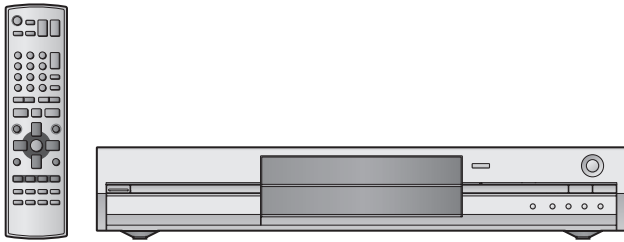


Operating Instructions

DVD Video Recorder

Model No. **DMR-E55EB/EBL**

(Model suffix: "EB" for UK model, "EBL" for Ireland model)



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

Region number supported by this unit

Region numbers are allocated to DVD players and software according to where they are sold.

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

Example:



DIGA

Dear customer

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully.

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

Note

"EB" on the packaging indicates the United Kingdom.

EB EBL

RQT7540-2B

CAUTION!

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

WARNING:

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

CAUTION!

- DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.
- DO NOT OBSTRUCT THE UNIT'S VENTILATION OPENINGS WITH NEWSPAPERS, TABLECLOTHS, CURTAINS, AND SIMILAR ITEMS.
- DO NOT PLACE SOURCES OF NAKED FLAMES, SUCH AS LIGHTED CANDLES, ON THE UNIT.
- DISPOSE OF BATTERIES IN AN ENVIRONMENTALLY FRIENDLY MANNER.

THIS UNIT IS INTENDED FOR USE IN MODERATE CLIMATES. (→ page 45, Specifications—Others)

This product may receive radio interference caused by mobile telephones during use. If such interference is apparent, please increase separation between the product and the mobile telephone.

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



(Back 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. UNNGÅ UDSETTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
WARNING	- 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 LASERSTRÄHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注意	- 打开时有可见及不可见激光辐射。避免激光束照射。
注意	- ここを開くと可視及び不可視のレーザー光が出ます。ビームを直接見たり、触れたりしないでください。 RQLS0233

(Inside of product)

- For your safety, be sure not to connect or handle the equipment with wet hands.
- Your attention is drawn to the fact that the recording pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

(For United Kingdom and Republic of Ireland)



("EB" and "EBL" area code model only)

For your safety, please read the following text carefully.

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

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.

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

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

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

A replacement fuse cover can be purchased from your local dealer.

CAUTION!

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13- AMPERE SOCKET.

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

If in any doubt please consult a qualified electrician.

IMPORTANT


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

Blue: Neutral, Brown: Live.

As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.

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

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

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

Before use

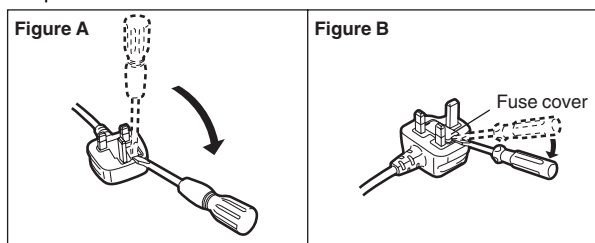
Remove the connector cover.

How to replace the fuse

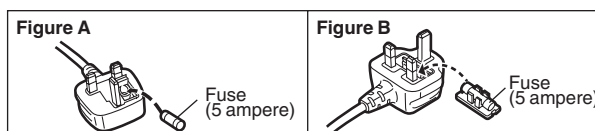
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.



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



Getting started

Caution for AC Mains Lead	2
Useful features	3
Accessories	4
The remote control	4
Control reference guide	5
STEP 1 Connection	6
STEP 2 TV Tuning	11
STEP 3 Set up to match your television and remote control	14
To enjoy progressive video	14
Disc information	16

Recording

Recording television programmes	18
Recording modes and approximate recording times	19
Direct TV Recording	19
Playing while you are recording	19
Flexible Recording	20
Recording from an external equipment	20
Timer recording	21
Using VIDEO Plus+ number to make timer recordings	21
Manually programming timer recordings	22
To record programmes from satellite receiver by RGB signals	23
Check, change or delete a programme	23
Linked timer recordings with external equipment (EXT LINK) ..	23

Playing back

Playing discs	24
Operations during play	25
Editing operations during play	26
Changing audio	26
Using menus to play MP3	27
Using on-screen menus	28
Common procedures	28
Disc menu—Setting the disc content	28
Play menu—Change the play sequence	29
Picture menu—Change the picture quality	29
Sound menu—Change the sound effect	29

Useful features

This DVD Video recorder records high quality images to rapid random access capable DVD-RAM media. This has resulted in many new features that outperform older tape formats. The following information summarizes a few of these features.

Instant recording

You no longer need to search for empty disc space. By pressing the recording button, the unit finds available recording space and begins recording right away. There is no need to worry about overwriting already recorded content.

Instant play

There is no need to rewind or search forward. Direct Navigator guides you to the beginning of the recorded video immediately.

Editing

Editing titles/chapters	30
Editing titles/chapters and playing chapters	30
Title operations	31
Chapter operations	31
Creating, editing and playing play lists	32
Creating play lists	32
Editing and playing play lists/chapters	33
Play list operations	33
Chapter operations	33

Convenient functions

DISC MANAGEMENT	34
Disc Name	35
Disc Protection	35
Format Disc	35
Auto-Play Select	35
Finalize	35
Entering text	36
FUNCTIONS window and Status messages	37
FUNCTIONS window	37
Status messages	37
Changing the unit's settings	38
Common procedures	38
Summary of settings	38
Tuning	42
TV System	43
Clock settings	44
Child Lock	44

Reference

Specifications	45
Glossary	45
Frequently asked questions	47
Error messages	48
Maintenance	48
Troubleshooting guide	49
Safety precautions	51
Index	Back cover



Chasing playback

There is no need to wait until recording is complete. Without stopping recording, you can play the video currently being recorded from its beginning.



Simultaneous Recording and Playback

While recording, you can play another video programme that was recorded previously.



Time Slip

During play and also while recording, you can jump to the scene you wish to view by specifying the skip time.

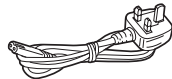
Accessories



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



1 Remote control
(EUR7720KB0)

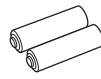


1 AC mains lead
(RJA0044-3C)

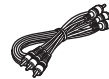
● For use with this unit only. Do not use it with other equipment.



1 RF coaxial lead
(K1TWACC00001)



2 Batteries
R6 Size
for remote control



1 Audio/video cable
(K2KA6CA00001)

■ Sales and Support Information

Customer Care Centre

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

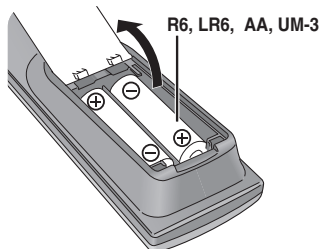
Direct Sales at Panasonic UK

- Order accessory and consumable items for your product with ease and confidence by phoning our Customer Care Centre Monday-Friday 9:00am-5:30pm. (Excluding public holidays)

- Or go on line through our Internet Accessory ordering application at www.panasonic.co.uk
- Most major credit and debit cards accepted.
- All enquiries transactions and distribution facilities are provided directly by Panasonic UK Ltd.
- It couldn't be simpler!
- Also available through our Internet is direct shopping for a wide range of finished products, take a browse on our website for further details.

The remote control

■ Batteries



- Insert so the poles (+ and -) match those in the remote control.
- Do not use rechargeable type batteries.
- Do not mix old and new batteries.
- Do not use different types at the same time.
- Do not heat or expose to flame.
- Do not take apart or short circuit.
- Do not attempt to recharge alkaline or manganese batteries.
- Do not use batteries if the covering has been peeled off.

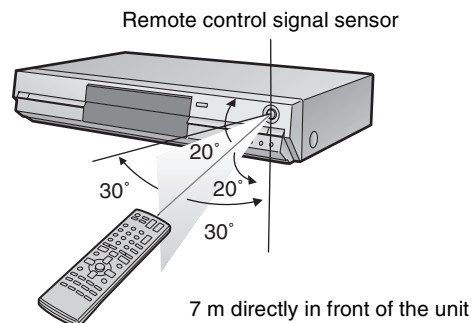
Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.

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

Note

If you cannot operate the unit or television using the remote control after changing the batteries, please re-enter the codes (➔ page 15).

■ Use

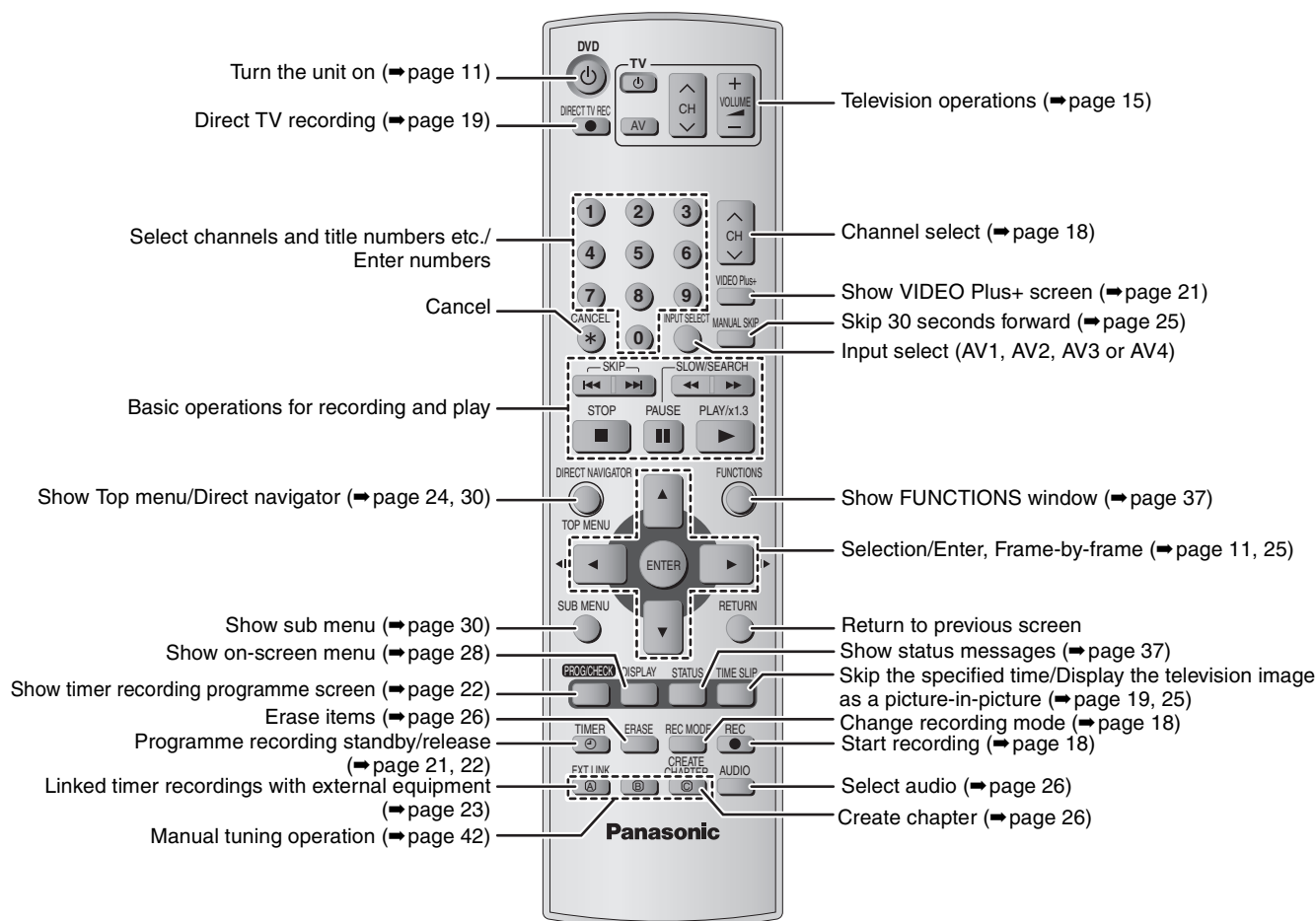


The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material due to a problem with the unit or recordable media, and accepts no responsibility and offers no compensation for any subsequent damage caused by such loss.

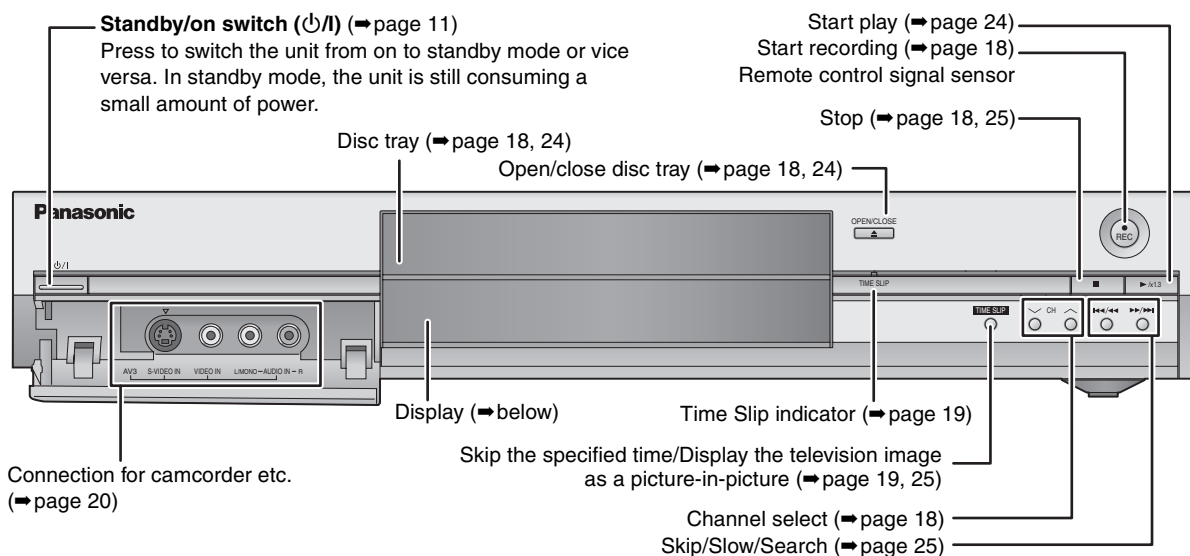
Examples of causes of such losses are

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

Remote control

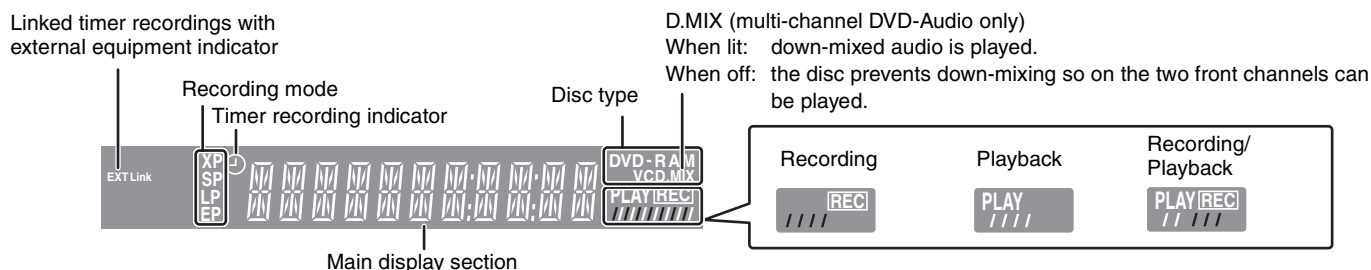


Main unit



Rear panel terminals (⇒ page 7, 8)

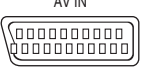



The unit's display



STEP 1 Connection

- The equipment connections described are examples.
- Before connection, turn off all equipment and read the appropriate operating instructions.
- Peripheral equipment and optional cables sold separately unless otherwise indicated.

Recommended connection for your television

What kind of input terminal does your television have?		Required cable(s)	Page No. for connections	Page No. for TV settings	
Scart		Highly recommended connection. •You can enjoy high-quality RGB video from this unit by connecting to an RGB compatible television. •If your television has the Q Link feature, you can use a variety of useful functions.	Fully wired 21-pin Scart lead	⇒ 7	⇒ 12 •If it's a Q Link television ⇒ 11
Component video		These terminals provide a purer picture than the S-Video terminal. •If your television is compatible with progressive scan, you can enjoy high-quality progressive video. If you have a progressive compatible CRT television, we cannot recommend this connection as some flickering may occur.	3 video cables	⇒ 8	⇒ 12
S-Video		This terminal achieves a more vivid picture than the video terminal.	S-Video cable	⇒ 8	⇒ 12
Audio/Video		The most basic connection.	Audio/Video cable (included)	⇒ 8	⇒ 12

For the United Kingdom only

If your television does not have one of the terminals mentioned above, connect with the RF sockets only (⇒ page 9). However, when using this connection, picture received from a satellite receiver may not be clear, therefore we do not recommend it.

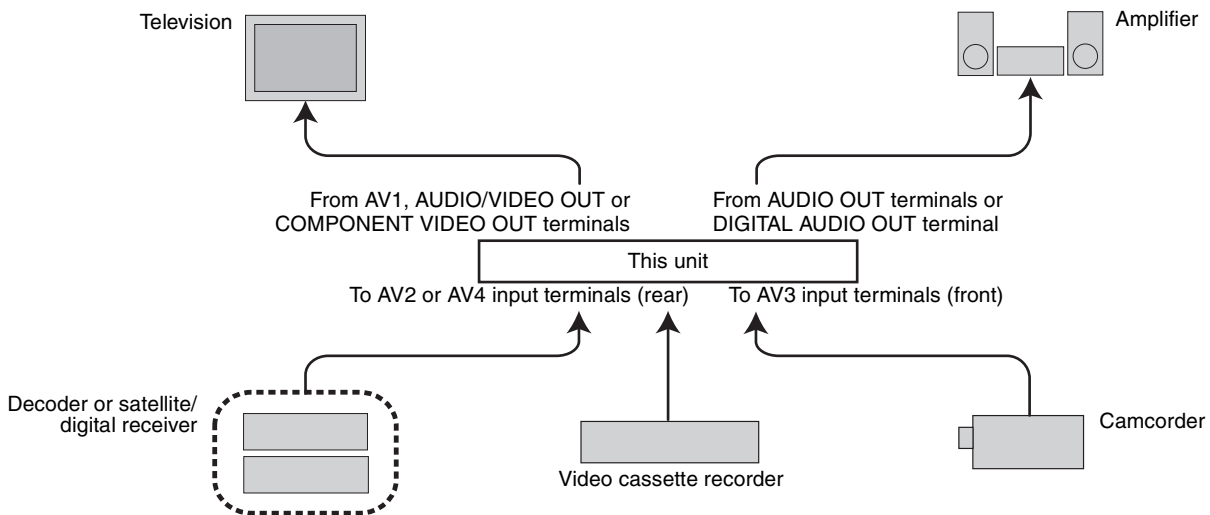
Q Link functions

Q Link offers a range of convenient functions (For further details ⇒ page 46). Make sure to connect a fully wired 21-pin Scart lead to the television if using the Q Link function.

The following systems from other manufacturers have similar function to Q Link from Panasonic. For details, refer to your television's operating instructions or consult your dealer.

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

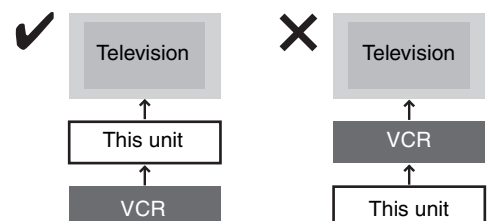
Examples of equipment you can connect to this unit's terminals



Do not connect the unit through a video cassette recorder

Video signals fed through video cassette recorders will be affected by copyright protection systems and the picture will not be shown correctly on the television.

- When connecting to a television with a built in VCR, connect to the input terminals on the television side, not the VCR side.



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

Connecting a television with 21-pin Scart terminal and Satellite receiver

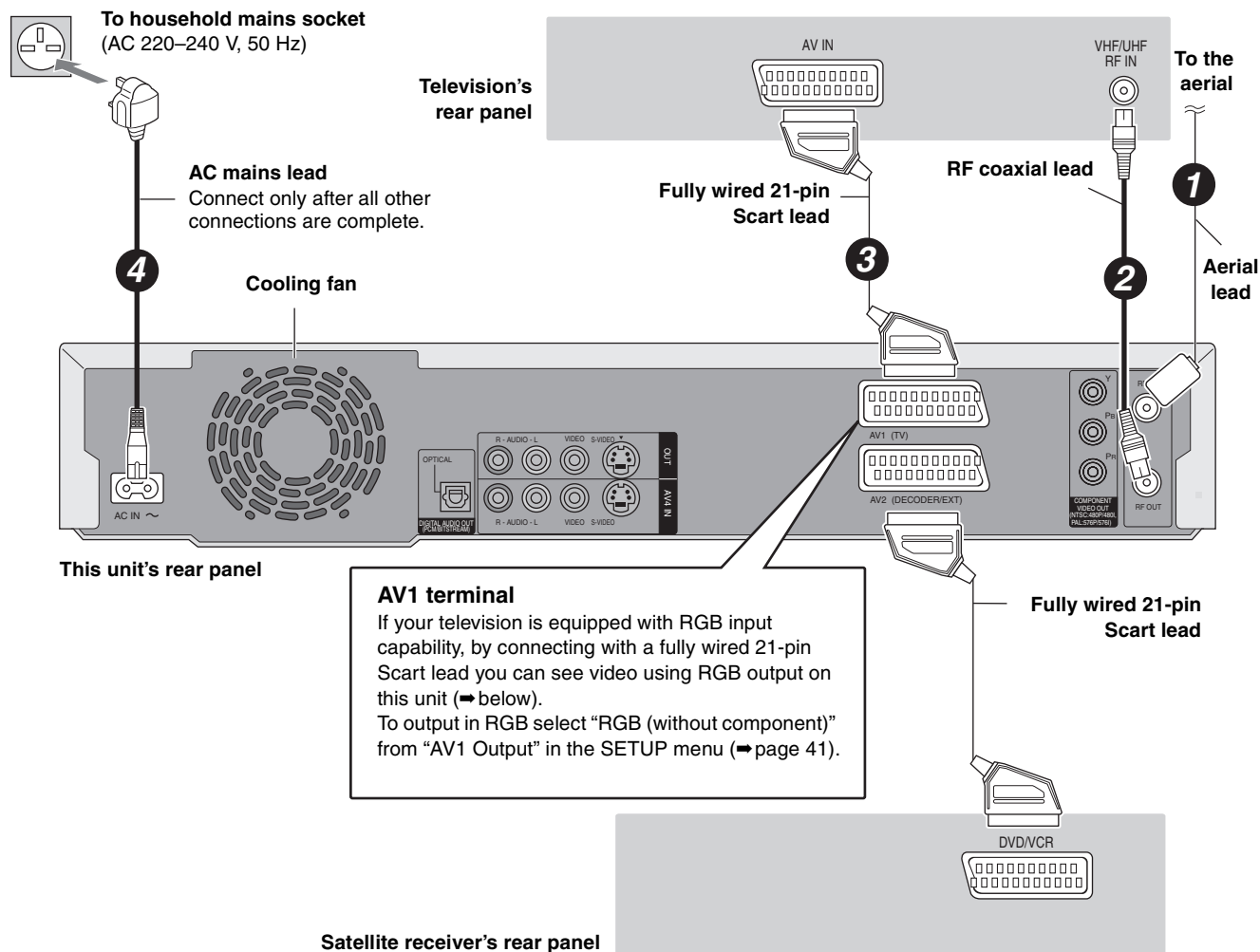
- When there is no 21-pin Scart terminal on the television (→ page 8)
- Change the “AV2 Input” setting to match the output from a satellite receiver and set the “AV2 Connection” setting to “Normal” in the SETUP menu (→ page 41) after tuning is completed (→ page 11, 12).

— indicates included accessories.

— indicates accessories not included.

① — ④ are required connections. Connect in the numbered order.

BE SURE TO READ THE CAUTION FOR THE AC MAINS LEAD ON PAGE 2 BEFORE CONNECTION.



■ To view satellite programmes

Press [INPUT SELECT] to select the input channel “A2” for the satellite receiver or put this unit in standby mode.

■ RGB

This refers to the three primary colours of light, red (R), green (G), and blue (B) and also the method of producing video that uses them. By dividing the video signal into the three colours for transmission, noise is reduced for even higher quality images.

STEP 1 Connection

Connecting a television with AUDIO/VIDEO, S-VIDEO or COMPONENT VIDEO terminals and VCR

Connecting to the television using the 21-pin Scart leads (➔ page 7)

— indicates included accessories.

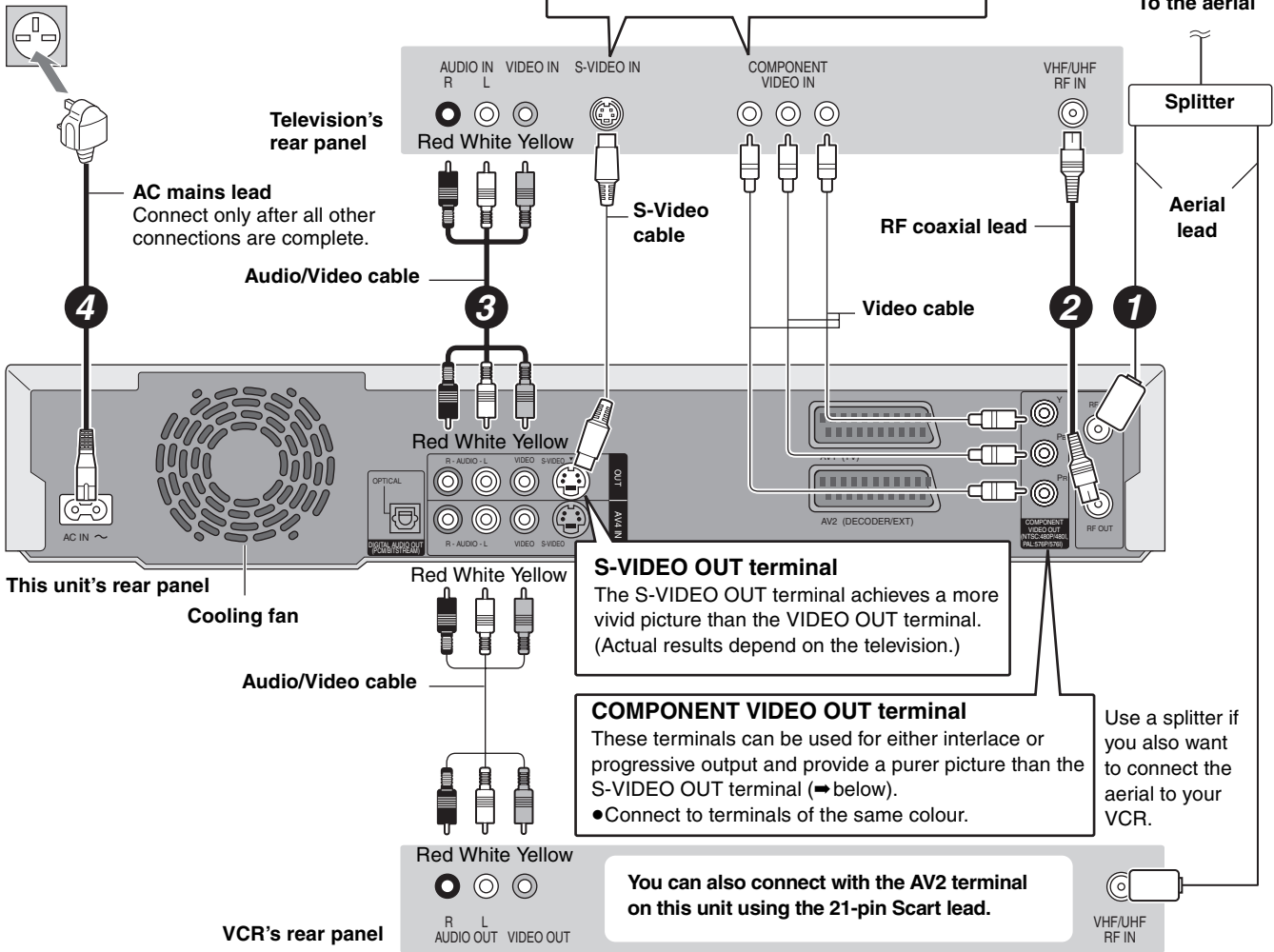
— indicates accessories not included.

① — ④ are required connections. Connect in the numbered order.

BE SURE TO READ THE CAUTION FOR THE AC MAINS LEAD ON PAGE 2 BEFORE CONNECTION.

To household mains socket
(AC 220–240 V, 50 Hz)

When making this connection, ensure you connect the audio cables to the corresponding audio input terminals on the television.



■ Component video output

Component signal outputs the colour difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colours. If the television is compatible with progressive output, a high quality picture can be output because this unit's component video output terminal outputs a progressive output signal (➔ page 46).

For progressive output (➔ page 14)

Connecting a television with RF socket only and Satellite receiver

Connect in the numbered order. If you do not have a Satellite receiver, connect the aerial to the RF Input socket of this unit and skip step 3.

- indicates included accessories.
- indicates accessories not included.

BE SURE TO READ THE CAUTION FOR THE AC MAINS LEAD ON PAGE 2 BEFORE CONNECTION.

To household mains socket
(AC 220–240 V, 50 Hz)

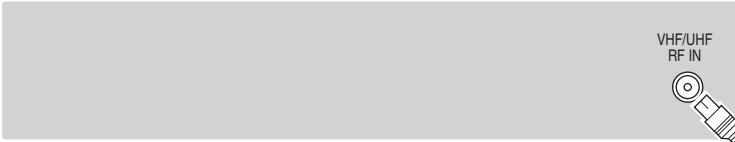


AC mains lead
Connect only after all other connections are complete.

4

Cooling fan

Television's rear panel

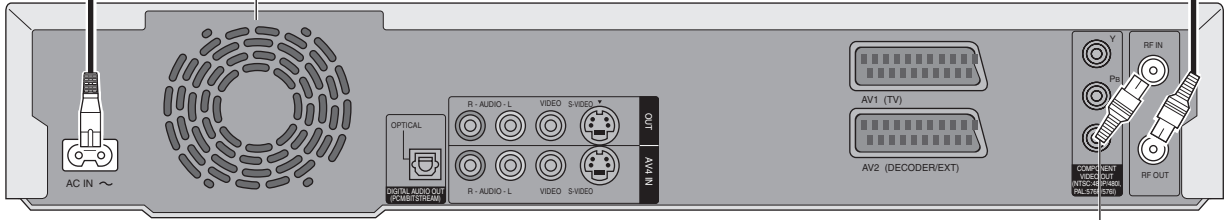


VHF/UHF
RF IN

1

2

RF coaxial lead



This unit's rear panel

3

Aerial lead

RF coaxial lead

Satellite receiver's rear panel



RF IN

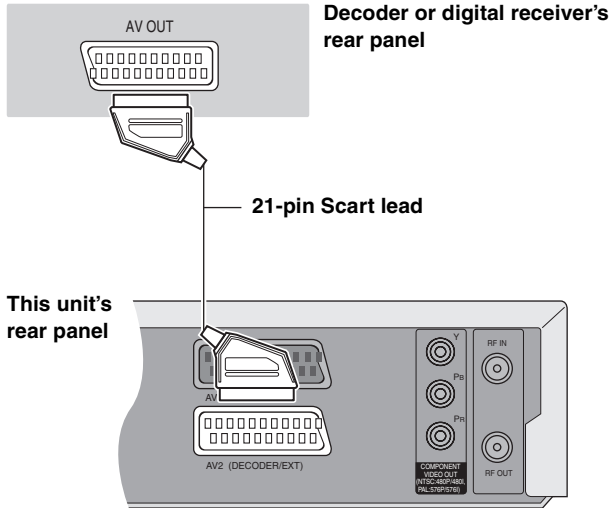
RF OUT

Getting started

STEP 1 Connection

Connecting a decoder or digital receiver

- Decoder here means the device used to decode scrambled broadcasts (Pay TV).
- Change the "AV2 Input" and "AV2 Connection" settings in the SETUP menu to match the connected equipment (➔ page 41) after tuning is completed (➔ page 11, 12).

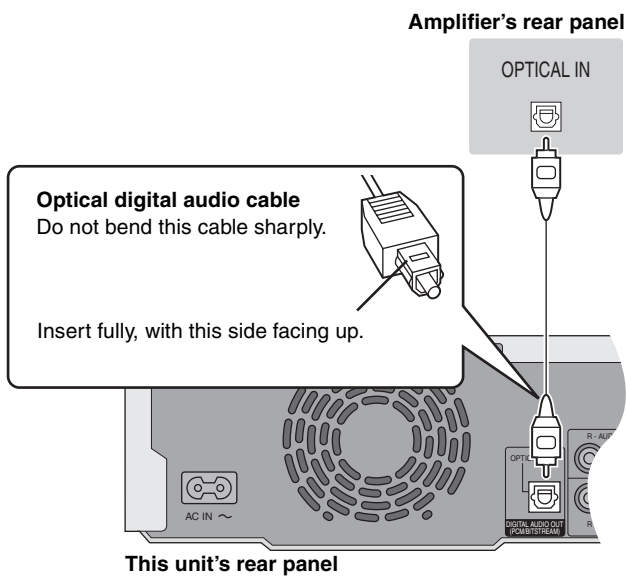


Connecting an amplifier or system component

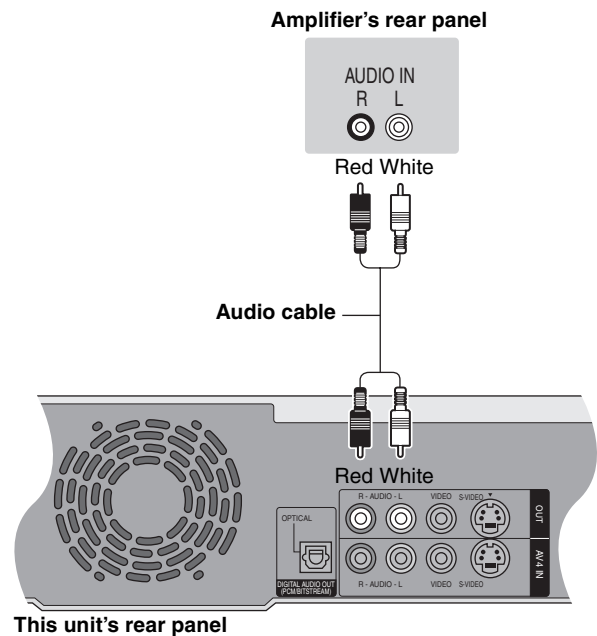
■ To enjoy multi-channel surround sound on DVD-Video

Connect an amplifier with Dolby Digital, DTS and MPEG decoders using an optical digital audio cable and change the settings in "Digital Audio Output" (➔ page 40).

- You cannot use DTS Digital Surround decoders not suited to DVD.
- Even if using this connection, output will be only 2 channels when playing DVD-Audio.

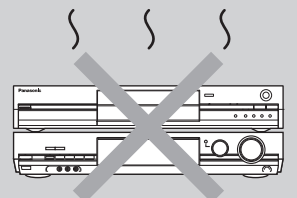


■ Connection to a stereo amplifier

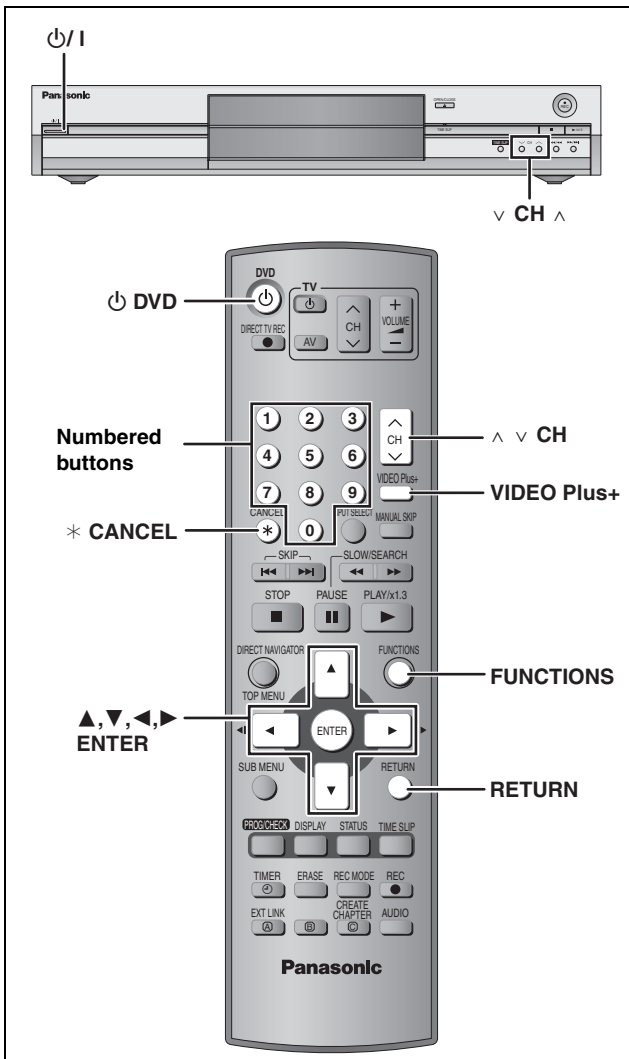


Do not place the unit on amplifiers or equipment that may become hot.

The heat can damage the unit.



STEP 2 TV Tuning



Preset Download (Setup with Q Link functions)

When connecting to a television that has the Q Link function (⇒ page 46) with a fully wired 21-pin Scart lead (⇒ page 7).

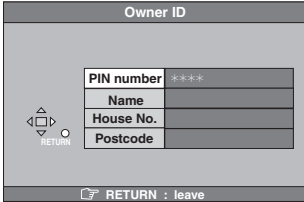
You can download the tuning positions from the television. This unit's Auto Clock Setting function synchronizes the time when the TV channel that is broadcasting time and date information is tuned.

- 1 Turn on the television and select the appropriate AV input to suit the connections to this unit.
- 2 Press [DVD] to turn the unit on.

Downloading starts.



- 3 When downloading has completed, the Owner ID settings screen appears. Press [▶] and press the numbered buttons to enter a 4-digit PIN number.



- Make a note of the PIN number (don't forget), as it is not possible to return to the factory preset.
- 4 Press [ENTER] twice to store the PIN number. The cursor moves to "Name".
 - 5 Press [▶].
 - 6 Press [▲, ▼] to select a letter and then press [▶]. Repeat this to enter the name.
 - 7 Press [ENTER] to store the name.
 - 8 Press [▼] and [▶], "House No." and "Postcode" in the same way.
 - 9 Press [RETURN]. The Owner ID settings screen disappears.

To stop partway
Press [RETURN].

- If the clock setting menu appears
Set the clock manually (⇒ page 44).
- To confirm that stations have been tuned correctly (⇒ page 42)
- To restart Preset Download (⇒ page 43)
- If you connect other equipment to AV2 terminal of this unit
Change the "AV2 Input" and "AV2 Connection" in the SETUP menu to match the connected equipment (⇒ page 41).

For the United Kingdom only

- If there is interference or a very poor picture appears on the TV screen, stop the RF output (⇒ page 13, Removing Interference)

Refer to the control reference on page 11.

STEP 2 TV Tuning

Auto-Setup (Setup without Q Link functions)

- When connecting to a television with the VIDEO OUT, S-VIDEO OUT or COMPONENT VIDEO OUT terminal (⇒ page 8).
- When connecting to a television that does not have the Q Link function (⇒ page 46).

This unit's Auto-Setup function automatically tunes all available TV stations and synchronizes the time when the TV channel that is broadcasting time and date information is tuned.

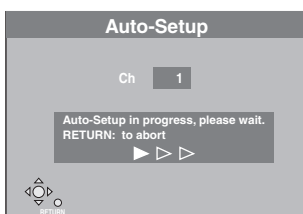
For the United Kingdom only

- When connecting to a television with RF socket only (⇒ page 9)

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

2 Press [DVD] to turn the unit on.

Auto-Setup starts. This takes about 5 minutes.



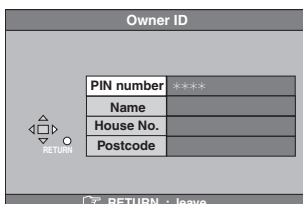
For the United Kingdom only

(When connecting to a television with RF socket only)
Set the new RF output channel to TV (refer to the instructions for your TV).

Select an unused channel pre-set on your TV and tune it to the RF output channel number shown on the unit's display. (When the Auto-Setup screen does not appear clearly even after performing the above operations, re-tune the channel until the Auto-Setup screen becomes clear.)

3 When Auto-Setup has completed, the Owner ID settings screen appears.

Press [▶] and press the numbered buttons to enter a 4-digit PIN number.



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

4 Press [ENTER] twice to store the PIN number.

The cursor moves to "Name".

5 Press [▶].

6 Press [▲, ▼] to select a letter and then press [▶].

Repeat this to enter the name.

7 Press [ENTER] to store the name.

8 Press [▼] and [▶], "House No." and "Postcode" in the same way.

9 Press [RETURN].

The Owner ID settings screen disappears.

To stop partway

Press [RETURN].

■ If the clock setting menu appears

Set the clock manually (⇒ page 44).

■ To confirm that stations have been tuned correctly (⇒ page 42)

■ To restart Auto-Setup (⇒ page 43)

You can also use the following method to restart Auto-Setup. When the unit is on and stopped

Press and hold [v CH] and [CH ^] on the main unit for about 5 seconds.

- All the settings except for the ratings level, ratings password, Owner ID and time settings return to the factory preset. The timer recording programmes are also cancelled.

For the United Kingdom only

[When connecting to a television with RF socket only (⇒ page 9)]

■ To enter the satellite station's name (⇒ page 42)

The name of the satellite station is not set automatically. ("-- ---" will appear under "Name" in the program list). After Auto-Setup is completed, enter the name manually.

■ If you connect other equipment to AV2 terminal of this unit

Change the "AV2 Input" and "AV2 Connection" in the SETUP menu to match the connected equipment (⇒ page 41).

For the United Kingdom only

Removing Interference

TV screen



Picture with interference

In some cases, interference (lines or patterning) or a very poor picture may appear on the TV screen when this unit is connected.

• **When connecting to a television with RF leads only**
(⇒ page 9)

Follow the steps below to change the video playback channel (RF output channel) to remove the interference.

• **When connecting to a television with a fully wired 21-pin Scart lead** (⇒ page 7).

Perform steps 1, 2 and 4 to stop the RF output. In step 2, press [] to select “—”.

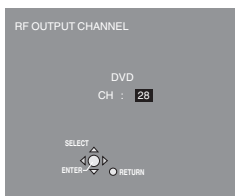
1 Press [FUNCTIONS] for more than 5 seconds.

Unit's display



RF output channel number appears.

TV screen



Test pattern screen appears.

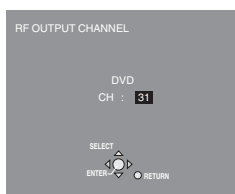
2 Press [▲ ▼ CH] to select a channel number, which differs by 2 or 3 from the present channel number.

e.g. If the original channel number was 28, enter 31.



The test pattern screen disappears.

3 Re-tune your TV until you receive the test pattern screen.



If you can't see the test pattern screen clearly, repeat step 1 and 2 to select RF output channel again

4 Press [ENTER] to finish this setting.



Clear picture

VIDEO Plus+ numbers for Satellite/Cable TV stations

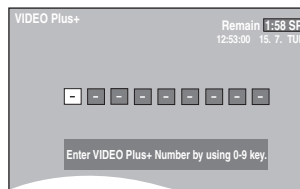
This unit doesn't recognise Video Plus+ numbers for Satellite stations or Cable TV stations.

The following operation also allows you to use Video Plus+ numbers to make timer recordings for satellite and cable TV stations. As the settings indicated below are dummy timer recordings, delete them in step 6.

Preparation

Turn on the Satellite receiver(s) or Cable TV box. Select a correct station.

1 Press [VIDEO Plus+].

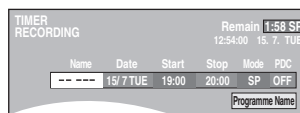


2 Press the numbered buttons to enter a VIDEO Plus+ number for a satellite station (e.g. Sky One) or Cable TV station.

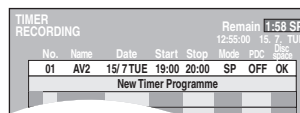
Press [◀] to move back to correct a digit.

3 Press [ENTER].

“-- --” will appear under “Name”.



4 Press [▲, ▼] to select the channel or AV input that is to be used for recording from the satellite station or Cable TV station.



5 Press [ENTER].

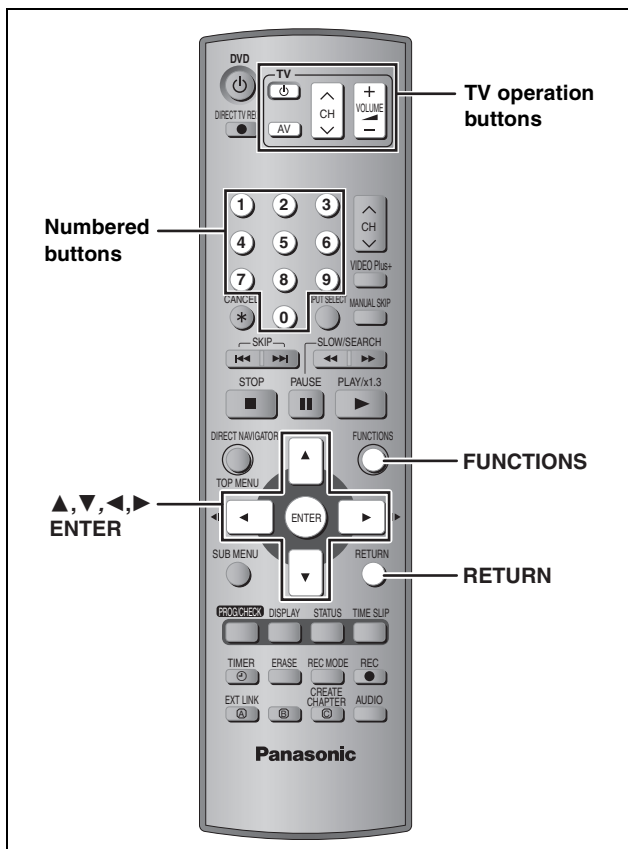
The channel or AV input corresponding to the VIDEO Plus+ number is memorised.

Repeat steps 1—5 above until you have set dummy timer recordings for each of the satellite stations or Cable TV stations that you will make VIDEO Plus+ recordings from.

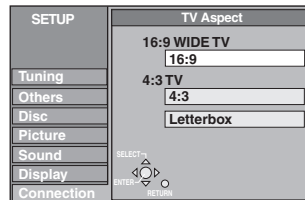
6 Press [▲] to select each programme that you have just set and press [* CANCEL] to delete it from the timer recording list.

To exit the screen
Press [RETURN].

STEP 3 Set up to match your television and remote control



- 3 Press [**▲**, **▼**] to select “Connection” and press [**▶**].
- 4 Press [**▲**, **▼**] to select “TV Aspect” and press [**ENTER**].
- 5 Press [**▲**, **▼**] to select the TV aspect and press [**ENTER**].



- **16:9**: 16:9 widescreen television
- **4:3**: 4:3 standard aspect television
- **RAM**: Titles played as recorded.
- **DVD-V**: Video recorded for a widescreen is played as Pan & Scan (unless prohibited by the producer of the disc) (➔ page 46).
- **Letterbox**: 4:3 standard aspect television
Widescreen picture is shown in the letterbox style (➔ page 46).

To enjoy progressive video

You can enjoy progressive video by connecting this unit's COMPONENT VIDEO OUT terminals to an LCD/plasma television or LCD projector compatible with progressive scan (➔ page 46).

- 1 While stopped
Press [**FUNCTIONS**].
- 2 Press [**▲**, **▼**, **◀**, **▶**] to select “SETUP” and press [**ENTER**].
- 3 Press [**▲**, **▼**] to select “Connection” and press [**▶**].
- 4 Press [**▲**, **▼**] to select “Progressive” and press [**ENTER**].
- 5 Press [**▲**, **▼**] to select “On” and press [**ENTER**].
Output becomes progressive.

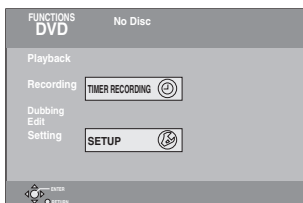
Note

- When connected to a regular television (CRT: Cathode ray tube), even if it is progressive compatible, progressive output can cause some flickering. Turn off “Progressive” if this occurs (➔ page 29).
- Video will not be displayed correctly if connected to an incompatible television.
- There is no output from the COMPONENT VIDEO OUT terminals if “AV1 Output” in the SETUP menu is set to “RGB (without component)”. Set this item to either “Video (with component)” or “S-Video (with component)” (➔ page 41).
- If the unit is connected to the television through VIDEO OUT, S-VIDEO OUT or AV1 terminal, output will be interlace irrespective of the settings.

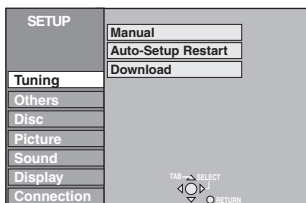
Selecting television type and aspect

Choose the setting to suit your television and preference.

- 1 While stopped
Press [**FUNCTIONS**].



- 2 Press [**▲**, **▼**, **◀**, **▶**] to select “SETUP” and press [**ENTER**].



To exit the screen

Press [**RETURN**] several times.

To return to the previous screen

Press [**RETURN**].

Television operation

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

Point the remote control at the television

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

e.g., 01: [0] → [1]

Manufacturer and Code No.

Brand	Code
Panasonic	01, 02, 03, 04, 45
AIWA	35
AKAI	27, 30
BLAUPUNKT	09
BRANDT	10, 15
BUSH	05, 06
CURTIS	31
DESMET	05, 31, 33
DUAL	05, 06
ELEMIS	31
FERGUSON	10
GOLDSTAR/LG	31
GOODMANS	05, 06, 31
GRUNDIG	09
HITACHI	22, 23, 31, 40, 41, 42
INNO HIT	34
IRRADIO	30
ITT	25
JVC	17, 39
LOEWE	07
METZ	28, 31
MITSUBISHI	06, 19, 20
MIVAR	24
NEC	36
NOKIA	25, 26, 27
NORDMENDE	10
ORION	37
PHILIPS	05, 06
PHONOLA	31, 33
PIONEER	38
PYE	05, 06
RADIOLA	05, 06
SABA	10
SALORA	26
SAMSUNG	31, 32, 43
SANSUI	05, 31, 33
SANYO	21
SBR	06
SCHNEIDER	05, 06, 29, 30, 31
SELECO	06, 25
SHARP	18
SIEMENS	09
SINUDYNE	05, 06, 33
SONY	08
TELEFUNKEN	10, 11, 12, 13, 14
THOMSON	10, 15, 44
TOSHIBA	16
WHITE WESTINGHOUSE	05, 06

Test by turning on the television and changing channels. Repeat the procedure until you find the code that allows correct operation.

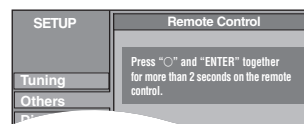
- If your television brand is not listed or if the code listed for your television does not allow control of your television, this remote control is not compatible with your television.

When other Panasonic products respond to this remote control

If other Panasonic products are placed close together, change the remote control code on the main unit and the remote control (the two must match).

Under normal circumstances use the factory set code "DVD 1".

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "SETUP" and press [ENTER].
- 3 Press [▲, ▼] to select "Others" and press [▶].
- 4 Press [▲, ▼] to select "Remote Control" and press [ENTER].
- 5 Press [▲, ▼] to select the code ("DVD 1", "DVD 2" or "DVD 3") and press [ENTER].



- 6 While pressing [ENTER], press and hold the numbered button ([1], [2] or [3]) for more than 2 seconds.
- 7 Press [ENTER].

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





The unit's remote control code

Change the code on the remote control to match the main unit's (→ step 6).

Note

Executing "Shipping Condition" in the SETUP menu returns the main unit code to "DVD 1". Change the remote control code to 1 (→ step 6).

Discs you can use for recording and play (12 cm/8 cm)

Disc type	Logo	Instructions
DVD-RAM ● 4.7 GB/9.4 GB, 12 cm ● 2.8 GB, 8 cm Indicated in these instructions with RAM		Re-writable discs <ul style="list-style-type: none"> You can record up to 16 hours [in EP (8 Hour) mode on double-sided disc. You cannot record or play continuously on two sides] (⇒ page 19, Recording modes and approximate recording times). You can perform chasing playback (⇒ page 19). Scratch and dust resistant cartridge discs and large capacity double sided discs (9.4 GB) are commercially available. You can record digital broadcasts that allow “One time only recording” when using CPRM (Content Protection for Recordable Media) compatible discs (⇒ page 45).
DVD-R ● 4.7 GB, 12 cm, 1.4 GB, 8 cm for General Ver. 2.0 ● 4.7 GB, 12 cm for General Ver. 2.0/4×-SPEED DVD-R Revision 1.0 Indicated in these instructions with DVD-R		One time recording discs (recordable until the disc is full) <ul style="list-style-type: none"> You can record up to 8 hours [in EP (8 Hour) mode]. By finalizing the disc, you can play it in a DVD player as DVD-Video (Play only) (⇒ page 35, 45). You cannot record digital broadcasts that allow “One time only recording”. This unit is compatible with 1×-4× recording speed discs.

- We recommend using Panasonic discs. DVD-R from other manufacturers may not be recorded or played due to the condition of the recording.
- This unit cannot record to discs containing both PAL and NTSC signals. Play of discs recorded with both PAL and NTSC on another unit is not guaranteed.

Which should I use, DVD-RAM or DVD-R?

The following chart indicates the differences. Select based upon what you require.

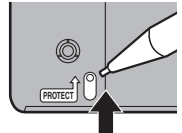
(√: Possible, ×: Impossible)	DVD-RAM	DVD-R
Re-writable	√	×
Edit	√	※1
Play on other players	√※2	√※3
Recording both M 1 and M 2 of bilingual broadcast	√	×※4
Recording broadcasts that allow one copy	√※5	×
Recording 16:9 aspect picture	√	※6

- ※ 1 You can erase, enter name and change thumbnail. Available space does not increase after erasing.
- ※ 2 Only on DVD-RAM compatible players.
- ※ 3 After finalizing the disc (⇒ page 35, 45).
- ※ 4 Only one is recorded (⇒ page 40, Bilingual Audio Selection).
- ※ 5 CPRM (⇒ page 45) compatible discs only.
- ※ 6 The picture is recorded in 4:3 aspect.





Protection **RAM** (Cartridge discs)

With the write-protect tab in the protect position, you cannot record to, edit, or erase from the disc.

Play automatically starts when inserted in the unit.



Play-only discs (12 cm/8 cm)

Disc type	Logo	Instructions
DVD-Audio DVD-A		High fidelity music discs <ul style="list-style-type: none"> ● Played on this unit in 2 channels.
DVD-Video DVD-V		High quality movie and music discs
Video CD VCD		Recorded music and video (including CD-R/RW)
Audio CD CD		Recorded music and audio (including CD-R/RW)
	—	CD-R and CD-RW with music recorded in MP3 (⇒ page 27)

- This unit plays CD-R/CD-RW (audio recording discs). Close the sessions or finalize the disc after recording. Play may be impossible on some CD-R or CD-RW discs due to the condition of the recording.
- The producer of the material can control how discs are played. So you may not always be able to control play as described in these operating instructions. Read the disc's instructions carefully.

Discs that cannot be played

- 2.6 and 5.2 GB DVD-RAM, 12 cm
 - 3.95 and 4.7 GB DVD-R for Authoring
 - Unfinalized DVD-R recorded on other equipment (⇒ page 45, Finalize)
 - DVD-Video with a region number other than “2” or “ALL”
- | | | | |
|-----------|-------------------------|--------|------------|
| ● DVD-ROM | ● DVD-RW | ● +R | ● +RW |
| ● CD-ROM | ● CDV | ● CD-G | ● Photo CD |
| ● CVD | ● SVCD | ● SACD | ● MV-Disc |
| ● PD | ● Divx Video Disc, etc. | | |

Accessory discs

DVD-RAM

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

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

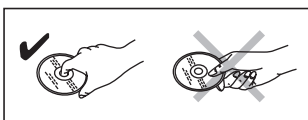
DVD-R

4.7 GB, single-sided, non-cartridge:	LM-RF120LE
--------------------------------------	------------

Disc handling

How to hold a disc

Do not touch the recorded surface.



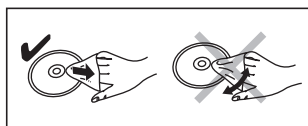
If there is dirt or condensation on the disc

RAM DVD-R

- Clean with an optional DVD-RAM/PD disc cleaner (LF-K200DCA1, where available).
- Do not use cleaners for CDs or cloths.

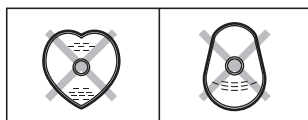
DVD-A DVD-V VCD CD

Wipe with a damp cloth and then wipe dry.



Handling precautions

- Do not attach labels or stickers to discs. (This may cause disc warping and un-balanced rotation, rendering it unusable.)
- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not use scratch-proof protectors or covers.
- Do not use the following discs:
 - Discs with exposed adhesive from removed stickers or labels (rented discs etc).
 - Discs that are badly warped or cracked.
 - Irregularly shaped discs, such as heart shapes.
- Do not place in the following areas:
 - In direct sunlight.
 - In very dusty or humid areas.
 - Near a heater.



Types of disc for the type of connected TV

When you use the discs recorded either PAL or NTSC, refer to this table.

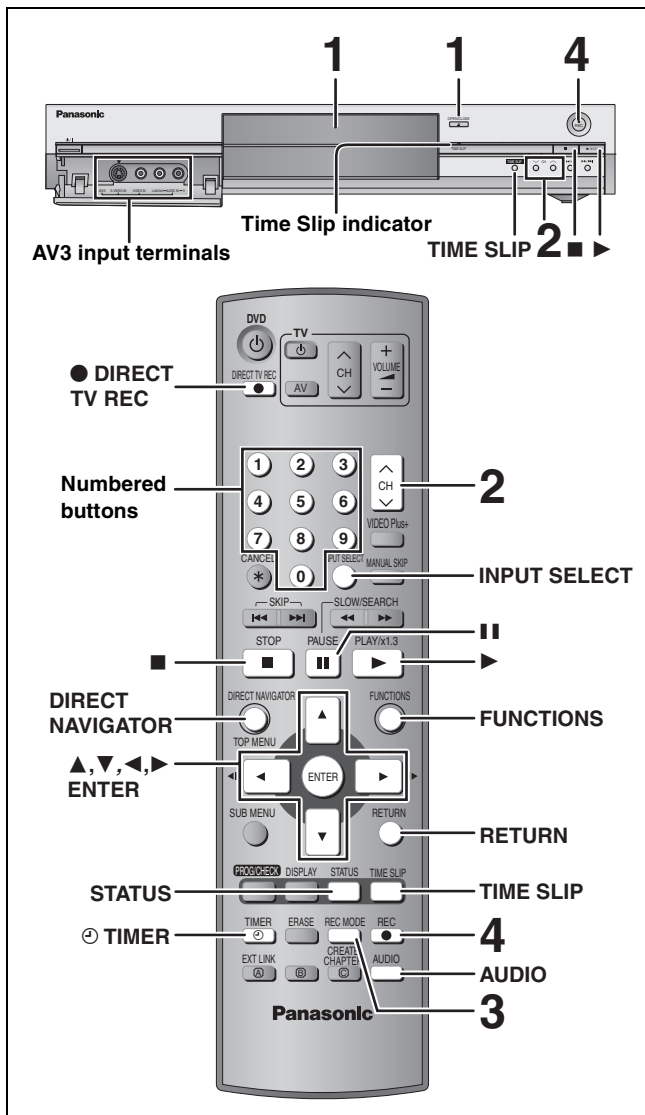
(√: Possible, X: Impossible)

TV type	Disc	Yes/No
Multi-system TV	PAL	√
	NTSC	√ ^{*1}
NTSC TV	PAL	X
	NTSC	√ ^{*2}
PAL TV	PAL	√
	NTSC	√ ^{*3} (PAL60)

^{*1} If you select "NTSC" in "TV System" (⇒ page 43), the picture may be clearer.

^{*2} Select "NTSC" in "TV System" (⇒ page 43).

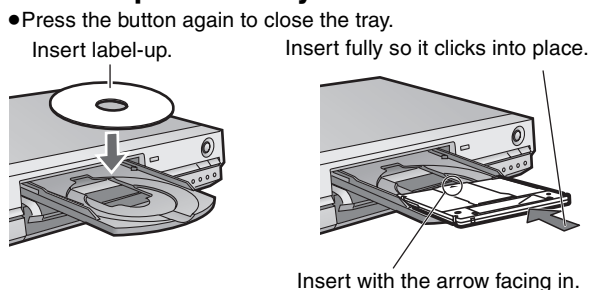
^{*3} If your television is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.



RAM DVD-R

- It is not possible to record continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
- When using 8 cm DVD-RAM, remove the disc from the cartridge.
- You can record up to 99 titles on one disc.
- It is not possible to record CPRM (⇒ page 45) protected material onto DVD-R or 2.8 GB DVD-RAM discs.
- When recording bilingual TV broadcast onto DVD-R, only one of either "M 1" or "M 2" audio can be recorded. Select at "Bilingual Audio Selection" (⇒ page 40).

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



2 Press [^ v CH] to select the channel.



To select with the numbered buttons:
 e.g., 5: [0] ⇒ [5]
 15: [1] ⇒ [5]

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



4 Press [● REC] to start recording.



Recording will take place on open space on disc. Data will not be overwritten.

- You cannot change the channel or recording mode during recording.
- **RAM** You can change the audio being received by pressing [AUDIO] during recording. (Does not affect the recording of audio.)

■ To stop recording

Press [■].
 Recorded as 1 title until the position where stopped.

DVD-R

It takes about 30 seconds for the unit to complete recording management information after recording finishes.

■ To pause recording

Press [II].
 Press again to restart recording.
 (Title is not split into a separate title.)

■ To specify a time to stop recording

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

Each time you press the button:

30 (min.) → 60 (min.) → 90 (min.) → 120 (min.)
 ↑ Counter (cancel) ← 240 (min.) ← 180 (min.) ↓

- This does not work during timer recordings (⇒ page 21) or while using Flexible Recording (⇒ page 20).

If a station also broadcasts Teletext information

The unit automatically records the programme's and station's name if the station's Title Page is correctly set (⇒ page 42).

Note

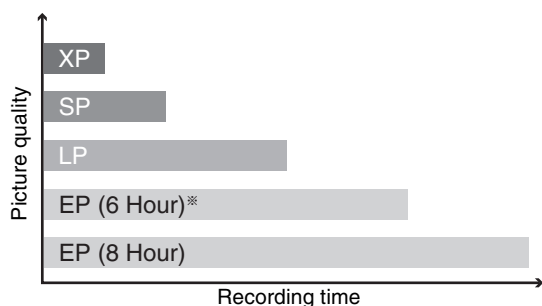
The unit may take some time in retrieving titles (up to 30 minutes) and may fail in some cases.

Recording modes and approximate recording times

Depending on the content being recorded, the recording times may become shorter than indicated.

(Unit: hour)

Mode	DVD-RAM		DVD-R (4.7 GB)
	Single-sided (4.7 GB)	Double-sided (9.4 GB)	
XP (High quality)	1	2	1
SP (Normal)	2	4	2
LP (Long play)	4	8	4
EP (Extra long play)	8 (6*)	16 (12*)	8 (6*)



* When "Recording time in EP mode" is set to "EP (6 Hour)" in the SETUP menu.

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

Note

When recording to DVD-RAM using "EP (8 Hour)" mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use "EP (6 Hour)" mode.

FR (Flexible Recording Mode)

The unit automatically selects a recording rate between XP and EP (8 Hour) that will enable the recordings to fit in the available recording time on the disc with the best possible recording quality.

- You can set when programming timer recordings.
- All the recording modes from XP to EP appear in the display.



Direct TV Recording

When connected to a television that has the Q Link function using a fully wired 21-pin Scart lead.

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

- 1 Insert a disc. (→ page 18)
- 2 Press [● DIRECT TV REC].

Recording starts.

To stop recording

Press [■].

Playing while you are recording

RAM

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

Press [▶] (PLAY).

Time Slip indicator on the main unit lights.

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

1 Press [DIRECT NAVIGATOR].

2 Press [▲, ▼, ◀, ▶] to select a title and press [ENTER].

Time Slip indicator on the main unit lights.

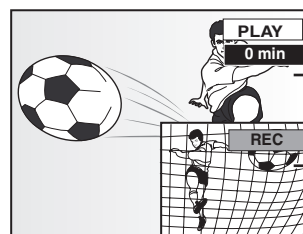
To exit the DIRECT NAVIGATOR screen

Press [DIRECT NAVIGATOR].

Reviewing the recorded images while recording—Time Slip

1 Press [TIME SLIP].

Time Slip indicator on the main unit lights.



Play starts from 30 seconds previous.

The current recording images

- You will hear the playback audio.

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

- Press [TIME SLIP] to show the play images in full. Press again to show the play and recording images.

■ To stop play

Press [■].

■ To stop recording

2 seconds after play stops

Press [■].

■ To stop timer recording

Press [⊙ TIMER].

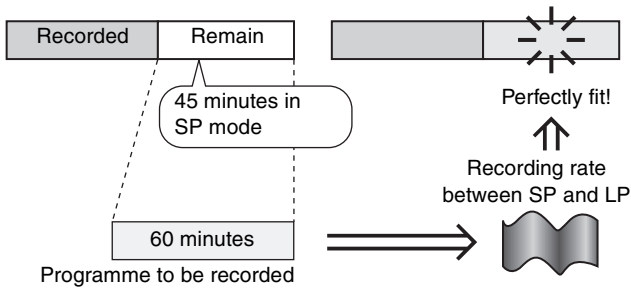
- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.

Refer to the control reference on page 18.

Flexible Recording

RAM DVD-R

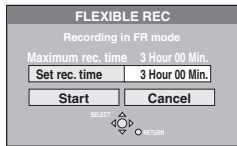
The unit sets the best possible picture quality that fits the recording within the remaining disc space.
e.g.,



Preparation

Select the channel to record.

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select
“FLEXIBLE REC” and press [ENTER].



- 3 Press [◀, ▶] to select “Hour” and
“Min.” and press [▲, ▼] to set the
recording time.
• You can also set the recording time with the numbered
buttons.
- 4 When you want to start recording
Press [▲, ▼, ◀, ▶] to select “Start”
and press [ENTER].
• Recording starts.
• The recording mode becomes FR mode.

To exit the screen without recording

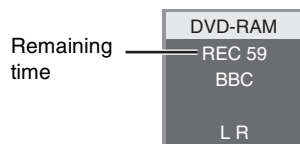
Press [RETURN].

To stop recording partway

Press [■].

To show the remaining time

Press [STATUS].



Note

When performing EXT LINK recording (⇒ page 23), the flexible recording function does not work.

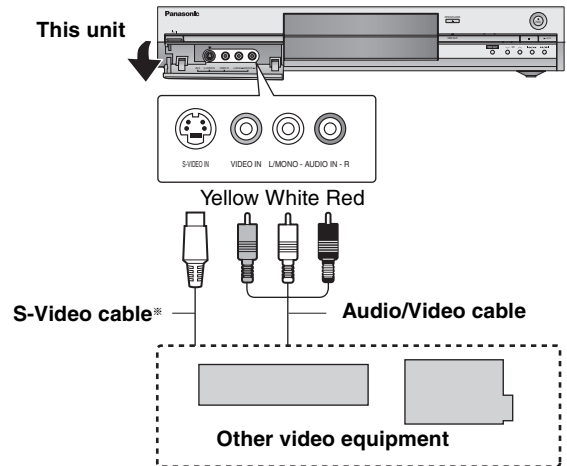
Recording from an external equipment

RAM DVD-R

Preparation

- Connect a video cassette recorder, decoder or satellite/digital receiver, etc. to this unit's input terminals.
- When recording bilingual programmes
RAM When both M 1 and M 2 is selected on the connected equipment, you can select the audio type in playback.
DVD-R Select either M 1 or M 2 on the connected equipment. (You cannot select the audio type in playback.)
- When the output signal from the external equipment is NTSC, change the “TV System” to “NTSC” in the SETUP menu (⇒ page 43).

e.g., Connecting other video equipment to the AV3 input terminals



If the audio output of the other equipment is monaural, connect to L/MONO.

* The S-VIDEO terminal achieves a more vivid picture than the VIDEO terminal.

- 1 While stopped
Press [INPUT SELECT] to select the
input channel for the equipment you
have connected.
- 2 Press [REC MODE] to select the
recording mode (XP, SP, LP or EP).
• Using Flexible Recording (⇒ left), you can save content of a
video cassette to 1 disc with the best possible quality of
recording without wasting disc space.
- 3 When recording from other video equipment
Start play on the other equipment.
When recording from decoder or satellite/digital receiver
Select the channel on the other
equipment.
- 4 Press [● REC].
Recording starts.

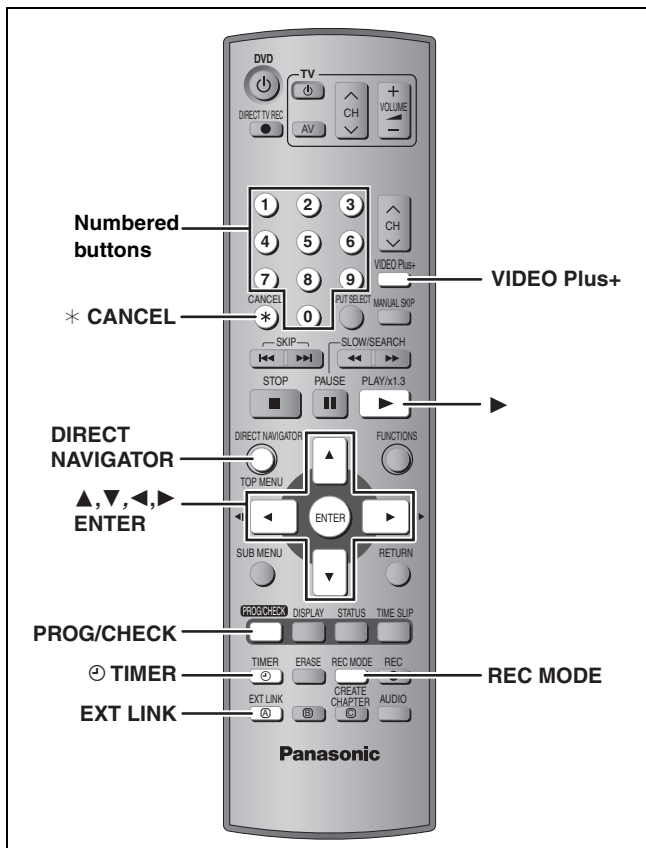
To skip unwanted parts

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

To stop recording

Press [■].

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



RAM DVD-R

You can enter up to 16 programmes up to a month in advance.

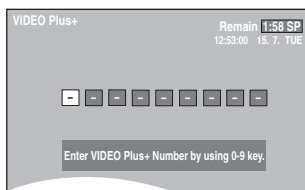
Using VIDEO Plus+ number to make timer recordings

Entering VIDEO Plus+ numbers is an easy way of timer recording. You can find these numbers in TV listings in newspapers and magazines.

Using VIDEO Plus+ numbers for Satellite stations or Cable TV stations

Set this unit to recognise VIDEO Plus+ numbers for Satellite stations or Cable TV stations before you start the following operations (→ page 13, VIDEO Plus+ numbers for Satellite/Cable TV stations).

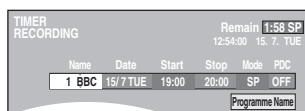
1 Press [VIDEO Plus+].



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

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

3 Press [ENTER].

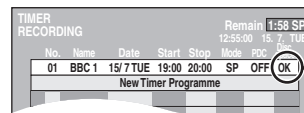


- Confirm the programme and make corrections if necessary using [▲, ▼, ◀, ▶] (→ page 22, step 3).
- When "--" appears in the "Name" column, you cannot set timer recording. Press [▲, ▼] to select desired programme position. After you have entered the information of a TV station, it is kept in the unit's memory.

- You can also press [REC MODE] to change the recording mode.
- **PDC** (→ below)
ON ↔ OFF (---)
- **Programme Name**
Press [◀, ▶] to select "Programme Name" and press [ENTER] (→ page 36).

4 Press [ENTER].

The settings are stored.



Check to make sure "OK" is displayed.

Repeat steps 1–4 to programme other recordings.

5 Press [⊙ TIMER].

The unit turns off and "⊙" lights on the unit's display to indicate timer recording standby has been activated.

RAM

Even if the unit is in timer recording standby, play starts when you press [▶] (PLAY) or [DIRECT NAVIGATOR]. Timer recording works even during play.

To release the unit from recording standby

Press [⊙ TIMER].

The unit turns on and "⊙" goes out.

- Be sure to press [⊙ TIMER] before the programme start time to put the unit on recording standby. Timer recording will work only if "⊙" is displayed.

To cancel recording when recording has already begun

Press [⊙ TIMER].

- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.

Note

- "⊙" flashes for about 5 seconds when the unit cannot go to timer recording standby (e.g., a recordable disc is not in the disc tray).
- If the unit is not put in the timer recording standby mode at the latest 10 minutes before the programmed timer recording starting time, the "⊙" flashes on the unit display. In this case, press [⊙ TIMER] to put the unit in the timer recording standby mode.
- When you programme successive timer recordings to start immediately one after the other, the unit cannot record the part at the beginning of the later programmes (a few seconds when recording with DVD-RAM and approximately 30 seconds when recording with DVD-R).

PDC function (→ page 46)

As long as a PDC signal is being broadcast by the TV station, even if the broadcast programme time changes, the recording time automatically changes to match the new broadcast time.

To activate the PDC function

In step 3 in the PDC column, press [▲, ▼] to select "ON".

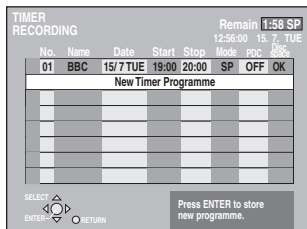
Refer to the control reference on page 21.

RAM DVD-R

You can enter up to 16 programmes up to a month in advance. (Each daily or weekly programme is counted as one programme.)

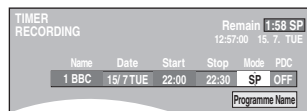
Manually programming timer recordings

1 Press [PROG/CHECK].



2 Press [▲, ▼] to select “New Timer Programme” and press [ENTER].

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



- Press and hold [▲, ▼] to alter the Start (Start time) and Stop (Finish time) in 30-minute increments.
- You can also set Name (Programme position/TV Station Name), Date, Start (Start time), and Stop (Finish time) with the numbered buttons.
- You can also press [REC MODE] to change the recording mode.

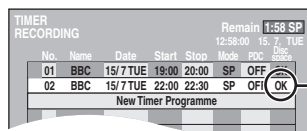
•Date

- Date: Current date up to one month later minus one day
- ↓ ↑
- Daily timer: SUN-SAT → MON-SAT → MON-FRI
- ↓ ↑
- Weekly timer: SUN → --- → SAT

- **PDC** (⇒ page 21)
ON ↔ OFF (---)

- **Programme Name** (⇒ page 36)
Press [◀, ▶] to select “Programme Name” and press [ENTER].

4 Press [ENTER].



Check to make sure “OK” is displayed.

Repeat steps 2–4 to programme other recordings.

5 Press [⏻ TIMER].

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

RAM

Even if the unit is in timer recording standby, play starts when you press [▶] (PLAY) or [DIRECT NAVIGATOR]. Timer recording works even during play.

■ To release the unit from recording standby Press [⏻ TIMER].

The unit turns on and “⏻” goes out.

- Be sure to press [⏻ TIMER] before the programme start time to put the unit on recording standby. Timer recording will work only if “⏻” is displayed.

■ To cancel recording when recording has already begun Press [⏻ TIMER].

- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.

Note

- “⏻” flashes for about 5 seconds when the unit cannot go to timer recording standby (e.g., a recordable disc is not in the disc tray).
- If the unit is not put in the timer recording standby mode at the latest 10 minutes before the programmed timer recording starting time, the “⏻” flashes on the unit display. In this case, press [⏻ TIMER] to put the unit in the timer recording standby mode.
- When you programme successive timer recordings to start immediately one after the other, the unit cannot record the part at the beginning of the later programmes (a few seconds when recording with DVD-RAM and approximately 30 seconds when recording with DVD-R).

To record programmes from satellite receiver by RGB signals

Preparation

- Change the settings in the SETUP menu as follows (⇒ page 41).
 - “AV2 Input”: “RGB (Not NTSC)”
 - “AV2 Connection”: “Normal”

Follow the steps indicated for manually programming timer recordings (⇒ page 22).

- Make sure you connect to the “TV Scart terminal” of a Sky Digital STB with a 21-pin Scart lead.
- Set your Sky Digital STB to output “RGB” signals.
- After setting the Personal Planner programmes as required, Sky Digital STB must be left on (not set to standby) to ensure continuous output of RGB signals.

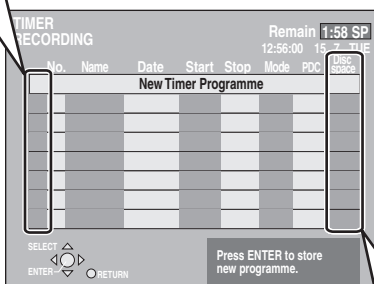
Check, change or delete a programme

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

Press [PROG/CHECK].

Icons

- This programme is currently recording.
- Ⓜ The times overlap those in another programme. Recording of the programme with the later start time starts when the earlier programme finishes recording.
- Ⓣ The disc was full so the programme failed to record.
- Ⓛ The material was copy-protected so it was not recorded.
- ⓧ The programme did not complete recording because the disc is dirty or some other reason.



Message displayed in the “Disc space” line

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

■ To change a programme

Press [▲, ▼] to select the programme and press [ENTER]. (⇒ page 22, step 3)

■ To delete a programme

Press [▲, ▼] to select the programme and press [* CANCEL].

■ To exit the timer recording list

Press [PROG/CHECK].

■ To put the unit on timer recording standby

Press [⊙ TIMER].

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

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

Linked timer recordings with external equipment (EXT LINK)

RAM DVD-R

If an external equipment (for example a satellite receiver) with a timer function is connected to the AV2 terminal of this unit by a 21-pin Scart lead (⇒ page 7, 10), it is possible to control the recording of the unit with the equipment.

Preparation

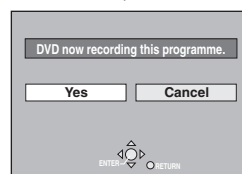
- Change the “Ext Link” in the SETUP menu to match the connected equipment (⇒ page 41).
- Timer programming has to be done on the external equipment and switch to the timer recording standby mode. Refer to the equipment’s operating instructions.

Press [EXT LINK].

The unit turns off and switches to the recording standby mode.

- Recording begins when a signal is received from the connected equipment.
- As long as a video picture is being transmitted by the external equipment, the unit will record it.

When the following message appears on the television screen, press [◀, ▶] to select “Yes” (continue recording the current programme) or “Cancel” (cancel recording) and press [ENTER].



Note

It is not possible to use EXT LINK function for timer recording of RGB signals from Sky Digital STB (⇒ left, To record programmes from satellite receiver by RGB signals).

To record programmes from a satellite receiver using the “Sky Personal Planner” function

Change the settings in the SETUP menu as follows (⇒ page 41).

- “AV2 Input”: “Video”
- “AV2 Connection”: “Normal”
- “Ext Link”: “Ext Link 1”

- Make sure you connect to the “VCR Scart terminal” of a Sky Digital STB with a 21-pin Scart lead.

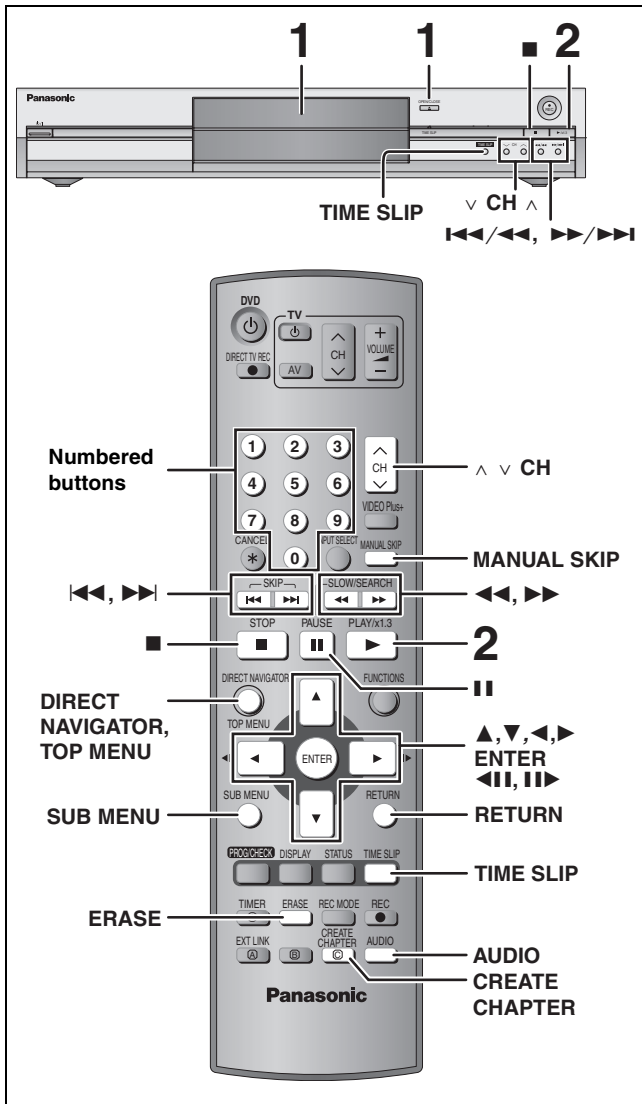
To cancel the external control

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

- You can also press and hold [■] on the main unit for more than 3 seconds to stop recording.
- In order to prevent accidental operation, press [EXT LINK] to cancel the setting after recording is finished.

For your reference

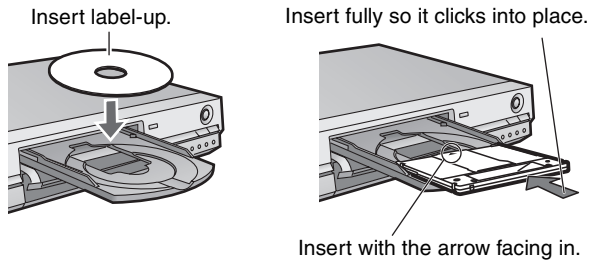
- The video being recorded automatically appears on the television when connected to this unit’s AV1 terminal with the 21-pin Scart lead.
- This function does not work with some equipment. Refer to the equipment’s operating instructions.
- The beginnings of recordings may not be recorded correctly in some cases.
- When “Ext Link” is set to “Ext Link 2”, this function does not work if the input signal is NTSC system.



- It is not possible to play continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
- When using 8 cm DVD-RAM, remove the disc from the cartridge.

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

- Press the button again to close the tray.



2 Press [**▶**] (PLAY).

RAM DVD-R

Play starts from the most recently recorded title.

DVD-A DVD-V VCD CD

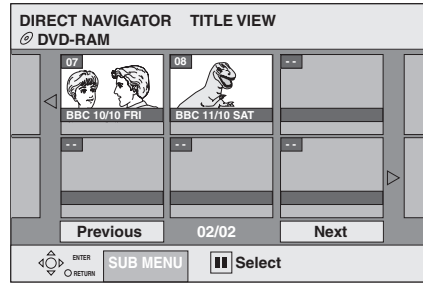
Play starts from the beginning of the disc.



■ Selecting recorded programmes (titles) to play

RAM DVD-R

1 Press [**DIRECT NAVIGATOR**].



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

You can also select titles with the numbered buttons.

e.g., 5: [0] → [5]

15: [1] → [5]

To exit the screen

Press [**DIRECT NAVIGATOR**].

Direct Navigator screen icons

	Title protected.
	Title that was not recorded due to recording protection (Digital broadcasts etc.)
	Title cannot be played because data is damaged.
	Currently recording.
	Title recorded using a different encoding system from that of the TV system currently selected on the unit.

■ When a menu screen appears on the television

DVD-A DVD-V

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

Some items can also be selected using the numbered buttons.

VCD

Press the numbered buttons to select the item.

e.g., 5: [0] → [5]

15: [1] → [5]



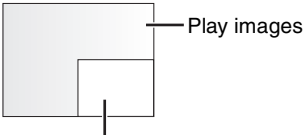
• To return to the menu screen

DVD-A Press [**TOP MENU**].

DVD-V Press [**TOP MENU**] or [**SUB MENU**].

VCD Press [**RETURN**].

Operations during play

<p>Stop</p>	<p>Press [■]. The stopped position is memorized. The indicator on the right appears in the unit's display (Excluding when playing from the Direct Navigator and when playing a play list.)</p>  <p>Resume play function Press [▶] (PLAY) to restart from this position.</p>
<p>Pause</p>	<p>Press [⏸]. Press again to restart play.</p>
<p>Search</p>	<p>Press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> • On the main unit, press and hold [◀◀/◀◀] or [▶▶/▶▶]. • The speed increases up to 5 steps. • Press [▶] (PLAY) to restart play. • Audio is heard during first level search forward. You can turn off the sound during search (⇒ page 40, "PLAY × 1.3 & Audio during Search"). Audio is heard during all levels of search. DVD-A (excluding moving picture parts) CD
<p>Skip</p>	<p>Press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> • On the main unit, press [◀◀/◀◀] or [▶▶/▶▶]. • Each press increases the number of skips.
<p>Starting from a selected item</p>	<p>Press the numbered buttons.</p> <p>e.g., 5: [0] ⇒ [5] CD (MP3 discs only) 5: [0] ⇒ [0] ⇒ [5] 15: [1] ⇒ [5] 15: [0] ⇒ [1] ⇒ [5]</p> <p>DVD-A Selecting groups While stopped (screen saver is displayed on the television ⇒ right)</p> <p>5: [5]</p>  <ul style="list-style-type: none"> • This works only when stopped (screen saver is displayed on the television ⇒ right) with some discs.
<p>Quick View RAM The play speed can be increased without distorting the audio.</p>	<p>Press and hold [▶] (PLAY/× 1.3).</p> <ul style="list-style-type: none"> • Press again to return to normal speed. • This does not work if the setting is "Off" in "PLAY × 1.3 & Audio during Search" (⇒ page 40).
<p>Slow-motion RAM DVD-R DVD-A (Motion picture parts only) DVD-V VCD</p>	<p>While paused, press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> • On the main unit, press and hold [◀◀/◀◀] or [▶▶/▶▶]. • The speed increases up to 5 steps. • Press [▶] (PLAY) to restart play. • Forward direction only. VCD • The unit will pause if slow-motion play is continued for 5 minutes.
<p>Frame-by-frame RAM DVD-R DVD-A (Motion picture parts only) DVD-V VCD</p>	<p>While paused, press [◀◀] or [▶▶].</p> <ul style="list-style-type: none"> • Each press shows the next frame. • Press [▶] (PLAY) to restart play. • Forward direction only. VCD
<p>Displaying the television image as a picture-in-picture</p>	<p>Press [TIME SLIP]. The unit displays the television image as a picture-in-picture.</p> <ul style="list-style-type: none"> • You will hear the playback audio. • Press [TIME SLIP] again to cancel. • The grey background does not appear on the receiving screen even if you select "On" from the "Grey Background" in the SETUP menu (⇒ page 40).  <p>Current receiving images</p> <ul style="list-style-type: none"> • You can change the channel being received by pressing [^ v CH]. • You cannot change the channel being received while recording.
<p>Skipping the specified time (Time Slip) RAM DVD-R</p>	<p>1 Press [TIME SLIP]. 2 Press [▲, ▼] to select the time and press [ENTER]. Play skips the specified time.</p> <ul style="list-style-type: none"> • Press [TIME SLIP] to show the play images in full.
<p>Manual Skip RAM DVD-R Play restarts from approximately 30 seconds later.</p>	<p>Press [MANUAL SKIP].</p>

Refer to the control reference on page 24.

Editing operations during play

Erase

RAM DVD-R

1 Press [ERASE].

2 Press [◀, ▶] to select “Erase” and press [ENTER].

- A title cannot be restored once it is erased. Make certain before proceeding.
- You cannot erase when recording and playing at the same time.

Create Chapter

RAM

Press [CREATE CHAPTER].

The message screen appears for 5 seconds to confirm that a chapter is created.

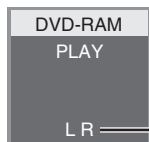
- Press [◀◀, ▶▶] to skip to the start of a chapter.
- You cannot divide when recording and playing at the same time.

Changing audio

Press [AUDIO].

RAM VCD

LR→L→R
↑



e.g., “L R” is selected

DVD-V DVD-A

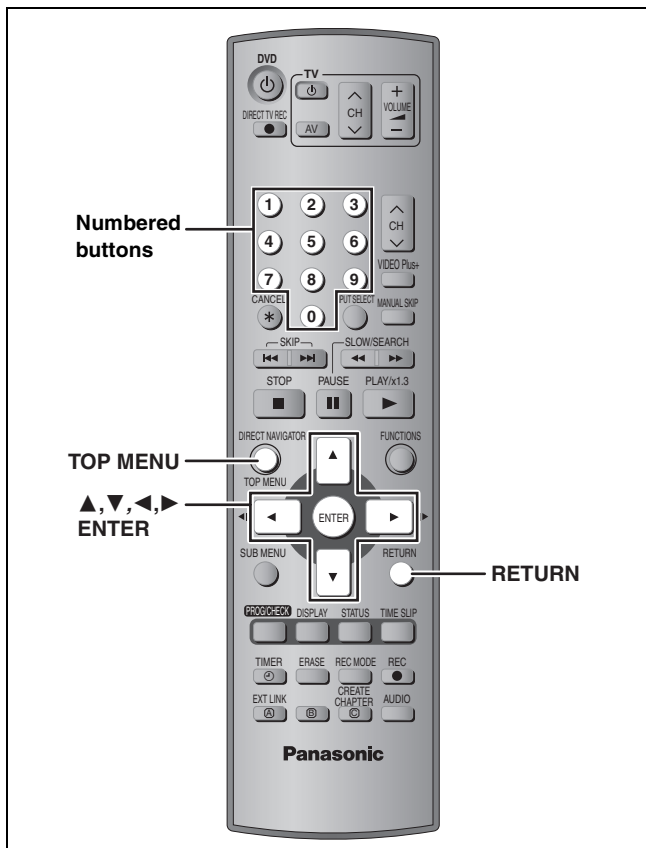
You can change the audio channel number each time you press the buttons. This allows you to change things like the soundtrack language (⇒ page 28, Soundtrack).



e.g., English is selected.

Note

You cannot change the audio type when a DVD-R is in the disc tray.

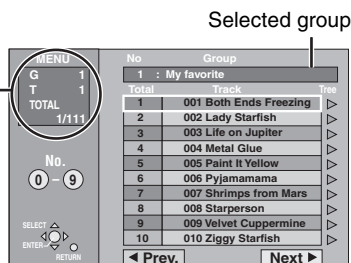


CD (MP3 discs only)

This unit plays MP3 files recorded on CD-R/RW designed for audio recording that are finalized (→ page 45) on a computer. Files are treated as tracks and folders are treated as groups.

1 Press [TOP MENU].

G: Group no.
T: Track no. in the group
TOTAL: Track no./Total track no. in all groups



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

Play continues to the last track in the last group.

●“” indicates the track currently playing.

●You can also select the track with the numbered buttons.

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

To show other pages

Press [▲, ▼, ◀, ▶] to select “Prev.” or “Next” and press [ENTER]. After listing all the tracks in one group, the list for the next group appears.

To exit the screen

Press [TOP MENU].

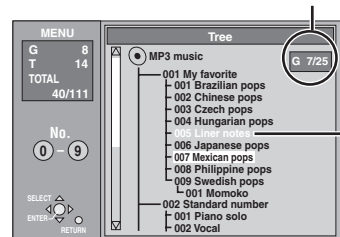
Using the tree screen to find a group

While the file list is displayed

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

Selected group no. / Total group no.

If the group has no track, “--” is displayed as group number.



You cannot select groups that contain no compatible files.

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

The file list for the group appears.

To return to the file list

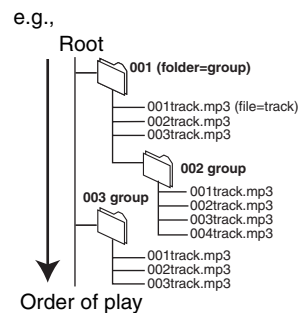
Press [RETURN].

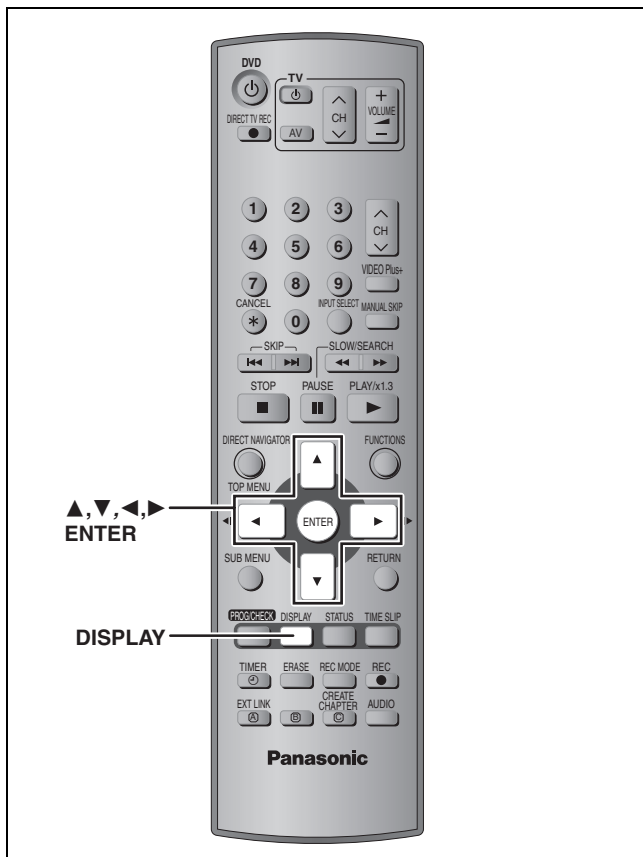
Tips for making MP3 discs

- Discs must conform to ISO9660 level 1 or 2 (except for extended formats).
- Compatible compression rate: between 32 kbps and 320 kbps
- Compatible sampling rate: 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz and 48 kHz
- Maximum number of tracks and groups recognizable: 999 tracks and 99 groups
- This unit is compatible with multi-session.
- This unit is not compatible with ID3 tags or packet writing.
- Depending on the recording, some items may not be playable.
- Reading or play of the disc may take time if there are a lot of still pictures or sessions.
- The display order may differ from how the order is displayed on a computer.

Naming folders and files

- MP3 files must have the extension “.MP3” or “.mp3”.
- At the time of recording, give folder and file names a 3-digit numeric prefix in the order you want them to play (this may not work at times).
- English alphabets and Arabic numerals are displayed correctly. Other characters may not be displayed correctly.





Common procedures

1 Press [DISPLAY].

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

Menu Item Setting

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

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

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

4 Press [▲, ▼] to select the setting.

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

To clear the on-screen menus

Press [DISPLAY].

Disc menu—Setting the disc content

Soundtrack*

RAM DVD-R

The disc's audio attributes appear.

DVD-A DVD-V

Select the audio and language (⇒ below, Audio attribute, Language).

Subtitle*

RAM DVD-R (Only discs that contain subtitle on/off information)

DVD-A DVD-V

Turn the subtitle on/off and select the language.

- Subtitle on/off information cannot be recorded using this unit. RAM DVD-R

Audio channel RAM VCD

⇒ page 26, Changing audio

Angle* DVD-A DVD-V

STILL-P (Still picture) DVD-A

Selects the play method for still pictures.

Slide Show: Plays according to the default order on the disc.

Page: Select the still picture number and play.

- **RANDOM:** Plays in random order.
- **Return:** Returns to the default still picture on the disc.

PBC (Playback control ⇒ page 46) VCD

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

* You may have to use the menus (⇒ page 24) on the disc to change.

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

Audio attribute

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

Language

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

Play menu—Change the play sequence

This function works only when the elapsed play time is displayed.

Repeat play

- All **VCD** **CD** (excluding MP3 discs)
- Chapter **RAM** **DVD-R** **DVD-V**
- Group **DVD-A** **CD** (MP3 discs only)
- PL (Play list) **RAM**
- Title **RAM** **DVD-R** **DVD-V**
- Track **DVD-A** **VCD** **CD**

Select "OFF" to cancel.

Picture menu—Change the picture quality

Playback NR

Reduces noise and picture degradation.

Progressive* (⇒ page 46)

Select "ON" to enable progressive output.
Select "OFF" if the picture is stretched horizontally.

Transfer* (When "Progressive" is set to "ON".)

Select the method of conversion for progressive output to suit the type of material being played (⇒ page 45, Film and video).

When the output signal is PAL

- **Auto** Detects 25 frame-per-second film content and appropriately converts it.
- **Video:** Select when using Auto, and the video content is distorted.

When the output signal is NTSC

- **Auto1** Detects 24 frame-per-second film content and (normal): appropriately converts it.
- **Auto2:** Compatible with 30 frame-per-second film content in addition to 24 frame-per-second film content.
- **Video:** Select when using Auto1 and Auto2, and the video content is distorted.

* Only when you have set "Progressive" to "On" in the SETUP menu (⇒ page 14).

Sound menu—Change the sound effect

V.S.S. **RAM** **DVD-R** **DVD-V**

(Only with Dolby Digital with 2 or more channels)

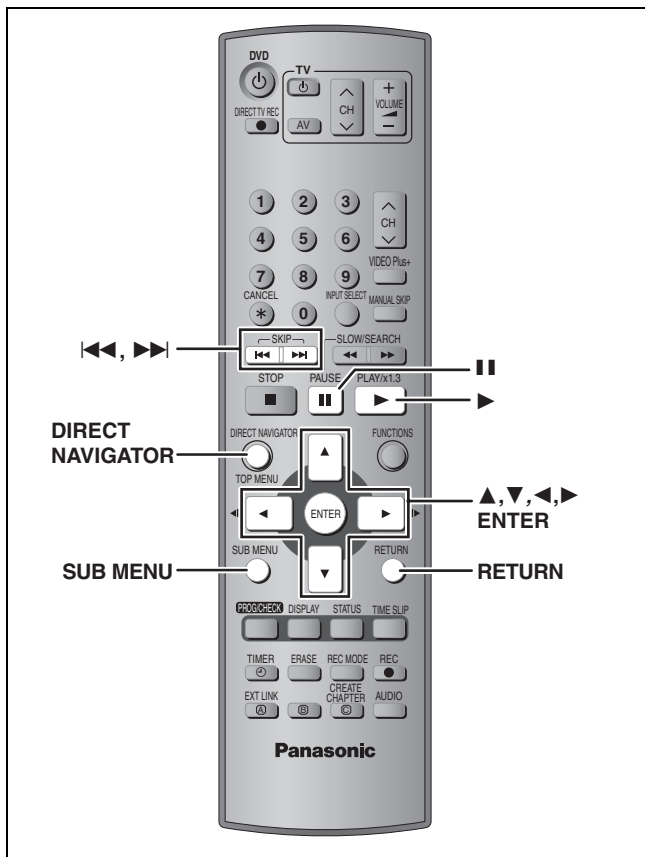
Enjoy a surround-like effect if you are using two front speakers only.

- Turn V.S.S. off if it caused distortion.
- V.S.S. does not work for bilingual recordings.

Dialog Enhancer **DVD-A** **DVD-V**

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

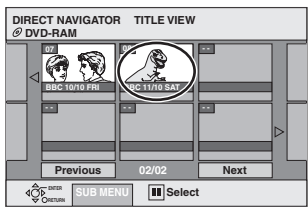
The volume of the centre channel is raised to make dialogue easier to hear.



Editing titles/chapters and playing chapters

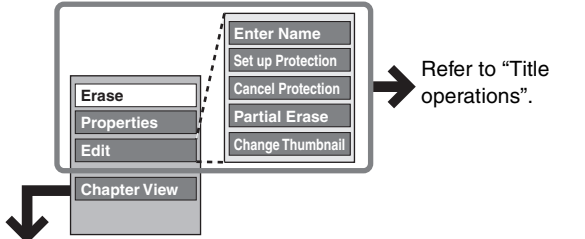
Preparation
Release protection (cartridge → page 16, disc → page 35). **RAM**

- 1 Press [DIRECT NAVIGATOR].
- 2 Press [▲, ▼, ◀, ▶] to select the title.

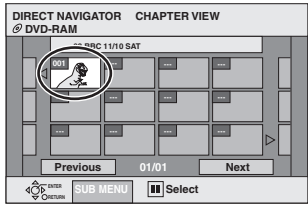


To show other pages
Press [▲, ▼, ◀, ▶] to select “Previous” or “Next” and press [ENTER].
• You can also press [◀◀, ▶▶] to show other pages.
Multiple editing
Select with [▲, ▼, ◀, ▶] and press [II]. (Repeat.)
A check mark appears. Press [II] again to cancel.

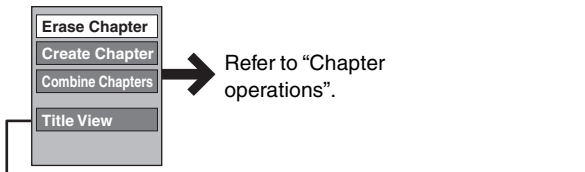
- 3 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].
• If you select “Edit”, press [▲, ▼] to select the operation and press [ENTER].



- If you select “Chapter View”
- 4 Press [▲, ▼, ◀, ▶] to select the chapter.
To start play → Press [ENTER].
To edit → Step 5.



- To show other pages/Multiple editing (→ above)
- 5 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].



- You can go back to Title View.

RAM DVD-R

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

↓

You can divide a title into multiple chapters. **RAM**
(→ page 26, 31, “Create Chapter”)

↓

You can change the order of chapters and create a play list. **RAM**

- Titles are divided into about 5-minute chapters after finalizing (→ page 35). **DVD-R**


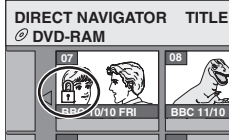
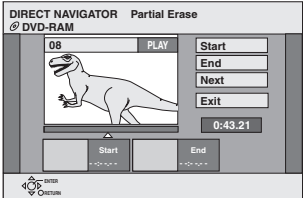
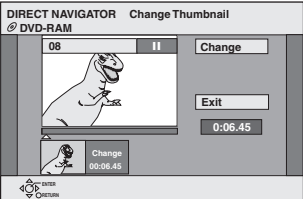
- The maximum number of items on a disc:
–Titles: 99
–Chapters: Approximately 1000
(Depends on disc contents.)

Note
• Once erased or partially erased, it cannot be restored to its original state. Make certain before proceeding.
• You cannot edit during recording.

To exit the screen
Press [DIRECT NAVIGATOR].

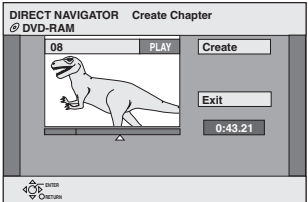
To return to the previous screen
Press [RETURN].

Title operations

Erase* RAM DVD-R	<p>Press [◀, ▶] to select “Erase” and press [ENTER].</p> <ul style="list-style-type: none"> •The available recording time on DVD-R does not increase when you erase titles.
Properties RAM DVD-R	<p>Information (e.g., time and date) is shown.</p> 
Enter Name RAM DVD-R	<p>➔ page 36, Entering text</p>
Set up Protection* Cancel Protection* RAM	<p>If set, this will protect the title from accidental erasure.</p> <p>Press [◀, ▶] to select “Yes” and press [ENTER].</p> <p>The lock symbol appears when the title is protected.</p> 
Partial Erase RAM	<p>You can remove unnecessary parts of the recording such as commercials.</p> <ol style="list-style-type: none"> 1 Press [ENTER] at the start point and end point of the section you want to erase. 2 Press [▲, ▼] to select “Exit” and press [ENTER]. <ul style="list-style-type: none"> •Select “Next” and press [ENTER] to erase other sections. 3 Press [◀, ▶] to select “Erase” and press [ENTER]. 
Change Thumbnail RAM DVD-R	<p>You can change an image to be shown as a thumbnail picture in the Title View.</p> <ol style="list-style-type: none"> 1 Press [▶] (PLAY) to start play. 2 Press [ENTER] when the image you want to use as a thumbnail is shown. 3 Press [▲, ▼] to select “Exit” and press [ENTER]. 

* Multiple editing is possible.

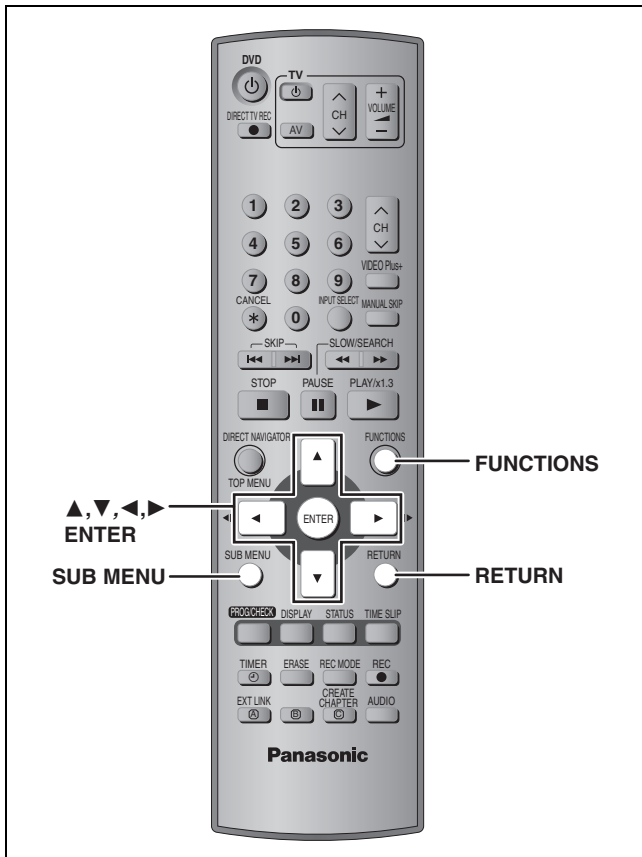
Chapter operations

Erase Chapter* RAM	<p>Press [◀, ▶] to select “Erase” and press [ENTER].</p>
Create Chapter RAM	<ol style="list-style-type: none"> 1 Press [ENTER] at the point you want to divide. <ul style="list-style-type: none"> •Repeat this step to divide at other points. 2 Press [▲, ▼] to select “Exit” and press [ENTER]. 
Combine Chapters RAM	<p>Press [◀, ▶] to select “Combine” and press [ENTER].</p> <ul style="list-style-type: none"> •The selected chapter and next chapter are combined.

* Multiple editing is possible.

For quicker editing

- Use search, Time Slip or slow-motion (➔ page 25) to find the desired point.
- Press [◀◀, ▶▶] to skip to the end of a title.



RAM

You can arrange the chapters (⇒ page 30) to create a play list.

Title		Title		
Chapter	Chapter	Chapter	Chapter	Chapter

↓ ↓

Play list

Chapter	Chapter
---------	---------

- Editing play lists doesn't modify the recording data.
- Play lists are not recorded separately so this doesn't use much capacity.

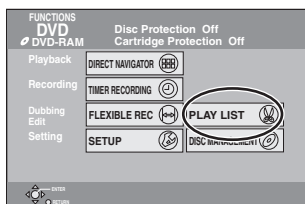
- The maximum number of items on a disc:
 - Play lists: 99
 - Chapters in play lists: Approximately 1000 (Depends on disc contents.)

Creating play lists

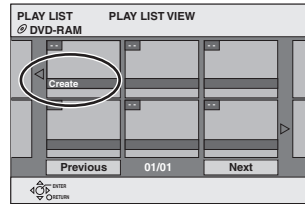
Preparation

Release protection (cartridge ⇒ page 16, disc ⇒ page 35).

- 1 While stopped
Press [FUNCTIONS].

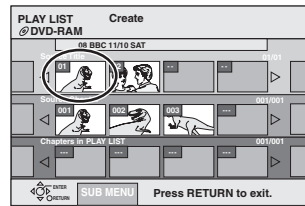


- 2 Press [▲, ▼, ◀, ▶] to select "PLAY LIST" and press [ENTER].



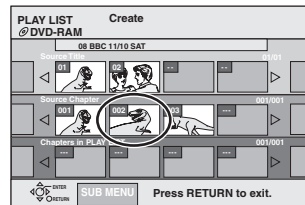
- 3 Press [▲, ▼, ◀, ▶] to select "Create" and press [ENTER].
- 4 Press [◀, ▶] to select the source title and press [▼].

- Press [ENTER] to select all the chapters in the title, then skip to step 6.



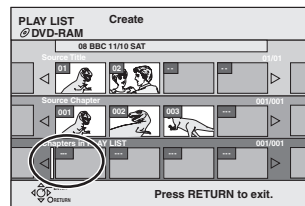
- 5 Press [◀, ▶] to select the chapter you want to add to a play list and press [ENTER].

Press [▲] to cancel.



- You can also create a new chapter from the source title. Press [SUB MENU] to select "Create Chapter" and press [ENTER] (⇒ page 31, Create Chapter).

- 6 Press [◀, ▶] to select the position to insert the chapter and press [ENTER].



- Repeat steps 5–6 to add other chapters.
- Press [▲] to select other source titles.

- 7 Press [RETURN].

To exit the screen

Press [RETURN] several times.

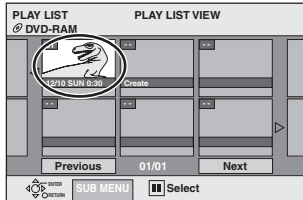
To return to the previous screen

Press [RETURN].

Editing and playing play lists/chapters

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select “PLAY LIST” and press [ENTER].
- 3 Press [▲, ▼, ◀, ▶] to select the play list.

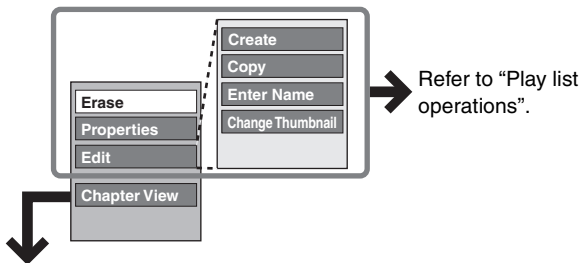
To start play → Press [ENTER].
To edit → Step 4.



• To show other pages/Multiple editing (→ page 30)

- 4 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].

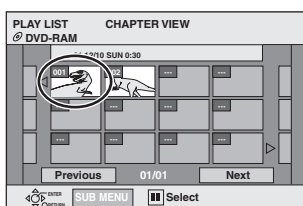
• If you select “Edit”, press [▲, ▼] to select the operation and press [ENTER].



■ If you select “Chapter View”

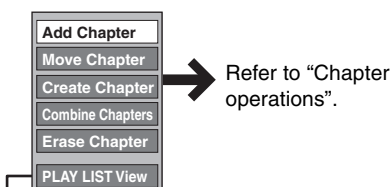
- 5 Press [▲, ▼, ◀, ▶] to select the chapter.

To start play → Press [ENTER].
To edit → Step 6.



• To show other pages/Multiple editing (→ page 30)

- 6 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].



• You can go back to PLAY LIST View.


To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

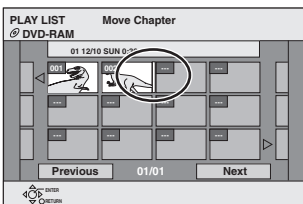
Play list operations

Erase*	Press [◀, ▶] to select “Erase” and press [ENTER].
Properties	Play list information (e.g., time and date) is shown. 
Create	→ page 32, Creating play lists
Copy*	Press [◀, ▶] to select “Copy” and press [ENTER].
Enter Name	→ page 36, Entering text
Change Thumbnail	→ page 31, Change Thumbnail

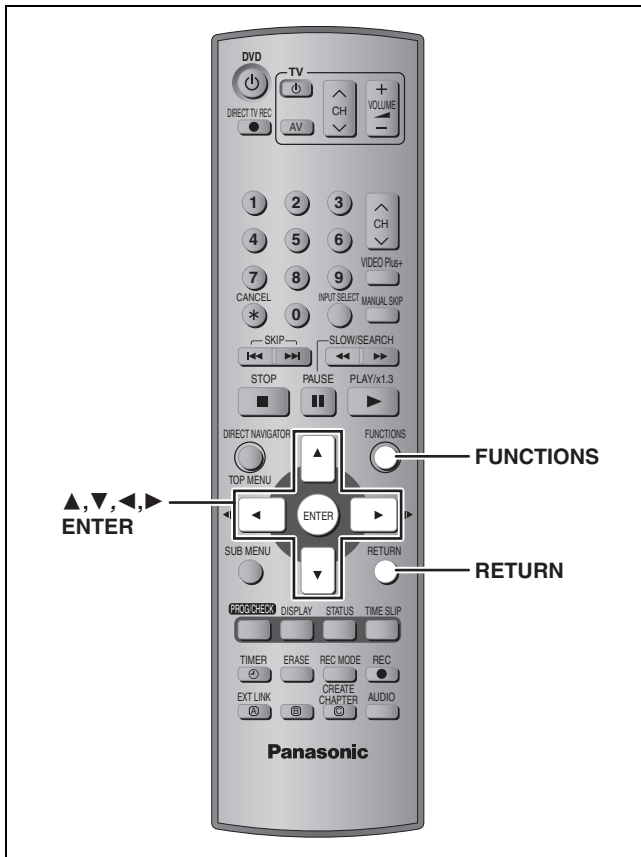
* Multiple editing is possible.

Chapter operations

Editing chapters in a play list does not modify the source titles and source chapters.

Add Chapter	→ page 32, Creating play lists, Step 4–6
Move Chapter	Press [▲, ▼, ◀, ▶] to select the position to insert the chapter and press [ENTER]. 
Create Chapter	→ page 31, Create Chapter
Combine Chapters	→ page 31, Combine Chapters
Erase Chapter*	→ page 31, Erase Chapter

* Multiple editing is possible.

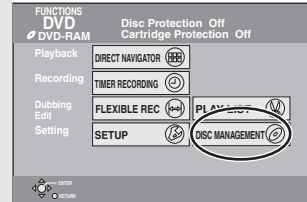


RAM DVD-R

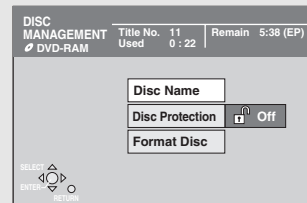
Preparation

Release protection. **RAM**
(cartridge → page 16, disc → right)

- 1 While stopped
Press **[FUNCTIONS]**.



- 2 Press **[▲, ▼, ◀, ▶]** to select “DISC MANAGEMENT” and press **[ENTER]**.



- 3 Press **[▲, ▼]** to select the operation and press **[ENTER]**.

To exit the screen

Press **[RETURN]** several times.

To return to the previous screen

Press **[RETURN]**.

Note

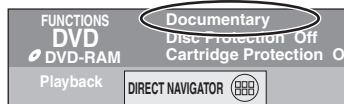
- Once the disc has been formatted, the contents cannot be restored. Check carefully before proceeding. The contents on the disc are erased when you format it even if you have set title or disc protection.
 - After finalizing **DVD-R**
 - The disc becomes play-only and you can no longer record or edit.
 - There is a pause of several seconds between titles.
 - Titles are divided into about 5-minute* chapters.
- * This time varies greatly depending on the condition and mode of recording.

Disc Name

RAM DVD-R

➔ page 36, Entering text

The disc name is displayed in the FUNCTIONS window.

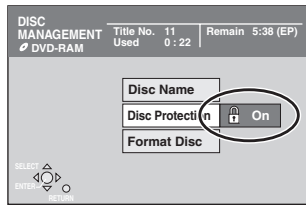


Disc Protection

RAM

If set, this will protect the disc from accidental erasure.

Press [◀, ▶] to set disc protection and press [ENTER].



The lock symbol appears closed when the disc is write-protected.

Format Disc

➔ page 45, Formatting

RAM

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

1 Press [◀, ▶] to select “Yes” and press [ENTER].

2 Press [◀, ▶] to select “Start” and press [ENTER].

A message appears when formatting is finished.

3 Press [ENTER].

To stop formatting

Press [RETURN].

• You can cancel formatting if it takes more than 2 minutes. The disc must be reformatted if you do this.

• Do not disconnect the AC mains lead while the message “Formatting the disc” is on the television. This can render the disc unusable.

• Formatting normally takes a few minutes, however it may take up to a maximum of 70 minutes.

• Formatting cannot be performed on DVD-R or CD-R/RW.

Auto-Play Select

DVD-R

Select whether to show the top menu after finalizing the disc. Do this before finalizing the disc.

Press [▲, ▼] to select “Top Menu” or “Title 1” and press [ENTER].

Top Menu: The top menu appears first.

Title 1: The disc content is played without displaying the top menu.

Finalize

➔ page 45, Finalize

DVD-R

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

1 Press [◀, ▶] to select “Yes” and press [ENTER].

2 Press [◀, ▶] to select “Start” and press [ENTER].

A message appears when finalizing is finished.

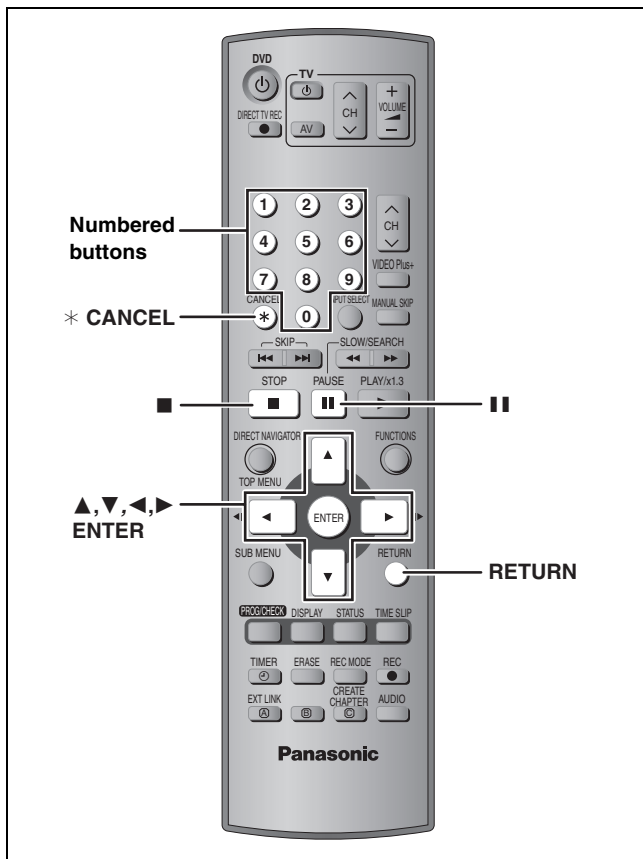
3 Press [ENTER].

- Do not disconnect the AC mains lead while the message “Finalizing the disc” is on the television. This will render the disc unusable.
- Finalizing takes up to 15 minutes.
- You cannot finalize DVD-R recorded on other manufacturer’s equipment.

	Before finalizing	After finalizing
Disc display on this unit	DVD-R	DVD-V
Recording/Editing/Entering name	✓	×
Play on other players	×	✓

DVD-R finalized on this unit may not be playable on other players due to the condition of the recording.

- Visit Panasonic’s homepage for more information about DVDs. <http://www.panasonic-europe.com>



RAM DVD-R

You can give names to recorded titles, etc.

The maximum number of characters:

RAM	Characters
Title	64 (44*)
Play list	64
Disc	64

* Title name for timer recording

DVD-R	Characters
Title	44
Disc	40

If a name is long, parts of it may not be shown in some screens.

1 Show Enter Name screen.

Title (timer recording)

Select "Programme Name" in step 3 on page 21, 22.

Title

Select "Enter Name" in step 3 on page 30.

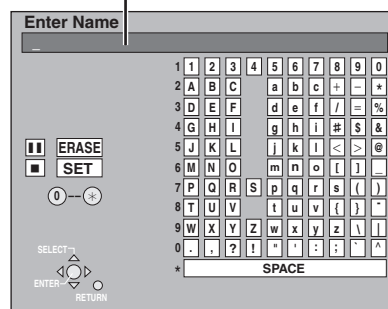
Play list

Select "Enter Name" in step 4 on page 33.

Disc

Select "Disc Name" in step 3 on page 34.

Name field: shows the text you have entered



2 Press [▲, ▼, ◀, ▶] to select a character and press [ENTER].

Repeat this step to enter other characters.

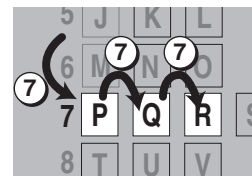
•To erase a character

Press [▲, ▼, ◀, ▶] to select the character in the name field and press [■].

•Using the numbered buttons to enter characters

e.g., entering the letter "R"

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



•To enter a space

Press [* CANCEL] and press [ENTER].

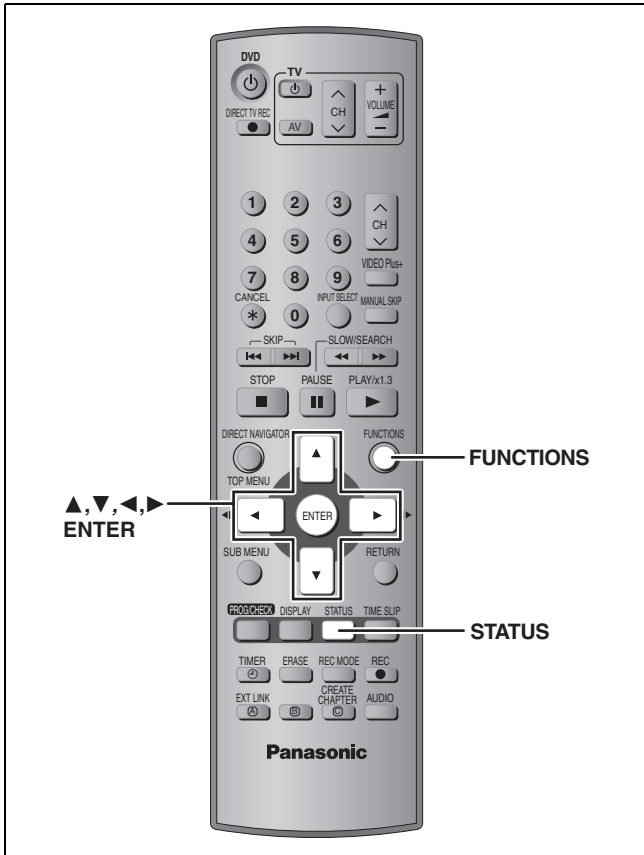
3 Press [■] (SET).

Returns to the previously displayed screen.

To end partway

Press [RETURN].

Text is not saved.

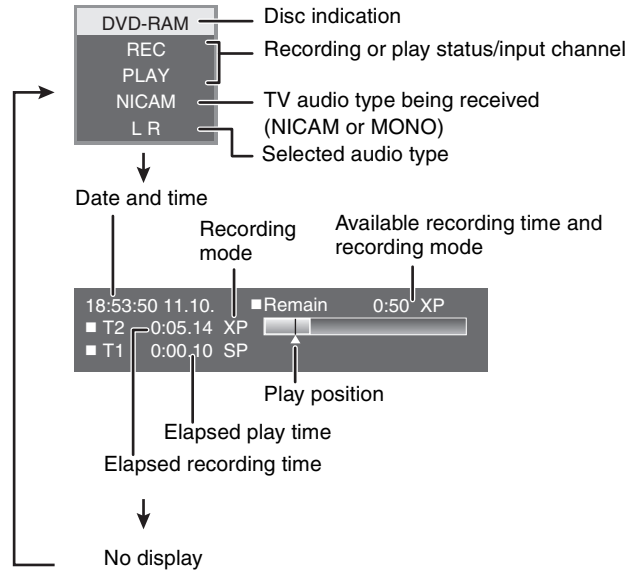


Status messages

Status messages appear on the television when you operate the unit to show the condition of the unit.

Press [STATUS].

The display changes each time you press the button.

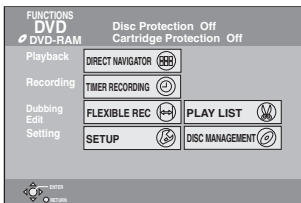


FUNCTIONS window

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

1 While stopped

Press [FUNCTIONS].



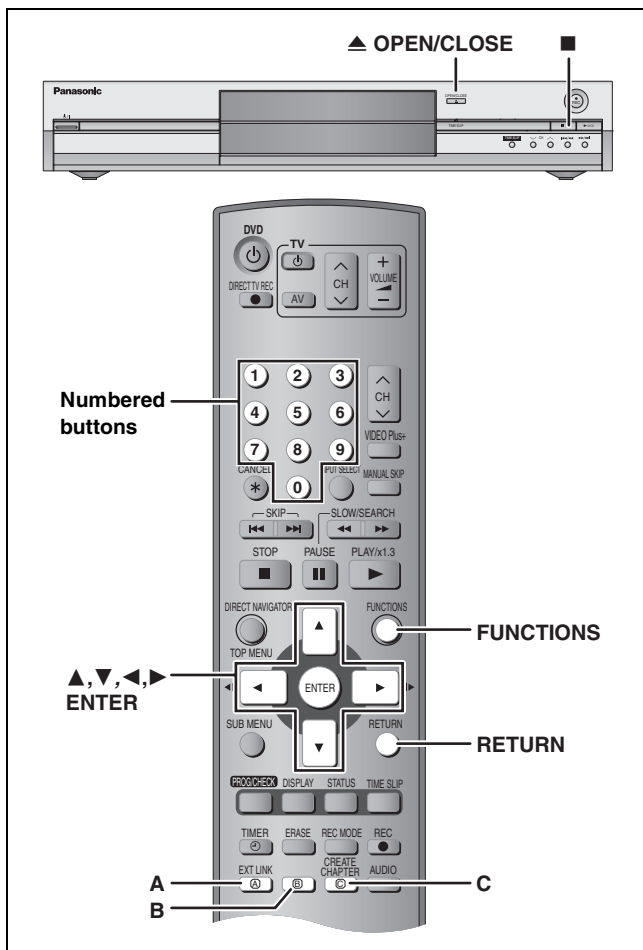
Functions displayed depend on the type of disc.

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

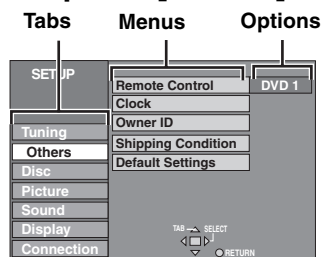
To exit the FUNCTIONS window

Press [FUNCTIONS].

Common procedures



- 1 While stopped
Press [FUNCTIONS].
- 2 Press [**▲**, **▼**, **◀**, **▶**] to select "SETUP" and press [ENTER].



- 3 Press [**▲**, **▼**] to select the tab and press [**▶**].
- 4 Press [**▲**, **▼**] to select the menu and press [ENTER].
- 5 Press [**▲**, **▼**] to select the option and press [ENTER].

To exit the screen

Press [RETURN] several times.

To return to the previous screen



Press [RETURN].

Summary of settings

The settings remain intact even if you switch the unit to standby.

Tabs	Menus	Options (Underlined items are the factory presets.)
Tuning	Manual (⇒ page 42)	
	Auto-Setup Restart (⇒ page 43)	
	Download (⇒ page 43)	
Others	Remote Control (⇒ page 15)	● <u>DVD 1</u> ● DVD 2 ● DVD 3
	Clock	
	Auto Clock Setting (⇒ page 44)	
	Manual Clock Setting (⇒ page 44)	
	Owner ID (⇒ page 11) In order to prevent another person from using this unit if it is stolen, you can set a PIN number and input your personal information. Once the PIN number has been set, you cannot return to the factory preset. Make sure not to forget this.	● PIN number ● Name ● House No. ● Postcode
Shipping Condition All the settings except for the ratings level, ratings password, Owner ID and time settings return to the factory preset. The timer recording programmes are also cancelled.	● Yes ● <u>No</u>	
Default Settings All the settings other than the programmed channels, time settings, disc language settings, ratings level, ratings password, Owner ID and remote control code return to the factory presets.	● Yes ● <u>No</u>	

Tabs	Menus	Options (Underlined items are the factory presets.)
Disc	Language Choose the language for audio, subtitle and disc menus. DVD-V	
	<ul style="list-style-type: none"> ● Press [ENTER] to show the following settings. ● Some discs start in a certain language despite any changes you make here. ● Enter a code (⇒ page 41) when you selecting “Other ****”. 	
	Soundtrack	<ul style="list-style-type: none"> ● <u>English</u> ● French ● German ● Italian ● Spanish ● <u>Original</u>: The original language of each disc will be selected. ● Other ****
	Subtitle	<ul style="list-style-type: none"> ● <u>Automatic</u>: If the language selected for “Soundtrack” is not available, subtitles of that language will automatically appear if available on that disc. ● English ● French ● German ● Italian ● Spanish ● Other ****
	Menus	<ul style="list-style-type: none"> ● <u>English</u> ● French ● German ● Italian ● Spanish ● Other ****
	Ratings Set a ratings level to limit DVD-Video play. Follow the on-screen instructions. Enter a 4-digit password with the numbered buttons when the password screen is shown. ● Do not forget your password.	<ul style="list-style-type: none"> ● <u>8 No Limit</u>: All DVD-Video can be played. ● 1 to 7: Prohibits play of DVD-Video with corresponding ratings recorded on them. ● 0 Lock All: Prohibits play of all DVD-Video.
Recording time in EP mode Select the maximum number of hours for recording in EP mode (⇒ page 19, Recording modes and approximate recording times).	<ul style="list-style-type: none"> ● <u>EP (6 Hour)</u>: You can record for 6 hours on an unused 4.7 GB disc. ● <u>EP (8 Hour)</u>: You can record for 8 hours on an unused 4.7 GB disc. 	
DVD-Audio Video mode Playback Select “On” to play DVD-Video content on some DVD-Audio.	<ul style="list-style-type: none"> ● <u>On</u>: The setting returns to “Off” when you change the disc or turn the unit off. ● <u>Off</u> 	
Picture	Comb Filter Select the picture sharpness when recording. The setting is fixed with “On” if you set “TV System” to “NTSC” (⇒ page 43).	<ul style="list-style-type: none"> ● <u>On</u>: Select it to record clear picture. ● <u>Off</u>: Normally, use this setting.
	Hybrid VBR Resolution (⇒ page 46, VBR)	<ul style="list-style-type: none"> ● <u>Automatic</u>: The resolution is automated to provide efficient recording with less block noise. RAM ● <u>Fixed</u>: The resolution is fixed to ensure that there is no loss of source picture resolution while recording.
	Still Mode Select the type of picture shown when you pause play (⇒ page 45, Frames and fields).	<ul style="list-style-type: none"> ● <u>Automatic</u> ● <u>Field</u>: Select if jittering occurs when “Automatic” is selected. ● <u>Frame</u>: Select if small text or fine patterns cannot be seen clearly when “Automatic” is selected.

Tabs	Menus	Options (Underlined items are the factory presets.)	
Sound	PLAY ×1.3 & Audio during Search You may hear sound regardless of this setting with some discs.	<ul style="list-style-type: none"> ● <u>On</u>: Audio is heard during first level search forward. ● <u>Off</u>: Audio is not heard during search. Quick View (⇒ page 25) does not work. 	
	Dynamic Range Compression <u>DVD-V</u> (Dolby Digital only) Change the dynamic range for late night viewing.	<ul style="list-style-type: none"> ● <u>On</u> ● <u>Off</u> 	
	Bilingual Audio Selection <u>DVD-R</u> Select whether to record the main or secondary audio type when recording to DVD-R. You cannot select this when recording from an external source onto DVD-R. Select the audio on the other equipment.	<ul style="list-style-type: none"> ● <u>M 1</u> ● M 2 	
	Digital Audio Output Change the settings when you have connected equipment through this unit's DIGITAL AUDIO OUT terminal (⇒ page 10). ● Press [ENTER] to show the following settings.		
	PCM Down Conversion Select how to output audio with a sampling frequency of 96 kHz or 88.2 kHz. ● Signals are converted to 48 kHz or 44.1 kHz despite the above settings if the signals have a sampling frequency of over 96 kHz or 88.2 kHz, or the disc has copy protection.	<ul style="list-style-type: none"> ● <u>On</u>: Signals are converted to 48 kHz or 44.1 kHz. (Choose when the connected equipment cannot process signals with a sampling frequency of 96 kHz or 88.2 kHz.) ● <u>Off</u>: Signals are output as 96 kHz or 88.2 kHz. (Choose when the connected equipment can process signals with a sampling frequency of 96 kHz or 88.2 kHz.) 	
	Dolby Digital  Select how to output the signal, to output "Bitstream" so the connected equipment decodes the signal, or to decode on this unit and output the signal as "PCM" (2 channel).	<ul style="list-style-type: none"> ● <u>Bitstream</u>: When connecting to equipment displaying the Dolby Digital logo. ● <u>PCM</u>: When connecting to equipment not displaying the Dolby Digital logo. 	
	DTS  Note Not making the proper settings may result in noise, possibly damage your hearing and speakers, and digital recording may not work properly.	<ul style="list-style-type: none"> ● <u>Bitstream</u>: When connecting to equipment displaying the DTS logo. ● <u>PCM</u>: When connecting to equipment not displaying the DTS logo. 	
	MPEG	<ul style="list-style-type: none"> ● <u>Bitstream</u>: When connected to equipment with a built-in MPEG decoder. ● <u>PCM</u>: When connected to equipment without a built-in MPEG decoder. 	
	Display	On-Screen Messages Choose whether to show status messages automatically.	<ul style="list-style-type: none"> ● <u>Automatic</u> ● <u>Off</u>
		Grey Background Select "Off" if you do not want to have the unit show the grey background when reception is weak.	<ul style="list-style-type: none"> ● <u>On</u> ● <u>Off</u>
FL Display Changes the brightness of the unit's display.		<ul style="list-style-type: none"> ● <u>Bright</u> ● Dim 	

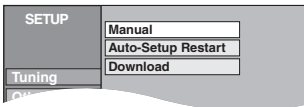
Tabs	Menus	Options (Underlined items are the factory presets.)		
Connection	TV Aspect (⇒ page 14)	● <u>16:9</u>	●4:3	●Letterbox
	Progressive (⇒ page 14)	●On	● <u>Off</u>	
	TV System (⇒ page 43)	● <u>PAL</u>	●NTSC	
AV1 Output Selects the output from the AV1 terminal. Select "RGB (without component)" for RGB output. Select "Video (with component)" or "S-Video (with component)" for component output.		● <u>Video (with component)</u> ●S-Video (with component) ●RGB (without component)		
AV2 Settings Set to match the connected equipment. ●Press [ENTER] to show the following settings.				
AV2 Input Set to "RGB (Not NTSC)" when receiving or recording RGB output video from external equipment.		● <u>Video</u> ●S-Video ●RGB (Not NTSC)		
AV2 Connection This setting is fixed with "Normal" if you set "TV System" to "NTSC" (⇒ page 43).		● <u>Decoder</u> : When a decoder is connected. ● <u>Normal</u> : When the VCR or a satellite receiver is connected.		
Ext Link This setting cannot be made when the "TV System" is set to "NTSC" (⇒ page 43).		● <u>Ext Link 1</u> : When a digital receiver which transmits a special control signal recordings via the 21-pin Scart lead is connected. ●Ext Link 2: When an external equipment with a timer function is connected.		

Language code list							
Input the code with the numbered buttons.							
Abkhazian: 6566	Catalan: 6765	Gujarati: 7185	Lingala: 7678	Rhaeto-Romance: 8277	Tamil: 8465		
Afar: 6565	Chinese: 9072	Hausa: 7265	Lithuanian: 7684	Romanian: 8279	Tatar: 8484		
Afrikaans: 6570	Corsican: 6779	Hebrew: 7387	Macedonian: 7775	Russian: 8285	Telugu: 8469		
Albanian: 8381	Croatian: 7282	Hindi: 7273	Malagasy: 7771	Samoan: 8377	Thai: 8472		
Ameharic: 6577	Czech: 6783	Hungarian: 7285	Malay: 7783	Sanskrit: 8365	Tibetan: 6679		
Arabic: 6582	Danish: 6865	Icelandic: 7383	Malayalam: 7776	Scots Gaelic: 7168	Tigrinya: 8473		
Armenian: 7289	Dutch: 7876	Indonesian: 7378	Maltese: 7784	Serbian: 8382	Tonga: 8479		
Assamese: 6583	English: 6978	Interlingua: 7365	Maori: 7773	Serbo-Croatian: 8372	Turkish: 8482		
Aymara: 6588	Esperanto: 6979	Irish: 7165	Marathi: 7782	Shona: 8378	Turkmen: 8475		
Azerbaijani: 6590	Estonian: 6984	Italian: 7384	Moldavian: 7779	Sindhi: 8368	Twi: 8487		
Bashkir: 6665	Faroese: 7079	Japanese: 7465	Mongolian: 7778	Singhalese: 8373	Ukrainian: 8575		
Basque: 6985	Fiji: 7074	Javanese: 7487	Nauru: 7865	Slovak: 8375	Urdu: 8582		
Bengali; Bangla: 6678	Finnish: 7073	Kannada: 7578	Nepali: 7869	Slovenian: 8376	Uzbek: 8590		
Bhutani: 6890	French: 7082	Kashmiri: 7583	Norwegian: 7879	Somali: 8379	Vietnamese: 8673		
Bihari: 6672	Frisian: 7089	Kazakh: 7575	Oriya: 7982	Spanish: 6983	Volapük: 8679		
Breton: 6682	Galician: 7176	Kirghiz: 7589	Pashto, Pushto: 8083	Sundanese: 8385	Welsh: 6789		
Bulgarian: 6671	Georgian: 7565	Korean: 7579	Persian: 7065	Swahili: 8387	Wolof: 8779		
Burmese: 7789	German: 6869	Kurdish: 7585	Polish: 8076	Swedish: 8386	Xhosa: 8872		
Byelorussian: 6669	Greek: 6976	Laotian: 7679	Portuguese: 8084	Tagalog: 8476	Yiddish: 7473		
Cambodian: 7577	Greenlandic: 7576	Latin: 7665	Punjabi: 8065	Tajik: 8471	Yoruba: 8979		
	Guarani: 7178	Latvian, Lettish: 7686	Quechua: 8185		Zulu: 9085		

Refer to the control reference on page 38.

Tuning

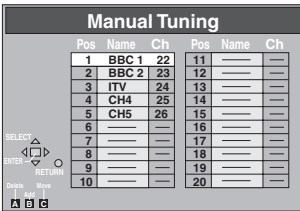
- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "SETUP" and press [ENTER].
- 3 Press [▲, ▼] to select "Tuning" and press [▶].



Manual

You can add or delete channels, or change programme positions.

- 4 Press [▲, ▼] to select "Manual" and press [ENTER].



To delete a programme position

Press [▲, ▼, ◀, ▶] to select a programme position and press [A].

To add a blank programme position

Press [▲, ▼, ◀, ▶] to select a programme position and press [B].

To move a TV station to another programme position

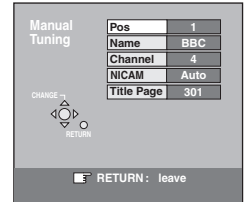
- ① Press [▲, ▼, ◀, ▶] to select a programme position and press [C].
- ② Press [▲, ▼, ◀, ▶] to select the new programme position to which you want to assign the TV station and press [ENTER].

Note

If Preset Download (→ page 11) has been performed, only deletion of the programme position can be performed.

To change the tuning settings for individual programme position

- 5 Press [▲, ▼, ◀, ▶] to select a programme position and press [ENTER].



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

Pos	To change the programme position in which the TV stations are assigned Press [▲, ▼] or numbered buttons to select the number of the desired programme position and press [ENTER].
Name	To enter or change the name of a TV station Press [▲, ▼, ◀, ▶] to enter station name and press [ENTER]. If the station name needs a blank space, select the blank between "Z" and "*".
Channel	To enter newly available TV stations or change the channel number of an already tuned TV station Press [▲, ▼] or the numbered buttons to enter the channel number of the desired TV station. Wait a few moments until the desired TV station has been tuned. After the desired TV station is tuned, press [ENTER].
NICAM	To select the type of sound to be recorded Press [▲, ▼] to select "Auto" and press [ENTER]. ● Select "Off" if you want to record the normal (mono) sound during a stereo, bilingual or NICAM broadcast, or if the stereo sound is distorted due to inferior reception conditions.
Title Page	To enter the Teletext title page for a channel Entering title page number allows the unit to automatically record programme and station names. Press [▲, ▼] or numbered buttons to enter the number and press [ENTER]. ● To find the correct title page for the station, refer to its Teletext TV guide. ● The unit's clock must be set correctly.

Auto-Setup Restart, Download

You can restart auto channel setting if Preset Download or Auto-Setup (→ page 11, 12) fails for some reason.

■ Auto-Setup Restart

- 4 Press [▲, ▼] to select “Auto-Setup Restart” and press [ENTER].

The confirmation screen appears.

- 5 Press [◀, ▶] to select “Yes” and press [ENTER].

Auto-Setup starts.

■ Download

- 4 Press [▲, ▼] to select “Download” and press [ENTER].

The confirmation screen appears.

- 5 Press [◀, ▶] to select “Yes” and press [ENTER].

Download starts.

To exit the screen

Press [RETURN] several times.

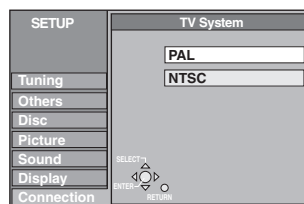
To return to the previous screen

Press [RETURN].

TV System

Change this setting if you connect an NTSC television or to record NTSC video from another source.

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select “SETUP” and press [ENTER].
- 3 Press [▲, ▼] to select “Connection” and press [▶].
- 4 Press [▲, ▼] to select “TV System” and press [ENTER].
- 5 Press [▲, ▼] to select the TV system and press [ENTER].



●PAL (factory preset)

- Select when connecting to a PAL or Multi-system television. Programmes recorded using NTSC are played as PAL 60.
- Select to record television programmes and PAL input from other equipment.

●NTSC

- Select when connecting to a NTSC television. Television programmes cannot be recorded properly.
- Select to record NTSC input from other equipment.

The confirmation screen appears.

- 6 Press [◀, ▶] to select “Yes” and press [ENTER].

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

■ To change the setting all at once (PAL↔NTSC)

While stopped, keep pressing [■] and [▲ OPEN/CLOSE] on the main unit for 5 or more seconds.

Refer to the control reference on page 38.

Clock settings

Usually, the unit's Preset Download or Auto-Setup function (➔ page 11, 12) automatically adjusts the clock to correct time. Under some reception conditions, however, the unit cannot set the clock automatically.

In this case, follow the operation steps below to manually set the clock.

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

- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "SETUP" and press [ENTER].
- 3 Press [▲, ▼] to select the "Others" and press [▶].
- 4 Press [▲, ▼] to select "Clock" and press [ENTER].

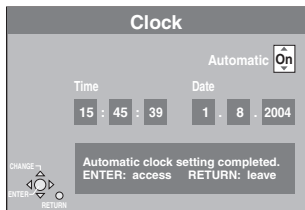
Auto Clock Setting

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

- 5 Press [▲, ▼] to select "On" of "Automatic" and press [ENTER].

Auto clock setting starts.

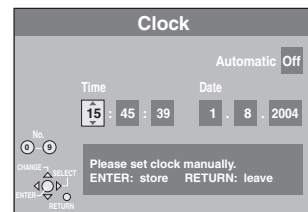
The following screen appears when setting is complete.



To stop partway
Press [RETURN].

Manual Clock Setting

- 5 Press [▲, ▼] to select "Off" of "Automatic" and press [ENTER].



- 6 Press [◀, ▶] to select the item you want to change.

The items change as follows:

Hour ↔ Minute ↔ Second ↔ Day ↔ Month ↔ Year

- 7 Press [▲, ▼] to change the setting.

You can also use the numbered buttons for setting.

- 8 Press [ENTER] when you have finished the settings.

The clock starts.

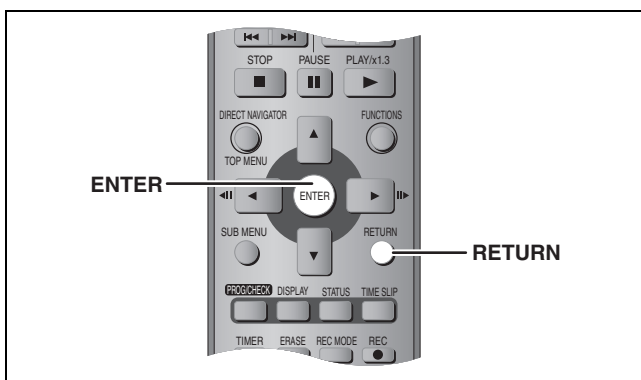
To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

Child Lock



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

Press and hold [ENTER] and [RETURN] simultaneously until "X HOLD" appears on the unit's display.



If you press a button while the Child Lock is on, "X HOLD" appears on the unit's display and operation is impossible.

To cancel the Child Lock

Press and hold [ENTER] and [RETURN] simultaneously until "X HOLD" disappears.

Specifications

Recording system DVD Video Recording format (DVD-RAM),
DVD Video format (DVD-R)

Recordable discs
DVD-RAM: 12 cm 4.7 GB, 12 cm 9.4 GB, 8 cm 2.8 GB
DVD-R: 12 cm 4.7 GB, 8 cm 1.4 GB (for General Ver. 2.0)
12 cm 4.7 GB (for General Ver. 2.0/4x-SPEED DVD-R Revision 1.0)

Recording time Maximum 8 hours (with 4.7 GB disc)
XP: Approx. 1 hour, SP: Approx. 2 hours
LP: Approx. 4 hours, EP: Approx. 6 hours/8 hours

Playable discs
DVD-RAM: 12 cm 4.7 GB, 12 cm 9.4 GB, 8 cm 2.8 GB
DVD-R: 12 cm 4.7 GB, 8 cm 1.4 GB (for General Ver. 2.0)
12 cm 4.7 GB (for General Ver. 2.0/4x-SPEED DVD-R Revision 1.0)
DVD-Video, DVD-Audio, Video CD, CD-Audio (CD-DA)
CD-R/RW (MP3, CD-DA, Video CD formatted discs)

LASER specification

Class I LASER Product
Wave length: 795 nm, 658 nm
Laser power:
No hazardous radiation is emitted with the safety protection

Audio

Recording System: Dolby Digital 2ch
Audio in: AV1/AV2 (21 pin), AV3/AV4 (pin jack)
Input level: Standard: 0.5 Vrms, Full scale: 2.0 Vrms at 1 kHz
Input impedance: More than 10 kΩ
Audio out: AV1/AV2 (21 pin), Audio Out (pin jack)
Output level: Standard: 0.5 Vrms, Full scale: 2.0 Vrms at 1 kHz
Output impedance: Less than 1 kΩ
Digital audio out: Optical terminal (PCM, Dolby Digital, DTS, MPEG)

Television System

Tuner system: PAL-I

Channel Coverage:
The United Kingdom UHF: CH 21–68
Republic of Ireland VHF: CH 4–13, A–J
UHF: CH 21–68

RF converter output:
The United Kingdom UHF: CH 21–68 71 ±3 dBμ
Republic of Ireland Not provided

Video

Video system: PAL colour signal, 625 lines, 50 fields
NTSC colour signal, 525 lines, 60 fields
Recording system: MPEG2 (Hybrid VBR)
Video in:
AV1/AV2 (21 pin), AV3/AV4 (pin jack) 1 Vp-p 75 Ω, termination
S-Video in:
AV2 (21 pin), AV3/AV4 (S terminal) 1 Vp-p 75 Ω, termination
RGB in:
AV2 (21 pin) 0.7 Vp-p (PAL) 75 Ω, termination
Video out:
AV1/AV2 (21 pin), Video Out (pin jack) 1 Vp-p 75 Ω, termination
S-Video out:
AV1 (21 pin), S-Video Out (S terminal) 1 Vp-p 75 Ω, termination
RGB out:
AV1 (21 pin) 0.7 Vp-p (PAL) 75 Ω, termination
Component video output (NTSC 480P/480I, PAL 576P/576I)
Y: 1.0 Vp-p 75 Ω, termination
Pb: 0.7 Vp-p 75 Ω, termination
Pr: 0.7 Vp-p 75 Ω, termination

Others

Region code #2
Operating temperature: 5–40 °C
Operating humidity range: 10–80 % RH (no condensation)
Power supply: AC 220–240 V, 50 Hz
Power consumption: 29 W
Dimensions (W×D×H): Approx. 430×274×79 mm
Mass: Approx. 3.5 kg

Note

Specifications are subject to change without notice.
Mass and dimensions are approximate.

Glossary

Bitstream

This is the digital form of multi-channel audio data (e.g., 5.1 channel) before it is decoded into its various channels.

CPRM (Content Protection for Recordable Media)

CPRM is technology used to protect broadcasts that are allowed to be recorded only once. Such broadcasts can be recorded only with CPRM compatible recorders and discs.

Down-mixing

This is the process of remixing the multi-channel audio found on some discs into two channels for stereo output. It is useful when you want to listen to the 5.1-channel audio recorded on DVDs through your television's speakers. Some discs prohibit down-mixing and this unit can then only output the front two channels.

Dynamic range

Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs.

Dynamic range compression means reducing the gap between the loudest and softest sounds. This means you can listen at low volumes but still hear dialog clearly.

Film and video

DVD-Videos are recorded using either film or video. This unit can determine which type has been used, then uses the most suitable method of progressive output.

For PAL

Film is 25 frames per second.

Video is 50 fields per second (two fields making up one frame).

For NTSC

Film is 24 or 30 frames per second, with motion picture film generally being 24 frames per second.

Video is 60 fields per second (two fields making up one frame).

Finalize

A process that makes play of a recorded CD-R, CD-RW or DVD-R etc. possible on equipment that can play such media. You can finalize DVD-R on this unit.

You cannot record onto or edit finalized discs.

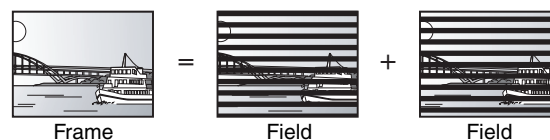
Formatting

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

You can format the DVD-RAM on this unit. Formatting erases irrevocably all recordings on the disc.

Frames and fields

Frames refer to the single images that constitute the video you see on your television. Each frame consists of two fields.



- A frame still shows two fields, so there may be some blurring, but picture quality is generally better.
- A field still shows less picture information so it may be rougher, but there is no blurring.

MP3 (MPEG Audio Layer 3)

An audio compression method that compresses audio to approximately one tenth of its size without any considerable loss of audio quality. You can play MP3 you have recorded onto CD-R and CD-RW.

Pan&Scan/Letterbox

In general, DVD-Video are produced with the intention that they be viewed on a widescreen television (16:9 aspect ratio), so images often don't fit regular (4:3 aspect ratio) televisions. Two styles of picture, "Pan & Scan" and "Letterbox", deal with this problem.

Pan & Scan: The sides are cut off so the picture fills the screen.



Letterbox: Black bands appear at the top and bottom of the picture so the picture itself appears in an aspect ratio of 16:9.



Playback control (PBC)

If a Video CD has playback control, you can select scenes and information with menus.

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

Progressive/Interlace

The PAL video signal standard has 625 (or 576) interlaced (I) scan lines, whereas progressive scanning, called 625P (or 576P), uses twice the number of scan lines. For the NTSC standard, these are called 525I (or 480I) and 525P (or 480P) respectively.

Using progressive output, you can enjoy the high-resolution video recorded on media such as DVD-Video.

Your television must be compatible to enjoy progressive video. Panasonic televisions with 625 (576)/50I · 50P, 525 (480)/60I · 60P input terminals are progressive compatible.

Protection

You can prevent accidental erasure by setting writing protection or erasure protection.

Sampling frequency

Sampling is the process of converting the heights of sound wave (analog signal) samples taken at set periods into digits (digital encoding). Sampling frequency is the number of samples taken per second, so larger numbers mean more faithful reproduction of the original sound.

VBR (Variable bitrate)

This is a method of video recording that adjusts the bit rate according to video signal.

Q Link

This function works only if the unit is connected via a fully wired 21-pin Scart lead to a TV featuring the Q Link or similar function.

Q Link offers the following functions:

●Download from the TV*

When you connect the unit to a TV, the station list data is automatically copied from the TV to the unit, and the TV stations are assigned to the programme positions on the unit in the same order as on the TV.

●Direct TV Recording

By simply pressing [● DIRECT TV REC], you can at once record the same programme that you are watching on the TV.

●TV/DVD Auto On*

Even if the TV and the unit are off (standby mode), pressing [▶] (PLAY), [DIRECT NAVIGATOR, TOP MENU], [VIDEO Plus+] or [PROG/CHECK] automatically turns on both the TV and the unit. If the TV is off (standby mode) and the unit is on, when you press [FUNCTIONS] or [▶] (PLAY), or insert the disc (except DVD-RAM and DVD-R), the TV automatically is turned on.

●DVD Auto Standby*

When you turn the TV off, the unit is turned off as well. However, this function works in the stop mode.

This function does not work during the following operations: Preset Download, Auto-Setup, Auto Clock Setting and Manual Tuning.

This function does also not work when an audio CD is in the disc tray.

PDC (Programme Delivery Control)

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

The station must be transmitting PDC and the exact time must be set for PDC to work.

The unit detects whether a station is transmitting PDC only during the tuning process.

If PDC is introduced or discontinued by a station you will need to re-tune the unit before it becomes aware of this.

PDC transmissions are not currently nation-wide so please check with your local broadcaster for more information.

The beginnings of recordings may not be recorded correctly in some cases.

●On-Screen Messages*

When you are watching a TV programme, the following messages appear on the TV screen to inform you of the unit's condition:

Message	Message appears when:
This programme has already started	A timer recording has just started.
Set DVD to timer standby mode	The unit is not in the timer standby mode 10 minutes before the programmed recording start time (message appears every minute during these 10 minutes).
DVD is in timer recording mode	[● REC] or [VIDEO Plus+] was pressed while the unit is in the timer recording mode.

Depending on the type of TV used, the above messages may not appear correctly.

* These operations are only available if the unit is connected to a TV featuring the Q Link function.


Frequently asked questions

Set up		Page
What equipment is necessary to play multi channel surround sound?	<ul style="list-style-type: none"> ●DVD-Video: You can play DVD-Video multi channel surround by digitally connecting an amplifier equipped with a Dolby Digital, DTS or MPEG decoder. ●DVD-Audio: This unit plays DVD-Audio in 2 channels. You cannot play multi channel surround sound. 	10 —
Are the headphones and speakers directly connected to the unit?	<ul style="list-style-type: none"> ●You cannot directly connect to the unit. Connect through the amplifier etc. 	10
The television has a Scart terminal and component video input terminal. Which terminal should I connect with?	<ul style="list-style-type: none"> ●If you have a regular television (CRT: cathode ray tube) we recommend using the Scart terminal. You can enjoy high-quality RGB video from this unit by connecting to an RGB compatible television. If you have an LCD/plasma television or LCD projector compatible with progressive scan, connect through the component video terminals for high-quality progressive video. If you have a CRT television that is compatible with progressive scan, we cannot recommend progressive output as some flickering can occur. 	7, 8
Is my television progressive output compatible?	All Panasonic televisions that have 625 (576)/50I · 50P, 525 (480)/60I · 60P) input terminals are compatible. Consult the manufacturer if you have another brand of television.	—


Disc		
Can I play DVD-Video, DVD-Audio and Video CDs bought in another country?	<ul style="list-style-type: none"> ●You cannot play DVD-Video if their region number does not include “2” or “All”. 	Cover
Can a DVD-Video that does not have a region number be played?	<ul style="list-style-type: none"> ●The DVD-Video region number indicates the disc conforms to a standard. You cannot play discs that do not have a region number. 	—
Please tell me about DVD-R and DVD-RW compatibility with this unit.	<ul style="list-style-type: none"> ●This unit records and plays DVD-R. However, you cannot record onto DVD-R discs that are finalized. ●This unit also records and plays 1×–4× recording speed DVD-R discs. ●This unit does not record or play DVD-RW. 	— — —
Please tell me about CD-R and CD-RW compatibility with this unit.	<ul style="list-style-type: none"> ●You can play CD-R and CD-RW on this unit that are created using a compatible format. ●You cannot write to a CD-R or CD-RW with this unit. 	16, 27 —

Recording		
Can I record from a commercially purchased video cassette or DVD?	<ul style="list-style-type: none"> ●Most commercially sold video cassettes and DVD are copy protected; therefore, recording is usually not possible. 	—
Can a DVD-R recorded on this unit be played on other equipment?	<ul style="list-style-type: none"> ●You can play on DVD-R compatible players after finalizing the disc on this unit; however, due to the condition of the recording, play may not be possible. 	35
How many times can I write to a DVD-RAM disc?	<ul style="list-style-type: none"> ●You can write to the disc approximately 100,000 times depending upon the conditions of use. 	—
Can I record digital audio signals using this unit?	<ul style="list-style-type: none"> ●You cannot record digital signals. The digital audio terminals on this unit are for output only. 	—
Can a digital audio signal from this unit be recorded to other equipment?	<ul style="list-style-type: none"> ●You can record if using the PCM signal. When recording DVD, change the “Digital Audio Output” settings to the following in the SETUP menu. –PCM Down Conversion: On –Dolby Digital/DTS/MPEG: PCM However, only as long as digital recording from the disc is permitted and the recording equipment is compatible with a sampling frequency of 48 kHz. ●You cannot record MP3 signals. 	40 —
Can I switch to bilingual broadcast during recording?	<ul style="list-style-type: none"> ●With DVD-RAM, you can. Just press [AUDIO]. ●With DVD-R, you cannot. Change before recording with the “Bilingual Audio Selection” in the SETUP menu. 	26 40

On the television

		Page
Cannot finish recording completely.	<ul style="list-style-type: none"> The programme was copy-protected. The disc may be full. 	—
Cannot record on the disc.	<ul style="list-style-type: none"> The disc may be dirty or scratched. 	17
Please check the disc.		
Unable to format.		
Cannot record. Disc is full.	<ul style="list-style-type: none"> Create space by erasing any unnecessary titles. RAM Use a new disc. RAM DVD-R 	26, 31, 35
Cannot record. Maximum number of titles recorded.		
Error has occurred. Please press ENTER.	<ul style="list-style-type: none"> Press [ENTER] to start recovery process. You cannot operate the unit while it is recovering ("SELF CHECK" appears on the unit's display). 	—
No Disc	<ul style="list-style-type: none"> The disc may be upside down. 	—
Please change the disc.	<ul style="list-style-type: none"> There may be a problem with the disc. Press [▲ OPEN/CLOSE] on the main unit to remove it and check it for scratches or dirt. (The unit turns off automatically after you open the tray.) 	17
This is a non-recordable disc.	<ul style="list-style-type: none"> The unit cannot record on the disc you inserted. Insert a DVD-RAM or unfinalized DVD-R. You inserted an unformatted DVD-RAM. Format the disc with this unit. 	— 35
This disc is not properly formatted. Formatting is necessary using DISC MANAGEMENT.		
	<ul style="list-style-type: none"> The operation is prohibited by the unit or disc. 	—

On the unit's display

HARD ERR	<ul style="list-style-type: none"> If there is no change after turning the unit on and off, consult the dealer where the unit was purchased. 	—
NO READ	<ul style="list-style-type: none"> The disc is dirty or badly scratched. The unit cannot record, play, or edit. You have used a DVD-RAM/PD lens cleaner and it has finished. Press [▲ OPEN/CLOSE] on the main unit to eject the disc. 	17 —
PROG FULL	<ul style="list-style-type: none"> There are already 16 timer programmes. Delete unnecessary timer programmes. 	23
REMOTE DVD □ (“□” stands for a number.)	<ul style="list-style-type: none"> The remote control and main unit are using different codes. Change the code on the remote control.  <p>Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.</p>	15
SELF CHECK	<ul style="list-style-type: none"> The unit is starting up. Wait until the message disappears. 	—
U14	<ul style="list-style-type: none"> The unit is hot. The unit switches to standby for safety reasons. Wait for about 30 minutes until the message disappear. Select a position with good ventilation when installing the unit. Do not block the cooling fan on the rear of the unit. 	—
U99	<ul style="list-style-type: none"> The unit fails to operate properly. Press [⏻/I] on the main unit to switch the unit to standby. Now press [⏻/I] on the main unit again to turn the unit on. 	—
UNSUPPORT	<ul style="list-style-type: none"> You have inserted a disc the unit cannot play or record on. 	16
X HOLD	<ul style="list-style-type: none"> The Child Lock function is activated. Press and hold [ENTER] and [RETURN] simultaneously until “X HOLD” disappears. 	44

Maintenance

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

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

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

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

Dust and dirt may adhere to the unit's lens over time, making it impossible to record or play discs. Use the **DVD-RAM/PD lens cleaner (LF-K123LCA1, where available)** about once every year, depending on frequency of use and the operating environment. Read the lens cleaner's instructions carefully before use.

Troubleshooting guide

Before requesting service, make the following checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, consult your dealer for instructions.

The following do not indicate a problem with this unit:

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Regular disc rotating sounds. The sound of the disc rotating may become louder especially when finalizing a DVD-R. ● Poor reception due to atmospheric conditions. | <ul style="list-style-type: none"> ● Image disturbance during search. ● Interruptions to reception due to periodic satellite broadcasting breaks. |
|---|---|

Power

		Page
No power.	● Insert the AC mains lead securely into a known active AC mains socket.	7-9
The unit switches to the standby mode.	● One of the unit's safety devices is activated. Press [⏻/I] on the main unit to turn the unit on.	—

Displays

The display is dim.	● Change "FL Display" in the SETUP menu.	40
"0:00" is flashing on the unit's display.	● Set the clock.	44
The time recorded on the disc and the available time shown do not add up.	● Times shown may disagree with actual times.	—
The play time shown for MP3 does not agree with the actual time.	● More disc space than the actual recording time is used after recording or editing the DVD-R 200 times or more.	—
	● While searching, the elapsed time may not display correctly.	—
	● Even if you erase recorded content from the DVD-R, there is no increase in disc space.	—
The clock is not correct.	● Under adverse reception conditions, etc., the automatic time correction function may not work. In this case, "Automatic" is automatically turned to "Off". If re-setting the Auto Clock Setting does not work, set the time manually.	44

TV screen and video

Television reception worsens after connecting the unit.	● This can occur because the signals are being divided between the unit and other equipment. It can be solved by using a signal booster, available from audio-visual suppliers.	—
Status messages do not appear.	● Select "Automatic" in "On-Screen Messages" in the SETUP menu.	40
The grey background does not appear.	● Select "On" in "Grey Background" in the SETUP menu.	40
The 4:3 aspect ratio picture expands left and right.	● Use the television to change the aspect. If your television does not have that function, set "Progressive" in the Picture menu to "OFF".	29
Screen size is wrong.	● Check the settings for "TV Aspect" in the SETUP menu.	14
There is a lot of after-image when playing video.	● Set "Playback NR" in the Picture menu to "OFF".	29
When playing DVD-Video using progressive output, one part of the picture momentarily appears to be doubled up.	● Set "Progressive" in the Picture menu to "OFF". This problem is caused by the editing method or material used on DVD-Video, but should be corrected if you use interlace output.	29
There is no apparent change in picture quality when adjusted with the Picture menu in the on-screen menus.	● The effect is less perceivable with some types of video.	—
The images from this unit do not appear on the television.	● Make sure that the television is connected to the AV1 terminal, VIDEO OUT terminal, S-VIDEO OUT terminal or COMPONENT VIDEO OUT terminals on this unit.	7, 8
Picture is distorted.	● Make sure that the television's input setting (e.g., AV 1) is correct.	—
	● The television isn't compatible with progressive signals. Press and hold [■] and [TIME SLIP] on the main unit at the same time for about 5 seconds. The setting will change to interlace.	—

Sound


No sound.	● Check the connections and settings. Check the input mode on the amplifier if you have connected one.	7-10, 40
Low volume.	● Press [AUDIO] to select the audio.	26
Distorted sound.	● Turn off V.S.S. in the following cases.	29
Cannot hear the desired audio type.	—When using discs that do not have surround sound effects such as Karaoke discs.	—
	—When playing bilingual broadcast programmes.	—
	● The disc may have a restriction on the method of audio output. If "D.MIX" does not appear in the display when playing multi-channel DVD-Audio, only audio for the two front channels will be output. Refer to the disc's jacket.	—

Continued on next page

Sound (Continued)

		Page
Cannot switch audio.	●You cannot change the audio type when a DVD-R is in the disc tray.	—
	●You have used a digital connection. Set “Dolby Digital” to “PCM” or connect using audio cables (analog connection).	40, 10
	●There are discs which audio cannot be changed because of how the disc was created.	—

Operation

Cannot operate the television. The remote control doesn't work.	●Change manufacturer code. Some televisions cannot be operated even if you change the code.	15
	●The remote control and main unit are using different codes. Change the code on the remote control.	15
	 Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.	
	●The batteries are depleted. Replace them with new ones.	4
	●Coloured glass may obstruct the signal reception/transmission.	—
	●Don't place the signal sensor in direct sunlight or in areas that may be subject to sunlight exposure.	—
	●The child lock function is activated.	44
The unit is on but cannot be operated.	●Some operations may be prohibited by the disc.	—
	●The unit is hot (“U14” appears on the display). Wait for “U14” to disappear.	—
	●One of the unit's safety devices may have been activated. Reset the unit as follows: Press [⏻/I] on the main unit to switch the unit to standby. If the unit doesn't switch to standby, press and hold [⏻/I] on the main unit for about 10 seconds. The unit is forcibly switched to standby. Alternatively, disconnect the AC mains lead, wait one minute, then reconnect it.	—
Cannot eject disc.	●The unit may have a problem. While the unit is off, press and hold [■] and [CH ^] on the main unit at the same time for about 5 seconds. Remove the disc and consult the dealer. If the Child Lock function is activated, above operation does not work. Cancel the Child Lock function.	44
Cannot tune channels.	●Check the connections.	7-9
Cannot download channel presets.	●You must connect to a television equipped with the Q Link function with a fully wired 21-pin Scart lead to download channel presets.	—

Recording and timer recording

Cannot record.	●You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto.	16
	●The disc is un-formatted. Format the disc. RAM	35
	●The write-protect tab on the cartridge is set to PROTECT, or the disc is protected with DISC MANAGEMENT.	16, 35
	●Some programmes have limitations on the number of times they can be recorded (CPRM).	45
	●The disc is full or nearly full. Erase un-needed titles or use another disc.	26, 31, 35
	●You cannot record on finalized DVD-R discs.	—
	●Due to peculiarities of DVD-R, you may be unable to record onto them if you either insert and remove the disc or switch the unit on and off while a disc is loaded, a total of fifty times.	—
●A DVD-R recorded on this unit may not be recordable on other Panasonic DVD recorders.	—	
Timer recording does not work properly. VIDEO Plus+ programming does not work properly.	●The timer programme is incorrect or different timer programme times overlap. Correct the programme.	23
	●The unit is not on timer recording standby. (“⊙” on the unit's display is not on.) Press [⊙ TIMER].	21, 22
	●Set the clock.	44
Timer recording does not stop even when [■] is pressed.	●While using timer recording, press [⊙ TIMER]. (“⊙” disappears.)	21, 22
	●When using the linked timer recording with external equipment, press [EXT LINK]. (“Ext Link” disappears.)	23
The timer programme remains even after recording finishes.	●The timer programme remains if set to daily or weekly.	22
A part or whole of a recorded title has been lost.	●If there is a power failure or the plug is disconnected from the household AC mains socket while recording or editing, the title may be lost or the disc may become unusable. You will have to format the disc (RAM) or use a new disc. We cannot offer any guarantee regarding lost programmes or discs.	—

Play		Page
Play fails to start even when [▶] (PLAY) is pressed. Play starts but then stops immediately.	● Insert the disc correctly with the label facing up.	24
	● You tried to play a blank DVD-RAM/DVD-R, or discs unplayable on this unit.	16
	● When recording to DVD-RAM using "EP (8 Hour)" mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use "EP (6 Hour)" mode.	39
DVD-Video is not played.	● Some DVD-Video cannot be played when you change the ratings level.	39
Alternative soundtrack and subtitles cannot be selected.	● The languages are not recorded on the disc.	—
	● You may have to use the disc's menus to select languages.	—
No subtitles.	● Subtitles are not recorded on the disc.	—
	● Turn the subtitles on.	28
Angle cannot be changed.	● Angles can only be changed during scenes where different angles are recorded.	—
You have forgotten your ratings password.	● While the disc tray is open, press and hold [◀◀/▶▶] and [▶▶/▶▶] on the main unit at the same time for 5 or more seconds.	—
Quick View does not work.	● This does not work if the setting is "Off" in "PLAY ×1.3 & Audio during Search"	40
	● This does not work when audio is other than Dolby Digital.	—
	● This does not work when recording is in XP or FR mode.	—
The resume play function does not work.	● This function only works when the indicator on the right appears in the unit display.	—
	● Memorized positions are canceled when the unit is turned off or when the tray is opened. The memorized position on the play list is also canceled when the play list and title are edited.	—
The Video CD picture does not display properly.	● When connecting to Multi-system TV, select "NTSC" in "TV System" in the SETUP menu.	43
	● When connecting to PAL TV, the lower part of the picture cannot be displayed correctly during search.	—
Time Slip does not work.	● Time Slip does not work when the unit's "TV System" settings are different from the title recorded on the disc.	43



Edit		
Cannot format.	● The disc is dirty. Use a special cleaner and wipe clean.	17
	● You tried formatting a disc that is not compatible with this unit.	16
Cannot create chapters.	● The unit writes the chapter information to the disc when you turn it off or remove the disc. The information is not written if there is an interruption to the power before this.	—
Cannot mark the start point or the end point during "Partial Erase" operation.	● These operations are not possible with still pictures.	—
	● You cannot set points if they are too close to each other. You cannot set an end point before a start point.	—
Cannot erase chapters.	● When the chapter is too short to erase, use "Combine Chapters" to make the chapter longer.	31
The available recording time doesn't increase even after erasing recordings on the disc.	● Available recording space on the DVD-R does not increase even after erasing previously recorded titles.	—
Cannot create a play list.	● You cannot select all the chapters at once in a title if the title also includes still pictures. Select them individually.	—

Safety precautions

Placement

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

Do not place heavy items on the unit.

Voltage

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

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

AC mains lead protection

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

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

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

Foreign matter

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

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

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

Service

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

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

Angle	28	Finalize	35, 45	Ratings level	39
Aspect	14	Flexible Recording	20	Recording	18
Audio		Format disc	35	Direct TV Recording	19
Attribute	28	FR (Flexible Recording Mode)	19	External Link	23
Language	39	FUNCTIONS window	37	Flexible Recording	20
Playback	26			Mode	19
Receiving	37	Language		Timer	21–23
Change Thumbnail	31	Audio	39	Remote control code	15
Channel		Code list	41	Repeat play	29
Audio	28	Soundtrack	28, 39	Resume play function	25
Auto-Setup	12	Subtitle	28, 39	RGB	
Preset Download	11	Manual Skip	25	Input	41
Chapter	26, 30	Menu		Output	7, 41
Chasing playback	19	MP3	27		
Child Lock	44	On-screen	28	SETUP menu	38
Cleaning		SETUP	38	Shipping Condition	38
Disc	17	Mode		Simultaneous rec and play	19
Main unit	48	Recording	19	Soundtrack	28
Lens	48	Still Mode	39	Status messages	37
Clock settings	44	MP3	27	Subtitle	28
Connection		Noise reduction (NR)			
AV3 input terminals	20	Playback NR	29	Teletext	18
Aerial	7–9	On-screen		Time Slip	19, 25
Amplifier, system component	10	Menus	28	Timer recording	21–23
Decoder, digital receiver	10	Status messages	37	Transfer	29
Satellite receiver	7, 9	Owner ID	11, 38	Tuning	
Television	7–9	Partial Erase	31	Auto-Setup	12
Video cassette recorder	8, 20	PCM Down Conversion	40	Manual	42
Copy (play list)	33	PDC	21, 46	Preset Download	11
CPRM	45	Picture settings	29, 39	TV System (PAL/NTSC)	43
Create Chapter	31	Play list	32	TV type	14
Create play lists	32	Playback NR	29		
		Progressive	14, 29, 41, 46	VIDEO Plus+	21
Default Settings	38	Properties		V.S.S.	29
Dialog Enhancer	29	Play list	33		
Direct Navigator	24, 30	Title	31		
Direct TV Recording	19	Protection			
DVD-RAM, DVD-R	16	Cartridge	16		
		Disc	35		
Enter name		Title	31		
Disc	35	Q Link	6, 46		
Entering text	36	Quick View	25		
Play list	33				
Title	21, 22, 31				
Erase					
Chapter	26, 31, 33				
Play list	26, 33				
Title	26, 31				
Ext Link	23, 41				

Manufactured under license from Dolby Laboratories.
“Dolby” and the double-D symbol are trademarks of Dolby Laboratories.

“DTS” and “DTS 2.0+Digital Out” are trademarks of Digital Theater Systems, Inc.

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

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

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

Environment friendly printed on chlorine free bleached paper.