirm with **ENTER**.
The finalization process begins and takes approx. 15 minutes.
When this process is finished, a confirmation message appears.
- Press **ENTER**.

Do not unplug the unit while the disc is being finalized. You can only finalize discs that were recorded on this unit. You can no longer record to already finalized discs. A finalized DVD-RW can be recorded again after reformatting.

	Before finalization	After finalization
Disc display on this device	DVD-R / -RW / +R	DVD-V
Record/edit/enter names	Possible	——
Play on other playback units	——	Possible

DISPLAY menus



DISPLAY menus contain information about the disc or the unit.

With DVD-Video you can use the repeat function, change subtitles and angles, with DVD playback, you can change the picture and sound setting.

Depending on the status of the unit (playback, stop), there are some entries that cannot be selected or changed. Subtitles, soundtrack and recording angle can only be selected if they were recorded on the disc. With some discs, these can only be changed via the disc menus.

When playing recordings of bilingual programmes, "1+1 ch" is displayed.

- Press **DISPLAY** to launch the menu
- Press **DISPLAY** again to exit the menu.

DISPLAY A	▼▲ Disc	▼▲ Option	▼▲ Setting
Disc	Soundtrack 2 DEU	Digital	2Ch
Play	Subtitle	Off	
Picture	Audio channel	--	
Sound			
Other			

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

Soundtrack	Soundtrack lang.	Change the language by changing the soundtrack.
	DVD-A DVD-V	
Soundtrack	Sound properties	LPCM/PPCm/Dolby Digital, DTS and MPEG signal type
	RAM -R -RW(V) +R -RW(VR)	k (kHz): scan frequency, b (bit): number of bits ch (channel): number of channels
Subtitle	Subtitle language	Change the subtitle language.
	DVD-A DVD-V	
Subtitle	Subtitles [On] [Off]	Switch subtitles on or off.
	RAM -R -RW(V) +R -RW(VR)	
Angle	DVD-A DVD-V	Select another recording angle.
STILL-P	Still picture number	Return to standard page: Select [Return] and press ENTER.
	DVD-A	
STILL-P	Slide Show	Display only
Audio channel	RAM -RW(VR)	Select the audio channel L+R / L / R
PBC	VCD	PBC displays whether the menu playback control is switched on or off.

DISPLAY menus



DISPLAY
A

▼▲ Play ▶ ▼▲ Option ▶ ▼▲ Setting

Disc Play Picture Sound Other	Repeat Play ☐ Off	Repeat Play	[On] [Off] This function is only available when the elapsed playtime is displayed. During the playback of playback list RAM -R -RW(V) +R -RW(V) DVD-V ▶ Title ↔ Chapter ↔ Off ◀ VCD CD ▶ Track ↔ All ↔ Off ◀ DVD-A MP3 ▶ Track ↔ Group ↔ Off ◀	▶ PL (PLAYLISTS) ↔ Off ◀ If the video CD has playback control Select a piece using the number buttons in stop mode.
---	--	-------------	---	--

DISPLAY
A

▼▲ Picture ▶ ▼▲ Option ▶ ▼▲ Setting

Disc Play Picture Sound Other	Playback NR ☐ Off Progressive ☒ On Transfer ☐ Auto	Playback NR [On] [Off] Reduces noise and image distortion. Progressive [On] [Off] Select [On] to activate full picture output.	Transfer For [Progressive - On], select the appropriate conversion method for full picture output. PAL output signal [Auto] [Video] Select Video if the Auto setting disrupts the video content. NTSC output signal [Auto1] [Auto2] [Video] Select Video if Auto1 or Auto2 settings disrupt the video content.
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DISPLAY
A

▼▲ Sound ▶ ▼▲ Option ▶ ▼▲ Setting

Disc Play Picture Sound Other	V.S.S. ☐ Off Dialog Enhancer ☐ Off	V.S.S. [Natural] [Emphasis] [Off] RAM -R -RW(V) +R -RW(V) DVD-V DVD-A Surround sound effect with 2 front loudspeakers. Only with Dolby Digital with 2 or more channels. Switch V.S.S. off if this leads to disturbances. V.S.S. does not work when recording two-channel sound.	Dialog Enhancer [On] [Off] RAM -RW(V) +R -RW(V) DVD-V DVD-A Dolby Digital, only with 3 or more channels, including a center channel. The volume is increased so that dialogs are easier to understand.
---	---	---	--

DISPLAY
A

▼▲ Other ▶ ▼▲ Option ▶ ▼▲ Setting

Sound Other	Position 1	Position [1 - 5] Position of the OSD displays on the screen
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STATUS displays

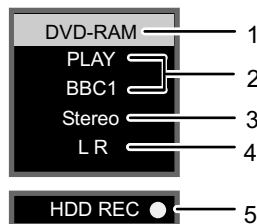


STATUS

B Displaying the information

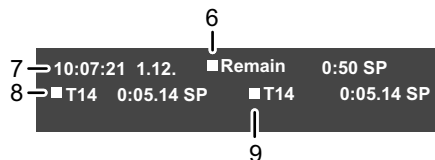
- Press **STATUS**.
- Press **STATUS** again. The display changes each time that the button is pressed.
- To exit the display, press **STATUS**.

- 1: Current medium
- 2: Current recording and playback state, input channel



REC	Record		Pause playback
PAUSE	Pause recording	»»	Fast forward (5 speeds)
PLAY	Playback	««	Rewind (5 speeds)
PLAYx1.3	Quick View (Playback x1.3)	▶▶ ◀◀	Slow motion Slow-motion rewind (5 speeds)

- 3: Sound type: Stereo: A stereo broadcast is currently being received
M1/M2: A 2 channel broadcast is currently being received
M1: A single-channel NICAM broadcast is currently being received.
- 4: Sound mode: LR,L,R: Soundtrack was changed with the **AUDIO** button.
- 5: Recording drive / Dubbing display



- 6: Available recording time and recording mode: e.g. 0:50 SP shows 50 minutes in SP mode.
- 7: Current date and time
- 8: Title number: Also shows the recording mode and the current playback time of the title.
- 9: Title number: Also shows the recording mode and the current recording time of the title.

The status information changes depending on the function, e.g. PLAY, REC or REC PLAY.

STATUS displays



When using the unit, information on the settings of the unit and the operating procedure appear on the television screen.

STATUS

☒ **Displaying the information**

- Press **STATUS**.

Each time the button is pressed, the display switches from: time - tape counter - tape remaining - time. During the index search, [01] through [20] is displayed, during JET Rewind [JET REW].

VHS

These displays do not appear in PAUSE mode or during slow-motion playback.

REMAIN: 0:24	Tape remaining	The remaining time on the tape depends on the correct setting of the tape length
11:25:02	Time	
□ 0:32.51	Tape counter	Use * CANCEL/RESET to set the counter to 0:00.00. The tape counter is automatically set to 0:00.00 when a video cassette is inserted.
▶ 0:21.29	Playback	
● 0:32.51	Recording	
◀◀ 0:32.51	Rewind	Fast rewind
▶▶ 1:15.01	Forward	Fast forward

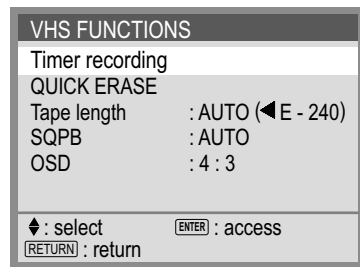
AUDIO

☐ **Changing the soundtrack**

- Press **AUDIO** to change the soundtrack. Each time the button is pressed, the display switches from: **L R** (stereo), **L -, - R, --** (normal soundtrack), **L R** (stereo)

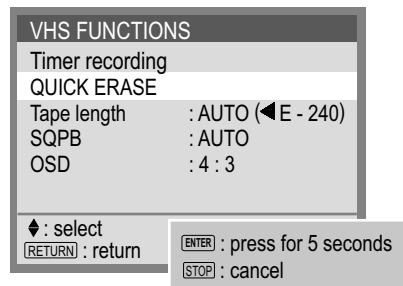
L R SP	Soundtrack	If you use the DC channel, you cannot change the soundtrack.
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VHS FUNCTIONS



Changing the settings

- Press **FUNCTIONS** in stop mode.
- Use **▲▼** to select the desired entry.
- Use **◀▶** to change the setting.
- Press **RETURN** to exit the menu.



Settings in the VHS FUNCTIONS Menu

Timer recording	Timer-controlled recording
QUICK ERASE	Erase all recordings on a played tape.
Tape length	Setting the tape length of the used cassette. AUTO (◀E - 240), E - 195, E - 260, E - 300
SQPB	AUTO : The unit automatically detects the recording type. ON : Playback of an S-VHS cassette in Quasi-S-VHS format. OFF : For playback of recordings in VHS format.
OSD	4:3 : Information appears on the edge of the screen (in 16:9 format, the messages are not visible). WIDE : Information appears on the edge of the screen (in 4:3 format, the messages appear in the middle). OFF : No information is displayed



QUICK ERASE

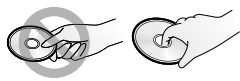
In order to be able to record on a used cassette tape without any quality problems, erase the recordings on the cassette using the QUICK ERASE function.

- Insert the cassette containing the content that you want to erase.
- Press **FUNCTIONS** in stop mode.
- Use **▲▼** to select QUICK ERASE and confirm with **ENTER**.
- Press **ENTER** for 5 seconds to start the QUICK ERASE function.
The erase procedure takes about 30 minutes for an E-180 cassette. Once the end of the cassette has been reached, the unit automatically rewinds the tape.
- Press **STOP** ■ to cancel the procedure.

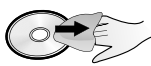
Handling discs



Only play round discs.



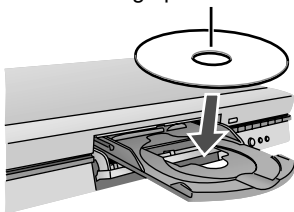
Do not touch the recording surface of the disc.



Cleaning the DVD-RAM

Clean the disc with a special DVD-RAM cleaner (optional) and read the cleaner instructions thoroughly before use.

Place the disc in the tray with the label facing upwards. With double-sided discs, place the side that you want to play, with the label facing up.



Handling discs

If the surface of a disc that does not have or was removed from a cartridge is damaged, scratches, dirt, dust or fingerprints can compromise the recording, editing or playback. Such damage can also occur when the disc is inserted back into the cartridge.

Cleaning DVD-Videos, Video CDs and CDs.

If the disc is dirty, wipe it with a moist and then a dry cloth.

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.

Note: Only the label side of the disc may be written on.

Use a soft oil-based felt pen.

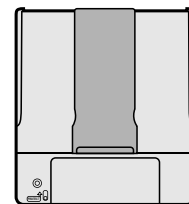
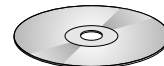
Do not use a ball-point pen or other hard writing instrument.

Do not affix any stickers or labels to the disc. The disc can warp and may become unusable.

When not in use, place the disc in its jewel case or cartridge so that it does not become scratched or dirty.

Do not drop the disc, place them on top of each other and never bang them. Do not place anything on top of the disc.

Protect the disc from dirt, dust, heat, humidity, direct sunlight or strong temperature fluctuations (since condensation can form).



Cartridge

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.

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.



Before requesting service

RESET Restoring the default factory settings while retaining your main settings.	▶ In the SETUP menu for Shipping Condition, select the option [Yes]. All settings except for password, time and security level will be reset to the factory default settings. The timer recording programmes will also be deleted. ▶ In the SETUP menu for Default Settings, select the option [Yes]. All settings except for the programmed channels and the settings for time, country, language, security-level, password and remote-control code will be reset to the factory default settings. ▶ Press and hold CH $\wedge$ and CH $\vee$ on the unit until the Country menu appears. All settings except for password, time and security level will be reset to the factory default settings. The time recording programmes are also erased.
Resetting the security-level settings	▶ Press DVD. With the disc tray open, press and hold Rec and Play/1.3 on the unit for at least 5 seconds.
Resetting the unit if the unit is frozen because one of the security settings was activated.	▶ Press and hold $\oslash$/I on the unit for 10 seconds. (The settings are retained.)
HDD The following symptoms do not indicate a malfunction:	▶ Normal disc rotation sounds. ▶ Weak reception due to atmospheric conditions. ▶ Picture interference while searching. ▶ Sounds when switching the Hard disk drive (HDD) to SLEEP mode; delayed reaction to commands in SLEEP mode. ▶ Unit does not function with a low-quality disc. ▶ The unit stopped running because one of the security settings was activated. (Press and hold $\oslash$/I on the unit for 10 seconds.) ▶ When the Hard disk drive (HDD) automatically switches to SLEEP mode, and when the unit is switched on and off, a brief sound signal can be heard.

Before requesting service

HDD Access to the Hard disk drive (HDD) is slow.	▶ The Hard disk drive (HDD) is in SLEEP mode. ("HDD SLP" appears in the display of the unit.)
The disc cannot be ejected.	▶ The unit is currently recording. ▶ The unit is out of order. With the unit switched off, press and hold STOP and CH ^ and CH v at the same time for approx. 5 seconds. Remove the disc and contact your dealer. ▶ The procedure cannot be executed if the child lock feature is activated. Switch off the child lock feature. 12
A recorded title is partially or completely lost.	▶ If power goes out during recording or editing or if the unit is unplugged from the power supply, the title can be lost or the Hard disk drive (HDD)/disc may become unusable. You must then reformat the disc (HDD, RAM, -RW(V)) or use a new disc. No compensation is provided for lost recordings or unusable discs.
It is not possible to dub to a DVD-R etc. in high-speed mode.	▶ When recording to the Hard disk drive (HDD), set [Rec for High Speed dubbing] in the SETUP menu to [On]. 98
Dubbing even takes a relatively long time in high-speed mode.	▶ Use a high-speed-compatible disc. Depending on the condition of the disc, even high-speed-compatible discs may not allow recording at maximum speed. ▶ Dubbing takes longer if there are a lot of titles. ▶ If you are using another Panasonic DVD Recorder that is not compatible with the recording mode [EP (8Hours)], you cannot dub titles over 6 hours long to a DVD-R, DVD-RW (DVD-Video format) and +R at high speed.
Unusually loud sounds coming from the rotating DVD-R etc.	▶ 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.

Before requesting service

FUNCTION No function possible.	▶ Check the power supply connection.
The unit is switched on but cannot be used. The error code «H□□», «U□□» or «F□□» appears:	▶ There is a malfunction. The numbers following the letter «H» indicate the condition of the unit. • Switch the unit to standby $\mathcal{O}/I$. If the unit does not switch to standby mode, press and hold $\mathcal{O}/I$ for approx. 10 seconds or unplug it from the power supply for approx. one minute and reconnect the cable. • Press $\mathcal{O}/I$ to switch the unit on. If the malfunction is not eliminated after this, contact customer service and provide the code that is displayed.
The unit automatically switches to standby mode.	▶ One of the unit's security devices may have been activated. Press $\mathcal{O}/I$ to switch the unit on.
PICTURE No picture.	▶ Check the connection to the television set, e.g. AV1.  16
Television reception worsens when the unit is connected.	▶ Check the antenna connection. You may need to use a signal amplifier.
The picture is not set correctly.	▶ Check the [TV Aspect] setting in the Connection SETUP menu.  103
The picture flickers.	▶ Adjust the picture. Read the operating instructions for the television.
No on-screen messages.	▶ Change the [On-Screen Messages] setting in the Display SETUP menu.  102
SOUND No sound/ Volume set to quiet/ Distorted sound.	▶ Check the connections.  17; 19 ▶ If you have connected an amplifier, check its input mode. ▶ Switch off the V.S.S. function if it causes problems.  113
It is not possible to hear the desired sound type.	▶ Press AUDIO to select the desired sound type.  42 ▶ Change the appropriate setting in the Sound SETUP menu.  100
The sound cannot be set for stereo or NICAM broadcasts.	▶ Connect external devices with audio cables even if you use a digital connection. ▶ You cannot change the sound type when using DVD-R/-RW(V)/+R.  28

Before requesting service

DISPLAY The display lighting is weak.	▶ Change the [FL Display] in the Display SETUP menu.  102
"0:00" blinks on the unit display.	▶ No time. Set the time in the Others, [Clock] SETUP menu.  105
REMOTE CONTROL No functions	▶ If the unit is in timer standby mode (⏻ on the unit) end this with TIMER .  13 ▶ A wrong remote control code was selected. ▶ Check the batteries. Point the remote control at sensor on the unit. ▶ The child lock feature has been activated.  12
The television cannot be operated.	▶ A wrong remote control code was selected.  12
PLAYBACK Playback does not start.	▶ The disc is dirty or badly scratched. ▶ You inserted a disc that is not suitable for playback.  34 - 36 ▶ You inserted a blank disc.
DVD-Video will not play.	▶ Some DVD-Videos cannot be played if the security level has been changed.  98
No reaction when the button is pressed.	▶ ⏻ appears on the screen. The procedure is stopped by the unit or the disc. ▶ The child lock feature has been activated.
A title or chapter is not played back after being selected.	▶ Some titles and chapter of DVD-Video are not played back if the Ratings have changed.  98
Alternative soundtracks and subtitles cannot be selected.	▶ The languages were not recorded on the disc. ▶ You may need to use the disc menu to select the languages.
The soundtrack/subtitle language does not match the language selected in the SETUP menu.	▶ The language is not recorded on the disc.  98
No subtitles.	▶ The subtitles are not recorded on the disc or are not switched on.  98
The perspective cannot be changed.	▶ The angle perspective can only be changed for scenes that were recorded in different angles.  112
You forgot your classification password.	• With the unit disc tray open, press and hold REC and PLAY/ x1.3 simultaneously for at least 5 seconds.

Before requesting service

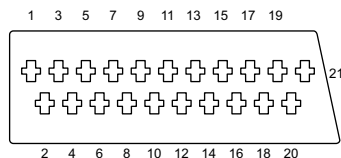
RECORDING Cannot record	▶ Check whether the inserted disc is suitable for recording. ▶ The disc is not formatted. Format the disc (RAM/DVD-RW). ▶ The write-protection device on the Cartridge is set to "PROTECT". Deactivate the write protection. ▶ If you activated the write protection, deactivate it in the DISC MANAGEMENT menu. ▶ The material that you want to record is copy-protected. 34 109 108
Some or all recorded programmes were lost.	▶ If the power goes out during recording or editing or the power plug is disconnected from the power socket, the programme can be lost or the disc can be damaged.
TIMER-controlled recording is not working.	▶ The TIMER programming is incorrect or different TIMER-programmes are overlapping each other. Correct the programming. ▶ The unit is in standby mode for TIMER-controlled recording. Press TIMER. ▶ Check the clock setting. 58 : 61
The TIMER-controlled recording cannot be cancelled.	▶ Press TIMER during the TIMER-controlled recording. ▶ In the case of a TIMER-controlled recording via an external device, press DVD or VHS and then EXT LINK. EXT L disappears. 67
Video cassette cannot be copied to disc.	▶ When recording video cassettes to disc, the TP channel was not selected. ▶ Video cassette is copy-protected. 69
Copying from disc to video cassette does not work.	▶ When recording from disc to video cassette, the DC channel was not selected. ▶ DVD is copy-protected. 69
EXTERNAL INPUT Video or audio from external device is not recorded.	▶ The external device is not connected correctly. ▶ The correct external input channel AV2, AV3 or DV was not selected. 28 : 29

21-pin Scart socket

The 21-pin Scart socket transmits both input and output signals for picture and sound. TVs equipped with the same type of socket can be connected here.

This type of socket is also called Peritel, Euro Connector and Euro AV.

21-pin Scart socket



AV1 Scart socket (NORMAL)

- 1 Audio output CH2 (R)
- 2 Audio input CH2 (R)
- 3 Audio output CH1 (L)
- 4 Audio ground
- 5 Blue ground
- 6 Audio input CH1 (L)
- 7 Blue
- 8 Switching voltage
- 9 Green ground
- 10 Reserved
- 11 Green
- 12 No connection
- 13 Red ground
- 14 Blanking ground
- 15 Red
- 16 Blanking
- 17 Video output ground
- 18 Video input ground
- 19 Video output
- 20 Video input
- 21 Ground

AV2 Scart socket

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

Glossary

Bitstream

Digital multi-channel audio data (e.g. 5.1-channel) before decoding to the individual channels.

Decoder (e.g. DTS/Dolby Digital)

A decoder converts the coded audio signals of the DVDs back to the original signals. This procedure is called decoding.

Dolby Digital

A coding procedure for digital signals that was developed by Dolby Laboratories. It may involve (2-channel) stereo sound signal or multi-channel sound. The procedure enables the saving of large amount of audio data on a disc.

Dolby Digital (2 channels) is the basic setting when recording with this unit.

DPOF (Digital Print Order Format)

DPOF 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.

DTS (Digital Theater Systems)

This surround system is used in many cinemas. Since it has clean channel separation, extremely realistic sound effects can be achieved.

Dynamic volume

The dynamic volume is the difference between the lowest level that is still distinguishable over the sounds made by the unit itself and the highest level, at which no distortion occurs. A dynamic compressor reduces the difference between the lowest and the highest levels of the source. Dialogue can be heard better at a low volume with such compression.

Erase protection

You can prevent accidental erasing by activating write or erase protection.

Film and video

DVD-Videos are either recorded in film or video mode.

This unit identified the mode on its own and selects the best progressive output method.

With PAL

Films are made up of 25 frames per second. Videos are made up of 50 so-called split frames per second (whereby two split frames form on full frame).

With NTSC

Films are made up of 24 or 30 frames per second and cinema movies generally 24 frames per second. Videos are made up of 60 so-called split frames per second (whereby two split frame form one full frame).

Finalization

A CD-R, CD-RW, DVD-R etc. can only be played back on a unit designed for these storage media after finalization. A DVD-R, DVD-RW (DVD-Video format) and +R can be finalized with this unit. After finalization, the disc is a "playback only" disc and can no longer be written to or edited. However, if you reformat a finalized DVD-RW, you can use it for recording again.

Formatting

Formatting prepares media such as writeable DVD-RAMs for recording. With this unit, you can format the Hard disk drive (HDD), a DVD-RAM, a DVD-RW (only in DVD-Video format) and an SD Memory Card. All data is irretrievably deleted during formatting.

Hard disk drive (HDD)

A mass storage device used in computers etc. The drive has a magnetic layer and rotates at a high speed. A magnetic head right above the drive enables fast writing and reading of large amounts of data.

LPCM (Linear PCM)

These are uncompressed digital signals, similar to those on CDs. LPCM sound can be used during recording in XP mode.

Playback control (PBC)

You can select scenes and information with menus in the case of a video CD that has playback control.

(This unit is compatible with Versions 2.0 and 1.1.)

Scan frequency

When converting (encoding) to a digital signal, the (analogue) sound signal is scanned at certain time intervals. The number of scans per second is called the scan frequency. The higher the scan frequency, the better the original sound is reproduced.

Sound mixing

This is the remixing of the multi-channel sound that exists on some discs to two channels for stereo output. Sound mixing makes sense e.g. if you want to playback the 5.1-channel sound of a DVD over your television speakers. However, some discs do not allow mixing. In this case, only the two front channels are output.

Further Information

This DVD Recorder is a precision unit. Handle it carefully and do not expose it to vibrations during recording. Otherwise there may be breaks or noises in the recordings.

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

The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material nor for consequential damages attributed to a defect in the unit or the disc.

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.

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 viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

DTS (Digital Theater Systems)

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

- 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.

Specifications

Power supply: AC 220V-240 V, 50 Hz		Dimensions: approx. 430 mm (W) x 89 mm (H) x 380 mm (D)	
Power consumption: 46 W		Weight: approx. 7 kg	
		Operating temperature: 5°C - 40°C	
		Operating humidity: 35% - 80% RH (no condensation)	
DVD/HDD		VHS	
Recording format	DVD-RAM: DVD Video Recording format DVD-R: DVD-Video format DVD-RW: DVD-Video format Video: MPEG2 (Hybrid-VBR) Audio: Dolby Digital 2 channels, Linear PCM (XP mode only, 2ch)	Recording format	VHS video cassette system standard with FM audio (PAL, NTSC) NTSC recording from an external source or from DVD, not from built-in tuner.
LASER specification	LASER product of class 1, Wavelength: 662 nm for DVD, 795 nm for CD Laser performance: Class 3B / Class 3A (optical scan unit), No hazardous radiation is emitted with the safety protection	Video / audio heads	4 rotating video heads, 2 Hi-Fi heads 1 fixed head for normal audio
Recording discs	DVD-RAM: Ver.2.0, Ver.2.1 /3x Rev.1.0, Ver.2.2 /5x Rev.2.0		
Playable discs	DVD-R: Gen.Ver.2.0, Ver.2.0 /4x Rev.1.0, Ver.2.x /8x Rev.3.0		
	DVD-RW: Ver.1.1, Ver.1.1 /2x Rev.1.0, Ver.1.2 /4x Rev.2.0		
	DVD+R: Ver.1.0, Ver.1.1, Ver.1.2		
Playback only discs	DVD-RAM, DVD-R, DVD-RW, +R, +RW, DVD-Video, DVD-Audio, CD-Audio (CD-DA), Video-CD, CD-R/CD-RW (CD-DA, Video-CD, MP3, JPEG formatted discs), SVCD (conforming to IEC62107)		
Recording mode	(DVD 4,7GB Disc): XP: approx. 10 MBit/s/ approx. 1 hour SP: approx. 5 MBit/s/ approx. 2 hours LP: approx. 2.5 MBit/s/ approx. 4 hours EP: approx. 1.7/1.2 MBit/s/ approx. 6 hours/8 hours	Recording mode	PAL: SP: 23.39 mm/s 240 min. LP: 11.7 mm/s 480 min. EP: 7.8 mm/s 720 min.
Recording time	(HDD 200GB): XP: approx. 10 MBit/s/ approx. 44h SP: approx. 5 MBit/s/ approx. 89h LP: approx. 2.5 MBit/s/ approx. 177h; EP: approx. 1.7/1.2 MBit/s/ approx. 266/355h		NTSC: SP: 33.35 mm/s 168 min. EP: 11.12 mm/s 505 min. (with E-240 cassettes)
			Forward/rewind: approx. 60 sec., Fast rewind: approx. 43 sec. (with E-180 cass.)
Build-in HDD capacity:	200GB		
Other	Regional code: 2		

Specifications

DVD/HDD		VHS	
Video interface TV system 625/50:PAL 525/60:NTSC Input The input impedance of each input socket is 75 Ohm. AV1 SCART Video: 1 Vp-p AV2 SCART Video: 1 Vp-p, Y: 1 Vp-p C: 0.3 Vp-p(PAL-Burst), RGB: 0.7Vp-p(625/50) AV3 Socket Video: 1 Vp-p S Video Y: 1 Vp-p, C:0.3 Vp-p(PAL-Burst) Output The output impedance of each output socket is 75 Ohm. AV1 SCART Video: 1 Vp-p; RGB: 0.7Vp-p (625/50) AV2 SCART Video: 1 Vp-p DVD Socket Video: 1 Vp-p S Video Y: 1 Vp-p, C: 0.3 Vp-p (PAL-Burst) Component Video (Socket) Y: 1 Vp-p, PB: 0.7 Vp-p, PR: 0.7 Vp-p (Component output: Progressive / Interface)		Video interface TV system 625/50:PAL 525/60:NTSC Input The input impedance of each input socket is 75 Ohm. AV1 SCART Video: 1 Vp-p AV2 SCART Video: 1 Vp-p, Y: 1 Vp-p C:0.3 Vp-p(PAL-Burst) AV3 Socket Video: 1 Vp-p S Video Y: 1 Vp-p, C:0.3 Vp-p(PAL-Burst) Output The output impedance of each output socket is 75 Ohm. AV1 SCART Video: 1 Vp-p AV2 SCART Video: 1 Vp-p	
Audio interface Input The input impedance of each input socket is more than 10 kOhm. AV1 SCART Standard: 0.5 Vrms, Full conduction: 2 Vrms at 1 kHz AV2 SCART Standard: 0.5 Vrms, Full conduction: 2 Vrms at 1 kHz AV3 Socket Standard: 0.5 Vrms, Full conduction: 2 Vrms at 1 kHz Output The output impedance of each output socket is less than 1 kOhm. AV1 SCART Standard: 0.5 Vrms, Full conduction: 2 Vrms at 1 kHz AV2 SCART Standard: 0.5 Vrms, Full conduction: 2 Vrms at 1 kHz DVD Socket Standard: 0.5 Vrms, Full conduction: 2 Vrms at 1 kHz Digital Audio Optical connection (PCM, Dolby Digital, DTS, MPEG)		Audio interface Input The input impedance of each input socket is more than 10 kOhm. -6 dBV -6 dBV -6 dBV Output The output impedance of each output socket is less than 1 kOhm. -6 dBV -6 dBV	
SD Card slot: Still picture (JPEG, TIFF), 1 SDMemory Card Slot, Compatible Media: SD Memory Card, MultiMediaCard, Format: FAT12, FAT16			
DV input IEEE 1394 Standard (4 pin) (PAL/NTSC)			
Tuner Two built-in tuners (one for DVD and one for VCR) Tuner system PAL-I Channel range UHF: CH 21-68 RF converter UHF: CH 21-68 71± 3dBμ with 75Ohm termination.			

Note: The values given for weight and dimension are approximate values. The technical data can be changed without advanced notice.

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