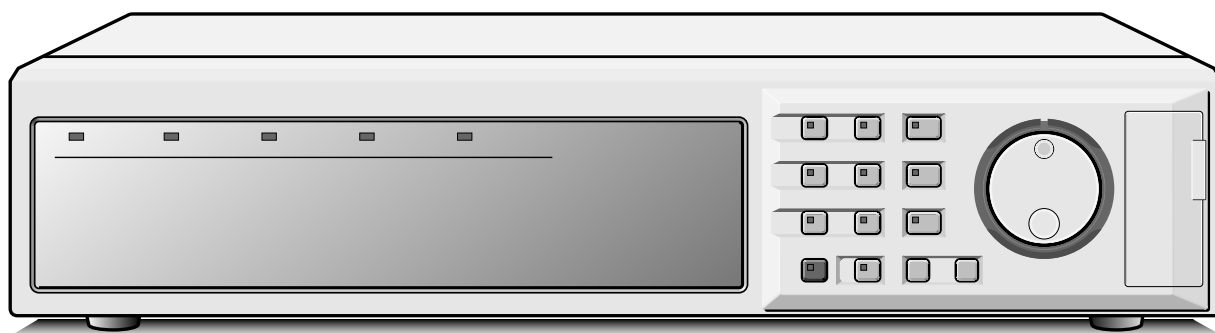




Digital Video Recorder

DSR-3000P

Instruction Manual	English	GB
Bedienungsanleitung	Deutsch	D
Manuel d'instructions	Français	F
Manual de Instrucciones	Español	E
Manuale di Istruzioni	Italiano	I



About this manual

Before installing and using this unit, please read this manual carefully. Be sure to keep it handy for later reference.

Über diese Anleitung

Lesen Sie bitte diese Bedienungsanleitung vor der Installation und der Verwendung des Gerätes sorgfältig durch. Bewahren Sie die Anleitung zum späteren Nachschlagen auf.

À propos de ce manuel

Avant d'installer et d'utiliser cet appareil, veuillez lire ce manuel attentivement. Assurez-vous de le garder à portée de la main pour référence ultérieure.

Acerca de este manual

Antes de instalar y usar este aparato, lea detenidamente este manual. Asegúrese de guardarlo a mano para futuras referencias.

Nota su questo manuale

Leggere attentamente questo manuale prima di passare all'installazione ed all'uso di questo apparecchio. Conservare il manuale in un posto sicuro per riferimenti futuri.

PRECAUTION

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR OTHER MOISTURE.

To avoid electrical shock, do not open the cabinet.

Refer servicing to qualified personnel only.

If the power supply cord (AC power cord) of this appliance is damaged, it must be replaced. Return to a SANYO Authorised Service Centre for replacement of the cord.

Location

For safe operation and satisfactory performance of your unit, keep the following in mind when selecting a place for its installation:

Shield it from direct sunlight and keep it away from sources of intense heat.

Avoid dusty or humid places.

Avoid places with insufficient ventilation for proper heat dissipation. Do not block the ventilation holes at the top and bottom of the unit. Do not place the unit on a carpet because this will block the ventilation holes.

Install the unit in a horizontal position only.

Avoid locations subject to strong vibrations.

Avoid moving the unit between cold and hot locations.

Do not place the unit directly on top of a monitor TV, as this may cause playback or recording problems.

Avoiding Electrical Shock and Fire

Do not handle the power cord with wet hands.

Do not pull on the power cord when disconnecting it from an AC wall outlet. Grasp it by the plug.

If any liquid is spilled on the unit, unplug the power cord immediately and have the unit inspected at a factory-authorised service centre.

Do not place anything directly on top of this unit.

SERVICE

This unit is a precision instruments and if treated with care, will provide years of satisfactory performance. However, in the event of a problem, the owner is advised not to attempt to make repairs or open the cabinet. Servicing should always be referred to your dealer or Sanyo Authorized Service Centre.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Discard used batteries according to the manufacture's instructions.

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MAIN FEATURES

This digital video recorder can be used to store images recorded by a monitoring camera onto its built-in hard disk.

- Equipped with a large-capacity 3.5-inch hard disk drive.
- Recording and playback of images can be carried out using digital signals from a multiplexer.
- Playback can be carried out at the same time as recording.
- Alarm recording tracks movements of suspicious individuals.
- Timer recording lets you record different sessions each day.
- Pre-alarm recording records the images immediately before an alarm.
- Audio recording and playback is also possible.
- Has a built-in motion detector function that can trigger alarm recording when movement is detected.
- Recorded images can be copied using CompactFlash cards.
- Includes a variety of search functions.
 - ☞ Alarm searching using an alarm event list or thumbnail alarm images
 - ☞ Time and date searches based on recording date and time
 - ☞ Motion sensor detecting by searching for the movement of a suspicious individual
- A zoom function allows images being monitored or played back to be enlarged for display.
- Images can be captured by field or by frame.
- The image quality mode can be selected from five modes for both field and frame.
- Three levels of security lock are available.
- A PCMCIA-compatible network card can be used to carry out network control.
- Includes an RS-232C interface for computer control.
- Connection to a system controller (sold separately) is possible using an RS-485 interface.
- A PCMCIA-compatible SCSI card can be used for backups to DDS (DAT) drives.

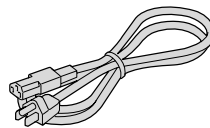
Setting-up environment

Leave a space of at least 5 cm between the digital video recorder and other nearby objects.

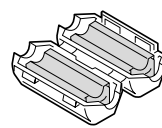
Ventilation holes are located at both sides and on the base of the digital video recorder. Do not allow these ventilation holes to be covered when setting up the recorder.

Furthermore, avoid using the digital video recorder in places with poor ventilation.

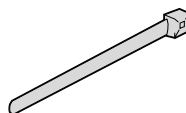
ACCESSORIES



Power cord



Ferrite core



Fixer power cord tie

Hard disk protection

If any hard disk format errors are found when the power is turned on, the whole hard disk is checked automatically. If any further problems are found with the hard disk, the POWER indicator flashes. Please contact the place of purchase if you need to reformat the hard disk or make backups of any images. The hard disk is very sensitive to dust, vibration and shocks, and it should not be used in places near sources of magnetic fields. Be sure to observe the following points in order to prevent any loss of data.

- Do not subject the digital video recorder to shocks.
- Do not use the digital video recorder in places where it will be subjected to vibration or places which are unstable.
- Do not disconnect the power cord while recording or playback is in progress.
- Do not use in places which are subject to rapid changes in temperature (changes of around 10°C in an hour).
- If the digital video recorder is moved to a place with a large difference in temperature or a high level of humidity, condensation may form. If the digital video recorder is used with condensation inside it, operating problems may occur.
- Do not install the digital video recorder in places which are constantly vibrating, such as vehicles or trains.

The hard disk and cooling fan are consumables.

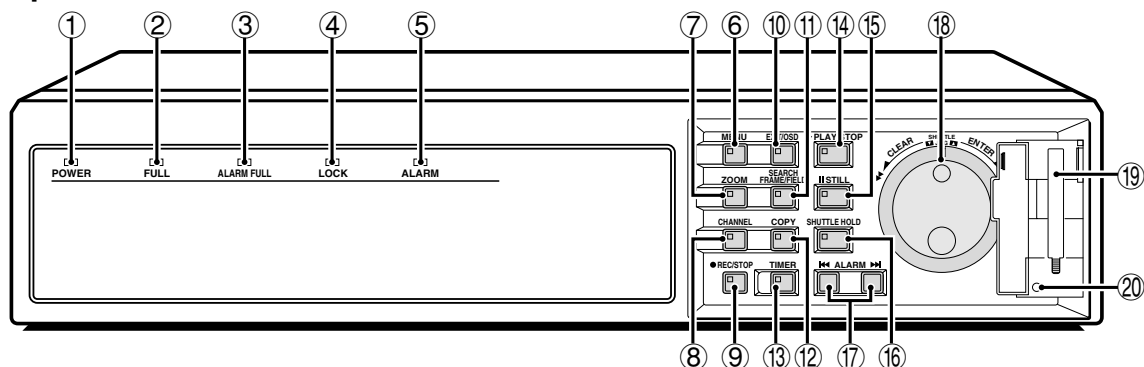
- These parts should generally be replaced after 2 years of use (for the hard disk) or 3 years of use (for the cooling fan) at normal temperatures of 25°C. These periods of time are intended as guides only, and are not a guarantee of product performance.

For important recordings

- Always check whether a recording has been recorded properly.
- In case a recording was not recorded properly with this unit because of faulty connections with other equipment or a correct playback is not possible, any claims for compensation will be declined.
- For important recordings, it is recommended to make a periodical backup copy for protection against loss from any malfunction or accident.

PART NAMES

■ Front panel



① POWER indicator

Illuminates when the power cord plug is inserted into a wall outlet.
Flashes when there is a problem with the hard disk or fan.

② FULL indicator

Flashes when the remaining space in the normal recording area of the hard disk drops to 1%*. (* This can be changed using the menu settings.)

③ ALARM FULL indicator

Flashes when the remaining space in the alarm recording area of the hard disk drops to 1%*. (* This can be changed using the menu settings.)

④ LOCK indicator

Illuminates when the security lock is engaged and operations are locked.

If a button is pressed while the lock is engaged, the buzzer sounds and the indicator illuminates.

⑤ ALARM indicator

Illuminates during pre-alarm recording.
Flashes during alarm recording.

⑥ MENU button and indicator

Used to display the menu screens (setting screens).

⑦ ZOOM button and indicator

Used to display the zoom screen during monitoring and playback.
The indicator illuminates when the zoom screen is displayed.

This does not operate when a multiplexer is connected digitally in series.

⑧ CHANNEL button and indicator

If the digital video recorder is connected to a Sanyo multiplexer that allows decoding of channel information (camera numbers), channels can be specified so that only those channels are played back. The indicator illuminates during playback. The **CHANNEL** button can only be used during still mode.

⑨ REC/STOP button and indicator

Use to start normal recording.

The indicator illuminates during recording.

If the button is pressed for 2 seconds or more during recording, recording stops and the indicator switches off.

⑩ EXIT/OSD button and indicator

- When a menu screen is displayed
The main menu or sub-menu is exited.

- During recording or playback

When the button is pressed during recording or playback, superimposed information such as time and date and alarm status changes in the following order:

Displayed at top-left → Displayed at bottom-left → Displayed at top-right → Displayed at bottom-right → Off.

The indicator illuminates while information is displayed.

⑪ SEARCH FRAME/FIELD button and indicator

- During recording or when stopped

When the button is pressed during recording or when the digital video recorder is stopped, the indicator illuminates and search playback is possible.

- During playback

When the button is pressed during playback, the indicator illuminates and the mode change to frame/field playback mode.

⑫ COPY button and indicator

Used to copy images to the archive area of the hard disk or to a CompactFlash card or microdrive.

The indicator illuminates during copying.

⑬ TIMER button and indicator

When the button is pressed when recording is stopped, the digital video recorder switches to timer recording standby mode, and when the setting time is reached, timer recording starts.

⑭ PLAY/STOP button and indicator

When the button is pressed, the indicator illuminates and playback of images in the normal recording area starts.

If pressed during playback, playback stops.

⑮ STILL button and indicator

When this button is pressed during playback, the indicator illuminates and playback pauses. If it is pressed again, playback resumes.

⑯ SHUTTLE HOLD button and indicator

This locks the speed for playback and frame advance.

The indicator illuminates while locked.

⑰ ALARM buttons (◀◀ ALARM ▶▶)

When these buttons are pressed during playback, playback skips to the previous or next alarm recording.

⑱ Jog (inner) and shuttle (outer) dials

- During playback

The jog dial changes the playback speed.

The shuttle dial fast-forwards and rewinds.

- Menu screens

The jog dial moves the cursor and changes settings.

The shuttle dial accepts settings.

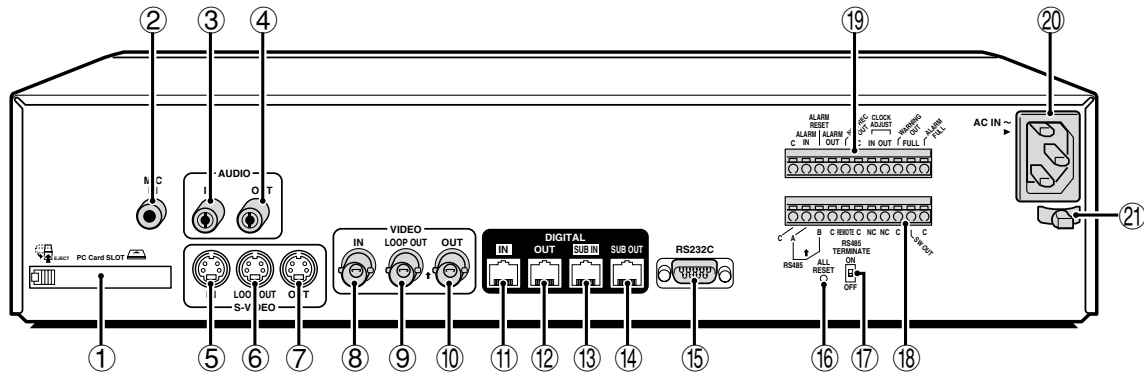
⑲ CompactFlash card slot

Insert a CompactFlash card or microdrive here.

⑳ MENU RESET button

Reinitializes menu settings.

■ Rear panel



① PC card slot

Connect a network card or SCSI card (sold separately) here.

② MIC IN terminal

③ AUDIO IN terminal

④ AUDIO OUT terminal

⑤ S-VIDEO IN terminal

⑥ S-VIDEO LOOP OUT terminal

⑦ S-VIDEO OUT terminal

⑧ VIDEO IN terminal

Images being input to the S-VIDEO IN terminal take priority.

⑨ VIDEO LOOP OUT terminal

⑩ VIDEO OUT terminal

⑪ DIGITAL VIDEO IN terminal

⑫ DIGITAL VIDEO OUT terminal

⑬ DIGITAL VIDEO SUB IN terminal

⑭ DIGITAL VIDEO SUB OUT terminal

⑮ RS-232C terminal

⑯ ALL RESET button

⑰ RS-485 termination switch

⑱ Control connector

Pin	Signal
C	Ground
A	RS-485 connector*
B	RS-485 connector*
C	Ground
REMOTE	Remote control input
C	Ground
NC	Spare
NC	Spare
C	Ground
SW OUT	Switching output
C	Ground

* Used for twisted-pair cable connection.

⑲ Alarm connector

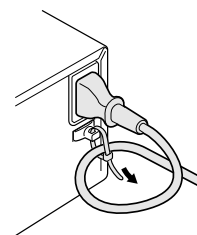
Pin	Signal
C	Ground
ALARM IN	Alarm input
ALARM RESET	Alarm reset input
ALARM OUT	Alarm output
NON REC OUT	Non-rec output
C	Ground
CLOCK ADJUST IN	Clock sync input (See page 41.)
CLOCK ADJUST OUT	Clock sync output (See page 41.)
WARNING OUT	Hard disk error warning output
FULL	Hard disk space warning output
ALARM OUT	Alarm recording area space warning output

⑳ AC power socket (AC IN~)

Securely insert the accessory power cord here.

㉑ Power cord holder

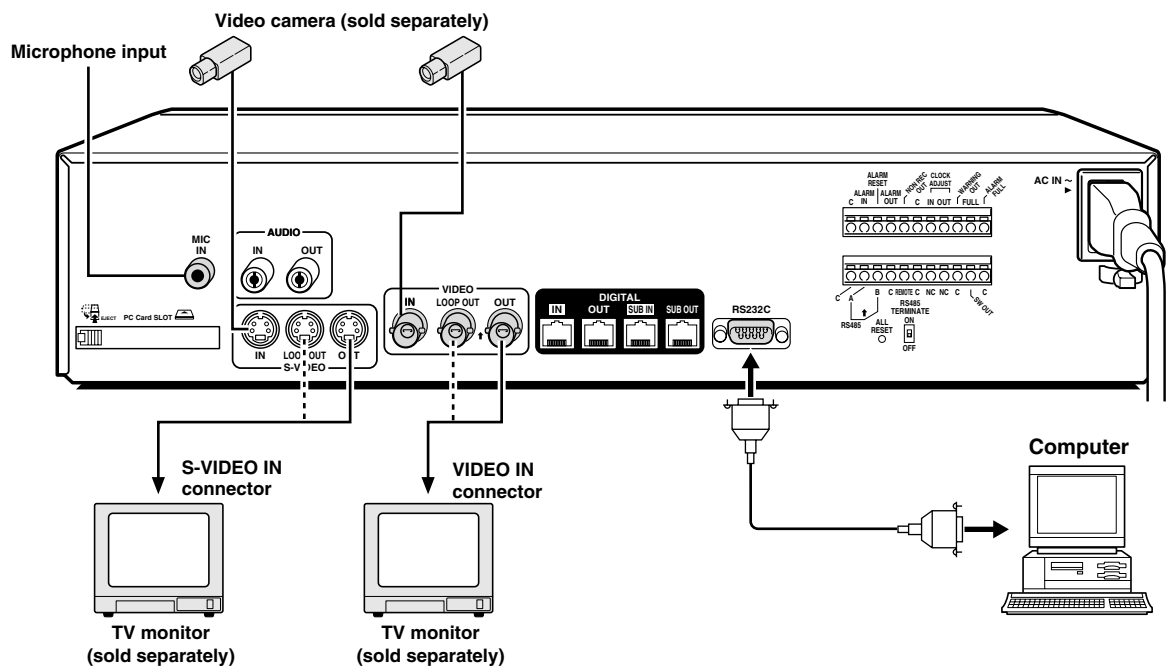
Secure the power cord to the holder using the accessory cord tie as shown in the illustration.



CONNECTIONS

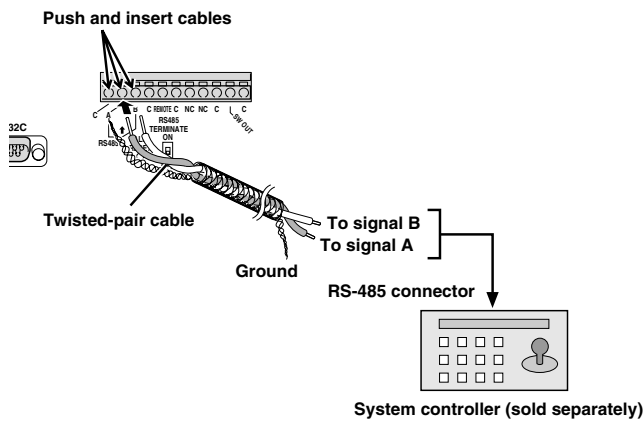
Be sure to carefully read the Instruction Manuals for all equipment being connected to the digital video recorder.
If the connections are incorrect, smoke or operating malfunctions may result.

Basic connections



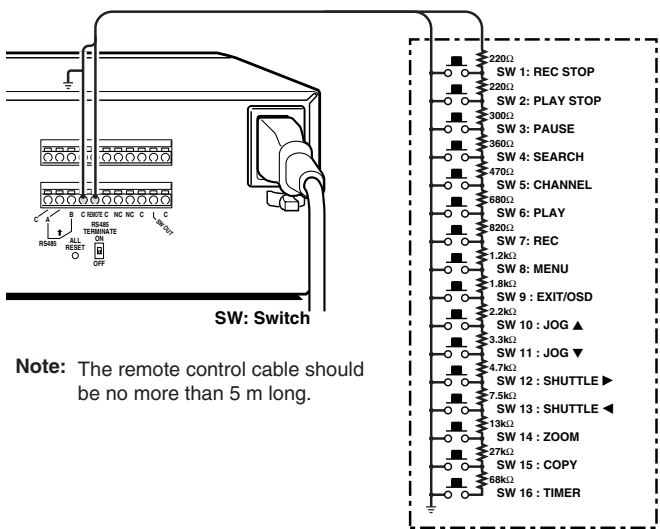
System control connections

Use a twisted-pair cable (sold separately) to connect a system controller to control terminals A, B and C (ground) of the digital video recorder. Connect signal A to signal A and signal B to signal B.



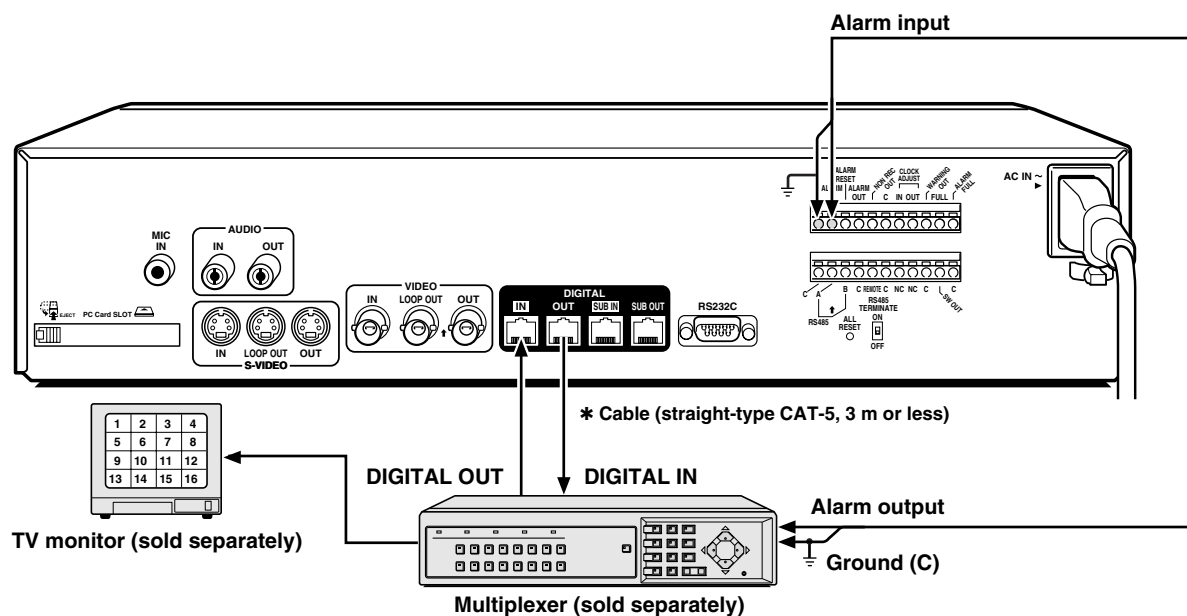
Connecting a remote control circuit

If a remote control circuit is constructed as shown in the illustration and connected to the REMOTE control input terminals of the control connector, the digital video recorder can be operated by remote control.



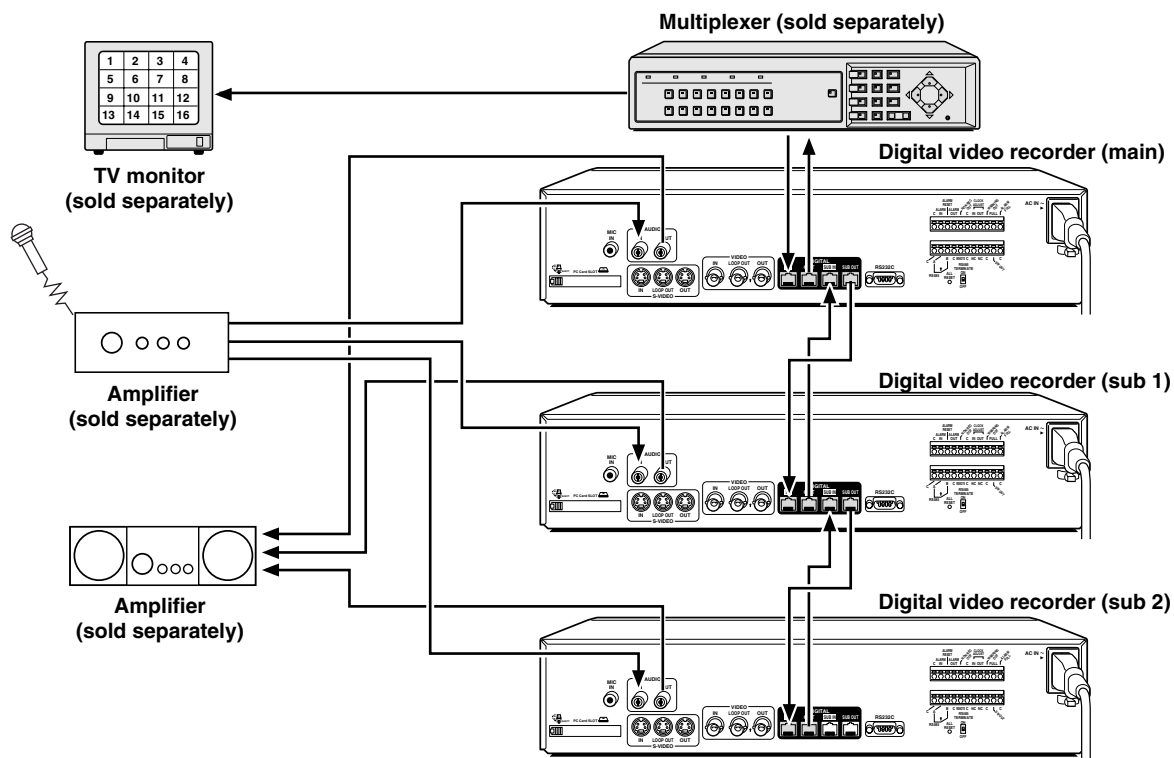
Digital multiplexer connections

Connect to a multiplexer (MPX-CD163P or CD93P) that allows digital connections.



Digital series connections

Up to three digital video recorders can be connected digitally for recording images in series.



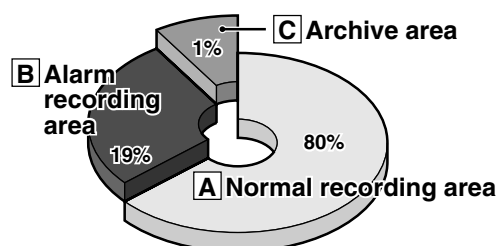
Note: When digital video recorders are connected digitally in series, the digital input and output terminals can be used to transmit video signals, control signals and switching signals. However audio signals cannot be transmitted in the same way, so if audio signals also need to be recorded, connect the audio input terminals via an amplifier as shown in the connection diagram.

BUILT-IN HARD DISK

■ Hard disk

Recording areas

The recording areas on the hard disk (normal recording area: 80%, alarm recording area: 19%, archive area: 1%) are established automatically when the power for the digital video recorder is turned on. Images are recorded in the normal recording area when the **REC/STOP** button is pressed, and they are recorded in the alarm recording area when an alarm occurs. This is called the default condition, and the following detailed settings can be confirmed in the sections on "**RECORDING IMAGES IN THE NORMAL RECORDING AREA**" and "**RECORDING IMAGES IN THE ALARM RECORDING AREA**" which are explained later. Furthermore, settings such as the recording areas and picture quality can be changed using the menu screens.



Hard disk recording areas

A Normal recording area

- When the **REC/STOP** button is pressed while monitoring is in progress, images are recorded in the normal recording area.
- When start and end times are entered for each day of the week and are then enabled, timer recording is automatically carried out in the normal recording area between the times that have been set.

B Alarm recording area

ALARM REC MODE SET menu settings are required.

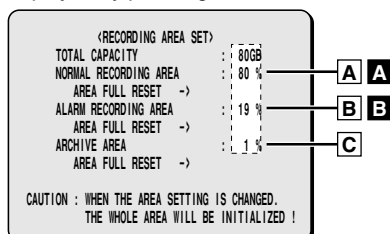
- Alarm recording is enabled when ALARM RECORDING is set. When a suspicious person is detected by the switch or motion sensor that is connected to the alarm input terminal, an alarm is recorded in the alarm recording area.
- Pre-alarm recording is enabled when PRE-ALARM RECORDING is set. Pre-alarm recording repeatedly records the same images as for normal recording in the alarm recording area, and overwrites these images after the set time interval, until an alarm is detected. When pre-alarm recording is set, the image immediately before an alarm occurred can be recorded.

C Archive area

This is the area for copying important images from the normal recording area and the alarm recording area. The size of the archive area can be set to a maximum of 12 GB (15% of total capacity when using an 80-GB hard disk) by changing the size of the normal recording area or the alarm recording area.

Menu screen (initial setting)

This can be displayed by pressing the **MENU** button.



① Picture quality: ENHANCED

Picture quality can be selected from five options.

The recording speed changes in accordance with the picture quality selected.

② Recording method: Can be set to FRAME or FIELD.

The recording speed changes in accordance with the method selected.

③ Audio recording: Can be set to ON or OFF.

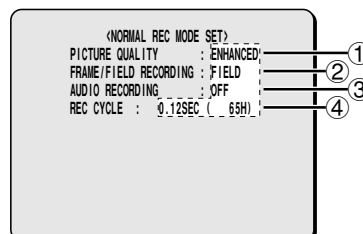
④ Recording speed: Shows the recording interval and the recording time.

Refer to the recording speed table for further details.

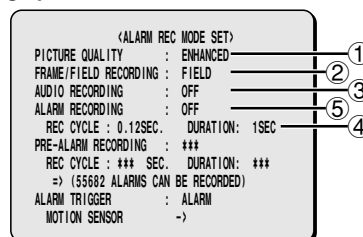
⑤ Alarm recording setting: Can be set to ON or OFF.

When alarm recordings are to be made, select a setting such as MODE1 for the OFF setting. The recording speed and alarm duration will be displayed

A Setting screen for normal recording area picture quality, recording speed, etc.



B Setting screen for alarm recording area picture quality, recording speed, etc.



BUILT-IN HARD DISK

■ Recording speed tables

These recording speed tables show the recording times for various picture quality and frame/field settings when recording in the normal recording area of the hard disk (80 GB). They do not include audio recording settings.

The setting times for the normal recording area and the alarm recording area represent the picture quality values given in the recording speed tables, multiplied by the percentages for the normal recording area and alarm recording area that have been set using the recording area setting menu commands.

■ When recording with an 80-GB hard disk at 100% capacity

Field recording

Recording Rate (field/sec)	Recording Cycle (SEC)	PICTURE QUALITY				
		BASIC	NORMAL	ENHANCED	FINE	SUPER FINE
		15 kB	22 kB	30 kB	42 kB	56 kB
50.00	0.02	25H	18H	13H	9H	7H
25.00	0.04	51H	36H	27H	19H	14H
16.67	0.06	76H	54H	40H	29H	22H
12.50	0.08	102H	72H	54H	39H	29H
8.33	0.12	153H	108H	81H	59H	44H
6.25	0.16	204H	144H	108H	78H	59H
5.00	0.20	255H	180H	135H	98H	74H
4.17	0.24	306H	217H	162H	118H	89H
3.57	0.28	357H	253H	189H	138H	104H
3.13	0.32	408H	289H	217H	157H	119H
2.78	0.36	459H	325H	244H	177H	134H
2.50	0.40	510H	361H	271H	197H	149H
2.27	0.44	561H	397H	298H	217H	164H
1.92	0.52	663H	470H	352H	256H	194H
1.67	0.60	765H	542H	406H	295H	224H
1.47	0.68	868H	614H	461H	335H	254H
1.32	0.76	970H	687H	515H	374H	284H
1.19	0.84	1072H	759H	569H	414H	314H
1.09	0.92	1174H	831H	623H	453H	344H
1.00	1	1276H	904H	678H	493H	374H
0.50	2	2553H	1808H	1356H	986H	748H
0.33	3	3829H	2712H	2034H	1479H	1122H
0.25	4	5106H	3616H	2712H	1972H	1496H
0.20	5	6382H	4521H	3390H	2466H	1870H
0.10	10	12765H	9042H	6781H	4932H	3741H
0.05	20	25531H	18084H	13563H	9864H	7483H
0.03	30	38296H	27126H	20345H	14796H	11224H

Frame recording

Recording Rate (frame/sec)	Recording Cycle (SEC)	PICTURE QUALITY				
		BASIC	NORMAL	ENHANCED	FINE	SUPER FINE
		15 kB	22 kB	30 kB	42 kB	56 kB
25.00	0.04	25H	18H	13H	9H	7H
12.50	0.08	51H	36H	27H	19H	14H
8.33	0.12	76H	54H	40H	29H	22H
6.25	0.16	102H	72H	54H	39H	29H
4.17	0.24	153H	108H	81H	59H	44H
3.13	0.32	204H	144H	108H	78H	59H
2.50	0.40	255H	180H	135H	98H	74H
2.08	0.48	306H	217H	162H	118H	89H
1.79	0.56	357H	253H	189H	138H	104H
1.56	0.64	408H	289H	217H	157H	119H
1.39	0.72	459H	325H	244H	177H	134H
1.25	0.80	510H	361H	271H	197H	149H
1.14	0.88	561H	397H	298H	217H	164H
0.96	1.04	663H	470H	352H	256H	194H
0.83	1.20	765H	542H	406H	295H	224H
0.74	1.36	868H	614H	461H	335H	254H
0.66	1.52	970H	687H	515H	374H	284H
0.60	1.68	1072H	759H	569H	414H	314H
0.54	1.84	1174H	831H	623H	453H	344H
0.50	2	1276H	904H	678H	493H	374H
0.25	4	2553H	1808H	1356H	986H	748H
0.17	6	3829H	2712H	2034H	1479H	1122H
0.13	8	5106H	3616H	2712H	1972H	1496H
0.10	10	6382H	4521H	3390H	2466H	1870H
0.05	20	12765H	9042H	6781H	4932H	3741H
0.03	40	25531H	18084H	13563H	9864H	7483H
0.02	60	38296H	27126H	20345H	14796H	11224H

The tables below are recording speed tables provided for reference if the total capacity of the hard disk has been increased to 160 GB. Contact the place of purchase for details on increasing the capacity of the hard disk.

■ When recording with a 160-GB hard disk at 100% capacity

Field recording

Recording Rate (field/sec)	Recording Cycle (SEC)	PICTURE QUALITY				
		BASIC	NORMAL	ENHANCED	FINE	SUPER FINE
		15 kB	22 kB	30 kB	42 kB	56 kB
50.00	0.02	51H	36H	27H	19H	14H
25.00	0.04	102H	72H	54H	39H	29H
16.67	0.06	153H	108H	81H	59H	44H
12.50	0.08	204H	144H	108H	78H	59H
8.33	0.12	306H	217H	162H	118H	89H
6.25	0.16	408H	289H	217H	157H	119H
5.00	0.20	510H	361H	271H	197H	149H
4.17	0.24	612H	434H	325H	236H	179H
3.57	0.28	714H	506H	379H	276H	209H
3.13	0.32	816H	578H	434H	315H	239H
2.78	0.36	919H	651H	488H	355H	269H
2.50	0.40	1021H	723H	542H	394H	299H
2.27	0.44	1123H	795H	596H	434H	329H
1.92	0.52	1327H	940H	705H	512H	389H
1.67	0.60	1531H	1085H	813H	591H	448H
1.47	0.68	1736H	1229H	922H	670H	508H
1.32	0.76	1940H	1374H	1030H	749H	568H
1.19	0.84	2144H	1519H	1139H	828H	628H
1.09	0.92	2348H	1663H	1247H	907H	688H
1.00	1	2553H	1808H	1356H	986H	748H
0.50	2	5106H	3616H	2712H	1972H	1496H
0.33	3	7659H	5425H	4069H	2959H	2244H
0.25	4	10212H	7233H	5425H	3945H	2993H
0.20	5	12765H	9042H	6781H	4932H	3741H
0.10	10	25531H	18084H	13563H	9864H	7483H
0.05	20	51062H	36168H	27126H	19728H	14966H
0.03	30	76593H	54253H	40690H	29592H	22449H

Frame recording

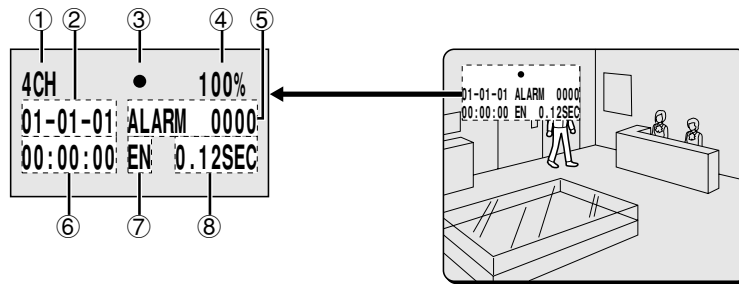
Recording Rate (frame/sec)	Recording Cycle (SEC)	PICTURE QUALITY				
		BASIC	NORMAL	ENHANCED	FINE	SUPER FINE
		15 kB	22 kB	30 kB	42 kB	56 kB
25.00	0.04	51H	36H	27H	19H	14H
12.50	0.08	102H	72H	54H	39H	29H
8.33	0.12	153H	108H	81H	59H	44H
6.25	0.16	204H	144H	108H	78H	59H
4.17	0.24	306H	217H	162H	118H	89H
3.13	0.32	408H	289H	217H	157H	119H
2.50	0.40	510H	361H	271H	197H	149H
2.08	0.48	612H	434H	325H	236H	179H
1.79	0.56	714H	506H	379H	276H	209H
1.56	0.64	816H	578H	434H	315H	239H
1.39	0.72	919H	651H	488H	355H	269H
1.25	0.80	1021H	723H	542H	394H	299H
1.14	0.88	1123H	795H	596H	434H	329H
0.96	1.04	1327H	940H	705H	512H	389H
0.83	1.20	1531H	1085H	813H	591H	448H
0.74	1.36	1736H	1229H	922H	670H	508H
0.66	1.52	1940H	1374H	1030H	749H	568H
0.60	1.68	2144H	1519H	1139H	828H	628H
0.54	1.84	2348H	1663H	1247H	907H	688H
0.50	2	2553H	1808H	1356H	986H	748H
0.25	4	5106H	3616H	2712H	1972H	1496H
0.17	6	7659H	5425H	4069H	2959H	2244H
0.13	8	10212H	7233H	5425H	3945H	2993H
0.10	10	12765H	9042H	6781H	4932H	3741H
0.05	20	25531H	18084H	13563H	9864H	7483H
0.03	40	51062H	36168H	27126H	19728H	14966H
0.02	60	76593H	54253H	40690H	29592H	22449H

Reference: 24H = 1 day, 168H = 1 week, 720H = 1 month, 8760H = 1 year

BUILT-IN HARD DISK

■ Operating display

When the power for the digital video recorder is turned on, the operating display appears in the upper-left corner of the monitor screen. This operating display shows information which is essential for operation, such as the date, time, picture quality and recording speed.



① Camera number display

Connect the digital video recorder to a multiplexer that is capable of decoding Sanyo's channel information (camera number) and press the **CHANNEL** button. The number of the specified camera appear in the display during playback.

② Date display

When the digital video recorder is first turned on, the date appears as 01-01-01 (day, month, year). Make sure that you use the menus to set the correct date.

③ Operating symbol display

These symbols appear during recording and playback.

- | | | | |
|---|--------------------|----|-------------------------|
| ● | : Recording | ▶▶ | : Fast forward |
| ▶ | : Playback | ◀◀ | : Rewind |
| ◀ | : Reverse playback | | : Stopped |
| ▶ | : Slow playback | ◀ | : Slow reverse playback |

Note: If recording and playback are being carried out at the same time, the playback symbol (▶) appears.

④ Amount of recording area remaining

If overwriting has been disabled (OVERWRITE: OFF) in the normal recording area or alarm recording area, the amount of space remaining appears as a percentage. You can change the amount of recording area remaining using the RECORDING CONDITIONS SET menu item. (See page 45.)

⑤ Alarm display and alarm number display

When an alarm setting is made using the ALARM REC MODE SET menu item, The following display appears in the alarm display.

However, the PRE display appears when pre-alarm recording has been set. When an alarm occurs, the PRE is replaced by ALARM and the number of alarms also appears. The alarm display shows the cumulative number of alarms.

- If ALARM RECORDING is set: ALARM appears.
ALARM flashes while an alarm is being recorded.
- If PRE-ALARM RECORDING is set: PRE appears.
- When playing images from the archive area: ARCHIV appears.

⑥ Time display

When the digital video recorder is first turned on, the time appears as 00:00:00, and the time starts counting after the date has been set. The digital video recorder uses the date and time to control recording and playback, so if the date and time have not been set, the correct images cannot be retrieved. Make sure that you use the menus to set the correct time.

⑦ Picture quality display

This shows the picture quality for images that are recorded on the hard disk. The default setting is EN (Enhanced). The display changes when the picture quality is changed using the NORMAL REC MODE SET menu item.

- **BA:** Basic
- **NO:** Normal
- **EN:** Enhanced
- **FI:** Fine
- **SF:** Super Fine

⑧ Recording speed display

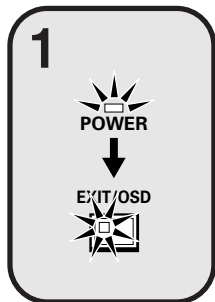
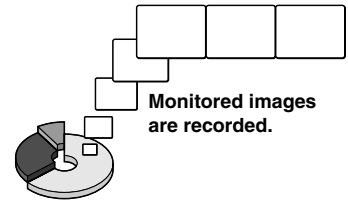
This displays the recording speed for images that are recorded on the hard disk. The default setting is 0.12 SEC (during field recording). The display changes when the picture quality and recording method are changed using the NORMAL REC MODE SET menu item.

Note: During recording with this unit, playing back, copying and transferring pictures is possible. However, because of the recording priority the response of the other operations becomes slower.

RECORDING IMAGES IN THE NORMAL RECORDING AREA

■ Normal recording

Images can be recorded in the normal recording area while they are being monitored.

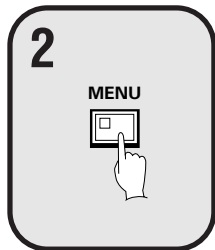
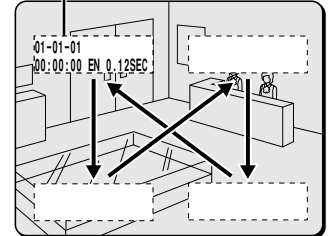


Insert the power cord into a wall outlet and turn on the power.

The POWER indicator illuminates, and after approximately 15 seconds, the EXIT/OSD indicator illuminates. The camera images appear on the monitor, and the operating display appears in the top-left corner of the screen.

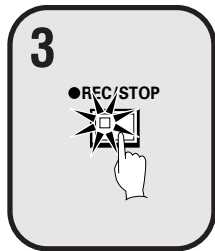
Note: The operating display can be moved or switched off by pressing the **EXIT/OSD** button repeatedly.
See page 11 for details of the operating display.

Operating display



Setting the time

Press the **MENU** button to display the LANGUAGE/CLOCK SET menu, and set the date and time. After the setting has been made, press the **EXIT/OSD** button, the date and time appear in the operating display. (See page 40.)

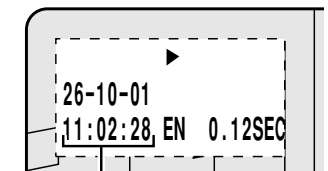
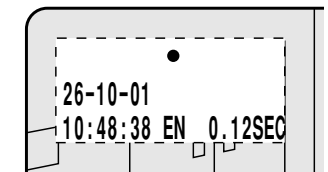


Press the REC/STOP button.

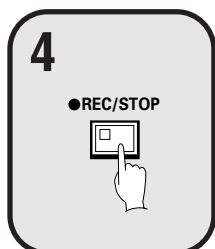
"●" appears in the operating display and the images being monitored are recorded in the normal recording area. Recording onto the hard disk proceeds automatically (default setting) according to the following settings. The settings can be changed between long-period recording and high-quality recording in five steps. (See page 47.)

- Hard disk recording areas:
Normal recording area: 80%
Alarm recording area: 19%
Archive area: 1%
- Picture quality: EN (Enhanced)
- Recording method: Field
- Recording speed: 0.12 seconds (65H)

Note: Playback is possible during recording. When the **PLAY/STOP** button is pressed during recording, "▶" appears in the operating display and images are played back from the point where recording began. (See page 19.)



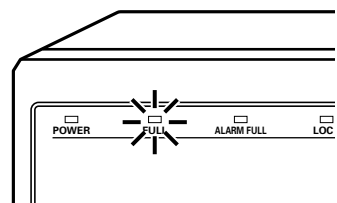
Recording start time



Press and hold the REC/STOP button for 3 seconds or more.

The "●" in the operating display disappears and recording stops.

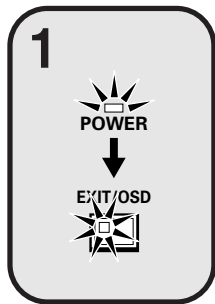
Note: When the remaining area in the normal recording area drops below the set amount, the FULL indicator on the front panel flashes. If recording continues under these conditions, the recording area becomes full and recording stops. In the RECORDING AREA SET settings, carry out the AREA FULL RESET operation for the normal recording area. Recording will then be possible from the beginning again. (See page 44.)



RECORDING IMAGES IN THE NORMAL RECORDING AREA

■ Timer recording

The monitored images can be recorded automatically by setting start and end times for each day of the week.

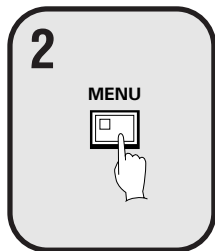
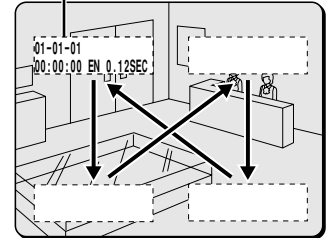


Insert the power cord into a wall outlet and turn on the power.

The POWER indicator illuminates, and after approximately 15 seconds, the EXIT/OSD indicator illuminates. The camera images appear on the monitor, and the operating display appears in the top-left corner of the screen.

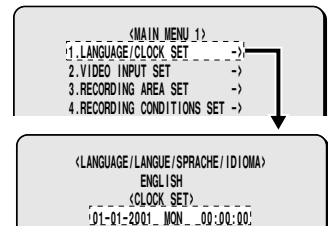
Note: The operating display can be moved or switched off by pressing the **EXIT/OSD** button repeatedly.
See page 11 for details of the operating display.

Operating display



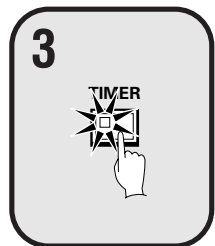
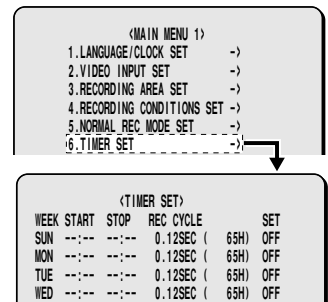
① Setting the time

Press the **MENU** button to display the LANGUAGE/CLOCK SET menu, and set the date and time. After the setting has been made, press the **EXIT/OSD** button, the date and time appear in the operating display. (See page 40.)



② Set the timer.

Press the **MENU** button to display the TIMER SET menu, and then set the start and end times for timer recording. (See page 48.)
Then press the **EXIT/OSD** button.

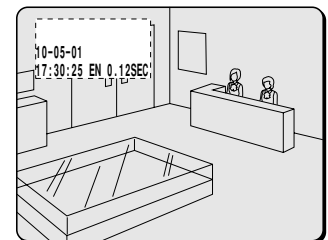


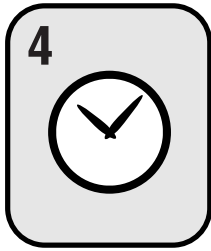
Press the TIMER button.

The TIMER indicator illuminates and the digital video recorder switches to timer recording standby mode.

Note:

- If SET in the TIMER SET menu is not set to "ON", or if the timer settings are not made correctly, an alarm will sound when the **TIMER** button is pressed.
- The TIMER indicator illuminates when the timer setting has been made correctly.
- When the timer setting time is reached, the TIMER indicator and the REC indicator illuminate and timer recording starts.
- If you press the **TIMER** button during timer recording, the TIMER indicator and the REC indicator switch off and timer recording stops.



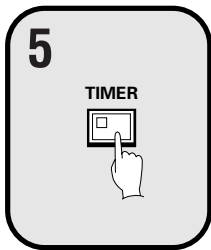
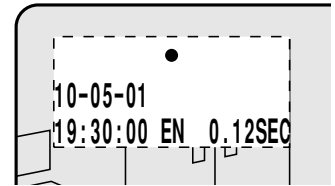


Timer recording starts when the timer setting time is reached.

“●” appears in the operating display and the images being monitored are recorded in the normal recording area. Recording onto the hard disk proceeds automatically (default setting) according to the following settings. The settings can be changed between long-period recording and high-quality recording in five steps. (See page 47.)

- Hard disk recording areas:
Normal recording area: 80%
Alarm recording area: 19%
Archive area: 1%
- Picture quality: EN (Enhanced)
- Recording method: Field
- Recording speed: 0.12 seconds (65H)

Note: Playback is possible during recording. When the **PLAY/STOP** button is pressed during recording, ► appears in the operating display and images are played back from the point where recording began. (See page 19.)

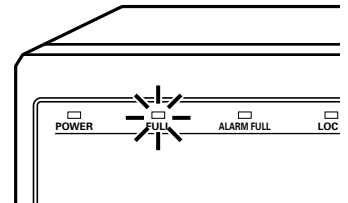


Timer recording stops when the set end time is reached.

The **TIMER** indicator swithes off and the recording symbol (●) disappears from the operating display and recording stops.

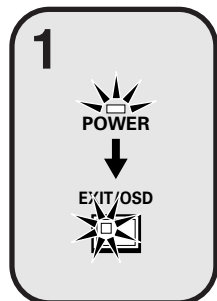
Note:

- Press the **TIMER** button to stop timer recording. Timer recording then stops.
- When the remaining area in the normal recording area drops below the set amount, the **FULL** indicator on the front panel flashes. If recording continues under these conditions, the recording area becomes full and recording stops. In the **RECORDING AREA SET** settings, carry out the **AREA FULL RESET** operation for the normal recording area. Recording will then be possible from the beginning again. (See page 44.)



RECORDING IMAGES IN THE ALARM RECORDING AREA

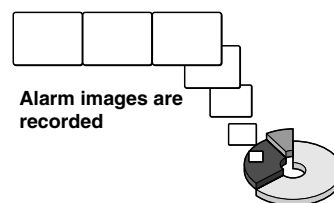
Alarm recording



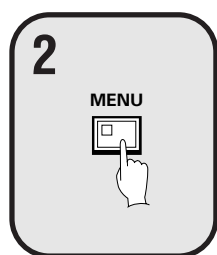
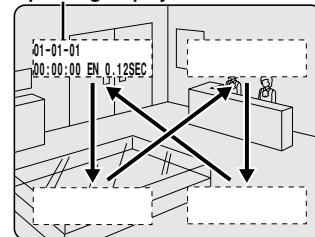
Insert the power cord into a wall outlet and turn on the power.

The POWER indicator illuminates, and after approximately 15 seconds, the EXIT/OSD indicator illuminates. The camera images appear on the monitor, and the operating display appears in the top-left corner of the screen.

Note: The operating display can be moved or switched off by pressing the EXIT/OSD button repeatedly.
See page 11 for details of the operating display.



Operating display



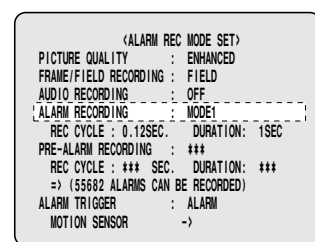
① Setting the time

Press the **MENU** button to display the LANGUAGE/CLOCK SET menu, and set the date and time. After the setting has been made, press the **EXIT/OSD** button, the date and time appear in the operating display. (See page 40.)



② Set alarm recording.

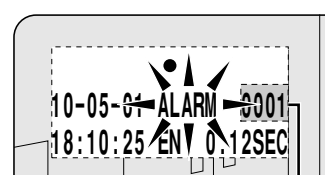
- Press the **MENU** button to display the ALARM REC MODE SET menu from the MAIN MENU screen. Then change the ALARM RECORDING setting to the desired alarm recording setting (MODE1, 2, 3 or 4) and change the ALARM TRIGGER setting. (See page 52 – 54.)
- Press the **MENU** button, to display the BUZZER SET menu from the MAIN MENU 2 screen, and change the ALARM setting to "ON". (See page 60.)
- Press the **EXIT/OSD** button to return to the normal screen.



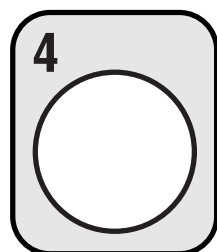
Suspicious person detection

When an alarm occurs, "ALARM" appears in the operating display, the ALARM indicator flashes and alarm recording (● symbol) starts. Alarm images are recorded in the alarm recording area. Furthermore, the number of alarms in the operating display is increased by one each time an alarm occurs.

Note: Normal recording and timer recording stop when an alarm occurs during normal recording or timer recording.



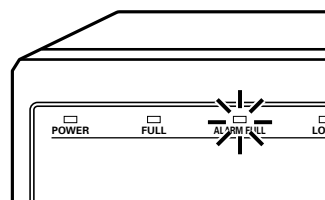
The number of alarms is counted.



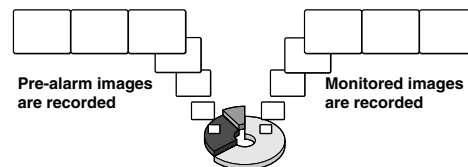
Ending alarm recording

Recording ends after the end of the alarm duration period (default setting: 1 sec). The "●" and ALARM displays stop flashing and recording stops.

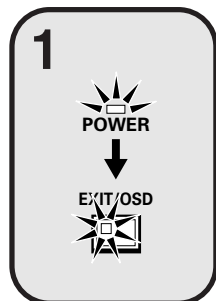
Note: When the remaining area in the alarm recording area reaches 1%, the ALARM FULL indicator on the front panel flashes. If recording is continued under these conditions, the recording area is filled and the recording stops. In the RECORDING AREA SET settings, carry out the AREA FULL RESET operation for the alarm recording area. Overwriting will be canceled and recording will be possible from the beginning again. (See page 44.)



RECORDING IMAGES IN THE ALARM RECORDING AREA



■ Pre-alarm recording

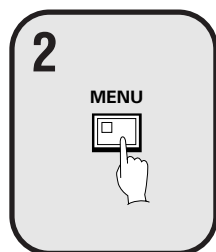
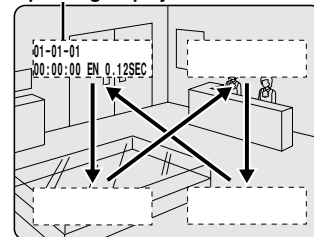


Insert the power cord into a wall outlet and turn on the power.

The POWER indicator illuminates, and after approximately 15 seconds, the EXIT/OSD indicator illuminates. The camera images appear on the monitor, and the operating display appears in the top-left corner of the screen.

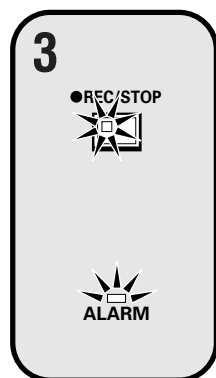
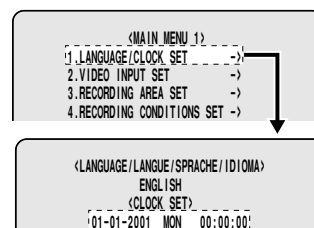
Note: The operating display can be moved or switched off by pressing the **EXIT/OSD** button repeatedly. See page 11 for details of the operating display.

Operating display



Setting the time

Press the **MENU** button to display the LANGUAGE/CLOCK SET menu, and set the date and time. After the setting has been made, press the **EXIT/OSD** button, the date and time appear in the operating display. (See page 40.)



Set pre-alarm recording.

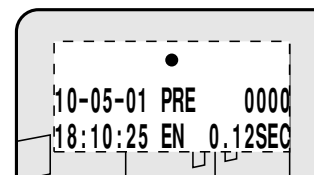
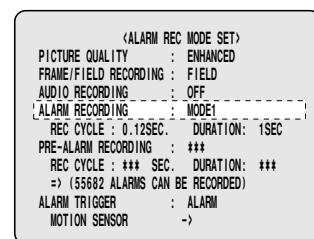
Press the **MENU** button to display the ALARM REC MODE SET menu. Set ALARM RECORDING to the desired alarm recording setting (example: MODE1). The *** setting for PRE-ALARM RECORDING will be set to "OFF", so change it to "ON". (See page 54.)

Press the **EXIT/OSD** button to return to the normal screen. "PRE" appears in the operating display, the ALARM indicator illuminates and pre-alarm recording starts (the ● mark does not appear).

The same monitored image as in the normal recording area is recorded repeatedly in the alarm recording area.

Recording onto the hard disk proceeds automatically (default setting) according to the following settings. The settings can be changed between long-period recording and high-quality recording in five steps. (See page 47.)

- Hard disk recording areas:
 - Normal recording area: 80%
 - Alarm recording area: 19%
 - Archive area: 1%
- Picture quality: EN (Enhanced)
- Recording method: Field
- Recording speed: 0.12 seconds (65H)



RECORDING IMAGES IN THE ALARM RECORDING AREA



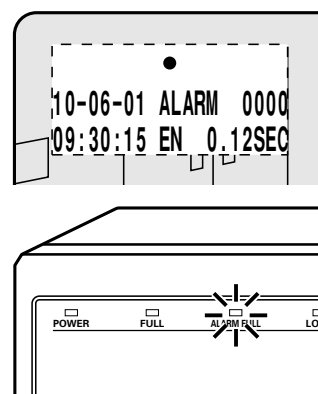
When an alarm is received, pre-alarm recording stops automatically and the alarm images are recorded.

The “PRE” disappears from the operating display, “ALARM” flashes and the ALARM indicator flashes.

Note: When the remaining area in the alarm recording area reaches 1%, the ALARM FULL indicator on the front panel flashes. If recording is continued under these conditions, the recording area is filled and the recording stops.

In the RECORDING AREA SET settings, carry out the AREA FULL RESET operation for the normal recording area.

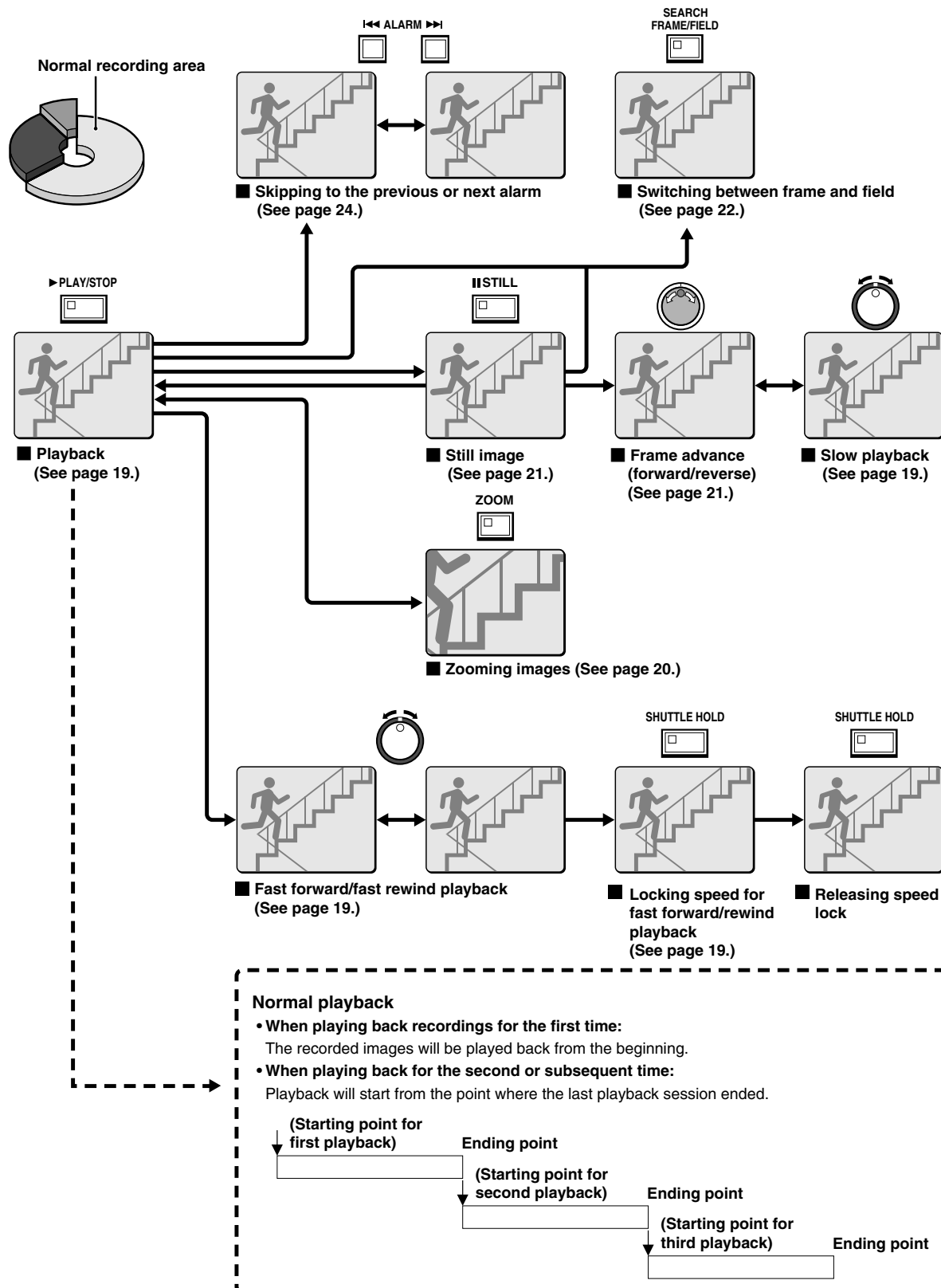
Recording will then be possible from the beginning again. (See page 44.)



PLAYING BACK IMAGES RECORDED IN THE NORMAL RECORDING AREA

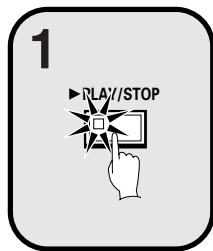
The digital video recorder can play back recorded images in the normal recording area (normal recording, timer recording).

Playback operations



PLAYING BACK IMAGES RECORDED IN THE NORMAL RECORDING AREA

Playback

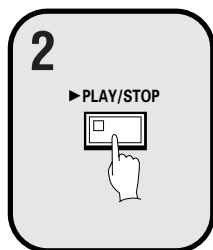
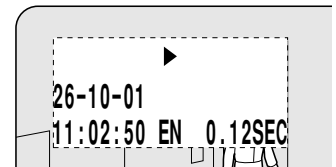


Press the PLAY/STOP button.

▶ appears in the operating display and the images recorded in the normal recording area are played back.

Note:

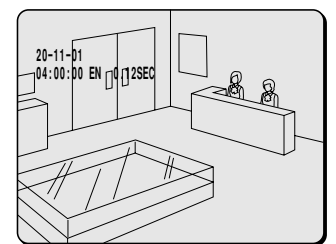
- Image playback starts from the point (time) that the recording started. If there is no starting position, or if a reset has been made, the oldest recorded image is played back.
- When playback is finished, playback mode is automatically paused. The pause (||) symbol appears in the operating display and the STILL indicator illuminates.
- If playback has been carried out at least once, playback will start from the position where the last playback session ended.



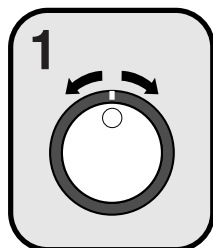
Press the PLAY/STOP button again.

Playback stops.

Note: If playback is started just as recording is being carried out, recording will have priority, so that the playback images may be paused momentarily.

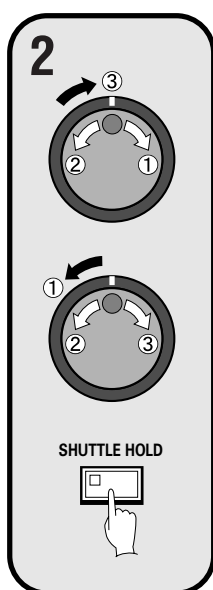
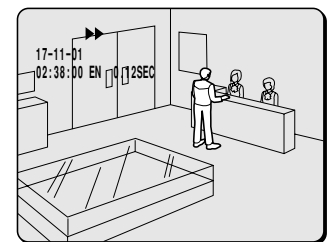


Fast forward/rewind playback



Turn the shuttle dial clockwise (or counterclockwise) during playback.

When the shuttle dial is turned clockwise, ►► appears in the operating display and fast forward playback starts. If it is turned counterclockwise, ◀◀ appears in the operating display and rewind playback starts. When you release the shuttle dial, normal playback resumes.



Changing the playback speed

(Fast forward/slow playback)

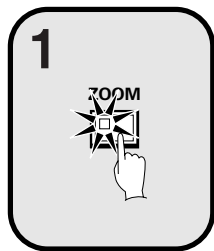
- ① Turn the jog dial clockwise.
Fast forward playback starts and ►► appears in the operating display.
- ② Turn the jog dial counterclockwise.
Slow playback starts and ||► appears in the operating display.
- ③ Return to normal playback.
Turn the jog dial clockwise. ► appears in the operating display.

(Rewind/slow playback)

- ① Turn the shuttle dial counterclockwise (fix at rewind).
◀ will be displayed, so press the **SHUTTLE HOLD** button. The SHUTTLE HOLD indicator will illuminate and the rewind playback speed will be fixed at the current speed.
- ② Turn the jog dial counterclockwise.
The speed becomes faster than for normal rewind playback, and ◀◀ appears in the operating display.
- ③ Turn the jog dial clockwise.
Slow rewind playback starts and ◀|| appears in the operating display.
- ④ Return to normal playback.
Turn the jog dial counterclockwise. ► appears in the operating display.

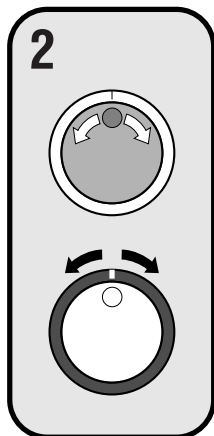
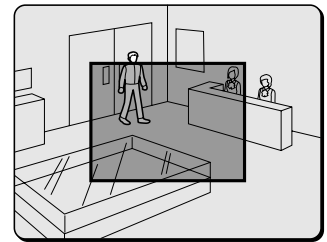
PLAYING BACK IMAGES RECORDED IN THE NORMAL RECORDING AREA

Zooming the image during playback



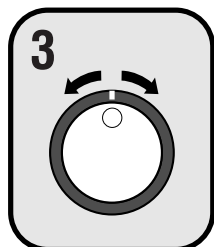
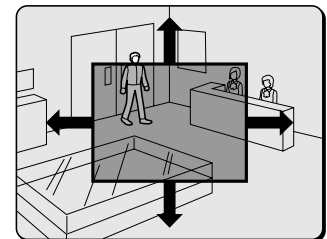
Press the ZOOM button during playback.

The zoom frame (blue) appears in the center of the screen.



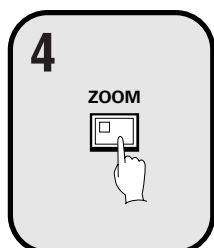
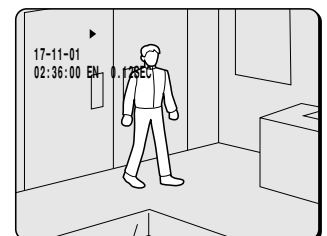
Move the zoom frame to the position where the image is to be enlarged.

- Turn the jog dial clockwise to move the zoom frame to the right. Turn it counterclockwise to move the zoom frame to the left.
- Turn the shuttle dial clockwise to change to vertical movement. Then turn the jog dial clockwise to move the zoom frame upward and turn it counterclockwise to move the zoom frame downward. Move the zoom frame to the position to be enlarged.



Turn the shuttle dial.

The area inside the zoom frame is enlarged (2x).

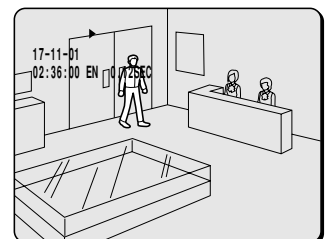


Press the ZOOM button (to cancel zooming).

The image zooming is canceled and normal playback continues.

Note:

- The display cannot be enlarged even while monitoring a camera image.
- The **ZOOM** button cannot be selected, when a multiplexer is used as a video input.
- The picture quality becomes coarser when the image is zoomed.



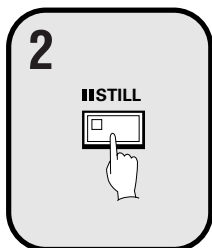
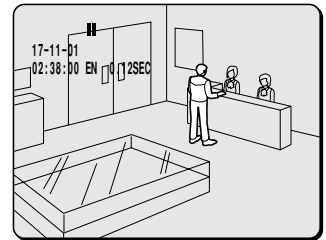
PLAYING BACK IMAGES RECORDED IN THE NORMAL RECORDING AREA

Viewing still images



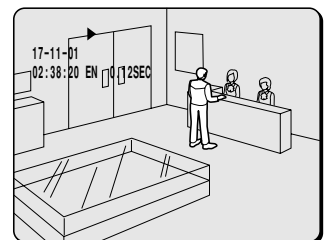
Press the STILL button during playback.

|| appears in the operating display and a still image is displayed.

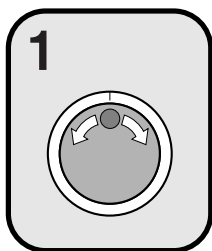


Press the STILL button once more.

Still mode is canceled.



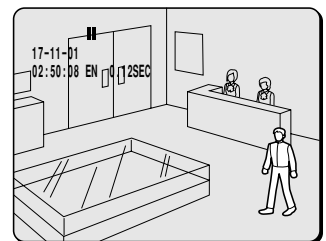
Frame advance (forward/reverse)



Turn the jog dial clockwise (or counterclockwise) in still mode.

Turn the jog dial clockwise to advance the still image by one frame (one field). Turn it counterclockwise to rewind the still image by one frame (one field).

Note: If the jog dial is turned quickly, the frame feed speed also increases.



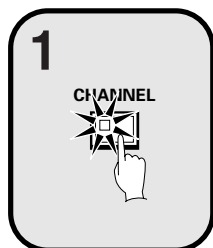
During the following operations the picture may appear distorted or momentarily frozen. This is normal and not a malfunction.

- During the continuous playback from the normal and the alarm recording area, the picture may be distorted when the recording area is switched.
- When playing back during an alarm recording, during continuous playback from the normal and alarm recording area, during normal playback or when using the fast forward/rewind playback the picture may appear momentarily frozen.

PLAYING BACK IMAGES RECORDED IN THE NORMAL RECORDING AREA

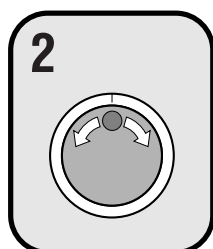
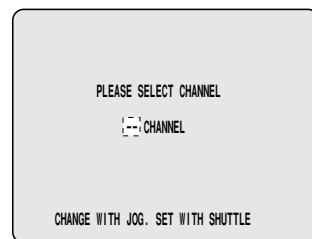
Selecting a camera image channel for playback

When the digital video recorder has been connected to a multiplexer (sold separately) and camera images have been recorded, you can specify the channel (camera number) for the images recorded and play them back.

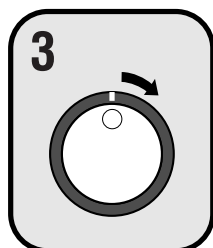
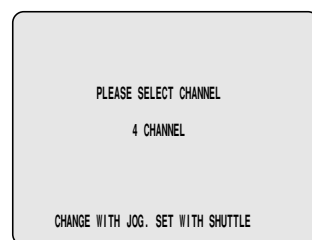


Press the CHANNEL button while playback is paused.

The screen for selecting the camera number for cameras connected to the multiplexer appears.



Use the jog dial to specify the channel (example: camera 4).

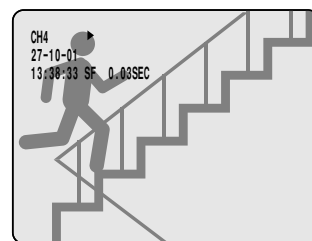


Turn the shuttle dial clockwise.

"▶" appears in the operating display, and playback of images from the specified channel starts.

Note:

- If the digital video recorder is not connected to a multiplexer that allows decoding of channel information (camera numbers), channels can not be specified for playback.
- When this operation is carried out, only the specified channel is played back, and so other channels are not displayed.
- When a channel is selected, the multiplexer title information and date information may not be fully displayed in some cases.



Switching between frame and field playback



Press the SEARCH FRAME/FIELD button while frame recording images are being played back.

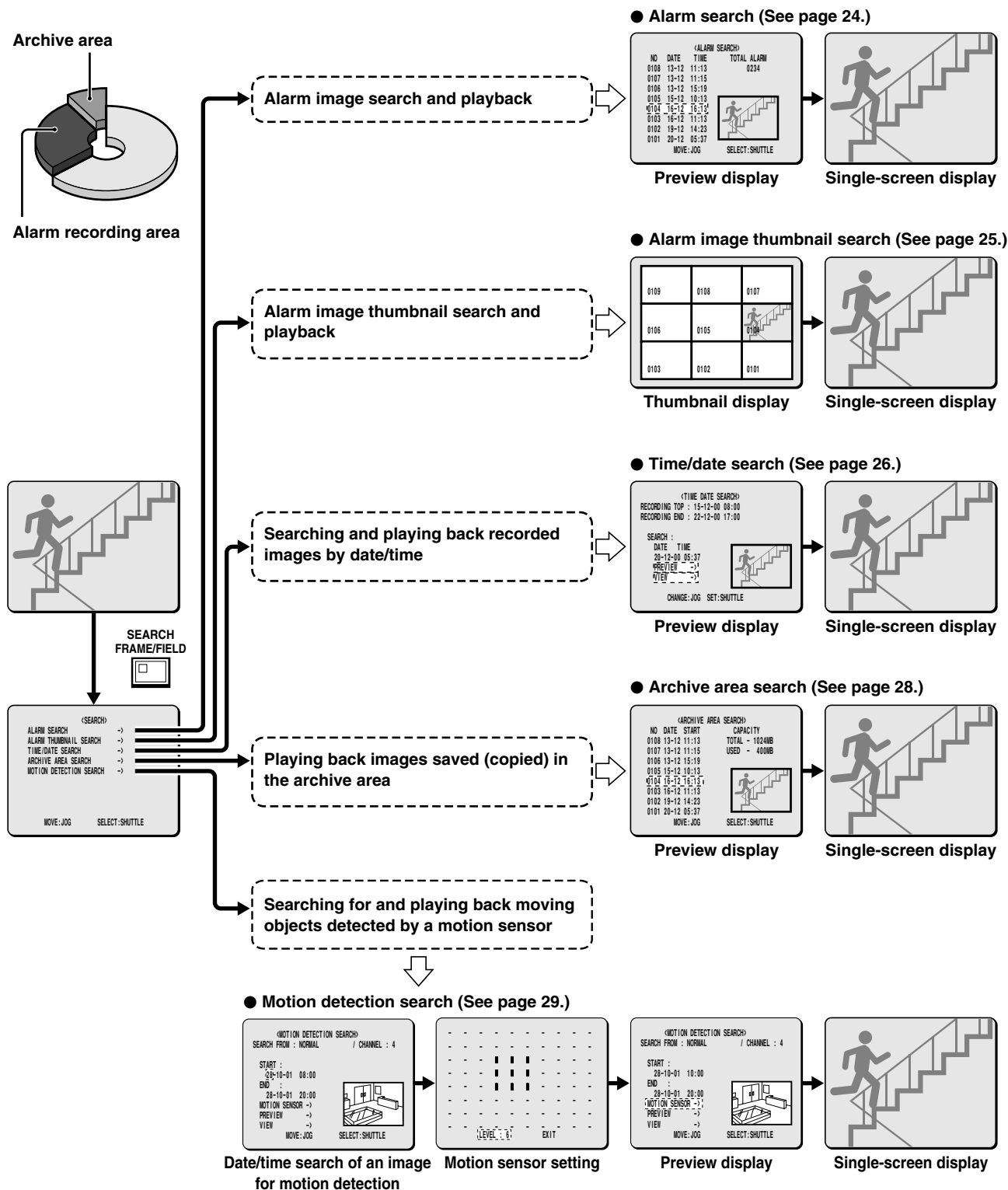
The screen changes between frame and field playback each time the button is pressed.

Note:

- Switching between frame and field playback is only possible when images that have been recorded in frame mode are being played back.
- When playing back of frame recording images that contain rapid movement, instability may occur in the images.

SEARCHING FOR RECORDED IMAGES

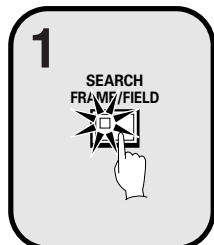
Images that have been recorded in the alarm recording area and in the archive area can be played back. Furthermore, images can also be searched for by recording date and time, and you can also search for moving objects that have been detected by a motion sensor during image playback.



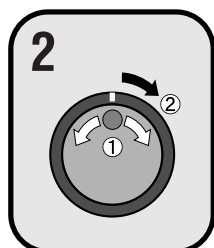
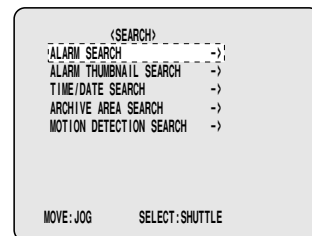
SEARCHING FOR RECORDED IMAGES

Alarm search

All alarm recording images in the alarm recording area can be searched for and played back. If pre-alarm images have is recorded, the images immediately before the alarms can also be played back.

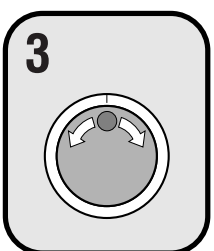
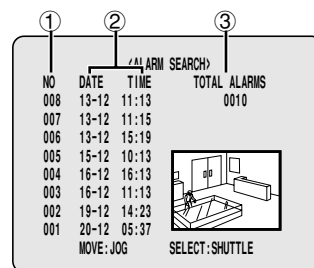


Press the SEARCH FRAME/FIELD button during recording or when the digital video recorder is stopped.
The SEARCH screen appears.



Use the jog dial to select ALARM SEARCH and then turn the shuttle dial clockwise.
The ALARM SEARCH screen appears.

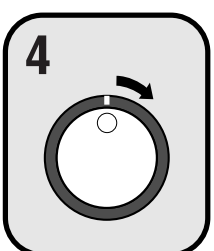
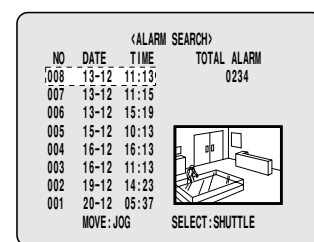
- ① **NO:** Alarm number appears.
- ② **DATE/TIME:** The date and time that the alarm was received and the images were recorded appears.
- ③ **TOTAL ALARM:** The total number of alarm images recorded appears.



Use the jog dial to move the cursor in order to select the images to be played back.
The selected alarm image appears in the preview screen.

Note:

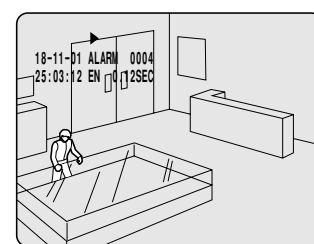
- Up to eight items of alarm information can be displayed on the ALARM SEARCH screen. When the jog dial is turned, the previous or next alarm information screen appears.
- To end this search mode, press the **SEARCH FRAME/FIELD** button.



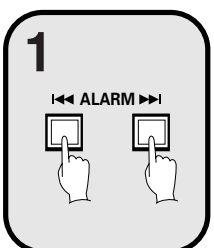
Turn the shuttle dial clockwise.
The preview image appears in a single-screen display and playback starts.

Note:

- You can also use the shuttle dial or jog dial to carry out operations such as pausing and fast-forward playback.
- Alarm search starts playback from the image that was recorded at the instant the alarm occurred, so if you are viewing pre-alarm images, use the shuttle operations to carry out rewind playback.



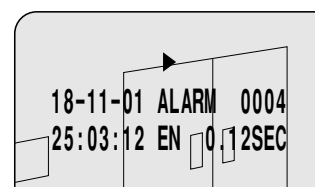
Alarm search 2



Press an ALARM skip button during playback.

- If you press the **◀◀** button, playback skips to the previous alarm image.
- If you press the **▶▶** button, playback skips to the next alarm image.

Note: When playing back using alarm search, the playback will pause at the start and at the end of each alarm recording. Use the ALARM skip buttons to play back previous and subsequent alarm recordings.



SEARCHING FOR RECORDED IMAGES

Alarm thumbnail search

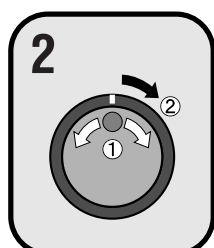
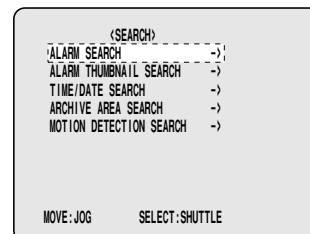
Alarm images can be searched for and played back from thumbnails.

All alarm images recorded in the alarm recording area are displayed as thumbnails.



Press the SEARCH FRAME/FIELD button during recording or when the digital video recorder is stopped.

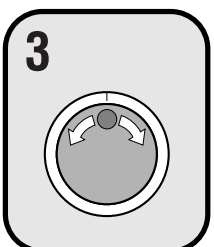
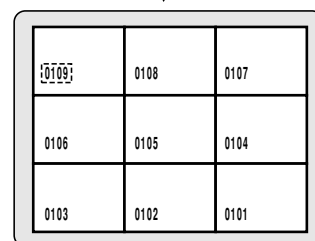
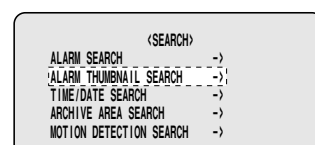
The SEARCH screen appears.



Use the jog dial to select ALARM THUMBNAI SEARCH and then turn the shuttle dial clockwise.

The last nine alarm recording images recorded appear.

The alarm number appears with each alarm recording image, and the alarm number of the currently-selected alarm image flashes.

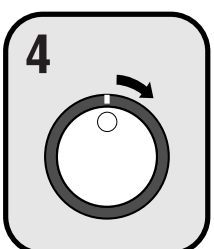
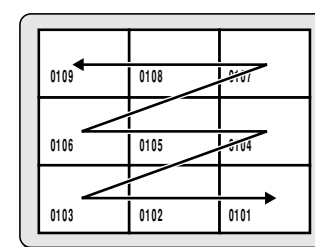


Use the jog dial to move the cursor in order to select the images to be played back.

The alarm number of the currently-selected alarm image flashes.

Note:

- Up to nine items of alarm information including thumbnails can be displayed. When the jog dial is turned, the previous or next alarm information screen appears.
- To end this search mode, press the **SEARCH FRAME/FIELD** button.

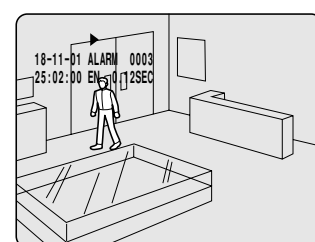


Turn the shuttle dial clockwise.

The selected image appears in a single-screen display and playback starts.

Note:

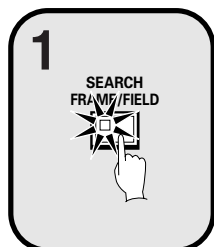
- You can also use the shuttle dial or jog dial to carry out operations such as pausing and fast-forward playback.
- Only the contents of each alarm can be played back, in the same way as for alarm searching. Use the ALARM skip buttons to play back previous and subsequent alarm recordings.



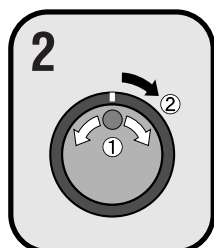
SEARCHING FOR RECORDED IMAGES

Time/date search

The recording date and time for images in the normal recording area (normal recording and timer recording images) and in the alarm recording area of the hard disk can be specified and the images can be played back.

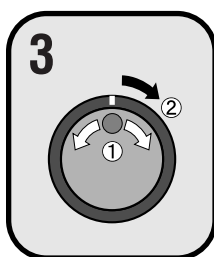
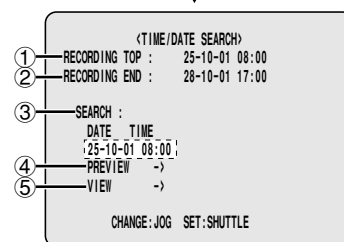
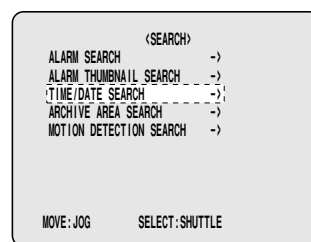


Press the SEARCH FRAME/FIELD button during recording or when the digital video recorder is stopped.
The SEARCH screen appears.



Use the jog dial to select TIME/DATE SEARCH and then turn the shuttle dial clockwise.
The TIME/DATE SEARCH screen appears.

- ① **RECORDING TOP:** The date and time of the first recorded image is displayed.
- ② **RECORDING END:** The date and time of the latest (most recently) recorded image is displayed.
- ③ **SEARCH:** Enter the date and time to be displayed in this area.
- ④ **PREVIEW:** A preview image appears.
- ⑤ **VIEW:** The selected image appears on the monitor as a single-screen image.

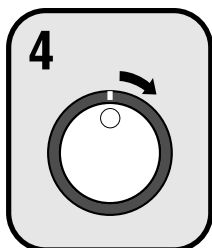


Example: To search for 8 pm on 26 October 2001

- ① Turn the jog dial clockwise, and then use the jog dial to change "25" to "26".
- ② Turn the shuttle dial clockwise and select "10".
- ③ Turn the shuttle dial clockwise and select "01".
- ④ Turn the shuttle dial clockwise, and then use the jog dial to change "08" to "20".
- ⑤ Turn the shuttle dial clockwise and select "00". Then turn the shuttle dial. The cursor moves to PREVIEW.



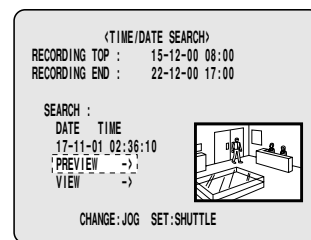
SEARCHING FOR RECORDED IMAGES



Turn the shuttle dial clockwise.

A search display appears while searching is in progress, and then a preview screen showing the date and time entered appears.

Note: If there are no images that match the time exactly, the image closest to the selected time range is displayed.

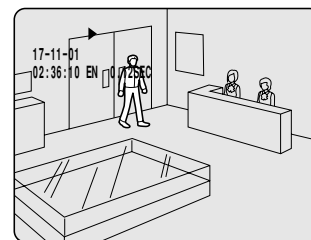


5 Use the jog dial to select VIEW, and then turn the shuttle dial clockwise.

The preview image is displayed and played back in a single-screen.

Note:

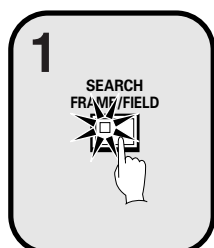
- A single-screen image can be displayed when date and time are entered and VIEW is selected, even without displaying a preview.
- You can also use the shuttle dial or jog dial to carry out operations such as pausing and fast-forward playback.



SEARCHING FOR RECORDED IMAGES

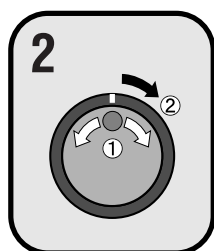
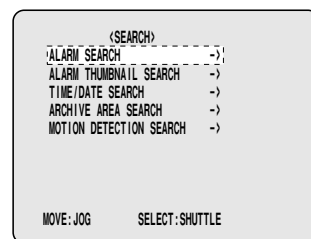
Archive area search

You can play back images that have been saved (copied) in the archive area.



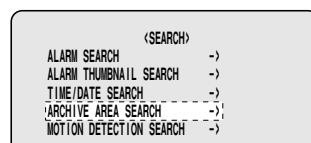
Press the SEARCH FRAME/FIELD button during recording or when the digital video recorder is stopped.

The SEARCH screen appears.

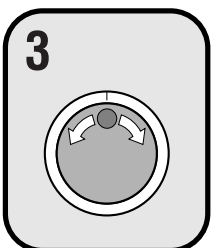
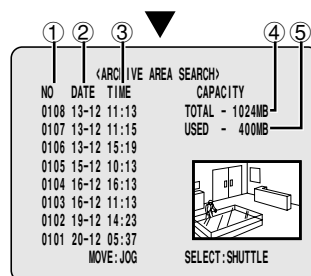


Use the jog dial to select ARCHIVE AREA SEARCH and then turn the shuttle dial clockwise.

The ARCHIVE AREA SEARCH screen appears.



- ① **NO:** The archive number is displayed.
- ② **DATE:** The date of the recorded image is displayed.
- ③ **TIME:** The start time of the recorded image is displayed.
- ④ **TOTAL:** The total capacity of the archive area is displayed.
- ⑤ **USED:** The recorded part of the archive area is displayed.

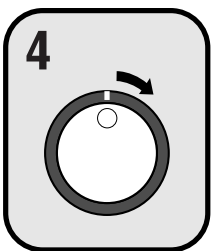
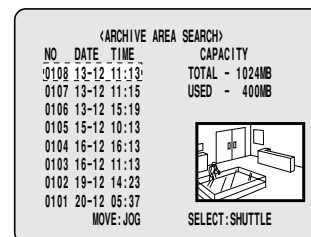


Use the jog dial to move the cursor in order to select the images to be played back.

The selected alarm image appears in the preview screen.

Note:

- Up to eight items of information can be displayed in the ARCHIVE AREA SEARCH screen.
- When the jog dial is turned, the previous or next archive screen appears.
- To end this search mode, press the **SEARCH FRAME/FIELD** button.

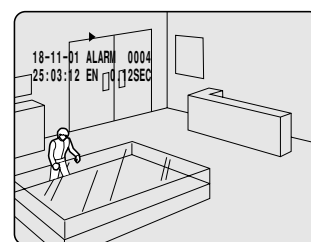


Turn the shuttle dial clockwise.

The selected image appears in a single-screen display and playback starts.

Note:

- A single-screen image can be displayed when the cursor is moved to the image to be played back and the shuttle dial is turned clockwise, even without displaying a preview.
- You can also use the shuttle dial or jog dial to carry out operations such as pausing and fast-forward playback.



SEARCHING FOR RECORDED IMAGES

Motion detection search

When a motion sensor is set for images recorded in the normal recording area (normal recording and timer recording images) or for images recorded in the alarm recording area of the hard disk, you can search for images that have changed because of the entry of a suspicious person, for instance, and play back only those images.

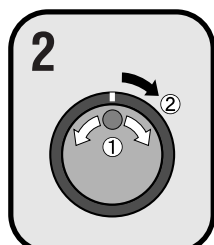
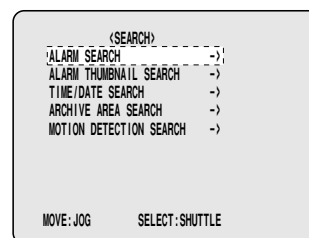
Note:

- If carrying out motion detection searches of multiplexer images, change the setting for MULTIPLEXER in the VIDEO INPUT SET menu to something other than "NO USE".
- If the digital video recorder is connected to a Sanyo multiplexer that allows decoding of channel information (camera numbers), channels can be specified so that only images from those channels are searched for. If any other type of multiplexer is connected, this setting is not possible.



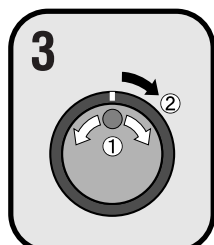
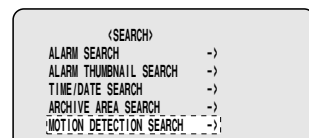
Press the SEARCH FRAME/FIELD button during recording or when the digital video recorder is stopped.

The SEARCH screen appears.



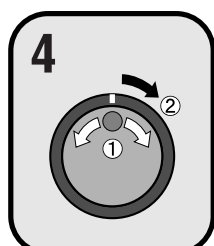
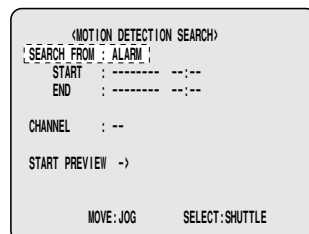
Use the jog dial to select MOTION DETECTION SEARCH and then turn the shuttle dial clockwise.

The MOTION DETECTION SEARCH screen appears.



Use the jog dial to select SEARCH FROM and then turn the shuttle dial clockwise.

The ALARM display flashes.



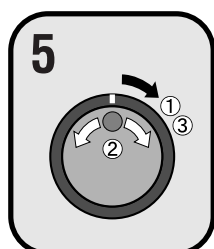
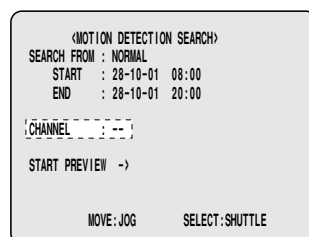
Use the jog dial to select the recording area (example: NORMAL), and then turn the shuttle dial clockwise.

The cursor moves to CHANNEL.

Note: If the setting for MULTIPLEXER in the VIDEO INPUT SET menu is set to "NO USE", the cursor will move to START PREVIEW.

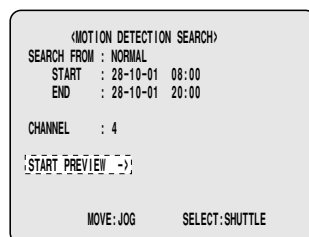
Examples of recording area selection:

- **ALARM:** Only images in the alarm recording area are searched.
- **NORMAL:** Only images in the normal recording area are searched.
- **ALARM & NORMAL:** Images in both the alarm recording area and the normal recording area are searched.

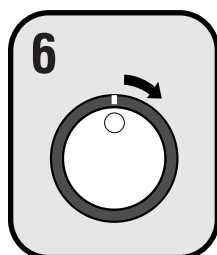


Turn the shuttle dial clockwise, use the jog dial to select the camera number (example: 4), and then turn the shuttle dial clockwise.

The cursor moves to START PREVIEW.



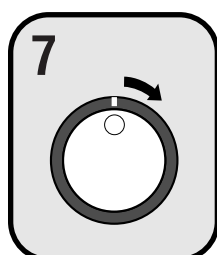
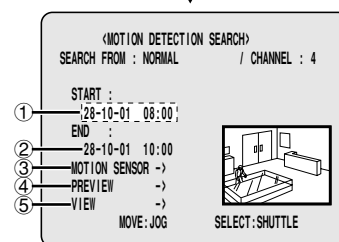
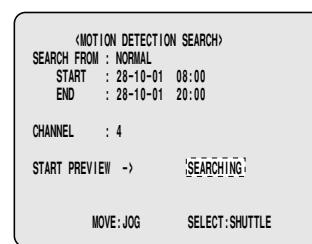
SEARCHING FOR RECORDED IMAGES



Turn the shuttle dial clockwise.

The screen changes and the preview screen for camera number 4 appears.

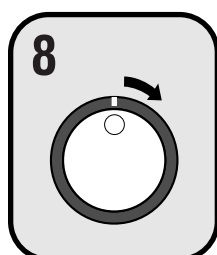
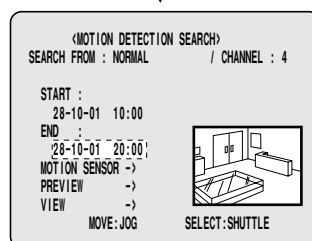
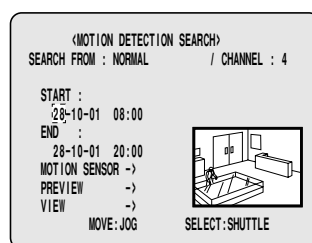
- ① **START:** The date and time for the first image in the selected recording area appears.
You can also select the screen which has a motion sensor set.
- ② **END:** The date and time for the last image in the selected recording area appears.
One hour is added to the time that is displayed.
You can also select the screen which has a motion sensor set.
- ③ **MOTION SENSOR:** The motion sensor appears.
- ④ **PREVIEW:** The selected start point appears.
If you turn the shuttle dial clockwise, you can check the images up until the end point.
- ⑤ **VIEW:** The selected image appears on the monitor as a single-screen image in a normal screen.



Turn the shuttle dial clockwise.

Use the jog dial to set the START date and time (example: 10.00 am on the current day) for the motion sensor setting, and then turn the shuttle dial clockwise.

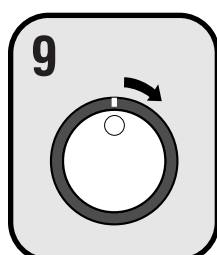
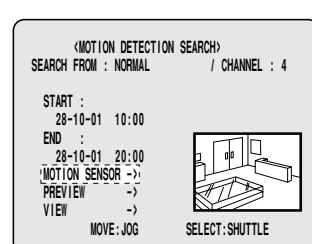
The image for the specified time appears in the preview screen, and the cursor moves to the END date and time setting location.



Turn the shuttle dial clockwise.

Use the jog dial to set the END date and time (example: 8.00 pm on the current day) for the motion sensor setting, and then turn the shuttle dial clockwise.

The cursor moves to MOTION SENSOR.

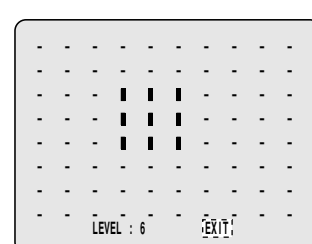


Turn the shuttle dial clockwise.

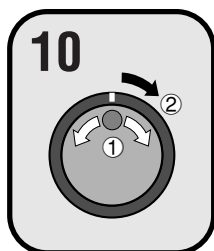
The motion sensor setting screen appears.

Set the motion sensor to cover the area where you would like movement to be observed.

Move the cursor to EXIT and turn the shuttle dial clockwise. The display returns to the MOTION DETECTION SEARCH screen. Refer to page 56 for details on motion sensor settings.

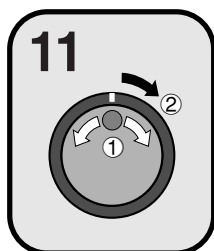
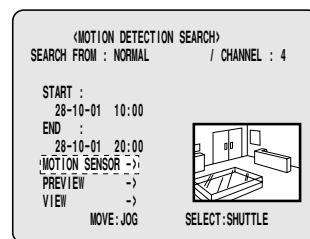


SEARCHING FOR RECORDED IMAGES



Use the jog dial to move the cursor to **PREVIEW**, and then turn the shuttle dial clockwise. The screen showing the motion sensor settings appear in the preview screen each time the shuttle dial is turned.

Note: If no motion sensor settings have been made, “**NOT FOUND**” appears, so make sure that the motion sensor settings have been made correctly.



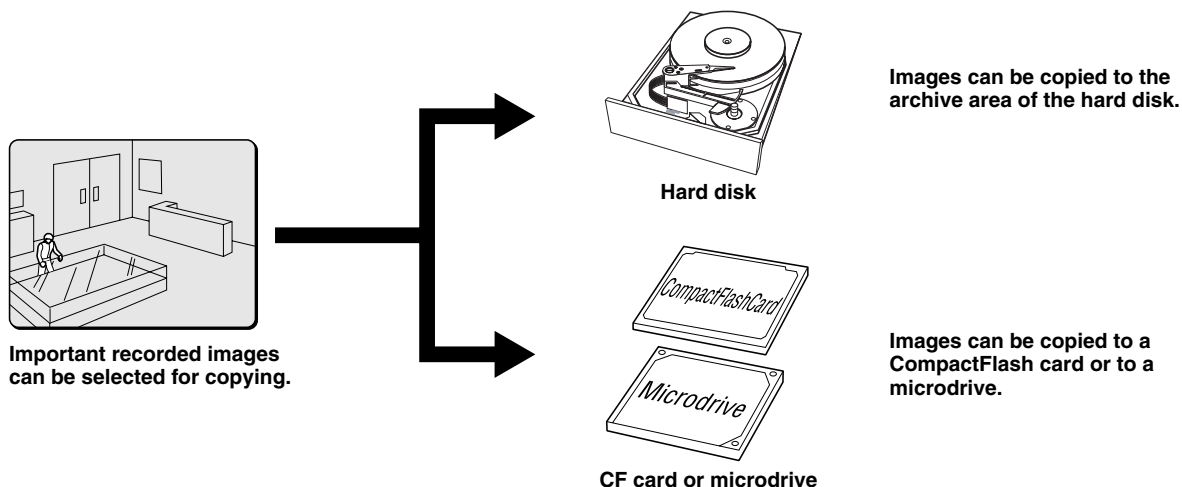
To view a motion sensor setting in a single-screen display, use the jog dial to move the cursor to **VIEW** and then turn the shuttle dial clockwise.

The display changes from the specified image to normal playback.

Note: When using a multiplexer and the camera number has been specified as a channel when carrying out motion detector searches, only images for the specified camera number will be played back. For playback of all cameras the playback has first to be switched off and then switched on again. Furthermore, the multiplexer title information and date information may not be fully displayed at this time in some cases.

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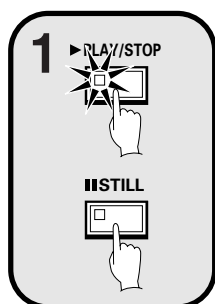
Important images that have been recorded onto the normal recording area or alarm recording area can be copied to a CompactFlash card or to the archive area of the hard disk.



Note:

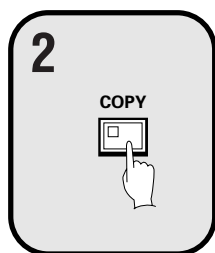
- Copied images are stored as a single picture.
- If you are downloading images to a CompactFlash card, the images are automatically saved in the archive area, and they are then copied from the archive area to the CompactFlash card.
- If the archive area has become full, use the AREA FULL RESET setting for the archive area in the RECORDING AREA SET menu to delete unneeded images.

■ Copying images to the hard disk archive area



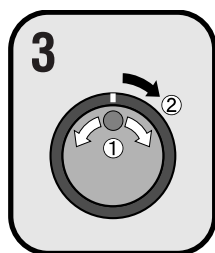
Play back the images in the normal recording area or alarm recording area that is to be copied, and pause playback at the image that is to be copied. (See page 21.)

Example: To copy 10 seconds of images starting from a selected image



While the image to be copied is displayed as a still image, press the COPY button.

The copy screen appears.



Use the jog dial to select COPY TO and then turn the shuttle dial clockwise.

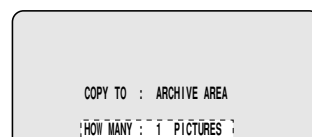
The ARCHIVE AREA display flashes.



SAVING (COPYING) RECORDED IMAGES

4 Use the jog dial to select **ARCHIVE AREA** and then turn the shuttle dial clockwise.

The cursor moves to HOW MANY.



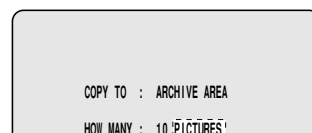
5 Turn the shuttle dial clockwise, use the jog dial to change the setting to "10", and then turn the shuttle dial clockwise.

The cursor moves to PICTURES.

6 Use the jog dial to select the **SECONDS** setting, and then turn the shuttle dial clockwise.

- **PICTURES:** Specify the number of images to be copied.
- **SECONDES:** Specify the number of seconds of images to be copied.
- **MINUTES:** Specify the number of minutes of images to be copied (up to 60 minutes).

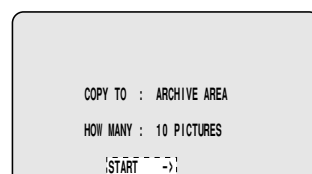
The cursor moves to START.



7 Turn the shuttle dial clockwise.

Copying of images to the archive area starts. When copying is complete, "COPY FINISHED" appears.

Note: If you press the **COPY** button while copying is in progress, copying is canceled.



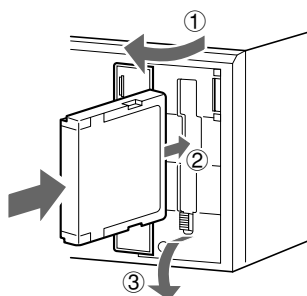
■ Copying images from archive area to a CompactFlash card

1 Insert a CompactFlash card into the CompactFlash slot on the front panel.

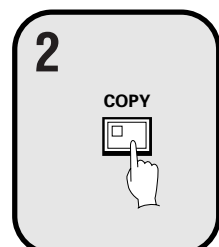
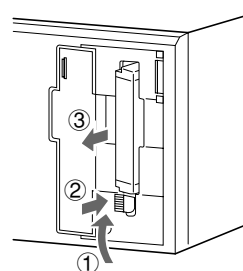
When inserting the CompactFlash card, make sure that the direction of insertion is correct.

A microdrive can also be used for copying images.

(Inserting)



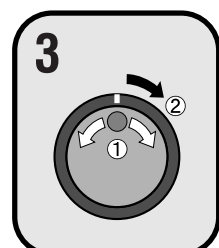
(Removing)



2 Display an image from the archive area as a still image, and then press the **COPY** button.

The copying screen appears.

Refer to page 28 for details on playing back images from the archive area.



3 Use the jog dial to select **COPY TO** and then turn the shuttle dial clockwise.

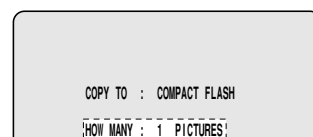
The **ARCHIVE AREA** display flashes.



SAVING (COPYING) RECORDED IMAGES

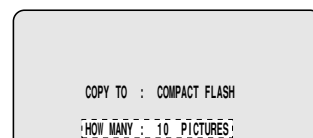
4 Use the jog dial to select COMPACT FLASH and then turn the shuttle dial clockwise.

The cursor moves to HOW MANY.



5 Turn the shuttle dial clockwise, use the jog dial to change the setting to "10", and then turn the shuttle dial clockwise.

The cursor moves to PICTURES.

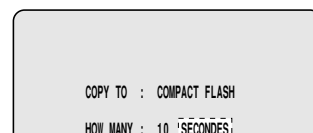


6 Use the jog dial to select the SECONDS setting, and then turn the shuttle dial clockwise.

- **PICTURES:** Specify the number of images to be copied.
- **SECONDES:** Specify the number of seconds of images to be copied.
- **MINUTES:** Specify the number of minutes of images to be copied (up to 60 minutes).

Note:

- The limit to the number of images that can be copied to CompactFlash is 1000. Copying ends when 1000 images have been copied.
- When copying alarm recordings, they can only be copied one at a time.



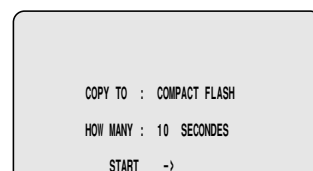
7 Turn the shuttle dial clockwise.

The COPY indicator illuminates, the COPY TO : COMPACT FLASH screen appears and copying of images to the CompactFlash card starts.

When copying is complete, "COPYING COMPLETE" appears.

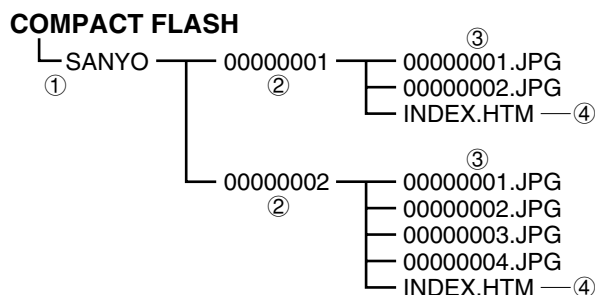
Note:

- If copying images directly from the normal recording area or alarm recording area to a CompactFlash card, the same images will also be copied to the archive area.
- If you press the **COPY** button while copying is in progress, copying is canceled.



CompactFlash recording area

- ① A SANYO folder is created in the root directory.
- ② Sub-folders for holding the copied images are created in sequence in the SANYO folder.
- ③ The images are copied as JPEG files into the sub-folders, with filenames starting from 00000001.JPG. HTML files called INDEX.HTM containing the number of files that have been copied to a folder are also copied to each folder at this time.
- ④ To view the file listing using a computer, use a browser such as Internet Explorer 5.0 or later to open the INDEX.HTM files. The JPEG files can be played back as a slideshow.



Note:

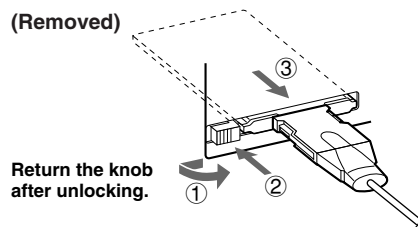
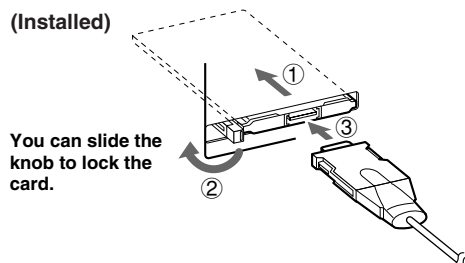
- When frame recording images are copied to a CompactFlash card, the images are copied separately as two field images, so that frame playback is not possible when viewing these images using a computer.
- Images that have been copied onto a CompactFlash card contain codes for detecting file tampering, and these codes can be recognized by computer software applications that can detect file tampering. Contact the place of purchase for details.
- JPG images are recorded as field images, so that when they are viewed using the normal image viewer, they are compressed by 1/2 in the vertical direction. Make sure that you view them using the index.htm file.

SAVING (COPYING) RECORDED IMAGES

■ Copying to a DDS (DAT) drive

- 1 Insert an SCSI card (sold separately) for connecting the DDS (DAT) drive into the PC card slot at the rear of the digital video recorder.

Images from the archive area can be copied to the DDS (DAT) drive, and images recorded on the DDS (DAT) drive can also be copied to the archive area.



- Recommended SCSI card
Manufacturer: ADAPTEC
Model No.: Slim SCSI 1460
- Recommended DDS-3 type DDS (DAT) drive
Manufacturer: Hewlett Packard
Model No.: Super Store dat 24e

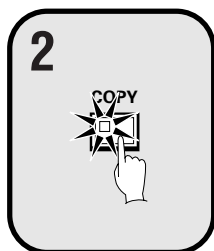
Be sure to attach the accessory ferrite core to the SCSI card connection cable.

Note:

- Check that the direction of insertion is correct when inserting the SCSI card.
- If an SCSI card or DDS (DAT) drive other than the ones recommended is used, correct operation cannot be guaranteed.
- DDS (Digital Data Storage)/DAT (Digital Audio Tape).

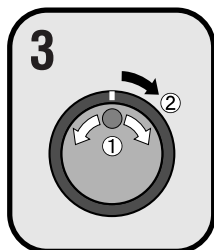
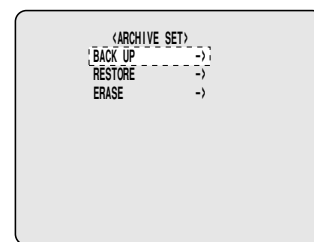
Backing up

All of the data in the archive area can be backed up on a DDS (DAT) drive.



Press the COPY button during recording or when the digital video recorder is stopped.

The ARCHIVE SET screen appears.



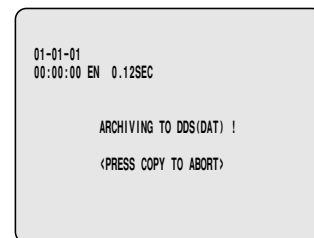
Use the jog dial to select BACK UP and then turn the shuttle dial clockwise.

“ARCHIVING TO DDS(DAT) !” appears, and copying then starts.

- If you press the COPY button while copying is in progress, copying is canceled.
- When copying is completed, “ARCHIVE FINISHED!” appears. Press any button to return to the normal screen.

Note:

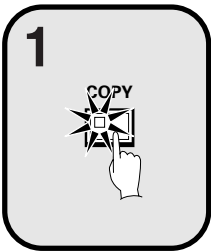
- When data is converted for storage on a DDS (DAT) drive, the conversion process may result in an increase in the size of the data. If copying images onto a 12 GB tape, it may only be possible to copy about 10 GB of data.
- It will take approximately 4 hours to copy 10 GB of data onto a DDS (DAT) drive.



SAVING (COPYING) RECORDED IMAGES

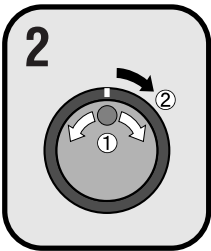
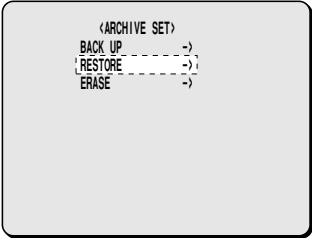
Reading data from a DDS (DAT) drive into the archive area

Note: All of the previously recorded images in the archive area are deleted when images are transferred in this way.



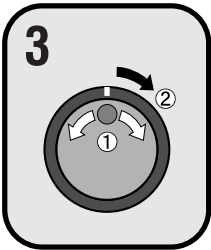
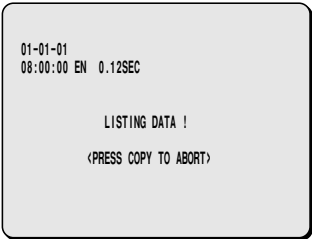
Press the COPY button during recording or when the digital video recorder is stopped.

The ARCHIVE SET screen appears.



Use the jog dial to select RESTORE and then turn the shuttle dial clockwise.

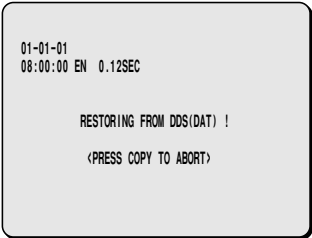
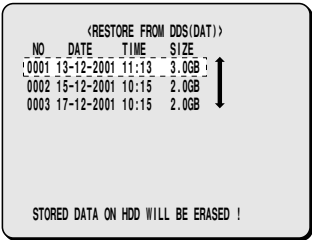
The message "LISTING DATA !" appears. When playback is complete, the RESTORE FROM DDS (DAT) screen appears.



Use the jog dial to select the data to be read into the archive area, and then turn the shuttle dial clockwise.

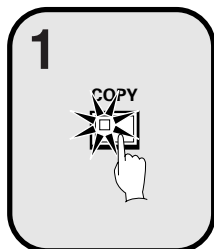
Reading of data starts. The RESTORE FROM DDS (DAT) screen appears. The image data on the DDS (DAT) drive is then saved into the archive area. When all data has been read into the archive area, "RESTORE FINISHED!" appears.

When you play back the images in the archive area, the image data that has been read can be played back.



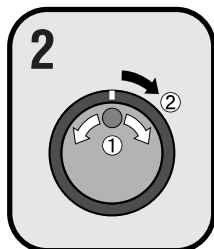
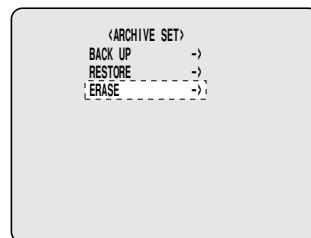
SAVING (COPYING) RECORDED IMAGES

Deleting DDS (DAT) drive image data



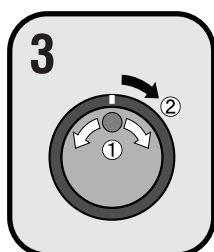
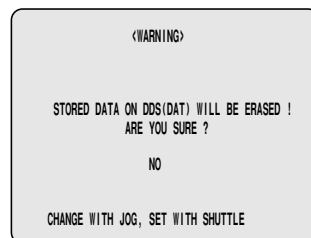
Press the COPY button during recording or when the digital video recorder is stopped.

The ARCHIVE SET screen appears.



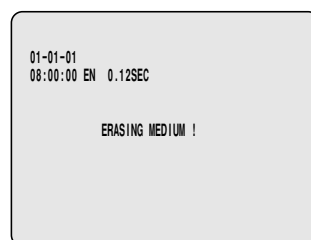
Use the jog dial to select ERASE and then turn the shuttle dial clockwise.

The WARNING screen appears.



Use the jog dial to change “NO” to “YES”, and then turn the shuttle dial clockwise.

“ERASING MEDIUM!” appears, and when erasing of data from the tape has been completed, “ERASING FINISHED!” appears.



MENU FLOW CHART AND MENU OPERATIONS

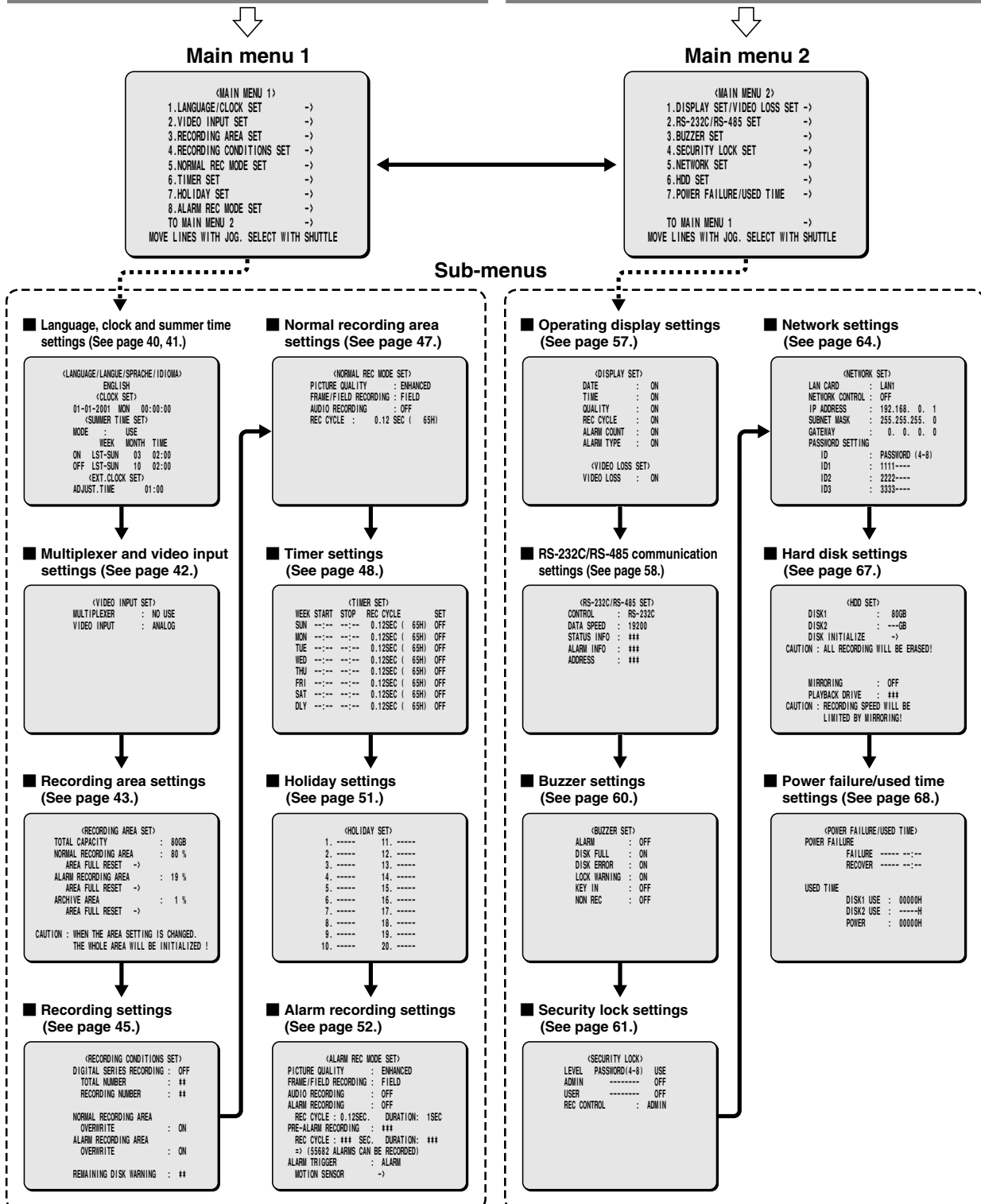
Menu flow

Settings for recording

Main menu 1 contains settings that deal mainly with recording.

Settings for operating environment

Main menu 2 contains settings that deal mainly with the operating environment.

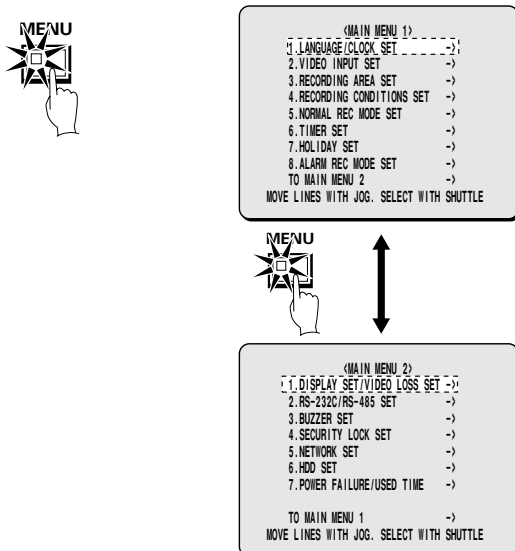


MENU FLOW CHART AND MENU OPERATIONS

Basic menu screen operations

1 Press the MENU button.

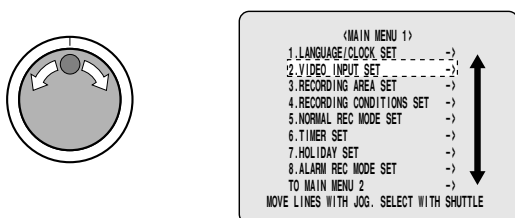
The MAIN MENU 1 screen appears. If you press the **MENU** button once more, the MAIN MENU 2 screen appears.



Note: If you repeatedly press the **MENU** button, the screen toggles between MAIN MENU 1 and MAIN MENU 2. Furthermore, you can also select "TO MAIN MENU 2" or "TO MAIN MENU 1" in the respective menu screens to display the other menu screen.

2 Turn the jog dial to the left or right to move the cursor to the menu items.

The selected item is highlighted.



3 Turn the shuttle dial clockwise.

The sub-menu appears.



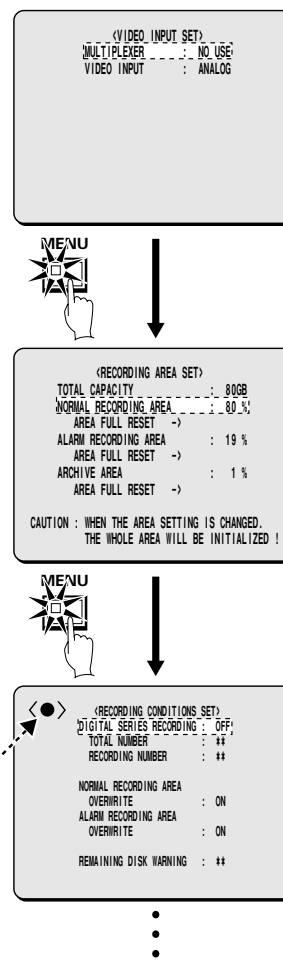
4 Press the EXIT/OSD button.

The display returns to the normal screen.



Operations while a sub-menu screen is displayed

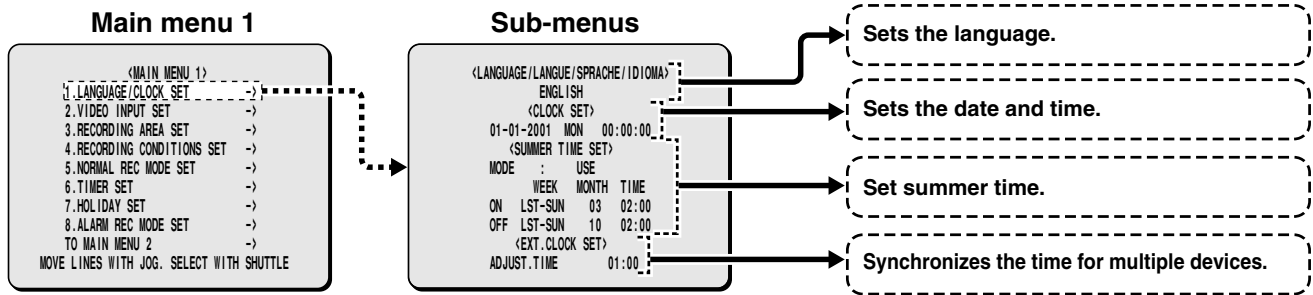
If you press the **MENU** button while a sub-menu screen is displayed, you can check the settings in the sub-menu screens.



Note: You can display menus even while images are being recorded in one of the recording areas. In such cases, the recording symbol <●> appears on the screen. The menus can only be displayed at this time; the settings cannot be changed.

LANGUAGE/CLOCK SET SETTINGS

This sub-menu lets you set the language for menu screens, the date and time that appear on the screen at all times, and summer time. It also includes a function that lets you synchronize the time settings when more than one device is connected.



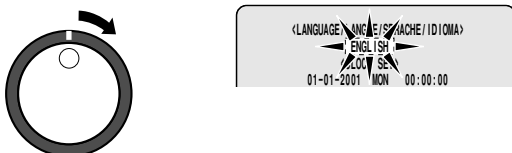
Setting the language

The menus can be displayed in one of several languages (English, French, German and Spanish). The default language setting is English.

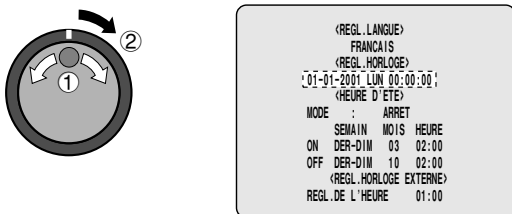
- Press the **MENU** button to select **LANGUAGE/CLOCK SET**, and then turn the shuttle dial clockwise. The **LANGUAGE/LANGUE/SPRACHE/IDIOMA** sub-menu appears, and the cursor moves to "ENGLISH".



- Turn the shuttle dial clockwise. "ENGLISH" flashes.



- Turn the jog dial to select the language (example: "FRANCAIS"), and then turn the shuttle dial clockwise. The language is switched to French and the cursor moves to the date and time.



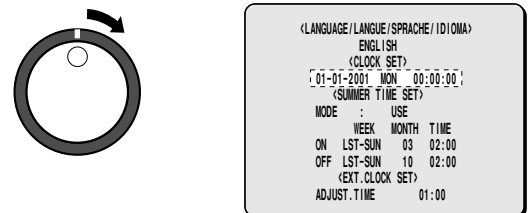
CLOCK SET settings

(default setting: 01-01-2001 MON 00:00:00)

You should always set the date and time correctly. This digital video recorder includes the recording time with recorded images, and uses this time for playback and searching.

Example: To set the date and time to 8.30 a.m. on 22 May 2002

- When the cursor is at the date and time setting, turn the shuttle dial clockwise. "01" flashes.



- Turn the jog dial to select "22: day", and then turn the shuttle dial clockwise. The cursor moves to the "01" month setting and flashes.



- Use the same procedure to set the month (5), year (2002), hour (08), minutes (30) and seconds.

After the seconds have been set, the cursor moves to the ADJUST TIME setting for "EXT. CLOCK SET", and counting starts from zero seconds.

Note: Time stops during clock setting.

LANGUAGE/CLOCK SET SETTINGS

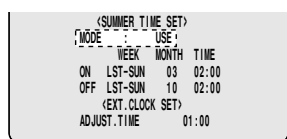
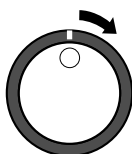
SUMMER TIME SET setting

(default setting: USE)

This can be used to set the starting time and ending time for summer time. When summer time is set, the time is automatically advanced by one hour.

Example: To start summer time at 2.00 a.m. on the first Sunday in April, and end it at 2.00 a.m. on the 4th Sunday in October

- When the cursor is at the MODE setting, turn the shuttle dial clockwise. "USE" flashes.



- Turn the shuttle dial clockwise. The cursor moves to the starting time (ON) entry line.

ON LST-SUN 03 02:00

- Turn the shuttle dial clockwise. "LST" (WEEK) setting flashes.

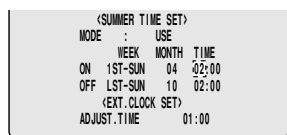
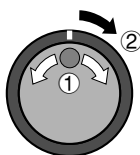
ON LST-SUN 03 02:00

- Turn the jog dial clockwise to select "1ST", and then turn the shuttle dial. "SUN" (WEEK) flashes.

ON 1ST-SUN 03 02:00

- Turn the jog dial clockwise to select "SUN", and then turn the shuttle dial clockwise. "03" (MONTH) flashes.

- Turn the jog dial clockwise to select "04", and then turn the shuttle dial clockwise. "02" (TIME) flashes.



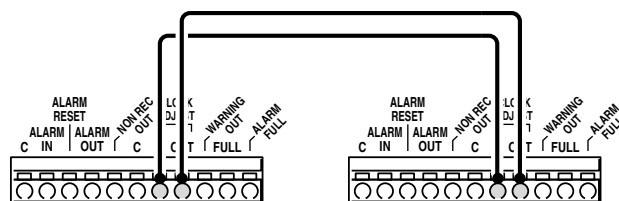
- Use the same procedure to set the end of summer time. The cursor moves to ADJUST TIME.

EXT. CLOCK SET setting

(default setting: 01:00)

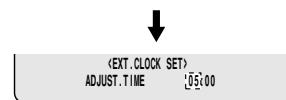
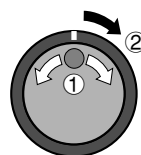
If more than two devices are connected at the same time, the time settings (ADJUST TIME) for the digital video recorder are also applied to these devices.

- Connect the other devices to the input terminal (CLOCK ADJUST IN) and output terminal (CLOCK ADJUST OUT) at the rear of the digital video recorder.



- Turn the jog dial to move the cursor to the ADJUST TIME setting, and then turn the shuttle dial. "01" flashes.

- Turn the jog dial to set the hours (example: "05"), and then turn the shuttle dial.



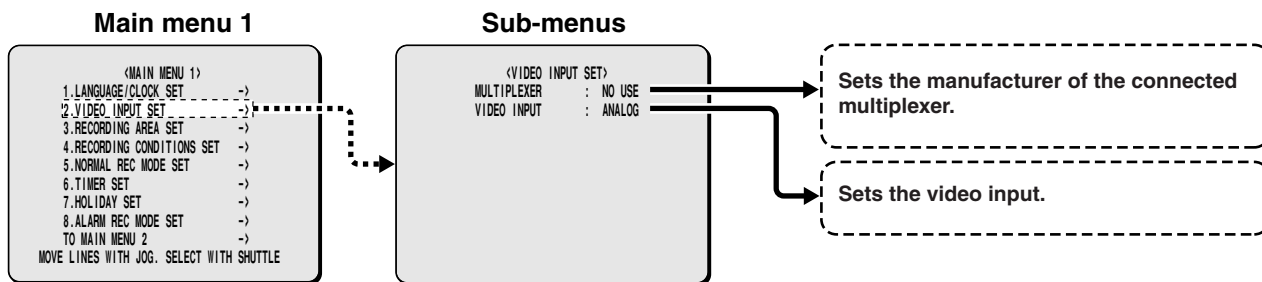
- Press the EXIT/OSD button. The display returns to the normal screen.



- Use the same procedure to set ADJUST TIME for the second device. When the settings are complete, the display returns to the normal screen.

VIDEO INPUT SET SETTING

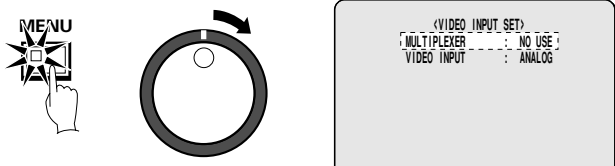
If you select a multiplexer (sold separately) that is connected to the digital video recorder, you can set the type of image input (digital or analog).



MULTIPLEXER setting

(default setting: NO USE)

- 1 Press the **MENU** button to select **VIDEO INPUT SET**, and then turn the shuttle dial clockwise.
 The VIDEO INPUT SET sub-menu appears, and the cursor moves to MULTIPLEXER.



- 2 Turn the shuttle dial clockwise.
 "NO USE" flashes.



- 3 Turn the jog dial to select the **MULTIPLEXER** setting (example: "SANYO"), and then turn the shuttle dial clockwise.

Display examples:

- **NO USE**: When not using a multiplexer
- **SANYO**: When using a Sanyo multiplexer
- **OTHERS1**: When using a Sony multiplexer
- **OTHERS2**: When using a Robot or DM multiplexer

The cursor moves to VIDEO INPUT.



Note: The multiplexers specified by SANYO and OTHERS1 are capable of decoding channel information. Accordingly, you can record images from these multiplexers using this digital video recorder, and then use the digital video recorder's **CHANNEL** button to select a camera number (channel information) for playback.

VIDEO INPUT setting

(default setting: ANALOG)

This sets whether the image signals that are being input to the video input terminals of this digital video recorder are digital or analog.

- 1 When the cursor is at the **VIDEO INPUT** setting, turn the shuttle dial clockwise.
 "ANALOG" flashes.



- 2 Turn the jog dial to select "**DIGITAL (example)**", and then turn the shuttle dial.

The cursor moves to MULTIPLEXER.

Note:

- Select this if a Sanyo digital transport multiplexer (MPX-CD163P or CD93P) has been connected digitally.
- When making a multiplexer and a digital connection, first connect the VIDEO OUT connector of this unit to the monitor, and then set the input signal to "**DIGITAL**".



- 3 Press the **EXIT/OSD** button.

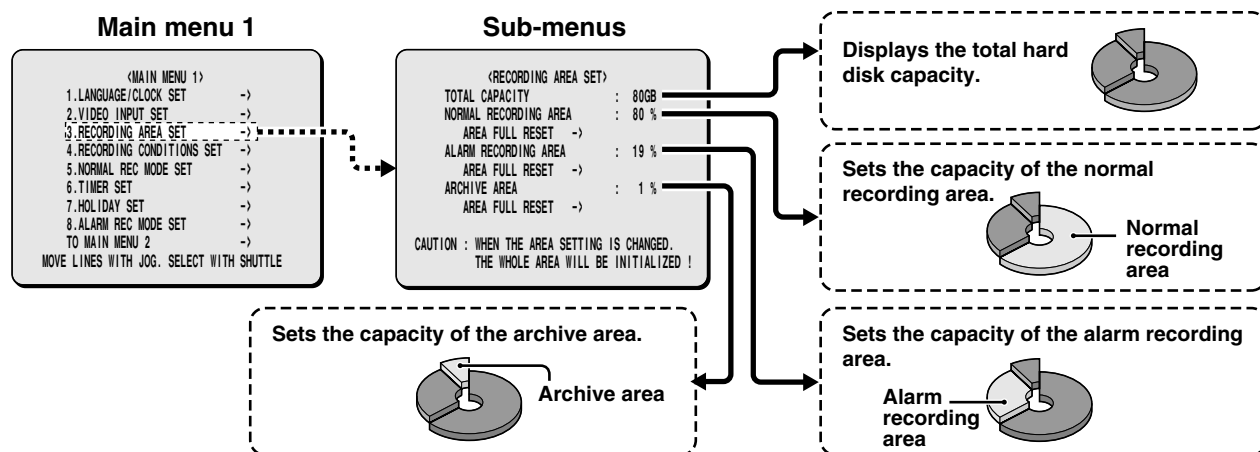
The display returns to the normal screen.



Note:

- If the MULTIPLEXER setting is set to something other than "**NO USE**", **SENSOR** cannot be selected as the **ALARM TRIGGER** in the **ALARM REC MODE SET** menu.
 When using a multiplexer, use the motion sensor function of the multiplexer.
- If using a multiplexer manufactured by SANYO or some other manufacturer in analog connection mode, connect the SW OUT terminal at the rear of this unit to the SW IN terminal of the multiplexer. This is not necessary if using a SANYO multiplexer in digital connection mode.

RECORDING AREA SET SETTING



■ TOTAL CAPACITY display

This shows the total recording capacity of the hard disk. This display cannot be changed except when the hard disk capacity itself is changed.

With the initial hard disk setting, the normal recording area takes up 80%, the alarm recording area takes up 19% and the archive area takes up 1% of the disk capacity. The upper limit is 12 GB (15% of total capacity when using an 80-GB hard disk), so you cannot set a value greater than this.

The assignment of space to each recording area is displayed as a percentage of the total. The normal recording area and alarm recording area together can be set to a maximum of 99% of the total space.

The archive area cannot be set manually. It is forcibly assigned to a minimum of 1%. Accordingly, if the normal recording area and the alarm recording area are set to a total of 85%, the archive area will be automatically set to 15%.

For example, if the normal recording area is set to 0% and the alarm recording area is set to 99%, normal recording images will not be saved onto the hard disk. Only alarm recording images will be saved. The recording capacity for each recording area should be assigned according to the requirements of the particular recording location.

If an additional hard disk is added, the increased capacity will be included in the TOTAL CAPACITY display.

Note:

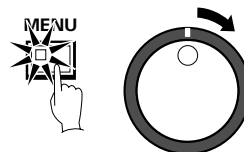
- If you change the assignment of space to each recording area of the hard disk while recording is in progress, the images which have been recorded up until that point will be erased. This is because the hard disk itself is initialized during this operation, so be very careful when making this kind of setting. If you need to change the sizes of the recording areas for some reason, make sure that you make a backup copy of the images on some other medium such as a computer.
- Make sure that the OVERWRITE setting is "OFF" before moving the cursor to "AREA FULL RESET →" for either the NORMAL RECORDING AREA or the ALARM RECORDING AREA. (See page 45.)
- When installing an additional hard disk and the MIRRORING of the HDD SET setting has been set to "ON", the TOTAL CAPACITY display of RECORDING AREA SET shows a smaller value for the hard disk capacity.

■ Resetting each recording area

Example: Set the normal recording area to 50% and the alarm recording area to 49%

- 1 Press the MENU button to select RECORDING AREA SET, and then turn the shuttle dial clockwise.

The RECORDING AREA SET sub-menu appears, and the cursor moves to NORMAL RECORDING AREA.

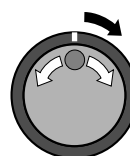


- 2 Use the jog dial to move the cursor to the NORMAL RECORDING AREA setting, and then turn the shuttle dial clockwise. "80%" flashes.

- 3 Use the jog dial to change the setting, for example from "80%" to "50%", and then turn the shuttle dial clockwise. The cursor moves to ALARM RECORDING AREA.

- 4 Turn the shuttle dial clockwise. "35%" flashes.

- 5 Turn the jog dial to change the setting, for example from 34% to 49%, and then turn the shuttle dial clockwise. The cursor moves to AREA FULL RESET.

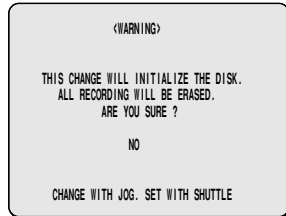
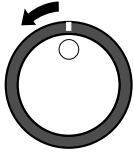


[RECORDING AREA SET]	
TOTAL CAPACITY	: 80GB
NORMAL RECORDING AREA	: 49 %
AREA FULL RESET →	
ALARM RECORDING AREA	: 40 %
AREA FULL RESET →	
ARCHIVE AREA	: 2 %
AREA FULL RESET →	
CAUTION : WHEN THE AREA SETTING IS CHANGED, THE WHOLE AREA WILL BE INITIALIZED !	

RECORDING AREA SET SETTING

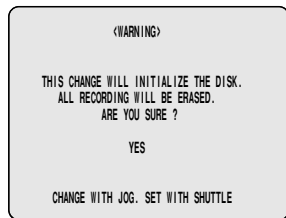
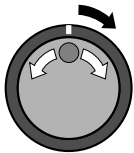
6 Turn the shuttle dial counterclockwise.

The screen changes to show a **"WARNING"** display. This is a message to warn you that the hard disk is about to be reinitialized.



7 To reinitialize the hard disk, turn the jog dial to display "YES", and then turn the shuttle dial clockwise.

The RECORDING AREA SET screen appears and the recording capacities for each area are changed.



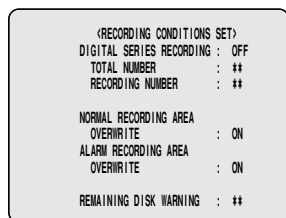
Note: If you turn the shuttle dial clockwise when **"NO"** is selected, the RECORDING AREA SET screen appears and the recording capacities return to their previous settings. The hard disk is not reinitialized in this case.

AREA FULL RESET setting

When the normal recording area and alarm recording area of the hard disk become full, the images in the recording areas will be automatically overwritten, starting from the oldest images that have been recorded.

However, you can change this setting to prevent overwriting of images when the recording areas become full, at times such as when you want to check or edit the recorded images. In this case you need to specify each time that you want images to be overwritten in each recording area. The following procedure describes the method of doing this.

1 Set the OVERWRITE setting for the NORMAL RECORDING AREA or ALARM RECORDING AREA to "OFF" in the RECORDING CONDITIONS SET menu.

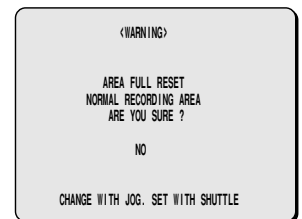
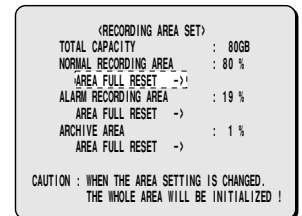
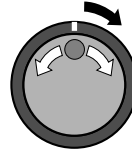


This setting can be used to display the remaining recording area of the hard disk on the screen. At the same time, the FULL or ALARM FULL indicator at the front of the digital video recorder will flash.

When writing to the hard disk is complete, you can use playback operations to check the recordings.

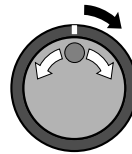
2 Use the jog dial to move the cursor to the AREA FULL RESET → setting for the NORMAL RECORDING AREA, and then turn the shuttle dial clockwise.

"NO" flashes on the WARNING screen.



3 Use the jog dial to change "NO" to "YES", and then turn the shuttle dial clockwise.

The NORMAL RECORDING AREA is set to single overwriting.



4 Follow the same procedure to make the setting for the ALARM RECORDING AREA.

5 Press the EXIT/OSD button.

The display returns to the normal screen.

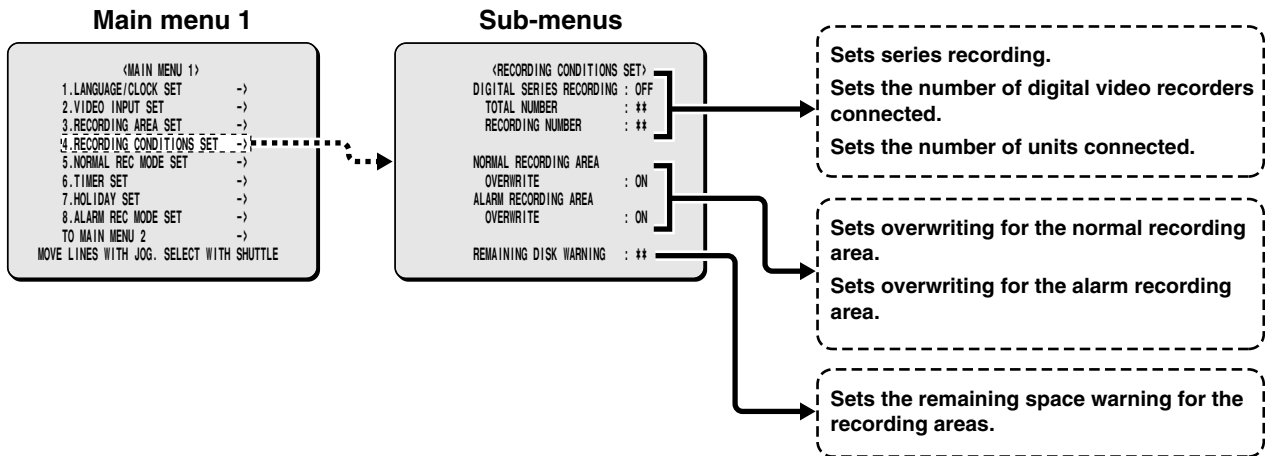


Note:

- For overwriting to be carried out automatically, change the OVERWRITE setting for the NORMAL RECORDING AREA or ALARM RECORDING AREA to **"ON"**.
- If AREA FULL RESET is carried out, the normal recording area, alarm recording area and archive area will all be reinitialized, and it will no longer be possible to play back any images that have already been recorded.

RECORDING CONDITIONS SET SETTING

This lets you make settings and set overwriting permissions for each recording area when multiple digital video recorders (up to a maximum of three) are connected for series recording.



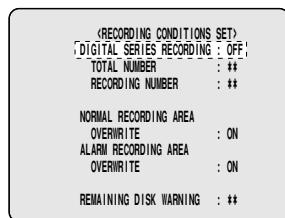
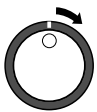
■ Recording settings for digital series connection (maximum 3 units)

- 1 Connect the digital video recorders using the digital input and output terminals of each digital video recorder. (See page 8.)

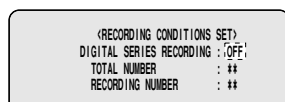
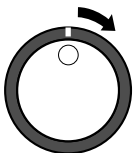
Note: Use a straight-type Ethernet cable to connect the digital video recorders. Each cable should not be any longer than 3 meters.

- 2 Press the MENU button to select RECORDING CONDITIONS SET, and then turn the shuttle dial clockwise.

The RECORDING CONDITIONS SET sub-menu appears, and the cursor moves DIGITAL SERIES RECORDING.

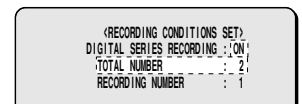
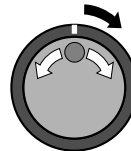


- 3 Turn the shuttle dial clockwise. "OFF" flashes.



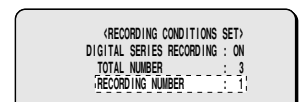
- 4 Use the jog dial to change the setting to "ON", and then turn the shuttle dial clockwise.

The cursor moves to TOTAL NUMBER.



- 5 Turn the shuttle dial clockwise, use the jog dial to set the total number of digital video recorders connected (example: 3), and then turn the shuttle dial clockwise.

The cursor moves to RECORDING NUMBER.



- 6 Turn the shuttle dial clockwise, use the jog dial to set the connection number (example: 1), and then turn the shuttle dial clockwise.

The cursor moves to OVERWRITE.

Note:

- The digital video recorder which is used as the main unit should always have its connection number set to 1.
- Do not skip or overlap numbers when making the settings.
- If NETWORK CONTROL in the NETWORK SET menu has been set to "ON", DIGITAL SERIES RECORDING cannot be selected. Conversely, if DIGITAL SERIES RECORDING has been set to "ON", NETWORK CONTROL cannot be set to "ON".

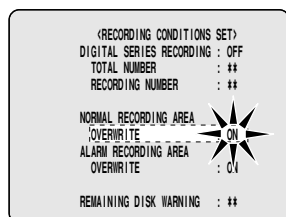
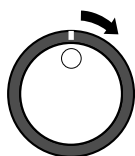
RECORDING CONDITIONS SET SETTING

■ Setting NORMAL RECORDING AREA OVERWRITE and REMAINING DISK WARNING on the operating display section

When the recording areas of the hard disk become full, you can set whether old images are to be overwritten, or whether recording should stop. If recording is set to stop, the current percentage of free space remaining on the hard disk will appear on the operating display section. You can use [REMAINING DISK WARNING] to specify the amount of free space remaining.

1 When the cursor is at the OVERWRITE setting, turn the shuttle dial clockwise.

"ON" flashes.

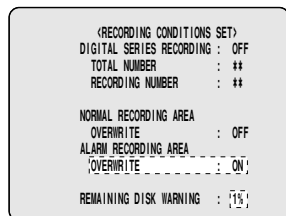
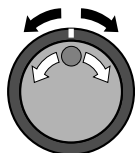


2 Use the jog dial to select the setting (example: OFF), and then turn the shuttle dial clockwise.

REMAINING DISK WARNING changes from ** to 1%.

Display examples:

- **OFF:** When the normal recording area becomes full, recording stops.
- **ON:** When the normal recording area becomes full, images are overwritten automatically starting from the earliest recorded images.



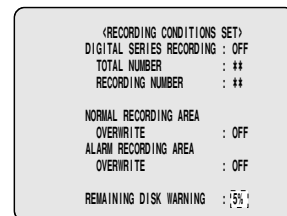
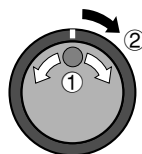
Note: If "OFF" is selected, the REMAINING DISK WARNING setting shows the percentage of hard disk space remaining that triggers the FULL or ALARM FULL indicator to start flashing.

3 Follow the same procedure to make the setting (OFF) for the ALARM RECORDING AREA.

Note: Make the settings separately for each item in the menu, even if making a digital connection. The OVERWRITE settings for second and subsequent units must match the setting for the first unit.

4 When the cursor is at the REMAINING DISK WARNING setting, turn the shuttle dial clockwise, and then use the jog dial to set the display value for the amount of disk space remaining (example: "5").

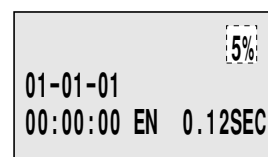
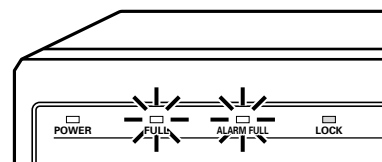
Note: The REMAINING DISK WARNING setting can be between 1% (default setting) and 10%.



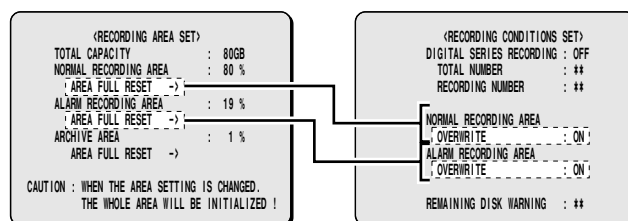
5 Press the EXIT/OSD button.

The display returns to the normal screen.

When the remaining disk space in each area reaches 5%, it is displayed in the operating display section. The FULL (for normal recording area) or ALARM FULL (for alarm recording area) indicator on the front of the digital video recorder flashes.



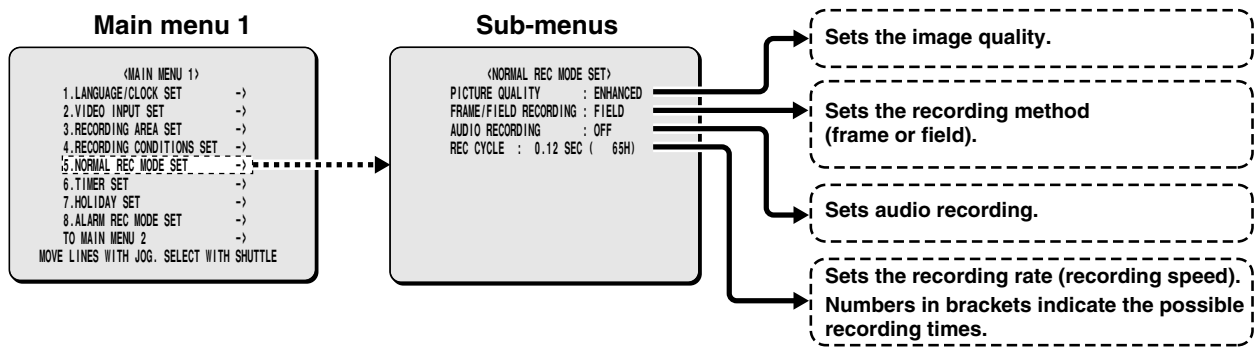
Relationship between RECORDING AREA SET and OVERWRITE



If the normal recording area and alarm recording area become full, select AREA FULL RESET for the normal recording area or alarm recording area in the RECORDING AREA SET menu. (See page 43.)

Note: No audio input is provided from the digital video input terminals. Audio signals can be input as analog signals via the audio input terminals (such as the MIC terminal). For details on CONNECTIONS, see page 10.

NORMAL REC MODE SET SETTING

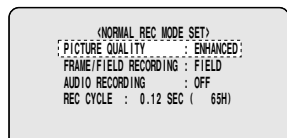
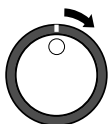


■ NORMAL REC MODE SET setting

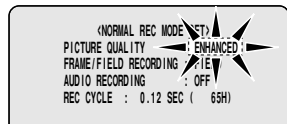
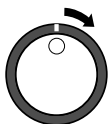
This lets you set the recording quality, recording method (frame or field), audio recording and recording speed for the normal recording area.

1 Press the MENU button to select NORMAL REC MODE SET, and then turn the shuttle dial clockwise.

The NORMAL REC MODE SET sub-menu appears, and the cursor moves to PICTURE QUALITY.



2 Turn the shuttle dial clockwise. "ENHANCED" flashes.

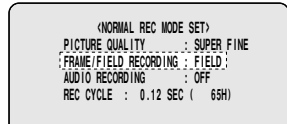
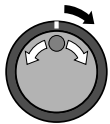


Display examples: Picture quality selection

- BASIC (BA): (15 KB)
- NORMAL (NO): (22 KB)
- ENHANCED (EN): (30 KB)
- FINE (FI): (42 KB)
- SUPER FINE (SF): (56 KB)

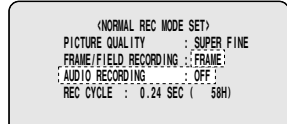
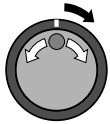
3 Use the jog dial to change select the image quality (example: "SUPER FINE"), and then turn the shuttle dial clockwise.

The cursor moves to FRAME/FIELD RECORDING.



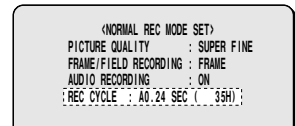
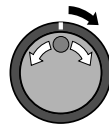
4 Turn the shuttle dial clockwise, use the jog dial to set frame or field recording (example: FRAME), and then turn the shuttle dial clockwise.

The cursor moves to AUDIO RECORDING.



5 Turn the shuttle dial clockwise, use the jog dial to set audio recording (example: "ON"), and then turn the shuttle dial.

The cursor moves to REC CYCLE.



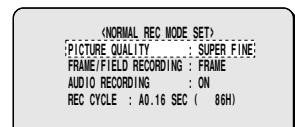
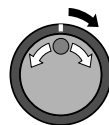
Note:

- Audio recording can be set when the REC CYCLE setting is from 0.02 to 0.12 (FIELD) or 0.04 to 0.24 (FRAME).
- When set to "ON", the letter "A" (audio recording indicator) appears in front of the REC CYCLE recording rate. This is because the audio recordings are also made in the normal recording area, so that the image recording capacity of the normal recording area is reduced.

6 Turn the shuttle dial clockwise, use the jog dial to set the recording speed (example: "0.16"), and then turn the shuttle dial.

The cursor moves to PICTURE QUALITY.

Note: The field and frame recording speeds vary depending on the PICTURE QUALITY setting. Refer to the Recording speed table for details. (See page 10.)



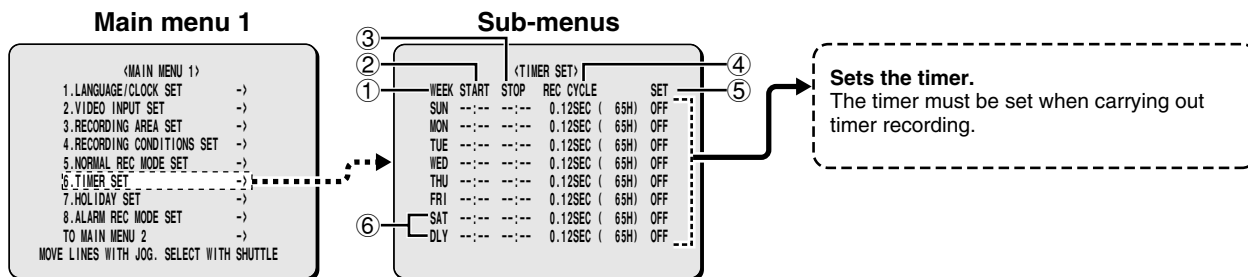
7 Press the EXIT/OSD button.

The display returns to the normal screen.



TIMER SET SETTING

Use the timer function of the digital video recorder to set the times for timer recording.



TIMER SET setting

This sets the starting time and stopping time for each day, and also sets the recording speed.

① WEEK

This selects the day for the timer setting. While a day is flashing another day can be selected. The 7th line (SAT) and 8th line (DLY) are used for setting a timer recording for a period of more than 24 hours.

② START

This is used to enter the starting time for timer recording.

③ STOP

This is used to enter the stopping time for timer recording.

④ REC CYCLE

- Sets the recording speed.

The initial setting is for FIELD (0.12SEC) recording. If the setting is changed to frame recording, the recording speed becomes 0.24SEC.

- The numbers in brackets are the result of automatic calculation of the available time based on the recording method, picture quality and audio recording settings. The maximum value that can be displayed is 9999H. If the available time is 10000H or more, the display appears as 9999*.

⑤ SET

Set to "ON" when using timer recording.

Set to "OFF" when not using timer recording.

⑥ For setting a timer recording of more than 24 hours.

Use this line for a timer recording of more than 24 hours.

Note: The picture quality, frame/field recording and audio recording settings for timer recording will be the settings used for recording in the normal recording area.

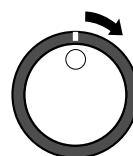
Timer reservations every day at the same time with the same image quality

Example: Timer recording every day from 8:30 a.m. to 6:30 p.m. at the same recording speed

1

Press the MENU button to select **TIMER SET**, and then turn the shuttle dial clockwise.

The **TIMER SET** sub-menu appears, and the cursor moves to **SUN**.

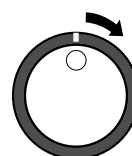


<TIMER SET>				
WEEK	START	STOP	REC CYCLE	SET
SUN	--:--	--:--	0.12SEC (65H)	OFF
MON	--:--	--:--	0.12SEC (65H)	OFF
TUE	--:--	--:--	0.12SEC (65H)	OFF
WED	--:--	--:--	0.12SEC (65H)	OFF
THU	--:--	--:--	0.12SEC (65H)	OFF
FRI	--:--	--:--	0.12SEC (65H)	OFF
SAT	--:--	--:--	0.12SEC (65H)	OFF
DLY	--:--	--:--	0.12SEC (65H)	OFF

2

Turn the shuttle dial clockwise.

"SUN" flashes in the WEEK column.

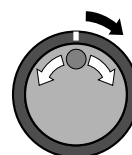


SUN --:-- --:-- 0.12SEC (65H) OFF

3

Use the jog dial to change from "SUN" to "DLY", and then turn the shuttle dial.

--:-- (hours) flashes in the START column.

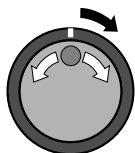


DLY --:-- --:-- 0.12SEC (65H) OFF

TIMER SET SETTING

- 4** Use the jog dial to change from “--” to “08”, and then turn the shuttle dial clockwise.

“--” (minutes) flashes in the START column.



DLY 08:--:-- 0.12SEC (65H) OFF

- 5** Use the jog dial to change from “--” to “30”, and then turn the shuttle dial clockwise.

“--” (hours) flashes in the STOP column.

DLY 08:30:-- 0.12SEC (65H) OFF

- 6** Use the jog dial to change from “--” to “18”, and then turn the shuttle dial clockwise.

“--” (minutes) flashes in the STOP column.

DLY 08:30 18:--:-- 0.12SEC (65H) OFF

- 7** Use the jog dial to change from “--” to “30”, and then turn the shuttle dial clockwise.

“0.12” (recording speed) flashes in the REC CYCLE column.

DLY 08:30 18:30 0.12SEC (65H) OFF

- 8** Use the jog dial to set the recording speed to “0.16” (86H), and then turn the shuttle dial clockwise.

“OFF” flashes in the SET column.

DLY 08:30 18:30 0.16SEC (86H) OFF

Note: The image quality for timer recording will be the image quality that was set by PICTURE QUALITY in the NORMAL REC MODE SET sub-menu.

Example: The recording will be SUPER FINE. Then recording speed the same as the speed previously set.

- 9** Use the jog dial to change “OFF” to “ON”, and then turn the shuttle dial clockwise.

The cursor moves to MON.

<TIMER SET>					
WEEK	START	STOP	REC CYCLE	SET	
DLY	08:30	18:30	0.16SEC (86H)	ON	
MON	--:--	--:--	0.12SEC (65H)	OFF	
TUE	--:--	--:--	0.12SEC (65H)	OFF	
WED	--:--	--:--	0.12SEC (65H)	OFF	
THU	--:--	--:--	0.12SEC (65H)	OFF	
FRI	--:--	--:--	0.12SEC (65H)	OFF	
SAT	--:--	--:--	0.12SEC (65H)	OFF	
DLY	--:--	--:--	0.12SEC (65H)	OFF	

- 10** Press the EXIT/OSD button.

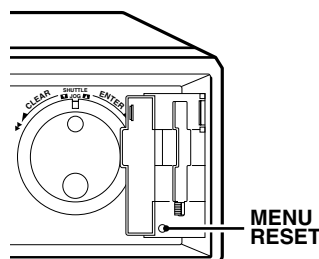
The display returns to the normal screen.

EXIT/OSD



Note:

- If you want to use different days, times, and recording speeds for timer recording, select the respective WEEK column and make the required settings.
- If timer reservations overlap each other, the one that starts first will have priority.
- To delete all timer reservations (including time settings), press the **MENU RESET** button of the front panel.



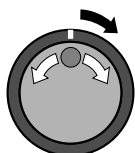
TIMER SET SETTING

■ Timer reservations spanning more than 24 hours

To make 24-hour timer reservations, use lines 7 (SAT) and 8 (DLY) of the menu screen.

Example: To set timer recording from 10.30 a.m. on Monday to 8.30 p.m. on Wednesday

- 1 Use the jog dial to move the cursor to the 7th line (SAT), and then turn the shuttle dial clockwise.
"SAT" flashes in the WEEK column.



[TIMER SET]				
WEEK	START	STOP	REC CYCLE	SET
SUN	--:--	--:--	0.12SEC (65H)	OFF
MON	--:--	--:--	0.12SEC (65H)	OFF
TUE	--:--	--:--	0.12SEC (65H)	OFF
WED	--:--	--:--	0.12SEC (65H)	OFF
THU	--:--	--:--	0.12SEC (65H)	OFF
FRI	--:--	--:--	0.12SEC (65H)	OFF
SAT	--:--	--:--	0.12SEC (65H)	OFF
DLY	--:--	--:--	0.12SEC (65H)	OFF

- 2 Use the jog dial to change from "SAT" to "MON", and then turn the shuttle dial clockwise.
"--" (hours) flashes in the START column.

MON --:-- 0.12SEC (65H) OFF

- 3 Use the jog dial to change from "--" to "10", and then turn the shuttle dial clockwise.
"--" (minutes) flashes in the START column.

- 4 Use the jog dial to change from "--" to "30", and then turn the shuttle dial clockwise.
"--" (hours) flashes in the STOP column.

MON 10:30 --:-- 0.12SEC (65H) OFF

- 5 Use the jog dial to change from "--" to "**", and then turn the shuttle dial clockwise.
The DLY setting on the 8th line automatically changes to the following day (TUE) of the weekday indicated in the 7th line changed to "TUE". Parts which do not need to be set appear with a "*" symbol.

MON 10:30 **:~ 0.12SEC (65H) OFF
TUE **:~ --:~ ---SEC (---H) OFF

- 6 Use the jog dial to change from "TUE" to "WED", and then turn the shuttle dial clockwise.
"--" (hours) flashes in the STOP column.

WED **:~ --:~ 0.12SEC (65H) OFF

- 7 Use the jog dial to change from "--" to "20", and then turn the shuttle dial clockwise.
"--" (minutes) flashes in the STOP column.

- 8 Use the jog dial to change from "--" to "30", and then turn the shuttle dial clockwise.
"0.12" (recording speed) flashes in the REC CYCLE column.

WED **:~ 20:30 0.12SEC (65H) OFF

- 9 Use the jog dial to change from "0.12" to "0.20" (108H), and then turn the shuttle dial clockwise.
"OFF" flashes in the SET column.

WED **:~ 20:30 0.20SEC (108H) OFF

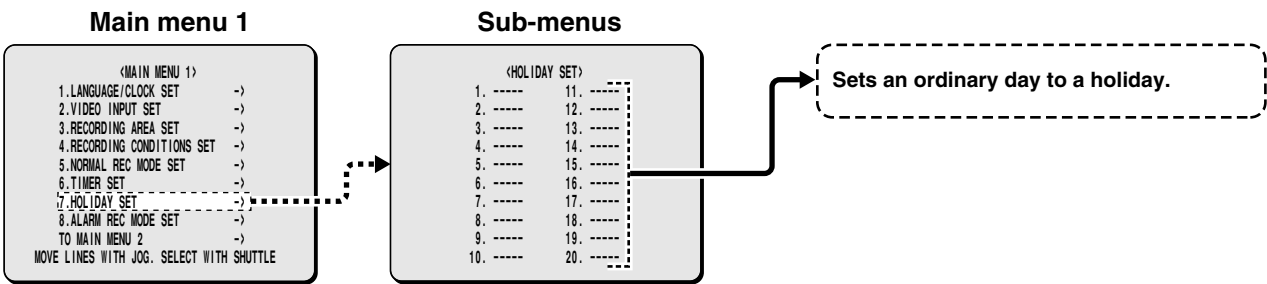
- 10 Use the jog dial to change from "OFF" to "ON", and then turn the shuttle dial clockwise.
The cursor moves to the first line.

MON 10:30 **:~ 0.20SEC (108H) ON
WED **:~ 20:30 0.20SEC (108H) ON

- 11 Press the EXIT/OSD button.
The display returns to the normal screen.



HOLIDAY SET SETTING



HOLIDAY SET setting

Days such as designated national holidays and company holidays are treated in the same way as normal weekdays. Naturally timer recording is carried out in the same way for these days, but if you set the HOLIDAY SET setting to “SET:ON” in the menu timer settings and then specify the dates for the holidays in this menu screen, the same sort of timer reservations can be made for holidays.

Note: For a timer setting make sure that you make the time settings for Sunday (SUN) before changing SET to “ON”.

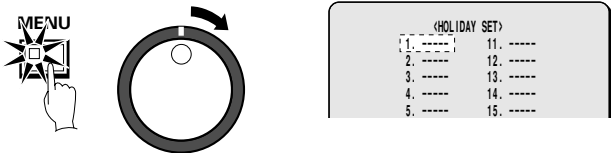
<TIMER SET>					
WEEK	START	STOP	REC	CYCLE	SET
SUN	08:00	18:00	0.32SEC	(173H)	ON
MON	--:--	--:--	0.12SEC	(65H)	OFF
TUE	--:--	--:--	0.12SEC	(65H)	OFF
WED	--:--	--:--	0.12SEC	(65H)	OFF
THU	--:--	--:--	0.12SEC	(65H)	OFF
FRI	--:--	--:--	0.12SEC	(65H)	OFF
SAT	--:--	--:--	0.12SEC	(65H)	OFF
DLY	--:--	--:--	0.12SEC	(65H)	OFF

Example: To set 17 November as a holiday

- 1

Press the MENU button to select HOLIDAY SET, and then turn the shuttle dial clockwise.

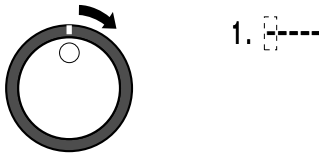
The HOLIDAY SET sub-menu appears, and the cursor moves to the line 1.



- 2

Turn the shuttle dial clockwise.

“--” (day) flashes in the line 1.



- 3

Use the jog dial to change from “--” to “17”, and then turn the shuttle dial clockwise.

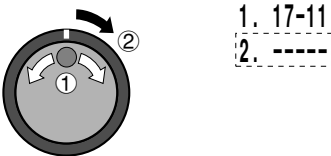
“--” (month) flashes in the line 1.

1. 17----

- 4

Use the jog dial to change from “--” to “11”, and then turn the shuttle dial clockwise.

The cursor moves to the line 2.



- 5

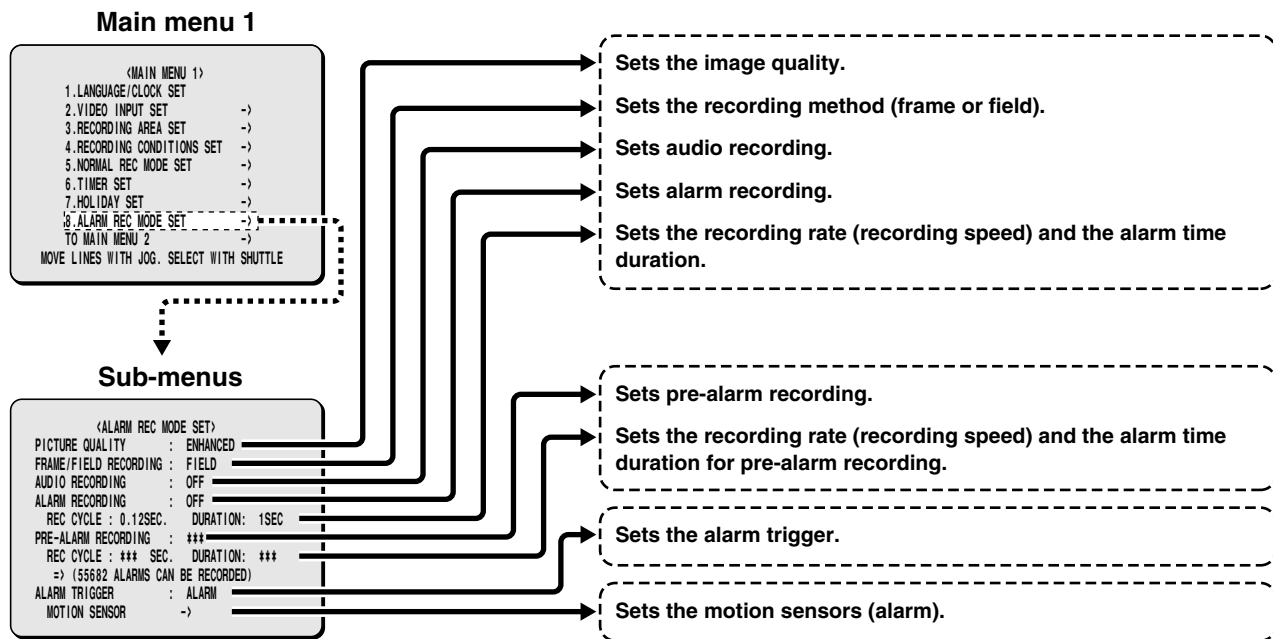
Follow the same procedure to set other holiday dates.
- 6

Press the EXIT/OSD button.

The display returns to the normal screen.



ALARM REC MODE SET SETTING

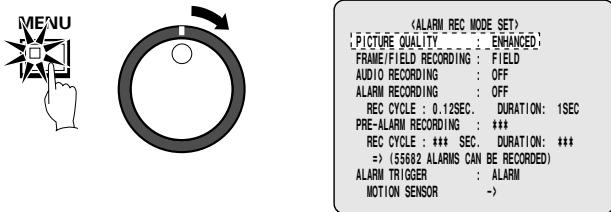


ALARM REC MODE SET setting

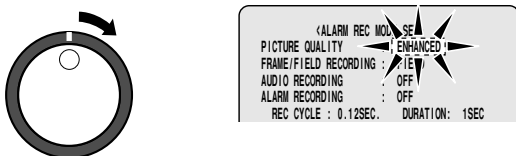
This lets you set the recording quality, recording method (frame or field), audio recording and recording speed for the alarm recording area.

1 Press the MENU button to select ALARM REC MODE SET, and then turn the shuttle dial clockwise.

The ALARM REC MODE SET sub-menu appears, and the cursor moves to PICTURE QUALITY.



2 Turn the shuttle dial clockwise. "ENHANCED" flashes.



3 Use the jog dial to select the image quality (example: "SUPER FINE"), and then turn the shuttle dial clockwise.

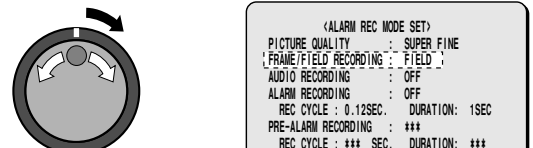
The cursor moves to FRAME/FIELD RECORDING.

Note: The maximum number of images that can be recorded based on the various alarm recording settings is shown below.

=> (30721 ALARMS CAN BE RECORDED)

(Image quality settings)

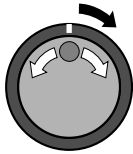
- **BASIC (BA):** (15 KB)
- **NORMAL (NO):** (22 KB)
- **ENHANCED (EN):** (30 KB)
- **FINE (FI):** (42 KB)
- **SUPER FINE (SF):** (56 KB)



ALARM REC MODE SET SETTING

- 4** Turn the shuttle dial clockwise, use the jog dial to set the recording method (example: "FRAME"), and then turn the shuttle dial clockwise.

The cursor moves to AUDIO RECORDING.



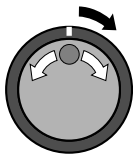
<ALARM REC MODE SET>	
PICTURE QUALITY	: SUPER FINE
FRAME/FIELD RECORDING	: FRAME
AUDIO RECORDING	: OFF
ALARM RECORDING	: OFF
REC CYCLE	: 0.24SEC. DURATION: 1SEC
PRE-ALARM RECORDING	: ***

Note:

- When FRAME/FIELD RECORDING is selected, the recording speed appears in REC CYCLE and the maximum number of recordings appears after it in brackets.
=> (30721 ALARMS CAN BE RECORDED)
- The field and frame recording speeds vary depending on the PICTURE QUALITY setting. Refer to the Recording speed table for details. (See page 10.)

- 5** Turn the shuttle dial clockwise, use the jog dial to set audio recording (example: "ON"), and then turn the shuttle dial.

The cursor moves to ALARM RECORDING.



<ALARM REC MODE SET>	
PICTURE QUALITY	: SUPER FINE
FRAME/FIELD RECORDING	: FRAME
AUDIO RECORDING	: ON
ALARM RECORDING	: OFF
REC CYCLE	: 0.24SEC. DURATION: 1SEC
PRE-ALARM RECORDING	: ***
REC CYCLE	: *** SEC. DURATION: ***

Note:

- Audio recording can be set when the REC CYCLE setting is 0.12 SEC (FIELD) or 0.24 SEC (FRAME) or more.
- When set to "ON", the letter "A" (audio recording indicator) appears in front of the REC CYCLE recording speed, and the maximum number of recordings appears after it in brackets.
=> (30200 ALARMS CAN BE RECORDED)

- 6** Turn the shuttle dial clockwise, use the jog dial to set alarm recording mode (example: "MODE1"), and then turn the shuttle dial.

The cursor moves to REC CYCLE.

Display example: Alarm recording settings

- OFF:** Alarm recording is not carried out.
- MODE1:** Alarm recording is always carried out regardless of the timer recording settings.
- MODE2:** Alarm recording is only carried out when timer recording is in progress.
- MODE3:** Alarm recording is only carried out when timer recording is not in progress
- MODE4:** Alarm recording is carried out only during the times set by the timer. This cannot be used for normal recording.

Note: If alarm recording is set to a setting such as MODE1, PRE-ALARM RECORDING setting will be enabled ("***" will change to "OFF").

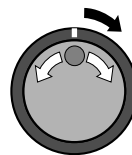
- 7** Turn the shuttle dial clockwise, use the jog dial to set the recording speed (example: "0.16"), and then turn the shuttle dial.

DURATION of "1SEC" flashes.

Note: When the recording speed is selected, the maximum number of recordings appears after it in brackets.
=> (20480 ALARMS CAN BE RECORDED)

- 8** Use the jog dial to set the recording time duration (example: "5"), and then turn the shuttle dial.

The cursor moves to PRE-ALARM RECORDING.

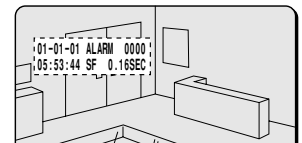


<ALARM REC MODE SET>	
PICTURE QUALITY	: SUPER FINE
FRAME/FIELD RECORDING	: FRAME
AUDIO RECORDING	: ON
ALARM RECORDING	: MODE1
REC CYCLE	: 0.16SEC. DURATION: 5SEC
PRE-ALARM RECORDING	: OFF
REC CYCLE	: *** SEC. DURATION: ***
=> (04026 ALARMS CAN BE RECORDED)	
ALARM TRIGGER	: ALARM
MOTION SENSOR	: ->

- 9** Press the EXIT/OSD button.

The display returns to the normal screen.

Alarm settings appear in the operating display section. When an alarm is triggered, the number of alarms is displayed.



Note: If another alarm occurs while alarm recording is in progress, alarm recording continues with images for the second alarm being recorded from the point where the second alarm occurred.

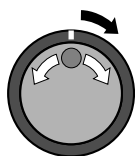
If several alarms have occurred at the same time, they are treated as a single alarm until the alarms stop.

ALARM REC MODE SET SETTING

■ Pre-alarm recording setting

- 1 Use the jog dial to move the cursor to the **ALARM RECORDING** setting, and then turn the shuttle dial clockwise.

"OFF" flashes.



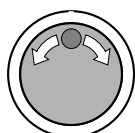
```

<ALARM REC MODE SET>
PICTURE QUALITY : SUPER FINE
FRAME/FIELD RECORDING : FRAME
AUDIO RECORDING : ON
ALARM RECORDING : OFF
REC CYCLE : A0.16SEC. DURATION: 5SEC
PRE-ALARM RECORDING : ***
REC CYCLE : *** SEC. DURATION: ***
    
```

- 2 Use the jog dial to change the "OFF" setting to some other mode (example: **MODE1**), and then turn the shuttle dial clockwise.

The PRE-ALARM RECORDING setting changes from "***" to "OFF".

The cursor moves to REC CYCLE.

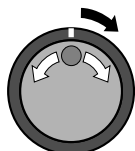


```

<ALARM REC MODE SET>
PICTURE QUALITY : SUPER FINE
FRAME/FIELD RECORDING : FRAME
AUDIO RECORDING : ON
ALARM RECORDING : MODE1
REC CYCLE : A0.16SEC. DURATION: 5SEC
PRE-ALARM RECORDING : OFF
REC CYCLE : *** SEC. DURATION: ***
=> (14298 ALARMS CAN BE RECORDED)
ALARM TRIGGER : ALARM
MOTION SENSOR : ->
    
```

- 3 Use the jog dial to move the cursor to the **PRE-ALARM RECORDING** setting, and then turn the shuttle dial clockwise.

"OFF" flashes.



```

ALARM RECORDING : MODE1
REC CYCLE : 0.12SEC. DURATION: 5SEC
PRE-ALARM RECORDING : OFF
REC CYCLE : *** SEC. DURATION: ***
=> (14298 ALARMS CAN BE RECORDED)
ALARM TRIGGER : ALARM
MOTION SENSOR : ->
    
```

- 4 Use the jog dial to change from "OFF" to "ON", and then turn the shuttle dial clockwise.

The cursor moves to REC CYCLE.

```

PRE-ALARM RECORDING : ON
REC CYCLE : A0.24SEC. DURATION: 1SEC
=> (14298 ALARMS CAN BE RECORDED)
ALARM TRIGGER : ALARM
MOTION SENSOR : ->
    
```

- 5 Turn the shuttle dial clockwise, use the jog dial to set the recording speed (example: "A0.24"), and then turn the shuttle dial clockwise.

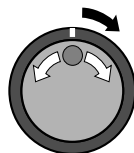
The cursor moves to the "1SEC" setting for DURATION and flashes.

```

PRE-ALARM RECORDING : ***
REC CYCLE : A0.24SEC. DURATION: 1SEC
=> (14298 ALARMS CAN BE RECORDED)
ALARM TRIGGER : ALARM
MOTION SENSOR : ->
    
```

- 6 Use the jog dial to set the recording time duration (example: "5SEC"), and then turn the shuttle dial clockwise.

The cursor moves to ALARM TRIGGER.



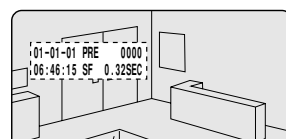
```

REC CYCLE : 0.12SEC. DURATION: 5SEC
PRE-ALARM RECORDING : ON
REC CYCLE : A0.24SEC. DURATION: 5SEC
=> (14298 ALARMS CAN BE RECORDED)
ALARM TRIGGER : ALARM
MOTION SENSOR : ->
    
```

- 7 Press the **EXIT/OSD** button.

The display returns to the normal screen.

"PRE" appears in the operating display section. When an alarm is triggered, the display switches to "ALARM".



Note:

- Pre-alarm recording continues for the length of time specified by the DURATION setting before an alarm signal is input. When playing back images that have been recorded during pre-alarm recording, use the alarm search (**SEARCH FRAME/FIELD** button) operations. Images will be played back from the point that the alarm occurred, so use the shuttle operations to carry out rewind playback.
- If pre-alarm recording is being carried out in FIELD (recording rate) mode, the cycle speed for the recording cycle settings will become slower, and the 0.02 second and 0.04 second settings cannot be selected.

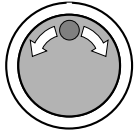
Recording Rate (field/sec)	Recording Cycle (SEC)	PICTURE	
		BASIC	NORMAL
		15 kB	22 kB
50.00	0.02	25H	18H
25.00	0.04	51H	36H
16.67	0.06	76H	54H
12.50	0.08	102H	72H
8.33	0.12	153H	108H
6.25	0.16	204H	144H
		255H	180H

- If carrying out normal alarm recording and pre-alarm recording at the same time, no audio signals will be recorded with the pre-alarm recording images.
- If using the digital video recorder together with a multiplexer, the switching signal from the multiplexer will be output in accordance with the digital video recorder's recording timing for normal recording if pre-alarm recording and normal recording are being carried out at the same time. Because of this, if the recording cycle for pre-alarm recording is shorter than the recording cycle setting for normal recording, pre-alarm recording images from one camera may be continuously recorded. On the other hand, if the recording cycle for pre-alarm recording is longer than the recording cycle setting for normal recording, camera images may not be recorded at all during normal recording, so this setting should not be made.

ALARM REC MODE SET SETTING

Alarm trigger setting

- 1 Use the jog dial to move the cursor to the **ALARM TRIGGER** setting.

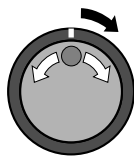


```

PRE-ALARM RECORDING : ON
REC CYCLE : A0.24SEC. DURATION: 5SEC
=> (14298 ALARMS CAN BE RECORDED)
ALARM TRIGGER : ALARM
MOTION SENSOR : -
    
```

- 2 Turn the shuttle dial clockwise, use the jog dial to select the method of detecting suspicious people (example: **"SENSOR"**), and then turn the shuttle dial.

The cursor moves to MOTION SENSOR.



```

PRE-ALARM RECORDING : ON
REC CYCLE : A0.24SEC. DURATION: 5SEC
=> (14298 ALARMS CAN BE RECORDED)
ALARM TRIGGER : SENSOR
MOTION SENSOR : -
    
```

Display examples: Alarm recording trigger settings

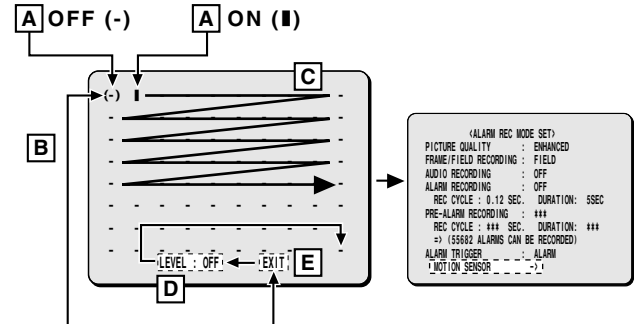
- **ALARM:** Alarm recording is carried out when an external alarm (when a switch is connected to the ALARM IN terminals at the rear of the unit for open/close operation occurs).
- **SENSOR:** Alarm recording is only carried out when the motion sensor detects a moving object. Refer to motion sensor settings.
- **ALARM AND SENSOR:** Alarm recording is carried out when there is a response from both an external alarm and a built-in motion sensor.
- **ALARM OR SENSOR:** Alarm recording is carried out when there is a response from either an external alarm or a built-in motion sensor.

Note:

- MOTION SENSOR settings must be made if SENSOR, ALARM AND SENSOR or ALARM OR SENSOR is selected.
- The digital video recorder's built-in motion sensor cannot be used if a multiplexer is connected to the digital video recorder.
- If using the built-in sensor of a multiplexer, the alarm output should be directed to the alarm input of the digital video recorder in order to record alarms.
- If you stop recording while alarm recording that has been triggered by a motion sensor is in progress, move the cursor to the ALARM REC MODE SET setting in menu 1 and then turn the shuttle dial clockwise. The motion sensor screen appears, so use this screen to change the LEVEL setting to **"OFF"**.

Built-in motion sensor settings

The monitor screen (= 8x10) can be displayed on the monitor screen so that detection of suspicious people (alarms) can be carried out more easily. The default setting is for all motion sensors to be **"OFF"**, so that they cannot detect the movement of objects.



Motion sensor screen

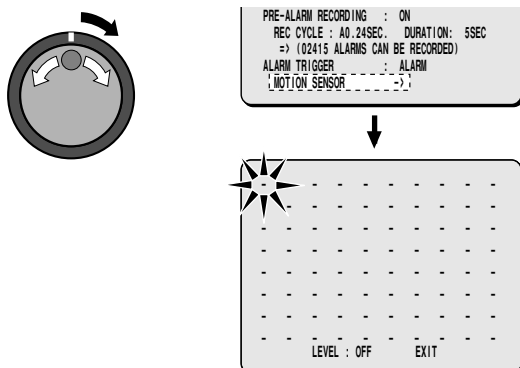
Use the jog dial to move the cursor to MOTION SENSOR, and then turn the shuttle dial clockwise.

The motion sensor screen appears over the normal screen.

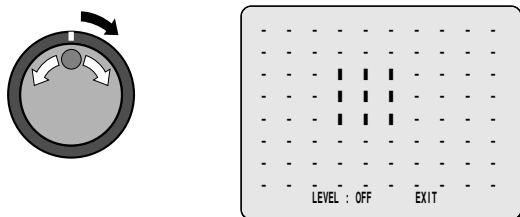
- When the sensors are set to **"OFF"** (-) and the shuttle dial is turned clockwise, the sensor is changed to **"ON"** (■). The setting switches between **"ON"** and **"OFF"** each time the shuttle dial is turned clockwise.
- When the jog dial is turned counterclockwise, the cursor moves past **"EXIT"** and **"LEVEL: OFF"**, and then moves again from the bottom to the top.
- When the jog dial is turned clockwise and the cursor reaches the bottom, it moves past **"LEVEL: OFF"** and **"EXIT"** and then moves to the top.
- The sensitivity can be adjusted when the sensor is set to **"ON"** (■). Turn the jog dial to select **"LEVEL: OFF"**, turn the shuttle dial clockwise, and then turn the jog dial to adjust the sensitivity.
(OFF 1 – 10: The sensitivity increases as the number becomes lower.)
- If the cursor is at **"EXIT"** and the shuttle dial is turned clockwise, the display returns to the ALARM REC MODE SET screen.

ALARM REC MODE SET SETTING

- 1 Use the jog dial to move the cursor to the **MOTION SENSOR** setting, and then turn the shuttle dial clockwise. The motion sensor screen appears on the normal screen.



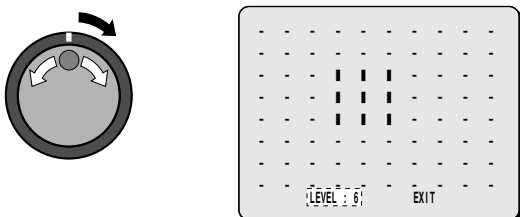
- 2 Turn the jog dial to set the sensor position, and then turn the shuttle dial clockwise. Since the sensor goes from OFF [–] to ON [■], use the same procedure to set the sensor ON.



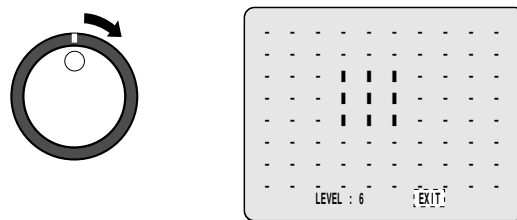
- 3 Use the jog dial to move the cursor to “LEVEL: OFF”, turn the shuttle dial clockwise, and then use the jog dial to set the sensitivity (example: “6”).

Display examples: Sensitivity settings

- **OFF:** Sensor does not operate
- **1 to 10:** Sensor operates (the lower the value, the greater the sensitivity)



- 4 Turn the shuttle dial clockwise twice. This completes the motion sensor settings, and the display is returned to the ALARM REC MODE SET screen.

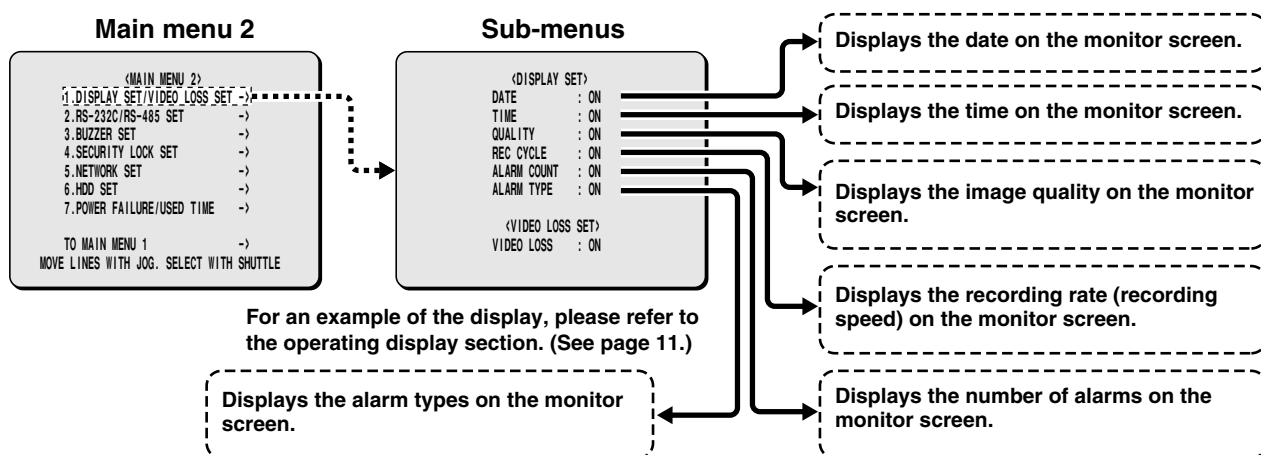


- 5 Press the **EXIT/OSD** button. The display returns to the normal screen.



Note: Change the ALARM setting for the ALARM set item in the BUZZER SET menu in MAIN MENU 2 to “ON”.

DISPLAY SET SETTING



■ DISPLAY SET setting

The date and time that have been set using the CLOCK SET and other settings can be displayed on the monitor screen during recording and playback. The default setting is for all displays to be "ON", so all setting items in this menu appear on the screen. You can turn the displays off if required.

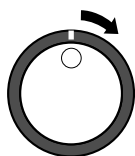
- 1 Press the MENU button twice and display the MAIN MENU 2 screen.

The cursor moves to DISPLAY SET/VIDEO LOSS SET.



- 2 Turn the shuttle dial clockwise.

The DISPLAY SET sub-menu appears, and the cursor moves to DATE.



- 3 Turn the shuttle dial clockwise.

"ON" flashes. If you use the jog dial to change it to "OFF", the date display disappears from the screen.

- 4 Turn the shuttle dial clockwise.

The cursor moves to TIME.

- 5 Turn the shuttle dial clockwise.

"ON" flashes. If you use the jog dial to change it to "OFF", the time display disappears from the screen.

- 6 If necessary, follow the same procedure (steps 3 and 4) to change the ON/OFF settings.

- **QUALITY (OFF):** The picture quality mode does not appear during recording and playback.
- **REC CYCLE (OFF):** The recording cycle does not appear during recording and playback.
- **ALARM COUNT (OFF):** The current number of alarms does not appear.
- **ALARM TYPE (OFF):** The type of alarm recording does not appear.

Note:

- If ALARM RECORDING in the ALARM REC MODE SET menu has been set to "OFF", ALARM COUNT and ALARM TYPE do not appear.
- When set to "ON"
 - ALARM appears in the operating display during alarm recording.
 - PRE appears in the operating display during pre-alarm recording.
 - ARCHIVE appears when playing back images in the archive area.

- 7 Press the EXIT/OSD button.

The display returns to the normal screen.

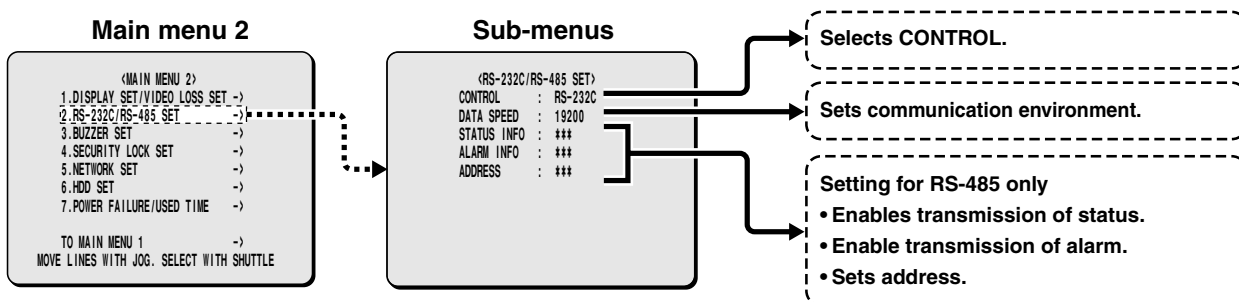


■ VIDEO LOSS SET setting

Use the jog dial to move the cursor to VIDEO LOSS, and then turn the shuttle dial clockwise.

"ON" flashes. If the camera images are lost when this setting is active, "VIDEO LOSS !" appears on the screen.

RS-232C/RS-485 SET SETTING



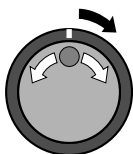
■ RS-232C/RS-485 SET setting

Settings related to RS-232C and RS-485 serial communication.

- 1 Press the MENU button twice to display the MAIN MENU 2 screen.
The cursor moves to DISPLAY SET/VIDEO LOSS SET.



- 2 Use the jog dial to move the cursor to the RS-232C/RS-485 SET settings, and then turn the shuttle dial clockwise.
The RS-232C/RS-485 SET sub-menu appears, and the cursor moves to CONTROL.



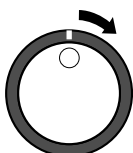
```

<MAIN MENU 2>
1.DISPLAY SET ->
2.RS-232C/RS-485 SET ->
3.BUZZER SET ->
4.SECURITY LOCK SET ->
5.NETWORK SET ->
6.HDD SET ->
    
```

```

<RS-232C/RS-485 SET>
CONTROL : RS-232C
DATA SPEED : 19200
STATUS INFO : ***
ALARM INFO : ***
ADDRESS : ***
    
```

- 3 Turn the shuttle dial clockwise.
“RS-232C” flashes. Use the jog dial to select either RS-232C or RS-485.



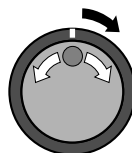
```

<RS-232C/RS-485 SET>
CONTROL : RS-232C
DATA SPEED : 19200
STATUS INFO : ***
ALARM INFO : ***
ADDRESS : ***
    
```

■ RS-232C Selection

For connection of the RS-232C terminal of the unit to a computer, please use a special RS-232C cable (sold separately). (See page 7.)

- 1 Turn the jog dial to select RS-232C, and then turn the shuttle dial clockwise.
The cursor moves to DATA SPEED.

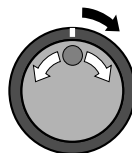


```

<RS-232C/RS-485 SET>
CONTROL : RS-232C
DATA SPEED : 19200
STATUS INFO : ***
ALARM INFO : ***
ADDRESS : ***
    
```

- 2 Turn the shuttle dial clockwise, use the jog dial to select a communication speed (example: “19200”), and then turn the shuttle dial clockwise.
This completes the setting and the cursor moves to CONTROL.

- Communication speeds: 2400, 4800, 9600 and 19200



```

<RS-232C/RS-485 SET>
CONTROL : RS-232C
DATA SPEED : 19200
STATUS INFO : ***
ALARM INFO : ***
ADDRESS : ***
    
```

- 3 Press the EXIT/OSD button.
The display returns to the normal screen.



RS-232C/RS-485 SET SETTING

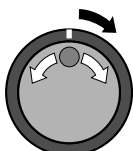
■ RS-485 Selection

Connect the RS-485 control terminals (A and B) of the digital video recorder in series with other devices such as a controller, multiplexer or another digital video recorder. (See page 7.)

- 1 Turn the shuttle dial clockwise, use the jog dial to select RS-485, and then turn the shuttle dial clockwise.

The cursor moves to DATA SPEED.

The STATUS INFO, ALARM INFO and ADDRESS settings can be changed.

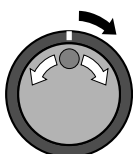


<RS-232C/RS-485 SET>	
CONTROL	: RS-485
DATA SPEED	: 19200
STATUS INFO	: ON
ALARM INFO	: ON
ADDRESS	: 000

- 2 Turn the shuttle dial clockwise, use the jog dial to select a communication speed (example: "19200"), and then turn the shuttle dial clockwise.

- Communication speeds: 2400, 4800, 9600 and 19200

The cursor moves to STATUS INFO.



<RS-232C/RS-485 SET>	
CONTROL	: RS-485
DATA SPEED	: 19200
STATUS INFO	: ON
ALARM INFO	: ON
ADDRESS	: 000

- 3 Turn the shuttle dial clockwise, use the jog dial to select status information (example: "ON"), and then turn the shuttle dial clockwise.

- ON: Status information will be transmitted.

The cursor moves to ALARM INFO.

- 4 Turn the shuttle dial clockwise, use the jog dial to select alarm information (example: "ON"), and then turn the shuttle dial clockwise.

- ON: Alarm information will be transmitted.

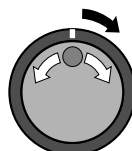
The cursor moves to ADDRESS.

- 5 Turn the shuttle dial clockwise, use the jog dial to select an address (example: "37"), and then turn the shuttle dial clockwise.

This completes the setting and the cursor moves to CONTROL.

Note: The range of valid addresses for this unit is from 0 to 127. If more than one digital video recorder is connected, be careful that same addresses are not repeated.

- Address item: 0 to 127



<RS-232C/RS-485 SET>	
CONTROL	: RS-485
DATA SPEED	: 19200
STATUS INFO	: ON
ALARM INFO	: ON
ADDRESS	: 000



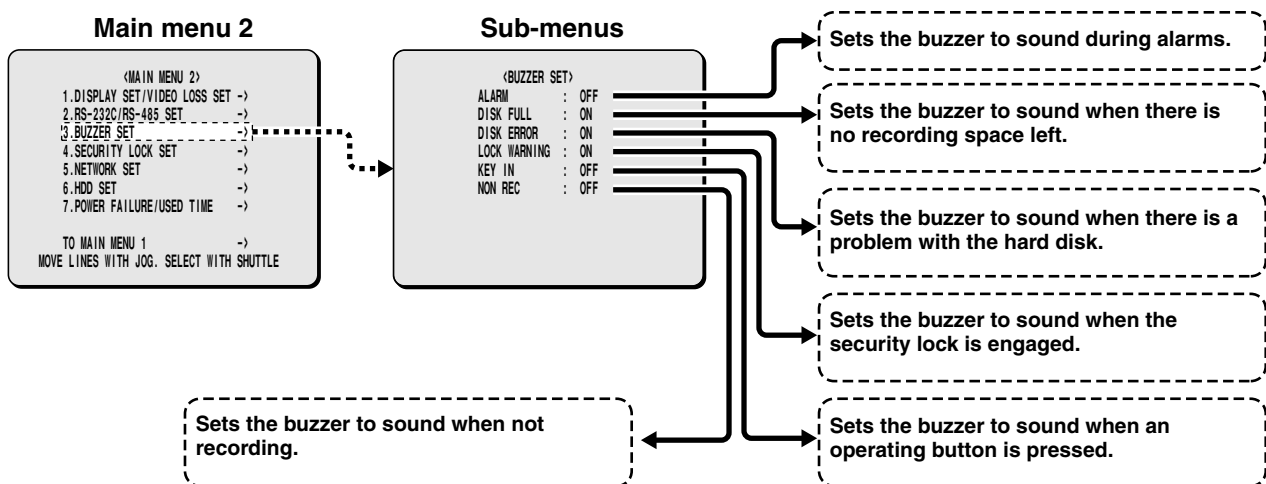
<RS-232C/RS-485 SET>	
CONTROL	: RS-485
DATA SPEED	: 19200
STATUS INFO	: ON
ALARM INFO	: ON
ADDRESS	: 37

- 6 Press the EXIT/OSD button.

The display returns to the normal screen.



BUZZER SET SETTING

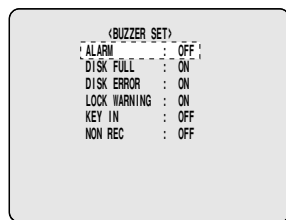
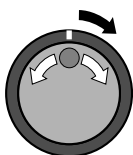


The buzzer can be made to sound as a warning during an alarm and when the hard disk becomes full.

- 1 Press the MENU button twice and display the MAIN MENU 2 screen.**
 The cursor moves to DISPLAY SET/VIDEO LOSS SET.



- 2 Use the jog dial to move the cursor to the BUZZER SET setting, and then turn the shuttle dial clockwise.**
 The BUZZER SET sub-menu appears, and the cursor moves to ALARM.



- 3 Turn the shuttle dial clockwise.**
 "OFF" flashes. Use the jog dial to change the setting to "ON" or "OFF".
ON: The buzzer will sound when an alarm is triggered.

- 4 If necessary, follow the same procedure to change the buzzer setting (ON/OFF).**
 - DISK FULL (ON):**
 Sets whether the buzzer sounds when disk overwriting is off and the hard disk is nearly full.
 - DISK ERROR (ON):**
 Sets whether the buzzer sounds when there is a hard disk error.
 - LOCK WARNING (ON):**
 When the security lock is engaged and a locked button is pressed, the buzzer sounds.

Note: When an item is set to "ON", the buzzer sounds twice at an interval of about 0.5 seconds.

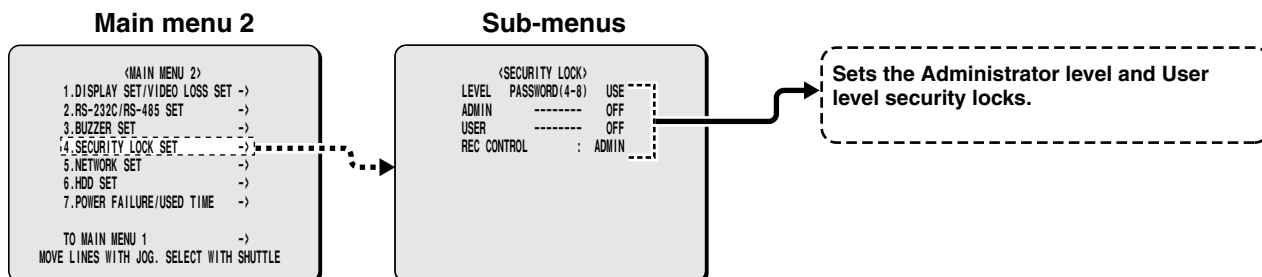
 - KEY IN (ON):**
 Sets the buzzer to sound each time an operating button is pressed.
 - NON REC (ON):**
 Sets the buzzer to sound when recording stops by itself and when another person deliberately stops recording.

- 5 Press the EXIT/OSD button.**
 The display returns to the normal screen.



SECURITY LOCK SET SETTING

Passwords for this digital video recorder can be set by the Administrator or the User or both. Setting passwords enables privileges to be set for recording and playback operations. After the security lock has been set, if someone other than the password setter touches an operating button on the unit, the buzzer will sound and a password must be entered. Therefore, be sure to make a note of the password.



■ Operating privileges and security lock

A Administrator password setting

Example: To set the password to "123456AB"

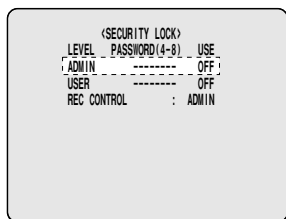
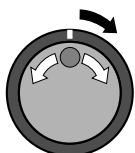
- 1** Press the **MENU** button twice to display the **MAIN MENU 2** screen.

The cursor moves to **DISPLAY SET/VIDEO LOSS SET**.

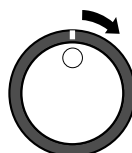


- 2** Use the **jog dial** to move the cursor to the **SECURITY LOCK SET** setting, and then turn the shuttle dial **clockwise**.

The **SECURITY LOCK** sub-menu appears, and the cursor moves to **ADMIN**.



- 3** Turn the **shuttle dial clockwise**.
The first password entry bar flashes.

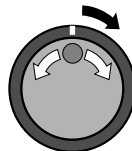


ADMIN 1----- OFF

- 4** Use the **jog dial** to display **"1"**, and then turn the shuttle dial.

The second password entry bar flashes.

- The characters that can be used in the password are: 0, 1, ... 9, A, B, C, ... Z



ADMIN 1----- OFF

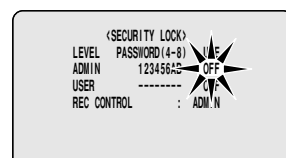
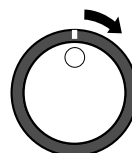
- 5** Use the **jog dial** to display **"2"**, and then turn the shuttle dial.

The third password entry bar flashes.

ADMIN 12----- OFF

- 6** Repeat this procedure to continue entering **"3456AB"**, and then turn the shuttle dial **clockwise**.

The cursor moves to **"OFF"** and flashes.

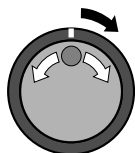


Note:

- "**LEVEL PASSWORD (4-8) USE**" is a title and cannot be changed.
- If **ADMIN** is set to **"OFF"**, the user password cannot be set.
- The password can consist of between four and eight alphanumeric characters.

SECURITY LOCK SET SETTING

- 7** Use the jog dial to change the setting to “ON”, and then turn the shuttle dial clockwise.
The cursor moves to USER.



<SECURITY LOCK>			
LEVEL	PASSWORD(4-8)	USE	
ADMIN	123456AB	ON	
USER	-----	OFF	
REC CONTROL	-----	ADMIN	

- 8** Set User password.

Carry out **[B] User password setting**. If the User setting is not to be done, this is complete.

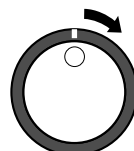
Use the jog dial to move the cursor to REC CONTROL and carry out **the recording and playback operating privilege setting**. (See page 63.)

Note: If setting a 4-character password, leave the 5th character as “-” and then turn the shuttle dial clockwise.

[B] User password setting

Example: To set the password to “AB123456”

- 1** Use the jog dial to move the cursor to USER, and then turn the shuttle dial clockwise.
The first password entry bar flashes.



USER []----- OFF

- 2** Use the jog dial to display “A”, and then turn the shuttle dial.
The second password entry bar flashes.

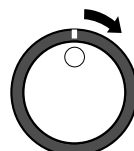
- The characters that can be used in the password are: 0, 1, ... 9, A, B, C, ... Z

USER A[]----- OFF

- 3** Use the jog dial to display “B”, and then turn the shuttle dial.
The third password entry bar flashes.

USER AB[]----- OFF

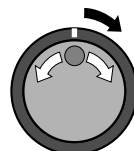
- 4** Repeat this procedure to continue entering “123456”, and then turn the shuttle dial clockwise.
The cursor moves to “OFF” and flashes.



<SECURITY LOCK>			
LEVEL	PASSWORD(4-8)	USE	
ADMIN	123456AB	ON	
USER	AB123456	OFF	
REC CONTROL	-----	ADMIN	

- 5** Use the jog dial to change the setting to “ON”, and then turn the shuttle dial clockwise.
The cursor moves to REC CONTROL.

Carry out **the recording and playback operating privilege setting**. (See page 63.)



<SECURITY LOCK>			
LEVEL	PASSWORD(4-8)	USE	
ADMIN	123456AB	ON	
USER	AB123456	ON	
REC CONTROL	-----	ADMIN	

SECURITY LOCK SET SETTING

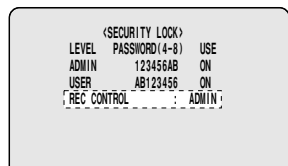
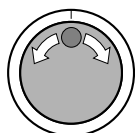
C Recording and playback operating privilege setting

■ Selection of operating privilege

The available operations vary depending on the ON/OFF and ADMIN/USER settings.

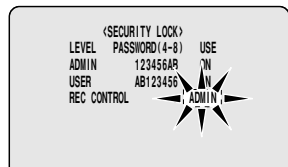
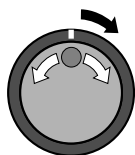
Selection conditions	Details of operation
LEVEL PASSWORD(4-8) USE ADMIN 123456AB ON USER AB123456 ON REC CONTROL : ADMIN	All operations are locked. When the user password is entered at the password entry screen, only playback operations can be carried out. When the Administrator password is entered, all operations can be carried out.
ADMIN 123456AB ON USER AB123456 ON REC CONTROL : USER	All operations are locked. When the user password is entered at the password entry screen, only playback and recording operations can be carried out. When the Administrator password is entered, all operations can be carried out.
ADMIN 123456AB ON USER OFF REC CONTROL : ADMIN	Recording and menu operations are locked. Playback operations are not locked. When the Administrator password is entered, all operations can be carried out.
ADMIN 123456AB ON USER OFF REC CONTROL : USER	Menu operation is locked. Recording and playback operations are not locked. When the Administrator password is entered at the password entry screen, all operations can be carried out.
ADMIN OFF USER OFF REC CONTROL : ADMIN	Security lock is not engaged (default setting).
ADMIN OFF USER OFF REC CONTROL : USER	Security lock is not engaged (default setting).

1 Use the jog dial to move the cursor to REC CONTROL.



2 Turn the shuttle dial clockwise, and then use the jog dial to select "ADMIN" or "USER".

This completes the setting.



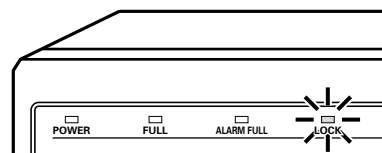
3 Press the EXIT/OSD button.

The display returns to the normal screen.

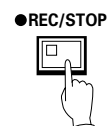


D Security lock setting

- At the normal monitoring screen, press and hold the SHUTTLE HOLD button for approximately 3 seconds. The LOCK indicator at the front panel illuminates and the buzzer sounds. The security lock is then set.

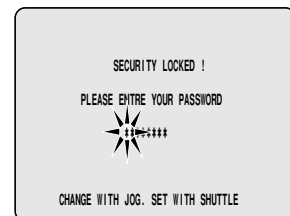
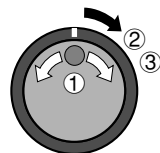


- Press any operating button to check the security lock. The password entry screen appears. The screen display disappears after 5 seconds.

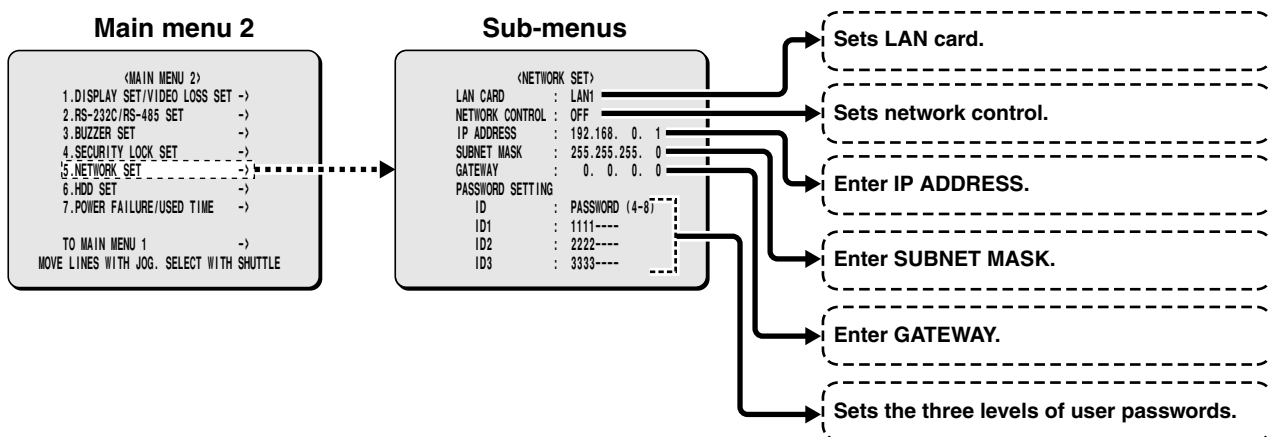


- Use the jog dial and the shuttle dial to enter the password, and then turn the shuttle dial clockwise once more. The LOCK indicator goes off and the display returns to the normal screen.

Note: Enter the password (example: "123456AB") that was entered as the Administrator or User password setting.



NETWORK SET SETTING

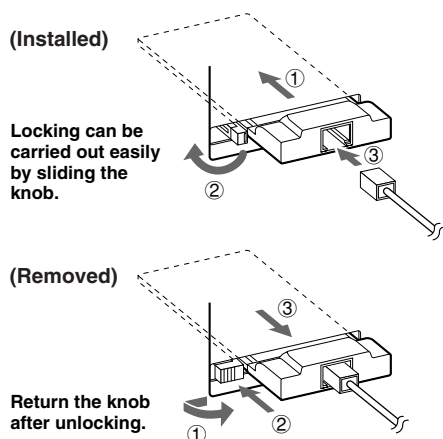


■ NETWORK SET setting

- 1 Insert a LAN card or a PCMCIA-compatible Ethernet card (sold separately) into the PC card slot at the rear of the digital video recorder.

This will enable you to view images on this unit and make menu settings through the network (LAN) from a personal computer. ID1, ID2 and ID3 passwords are required.

Note: A PCMCIA card-type LAN card (sold separately) and an Ethernet cable are necessary in order to connect to a network.



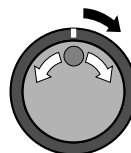
- 2 Press the MENU button twice to display the MAIN MENU 2 screen.

The cursor moves to DISPLAY SET/VIDEO LOSS SET.



- 3 Use the jog dial to move the cursor to the NETWORK SET setting, and then turn the shuttle dial clockwise.

The NETWORK SET sub-menu appears, and the cursor moves to LAN CARD.



<NETWORK SET>	
LAN CARD	: LAN1
NETWORK CONTROL	: OFF
IP ADDRESS	: 192.168. 0. 1
SUBNET MASK	: 255.255.255. 0
GATEWAY	: 0. 0. 0. 0
PASSWORD SETTING	
ID	: PASSWORD (4-8)
GUEST	: 1111----
USER	: 2222----
ADMIN	: 3333----

- 4 Turn the shuttle dial clockwise.

"LAN1" flashes.

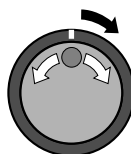
Select LAN1 or LAN2 to suit the type of card being used.

- **LAN1:** COREGA FEther PCC-TXD "CG-FEPCCTXD" type (10/100 BASE-T)
- **LAN2:** COREGA Ether PCC-TD "CG-EPCCTD" type (10 BASE-T) or COREGA Ether II PCC-T (10 BASE-T) or D-Link DE-660

Note: Correct operation cannot be guaranteed if a LAN card other than the one recommended above is used.

- 5 Use the jog dial to select the LAN card (example: "LAN1"), and then turn the shuttle dial clockwise.

The cursor moves to NETWORK CONTROL.



<NETWORK SET>	
LAN CARD	: LAN1
NETWORK CONTROL	: OFF
IP ADDRESS	: 192.168. 0. 1
SUBNET MASK	: 255.255.255. 0
GATEWAY	: 0. 0. 0. 0
PASSWORD SETTING	

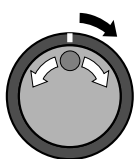
NETWORK SET SETTING

- 6** Turn the shuttle dial clockwise and use the jog dial to select network control (example: "ON"), and then turn the shuttle dial clockwise.

The cursor moves to IP ADDRESS.

Note:

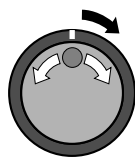
- Control through the network is not possible unless NETWORK CONTROL is ON.
When you are connected to a network, it should be switched OFF if control from the network is not required.
- If DIGITAL SERIES RECORDING in the RECORDING CONDITIONS SET menu is set to "ON", NETWORK CONTROL cannot be set to "ON".



<NETWORK SET>	
LAN CARD	: LAN1
NETWORK CONTROL	: ON
IP ADDRESS	: 192.168. 0. 1
SUBNET MASK	: 255.255.255. 0
GATEWAY	: 0. 0. 0. 0
PASSWORD SETTING	

- 7** Turn the shuttle dial clockwise and use the jog dial and shuttle dial to display the IP ADDRESS (example: "192.168.0.1"), and then turn the shuttle dial clockwise.

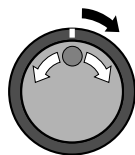
With the final shuttle dial movement, the cursor moves to SUBNET MASK.



<NETWORK SET>	
LAN CARD	: LAN1
NETWORK CONTROL	: ON
IP ADDRESS	: 192.168. 0. 1
SUBNET MASK	: 255.255.255. 0
GATEWAY	: 0. 0. 0. 0
PASSWORD SETTING	

- 8** Turn the shuttle dial clockwise and use the jog dial and shuttle dial to display the SUBNET MASK (example: "255.255.255.0"), and then turn the shuttle dial clockwise.

With the final shuttle dial movement, the cursor moves to GATEWAY.



<NETWORK SET>	
LAN CARD	: LAN1
NETWORK CONTROL	: ON
IP ADDRESS	: 192.168. 0. 1
SUBNET MASK	: 255.255.255. 0
GATEWAY	: 0. 0. 0. 0
PASSWORD SETTING	

- 9** Turn the shuttle dial clockwise and use the jog dial and shuttle dial to display the GATEWAY (example: "192.168.0.1"), and then turn the shuttle dial clockwise.

With the final shuttle dial movement, the cursor moves to ID1 under PASSWORD SETTING.

Note: When connecting this unit to a network, check the IP ADDRESS, SUBNET MASK and GATEWAY settings with the LAN Network Administrator.

PASSWORD SETTING setting

For network connection there are three access levels, each of which has a password. Each password can consist of a combination of 4 to 8 alphanumeric symbols.

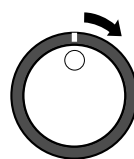
Note: The cursor cannot be moved to ID or PASSWORD (4-8).

Example: Set AB123456 as the ID1 password.

- 1** Use the jog dial to move the cursor to ID1, and then turn the shuttle dial clockwise.

The initial digit 1 of the password entry flashes.

- The characters that can be used in the password are: 0, 1 ... 9, A, B ... Z



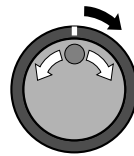
PASSWORD SETTING	
ID	: PASSWORD (4-8)
ID1	: 1111----
ID2	: 2222----
ID3	: 3333----

Note:

- ID1:** This level can only observe a live image through the network.
- ID2:** This level can observe a live image and play back and search recorded images through the network.
- ID3:** This level allows all digital video recorder operations and settings to be carried out.

- 2** Use the jog dial to display "A", and then turn the shuttle dial.

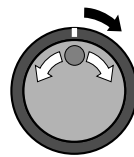
The second digit 1 flashes.



ID1 : A111----

- 3** Use the jog dial to display "B", and then turn the shuttle dial.

The third digit 1 flashes.

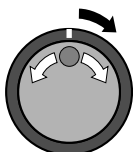


ID1 : AB11----

NETWORK SET SETTING

- 4** Repeat this procedure to continue entering “123456”, and then turn the shuttle dial clockwise.

The cursor moves to ID2.



PASSWORD SETTING	
ID	: PASSWORD (4-8)
ID1	: AB123456
ID2	: 2222----
ID3	: 3333----

- 5** As required, use the same procedure to set passwords for ID2 and ID3, and then turn the shuttle dial clockwise.

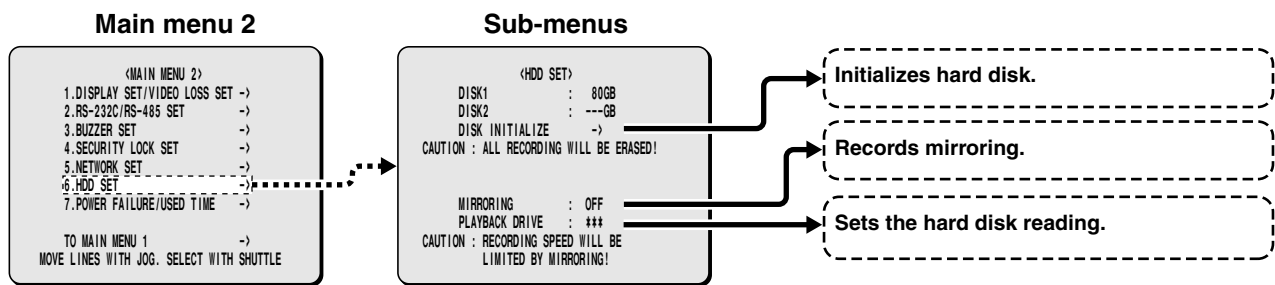
The cursor moves to LAN CARD.

- 6** Press the EXIT/OSD button.

The display returns to the normal screen.



HDD SET SETTING



HDD SET setting

To display hard disk capacity in DISK1 (on board) and DISK2 (for addition)

Note: Before adding a hard disk, it is important to backup recorded images on a media such as a CompactFlash card.

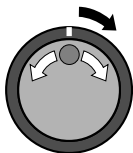
- 1 Press the MENU button twice to display the MAIN MENU 2 screen.

The cursor moves to DISPLAY SET/VIDEO LOSS SET.



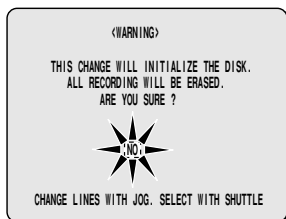
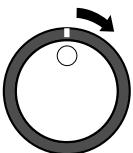
- 2 Use the jog dial to move the cursor to the HDD SET settings, and then turn the shuttle dial clockwise.

The HDD SET sub-menu appears, and the cursor moves to DISK INITIALIZE.



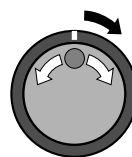
- 3 Turn the shuttle dial clockwise.

A WARNING screen appears and then "NO" flashes.



- 4 Use the jog dial to select YES, and then turn the shuttle dial.

The "HDD INITIALIZING!" screen appear and the hard disk is initialized. Then the display is returned to the HDD SET screen.



- 5 Press the EXIT/OSD button.

The display returns to the normal screen.



Adding a hard disk

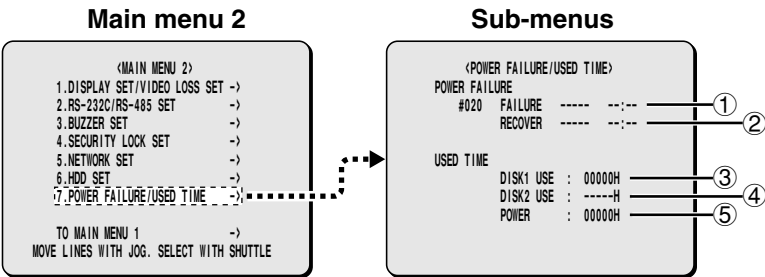
Consult your dealer about adding a hard disk. In the case of an addition, use an additional hard disk unit (sold separately).

If adding another hard disk, be sure to initialize the hard disks. When this is done, both hard disks will be initialized, so that any existing data on the original hard disk will be cleared.

Reference: HDD SET screen

- **MIRRORING:** When a hard disk is added, it is possible to record the same image on two hard disks. This means that even if an image write error occurs you will be able to read from an area where there is no write error. Note that if mirroring is specified, the upper limit of recording speed will be limited.
- **PLAYBACK DRIVE:** After MIRRORING has been set, you will be able to specify which of the two hard disks is to be used for reading the recorded image. With mirroring setting, if an error has occurred in the playback image, switch from the hard disk in current use (DISK1) to (DISK2).

POWER FAILURE/USED TIME DISPLAY



- 1

Press the MENU button twice to display the MAIN MENU 2 screen.

The cursor moves to DISPLAY SET/VIDEO LOSS SET.

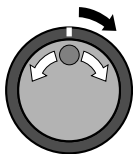


- 2

Use the jog dial to move the cursor to the POWER FAILURE/USED TIME settings, and then turn the shuttle dial clockwise.

The POWER FAILURE/USED TIME sub-menu appears.

Check the date/time of a power failure or the usage time of hard disks, etc.



- 3

Press the EXIT/OSD button.

The display returns to the normal screen.



About the sub-menu

- ① FAILURE

Shows the date/time when a power failure occurred.

The number of power failures appears at the left. (example: #020) When the number exceeds 999 it returns to 000.
- ② RECOVER

Shows the date/time when power was restored.
- ③ DISK1 USE

Shows the total hard disk 1 usage time.
- ④ DISK2 USE

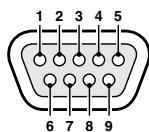
Shows the total hard disk 2 usage time.
- ⑤ POWER

Shows the total usage time for this unit.

INTERFACE SPECIFICATIONS

RS-232C

9-pin connector specifications



Pin No.	Signal	Operation	Signal direction
1	—	—	—
2	RXD	Receive data	Computer → Digital video recorder
3	TXD	Transmit data	Digital video recorder → Computer
4	—	—	—
5	GND	Ground	—
6	—	—	—
7	RTS	Request to send	Digital video recorder → Computer
8	—	—	—
9	—	—	—

■ Data format

Mode	Asynchronous
Character length	8 bits
Data transmit speed	2400, 4800, 9600, 19200 bps
Parity	None
Stop bit	1

■ Communication protocol

Communication is carried out in units of 1 byte. After the computer transmits one byte of data, it waits for a response from the digital video recorder, and then transmits the next byte of data.

To start sending commands, an **ON (F6)** command is sent. The digital video recorder will continue to receive commands until an **OFF (F7)** command is sent to stop. The digital video recorder sends an **ACK (0A)** each time it receives a command.

See **Table 4 - Command Table** on page 71.

RS-485

■ Data format

Mode	Asynchronous
Character length	8 bits
Data transmit speed	2400, 4800, 9600, 19200 bps
Parity	None
Stop bit	1

■ Communication protocol

A proprietary Sanyo protocol (SSP: Security Serial Protocol) is used. It is recommended that a special controller be used. Contact the place of purchase for further details on obtaining a special controller.

INTERFACE SPECIFICATIONS

RS485 termination switch settings (RS485 TERMINATE)

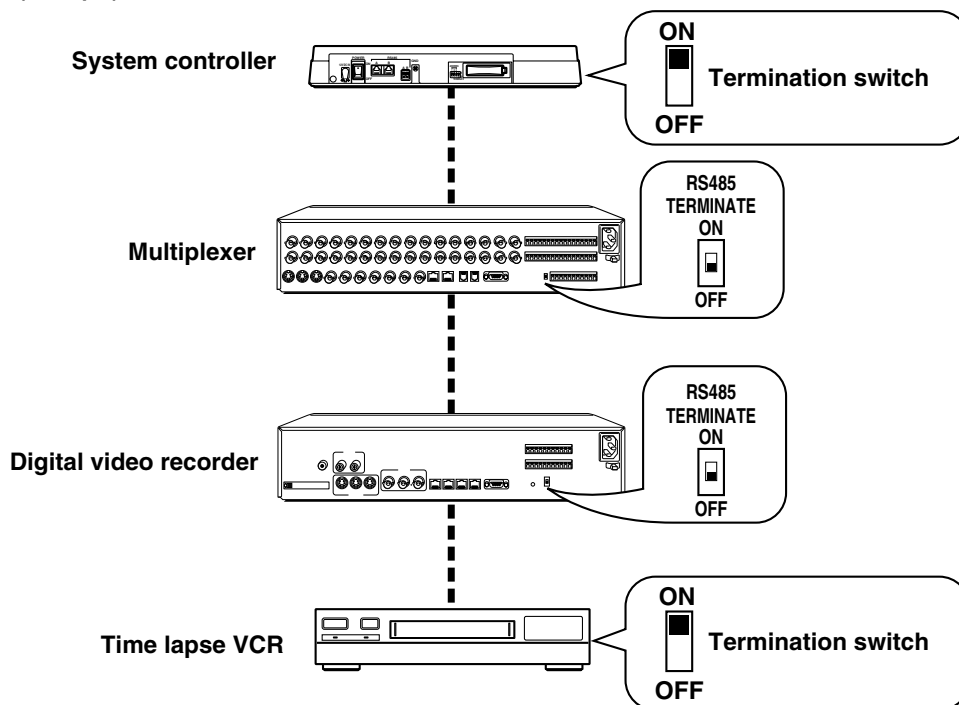
■ Termination setting

If several unit are being connected together, termination settings must also be made.

- Set the RS485 termination switch on the rear panel to **ON**, and set the termination switch of the last device in the series to **ON**.
- Be sure to set the RS485 termination switches of all devices in between (devices other than the first and last in the series) to **OFF**.

Note: If the termination settings are not correct, data will be reflected by either end of the series and this will affect the transmission of other data, so that the data that is transmitted to each device will not be correct.

(Example)



INTERFACE SPECIFICATIONS

■ Command Table (Table 4)

The following table shows all of the commands that can be processed by the digital video recorder.

If a command sent does not correspond to a digital video recorder function, the command is received but no operation is carried out.

Upper bit Lower bit	0	1	2	3	4	5	6	7
0							TIMER ON/OFF	
1								
2								
3						SHIFT←	SHIFT→	
4						SHIFT↑	SHIFT↓	MENU
5							SHIFT+ /RP UP	
6							SHIFT- /RP DOWN	
7								
8								
9							SECURITY LOCK ON	
A	ACK			PLAY	REV PLAY/ SEARCH (DVR)			
B	NAK							
C							GROUP SET	
D							GROUP CHECK	
E							GROUP CLEAR	
F				STOP	STILL			

Upper bit Lower bit	8	9	A	B	C	D	E	F
0							CLOCK ADJUST	
1							MENU RESET	
2								
3								
4								
5	ZOOM (MPX)							
6								
7						STATUS SENSE		
8						MENU UPLOAD	MENU DOWNLOAD	
9							CLOCK DOWNLOAD	
A					REC			REC/DUB REQUEST
B			FF/ALARM F					
C	CHANNEL		REW/ALARM R					
D	COPY							*RS-485 SEND START
E	OSD/EXIT			STATUS LOG2				*RS-485 RCV CMF.
F				STATUS LOG1	REC STOP			

■ : Command for RS-485 only.

SPECIFICATIONS

Hard disk capacity	: 80 GB (Installation of additional hard disk 80 GB (sold separately) possible)
Television System	: Based on PAL colour signal standard
Picture Resolution	: 720 x 288 (Field), 720 x 576 (Frame)
Compression	: M-JPEG
Picture Quality	: 5 Levels (Basic, Normal, Enhanced, Fine, Super Fine)
Recording Type	: Frame or Field Recording
Recording Speed	: 27 Levels.
Recording Area	: Normal Recording Area, Alarm Recording Area, Archive Area
Playback	: Playback, Still, Search
Zoom	: 2 Times Zoom Function
Search Mode	
• Time/Date Search	: Search by time and date
• Alarm Search	: Search by alarm event list
• Alarm Thumbnail Search	: Search by alarm event thumbnails
• Archive Area Search	: Search Archive Area with event list
• Smart Motion Search	: Search by specifying a motion sensor
Menu Language	: English/French/German/Spanish
Video input terminal	: 1.0 Vp-p/75 Ω , unbalanced, BNC x 1
S- video input terminal	: Separate YC signals, DIN connector (S terminal) x 1 Y signal: 1.0 Vp-p/75 Ω , unbalanced, synchronous; C signal: 0.300 Vp-p/75 Ω , unbalanced
Digital input terminal	: RJ-45 x 1
Digital SUB input terminal	: RJ-45 x 1
Audio input terminal	: -8dBs, 27 k Ω unbalanced, RCA pin jack x 1
Microphone input terminal	: -60dBs 10k Ω unbalanced, 3.5mm mini jack
Video output terminal	: 1.0 Vp-p/75 Ω , unbalanced, BNC x 1
S- video output terminal	: Separate YC signals, DIN connector (S terminal) x 1 Y signal: 1.0 Vp-p/75 Ω , unbalanced, synchronous; C signal: 0.300 Vp-p/75 Ω , unbalanced
Loop out terminal	: 1.0 Vp-p/75 Ω , unbalanced, BNC x 1
S- video loop out terminal	: Separate YC signals, DIN connector (S terminal) x 1 Y signal: 1.0 Vp-p/75 Ω , unbalanced, synchronous; C signal: 0.300 Vp-p/75 Ω , unbalanced
Digital output terminal	: RJ-45 x 1
Digital SUB output terminal	: RJ-45 x 1
Audio output terminal	: -8dBs, 600 Ω unbalanced, RCA pin jack x 1
Compact Flash Slot	: Compact Flash Type 2 (Front)
PC Card Slot	: PCMCIA Type 2 (Rear) for SCSI or Ethernet card
RS-232C terminal	: D- SUB 9pin (for PC)
Control connectors	
• RS-485 terminal	: Push lock (3 terminals: A, B, C (GND))
• Remote Control terminal	: 1 input for resistor alloy switch
• Alarm in terminal	: 1 input (Normal Open Low level active)
• Alarm out terminal	: 1 output (Normal 5V Low level active)
• Alarm reset terminal	: 1 input (Normal Open Low level active)
• SW out terminal	: 1 output (Normal 5V Low level active)
• NON Rec out terminal	: 1 output (Normal 5V Low level active)
• Clock Adjust in terminal	: 1 input (Normal Open Low level active)
• Clock Adjust out terminal	: 1 output (Normal 5V Low level active)
• Warning out terminal	: 1 output (Normal 5V Low level active)
• Disk Full out terminal	: 1 output (Normal 5V Low level active)
• Alarm Full out terminal	: 1 output (Normal 5V Low level active)
Power	: AC 220 – 240 V, 50 Hz
Power consumption	: 27 W 260 mA
Operating environment	: Temperature: 5°C to 40°C, Humidity: 10 to 80%
Dimensions	: 420 (W) x 86 (H) x 364.5 (D) mm
Weight	: Approx. 5.5 kg

Products are subject to change in design and specifications without notice and without incurring any obligation.

