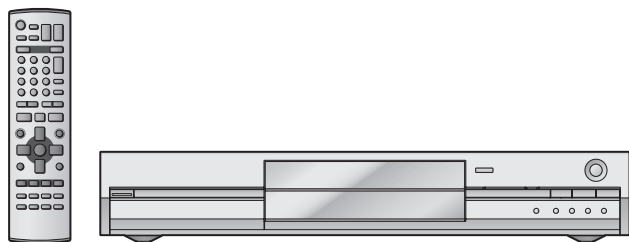


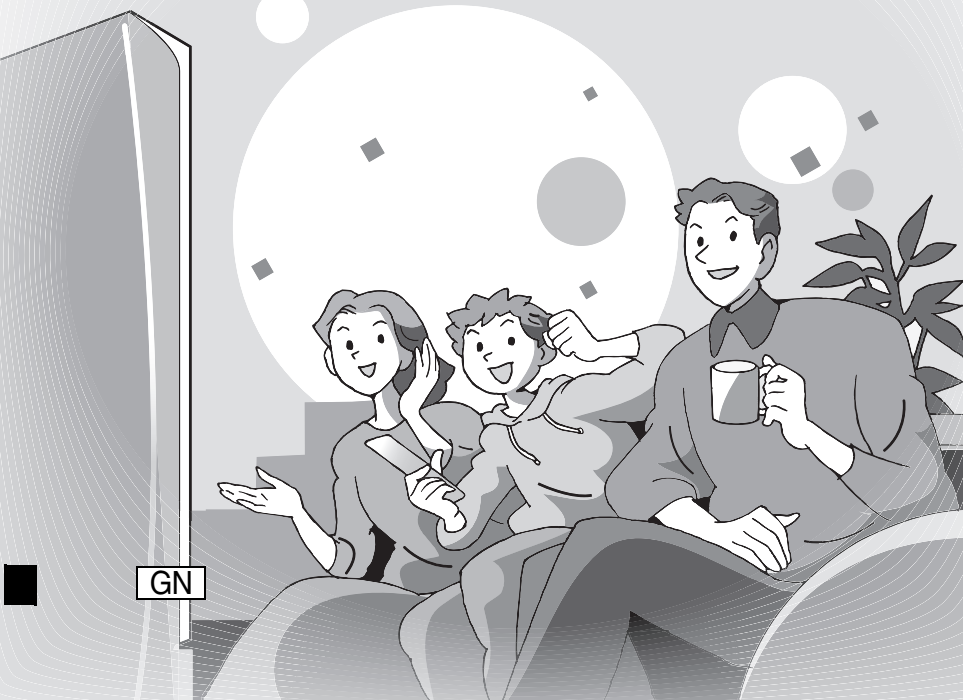
Operating Instructions

DVD Video Recorder

Model No. **DMR-E85H**



DIGA



GN

Panasonic®

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 "4".
- The unit will play DVDs marked with labels containing "4" or "ALL".

Example:



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.

RQT7462-L

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.

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.



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 UDSÆTTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALLTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING	- SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA 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)

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Useful features

This DVD Video recorder records high quality images to rapid random access capable HDD (Hard disk drive) and DVD-RAM. 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.

HDD recording

You can keep on recording your favorite programmes to an internal HDD that is able to record up to 142 hours [EP (8 Hour) mode].

You can also high speed transfer (dub) your favorite programmes to DVD-RAM or DVD-R and create a backup disc.

Instant play

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



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.



1 Remote control
(EUR7721KK0)



1 AC mains lead
●For use with this unit only. Do not use it with other equipment.



1 RF coaxial cable



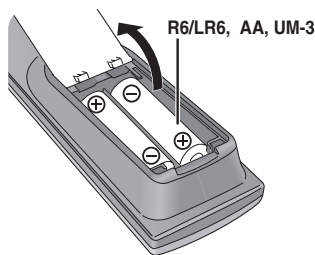
2 Batteries
for remote control



1 Audio/video cable

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.

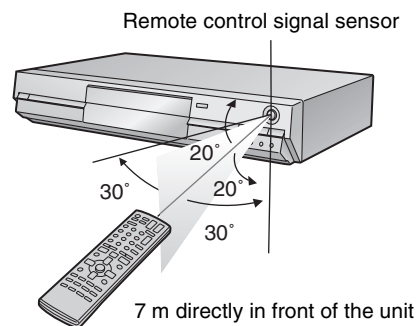
Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.

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 11).

Use

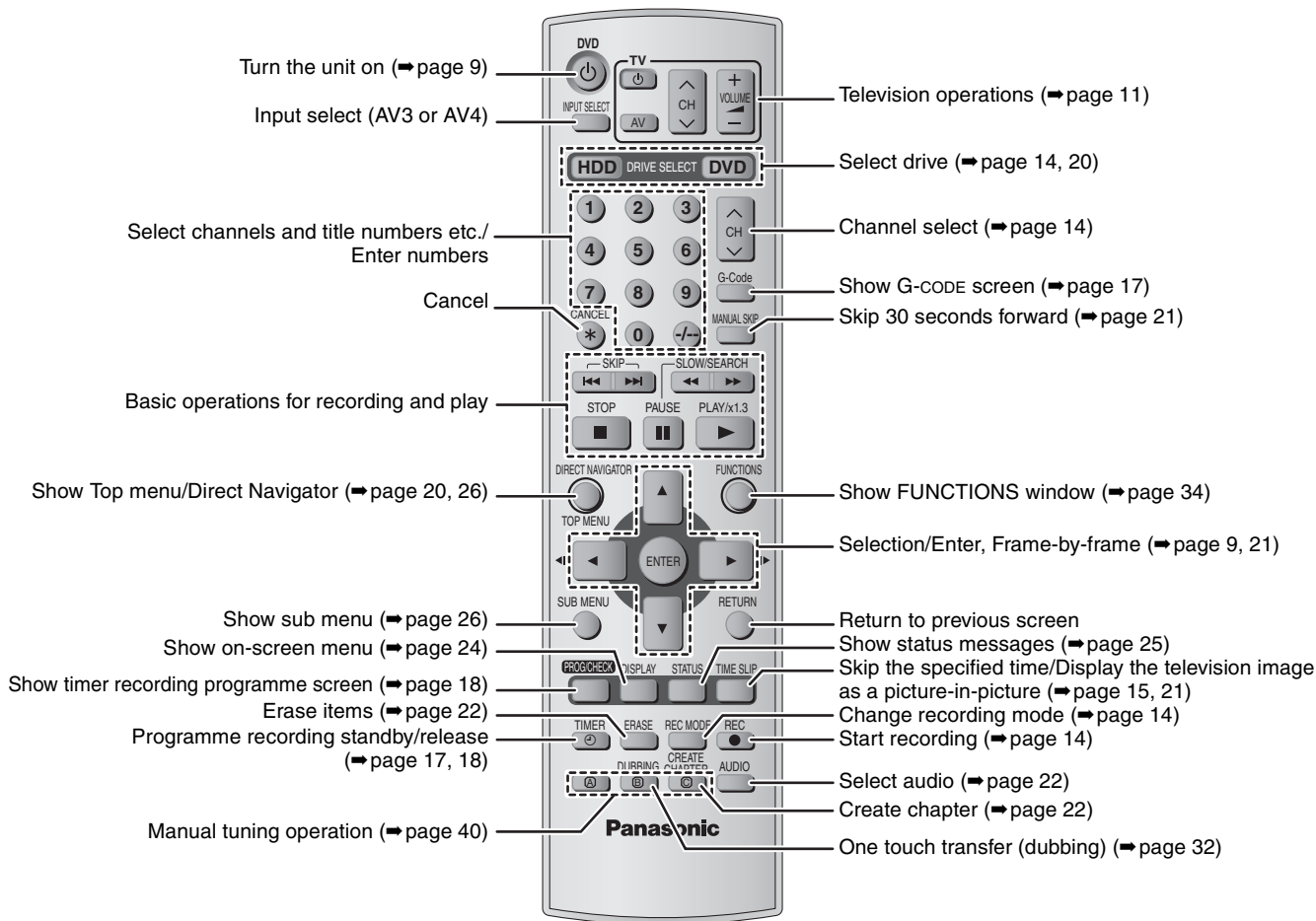


The manufacturer accepts no responsibility and offers no compensation for loss of recorded or edited material due to a problem with the unit or recordable media, and accepts no responsibility and offers no compensation for any subsequent damage caused by such loss.

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.

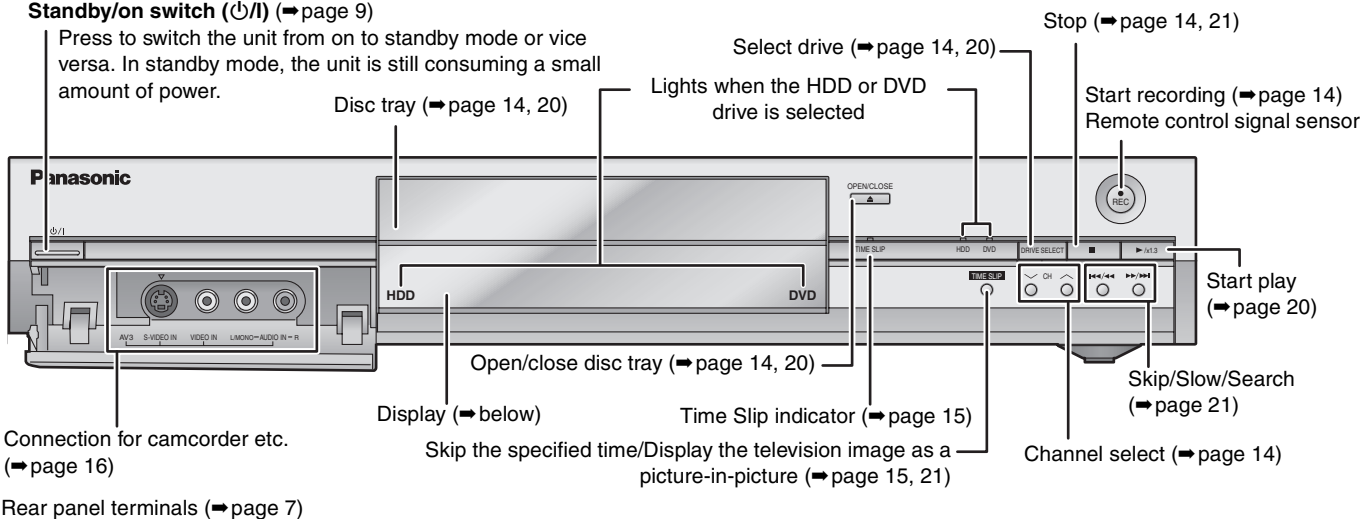
Remote control



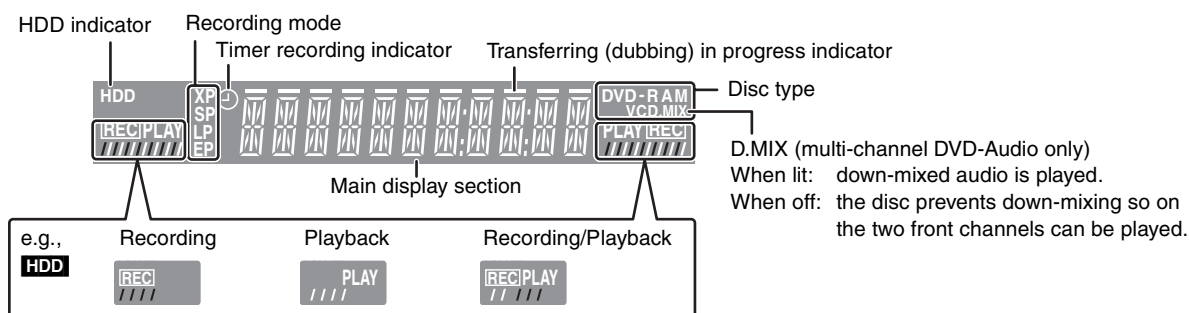
Main unit

Standby/on switch (⏻/⏻) (⇒ page 9)

Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.



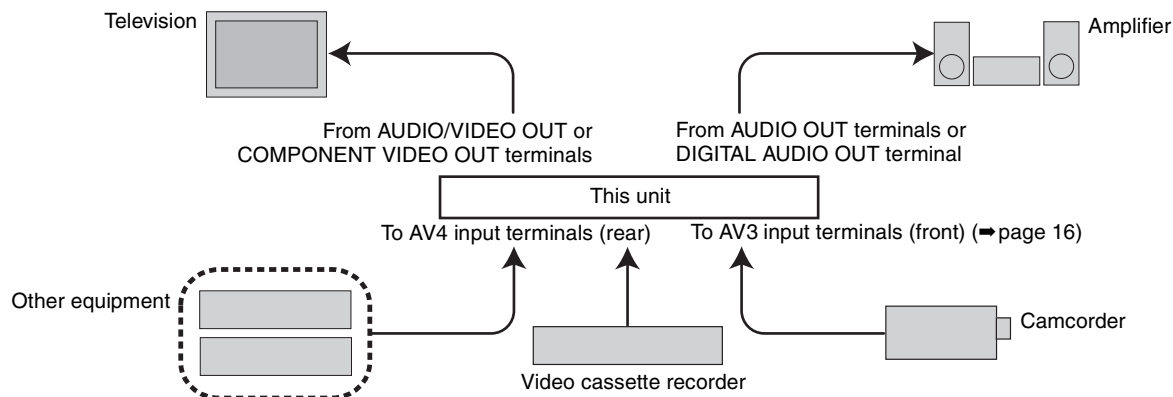
The unit's display



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.

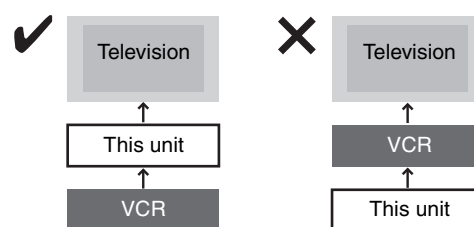
■ Examples of equipment you can connect to this unit's terminals



■ 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.



■ When the unit is not to be used for a long time

To save power, unplug it from the household mains socket. This unit consumes a small amount of power, even when it is turned off (approx. 3 W).

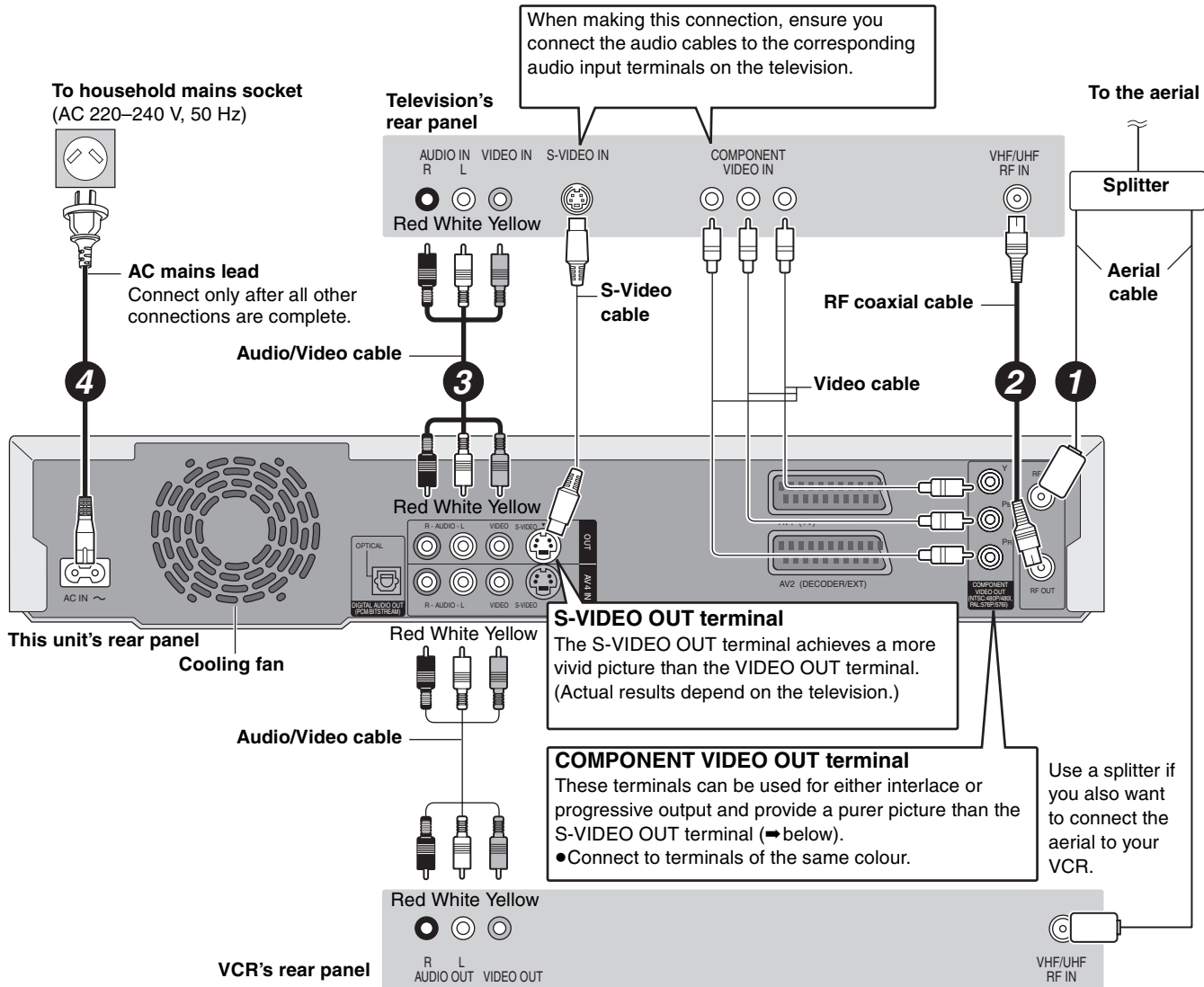
Before moving the unit, ensure the disc tray is empty.
Failure to do so will risk severely damaging the disc and the unit.

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

— indicates included accessories.

— indicates accessories not included.

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



■ 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 44).

For progressive output (→ page 10)

■ Connecting to a television with 21-pin Scart terminal

You can also connect with the AV1 terminal on this unit using the 21-pin Scart cable.

If your television is equipped with RGB input capability, by connecting with a fully wired 21-pin Scart cable you can see video using RGB output on this unit.

To output in RGB select "RGB (without component)" from "AV1 Output" in the SETUP menu (→ page 39).

RGB 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.

■ Connecting to a VCR with 21-pin Scart terminal

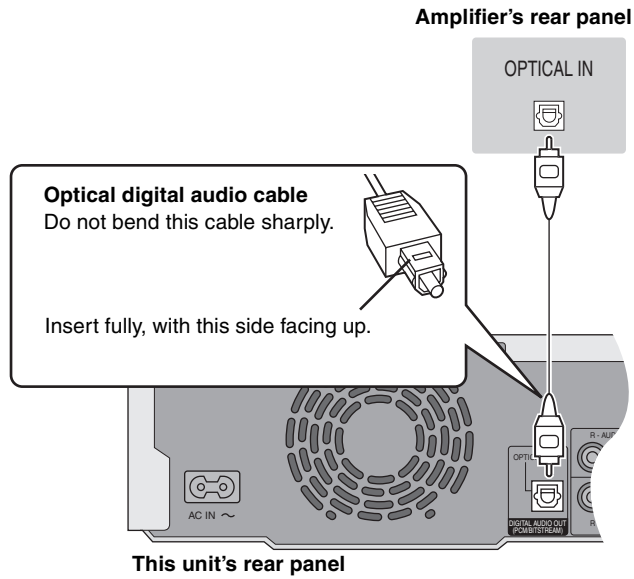
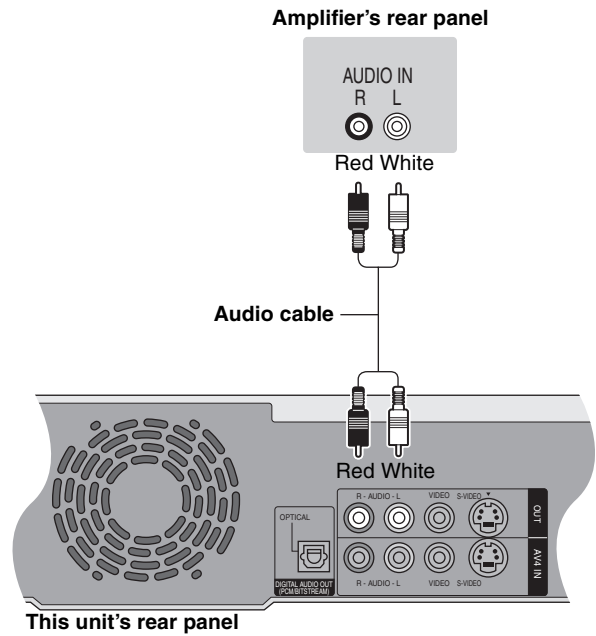
You can also connect with the AV2 terminal on this unit using the 21-pin Scart cable.

To input in RGB select "RGB (Not NTSC)" from "AV2 Input" in the SETUP menu (→ page 39).

STEP 1 Connection**Connecting an amplifier or system component****■ To enjoy multi-channel surround sound on DVD-Video**

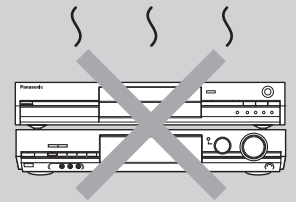
Connect an amplifier with Dolby Digital, DTS and MPEG decoders using an optical digital audio cable and change the settings in "Digital Audio Output" (➔ page 38).

- 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.

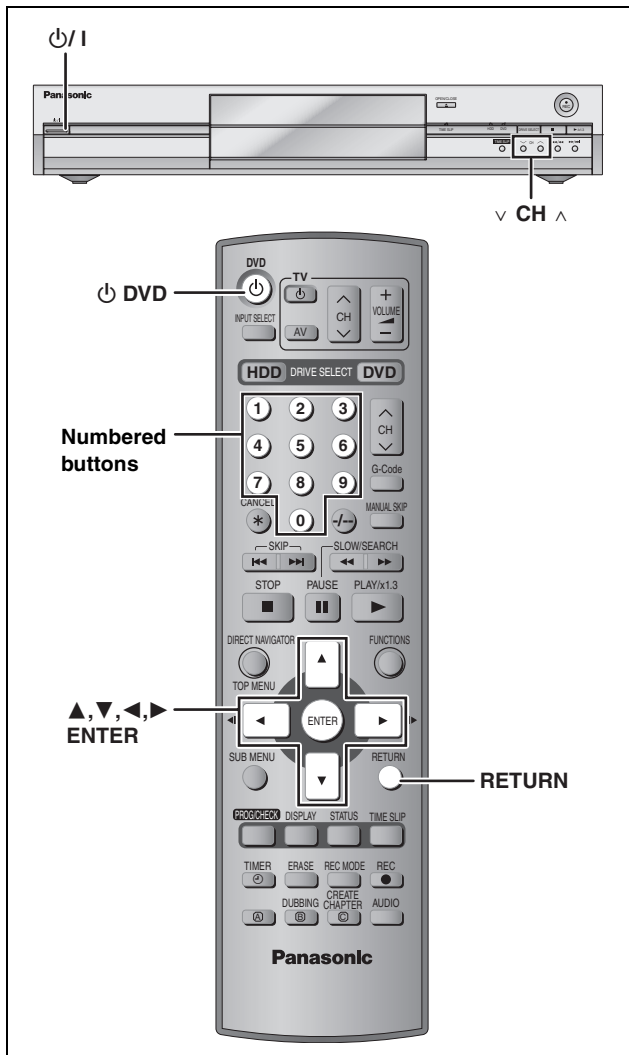
**■ Connection to a stereo amplifier**

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

The heat can damage the unit.



STEP 2 TV Tuning



Auto-Setup

When connecting to a television with the corresponding terminal (⇒ page 7). This unit's Auto-Setup function automatically tunes all available TV stations.

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

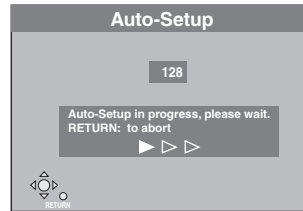
2 Press [DVD] to turn the unit on.

The country setting menu appears on the television.

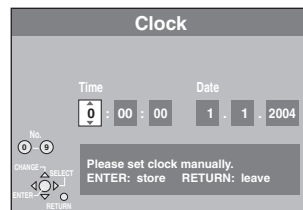


3 Press [▲, ▼] to select the country and press [ENTER].

Auto-Setup starts. This takes about 5 minutes.



Auto-Setup is complete when you see the clock setting menu.



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

This is a 24-hour clock.

The items change as follows:

Hour ↔ Minute ↔ Second ↔ Day ↔ Month ↔ Year

Reset the clock regularly to maintain accuracy (⇒ page 42). (Monthly accuracy +/- 15 seconds.)

5 Press [▲, ▼] to change the setting.

You can also use the numbered buttons for setting.

6 Press [ENTER] when you have finished the settings.

The clock starts and the television displays the channel being received.

To stop partway

Press [RETURN].

■ To confirm that stations have been tuned correctly (⇒ page 40)

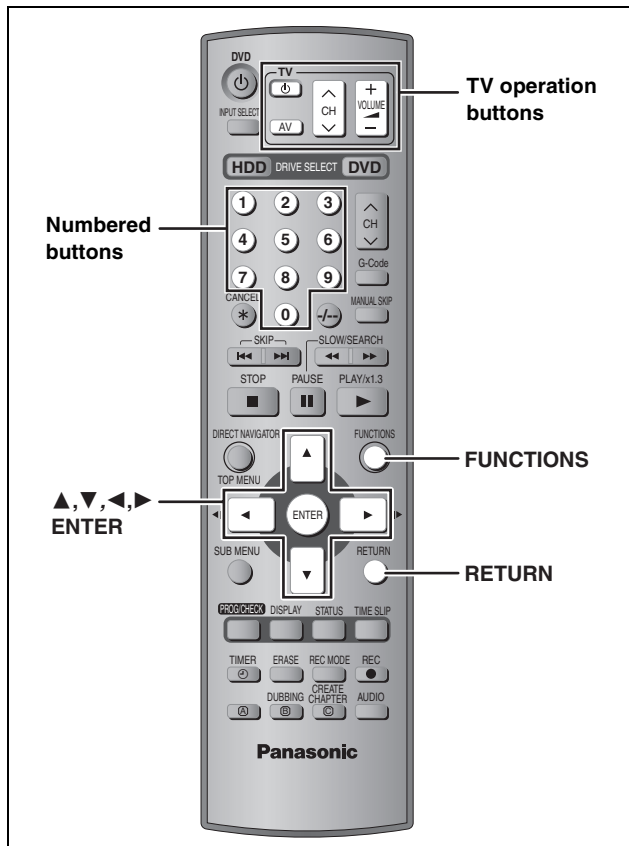
■ To restart Auto-Setup (⇒ page 41)

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

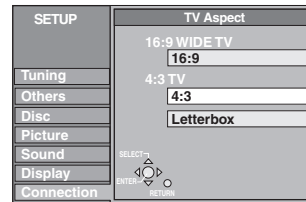
Press and hold [V CH] and [CH ^] on the main unit until the Auto-Setup screen appears.

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

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 aspect television
- **HDD RAM**: Titles are recorded as they appear on screen.
- **DVD-V**: Video recorded for a widescreen is played as Pan & Scan (unless prohibited by the producer of the disc) (⇒ page 44).
- **Letterbox**: 4:3 aspect television
Widescreen picture is shown in the letterbox style (⇒ page 44).

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 44).

- 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) or a multi system television using PAL mode, even if it is progressive compatible, progressive output can cause some flickering. Turn off “Progressive” if this occurs (⇒ page 25).
- 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 39).
- 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.

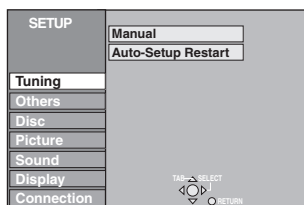
Selecting television type and aspect

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/National	01, 02, 03, 04
GOLDSTAR/LG	15, 16
HITACHI	08
JVC	07
mitsubishi	09, 10
NEC	13
PHILIPS	12
SAMSUNG	12, 17, 18
SANYO	14, 19
SHARP	11
SONY	05
TOSHIBA	06

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

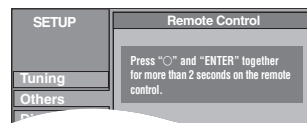
- If your television brand is not listed or if the code listed for your television does not allow control of your television, this remote control is not compatible with your television.

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 To change the code on the remote control**
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).

HDD and discs you can use for recording and play

Type	Logo	Instructions
Hard disk drive (HDD) ●80 GB Indicated in these instructions with HDD	—	Temporary storage <ul style="list-style-type: none"> You can record up to 142 hours [in EP (8 Hour) mode] (⇒ page 15, Recording modes and approximate recording times). You can perform chasing playback or Time Slip (⇒ page 15). You can record digital broadcasts that allow “One time only recording”. You can transfer (dub) a recorded title to a CPRM compatible DVD-RAM, however the title is erased from the HDD (⇒ page 44).
DVD-RAM ●4.7 GB/9.4 GB, 12 cm ●2.8 GB, 8 cm RAM		Re-writable discs for backup use <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 15, Recording modes and approximate recording times). You can perform chasing playback or Time Slip (⇒ page 15). 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 44). You cannot transfer (dub) a recorded title. This unit is compatible with 1×–3× recording speed discs. You can transfer (dub) up to 24× recording speed by using a high speed recording compatible disc (⇒ page 31).
DVD-R ●4.7 GB, 12 cm ●1.4 GB, 8 cm DVD-R		One time recording discs for backup use (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, 44). You cannot record digital broadcasts that allow “One time only recording”. This unit is compatible with 1×–4× recording speed discs. You can transfer (dub) up to 32× recording speed by using a high speed recording compatible disc (⇒ page 31).

- 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. (However, both types of programmes can be recorded onto the HDD.) Play of discs recorded with both PAL and NTSC on another unit is not guaranteed.

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

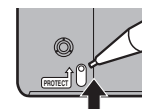
- ※1 You can erase, enter name and change thumbnail. Available space does not increase after erasing.
- ※2 Only on DVD-RAM compatible players.
- ※3 After finalizing the disc (⇒ page 35, 44).
- ※4 Only one is recorded (⇒ page 38, Bilingual Audio Selection).
- ※5 CPRM (⇒ page 44) compatible discs only.
- ※6 The picture is recorded in 4:3 aspect.

Note





When “DVD-R Rec for High Speed mode” is set to “On” the restrictions on secondary audio recording etc. are also applied to DVD-RAM. Turn this setting “Off” if high speed transfer (dubbing) to DVD-R is not necessary when recording a programme (⇒ page 37).

■ 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 23)

- 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 44, Finalize)
 - DVD-Video with a region number other than “4” 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. | | |

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

When you use the discs recorded either PAL or NTSC, or playback a title recorded on HDD using PAL or NTSC, refer to this table.

(√: Possible, X: Impossible)

TV type	Disc/Titles recorded on HDD	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 41), the picture may be clearer.

*2 Select "NTSC" in "TV System" (⇒ page 41).

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

• When playing back a title recorded on the HDD, ensure that you match the "TV System" setting to the title (⇒ page 41).

Accessory discs

DVD-RAM

9.4 GB, double-sided, type 4 cartridge: LM-AD240LE
 4.7 GB, single-sided, type 2 cartridge: LM-AB120LE
 4.7 GB, single-sided, non-cartridge: LM-AF120LE

DVD-R

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

HDD (Hard disk drive) handling care

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

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

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

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

■ The HDD is a temporary storage device

The HDD is not an everlasting storage device for recorded content. Use the HDD as a temporary storage place for viewing once, editing, or for saving to a DVD disc.

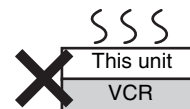
■ Immediately save (backup) all content as soon as you feel there may be problem with the HDD

If there is an irregularity within the HDD, strange sounds or problems with picture (block noise etc.) may result. Using the HDD in this condition may worsen the problem and in the worst case the HDD may no longer become usable. As soon as you notice this type of problem, save all content to the DVD disc.

Recorded content (Data) on a HDD that has become unusable is unrecoverable.

■ Setup precautions

- Do not place in an enclosed area so the rear cooling fan and the cooling vents on the side are covered up.
- Place the unit on a surface that is flat and not subject to vibration or impact.
- Do not place on anything that generates heat like a video cassette recorder etc.



- Do not place in an area often subject to temperature changes.
- Place in an area where condensation does not occur. Condensation is a phenomenon where moisture forms on a cold surface when there is an extreme change in temperature. Condensation may cause internal damage to the unit.

■ Conditions where condensation may occur

–When there is an extreme change in temperature (moving from a very hot location to a very cold location, or vice versa, or when subjected to an air conditioner or when cooled air directly impacts the unit.) When the HDD (warms during operation) is subjected to cold air, condensation may form on the inside of the HDD and may cause damage to the HDD heads etc.

–When there is high humidity or a lot of steam in the room.

–During the rainy season.

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

■ Cigarette smoke etc. causes malfunction or breakdown

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

■ While operating

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

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

■ When moving the unit

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

■ HDD recording time remaining

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

If the remaining amount time is insufficient, erase any unwanted titles to create enough space before you start recording. (Erasing a play list will not increase the amount of time.)

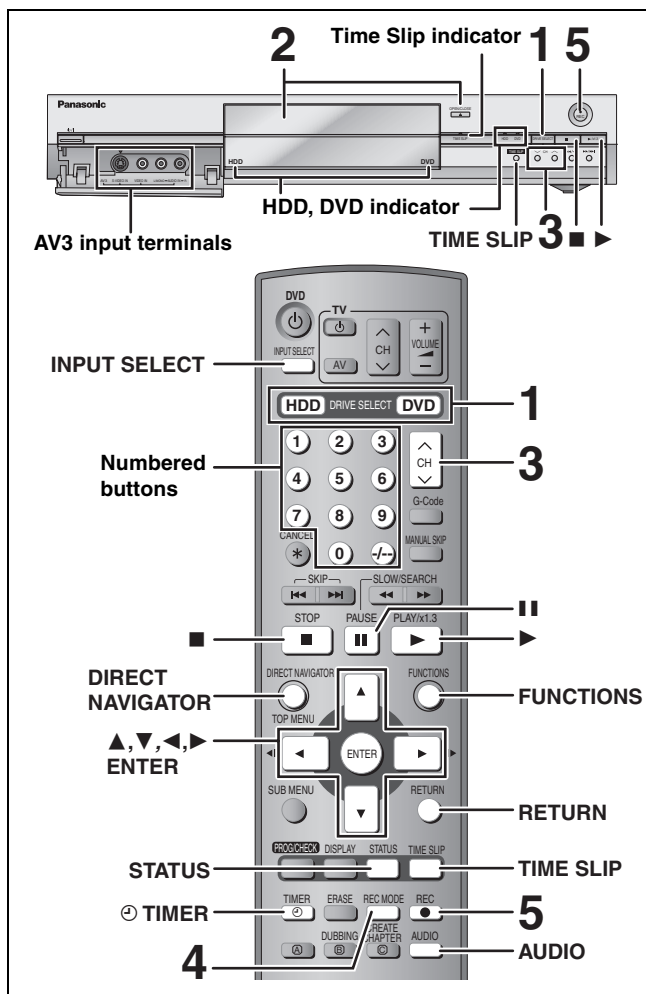
■ When "HDD SLP (SLEEP)" appears in the display

The HDD has automatically gone into SLEEP mode in order to extend the life of the HDD.

- Press [HDD] to activate.
- While in SLEEP mode play or recording may not begin right away because the HDD takes time to be re-activated.
- If there is no disc in the unit, the HDD will go into SLEEP mode after there has been no operation for 30 minutes or longer. When not using the unit, we recommend removing the disc.

■ Indemnity concerning recorded content

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



HDD RAM DVD-R

- It is not possible to record to both HDD (Hard disk drive) and DVD drive simultaneously.
- 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 500 titles on HDD, 99 titles on one disc.
- It is not possible to record CPRM (⇒ page 44) protected material onto DVD-R or 2.8 GB DVD-RAM discs.

Regarding DVD-R

- When transferring (dubbing) a title recorded with the high speed mode to a DVD-R, set “DVD-R Rec for High Speed mode” to “On” before recording to the HDD. (⇒ page 37)
- 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 38).
- In order to play a DVD-R recorded using this unit on another playback source, the disc must first be finalized (⇒ page 35).

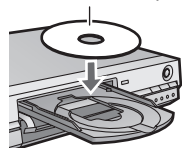
1 Press [HDD] or [DVD] to select the recording drive.

The HDD or DVD indicator lights up on the unit.

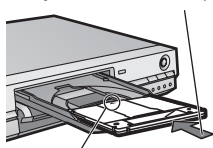
2 If you selected the DVD drive

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

- Press the button again to close the tray.
- If you put a disc in while the HDD is selected, the DVD indicator on the unit will flash while the unit reads the disc.



Insert label-up.



Insert fully so it clicks into place.

Insert with the arrow facing in.

3 Press [▲ ▼ CH] to select the channel.



To select with the numbered buttons:

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

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



Remaining time on the disc

- To record sound using LPCM (XP mode only): Set the “Audio Mode for XP Recording” to “LPCM” in the SETUP menu (⇒ page 38).

5 Press [● REC] to start recording.



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

- You cannot change the channel or recording mode during recording.
- **HDD 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.

HDD

When continuously recording for long durations, titles are automatically divided every 8 hours.

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—One Touch 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.) ↓

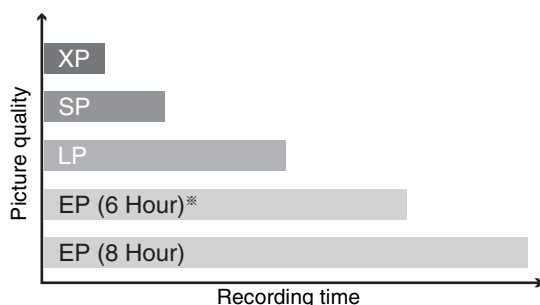
- This does not work during timer recordings (⇒ page 17) or while using Flexible Recording (⇒ page 16).

Recording modes and approximate recording times

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

(Unit: hour)

Mode	HDD (80 GB)	DVD-RAM		DVD-R (4.7 GB)
		Single-sided (4.7 GB)	Double-sided (9.4 GB)	
XP (High quality)	17	1	2	1
SP (Normal)	34	2	4	2
LP (Long play)	68	4	8	4
EP (Extra long play)	142 (106*)	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 remaining disc space with the best possible recording quality.

- You can set when transferring (dubbing) or programming timer recordings.
- When recording to the HDD, picture quality is automatically adjusted to precisely fit a transferred (dubbed) title on a 4.7 GB disc.
- All the recording modes from XP to EP appear in the display.



Playing while you are recording

HDD 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.

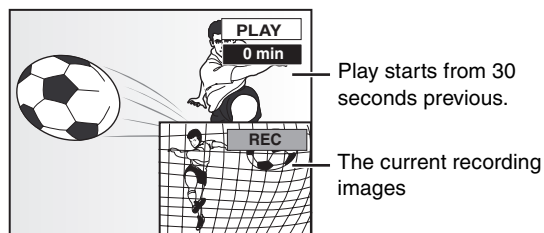
To exit the DIRECT NAVIGATOR screen

Press [DIRECT NAVIGATOR].

Reviewing the recorded images while recording—Time Slip

- 1 Press [TIME SLIP].

Time Slip indicator on the main unit lights.



- 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.

Note

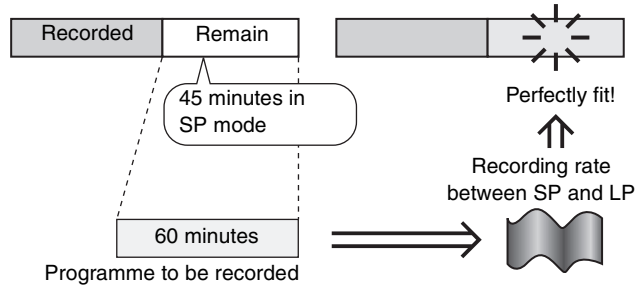
Chasing play can only be used with programmes of the same encoding system (PAL/NTSC).

Refer to the control reference on page 14.

Flexible Recording

HDD RAM DVD-R

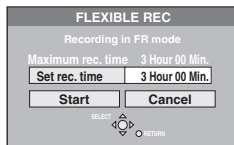
The unit sets the best possible picture quality that fits the recording within the remaining disc space.
e.g.,



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 cannot record more than 8 hours.
 - 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

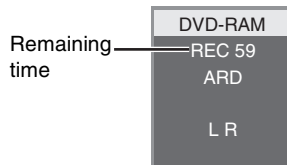
Press **[RETURN]**.

To stop recording partway

Press **[■]**.

To show the remaining time

Press **[STATUS]**.



Recording from an external equipment

HDD RAM DVD-R

Preparation

- Connect a video cassette recorder, etc. to this unit's input terminals.
- When recording bilingual programmes

HDD RAM

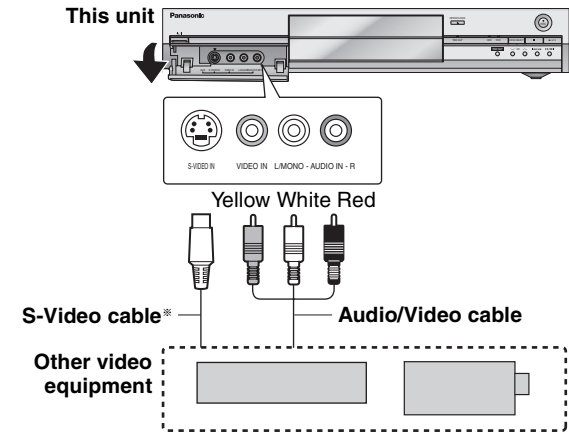
When both M 1 and M 2 is selected on the connected equipment, you can select the audio type in playback.

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 41).
- To reduce noise in input from external equipment, set “AV-in NR” to “On” in the SETUP menu (→ page 37).
- Press **[HDD]** or **[DVD]** to select the recording drive.

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.
e.g., If you have connected to AV3 input terminals, select “A3”.
- 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.
- 4 Press **[● REC]**.
Recording starts.

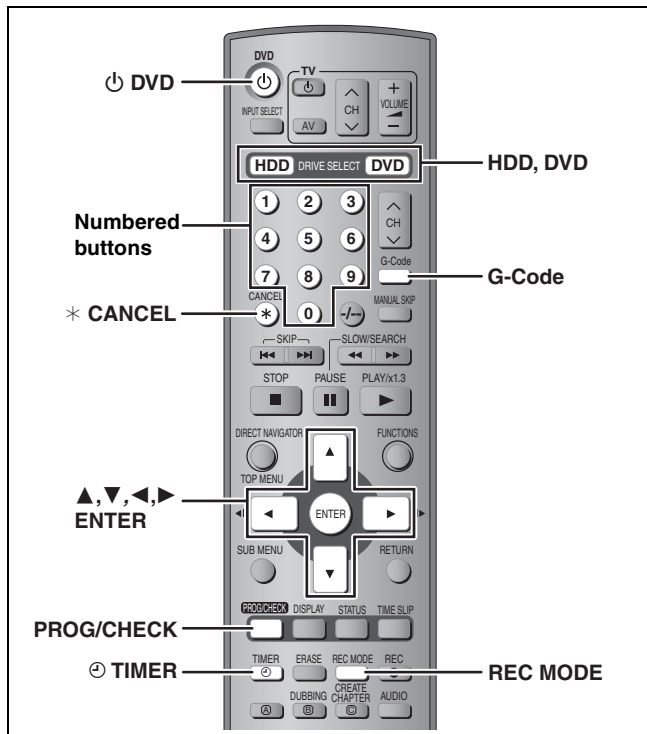
To skip unwanted parts

Press **[■]** to pause recording. (Press again to restart recording.)

To stop recording

Press **[■]**.

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



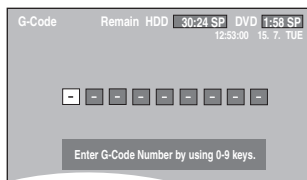
HDD RAM DVD-R

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

Using G-CODE system to make timer recordings

Entering G-CODE numbers is an easy way of timer recording. You can find these numbers in TV listings in newspapers and magazines.

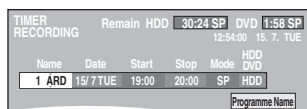
1 Press [G-Code].



2 Press the numbered buttons to enter the G-CODE number.

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

3 Press [ENTER].



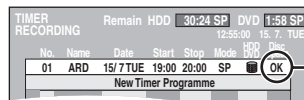
- Confirm the programme and make corrections if necessary using [▲, ▼, ◀, ▶] (⇒ page 18, step 3).
- When "--" appears in the "Name" column, you cannot set timer recording. Press [▲, ▼] to select desired programme position. After you have entered the information of a TV station, it is kept in the unit's memory.
- You can also press [REC MODE] to change the recording mode.
- You can also press [HDD] or [DVD] to select the recording drive.

When the recording drive is "DVD" and there is not enough remaining space, recording automatically switches to the "HDD" (⇒ right, Relief Recording).

- **RENEW (Auto Renewal Recording) HDD** (⇒ page 18) ON ↔ OFF
- **Programme Name**
Press [◀, ▶] to select "Programme Name" and press [ENTER] (⇒ page 30).

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].

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

- The message screen appears. Only play is possible while timer recording is in standby (⇒ page 20, 21). (You cannot play a title recorded using a different encoding system from that of the TV system currently selected on the unit.)
- The unit is not off. To save power, turn the unit off by pressing [⏻ DVD].

Timer standby is active, only playback is possible.

■ To release the unit from recording standby

Press [⊙ TIMER].

"⊙" 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

- Timer recordings are activated regardless of whether the unit is turned on/off.
- Timer recordings begin when the set time is reached even when playing.
- Timer recordings do not begin while editing or transferring (dubbing) in normal speed mode (⇒ page 31).
- "⊙" flashes for about 5 seconds when the unit cannot go to timer recording standby.
- 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 HDD or DVD-RAM and approximately 30 seconds when recording with DVD-R).

■ Relief Recording

When the recording drive is set to "DVD" for timer recording and if the programme will not fit onto the disc, the recording drive will be altered to the "HDD" automatically.

- If there is no disc in the tray or the disc cannot be recorded on or when timer recording starts while transferring (dubbing), the recording drive will be altered to the HDD.
- The Direct Navigator shows which programmes were relief-recorded ("⏪" is displayed.) (⇒ page 20).
- If the time remaining on the HDD is insufficient, as much of the programme as possible will be recorded onto the HDD.

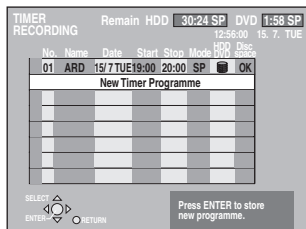
Refer to the control reference on page 17.

HDD RAM DVD-R

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

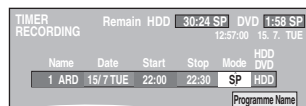
Manually programming timer recordings

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

- You can also press [HDD] or [DVD] to select the recording drive. When the recording drive is “DVD” and there is not enough remaining space, recording automatically switches to the “HDD” (⇒ page 17, Relief Recording).

- **RENEW (Auto Renewal Recording) [HDD]** (⇒ right) ON ↔ OFF

- **Programme Name** (⇒ page 30) 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].

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

- The message screen appears. Only play is possible while timer recording is in standby (⇒ page 20, 21). (You cannot play a title recorded using a different encoding system from that of the TV system currently selected on the unit.)
- The unit is not off. To save power, turn the unit off by pressing [⏻ DVD].

Timer standby is active, only playback is possible.

■ To release the unit from recording standby

Press [⏻ TIMER].

“⏻” 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

- Timer recordings are activated regardless of whether the unit is turned on/off.
- Timer recordings begin when the set time is reached even when playing.
- Timer recordings do not begin while editing or transferring (dubbing) in normal speed mode (⇒ page 31).
- “⏻” flashes for about 5 seconds when the unit cannot go to timer recording standby.
- 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 HDD or DVD-RAM and approximately 30 seconds when recording with DVD-R).

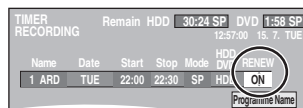
Auto Renewal Recording

HDD

If you record a programme onto HDD repeatedly everyday or every week using timer recording, the unit will record the new programme over the old one.

This function can be used only when weekly recording or daily recording is selected.

- 1 Press [PROG/CHECK].
- 2 Press [▲, ▼] to select the programme and press [ENTER].
- 3 Press [◀, ▶] to select “RENEW” column.
- 4 Press [▲, ▼] to select “ON” and press [ENTER].



Note

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

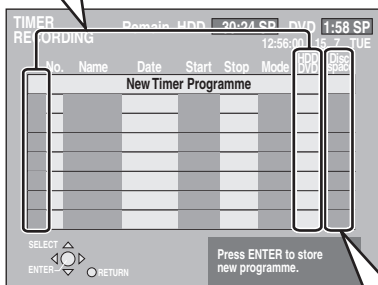
Check, change or delete a programme

- 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.
- ⓐ Timer programmes set to Auto Renewal Recording.
- Titles that have been rerouted to the HDD (Displayed while recording.)
- Ⓜ Recording drive: HDD
- Ⓛ Recording drive: DVD



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:
 - there is not enough space left
 - the number of possible titles has reached its maximum.
- Relief:** Timer programmes that will be relief recorded to the HDD.

■ To change a programme

Press [▲, ▼] to select the programme and press [ENTER].
(→ page 18, step 3)

■ To delete a programme

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

■ To exit the timer recording list

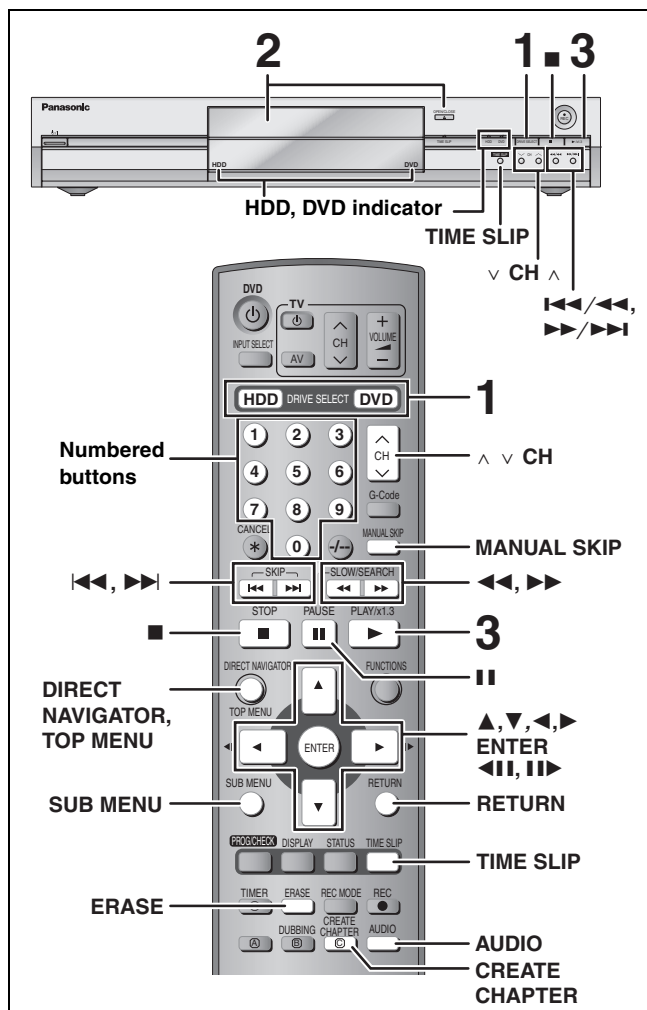
Press [PROG/CHECK].

■ To put the unit on timer recording standby

Press [⊖ TIMER].

“⊖” 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.



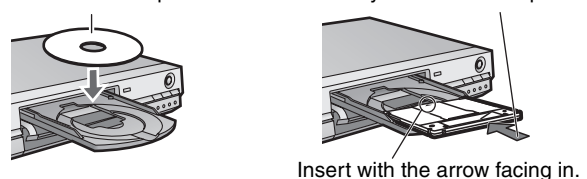
- It is possible to watch playback from one drive while recording from another (editing is not possible).
- It is not possible to play continuously from one side of a double sided disc to the other. You will need to eject the disc and turn it over.
- When using 8 cm DVD-RAM, remove the disc from the cartridge.
- When playing back a title recorded on the HDD, ensure that you match the "TV System" setting to the title (→ page 41).

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

The HDD or DVD indicator lights up on the unit.

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

- Press the button again to close the tray.
- If you put a disc in while the HDD is selected, the DVD indicator on the unit will flash while the unit reads the disc.



3 Press [▶] (PLAY).

HDD | RAM | DVD-R

Play starts from the most recently recorded title.

DVD-A | DVD-V | VCD | CD

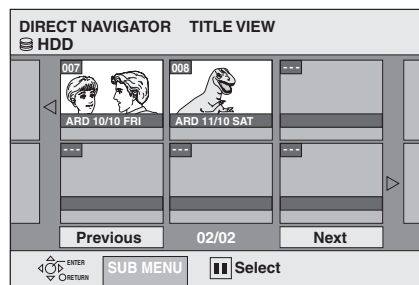
Play starts from the beginning of the disc.



■ Selecting recorded programmes (titles) to play

HDD | 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., **HDD** 5: [0] → [0] → [5] 15: [0] → [1] → [5] 115: [1] → [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 [When transferring (dubbing) a title to the HDD, or when data is damaged etc.]
- Currently recording.
- Titles that have been rerouted to the HDD (→ page 17, Relief Recording)
- Title with "One time only recording" restriction
- (NTSC) Title recorded using a different encoding system from that of the TV system currently selected on the unit.
- (PAL) Title recorded using a different encoding system from that of the TV system currently selected on the unit.
 - Alter the "TV System" setting on this unit to suit (→ page 41).

Direct Navigator appearance

Two types of appearance are available, "Thumbnail Display" and "Table Display".

- Switching the appearance
 - 1 Press [SUB MENU] while Thumbnail Display is displayed.
 - 2 Press [▲, ▼] to select "Table Display" and press [ENTER].

■ 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]



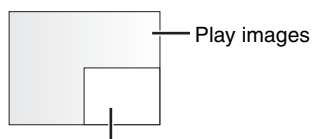
• To return to the menu screen

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 38, "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] HDD 5: [0] ⇒ [0] ⇒ [5] 15: [1] ⇒ [5] CD (MP3 discs only) 15: [0] ⇒ [1] ⇒ [5]</p> <p>DVD-A Selecting groups While stopped (screen saver is displayed on the television ⇒ right) 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 HDD 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 38).
<p>Slow-motion HDD 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 HDD 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>Skipping the specified time (Time Slip)</p> <p>HDD RAM DVD-R</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. • Time Slip does not work when the unit's "TV System" settings are different from the title recorded on the disc. • The grey background does not appear on the receiving screen even if you select "On" from the "Grey Background" in the SETUP menu (⇒ page 38).  <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>Note Time Slip does not work while timer recording is in standby.</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>Manual Skip HDD RAM DVD-R Play restarts from approximately 30 seconds later.</p>	<p>Press [MANUAL SKIP].</p>

Refer to the control reference on page 20.

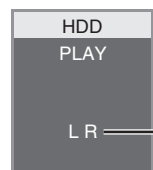
Editing operations during play

<p>Erase HDD RAM DVD-R</p>	<p>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 while recording or transferring (dubbing).</p>
<p>Create Chapter HDD RAM</p>	<p>Press [CREATE CHAPTER]. ● Press [◀◀, ▶▶] to skip to the start of a chapter. ● You cannot divide while recording or transferring (dubbing).</p>

Changing audio

Press [AUDIO].

HDD RAM VCD
 LR → L → R
 ↑



e.g., “L R” is selected

DVD-A DVD-V

You can change the audio channel number each time you press the buttons. This allows you to change things like the soundtrack language (⇒ page 24, Soundtrack).



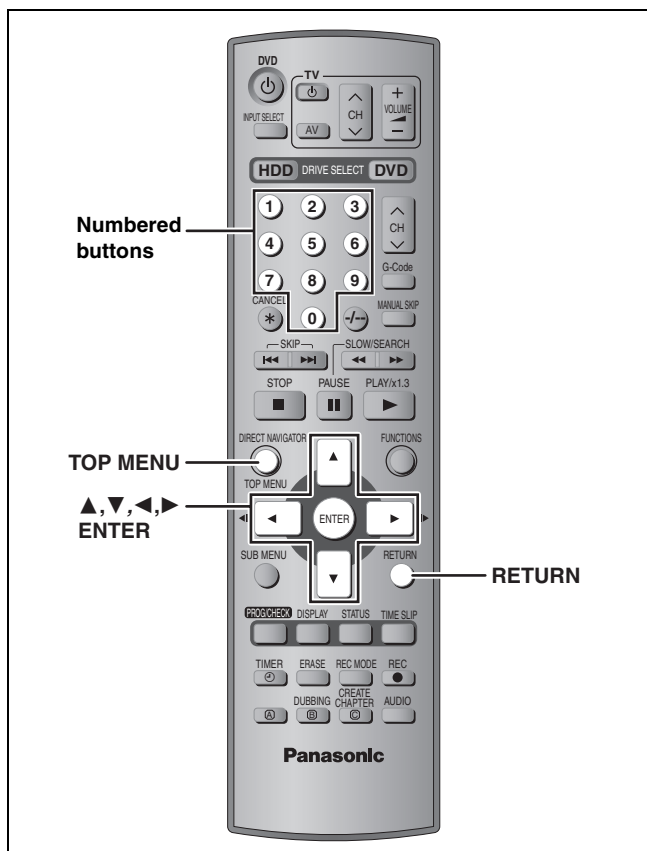
e.g., English is selected.

Note

You cannot change the audio type in the following cases.

- When a DVD-R disc is in the disc tray while DVD drive is selected.
- When the recording mode is XP and “Audio Mode for XP Recording” is set to “LPCM” (⇒ page 38).
- When “DVD-R Rec for High Speed mode” is set to “On” (⇒ page 37).

Using menus to play MP3

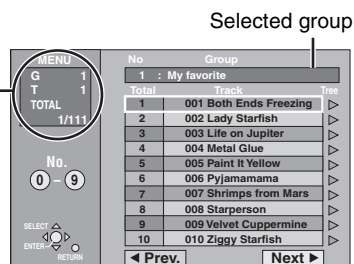


CD (MP3 discs only)

This unit plays MP3 files recorded on CD-R/RW designed for audio recording that are finalized (→ page 44) 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

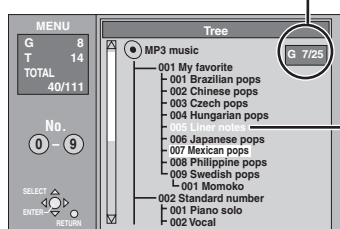
Press [TOP MENU].

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.



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

The file list for the group appears.

To return to the file list

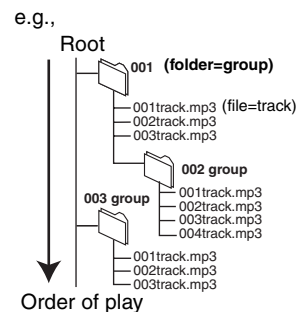
Press [RETURN].

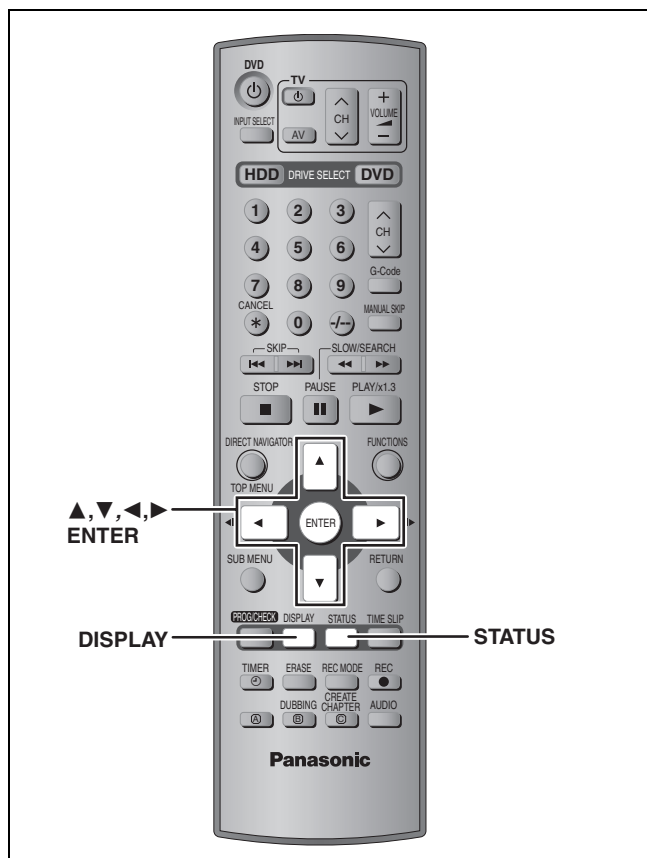
Tips for making MP3 discs

- 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.





On-screen menus

1 Press [DISPLAY].

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

HDD RAM DVD-R

The disc's audio attributes appear.

DVD-A DVD-V

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

Subtitle*

HDD RAM DVD-R

(Only discs that contain subtitle on/off information)

DVD-A DVD-V

Turn the subtitle on/off and select the language (⇒ below, Language).

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

Audio channel **HDD RAM VCD**

⇒ page 22, 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 44) **VCD**

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

* You may have to use the menus (⇒ page 20) 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 **HDD** **RAM** **DVD-R** **DVD-V**
- Group **DVD-A** **CD** (MP3 discs only)
- PL (Play list) **HDD** **RAM**
- Title **HDD** **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 44)

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

Transfer* [When "Progressive" (➡ above) is set to "ON".]

Select the method of conversion for progressive output to suit the type of material being played (➡ page 44, 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 appropriately converts it.
- **Auto2:** Compatible with 30 frame-per-second film content in addition to 24 frame-per-second film content. (Picture distortion may occur depending on the 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 10).

Sound menu—Change the sound effect

V.S.S. **HDD** **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.

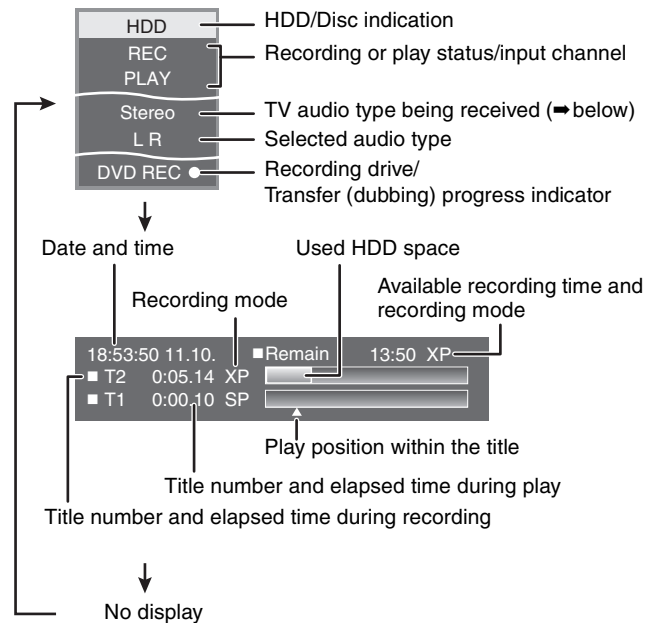
Status messages

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

Press [STATUS].

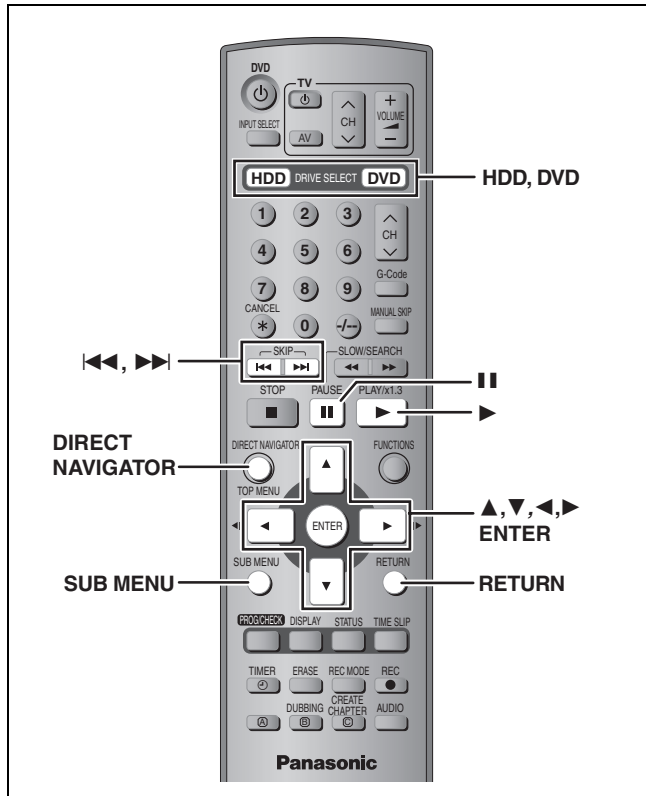
The display changes each time you press the button.

- Displayed information are examples.



• TV audio type

- Stereo:** STEREO/NICAM stereo broadcast
- M 1/M 2:** Bilingual/NICAM dual-sound broadcast
- M 1:** NICAM monaural broadcast



HDD RAM DVD-R

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

You can divide a title into multiple chapters. **HDD RAM**
(⇒ page 22, 27, "Create Chapter")

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

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

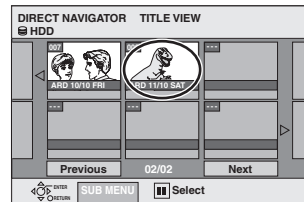
- The maximum number of items on a disc:
HDD
–Titles: 500
–Chapters: Approx. 1000 per title
(Depends on the state of recording.)

- RAM DVD-R**
–Titles: 99
–Chapters: Approx. 1000
(Depends on the state of recording.)

- Note**
- Once erased, divided or partially erased, it cannot be restored to its original state. Make certain before proceeding.
 - You cannot edit during recording, chasing play or transferring (dubbing), etc.
 - Restricted recording information remains even after editing (e.g. dividing a title etc.)

Editing titles/chapters and playing chapters

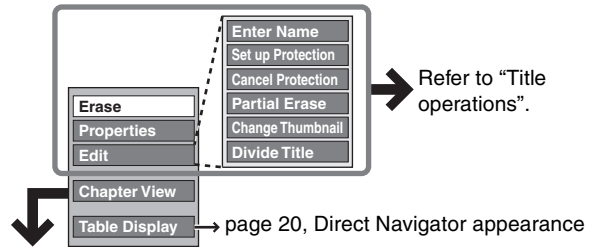
- Preparation**
- Press [HDD] or [DVD] to select the drive.
 - Release protection (cartridge ⇒ page 12, disc ⇒ page 35). **RAM**
- 1 Press [DIRECT NAVIGATOR].
 - 2 Press [▲, ▼, ◀, ▶] to select the title.



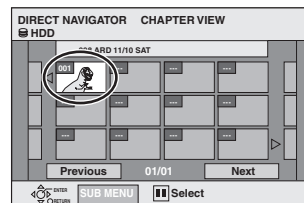
To show other pages
Press [▲, ▼, ◀, ▶] to select "Previous" or "Next" and press [ENTER].
•You can also press [◀◀, ▶▶] to show other pages.

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

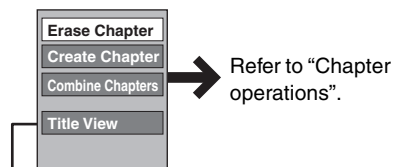
- 3 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].
•If you select "Edit", press [▲, ▼] to select the operation and press [ENTER].



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



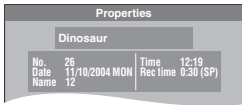
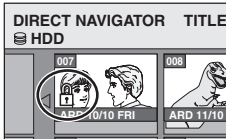
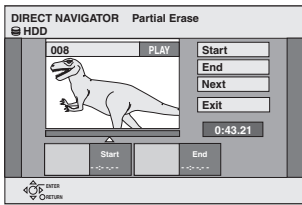
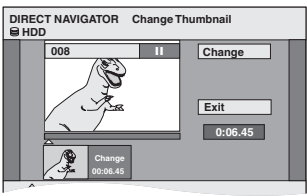
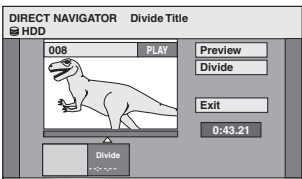
- To show other pages/Multiple editing (⇒ above)
- 5 Press [SUB MENU], then [▲, ▼] to select the operation and press [ENTER].



- You can go back to Title View.


- To exit the screen**
Press [DIRECT NAVIGATOR].
- To return to the previous screen**
Press [RETURN].

Title operations

Erase* HDD 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 HDD RAM DVD-R	<p>Information (e.g., time and date) is shown.</p> 
Enter Name HDD RAM DVD-R	<p>→ page 30, Entering text</p>
Set up Protection* Cancel Protection* HDD 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 HDD RAM	<p>You can remove unnecessary parts of the recording such as commercials.</p> <ol style="list-style-type: none"> Press [ENTER] at the start point and end point of the section you want to erase. Press [▲, ▼] to select “Exit” and press [ENTER]. <ul style="list-style-type: none"> Select “Next” and press [ENTER] to erase other sections. Press [◀, ▶] to select “Erase” and press [ENTER]. 
Change Thumbnail HDD 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"> Press [▶] (PLAY) to start play. Press [ENTER] when the image you want to use as a thumbnail is shown. Press [▲, ▼] to select “Exit” and press [ENTER]. 
Divide Title HDD RAM	<p>You can divide a title into two.</p> <ol style="list-style-type: none"> Press [ENTER] at the point you want to divide the title. Press [▲, ▼] to select “Exit” and press [ENTER]. Press [◀, ▶] to select “Divide” and press [ENTER]. <p>To confirm the division point Press [▲, ▼] to select “Preview” and press [ENTER]. (Play will begin from a point 10 seconds prior to and after the division point.)</p> <p>To change the division point Restart play and press [▲, ▼] to select “Divide”, then press [ENTER] at the point you want to change.</p> <p>Note</p> <ul style="list-style-type: none"> The divided titles retain the title name and CPRM property (→ page 44) of the original title. Video and audio just before and after the dividing point may momentarily cut out. 

* Multiple editing is possible.

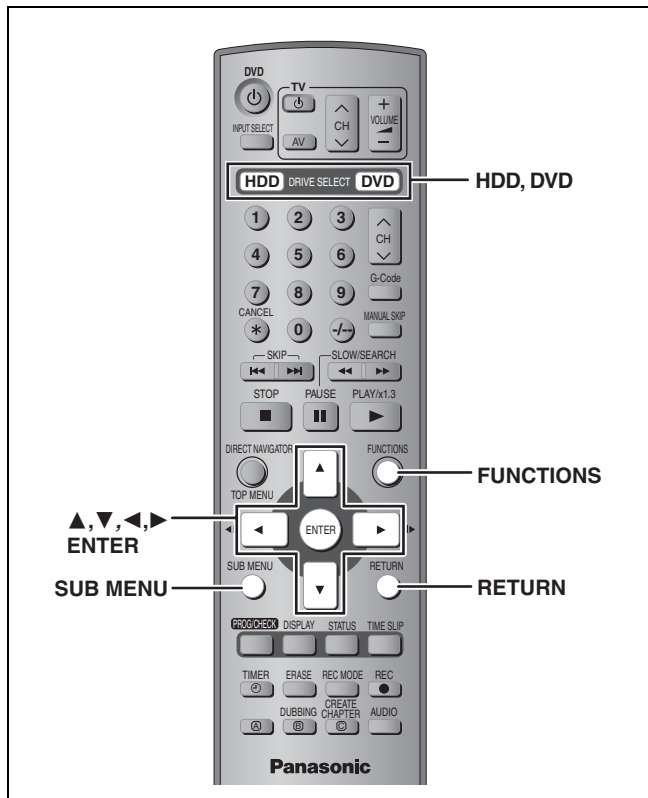
Chapter operations

Erase Chapter* HDD RAM	<p>Press [◀, ▶] to select “Erase” and press [ENTER].</p>
Create Chapter HDD RAM	<ol style="list-style-type: none"> Press [ENTER] at the point you want to divide. <ul style="list-style-type: none"> Repeat this step to divide at other points. Press [▲, ▼] to select “Exit” and press [ENTER]. 
Combine Chapters HDD 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 21) to find the desired point.
- Press [◀◀, ▶▶] to skip to the end of a title.



HDD RAM

You can arrange the chapters (→ page 26) 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: Approx. 1000 (Depends on the state of recording.)

Note

- You cannot create or edit a play list while recording or while transferring (dubbing).
- Play lists must be made in accordance with the encoding system currently selected in "TV System" (→ page 41).

Creating play lists

Preparation

- Press [HDD] or [DVD] to select the drive.
- Release protection (cartridge → page 12, disc → page 35). **RAM**

- 1 While stopped Press [FUNCTIONS].**

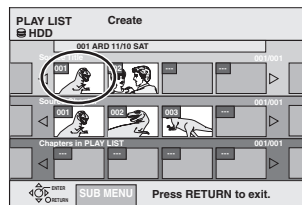


- 2 Press [▲, ▼, ◀, ▶] to select "PLAY LIST" and press [ENTER].**



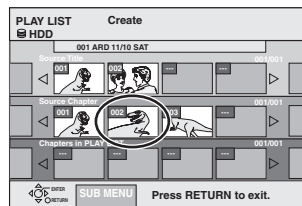
- 3 Press [▲, ▼, ◀, ▶] to select "Create" and press [ENTER].**
- 4 Press [◀, ▶] to select the source title and press [▼].**

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



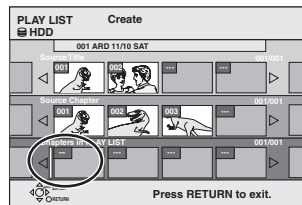
- 5 Press [◀, ▶] to select the chapter you want to add to a play list and press [ENTER].**

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 27, 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.

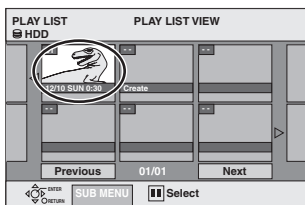
To return to the previous screen

Press [RETURN].

Editing and playing play lists/chapters

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

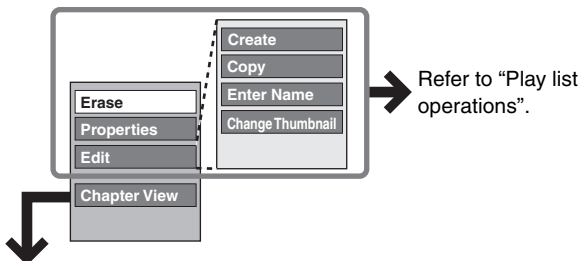
To start play → Press [ENTER].
To edit → Step 4.



• To show other pages/Multiple editing (→ page 26)

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

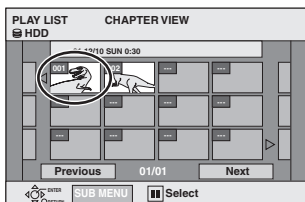
• If you select “Edit”, press [▲, ▼] to select the operation and press [ENTER].



■ If you select “Chapter View”

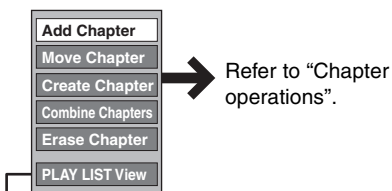
- 5 Press [▲, ▼, ◀, ▶] to select the chapter.

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



• To show other pages/Multiple editing (→ page 26)

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



• You can go back to PLAY LIST View.

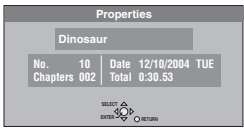
To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

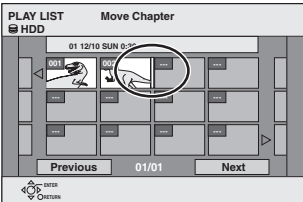
Play list operations

Erase*	Press [◀, ▶] to select “Erase” and press [ENTER].
Properties	Play list information (e.g., time and date) is shown. 
Create	→ page 28, Creating play lists
Copy*	Press [◀, ▶] to select “Copy” and press [ENTER].
Enter Name	→ page 30, Entering text
Change Thumbnail	→ page 27, Change Thumbnail

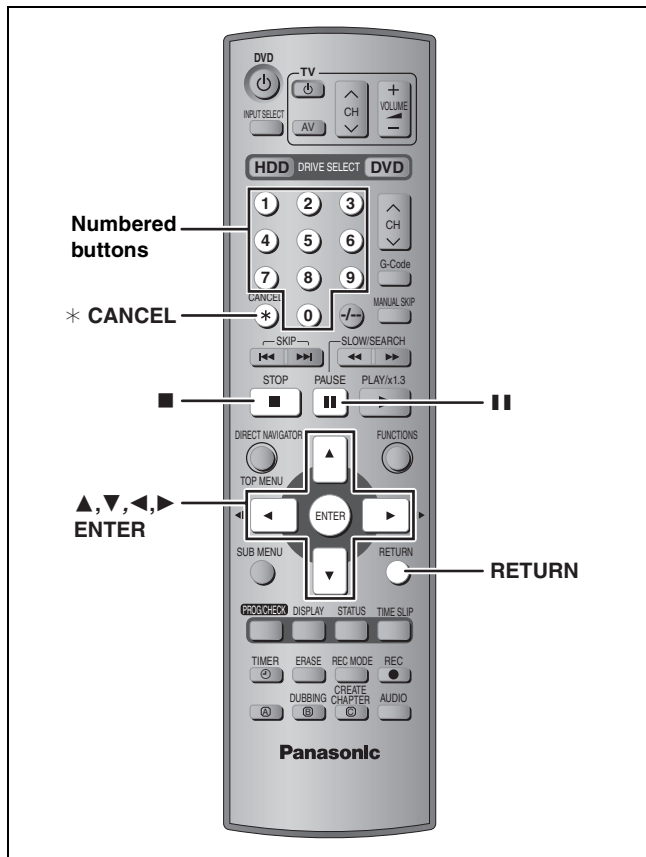
* Multiple editing is possible.

Chapter operations

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

Add Chapter	→ page 28, Creating play lists, Step 4–6
Move Chapter	Press [▲, ▼, ◀, ▶] to select the position to insert the chapter and press [ENTER]. 
Create Chapter	→ page 27, Create Chapter
Combine Chapters	→ page 27, Combine Chapters
Erase Chapter*	→ page 27, Erase Chapter

* Multiple editing is possible.



HDD RAM DVD-R

You can give names to recorded titles, etc.

The maximum number of characters:

HDD 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 17, 18.

Title

Select "Enter Name" in step 3 on page 26.

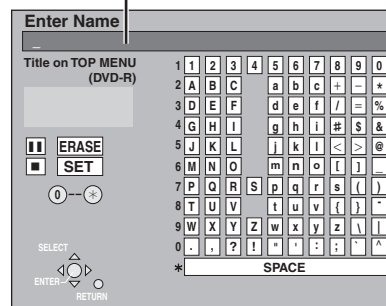
Play list

Select "Enter Name" in step 4 on page 29.

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.

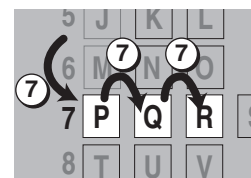
•To erase a character

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

•Using the numbered buttons to enter characters

e.g., entering the letter "R"

- Press [7] to move to the 7th row.
- Press [7] twice to highlight "R".
- 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.

Note

If you enter a long name, only part of it is shown in the Top Menu after finalization (→ page 35). When entering a title name, the name that will appear in the Top Menu can be previewed in "Title on TOP MENU (DVD-R)" window.



Transferring (dubbing) titles or play lists

HDD RAM DVD-R

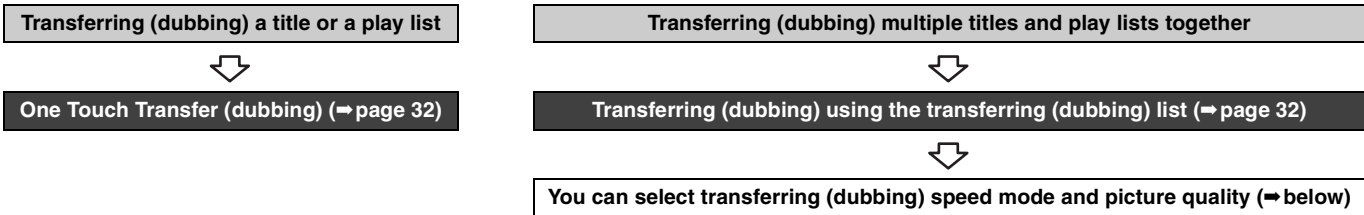
You can select from a variety of methods to transfer (dub) on this unit.

Transferring (dubbing) direction

You can transfer (dub) your favorite titles and play lists to an archive disc. • Transferring (dubbing) a play list will create a title.		When you want to re-edit finalized content on a DVD-R etc.
	<p>• When you want to play a transferred (dubbed) disc on other equipment, you must finalize the disc after transferring (dubbing) (⇒ page 35, 44). * Before recording to HDD, set “DVD-R Rec for High Speed mode” to “On” (⇒ page 37).</p>	<p>* Finalized DVD-R or DVD-Video on sale that is not copy-protected, etc.</p>

Normal speed mode: Select XP, SP, LP, EP or FR as the recording mode for transferring (dubbing) (⇒ page 15).

Transferring (dubbing) mode



Transferring (dubbing) speed mode types and features

	High speed	Normal speed (XP, SP, LP, EP, FR)
Features	You can transfer (dub) in a very short amount of time. You can transfer (dub) even faster if you use a high speed recording compatible disc. You can record and play using the HDD while high speed transferring (dubbing).	You can record for a long period of time on 1 disc. For example, using LP mode, you can record approximately 4 hours on 1 (4.7 GB) disc (⇒ page 15). e.g., 1 hour TV drama Only once using XP mode 4 times using LP mode
Transferring (dubbing) times	⇒ below, Approximate transferring (dubbing) times	The same amount of time it takes to record the source
Picture quality	Original picture quality	Can change*
Are chapters/thumbnails maintained?	Yes	No (One title is recorded as one chapter. Thumbnails return to the default position.)
Other operations while transferring (dubbing)	You can record/play using the HDD.	No

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

Approximate transferring (dubbing) times (Max. speed)

HDD		3× high speed recording compatible DVD-RAM		4× high speed recording compatible DVD-R	
Recording mode	Recording time	Required time	Speed	Required time	Speed
XP	1 hour	Approx. 20 min.	3×	Approx. 15 min.	4×
SP	2 hours		6×		8×
LP	4 hours		12×		16×
EP (6 Hour)	6 hours		18×		24×
EP (8 Hour)	8 hours		24×		32×

Note

- When recording or playing while transferring (dubbing), the unit may not use the maximum recording speed.
- Depending on the condition of the disc, the unit may not transfer (dub) using the maximum speed.

Regarding high speed transfer (dubbing) to DVD-R

To high speed transfer (dub) titles (or play lists created from that title), set “DVD-R Rec for High Speed mode” to “On” before recording to the HDD (⇒ page 37).

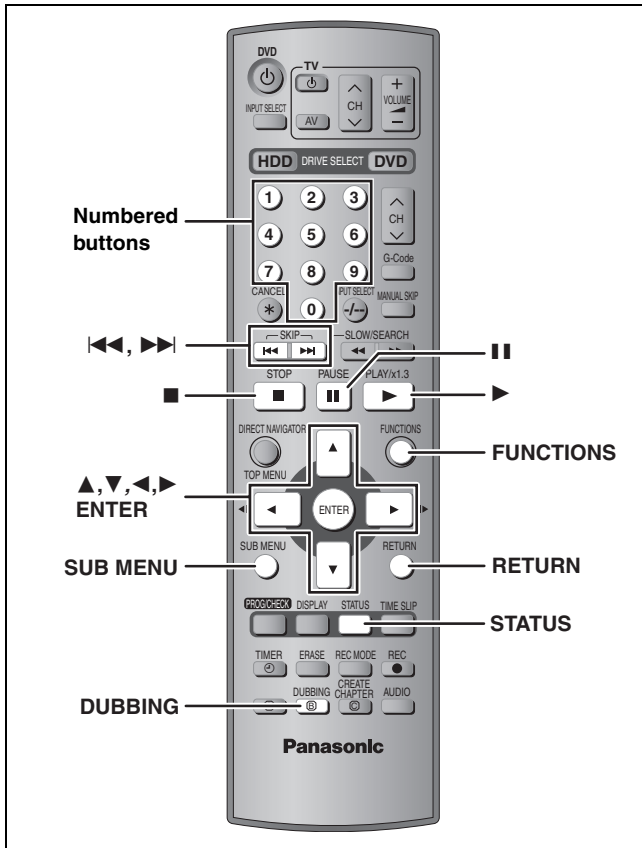
However in the following cases, transferring (dubbing) to DVD-R using the high speed mode does not work.

- Play lists created from titles using a variety of recording modes
- Play lists created from multiple titles using FR recording mode
- Play lists mixed with a variety of audio types (Dolby Digital and LPCM, etc.)
- Titles that contain repeatedly erased segments

Regarding transferring (dubbing) of digital broadcasts that allow “One time only recording”

You can transfer (dub) a recorded title to a CPRM (⇒ page 44) compatible DVD-RAM, however the title is erased from the HDD.

- You cannot use one touch transfer (dubbing). Use the transferring (dubbing) list (⇒ page 32).
- Titles will not be transferred if they are protected (⇒ page 27).
- You cannot transfer play lists created from “One time only recording” titles.
- Titles with recording limitations and play lists cannot be registered on the same transferring (dubbing) list.



Note

Titles and play lists recorded using a different encoding system from the TV system currently selected on the unit cannot be transferred (dubbed).

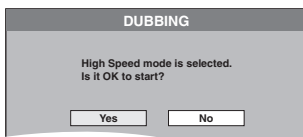
One Touch Transfer (dubbing)

HDD → RAM
HDD → DVD-R

Preparation

Select the audio type for recording bilingual broadcast from “Bilingual Audio Selection” (⇒ page 38) when transferring (dubbing) to a DVD-R.

- 1 Play the title or play list you want to transfer (dub).
- 2 Press [DUBBING].



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

•The recording mode is set as follows.

The recording mode changes to FR mode if the remaining disc space is exceeded using one of the recording modes indicated below.

HDD → RAM: High speed mode
HDD → DVD-R:

DVD-R Rec for High Speed mode setting	
On	Off
High speed mode	Same recording mode used when recording the source title (XP-EP, FR). •Play lists are transferred (dubbed) in FR mode.

Note

Digital broadcast that allow “One time only recording” recorded titles and play lists cannot be transferred (dubbed).

Transferring (dubbing) using the transferring (dubbing) list

HDD ↔ RAM
HDD → DVD-R

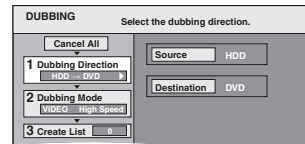
You can order titles and play lists for transfer (dubbing) as desired as well as select the speed and picture quality.

Preparation

Select the audio type for recording bilingual broadcast from “Bilingual Audio Selection” (⇒ page 38) when:

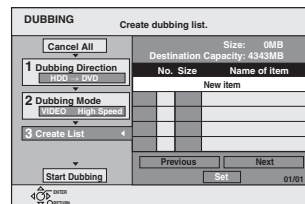
- Transferring (dubbing) to a DVD-R.
- When “Audio Mode for XP Recording” is set to “LPCM” (⇒ page 38) and you are transferring (dubbing) in XP mode.

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



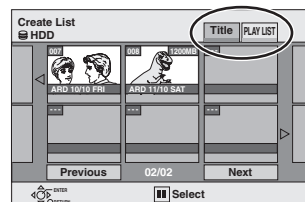
- 3 Press [▲, ▼] to select “Dubbing Direction” and press [▶].
① Press [ENTER].
② Press [▲, ▼] to select the drive and press [ENTER].
③ Press [◀]. Press [ENTER] to confirm.
- 4 Press [▲, ▼] to select “Dubbing Mode” and press [▶].
① Press [ENTER].
② Press [▲, ▼] to select the mode and press [ENTER].
③ Press [◀]. Press [ENTER] to confirm.
- 5 Select the transferring (dubbing) items and register on the list.

If you are not going to change the registered list press [ENTER] (⇒ step 7).



- ① Press [▲, ▼] to select “Create List” and press [▶].
- ② Press [▲, ▼] to select “New item” and press [ENTER].
- ③ Press [▲, ▼, ◀, ▶] to select “Title” or “PLAY LIST” tab and press [ENTER].
- ④ Press [▲, ▼, ◀, ▶] to select the titles or play lists and press [ENTER].

•When transferring (dubbing) to DVD-R using high speed mode, only items indicated with “▶” can be registered.



Repeat step ② – ④ as necessary.

- To erase, add, or move items from the list (⇒ page 33)
- To show other pages/Multiple editing (⇒ page 33)







- 6 Press [▲, ▼] to select “Set” and press [ENTER].

The transferring (dubbing) list is registered.

7 Press [▲, ▼] to select “Start Dubbing” and press [ENTER].

Press [◀, ▶] to select “Yes” and press [ENTER] to start transferring (dubbing).

Transferring (dubbing) list icons

-  Titles and play lists that can be transferred (dubbed) in high speed mode to DVD-R (⇒page 37)
-  Title with “One time only recording” restriction
-  Titles erased from the HDD after transferring (dubbing) by recording restrictions.
-  Title or play list contains still picture(s)
 - Still picture(s) cannot be transferred (dubbed).
-  (NTSC) Title or play list recorded using a different encoding system from that of the TV system currently selected on the unit.
-  (PAL)
 - Titles and play lists displaying these marks cannot be selected.

■ To edit the transferring (dubbing) list

Select the item in step 5 (⇒page 32, right column)

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

* Multiple editing is possible (⇒below).



To cancel all registered transferring (dubbing) setting and lists

In step 3 (⇒page 32, right column)

- 1 Press [▲, ▼] to select “Cancel All” and press [ENTER].
- 2 Press [◀, ▶] to select “Yes” and press [ENTER].

•Transferring (dubbing) lists are also cancelled in the following cases.

- The source title or play list is erased.
- The tray is opened or the unit is turned off when the transferring (dubbing) source is DVD-RAM.

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 [■]. (Repeat.)

Press [ENTER] to register to the list.

- A check mark appears. Press [■] again to cancel.
- When you switch between the “Title” and “PLAY LIST” tab, the check mark is cancelled.

Transferring (dubbing) a finalized DVD-R

DVD-V → HDD

While playing a disc, the content being played is transferred (dubbed) to the HDD according to the set time.

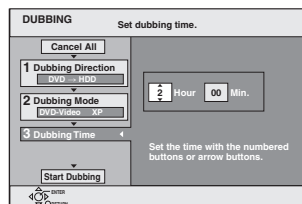
•Operations and on screen displays during transfer (dubbing) are also recorded.

- Almost all DVD-Video on sale have been treated to prevent illegal copying, and cannot be transferred (dubbed).
- The following cannot be transferred (dubbed): DVD-Audio, Video CD, Audio CD and so on.

After performing steps 1–4 (⇒page 32, right column)

5 Press [▲, ▼] to select “Dubbing Time” and press [▶].

6 Press [◀, ▶] to select “Hour” and “Min.” and press [▲, ▼] to set the recording time.



- You can also set the recording time with the numbered buttons.
- Set a few minutes longer than the source title, in order to include the operation time until play begins.

7 Press [◀] to select “Dubbing Time” and press [ENTER].

8 Press [▲, ▼] to select “Start Dubbing” and press [ENTER].

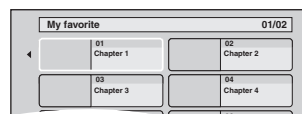
Press [◀, ▶] to select “Yes” and press [ENTER] to start transferring (dubbing).

The disc top menu is displayed.

- Disc play automatically begins from title 1 when “Title 1” is selected from the “Auto-Play Select” menu when finalizing the disc (⇒page 35).

9 When the top menu is displayed

Press [▲, ▼, ◀, ▶] to select the title you want to start transferring (dubbing), and press [ENTER].



While playing in order, all the titles after the selected title are recorded until the set time. (After the last title on the disc has finished playing the top menu is recorded until the set time is reached.)

To end transfer (dubbing) manually

Press [■].

Note

- The screen on the right (screen saver) is recorded at the beginning.
- Recorded as 1 title from the start of transfer (dubbing) to the end.
- If play does not begin automatically or if the top menu does not display automatically, press [▶] (PLAY) to start.
- Even if you transfer (dubbing) a high quality video/audio DVD, the original picture and audio quality cannot be exactly replicated.



■ To stop transferring (dubbing)

Press and hold [RETURN] for 3 seconds.

- If stopped partway, transferring (dubbing) will be up to that point. However, in high speed mode, only titles that have completed transferring (dubbing) at the point stopped are transferred (dubbed). [Even if the title was not transferred (dubbed) to the DVD-R, the amount of remaining writable disc space becomes less.]

■ To return to the previous screen

Press [RETURN].

■ Recording and playing while transferring (dubbing)

You can record and play using the HDD while high speed transferring (dubbing).

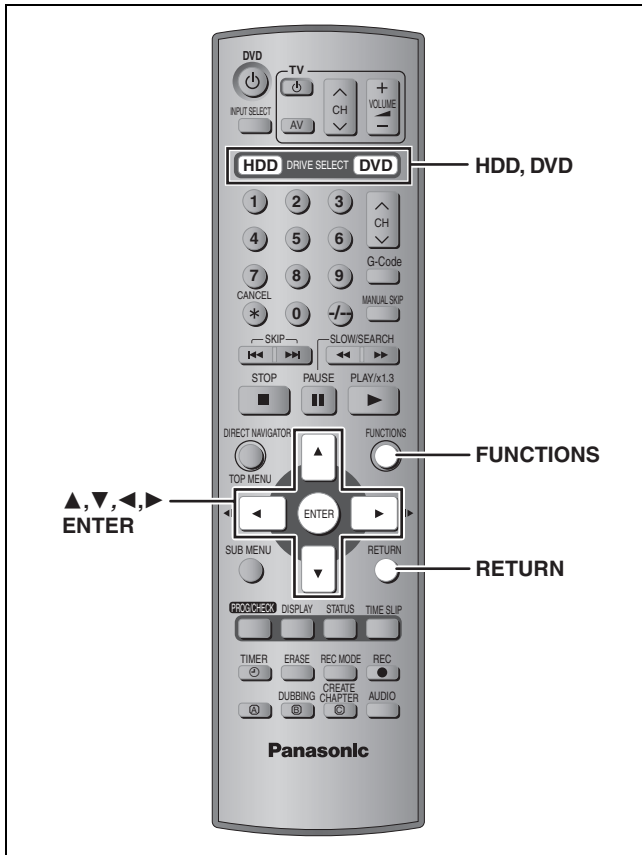
Press [ENTER] to cancel the screen display.

•To confirm the current progress

Press [STATUS].

Note

- You cannot perform chasing play or edit etc. while transferring (dubbing).
- Timer recordings executed while transferring (dubbing) are recorded to the HDD regardless of the recording drive settings.
- You cannot play a play list while transferring (dubbing) titles with “One time only recording” restriction (⇒page 31).



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

Convenient functions

- 1 While stopped
Press [FUNCTIONS].



Functions displayed depend on the type of disc.

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

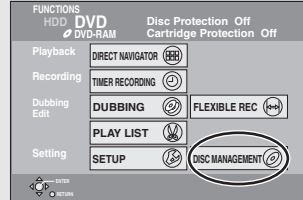
To exit the FUNCTIONS window
Press [FUNCTIONS].

HDD RAM DVD-R

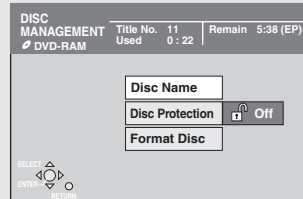
Preparation

- Press [HDD] or [DVD] to select the drive.
- Release protection. **RAM**
(cartridge → page 12, 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

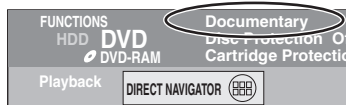
- Once the disc has been formatted, the contents cannot be restored. Check carefully before proceeding. The contents on the disc are erased when you format it even if you have set title or disc protection.
 - After finalizing **DVD-R**
 - The disc becomes play-only and you can no longer record or edit.
 - There is a pause of several seconds between titles.
 - When transferring (dubbing) in high speed, chapters will be replicated.
 - Titles are divided into about 5-minute* chapters, if
 - the titles were directly recorded to DVD-R.
 - the titles were transferred (dubbed) using any mode other than the high speed mode.
- * This time varies greatly depending on the condition and mode of recording.

Disc Name

RAM DVD-R

➔ page 30, Entering text

The disc name is displayed in the FUNCTIONS window.

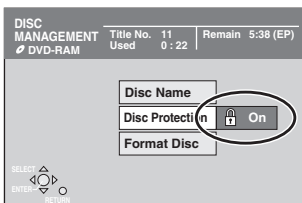


Disc Protection

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 44, Formatting

HDD

Erase the entire contents on the HDD.

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 (RAM).

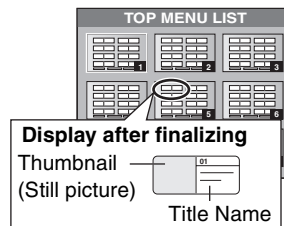
• Formatting cannot be performed on DVD-R or CD-R/RW.

Top Menu

DVD-R

Prior to finalizing, you can select the background that will be displayed as the DVD-Video top menu after finalizing.

- You can change thumbnails displayed in the Top menu.
(➔ page 27, Change Thumbnail)



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

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 44, 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.

- Set “Top Menu” and “Auto-Play Select” (➔ above) before finalizing the disc.

- 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.

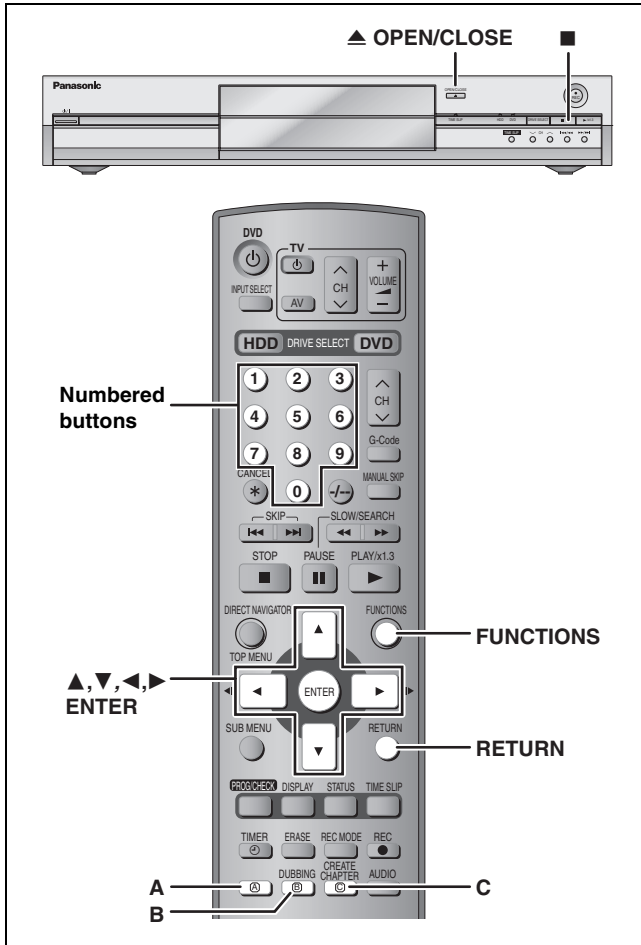
• If you finalize a recorded DVD-R on Panasonic equipment other than this unit, the background selected as “Top Menu” may not display.

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

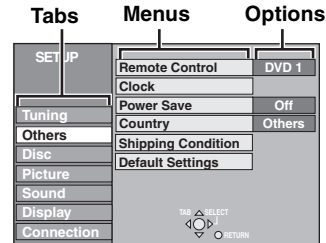
DVD-R finalized on this unit may not be playable on other players due to the condition of the recording.

Changing the unit's settings

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].

Convenient functions

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 40) Auto-Setup Restart (⇒ page 41)	
Others	Remote Control (⇒ page 11) Clock (⇒ page 42) Power Save •Refer to the following when "Power Save" is set to "On". –"FL Display" is automatically set to "Automatic" (⇒ page 38). –This function does not work in the timer recording standby mode. Country (⇒ page 9) Shipping Condition All the settings except for the ratings level, ratings password and time settings return to the factory preset. The timer recording programmes are also cancelled. Default Settings All the settings other than the programmed channels, time settings, disc language settings, ratings level, ratings password and remote control code return to the factory presets.	• <u>DVD 1</u> •DVD 2 •DVD 3 •On: Power consumption is minimized when the unit is turned to standby (⇒ page 43). • <u>Off</u> •Australia •New Zealand • <u>Others</u> •Yes • <u>No</u> •Yes • <u>No</u>

Disc

Language

Choose the language for audio, subtitle and disc menus. **DVD-V**

- Press [ENTER] to show the following settings.
- Some discs start in a certain language despite any changes you make here.
- Enter a code (⇒ page 39) with the numbered buttons when you selecting “Other *****”.

When the selected language is not available on the disc, the default language is played. There are discs where you can only switch the language from the menu screen (⇒ page 20).

Soundtrack

- English ● French ● German ● Italian ● Spanish
- Original: The original language of each disc will be selected.
- Other *****

Subtitle

- Automatic: If the language selected for “Soundtrack” is not available, subtitles of that language will automatically appear if available on that disc.
- English ● French ● German ● Italian ● Spanish
- Other *****

Menus

- English ● 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.

- 8 No Limit: All DVD-Video can be played.
- 1 to 7: Prohibits play of DVD-Video with corresponding ratings recorded on them.
- 0 Lock All: Prohibits play of all DVD-Video.

- Unlock Recorder ● Change Password
- Change Level ● Temporary Unlock

Recording time in EP mode

Select the maximum number of hours for recording in EP mode (⇒ page 15, Recording modes and approximate recording times).

- EP (6 Hour): You can record for 6 hours on an unused 4.7 GB disc.
- EP (8 Hour): 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.

- On: The setting returns to “Off” when you change the disc or turn the unit off.
- Off

DVD-R Rec for High Speed mode

When high speed transferring (dubbing) a title to DVD-R, it is necessary to turn this setting “On” before recording to the HDD, however the screen size etc. is restricted (⇒ right). We recommend turning the setting “Off” when recording to media other than DVD-R.

You cannot transfer (dub) titles to a DVD-R using the high speed mode if you recorded the programme on a DVD recorder that does not have the “DVD-R Rec for High Speed mode” function, even when transferring (dubbing) to the HDD with this setting “On”.

- On: Makes high speed mode transferring (dubbing) to DVD-R possible. Press [◀, ▶] to select “Yes” and press [ENTER]. [“▶▶▶” appears in the transferring (dubbing) list. ⇒ page 33]
 - Pictures are saved at 4:3.
 - “Hybrid VBR Resolution” (⇒ below) setting is “Fixed”.
 - For bilingual broadcasts use “Bilingual Audio Selection” (⇒ page 38). Select the type of audio in advance.
- Off

Picture

Comb Filter

Select the picture sharpness when recording. The setting is fixed with “On” if you set “TV System” to “NTSC” (⇒ page 41).

- On: Pictures become clear and vivid. Normally, use this setting.
- Off: Select it when recording noisy pictures.

Hybrid VBR Resolution (⇒ page 44, VBR)

- Automatic: The resolution is automated to provide efficient recording with less block noise. **HDD RAM**
- Fixed: 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 44, Frames and fields).

- Automatic
- Field: Select if jittering occurs when “Automatic” is selected.
- Frame: Select if small text or fine patterns cannot be seen clearly when “Automatic” is selected.

Seamless Play



Selects the play mode for play list chapter segments.

- On: The chapters in play lists are played seamlessly. This does not work when there are several audio types included on the play list and when using Quick View. Additionally, the positioning of chapter segments may change slightly.
- Off: The points where chapters in play lists change are played accurately, but the picture may freeze for a moment.

AV-in NR

Reduces video tape noise while transferring (dubbing).

- On: Noise reduction works for input video.
- Off: Noise reduction is off. Select when you want to record input as is.

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 21) 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 Select whether to record the main or secondary audio type when: –Recording or transferring (dubbing) to a DVD-R. –Recording or transferring (dubbing) sound in LPCM. (⇒ below, “Audio Mode for XP Recording”) 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> ● <u>M 2</u> 	
	Digital Audio Output Change the settings when you have connected equipment through this unit's DIGITAL AUDIO OUT terminal (⇒ page 8). ● 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. 	
	Audio Mode for XP Recording Choose the audio type when recording or transferring (dubbing) with XP mode.	<ul style="list-style-type: none"> ● <u>Dolby Digital</u> (⇒ page 44) ● <u>LPCM</u> (⇒ page 44) –The picture quality of LPCM recordings may be less than that of normal XP mode recordings. –The audio recording becomes Dolby Digital even if you selected LPCM when using a recording mode other than XP. –When recording bilingual broadcast, select the type of audio in advance from “Bilingual Audio Selection” (⇒ above). 	
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. This setting is fixed with “Automatic” if you set “Power Save” (⇒ page 36) to “On”.	<ul style="list-style-type: none"> ● <u>Bright</u> ● <u>Dim</u> ● <u>Automatic</u>: The display turns dark during play, and reappears momentarily if a button is pressed. When the unit is turned off all displays disappear. While using this mode the standby power consumption can be reduced. 	

Tabs	Menus	Options (Underlined items are the factory presets.)			
Connection	TV Aspect (⇒ page 10)	●16:9	● <u>4:3</u>	●Letterbox	
	Progressive (⇒ page 10)	●On	● <u>Off</u>		
	TV System (⇒ page 41)	● <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 Input Set to "RGB (Not NTSC)" when receiving or recording RGB output video from external equipment.	● <u>Video</u>	●S-Video	●RGB (Not NTSC)	

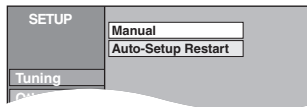
Language code list Input the code with the numbered buttons.

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	Tw: 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 36.

Tuning

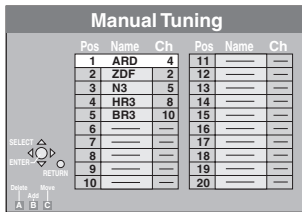
- 1 While stopped
Press [FUNCTIONS].
- 2 Press [▲, ▼, ◀, ▶] to select "SETUP" and press [ENTER].
- 3 Press [▲, ▼] to select "Tuning" and press [▶].



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

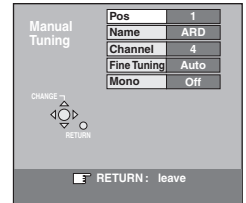
Press [▲, ▼, ◀, ▶] to select a programme position and press [B].

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].

- 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].
Fine Tuning	To obtain the best tuning condition Press [▲, ▼] to adjust the best tuning condition and press [ENTER]. ● Press [▶] to return to "Auto".
Mono	To select the type of sound to be recorded Press [▲, ▼] to select "On" if the stereo sound is distorted due to inferior reception conditions, or if you want to record the normal (mono) sound during a stereo, bilingual or NICAM broadcast, and press [ENTER].

Auto-Setup Restart

You can restart auto channel setting if Auto-Setup (▶ page 9) fails for some reason.

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

The confirmation screen appears.

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

The country setting menu appears.

6 Press [◀, ▶] to select the country and press [ENTER].

Auto-Setup starts.

To exit the screen

Press [RETURN] several times.

To return to the previous screen

Press [RETURN].

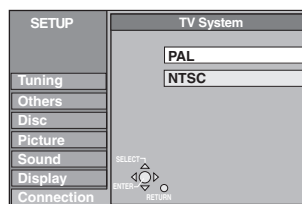
List of TV Reception Channels

Country	VHF	UHF	CATV
Australia	0–12	28–69	45–470 MHz
New Zealand	1–11	21–69	44–470 MHz

TV System

Change the settings to match the equipment you are connecting with, or to match the title when there are both PAL and NTSC titles on the HDD.

- 1 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. Titles recorded using NTSC are played as PAL 60.
 - Select to record television programmes and PAL input from other equipment.
 - HDD** Select when playing a PAL input title recorded on the HDD.
- **NTSC**
 - Select when connecting to a NTSC television. Television programmes cannot be recorded properly.
 - Select to record NTSC input from other equipment.
 - HDD** Select when playing a NTSC input title recorded on the HDD.

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)

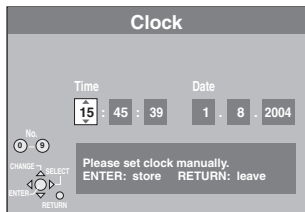
While stopped, keep pressing [■] and [▲ OPEN/CLOSE] on the main unit for 5 or more seconds.

Refer to the control reference on page 36.

Clock settings

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].



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

The items change as follows:
 Hour ↔ Minute ↔ Second ↔ Day ↔ Month ↔ Year
 ↑

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

You can also use the numbered buttons for setting.

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

The clock starts.

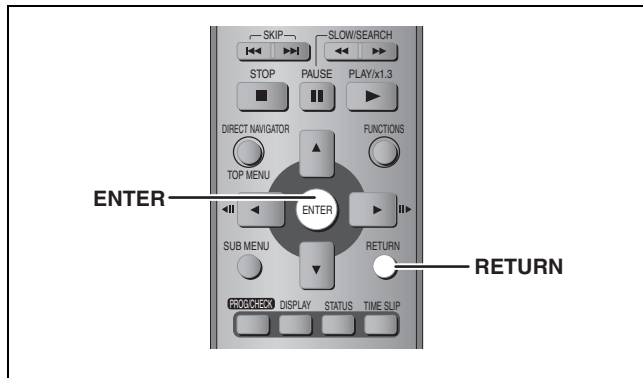
To exit the screen

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
12 cm 4.7 GB (Ver. 2.1/3×-SPEED DVD-RAM Revision 1.0)
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. 2.0/4×-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
Maximum 142 hours (with built-in 80 GB HDD)
XP: Approx. 17 hours, SP: Approx. 34 hours
LP: Approx. 68 hours, EP: Approx. 106 hours/142 hours

Playable discs
DVD-RAM: 12 cm 4.7 GB, 12 cm 9.4 GB, 8 cm 2.8 GB
12 cm 4.7 GB (Ver. 2.1/3×-SPEED DVD-RAM Revision 1.0)
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. 2.0/4×-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)

Built-in HDD capacity 80 GB

Drive unit High Speed Drive (correspond to 4 times speed with
DVD-R disc and 3 times speed with DVD-RAM disc)

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, Linear PCM (XP mode, 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

Country	Channel coverage
PAL-B Australia	VHF: CH 0–12 UHF: CH 28–69 CATV: 45 MHz–470 MHz
PAL-BG New Zealand	VHF: CH 1–11 UHF: CH 21–69 CATV: 44 MHz–470 MHz

RF converter output: Not provided

Video

Video system: PAL colour signal, 625 lines, 50 fields
NTSC colour signal, 525 lines, 60 fields
MPEG2 (Hybrid VBR)

Recording system: MPEG2 (Hybrid VBR)

Video in (PAL/NTSC):

AV1/AV2 (21 pin), AV3/AV4 (pin jack) 1 Vp-p 75 Ω, termination

S-Video in (PAL/NTSC):

AV2 (21 pin), AV3/AV4 (S terminal) 1 Vp-p 75 Ω, termination

RGB in (PAL):

AV2 (21 pin) 0.7 Vp-p (PAL) 75 Ω, termination

Video out (PAL/NTSC):

AV1/AV2 (21 pin), Video Out (pin jack) 1 Vp-p 75 Ω, termination

S-Video out (PAL/NTSC):

AV1 (21 pin), S-Video Out (S terminal) 1 Vp-p 75 Ω, termination

RGB out (PAL/NTSC):

AV1 (21 pin) 0.7 Vp-p (PAL) 75 Ω, termination

Component video output (NTSC 480P/480I, PAL 576P/576I)
Y: 1.0 Vp-p 75 Ω, termination
P_B: 0.7 Vp-p 75 Ω, termination
P_R: 0.7 Vp-p 75 Ω, termination

Others

Region code: # 4

Operating temperature: 5–40 °C

Operating humidity range: 10–80 % RH (no condensation)

Power supply: AC 220–240 V, 50 Hz

Power consumption: 38 W

Dimensions (W×D×H): Approx. 430×274×79 mm

Mass: Approx. 4.4 kg

Power consumption in standby mode:

Approx. 3 W (Power Save mode)

Note

Specifications are subject to change without notice.

Mass and dimensions are approximate.

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.

Dolby Digital

This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2-channel) audio, these signals can also be multi-channel audio. A large amount of audio information can be recorded on one disc using this method.

When recording on this unit Dolby Digital (2 channel) is the default audio.

Down-mixing

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

Drive

In the instance of this unit, this refers to the hard disk (HDD) and DVD. These perform the reading and writing of data.

DTS (Digital Theater Systems)

This surround system is used in many movie theaters. There is good separation between the channels, so realistic sound effects are possible.

Dynamic range

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

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

Film and video

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

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.

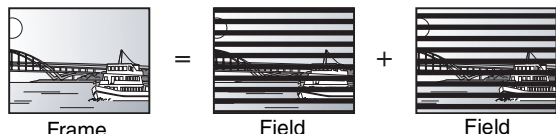
Formatting

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

You can format the HDD and 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.

HDD (Hard disk drive)

This is a mass data storage device used in computers etc. A disk with a surface that has been treated with magnetic fluid is spun and a magnetic head is brought in close proximity to facilitate the reading and writing of large amounts of data at high speed.

LPCM (Linear PCM)

These are uncompressed digital signals, similar to those found on CDs. LPCM sound is available when recording in XP mode.

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.

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.

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. 	8 —
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. 	8
The television has both S-VIDEO IN terminal and COMPONENT VIDEO IN terminals. Which terminal should I connect with?	<ul style="list-style-type: none"> ●Connecting with the component video out terminal provides a more vivid picture compared to connecting with the S-Video out terminal. If you have an LCD/plasma television or LCD projector compatible with progressive scan, connect through the component video terminals for high-quality progressive video. If you have a CRT television or a multi system television using PAL mode that is compatible with progressive scan, we cannot recommend progressive output as some flickering can occur. 	7
Is my television progressive output compatible?	<ul style="list-style-type: none"> ●All Panasonic televisions that have 576P (625P)/480P (525P) 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 "4" 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 the high speed recording compatible 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. 	12, 23 —


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 high speed transfer (dub) to a disc?	<ul style="list-style-type: none"> ●You can record up to a 32× recording speed to DVD-R and up to 24× recording speed to DVD-RAM when using a high speed compatible disc. 	31
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. 	38 —
Can I switch to bilingual broadcast during recording?	<ul style="list-style-type: none"> ●With HDD and DVD-RAM, you can. Just press [AUDIO]. ●With DVD-R, you cannot. Change before recording with the "Bilingual Audio Selection" in the SETUP menu. 	22 38

Error messages

On the television

		Page
Cannot finish recording completely.	<ul style="list-style-type: none"> The programme was copy-protected. The HDD or disc may be full. 	—
Cannot playback this title. TV system is different from the setting. To playback this title, please change the TV System in SETUP.	<ul style="list-style-type: none"> You tried to play a title recorded using a different encoding system from that of the TV system currently selected on the unit. Alter the "TV System" setting on this unit to suit. 	41
Cannot record on the disc.	<ul style="list-style-type: none"> The disc may be dirty or scratched. 	51
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. HDD RAM Use a new disc. RAM DVD-R 	22, 27, 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.) 	51
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

HDD SLP	<ul style="list-style-type: none"> In order to extend HDD life, the HDD is in SLEEP mode. Press [HDD] to activate. 	13
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. 	51
PROG FULL	<ul style="list-style-type: none"> There are already 32 timer programmes. Delete unnecessary timer programmes. 	19
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.  Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.	11
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 disappears. 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. 	12
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. 	42

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. ● A sound is heard when the HDD goes into the SLEEP mode, or operations are slow to respond in SLEEP mode. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Power

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


Displays

The display is dim.	● Change "FL Display" in the SETUP menu.	38
"0:00" is flashing on the unit's display.	● Set the clock.	42
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.	—
Compared to the actual recorded time, the remaining time displayed is less. (Only when recording in NTSC)	● The displayed recording/play time is converted from the number of frames at 29.97 frames (equal to 0.999 seconds) to one second. There will be a slight difference between the time displayed and the actual elapsed time (e.g., actual one-hour elapsed time may display as approximately 59 minutes 56 seconds). This does not affect the recording.	—

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.	38
The grey background does not appear.	● Select "On" in "Grey Background" in the SETUP menu.	38
Picture does not appear during timer recording.	● Timer recordings work regardless whether the unit is on or off. To confirm the timer recording is going to work properly, turn the unit on.	—
The 4:3 aspect ratio picture expands left and right.	● Use the television to change the aspect. If your television does not have that function, set "Progressive" in the Picture menu to "OFF".	25
Screen size is wrong.	● Check the settings for "TV Aspect" in the SETUP menu.	10
There is a lot of after-image when playing video.	● Set "Playback NR" in the Picture menu to "OFF".	25
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.	25
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 VIDEO OUT terminal, S-VIDEO OUT terminal or COMPONENT VIDEO OUT terminals on this unit.	7
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		Page
No sound. Low volume. Distorted sound. Cannot hear the desired audio type.	<ul style="list-style-type: none"> ● Check the connections and settings. Check the input mode on the amplifier if you have connected one. 	7, 8, 38
	<ul style="list-style-type: none"> ● Press [AUDIO] to select the audio. 	22
	<ul style="list-style-type: none"> ● Turn off V.S.S. in the following cases. <ul style="list-style-type: none"> – When using discs that do not have surround sound effects such as Karaoke discs. – When playing bilingual broadcast programmes. 	25
	<ul style="list-style-type: none"> ● 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. DVD-A 	—
Cannot switch audio.	<ul style="list-style-type: none"> ● You cannot switch the audio in the following cases. <ul style="list-style-type: none"> – When a DVD-R disc is in the disc tray while DVD drive is selected. – When the recording mode is XP and “Audio Mode for XP Recording” is set to “LPCM”. – When “DVD-R Rec for High Speed mode” is set to “On” 	—
	<ul style="list-style-type: none"> ● You have used a digital connection. Set “Dolby Digital” to “PCM” or connect using audio cables (analog connection). 	38
	<ul style="list-style-type: none"> ● There are discs which audio cannot be changed because of how the disc was created. 	37
		38, 8

Operation		Page
Cannot operate the television. The remote control doesn't work.	<ul style="list-style-type: none"> ● Change manufacturer code. Some televisions cannot be operated even if you change the code. 	11
	<ul style="list-style-type: none"> ● The remote control and main unit are using different codes. Change the code on the remote control. 	11
	 <p>Press and hold [ENTER] and the indicated number button at the same time for more than 2 seconds.</p>	
	<ul style="list-style-type: none"> ● The batteries are depleted. Replace them with new ones. 	4
	<ul style="list-style-type: none"> ● 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. 	— — 42
The unit is on but cannot be operated.	<ul style="list-style-type: none"> ● Recording drive or playback drive have not been selected properly. ● 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. <p>Reset the unit as follows: Press [⏻/⏪] on the main unit to switch the unit to standby. If the unit doesn't switch to standby, press and hold [⏻/⏪] 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.</p>	14, 20 — — —
	<ul style="list-style-type: none"> ● The HDD is in SLEEP mode. (“HDD SLP” appears in the unit’s display.) 	13
	<ul style="list-style-type: none"> ● 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. 	42
	<ul style="list-style-type: none"> ● Check the connections. 	7

Recording, timer recording and transferring (dubbing)		Page
Cannot record.	<ul style="list-style-type: none"> ● You haven't inserted a disc or the disc you inserted cannot be recorded on. Insert a disc the unit can record onto. 	12
	<ul style="list-style-type: none"> ● The disc is un-formatted. Format the disc. RAM 	35
	<ul style="list-style-type: none"> ● The write-protect tab on the cartridge is set to PROTECT, or the disc is protected with DISC MANAGEMENT. 	12, 35
	<ul style="list-style-type: none"> ● Some programmes have limitations on the number of times they can be recorded (CPRM). 	44
	<ul style="list-style-type: none"> ● You cannot record when there is not enough space or when the number of titles has reached its limit. Erase unwanted titles. 	22, 27, 35
	<ul style="list-style-type: none"> ● You cannot record on finalized DVD-R discs. 	—
	<ul style="list-style-type: none"> ● 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. 	—
	<ul style="list-style-type: none"> ● A DVD-R recorded on this unit may not be recordable on other Panasonic DVD recorders. 	—

Continued on next page

Recording, timer recording and transferring (dubbing) (Continued)

Page

<p>Timer recording does not work properly.</p>	<ul style="list-style-type: none"> ●The timer programme is incorrect or different timer programme times overlap. Correct the programme. 	19
<p>G-CODE programming does not work properly.</p>	<ul style="list-style-type: none"> ●The unit is not on timer recording standby. (“⊖” on the unit’s display is not on.) Press [⊖ TIMER]. ●Set the clock. 	17, 18 42
<p>Timer recording does not stop even when [■] is pressed.</p>	<ul style="list-style-type: none"> ●While using timer recording, press [⊖ TIMER]. (“⊖” disappears.) 	17, 18
<p>The timer programme remains even after recording finishes.</p>	<ul style="list-style-type: none"> ●The timer programme remains if set to daily or weekly. 	18
<p>A part or whole of a recorded title has been lost.</p>	<ul style="list-style-type: none"> ●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 (HDD RAM) or use a new disc. We cannot offer any guarantee regarding lost programmes or discs. 	—
<p>Cannot transfer (dub) to a DVD-R disc using the high speed mode.</p>	<ul style="list-style-type: none"> ●When recording to the HDD, set “DVD-R Rec for High Speed mode” to “On” in the SETUP menu. 	37
<p>When transferring (dubbing), it takes a long time even when high speed mode is selected.</p>	<ul style="list-style-type: none"> ●Use a disc that is compatible with high speed recording. Even if the disc is high speed recording compatible, the maximum speed recording rating may not be possible due to the condition of the disc. ●It takes longer than normal to transfer (dub) many titles. ●You cannot high speed transfer (dub) to DVD-R titles longer than 6 hours when using other Panasonic DVD recorders that are not compatible with EP (8 hour) mode recording. 	— — —
<p>An unusually large sound is coming from the rotating DVD-R.</p>	<ul style="list-style-type: none"> ●When recording or high speed transferring (dubbing) to a DVD-R, the sound of the disc rotating may be larger than normal, however, this is not a problem. 	—

Play

<p>Play fails to start even when [▶] (PLAY) is pressed. Play starts but then stops immediately.</p>	<ul style="list-style-type: none"> ●Insert the disc correctly with the label facing up. ●You tried to play a blank DVD-RAM/DVD-R, or discs unplayable on this unit. ●You may be able to transfer (dub) a “One time only recording” title that was recorded to DVD-RAM using a different Panasonic DVD Recorder to this unit’s HDD, but play is not possible due to copyright protection. ●When recording to DVD-RAM using “EP (8 Hour)” mode, play may not be possible on DVD players that are compatible with DVD-RAM. In this case use “EP (6 Hour)” mode. 	20 12 — 37
<p>DVD-Video is not played.</p>	<ul style="list-style-type: none"> ●Some DVD-Video cannot be played when you change the ratings level. 	37
<p>Alternative soundtrack and subtitles cannot be selected.</p>	<ul style="list-style-type: none"> ●The languages are not recorded on the disc. ●You may have to use the disc’s menus to select languages. 	— —
<p>No subtitles.</p>	<ul style="list-style-type: none"> ●Subtitles are not recorded on the disc. ●Turn the subtitles on. 	— 24
<p>Angle cannot be changed.</p>	<ul style="list-style-type: none"> ●Angles can only be changed during scenes where different angles are recorded. 	—
<p>You have forgotten your ratings password.</p>	<ul style="list-style-type: none"> ●While the disc tray is open, press [DVD] then press and hold [◀◀/▶▶] and [▶▶/▶▶▶] on the main unit at the same time for 5 or more seconds. 	—
<p>Quick View does not work.</p>	<ul style="list-style-type: none"> ●This does not work if the setting is “Off” in “PLAY × 1.3 & Audio during Search”. ●This does not work when audio is other than Dolby Digital. ●This does not work when recording is in XP or FR mode. RAM 	38 — —
<p>The resume play function does not work.</p>	<ul style="list-style-type: none"> ●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. 	— —
<p>The Video CD picture does not display properly.</p>	<ul style="list-style-type: none"> ●When connecting to Multi-system TV, select “NTSC” in “TV System” in the SETUP menu. ●When connecting to PAL TV, the lower part of the picture cannot be displayed correctly during search. 	41 —
<p>Time Slip does not work.</p>	<ul style="list-style-type: none"> ●Time Slip does not work when the unit’s “TV System” settings are different from the title recorded on the disc. 	41



Reference

Edit		Page
Cannot format.	<ul style="list-style-type: none"> ●The disc is dirty. Use a special cleaner and wipe clean. ●You tried formatting a disc that is not compatible with this unit. 	51 12
Cannot create chapters.	<ul style="list-style-type: none"> ●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.	<ul style="list-style-type: none"> ●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.	<ul style="list-style-type: none"> ●When the chapter is too short to erase, use “Combine Chapters” to make the chapter longer. 	27
The available recording time doesn’t increase even after erasing recordings on the disc.	<ul style="list-style-type: none"> ●Available recording space on the DVD-R does not increase even after erasing previously recorded titles. 	—
Cannot create a play list.	<ul style="list-style-type: none"> ●You cannot select all the chapters at once in a title if the title also includes still pictures. Select them individually. 	—

Unit care

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

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

- Never use alcohol, paint thinner or benzene 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.

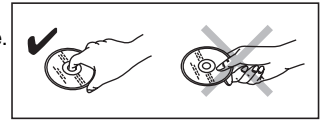
Dust and dirt may adhere to the unit's lens over time, making it impossible to record or play discs.

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.

Disc handling

How to hold a disc

Do not touch the recorded surface.



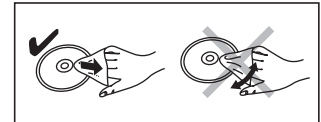
If there is dirt or condensation on the disc

RAM DVD-R

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

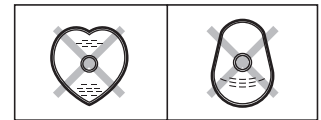
DVD-A DVD-V VCD CD

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, benzene, 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.



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.

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