

SONY

3-000-000-00(1)

Digital Surveillance Recorder

Operating Instructions

DV Digital
Video
Cassette

Mini **DV** Digital
Video
Cassette

HSR-1/1P

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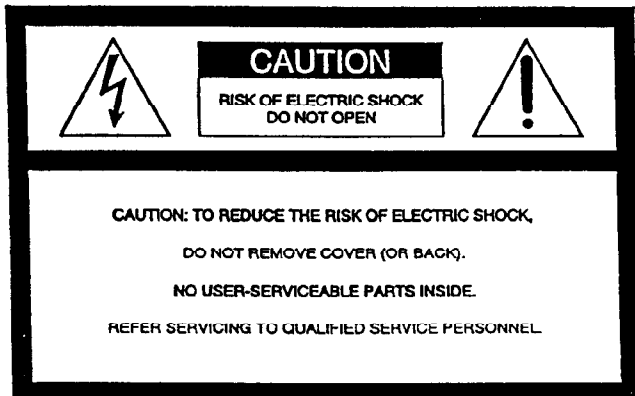
Owner's Record

The model and serial numbers are located on the body of the unit. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. HSR-1 Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock of persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

This device requires shielded interface cables to comply with FCC emission limits.

Caution

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recodign of such material may be contrary to the provisions of the copyright laws.

Voor de langen in Nederland



Bij dit produkt zijn batterijen geleverd. Wanneer deze leeg zijn, moet u ze niet weggooien maar inleveren als KCA.

General

Features of This Recorder

The HSR-1/IP Digital Surveillance Recorder is a hybrid security recorder that records pictures from multiple surveillance video cameras with a high picture quality for long periods of time.

Versatile Processing of Numerous Images

Four alternative picture quality modes

The HSR-1/IP can be switched among four levels of picture quality: Super, High, Middle and Low modes. This enables the appropriate balance between picture quality and recording time to be selected depending on the application. Super mode provides excellent picture quality with a horizontal resolution of more than 500 TV lines. High mode provides higher quality than that of conventional equipment, with much higher S/N ratio and equivalent resolution. By selecting Middle or Low mode, you can prolong recording time compared with the upper modes.

Large storage capacity

Using DV cassette tape (270-minute tape) as the storage medium, the HSR-1/IP offers a large storage capacity of more than 60 gigabytes.

Long recording time

With its long-time recording capability (max. 90 days in Low mode with a DV cassette), the HSR-1/IP releases you from frequent tape changes.

High refresh rate

The HSR-1/IP is capable of recording images at a high refresh rate (0.7 seconds at minimum) for each camera, so you no longer have to worry about failing to record key scenes.

High Reliability, Low Maintenance

Reduced use of tape mechanism

The hybrid configuration, with a hard disk and DV tape drive, makes it possible to achieve higher reliability as well as reducing maintenance. The tape transport and heads of the HSR-1/IP are idle most of the time because the DV tape drive works only while recording the image data being transferred from the hard disk.

Features of This Recorder

Multiple Protection

If the hard disk fails, the HSR-1/IP records the image data directly onto the DV tape. Conversely, in case of the failure of the DV tape drive, recording operation continues on the hard disk. (In some cases, some of the data may be lost.)

For additional protection, the HSR-1/IP always checks whether data is accurately recorded onto the tape. If a recording failure is detected, the HSR-1/IP re-records the same data onto the tape.

Less Space Required

Compact body

The HSR-1/IP features a compact body and is similar in width to a 14-inch monitor.

Compact storage medium

Using DV cassettes of only 1/3 the volume of VHS cassettes means your tape library takes up much less space.

System Versatility

16 Camera Inputs

The HSR-1/IP has four camera inputs as standard. Up to three optional HSRA-11/11P, four-input boards can be installed, so up to 16 camera inputs can be provided.

Built-in multiplexing capability

The HSR-1/IP has built-in multiplexing capability, which allows independent recording and monitoring. There is also a choice of various monitoring patterns by freely assigning multiple cameras to a single monitor.

Output for a second monitor

The HSR-1/IP has two monitoring outputs A and B, for which output images can be independently selected. For example, it is possible to monitor the image from one key camera on the B monitor, while checking playback on the A monitor.

Preset recording requirements

There are five preset recording modes, which can be flexibly combined with your choice of picture quality mode, tape length, recording time, number of camera inputs and the recording cycle of each camera. This feature allows you to assign cameras as you like. It is possible, for instance, to record from all the cameras in High mode during the day and then select some of these cameras to be recorded from in Super mode at night.

RS-232C interface

The HSR-1/IP is equipped with an RS-232C interface for communication with external equipment such as a personal computer, to facilitate machine control, status reporting, parameter presetting and user data read/write.

37-pin parallel port

The HSR-1/IP has a 37-pin parallel I/O interface, whose pin functions can be freely configured for a particular application.

Recording/Playback Systems Not to Miss Any Important Images

Flexibility in Alarm Recording modes

To capture more and even sharper images, the HSR-1/IP not only changes its recording mode to the higher refresh and higher picture quality mode on alarm, but also performs interleaved recording, which accelerates the recording cycle of the camera in alarm status.

It can also record images from the camera in alarm status only for a preset duration. In addition, since alarm and timer recordings can be combined, the HSR-1/IP can be set to normal recording mode during office

Continuous recording function

The HSR-1/1P can continuously record images, even while you are changing or rewinding the tape, so you don't have to worry about the breakup of a recording.

Sophisticated security function

The key-lock function may prevent accidents, such as inadvertent break-off of important recording. For higher security, you can specify a password to release the key lock.

Watermark

Using an original watermark system, the HSR-1/1P can identify image data that has been artificially altered. When alternation is detected, a message is displayed on screen.

Intelligent search functions

Time search/alarm search

You can easily locate the picture from a specific date and time. With a tape on which alarm recordings have been made, you can locate a specific picture after checking the list of those recordings.

Variable-speed search with a Jog/Shuttle dial

By connecting the optional SVRM-100A remote control unit, noiseless picture search can be carried out using its Jog/Shuttle dial.

Quick recording start

Event recording

Thanks to the Pre-Alarm recording capability, recording can be started before catching a trigger signal, thus chances are you'll have the information you need on tape.

Power-on recording

The HSR-1/1P automatically starts recording the moment power is turned on. This allows unattended automatic timer operation.

High-quality frame recording

By selecting Frame Rec mode, you can record a single frame in response to an alarm in Hyper mode, which provides higher resolution than Super mode.

Optional Devices

HSRA-11/11P Input Board

Up to three HSRA-11/11P boards can be mounted in the recorder and add four VIDEO IN connectors each. For board installation, refer to the manual for the HSRA-11/11P.

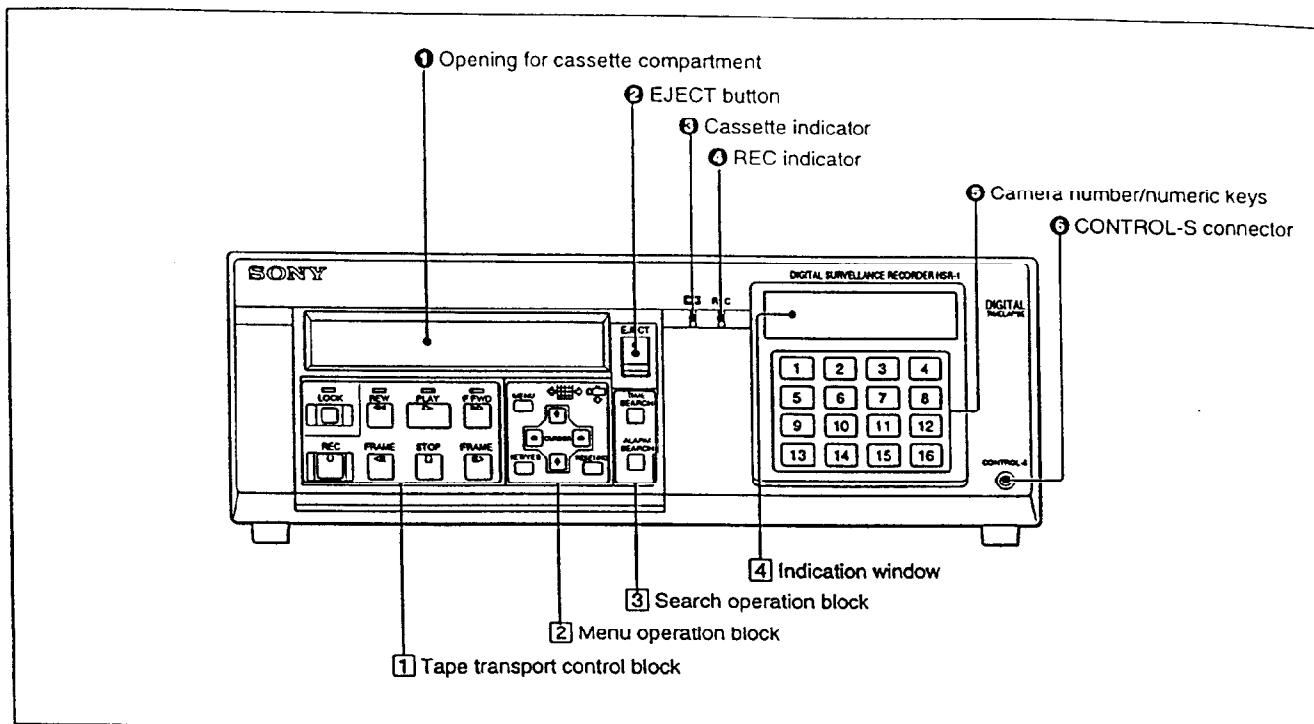
SVRM-100A Remote Control Unit

The tape transport of the HSR-1/1P can be controlled at hand.

Note
Tapes recorded on this unit cannot be played on a conventional DV cassette player. Similarly, tapes recorded on a conventional DV cassette recorder cannot be played on this unit.

Functions of Parts

Front Panel



1 Opening for cassette compartment

Insert a DV-format cassette of standard or mini size. When inserting a mini-sized cassette, locate it in the center of the opening.

For compatible cassettes, see "Handling Cassettes" on page 2-1.

2 EJECT button

Press to eject the cassette.

3 Cassette indicator (green)

Lights when a cassette is loaded. It flashes while the cassette is being ejected.

4 REC (recording) indicator (red)

Lit during recording.

It starts flashing once the tape has less than three minutes of remaining capacity.

5 Camera number/numeric keys

Flash or light in green or amber depending on the conditions.

They function to allow camera selection for monitoring and playback.

In menu operations or when releasing the key lock, they may function as the numeric keys for entering numeric values or the password.

	monitor	playback	menu operation
Off	Disabled ¹⁾	No image recorded ²⁾	Not operable
Green	Available for monitor ³⁾	Available for playback	Numeric inputs valid
Amber	being monitored ⁴⁾	being played	—

1) The key for any camera set to NO for Camera Connection of the Image Control menu (page 5-6) will be unlit.

2) The key for any camera which has been set to NO REC on the Rec Function menu (page 5-11) in recording does not light.

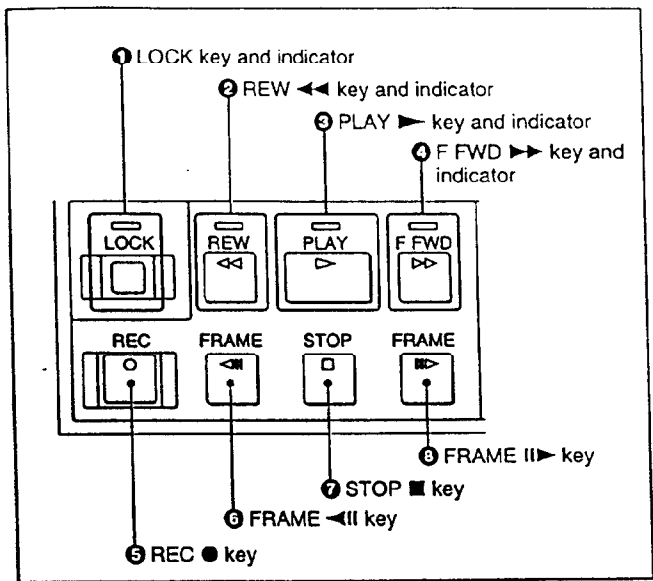
3) The key for any camera for which no signal is being supplied flashes in a slow cycle.

4) The key for any camera whose signal is being displayed on a full screen flashes in a fast cycle.

6 CONTROL-S (S control input) connector (stereo mini jack)

By connecting a controller, such as the SVRM-100A, equipped with an S control output to this connector, tape transport on this recorder can be remotely

1 Tape transport control block



1 LOCK key and indicator
 Press this key to turn on/off the key-lock function (provided to prevent misoperation). The LED indicator (red) lights when the function is on. When this indicator is lit, other keys are disabled. To release the lock, press the LOCK key again. A four-digit password to release the lock can be specified by using the Function Control menu.
 For details, see "Setting the Password" on page 5-13.

2 REW ◀◀ (rewind) key and indicator
 Press this key to rewind the tape. The indicator (green) lights. This key functions as the reverse search key during playback.

3 PLAY ▶ key and indicator
 Press this key to start playback. The indicator (green) lights.

4 F FWD ▶▶ (fast forward) key and indicator
 Press this key to fast-forward the tape. The indicator (green) lights. This key functions as the forward search key during playback.

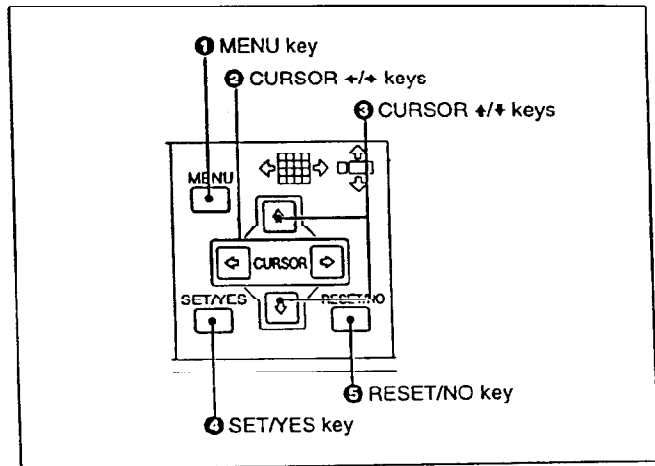
5 REC ● (record) key
 Press this key to start recording.

6 FRAME ◀◀ key
 Press this key to reverse the picture by one frame.

7 STOP ■ key
 Press this key to stop the tape transport.

8 FRAME ▶▶ key
 Press this key to advance the picture by one frame.

2 Menu operation block



1 MENU key
 Press this key to enter Menu mode. Press again to exit the mode.

2 CURSOR ◀/▶ keys
 Used to move from one layer to another in Menu mode. While monitoring a picture, you can switch pages (different camera configuration with the same screen divisions) with these keys.

3 CURSOR ▲/▼ keys
 Used to move within a single layer in Menu mode. While monitoring a picture, you can switch screen division configurations with these keys.

4 SET/YES key
 Press this key to register your menu settings. This key also functions as the YES answer key for YES/NO questions.

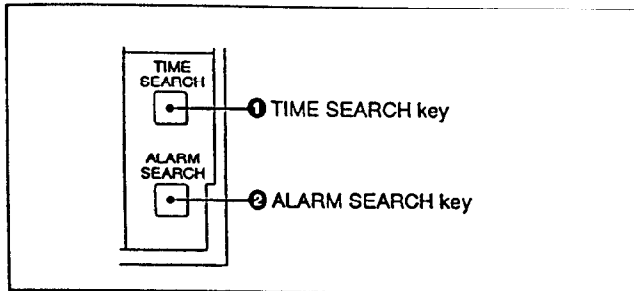
Functions of Parts

⑤ RESET/NO key

Press this key to restore the default menu settings (initialize).

This key also functions as the NO answer key for YES/NO questions.

③ Search operation block



① TIME SEARCH key

To transport the tape to the point of recording at a specified date and time.

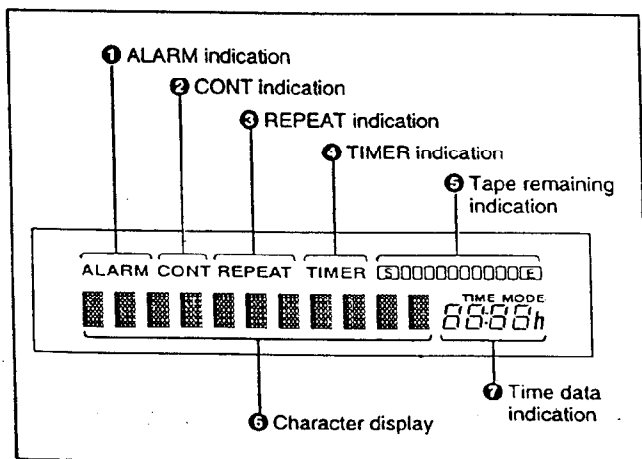
For details, see "Time Search" on page 2-9.

② ALARM SEARCH key

To display the list of alarm recordings on a tape and transport the tape to the point of the specified recording.

For details, see "Alarm Search" on page 3-10.

④ Indication window



① ALARM indication

Lights when alarm recording is on.

For details, see "Alarm Recording" on page 3-4.

② CONT (continuous) indication

Lit during continuous recording.

For details, see "Continuous Recording" on page 3-9.

③ REPEAT indication

Lit during repeat recording.

For details, see "Repeat Recording" on page 3-7.


④ TIMER indication

Lights when the timer recording is on.

For details, see "Timer Recording" on page 3-1.

⑤ Tape remaining indication

Lit when a cassette is loaded, showing the recording capacity remaining on the tape.

The  indication flashes when the remaining recording capacity becomes less than 3 minutes based on the calculation from the Tape Length setting.

For the Tape Length setting, see "Setting the Recording Modes" on page 5-10.

⑥ Character display

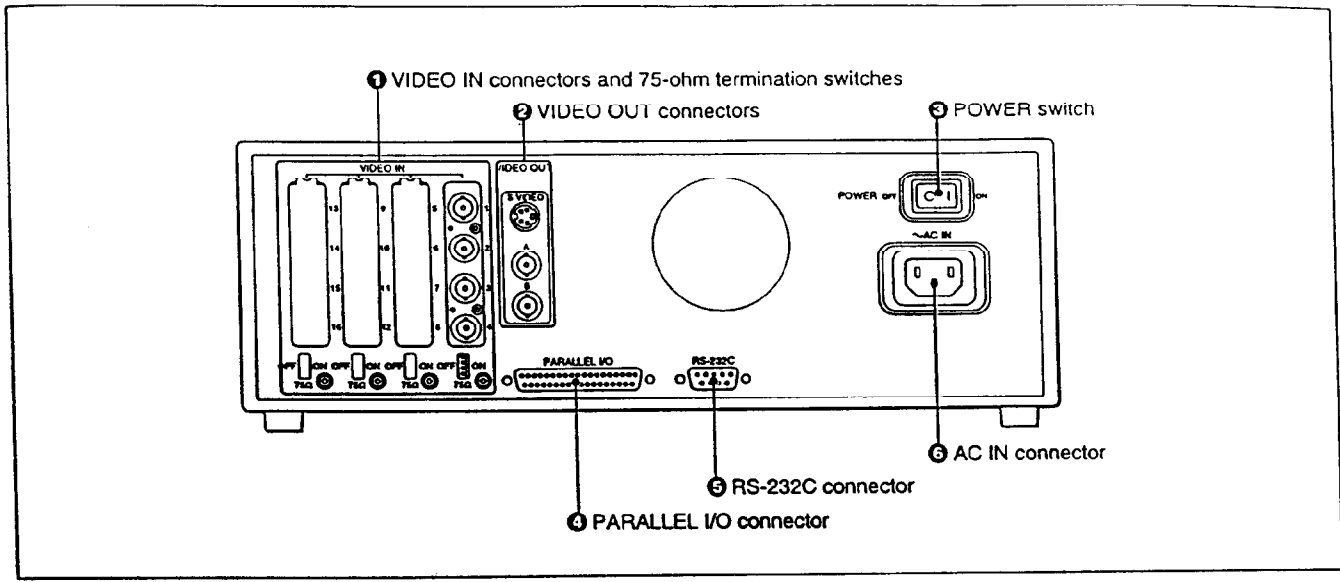
Shows character data, such as the tape counter value, the time mode values, and menu items.

⑦ Time data indication

Shows the time to record on a single tape (Time mode) is displayed in hour units.

You can set remaining time for recording or the current time by setting "Front Time Disp" on the Indication Control menu (page 4-7).

Rear Panel



1 VIDEO IN (video input) connectors (BNC type) and 75-ohm termination switches

For connecting video cameras.
 Connectors 1 to 4 are provided as the standard inputs. Connectors 5 to 16 can be added, four additionally connectors for each optional HSRA-11/11P input board mounted.
 The termination switches are normally used in the ON position.

For mounting an input board, see the instruction manual for the HSRA-11/11P.

2 VIDEO OUT (video output) connectors
S VIDEO (luminance/chroma signal output) connector (4-pin):

Outputs Y/C-separated S video signals. Connect via a cable to the S video input of a video monitor.

A (A image output) connector (BNC type): Outputs composite video signals for monitoring. Character signals are superimposed on the output signal depending on the settings made on the Indication Control menu (page 4-8).

B (B image output) connector (BNC type): Outputs composite video signals. The signal to be output is normally the same as that from the A connector. The Image Control menu (page 4-6) permits you to specify use of this output exclusively for a specific camera. Note that the character signal is not superimposed with such usage.

3 POWER switch

For turning on/off the power to the recorder.

4 PARALLEL I/O connector (37-pin)

Used to input/output various control signals or to supply control voltages.
 You can use 24 pins for inputs and 8 pins for outputs. The functions of these pins can be assigned from the Remote Control menu (page 4-11).

5 RS-232C connector (9-pin)

Connect an editor or computer, via an RS-232C cable.

6 AC IN connector

Connect an AC power source via the supplied AC power cord.

Basic Operations

Handling Cassettes

Usable Cassettes

The following standard- and mini-sized cassettes of DV-format can be used with this recorder.

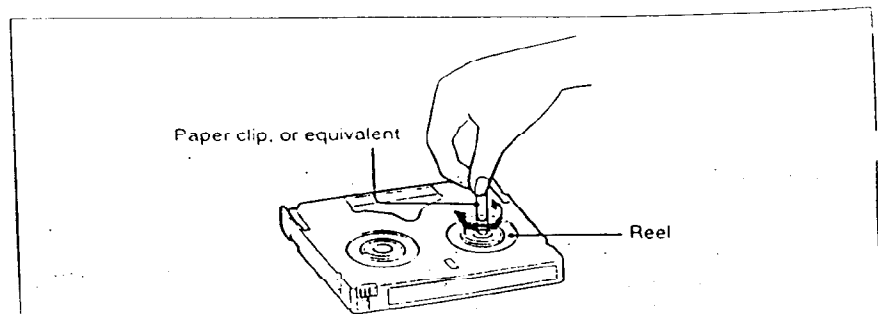
Model name	Size
DV-120ME/270	Standard
DVM-30ME/60ME	Mini

Notes on usage

- When a cassette is to be stored for a long time, rewind the tape to the beginning, mount it in the original case, and place it vertically. Leaving a cassette lying flat may cause noisy pictures.
- If any undue force is applied to the cassette, such as by dropping it, the tape may become slackened, causing abnormal recording/playback. Before using a cassette, be sure to check that the tape is not slacked.

To check for tape slack

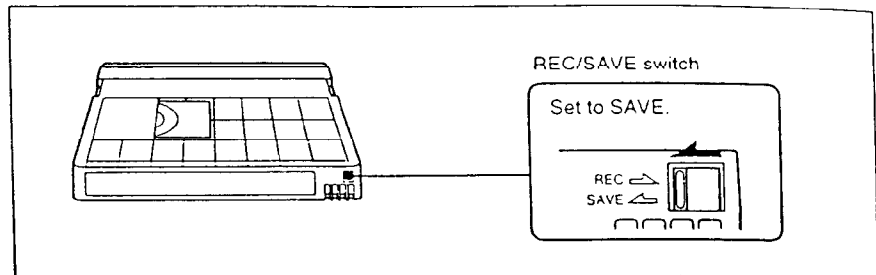
Gently turn the reel in the direction of the arrow using a paper clip or equivalent. If there is no slack, the reel will not rotate. Then, insert the cassette in the recorder and remove it after about 10 seconds.



Handling Cassettes

To prevent unintentional erasure

Set the REC/SAVE switch to the SAVE position.



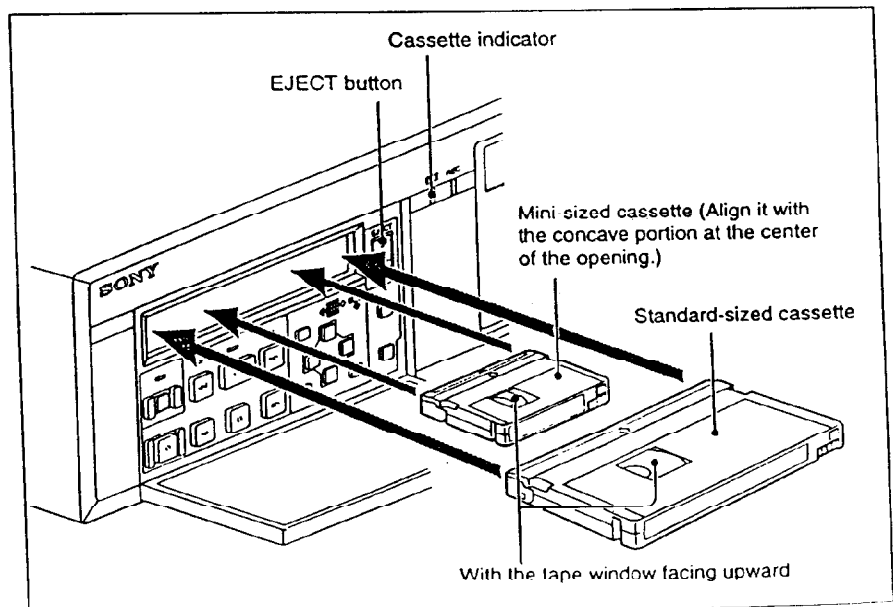
To rerecord on a cassette

Return the REC/SAVE switch to the REC position. No recording will be made on a cassette with the switch set to SAVE.

Inserting a Cassette

Insert/eject a cassette with the power on.

Open the front panel cover and insert the cassette through the opening as shown below.



The cassette is automatically pulled into the operating position and the cassette indicator lights up.

Ejecting a Cassette

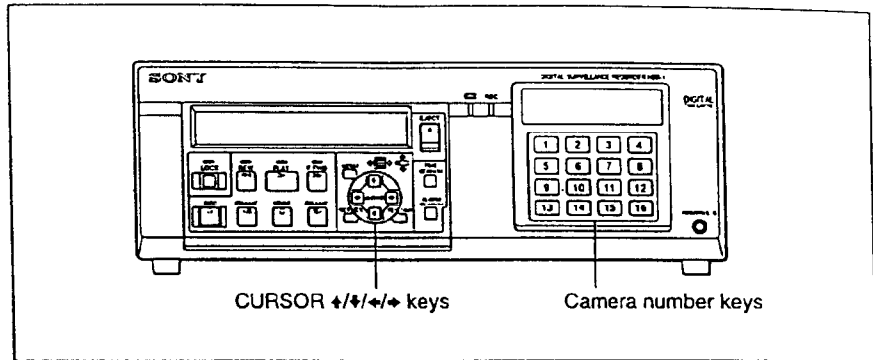
Press the EJECT button.

The cassette indicator flashes while the cassette is being ejected.

Picture Monitoring

Switching the Pictures

The number keys of the cameras whose pictures can be monitored flash in green.
To select the picture(s) for monitoring, use the flashing camera number keys or the CURSOR $\uparrow/\downarrow/\leftarrow/\rightarrow$ keys.



For connections and Image Control menu operation, see Chapter 5 "Connections and Preparations."

To select a specific camera

Press the number key corresponding to the camera to be monitored.
The key then flashes in amber, and the picture of the selected camera is displayed on the full screen.
Press the same key again to return to the previous condition.

To select a divided screen

Multiple camera pictures can be monitored by selecting the screen division mode.

To change the structure

Press the \uparrow or \downarrow key.

Each time you press either of the keys, the display switches to the next of night patterns, from the full screen to 16-division mode.

To change the pages

Press the \leftarrow or \rightarrow key.

The pages are cyclically switched.

To automatically switch pages

The pages of the structure selected using the \uparrow or \downarrow key are automatically switched at the cycle specified in the range of 1 to 60 seconds.
Set MONITOR to AUTO on the Image Control menu.

For the settings, see Chapter 5 "Connections and Preparations."

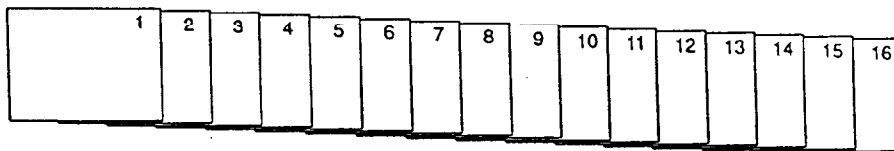
Picture Monitoring

Screen Dividing

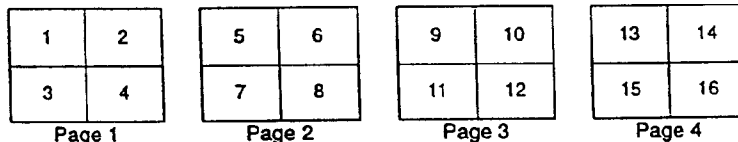
In addition to the capability to show the picture from a specified camera on the full screen, this recorder has a multiplexer function to divide the screen into multiple divisions and permit you to view the pictures from multiple cameras at a glance.

In screen division modes, you can select the respective number of pages (the same divisions with different camera configurations) for monitoring. The following camera numbers have been assigned at the factory.

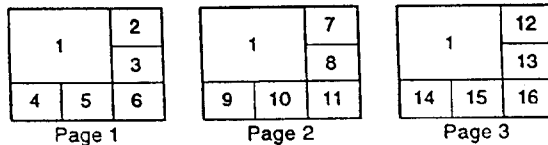
Full screen
(16 pages)



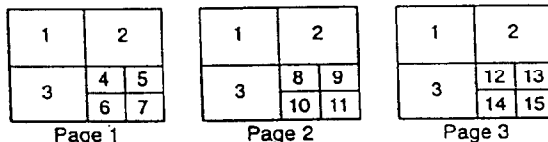
4 divisions
(4 pages)



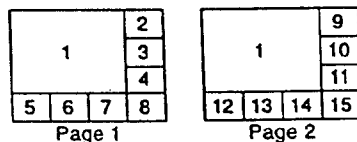
6 divisions
(3 pages)



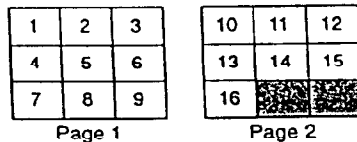
7 divisions
(3 pages)



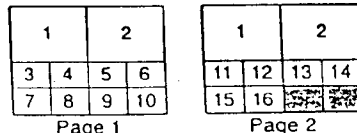
8 divisions
(2 pages)



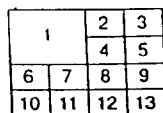
9 divisions
(2 pages)



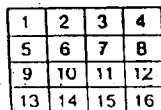
10 divisions
(2 pages)



13 divisions
(1 page)



16 divisions
(1 page)



Camera assignments

You can assign the connected cameras to any division by using Moni Display Structure of the Image Control menu.

For the assigning method, see "Setting the Display Structure" on page 5-8.

Border lines

You can select whether the lines are to be displayed, and if so, in what color on the Indication Control menu.

Superimposing

According to settings made on the Indication Control menu, various information, such as the camera number/name, date/time, etc. can be superimposed onto the signal input from a camera.

The type of superimposed characters can also be set.

See Chapter 4 "Menu Operation" for the Indication Control menu and "Setting the Camera Names" on page 5-7 for

Recording

Normal Recording

What's the recording modes?

This recorder can have user-preset five recording modes, for each you may specify a set of recording requirements.

For performing these requirements are set merely by your specifying one of your preset recording modes.

Example of a user-preset recording mode:

CAMERA NUMBER : 8
TAPE LENGTH: 270MIN
IMAGE QUALITY: SUPER
TIME MODE: 1900H
REC CYCLE: 1.00SEC

When recording is executed with this recording mode selected, pictures from all eight cameras that have been specified to be used for recording (set to REC) are cyclically recorded once per 1.00 second in SUPER image quality mode (horizontal 720 × vertical 240 pixels) for 1900 hours on a single cassette of 270-minute tape length.

Your recording modes can be registered by using "Setting of Rec Mode" of the Recording Function menu.

For registration of the recording modes, see Chapter 5.

To select a recording modes

A recording mode for normal recording can be selected on the monitor screen or on the character display on the front panel.

Once you select a mode, it is not necessary to repeatedly select if it is not to be changed to another mode.

See Chapter 4 "Menu Operations" for additional information on the operation.

- 1 Enter Menu mode by pressing the MENU key.
- 2 Highlight REC FUNCTION MENU (or display "RecFuncMenu" on the front panel) of the Top menu (page 4-5) by pressing the ↑ or ↓ key, then press the → key.

The Recording Function menu is displayed.

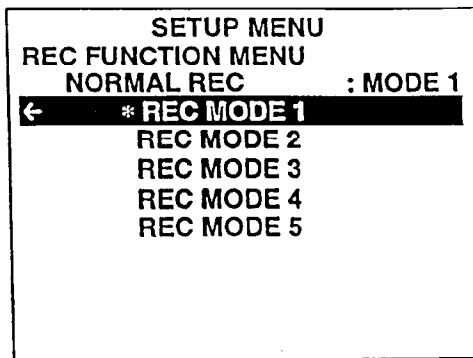
```
SETUP MENU
REC FUNCTION MENU
NORMAL REC      : MODE 1
TIMER REC
ALARM REC
REPEAT REC      : OFF
CONTINUOUS REC  : OFF
SETTING OF REC MODE
```


Recording

The Recording Function menu item that had been selected when you left the menu the last time is displayed in the character display on the front panel.

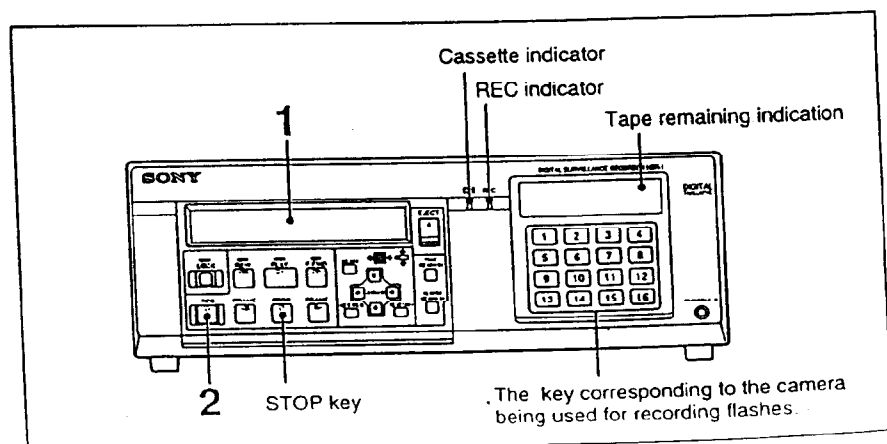
- 3 Highlight NORMAL REC (or display "RecMode") by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The menu switches to the recording mode selection layer for normal recording.



- 4 Highlight the desired recording mode, REC MODE 1 to 5 (or display Mode 1 to 5) by pressing the \uparrow or \downarrow key, then press the SET key.
A message "NOW SAVING" is displayed, and the selection is registered.

To execute recording



- 1 Insert a cassette.
The cassette indicator and the tape remaining indication light.
- 2 Press the REC \bullet key.
The REC indicator lights, and recording starts in the selected recording mode.

When the remaining tape capacity becomes less than 3 minutes during recording, the REC indicator and the tape remaining indication flash.

To stop recording before the end of a tape

Press the STOP ■ key.

Note

When you press the STOP key, the unit starts recording data remaining on the hard disk to the cassette tape. This operation may take 90 seconds at maximum, and you cannot change modes until it is completed. During this operation, the remaining time until mode shift is enabled is counted down on the monitor screen and the character display of the HSR-1/1P.

To record the character data

Some character data are recorded along with the video signals and superimposed on the playback picture.

Camera names

The names (up to 9 characters each) specified for the cameras used for recording are recorded and superimposed on the respective pictures. The default names are "1 CAMERA" to "16 CAMERA," which can be changed from the Indication Control menu.

For details, see "Setting Camera Names" on page 5-7.

Date/Time

The date (year/month/day) and time (hour/minute/second) of recording are recorded and superimposed on the playback picture by so specifying on the Indication Control menu.

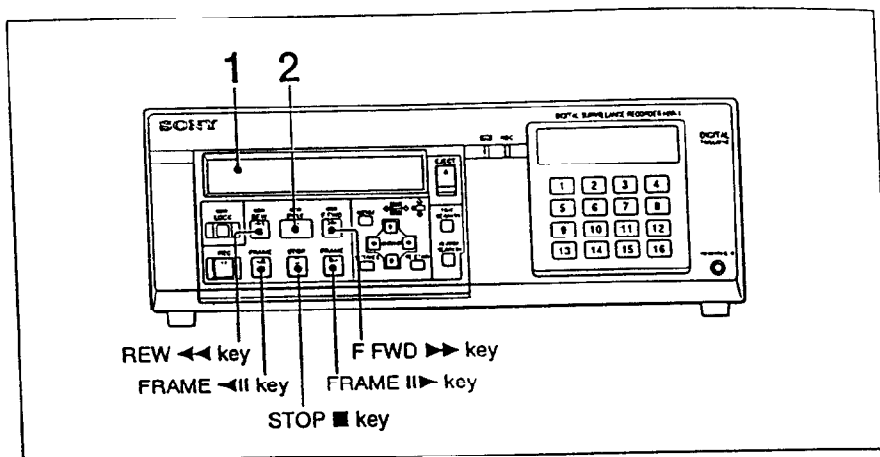
The type of superimposing characters can also be selected from the Indication Control menu.

For details, see "Indication Control Menu" on page 4-7.

Playback

Normal Playback

The tape recorded on this recorder is played back in accordance with the mode set for recording.



1 Insert the recorded cassette.

2 Press the PLAY ▶ key.

Playback begins.

The name of the camera used in recording is superimposed on the playback picture. The date/time, if recorded, are also superimposed.

To advance the picture at a high speed

Press and hold the F FWD ▶▶ key.

Normal playback is resumed when you release the key.

To reverse the picture at a high speed

Press and hold the REW ◀◀ key.

Normal playback is resumed when you release the key.

To advance the picture by one frame

Press the FRAME ▶▶ key.

The picture freezes at the next frame.

To resume normal playback, press the PLAY ▶ key.

To reverse the picture by one frame

Press the FRAME ◀◀ key.

The picture freezes at the previous frame.

To resume normal playback, press the PLAY ▶ key.

To stop playback

Press the STOP ■ key.

Playback

```
TIME SEARCH
1998 8 15 3:05:18 PM

SHIFT : ←→
CHANGE : ↑↓
INPUT : NUM KEY
SEARCH : SET KEY
ABORT : TIME SEARCH KEY
```

- 3** Shifting the input position using the \rightarrow key, set the date (year/month/day), time (hour/minute/second) and AM/PM.
Press the \uparrow or \downarrow key to switch between AM and PM.
The date (year/month/day) and time (hour/minute/second) can be set by either changing the value in turn using the \uparrow or \downarrow key or by directly entering the value using the numeric keys.

- 4** Press the SET key.

The tape rewinds or fast-forwards, searching for the tape position of the specified date/time.

When the search is completed, playback begins from that position.

To cancel the time search

- While entering the date/time, press the TIME SEARCH key again.
- While the tape is running, press the STOP \blacksquare key.

Search speed

The maximum search speed depends on Recording mode which was specified for recording.

The fewer cameras for recording, the longer the recording cycle, and the lower the image quality mode, the higher the speed at which you can monitor the playback picture.

Dividing structure of the playback screen

In the same manner as when monitoring, the screen can be divided into 16 divisions at maximum, and you can assign a camera to each division as desired.

The camera assignment for playback can be made independent from that for monitoring.

See "Picture Monitoring" for the screen dividing structures, and Chapter 5 "Connections and Preparations" for the camera assignment.

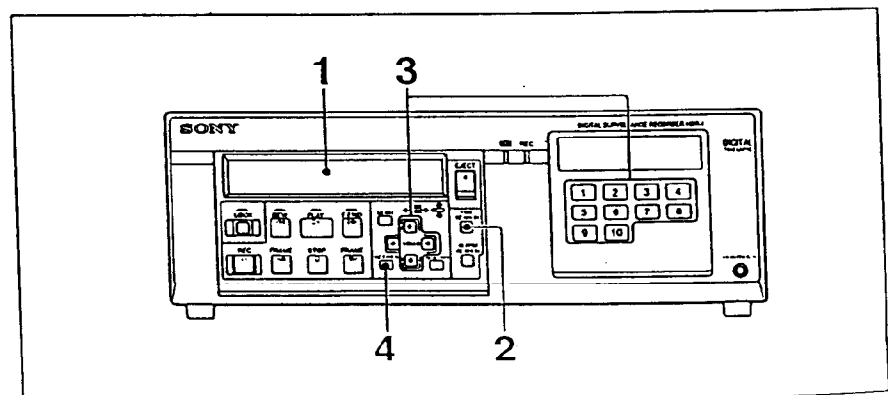
Simultaneous monitoring of the playback picture and the current camera inputs

You can assign live camera inputs to some divisions of the playback screen.

You can view the current picture of the assigned camera in addition to the playback pictures.

Time Search

Using the date/time data recorded on a tape, you can locate the picture for any specified date and time.

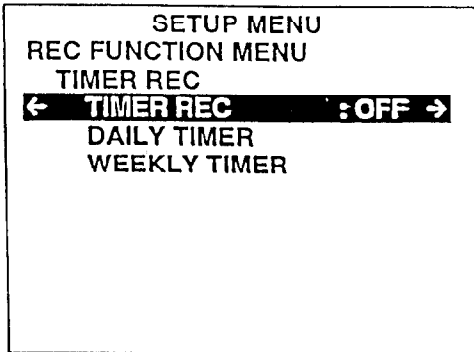


- 1 Insert the recorded cassette.
- 2 Press the TIME SEARCH key.
The Time Search display appears on the monitor screen.

Timer Recording

- 3 Highlight **TIMER REC** by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

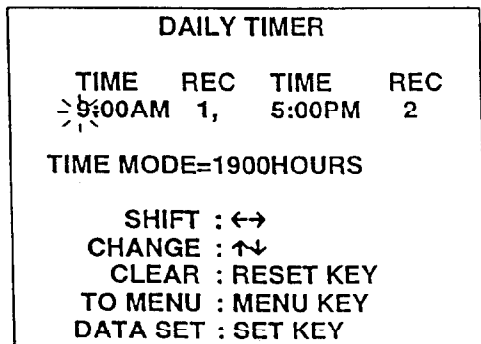
The menu shifts to the selection layer of timer recording.



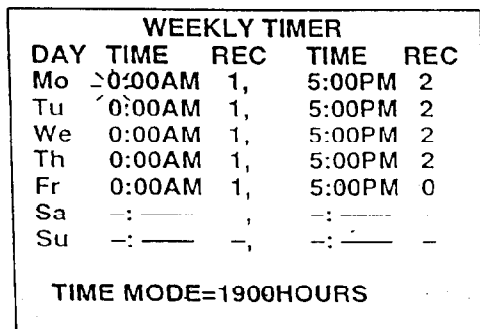
- 4 Highlight **DAILY TIMER** or **WEEKLY TIMER** by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The set display of the selected timer recording appears on the monitor screen and the digit at the upper left flashes.

DAILY TIMER setting display



WEEKLY TIMER setting display



- 5 Set the time with AM/PM and the recording mode number by pressing the \uparrow or \downarrow key in the sequence then move to the next digit or item by pressing the \rightarrow key.

The time can also be set using the numeric keys.

- By specifying another set of time and recording mode in the right column, recording is continued after changing the recording mode at the time specified in the right column to the mode specified next to the time.
- If recording mode need not to be changed, delete the time in the right column by pressing the RESET key. When the time is deleted, "—" is displayed.
- To stop recording at the specified time, set 0 in the right REC column.
- Time Mode is automatically calculated and displayed according to the selected recording mode.

- 6 For Weekly Timer, perform the same settings for each day of the week.

Delete the time for any day for which recording need not be made by pressing the RESET key.

- 7 When the settings are completed, press the SET key.

A message "NOW SAVING" is displayed and the settings are stored in nonvolatile memory.

Notes

- The time mode shown on the Weekly Timer setting display is calculated assuming that recording is to start at 0:00 AM on Monday. Therefore, it may slightly differ from the actual time available for recording. The difference will be large especially when the time mode is small.
- If the calculated time mode exceeds 9999 hours, "****" is displayed.
- When alarm recording (page 3-4) is active, "A" is displayed in the REC column, and "****" is displayed for TIME MODE, as the time mode cannot be calculated.

Convenient Recording/ Playback Functions

Timer Recording

You can set the recorder to start recording or change recording modes at a specified time of day.

By changing recording modes, you can use different cameras for recording in different time slots, or record at a certain cycle in the daytime and record only when an alarm signal is detected at night.

The following two types of timer recording can be selected.

Daily timer recording

To start recording or change Recording mode every day at the same time.

Weekly timer recording

The time to start recording or change recording mode can be set independently for each day of the week.

The time as well as the recording mode (1 to 5) must be specified.

To set the timer

Timer setting is made on a special display on the monitor screen.

Once you set the timer, it is not necessary to repeatedly set it if it is not to be changed.

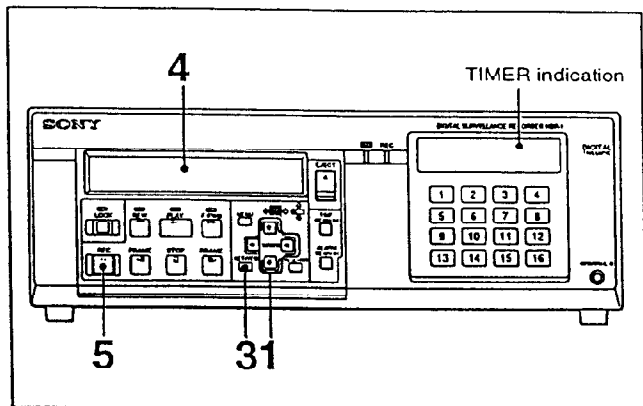
See Chapter 4 "Menu Operations" for additional information.

- 1 Enter Menu mode by pressing the MENU key
- 2 Highlight REC FUNCTION MENU of the top menu (page 4-5) by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

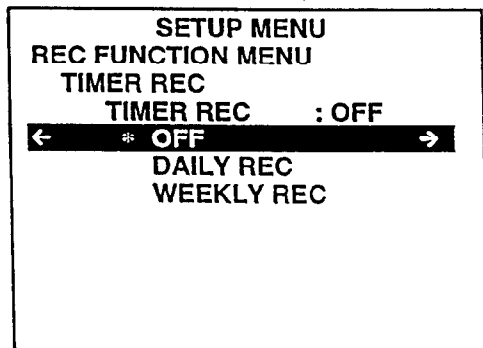
The Recording Function menu is displayed.

```
          SETUP MENU
REC FUNCTION MENU
NORMAL REC      : MODE 1
TIMER REC
ALARM REC
REPEAT REC      : OFF
CONTINUOUS REC  : OFF
SETTING OF REC MODE
```

To activate timer recording



- 1 Highlight **TIMER REC** on the display shown in step 3 on the previous page by pressing the **▲** or **▼** key, then press the **▶** key. The menu shifts to timer recording selection.



- 2 Highlight **DAILY REC** or **WEEKLY REC** by pressing the **▲** or **▼** key, then press the **▶** key.
- 3 Press the **SET** key to leave Menu mode.
- 4 Insert a cassette.
- 5 Press the **REC ●** key.

The **TIMER** indication of the indicator block lights, and the timer recording selected in step 2 will be activated.

To cancel timer recording

To stop recording in progress

Press the **STOP ■** key.

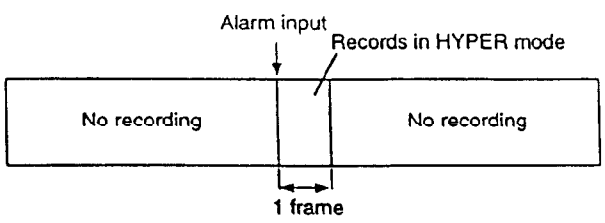
To release timer recording while continuing recording in progress

Return the **TIMER REC** setting to **OFF** on the display in step 1.

Frame REC mode

delay?

When an alarm signal for a specific camera is input, the picture of the camera in alarm status is recorded only for one frame immediately after the alarm input. Mode A is fixed to NO REC, Mode B to HYPER (the highest image quality mode exclusive for Frame REC), and Cancel condition to 1 FRAME.



Cancel condition of Alarm recording

For alarm recording other than Frame REC mode, you can select the condition to cancel recording from among the following.

- 30SEC, 1MIN, 2MIN, 3MIN, 5MIN, 7MIN, 10MIN: The specified time has elapsed.
- ALARM OFF: The alarm input stops.
- Tape end: Recording reaches the end of the tape.

To set the Alarm mode

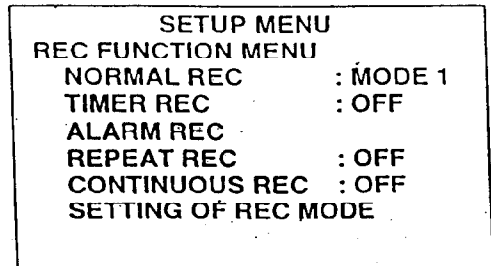
The setting is made on a special display on the monitor screen.

Once you set the mode, it is not necessary to repeatedly set it if it is not to be changed.

See Chapter 4 "Menu Operations" for additional information.

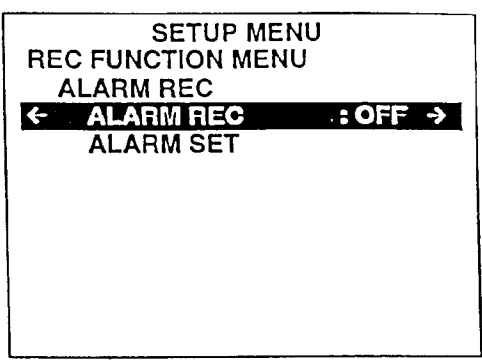
- 1 Enter Menu mode by pressing the MENU key.
- 2 Highlight REC FUNCTION MENU of the Top menu (page 4-5) by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The Recording Function menu is displayed.



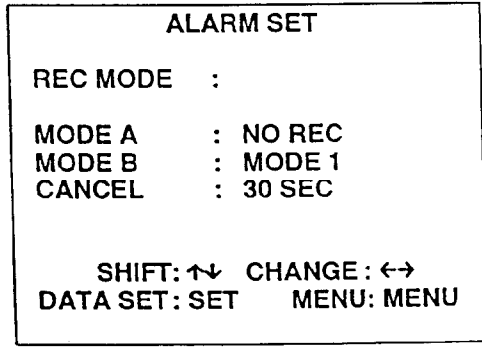
- 3 Highlight ALARM REC by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The menu shifts to the selection layer of alarm recording.



- 4 Highlight ALARM REC by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The alarm set display appears on the monitor screen.



- 5 Select the desired Alarm REC mode by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

- 6 Specify the items required for the selected Alarm REC mode.
 For Normal/Interleave mode: Mode A, Mode B, and Cancel condition
 For Event mode: Mode B and Cancel condition
 For Prealarm mode: Mode B, Prealarm Time and Cancel condition
 Press the \uparrow or \downarrow key to set, then press the right key (\rightarrow) to go to the next item.

No setting is required for Frame Rec mode.

Alarm Recording

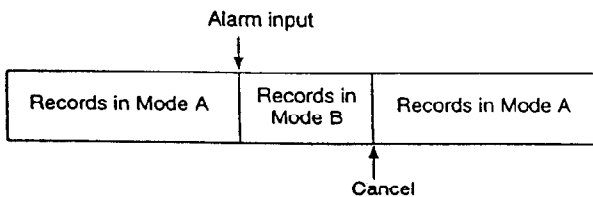
Recording can be started or the recording mode can be changed when an alarm signal is input to the PARALLEL I/O connector at the rear panel. For the alarm signals, you can specify a signal common to all cameras or signals for specific cameras. The signal assignments are made from the Remote Control menu (page 4-12).

Alarm recording modes

The recorder provides five modes of Alarm recording. For alarm recording, you may set (1) the recording mode before the alarm input (Mode A), (2) the recording mode from alarm input to alarm cancel (Mode B), and (3) a condition for canceling the alarm. The items to be set depend on the Alarm recording modes.

Normal mode

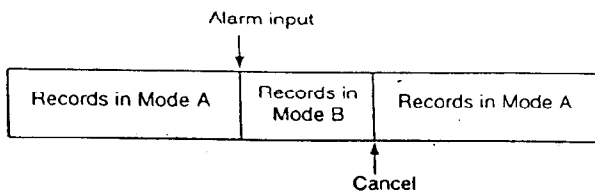
When an alarm signal is input during recording, the recording mode is changed. You can set Mode A, Mode B and Cancel condition.



If an alarm signal for a specific camera is input, recording with other cameras is stopped and only the picture from the camera in alarm status is recorded in the image quality mode and recording cycle of the recording mode specified for Mode B.

Interleave mode

When an alarm signal is input, recording cycle is shortened. As with Normal mode, you can set Mode A, Mode B and Cancel Condition.



When an alarm signal common to all cameras has been defined, this mode functions the same as Normal mode.

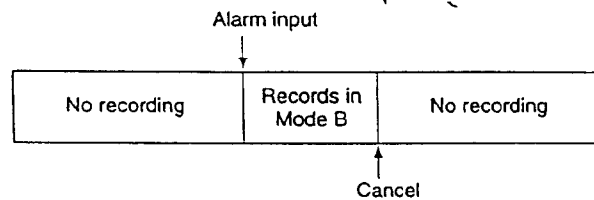
When an alarm signal for a specific camera is input, recording with other cameras is performed without any change, and only the recording cycle for the camera in alarm status is shortened.

Note

The minimum recording cycle with this recorder is limited depending on the number of cameras to be used for recording and the specified image quality mode. When a short cycle has been specified in the recording mode for Mode A, the cycle of the camera in alarm status may not be shortened.

Event REC mode

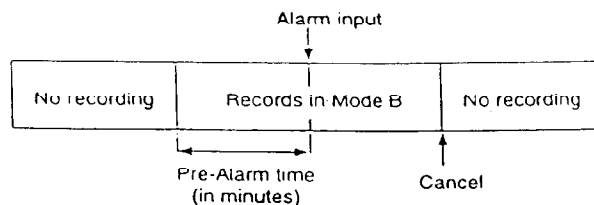
Recording starts when an alarm signal is input. You can set Mode B and Cancel condition. Mode A is fixed to NO REC.



When an alarm signal for a specific camera is input, only the picture from the camera in alarm status is recorded in the specified image quality mode and recording cycle of the recording mode specified for Mode B.

Prealarm REC mode

Recording starts tracing the specified time back. You can set Mode B, Prealarm Time (time to reverse) and Cancel condition. Mode A is fixed to NO REC.



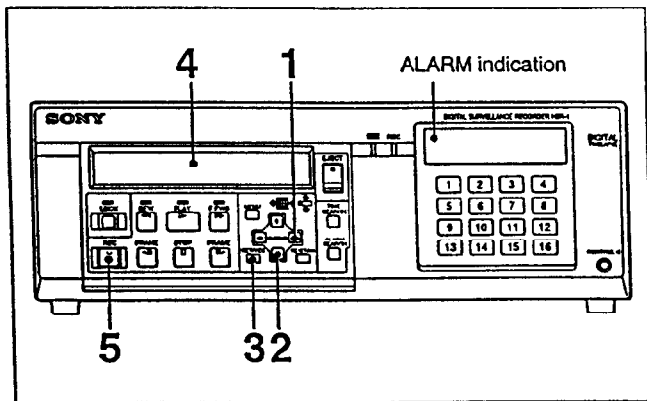
As you can record the picture from the hard disk taken before the alarm was generated, it may be helpful in finding the cause of the trouble.

Alarm Recording

- 7 When the settings are completed, press the SET key.

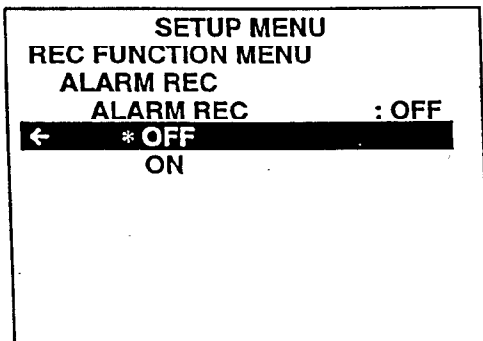
A message "NOW SAVING" is displayed, and the settings are stored in nonvolatile memory. The Recording Function menu is resumed.

To activate alarm recording



- 1 Highlight ALARM REC on the third line of the display shown in step 3 on the previous page, then press the → key.

The menu shifts to the alarm recording ON/OFF selection.



- 2 Highlight ON by pressing the ↓ key.
- 3 Press the SET key to leave Menu mode.
- 4 Insert a cassette.
- 5 Press the REC ● key.

The ALARM indication of the indicator block lights, and alarm recording will be activated.

To cancel alarm recording

To stop recording in progress
Press the STOP ■ key.

To release Alarm recording while continuing recording in progress

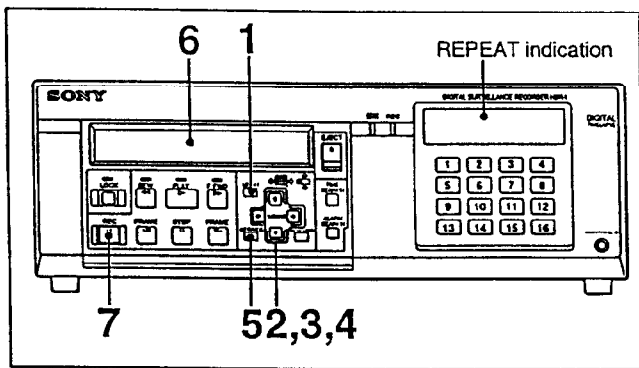
Return the ALARM REC setting to OFF on the display in step 1.

Repeat Recording

Recording is made repeatedly on a single cassette. When the tape reaches its end during recording, it is automatically rewound to the beginning, and the recorder continues recording.

Pictures taken while the tape is rewinding are stored on the built-in hard disk so that recording can continue without a break.

To activate repeat recording

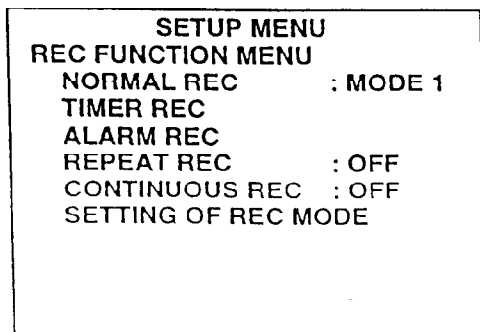


See Chapter 4 "Menu Operations" for additional information.

- 1 Enter Menu mode by pressing the MENU key.
- 2 Highlight REC FUNCTION MENU (or display "RecFuncMenu" on the front panel) of the Top menu (page 4-5) by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

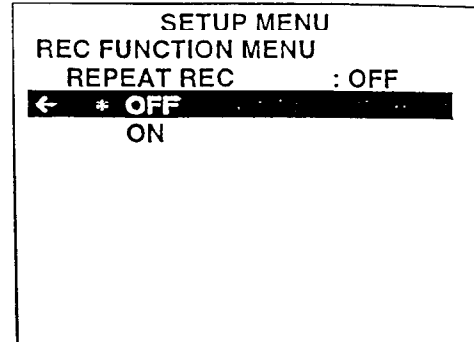
The Recording Function menu is displayed.

Monitor display



- 3 Highlight REPEAT REC (or display "RepeatRec") by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The menu shifts to repeat recording ON/OFF selection.



- 4 Highlight (or display) ON by pressing the \downarrow key.
- 5 Press the SET key to leave Menu mode.
- 6 Insert a cassette.
- 7 Press the REC \bullet key.

The REC indicator and the REPEAT indication of the indicator block light, and recording begins.

To cancel repeat recording

To stop recording in progress

Press the STOP \blacksquare key.

To release Repeat recording while continuing recording in progress

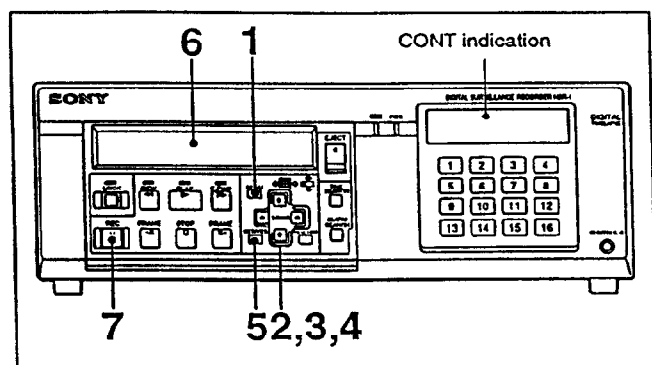
Return the REPEAT REC setting to OFF in step 3.

Continuous Recording

Frames taken while cassettes are being replaced are stored on the built-in hard disk so that recording can continue without a break.

While a cassette is being replaced, the valid time of continuous recording (the remaining valid time for storing on the hard disk) is displayed on the monitor screen and the character display, counting the time down.

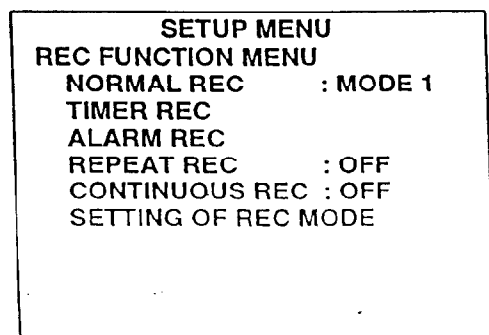
To activate continuous recording



See Chapter 4 "Menu Operations" for additional information.

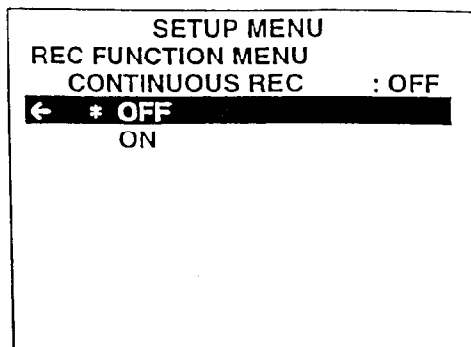
- 1 Enter Menu mode by pressing the MENU key.
- 2 Highlight REC FUNCTION MENU (or display "RecFuncMenu" on the front panel) of the Top menu (page 4-5) by pressing the ↑ or ↓ key, then press the → key.

The Recording Function menu is displayed.



- 3 Highlight CONTINUOUS REC (or display "ContRec") by pressing the ↑ or ↓ key, then press the → key.

The menu shifts to continuous recording ON/OFF selection.



- 4 Highlight (or display) ON by pressing the ↓ key.
- 5 Press the SET key to leave Menu mode.
- 6 Insert a cassette.
- 7 Press the REC ● key.

The REC indicator and the CONT indication of the indicator block light, and recording begins.

To change cassettes

- 1 Stop the tape by pressing the STOP ■ key.

When recording reaches the end of the tape, the tape automatically stops.

The valid time of the continuous recording is displayed on the monitor screen and the character display.

- 2 Press the EJECT key to remove the cassette.
- 3 Insert another cassette.
- 4 Press the REC ● key.

To cancel continuous recording

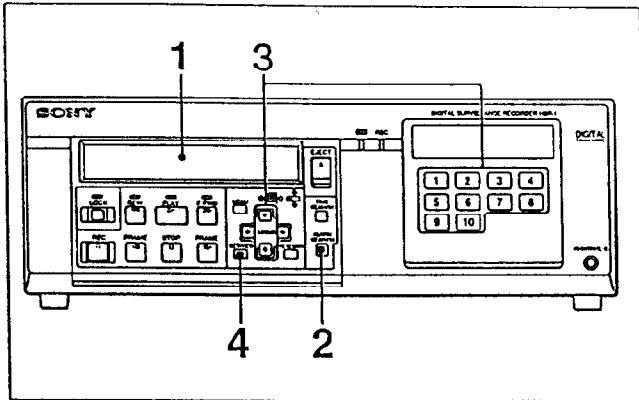
To stop recording in progress
Press the STOP ■ key.

To release continuous recording while continuing recording is in progress
Return the CONTINUOUS REC setting to OFF in step 3.

Alarm Search

Alarm recordings are listed in the order of generation, and you can locate the picture at the specified recording.

To activate series recording



- 1 Insert the recorded cassette.
- 2 Press the ALARM SEARCH key.
The ALARM SEARCH display appears on the monitor screen, listing alarm recordings recorded on the tape, if any.

ALARM SEARCH			
01:98	1 31	2:32: 16	AM
02:98	1 31	2:32: 16	AM
03:98	1 31	2:32: 16	AM
04:98	1 31	2:32: 16	AM
05:98	7 25	11:59: 41	PM
06:98	7 25	11:59: 41	PM
07:98	7 25	11:59: 41	PM
08:98	7 25	11:59: 41	PM
↓ SEARCH: SET		↑↓ : SHIFT	
ABORT: ALARM SEARCH			

The list can show up to eight recordings at a time. If there are 9 alarm recordings or more, an arrow flashes at the bottom of the list.

When you press the ↓ key with the lowest line of the list highlighted, the list scrolls to show the next line.

- 3 Highlight the alarm recording to be located by pressing the ↑ or ↓ key.

You can also specify it by entering the number using the numeric keys.

- 4 Press the SET key.

The tape rewinds or fast-forwards, searching for the tape position of the specified alarm recording. When the search is completed, playback begins from that position.

To cancel an alarm search

- If you have not yet pressed the SET key, press the ALARM SEARCH key again.
- If the tape is being searched, press the STOP ■ key.

Notes

- Data of up to 99 alarm recordings can be displayed on the alarm list of the recorder. When there are more than 100 alarm recordings, data of the first alarm recording and the latest 98 recordings are listed.
- Alarm recording in Frame REC mode cannot be located by an alarm search operation.

Series Recording

Recording is continued by switching multiple HSR-1/IP units connected in series.

Requirements for series recording

To activate series recording, it is necessary to connect multiple HSR-1/IP units in series and specify the series recording signal.

For connections, see Chapter 5 "Connections and Preparations."

Assigning the series recording signal

Assign the series recording signal to either input and output pins of the PARALLEL I/O connector on the rear panel of each HSR-1/IP unit.

By transmitting the series recording signal via the connectors, recording is relayed to the subsequent HSR-1/IP units.

The signal assignment is made from the Remote Control menu.

Once you assign the signal, it is not necessary to repeatedly set it if it is not to be changed.

For the Remote Control Menu, see Chapter 4 "Menu Operations."

To activate series recording

1 Turn on the power and insert a cassette in to each HSR-1/IP.

2 Press the REC key on the first HSR-1/IP.

Recording starts on the first HSR-1/IP.

When the tape remaining becomes near 2 minutes, the first HSR-1/IP unit sends a series recording signal to the next HSR-1/IP unit via the PARALLEL I/O connector.

When the next HSR-1/IP unit receives the signal, it starts recording.

To cancel series recording

Press the STOP ■ key on the HSR-1/IP unit on which recording is in progress.



Menu Operations

Menu Operations

Menu mode enables you to make various settings. The menus are displayed on the monitor connected via the VIDEO IN A connector or S-VIDEO connector on the rear panel. The menu items are also displayed on

the character display on the front panel of this recorder one by one.

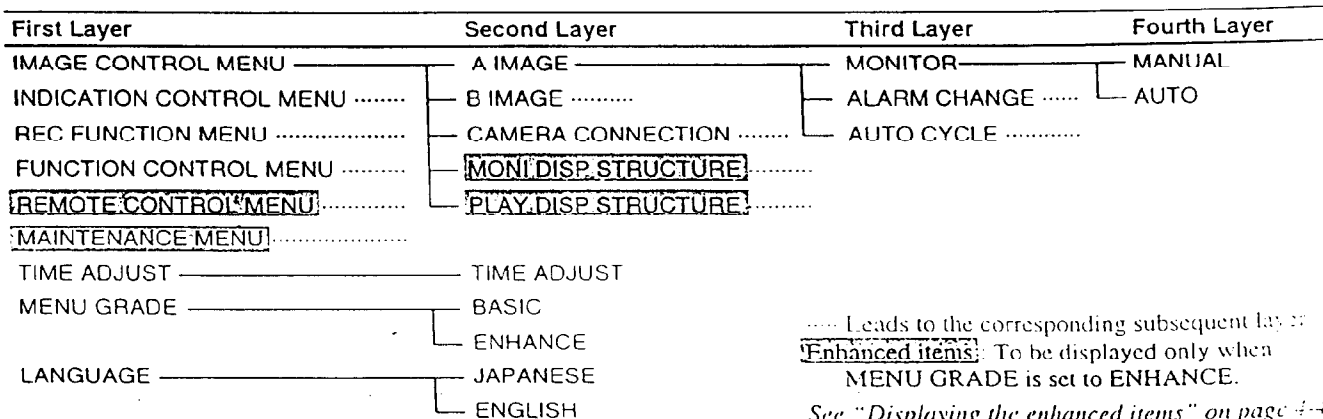
Layered Structure of the Menu Items

The menu items are layered and menu operations are achieved while shifting between these layers. Use the CURSOR ↑ or ↓ key to move within the same layer. Use the CURSOR → or ← key move from one layer to another. Some items incorporate the special setting displays.

Grade of items

The menu items are classified into the following two grades

- **BASIC items:** Items to be relatively often changed in accordance with circumstances
- **ENHANCE items:** Items which will rarely be changed once set.

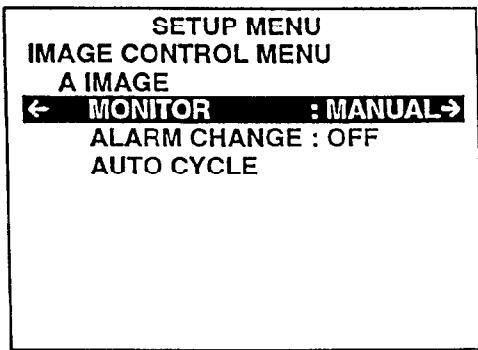


Menu Operations

Basic Display Layout

Monitor screen

The item currently selected is highlighted.
 A flashing arrow at the far right means that the item has a subsequent layer.
 A flashing arrow at the far left means that the item comes after the preceding layer.
 The items of the lower layer are accordingly indented in relation to those of the upper layer.



The current setting, if any, of the item is displayed on the same line on the display.

Language selection

The language (English/Japanese) for menu display can be changed by LANGUAGE of the Top menu.

Character display

Each time an arrow key is pressed, the character display on the front panel of the HSR-1/IP shows the next item in the direction of the arrow. The layer level is indicated by > marks. The number of > marks indicates which layer you are at.

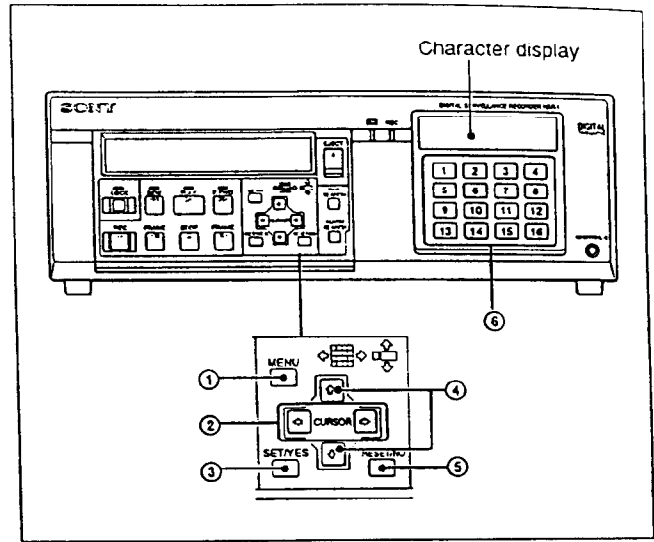
Example:

First layer	Image Menu	(no mark)
Second layer	>A Image	
Third layer	>>Monitor	
Fourth layer	>>>Manual	

The items are displayed always in English on the character display.

Keys Used for Menu Operations

For menu operations, use the keys of the Menu operation block and the numeric keys.



① MENU key

Press to enter Menu mode. Press it again to leave Menu mode.

If you press this key before registering a setting on the menu by pressing the SET key, the setting is canceled.

② CURSOR ←/→ keys

Press to move from a layer to another.

③ SET/YES key

Press to register a new or updated setting. Use this key to answer YES to a confirmation message.

④ CURSOR ↑/↓ keys

Press to select the items or setting on the same layer.

⑤ RESET/NO key

Press to resume the default settings at the factory. Use this key to answer NO to a confirmation message.

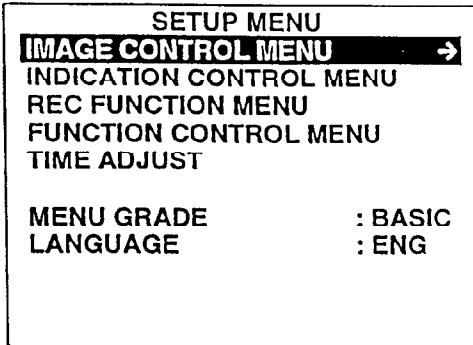
⑥ Numeric keys

Press to directly enter a numeric value.

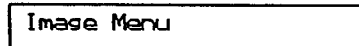
Setting the Menu Items

- 1 Press the MENU key.
The recorder enters Menu mode.

Monitor screen



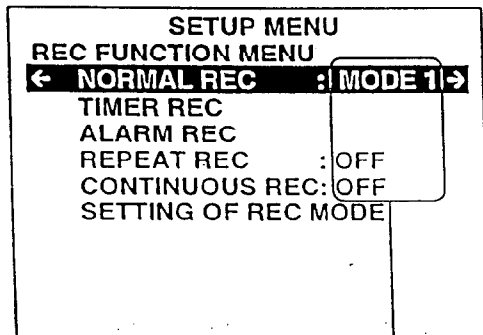
Character display



The item selected when you left the menu the last time is highlighted on the monitor and displayed on the character display on the front panel.

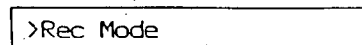
- 2 Highlight (or display) the item to be set by pressing the ↑ or ↓ key.
Pressing the ↓ key selects the item on the next line and pressing the ↑ key selects the previous line of the same layer.
- 3 Press the → key.
The recorder enters the next layer of the selected item.

Monitor screen



Current settings

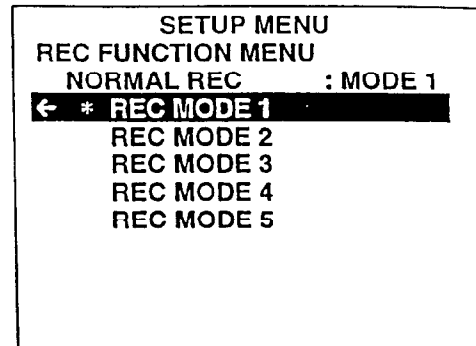
Character display



- 4 Highlight (or display) the item to be set by pressing the ↑ or ↓ key, then press the → key to move to the next layer.

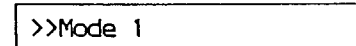
For the item for which the current setting is displayed on the layer in step 3, the setting parameters are now displayed.

Monitor screen



An asterisk (*) indicates the value is the default setting.

Character display



The other items have the subsequent layers. Highlight (or display) the item to be set by pressing the ↑ or ↓ key, then press the → key to move to the next layer. Pressing the → key with an item that has no subsequent layer is ignored.

- 5 Press the ↑ or ↓ key and select the setting.
- 6 Press the SET key.
The message "NOW SAVING" is displayed, and the setting is registered in nonvolatile memory.

The setting procedure may differ with the items incorporated in special setting displays. See the corresponding paragraph for the setting procedures.

To restore to the previous setting
Before pressing the SET key, press the MENU key. The message "ABORT !" is displayed, and the previous setting is restored.

Note

If power is cut off while data are being written into nonvolatile memory, the setting data may be lost. Do not turn off the power to the recorder until Menu mode is completely terminated.

Menu Operations

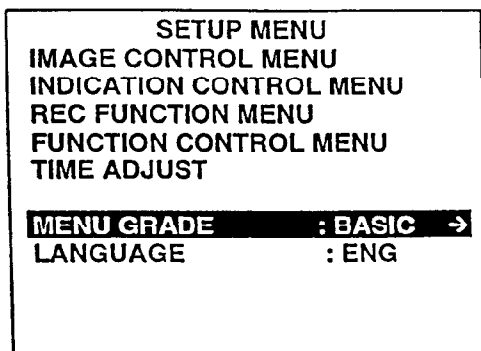
To display the enhanced items

The menu is set to Basic grade to display only the basic items.

To display the enhanced items, proceed as follows.

- 1 Highlight MENU GRADE (or display "Menu grade") on the Top menu by pressing the \uparrow or \downarrow key.

Monitor display

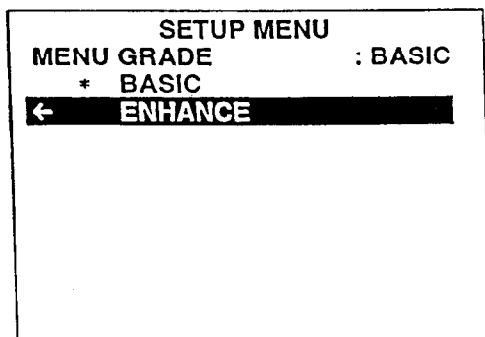


Character display

Menu grade

- 2 Proceed to the next layer by pressing the \rightarrow key.
- 3 Select "ENHANCE" or "Enhanced" by pressing the \downarrow key.

Monitor display



Character display

>Enhanced

- 4 Press the SET key.
The message "NOW SAVING" is displayed, and the enhanced items will be displayed when you activate Menu mode the next time.

Returning to the Default Settings — Initializing

To restore the factory (default) settings for the menu items (initialize the items) after having changed them, proceed as follows.

To initialize a specific item

- 1 Highlight the item to be initialized on the monitor screen or display it on the character display.
- 2 Press the RESET/NO key.
A confirmation message appears.
- 3 Press the SET/YES key.

The specified item is returned to the default setting, which is then stored in nonvolatile memory.

To initialize all the menu items

The menu items other than those of the Remote Control menu can all be initialized altogether.

- 1 Display the Top menu on the monitor screen. Or display one of the top menu item on the character display.
- 2 Press the RESET/NO key.
A confirmation message appears.
- 3 Press the SET/YES key.

The menu items other than those of the Remote Control menu are returned to the default settings, which is then stored in nonvolatile memory.

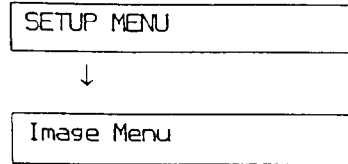
Menu Items

Top Menu (First Layer)

Monitor display

SETUP MENU
IMAGE CONTROL MENU
INDICATION CONTROL MENU
REC FUNCTION MENU
FUNCTION CONTROL MENU
REMOTE CONTROL MENU
MAINTENANCE MENU
TIME ADJUST
MENU GRADE : ENH
LANGUAGE : ENG

Panel display



The top menu item selected when you left the menu the last time is displayed.

The menus marked with **ENH** are enhanced menus, which are displayed only when MENU GRADE is set to ENH.

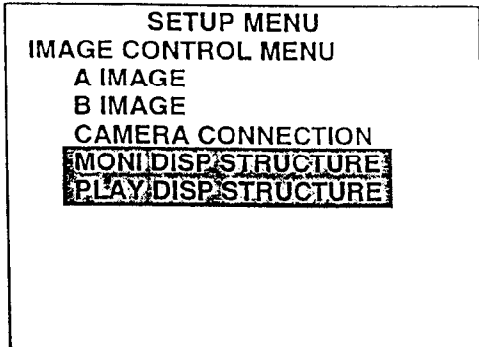
The setting shown in **bold characters** in the Layer 2 column of the table is the standard setting and is displayed with an asterisk on the monitor screen.

Display Layer 1	Layer 2	Panel display	Contents
IMAGE CONTROL MENU		Image Menu	Selects the menu to set the items regarding monitoring and playback. <i>See "Image Control Menu" on page 4-6.</i>
INDICATION CONTROL MENU		Indict Menu	Selects the menu to set the items regarding character data to be indicated on the screen. <i>See "Indication Control Menu" on page 4-8.</i>
REC FUNCTION MENU		RecFuncMenu	Selects the menu to set the items regarding recording functions. <i>See "Recording Function Menu" on page 4-10.</i>
FUNCTION CONTROL MENU		FuncMenu	Selects the menu to set the items regarding special functions, such as auto rewind and beep sound. <i>See "Function Control Menu" on page 4-11.</i>
REMOTE CONTROL MENU		Remote Menu	Selects the menu to set the items regarding external controls via RS-232C and PARALLEL I/O. <i>See "Remote Control Menu" on page 4-12.</i>
MAINTENANCE MENU		MainteMenu	Selects the menu for maintenance, such as the hours meter and self-diagnosis. <i>See "Maintenance Menu" on page 4-14.</i>
TIME ADJUST		Time Adjust	Selects the mode to set the built-in clock. <i>For the setting, see "Setting the Clock" on page 5-5.</i>
MENU GRADE		Menu grade	Select the items to be displayed.
	BASIC	>Basic	Displays only the basic items.
	ENHANCE	>Enhanced	Displays both the basic and enhanced items.
LANGUAGE		Language	Selects the language for superimposing.
	ENGLISH	>English	
	JAPANESE	>Japanese	

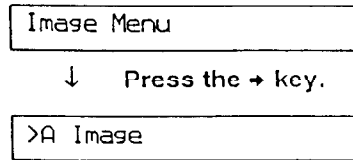
Menu Items

Image Control Menu

Monitor screen



Panel display



The Image Control menu item selected when you left the menu the last time is displayed.

The items marked with **MONI DISP STRUCTURE** are enhanced items, which are displayed only when MENU GRADE is set to ENH on the top menu.

The setting shown in **bold characters** in the Layer 4 column of the table is the standard setting and is displayed with an asterisk on the monitor screen.

Display Layer 2	Layer 3		Panel display	Contents
	Layer 3	Layer 4		
A IMAGE			>A Image	Selects the items regarding the video output from the VIDEO OUT A connector.
	MONITOR		>>Monitor	Selects the output method in monitoring.
		MANUAL	>>>Manual	To select the camera input to be monitored with the camera number key.
		AUTO	>>>Auto	To cyclically switch the camera input to be monitored.
	ALARM CHANGE		>>Alm Chang	Determines whether the picture for monitoring to be switched upon an alarm input.
		OFF	>>>OFF	Not to switch the picture upon alarm input.
		ON	>>>ON	To switch the picture to that from the camera for which an alarm is input.
	AUTO CYCLE		>>Auto Cycle	Enters the setting mode for the cycle of automatic monitor switching. n = 1 to 60
		n SEC (5)	n sec	<i>For the setting procedure, see "Setting the Cycle of Automatic Switching" on page 5-11.</i>
	B IMAGE			>B Image
IMAGE			>>Image	Selects the picture to be output.
		A IMAGE	>>>A Image	To output the same video signal as that from the VIDEO A connector.
		AUTO	>>>Auto	To output pictures from cameras by cyclically switching the cameras.
		Camera n	>>>Camera n	To steadily output the picture from the specific camera. n = camera number 1 to 16
ALARM CHANGE			>>Alm Chang	Determines whether the picture for monitoring to be switched upon an alarm input.
		OFF	>>>OFF	Not to switch the picture upon an alarm input.
		ON	>>>ON	To switch to the picture from the camera for which an alarm is input.
AUTO CYCLE			>>Auto Cycle	Enters the setting mode for the cycle of automatic monitor switching. n = 1 to 60
		n SEC (5)	n sec	<i>For the setting procedure, see "Setting the Cycle of Automatic</i>

Display Layer 2	Layer 3	Layer 4	Panel display	Contents
CAMERA CONNECTION			>Camera Inp	Enters the mode to set the connection statuses of cameras. <i>For the setting procedure, see "Setting the Camera for Use" on page 5-5.</i>
	NO/CONNECT		–	
MONI DISP STRUCTURE			>Moni Disp	For setting the screen structure for monitoring.
	n DIVISION		>>n Div	Enters the setting mode to assign cameras to the divisions of the screen in each dividing mode for monitoring. n = the number of divisions: 4, 6, 7, 8, 9, 10, 13, 16 <i>For the setting procedure, see "Setting the Display Structures" on page 5-8.</i>
PLAY DISP STRUCTURE			>Play Disp	For setting the screen structure for playback.
	n DIVISION		>>n Div	Enters the setting mode to assign cameras to the divisions of the screen in each dividing mode for playback/monitoring. n = the number of divisions: 4, 6, 7, 8, 9, 10, 13, 16 <i>For the setting procedure, see "Setting the Display Structures" on page 5-8.</i>

Menu Items

Indication Control Menu

Monitor screen

SETUP MENU	
INDICATION CONTROL MENU	
BORDERLINE	: BLACK
DATE FORMAT	: Y M D
MONTH FORMAT	: NUMBER
TIME FORMAT	: 12H
FRNT TIME DISP	: TM MD
MONI CHAR TYPE	: WHITE
MONI CHAR INFO	
REC CHAR TYPE	: BLACK
REC CHAR INFO	
CAMERA NAME	

Panel display

Indict Menu

↓ Press the → key.

>BorderLine

The Indication Control menu item selected when you left the menu the last time is displayed.

The items marked with **RECHARTYPE** are enhanced items, which are displayed only when MENU GRADE is set to ENH on the Top menu.

The setting shown in bold characters in the Layer 3 or 4 column of the table is the standard setting and is displayed with an asterisk on the monitor screen.

Display Layer 2	Layer 3	Panel display	Contents
BORDERLINE		>BorderLine	Determines the lines separating the divisions in screen dividing mode.
	BLACK	>>Black	To separate with black lines
	WHITE	>>White	To separate with white lines
	NO	>>NO	To display no lines
DATE FORMAT		>DateFormat	Determines the format of date indication.
	YEAR MONTH DAY	>>Y M D	To display in the order of year/month/day
	MONTH DAY YEAR	>>M D Y	To display in the order of month/day/year
	DAY MONTH YEAR	>>D M Y	To display in the order of day/month/year
MONTH FORMAT		>Month Form	Determines the format of month indication.
	NUMBER	>>Number	
	ALPHABET	>>Alphabet	
TIME FORMAT		>>Time Format	Determines the format of time indication.
	12H	>12H	
	24H	>24H	
FRNT TIME DISP		>Front Time	Selects the time data to be displayed in the time data display on the front panel.
	TIME MODE	>>Time Mode	To display the selected time mode.
	REC TIME	>>Rec Time	To display the available time for recording in recording mode and the selected time mode in other modes.
	TIME	>>Time	To display the current clock time
MONI CHAR TYPE		>MonChrType	Selects the type of characters to be superimposed in monitoring.
	WHITE	>>White	To superimpose white characters on black background
	BLACK	>>Black	To superimpose black characters on white background

Menu Items

Recording Function Menu

Monitor screen

```

SETUP MENU
REC FUNCTION MENU
NORMAL REC      : MODE 1
TIMER REC
ALARM REC       : OFF
REPEAT REC      : OFF
CONTINUOUS REC  : OFF
SETTING OF REC MODE
    
```

Panel display

```

RecFuncMenu
    
```

↓ Press the → key.

```

>RecMode
    
```

The Recording Function menu item selected when you left the menu the last time is displayed

The setting shown in **bold characters** in the Layer 3 or 4 column of the table is the standard setting and is displayed with an asterisk on the monitor screen.

Display Layer 2	Layer 3	Layer 4	Panel display	Contents
NORMAL REC			>Rec Mode	Selects Recording mode for normal recording.
	REC MODE 1		>>Mode 1	
	REC MODE 2		>>Mode 2	
	REC MODE 3		>>Mode 3	
	REC MODE 4		>>Mode 4	
		REC MODE 5	>>Mode 5	
TIMER REC			>Timer Rec	Selects the items to be set for Timer recording.
	TIMER REC		>>Timer Rec	Determines whether to activate Timer recording.
		OFF	>>>OFF	No to activate Timer recording
		DAILY REC	>>>Daily	To activate Timer recording in accordance with the Daily Timer setting.
		WEEKLY REC	>>>Weekly	To activate Timer recording in accordance with the Weekly Timer setting.
	DAILY TIMER		>>Daily	Enters the setting mode for Daily timer. <i>For the setting procedure, see "Timer Recording" on page 3-2.</i>
	WEEKLY TIMER		>>Weekly	Enters the setting mode for Weekly timer. <i>For the setting procedure, see "Timer Recording" on page 3-2.</i>
ALARM REC			>Alarm Rec	Selects the items to be set for Alarm recording.
	ALARM REC		>>Alarm Rec	Determines whether to activate Alarm recording.
		OFF	>>>OFF	
		ON	>>>ON	
	ALARM SET		>>Alarm Set	Enters the setting mode for Alarm recording. <i>For the setting procedure, see "Alarm Recording" on page 3-3.</i>
REPEAT REC			>RepeatRec	Determines whether to activate Repeat recording.
	OFF		>>OFF	
	ON		>>ON	
CONTINUOUS REC			>ContRec	Determines whether to activate Continuous recording.
	OFF		>>OFF	
	ON		>>ON	
SETTING OF REC MODE			>RecModeSet	Enters the setting mode for each Recording mode.
	RECORDING MODE n		>Mode n	
				n = Recording mode number 1 to 5 <i>For the setting procedure, see "Setting the Recording Modes" on page 5-10.</i>

Display Layer 2	Layer 3	Layer 4	Panel display	Contents
MONI CHAR INFO			>MonChr Info	Selects the character data to be displayed on the screen.
	CAMERA NAMES		>Cam Name	Determines whether to display the camera names.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
	DATE		>>Date Info	Determines whether to display the date.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
	TIME		>>Time Info	Determines whether to display the time.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
	TIME MODE		>>Time Mode	Determines whether to display the time mode.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
	QUALITY MODE		>>Quality	Determines whether to display the quality mode.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
	REC CYCLE		>RecChrType	Determines whether to display the recording cycle.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
REC CHAR TYPE			>RecChrType	Selects the type of characters to be superimposed in recording.
	BLACK		>>Black	To superimpose black characters on white background
	WHITE		>>White	To superimpose white characters on black background
REC CHAR INFO			>RecChr Info	Selects the character data to be recorded.
	DATE		>>Date Info	Determines whether to record the date.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
	TIME		>>Time Info	Determines whether to record the time.
		DISPLAY	>>>Display	
		NO	>>>No Disp	
CAMERA NAME			>Camera Name	Enters the mode to set the camera names. <i>For the setting procedure, see "Setting the Camera Names" on page 5-6.</i>

Function Control Menu

Monitor display

```

      SETUP MENU
FUNCTION CONTROL MENU
  AUTO REW      : ON
  BEEP          : ON
  PASSWORD
  
```

Panel display

```

Func Menu
↓ Press the → key.
>AutoREW
  
```

The item marked with **PASSWORD** is an enhanced item, which is displayed only when MENU GRADE is set to ENH on the Top menu.

The setting shown in bold characters in the Layer 3 column of the table is the standard setting and displayed with an asterisk on the monitor screen.

Display Layer 2	Layer 3	Panel display	Contents
AUTO REW		>AutoREW	For specifying the operation at tape end.
	ON	>>ON	To automatically start rewinding at tape end.
	ON(PB)	>>ON(PB)	To automatically start rewinding at tape end in modes other than recording. In recording mode, the tape stops at tape end.
	OFF	>>OFF	To start the tape at the tape end.
BEEP		>Beep	Determine whether to sound the beep at tape end in recording or upon error generation.
	ON	>>ON	To sound
	OFF	>>OFF	Not to sound
PASSWORD		>Password	For entering the password setting for key lock function. <i>For the setting procedure, see "Setting the Password" on page 5-14.</i>

Note

In Repeat recording, recording is continuously performed regardless of the AUTO REW setting on this menu.

Menu Items

Remote Control Menu (Enhanced Menu)

The Remote Control Menu is an enhanced menu and is displayed only when MENU GRADE is set to ENH on the top menu.

Monitor Display

```

SETUP MENU
REMOTE CONTROL MENU
RS232C          : 9600BPS
PARALLEL INPUT
PARALLEL OUTPUT
PARALLEL OUT VOLTAGE
    
```

Panel display

Remote Menu

↓ Press the → key.

>RS232C

The Remote Control menu item selected when you left the menu the last time is displayed.

The setting shown in **bold characters** in the Layer 3 or 4 column of the table is the standard setting and is displayed with an asterisk on the monitor screen.

Display Layer 2	Layer 3	Layer 4	Panel display	Contents
RS232C			>RS232C	For setting the baud rate for the RS-232C interface.
	n BPS (9600)		>>n bps	n = 1200/2400/4800/9600/19200/38400
PARALLEL INPUT			>Para Input	For assigning a function to each input pin (24 inputs) of the PARALLEL I/O connector on the rear panel.
	INm (n PIN)		>>n PIN	m = 1 to 24, n = pin number 2 to 13, 21 to 32
		NO USE	>>>No use	To ignore the input signal.
		STOP	>>>STOP	To use for command inputs corresponding to the tape transport control keys on the front panel (Active L)
		REC	>>>REC	
		PLAY	>>>PLAY	
		F.FWD	>>>FFWD	
		REW	>>>REW	
		F.FRAME	>>>F.FRAME	
		R.FRAME	>>>R.FRAME	
		SERIES REC	>>>SerRec	To use for the Series-recording signal input (Active L)
		TIME ADJUST	>>>Time Set	To use for the clock set signal input (Active L). The internal clock will be set to 00 minute 00 second within ±15 minutes when the signal is input.
		ALARM RETURN	>>>AlmRtrn	To use for the alarm return input (Active L)
		ALARM (L)	>>>Alarm L	To use for the alarm input common to all cameras (Active L)
		ALARM n (L)	>>>Alm n L	To use for the independent alarm input to camera n (Active L) n = Camera No. 1 to 16
	ALARM (H)	>>>Alarm H	To use for the alarm input common to all cameras (Active H)	
	ALARM n (H)	>>>Alm n H	To use for the independent alarm input to camera n (Active H) n = Camera No. 1 to 16	

Display Layer 2	Layer 3	Layer 4	Panel display	Contents
PARALLEL OUTPUT			>Para OutPut	For assigning a function to each output pin (8 outputs) of the PARALLEL I/O connector on the rear panel.
	OUTm (n PIN)		>>n PIN	m = 1 to 8, n = pin number 15 to 18, 33 to 36
		NO USE	>>>No use	To output no signal.
		STOP	>>>Stop St	To output status signals to indicate the operating statuses of the recorder.
		REC	>>>Rec St	
		PLAY	>>>Play St	
		F.FWD	>>>FFWD St	
		REW	>>>REW St	
		SERIES REC	>>>Series Rec	
		TIME ADJUSTMENT	>>>Time Set	To output the clock set signal when the internal clock counts 00 minute 00 second.
		ALARM RETURN	>>>AlmRtrn	To output a signal upon return from alarm recording
		ALARM	>>>Alarm	To output a status signal to indicate that alarm recording is in progress.
		TAPE END	>>>Tape End	To output a signal when tape end is reached during recording.
		TAPE EXIST	>>>Tape Exst	To output a signal when a cassette is in the recorder.
		AUTO OFF	>>>Auto off	To output a signal when trouble occurs in the recorder.
PARALLEL OUT VOLTAGE			>P Out Volt	For setting the output voltage from each output pin (8 outputs) of the PARALLEL I/O connector on the rear panel.
	OUTm (n PIN)		>>n PIN	m = 1 to 8, n = pin number 15 to 18, 33 to 36
		OPEN	>>>Open	Outputs with OPEN/0 V.
		5V	>>>5V	Outputs with 5 V.
		12V	>>>12V	Outputs with 12 V.

Menu Items

Maintenance Menu (Enhanced Menu)

The Maintenance Menu is an enhanced menu and is displayed only when MENU GRADE is set to ENH on the top menu.

Monitor Display

```

      SETUP MENU
MAINTENANCE MENU
      HOURS METER
      VERSION DISP
      SELF DIAG
    
```

Panel display

Mainte Menu

↓ Press the → key.

>HoursMeter

The Maintenance menu item selected when you left the menu the last time is displayed.

The setting shown in bold characters in the Layer 4 column of the table is the standard setting and is displayed with an asterisk on the monitor screen.

Display Layer 2	Layer 3	Layer 4	Panel display	Contents
HOURS METER			>HoursMeter	Enters the mode to check the hours meter. <i>For the checking procedure, see "Regular Checks" on page 6-2.</i>
VERSION DISP			>Ver Disp	Shows the software version.
SELF DIAG	BIST MODE		>Self Diag	Sets the execution mode of the self-diagnostic program.
			>>Bist mode	Turns on/off the circuit check of the compressed data transmission system.
		OFF	>>>OFF	
ON	>>>ON			

Connections and Preparations

Connections

Video Cameras

Number of cameras

In the standard HSR-1/1P configuration, up to 4 camera can be connected.

By mounting the optional HSRA-11/11P input boards (max. 3 boards), 4 inputs per board can be added; thus, a maximum of 16 cameras can be connected to the recorder.

For mounting the HSRA-11/11P, refer to the installation manual for the HSRA-11/11P.

Input signals from cameras

VBS or VS signal

Input level from cameras

1.0 V_{p-p} ±0.2 V, 75 ohms, unbalanced

Video Monitors

The number of monitors

Monitors can be connected to two BNC-type connectors and one S connectors.

The monitors connected to the BNC connectors can display different pictures.

Output signals to monitors

VBS or VS signal

Output level to monitors

Remote Controls

The recorder has a PARALLEL I/O and an RS-232C connector on the rear and a CONTROL-S connector on the front for control from external devices.

PARALLEL I/O connector

For 24 input pins and 8 output pins of this 37-pin D-sub connector, you can assign various functions as required, such as input/output for alarm recording and command inputs for tape transport control.

The assignment is made using the Remote Control menu.

For the functions that can be assigned, see "Remote Control Menu" on page 4-1.

Use the supplied multi connector for connection.

RS-232C connector

Using this 9-pin D-sub connector, you can control the recorder from a computer via an RS-232C interface.

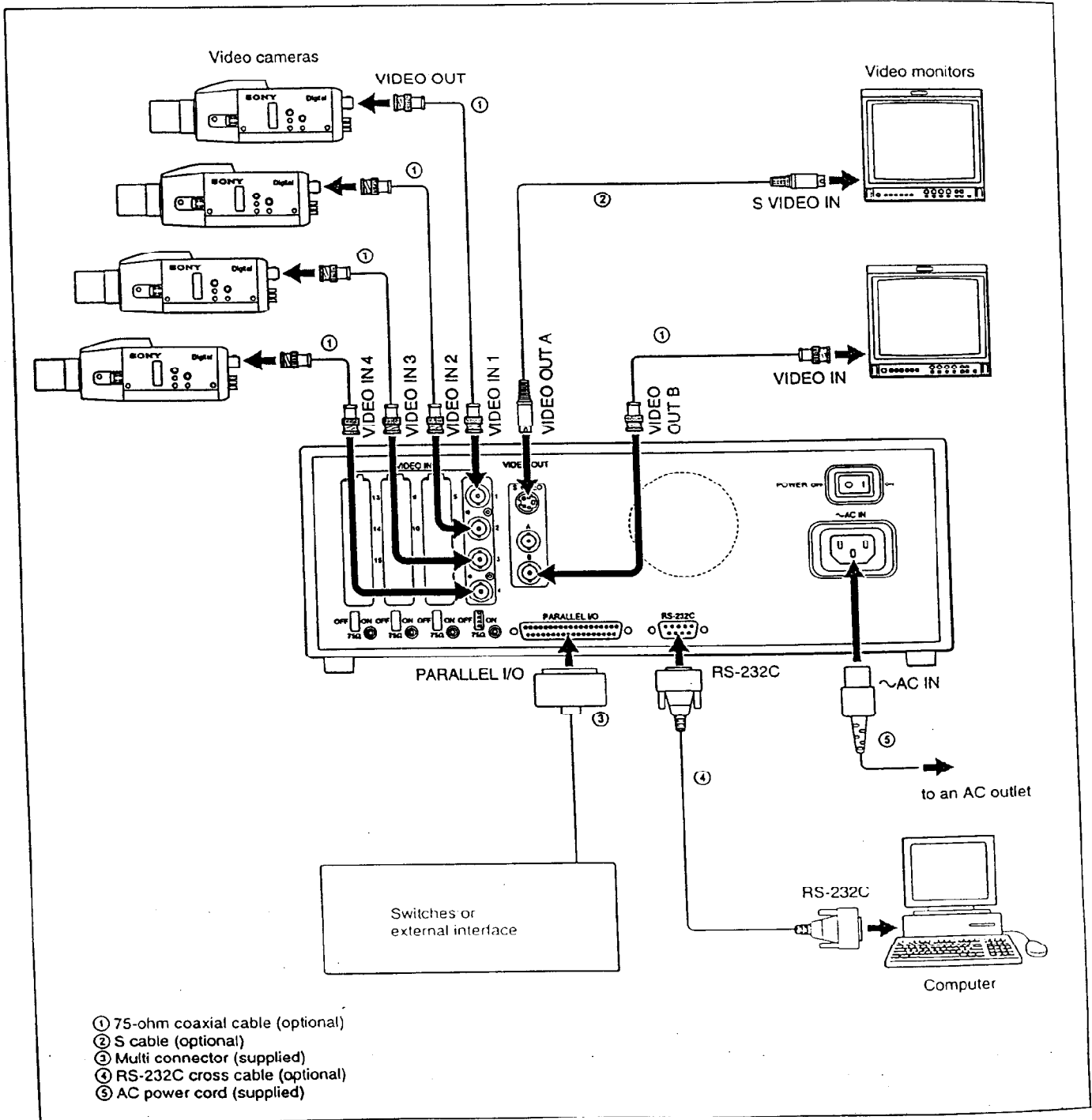
CONTROL-S connector

To this stereo mini jack, you can connect the SVRM-100A remote control unit.

Connections

Connection Examples

Basic system connection

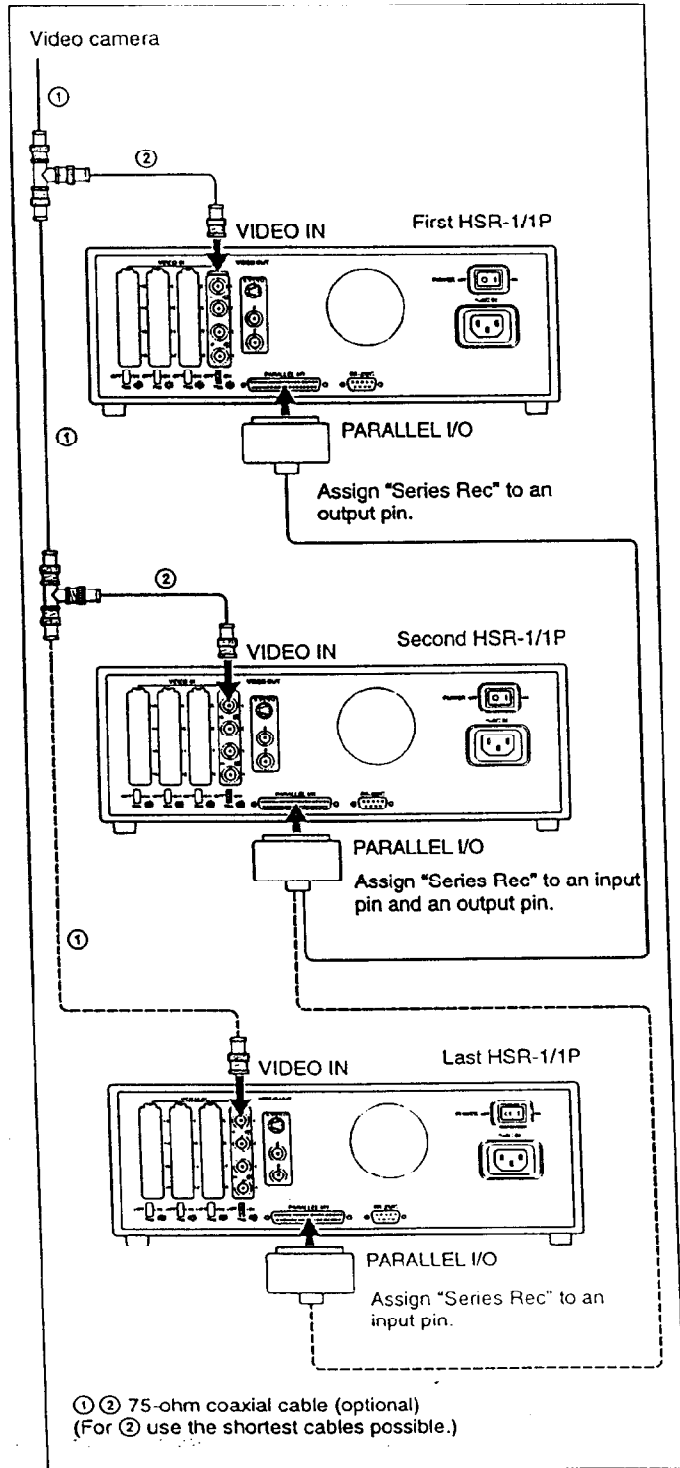


Switch Configurations for the Parallel I/O

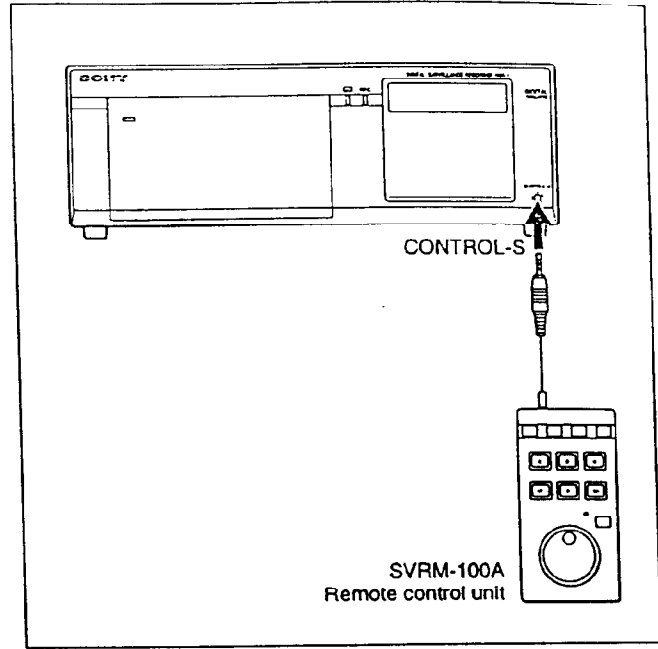
(under way)

Connections

Connection for series recording

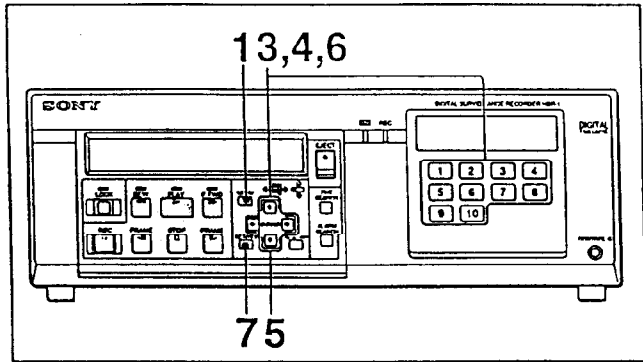


Connection for remote control



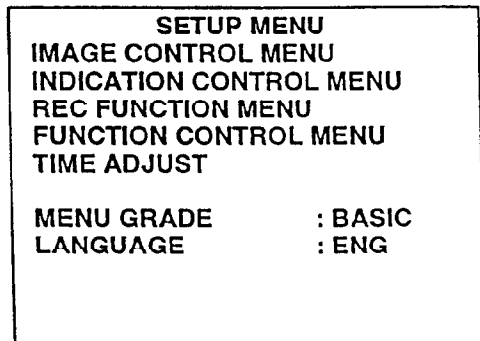
Setting the Clock

Set the time and date of the built-in clock. They are recorded as data on a tape, and can be superimposed on the playback picture and used for picture search.



- 1 Enter Menu mode by pressing the MENU key.

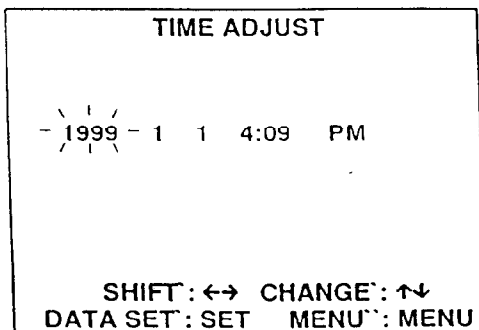
The Top menu appears on the monitor display.



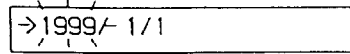
- 2 Highlight TIME ADJUST (or display "Time Adjust" on the front panel) by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The unit enters Time adjustment mode, and the Year indication flashes.

Monitor screen



Panel display



- 3 Set the year by advancing or retarding the value with the \uparrow or \downarrow key or by directly entering a value with the numeric keys, then press the \rightarrow key.
- 4 Set the month, day, hour and minutes in the same manner.
- 5 Select AM or PM with the \uparrow or \downarrow key.
- 6 Press the SET key at a time signal.

To cancel the setting

Press the MENU key in place of the SET key to leave the menu mode.

The format for superimposing the date/time on the playback picture can be set using the Indication Control menu.

See "Indication Control Menu" on page 4-7.

Settings

When the connections and preparations are completed, perform the system settings in Enhanced menu mode. In the following setting procedures, the indications on the character display on the front panel of the HSR-1/1P are shown in parenthesis after those on the monitor screen.

Example: IMAGE CONTROL MENU (Image Menu)

Selecting the Enhanced Menu Mode

1 Enter Menu mode by pressing the MENU key. The top menu appears on the monitor display. The Top menu item that had been selected when you left Menu mode the last time is displayed on the character display on the front panel.

2 When MENU GRADE (Menu grade) is set to BASIC (Basic), change it to ENH (Enhanced). See "Displaying the Enhanced Items" on page 4-4.

Top menu in Enhanced Menu mode

SETUP MENU	
IMAGE CONTROL MENU	
INDICATION CONTROL MENU	
REC FUNCTION MENU	
FUNCTION CONTROL MENU	
REMOTE CONTROL MENU	
MAINTENANCE MENU	
TIME ADJUST	
MENU GRADE	: ENH →
LANGUAGE	: ENG

Setting the Cameras to Use

Specify the cameras to be used for monitoring and recording.

Use CAMERA CONNECTION (Camera Inp) of the Image Control menu for the setting.

To use connected cameras for monitoring and recording

Set the number of the camera (the same as the VIDEO IN connector number to which the camera is connected) to CONNECT.

Setting procedure

1 Highlight IMAGE CONTROL MENU (Image Menu) of the top menu by pressing the ↑ or ↓ key, then press the → key. The Image Control menu is displayed.

SETUP MENU	
IMAGE CONTROL MENU	
A IMAGE	
B IMAGE	
CAMERA CONNECTION	
MONI DISP STRUCTURE	
PLAY DISP STRUCTURE	

2 Highlight CAMERA CONNECTION by pressing the ↑ or ↓ key, then press the → key.

The menu shifts to camera connection setting. The CONNECT/NO indication for CAM 1 flashes.

CAM 1 CONNECT	CAM 2 CONNECT	CAM 3 CONNECT	CAM 4 CONNECT
CAM 5 CONNECT	CAM 6 CONNECT	CAM 7 CONNECT	CAM 8 CONNECT
CAM 9 CONNECT	CAM 10 CONNECT	CAM 11 CONNECT	CAM 12 CONNECT
CAM 13 NO	CAM 14 NO	CAM 15 NO	CAM 16 NO

3 Select the camera to be set by pressing the → or ← key.

Each time you press either of the key, camera 1 to 16 are cyclically selected, and the CONNECT/NO indication for the selected camera flashes.

4 Select CONNECT or NO by pressing the ↑ or ↓ key.

Repeat steps 3 and 4 for all the connected cameras.

5 When the settings are completed, press the SET key.

A message "NOW SAVING" is displayed, and the settings are stored in nonvolatile memory. The Image Control menu is restored.

To restore to the previous setting

Before pressing the SET key, press the MENU key. The message "ABORT !" is displayed, and the previous setting is restored.

Notes

- If an optional input board is not mounted to a slot of corresponding connector numbers, or no camera is connected to the corresponding connectors, CONNECT cannot be selected for those numbers.
- When the settings of this display are changed, the settings of the monitor display structure (page 5-8) and those of the recording modes are automatically changed.

Setting Camera Names

You can specify desired names for connected cameras. Use CAMERA NAME (Camera Name) of the Indication Control menu for the setting.

Usable characters

You can set a name of up to 9 characters including alphabets, numerics, and some symbols. The specified names are superimposed in the picture from the cameras. CAM1 to CAM 16 are set at the factory.

Note

As the camera numbers are necessary for various setting and selecting pictures for monitoring, it is recommended that the number to be included in the name.

Setting procedure

1 Highlight INDICATION CONTROL MENU (Indict Menu) of the top menu by pressing the ↑ or ↓ key, then press the → key.

The Indication Control menu is displayed.

SETUP MENU	
INDICATION CONTROL MENU	
BORDER LINE	: BLACK
DATE FORMAT	: Y M D
MONTH FORMAT	: NUMBER
TIME FORMAT	: 12H
FRNT TIME DISP	: TM MD
MONI CHAR TYPE	: WHITE
MONI CHAR INFO	
REC CHAR TYPE	: BLACK
REC CHAR INFO	
CAMERA NAME	

2 Highlight CAMERA NAME (or display CameraName) by pressing the ↑ or ↓ key, then press the → key.

The menu shifts to camera name setting, and the first character of the name currently set for the camera connected to the VIDEO IN 1 connector flashes.

Flashing

1 CAMERA	2 CAMERA	3 CAMERA	4 CAMERA
5 CAMERA	6 CAMERA	7 CAMERA	8 CAMERA
9 CAMERA	10 CAMERA	11 CAMERA	12 CAMERA
13 CAMERA	14 CAMERA	15 CAMERA	16 CAMEHA

3 Select the character column to be set by pressing the → or ← key. Each time you press either key, the next column is selected, and that selected column flashes.

4 Select the desired character by pressing the ↑ or ↓ key. To insert a space, press the RESET key.

Repeat steps 3 and 4 for all the columns.

When you press the → key at the last column, the first column of the next camera now flashes. Set the names in the same manner for all the connected camera.

Settings

- When the settings are completed, press the SET key.

A message "NOW SAVING" is displayed, and the settings are stored in nonvolatile memory. The Indication Control menu is restored.

To restore to the previous setting

Before pressing the SET key, press the MENU key. The message "ABORT!" is displayed, and the previous setting is restored.

Setting the Display Structures

Assign the cameras to the divisions of each divided screen for monitoring and playback. These display structures can be independently set for monitoring and playback.

In display structures for playback, you can assign not only playback cameras but also monitoring cameras. In the division to which a monitoring camera has been assigned, you can see the current picture from the camera even while playback is in progress in other divisions.

To set the monitor display structures

Use MONI DISP STRUCTURE (Moni Disp) of the Image Control menu for making the setting.

Note









When the settings on CAMERA CONNECTION (page 5-6) are changed, the settings of the display structures may be automatically changed according to the CAMERA CONNECTION settings.

- Highlight IMAGE CONTROL MENU (Image Menu) of the top menu by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The Image Control Menu (page 4-6) is displayed.

- Highlight MONI DISP STRUCTURE (Moni Disp) by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The menu shifts to monitor display structure setting.

SETUP MENU	
IMAGE CONTROL MENU	
MONI DISP STRUCTURE	
4 DIVISION	
6 DIVISION	
7 DIVISION	
8 DIVISION	
9 DIVISION	
10 DIVISION	
13 DIVISION	
16 DIVISION	

The display structure that had been selected when you left the menu the last time is displayed on the character display on the front panel.

- Highlight the desired division mode by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The setting display of the selected division mode appears on the monitor screen.

Example: 8-Division mode

1 page			CAM 2 (MON)
			CAM 3 (MON)
- CAM 1 - (MON)			CAM 4 (MON)
CAM 5 (MON)	CAM 6 (MON)	CAM 7 (MON)	NO

- Select the division to be set by pressing the \rightarrow or \leftarrow key.

Each time you press either of the keys, the next division is selected, and the indication for the selected division flash.

- Select the camera to be monitored in the selected division by pressing the \uparrow or \downarrow key.

Each time you press either keys, the camera numbers of the connected cameras and NO are cyclically selected.

To set the selected division to a blank (no display) division
Set to NO.

You can specify the camera number by pressing the corresponding number key. Note, however, that the keys of non-connected camera numbers are disabled.

Repeat steps 4 and 5 for all the divisions.
The same camera can be assigned to multiple divisions.

When setting the structure in a dividing mode that has multiple pages, the setting display for the subsequent page will appear by pressing the \rightarrow key in the last (lower right) division. To return to the pervious page, press the \leftarrow key in the first (upper left) division.

- 6** When the settings are completed, press the SET key.

A message "NOW SAVING" is displayed, and the settings are stored in nonvolatile memory.
The Image Control Menu is restored.

Note

If all the divisions of a page are set to "NO," that page will be skipped when monitoring. Similarly, if all the divisions of a dividing structure are set to "NO," that dividing structure will be skipped when monitoring.

To restore to the previous setting

Before pressing the SET key, press the MENU key.
The message "ABORT !" is displayed, and the previous setting is restored.

To set the playback display structures









Use PLAY DISP STRUCTURE (Play Disp) of the Image Control menu for making the setting.

- 1** Highlight IMAGE CONTROL MENU (Image Menu) of the top menu by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The Image Control menu (page 4-6) is displayed.

- 2** Highlight PLAY DISP STRUCTURE (Play Disp) by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The menu shifts to playback display structure setting.

SETUP MENU	
IMAGE CONTROL MENU	
PLAY DISP STRUCTURE	
4 DIVISION	
6 DIVISION	
7 DIVISION	
8 DIVISION	
9 DIVISION	
10 DIVISION	
13 DIVISION	
16 DIVISION	

- 3** Highlight the desired division mode by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The setting display of the selected division mode appears on the monitor screen.

Example: 8-Division mode

1 page			CAM 2 (MON)
			CAM 3 (MON)
-CAM 1- (PB)			CAM 4 (MON)
CAM 5 (MON)	CAM 6 (MON)	CAM 7 (MON)	NO

- 4** Select the division to be set by pressing the \rightarrow or \leftarrow key.

Each time you press either of the keys, the next division is selected, and the indication for the selected division flash.

- 5** Select the camera to be monitored in the selected division by pressing the \uparrow or \downarrow key.

Each time you press either of the keys, the camera numbers of the connected cameras and NO are cyclically selected.

To assign a playback camera

Set CAM 1(PB) to CAM 16(PB).

You can also specify the camera number by pressing the corresponding number key.

Settings

To assign a monitor camera

Set CAM n (MON).

You can specify the camera number by pressing the corresponding number key. Note, however, that the camera set to NO in CAMERA CONNECTION cannot be selected.

To set the selected division to a blank (no display) division

Set to NO.

Repeat steps 4 and 5 for all the divisions. The same camera can be assigned to multiple divisions.

When setting the structure in a dividing mode that has multiple pages, the setting display for the subsequent page will appear by pressing the \rightarrow key in the last (lower right) division. To return to the pervious page, press the \leftarrow key in the first (upper left) division.

- 6** When the settings are completed, press the SET key.

A message "NOW SAVING" is displayed and the settings are stored in nonvolatile memory. The Image Control Menu is restored.

Note

If all the divisions of a page are set to "NO," that page will be skipped when monitoring. Similarly, if all the divisions of a dividing structure are set to "NO," that dividing structure will be skipped when monitoring.

To restore to the previous setting

Before pressing the SET key, press the MENU key. The message "ABORT !" is displayed, and the previous setting is restored.

Setting the Automatic Change Cycle

The picture to be monitored in Full screen (nondivided) mode can be automatically changed at the specified cycle.

You can determine whether to automatically change the picture and, if to change, the cycle independently for the VIDEO OUT A and B connectors.

The S-VIDEO connector always outputs the same signal as that from the VIDEO OUT A connector.

Use A IMAGE (A Image) and B IMAGE (B Image) of the Image Control menu.

The setting procedure is common to the A and B connectors.

To activate the automatic change

Set MONITOR (Monitor) of A IMAGE (A Image or B IMAGE (B Image) to AUTO (Auto).

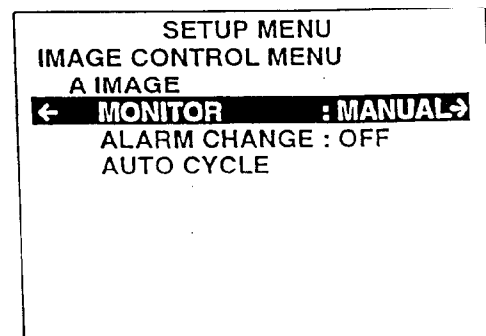
- 1** Highlight IMAGE CONTROL MENU (or display Image Menu) of the top menu by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The Image Control menu (page 4-6) is displayed.

- 2** Highlight A IMAGE or B IMAGE (or display A Image or B Image) by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

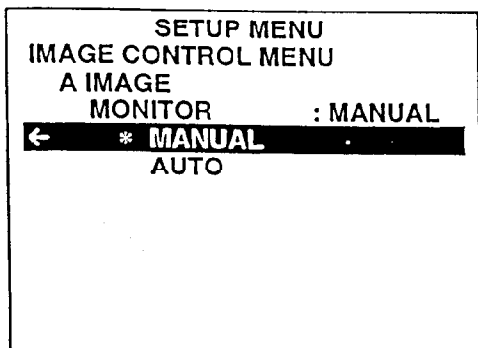
The menu shifts to corresponding setting.

Example: A Image



- Highlight MONITOR (or display Monitor), and press the → key to move to the lower layer.

Example: A Image to Monitor



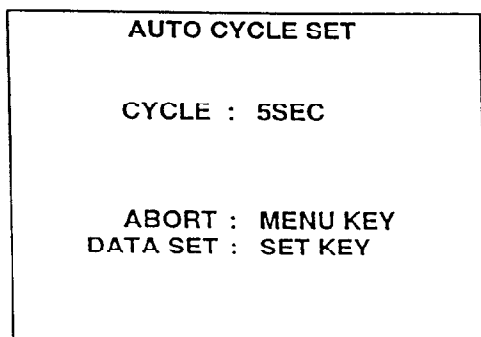
- Select AUTO (Auto) by pressing the ↓ key, and return to the upper layer (in step 2) by pressing the ← key.

To set the cycle for automatic change

The cycle is set to 5 seconds at the factory. You can change it in the range of 1 to 60 seconds in units of seconds.

- Perform step 1 of "To activate the automatic change," highlight AUTO CYCLE (or display AutoCycle) in the layer of step 2, and press the → key.

The menu shifts to setting the auto change cycle.



- Set the cycle by pressing the ↑ or ↓ key.
- When the settings are completed, press the SET key.

A message "NOW SAVING" is displayed, and the

To restore to the previous settings

Before pressing the SET key, press the MENU key. The message "ABORT !" is displayed, and the previous settings are restored.

Setting the Recording Modes

What's recording modes?

This recorder can have five user-preset recording modes for each of which you may specify a set of recording requirements, such as which camera to be used and how many hours to take to record on a single cassette.

Requirements specified in a recording mode:

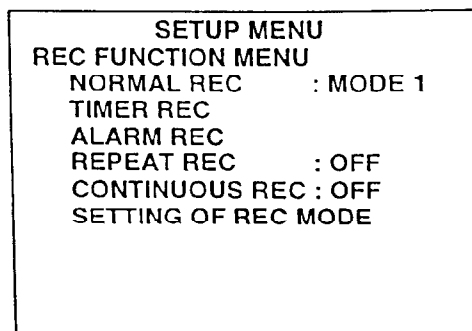
- CAMERA NUMBER: Cameras to be used for recording
- TAPE LENGTH: Tape length of the cassette to be used
- IMAGE QUALITY: Picture resolution
- TIME MODE: Time to record on a single cassette
- REC CYCLE: Time to record per camera

The settings are made with "Setting of Rec Mode" of the Recording Function menu.

To select the Recording mode setting displays

- Highlight REC FUNCTION MENU of the Top menu by pressing the ↑ or ↓ key, then press the → key.

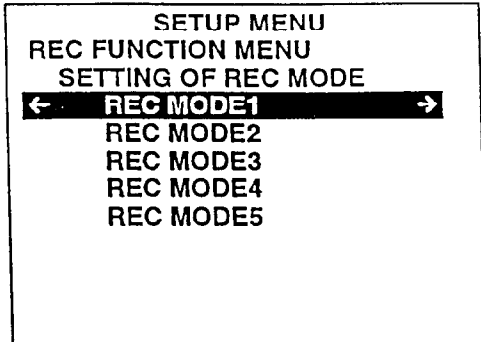
The Recording Function menu is displayed.



Settings

- 2** Highlight SETTING OF REC MODE by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

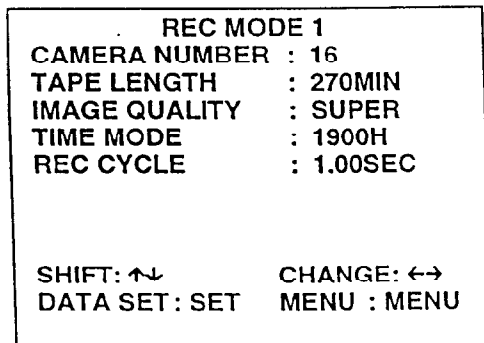
The menu shifts to selection layer of the recording mode settings.



- 3** Highlight the recording mode to be set by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The setting display for the selected recording mode appears.

Example: Setting display for Recording mode 1



To set CAMERA NUMBER

Specify the cameras to be used for recording.

- 1** Highlight CAMERA NUMBER on the setting display by pressing the \uparrow or \downarrow key, then press the \rightarrow key.

The setting display for CAMERA NUMBER appears, and the indication for CAM 1 flashes.

CAM 1 - REC -	CAM 2 REC	CAM 3 REC	CAM 4 REC
CAM 5 REC	CAM 6 REC	CAM 7 REC	CAM 8 REC
CAM 9 REC	CAM 10 REC	CAM 11 REC	CAM 12 REC
CAM 13 NO REC	CAM 14 NO REC	CAM 15 NO REC	CAM 16 NO REC

- 2** Select the camera to be set by pressing the \rightarrow or \leftarrow key.
Each time you press either key, the next camera is selected, and the indication for the selected camera flashes.

- 3** For a camera to be used for recording, set the indication to REC by pressing the \uparrow or \downarrow key.

Repeat steps **2** and **3** for the cameras to be set. The cameras set to NO REC are not used for recording.

Notes

- Only the cameras that have been set to CONNECT with CAMERA CONNECTION (page 5-5) can be set to REC.
- When the settings on CAMERA CONNECTION (page 5-6) are changed, the settings of CAMERA NUMBER may be automatically changed according to the CAMERA CONNECTION settings.

- 4** Press the SET key to register your setting and return to the setting display for the recording modes.

To set other requirements

The REC CYCLE value is automatically calculated according to the TAPE LENGTH and IMAGE QUALITY settings. The TIME MODE and REC CYCLE settings depend on each other, and if either of them is changed, the other automatically changes in accordance.

- 1** Select the item to be set on the recording mode setting display by pressing the \uparrow or \downarrow key

2 Select the value or mode by pressing the \blacktriangleright or \blacktriangleleft key.

TAPE LENGTH

Set the tape length of the cassette to be used in units of 10 minutes.

When you change the TAPE LENGTH value, the REC CYCLE value is recalculated and automatically updated.

The longer the tape length you set, the longer the recording cycle becomes.

Note

Be sure to use a cassette of the same tape length specified on this menu for recording. If a cassette of the different tape length is used, the TIME MODE indication will not match the actual recording time.

TIME MODE

Set the time to record on a cassette of the specified tape length.

When you change the TIME MODE value, the REC CYCLE value is recalculated and automatically updated.

The shorter time you set, the longer the recording cycle becomes.

REC CYCLE

Set the recording cycle per camera change.

Recording is made switching all the specified camera in turn with the same specified cycle.

When you change the REC CYCLE value, the TIME MODE value is recalculated and automatically updated.

The shorter the cycle you set, the smaller the TIME MODE value becomes.

IMAGE QUALITY mode

Four IMAGE QUALITY modes (Horizontal \times Vertical resolution) are available. The selected mode is used for all the specified camera.

When you change the IMAGE QUALITY mode, the REC CYCLE value is recalculated and automatically updated.

The lower the mode you select, the longer the REC CYCLE value becomes.

SUPER : 720 \times 240

HIGH : 360 \times 240

MID : 180 \times 240

LOW : 180 \times 120

To register the specified requirements

When the settings are completed, press the SET key.

A message "NOW SAVING" is displayed, and the settings are stored in nonvolatile memory. The Recording Function menu is restored.

Note

If the TIME mode or REC CYCLE value exceeds the limit after recalculation, "- - -" will be displayed, and the settings will not be stored even if you press the SET key.

To restore to the previous settings

Before pressing the SET key, press the MENU key. The message "ABORT !" is displayed, and the previous settings are restored.