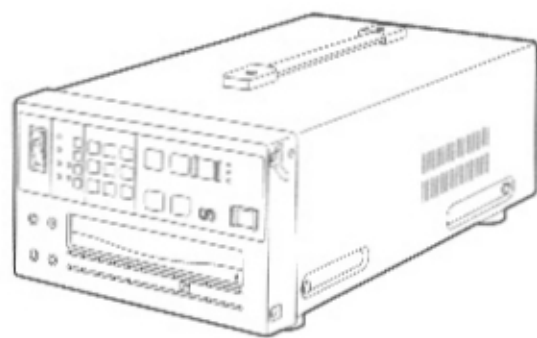


Panasonic[®]
**Operating
Instructions**

LQ-D100P

Digital Frame Disc Recorder



IMPORTANT

"Unauthorized recording of copyrighted television programs, video tapes and other materials may infringe the right of copyright owners and be contrary to copyright laws."

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.



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 TO 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.

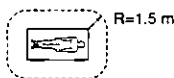


The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the appliance.

■ NOTICE FOR MEDICAL USE

- This is an apparatus intended for recording and playing-back of diagnosis image classified as;
 - Protection against Electric Shock Class I
 - 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.
- Accessories connected to signal input and/or output parts must be certified according to the appropriate IEC601-1 and/or IEC601-1-1 harmonized national standard.
- Caution for use in patient environment

Patient Environment




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.

FCC Note:

This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

Note: 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 harmless 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 or more 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.

 indicates safety information.

WARNING:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

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:

Do not install or place this unit in a bookcase, built-in cabinet or any other confined space in order to maintain adequate ventilation. 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:

A DVD-RAM DRIVE (CLASS 1 LASER PRODUCT) IS INSTALLED IN THE PRODUCT. USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. DO NOT MAKE ANY MODIFICATIONS. DO NOT REPAIR BY YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

Replace battery with part No. CR2032 only.
Use of another battery may present a risk of fire or explosion.
Caution — Battery may explode if mistreated.
Do not recharge, disassemble or dispose of in fire.

 indicates safety information.

Contents

Precautions for use.....6	Operation 25
1. Precautions for handling the unit6	1. Frame recording25
1-1. Installation6	1-1. Preparations for recording25
1-2. Precautions when using the unit6	1-2. Setting the recording ID25
1-3. Concerning vibration and impact during operation6	1-3. Recording frames on a full screen27
1-4. Operation at low temperatures6	1-4. Recording frames as dual pictures (DUAL PICT)28
1-5. Concerning write cache operations6	1-5. Recording frames automatically by specifying a time interval (AUTO REC)28
1-6. Moving or transporting the unit6	1-6. Rewriting already recorded frames (OVERWRITE)29
2. Precautions for handling discs7	2. Frame playback30
2-1. Concerning DVD-RAM discs7	2-1. Playing back frames30
2-2. Concerning the handling of discs7	2-2. Playing back frames automatically by specifying a time interval (AUTO PLAY)31
2-3. Disc and lens maintenance method.....7	2-3. Playing back a program by specifying a time interval (PROGRAM PLAY)31
General Introduction8	3. Multi-screen playback33
1. Features8	3-1. Preparations33
2. Main functions10	3-2. Multi-screen playback in address sequence (except when program playback is set)33
2-1. RGB mode/Component mode.....10	3-3. Multi-screen playback in program sequence (when program playback is set)34
2-2. DUAL PICT mode10	4. Searching35
2-3. NEXT mode11	4-1. Direct searches using address values (DIRECT search)35
1. Outline of functions11	4-2. Searching the last recording address (END search)35
2. NEXT modes 1 and 211	4-3. Searches by inputting the search conditions35
3. Description of operation steps12	5. Voice memo recording/playback38
3. Parts and their functions13	5-1. Preparations38
3-1. Front panel area13	5-2. Recording voice memos38
1) Power, headset and recording/playback operation area13	5-3. Playing back voice memos38
2) Menu area and search operation area15	5-4. Playing back voice memos and frames simultaneously38
3-2. Rear panel connector area17	6. Copying discs38
3-3. Wired remote controller18	6-1. Preparations for copying (preparing the external drive)38
Preparations 19	6-2. Copy settings39
1. Connections19	6-3. Copying selected frames (MANUAL COPY)40
2. DIP switch settings21	6-4. Copying selected frames from multi screens (MANUAL COPY)40
3. Disc preparations22	6-5. Automatically copying frames in program sequence (PROGRAM COPY)40
3-1. Disc formatting22	6-6. Copying discs (DUPLICATE)40
3-2. Formatting procedure23	
3-3. How to set recording inhibit23	
4. Setting the clock24	

Contents

Screen displays	41	Other	67
1. On-screen displays	41	1. Connector signals	67
2. Setup menu	42	2. Error messages	68
2-1. Setup menu configuration	42	3. Manual disc ejection	71
2-2. Moving between menus	44	4. Concerning the flashing of the BUSY (operation display) lamp	71
2-3. Inputting data (alphanumerics)	44		
2-4. Detailed breakdown of setup menus	44	Specifications	72
1) MAIN menu	44		
2) INPUT VIDEO sub menu	45		
2-1) In the RGB mode	45		
2-2) In the Component mode	45		
3) OUTPUT VIDEO sub menu	46		
3-1) In the RGB mode	46		
3-2) In the Component mode	47		
4) RECORD sub menu	48		
5) PLAY sub menu	49		
6) DISPLAY sub menu	50		
6-1) On-screen display position setting screen	51		
7) PROGRAM sub menu	52		
7-1) Program input screen	53		
7-2) Program LOAD and SAVE screen	54		
8) SYSTEM sub menu	55		
8-1) RS-232C setting screen	56		
8-2) GPI setting screen	57		
8-3) Video control setting screen.....	58		
9) DISC-MANAGEMENT sub menu	61		
10) DISC-COPY sub menu	63		
11) MAINTENANCE sub menu	65		
2-5. How to return to the default settings	66		
3. Character input screen	66		

Precautions for use

1. Precautions for handling the unit

This unit is a disc-based equipment and, as such, its operation is subject to a set of restrictions which are different from those of conventional VTRs. Familiarize yourself with these restrictions before attempting to operate the unit.

1-1. Installation

Install the unit on a level surface to ensure stable operation.

In order to prevent the temperature from rising inside the unit, never cover the ventilation openings at the sides of the unit or the fan area installed on the rear panel.

Avoid installing the unit in the following locations.

- Where it will be exposed to sunlight or other strong light source.
- Where it will be exposed to heavy concentrations of dust or vibration. Bear in mind that more dust tends to be sucked into the unit if it is installed at the very bottom of the rack.
- Where there are strong electrical or magnetic fields
- Where there are sudden and extreme changes in the temperature
- Where the surface is slanted (at an angle of over 5 degrees)
- Where there is a heat source or humidifier nearby

1-2. Precautions when using the unit

Bear in mind the following points when operating the unit.

- Be absolutely sure to use the DVD-RAM discs designated.

DVD-RAM discs

- LM-DA52U and LM-DA26U or their equivalent

- Do not leave the tray extended. Dust may find its way inside and cause trouble.
- Do not use cracked discs or discs which were once warped and have been bent back. The disc may break up into pieces and scatter and possibly cause injury.
- Do not extend or retract the tray with the shutter held down. Do not forcibly extend or retract the tray.
- While the unit is in operation, do not pry the shutter open or insert your fingers, etc. into it.

1-3. Concerning vibration and impact during operation

Recording or playback may be interrupted if the unit is subjected to external vibration or impact while it is operating. If it has been subjected to vibration or impact during recording, the data already recorded may be destroyed or it may not be recorded properly.

To prevent accidents like this, install the unit in a stable location where it will not be subjected to vibration or impact.

1-4. Operation at low temperatures

If the unit is to be used under low ambient temperature conditions, its operation may become unstable immediately after the power is turned on due to the formation of condensation, etc. To operate the unit at a low temperature, first set the POWER switch to the ON position, leave the unit standing for about an hour, and then insert the disc.

1-5. Concerning write cache operations

This unit performs write cache operations during recording. For this reason, if the power is turned off immediately upon completion of a recording (immediately after the REC lamp has gone off), the data in the drive buffer may be lost, the data may not be recorded properly or some other type of trouble may occur.

Immediately after recording, the drive's BUSY lamp may light up orange for a short while (several seconds): under no circumstances should be the power be turned off while this lamp is still lighted.

• Write cache operations

The recording data is transferred to the buffer (memory) in the unit's drive, and the recording operation is completed as soon as the data transfer to the buffer is completed.

Starting from this point in time, it is possible to perform the next operation such as INPUT or FREEZE.

After this, the unit's drive automatically records the data from the buffer onto the disc.

To all appearances, it seems that recording can be performed at high speed by the write cache operation.

1-6. Moving or transporting the unit

When the unit is to be moved or transported, be absolutely sure to remove the disc and take care not to drop it or knock it against something.

CAUTION:

Panasonic will not be liable in any way for the loss of data or for any damage, whether direct or indirect, which results from the use of this product or which is due to its malfunctioning or any other reason.

Make backups (copies) of important data using the disc copy function in order to safeguard against loss of data.

Precautions for use

2. Precautions for handling discs

2-1. Concerning DVD-RAM discs

Either 12cm double-sided 5.2GB or single-sided 2.6GB DVD-RAM discs are used with this unit.

DVD-RAM discs

- LM-DA52U and LM-DA26U or their equivalent

There are two types of DVD-RAM discs, Type 1 and Type 2. Although a Type 2 disc can be removed from its cartridge, it should be kept inside the cartridge for use in this unit. Do not remove a disc from its cartridge and then insert it into the unit.

When a disc is removed, it becomes easier for the disc surface to be exposed to dirt or to be scratched, and it may become impossible to read the recorded data or some other kind of trouble may occur.

2-2. Concerning the handling of discs

Bear in mind the following points when handling discs.

- Do not leave them in dirty or dusty locations.
- Do not leave them in locations with a high temperature or high humidity or in locations exposed to direct sunlight.
- Do not leave them in locations which are subject to wide fluctuations in temperature.
- Do not touch the disc surfaces.
- Do not drop or bend the discs or place heavy objects on top of them.
- Do not re-adhere a label which has been peeled off.
- Store a disc inside its protective case when it is not being used.

In order to ensure that the data will be recorded on a disc and played back properly, take care to keep the disc free from dust and scratches.

Since it will no longer be possible to read out the frames, search operations will become unstable and so on once the disc surface becomes dirty, exercise all due care in handling the discs. In addition, recording and playback may become unstable if the lens area in the unit's drive is allowed to become dusty or dirty.

Discs do not take kindly to heat. Leaving them in conditions which exceed their ambient environment specifications may cause the discs to be bent out of shape, rendering them useless for recording or playback.

2-3. Disc and lens maintenance method

Use of the unit over an extended period of time may cause dust to adhere to the lens area in the unit's drive or disc surface so that it may no longer be possible to read and write data properly. Although it will depend on the operating environment and conditions, it is recommended that the disc and lens be cleaned every one to four months using the cleaning kit available as an optional accessory.

Cleaning kit (optional accessory)

LF-K200DCA: Disc cleaner

LF-K123LCA: Lens cleaner

(These cleaners are specifically designed for use with PDs but they may be used with this unit.)

CAUTION:

When the lens cleaner (LF-K123LA) is inserted, the BUSY lamp lights in orange; when cleaning is completed, it changes to green.

To remove the lens cleaner, be absolutely sure to press the CLR button first, and then press the EJECT button.

Noise and vibration may be generated and READ ERROR displayed during the actual cleaning; this is normal and not indicative of a malfunction.

Dust may well be to blame as the cause of any errors (such as WRITE ERROR, READ ERROR, FORMAT PROCESS ERROR, SEEK ERROR or SCSI ERROR) that may occur during normal operation. Cleaning is recommended as the first step to take when an error has occurred.

General Introduction

1. Features

This is a digital frame (still-picture) recorder which uses DVD-RAM discs. It features a high picture quality, large capacity and high-level search, and a high degree of reliability.

It can mainly be used for the following kinds of applications.

- 1) Image frame filing and presentation applications in the medical and academic research fields
- 2) Still-picture transmission applications in the broadcasting field
- 3) Applications involving the transmission of information for exhibitions, guides and directions for buildings, electronic notice boards, etc.
- 4) Time lapse applications for monitoring objects, people, etc.

High picture quality

The unit achieves a high picture quality which is virtually free from any deterioration in this quality by conducting non-compressed digital recording for the video signals in the RGB mode or Component mode — whichever suits the input signals. RGB recording with a sampling frequency of 18 MHz/8 bits is featured for the RGB input signals; component recording with a sampling frequency of 13.5 MHz/8 bits is featured for all other input signals.

Large-capacity recording

Large-capacity recording is enabled using DVD-RAM discs with their large memory size.

Recording capacity per single-sided 2.6GB disc

- RGB mode: 1,680 frames
- Component mode (component, composite, S-VIDEO): 3,300 frames

Voice memo recording and playback

Voice memos lasting 5 seconds can be recorded for each frame.

A microphone and headphones are used to record and play back the memos.

Automatic recording of date and time

The recording date and time are automatically recorded each time a frame is recorded.

It is also possible to record additional information such as the ID or title for each frame.

Multi-screen playback

A multiple number of frames can be viewed simultaneously using the multi-screen playback function. The screen can be divided into 4, 9 or 16 screens for multi-screen playback.

Search functions

In addition to direct searches by frame address, frames can be searched by recording date and time or ID. The search results can be checked on the list display or multi-screen display.

Seamless playback

The unit offers the convenience of seamless playback where there are no breaks between the playback frames and one frame is played back after the next in sequence.

(This function is available only in the Component mode.)

NEXT playback mode

The unit comes with the NEXT playback mode in which the frame can be played back seamlessly while the frame to be played back next is monitored (previewed) at the monitor output connector. It is also possible to replace the next frame with another frame. (This function is available only in the Component mode.)

Pseudo write-once function

When a disc is to be formatted, it can be set to the pseudo write-once status.

Once frames have been written, this status makes it impossible for these frames to be erased, and it prevents accidental erasure. It also enables the unit to be used as a playback-only unit (when the DIP switch on the rear panel is set to establish this function).

Program playback/automatic playback

Program playback is enabled by pre-registering the frame playback sequence. Frames can also be played back automatically in the sequence of their addresses. This feature enables the unit to be used widely for visual information exhibitions, presentations, etc.

Automatic recording

The unit can perform automatic recording (automatic recording at intervals) which is useful for academic research applications and time lapse monitoring applications.

Dual-picture recording

The unit is equipped with a DUAL PICT mode: this mode enables the dual-picture frame to be recorded after the input frames on two screens have been combined into a single frame.

General Introduction

Input/output connectors for prioritizing picture quality

In addition to the regular standard video input and output connectors (for composite video signals), the unit also features component input and output connectors, RGB input and output connectors, S-VIDEO (Y/C) input and output connectors and a monitor output connector.

External REF synchronization function

The unit has an external REF synchronization function which is indispensable in the broadcasting field.

On-screen displays

The frame address, date and time, unit's operating mode, error information, etc. can be displayed on the screen of a TV monitor.

Menu-operated setup settings

It is possible to perform the setup settings while viewing the menus on the TV monitor screen.

Computer-based control

The unit can be operated by remote control using the RS-232C standard serial interface which is the standard for computers.

The unit comes with a software program (LQ-D100 Control Software) for enabling remote control operations to be initiated from a personal computer (which runs Windows 95 or Windows 98).

Capturing images in the computer

Images can be captured as bitmap files or JPEG files in a personal computer (which runs Windows 95 or Windows 98) to which a DVD-RAM drive is connected.

The unit comes with a software program (LQ-D100 Format Converter) for enabling images to be captured.

External control

The unit's GPI (parallel input/output) connector enables the unit to be controlled using a foot switch or other external device.

Disc copy and backup facilities

By connecting an external DVD-RAM drive to the unit using its SCSI connector, only the required frames on an original disc can be copied or backups can be made.

Wired remote control provided as a standard accessory

A wired remote control is provided as a standard accessory so that the unit can be readily operated at a convenient location.

Small size and light weight

The unit's small size and light weight (approx. 15.4 lb <7 kg>) make the unit readily transportable.

General Introduction

2. Main functions

2-1. RGB mode/Component mode

This unit features two kinds of recording formats, the RGB mode and Component mode. One of these recording formats is selected in accordance with the input video signals which are to be recorded, and it is determined at the disc formatting stage. It is not possible to use both recording formats for the same disc.

The characteristics of each recording format are as described below:

1) RGB mode

- Used when the input signals (signals to be recorded) are RGB signals
- Non-compressed R:G:B = 4:4:4, 18 MHz/8-bit sampling recording
- Still-picture recording capacity per single-sided 2.6GB disc
1,680 frames

2) Component mode

- Used when the input signals (signals to be recorded) are composite, component (Y, P_B, P_R) or S-VIDEO signals
- Non-compressed Y :P_B :P_R = 4:2:2, 13.5 MHz/8-bit sampling recording
- Still-picture recording capacity per single-sided 2.6GB disc
3,300 frames

To use one of the recording formats, it is first necessary to select the equipment mode which supports the recording format by following the steps below, and then format the disc.

1) With the unit's power turned off, set the "RGB MODE" DIP switch (bit 1) on the unit's rear panel to the RGB mode or Component mode.

(See page 21.)

2) Now turn on the power. Format the disc using the DISC MANAGEMENT setup menu, and prepare the disc which supports the recording format.

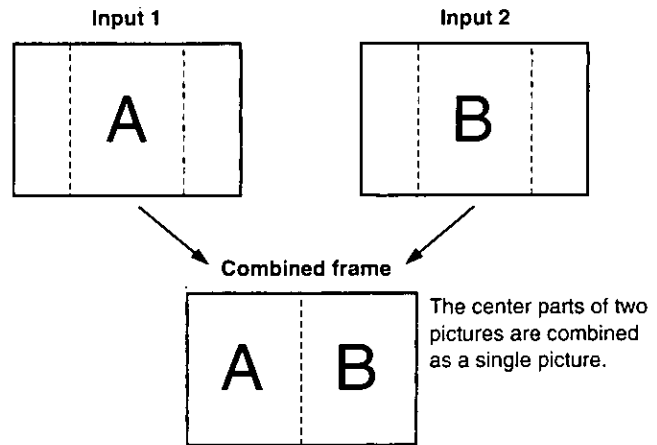
<Note>

In the RGB mode, a black screen is output while the data is being read from the disc (during the time taken until the playback frame is output after the play operation has been instructed).

In the Component mode, the playback frames are switched seamlessly and output without a black screen.

2-2. DUAL PICT mode

In this mode, the center portions of two input pictures are cut out and combined into a single picture. What happens is that the center parts of the input frames are cut out, combined in the internal frame memory, and then recorded. (See figures below.)



The frontal views and profiles of people can be recorded as a single frame.

Using the overwrite function, one half of an already recorded combined frame can be overwritten and an alternative frame added instead.

General Introduction

2-3. NEXT mode

1. Outline of functions

In the NEXT mode, the frame which is to be output next is previewed to the monitor output connector so that it can be checked before it is played.

- The NEXT mode functions only when the Component mode has been established. The NEXT mode is set ON or OFF in the Component mode using the PLAY item on the setup menu.

	RGB mode	Component mode
Normal playback mode	Enabled	Enabled
NEXT mode	Disabled	Enabled

The same operation is performed for INPUT, FREEZE and REC whether the NEXT mode is set ON or OFF.

- During playback, the frame with the current address (hereafter referred to as the "current frame") is output to the output connectors other than the monitor output connector (hereafter referred to as the "main output connectors") while the frame with the next address (hereafter referred to as the "next frame") is output to the monitor output connector. By pressing the FORWARD button, for example, the main output is switched from the current frame to the next frame.
- During playback, it is possible to change only the next frame without making any changes to the current frame. The next frame only can be forwarded or reversed using the "+" or "-" button. Direct search also works for the next frame. This function enables the next frame to be replaced with another frame without changing the current frame.

<Note>

In the INPUT or FREEZE mode, the frame is not changed by the "+" or "-" button. When a direct search is conducted, the selected frame is output to the main output connectors. At this time, the frame next to the selected frame is output to the monitor output connector.

- Multi-screens in the NEXT mode are output to both the main and monitor output connectors.

When a frame is selected on a multi-screen during playback and the FORWARD button is pressed, the selected frame is output to the monitor output connector, and the next frame which was previously output to the monitor output connector is now output to the main output connectors.

When a frame is selected on a multi-screen in the INPUT or FREEZE mode and the FORWARD button is pressed, the selected frame is output to the main output connectors. At this time, the frame next to the selected frame is output to the monitor output connector. If trouble occurs when a multi-screen is output to the main output connectors during playback, the multi-screen in the NEXT mode can be prohibited by a setup menu item setting.

2. NEXT modes 1 and 2

When it comes to the method used to display the setup menu and the search screen, there are two NEXT modes, NEXT modes 1 and 2. One of these two modes is selected using the "NEXT 1/2" DIP switch (bit 5) on the unit's rear panel. When mode 1 is off, mode 2 is on.

◇NEXT mode 1

In this mode, the setup menu displays do not appear at the main output connectors (all the output connectors except the monitor output connector).

- The search screens and setup menus are output to the monitor output connector only.
- The on-screen displays in the INPUT or FREEZE mode are also output to the monitor output connector only.
- The on-screen displays of the frame addresses, dates and times, etc. during playback represent the information on the monitor output frame (next frame).

◇NEXT mode 2

In this mode, the setup menu and other displays appear as usual.

- The search screens and setup menus are output as usual with the same signals going to both the main and monitor output connectors.
- The on-screen displays of the frame addresses, dates and times, etc. during playback represent the information on the monitor output frame (next frame).

General Introduction

The table below shows the correlation between the main output and monitor output. ("OSD" is short for on-screen display.)

	Status	Main output	Monitor output
Normal playback mode (RGB mode or NEXT mode OFF)	INPUT	Input frame (OSD enabled)	← (OSD enabled)
	FREEZE	Freeze screen (OSD enabled)	← (OSD enabled)
	Playback	Playback (current frame)(OSD enabled)	← (OSD enabled)
	Multi-screen	Multi-screen	←
	Search screen	Search screen	←
	Setup	Setup menu	←
NEXT mode 1	INPUT	Input frame (OSD disabled)	← (OSD enabled)
	FREEZE	Freeze screen (OSD disabled)	← (OSD enabled)
	Playback	Current frame playback (OSD disabled)	NEXT frame playback (OSD enabled)
	Multi-screen	Multi-screen/prohibited	←
	Search screen	No search screen	Search screen
	Setup	No setup menu	Setup menu
NEXT mode 2	INPUT	Input frame (OSD disabled)	← (OSD enabled)
	FREEZE	Freeze screen (OSD disabled)	← (OSD enabled)
	Playback	Current frame playback (OSD disabled)	NEXT frame playback (OSD enabled)
	Multi-screen	Multi-screen/prohibited	←
	Search screen	Search screen	←
	Setup	Setup menu	←

3. Description of operation steps

The steps taken to use the NEXT mode are described below.

1) Conditions for using the NEXT mode

- The equipment mode must be set to the Component mode.
The "RGB MODE" DIP switch on the rear panel must be at OFF.
- Either NEXT mode 1 or 2 must be selected.
"NEXT 1/2" OFF setting of rear panel DIP switch = Mode 1
"NEXT 1/2" ON setting of rear panel DIP switch = Mode 2
- A disc with the component recording format must be used.
- NEXT mode ON must be set using the PLAY setup menu item.

2) During playback, the current frame is output to the main output connectors, and at the same time the frame with the next address (next program frame during program playback) is read in advance as the next frame and output to the monitor output connector.

When the playback instruction is issued by the FORWARD button, the next frame is immediately output to the main output connectors, and at the same time the frame with the next address (next program frame during program playback) is read and output to the monitor output connector as the next frame.

<Note>

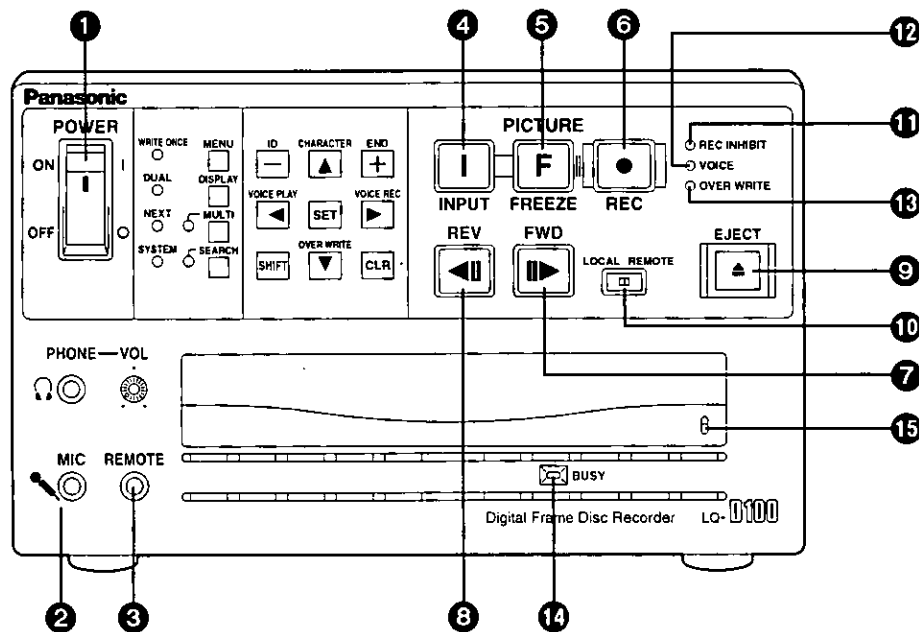
As described above, the unit normally operates on the assumption that the frame with the next address is the next frame.

For this reason, when the REVERSE button is pressed, it will take some moments for the main output to be switched.

General Introduction

3. Parts and their functions

3-1. Front panel area



1) Power, headset and recording/playback operation area

1) POWER switch

When this is pushed to the ON position, the main power is turned on; when it is pushed to the OFF position, the main power is turned off.

2) PHONE jack, VOL control, MIC jack

The jacks are used to connect the headphones and microphone.

The VOL control is used to adjust the headphones volume.

3) REMOTE CONTROL connector

The wired remote controller provided with the unit is connected to this connector for use.

4) INPUT button

When the INPUT button is pressed, its lamp lights, and the input mode (EE) is established. The input signals can be monitored in this mode.

5) FREEZE button

When the FREEZE button is pressed while the INPUT button's lamp is lighted, its lamp lights, and the input signals are captured in the internal memory as a still-picture frame. After capture, the captured signals are output.

6) REC button

When the REC button is pressed, its lamp lights, and the still picture captured in the internal memory is recorded. Recording is completed in several seconds, and the lamp goes off.

The unit will not go into the recording mode when the REC INHIBIT lamp is lighted.

7) FORWARD button

When this button is pressed, its lamp lights, and the unit goes into the playback mode. Each time the button is pressed while its lamp is lighted, playback advances to the frame with the next address.

8) REVERSE button

When this button is pressed, its lamp lights, and the unit goes into the playback mode. Each time the button is pressed while its lamp is lighted, playback returns to the frame with the previous address.

General Introduction

⑨ EJECT button

When this button is pressed while the tray is retracted, the tray is extended (opened) and the disc is ejected. When it is pressed while the tray is extended, the disc is inserted into the unit.

The disc will not be ejected while a disc is being accessed such as when data is written onto or read from a disc.

⑩ LOCAL/REMOTE switch

LOCAL:

Set to this position when the unit is to be operated using the front panel controls. This position is also used when the wired remote controller is used to operate the unit.

REMOTE:

Set to this position when the unit is to be operated by remote control (GPI, RS-232C) with a remote controller, etc. At this position, the unit can no longer be operated using the front panel controls. (Operation using the front panel controls can be permitted by setting the "FRONT KEY" DIP switch on the rear panel.)

⑪ REC INHIBIT lamp

This lamp lights when the write protect switch on the disc cartridge is used to write protect or when the unit is set to the playback-only mode (using the "REC INHIBIT" DIP switch on the rear panel). Recording operations cannot be conducted while this lamp is lighted.

⑫ VOICE lamp

This lamp lights up green while a voice memo is being recorded (for approx. 5 seconds).

The lamp flashes in green while a voice memo is being played back (for approx. 5 seconds).

⑬ OVERWRITE lamp

This lamp lights in the overwrite mode.

⑭ BUSY lamp (operation display lamp)

This indicates the operation of the drive. It shows the following statuses by means of the lamp color and lighting method.

Off:

When a disc has not been inserted into the unit

Lights up green:

When a disc has been inserted into the unit

Lights up orange:

During recording, playback, formatting; when the tray is extended (opened) or retracted (closed)

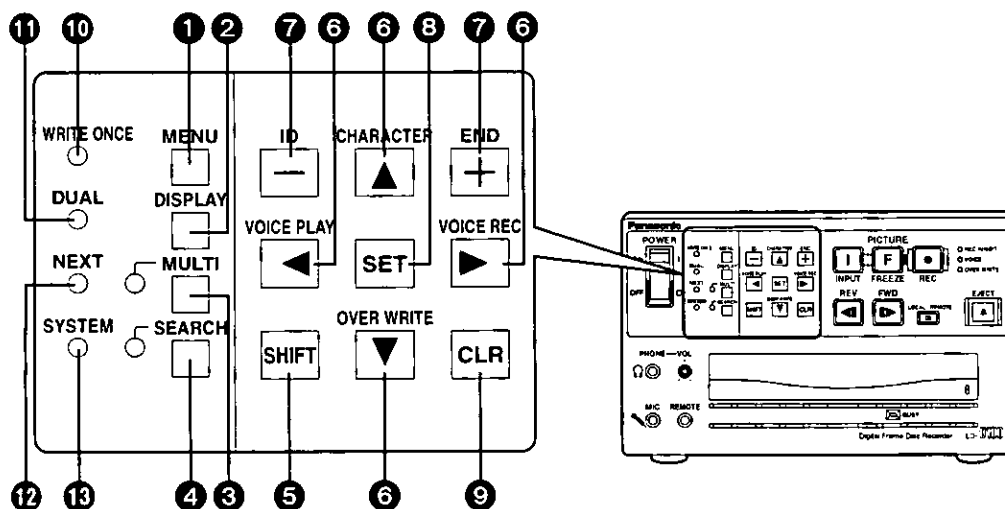
Flashes green:

When an error has occurred

⑮ Forcible ejection hole

To eject a disc manually, use the forcible ejection pin provided and insert it into this hole to extend the tray. (See page 71.)

General Introduction



2) Menu area and search operation area

1 MENU button

This button is pressed to change the unit's operating conditions or setup statuses. The setup menu is output to the display. When the button is pressed again, the setup menu is cleared.

For details on the various items, refer to the description of the setup menu.

2 DISPLAY button

When this button is pressed, the unit's operating status and other information appear on the TV monitor as an on-screen display. When it is pressed again, the display is cleared.

The display items can be selected using the setup menu.

3 MULTI button

When this button is pressed, the multi-screen display appears.

The screen can be divided into 4, 9 or 16 screens for multi-screen display, and the number of divisions can be selected using the setup menu.

The MULTI lamp lights while a multi-screen display appears.

4 SEARCH button

When this button is pressed, the search input screen relating to the frame address, ID, recording date and time and other recorded frame items appears on the display. A search can be initiated by inputting the search conditions.

The SEARCH lamp lights in the search mode.

5 SHIFT button

While this button is held down, different functions are executed by pressing the "+" button, "-" button, up arrow button, down arrow button, left arrow button or right arrow button. The function which will be executed is printed at the top of each button.

General Introduction

⑥ Cursor buttons (up, down, left and right arrow buttons)

These buttons are used to move the cursor and input data so as to set the search conditions and perform setup menu and other operations.

The functions below are executed when these buttons are pressed together with the SHIFT button.

Up arrow button (CHARACTER):

When alphanumerics or other characters need to be input, press this button while holding down the SHIFT button. The character input mode is now established. The character selection screen for inputting the characters now appears on the TV monitor. (See page 66.)

Down arrow button (OVERWRITE):

When this button is pressed during playback while holding down the SHIFT button, the unit goes into the recording mode in which the frame currently being played back is overwritten. The frame is overwritten in the same way as with normal recording, and once another frame has been recorded in its place, the unit automatically exits the mode.

Left arrow button (VOICE PLAY):

When this button is pressed during playback while holding down the SHIFT button, a voice memo corresponding to the frame being played back is played back for about 5 seconds. The VOICE lamp flashes green during playback.

Right arrow button (VOICE REC):

When this button is pressed during playback while holding down the SHIFT button, it is possible to record a voice memo lasting about 5 seconds for the frame being played back. The VOICE lamp lights up green or red during recording.

⑦ “+” button and “-” button

These buttons are used for inputting numbers when the setup menu is displayed.

They are also used to scroll the pages up or down when the search results or multi-screen display is shown.

The following functions are executed by pressing the buttons while holding down the SHIFT button.

“+” button (END):

When this button is pressed while holding down the SHIFT button, an end search which locates the address of the last recorded frame is performed.

“-” button (ID):

When this button is pressed while holding down the SHIFT button, the settings related to the IDs, which are added to the images during recording, can be performed.

⑧ SET button

This is used to enter the operations such as the setup menu operations.

⑨ CLR button

This is used to cancel (clear) an operation.

⑩ WRITE ONCE lamp

This lights when a disc has been formatted in the pseudo write-once mode.

⑪ DUAL lamp

This lights when the dual-picture recording mode has been selected.

⑫ NEXT lamp

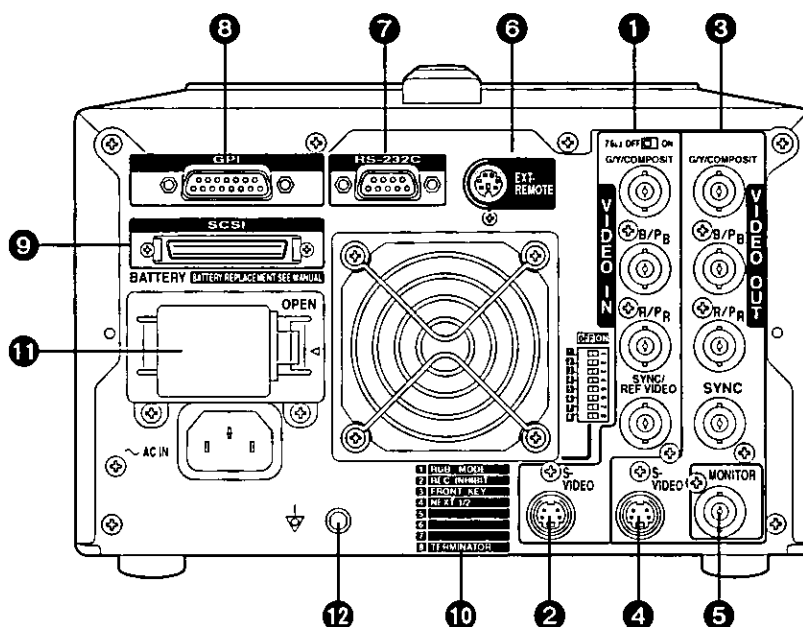
This lights when the NEXT mode has been selected.

⑬ SYSTEM lamp

This flashes when a caution or warning is issued or trouble has occurred in the system. It is turned off by the CLR button.

General Introduction

3-2. Rear panel connector area



1 RGB/composite/component (Y, P_B, P_R) video input connectors (BNC × 3) and SYNC/REF VIDEO connector (BNC × 1)

RGB mode:

The connectors serve as the G, B, R and SYNC input connectors. SYNC (4 V or 0.3 V) or G-ON-SYNC can be selected using the INPUT VIDEO item of the setup menu.

The 75 Ω selector switch must be used at the ON position.

Component mode:

The connectors serve as the composite video signal and component signal (Y, P_B, P_R) input connectors. Whether they are to be used as composite or component connectors is selected using the INPUT VIDEO item of the setup menu. The REF VIDEO signal can also be input.

When composite signals are distributed and input to the composite input connectors and REF VIDEO connector (by using T-shaped connectors for the composite input connectors), set the 75 Ω selector switch to the OFF position.

If component signals are to be recorded or if the REF VIDEO signal is to be supplied from different systems even when composite signals are to be recorded, the 75 Ω selector switch must be used at the ON position.

2 S-VIDEO input connector (4P)

This is the input connector for the S-VIDEO (Y/C) signal.

It is selected using the INPUT VIDEO item of the setup menu.

3 RGB/composite/component (Y, P_B, P_R) video output connectors (BNC × 3) and SYNC connector (BNC × 1)

RGB mode:

The connectors serve as the G, B, R and SYNC output connectors.

Component mode:

The connectors serve as the composite video signal and component signal (Y, P_B, P_R) output connectors. Which signals are to be output is selected using the OUTPUT VIDEO item of the setup menu.

4 S-VIDEO output connector (4P)

This is the output connector for the S-VIDEO (Y/C) signal.

General Introduction

5 Monitor (MONITOR) output connector (BNC)

This is the composite video signal's output connector used for monitoring. In the NEXT mode, the next frame is output. In any other mode, the same frame as the one output from the other video output connectors is output.

6 EXT-REMOTE connector

This enables the unit to be operated by remote control from an external source.
(MIS 6-6 bit control)

7 RS-232C connector

The unit can be operated by remote control using a device complying with the RS-232C standard. Set the front panel LOCAL/REMOTE switch to REMOTE for use.

8 GPI connector

This is a 7-input/7-output parallel input/output connector. The input/output signals are set on the setup menu. Set the front panel LOCAL/REMOTE switch to REMOTE for use.

9 SCSI connector

Frames can be copied and backups of discs can be made by connecting an external designated DVD-RAM drive to this connector. The DIP switches on the external drive and unit's rear panel must be set to SCSI.

10 DIP switches

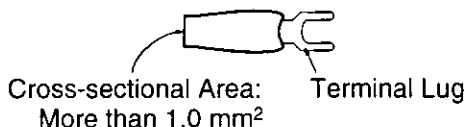
These are used to perform settings for the unit.
(See page 21)

11 Battery compartment cover

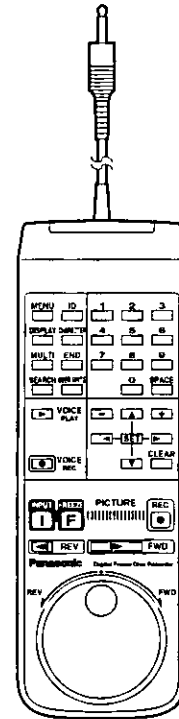
This is the cover of the compartment housing the battery for the internal clock.

12 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 terminal lug, and be sure to use wire with a cross-sectional area of at least 1.0 mm².



3-3. Wired remote controller



For details on the functions of the wired remote controller's buttons, refer to the descriptions of the corresponding buttons on the unit.

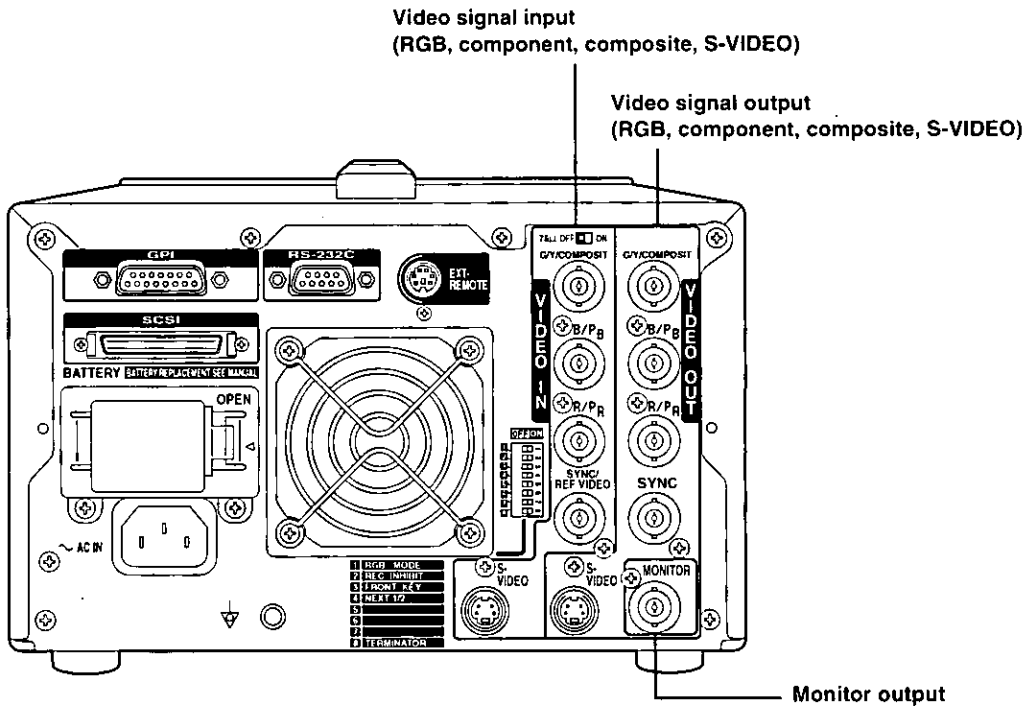
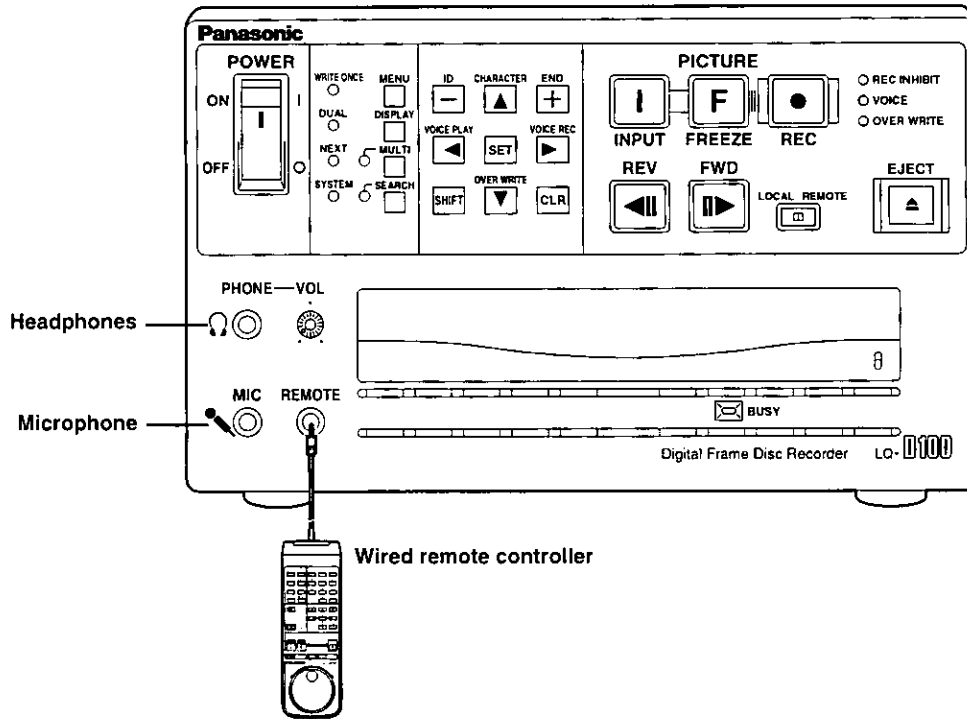
The main differences between the wired remote controller's buttons and unit's buttons are as follows.

- On the unit's front panel, some functions are implemented by pressing a button while holding down the SHIFT button. On the wired remote controller, separate buttons are provided.
 - ID button
 - CHARACTER button
 - END button
 - OVERWRITE button
 - VOICE PLAY button
 - VOICE REC button
- The wired remote controller has ten number keys to make it easier to input numbers.
- Search dial
Rotating the inner dial clockwise initiates a forward operation; conversely, rotating it counterclockwise initiates a reverse operation. The outer dial is not functional.

Preparations

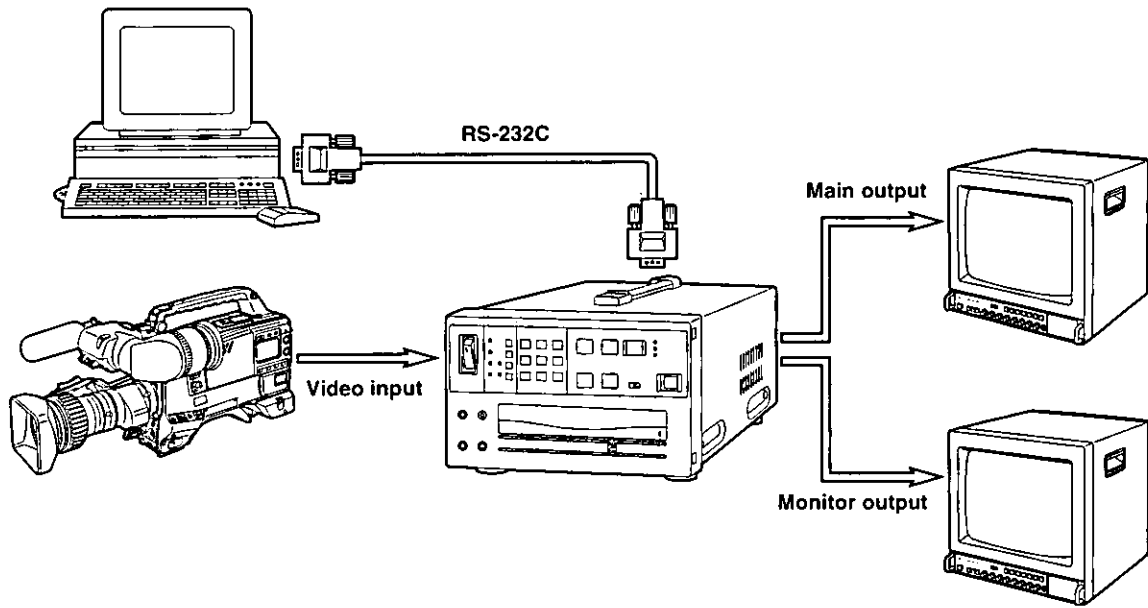
1. Connections

Basic connections

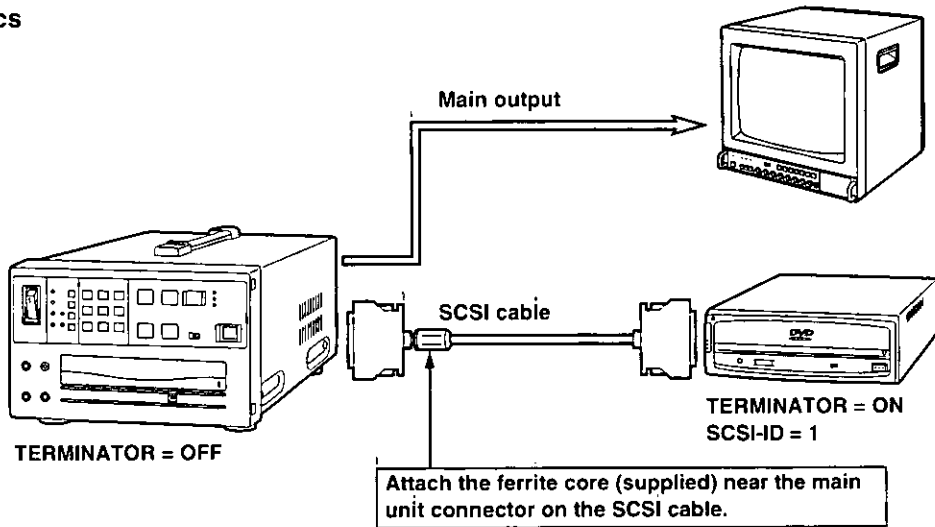


Preparations

Example of system connections

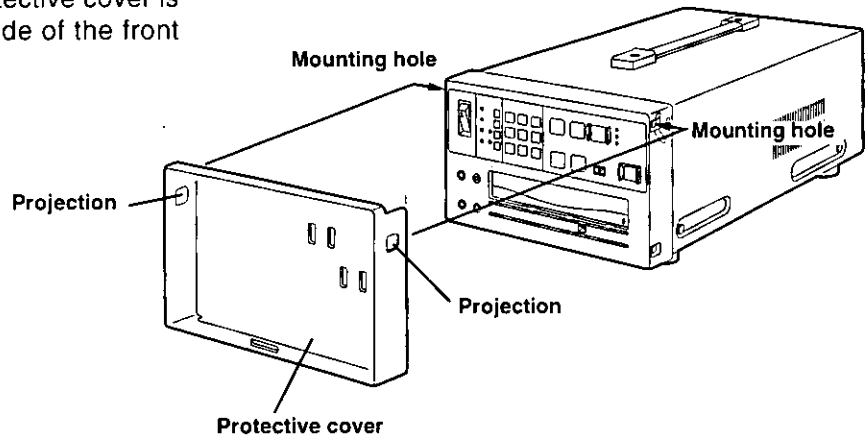


For copying discs



When attaching the front panel protective cover

The projection on each side of the protective cover is slid into the mounting hole on each side of the front panel.



Preparations

2. DIP switch settings

The DIP switches on the rear panel are set as shown below. Before attempting to change a DIP switch setting, be absolutely sure that the power has been turned off.

Switch No.	Display	Default setting	Description of function
1	RGB MODE	ON	This is used to switch the unit's equipment mode to the RGB mode or Component mode. ON: RGB mode OFF: Component mode
2	REC INHIBIT	OFF	This is used to inhibit all operations to record on the disc when it is set to ON. It is set when the unit is to be used as a playback-only unit. ON: Recording is inhibited. OFF: Recording is permitted.
3	FRONT KEY	OFF	This is used to enable or disable the operation of the front buttons when the LOCAL/REMOTE switch on the front panel has been set to REMOTE. ON: Operation of the front buttons is enabled. OFF: Operation of the front buttons is disabled. <Note> When this switch is set to ON, the front keys can be operated in the REMOTE mode but since this imposes a heavier toll in terms of the system processing, the response to the operation of the buttons, etc. may be impaired slightly. It is recommended that this switch be used at the OFF setting unless use of the front keys are required.
4	NEXT 1/2	OFF	This is used to select mode 1 or mode 2 when the NEXT mode is set. ON: Mode 2 OFF: Mode 1
5	Spare		
6	Spare		
7	Spare		
8	TERMINATOR	ON	This is used to set the SCSI terminating resistance (terminator) of the internal drive to ON or OFF. Set it to OFF when an external drive is to be connected to the SCSI connector. ON: Terminator is set to ON (an external drive is not connected). OFF: Terminator is set to OFF (an external drive is connected).

Preparations

3. Disc preparations

3-1. Disc formatting

To record frames on a new disc, the disc must first be formatted in the formatting mode (RGB mode or Component mode) which is supported by the unit.

Select the mode in accordance with the type of input video signals which are to be recorded.

1) RGB mode

This formatting mode is used when the input signals to be recorded are RGB signals. The RGB signals input are respectively digitized (18M, 4:4:4) with a sampling frequency of 18 MHz and 8-bit quantizing, recorded on the disc and then played back.

Still-picture recording capacity per single-sided (2.6GB) disc

1,680 frames

2) Component mode

This formatting mode is used when the input signals to be recorded are composite, component (Y, P_B, P_R) or S-VIDEO signals.

The input signals are first converted internally into component (Y, P_B, P_R) signals, digitized (13.5M, 4:2:2) with a sampling frequency of 13.5 MHz and 8-bit quantizing, recorded on the disc and then played back.

Still-picture recording capacity per single-sided (2.6GB) disc

3,300 frames

The equipment mode is set to the RGB mode or Component mode using the "RGB MODE" DIP switch on the unit's rear panel. When the switch is at OFF, the Component mode is established; when it is at ON, the RGB mode is established. Be absolutely sure that the power has been turned off before changing the DIP switch setting. The recording format is selected on the basis of the equipment mode setting. When formatting a disc with the RGB mode set as the equipment mode, it will be formatted in the RGB mode; when formatting it with the Component mode set, it will be formatted in the Component mode.

Cautions:

1. The disc formats used by this unit are unique to the unit: they are different from the DVD-RAM format which is used by computers, etc.
2. When a disc is formatted, all the data previously recorded on the disc will be erased. Before formatting, therefore, check whether any of the data already recorded on the disc is needed.
3. It is not possible to use both the RGB and component recording formats for the same disc. The recording format is determined at the formatting stage. To change the recording format, the unit's equipment mode must first be changed and the disc re-formatted (which means that the data already recorded will be erased).
4. The drive's BUSY lamp lights up orange while formatting is underway: under no circumstances must be power be turned off while it is lighted. Otherwise, the disc may be destroyed.

Preparations

3-2. Formatting procedure

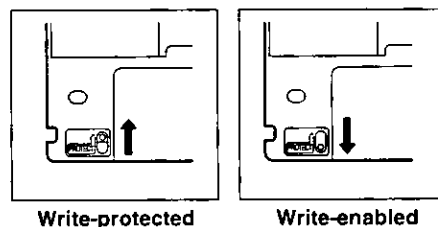
1. Insert the disc to be formatted into the unit.
The disc and unit must both be set to the recording enable status (see 3-3).
2. Set the disc's operating conditions.
Set the disc name using the DISC MANAGEMENT setup menu.
Set the disc to the pseudo write-once (data can be recorded only once) or rewritable status.
3. Start the formatting.
Select <EXECUTE> with FORMAT selected on the DISC MANAGEMENT setup menu, and press the SET button. This initiates the formatting.

For further details, refer to the setup menu items.

3-3. How to set recording inhibit

The disc cartridge comes with a write protect switch to prevent any new data from being recorded on the disc in error.

As shown in the figure below, recording can be inhibited by moving the switch to the write-protect position.



The REC INHIBIT lamp on the unit's front panel lights up when a disc whose write protect switch is set to write-protect has been inserted into the unit. The same lamp will also light when the "REC INHIBIT" DIP switch on the rear panel has been set to ON. It is also possible to prevent further recordings onto already recorded areas by formatting a disc in the pseudo write-once mode. The differences in the recording inhibit methods are outlined in the table below.

Recording inhibit method	Display	Description
Set the write protect switch on the disc cartridge to the write protect position.	The REC INHIBIT lamp on the unit's front panel lights.	Absolutely no more recordings can be made on the disc. Since it is the disc itself that is protected from recording, this method is used when the data on the disc is to be preserved.
Set the "REC INHIBIT" DIP switch on the rear panel to ON.	The REC INHIBIT lamp on the unit's front panel lights.	The unit can no longer perform any more recording operations.
Set the disc to the write-once mode when it is formatted.	The WRITE ONCE lamp on the unit's front panel lights.	Frames which have already been recorded can no longer be overwritten. Data can still be recorded in the unrecorded areas.

Cautions:

1. The pseudo write-once function works only when it is used with this unit. It will not work with a computer or other such device: this means that if the disc is used with a computer, the destruction of possibly valuable data may result. This is why discs on which recordings were made using this unit should not be used with any other device.
2. To protect a disc — even a pseudo write-once disc — whose data recording has been finished or which contains valuable data, the write protect switch of its disc cartridge must be set to the write-protect position.

4. Setting the clock

This unit automatically records the date and time at the same time as it records frames.

The date and time information are extremely important when it comes to managing the frames, and it is also required when searches are conducted.

Since the clock is set at the factory, it does not normally need to set by the user.

However, when the clock battery has been replaced or the setting has deviated from the correct time, set the clock using the setup menu.

For further details, refer to the setup menu items.

Operation

1. Frame recording

During recording operations (except overwrite recording), a frame is automatically recorded at the address following the address of the previously recorded frame. For instance, when recording is conducted using a disc which has frames already recorded up to address 100, the next frame will automatically be recorded at address 101.

1-1. Preparations for recording

1. Insert a disc which has been formatted by the unit's system.

Recording is not possible while the REC INHIBIT lamp is lighted.

Check that the write protect switch on the cartridge of the disc to be recorded is not at the write-protect position and that the unit is not set to the REC INHIBIT mode by the "REC INHIBIT" DIP switch on the rear panel.

2. Select the recording signals.

Select the input video signals on the INPUT VIDEO setup menu. These signals cannot be recorded unless the disc's recording format and rear panel "RGB MODE" DIP switch setting match.

RGB MODE	Disc recording format	Input video signals which can be selected
ON	RGB recording format	RGB (fixed)
OFF	Component recording format	Composite, component (Y, Pb, Pr), S-VIDEO

<Note>

When black-and-white composite signals are to be recorded, select COMPONENT rather than COMPOSITE as the input video signals, connect the black-and-white composite signals to the Y connector, and proceed with recording.

1-2. Setting the ID

An ID of up to 15 digits can be recorded for each frame.

1. Open the ID setting screen.

The ID setting screen is displayed when the ID button is pressed (when the "-" button is pressed while holding down the SHIFT button).

< INPUT FRAME INFORMATION >

ID : <000000000000001>

MODE : INC

INPUT END <SET> or EXIT <ID>

2. Input the ID value and select the recording method. Input the ID value to be recorded on the ID input area on the ID setting screen.

First, use the up or down arrow button to select the ID input, and then input the ID value using one of the methods below.

- 1) Use the cursor buttons and "+" and "-" buttons, and proceed with the input.

The cursor is moved horizontally using the left and right arrow buttons; the value is input using the "+" and "-" buttons.

- 2) Call the character input screen, and proceed with the input.

- 3) Use the number keys on the wired remote controller to proceed with the input.

The ID recording mode is set by MODE.

OFF: An ID is not recorded with the frame. (The ID value input is ignored.)

HOLD: The ID value which has been input is recorded on the frame.

The same ID is recorded on the frame which is recorded until it is reset.

INC: The number part of the ID value which has been input is incremented each time, a frame is recorded, and the resulting ID is recorded with the frame.

Refer to the next sections for the restrictions to the ID values applicable at the INC setting.

Operation

◇ Concerning the INC function for IDs

- 1) The only IDs which can be incremented are IDs consisting of numerals only or of a character string and numerals. In the latter case, only the numeral part is incremented.
- 2) The numerals-only IDs are incremented by carrying the digits. There is no carrying beyond 15 digits since this is the maximum number of digits.
There is no carrying for IDs consisting of a character string and numerals.
(The total number of ID characters is maintained.)
- 3) With an ID consisting of a character string and numerals, the character string must be to the left of the numerals. IDs whose character string is to be right will not be incremented.

3 When an ID setting is completed, press the SET button to close the ID setting screen.

If an ID is going to remain unchanged, press the ID button (by pressing the “-” button while holding down the SHIFT button) to close the ID setting screen.

<Note>

Using the DISC MANAGEMENT setup menu, it is also possible to write ID values for frames after the frames have been recorded. “Name” and “Name2” cannot be recorded and set using the controls on the front panel or wired remote controller.

They are set from RS-232C.

Examples of ID incrementing are shown below.

- < 000001234567890 > → < 000001234567891 > Incrementing for a numerals-only ID
- < 000000000009999 > → < 000000000010000 > Carrying for a numerals-only ID
- < 999999999999999 > → < 000000000000000 > Max. of 15 digits
- < ABC999 > → < ABC000 > ID consisting of a character string and numerals
- < 123ABC > → < 123ABC > This ID will not be incremented
- < 999 > → < 000 > If spaces are provided at the left, the ID is construed as consisting of a character string and numerals

Operation

1-3. Recording frames on a full screen

1. Select the recording operation mode.

```
< RECORD >
REC MODE      :  NORMAL
INTERVAL      :  --:--:--
DIRECT-REC    :  OFF
REVIEW        :  OFF
REPEAT        :  OFF

SELECT <◀▶▲▼>  EXIT <MENU> / SAVE <SET>
```

Select the recording operation on the RECORD setup menu.

REC-MODE:

Select NORMAL.

INTERVAL:

When NORMAL is selected as the REC-MODE setting, the interval is canceled (--:--:--).

DIRECT-REC:

Select OFF if the frames are to be checked prior to recording. Set to FREEZE and then press the REC button. Select ON if the frames are not going to be checked before recording. The REC button can be pressed straight from the INPUT mode.

REVIEW:

Select OFF if the recorded frame is not going to be played back (reviewed) after it was recorded. Select 1SEC, 3SEC, 5SEC or 10SEC when the frame just recorded is to be played back (reviewed) for the duration selected after it has been recorded.

REPEAT:

Set whether to initiate repeat recording when the disc is set to the rewritable status. With the ON setting, recording continues after the recording of the final address by returning to the first frame and recording the frames starting from address 1.

Repeat recording is ignored when the disc is set to the write-once status.

2. Start recording.

1) When OFF has been selected for DIRECT-REC Capture the input video signals in the internal frame memory from the INPUT mode using the FREEZE button. At this point, the frame has not yet been written on the disc so that it can be re-captured any number of times by repeating the INPUT/FREEZE operation.

If the checking shows that the frame is OK, press the REC button. The frozen frame will be recorded at the address following the previously recorded address.

Recording is now commenced, and the REC lamp lights while recording is in progress (for several seconds). During recording, the input signals are output straight through to the output connectors.

If, upon completion of recording, REVIEW has been set, the frame will be played for the set duration, after which the INPUT mode will be established.

2) When ON has been selected for DIRECT-REC Press the REC button from the INPUT mode. After the frame has been captured in the internal frame memory, recording is commenced. The frame is recorded at the address following the address of the previously recorded frame. The REC lamp lights while recording is in progress (for several seconds). During recording, the input signals are output straight through to the output connectors.

If REVIEW has been set, the frame will be played for the set duration upon completion of recording, after which the INPUT mode will be established.

<Note>

The picture on the TV monitor is temporarily disturbed when the mode is changed from INPUT to FREEZE. This phenomenon occurs when the input signals are switched to the captured frame and it has no adverse effect on operation.

1-4. Recording frames as dual pictures (DUAL PICT)

1. Select the recording operation mode.
Select the recording operation on the RECORD setup menu.

REC-MODE:

Select DUAL PICT.

INTERVAL:

When DUAL PICT is selected as the REC-MODE setting, the interval is canceled (---:---:--).

DIRECT-REC:

This is forcibly set to OFF.

REVIEW:

Select OFF if the recorded frame is not going to be played back (reviewed) after it was recorded. Select 1SEC, 3SEC, 5SEC or 10SEC when the frame just recorded it to be played back (reviewed) for the selected duration after it has been recorded.

REPEAT:

Set whether to initiate repeat recording when the disc is set to the rewritable status. With the ON setting, recording continues after the recording of the final address by returning to the first frame and recording the frames starting from address 1.

Repeat recording is ignored when the disc is set to the write-once status.

2. Start recording.

Capture the frame, which is to be displayed on the left half of the screen, in the internal frame memory from the INPUT mode using the FREEZE button. Press the INPUT button again to enter the INPUT mode, and then capture the frame which is to be displayed on the right half of the screen. At this point, the frame has not yet been written on the disc so that it can be re-captured any number of times.

A frame can be re-captured any number of times by first selecting the left or right half of the screen using the left or right arrow button and then using INPUT and FREEZE. If the frames for both sides of the screen are OK, press the REC button. Recording now commences.

If REVIEW has been set, the frame will be played for the selected duration upon completion of recording, after which the INPUT mode will be established.

1-5. Recording frames automatically by specifying a time interval (AUTO REC)

1. Select the recording operation mode.
Select the recording operation on the RECORD setup menu.

REC-MODE:

Select AUTO REC.

INTERVAL:

Set the recording time interval.

Refer to the cautions presented on the next page.

DIRECT-REC:

This is forcibly set to ON.

REVIEW:

Select OFF if the recorded frame is not going to be played back (reviewed) after it was recorded. Select 1SEC, 3SEC, 5SEC or 10SEC when the frame just recorded is to be played back (reviewed) for the selected duration after it has been recorded.

Refer to the cautions presented on the next page.

REPEAT:

Set whether to initiate repeat recording when the disc is set to the rewritable status. With the ON setting, operation returns to the start after the final address has been recorded, and automatic recording continues from address 1. With the OFF setting, frames are recorded to the end of the disc, and then recording is ended.

Repeat recording is ignored when the disc is set to the write-once status.

2. Start the automatic recording.

Press the REC button. The REC lamp flashes while automatic recording is in progress.

3. End the recording.

To end automatic recording, press the CLR button. When the REPEAT setting is OFF or the disc is set to the write-once status, automatic recording ends at the point when frames have been recorded to the end of the disc.

Cautions:

1. Although the recording time interval can be set starting at 1 second, the correct time interval cannot be maintained if the setting is shorter than the time required for the recording operation. Normally, at least 3 seconds are required for the recording operation.
A setting of 5 or more seconds is therefore recommended as the recording time interval. (OFF must be selected as the REVIEW setting. The following condition must also be met when a REVIEW setting has been made.)
2. When REVIEW has been set, the correct time interval cannot be maintained if the review duration setting is longer than the recording time interval. If, for instance, the interval time is 3 seconds and 10SEC has been selected for the REVIEW duration, the result will be that the recording time interval will be at least 13 seconds. When REVIEW is used, use a recording time interval setting which is sufficiently longer than the REVIEW duration setting.
3. Recording may be performed automatically at a recording time interval which varies slightly from the interval set, depending on the condition of the disc and other factors.

1-6. Rewriting already recorded frames (OVERWRITE)

The frame rewriting function can be used only for a disc which has been formatted in the rewritable mode.

1. Select the recording operation mode.
Select the recording operation on the RECORD setup menu.
REC-MODE:
Select NORMAL for the normal recording of full screens.
Select DUAL PICT when recording dual pictures. Frames cannot be rewritten in the AUTO REC mode.
DIRECT-REC:
Select OFF to review the frames before they are recorded. Select ON when the frames are not going to be reviewed before they are recorded. This is forcibly set to OFF when DUAL PICT is selected as the REC MODE setting.
2. Establish the overwrite mode.
Press the OVERWRITE button (press the down arrow button while holding down the SHIFT button) to establish the overwrite mode.
The OVERWRITE lamp now lights.
Press the CLR button to stop the overwriting at any time.
3. Play back the frame to be rewritten.
Use the DIRECT search or other search function to play the frame to be rewritten.
4. Record the frames.
Record the frames by following the same sequence of steps as for normal recording.
To rewrite only one of the frames recorded by DUAL PICT, select the frame to be rewritten using the left and right arrow keys during play, set it to the FREEZE mode, and record it.
After the recording of one frame has been completed, the overwrite mode is automatically released, and the overwrite lamp goes off.

Operation

2. Frame playback

When performing the playback operation from the INPUT mode for the first time after the power was turned on, the frame recorded last on the disc is played back.

When, on subsequent occasions, a playback operation is initiated from the INPUT or FREEZE mode, the frame of address played previously is played back (when, for instance, a playback operation is performed again after the unit was set to the INPUT mode from playback).

2-1. Playing back frames

1. Set the playback operation mode.

< PLAY >	
PLAY MODE	: <u>NORMAL</u>
INTERVAL	: - - - - -
STILL-MODE	: <u>FRAME</u>
VOICE	: <u>OFF</u>
REPEAT	: <u>OFF</u>
POWERON START	: <u>OFF</u>
NEXT	: <u>ON</u>
MULTI-SCREEN	: <u>PERMIT</u>
SELECT <◀▶▲▼> EXIT <MENU> / SAVE <SET>	

Select the playback operation on the PLAY setup menu.

PLAY MODE:

Select NORMAL.

INTERVAL:

When NORMAL is selected as the PLAY MODE setting, the interval is canceled (- - : - - : - -).

STILL MODE:

Set the playback frame output mode to field or frame.

VOICE:

Select ON if the voice memo is to be made audible during frame playback.

Select OFF if the voice memo is not to be made audible during frame playback.

REPEAT:

Select ON if repeat playback is to be performed.

Select OFF if repeat playback is not to be performed.

NEXT:

A setting can be selected only when the component recording format is used for the unit and disc. Select ON if the next frame is to be monitored (previewed) at the monitor output.

2. Start playback.

Press the FORWARD or REVERSE button. The lamp of the button pressed lights, and the frame is played back.

Each time the FORWARD button is pressed, the frame of the next higher address is played back; conversely, each time the REVERSE button is pressed, the frame of the next lower address is played back.

In the Component mode, the playback frame is switched seamlessly.

In the NEXT mode, the next frame is output to the monitor output connector.

When ON has been selected for the VOICE setting, the voice memo is played back for about 5 seconds.

Operation

2-2. Playing back frames automatically by specifying a time interval (AUTO PLAY)

1. Set the playback operation mode.
Select the playback operation on the PLAY setup menu.
PLAY MODE:
Select AUTO PLAY.
INTERVAL:
Set the playback time interval.
Refer to the cautions presented on the next page.
STILL-MODE:
Set the playback frame output mode to field or frame.
VOICE:
Select ON if the voice memo is to be made audible during frame playback.
Select OFF if the voice memo is not to be made audible during frame playback.
REPEAT:
Select ON if repeat playback is to be performed.
Select OFF if repeat playback is not to be performed.
POWERON START:
Select ON for automatic playback when the power is turned on.
NEXT:
A setting can be selected only when the component recording format is used for the unit and disc. Select ON if the next frame is to be monitored (previewed) at the monitor output.
2. Start the automatic playback.
Press the FORWARD button. The FORWARD lamp flashes, and the frames in the sequence of their addresses starting with the current playback address (or the address recorded last immediately after the power is turned on or address 1 when ON is selected as the POWERON START setting) are played back in the time interval set.
In the Component mode, the playback frame is switched seamlessly.
When the playback time interval has been set to less than the voice memo playback time (5 seconds), the audio play will be cut short.
3. End automatic playback.
Press the CLR button.

2-3. Playing back a program by specifying a time interval (PROGRAM PLAY)

1. Set the program playback sequence.
First, register the program playback sequence using the PROGRAM setup menu. (See page 52.)
2. Set the playback operation mode.
Select the playback operation on the PLAY setup menu.
PLAY MODE:
Select PROGRAM PLAY.
INTERVAL:
Set the playback time interval. Refer to the cautions presented on the next page.
STILL-MODE:
Set the playback frame output mode to field or frame.
VOICE:
Select ON if the voice memo is to be made audible during frame playback.
Select OFF if the voice memo is not to be made audible during frame playback.
REPEAT:
Select ON if repeat playback is to be performed.
Select OFF if repeat playback is not to be performed.
POWERON START:
Select ON for automatic playback when the power is turned on.
NEXT:
A setting can be selected only when the component recording format is used for the unit and disc.
Select ON if the next frame is to be monitored (previewed) at the monitor output.
3. Check the program sequence if necessary.
When multi-screen playback is performed, the programs can be displayed on the multi screen in the program sequence so that the program playback sequence can be checked.
4. Start program playback.
Press the FORWARD button. The FORWARD lamp flashes during program playback.

Operation

5. End program playback.

If OFF has been selected as the REPEAT setting, program playback ends when all the programs have been played back.

If ON has been selected as the REPEAT setting or if a program is to be ended at an interim point, press the CLR button.

Cautions:

1. When the playback time interval is set to 0 sec. during program playback (PROGRAM PLAY), one of the programs will be played in the sequence in which the programs were recorded each time the FORWARD button is pressed.
2. The playback time interval can be set starting at 1 second during automatic playback (AUTO PLAY).
3. Although the recording time interval can be set starting at 1 second, the correct time interval cannot be maintained if the setting is shorter than the time required for the playback operation. Normally, at least 2 seconds are required for the playback operation. A setting of 4 or more seconds is therefore recommended as the playback time interval.
4. When ON has been selected as the VOICE setting, a minimum setting time duration of 9 seconds is required. If this duration is set shorter than this, the voice memo will not be played back in its entirety.

3. Multi-screen playback

Multi-screen playback is a function which divides up the screen into sections so that a multiple number of frames are displayed. The multi-screen facility is also used to check search results: refer to the next section on searches for details on the multi-screen displays when searches are performed.

3-1. Preparations

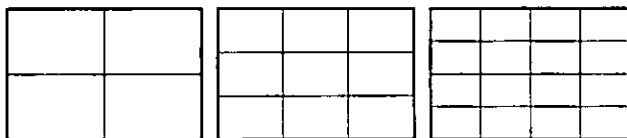
Set the number of multi-screen divisions on the SYSTEM setup menu.

```
< SYSTEM >
  BEEP      : ON
  MULTI-SCREEN : 16
  EJECT-KEY : LOCAL+REMOTE
  DATE      : 99/1/1
  TIME      : 12:00
  <RS232C>
  <GPI>
  <VIDEO-CONTROL>

SELECT <<▶▲▼>  EXIT <MENU> / SAVE <SET>
```

MULTI-SCREEN:

Select whether the full screen is to be divided into 4, 9 or 16 multi screens.



Full screen divided into 4 multi screens

Full screen divided into 9 multi screens

Full screen divided into 16 multi screens

3-2. Multi-screen playback in address sequence (except when program playback is set)

1. The multi-screen display appears when the MULTI button is pressed.

The MULTI lamp lights, and the multi-screens are created. The multi-screen creating sequence can be aborted at any time by pressing the CLR button. The multi-screens are created in sequence starting from the top left and ending with the bottom right of the screen. The frame appearing first is the frame being played (or the frame with the address played previously if the unit was not set to the playback mode when the MULTI button was pressed), and subsequent frames are displayed in ascending order of their addresses. Pages can be scrolled using the “+” and “-” buttons. By pressing the “+” button, the pages can be advanced toward higher-numbered addresses; conversely, by pressing the “-” button, they can be reversed toward lower-numbered addresses. When the “-” button has been pressed, multi-screens are created starting from the bottom right and ending with the top left of the screen in descending order of their addresses.

<Note>

When multi-screen playback is performed for the first time from the INPUT mode after the power was turned on, playback commences at the frame which was recorded last on the disc. If multi-screen playback is then performed from the INPUT or FREEZE MODE, playback commences at the frame with the address which was played previously.

2. Check the frame.

A frame displayed on the multi-screens can be selected and displayed on the full screen. Move the selection frame (blue frame) displayed on the multi-screen using the up, down, left and right arrow buttons to the target frame, and press the SET button. The target frame will now appear on the full screen.

Press any button to return to the multi-screen display.

3. Decide on the frame, and exit from the multi-screen mode.

If the multi-screen mode is to be terminated after the target frame is found, first move the selection frame onto the target frame. Then press the FORWARD button.

At the same time as the selected frame appears on the full screen, the MULTI lamp goes off, and the multi-screen playback is terminated.

Multi-screens in the NEXT mode are output to both the main and monitor output connectors.

When a frame is selected on a multi-screen during playback and the FORWARD button is pressed, the selected frame is output to the monitor output connector, and the next frame which was previously output to the monitor output connector is now output to the main output connectors.

When a frame is selected on a multi-screen in the INPUT or FREEZE mode and the FORWARD button is pressed, the selected frame is output to the main output connectors. At this time, the frame next to the selected frame is output to the monitor output connector. If trouble occurs when a multi-screen is output to the main output connectors during playback, the multi-screen in the NEXT mode can be prohibited by a setup menu item setting.

To terminate multi-screen playback without selecting a frame, press the MULTI button again. The status prior to multi-screen playback is now restored.

3-3. Multi-screen playback in program sequence (when program playback is set)

1. Initiate the multi-screen display in the sequence of programs.

If the PROGRAM PLAY mode has been set on the PLAY setup menu and programs have been registered, the multi-screen display is created in the program registration sequence when the MULTI button is pressed.

The multi-screens are created in sequence starting from the top left and ending with the bottom right of the screen. If some parts cannot be displayed on the multi-screens, the pages can be scrolled using the "+" and "-" buttons. By pressing the "+" button, the pages can be advanced toward higher-numbered programs; conversely, by pressing the "-" button, they can be reversed toward lower-numbered programs. When the "-" button has been pressed, multi-screens are created starting from the bottom right and ending with the top left of the screen.

2. Check the frame.

A frame displayed on the multi-screens can be selected and displayed on the full screen. Move the selection frame (blue frame) displayed on the multi-screen using the up, down, left and right arrow buttons to the target frame, and press the SET button. The target frame will now appear on the full screen.

Press any button to return to the multi-screen display.

3. Decide on the frame, and exit from the multi-screen mode.

If the multi-screen mode is to be terminated after the target frame is found, first move the selection frame onto the target frame. Then press the FORWARD button. When the FORWARD button is pressed, program playback starts from the target frame.

At the same time as the selected frame appears on the full screen, the MULTI lamp goes off, and the multi-screen playback is terminated. To terminate multi-screen playback without selecting a frame, press the MULTI button again.

The status prior to multi-screen playback is now restored.

Caution:

Multi-screens are not output to the S-VIDEO output connector. Use a connector other than the S-VIDEO output connector when the multi-screen facility is to be used.

4. Searching

4-1. Direct searches using address values (DIRECT search)

1. Press the SEARCH button.
The search input screen appears on the display.
The condition settings (ID, DATE and TIME) in the bottom part of the screen are not used.

```

< SEARCH CONDITION INPUT >

  ADDRESS      : 000000

  ID           : <         >
  DATE        : ---:---:--
  TIME        : ---:---:--

INPUT CONDITIONS and SET : GOTO
    
```

2. Input the desired address value, and then initiate the search.
After entering the address value in the ADDRESS input area, press the SET button.
When inputting the address, use the left and right arrow buttons to move to the digits, and use the "+" and "-" buttons to input the numbers.
After a frame has been searched, it is played back automatically.

Address values which can be used

RGB mode:
1 to 1680
Component mode:
1 to 3300

When the SET button is pressed with zeros displayed, address 1 is searched.

4-2. Searching the last recording address (END search)

When the END button is pressed (when the "+" button is pressed while holding down the SHIFT button), the frame recorded at the last address on the disc is searched and played back.

4-3. Searches by inputting the search conditions

1. Press the SEARCH button.
The search input screen appears on the display.
The ADDRESS setting area in the top part of the screen is not used.

```

< SEARCH CONDITION INPUT >

  ADDRESS      : 000001

  ID           : <ABCD  >
  DATE        : 98:---:--
  TIME        : ---:---:--

INPUT CONDITIONS and SET : SEARCH
    
```

2. Input the search conditions.
The search conditions which can be input are ID, NAME, NAME2, DATE and TIME. (Only one condition from among ID, NAME and NAME2 is selected for use.)
Searches can be conducted using one condition such as ID or DATE or AND searches combining the DATE and TIME, for instance, can be performed. Refer to the points below for further details on the search conditions.

◇ Concerning the search conditions

- 1) A condition is ignored when nothing has been input for that item. By pressing the CLR button, a condition can be cleared after an item has been selected by the cursor.
- 2) Only one condition from among ID, NAME and NAME2 can be selected.
To select the condition, bring the cursor to the ID, NAME or NAME2 display area on the search screen (in the above figure, the area where ID is displayed). The condition can be switched in succession by pressing the SHIFT button and right arrow button together.
While conducting a remote control operation, ID, NAME or NAME2 can be selected in sequence by pressing the VOICE PLAY button or VOICE REC button.
- 3) AND searches combining one condition from among ID, NAME and NAME2 with DATE or TIME can be performed. For instance, by inputting ID and DATE, the frame with a specific ID and specific date can be searched.

Operation

4) The characters input for ID, NAME or NAME2 are used to search not only for frames which meet all the conditions perfectly but also frames which contain those characters.

Parts of a DATE or TIME can be input as a condition. The frames matching whatever part of the date or time has been input will be searched.

- 98 : -- : --

The frames recorded in 1998 will be searched.

- 98 : 10 : --

The frames recorded in October 1998 will be searched.

- 98 : 10 : 10

The frames recorded on October 10, 1998 will be searched.

5) If no conditions are input, all the frames will be displayed.

3. Conduct the search.

When the SET button is pressed after the conditions have been input, the search is started.

1) When a search is conducted for the first time from the INPUT mode after the power was turned on, the frame recorded last on the disc will serve as the starting point.

2) When a search is conducted while playback is underway, the frame being played back will serve as the starting point, and the search will be conducted in the forward direction.

3) When a search is conducted in the INPUT or FREEZE mode, the frame with the address which was played back previously will serve as the starting point, and the search will be conducted in the forward direction.

The search progress made is displayed during a search. When a 1-time search (up to 256 lines) is completed or when a search is aborted using the CLR button, the search results are displayed. To continue with the search, press the "+" button or "-" button. This enables a search following on from the current search results.

If no frame matching the conditions has been found as a result of the search, "NOT FOUND" is displayed. Press any button to return to the search input screen.

◇ How to read the search result screen

< SEARCH RESULT LIST >		
ID	DATE	ADDRESS
▶ ABC	98/10/10	3 ← ①
ABCDEFG	98/11/01	4
123	98/11/02	*:012
AAA123	98/11/02	20
AAA124	98/11/02	21
AAA125	98/11/04	22
PANASONIC	98/11/24	*:124 ← ②
LQ-D100	98/11/26	*:036

SELECT RESULT and SET : PLAY

The search results are displayed as shown in the example presented above.

As shown above, in some cases 3 items such as ID (NAME or NAME2), DATE and ADDRESS or 4 items such as ID (NAME or NAME2), DATE, TIME and ADDRESS are displayed. A 4-item display appears when DATE and TIME have both been input as search conditions.

In the search results, the frames which can be grouped together due to have the same ID or date, etc. are displayed in groups.

Whether a particular line represents one frame or a group of frames is indicated in the ADDRESS column.

In the ADDRESS column:

1) A line with a number display only in the address column denotes a single frame, and the number refers to the address of the frame.

In example ① above, the frame with the "ABC" ID and with a recording date of 98/10/10 is found at address 3.

2) A number preceded by an asterisk and colon (*:) denotes a group, and the number which follows the colon indicates the number of frames in the group. This number does not indicate an address.

In example ② above, there are 124 consecutive frames with the "PANASONIC" ID.

Operation

4. Check the search results, and then select the frames.

To check the search results, use the cursor (▶) to select the frame or group to be checked, and then initiate multi-screen playback or full-screen playback.

◇ How to play back the search results

1) Initiating multi-screen playback for the frames displayed on each line

If the MULTI button is pressed when the "▶" cursor at the left of the screen is highlighted, the frames found as a result of the search and displayed on the lines are played back on multi-screens.

With the frames displayed in groups, the frame with the first address in the group is shown on the multi-screen display as representative of that group.

< SEARCH RESULT LIST >		
ID	DATE	ADDRESS
▶ ABC	98/10/10	3
ABCDEFG	98/11/01	4
123	98/11/02	*:012
AAA123	98/11/02	20
AAA124	98/11/02	21
AAA125	98/11/04	22
PANASONIC	98/11/24	*:124
LQ-D100	98/11/26	*:036

SELECT RESULT and SET : PLAY

In the example of the screen shown above, multi-screen playback is initiated for the single frames of "ABC" and "ABCDEFG", and the first frame of "123" group in this order, followed by the single frames of "AAA123," "AAA124" and "AAA125", and the first frames of the "Panasonic" and so on.

Select the frame to be viewed from the multi-screen display, and press the SET button to play it back on the full screen.

2) Playing back the frames in a group on the multi-screen display

Use the up or down arrow button to align the cursor with the line where a group of frames is indicated in the ADDRESS column. When the right arrow button is now pressed, the ADDRESS column is highlighted. The right arrow button will not work on a line where a group is not indicated. When the MULTI button is pressed in this state, the frames in the group concerned appear on the multi-screen display.

< SEARCH RESULT LIST >		
ID	DATE	ADDRESS
ABC	98/10/10	3
ABCDEFG	98/11/01	4
123	98/11/02	*:012
AAA123	98/11/02	20
AAA124	98/11/02	21
AAA125	98/11/04	22
▶ PANASONIC	98/11/24	*:124
LQ-D100	98/11/26	*:036

SELECT RESULT and SET : PLAY

In the case of the example above, the frames in the group with the "PANASONIC" ID appear on the multi-screen display

Select the frame to be viewed from the multi-screen display, and press the SET button to play it back on the full screen.

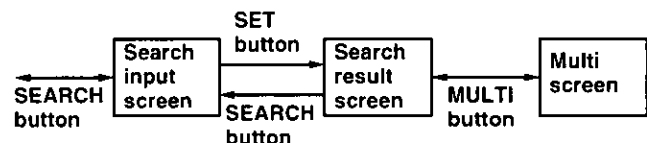
3) Playing back frames not in a group on the full-screen display

Move the cursor up or down to select the frame which is not in a group, and press the SET button to play it back on the full screen.

5. Terminate the search.

When the search is terminated, the frames which were searched and selected are played back. The "selected frame" is a frame which is played back on the full screen when the SET button is pressed on the search result screen.

When multi-screen playback is being performed, the search is terminated by pressing the MULTI button; in all other cases, it is terminated by pressing the SEARCH button. The screen transition is as shown below.



5. Voice memo recording/playback

This function is used to record 5-second voice memo and add them to the frame.

5-1. Preparations

1. Connect the microphone to the MIC jack on the front panel, and connect the headphones to the PHONE jack.

5-2. Recording voice memos

1. Play back the frame whose voice memo is to be recorded.

It is not possible to record a voice memo unless the frame whose voice memo is to be recorded is played back for selection.

2. Start recording.

Press the right arrow button while holding down the SHIFT button.

The VOICE lamp lights for 5 seconds. Speak into the microphone during this period.

5-3. Playing back voice memos

1. Play back the frame whose voice memo is to be played back.

2. Play back the voice memo.

Press the left arrow button while holding down the SHIFT button.

The VOICE lamp flashes for 5 seconds, and the voice memo is played back.

Use the VOL control to adjust the volume.

5-4. Playing back voice memos and frames simultaneously

1. Select the playback operation mode for the voice memos.

Set VOICE on the PLAY setup menu in such a way that the voice memo is played back at the same time as the frame is played back.

2. When ON has been set, the voice memo is played back for 5 seconds at the same time as the frame is played back.

6. Copying discs

The disc copy function serves to copy frames and back up discs once an external DVD-RAM drive has been connected to the unit.

6-1. Preparations for copying (preparing the external drive)

1. Turn off the power, and connect the external DVD-RAM drive using the SCSI cable.

Perform the SCSI-related settings.

- Set the "TERMINATOR" DIP switch on the unit's rear panel to OFF.
- Set the TERMINATOR switch on the external drive to ON, and the SCSI ID to "1."

2. Turn on the power of the external drive first, and then turn on the unit's power.

3. Insert the copy source disc into the unit's drive and a formatted disc (copy destination disc) into the external drive.

The disc used in the external drive must be formatted using the same recording format as the copy source disc.

Discs cannot be formatted by the external drive. Ensure that the disc has been formatted by the unit before proceeding.

<Note>

The DVD-RAM drive contained in the computer can also be used as the external DVD-RAM drive.

For using the DVD-RAM drive of the computer instead of the external drive, it is necessary to set the SCSI-IDs and the terminators properly according to the information below.

- the SCSI-ID of the internal drive in LQ-D100 is 0.
- the SCSI-ID of the host adapter in LQ-D100 is 6.
- the SCSI-ID of the copy destination drive must be 1.

So, the SCSI-ID of the DVD-RAM drive in the computer must be set to 1 and the host adapter and the other SCSI equipments in the computer have to use the SCSI-IDs except 0, 1, 6.

CAUTION:

When the DVD-RAM drive in the computer is connected with the LQ-D100, do not access the DVD-RAM drive from the computer. The LQ-D100 discs may be destroyed.

Operation

6-2. Copy settings

1. Proceed with the copy settings on the DISC COPY setup menu. First, check the SCSI connection and external drive.

When EXT-DRIVE CHECK is executed, the SCSI connection and external drive are checked.

```
< DISC COPY >
  EXT-DRIVE CHECK : <EXECUTE>

- DRIVE INFORMATION -
  INTERNAL DRIVE : OK
  TYPE <COMPONENT>
  USED : 250      REMAINS : XXXX
  EXTERNAL DRIVE : NO-CHECK

SELECT <◀▶▲▼>  EXIT <MENU> / SAVE <SET>
```

If the checks turn out to be OK, the disc information of the external drive is displayed together with the setting items as shown below. The external drive's tray is locked at this time. (In order to prevent accidents during copying, the tray button of the external drive is disabled.)

If an error has occurred, check the SCSI settings, SCSI connections, disc, etc.

```
< DISC COPY >
  EXT-DRIVE CHECK : <EXECUTE>
  COPY-MODE       : INHIBIT
  TRAY-UNLOCK     : <EXECUTE>

- DRIVE INFORMATION -
  INTERNAL DRIVE : OK
  TYPE <COMPONENT>
  USED : 250      REMAINS : XXXX
  EXTERNAL DRIVE : OK TRAY-LOCK
  TYPE <COMPONENT>
  USED : 0        REMAINS : XXXX

SELECT <◀▶▲▼>  EXIT <MENU> / SAVE <SET>
```

2. Select the COPY-MODE setting.

INHIBIT:

This disables copying.

MANUAL:

This sets the unit to the manual copy mode. Select the required frame from the copy source disc and copy it. If a frame has already been recorded on the copy destination disc, this required frame is also copied.

PROGRAM:

This sets the unit to the program copy mode. While program playback is being performed, the frames are copied in program sequence from the copy source disc. If frames have already been recorded on the copy destination disc, these frames are also copied.

DUPLICATE:

This sets the unit to the duplicate mode. The contents of the copy source disc are copied onto the copy destination disc in their original format. Any frames already recorded on the copy destination disc will be overwritten and erased during this process. The DUPLICATE setting is used to make backups (copies) of discs.

Upon completion of the settings, press the SET button to close the setup menu. When the unit goes into the copy mode, its REC lamp flashes.

3. Start copying. As operation differs according to the copy mode, refer to the items on the next page for specific details.

4. Release the copy mode.

Upon completion of the copying, release the copy mode.

Open the DISC COPY setup menu, and select EXECUTE as the TRAY-UNLOCK setting. This enables the external drive's tray to be opened and closed (unlocked), and at the same time it releases the copy mode.

6-3. Copying selected frames (MANUAL COPY)

1. Play back the frame serving as the copy source.
Use direct search or other search method to play back the frame serving as the copy source.
2. Start manual copying.
When the REC button is pressed, the frame being played is recorded onto the disc in the external drive.
Other frames can be copied by repeating steps 1 and 2.
3. Upon completion of the copying of the required frames, open the menu again, and release the copy mode.

6-4. Copying selected frames from multi screens (MANUAL COPY)

1. Press the MULTI button to initiate multi-screen playback.
The same can be done when the unit is set to multi-screen playback as a result of a search operation.
2. Move the selection frame on the multi-screen, select the frame to be copied, and press the SET button to play back the frame on the full screen.
3. Start manual copying.
When the REC button is pressed, the frame being played back on the full screen is recorded onto the disc in the external drive.
4. Press any button to return to the multi-screen.
Other frames can be copied by repeating steps 3 and 4.
5. Upon completion of the copying of the required frames, open the menu again, and release the copy mode.

6-5. Automatically copying frames in program sequence (PROGRAM COPY)

1. Set the program playback sequence.
First, register the program playback sequence on the PROGRAM setup menu.
2. Start program copying.
Press the REC button. While program playback proceeds, the frames are recorded onto the disc in the external drive.
While program playback is underway, the settings (interval time, VOICE playback, NEXT mode, etc.) on the PLAY setup menu are disabled.

3. When program playback is completed, the copying is terminated.
Press the CLR button to terminate copying at any time.

6-6. Copying discs (DUPLICATE)

1. Start duplicate copying.
While the setup menu is closed, press the REC button.
The frames on the copy source disc are recorded starting from address 1 onto the disc in the external drive.
2. When all the frames on copy source disc have been recorded, the duplicate copying operation is terminated.
Press the CLR button to terminate copying at any time.

Cautions:

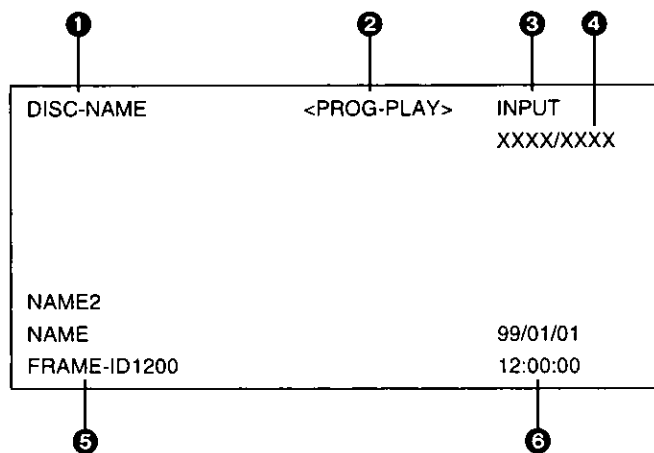
1. The SCSI-related settings (ID and terminator) and the cable connections must be done while the unit's power is off.
Errors made in the settings or connections can cause operating problems and failures.
2. When the contents of a disc are duplicated, all the data on the copy destination disc will be overwritten and erased. Even if the copy destination disc is a WRITE-ONCE disc, it will still be overwritten and erased.
Check the disc before proceeding.

Screen displays

1. On-screen displays

When the DISPLAY button on the front panel is pressed, the information relating to the equipment and disc is output to the monitor screen.

The display items can be selected using the setup screens.



1 Disc name

Disc names consisting of up to 8 characters are displayed here.

Nothing will appear if a disc name has not been recorded.

2 Equipment mode

The equipment mode such as automatic playback or program playback appears here.

Display items

<AUTO-PLAY>:

This appears while the automatic playback mode is established.

<PROG-PLAY>:

This appears while the program playback mode is established.

<ALARM-REC>:

This appears while the alarm recording mode is established.

<AUTO-REC>:

This appears while the automatic recording mode is established.

<MANUAL-COPY>:

This appears while the manual copy mode is established.

<PROGRAM-COPY>:

This appears while the program copy mode is established.

<DUPLICATE>:

This appears while the duplicate mode is established.

3 Mode

The unit's mode is displayed here.

Display items

INPUT: INPUT mode

FREEZE: FREEZE mode

PLAY: Playback mode

RECORD: Recording underway

PLAY-M: Full-screen display during multi-screen playback

REVIEW: Review playback underway after a recording operation

COPY: Copying and recording underway onto disc in external drive

4 Recording address/total number of frames

1) In the INPUT or FREEZE mode

When a disc has been inserted, the address of the frame to be recorded next and the total number of frames are displayed here.

Other displays

NO-DISC: No disc

WP-DISC: Write-protected disc

UF-DISC: Unformatted disc

2) In the PLAY mode.

The address of the frame being played back and the total number of frames are displayed here.

5 ID, NAME and NAME2

1) In the FREEZE mode

The ID, NAME or NAME2 of the frame to be recorded is displayed here.

If none of these items have been set, nothing will appear.

2) In the PLAY mode

The ID, NAME or NAME2 of the frame being played back is displayed here.

If none of these items have been recorded, nothing will appear.

6 DATE/TIME

1) In the INPUT mode

The current date and time in the internal clock are displayed on a real-time basis.

2) In the FREEZE mode

The date and time when the frame was captured in the internal frame memory are displayed during a FREEZE operation.

3) In the PLAY mode

The date and time when the frame was recorded are displayed while the frame is being played back.

Screen displays

2. Setup menu

Setup menus which appear on the TV monitor are used to perform the unit's settings. They can be displayed by pressing the MENU button.

When the MENU button is pressed, the main menu appears first. The various items can be set by selecting the sub menus from the main menu.

2-1. Setup menu configuration

The configuration of the main and sub menus is shown below.

Main menu

```
< MAIN MENU >                - RGB MODE -  
  
  < INPUT-VIDEO >  
  < OUTPUT-VIDEO >  
  < RECORD >  
  < PLAY >  
  < DISPLAY >  
  < PROGRAM >  
  < SYSTEM >  
  < DISC-MANAGEMENT >  
  < DISC-COPY >  
  < MAINTENANCE >  
  
SELECT SUB MENU <▲▼>    AND ENTER <SET>
```

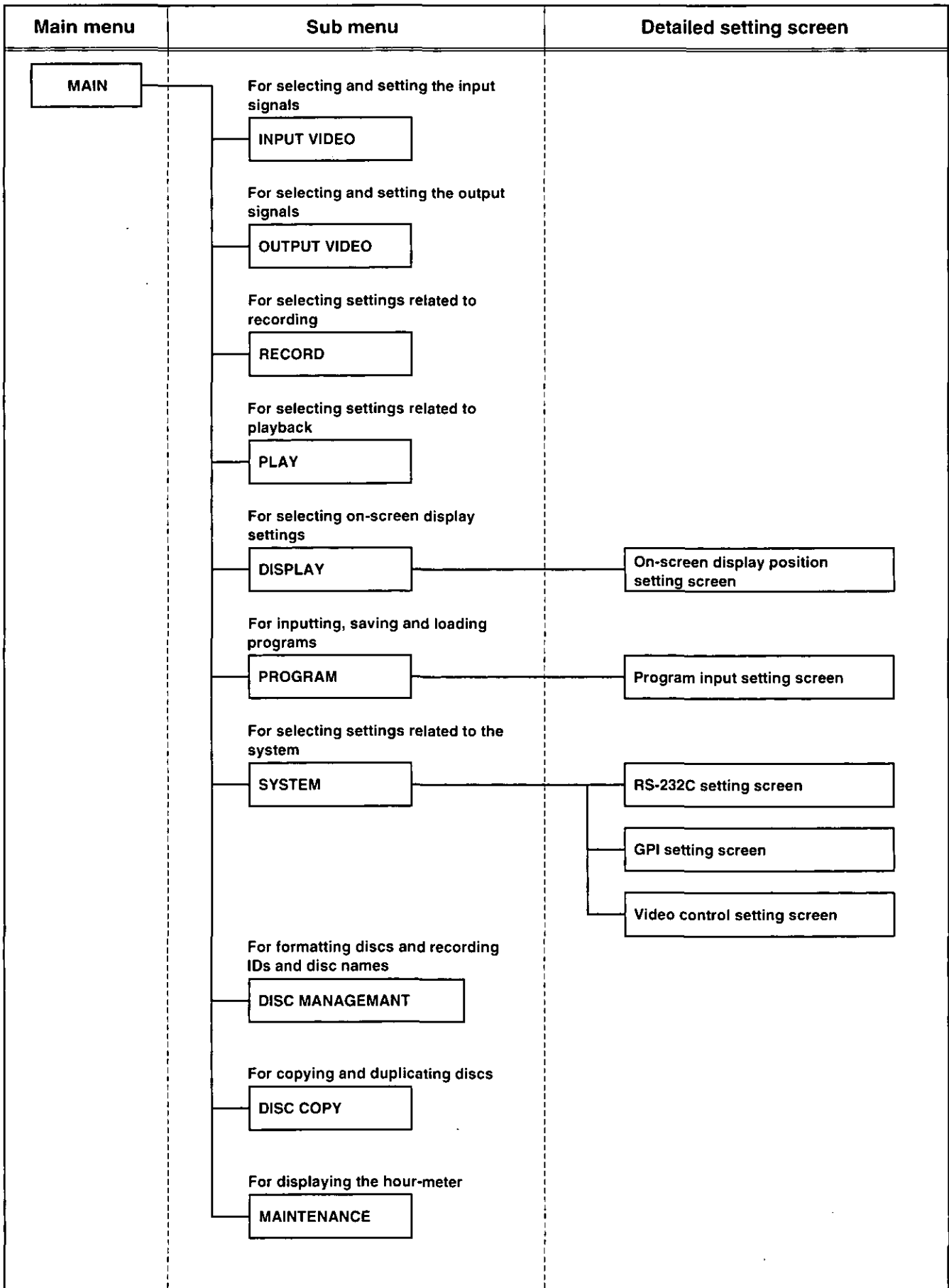
Example of a sub menu display

```
< RECORD >  
  
  REC-MODE       :  NORMAL  
  INTERVAL       :  -:-:-:-  
  DIRECT-REC     :  OFF  
  REVIEW         :  OFF  
  REPEAT         :  OFF  
  
SELECT <◀▶▲▼>    EXIT <MENU> / SAVE <SET>
```

Cautions:

1. The output connectors to which the setup menus are output differ depending on whether the unit is in the NEXT mode or any other mode. (See page 12.)
 - In the NEXT mode 1, the setup menus are output to the monitor output connector only.
 - In all the other modes, the setup menus are output to all the video output connectors.
2. Some setup menu items may have different contents depending on which item is selected. For further details, refer to the detailed settings for the setup menus.

Screen displays



Screen displays

2-2. Moving between menus

Moving to a screen	Operation
Displaying the main menu	Press the MENU button on the front panel.
Moving from the main menu to a sub menu	Press the up or down arrow button to highlight the desired sub menu, and then press the SET button.
Returning from a sub menu to the main menu	There are two ways, each of which suits a different purpose. 1. When entering a setting which has been changed Press the SET button to save the setting, and then press the MENU button. 2. When canceling settings which have been changed Press the MENU button.
Returning to the regular screen	Press the MENU button on the main menu.
Moving to another sub menu	First exit to the main menu, and open a different sub menu.

2-3. Inputting data (alphanumerics)

When a menu item for which data is to be input has been highlighted, the cursor is displayed at the position of the initial input digit.

Method 1

Each time the "+" or "-" button is pressed, the next or previous number or letter is displayed in sequence. When the alphanumeric for one digit has been input, use the right (or left) arrow button to move to the next input digit.

To enter the input data, press the SET button.

To reset the input data, press the CLR button.

To restore the values which were established prior to input, press the MENU button to exit the sub menu and return to the main menu.

Method 2

When the CHARAVTER button is pressed (when the up arrow button is pressed while holding down the SHIFT button), the character input screen for selecting the alphanumerics on the screen is opened. (See page 66.)

2-4. Detailed breakdown of setup menu

1) Main menu

< MAIN MENU >	- RGB MODE -
< INPUT-VIDEO > < OUTPUT-VIDEO > < RECORD > < PLAY > < DISPLAY > < PROGRAM > < SYSTEM > < DISC-MANAGEMENT > < DISC-COPY > < MAINTENANCE >	
SELECT SUB MENU <▲▼> AND ENTER <SET>	

This is the main menu display screen.

The sub menus are selected on this screen.

Either RGB MODE or COMPONENT MODE is displayed as the current equipment mode at the top right of the screen. (See pages 10 and 21.)

Screen displays

2) INPUT VIDEO sub menu

2-1) In the RGB mode

< INPUT VIDEO >	
INPUT-VIDEO	: <u>RGB</u>
SYNC-ON-G	: OFF
SYNCIN-LEVEL	: <u>4V</u>
SELECT <◀▶▲▼> EXIT <MENU> / SAVE <SET>	

The input is set to RGB signals and fixed at this setting.

Setting item (screen display)	Selectable modes	Description of function
Input video signal selection (INPUT-VIDEO)	RGB	This selects the input video signals which will be used for recording. The input signals are fixed as RGB signals.
Input sync signal switching (SYNC-ON-G)	<u>ON</u> OFF	This selects whether to use the sync signal on the G (green) signal. ON: The sync signal on the green signal is selected. OFF: The sync signal from the SYNC input connector is selected.
Sync level selection (SYNC input connector) (SYNCIN-LEVEL) <div style="border: 1px solid black; padding: 2px; width: fit-content;">This item appears only when OFF is selected for SYNC-ON-G.</div>	<u>4V</u> 0.3V	This sets the level in accordance with the level of the sync signal which is input from the SYNC input connectors. 4V: This is selected when the input sync level is 4V. 0.3V: This is selected when the input sync level is 0.3V.

2-2) In the Component mode

< INPUT VIDEO >	
INPUT-VIDEO	: COMPONENT
PB/PR-LEVEL	: <u>MII</u>
SELECT <◀▶▲▼> EXIT <MENU> / SAVE <SET>	

The input video signals are selected on this screen. COMPOSITE, COMPONENT (Y, P_B, P_R) or S-VIDEO can be selected.

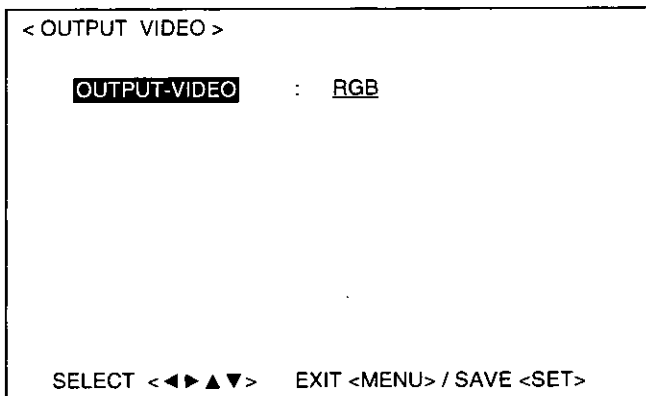
Setting item (screen display)	Selectable modes	Description of function
Input video signal selection (INPUT-VIDEO)	<u>COMPOSITE</u> COMPONENT S-VIDEO	This selects the input video signals which will be used for recording.
P _B /P _R level setting (PB/PR-LEVEL) <div style="border: 1px solid black; padding: 2px; width: fit-content;">This item appears only when COMPONENT is selected for INPUT-VIDEO.</div>	<u>MII</u> β-cam	This selects the P _B /P _R level of the component input signals. MII: This is set when the P _B /P _R level complies with the MII standard. β-cam: This is set when the P _B /P _R level complies with the Betacam standard.

The underlining denotes the default (factory) setting.

Screen displays

3) OUTPUT VIDEO sub menu

3-1) In the RGB mode



The output is set to RGB signals and fixed at this setting.

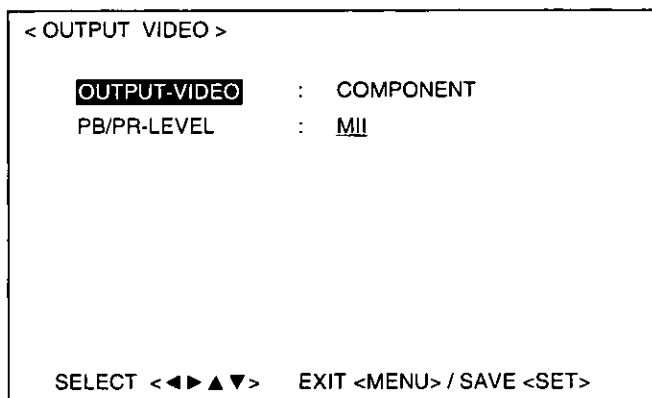
However, the signals are always output to the S-VIDEO output connector and monitor output connector (composite signal).

Setting item (screen display)	Selectable modes	Description of function
Output video signal selection (OUTPUT-VIDEO)	<u>RGB</u>	This selects the video signals which are to be output. The output is set to RGB signals and fixed at this setting. The video signals are always output to the S-VIDEO output connector and monitor output connector (composite signal) regardless of the signals selected above.

The underlining denotes the default (factory) setting.

Screen displays

3-2) In the Component mode



The output video signals are selected on this screen. COMPOSITE or COMPONENT (Y, P_B, P_R) can be selected. However, the signals are always output to the S-VIDEO output connector and monitor output connector.

Setting item (screen display)	Selectable modes	Description of function
Output video signal selection (OUTPUT-VIDEO)	<u>COMPOSITE</u> COMPONENT	This selects the output video signals. The video signals are always output to the S-VIDEO output connector and monitor output connector (composite signal) regardless of the signals selected above.
P _B /P _R level setting (PB/PR-LEVEL) This item appears only when COMPONENT is selected for OUTPUT-VIDEO.	<u>MII</u> β-cam	This selects the P _B /P _R level of the component input signals. MII: This is set when the P _B /P _R level complies with the MII standard. β-cam: This is set when the P _B /P _R level complies with the Betacam standard.

The underlining denotes the default (factory) setting.

<Note 1>

When composite signals are selected as the output signals, the subcarrier (SC) of the composite output signals becomes asynchronous in the INPUT mode. If this is a source of concern, proceed as follows.

Method 1:

Connect the REF VIDEO signal.

Method 2:

If the input signals are composite signals and there is no REF VIDEO signal, use a T-shaped connector to split the composite input connector and input the signals to the REF VIDEO connector. In this case, set the 75 Ω selector switch on the rear panel to OFF.

<Note 2>

The sync level of the output signals is the same as that of the input signals. If the input signals and output signals differ, the output sync level will be as follows.
With composite input signals and component output signals:
The original level of 0.3 V_{P-P} will drop to 0.286 V_{P-P}.
With component input signals and composite output signals:
The original level of 0.286 V_{P-P} will rise to 0.3 V_{P-P}.

Screen displays

4) RECORD sub menu

< RECORD >	
REC-MODE	: <u>NORMAL</u>
INTERVAL	: ---:---:---
DIRECT-REC	: <u>OFF</u>
REVIEW	: <u>OFF</u>
REPEAT	: <u>OFF</u>
SELECT <◀▶▲▼> EXIT <MENU> / SAVE <SET>	

The recording mode is selected on this sub menu.

Setting item (screen display)	Selectable modes	Description of function
Recording mode selection (REC-MODE)	<u>NORMAL</u> DUAL PICT AUTO REC	This sets the recording mode. NORMAL: For setting normal recording (full-screen recording) DUAL PICT: For setting the dual-picture recording mode. AUTO REC: For setting the automatic recording mode.
Time interval setting for automatic recording (INTERVAL)	Time setting (hours : minutes : seconds)	This sets the recording time interval per frame when AUTO REC has been selected as the REC-MODE setting. Nothing can be input for the interval if AUTO REC has not been set.
REC button operation setting (DIRECT-REC)	ON <u>OFF</u>	This sets the REC button operation. The button is forcibly set to OFF if DUAL PICT has been selected as the REC-MODE setting; it is forcibly set to ON when AUTO-REC has been selected. ON: The FREEZE operation and recording are performed simultaneously by pressing the REC button. There is no need to press the FREEZE button. OFF: When the REC button is pressed, the frame already captured in the internal frame memory is recorded on the disc. The frame must be captured in the memory by pressing the FREEZE button before the REC button is pressed.
Review operation setting (REVIEW)	1SEC 3SEC 5SEC 10SEC <u>OFF</u>	This selects the setting for the review mode in which playback is initiated for a specific period of time after recording. 1SEC, 3SEC, 5SEC, 10SEC: The INPUT mode is established after playback of the recorded image upon completion of recording for the number of seconds set. This enables the recorded image to be checked. OFF: The review mode is set off. The INPUT mode is established as soon as recording is completed.
Repeat recording operation setting (REPEAT)	ON <u>OFF</u>	This sets whether, after a frame has been recorded on the final address, to record the frame for the next recording into the first address (repeat recording). If the disc has been formatted in the write-once mode, repeat recording cannot be performed regardless of this setting. ON: Repeat recording is enabled. After the last frame has been recorded, operation returns to the first address for recording. In the AUTO REC mode, endless recording is possible. OFF: Repeat recording is inhibited. In the AUTO REC mode, processing is completed after the last frame has been recorded.

The underlining denotes the default (factory) setting.

Screen displays

5) PLAY sub menu

The playback mode is selected on this sub menu.

< PLAY >	
PLAY-MODE	: <u>NORMAL</u>
INTERVAL	: - - - - -
STILL-MODE	: <u>FRAME</u>
VOICE	: <u>OFF</u>
REPEAT	: <u>OFF</u>
POWERON-START	: <u>OFF</u>
NEXT	: ON
MULTI-SCREEN	: <u>PERMIT</u>
SELECT <<▶▲▼> EXIT <MENU> / SAVE <SET>	

Setting item (screen display)	Selectable modes	Description of function
Playback mode selection (PLAY-MODE)	<u>NORMAL</u> AUTO PLAY PROGRAM PLAY	This sets the playback mode. NORMAL: For setting normal playback. AUTO PLAY: For setting the automatic playback mode. PROGRAM PLAY: For setting the program playback mode. In order for program playback to be used, the program playback sequence must first be set. (See page 52)
Playback time interval setting for automatic playback and program playback (INTERVAL)	Time setting (hours : minutes : seconds)	This sets the playback interval time per frame when AUTO PLAY or PROGRAM PLAY has been selected as the PLAY-MODE setting. This item cannot be set in the NORMAL mode.
Output picture mode selection (STILL-MODE)	<u>FRAME</u> FIELD-1 FIELD-2	This sets the output picture mode for the output frame. FRAME: A frame picture is output. FIELD-1: Only the picture of field 1 is output. FIELD-2: Only the picture of field 2 is output.
Voice memo playback setting for frame playback (VOICE)	ON <u>OFF</u>	This selects whether to play back the voice memo at the same time as the frame is played back. However, when the VOICE PLAY button is pressed, the voice memo is played back regardless of this setting. ON: When a frame is played back, the voice memo is played back at the same time. OFF: The voice memo is not played back.
Repeat playback setting (REPEAT)	ON <u>OFF</u>	This is for setting ON or OFF for repeat playback. ON: Repeat playback is performed. OFF: Repeat playback is not performed.
Automatic playback start setting for automatic playback and program playback when power is turned on (POWERON-PLAY)	ON <u>OFF</u>	This is for setting ON or OFF for starting playback automatically when the power is turned on and when AUTO PLAY or PROGRAM PLAY has been selected as the PLAY-MODE setting. ON: After the power has been turned on, playback in the AUTO PLAY or PROGRAM PLAY mode starts automatically. OFF: Automatic playback is not performed.
NEXT mode setting (NEXT) <div style="border: 1px solid black; padding: 2px; width: fit-content;">This item does not appear in the RGB mode.</div>	ON <u>OFF</u>	This is for setting ON or OFF for the NEXT mode. ON: The NEXT mode is established. OFF: The NEXT mode is not established. The same frame is output to all the video output connectors.
Permit/inhibit setting for multi-screen display in NEXT mode (MULTI-SCREEN) <div style="border: 1px solid black; padding: 2px; width: fit-content;">This item does not appear when OFF has been selected as the NEXT setting.</div>	<u>PERMIT</u> INHIBIT	This sets whether to inhibit or permit the multi-screen display when the NEXT mode is established. PERMIT: The multi-screen display is permitted. INHIBIT: The multi-screen display is inhibited.

The underlining denotes the default (factory) setting.

Screen displays

6) DISPLAY sub menu

```

< DISPLAY >

  MODE           : ON
  DISC-NAME       : ON
  FRAME-ADDRESS   : ON
  ID              : ON
  NAME            : ON
  NAME2           : ON
  DATE/TIME      : ON
  <CHARACTER-POSITION>

SELECT <◀▶▲▼>  EXIT <MENU> / SAVE <SET>
  
```

What items are to be displayed on the screen are set on this sub menu.

Setting item (screen display)	Selectable modes	Description of function
Mode display selection (MODE)	<u>ON</u> OFF	This selects whether to display the operating mode on the screen. ON: The operating mode is displayed on the screen. OFF: The operating mode is not displayed on the screen.
Disc name display setting (DISC-NAME)	<u>ON</u> OFF	This selects whether to display the disc name on the screen. ON: The disc name is displayed on the screen. OFF: The disc name is not displayed on the screen.
Address display setting (FRAME-ADDRESS)	<u>ON</u> OFF	This selects whether to display the frame address on the screen. ON: The frame address is displayed on the screen. OFF: The frame address is not displayed on the screen.
ID display setting (ID)	<u>ON</u> OFF	This selects whether to display the frame ID on the screen. ON: The frame ID is displayed on the screen. OFF: The frame ID is not displayed on the screen.
NAME display setting (NAME)	<u>ON</u> OFF	This selects whether to display the frame name on the screen. ON: The frame name is displayed on the screen. OFF: The frame name is not displayed on the screen.
NAME2 display setting (NAME2)	<u>ON</u> OFF	This selects whether to display the frame name 2 on the screen. ON: The frame name 2 is displayed on the screen. OFF: The frame name 2 is not displayed on the screen.
Date/time display setting (DATE/TIME)	<u>ON</u> OFF	This selects whether to display the date and time on the screen. ON: The date and time is displayed on the screen. OFF: The date and time is not displayed on the screen.
On-screen display position setting (CHARACTER-POSITION)	Transfer to the on-screen display position setting screen	The on-screen display positions can be set while viewing the screen. When the SET button is pressed, the on-screen display position setting screen appears. (See the next section 6-1 for details of the on-screen display position setting screen.)

The underlining denotes the default (factory) setting.

Screen displays

6-1) On-screen display position setting screen

The on-screen display position setting screen appears when the cursor is aligned with <CHARACTER-POSITION> on the DISPLAY sub menu and the SET button is pressed.

This menu enables the on-screen display positions to be changed while viewing the screen.

DISCNAME	<LQ-D100 MODE>	ABCDEF
		0000/0000
▶ H-POSITION : <u>±2</u> V-POSITION : <u>±1</u> EXIT <MENU>		
NAME2NAME2NAME2NAME2		
NAMENAMENAMENAMENAME		00/00/00
IDIDIDIDIDIDI		00:00:00

The on-screen display positions appear on the screen. (The characters displayed represent the display positions: they are not actual values.)

◇ How to change the display positions

Buttons used	Operation
"+" and "-" buttons	Used to increment or decrement numbers. When the "+" button is pressed, the number is incremented; conversely when the "-" button is pressed, the number is decremented. A number can be selected from +5 to -5. H-POSITION: The higher the number, the further the characters move toward the right; conversely, the lower the number, the further the characters move toward the left. V-POSITION: The higher the number, the further the characters move downward; conversely, the lower the number, the further the characters move upward.
CLR button	Used to clear the number input to zero.
Up and down arrow buttons	Used to select H-POSITION or V-POSITION.
MENU button	Used to return operation to the DISPLAY sub menu. The settings are retained without the SET button having to be pressed.

Screen displays

7) PROGRAM sub menu

```

< PROGRAM >

  < PROGRAM-INPUT >
  < LOAD >
  < SAVE >
  < CLEAR >

SELECT <◀▶▲▼>  EXIT <MENU> / SAVE <SET>
  
```

The program playback sequence (100 steps per program) is set using the sub menu.

Only one program can be retained inside the unit but up to 20 programs can be written on a disc.

Setting item (screen display)	Selectable modes	Description of function
Program input (PROGRAM-INPUT)	Transfer to the program input setting screen.	This is for inputting programs. When the SET button is pressed, the program input setting screen appears. (See the next section 7-1 for details of the program input screen.)
Program data loading (LOAD)		This is for loading the program data, which has been written on the disc, into the unit. When the SET button is pressed, 20 programs on the disc are displayed. Select one of the programs, and load it by pressing the SET button.
Program data saving (SAVE)		This is for saving the program data inside the unit onto a disc. When the SET button is pressed, write areas equivalent to 20 programs on the disc are displayed. Select one of the write areas, and save the data pressing the SET button.
Program data initializing (CLEAR)		This is for initializing the program data inside the unit.

Screen displays

7-1) Program input screen

The program input setting screen appears when the cursor is aligned with <PROGRAM-INPUT> on the PROGRAM sub menu and the SET button is pressed. This menu enables the program data to be registered for the unit.

```

< PROGRAM INPUT >

STEP 1 : 000034 TO 000052
STEP 2 : 000006
STEP 3 : 000010
STEP 4 : 000100 TO 000090
STEP 5 : 001000
STEP 6 : UNDEF
STEP 7 : UNDEF
STEP 8 : UNDEF
STEP 9 : UNDEF
STEP 10 : UNDEF

SELECT <◀▶▲▼> EXIT <MENU> / SAVE <SET>
    
```

Programs with up to 100 steps can be input. A single address or the playback address range can be set in each step as shown in the figure. The playback address range can be in ascending or descending order.

With a 000001 TO 000003 setting:

The program is played back in the order of addresses 1, 2 and 3.

With a 000003 TO 000001 setting:

The program is played back in the order of addresses 3, 2 and 1.

"UNDEF" is short for undefined.

◇ How to input programs

Buttons used	Operation
"+" and "-" buttons	Used to input numbers. When the "+" button is pressed, the number is incremented; conversely when the "-" button is pressed, the number is decremented.
Left and right arrow buttons	Used to change the input digit. The cursor is moved toward lower digits by pressing the right arrow button; conversely, it is moved toward higher digits by pressing the left arrow button. By pressing the right arrow button when the cursor is at one digit of a number, a playback address range can be set.
CLR button	Used to clear the number input. When the CLR button is pressed while a playback address range is input, the single address setting is established; when it is pressed when a single address has been set, the UNDEF (undefined) status is established. 000200 TO 000300 ↓ Press the CLR button. 000200 ↓ Press the CLR button. UNDEF
Up and down arrow buttons	Used to step scroll forward or backward through the STEP display on the screen. Steps 1 to 100 can be displayed and set.
SET button	Used to set the program which has been input and to store it in the unit's memory.
MENU button	Used to return operation from the program input setting screen to the PROGRAM sub-menu. Pressing this button without first pressing the SET button will cancel the program which has been input.

Screen displays

7-2) Program LOAD and SAVE screens

Up to 20 sets of program data can be saved on a disc. The program data which suits a particular purpose can be saved on disc and then loaded for use as and when required.

Programs are loaded from discs and saved onto discs. Therefore, a disc must be inserted into the unit for these operations.

The disc must be set to the write-enable status if data is to be saved on it.

◇LOAD

This operation serves to load the program data from the disc into the unit.

When the cursor is aligned with <LOAD> on the PROGRAM sub menu and the SET button is pressed, the numbers of 20 programs on the disc are displayed on the right side of the screen.

Use the up, down, left and right arrow buttons to select the number of the program to be loaded from among programs No.1 to No.20.

When a particular program number is selected, the date and time at which that program was recorded on the disc are displayed at the bottom of the screen.

In the figure below, for example, it is clear that program No.7 consists of data which was recorded at 10 hours 10 minutes 50 seconds on July 15, 1999.

Dashes will appear for the date and time display if the number of the program selected has no program data recorded.

When the required program number is selected and the SET button is pressed, the program data is loaded from the disc into the unit. Remember that if there is any program data already inside the unit, it will be overwritten.

```

< PROGRAM >
  < PROGRAM-INPUT >
  < LOAD >
  < SAVE >
  < CLEAR >
    PROGRAM- 1 ----- 11
    ----- 2 ----- 12
    PROGRAM-3 ----- 13
    ----- 4 ----- 14
    PROGRAM- 5 ----- 15
    PROGRAM- 6 ----- 16
    PROGRAM- 7 ----- 17
    ----- 8 ----- 18
    ----- 9 PROGRAM-19
    ----- 10 PROGRAM-20
    (1999/07/15 10:10:50)
  SELECT <◀▶▲▼>      LOAD <SET> / END <MENU>
  
```

◇SAVE

This operation serves to save the program data inside the unit onto the disc.

When the cursor is aligned with <SAVE> on the PROGRAM sub menu and the SET button is pressed, the numbers of 20 programs (program write area numbers) for saving data onto the disc are displayed on the right side of the screen.

Use the up, down, left and right arrow buttons to select the number of the program whose data is to be saved from among programs No.1 to No.20.

When particular program number already saved is selected, the date and time at which that program was recorded on the disc are displayed at the bottom of the screen.

Dashes will appear for the date and time display if the number of the program selected has no program data recorded.

When the required program number is selected and the SET button is pressed, the program data is saved from the unit onto the disc.

When the number of a program already saved is selected and the SET button is pressed, the data in that program will be overwritten.

```

< PROGRAM >
  < PROGRAM-INPUT >
  < LOAD >
  < SAVE >
  < CLEAR >
    PROGRAM- 1 ----- 11
    PROGRAM- 2 PROGRAM- 12
    ----- 3 ----- 13
    ----- 4 ----- 14
    PROGRAM- 5 ----- 15
    PROGRAM- 6 ----- 16
    ----- 7 PROGRAM- 17
    ----- 8 ----- 18
    ----- 9 PROGRAM- 19
    ----- 10 ----- 20
    (-----/---/--- :---:---)
  SELECT <◀▶▲▼>      SAVE <SET> / END <MENU>
  
```

Screen displays

8) SYSTEM sub menu

```

< SYSTEM >

  BEEP           : ON
  MULTI-SCREEN   : 16
  EJECT-KEY      : LOCAL+REMOTE
  DATE           : 99 / 1 / 1
  TIME           : 12 : 00
  <RS232C>
  <GPI>
  <VIDEO-CONTROL>

  SELECT <◀▶▶▲▼>  EXIT <MENU> / SAVE <SET>
  
```

The settings related to the system are performed on this sub menu.

Setting item (screen display)	Selectable modes	Description of function
Beep ON/OFF (BEEP)	<u>ON</u> OFF	This is used to set ON or OFF for the beep. ON: Beeps are sounded. OFF: Beeps are not sounded.
Selection of the number of screen divisions for multi-screens (MULTI-SCREEN)	<u>16</u> 9 4	This sets the number of screen divisions when the multi-screen display function is to be used for frames. 16: The screen is divided into 16 parts. 9: The screen is divided into 9 parts. 4: The screen is divided into 4 parts.
Eject button operation setting (EJECT-KEY)	<u>LOCAL+REMOTE</u> LOCAL ONLY	This sets the operating conditions of the eject button on the front panel. LOCAL + REMOTE: The eject button works whether the front panel switch is set to LOCAL or REMOTE. LOCAL ONLY: The eject button works only when the front panel switch is set to LOCAL.
Date setting (DATE)		This is used to set the date of the internal clock. Move from one digit to the next using the left and right arrow buttons, and input the numbers using the "+" and "-" buttons. Once the numbers have been input and the SET button is then pressed, the whole date is highlighted and set. The date will not be set even if it has been input unless the SET button is pressed.
Time setting (TIME)		This is used to set the time of the internal clock. Move from one digit to the next using the left and right arrow buttons, and input the numbers using the "+" and "-" buttons. Once the numbers have been input and the SET button is then pressed, the whole time is highlighted and set. The time will not be set even if it has been input unless the SET button is pressed.
RS-232C parameter setting (RS232C)	Transfer to RS-232C setting screen	This is used to transfer operation to the RS-232C setting screen. (See the next section 8-1 for details of the RS-232C setting screen.)
GPI setting (GPI)	Transfer to GPI setting screen	This is used to transfer operation to the GPI setting screen. (See section 8-2 which follows for details of the GPI setting screen.)
VIDEO CONTROL setting (VIDEO CONTROL)	Transfer to VIDEO control setting screen	This is used to transfer operation to the VIDEO control setting screen. When the setting screen is entered, the background becomes transparent so that settings can be performed while viewing the screen. (See section 8-3 which follows for details of the VIDEO control setting screen.)

The underlining denotes the default (factory) setting.

Screen displays

8-1) RS-232C setting screen

The communication parameters relating to RS-232C are set on this sub menu.

```

< SYSTEM >

                RS232C SETUP

  BIT-LENGTH   :  8 BIT
  STOP-BIT     :  1 BIT
  PARITY       :  NONE
  BAUD-RATE    :  9600

  SELECT <◀▶▲▼>  EXIT <MENU> / SAVE <SET>
    
```

Setting item (screen display)	Selectable modes	Description of function
Bit length setting (BIT-LENGTH)	<u>8 BIT</u> 7 BIT	This is used to select the character length. 8BIT : 8-bit characters are used. 7BIT : 7-bit characters are used.
Stop bit setting (STOP-BIT)	<u>1 BIT</u> 2 BIT	This is used to select 1 bit or 2 bits as the stop bit. 1BIT : The stop bit is set to 1 bit for use. 2BIT : The stop bit is set to 2 bits for use.
Parity setting (PARITY)	<u>NONE</u> EVEN ODD	This is used to select the parity. NONE : No parity EVEN : Even parity ODD : Odd parity
Transfer rate setting (BAUD-RATE)	4800 <u>9600</u> 19200	This is used to select the RS-232C interface transfer rate. 4800 : A transfer rate of 4800 baud is used. 9600 : A transfer rate of 9600 baud is used. 19200 : A transfer rate of 19200 baud is used.

The underlining denotes the default (factory) setting.

Screen displays

8-2) GPI setting screen

< SYSTEM >		
GPI SETUP		
	IN	OUT
1	UNDEF	REC
2	UNDEF	PLAY
3	UNDEF	UNDEF
4	UNDEF	UNDEF
5	UNDEF	UNDEF
6	UNDEF	UNDEF
7	UNDEF	UNDEF

SELECT <◀▶▲▼> EXIT <MENU> / SAVE <SET>

A correlation between the input signals and output signals is established for each of the GPI ports (7 inputs/7 outputs). IN (input) can be set for 7 ports, and OUT (output) can be set for 7 ports. Use the up, down, left and right arrow buttons to move the cursor to the target port, and select the item using the “+” and “-” buttons.

Listed below are the items which can be set for IN and OUT.

LIGHT-S and LIGHT-L

These items are used during automatic recording to turn on the lights, etc. in tandem with the recording operation.

HI is output when the unit's power is turned on.

In the INPUT mode, they can be changed manually to HI by pressing the INPUT button or to LOW by pressing the CLEAR button.

Concerning ALARM-REC

The ALARM-REC operation is performed when the ALARM-REC signal has been input until the CLEAR signal is input.

During ALARM-REC, the recording operation is repeated at intervals of about 2 seconds regardless of what interval time has been set.

The “ALARM-REC#**” ID is automatically recorded onto each image which is recorded during ALARM-REC so that it will be possible to retrieve it later.

(“* * ” is a 2-digit number which indicates each ALARM-REC.)

	Item	Description
IN	UNDEF	Undefined (not used)
	CLEAR	Equivalent to the CLR button on the front panel
	PLAY	Equivalent to the FORWARD button on the front panel
	REC	Equivalent to the REC button on the front panel
	FREEZE	Equivalent to the FREEZE button on the front panel
	INPUT	Equivalent to the INPUT button on the front panel
	EJECT	Equivalent to the EJECT button on the front panel
	RPLAY	Equivalent to the REVERSE button on the front panel
	ALARM-REC	Starts ALARM-REC.
OUT	UNDEF	Undefined (not used)
	PLAY	Outputs HI during FORWARD playback.
	REC	Outputs HI during REC.
	FREEZE	Outputs HI during FREEZE.
	INPUT	Outputs HI during INPUT.
	EJECT	Outputs HI when no disc is present.
	RPLAY	Outputs HI during REVERSE playback.
	ALARM-REC	Outputs HI during ALARM-REC.
	LIGHT-S	Outputs HI from about 1 sec. before each recording operation is initiated in the automatic recording mode.
	LIGHT-L	Outputs HI from about 5 sec. before each recording operation is initiated in the automatic recording mode.
	DISC-FULL	Outputs HI when this disc is full.
	ERROR	Outputs HI when an error has occurred.
DRV-ERROR	Outputs HI when a drive error has occurred.	

Screen displays

8-3) VIDEO control setting screen

The settings relating to the output video signals are performed on this screen.

The setting items change depending on the output picture which has been selected by the output video signals of the OUT VIDEO sub menu.

◇ OUTPUT VIDEO = RGB (RGB mode)

< VIDEO CONTROL >	
▶ G-LEVEL	: 0
B-LEVEL	: 0
R-LEVEL	: 0
SELECT <▲▼+-> EXIT <MENU>	

Setting item (screen display)	Selectable modes	Description of function
G level setting (G-LEVEL)	-127 to +128	This is used to adjust the G level. All the parts of the G output, monitor output and S-VIDEO output except for the sync and burst are adjusted simultaneously. The level is cleared to zero by pressing the CLR button.
B level setting (B-LEVEL)	-127 to +128	This is used to adjust the B level. All the parts of the B output, monitor output and S-VIDEO output except for the sync and burst are adjusted simultaneously. The level is cleared to zero by pressing the CLR button.
R level setting (R-LEVEL)	-127 to +128	This is used to adjust the R level. All the parts of the R output, monitor output and S-VIDEO output except for the sync and burst are adjusted simultaneously. The level is cleared to zero by pressing the CLR button.

Screen displays

◇ OUTPUT VIDEO = COMPOSITE (Component mode)

< VIDEO CONTROL >	
▶ VIDEO-LEVEL	: 0
CHROMA-LEVEL	: 0
SETUP-LEVEL	: 0
HUE	: 0
SYS-H-PHASE	: 0
SYS-SC-COARSE	: 0
SYS-SC-FINE	: 0
SELECT <▲▼+-> EXIT <MENU>	

Setting item (screen display)	Selectable modes	Description of function
Video level setting (VIDEO-LEVEL)	-127 to +128	This is used to adjust the video output level. All the parts of the composite output, monitor output and S-VIDEO output except for the sync and burst are adjusted simultaneously. When the video level is changed, the chroma level is also changed at the same time. The level is cleared to zero by pressing the CLR button.
Chroma level setting (CHROMA-LEVEL)	-127 to +128	This is used to adjust the chroma output level. All the chroma parts of the composite output except for the burst and of the monitor output and S-VIDEO output except for the chroma are adjusted simultaneously. The level is cleared to zero by pressing the CLR button.
Setup level setting (SETUP-LEVEL)	-128 to +127	This is used to adjust the setup level. The composite output, monitor output and S-VIDEO output are adjusted simultaneously. The level is cleared to zero by pressing the CLR button.
Hue setting (HUE)	-127 to +128	This is used to set the output video hue. It is effective for the composite output, monitor output and S-VIDEO output. The setting is cleared to zero by pressing the CLR button.
System H phase setting (SYS-H-PHASE)	-127 to +128	This makes it possible to adjust the H phase of the internal sync generator's signal to the phase of the reference signal which is input from the external source. The setting is cleared to zero by pressing the CLR button.
System SC phase setting (SYS-SC-COARSE)	0, 90, 180, 270	This makes it possible to adjust the subcarrier (SC) phase of the internal sync generator's signal to the phase of the reference signal which is input from the external source. The phase can be adjusted in four 90-degree steps.
System SC phase setting (SYS-SC-FINE)	-127 to +128	This is used to adjust the phase finely in the continuous 90-degree range upon completion of the coarse setting. Using the COARSE and FINE setting items, a continuous 360-degree range can be covered.

Screen displays

◇ OUTPUT VIDEO = COMPONENT (Component mode)

```

< VIDEO CONTROL >

▶ VIDEO-LEVEL      : 0
  CHROMA-LEVEL     : 0
  SYS-H-PHASE      : 0

SELECT <▲▼+->  EXIT <MENU>
  
```

Setting item (screen display)	Selectable modes	Description of function
Video level setting (VIDEO-LEVEL)	-127 to +128	This is used to adjust the video output level. All the parts of the component output, monitor output and S-VIDEO output except for the sync and burst are adjusted simultaneously. When the video level is changed, the chroma level is also changed at the same time. The level is cleared to zero by pressing the CLR button.
Chroma level setting (CHROMA-LEVEL)	-127 to +128	This is used to adjust the chroma output level. The Pb/Pn parts of the component output, the monitor output except for the burst parts, and the chroma parts of the S-VIDEO output are adjusted simultaneously. The level is cleared to zero by pressing the CLR button.
System H phase setting (SYS-H-PHASE)	-127 to +128	This makes it possible to adjust the H phase of the internal sync generator's signal to the phase of the reference signal which is input from the external source. The setting is cleared to zero by pressing the CLR button.

Screen displays

9) DISC-MANAGEMENT sub menu

```

< DISC MANAGEMENT >
CHANGE-FRAME-ID : <      >
CHANGE-DISC-NAME : <      >
FORMAT DISC      : <EXECUTE>
  TYPE<COMPONENT>
  DISC NAME      : <      >
  WRITE-GUARD    : WRITE-ONCE
  SETUP-DATA     : <LOAD> <SAVE>

- DISC INFORMATION -
  TYPE<COMPONENT>
  DISC NAME      : <SAMPLE DISC>
  USED          : 0      REMAINS : XXXX
  WRITE GUARD    : WRITE-ONCE

SELECT <<▶▲▼> EXIT <MENU> / WRITE <REC>
  
```

The information on the disc is displayed and discs are formatted on this sub menu. Setup menu data can also be saved onto or loaded from a disc.

Setting item (screen display)	Selectable modes	Description of function
Frame ID name changing (CHANGE-FRAME-ID)	The frame ID is changed.	The frame ID of the frame now being played back can be changed by inputting the ID and pressing the REC button. The unit must be playing back a frame.
Disc name changing (CHANGE-DISC-NAME)	The disc name is changed.	The disc name can be changed by inputting the disc name and pressing the REC button.
Disc formatting (FORMAT)	The disc is formatted under the setting conditions below.	The disc in the internal drive is formatted when the cursor is aligned with <EXECUTE> and the SET button is pressed.
Recording format display	For display purposes only (the item cannot be set).	This indicates the recording format of the disc which is to be created. If it is to be changed, the power must be turned off, and the equipment mode must be changed using the DIP switches on the rear panel. TYPE <RGB> : For formatting discs in the RGB mode. TYPE <COMPONENT> : For formatting discs in the Component mode.
Disc name setting		This sets the name of the disc which is to be formatted.
Recording mode setting	<u>WRITE-ONCE</u> REWRITABLE	This sets the recording mode of the disc which is to be formatted. WRITE-ONCE : Pseudo write-once mode REWRITABLE : Rewritable mode
Saving/loading the setup data onto/from a disc (SETUP-DATA)	SAVE LOAD	This is for saving the setup menu setting data (of all the menus) onto a disc or loading the data from the disc.

The underlining denotes the default (factory) setting.

Screen displays

The disc information (DISC INFORMATION) is displayed at the bottom of the menu. The information on the disc now in use, for instance, appears here. It enables the disc status to be checked before formatting is initiated.

Setting item (screen display)	Description of function
Disc type display	<p>This displays whether a disc is present and, if a disc is present, it displays its status. One of the following items corresponding to the disc status appears.</p> <p>TYPE <COMPONENT>: The disc now in use has been formatted by the component recording format.</p> <p>TYPE <RGB>: The disc now in use has been formatted by the RGB recording format.</p> <p>NO DISC: No disc is inside the unit.</p> <p>UNFORMAT DISC: The disc has not been formatted.</p> <p>UNKNOWN DISC: Unknown disc</p>
Disc name display	<p>This displays the name of the disc. (It appears when a disc can be used in the unit and when that disc's name has been recorded.)</p>
Number of frames recorded/remaining number of frames display	<p>This displays the number of frames already recorded and the remaining number of frames.</p> <p>USED: This indicates the number of frames already recorded. The total number of frames is always displayed after all the frames have been recorded on a rewritable mode disc.</p> <p>REMAINS: This indicates the remaining number of frames. With a component recording formatted disc: 0-3300 With an RGB recording formatted disc: 0-1680</p>
Recording mode display	<p>This displays the recording mode of the disc.</p> <p>WRITE-ONCE: Pseudo write-once mode disc</p> <p>REWITABLE: Rewritable mode disc</p>

Screen displays

10) DISC-COPY sub menu

```

< DISC COPY >

EXT-DRIVE CHECK   : <EXECUTE>
COPY-MODE         : INHIBIT
TRAY-UNLOCK      : <EXECUTE>

- DRIVE INFORMATION -
INTERNAL DRIVE    : OK
  TYPE<COMPONENT>
USED              : 0      REMAINS : XXXX
EXTERNAL DRIVE    : OK
  TYPE<COMPONENT>
USED              : 0      REMAINS : XXXX

SELECT <<▶▲▼> EXIT <MENU> / SAVE <SET>
  
```

Frames or discs are copied from the unit to an externally connected drive.

Setting item (screen display)	Selectable modes	Description of function
External drive check (EXT-DRIVE CHECK)	The external drive is checked.	The external drive is checked, and if it is not OK, copying operations cannot be performed. When copying is set to OK, the opening and closing of the external drive's tray are inhibited in order to prevent accidents. To exit the copy mode, execute the TRAY-UNLOCK operation below.
Copy mode setting (COPY MODE) This appears only when OK appears as the check result of the external drive.	<u>INHIBIT</u> MANUAL COPY PROGRAM COPY DUPLICATE	This sets the copy mode. INHIBIT: Copy is inhibited. MANUAL COPY: Manual copy mode PROGRAM COPY: Program copy mode DUPLICATE: Duplicate mode
External drive tray lock/unlock (TRAY-UNLOCK) This appears only when OK appears as the check result of the external drive.	Operation of the tray button on the external drive is enabled.	This enables the external drive's tray to be operated. At the same time, the copy mode is exited.

The underlining denotes the default (factory) setting.

Screen displays

The internal drive and external drive information (DRIVE INFORMATION) is displayed at the bottom of the menu. It enables the operator to check whether disc copying can be executed.

Setting item (screen display)	Description of function
Internal drive status display (INTERNAL DRIVE)	This indicates the status of the unit's internal drive (disc). One of the following items corresponding to this status appears. OK: Copy enable status NO DISC: No disc is inside the unit. UNFORMAT DISC: The disc has not been formatted. UNKNOWN DISC: Unknown disc
Copy source disc type display	This indicates the recording format of the disc. TYPE <COMPONENT>: The disc now in use has been formatted by the component recording format. TYPE <RGB>: The disc now in use has been formatted by the RGB recording format.
Display of number of frames already recorded/remaining number of frames on copy source disc	This indicates the number of frames already recorded and the remaining number of frames on the disc. USED: This indicates the number of frames already recorded. REMAINS: This indicates the remaining number of frames.
External drive status display (EXTERNAL DRIVE)	This indicates the status of the external drive (disc). One of the following items corresponding to this status appears. NO CHECK: The external drive has not yet been checked. It must be checked if frames or a disc is to be copied. OK TRAY-LOCK: Copy enable status (the opening and closing of the external drive's tray are inhibited). NO DISC: No disc is inside the external drive. UNFORMAT DISC: The disc has not been formatted. WRITE PROTECT: The write protect switch on the disc has been set to the write-protect position. UNKNOWN DISC: Unknown disc
Copy destination disc type display	This indicates the recording format of the disc. TYPE <COMPONENT>: The disc now in use has been formatted by the component recording format. TYPE <RGB>: The disc now in use has been formatted by the RGB recording format. COPY DISABLE: Since the recording format of the destination disc does not match that of the source disc, recording is not possible.
Display of number of frames already recorded/remaining number of frames on copy destination disc	This indicates the number of disc frames already recorded and the remaining number of frames. USED: This indicates the number of frames already recorded. REMAINS: This indicates the remaining number of frames.

Screen displays

11) MAINTENANCE sub menu

```
< MAINTENANCE >  
  
TOTAL POWER TIME : 15 HOUR  
<DRIVE> :  
POWERON TIME : 15 HOUR  
REC TIME : 2 HOUR  
DISC MOTOR : 5 HOUR  
  
EXIT <MENU>
```

This maintenance information is displayed on this sub menu. The information on this sub menu is for display purposes only — it cannot be set.

Setting item (screen display)	Display item	Description of function
Total power-on time display (TOTAL POWERON TIME)	Time display	This displays the unit's total power-on time.
Drive power-on time display (POWERON TIME)	Time display	This displays the drive's total power-on time.
Drive recording time display (REC TIME)	Time display	This displays the drive's total recording time.
Drive disc running time display (DISC MOTOR)	Time display	This displays the drive's total disc motor running time.

2-5. How to return to the default settings

The setup menu settings are returned to the default (factory) settings when the unit's POWER switch is switched ON from the OFF status while the CLR button is held down.

3. Character input screen

When alphanumerics or other characters need to be input, the character input screen is opened by pressing the CHARACTER button (by pressing the up arrow button while holding down the SHIFT button). The characters can be input using the cursor buttons.

```
< CHARACTER INPUT >

  A B C D E F G H I J
  K L M N O P Q R S T
  U V W X Y Z + - ( )
  0 1 2 3 4 5 6 7 8 9
  / * ! ? # $ % ◀ ▶ <END>

<ABC                >
```

When no more characters are to be input, move the cursor to <END>, and press the SET button. To stop character input at any time, press the CHARACTER button again.

Other

1. Connector signals

S-VIDEO input/output connectors (4P)

Pin No.	Signal	Pin No.	Signal
1	GND	3	Y signal input/output
2	GND	4	C signal input/output

RS-232C connector (9P)

Pin No.	Signal	Pin No.	Signal
1	DCD	6	DTR
2	TXD	7	CTS
3	RXD	8	RTS
4	DSR	9	RI
5	GND		

GPI connector (15P)

Pin No.	Signal	Pin No.	Signal
1	GND	9	INPUT1
2	OUTPUT1	10	INPUT2
3	OUTPUT2	11	INPUT3
4	OUTPUT3	12	INPUT4
5	OUTPUT4	13	INPUT5
6	OUTPUT5	14	INPUT6
7	OUTPUT6	15	INPUT7
8	OUTPUT7		

EXT-REMOTE connector (6P)

Pin No.	Signal	Pin No.	Signal
1		4	GND
2		5	GND
3		6	SIN

SCSI connector (50P)

Pin No.	Signal	Pin No.	Signal
1	GND	26	- DB0
2	GND	27	- DB1
3	GND	28	- DB2
4	GND	29	- DB3
5	GND	30	- DB4
6	GND	31	- DB5
7	GND	32	- DB6
8	GND	33	- DB7
9	GND	34	- DBP
10	GND	35	GND
11	GND	36	GND
12		37	
13	N.C.	38	TERMPWR
14		39	
15	GND	40	GND
16	GND	41	- ATN
17	GND	42	GND
18	GND	43	- BSY
19	GND	44	- ACK
20	GND	45	- RST
21	GND	46	- MSG
22	GND	47	- SEL
23	GND	48	- C/D
24	GND	49	- REQ
25	GND	50	- I/O

2. Messages/error messages

Message displays fall into two categories: warning displays which warn of mistakes made in operation, and error displays which are caused by trouble in the equipment, etc.

The main causes of errors are mistakes made in operation (remote control operations included), disc trouble and equipment trouble.

List of messages/error messages

No.	On-screen display	Description	Cause	Remedy
E-01	NO DISC	No disc.	Disc	Insert the disc cartridge.
E-02	UNFORMAT DISC	Unformatted disc.	Disc	Format the disc prior to use.
E-03	WRITE-PROTECT DISC	Disc is write-protected: no recording is possible.	Disc	Use a record-enable disc.
E-04	WRITE-ONCE DISC	An attempt was made to record in an already recorded area on a pseudo write-once disc.	Disc	
E-05	PICTURE FORMAT MISMATCH	The equipment mode (RGB or Component mode) and the recording format of the disc do not match.	Equipment, disc	Turn off the power, and set the equipment mode to correspond with the recording format of the disc using the DIP switches on the rear panel.
E-06	TOP OF DISC	Top of disc.	Operation	
E-07	DISC FULL	Frames have been recorded on all the areas on the disc.	Operation	Use a new disc.
E-08	NO MORE PICTURE	No frames have been recorded in the addresses ahead.	Operation	
E-09	NO PICTURE	Not one frame has been recorded on the disc.	Operation	
E-10	NO TARGET-PICTURE	The target frame has not been selected (played back).	Operation	This message appears in the process of overwriting data when the frame which is to overwrite another is not being played back. Play back the target frame.
E-11	NO VOICE	A voice memo has not been recorded.	Operation	
E-12	NO PROGRAM DATA	A program has not been registered.	Operation	First register the program, and then play it back.
E-13	END OF PROGRAM	Program playback has finished.	Operation	
E-14	PROGRAM ADDRESS ERROR	Illegal program address.	Operation	First register the correct program address, and then play the program back.
E-15	NO INPUT-SIGNAL	No input signals have been supplied.	Operation	First connect the input signals, and then repeat the operation.
E-16	INPUT ALREADY	The INPUT mode has already been established.	Operation	
E-17	NOT INPUT MODE	The mode established for operation is not the INPUT mode.	Operation	Press the INPUT button to set the unit to the INPUT mode. Then conduct the same operation.
E-18	FREEZE ALREADY	The FREEZE mode has already been established.	Operation	
E-19	NOT FREEZE MODE	The mode established for operation is not the FREEZE mode.	Operation	Press the FREEZE button to set the unit to the FREEZE mode. Then conduct the same operation.
E-20	OVERWRITE ERROR	The overwrite mode cannot be established.	Operation	If the unit is set to the AUTO REC mode, release the mode, and then conduct the same operation.

Other

No.	On-screen display	Description	Cause	Remedy
E-21	MULTI DISP ERROR	An error has occurred during multi-screen playback.	Operation	Repeat the operation.
E-22	ADDRESS ERROR	The address which was input is illegal.	Operation	Input the correct address, and repeat the operation.
E-23	SET INTERVAL-TIME	The interval time has not been set.	Operation	Set the correct interval time.
E-24	EXEC COMMAND ERROR	The command which was set cannot be executed.	Operation	Issue the correct command.
E-25	EXEC MODE ERROR	The mode which was set cannot be executed.	Operation	Issue the correct command.
E-26	DRIVE BUSY ERROR	The command cannot be executed because the drive is operating.	Operation	Wait a few moments and then re-issue the command.
E-27	PROCESS BUSY ERROR	The command cannot be executed because another process is being executed.	Operation	Wait a few moments and then re-issue the command.
E-28	PARAMETER ERROR	One of the communication parameters is wrong.	Operation	Issue the correct command.
E-29	RTC DATA ERROR (RTC = Real Time Clock)	The date/time setting information which was set is wrong.	Operation	Issue the correct command.
E-30	RTC BUSY	The date/time information which was set from RS-232C cannot be set because RTC processing is in progress.	Operation	Re-issue the command.
E-31	PICTURE WRITE ERROR	The power was turned off before while recording was in progress.	Operation, disc	The frame being recorded may have been destroyed. Check the frame whose address was displayed at the same time.
E-32	WRITE ERROR	A drive error occurred while data was being saved on the disc.	Drive, disc	Repeat the operation. Alternatively, clean the lens and disc.
E-33	READ ERROR	A drive error occurred while data was being loaded from the disc.	Drive, disc	Repeat the operation. Alternatively, clean the lens and disc.
E-34	MEDIUM ERROR	A disc-related error has occurred.	Drive, disc	Check the disc. Alternatively, clean the disc.
E-35	FORMAT PROCESS FAILED	Disc formatting failed.	Drive, disc	Check the disc and re-format it if necessary.
E-36	SEEK ERROR	An error occurred during seeking.	Drive, disc	Repeat the operation. Alternatively, clean the lens and disc.
E-37	DRIVE HARDWARE ERROR	A hardware error occurred in the drive.	Drive	Repeat the operation.
E-38	TRAY ERROR	An error occurred when the tray was opened or closed.	Drive	Operate the tray again.
E-39	SOFT-WP ERROR	Data saving has been automatically inhibited since the unit has judged that data cannot be recorded stably on the disc.	Disc	The disc is a read-only disc. Alternatively, clean the lens and disc, and then make a backup.
E-40	CHECK DUST OR DEW	Dust or condensation may have formed.	Disc	If condensation has formed, leave standing until it has completely evaporated. If no condensation has formed, clean the lens and disc.
E-41	SCSI ERROR	An error occurred while SCSI transfer was in progress.	Equipment	Repeat the operation. Check the terminators of the DIP switches on the rear panel.

Other

No.	On-screen display	Description	Cause	Remedy
E-42	INITIALIZE TIME/DATE	The date and time of the internal clock have not been set.	Equipment	Set the correct date and time in the setup menu. Alternatively, check that the back-up battery has been connected properly.
E-43	GPI INPUT ERROR	An internal error occurred in the GPI input.	GPI	Repeat the operation.
E-44	GPI OUTPUT ERROR	An internal error occurred in the GPI output.	GPI	Repeat the operation.
E-45	FAN STOP	The cooling fan on the rear panel has shut down.	Equipment	Remove any foreign matter obstructing the fan unit. If the shutdown status continues for about one minute, the unit's power will be turned off.
E-46	BATTERY EMPTY	The backup battery has completely discharged.	Equipment	Ask your dealer to make repairs.
E-47	SYSTEM ERROR	Some other system error has occurred.	Equipment	Repeat the operation.

3. Manual disc ejection

If the power should be turned off by a power failure, for instance, while a disc cartridge is still inside the unit and the disc needs to be removed urgently, insert the accessory forced eject pin into the forced eject hole on the front panel and eject the disc manually.

The unit's power must be turned off when the forced eject pin is used to eject the tray.

Bear in mind that the unit may be damaged if the power is on.

Procedure

- 1) Check that the unit's power is off.
- 2) Insert the forced ejection pin into the forced ejection hole, and push it in firmly and horizontally as far as it will go.
- 3) When the pin is pulled out, the end of the holder will protrude as the shutter opens. The disc cartridge can now be drawn out slowly.

4. Concerning the flashing of the BUSY (operation display) lamp

When trouble occurs in the drive, the unit's BUSY (operation display) lamp flashes in green.

Flashing cycle	Cause	Remedy
3 flashes at 1-second intervals (3 flashes with 0.2 sec in between each flash, and another 3 flashes after a 1-second interval, and so on).	Since a dirty disc has been used, over 90% of the spare recording area (substitution area) has been used. In a case like this, writing is automatically inhibited. No further data can be recorded on this disc even if it is cleaned with a cleaner. However, the disc can be used as a read-only disc.	Have a new disc ready, create a duplicate disc using the disc copy function (duplicate mode), and use this duplicate disc. Data can be added to and saved on a duplicate disc. When the special cleaner is used to clean the copy source disc and the disc is re-formatted, it can be used as a new disc.
2 flashes at 1-second intervals (2 flashes with 0.2 sec in between each flash, and another 2 flashes after a 1-second interval, and so on).	The drive lens or disc is dirty. In a case like this, writing is automatically inhibited.	Use the cleaner to clean the drive lens or disc.
1 flash at 1-second intervals	The temperature inside the unit has risen to an abnormally high level.	Remove whatever is blocking the ventilation holes, turn off the unit's power, and allow the unit to cool off naturally.

Specifications

[GENERAL]

Rating Input:

120 V AC, 50 – 60 Hz, 0.7 A

Dimensions (W×H×D):

8 7/16"×5 1/4"×15 9/16" (214×132×395 mm)

Weight:

15.4 lb (7.0 kg)

Operating temperature:

41 °F to 95 °F (5 °C to 35 °C)

Operating humidity:

10 % to 80 % (no condensation)

Drive used:

DVD-RAM drive

Discs used:

DVD-RAM discs, 2.6 GB (single-side)

5.2 GB (double-sided)

Recording system:

PCR (phase-change rewritable)

Number of frames recorded:

- In the RGB mode

1680 frames

- In the Component mode

3300 frames

Return loss:

Analog video input: Less than –40 dB

Reference video input: Less than –40 dB

Analog video output: Less than –35 dB

[VIDEO]

TV system:

NTSC system (60 Hz/V input possible)

Sampling frequency:

- 1) RGB mode

R/G/B: 18 MHz, R : G : B = 4 : 4 : 4

- 2) Component mode

Y: 13.5 MHz, P_B/P_R: 6.75 MHz,

Y : P_B : P_R = 4 : 2 : 2

Quantization:

8 bits

Video specifications:

- 1) RGB IN/RGB OUT (RGB mode)

- Video band

R/G/B: 30 Hz to 7 MHz (±3 dB)

- S/N ratio:

Better than 55 dB

- 2) Component IN/component OUT (Component mode)

- Video band

Y: 30 Hz to 5.5 MHz (±2 dB),

5.75 MHz (–3 dB)

R-Y/B-Y:

30 Hz to 2.0 MHz (–1 dB ±1 dB),

- S/N ratio:

Better than 55 dB

- 3) Composite IN/composite OUT (Component mode)

- Video band

Y: 30 Hz to 4 MHz (–1 dB ±2 dB)

- Differential gain:

Less than 4 %

- Differential phase:

Less than 3 degrees

- K factor:

Less than 2.5 %

Linearity:

Less than 5 %

Y/C delay:

Less than 20 ns

[VOICE MEMOS]

Modulation system:

Monaural, ADPCM compression system, 32 kbps

Frequency response:

300 Hz to 3 kHz (600 Ω load)

Specifications

[VIDEO INPUT]

Composite/component (Y, P_B, P_R)/RGB:

Composite/Y, P_B, P_R/R, G, B, SYNC menu selection, BNC × 4, 75 Ω

- 1) Composite: 1.0 V [P-P]
- 2) Component:
Y: 1.0 V [P-P]
P_B/P_R:
0.525 V [P-P]/0.756 V [P-P] selectable
(75 % color bar)
- 3) RGB: 0.7 V [P-P]
SYNC: 4.0 V [P-P]/0.3 V [P-P] selectable
(or G-SYNC)

SYNC:

SYNC/REF VIDEO switchable

- 1) SYNC:
4.0 V [P-P]/0.3 V [P-P] selectable
- 2) REF VIDEO:
Composite 1.0 V [P-P]

S-VIDEO (Y/C):

4P × 1, 75 Ω
Y: 1.0 V [P-P]
C: 0.286 V [P-P] (burst)

[VIDEO OUTPUT]

Composite/component (Y, P_B, P_R)/RGB:

Composite/Y, P_B, P_R/R, G, B, SYNC menu selection, BNC × 4, 75 Ω

- 1) Composite: 1.0 V [P-P]
- 2) Component:
Y: 1.0 V [P-P]
P_B/P_R:
0.525 V [P-P]/0.756 V [P-P] selectable
(75 % color bar)
- 3) RGB: 0.7 V [P-P]
SYNC: 4.0 V [P-P]

S-VIDEO (Y/C):

4P × 1, 75 Ω
Y: 1.0 V [P-P]
C: 0.286 V [P-P] (burst)

Monitor:

BNC × 1, 75 Ω, 1.0 V [P-P] (±0.03 V [P-P])

[VIDEO OUTPUT ADJUSTMENTS]

Video gain:

±2 dB

Chroma gain:

±2 dB

Chroma phase:

±20 degrees

Black level:

±100 mV

Sync phase:

±1.5 μs

SC phase:

±180 degrees

[MIC INPUT (VOICE MEMOS)]

MIC:

M3 × 1

[HEADPHONE OUTPUT (VOICE MEMOS)]

PHONE:

M3 × 1, level variable

[REMOTE INPUT/OUTPUT]

RS-232C:

D-Sub 9 pins, MIS protocol

GPI:

D-Sub 15 pins, 7 port each for input, output

SCSI:

Half-pitch D-Sub 50 pins

EXT-REMOTE:

6 pins, MIS 6-6 bit control

Remote control:

M3 × 1, wired, Association for Home Electric Appliances protocol

[STANDARD ACCESSORIES]

- 1) Power cord
- 2) Wired remote controller
- 3) Front panel protective cover
- 4) Operating instructions
- 5) Forced eject pin
- 6) Ferrite core

Panasonic

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