

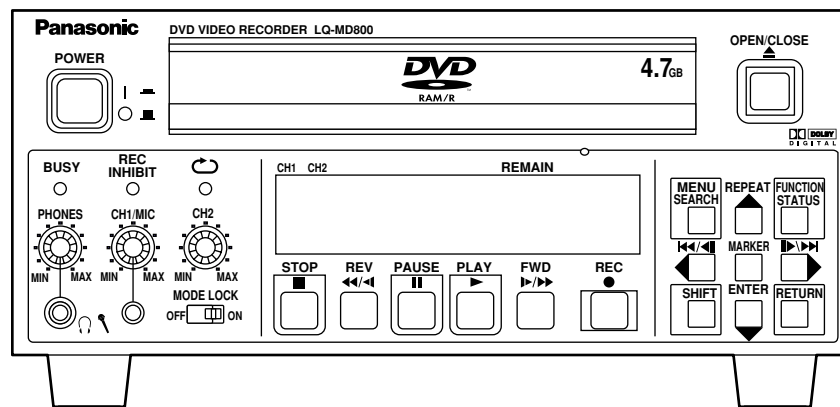
Panasonic®

Operating Instructions

DVD Video Recorder

Model No. **LQ-MD800P**

Model No. **LQ-MD800E**



Before operating this product, please read the instructions carefully and save this manual for future use.

ENGLISH

For your safety (General)

WARNING:

- TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.
- TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, KEEP THIS EQUIPMENT AWAY FROM ALL LIQUIDS-USE AND STORE ONLY IN LOCATIONS WHICH ARE NOT EXPOSED TO THE RISK OF DRIPPING OR SPLASHING LIQUIDS, AND DO NOT PLACE ANY LIQUID CONTAINERS ON TOP OF THE EQUIPMENT.

CAUTION:

Do not install or place this unit in a bookcase, built-in cabinet or in another confined space in order to keep well ventilation condition. Ensure that curtains and any other materials do not obstruct the ventilation to prevent risk of electric shock or fire hazard due to overheating.

CAUTION:

THE AC OUTLET (MAIN SOCKET) SHALL BE INSTALLED NEAR THE EQUIPMENT AND SHALL BE EASILY ACCESSIBLE.

■ TRANSPORT AND STORAGE CONDITION

AMBIENT TEMPERATURE	-10°C to 60°C
RELATIVE HUMIDITY	30% to 80%
ATMOSPHERIC PRESSURE	500 hPa to 1060 hPa

THIS APPARATUS MUST BE GROUNDED

To ensure safe operation the three-pin plug must be inserted only into a standard three-pin power outlet (socket) which is effectively grounded through normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to the ground. Incorrectly wired extension cords can be extremely hazardous.

The fact that the equipment operates satisfactorily does not imply that it is grounded, and the installation is not necessarily safe. For your safety, if in any doubt about the effective grounding of the equipment or power outlet (socket), please consult a qualified electrician.

CAUTION:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

CAUTION:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER CHANGE OF SWITCH SETTING INSIDE THE UNIT TO QUALIFIED SERVICE PERSONNEL.

CAUTION:

EVEN WHEN THE POWER SWITCH IS IN THE OFF POSITION, A SMALL CURRENT FLOWS THE FILTER CIRCUIT.

 is the safety information.

Operating precaution

Operation near any appliance which generates strong magnetic fields may give rise to noise in the video and audio signals.

If this should be the case, deal with the situation by, for instance, moving the source of the magnetic fields away from the unit before operation.

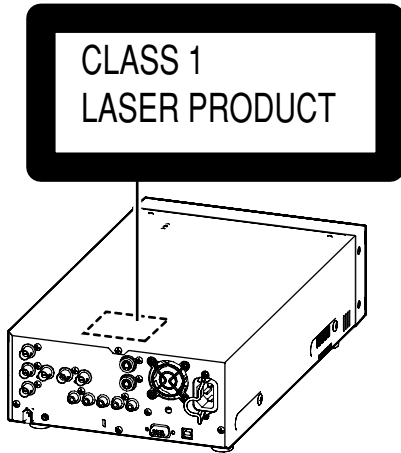
For your safety (General)

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.

NOTICE FOR LASER



Inside of unit

DANGER	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC60825-1)
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	- AVATTAESSA OLET ALTIINA NÄKYMÄTÖN LASERSÄTEILYLLÄ. ÄLÄ KATSO SÄTEESEEN.
VARNING	- SYNLIG OCH OSYNLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL	- SYNLIG OG USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG. 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。

NOTICE FOR MEDICAL USE

- This is an apparatus intended for recording playing-back of diagnosis image classified as;
 - Protection against Electric Shock Class 1
 - Protection against Ingress of Water Ordinary
 - Mode of Operation Continuous
 - Not suitable for use in the presence of a Flammable Anaesthetic mixture with Air or with Oxygen or Nitrous Oxide.
- Equipment connected to signal input and/or output parts must be certified according to the appropriate IEC 60601-1 and/or IEC 60601-1-1 harmonized national standard.

Furthermore all configurations shall comply with the system standard IEC 60601-1-1. Everybody who connects additional equipment to the signal input part, or signal output part configures a medical system, and is therefore responsible that the system complies with the requirements of the standard IEC 60601-1-1. If in doubt, consult the technical service department or your local representative.

Leakage current of this unit may be exceeded the allowable value when conductively connected to other equipment. To avoid increment of the leakage current, separation device shall be applied.

 is the safety information.

For your safety (USA and Canada)



CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For your safety (USA and Canada)

FCC NOTICE

Declaration of Conformity

Model Number: LQ-MD800P
Trade Name: PANASONIC
Responsible Party: Matsushita Electric Corporation of America
One Panasonic Way,
Secaucus, NJ 07094
Support contact: Panasonic Digital Communications & Security Company
50 Meadowlands Parkway,
Secaucus, NJ 07094
1-888-VISION (8474)

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To assure continued compliance, follow the attached installation instructions and do not make any unauthorized modifications.

CAUTION:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
- The user may find the booklet "Something About Interference" available from FCC local regional offices helpful.

FCC Warning: To assure continued FCC emission limit compliance, the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

For your safety (Europe)

CAUTION:

DO NOT REMOVE PANEL COVER BY UNSCREWING

To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. And do not insert fingers or any other objects into the disc tray.

Disposal of old equipment

Batteries, packaging and old equipment should not be disposed of as domestic waste, but in accordance with the applicable regulations.



Attentie

Voor de primaire voeding en het reservegeheugen van het apparaat. alsmede voor de afstandsbediening, wordt gebruik gemaakt van een batterij.

Wanneer de batterij uitgeput is, mag u deze niet gewoon weggooien, maar dient u ze als klein chemisch afval weg te doen.

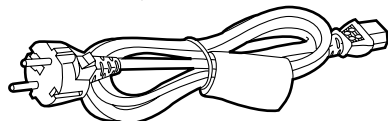


For your safety (when using the LQ-MD800P in Europe)

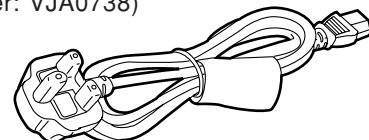
The LQ-MD800P is equipped with the North American type mains cable only. When using this product in Europe, you must use a 3-core grounding type of mains cable that complies with the appropriate national standard.

Obtain the following mains cable.

FOR CONTINENTAL EUROPE, ETC.
(Part number: VJA0746)



FOR U.K. ONLY
(Part number: VJA0738)



 is the safety information.

For your safety (when using the LQ-MD800E in Europe)

Caution for AC Mains Lead

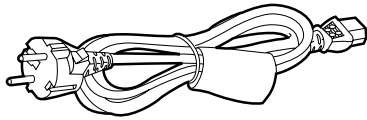
FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This product is equipped with 2 types of AC mains cable. One is for continental Europe, etc. and the other one is only for U.K.

Appropriate mains cable must be used in each local area, since the other type of mains cable is not suitable.

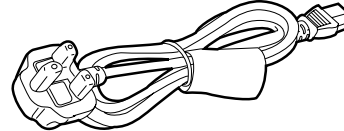
FOR CONTINENTAL EUROPE, ETC.

Not to be used in the U.K.



FOR U.K. ONLY

If the plug supplied is not suitable for your socket outlet, it should be cut off and appropriate one fitted.



FOR U.K. ONLY

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

A 13 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362.

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

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

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

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

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


If in any doubt please consult a qualified electrician.

WARNING: THIS APPLIANCE MUST BE EARTHED.

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

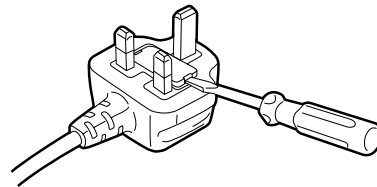
Green-and-Yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

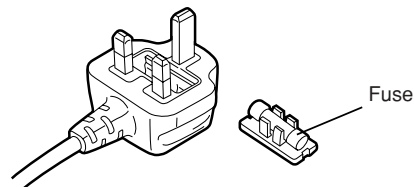
- The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the Earth symbol  or coloured GREEN or GREEN-AND-YELLOW.
- The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.
- The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

How to replace the fuse

1. Open the fuse compartment with a screwdriver.



2. Replace the fuse.



Contents

For your safety	2	Using the SEARCH PROGRAM	25
Features	7	• Selecting programs to play	25
Accessories	7	• Erasing programs (Erase).....	26
Control reference guide	8	• Entering and editing program titles (Enter Title).....	26
• Front Panel	8	• Checking program contents (Properties)	26
• The unit's display	9	• Protecting programs/Releasing program protection (Protection)	26
• Rear Panel.....	10	• Erasing parts of a program (Partial Erase)	27
Discs	11	• Dividing programs (Divide)	27
Connecting and Setting up	12	Using the PLAY LIST to edit programs	28
Recording programs	16	• Displaying PLAY LIST	28
Playing discs	17	• Creating PLAY LIST	28
• Starting play from where you stopped it (Resume Function)	17	• Playing PLAY LIST	29
• Fast forward and rewind	17	• Playing Scenes (Play Scenes).....	29
• Slow-motion play	17	• Adding Scenes to a PLAY LIST (Add)	29
• Frame-by-frame viewing	17	• Moving a Scene (Move).....	30
• Skipping	17	• To re-edit a PLAY LIST Scene (Re-edit)	30
• Skip five minutes forward or backward (Time slip)	18	• Erasing a Scene from a PLAY LIST (Erase)....	30
• Instant repeat play (Instant Repeat)	18	• Copying PLAY LIST (PL Copy).....	31
• Marking places to play again (MARKER)	18	• Erasing a PLAY LIST (PL Erase).....	31
Status displays	19	• Titling PLAY LIST (Enter Title).....	31
• Changing the information displayed	19	• Checking PLAY LIST's contents (Properties).....	31
• Display examples.....	19	Entering titles	32
Using the FUNCTION menus	20	Changing the unit's settings	33
• Common procedures	20	• Common procedures	33
• Disc menu	20	• Summary of settings	33
• Play menu	21	Maintenance and Handling	36
• Sound menu	21	• Maintenance	36
• Picture menu.....	21	• Disc handling	36
Using the MENU window	22	Glossary	37
• About the MENU window	22	Error messages	38
• Using the MENU window	22	Troubleshooting guide	40
DISC INFORMATION	23	Connector signals	42
• Enter Title	23	Regarding copyright	42
• Disc Protection/Releasing disc protection	23	Specifications	43
• Erase all programs.....	23		
• Format	24		
• Finalize – Creating DVD-Video.....	24		

Features

This unit allows recording of high quality video on DVD-RAM, the compact and durable digital media with fast random access. This media also outperforms past tape formats in ease of operation.

■ Exceptional sound and picture quality when recording

Audio is recorded using Dolby Digital stereo, enabling high quality sound recordings. When recording in XP/SP mode it is possible to use LPCM (2 channel) to achieve sound recordings of even higher quality.

The MPEG2 encoder system used for recording is called "Hybrid VBR" and allows high quality recordings.

■ Maximum 8 hours on DVD-RAM

Using a double sided, 9.4 GB DVD-RAM allows you to record a maximum of 8 hours (4 hours continuously).

■ Progressive Scan (see page 13)

By connecting the component video terminals of this unit to a progressive scan monitor television, it is possible to watch the high quality picture rendered by the progressive scan function.

■ External control function (see page 14)

This unit has USB, RS-232C, and PAUSE REMOTE terminals to enable remote control from computers or other equipment. Using USB or RS-232C allows you to enter program titles.

■ NTSC/PAL switchable (see page 35)

You can play or record NTSC or PAL by changing the settings in TV System in the SETUP menu.

■ Fast access to the program you want to watch **RAM** **DVD-R** (see page 25)

Use the SEARCH PROGRAM to find a program you have recorded and start play.

■ The MENU window shows you most of the features you can use (see page 22)

The MENU window has most of the features and functions you are likely to use regularly. Just select the icon for the operation you want to perform.

■ Editing your recording **RAM**

(see pages 27 and 28)

You can divide and erase programs.

Use play lists to select scenes you need and rearrange them to play in any order you like.

■ Make DVD-Video (see page 24)

Finalizing a DVD-R that has been recorded on produces a DVD-Video in accordance with DVD-Video standards.

■ Small and light

The unit's dimensions are 8-7/16"(w) x 4-1/32"(h) x 14-3/8"(d) (214 (W) x 102 (H) x 365 (D) mm) and it weighs only 10.14 lbs (4.6 kg).

Accessories

Standard accessories

■ Power cord x 1 For USA, Canada (LQ-MD800P) x 2 For Europe (LQ-MD800E)

■ Emergency ejection pin x 1

Optional accessories

Part numbers are current as of December 2003. They may change without notice.

■ DVD-RAM discs

- 9.4 GB, double-sided, type 4 cartridge:
LM-AD240U (For USA and Canada)
LM-AD240E (For Europe)
- 4.7 GB, single-sided, type 2 cartridge:
LM-AB120U (For USA and Canada)
LM-AB120E (For Europe)

- 4.7 GB, single-sided, non-cartridge:
LM-AF120U (For USA and Canada)
LM-AF120E (For Europe)

■ DVD-R discs

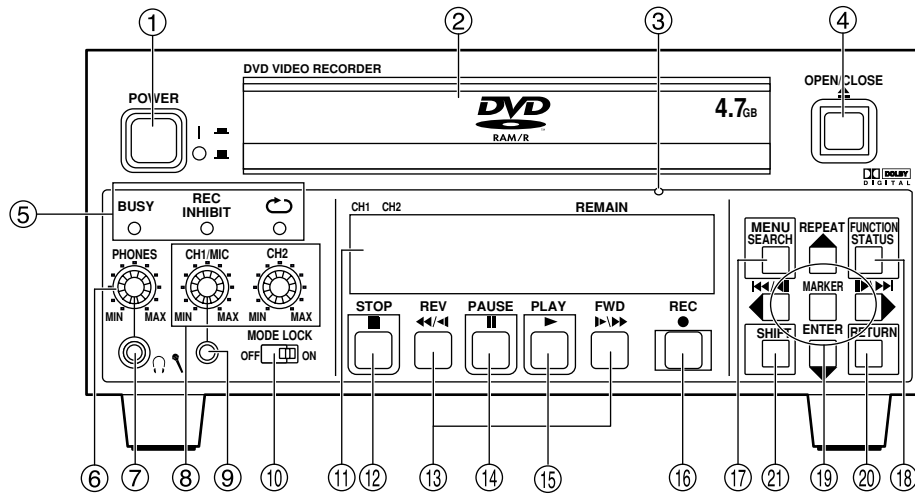
- 4.7 GB, single-sided, non-cartridge:
LM-RF120U (For USA and Canada)
LM-RF120E (For Europe)

■ DVD-RAM/PD Disc cleaner: LF-K200DCA1

■ DVD-RAM/PD Lens cleaner: LF-K123LCA1

Control reference guide

Front Panel



① POWER on/off button (POWER)

Main power switch. The display lights when the unit is on.

NOTE: Do not switch the unit off during recording, play, or editing.

② Disc tray

Open the tray and put a disc on it.

③ Emergency ejection hole

Use the included emergency ejection pin to open the tray if you ever need to remove the disc manually (see page 40).

NOTE: Switch the unit off if you need to use the emergency ejection pin to open the tray.

④ Disc tray Open/close button (OPEN/CLOSE ▲)

Press to open when the tray is closed and to close when the tray is open.

⑤ LED's

BUSY	Lights when accessing the disc, as when recording or playing. NOTE: Don't shut off the power supply when it lights up.
REC INHIBIT	When it is turned on, neither recording nor editing is possible.
↻ (REPEAT)	Lights while the repeat function is operating.

⑥ Headphones level control

Adjust the level of headphones.

⑦ Headphones Jack (Stereo mini jack)

Connect stereo headphones.

⑧ Audio REC level control CH1/MIC, CH2

Adjust the level of audio recording. Cannot adjust the level of the DV IN audio.

⑨ Microphone Jack (mini jack)

Connect a microphone. The microphone signal is recorded in channel 1.

⑩ MODE LOCK

When it is set to ON, none of the front panel switch can be operated.

⑪ Display

Shows various information (see page 9).

⑫ Stop button (STOP ■)

Stops recording and play.

⑬ Slow/Search buttons (REV ◀◀, FWD ▶▶)

Press during play to start search play.

Press while paused to start slow play.

Press while stopped to operate search play at the maximum speed.

⑭ Pause button (PAUSE ||)

Pauses play or recording. Releases pause.

⑮ Play button (PLAY ▶)

Plays the disc.

⑯ Recording button (REC ●)

Records video and audio to a disc.

⑰ Search program button (SEARCH)

Press to select a program.

Menu button (MENU [SHIFT + SEARCH])

Press to use menu functions.

⑱ Status button (STATUS)

Press to use the status display function.

Functions button (FUNCTION [SHIFT + STATUS])

Press to use the function menu.

⑲ Cursor buttons (▲, ▼, ◀, ▶)

Used to select menu items.

REPEAT button (REPEAT [SHIFT + ▲])

Press during play to start instant repeat play.

SKIP or STEP button (◀◀/▶▶)

Press during play to skip items.

Press while paused to start step play.

SKIP button (◀◀, ▶▶ [SHIFT + ◀◀/▶▶])

Press during play to skip items.

Enter button (ENTER)

Press to confirm selection of menu items.

Marker button (MARKER [SHIFT + ENTER])

Press to set a marker.

⑳ RETURN button (RETURN)

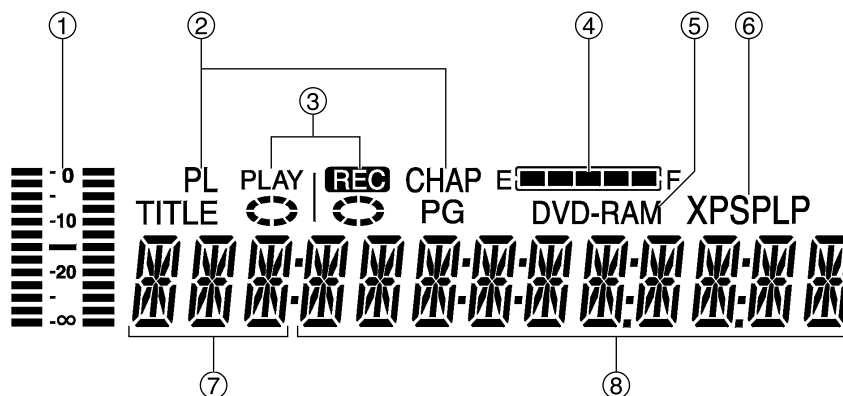
Press to cancel selection of menu items.

㉑ Shift buttons (SHIFT)

Press together with other buttons to use blue-labeled functions.

Control reference guide (continued)

The unit's display



① Audio Level Meter

Shows the recording level. Adjust the recording level with Audio REC level control CH1/MIC, CH2 on the front panel so that the level meter does not exceed 0 dB.

② The display mode of the main display section

Shows disc structure.

TITLE : Title number
 CHAP : Chapter number
 PG : Program number
 PL : Play list number

③ REC/PLAY Indication

Shows play or recording status.

Recording: **REC** lighting rotating
 Recording paused: **REC** lighting stopped
 Playing: **PLAY** lighting rotating
 Play paused: **PLAY** lighting stopped

④ Remain

"REMAIN" provides rough indication of the disc remaining amount. Each lamp goes off one after another according to the decrease of the disc remaining amount.
 ※ This is not an exact indication of the disc remaining amount.

⑤ Disc type

Shows the type of disc.

DVD-RAM : DVD-RAM
 DVD-R : DVD-R
 DVD : Finalized DVD-R

⑥ Recording mode

Shows recording mode.

XP : High-quality mode
 SP : Normal mode
 LP : Long play mode

⑦ Input

Shows video input.

V : Video
 SV : S-Video
 DV : DV IN

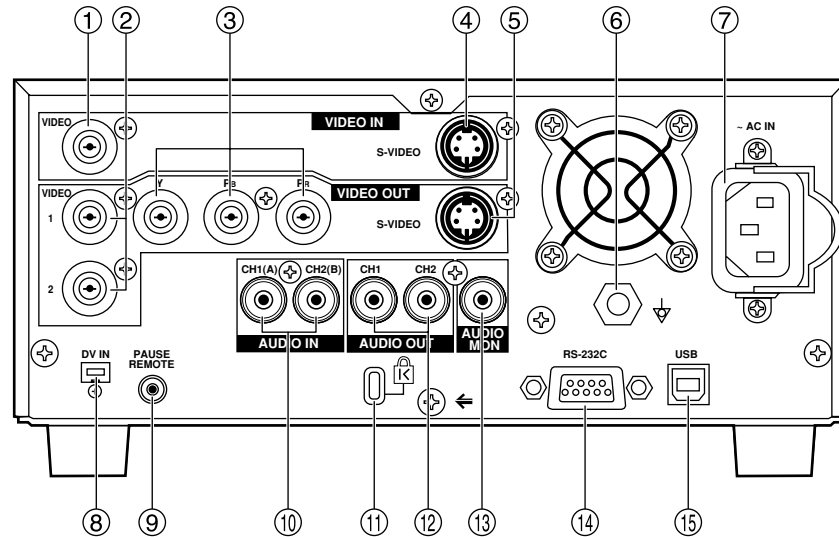
⑧ Main display section

Shows various types of information.

- Recording and play counter
- Remaining recording time
 (For example: 1 hour → Displayed as "R 1:00")
- Current time
- Title, Chapter, Group
- Miscellaneous messages
 etc.

Control reference guide (continued)

Rear Panel



① **VIDEO IN (BNC)**

Composite signal input.

② **VIDEO OUT 1/2 (BNC)**

Composite signal output.

③ **Y, Pb, Pr (Component Video output) (BNC)**

Component signal (Y, Pb, Pr) output.

④ **S-VIDEO IN (4P)**

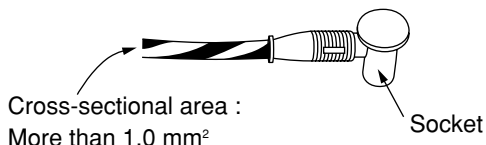
S-Video (Y/C) input.

⑤ **S-VIDEO OUT (4P)**

S-Video (Y/C) output.

⑥ **Equipotential terminal** ↓

When connecting this unit to any other component, make absolutely sure that it is properly grounded by connecting this terminal. When connecting, use the socket and be sure to use wire with a cross-sectional area of at least 1.0 mm².



⑦ **Power socket**

Connect power cord (supplied).

⑧ **DV IN (4-pin)**

DV input. Connect a 4-pin IEEE1394 cable. You can digitally input video and audio.

⑨ **PAUSE REMOTE (Stereo mini jack)**

External control jack for recording start and pause control. This jack also outputs a recording status signal.

⑩ **Audio CH1 (A)/CH2 (B) input connector (PHONO)**

Input for analog audio. If you have connected a microphone, use the Audio CH assignment with Mic setting in the SETUP menus to assign recording channels.

⑪ **Security Lock**

This can be used to connect a commercially-available theft-prevention cable (manufactured by Kensington). This security lock is compatible with the Microsaver Security System from Kensington.

⑫ **Audio CH1/CH2 output connector (PHONO)**

Analog audio output.

⑬ **Audio Monitor output connector (PHONO)**

Analog audio output. Use the Monitor setting item in the FUNCTION menus to assign the channel to be output.

⑭ **RS-232C Remote connector (D-sub 9P)**

RS-232C terminal. Connect a computer or other control device to enable external control.

⑮ **USB Remote connector (Type-B connector)**

USB terminal. Connect a computer or other control device to enable external control.

Discs

We recommend using discs manufactured by Panasonic as they have been tested to be compatible with this unit. In case of discs manufactured by other makers, play may be impossible in some cases due to the condition of the recording.

Disc type	Logo	Indication used in instructions	Recording	Playing	Creation of PLAY LIST	Configuration examples of data on a disc
DVD-RAM • 4.7 GB/ 9.4 GB (12 cm)		RAM	Yes	Yes	Yes	Programs  PLAY LIST 
DVD-R • 4.7 GB (12 cm) for General Ver. 2.0 • 4.7 GB (12 cm) for General Ver.2.0/4x-Speed DVD-R Revision 1.0		Before finalizing DVD-R	Yes	Yes	No	Programs 
		After finalizing DVD	No	Yes	No	Titles  Chapters 

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

Examples of causes of such losses are

- (1) A disc recorded and edited with this unit is played in a DVD recorder or computer disc drive manufactured by another company.
- (2) A disc used as described in (1) and then played again in this unit.
- (3) A disc recorded and edited with a DVD recorder or computer disc drive manufactured by another company is played in this unit.

Notes:

- This unit is compatible with the Content Protection for Recordable Media (CPRM) system so you can record broadcasts that allow one copy, such as some CATV broadcasts, onto 4.7 GB/9.4 GB DVD-RAM (these are CPRM compatible). It is not possible to record onto DVD-R.
- Do not allow the disc to become dirty or scratched. Fingerprints, dirt, dust, and scratches on the recording surface may make it impossible to use the disc for recording.
- If you use DVD-RAM cartridges, you can protect your recordings with the write protected tab. With the tab in this position, you cannot record to the disc, delete programs with the search program, edit with the play list screen, or format the disc.
- This unit is compatible with both non-cartridge and cartridge DVD-RAM, but cartridge-type discs give better protection to your valuable recordings.

For your reference:

- **DVD-RAM recorded on this unit cannot be played on incompatible players (including players manufactured by Panasonic).**
- This unit cannot record PAL signals to discs containing NTSC signals or vice versa.
- This unit cannot record to discs containing both PAL and NTSC signals.
Play of discs recorded with both PAL and NTSC on another unit is not guaranteed.
- Do not perform editing operations, such as finalizing, if the TV system of the unit and disc are different.

Regarding DVD-R

You can play DVD-R on compatible DVD players by finalizing (the process that allows recordings on DVD-R to be played on compatible DVD players) them on this unit, effectively making them into DVD-Video.

■ Before finalizing

- You can record onto the available space on the disc and perform editing functions, such as giving titles to discs and programs and erasing programs. You cannot record to or edit DVD-R with this

unit if it was recorded with another unit, whether it is finalized or not. You cannot record over parts that have been recorded. Erasing programs will not increase the disc's available time.

- It may not be possible for you to perform finalizing and other editing operations normally if you perform actions such as deleting programs or changing titles a total of 200 times on the same disc.

■ After finalizing

The video and audio is recorded according to the DVD-Video specifications.

- The titles you entered with this unit appear as menus.
- Programs longer than 5 minutes are divided into approximately-5-minute chapters.
- These DVD-R can no longer be recorded on or edited.
- These DVD-R can be played on other DVD players, but this is not guaranteed. Play may not be possible due to the player you are using, the DVD-R, or the condition of the recording. Use this unit to play the disc if the player is unable.

For your reference:

- The aspect ratio of recordings will be 4:3, irrespective of the aspect ratio of the program recorded. To change the aspect ratio, change the setting on the monitor television.
- It takes about 30 seconds for the unit to complete recording management information after recording finishes.
- To record on DVD-R, this unit optimizes the disc for each recording.
Optimizing is carried out when you start recording after inserting the disc or turning the unit on. Recording may become impossible after the disc is optimized more than 50 times.
- Play may be impossible in some cases due to the condition of the recording.
- We recommend using DVD-R manufactured by Panasonic as they have been tested to be compatible with this unit.
- You cannot change audio type if a DVD-R is in the unit. Select the audio type (M1 or M2) before recording by going to "Bilingual Audio Selection" in the "Sound" menu.
- A DVD-R recorded on this unit may not be recordable on other Panasonic DVD recorders.

Examples of discs that cannot be played

DVD-Video, DVD-Audio, Some DVD-R, DVD-RAM (2.6 GB/5.2 GB), 8cm DVD-R, 8cm DVD-RAM (2.8 GB), DVD-ROM, DVD-RW, +RW, CD-ROM, Audio-CDs, Video-CD, CDV, CD-G, CVD, SVCD, SACD, MV-Disc, PD, Photo CD, Divx Video Disc, etc.

Audio format logos

■ Dolby Digital



This unit can play Dolby Digital in stereo (2 channels).

Manufactured under license from Dolby Laboratories. "Dolby" and double-D symbol are trademarks of Dolby Laboratories.

Discs (continued)

Types of disc for the type of connected monitor television

When you use the discs recorded either PAL or NTSC, refer to this table. If you select the same TV system (PAL or NTSC) setting for this unit and your monitor television as the disc you want to play, the picture can be clearer.

Type of monitor television	TV system on discs.	Yes/No
Multi system monitor television	NTSC	Yes
	PAL	Yes
NTSC monitor television	NTSC	Yes
	PAL	No
PAL monitor television	NTSC	Yes* ₁ (PAL60)
	PAL	Yes* ₂

※ You may be unable to use same functions or they may function incorrectly if the TV system for the unit is different to that for the disc.

*₁ If your monitor television is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.

*₂ If you set the TV system of this unit to "PAL", the picture may be clearer.

Connecting and Setting up

Put the unit on a stable, horizontal surface where it will not be exposed to excessive dust. Do not block its vents or place where it can become hot.

First of all, please disconnect AC mains leads of all units, which you are going to connect with before connecting and disconnecting cables.

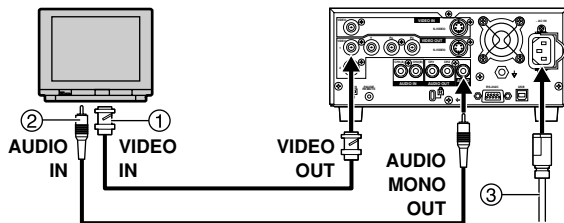
Reconnect the AC mains leads when all connections are complete. Read the instructions for the other units carefully.

Audio/video input will not be output if this unit is switched off or malfunctions. Consider other connections in the system when outputting audio/video for the purpose of monitoring input. To record essential material, use multiple units to record at the same time, or make other similar allowances in your system setup.

Connecting a Monitor television

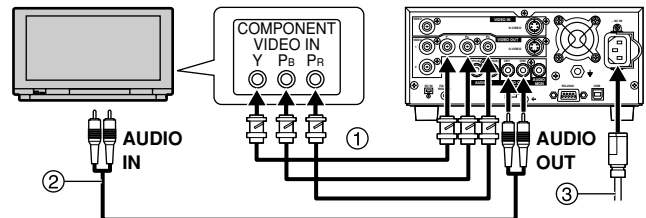
■ Composite video, monaural audio terminals

- ① Video cable (BNC)
- ② Audio cable (PHONO)
- ③ AC mains lead (supplied)



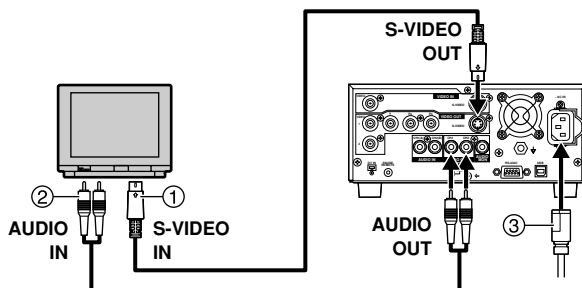
■ Component video terminals

- ① Component video (BNC x 3)
- ② Stereo Audio cable (PHONO x 2)
- ③ AC mains lead (supplied)



■ S-Video, stereo audio terminals

- ① S-Video cable (4P)
- ② Stereo Audio cable (PHONO x 2)
- ③ AC mains lead (supplied)



To set to progressive output mode

- (1) While stopped, press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the "SETUP" and press [ENTER].
- (3) Use [▲, ▼] to select the "Connection" and press [◀] or [▶].
- (4) Use [▲, ▼] to select "TV System" and press [ENTER].
- (5) Use [▲, ▼] to select "NTSC" and press [ENTER].
- (6) Use [▲, ▼] to select "Progressive (NTSC)" and press [ENTER].
- (7) Use [▲, ▼] to select "On" and press [ENTER].

To return to the previous screen

Press [RETURN].

Connecting and Setting up (continued)

COMPONENT VIDEO OUT terminal

These terminals can be used for either interlace or progressive output and provide a purer picture than the S-VIDEO OUT terminal.

Connection using these terminals outputs the color difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors.

• The description of the component video input terminals depends on the monitor television (e.g., Y/P_B/P_R, Y/B-Y/R-Y, Y/C_B/C_R).

To watch progressive video (NTSC only)

Connect to the component video (480P) input terminals on a monitor television compatible with this unit's copy guard system. (Video will not be displayed correctly if connected to an incompatible monitor television.)

• All Panasonic monitor televisions that have 480P input terminals are compatible. Consult the manufacturer if you have another brand of monitor television.

Regarding Progressive Television Picture

Progressive image aspect (height to width ratio) is set at a standard 16:9. DVD-Video which has been set at 16:9 will be displayed correctly. However, 4:3 video material will be stretched to the right and left when displayed.

To view the picture at the right aspect

- For monitor televisions that allow the aspect of progressive images to be adjusted, use the function provided on the monitor television and adjust as necessary.
- For monitor televisions which do not allow the aspect of progressive images to be adjusted, please set "Progressive (NTSC)" to "Off".

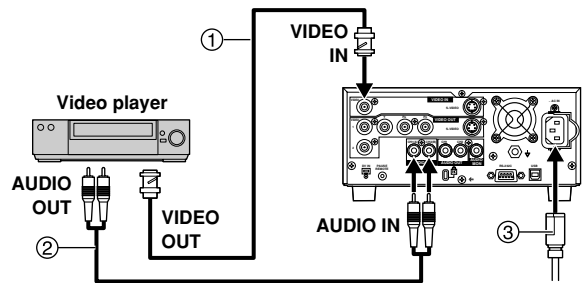
Note:

- If the unit is connected to the TV through VIDEO OUT or S-VIDEO OUT, output signal will be interlace only (even if you select progressive output).

Connecting a video player

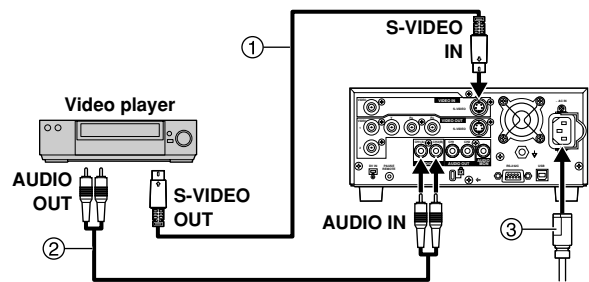
■ Composite video, stereo audio terminals

- ① Video cable (BNC)
- ② Stereo Audio cable (PHONO x 2)
- ③ AC mains lead (supplied)



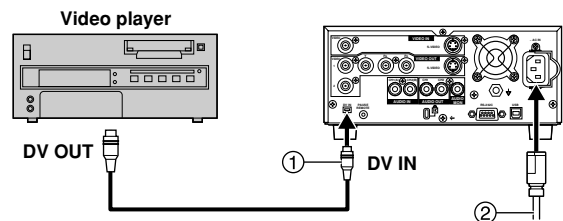
■ S-Video, stereo audio terminals

- ① S-Video cable (4P)
- ② Stereo Audio cable (PHONO x 2)
- ③ AC mains lead (supplied)



■ DV terminal

- ① DV cable (4P-4P or 4P-6P)
- ② AC mains lead (supplied)



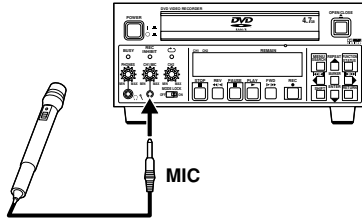
Notes:

- Be sure to observe the following points when connecting the IEEE1394 cable (DV cable).
 - This unit and all connected equipment should be used with a shared GND connection. If all equipment is not connected to a shared GND, turn off the power to all equipment before connecting or removing the IEEE1394 cable.
 - When connecting to equipment having a 6-pin terminal, connect the IEEE1394 cable to the 6-pin terminal first and then to the terminal on this unit.
 - When connecting to equipment having a 6-pin terminal, be sure to connect the end of the IEEE1394 cable that matches the terminal shape. Inserting the wrong end of the plug can damage the unit.
- The DV input on this unit is for use with DV equipment only.
- When DV equipment is connected, it is not possible to operate the unit from the other equipment.
- Only one piece of DV equipment (e.g., Digital Video Camera) can be connected to the unit via the DV Input terminal.
- The picture compression system of the DV equipment you have connected may differ from that used in this unit. In such cases, dubbing from this equipment will not be possible.

Connecting and Setting up (continued)

Connecting a Microphone

If you record while a microphone is connected, microphone signal can be recorded in channel 1.



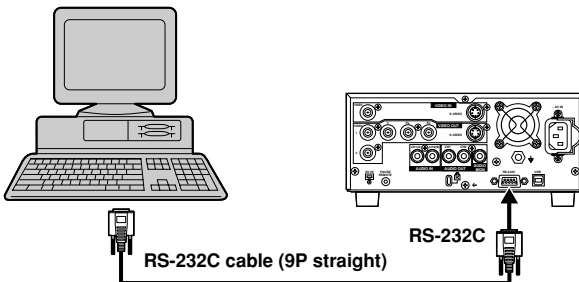
Notes:

- When a microphone is connected, the sound recorded to channel 2 is that selected in “Audio CH assignment with Mic”.
- Use a microphone with the monaural mini plug. When using a condenser microphone, select the one with built-in batteries.

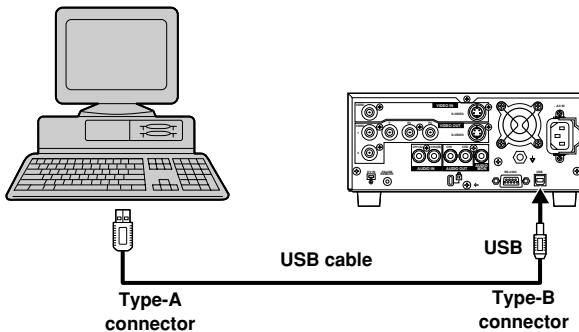
Connecting a PC

Various controls are available if you connect a computer through the RS-232C or USB terminals.

■ RS-232C terminal



■ USB terminal

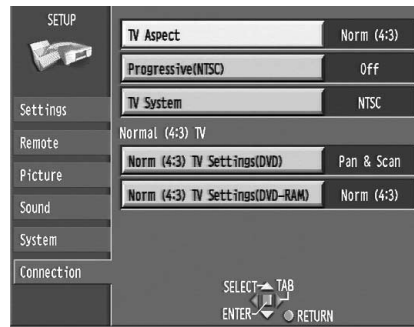


Use the following procedures to change the settings if necessary. For other items, see page 33.

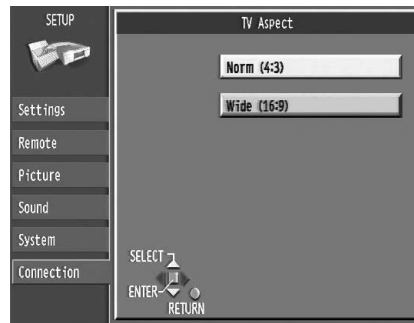
TV screen type (TV Aspect)

The aspect ratio is factory set to 4:3 for a regular monitor television. You do not have to change this setting if you have a regular 4:3 aspect monitor television.

- (1) Turn on the monitor television and select the appropriate video input to suit the connections to this unit.
- (2) While stopped, press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (3) Use [▲, ▼, ◀, ▶] to select the “SETUP” and press [ENTER].
- (4) Use [▲, ▼] to select the “Connection” and press [◀] or [▶].
- (5) Use [▲, ▼] to select “TV Aspect” and press [ENTER].



- (6) Use [▲, ▼] to select the TV aspect and press [ENTER].



- 4:3 (factory setting)
- 16:9

■ To return to the previous screen

Press [RETURN].

For your reference:

Apart from “TV Aspect”, other settings also affect how video appears on your monitor television. Check the following if video doesn't appear correctly on your monitor television.

- “Connection”—“Norm (4:3) TV Settings (DVD)” or “Norm (4:3) TV Settings (DVD-RAM)”.
- The video setting on the disc.
- How video appears is often specified by the disc itself.
- The video settings on your monitor television.

Connecting and Setting up (continued)

Input Select

After performing steps (1) to (3) of “TV Screen type”, perform the following steps:

- (4) Use [▲ , ▼] to select the “Picture” and press [◀] or [▶].
- (5) Use [▲ , ▼] to select “Input Select” and press [ENTER].
- (6) Use [▲ , ▼] to select the input and press [ENTER].
 - Select “V(VIDEO)”, “SV(S-VIDEO)”, or “DV”.

Notes:

- When “V(VIDEO)” or “SV(S-VIDEO)” is selected, the audio input is set to AUDIO IN/MIC.
- When “DV” is selected, the audio input is set to DV IN.

Rec Mode

After performing steps (1) to (3) of “TV Screen type”, perform the following steps:

- (4) Use [▲ , ▼] to select the “Picture” and press [◀] or [▶].
- (5) Use [▲ , ▼] to select “Rec Mode” and press [ENTER].
- (6) Use [▲ , ▼] to select the recording mode and press [ENTER].
 - Select “XP”, “SP”, or “LP”.

Audio Mode

Set the recording mode.

After performing steps (1) to (3) of “TV Screen type”, perform the following steps:

- (4) Use [▲ , ▼] to select the “Sound” and press [◀] or [▶].
- (5) Use [▲ , ▼] to select “Audio Mode for XP/SP Recording” and press [ENTER].
- (6) Use [▲ , ▼] to select the audio mode and press [ENTER].
 - Select “LPCM” or “Dolby Digital”.

Notes:

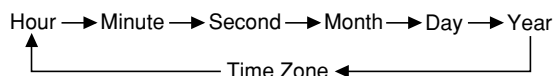
- To obtain higher quality recording, select “LPCM” (Linear PCM) and set the recording mode to “XP” or “SP”.
- Sound recordings made using LPCM require more information than those made using Dolby Digital. Consequently the picture quality with LPCM audio may be less than that with Dolby Digital audio.

Clock Settings (Clock)

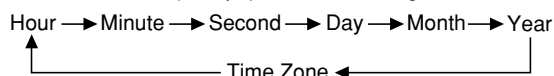
After performing steps (1) to (3) of “TV Screen type”, perform the following steps:

- (4) Use [▲ , ▼] to select the “Settings” and press [◀] or [▶].
- (5) Use [▲ , ▼] to select “Clock” and press [ENTER].
- (6) Use [◀ , ▶] to select the item you want to change.

- For LQ-MD800P (USA and Canada), the items change as follows:



- For LQ-MD800E (Europe), the items change as follows:



- (7) Use [▲ , ▼] to change the setting and press [ENTER].

Notes:

- Set the clock before using this unit because it is not set prior to shipment.
- The year can be set between 1988 and 2087 inclusive.
- The battery for the clock operates for approximately 3 years.
- “Time Zone” shows time difference from GMT (Greenwich Mean Time). Set “Time Zone” (-12 to +12) according to the local time (see page 37).

Initialize all Settings (Shipping Condition)

The all settings in the SETUP screen return to the factory settings (except for the TV screen setting and the time, date and time zone settings of the clock).

After performing steps (1) to (3) of “TV Screen type”, perform the following steps:

- (4) Use [▲ , ▼] to select the “Settings” and press [◀] or [▶].
- (5) Use [▲ , ▼] to select “Shipping Condition” and press [ENTER].
- (6) Use [◀ , ▶] to select “Yes” and press [ENTER].
- (7) Use [◀ , ▶] to select “Yes” and press [ENTER].

■ To stop the above operation partway

Select “No” in step (6) or (7) and press [ENTER] or [RETURN].

Recording programs

RAM DVD-R

- Use a disc that can be recorded on and that has enough space available.
- Ensure the write protect tab is not set to "PROTECT".
- Ensure the disc is not write-protected with DISC INFORMATION.

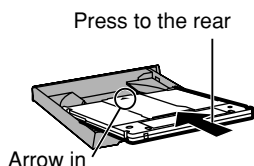
RAM

- When using a disc in this unit for the first time, format it for more precise recording.

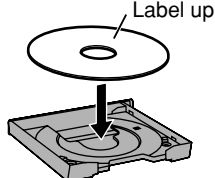
(1) Press [OPEN/CLOSE ▲] to open the tray and insert a disc.

- Insert one disc only within the tray's guides.
- Press [OPEN/CLOSE ▲] to close the tray.
- Insert label-up with the arrow facing in. (With double-sided discs, load so the label for the side you want to record is facing up.)

• Disc with cartridge



• Disc without cartridge



(2) Select the input on the MENU window.

- Select "(VIDEO)", SV(S-VIDEO)", or "DV".

(3) Select the recording mode.

- Select "XP", "SP", or "LP".

(4) Select the audio mode.

- Select "LPCM" or "Dolby Digital".

(5) Adjust the audio recording level.

- Adjust the audio REC Level control (CH1/MIC or CH2) on the front panel.

(6) Press [REC ●] to start recording.

- The program which has already been recorded is not overwritten.

Notes:

- This unit does not support recording the signal from a computer.
- If recording is impossible when using DV IN, check the connections and the settings of DV equipment, turn the unit off, and then turn it on again.
- You can record up to 99 programs on one disc.
- The message "Cannot record. Maximum number of programs recorded." is displayed if you try to start recording when there are already 99 programs on a disc. Erase unneeded programs (DVD-RAM/DVD-R) or use a new disc to continue recording.
- Do not vibrate the unit while recording.

For your reference:

- Poor video quality or coloring may indicate that the material you are recording has copy protection.
 - Select the TV system (NTSC/PAL) of the program you wish to record.
 - We recommend connecting one piece of DV equipment at a time.
 - When DV equipment is connected, it is not possible to use the DV terminal and operate the unit from other equipment.
 - In the case of some DV equipment, pictures and sound may not be received properly.
 - If there is no monitor television picture when playing back from an external device, turn the external device off and then on once again.
 - 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.
 - When recording from DV equipment, the audio setting can be made at "Audio Mode for DV Input".
 - You cannot change the input or the recording mode during recording or when recording is paused.
 - An error message appears if you try to start recording when a disc is full; the remaining time will be shown as "0:00". To continue recording, erase unneeded programs (DVD-RAM only, "Erasing programs") or use another disc.
 - If the character set recorded on a disc is different from the set designated for each region when recording to, editing, or finalizing its disc, titles may not be displayed.
- When using discs recorded with a DVD video recorder for a different destination, do not perform all operations except play.

- There are limitations when recording to DVD-R (see page 11).
- DVD-RAM use a more reliable recording system than DVD-R. Use DVD-RAM for important recordings.
- The condition of the unit and video input may cause the picture to be momentarily disrupted.
- Scratches and dirt on a disc may make it impossible to record for a few seconds.

■ To pause recording

Press [PAUSE ■].

Press again to restart recording.

■ To stop recording

Press [STOP ■].

■ Re-inserting double-sided discs

You can get up to 8 hours recording when you use double-sided discs and use the "LP" mode.

■ Recording modes and approximate recording times in hours

	DVD-RAM		DVD-R (4.7 GB)
	Single-sided (4.7 GB)	Double-sided (9.4 GB)	
XP (High quality)	1	2	1
SP (Normal)	2	4	2
LP (Long play)	4	8	4

■ When using DVD-R

- You can play DVD-R on compatible DVD players by finalizing them on this unit, effectively making them into DVD-Video.
- The video is recorded in a 4:3 aspect irrespective of the video signal input.

■ Recording sound using LPCM

To obtain higher quality recordings using LPCM, prepare as follows:

- (1) Select "LPCM" in the SETUP menu, "Sound"->"Audio Mode for XP/SP Recording".
- (2) Set recording mode to "XP" or "SP".

Note:

- Sound recordings made using LPCM require more information than usual. Consequently the picture quality of LPCM recordings may worsen.

■ When using DVD-R or discs with LPCM recording

When recording bilingual audio with connecting to a decoder or a digital receiver, select the audio type either "M1(Main audio)" or "M2(Secondary audio)" on the connected devices. (You cannot select the audio type on this unit.)

For your reference:

RAM

- Both audio types of "M1" and "M2" can be recorded. (When playing, you can select either one.)

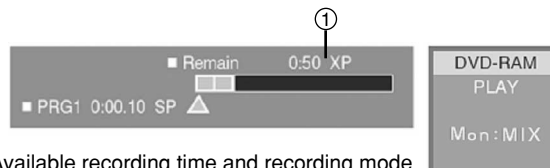
Note:

DVD-R

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

■ To check the remaining time and the current mode during recording

Press [STATUS] several times to show the following displays.



- (1) Available recording time and recording mode (e.g., "0:50 XP" indicates 50 minutes in XP mode)

Playing discs

(1) Press [OPEN/CLOSE ▲] to open the tray and insert a disc.

- Insert label-up with the arrow facing in. (With double-sided discs, load so the label for the side you want to play is facing up.)
- Insert inside the tray's guides.
- insert one disc only.

(2) Press [OPEN/CLOSE ▲] to close the tray.

- The unit takes several seconds to read the disc.

(3) Press [PLAY ►] to start play.

RAM DVD-R

- Playback starts from the most recently recorded program.

DVD

- Playback starts from the beginning of the disc.

■ To pause play

Press [PAUSE ||].

Press again to restart playing.

■ To stop play

Press [STOP ■].

(Starting play from where you stopped it)

- A screen similar to the illustrated may appear when you stop play.



Starting play from where you stopped it (Resume Function)

(1) During play, press [STOP ■].

- The unit remembers the position.

(2) Press [PLAY ►].

- Play starts from where you stopped it.
- The STOP button lights and the PLAY button flashes when the resume function is operating.

■ To cancel the resume function

Press [STOP ■] while the unit remembers the position. (The position is also cleared when you turn the unit off.)

- The STOP button lights and the PLAY button goes out when the resume function is not operating.

Fast forward and rewind

While stopped, press and hold

[REV ◀◀] or [FWD ▶▶].

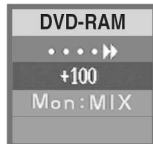
- The disc is skipped to the beginning or end and play is paused.

During play, press [REV ◀◀] or [FWD ▶▶].

- There are 5 search speeds. Each press increases the search speed.
- The speed shown is approximate.
- Press [PLAY ►] to return to normal play.
- You will hear sound during fast forward play at the first search speed of the five ones.

DVD

- After the title number changes, the unit returns to normal play.



Slow-motion play

While paused, press [REV ◀◀] or [FWD ▶▶].

- There are 5 slow-motion speeds. Each press increases the slow-motion speed.
- Press [PLAY ►] to return to normal play.
- The speed shown is approximate.

DVD

- After the title number changes, the unit returns to normal play.
- Play may not operate smoothly at some slow-motion speeds.

Frame-by-frame viewing

While paused, press [◀◀/◀] or [▶/▶▶].

[◀◀/◀] : backward

[▶/▶▶] : forward

- Each press shows the next or previous frame.
- Press [PLAY ►] to return to normal.

Skipping

You can skip to the beginning of tracks and chapters or markers and restart play from there.

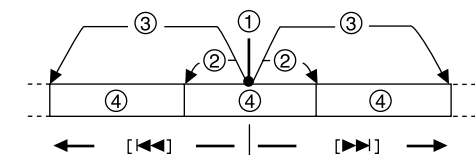
During play or while paused, press [SHIFT+◀◀/◀] or [SHIFT+▶/▶▶].

[◀◀/◀] : backward

[▶/▶▶] : forward

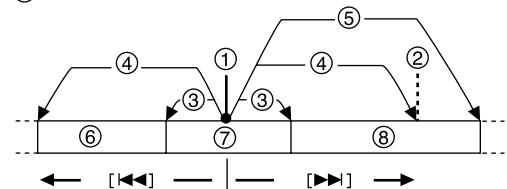
- Each press increases the number of skips.

DVD



- ① Play position/ Pause position
- ② Once
- ③ Twice
- ④ Chapter/track

RAM DVD-R



- ① Play position/ Stop position
- ② Marker
- ③ Once
- ④ Twice
- ⑤ Three times
- ⑥ The program before
- ⑦ Current program
- ⑧ The program after

Note:

RAM DVD-R

- When you are at stop position, you cannot move to the Marker even if you press [◀◀/◀] or [▶/▶▶].

For your reference:

- After skipping, the unit returns to the previous state, play or pause.
- Press [PLAY ►] to restart play if it was paused.
- During play, only pressing [◀◀/◀] or [▶/▶▶] allows skip.

Playing discs (continued)

Skip five minutes forward or backward (Time slip)

RAM DVD-R

During play, press [SHIFT + REV ◀◀/◀] or [SHIFT + FWD ▶/▶▶].

[◀◀/◀]: to skip back five minutes

[▶/▶▶]: to skip forward five minutes

- Repeat to skip in five-minute units.

Note:

- You cannot use this feature while a "SEARCH" or "PLAY LIST" screen is being displayed.
- You cannot skip over the beginning or end of a program or title.

Instant repeat play (Instant Repeat)

Select a part of the disc to play repeatedly.

During normal play, press [REPEAT (SHIFT + ▲)].

- The point where you pressed the button is the end of the repeated section. Select the duration of the section in Repeat Duration in the SETUP menus.
- Instant repeat continues to function even if you pause play, restart play, start slow motion, or frame-by-frame. Instant repeat is cancelled if you stop play, skip items, or start recording or search.

Notes:

- You cannot use instant repeat play while playing a play list or while a FUNCTION menu is on the screen.
- Instant repeat play works only within a program. Instant repeat play may start from the beginning of the program if you press the button soon after the program starts.
- During instant repeat play, even if you pass the beginning of the repeat section during reverse slow motion or frame-by-frame, these operations continue and the section does not start repeating.

Marking places to play again (MARKER)

RAM DVD-R

- You can mark up to 999 points on a disc to return to later. These marks are recorded directly onto DVD-RAM and saved even if you remove the disc, but are cleared when you finalized DVD-R.

DVD

- You can mark up to 5 points on a disc to return to later.
- All the markers are cleared when the disc tray is opened.

Marking positions directly

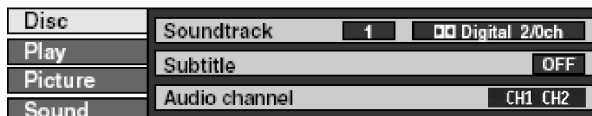
While played or paused, press [MARKER (SHIFT + ENTER)].

- One marker is added.

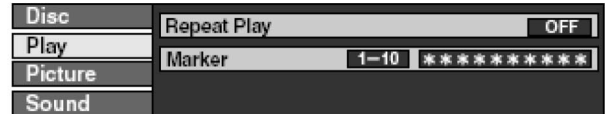
Using FUNCTION menus to mark positions

■ Displaying the marker icon

(1) While played or paused, press [FUNCTION (SHIFT + STATUS)].



(2) Use [▲, ▼] to select the Play tab and press [▶].



(3) Use [▲, ▼] to select "Marker" and press [▶] to highlight the first asterisk (*).

RAM DVD-R



DVD



■ Marking positions

(1) Use [◀, ▶] to select an asterisk (*).

(2) Press [ENTER].

- The asterisk changes to a number and one marker is added.

■ When marking positions 11 and above

RAM DVD-R

(1) Use [◀, ▶] to highlight "1-10".

(2) Use [▲, ▼] to select "11-20".

- You can select the next group of 10 when the current group is full.

(3) Use [▶].

- The first asterisk is highlighted.

(4) Press [ENTER] to mark a position.

To play from a marked position

(1) Use [◀, ▶] to select a marker number.

(2) Press [ENTER].

- Play starts from the marked position.

■ To clear a marker

Use [◀, ▶] to select a marker number and press [SHIFT + RETURN].

■ To clear the FUNCTION menus

Press [FUNCTION (SHIFT + STATUS)].

Notes:

RAM

- This feature doesn't work while using a play list.
- Markers cannot be added to or removed from discs that are protected.

RAM DVD-R

- The markers are ordered by time. This means that the marker numbers can change when you add and erase markers.

DVD

- This feature only works if the elapsed playing time of the disc is shown on the unit's display.
- Some subtitles recorded around the marker may fail to appear.

Status displays

Changing the information displayed

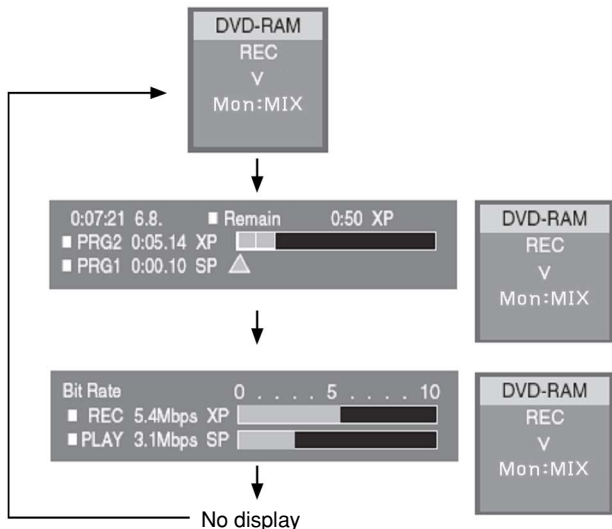
Displays appear on the monitor television when you operate the unit to let you know what operation was performed and what condition the unit is in.

Press [STATUS] to change the information displayed.



The display changes each time you press the button.

For example, DVD-RAM



Display examples



(When "On Screen Status: Window Type" is "Normal")



(When "On Screen Status: Window Type" is "Small")

① Current media

② Current recording or play status, input channel

- Shows the current state of the unit, and the input channel.

REC: Recording

PAUSE: Recording paused

PLAY: Playing

|| : Playing Paused

▶▶ : Fast forwarding (5 speeds)

◀◀ : Rewinding (5 speeds)

▶ : Slow-motion (5 speeds)

◀ : Reverse slow-motion (5 speeds)

V: VIDEO IN

SV: S-VIDEO IN

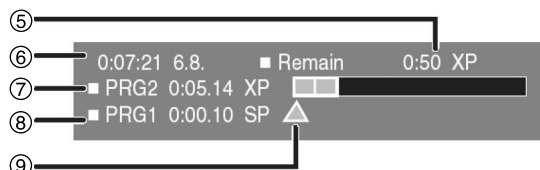
DV: DV IN

③ Monitor audio

MIX, CH1, CH2: To select the mode, use the FUNCTION menus.

④ Sound mode

CH1 CH2, CH1, CH2: To select the mode, use the FUNCTION menus.
When "CH1 CH2" is selected, display ④ is blanked.



⑤ Available recording time and recording mode

(e.g., : "0:50 XP" indicates 50 minutes in XP mode)

⑥ The current date and time

(for USA and Canada)

Hour, Minute, Second

Month, Day, Year

(for Europe)

Hour, Minute, Second

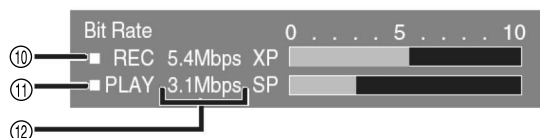
Day, Month, Year

⑦ Recording time

- Shows recording time, recording mode and a rough guide to how much space has been used for recording on the disc.

⑧ Elapsed play time

⑨ Play position



⑩ Video bit-rate when recording

⑪ Video bit-rate when playing

⑫ Bit-rate, recording mode, or picture type display

- Shows as Mbps (Mega-bit per seconds) during play and recording, or kbit (kilobit) while paused.
- The method of calculating bit-rate for recording and playing is different so there may be differences in the figures displayed. (Values are approximate.)
- While paused, the picture type (I, P, or B) is displayed.

For your reference:

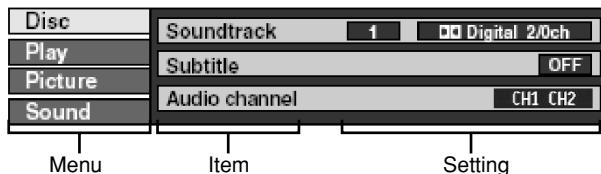
- To cancel the status displays, press [STATUS] to blank the screen and set "On-Screen Status: Mode" in the "Display" menu to "Off". If set to "Automatic", displays ①, ②, ③ and ④ appear for 5 seconds and then disappear.
- Select the size and position of the on-screen status window with "On-Screen Status : Window Size" and "On Screen Status : Window Type".
- When "On-Screen Status: Window Type" is set to "R-Bottom" or "L-Bottom" and the TV system of a disc you play differs from that of this unit, the on-screen status window does not appear at the normal position.

Using the FUNCTION menus

FUNCTION menus contain information about the disc or unit. These menus allow you to perform operations by changing this information.

Common procedures

- (1) During play, press [FUNCTION (SHIFT + STATUS)].



- (2) Use [▲, ▼] to select the menu and press [▶].

- (3) Use [▲, ▼] to select the item and press [▶].

- (4) Use [▲, ▼] to select the setting.

- Some options require different operations. Follow the on-screen instructions and the instructions described later.

■ To return to the previous screen

Press [RETURN].

■ When you are finished

Press [FUNCTION (SHIFT + STATUS)].

For your reference:

- The screens depend on the disc contents and the FUNCTION menu is not displayed when a disc is not inserted in the unit.
- Depending on the condition of the unit (playing, stopped, etc.) and the type of software you are playing, there are some items that you cannot select or change.

Disc menu

Disc	Soundtrack	1	Digital 2/0ch
Play	Subtitle	OFF	
Picture	Audio channel	CH1 CH2	
Sound			

■ Soundtrack

Soundtrack language DVD

Change the number to select a soundtrack.

Audio attribute

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

■ Subtitle

Subtitle language DVD

Change the number to select a subtitle language.

Subtitles on/off

Turn the subtitles ON or OFF.

■ Audio channel RAM

Change the output audio channel.

While playing a DVD-RAM.

CH1 ↔ CH2 ↔ CH1 CH2 (No display) DVD-RAM
PLAY
Mon:MIX

The selected setting is reflected in the status display.

① e.g., : "CH1 CH2" is selected

■ Angle DVD

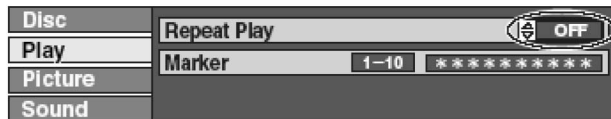
Change the number to select an angle.

For your reference:

- You cannot change the audio, subtitles, or angles on DVD-Video created on this unit.

Using the FUNCTION menus (continued)

Play menu

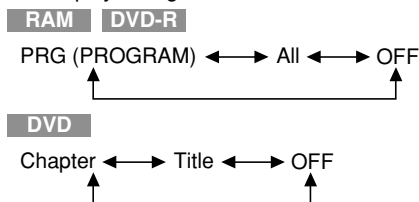


Repeat Play

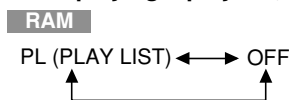
You can play a program, play list, chapter, title, group or track repeatedly.

During play, use [▲, ▼]

The display changes as illustrated.



While playing a play list, use [▲, ▼]



Notes

- Repeat play may not work as desired with some discs.
- Repeat play does not work if the disc's elapsed play time is not shown on the unit's display.
- To change from instant repeat play to repeat play, stop instant repeat play before using repeat play.

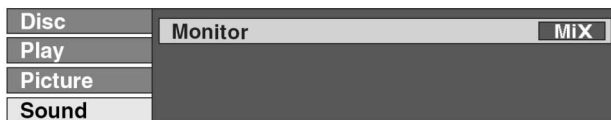
RAM

- You cannot use repeat play in a row for two or more play lists.

Marker

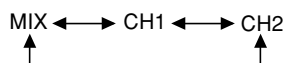
You can mark points on a disc to return to later (see page 18).

Sound menu



Monitor

This is used to select the audio signal to the AUDIO MON connector



Picture menu



MODE

Normal: Default setting

Soft: Soft picture with fewer video artifact

Fine: Details are Fine mode

Cinema: Enhances detail in dark scenes.

User: You can make further adjustments next parameter.

Page 1/2 of "Detail picture adjustment"

"User" → [◀] → [▼] → [ENTER]

Contrast: Increases the contrast between light and dark parts of the picture (-7 to +7).

Brightness: Brightens the picture (0 to +15).

Sharpness: Adjust the sharpness of the edges of the horizontal line (-6 to +6).

Color: Adjust the shade of the picture's color (-7 to +7).

Page 2/2 of "Detail picture adjustment"

"User" → [◀] → [▼] → [ENTER] → [▲]

Gamma: Increases the brightness of the center ranges to improve detail and contrast in dark scenes (0 to +5).

3D NR: Reduces overall noise (0 to +4).

Block NR: Smoother block noise (0 to +3).

Mosquito NR: Reduces the smudging that appears around contrasting sections of the picture (0 to +3).

- Press [ENTER] or [RETURN] to enter the setting.

- To initialize "Detail picture adjustment", open the "Detail picture adjustment" screen and press [SHIFT + RETURN].

DNR

When any item other than "User" is select, you can turn the recommended setting for 3D NR, block NR, and mosquito NR on and off.

ON ↔ OFF

Progressive

This menu is displayed only when setting both

- Progressive (NTSC) to "ON" and "TV System" to "NTSC" in "Connection" Menu.

ON: Enables progressive output

OFF: Disables progressive output

Transfer (When progressive output is ON)

Select the method of conversion for progressive output to suit the type of material being played.

Auto1: For film material

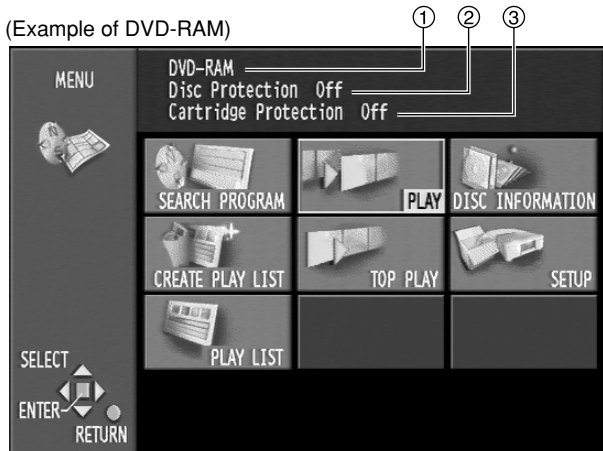
Auto2: For video material (the same as Auto1, but able to convert 30 frames per second progressive video)

Video: For video material

Using the MENU window

About the MENU window

Most of the features and functions of this unit can also be controlled with icons. The examples show the MENU window when a DVD-RAM is being used. Actual menus depend on the type of disc being used.



① Disc type/Disc title

- The type of the disc you inserted is displayed.
- The disc's title is displayed if one is recorded. You can enter titles with "Enter Title" in DISC INFORMATION.

② Disc Protection

- "On" is displayed if you have used Disc Protection in DISC INFORMATION to protect the disc.

③ Cartridge Protection

- "On" is displayed if the cartridge's write protect tab is switched to "PROTECT".

Using the MENU window

(1) While stopped, press [MENU (SHIFT + SEARCH)] to show the MENU Window.

(2) Use [▲, ▼, ◀, ▶] to select an item.

- Refer to the relevant pages for details.

(3) Press [ENTER].

- Your selection is entered and the MENU window disappears. If the operation requires further selections, another screen appears.

■ To clear the MENU window

Press [MENU (SHIFT + SEARCH)] or [RETURN].

■ MENU window icons

SEARCH PROGRAM



Erase:	RAM	DVD-R
Enter Title:	RAM	DVD-R
Properties:	RAM	DVD-R
Protection:	RAM	DVD-R
Partial Erase:	RAM	
Divide:	RAM	

CREATE PLAY LIST



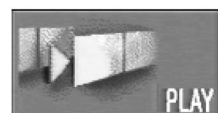
Creating play lists: RAM

PLAY LIST



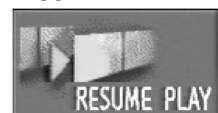
Playing Play Lists:	RAM
Play Scenes:	RAM
Edit:	RAM
PL Copy:	RAM
PL Erase:	RAM
Enter Title:	RAM
Properties:	RAM

PLAY



Disc play: RAM DVD-R DVD

RESUME PLAY



Start play from the point you stopped play: RAM DVD-R DVD

TOP PLAY



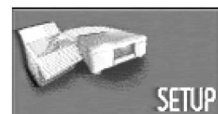
Start play from the oldest program on the disc: RAM DVD-R DVD

DISC INFORMATION



Enter Title:	RAM	DVD-R
Disc Protection:	RAM	
Erase all programs:	RAM	
Format:	RAM	
Finalize:	DVD-R	

SETUP



Settings for the unit and discs:

RAM DVD-R DVD

TOP MENU / MENU



Display disc's menus: DVD

(Example)

Note:

- Some items will not be shown unless you release disc protection with DISC INFORMATION—"Disc Protection" or release cartridge protection with the write protect tab.

DISC INFORMATION

The following functions can be used for a disc you have recorded on.

About DISC INFORMATION

RAM DVD-R

- You can give discs titles – Enter Title
- You can write-protect and write-enable DVD-RAM – Disc Protection
- You can erase all programs and play lists on DVD-RAM – Erase all programs
- You can format DVD-RAM – Format
- You can finalize DVD-R so they can be played on compatible DVD players – Finalize

Enter Title

RAM DVD-R

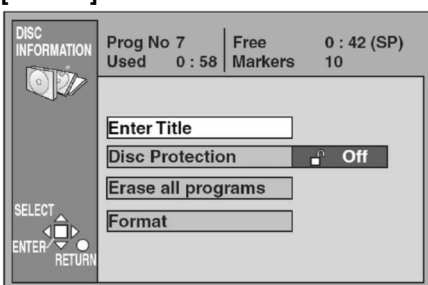
Each disc can be given a different title.

(1) While stopped, press [MENU (SHIFT + SEARCH)].

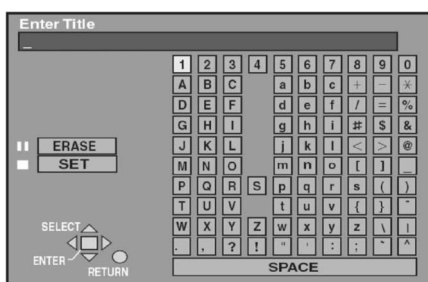
(2) Use [▲, ▼, ◀, ▶] to select “DISC INFORMATION” and press [ENTER].



(3) Use [▲, ▼] to select “Enter Title” and press [ENTER].



(4) Enter the title.



Notes:

- You can give DVD-RAM titles of up to 64 characters and DVD-R titles of up to 40 characters.
- The 31st letter or later on some finalized DVD-R may not be displayed due to the font size of titles.
- You cannot give DVD-R titles once they have been finalized.
- For details on entering titles, see page 32.

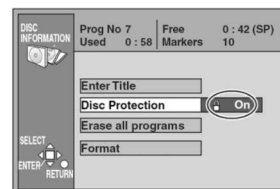
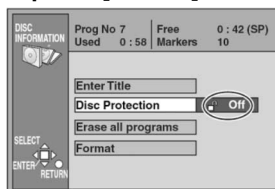
Disc Protection/Releasing disc protection

RAM

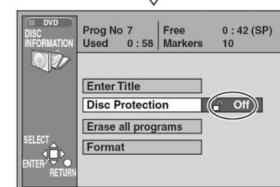
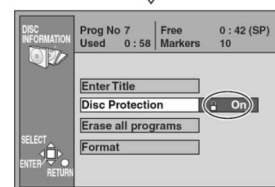
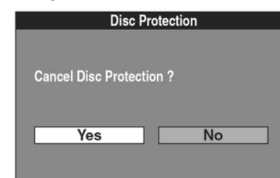
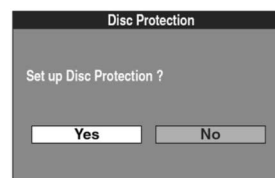
This allows you to protect discs from accidental erasure.
This allows you to release disc protection.

After performing steps (1) to (2) of “Enter Title”, perform the following steps:

(3) Use [▲, ▼] to select “Disc Protection” and press [ENTER].



(4) Use [◀] to select “Yes” and press [ENTER].



To stop partway through

Select “No” in step (4) and press [ENTER] or [RETURN].

Erase all programs

RAM

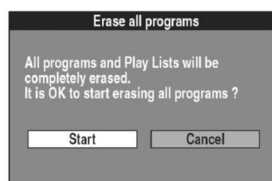
All programs and play lists created from them will be erased irretrievably when you use this procedure.

After performing steps (1) to (2) of “Enter Title”, perform the following steps:

(3) Use [▲, ▼] to select “Erase all programs” and press [ENTER].

(4) Use [◀] to select “Yes” and press [ENTER].

(5) Use [◀] to select “Start” and press [ENTER].



All programs and play lists are erased.

To stop partway through

Select “No” in step (4) or “Cancel” in step (5) and press [ENTER] or [RETURN].

Notes:

- The disc title will also be erased.
- If protection is active on even one program, you cannot erase all programs.

For your reference:

- You cannot erase computer data.
- Nothing will be erased if the disc is write-protected.

DISC INFORMATION (continued)

Format

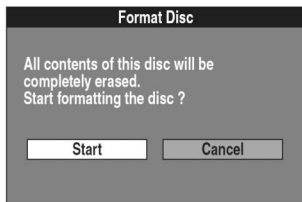
RAM

Some DVD-RAM are unformatted. You must format these discs before you can use them in this unit. Formatting also allows you to erase the entire contents of a disc.

All programs and play lists created from them will be erased irretrievably when you use this procedure.

After performing steps (1) to (2) of “Enter Title”, perform the following steps:

- (3) Use [▲ , ▼] to select “Format” and press [ENTER].
- (4) Use [◀] to select “Yes” and press [ENTER].
- (5) Use [◀] to select “Start” and press [ENTER].



- Formatting starts. The message “Formatting is complete” appears when formatting is finished. All recordings are irretrievably erased when a disc is formatted. Check the disc carefully before formatting to ensure it doesn't contain any programs you want to keep.

■ To stop formatting

Select “No” in step (4) or “Cancel” in step (5) and press [ENTER] or [RETURN].

Do not turn the unit off or disconnect the AC mains lead cord while the message “Formatting the disc” is on the monitor television. This can render the disc unusable.

Notes:

- This can take up to 70 minutes. You can cancel formatting if it takes more than 2 minutes by pressing [RETURN]. The disc must be reformatted if you do this.
- All data on the disc is erased when it is formatted, including recordings made with this unit. Data written to the disc by a computer is also erased.

For your reference:

- The disc cannot be formatted if the write protect tab is switched to “PROTECT”. Release the protection to continue.
- Formatting cannot be performed on DVD-R.
- The message “**Unable to format**” appears when you try to format discs this unit cannot use.
- If you have used the search program to protect a program, the message “**Contents on the disc have been protected. Start formatting the disc?**” appears in step (5). Select “Start” if you want to format the disc. The contents will be erased even if they have been protected.

Finalize - Creating DVD-Video

DVD-R

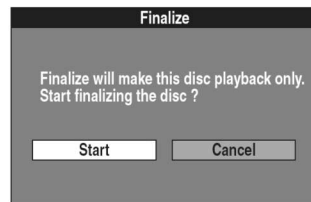
You can play DVD-R on compatible DVD players by finalizing them on this unit, effectively making them into DVD-Video.

You can also use the menus created with this unit on compatible DVD players.

You must be sure you wish to finalize the disc because once it has been finalized it cannot be retrieved.

After performing steps (1) to (2) of “Enter Title”, perform the following steps:

- (3) Use [▲ , ▼] to select “Finalize” and press [ENTER].
- (4) Use [◀] to select “Yes” and press [ENTER].
- (5) Use [◀] to select “Start” and press [ENTER].



- Finalizing starts. The message “Finalizing is finished” appears when finalizing is finished.

■ To stop finalizing

Select “No” in step (4) or “Cancel” in step (5) and press [ENTER] or [RETURN].

Do not finalize discs that are dirty or dusty. Do not turn the unit off, vibrate the unit or disconnect the power supply cord while the message “Finalizing the Disc” is on the monitor television. This can render the disc unusable. If finalizing fails, you will be unable to play any of the material recorded on the disc.

Notes:

- You can finalize DVD-R only that were recorded on this unit.
- If you try to use other equipment to finalize DVD-R recorded on this unit, it may be impossible.
- You cannot record on DVD-R that have been finalized.
- Programs longer than 5 minutes will be divided into about-5-minute chapters.
- The markers you entered will be lost.
- Finalizing takes up to about 15 minutes.

Using the SEARCH PROGRAM

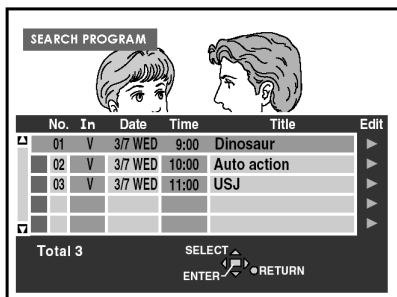
The following functions can be used for a disc you have recorded on.

Selecting programs to play

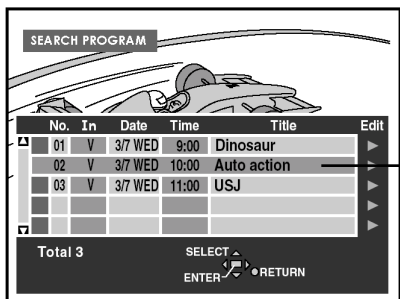
RAM DVD-R

A list of programs is created as you record them. You can use this list to find the programs you want to watch.

- (1) While played, stopped, or paused, press [SEARCH].



- (2) Use [▲, ▼] to select the program you want to watch and press [ENTER].



For example, when you select program number 2.

- Play of the images that were playing in the background continues.

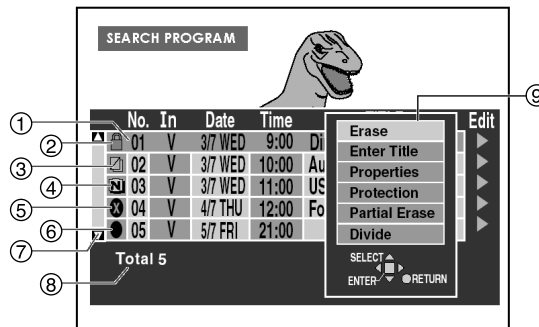
To clear the program list

Press [SEARCH] or [RETURN].

For your reference:

- Titles are only displayed if you have given the program a title.
- The unit's clock must be set correctly.

About the program list



- Program number, Input signal name, recording date, time recording started, program title (if entered)**
 - Program 1 is selected in the example.
- Write-protected:**
 - Displayed when you have protected the program. Program 1 has been protected in the example.
- Copy-protected/Different TV system (PAL or NTSC):**
 - Displayed when you have recorded a program that has copy protection.
 - Displayed when the program failed to record so that the TV system of the program is different from the setting in SETUP.
- NTSC / PAL:**
 - Displayed when you recorded using a different encoding system from that of the TV system currently selected on the unit.
- Unable to play:**
 - Displayed if you cannot play the program.
- Currently recording:**
 - Displayed when the program is being recorded.
- Scroll bar**
 - If there are more than 5 programs, you can move down the list by using [▲, ▼] and this bar shows your approximate position in the list.
- Total number of programs**
 - Shows the total number of programs.
- Sub menu**
 - Displayed when you use [▶].
 - Erase a program (Erase).
 - Enter or edit a title (Enter Title).
 - Check program's contents (Properties).
 - Write-protect a program (Protection).
 - Erase part of a program (Partial Erase).
 - Divide a selected program into two (Divide).

For your reference:

- The list can show up to 99 programs that you have recorded.
- When using DVD-R, "Partial Erase" and "Divide" are not displayed in the submenu.
- The contents of the list are recorded on the disc.

RAM

- When the disc is protected, you can only access "Properties". Release the protection to access other items.

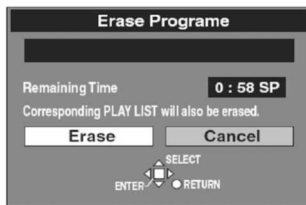
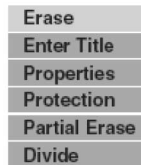
Using the SEARCH PROGRAM (continued)

Erasing programs (Erase)

RAM DVD-R

The program is erased completely when you use this procedure and cannot be retrieved. Check the program carefully before erasing it to ensure it isn't one you want to keep.

- (1) Press [SEARCH].
- (2) Use [▲, ▼] to select the desired program.
- (3) Use [▶] so the submenu appears.
- (4) Use [▲, ▼] to select "Erase" and press [ENTER].
- (5) Use [◀] to select "Erase".



- (6) Press [ENTER].

■ To stop partway through

Select "Cancel" in step (5) and press [ENTER] or [RETURN].

For your reference:

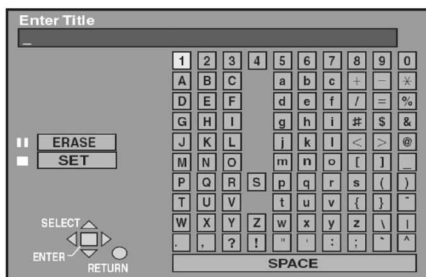
- The disc's available recording time may not increase after erasing short programs.
- Computer data is not erased.
- The available recording time on DVD-R does not increase when you erase programs.

Entering and editing program titles (Enter Title)

RAM DVD-R

After performing steps (1) to (3) of "Erasing programs", perform the following steps:

- (4) Use [▲, ▼] to select "Enter Title" and press [ENTER].
- (5) Enter or edit the title.



(see page 32)

For your reference:

- You can give DVD-RAM titles of up to 64 characters
- The 33rd letter or later on some finalized DVD-R may not be displayed due to the font size of titles.
- You can give DVD-R titles of up to 44 characters.
- The full title is shown in the "Properties" screen, but if you enter a long title, only part of it is shown in the program list.

Checking program contents (Properties)

RAM DVD-R

You can check the contents of a selected program.

After performing steps (1) to (3) of "Erasing programs", perform the following steps:

- (4) Use [▲, ▼] to select "Properties" and press [ENTER].
 - The contents of the program are shown.



■ To return to the previous screen

Press [RETURN].

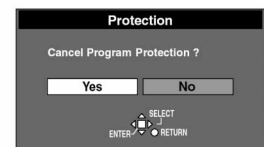
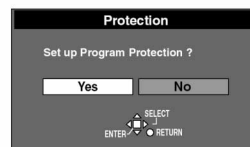
Protecting programs/Releasing program protection (Protection)

RAM

You can prevent accidental erasure of programs by write-protecting them.

After performing steps (1) to (3) of "Erasing programs", perform the following steps:

- (4) Use [▲, ▼] to select "Protection" and press [ENTER].
- (5) Use [◀] to select "Yes" and press [ENTER].



The padlock mark appears.



The padlock mark disappears.

■ To stop partway through

Select "No" in step 5 and press [ENTER] or [RETURN].

For your reference:

- Programs will be erased even if they are protected if you format the disc with DISC INFORMATION.

Using the SEARCH PROGRAM (continued)

Erasing parts of a program (Partial Erase)

RAM

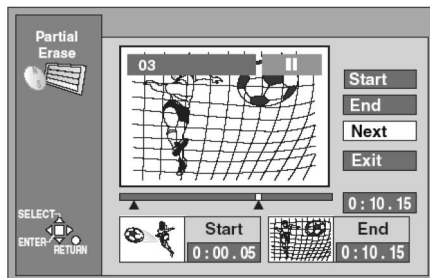
The specified parts of the program are erased completely when you use this procedure and cannot be retrieved. Check the program carefully to ensure it isn't one you want to keep.

After performing steps (1) to (3) of "Erasing programs", perform the following steps:

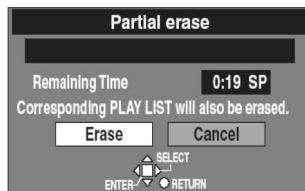
- (4) Use [▲, ▼] to select "Partial Erase" and press [ENTER].
- (5) Use search functions such as fast-forward and slow-motion to find the start point of the part you want to erase and press [ENTER].



- (6) Use search functions such as fast-forward and slow-motion to find the end point of the part you want to erase and press [ENTER].



- (7) Use [▲, ▼] to select "Exit" and press [ENTER].
- (8) Use [◀] to select "Erase" and press [ENTER].
 - Play lists created with the erased part are also erased.



■ To stop partway through

Select "Cancel" in step (8) and press [ENTER] or [RETURN].

■ To erase another part of the same program

Select "Next" in step (7) and perform step (8), then repeat steps (5)–(8).

For your reference:

- Use search and slow-motion to find the points.
- You cannot specify an end point before a start point or a start point after an end point.
- You may not be able to specify start and end points within 3 seconds of each other.
- You cannot specify start and end points if the picture recorded is stilled.

- The unit pauses play when the end of the program is reached during this procedure.
- The disc's available recording time may not increase after erasing short parts of programs.
- You cannot use the [STOP ■] button while finding start and end points.

Dividing programs (Divide)

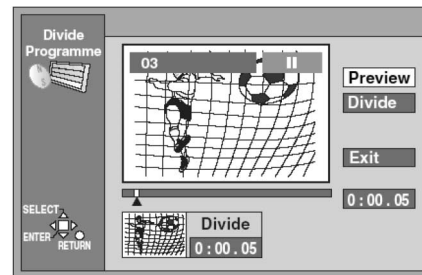
RAM

You can divide a selected program into two.

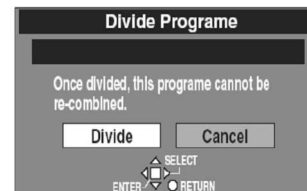
You must be sure you wish to divide a program because once a program has been divided it cannot be returned to its original form.

After performing steps (1) to (3) of "Erasing programs", perform the following steps:

- (4) Use [▲, ▼] to select "Divide" and press [ENTER].
- (5) Use search functions such as fast-forward and slow-motion to find the point you want to divide and press [ENTER].



- (6) Use [▲, ▼] to select "Exit" and press [ENTER].
- (7) Use [◀] to select "Divide" and press [ENTER].
 - The program is divided at the point.



■ To stop partway through

Select "Cancel" in step (7) and press [ENTER] or [RETURN].

■ To change the point to divide

Select "Divide" in step (6), then repeat steps (5)–(7).

■ To check the division point

By selecting "Preview" in step (6) and pressing [ENTER], play will begin from a point 10 seconds prior to the division point. You may wish to make sure that the division point is at an appropriate location.

Notes:

- The divided programs retain the title of the original program.
- A minute portion of the recording directly preceding the division point may be lost.

For your reference:

- Use search and slow-motion to find the points.
- It is not possible to carry out "Divide" in the following cases:
 - When the resulting part(s) are extremely short.
 - When the total number of programs is more than 99.
- You cannot use the [STOP ■] button while finding the division point.

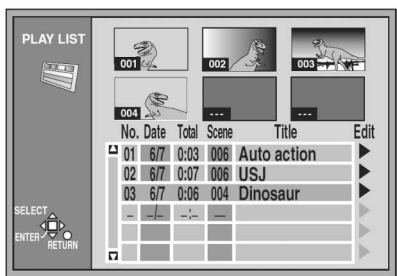
Using the PLAY LIST to edit programs

The following function can be used for a disc you have recorded on, but the functions except "CREATE PLAY LIST" can be used only when play lists have been created on the disc.

Displaying PLAY LIST

RAM

- Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- Use [▲, ▼, ◀, ▶] to select the "PLAY LIST" and press [ENTER].
 - The play list screen appears. Scenes are not displayed if you have not yet created a play list with the disc.



- To clear the PLAY LIST screen** Press [RETURN]. The screen returns to the state it was in before you called up the play list.

What you can do with the PLAY LIST screen

Creating PLAY LIST

Playing PLAY LIST

Select a scene to play (Play Scenes)

Add, move, re-edit and erase scenes (Edit)

Copying PLAY LIST (PL Copy)

Erasing a PLAY LIST (PL Erase)

Give PLAY LIST titles (Enter Title)

Checking PLAY LIST's contents (Properties)

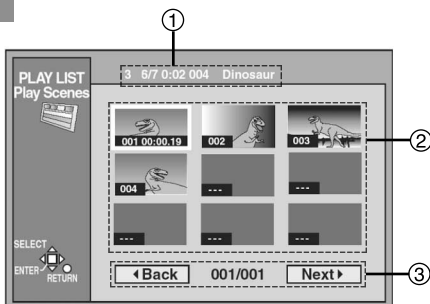
Play Scenes
Edit
PL Copy
PL Erase
Enter Title
Properties

For your reference:

- When the disc is protected (see pages 23 and 26), you can only access "Play Scenes" and "Properties". Release the protection to access other items.

About the PLAY LIST Play Scene screen

RAM



① Play list information

This shows the play list number, date of creation (date/month), total play time, and the number of scenes it contains and title (if entered).

② Scenes

9 scenes can be shown on a page.

③ Turning pages

If there are more than 9 scenes, use [▲, ▼, ◀, ▶] to select "◀ Back" or "Next ▶" and press [ENTER] to move to the previous page or next page.

For your reference:

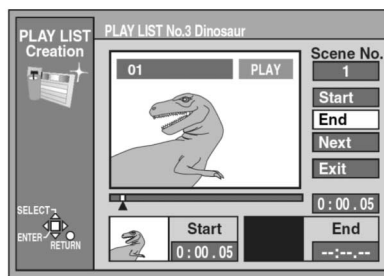
- The time of the scene is displayed in the selected scene.

Creating PLAY LIST

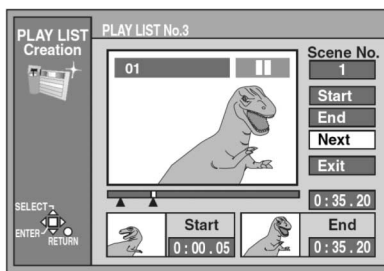
RAM

You can specify start and end points to create a scene, then specify the order in which these scenes are played. These scenes are not recorded separately so this doesn't use up much of the disc's capacity.

- While stopped, press [MENU (SHIFT + SEARCH)].
- Use [▲, ▼, ◀, ▶] to select "CREATE PLAY LIST" and press [ENTER].
- Use search functions such as fast-forward and slow-motion to find the start point of the scene and press [ENTER].



- Use search functions such as fast-forward and slow-motion to find the end point of the scene and press [ENTER].



- Use [▲, ▼] to select "Exit" and press [ENTER].

To stop partway through

Press [RETURN].

To clear the PLAY LIST screen

Press [RETURN].

- The screen returns to the state it was in before you called up the play list.

To specify another scene

Select "Next" after step (4) and press [ENTER], then repeat steps (3) and (4).

For your reference:

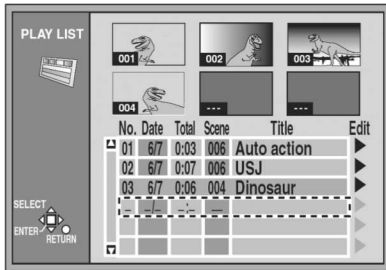
- You can fast-forward, rewind, pause and slow-motion while playing scenes just as you can during normal play.
- One disc can have a maximum of 99 play lists and 999 scenes. These numbers may be reduced under some conditions.
- You cannot use the [STOP ■] button while finding start and end points.
- You cannot specify an end point before a start point or a start point after an end point.
- If you specify an end point but not a start point, the unit determines the beginning of the program as the start point. Similarly, if you specify a start point but not an end point, the unit determines the end of the program as the end point.
- You may not be able to specify start and end points if the material is still pictures recorded on other equipment.
- The unit pauses play when the end of the last program on the disc is reached during this procedure.
- You can also display the "CREATE PLAY LIST" screen by selecting "--" at the bottom of the play list.

Using the PLAY LIST to edit programs (continued)

Playing PLAY LIST

RAM

- (1) Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the “PLAY LIST” and press [ENTER].
- (3) Use [▲, ▼] to select the play list you want to play and press [ENTER].
 - The play list you select is played.
 - You can display the play lists after the sixth one by moving [▼].



■ To stop PLAY LIST play

- Press [■].
- The play list appears.

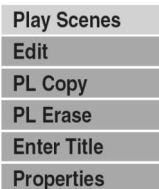
For your reference:

- Recording mode does not appear on the unit's display while playing a play list.

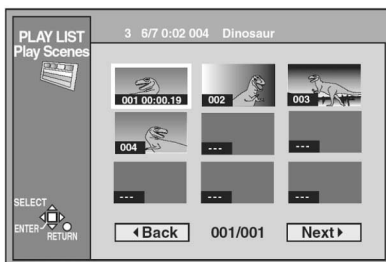
Playing Scenes (Play Scenes)

RAM

- (1) Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the “PLAY LIST” and press [ENTER].
- (3) Use [▲, ▼] to select the play list that contains the scene you want to play and use [▶].
- (4) Use [▲, ▼] to select “Play Scenes” and press [ENTER].



- (5) Use [▲, ▼, ◀, ▶] to select the scene you want to play and press [ENTER].
 - The scene you select is played.



■ To stop scene play

- Press [■].
- The scene list appears.

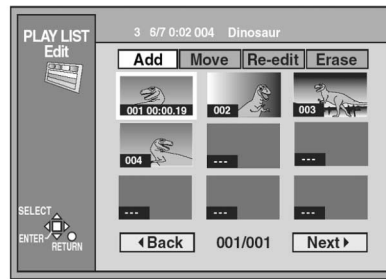
■ To show scene 10 and later

- In step (5), use [▲, ▼, ◀, ▶] to select “Next 1” and press [ENTER].

Adding Scenes to a PLAY LIST (Add)

RAM

- (1) Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the “PLAY LIST” and press [ENTER].
- (3) Use [▲, ▼] to select the desired play list and press [▶].
- (4) Use [▲, ▼] to select “Edit” and press [ENTER].
- (5) Use [▲, ▼] to select “Add” and press [ENTER].



- (6) Use [▲, ▼, ◀, ▶] to select the scene after the position you want to add the scene and press [ENTER].
- (7) Use search functions such as fast-forward and slow-motion to find the start point of the scene and press [ENTER].



- (8) Use search functions such as fast-forward and slow-motion to find the end point of the scene and press [ENTER].
- (9) Use [▲, ▼] to select “Exit” and press [ENTER].
 - The screen from step (5) reappears.

■ To return to the previous screen

- Press [RETURN].

■ To add other scene

- (1) Use [▲, ▼] after step (8) to select “Next” and press [ENTER].
- (2) Repeat steps (7) and (8).

For your reference:

- You can fast-forward, rewind, pause and slow-motion while playing scenes just as you can during normal play.

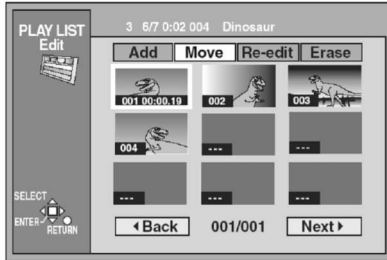
Using the PLAY LIST to edit programs (continued)

Moving a Scene (Move)

RAM

After performing steps (1) to (4) of “Adding Scenes to a PLAY LIST”, perform the following steps:

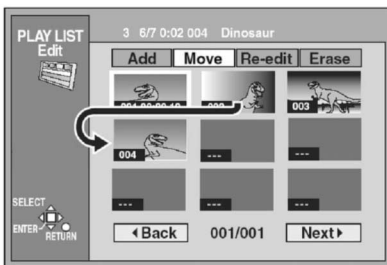
(5) Use [▲ , ▼] to select “Move” and press [ENTER].



(6) Use [▲ , ▼ , ◀ , ▶] to select the scene you want to move and press [ENTER].

(7) Use [▲ , ▼ , ◀ , ▶] to select the scene currently in the position to which you want to move the scene and press [ENTER].

- The scene you selected in step (6) moves to the position in front of the scene selected.



■ To move another scene

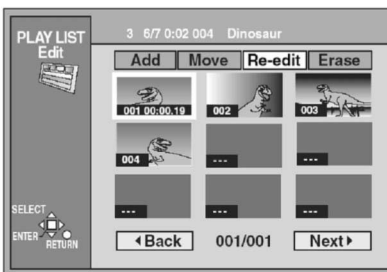
Repeat steps (6) and (7).

To re-edit a PLAY LIST Scene (Re-edit)

RAM

After performing steps (1) to (4) of “Adding Scenes to a PLAY LIST”, perform the following steps:

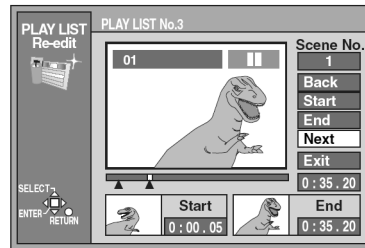
(5) Use [◀ , ▶] to select “Re-edit” and press [ENTER].



(6) Use [▲ , ▼ , ◀ , ▶] to select the scene you want to re-edit and press [ENTER].

(7) Use search function such as fast-forward and slow-motion to find the start point of the scene and press [ENTER].

(8) Use search functions such as fast-forward and slow-motion to find the end point of the scene and press [ENTER].



(9) Use [▲ , ▼] to select “Exit” and press [ENTER].

■ To re-edit another scene

- (1) Use [▲ , ▼] after step (8) to select “Next” or “Back” and press [ENTER] until you find the scene you want to re-edit.
- (2) Repeat steps (6)–(8) to continue re-editing other scenes.

Note:

- You cannot specify an end point before a start point or a start point after an end point.

For your reference:

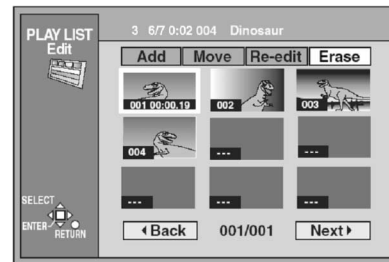
- You can fast-forward, rewind, pause and slow-motion while playing scenes just as you can during normal.

Erasing a Scene from a PLAY LIST (Erase)

RAM

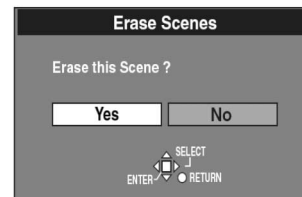
After performing steps (1) to (4) of “Adding Scenes to a PLAY LIST”, perform the following steps:

(5) Use [◀ , ▶] to select “Erase” and press [ENTER].



(6) Use [▲ , ▼ , ◀ , ▶] to select the scene you want to erase and press [ENTER].

(7) Use [◀] to select “Yes” and press [ENTER].



- The selected scene is erased from the play list.

■ To erase other scene

Repeat steps (6) and (7).

■ To stop partway

Select “No” in step (7) and press [ENTER] or [RETURN].

For your reference:

- The play list itself is erased if you erase all the scenes in it.

Using the PLAY LIST to edit programs (continued)

Copying PLAY LIST (PL Copy)

RAM

- (1) Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the “PLAY LIST” and press [ENTER].
- (3) Use [▲, ▼] to select the desired play list and press [▶].
- (4) Use [▲, ▼] to select “PL Copy” and press [ENTER].
- (5) Use [◀] to select “Yes” and press [ENTER].



- The copied play list appears at the bottom of the list.

■ To stop partway

Select “No” in step (5) and press [ENTER] or [RETURN].

Erasing a PLAY LIST (PL Erase)

RAM

- (1) Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the “PLAY LIST” and press [ENTER].
- (3) Use [▲, ▼] to select the desired play list and press [▶].
- (4) Use [▲, ▼] to select “PL Erase” and press [ENTER].
- (5) Use [◀] to select “Yes” and press [ENTER].



- The play list is erased.

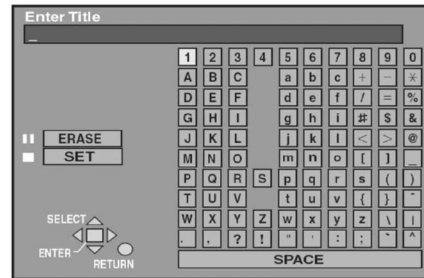
■ To stop partway

Select “No” in step (5) and press [ENTER] or [RETURN].

Titling PLAY LIST (Enter Title)

RAM

- (1) Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the “PLAY LIST” and press [ENTER].
- (3) Use [▲, ▼] to select the desired play list and press [▶].
- (4) Use [▲, ▼] to select “Enter Title” and press [ENTER].



- (5) Enter the title.

- For details on entering titles, see page 32.

For your reference:

- You can give play lists on DVD-RAM titles of up to 64 characters. The full title is shown in the “Properties” screen, but if you enter a long title, only part of it is shown in the play list screen.

Checking PLAY LIST’s contents (Properties)

RAM

- (1) Press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the “PLAY LIST” and press [ENTER].
- (3) Use [▲, ▼] to select the desired play list and press [▶].
- (4) Use [▲, ▼] to select “Properties” and press [ENTER].



Entering titles

RAM DVD-R

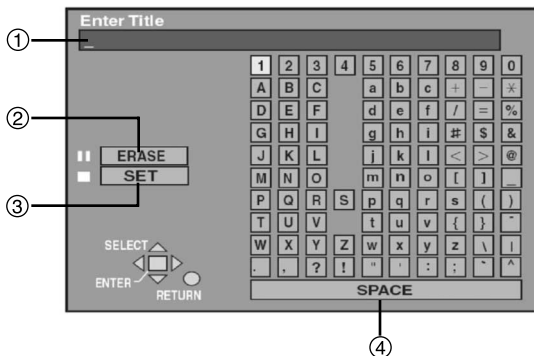
You can:

- Title discs with the DISC INFORMATION in the MENU window.
- Title programs with the SEARCH.
- Title play lists with the PLAY LIST screen.

(1) Insert a disc with something recorded on it and select the “DISC INFORMATION”, “SERCH PROGRAM”, or “PLAY LIST” screen.

(2) After the titling screen appears, use [▲, ▼, ◀, ▶] to select the character you want to enter and press [ENTER].

- You can enter the following characters.



- ① This window shows the text you have entered (Title field)
- ② ERASE [■]
- ③ SET [■] (when you have finished entering text)
- ④ SPACE

■ To enter other characters

Repeat steps (1) and (2).

(3) Press [■]. (You can also finish entering the title by using [▲, ▼, ◀, ▶] to select “SET” and pressing [ENTER].)

- The title is entered and the screen disappears.

■ To stop partway through

Press [RETURN].

(does not save any title information.)

■ Entering titles

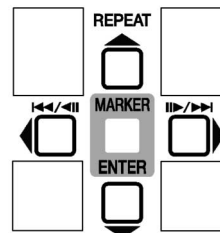
To enter characters

Use [▲, ▼, ◀, ▶] to select the character you want to enter and press [ENTER].

To erase characters

Press [■].

(You can also erase characters by using [▲, ▼, ◀, ▶] to select “ERASE” and pressing [ENTER].)



To finish entering the title

Press [■].

(You can also finish entering the title by using [▲, ▼, ◀, ▶] to select “SET” and pressing [ENTER].)

■ To correct a character

(1) Use [▲, ▼, ◀, ▶] to select the character you want to correct in the title field.

(2) Press [■]. (You can also erase characters by using [▲, ▼, ◀, ▶] to select “ERASE” and pressing [ENTER].)

(3) Use [▲, ▼, ◀, ▶] to select the correct character and press [ENTER].

Notes:

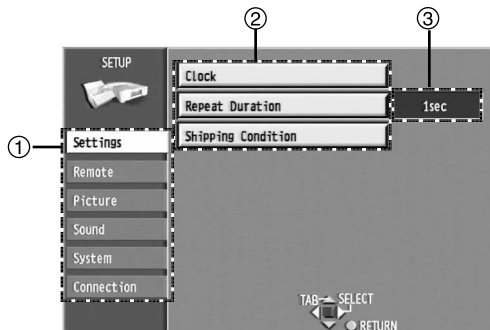
- You cannot enter titles if the program is protected. Release the protection with the search program.
- You cannot enter titles unless the “Disc Protection” in DISC INFORMATION is “Off”.
- You cannot enter titles if the disc is protected with the write protect tab.
- If you enter a long title, only part of it is shown in the program list and play list screen.

Changing the unit's settings

Common procedures

Use the following procedure to change the settings if necessary.

- (1) While stopped, press [MENU (SHIFT + SEARCH)] to show the MENU window.
- (2) Use [▲, ▼, ◀, ▶] to select the "SETUP" and press [ENTER].



① Menus

The SETUP menu is made up of six menus—Settings, Remote, Picture, Sound, System and Connection. Select the menu's tab to display the items.

② Items

A list of items in the menu you selected.

③ Options

This shows the current settings. The options are shown when you select an item.

- (3) Use [▲, ▼] to select the menu's tab and press [◀] or [▶].
- (4) Use [▲, ▼] to select the item you want to change and press [ENTER].
- (5) Use [▲, ▼] to select the option and press [ENTER].

- Some options require different operations. Follow the on-screen instructions and the instructions described.

■ To return to the previous screen

Press [RETURN].

Even if you have changed an option, the change is not accepted unless you press [ENTER].

For your reference:

- If closing the SETUP menu window, the changed settings are accepted.
- The unit retains these settings in its memory until you change them, even if you turn it off.

Summary of settings

Underlined items are the factory presets.

PLAY: Effective items during play.

REC: Effective items during recording

■ Settings

Clock (see page 15)

You can adjust the clock.

Repeat Duration

Decide the length of the repeated section when you start instant repeat.

[1sec] [2sec] [3sec] [4sec] [5sec] [10sec] [20sec] [30sec]

Shipping Condition (see page 15)

The all settings in the SETUP screen return to the factory settings. (except for the TV screen and clock settings (time, date, time zone))

[Yes] [No]

■ Remote

PAUSE REMOTE

Decide the method of control through the PAUSE REMOTE jack.

[Low Edge] [High Edge] [Low Level]

Low Edge:

Use down edge signals to control recording start and pause.

High Edge:

Use rising edge signals to control recording start and pause.

Low Level:

Recording occurs when the signal is low. Recording is paused when the signal is high.

Baud Rate

Decide the baud rate when using the RS-232C terminal.

[1200] [2400] [4800] [9600] [19200]

Bit Length

Decide the bit length when using the RS-232C terminal.

[7bit] [8bit]

Stop Bit

Decide the stop bit when using the RS-232C terminal.

[Stop-1] [Stop-2]

Parity

Decide the parity check when using the RS-232C terminal.

[Even] [Odd] [None]

Protocol

Decide the protocol when using the RS-232C or USB terminal.

[DVD] [VTR1] [VTR2]

DVD:

The standard LQ-MD800 protocol.

VTR1:

Protocol with high compatibility with AG-MD830.

VTR2:

Protocol with high compatibility with equipment manufactured by other companies.

For your reference:

- The operation of this unit may depend on the selected protocol.

Changing the unit's settings (continued)

Picture

Rec Mode [REC] (see page 15)

[XP] [SP] [LP]

Input Select [REC]

Select the video input.

[V(VIDEO)] [SV(S-VIDEO)] [DV]

3-D Y/C Separation (NTSC)

[On] [Off]

On:

Y/C separation of three dimensions is performed.

Off:

Y/C separation of two dimensions is performed.

Hybrid VBR Resolution [REC]

Switch between automatic and fixed hybrid VBR resolution when recording.

[Automatic] [Fixed]

Automatic:

The unit automatically switches resolution rates during recording according to the image. The unit reduces block noise, which occurs during MPEG compression, by selecting the optimum rate.

Fixed:

The resolution rate is fixed to ensure the resolution rate is not reduced.

Still Mode [PLAY]

Select the type of picture shown when you pause play.

[Automatic] [Field] [Frame]

Automatic:

The unit automatically switches between frame still mode and field still mode.

Field:

Less blurred field stills are shown. Select if jittering occurs when "Automatic" is selected.

Frame:

Sharper frame stills are shown. Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected.

Seamless Play [PLAY]

Turn seamless play on or off on discs with play lists.

- Seamless Play does not work with programs recorded in LPCM.

[On] [Off]

On:

The scenes in play lists created with this unit are played seamlessly.

This may cause shifting of the points where scenes change. Some play lists cannot be played seamlessly.

- Seamless Play does not effect programs that have been recorded with LPCM sound.

Off:

The points where scenes in play lists are played accurately, but this may cause the picture to freeze for a moment when scenes change.

Black Level Control (NTSC)

Select normal, lighter or darker for adjusting the black level control to the desired setting for picture enhancement.

Input Level

Adjusts the black level of the input signal.

[Lighter] [Darker]

Composite & S-Video Output Level

When connected to a monitor television through the VIDEO OUT or S-VIDEO OUT terminal.

[Lighter] [Darker]

Component Video Output Level

When connected to a monitor television through the COMPONENT VIDEO OUT (Y/P_B/P_R) terminals.

[Lighter] [Normal] [Darker]

Note:

- When the Black Level of the input signal is set to 7.5 IRE, set as follows:
 - Input Level – [Darker]
 - Composite & S-Video Output Level – [Lighter]
 - Component Video Output Level – [Normal]
- When the TV system is set to NTSC, this control can be used.

Sound

Audio during Search [PLAY]

Choose whether to have sound during fast forward play at the first search speed of the five ones.

[On] [Off]

Dynamic Range Compression [PLAY]

DVD (In Dolby Digital mode, this functions only for compatible discs.)

Change the dynamic range for late night viewing.

[On] [Off]

On:

Dynamic range compression is performed.

Off:

Dynamic range compression is not performed.

Bilingual Audio Selection [REC] (see page 11)

Select whether to record the main or secondary audio type when recording sound signals of the DV IN terminal to DVD-R or when recording LPCM signals to DVD-RAM.

[M1] [M2]

M1:

Main audio

M2:

Secondary audio

Audio Mode for XP/SP Recording [REC]

Choose the audio type when recording with XP or SP mode.

[Dolby Digital] [LPCM]

- Even if "LPCM" is set, sound becomes "Dolby Digital" in recording mode other than XP or SP mode.

Audio Mode for DV Input [REC]

You can select the kind of sound when recording from the unit's DV terminal.

[Stereo 1] [Stereo 2] [Mix]

Stereo 1:

Records sound (L1, R1) when DV recording is taking place.

Stereo 2:

Records added sound such as narration (L2, R2) subsequent to original recording.

Mix:

Records both Stereo 1 and Stereo 2.

- L1+L2 are recorded in CH1 and R1+R2 are recorded in CH2. In the case of bilingual broadcast, Stereo 1 is recorded when recording to DVD-R or if recording in LPCM. Details of recording are given in "Bilingual Audio Selection".

Audio CH Assignment with Mic [REC]

Select the audio input recorded to channel 2 when a microphone is connected.

[CH1(A)] [CH2(B)] [Mix]

CH1(A):

Audio input through AUDIO IN CH1 (A) is recorded.

CH2(B):

Audio input through AUDIO IN CH2 (B) is recorded.

Mix:

Audio input through AUDIO IN CH1 (A) and AUDIO IN CH2 (B) is mixed and recorded.

(Continued on next page)

Changing the unit's settings (continued)

Note:

- Microphone signal is always recorded to channel 1 when a microphone is connected.

■ System

On-Screen Status: Mode

Choose whether to show on-screen messages automatically or not.

[Automatic] [Off]

Automatic:

If playing or stopping a disc while canceling status displays using the [STATUS] button, the displays appear automatically for approximately 5 seconds.

Off:

Even if playing or stopping a disc while canceling status displays using the [STATUS] button, the displays do not appear.

On-Screen Status : Window Size

Select the size of the on-screen status window.

[Normal] [Small]

Normal: 5 lines

Small: 3 lines

On-Screen Status : Window Type

Select the position of the on-screen status window.

[R - Upper] [L - Upper] [R - Bottom] [L - Bottom]

R - Upper: Upper right

L - Upper: Upper left

R - Bottom: Lower right

L - Bottom: Lower left

Program Write Protection [REC]

Choose whether to set protection for programs after recording.

[Automatic] [Manual]

Automatic:

Programs are protected after recording.

Manual:

Programs are not protected after recording.

Beep

A tone sounds if a problem occurs with the unit.

[On] [Off]

Note:

- To stop the tone that is sounding, press any button except the [POWER] and [REC ●] buttons on the front panel.

Finalizing speed

Select the speed at which writing occurs when finalizing.

[1x] [4x]

1x:

Writing occurs at normal speed. Select this under normal conditions. This selection ensures a high level of compatibility with other DVD players.

4x:

When recording on discs compatible with 4x speed, writing happens at 4x speed, thus shortening the time it takes for finalizing. Finalizing may fail with some types of discs.

■ Connection

TV Aspect (see page 14)

Choose the setting to suit your monitor television and preference.

[Norm (4:3)] [Wide (16:9)]

Progressive (NTSC)

[On] [Off]

On:

Select when connecting to a NTSC monitor television with component video input terminals.

Off:

Select when connecting to a PAL monitor television.

TV System

[PAL] [NTSC] (for LQ-MD800P)

[PAL] [NTSC] (for LQ-MD800E)

PAL:

Select when connecting to a PAL or Multi-system monitor television.

Select to record television programs and PAL input from other equipment.

NTSC:

Select when connecting to a NTSC monitor television.

Select to record NTSC input from other equipment.

Note:

- When changing the TV system, change this setting only, close the SETUP screen, then turn the unit off and on again.

Norm (4:3) TV Settings (DVD) [PLAY]

You can select how to reflect the image on the monitor television, when you watch 16:9 images (DVD-Video) on 4:3 monitor television.

[Pan & Scan] [Letterbox]

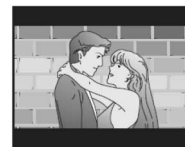
Pan & Scan:

Video recorded for a widescreen is played with the sides cut off if the Pan & Scan was specified by the producer of the disc.

16:9 software prohibited from being shown in the Pan & Scan style will appear in the letterbox style (with black bands above and below the picture) despite the setting here.

Letterbox:

Video recorded for a widescreen is played in the letterbox style.



Norm (4:3) TV Settings (DVD-RAM) [PLAY]

You can select how to reflect the image on the monitor television, when you watch 16:9 images (DVD-RAM) on 4:3 monitor television.

[Norm (4:3)] [Pan & Scan] [Letterbox]

Norm (4:3):

Programs played as recorded.

Pan & Scan:

Video recorded for a widescreen is played with the sides cut off if the Pan & Scan format is specified at the time of recording.

Letterbox:

Video recorded for a widescreen is played in the letterbox style.

Note:

- To change the TV system (PAL/NTSC) setting, while stopped, keep pressing [STOP ■] and [OPEN/CLOSE ▲] on the main unit for 5 or more seconds. After that, turn the unit off and on again. The TV system is set to NTSC or PAL alternately.

Maintenance and Handling

Maintenance

The precision parts in this unit are readily affected by the environment, especially temperature, humidity and dust. Observe the following points to ensure continued listening and viewing pleasure.

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

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

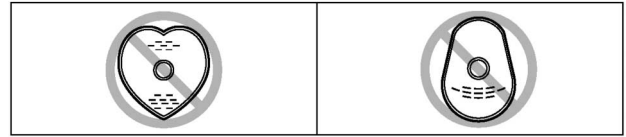
Dust and dirt may adhere to the unit's lenses over time, possibly making it impossible to record or play discs.

Use the recommended DVD-RAM/PD lens cleaner (LF-K123LCA1) about once every year, depending on frequency of use and the operating environment. Read the lens cleaner's instructions carefully before use.

- The lens cleaner may make some sound during use but this does not indicate a malfunction.
- "NO READ" appears on the unit's display when cleaning finishes.

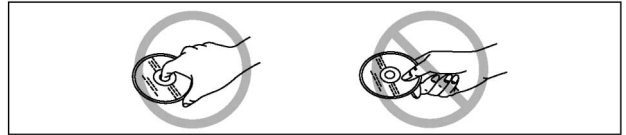
Disc handling

Do not use irregularly shaped discs, such as heart-shaped. (These can damage the unit.)



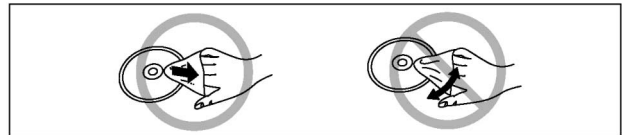
How to hold a disc

Do not touch the recorded surface.



If there is dirt or condensation on the disc

- Clean and dry with an optional DVD-RAM/PD disc cleaner (LF-K200DCA1).
- Never use cloths or cleaners for CDs, etc.



Handling precautions

- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not attach labels or stickers to discs. (Do not use discs with exposed adhesive from tape or left over peeled-off stickers.)
- Do not use scratch-proof protectors or covers.
- Do not use discs printed with label printers available on the market.
- Do not use discs that are badly warped or cracked.

Do not place or store discs in the following places

- Locations exposed to direct sunlight.
- Humid or dusty locations.
- Locations directly exposed to a heat vent or heating appliance.

Glossary

Picture type (I/P/B)

In order to efficiently record to discs, common data between frames is shared and only that data that differs is recorded for each frame.

- I-picture: This is the base picture and all data for it is recorded.
- P-picture: This picture is recreated based on past I-pictures or P-pictures.
- B-picture: This picture is created from both I- and P-pictures and fills the gaps between the two.

I-pictures are of the best quality and are the best to use when adjusting picture quality.

SEARCH PROGRAM

This is a list of programs you have recorded. You can select programs from the list to view. The list also shows the date and time of recording, the input, and the titles of titled programs. The selected program is played in the background, making selection even simpler.

Finalize

This process allows DVD-R to be played on compatible equipment. You cannot record on a disc that has been finalized.

Frame and field

Frames are the still pictures that go together to make a moving picture. A frame is made up of 2 fields.



- A frame still is made up of two alternating fields, so the picture may appear blurred, but overall quality is high.
- A field still is not blurred, but it has only half the information of a frame still so picture quality is lower.

Interlace and progressive output

NTSC has 480 interlaced (i) scan lines, whereas progressive scanning uses twice the number of scan lines. This is called 480p. The video signals output from this unit's COMPONENT VIDEO OUT terminals (Y, P_B, P_R) allow you to enjoy higher quality pictures than if the signals were output from the VIDEO OUT terminal or S-VIDEO OUT terminal.

Linear PCM (LPCM)

This is a form of signal that has been digitized without compressing it. CDs are recorded with 44.1 kHz/16 bit PCM, while DVDs use PCM between 48kHz/16bit and 96kHz/24 bit, allowing reproduction of greater quality sound. The linear PCM signals output from the DIGITAL AUDIO OUT, OPTICAL terminal are stereo (2 channel). LPCM sound is available when recording in XP or SP mode.

Pan & Scan/Letterbox

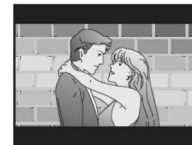
Images made for showing on a widescreen (16:9) monitor television do not fit in the screen of a 4:3 monitor television.

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.



PLAY LIST

This is a collection of scenes. It enables you to play these scenes in succession or to select specific ones to play.

Program (PG)

The section between the point where recording is started and the point where it is stopped.

Sampling frequency

This is the number of samples of sound taken per second during conversion to a digital signal. A high sampling frequency results in a sound close to the original when played back.

S-Video output

The color and luminance signals are separated before being sent to the monitor television, making for greater picture clarity.

Time Zone


"Time Zone" shows time difference from GMT (Greenwich Mean Time).

List of "Time Zone"

NZST (New Zealand Standard Time)	+12
AEST (Australia Eastern Standard Time)	+10
JST (Japan Standard Time)	+9
CCT (China Coastal Time)	+8
EET (Eastern Europe Time)	+2
MET (Middle Europe Time)	+1
WET (Western Europe Time)	0
GMT (Greenwich Mean Time)	0
WAT (West Africa Time)	-1
AST (Atlantic Standard Time)	-4
EST (Eastern Standard Time)	-5
CST (Central Standard Time)	-6
MST (Mountain Standard Time)	-7
PST (Pacific Standard Time)	-8
AST (Alaska Standard Time)	-9
HST (Hawaii Standard Time)	-10

Error messages

On the monitor television

Error messages	Causes and solutions
No Disc.	<ul style="list-style-type: none"> You haven't inserted a disc. Correctly insert a disc that this unit can play. The disc is upside down. If it is a single-sided disc, insert it so the label is facing up. The disc isn't on the tray correctly. See the instructions in playing discs for the correct way to set discs.
This is a non-recordable disc. Cannot record. This disc is not properly formatted. Formatting is necessary using DISC INFORMATION.	<ul style="list-style-type: none"> The unit cannot record on the disc you inserted. The unit cannot record onto finalized DVD-R, DVD-Audio, DVD-Video, CDs or Video CDs. Insert a DVD-RAM or un-finalized DVD-R. You inserted an unformatted DVD-RAM. Format the disc with this unit.
This disc cannot be read.	<ul style="list-style-type: none"> You inserted an incompatible disc.
Please check write protect tab on the disc.	<ul style="list-style-type: none"> The write protect tab on the cartridge is set to "PROTECT". Use a ballpoint pen or similar to release the write protection. 
Contents of this disc are protected.	<ul style="list-style-type: none"> The program is write-protected. Release the protection with the search program. The disc is write-protected. Release the protection with the disc protection sub menu of DISC INFORMATION.
Cannot finish recording completely.	<ul style="list-style-type: none"> The program was copy-protected. The disc is full. Recording was not completed for some other reason.
Copying of this material is not allowed.	<ul style="list-style-type: none"> The input signal is copy-protected.
Cannot play.	<ul style="list-style-type: none"> You cannot play the disc because there is no video recorded on it.
Cannot record on the disc.	<ul style="list-style-type: none"> The disc is scratched. Use another disc. The disc is dirty. Clean the disc as described in these operating instructions. You inserted an incompatible disc.
Cannot record to the disc. TV system of input signal is different to the setting in SETUP.	<ul style="list-style-type: none"> TV system of the program or the input signal was different from the setting in SETUP.
Disc is full.	<ul style="list-style-type: none"> No space left on the disc. Create space by erasing any unwanted programs. Use a new disc.
This disc may not be played in your region.	<ul style="list-style-type: none"> This unit can play DVD-R recorded and finalized with this unit. Do not play DVD Video.
Error has occurred. Please press ENTER.	<ul style="list-style-type: none"> Press the [ENTER] button. Recovery starts. When the display panel clears, turn off the unit and then turn it on. You cannot operate the unit during recovery.
Please check the disc.	<ul style="list-style-type: none"> Check the discs for dirt or scratches.
Please change the disc.	<ul style="list-style-type: none"> You can operate the unit using [OPEN/CLOSE ▲] only. Press [OPEN/CLOSE ▲] to open the tray and eject a disc, the unit becomes off. To continue play or recording, turn off the unit, turn it on and then insert another disc.
Finalizing is necessary for compatible playback.	<ul style="list-style-type: none"> To enable playback of your DVD-R on compatible equipment, it is necessary to finalize it.
Please check write protect tab.	<ul style="list-style-type: none"> Release the protection on the DVD-RAM.
Character set of the disc is different. Cannot enter title.	<ul style="list-style-type: none"> Because the character set of the disc is different from the set designated for each region, the operation cannot be allowed.
Character set of the disc is different. This program cannot be edited.	
Character set of the disc is different. This play list cannot be edited.	
Character set of the disc is different. Cannot finalize.	
No folder.	<ul style="list-style-type: none"> There is no compatible folder in this unit.
⊘	<ul style="list-style-type: none"> The operation is prohibited by the disc or unit.

Error messages (continued)

On the unit's display

Error messages	Unit status	Solutions
NO READ	The disc is dirty or badly scratched.	<ul style="list-style-type: none"> Follow the instructions in "Maintenance and Handling" to clean the disc if it is dirty. The disc cannot be played if it is scratched and this display doesn't disappear.
	The disc isn't on the tray correctly.	<ul style="list-style-type: none"> See the instructions in playing discs for the correct way to set discs.
	It cannot be read for the disc which doesn't cope with it.	<ul style="list-style-type: none"> It can not be read for the disc which doesn't cope with it. Exchange a disc.
	The DVD-RAM/PD lens cleaner has finished cleaning.	<ul style="list-style-type: none"> Take the cleaner out of the unit.
NO PLAY	You cannot play the disc because there is no video recorded on it.	<ul style="list-style-type: none"> Insert a disc the unit can play.
UN SUPPORT	You have inserted a disc the unit cannot play or record on.	<ul style="list-style-type: none"> Insert a disc the unit can play or record on.
OVER TEMP	The unit is hot.	<ul style="list-style-type: none"> The unit switches to standby mode automatically for safety and you cannot operate it. Wait for about 30 minutes until the service number disappears. After that, turn the unit off and then turn it on. Select a position with good ventilation when installing the unit. Remove obstacles from around the vents on the bottom of the unit and the cooling fan on the rear panel.
CHECK BATTERY	The battery for the clock is almost dead.	<ul style="list-style-type: none"> To replace the battery, consult your dealer.
FAN LOCK	The fan of the rear panel has stopped.	<ul style="list-style-type: none"> All the functions will stop five minutes later for safety.
ERR FAN LOCK	The fan of the rear panel has stopped.	<ul style="list-style-type: none"> All the functions have stopped for safety. If there is any foreign matter on the fan, turn off the unit and remove it. When turn on the unit again, if the unit does not operate normally, consult your dealer.
U99	The unit fails to operate.	<ul style="list-style-type: none"> Press [POWER] to switch the unit to off. Now press [POWER] again to turn the unit on.
ERR DRIVE ERR ENCODER	There was brief instability in the video or audio during play or recording. The video may be disrupted or a few seconds may not have been recorded.	<ul style="list-style-type: none"> Replace the disc or wipe it clean. If the problem persists, try turning the unit off and on again.

Alarms

When "Beep" is set to "On", the alarm sounds if a problem occurs (for example, recording is impossible for some reason).

Note:

- The alarm may not sound under some circumstances.

Troubleshooting guide

Before requesting service, make the below 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.

Power

No power	<ul style="list-style-type: none"> • Insert the AC mains lead securely into the household AC outlet.
The unit switches to standby mode automatically.	<ul style="list-style-type: none"> • One of the unit's safety devices may have activated. →Press [POWER] to switch the unit off, wait about one minute, and then press [POWER] to switch the unit on again. • When "OVER TEMP" appears on the display, see page 39.

Operation

The unit is on but cannot be operated.	<ul style="list-style-type: none"> • The disc may prohibit some operations. • The unit is hot ("OVER TEMP" appears on the display). →See page 39. • One of the unit's safety devices may have activated. →Press [POWER] to switch the unit off, wait about one minute, and then press [POWER] to switch the unit on again. • The [MODE LOCK] switch is set to "ON". →Set to "OFF". • An error display is being shown. • If "⊘" appears on the monitor television the operation is prohibited by the unit or disc.
Cannot eject a disc.	<ul style="list-style-type: none"> • Press [SHIFT] and [OPEN/CLOSE] together for 5 seconds to open the tray. After ejecting the disc, turn the unit off and then turn it on again. • If the above doesn't work, use the emergency eject pin to open the tray. <ol style="list-style-type: none"> (1) Make sure the unit is OFF. (Doing the following while it is on can damage the unit.) (2) Insert the included emergency eject pin into the emergency ejection hole, pushing horizontally 4 or 5 times. (3) When the shutter opens and the tray comes out, remove the pin. (4) Pull the tray out horizontally. <p>Emergency ejection can cause damage so it should be avoided if possible. To restore the tray, turn the unit on and press [OPEN/CLOSE ▲]. (The tray may close when you turn the unit on.)</p>
The disc tray is slow in coming out.	<ul style="list-style-type: none"> • After editing a disc (e.g., protect or marker setting/cancel) the tray may take about 10 seconds to come out.

Displays

"- -: -" appears on the unit's display.	<ul style="list-style-type: none"> • The clock is not set. Go to Settings in the SETUP menus and set the clock with "Clock".
"NO READ" appears on the unit's display after using a lens cleaner.	<ul style="list-style-type: none"> • Take the cleaner out of the unit.

Picture

No picture.	<ul style="list-style-type: none"> • Check the video input on the monitor television. • You are trying to output progressive video to an incompatible monitor television. → Press [STOP ■] and [RETURN] together for five seconds. After that, turn the unit off and on again. • The TV system (NTSC/PAL) on the unit and monitor television are different. →While stopped, press [STOP ■] and [OPEN/CLOSE ▲] together for five seconds. After that, turn the unit off and on again. The video system changes from PAL to NTSC or vice versa.
Screen size is wrong.	<ul style="list-style-type: none"> • Check the settings on your monitor television. • Check the settings for "TV Aspect", "Norm (4:3) TV Settings (DVD)" or "Norm (4:3) TV Settings (DVD-RAM)" in the Connection menu.
On-screen messages do not appear.	<ul style="list-style-type: none"> • Select "Automatic" for "On-Screen Messages" or press [STATUS] to show the on-screen messages constantly.
There are a lot of artifacts.	<ul style="list-style-type: none"> • Switch DNR off. (In Picture→MODE→User, set 3D NR, Block NR, and Mosquito NR to 0.)
No title names.	<ul style="list-style-type: none"> • As the character sets used in different regions differ from each other, you may be unable to see titles entered on a unit in another region. • Do not enter titles onto a disc that was recorded in another region as this can cause titles on the disc not to appear.

Troubleshooting guide (continued)

Progressive video

There is ghosting when you progressive output is on.	<ul style="list-style-type: none"> Set "Progressive" to "OFF". This problem is caused by editing method or material used on DISC, but should be corrected if you use interlace output.
There is no apparent change in picture quality when adjusted with the Video menu in the on-screen menus.	<ul style="list-style-type: none"> The effect is less perceivable with some types of video.

Sound

<p>No sound. Low volume. Distorted sound.</p>	<ul style="list-style-type: none"> Check the connections. Check the input mode on the amplifier if you have connected one. Recording level is wrong. →Adjust Audio REC Level control CH1/MIC, CH2 on the front panel to the correct recording level.
Cannot hear the desired audio type.	<ul style="list-style-type: none"> Choose the correct setting in "Bilingual Audio Selection" before recording. DVD-R You cannot change the audio type for DVD-R or recordings in LPCM.

Play

<p>Play fails to start even when [PLAY ►] is pressed. Play starts but then stops immediately. "NO READ", "UN SUPPORT", "NO DISC" or "NO PLAY" appears on the unit's display.</p>	<ul style="list-style-type: none"> Insert the disc correctly with the label facing up. This unit cannot play discs other than DVD-RAM, DVD-R and Finalized DVD-R. The disc is dirty. Clean it. The disc may be badly scratched. You inserted a blank DVD-RAM or DVD-R.
Picture distorted during search.	<ul style="list-style-type: none"> Some distortion is normal.
Alternative soundtrack and subtitles cannot be selected.	<ul style="list-style-type: none"> You cannot change the soundtracks or subtitles on DVD-RAM or DVD-R recorded on this unit.
No subtitles.	<ul style="list-style-type: none"> Subtitles are not recorded on discs recorded on this unit.
Instant repeat doesn't work.	<ul style="list-style-type: none"> Instant repeat doesn't work while playing play lists.

Recording

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. The write protect tab on the cartridge is set to "PROTECT". Use a ballpoint pen or similar to release the write protection. Recording is not possible unless you set "Disc Protection" in "DISC INFORMATION" to "Off". The disc is full or nearly full. Delete unneeded programs or use another disc. The material you are trying to record is copy-guarded. The disc is unformatted. Format the disc so this unit can record on it. RAM Tried to record to a DVD-R that has already been finalized. You cannot record when the TV system mode of this unit is not set to the type of the input image or when using a disc on which an image of a different TV system has already been recorded. Recording may become impossible if you repeatedly insert and remove a disc, or if you record or play the disc on multiple recorders (around eight). DVD-R
Recording time appears shorter than it actually is.	<ul style="list-style-type: none"> The available time shown is only a guide. This unit cannot show the exact available time.
Available recording time appears longer or shorter than it actually is.	<ul style="list-style-type: none"> The available recording time does not increase if you erase data written to the disc with the DVD-RAM drive of a computer. Format the disc if necessary.
The available recording time doesn't increase even after erasing all recordings on the disc.	<ul style="list-style-type: none"> If the disc is dirty, wipe with the DVD-RAM/PD disc cleaner (optional) before formatting. Available recording space on the DVD-R does not increase even after erasing previously recorded programs.
A part or whole of a recorded program has been lost.	<ul style="list-style-type: none"> If there is a power failure or the plug is disconnected from the household AC outlet while recording or editing, the program may be lost or the disc may become unusable. →We cannot offer any guarantee regarding lost programs or discs. You will have to format the disc or use a new disc.

Troubleshooting guide (continued)

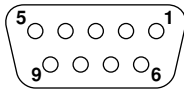
Remote control

The remote control doesn't work.	<ul style="list-style-type: none">• Check the connections between the unit and the remote control equipment.• Close menu screens if they are open.• [PAUSE REMOTE]: Check the control method and select the correct setting in "MODE" in the SETUP menus.• [RS-232C]: Check the parameters (e.g., baud rate) and select the correct settings in "Remote" in the SETUP menus. Use the cable suitable for this unit and the control equipment, either straight or cross.• [USB]: Check that the USB driver is installed on the control computer.
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Discs make sounds as they rotate. This does not indicate a malfunction.

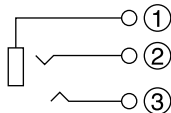
Connector signals

RS-232C (Female)



Pin No.	Signal name	Pin No.	Signal name
1	N.C.	6	DSR
2	TXD	7	RTS (Shorted to 8)
3	RXD	8	CTS (Shorted to 7)
4	N.C.	9	N.C.
5	SG		

PAUSE REMOTE



Pin No.	Signal name	Pin No.	Signal name
1	GND	3	PAUSE CONTROL
2	PAUSE STATUS		

Regarding copyright

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, and 4,819,098, licensed for limited viewing uses only.

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

Specifications

Power supply: AC 100 V–240 V, 50/60 Hz

Current consumption: 0.51 A–0.28 A

 indicates safety information.

General

Recording System: DVD Video Recording Standards (DVD-RAM), DVD Video Standards (DVD-R)

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

Recording Time: Maximum 4 hours (with 4.7 GB disc)
XP: Approx. 1 hour
SP: Approx. 2 hours
LP: Approx. 4 hours

Playable discs: DVD-RAM: 12 cm 4.7 GB
12 cm 9.4 GB
DVD-R: 12 cm 4.7 GB (for General Ver.2.0)
DVD-R: 12 cm 4.7 GB (for General Ver.2.0/4x-Speed DVD-R Revision 1.0)

Dimensions: 8-7/16(W) x 4-1/32(H) x 14-3/8(D) inch (214(W) x 102(H) x 365(D) mm)

Mass: 10.14lbs (4.6 kg)

Operating Temperature: 41 °F–104 °F (5 °C–40 °C)

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

Audio

Recording System: Dolby Digital 2ch, Linear PCM 2ch (XP/SP mode)

Audio In (PHONO): CH 1 / CH 2
Reference level
–10 dBv, 47 k Ω , unbalanced

MIC In (mini jack): Reference level
–50 dBv, 3 k Ω , unbalanced

Audio Out (PHONO): CH1 / CH2
Reference level
–10 dBv, 600 Ω , unbalanced

MONITOR Out (PHONO):
Reference level
–10 dBv, 600 Ω , unbalanced

Headphones Out (Stereo mini jack):
Reference level,
Maximum –28 dBv (variable),
8 Ω , unbalanced

Video

Video System: NTSC color signal, 525 Lines, 60 Fields
PAL color signal, 625 Lines, 50 Fields

Recording system: MPEG2 (Hybrid VBR)

Video In (BNC): 1.0 Vp-p, 75 Ω , unbalanced

S-Video In (4P): Y: 1.0 Vp-p, 75 Ω , unbalanced
(NTSC) C: 0.286 Vp-p (burst level), 75 Ω , unbalanced
(PAL) C: 0.3 Vp-p (burst level), 75 Ω , unbalanced

DV-Input (PAL/NTSC):
IEEE1394 Standard, 4pin

Video Out (BNC): 1.0 Vp-p, 75 Ω , unbalanced

S-Video Out (4P): Y: 1.0 Vp-p, 75 Ω , unbalanced
(NTSC) C: 0.286 Vp-p (burst level), 75 Ω , unbalanced
(PAL) C: 0.3 Vp-p (burst level), 75 Ω , unbalanced

Component video output (BNC)
(NTSC 480P/480I) (PAL 576I):
Y: 1.0 Vp-p, 75 Ω , unbalanced
Pb: 0.7 Vp-p, 75 Ω , unbalanced
Pr: 0.7 Vp-p, 75 Ω , unbalanced

Remote

USB (Type-B connector):
USB Ver.1.1 (cable length: max. 3 m)

RS-232C (D-sub 9 pin)

PAUSE REMOTE (Stereo mini jack)

LASER Specification

Class 1 LASER Product

Wave Length: 779 nm–791 nm, 653 nm–662 nm

Laser Power: No hazardous radiation is emitted with the safety protection

Notes:

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

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<http://www.panasonic.com/medical>

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