Basic playback operations

1 Turn the POWER switch to ON. While pressing the lock release, turn the POWER switch to ON.

2 Press the mode button so the MCR lamp turns on.
The camera is now in the MCR mode.
- Each time you press the button, the mode changes as below.
  
  MCR ↔ CAM
  
  When you press the mode button while MCR is selected, the unit enters the PC (PC connection) mode. (Page 81)

For details on playing back clips using thumbnails, see page 64.

<table>
<thead>
<tr>
<th>Operations using the Operation lever</th>
<th>Remote Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Play (►)</strong></td>
<td></td>
</tr>
<tr>
<td>Use this button in stop mode to start playback from the beginning of the selected clip.</td>
<td><img src="image" alt="Remote Control" /></td>
</tr>
<tr>
<td>During playback, the unit enters the variable speed search mode and starts 1x playback. (Page 74)</td>
<td></td>
</tr>
</tbody>
</table>
Thumbnail screen

Video data created on the P2 card in one shooting session is called a clip. When the MCR mode has been established, the clips will be displayed on the LCD screen as thumbnails. (When there is a large number of clips, it will take some time for them to be displayed on the screen.)

You can perform the following operations using the thumbnail screen.

- Play, repair and delete clips, add and delete shot marks, as well as add text memos.
- Format P2 cards and SD memory cards.
- Load the metadata (shooting information, etc.) from SD memory cards to the unit.

Basic thumbnail screen operations

To use the thumbnail menu:

1. On the thumbnail screen, press the MENU button to display the menu.

2. Push the Operation lever in the ▲ or ▼ direction and press it (or push it in the ► direction).

If another menu appears, repeat this step.
- To return to the previous screen, select EXIT and press the Operation lever or push it in the ◄ direction.
- To release the menu mode, press MENU.

To select a clip: Push the Operation lever in the ◄ or ► direction to move the yellow frame to the clip you want to select, and press it again. (The frame changes to blue.) Pressing the Operation lever a second time deselects the thumbnail. To scroll the pages, press the PAGE (- or +) button.

To Play back clips: Select a thumbnail and push the Operation lever in the ► (playback) direction. (For details on playback, see page 63.)

- Only clips recorded in the same format as the playback format (6 in the figure below) can be played back.

- Thumbnail screens are output only from the VIDEO OUT terminal.

![Thumbnail screen diagram]

- ALL CLIP
- SAME FORMAT CLIPS
- SELECTED CLIPS
- MARKED CLIPS
- TEXT MEMO CLIPS
- SLOT CLIPS
- SETUP
- EXIT

- DELETED
- FORMAT
- REPAIR CLIP
- RE-CONNECTION
- EXCH. THUMBNAIL
- EXIT

- CLIP PROPERTY
- CARD STATUS
- DEVICES
- PROPERTY SETUP
- SYSTEM INFO
- EXIT

- LOAD
- RECORD
- USER CLIP NAME
- INITIALIZE
- PROPERTY
- EXIT
1 Slot number display
The number of the slot with the P2 card containing the clip indicated by the yellow frame is shown here. (The number appears in yellow.) If a clip extends over the P2 cards in two slots, both numbers will appear in yellow.
- When one of the following warnings applies to an inserted P2 card, the frame around the slot number turns pink.
  1) RUN DOWN CARD (page 91)
  2) DIR ENTRY NG CARD (page 91)

2 Thumbnails
This is where the images representing the clips are displayed. (The initial images are displayed in the default setting.)

3 Thumbnail display status (Page 67)
The types of clips displayed as thumbnails appear in this area.

4 Clip numbers
The clips are displayed in the order in which they were shot. (up to 2000)
Clips in the wrong recording format or clips which cannot be played back for other reasons are shown in red.
To play back clips indicated in red, change the playback format while the thumbnail is displayed (Page 68), or change the MCR FORMAT and 480i MCR MODE on the setup menu RECORDING SETUP screen to the format described in 6 below. (Page 104)
- Clips on the playlist which have been edited and copied using the AJ-SPD850 memory card recorder or other such unit and which have more than one format (DV, DVCPRO or DVCPRO50) are shown in red, and these clips cannot be played back even when the MCR FORMAT item has been set.

5 Menu display
This is where the menu items are displayed. Select EXIT and press the Operation lever to close the menu and return to the original screen.

6 Recording mode/format display
This is where the recording mode and format of the recorded images are displayed.

7 Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
</table>
| M | Shot mark
| W | Wide
| I | Incomplete clip
| X | Defective clip
| T | Text memo
| E | Edit copy
| P | Proxy |

- M : Shot mark
  This indicates that a clip has a shot mark.
- W : Wide
  This indicates that a clip has been recorded in the 16:9 aspect ratio (wide screen). (480i recording)
- I : Incomplete clip
  This indicator appears when the recording of a clip extends over two P2 cards and one of the cards is not found in the slot.
- X : Defective clip
  This indicator appears for a clip whose recording was defective because the power was cut off during the recording process, for instance.
  Clips indicated by the yellow defective clip indicator can be repaired.
  Clips indicated by the red defective clip indicator cannot be repaired so delete them. If a clip cannot be deleted, first back up its data, and then format the P2 card. Clips in the wrong format are indicated by ( ) instead.
- T : Text memo
  This indicates that a clip has a text memo.
- E : Edit copy
  This indicates that this is an edit copy clip. (You cannot perform editing with this camera.)
- P : Proxy
  This indicates that a proxy has been added and recorded. (You cannot perform recording with this camera.)

8 Duration display
This displays the duration of the selected clip.
Adding shot marks to clips

Adding shot marks ( [ ] ) will make it easier to find the clips you are looking for.

1. Push the Operation lever in the ◀ or ▶ direction to move the yellow frame to the clip to which you will add a shot mark.

2. Press the USER button to which the shot mark function has been allocated. (Page 42)

   To release a shot mark, repeat the above steps.
   - When the video data of a single shot is recorded in multiple P2 cards, you cannot set or release shot marks unless all the P2 cards that make up the video data are inserted into slots.

Clearing the thumbnail screen

Before performing setting menu operations (Page 94), you must clear the thumbnail screen. Release this in the same way when the camera-recorder is to be controlled from a nonlinear editor.

1. Press the THUMBNAIL button.

   The normal playback standby screen (1394 input mode) appears.

Direct shooting functions

If you press the START/STOP button (red) in MCR mode, CAM mode will be automatically activated, and shooting will start.
Thumbnail operations

Selecting the thumbnail display method (THUMBNAIL)

You can display the kind of clips you want to see as thumbnails.
You can also set more precisely how you want the thumbnails to appear on the screen.

1 On the thumbnail screen, press the MENU button.
   A menu now appears. (Page 64)

2 Push the Operation lever in the ▲ or ▼ direction to select THUMBNAIL and press it
   (or push it in the ▶ direction) again.

3 Push the Operation lever in the ▲ or ▼ direction to make a selection and press it
   again.

   ALL CLIP:
   All the clips are displayed.

   SAME FORMAT CLIPS:
   The clips in the format same as the MCR format are displayed.

   SELECTED CLIPS:
   The clips you have selected are displayed.

   MARKED CLIPS:
   The clips with shot marks are displayed.

   TEXT MEMO CLIPS:
   The clips with text memos are displayed.
   The thumbnails at text memo positions, time codes (TC), total number of memos and the current order of the clips are displayed.

To delete a text memo:
1) Move the yellow frame to the clip whose text memo is to be deleted, and press the Operation lever. A thumbnail of the text memo now appears.
2) Select the thumbnail of the text memo to be deleted.
3) Press the MENU button to display the menu, and select OPERATION-DELETE.

SLOT CLIPS:
   The clips on the P2 card in the specified slot are displayed.

SETUP:
   Various setup operations are performed.

EXIT:
   Select this to return to the last screen.

Proceed to step 4 only when you have selected SETUP.

4 Push the Operation lever in the ▲ or ▼ direction to select an item and press it
   again.

   ALL HIDE:
   Selecting ON hides MARKED IND., TEXT MEMO IND., WIDE IND. and PROXY IND.

   MARKED IND.:
   Select this to set whether the shot mark indicator is to be displayed (ON/OFF).

   TEXT MEMO IND.:
   Select this to set whether the text memo indicator is to be displayed (ON/OFF).

   WIDE IND.:
   Select this to set whether the wide indicator is to be displayed (ON/OFF).

   PROXY IND.:
   Select this to set whether the proxy indicator is to be displayed (ON/OFF).

   DATA DISPLAY:
   Select the time code (TC), user information (UB), shooting time (TIME), shooting date (DATE), shooting date (DATE TIME) or user clip name (USER CLIP NAME) for the area where the clip time is displayed.

(Continued on the next page)
Changing playback format

Use the following steps to change the playback format in order to play back a clip in a playback format (a clip whose clip number is indicated in red) that differs from that currently selected.

1 Use the Operation lever in the thumbnail screen to move to the clip you want to play back.

2 Push the Operation lever in the ▼ direction and hold it down for 2 or more seconds.
   - Thumbnail status indicates “UPDATING...” after which the previous screen reappears.
   - When the recording format of a clip indicated by the yellow frame is a format playable by this unit, the playback format changes to enable playback of the clip with the yellow frame.

Deleting clips and formatting cards (OPERATION)

You can perform any of the following operations. If necessary, make preparations prior to undertaking the operations.

Deleting clips
- Select the clip to be deleted.

Formatting P2 cards or SD memory cards
- Insert the card to be formatted into the unit.
- When a card is formatted, all its data will be deleted.

Repairing bad clips
- Select the bad clip (indicated by ✗) you want to repair. (Note that clips indicated by a red ✗ symbol cannot be repaired.)

Reconnecting incomplete clips
- Select an incomplete clip (indicated by ⌚) you want to reconnect. Incomplete clips are usually grouped together.

Replacing thumbnails
- Attach text memos to clips and change them to TEXT MEMO CLIPS.
- Select this to return all the above settings to the factory (initialization) settings.

EXIT:
- Select this to return to the last screen.
- Select this to delete the selected clip.
- Select YES to delete the clip or NO to cancel the deletion, and press the Operation lever.

Press the MENU button to release the menu mode.

5

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Reconnecting incomplete clips
- Select an incomplete clip (indicated by ⌚) you want to reconnect. Incomplete clips are usually grouped together.

Replacing thumbnails
- Attach text memos to clips and change them to TEXT MEMO CLIPS.
- Move the yellow frame to the thumbnail you want to edit.

1 On the thumbnail screen, press the MENU button.
   A menu now appears. (Page 64)

2 Push the Operation lever in the ▲ or ▼ direction to select OPERATION and press it (or push it in the ▶ direction) again.

3 Push the Operation lever in the ▲ or ▼ direction to make a selection and press it again.

DELETE:
- Select this to delete the selected clip.
- Select YES to delete the clip or NO to cancel the deletion, and press the Operation lever.
FORMAT:
Select this to format a P2 card or SD memory card.
When you move to FORMAT, the card selection screen will appear. Select the P2 slot (SLOT1 or SLOT2) or select SD CARD, and press the Operation lever. Select YES to format the card or NO to cancel the formatting, and press the Operation lever.

REPAIR CLIP:
Select this to repair defective clips.
Select YES to repair the clip or NO to cancel the repair, and press the Operation lever.
• The SHOT MARK and TEXT MEMO data are deleted when a clip is repaired.

RE-CONNECTION:
Use this function to reconnect clips that span multiple P2 cards.
Clips recorded across multiple P2 cards may become incomplete clips.
Should this happen, use the RE-CONNECTION function to merge the different clips to create one single clip.
Select YES/NO and push the Operation lever.

EXCH. THUMBNAIL:
Use this function to replace thumbnail images with images to which text memos have been attached.
Select YES/NO and push the Operation lever.

EXIT:
Select this to return to the last screen.

Press the MENU button to release the menu mode.

• When clips have been copied by operating Explorer, for instance, the “!” indicator may appear on the clips. If this happens, “!” can sometimes be released by downloading the latest version of the P2 viewer from the web site given below, installing it in your computer, and copying the clips again.

https://eww.pavc.panasonic.co.jp/pro-av/

Checking the clip or card information (PROPERTY)
You can perform any of the following operations. If necessary, make preparations prior to undertaking the operations.

Checking and repairing clip information
• Move the yellow frame to the clip to be checked.
Checking the P2 card information
• Insert the P2 card into the unit.
Checking the SD memory card information
• Insert the SD memory card into the unit.

Setting the P2 card memory capacity display
Checking the version of this system

1 On the thumbnail screen, press the MENU button.
A menu now appears. (Page 64)

2 Push the Operation lever in the ▲ or ▼ direction to select PROPERTY and press it (or push it in the ▶ direction) again.

3 Push the Operation lever in the ▲ or ▼ direction to make a selection and press it again.

CLIP PROPERTY:
The information of the clip indicated by the yellow frame is displayed. (Page 70)
CARD STATUS:
The P2 card information is displayed. (Page 70)
DEVICES:
The SD memory card information is displayed. (Page 71)
PROPERTY SETUP:
Set the method of displaying the P2 card memory capacity. After selecting the P2 CARD CAP, select REMAIN (remaining memory) or USED (memory used), and press the Operation lever.

(Continued on the next page)
SYSTEM INFO:
The version of the system in this camera is displayed.

EXIT:
Select this to return to the last screen.

- Pressing the DISP/MODE CHK button in a thumbnail screen displays the CLIP PROPERTY screen. Press the button again to return to the thumbnail screen.

4 To exit the information screen, press the MENU button, push the Operation lever in the ▲ direction to select EXIT, and press it again.

Clip information screen

1 Clip number
2 Thumbnail
3 Slot number
4 Clip information
Various indicators that have been added to the clip and also various kinds of data are displayed. ( ● appears if the P2 card is writeprotected)

- CLIP NAME: Clip name
- START TC: Time code value when recording started
- START UB: User information value when recording started
- DATE: Date when the recording was made
- TIME: Time when recording started
- DURATION: Clip length
- V FORMAT: Video signal format
- FRAME RATE: Playback frame rate
- REC RATE: Recording frame rate

- This display appears when recording using a setting for the FRAME RATE item on the SCENE FILE screen other than the default during 720P/24PN or 720P/30PN recording operations.

5 Clip metadata
The video and audio formats, videographer information and other detailed data are displayed here.
Select the desired item using the Operation lever, and press the Operation lever. (For details on the clip metadata, see page 57.)

P2 card information screen

1 Write protection mark
2 P2 card status
The amount of memory remaining on the P2 card is displayed using a percentage bar. The following displays may appear, depending on the card status.

- FORMAT ERROR: An unformatted P2 card has been inserted.
- NOT SUPPORTED: A card not supported by the unit has been inserted.
- NO CARD: A card has not been inserted.

- The information on the card in the slot indicated by the yellow frame (with yellow number) can be viewed by pressing the Operation lever.

- BRAND: Name of manufacturer
- MODEL NO.: Model number
- SERIAL NO.: Serial number
- USER ID: User ID
- WARNING: Warning information
3 P2 card remaining memory/total memory
The P2 card's remaining memory and total memory are displayed here in 1-minute increments. Fractions of a minute are rounded off, meaning the display may not match the slot total.

4 Card warning mark
This mark is displayed when one of the following warnings applies to a P2 card.
1) RUN DOWN CARD (Page 91)
2) DIR ENTRY NG CARD (Page 91)
- The contents of the warning can be viewed by checking the card information as described above.

5 Slot total
The figure represents the total remaining memory of the cards in the two slots. If a P2 card is write-protected, its remaining memory will not be included in the total remaining memory.
- When LOOP is set under REC FUNCTION, the slot total represents the standard recording time for loop recording. However, note that when PROPERTY SETUP: USED is selected in step 3 on the previous page, the used amount displayed by the slot total will be larger than the actual amount, and when PROPERTY SETUP: REMAIN is selected, the remaining amount displayed by the slot total will be smaller than the actual amount. (Page 47)

SD memory card information screen

SD STANDARD: This indicates whether the SD memory card was formatted in compliance with the SD or SDHC standard. (SUPPORTED/NOT SUPPORTED).

USED: Space used

BLANK: Space available
TOTAL: Total space
NUMBER OF CLIPS: Number of clips
PROTECT: This indicates that the SD memory card is write-protected.

Editing the recorded clip metadata

1 On the clip information screen, display the detailed clip metadata screen.
2 Use the Operation lever to move the cursor to the item to be edited.
Metadata that can be edited, such as "USER CLIP NAME", is displayed as shown in the following example.

3 Press the Operation lever.
The metadata editing screen (on-screen keyboard) is displayed. Enter characters using the on-screen keyboard to edit the metadata.

4 Press the “OK” button on the on-screen keyboard.
The edited metadata is written to the clip, and the detailed clip metadata screen returns.

(Continued on the next page)
Thumbnail operations (continued)

- When deleting items of LOCATION (shooting location) in SHOOT, items cannot be deleted independently. Make ALTITUDE blank, and the other items (LONGITUDE/LATITUDE) are also deleted.
- Metadata of a clip with the incomplete clip indicator cannot be edited. To edit metadata of a clip recorded in multiple P2 cards, insert all the P2 cards containing video data of the clip before starting editing.
- If MEMO contains 100 or more characters, it cannot be edited.

Uploading the metadata (META DATA)

You can perform any of the following operations. If necessary, make preparations prior to undertaking the operations.

Loading the metadata
- Insert the SD memory card on which the metadata is recorded into the unit. (For details on creating the metadata, see page 57.)

Selecting whether to record the metadata on the P2 card

Changing recording method of USER CLIP NAME

Initializing the metadata inside the unit

Confirming and editing camera-recorder metadata

1 On the thumbnail screen, press the MENU button.
   A menu now appears. (Page 64)

2 Push the Operation lever in the ▲ or ▼ direction to select META DATA and press it (or push it in the ▶ direction) again.

3 Push the Operation lever in the ▲ or ▼ direction to make a selection and press it again.

LOAD:
Select this to load the metadata recorded on the SD memory card into the unit. When the Operation lever is pressed with operation moved to LOAD, the metadata on the SD memory card will be displayed. Therefore, press the Operation lever again. Select YES to load the metadata or NO to cancel the loading, and press the Operation lever.
- If characters other than single-byte alphanumeric characters are used in the metadata file name to be loaded, they are displayed as “*”.

RECORD:
Select this to set whether to record the metadata to be loaded into the unit simultaneously on a P2 card. Select ON to record the metadata or OFF to cancel the recording, and press the Operation lever. The factory setting for this mode is OFF.

USER CLIP NAME:
The USER CLIP NAME recording method is selectable. Please refer to Appendix (Page 124).

INITIALIZE:
Select this to initialize the metadata which has been recorded in the unit. Select YES to initialize the metadata or NO to cancel the initialization, and press the Operation lever. All the settings including the ON or OFF setting for RECORD are now cleared.
PROPERTY:
Select this to display the metadata which has been recorded in the unit.
Push the Operation lever in the ▲ or ▼ direction, select PROPERTY and push the Operation lever to view the desired data. The Operation lever also allows you to change the data.
Changing method is the same as described in “Editing the recorded clip metadata”.
(Page 71)

EXIT:
Select this to return to the last screen.

4 Press the MENU button to release the menu mode.
Useful playback functions

**Variable speed search**

This function enables you to change the playback speed and search for specific scenes.

1. **Press the Operation lever in the ▶ (playback) direction during playback.**
   - On the remote control, press the VAR.SEARCH button.

[![Camera] or [Remote control]](image)

[1x] appears on the screen and the media is played back at the normal speed.

2. **Press the PAGE/AUDIO MON/VAR button to change the playback speed.**
   - On the remote control, press the [▼] or [▲] button.
   - The playback speed increases as follows each time you press the button: 1/5x, 1x, 2x, 4x, 12x, and 24x. Audio is not played at 12x or 24x speed.
   - Press the “+” button to increase the speed and the “-” button to decrease the speed.

[![Camera] or [Remote control]](image)

To return to normal playback, push the Operation lever in the ▶ direction (playback) or press the VAR.SEARCH button on the remote control.

**Fast forward/rewind playback**

1. **During playback, push the Operation lever in the ◀ (rewind) or ▶ (fast-forward) direction.**
   - This performs fast forward/rewind playback at 4x speed.
   - When this button is held down, the playback speed becomes faster (32x speed).

[![Camera] or [Remote control]](image)

To return to normal playback, push the Operation lever in the ▶ (playback) direction.

**Frame-by-frame playback**

1. **Press || (pause) during playback to set the unit to the pause mode.**

2. **Press the PAGE/AUDIO MON/VAR button to play frame-by-frame.**
   - On the remote control unit, press the STILL ADV (◀ or ▶) button.
   - Press and hold the button to perform frameby-frame play continuously.

[![Camera] or [Remote control]](image)

To return to normal playback, push the Operation lever in the ▶ (playback) direction.

**Slow playback**

1. **During play, press one of the STILL ADV (◀ or ▶) buttons on the remote control unit.**

[![Camera] or [Remote control]](image)

To return to normal playback, push the Operation lever in the ▶ (playback) direction.
Clip skip

1 Press \( \text{II} \) (pause) during playback to set the unit to the pause mode.

2 Push the Operation lever in the ◀◀ (rewind) or ▶▶ (fast-forward) direction.

Viewing images on a monitor

You can view the images on a monitor if you connect the unit to a monitor using a BNC cable (not included), an AV cable (not included), or component video cable (included).

1 Connect the camera-recorder to the TV set. (Page 80)

2 Start playback.
   To show the information that appears on the viewfinder and LCD, press the OSD button on the remote control. Press the OSD button again to clear the display.

Adjusting the volume

With the PAGE/AUDIO MON/VAR button, adjust the volume of the sound that is output from the internal speaker and headphone jack.

On the remote control, press the ZOOM/VOL button.

Checking the date and time

Press the DATE/TIME button on the remote control to show the date and time of shooting on the screen. The display changes as follows each time you press the button.

- Time
- Date
- Time and Date
- No display
Connecting external units

**Headphones**

- Sound is no longer heard from the speaker when the headphones are connected.

**External microphone**

- When attaching an external microphone to the microphone shoe, use the supplied microphone holder and microphone holder adapter.
- When attaching the microphone holder and the microphone holder adapter, be sure to tighten the screws firmly even though you might hear a squeaking sound.
**Computer (non-linear editing/file transfer)**

**When connecting a 1394 cable**
- Attach the provided two ferrite cores (length: 30 mm) to the both ends of the cable. After passing the cable as shown in the figure on the right, close the ferrite cores until they click into place and lock.
  
  Always take sufficient care when handling the ferrite core, as it can be easily damaged when dropped or subjected to other impact.

**When connecting a USB cable**
- Attach the provided two ferrite cores (length: 35 mm) in such a way that the whole ferrite cores fit within about 5 cm from both ends of the cable. After threading the cable as shown in the figure on the right, close the ferrite cores until they click into place and lock.
  
  Always take sufficient care when handling the ferrite core, as it can be easily damaged when dropped or subjected to other impact.

---

**File transfer/nonlinear editing**

**USB cable (optional)**
- For a Windows computer
  
  **Mini-B type**
  
  **Ferrite core (included)**

  **1394 cable (optional)**
- For an Apple Macintosh computer

![](image)

- When connecting a USB cable, first connect the cable to the PC.
- When connecting to a device having 4-pin type 1394 connector, first connect the cable to the 6-pin type 1394 connector on the camera.
- For details on the computer’s conditions and other factors, see page 81.

---

**1394 AVC transfer/nonlinear editing**

**Computer (Windows/Apple Macintosh)**

- When controlling this camera from a non-linear editor, cancel the thumbnail screen on the camera.
  
  (Page 66)
- No guarantees are given for images and audio signals which are output simultaneously from the camcorder while data is being transferred from a computer to the camera-recorder.
- The model name will appear on the computer screen.
- When connecting to a device having 4-pin type 1394 connector, first connect the cable to the 6-pin type 1394 connector on the camera.

(Continued on the next page)
Connecting external units (continued)

When connecting the unit to an Apple Macintosh computer

- Connect the 1394 cable after turning on the power of the Apple Macintosh computer. Otherwise, the unit may not be mounted.
- The unit may not be recognized after the Apple Macintosh computer has been placed in the hibernation state by its power-saving setting. In this case, disconnect the 1394 cable and then re-connect it.

If the unit is not mounted properly on an Apple Macintosh computer

- When the P2 card access lamp flashes orange
  1. Select [Applications] → [Utilities] → and start up [Disc Utility].
  2. Select a grayed-out volume among volumes of the X.X GB Panasonic disc, and click “Mount.”
- When the P2 card access lamp is off
  Eject the P2 card, and insert it again. If the unit is still not mounted, disconnect the 1394 cable and then re-connect it.

Hard disk drive (data copying)

- Before proceeding to connect or disconnect 1394 cable, be absolutely sure to turn off the power of the units.
- Before proceeding to connect the unit which uses a 6-pin type 1394 connector, carefully check the shape of the 1394 cable and the connectors on the 1394 cable. Connecting a connector upside down may damage the parts inside the unit and cause malfunctioning. The above also applies to USB cable as well.
- When connecting to a device having 4-pin type 1394 connector, first connect the cable to the 6-pin type 1394 connector on the camera.
- Do not apply force when connecting 1394 cable to 1394 connector as this may damage the connector.
You can connect a digital video unit equipped with a 1394 connector and digitally transfer video and audio signals as well as time code.

- Before proceeding to connect or disconnect 1394 cable, be absolutely sure to turn off the power of the units.
- Before proceeding to connect the unit which uses a 6-pin type 1394 connector, carefully check the shape of the 1394 cable and the connectors on the 1394 cable. Connecting a connector upside down may damage the parts inside the unit and cause malfunctioning.
- When connecting the camera to a device with a 4-pin type 1394 connector, first connect the 6-pin type connector of the cable to the camera.
- When recording signals from an external unit, first check that video signals are supplied.
- While signals from an external unit are being recorded, do not stop output on the external unit side or disconnect any of cables. This may lead to a failure to recognize the signals when you do recording again.
- While signals from an external unit are being recorded, do not change the format of the signals being output from the external unit. Doing so may make it impossible to record correctly.
- Do not apply force when connecting 1394 cable to 1394 connector as this may damage the connector.
- When signals are input from an external unit via the 1394 cable, video is output from the terminals such as the SDI OUT terminal, but the output video is only for check purpose and the quality is not guaranteed. (Frame skip and overlap occur.)
- The automatic recording function in the DVD unit may not function properly. In a case like this, proceed with the recording manually.
Video deck (Dubbing)

AUTO REC function
When recording is started or stopped on this camera, recording start/stop information can be output through the SDI (HD) connector to control external device.
* The external device should support this function.

TV/Monitor (playback/dubbing)
Nonlinear editing with P2 card (PC mode)

You can edit the video data on P2 cards nonlinearly by connecting the unit to a computer used for editing by means of a USB cable (Windows) or 1394 cable (Apple Macintosh).*1 (Connections : Page 77)

*1 When the unit is connected to a computer with a 1394 cable, you can only read data from P2 cards but you cannot write data to P2 cards.

The following conditions must be met if the USB cable is to be used to make the connection.

• Your computer must run Windows 2000, Windows XP or Windows Vista.
• USB dedicated driver (provided on the CD-ROM supplied) must be installed in your computer.
• Your computer must support USB2.0 (High Speed, Mass Storage Class). (USB 1.1 is not supported.)
• Only one computer can be connected.
• When the unit is connected via USB cable, the series name of the unit should appear on the computer screen.
• No operations can be performed if a hub or other unit is connected between the unit and your computer.
• Do not use a USB cable longer than 3 meters. Otherwise, malfunctions may occur.
• Operation is not guaranteed in Macintosh operating systems.

The following conditions must be met if the 1394 cable is to be used to make the connection.

• Your computer must run Apple MacOSX 10.3 or later.
• Your computer must support 1394.a (SBP2 protocol).
• Operation is not guaranteed in Windows operating systems.

• Insert the P2 card into the unit. (Page 25)

1 Set the unit’s POWER switch to ON.

2 Select PC MODE on the setting menu OTHER FUNCTIONS screen and press the Operation lever (or push it in the direction).

• For menu operations (Page 94)
• You can also use the menu buttons on the remote control. (Page 14)

3 Push the Operation lever in the ▲ or ▼ direction to select a USB DEVICE or 1394 DEVICE and press it again.

4 Press the MENU button twice to release menu mode.

5 Press the mode button to light up the MCR lamp and then hold the button down (for 2 or more seconds).

The PC lamp now lights, and PC mode is established.

When the P2 card is in an accessible status, USB (or 1394) DEVICE CONNECT is displayed on the camera.

(If DISCONNECT is displayed, you cannot operate the camera.)

(Continued on the next page)
6 Proceed with nonlinear editing using your computer.
An icon for the P2 card contents appears as a removable disk in My Computer of your computer.
• For further details, refer to the instructions for your computer's editing software.
• When replacing one card with another, if the USB connection is used, check that the access lamp is not flashing and that the data on the card is not being accessed before ejecting the card. If the 1394 connection is used, place the drive icon into the computer's recycle bin before ejecting the card.
• The unit cannot be operated while in PC mode.
• When the cable is to be disconnected, proceed with "Safely Remove Hardware" on the computer.
In the case of a 1394 connection, first confirm that "1394 DEVICE DISCONNECT" is displayed on the camera-recorder before disconnecting the cable. In the case of a USB connection, "USB DEVICE CONNECT" will remain displayed so check that the card is not being accessed before disconnecting the cable.

7 Switch OFF the camera.
• When turning the power off, proceed with "Safely Remove Hardware" on the computer. In the case of a 1394 connection, first confirm that "1394 DEVICE DISCONNECT" is displayed on the camera-recorder before turning the power off. In the case of a USB connection, "USB DEVICE CONNECT" will remain displayed so check that the card is not being accessed before turning the power off.
• You cannot cancel the PC mode even if you press the mode button for more than 2 seconds.

P2 cards are compliant with the Type-II standard so you can insert them straight into the computer's card slots and proceed with nonlinear editing.
• The Card Bus driver is contained in the CD-ROM provided.
Copying from P2 cards to the hard disk drive (1394 HOST mode)

• Use an HDD (hard disk drive) that has sufficient capacity to permit copying.
• Before copying the data, format the hard disk drive so that it can be used by the unit. Bear in mind that this process will delete all the data on the drive.
• Connect the camera to an HDD using the 1394 cable. (Page 78)
• Do not connect the camera to two or more HDD (chain, hub, etc.), even if they are not turned ON.
• Insert the P2 card into the unit. (Page 25)

1 First turn on the power of the HDD (1394, a SBP2 supported) to be connected, and connect it using the 1394 cable. Then turn the unit’s POWER switch to ON.

2 Select 1394 HOST for PC MODE on the setting menu OTHER FUNCTIONS screen, and press the Operation lever.
   • For menu operations (Page 94)

3 Press the MENU button twice to release the menu mode.

4 Press the mode button to light up the MCR lamp, and then hold the button down for 2 or more seconds.
   The PC lamp now lights, and PC mode is established.

5 Only when the hard disk drive is not formatted:
   Push the Operation lever in the ▲ or ▼ direction to select FORMAT (HDD) and press it again.
   Then push the Operation lever in the ▲ or ▼ direction to select YES and press it again.
   Formatting now starts. (Formatting is completed in about 2 to 3 seconds.)

6 When formatting is complete:
   Push the Operation lever in the ▲ or ▼ direction to select COPY TO HDD and press it again.

7 Push the Operation lever in the ▲ or ▼ direction to select a card slot and press it again.
   Then push the Operation lever in the ▲ or ▼ direction to select YES and press it again.
   Copying now starts.
   • You can carry out copying up to 15 times to one HDD.

8 When copying is complete:
   Switch OFF the camera.
   • You cannot cancel the 1394 HOST mode even if you press the operation mode button for more than 2 seconds.

(Continued on the next page)
To check the HDD status
The color of  indicates the HDD status, as below.
**White:** HDD is connected and can be used.
**Black:** HDD is not connected.
**Red:** Copy cannot be made to the HDD since it is incorrectly formatted, etc.
  - When the color is red, correctly format the HDD at step 5 before copying data onto it.

To check the data copied into the hard disk drive
After completing step 4 on the previous page, push the Operation lever in the ▲ or ▼ direction to select PROPERTY and press it again.
The contents of the hard disk drive are displayed.
  - To view detailed hard disk data, push the Operation lever in the ▲ or ▼ direction to select an item and press it again.

To verify the data when copying it into the hard disk drive
After completing step 4 on the previous page, push the Operation lever in the ▲ or ▼ direction to select YES for the VERIFY option under SETUP.
  - Copying to the P2 card is completed, even if you interrupt processing during verification.
  - You cannot copy data from the hard disk drive to a P2 card.
  - Use a hard disk drive under the following conditions.
    - Power is supplied from a source other than the 1394 bus. (It is not supplied from the unit.)
    - You may format the hard disk drive for usage by the unit.
    - Use the hard disk drive within the guaranteed operating range (humidity and other environmental conditions).
    - Do not place the hard disk drive in an unstable locations or locations subjected to vibrations.
    - Some HDD may not operate correctly.
  - During formatting or copying, do not remove any cables, eject the P2 card, or turn off the power for the unit or hard disk drive. The power will need to be turned on again.
  - No guarantees are made for operation if the 1394 HOST mode is established without first connecting the HDD (1394.a SBP2 supported) and then the HDD is connected. In this case, turn off the power, and then release the 1394 HOST mode.
  - The hard disk drive is an extremely highprecision device. Therefore, it is highly possible that data cannot be read in certain operating environments.
  - Please note that our company will not be liable for any data losses due to hard disk drive failure or other faults, or any other direct or indirect damage related to these problems.
  - If you rewrite the contents of the HDD used to carry out copying from the camera to another PC, the subsequent operation in the camera and the data in the HDD cannot be guaranteed.

- It is recommended that you first restore any defective clips contained in the P2 card before copying the data.
- In order to avoid the occurrence of trouble in copying, formatting or other operations, it is recommended that you perform these operations after ensuring that power supply has stabilized.
Warnings

HDD CAPACITY FULL!
There is not enough free memory on the HDD.

TOO MANY PARTITIONS!
There are too many partitions.*

HDD DISCONNECTED!
The HDD has been disconnected.

CANNOT FORMAT!
Initializing cannot be performed.

TOO MANY TARGETS!
There are too many 1394 connection destinations.

CANNOT ACCESS TARGET!
The connection destination cannot be accessed.

CANNOT ACCESS CARD!
The card cannot be accessed.

MISMATCH COMPONENT!
There is a mismatch with the connection destination.

UNKNOWN DEVICE CONNECTED!
A device other than an HDD has been connected.

P2 CARD IS UNFORMATTED!
The P2 card is still unformatted.

CARD IS EMPTY! CANNOT COPY!
There is no data on the P2 card and so it cannot be copied.

VERIFICATION FAILED!
A mismatch was discovered by verification.

TURN POWER OFF!
Turn off the power.

CANNOT RECOGNIZE HDD!
HDD recognition failed.

*1 Data can be copied to up to fifteen P2 cards.
Dubbing

Digital input/output
You can perform dubbing with a high image quality by means of digital signals by using a 1394 cable to connect this unit to a digital video unit equipped with a 1394 connector.

1 Connect the digital video equipment to this unit. (Page 78)

2 Press the unit's mode button to switch to the MCR mode.

   - Cancel the thumbnail screen when in MCR mode.
   - Set up the connected equipment for playback or recording.
   - When performing digital dubbing with a second camera-recorder or other device, a recording cannot be made unless the signal formats at the output side and input side are identical.
   - When using with the 720P/24PN and 720P/30PN settings, digital output in MCR mode only is performed. Digital input is not possible.

3 Start playing back in the player.

4 Start recording in the recorder.
   - If you are using this unit as the recorder, press the two REC buttons (ZEBRA and OIS) at the same time. On the remote control unit, press the PLAY button while holding down the REC button.

   Camera or Remote control

5 Stop recording in the recorder.
   - If the unit is used as the recorder, push the Operation lever to the ■ (stop) direction.

6 Stop playback on the other unit.
   - If the unit is used as the player, push the Operation lever to the ■ (stop) direction.

   - The DV format is converted into 48K/2CH or 4CH. In the case of 1080i and 720P, channels 1 to 4 are recorded directly, and channels 5 to 8 are not recorded.
   - If you have set 1394 TC REGEN or 1394 UB REGEN to on in the recording unit's menus you can copy the time code and user information from the playback source. (Page 105)

Analog output
You can record images you have shot on this unit to an S-VHS (VHS) tape in a video deck.

1 Connect the video recording device to the unit. (Page 80)

2 Press the mode button to switch to the MCR mode.

   - If you have set 1394 TC REGEN or 1394 UB REGEN to on in the recording unit's menus you can copy the time code and user information from the playback source. (Page 105)

3 Set the unit to playback.

4 Start the recording by operating the video recording device.

When video recording is completed, stop the video recording device.
To stop playback, push the Operation lever to the ■ (stop) direction.
Screen displays

Regular displays

For details on the safety zone, refer to 38.

1 Time code displays
Each time you press the COUNTER button, the display switches over to the following data (or no indication).

COUNTER: (CAM mode only)
Counter value

CLIP COUNTER: (CAM mode only)
Counter value in memory stop mode
The CLIP COUNTER appears when CLIP is selected under REC COUNTER in the setup
menu DISPLAY SETUP screen.

TC:
Time code value. When the time code value could not be read correctly from the P2 card, [TC*] is displayed.
When it acts in drop frame mode, the colon between seconds and frames become “:”.

tc:
Time code value. (During FILM CAM mode, the frame digits are displayed in 24 frames)
When the time code value could not be read correctly from the P2 card, [tc*] is displayed.
When it acts in drop frame mode, the colon between seconds and frames become “:”.

UB:
User information
When user information could not be read correctly from the P2 card, [UB*] is displayed.

FR:
Frame rate information for recording
FR 30P: 30P progressive mode
(30 frames/sec.)
FR 24P: 24P progressive mode
(24 frames/sec.)
FR 24PA: 24P advanced mode (24 frames/sec.)
When in FR24P and FR 24PA mode, the sequence information of the frame conversion at the final place.

2 Warnings
REMOTE:
Blinks when the wrong equipment setting is selected on the remote control unit.

P:
Blinks when a P2 card has not been inserted, or when the camera is in a write-protected state.

P FULL:
Blinks when there is no remaining capacity in the P2 card.

P LACK:
Blinks in the loop rec mode when the remaining capacity of the P2 card is insufficient.

Lights when the internal battery for the calendar has run out. (Page 59)

(Continued on the next page)
3 AUTO/MANUAL switch operation display
This display appears if a function which has been set on the setting menu AUTO SW screen is operating when the AUTO/MANUAL switch has been pressed.

4 Backup unit displays
The status of the backup unit connected to the 1394 connector is displayed here.
Nothing is displayed if in the setup menus, OTHER FUNCTIONS screen, 1394 CONTROL, you have selected “OFF”.
1394 ●: Recording
1394 ■: Recording standby
1394 □: The backup unit cannot be controlled.
1394 - -: The backup unit is not connected.
1394- ---: The backup unit is connected but is in a mode other than recording or recording standby.

5 Recording format (P2 card) (Page 104) display

6 1394TC display
Appears when the 1394 IN PRESET option on the setting menu RECORDING SETUP screen is ON. (This appears in the MCR mode.)

7 Information display
Following information is displayed depending on the situation.
• Performance of the auto white balance or the auto black balance
• Warning (Page 91)
• The functions allocated to the USER buttons are displayed while you hold down the DISP/ MODE CHK button.

8 Squeeze information
Appears when in the setup menus, CAMERA SETUP screen, ASPECT CONV, you have selected “SQUEEZE” (Page 100) or when playing back images recorded in the squeeze mode.

9 Mic level auto control
Appears when in the setup menus, RECORDING SETUP screen, MIC ALC, you have selected “ON”.

10 AWB error
LOWLIGHT: Appears when the brightness level adjusted by the auto white balance is too low.
C TEMP**: Appears when the WHITE BAL switch position is changed, the power is turned on, and COLOR TEMP Ach/COLOR TEMP Bch are set to a value other than 0 on the setting menu SCENE FILE screen while in the auto white balance adjustment.

11 Focus bar
The focus bar appears when FOCUS BAR is set to ON in the setup menu DISPLAY SETUP screen.
The focus bar extends to the right when the image is in focus.

12 Marker luminance display
When markers are displayed, the brightness level around the center of the screen is indicated as 0% to 99%. “99%” appears if the percentage is over 99.

13 Time stamp recording display
The time stamp recording appears when TIME STAMP is set to ON on the setting menu RECORDING SETUP screen.

14 Calendar

<table>
<thead>
<tr>
<th>Month</th>
<th>Day of the month</th>
<th>Year: 2000 - 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAN (January), FEB (February), MAR (March), APR (April), MAY (May), JUN (June), JUL (July), AUG (August), SEP (September), OCT (October), NOV (November), DEC (December)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day of the month</td>
<td>Hours</td>
<td>Minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seconds</td>
</tr>
<tr>
<td>mmm dd yyyy</td>
<td>hh:mm:ss</td>
<td></td>
</tr>
</tbody>
</table>

15 Recording/playback frame rate display
Apart from the case of 720/30PN and 720/24PN, only the recording frame rate is displayed.

16 Shutter speed
The shutter speed is displayed here.

17 Audio level meter (Page 52)

18 Auto iris control displays
STD: Standard auto-iris control
SPOT: Auto iris control for spotlight
BACK: Auto iris control for backlight compensation
19 IRIS display
In CAM mode, displays the F value during shooting.
Only in the 480i DV format, the F value during shooting is also displayed during playback when ON was selected under CAMERA DATA of the setting menu DISPLAY SETUP screen.

20 Zoom position display
The zoom position is displayed with Z00 (maximum wide-angle) - Z99 (maximum zoom). The unit can be switched to mm in the ZOOM•FOCUS option of the setting menu DISPLAY SETUP screen.

21 Focus control display
Displays the focus control information with 99-00.
In the auto focus mode, AF appears. In the manual focus mode, MF appears, and when MF ASSIST is set to ON on the setting menu SW MODE screen, MA appears. When the display is set to macro control, the black and white of AF or MF are displayed in reverse.
95 (Distance to the subject: infinity)
00 (Distance to the subject: approx. 5 cm)
Depending on the zoom position, the macro range may not be enabled. Also, depending on the zoom position, the lower limit value of macro range may be different.
The units can be switched between feet and m in the ZOOM•FOCUS option of the setting menu DISPLAY SETUP screen.

22 TEXT MEMO and SHOT MARK display
This display lights when the USER button to which the TEXT MEMO function has already been allocated is pressed while recording or playback and the text memo is recorded.
- MARK ON appears when the USER button to which the SHOT MARK function has already been allocated is pressed while recording and a shot mark is added to the clip being recorded. Pressing the USER button again deletes the shot mark, and MARK OFF appears.
- INVALID appears when text memo could not be recorded, or when a shot mark could not be added or deleted.

23 Recommended ND filter
The recommended ND filter under the current shooting conditions is displayed here.

24 ND filter display
ND filter selected is displayed.

25 Gain display
In CAM mode, displays the gain value of the image amplifier configured. (During the auto mode, AGC is displayed.)
Only in the 480i DV format, the gain value during shooting is also displayed during playback when ON was selected under CAMERA DATA of the setting menu DISPLAY SETUP screen.

26 AWB operation display
The white balance operation is indicated here.

27 AWB information display
Displays the information of white balance.
ATW: When ATW is set
P3.2K/P5.6K: In the case of preset
Ach/Bch: In the case of A/B
LOCK: When ATW is locked

28 Digital zoom display
Shows the digital zoom ratio.
D 2X: 2x
D 5X: 5x
D 10X: 10x

29 Displays marker
During shooting, pressing the ZEBRA button once or twice will display the marker.

30 Optical Image Stabilizer (Optical) display
In CAM mode, [ ] appears when images were shot in the optical image stabilization mode. Only in the 480i DV format, [ ] also appears in playback mode when ON was selected under CAMERA DATA of the setting menu DISPLAY SETUP screen and images were shot in the optical image stabilization mode.

31 Scene file name display (in CAM mode)
(Page 53)

32 Remaining battery charge
As the remaining battery charge drops, the display changes as follows: [ ] [ ] [ ] [ ]
When the battery has completely discharged, [ ] blinks.
(When the AC adapter is being used, a display other than [ ] may appear: this is not a sign of malfunctioning.)

(Continued on the next page)
33 Media remaining memory display
Displays the remaining time.
- In P2 CARD REMAIN on the setting menu DISPLAY SETUP screen, select TOTAL to display total remaining time for all inserted cards or ONE-CARD (highlighted) to display the time remaining only on the card selected for recording. During MODE CHECK, it is possible to confirm the remaining time for the setting not selected in the menu.
- No indication is made while the remaining time is being calculated.
- An ongoing loop recording is indicated as “LOOP” and in MODE CHECK, the standard recording time appears after loop recording ends.
- The remaining time indication starts to flash when a total of less than 2 minutes remains.
- The remaining time is indicated in 1 minute increments between 0 to 999 minutes.

34 Operational state display
REC: Recording
PAUSE: Recording pause
▷▷ (◁◁): Play pause
▷▷: Play
▷▷▷ (◁◁◁): Fast-forward/Fast-forward play (Rewind/Fast-backward play)
▷▷◁ (◁◁▷): Slow play (Reverse slow play)
CHK: Rec check
▷▷◁ (◁◁▷): Cue (reverse cue)
▷▷▷ (◁◁◁): Frame-by-frame (Reverse Frame-by-frame)
▷▷▷ (◁◁◁): Variable-speed search (Reverse variable-speed search)

35 Media information display
The card slot where the P2 card was inserted and the basic information of the media are displayed here.
1[2] lights: P2 card on which data can be recorded.
1[2] lights green: P2 card on which data is to be recorded.
A[2]: No card inserted.
P: Write-protected
F: Full memory
X: Cannot recognize
E: Card with format error (becomes normal if formatted)

36 Special recording display
This display appears when the REC FUNCTION option of the setting menu RECORDING SETUP screen is set to INTERVAL, ONE SHOT or LOOP, and when PRE REC is set to ON.

37 Monitor sound volume level meter
When you press the PAGE/AUDIO MON/VAR button, the sound volume output from the built-in speaker and headphone jack is displayed.

38 Safety zone
The range of the zone is indicated by the SAFETY ZONE item (Page 108) on the DISPLAY SETUP screen.
4:3: This indicates the position which is cropped to 4:3.
13:9: This indicates the position which is cropped to 13:9.
14:9: This indicates the position which is cropped to 14:9.
90%: This indicates the range (90%) in which signals can be displayed by an ordinary home-use TV set.
Displays

**Warnings**

**COPY INHIBITED**
Can not record correctly because of the input signal copy-guarded.

**EXTERNAL 1394 DISCONNECT**
When the 1394 CONTROL item of the OTHER FUNCTIONS screen of the Setup menu is set to EXT and recording without connecting external units with 1394 terminal, this display appears.

**INCOMPATIBLE CARD**
The card cannot be used since it does not comply with the specified standard.

**RUN DOWN CARD**
The maximum number of overwrites on the P2 card has been exceeded.
Operation continues. However, recording or playback may not operate correctly. It is recommended that you replace the P2 card with another one.

**DIR ENTRY NG CARD**
The directory structure on the P2 card is not supported.
Operation continues. However, recording or playback may not operate correctly.
The P2 card cannot be used for the special recording functions (interval recording, one-shot recording, and loop recording).
Back up data on the P2 card as soon as possible, and format the card before using it again.

**FORMAT ERR !**
This card is not compliant with the P2 standard.

**LOW BATTERY**
No operations can be performed since the battery charge is low.

**<Thumbnail operations>**

**CANNOT ACCESS**
Cannot access clips.

**CANNOT DELETE**
Cannot delete clips.

**CANNOT FORMAT**
Cannot format P2 cards or SD memory cards.

**CANNOT REPAIR**
Cannot repair clips.

**CARD FULL**
The P2 card does not have enough free space for recording.

**WRITE PROTECTED**
The P2 card or SD memory card is writeprotected.

**NO CARD**
A P2 card or SD memory card has not been inserted.

**NO FILE**
There are no files (version upgrade files, etc.).

**Errors**

These are displayed when an error occurs in the unit, P2 card, or other component. If the problem is not fixed by turning the power off and then on again, either replace the card based on the error information, or consult with your dealer as to which one is to be purchased.

**CANNOT PLAY**
This is displayed when trouble has occurred during playback.

**CARD ERR (1) (2) (1/2)**
(Trouble has occurred in the P2 card found in the slot indicated by the number.)

**CLIP ERROR** (clip trouble)

**UPDATING** (clip recording)

**ERROR** (other type of trouble)

**SYSTEM ERROR**
This is displayed when trouble has occurred in the system. Switch ON the power again.

**P2 MICON ERROR** (no P2 microcomputer response)

**P2 CONTROL ERROR** (trouble in P2 control)

**REC RAM OVERFLOW** (recording RAM overflow)

**TURN POWER OFF**
This display appears when an abnormality occurs as a result of the card being pulled out while data is being accessed.

**REC WARNING**
This is displayed when trouble has occurred during recording. Carry out recording once again. If the warning persists, consult your dealer.

**CARD ERR (1) (2) (1/2)**
(Trouble has occurred in the P2 card found in the slot indicated by the number.)

- If the warning continues, turn off the power.
- If the warning appears even when recording is carried out again, replace the card with another one.

**ERROR** (other type of trouble)

(Continued on the next page)
WARNING
When trouble occurs with camera systems, WARNING is displayed.
**FOCUS LOCK** (Abnormal focus operation)
**PSD NG** (Abnormal vibration detected)
**GYRO NG** (Abnormal Optical Image Stabilizer control)

1394
This is displayed when trouble has occurred in the 1394 connections or signals.
**1394 INITIAL ERROR** (connection error)
**1394 INPUT ERROR** (input error)
**1394 INPUT ERROR (OTHER FORMAT)** (wrong input format)
Setting the DISPLAY items

Display the following items on the viewfinder and LCD monitor screen by pressing the DISP/MODE CHK button or by configuring OTHER DISPLAY of the DISPLAY SETUP screen of the setup menus. (Page 109)

<table>
<thead>
<tr>
<th>Displays</th>
<th>MODE CHECK</th>
<th>DISPLAY</th>
<th>OTHER DISPLAY settings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ALL</td>
<td>PARTIAL</td>
<td>OFF</td>
</tr>
<tr>
<td>1 Time code display</td>
<td>✓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3 AUTO/MANUAL switch operation display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5 Recording format</td>
<td>✓</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>7 Information display</td>
<td>✓</td>
<td>—</td>
<td>x</td>
</tr>
<tr>
<td>8 Squeeze information display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9 Microphone level auto-control display</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>11 Focus bar display</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>13 Time stamp display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>14 Calendar display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>15 Recording/playback frame rate display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>16 Shutter speed display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>17 Audio level meter display</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>18 Auto-IRIS control display</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>19 IRIS display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>20 Zoom position display</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>21 Focus control display</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>23 Recommended ND filter display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>24 ND filter display</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>25 Gain display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>27 AWB information display</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>28 Digital zoom display</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>30 Optical Image Stabilizer display</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>31 Scene file name</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>32 Remaining battery display</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>33 Media remaining memory display</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>38 Safety zone display</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

✓: Displayed
x: Not displayed
—: Displayed depending on other settings

The item in ✓ in the MODE CHECK space appears when you press and hold the DISP/MODE CHK button. The item in ✓ in the DISPLAY space disappears when you press the DISP/MODE CHK button.

*1 Not displayed when FRAME RATE is set to 60i.
*2 0 dB is not displayed.
*3 Only preset 3.2K and 5.6K are displayed.
*4 When both the “13 Time stamp display” and “14 Calendar display” are activated, the displays cannot be turned off by pressing the DISP/MODE CHK button.
Using the setup menus

Use the setup menus to change the settings to suit the scenes you are shooting or what you are recording.

2 Push the Operation lever in the ▲ or ▼ direction to move the highlight to the setting you want.

3 Press the Operation lever (or push it in the ▶ direction) to display the items. Example:

![Example Menu]

4 Push the Operation lever in the ▲ or ▼ direction to move to the setting you want. Example:

![Example Menu]

5 Press the Operation lever to confirm the setting.

To change a value, push the Operation lever in the ▲ or ▼ direction to change as necessary. Example:

![Example Menu]

6 To change other settings, repeat steps 4 and 5.

When you finish, press the MENU button to return to the function screen.

7 To change other functions, repeat steps 2 to 5.

When you exit the menu mode, press the MENU button again to return to the normal screen.

Using the menus

- If the thumbnail menu is displayed, press the THUMBNAIL button to release the display. (Page 66)
- The menu items indicated in the blue characters cannot be used.

1 When the unit is in other than playback or recording mode, press the MENU button. The following is displayed on the viewfinder and LCD screen.

**CAM** mode (Example)

![Camera Menu]

**MCR** mode (Example)

![MCR Menu]
## Initializing the menu settings

The menu settings contain both the user file settings and the scene file settings. You can initialize them separately.

**To initialize the user file (i.e. all the settings other than the scene file settings)**

Select INITIAL in USER FILE of the OTHER FUNCTIONS screen. The current menu settings of user file will return to the factory settings.

**To initialize the scene file**

From the 6 scene files, select the one you want to initialize with the scene dial. Then in the SCENE FILE screen, LOAD/SAVE/INIT, select INITIAL. The settings for only the selected scene file are returned to the factory settings.

• This does not effect the other scene files.

**To simultaneously initialize the user file and the scene files**

Select YES under MENU INIT on the OTHER FUNCTIONS screen. This returns the user file and the 6 scene files to their factory settings.
## Setup menu structure

### CAM (camera) mode menu

#### CAMERA MENU

| SCENE FILE | LOAD/SAVE/INIT |
| ASPECT CONV | OPERATION TYPE |
| SETUP | FRAME RATE |
| SW MODE | SYNCRU SCAN |
| (Pages 98 - 100) | DETAIL LEVEL |
| (Page 100) | V DETAIL LEVEL |
| AUTO SW | DETAIL CORING |
| (Pages 103 - 104) | CHROMA LEVEL |
| | CHROMA PHASE |
| | COLOR TEMP Ach |
| | COLOR TEMP Bch |
| | MASTER PED |
| | A.IRIS LEVEL |
| | DRS |
| | GAMMA |
| | KNEE |
| | MATRIX |
| | SKIN TONE DTL |
| | V DETAIL FREQ |
| | NAME EDIT |

#### RECORDING SETUP

| REC FORMAT | 480i REC MODE |
| ONE SHOT TIME | REC FUNCTION |
| INTERVAL TIME | PREREM MODE |
| CMPNT/SDI SEL | MIC ALC |
| SDI OUT | MIC GAIN 1 |
| SDI METADATA | MIC GAIN 2 |
| SDI EDH | 25M REC CH SEL |
| DOWNCON MODE | TC MODE |
| HP MODE | TCG |
| TEST TONE | TC PRESET |
| INT MIC | UB MODE |
| | UB PRESET |
| | TIME STAMP |

#### AV IN/OUT SETUP

| CMPNT/SDI SEL | 25M REC CH SEL |
| SDI OUT | 25M REC CH SEL |
| SDI METADATA | TC MODE |
| SDI EDH | TCG |
| DOWNCON MODE | TC PRESET |
| HP MODE | UB MODE |
| TEST TONE | UB PRESET |
| INT MIC | TIME STAMP |

#### DISPLAY SETUP

| SCENE FILE | USER FILE |
| USER FILE | REMOTE |
| SD CARD FORMAT | 1394 CONTROL |
| | 1394 CMD SEL |
| | PC MODE |
| | ACCESS LED |
| | REC LAMP |
| | BEEP SOUND |
| | CLOCK SET |
| | TIME ZONE |
| | POWER SAVE |
| | MENU INIT |
| | OPERATION |

#### OTHER FUNCTIONS

| OPTION MENU | 1394 STATUS |
| 1394 CONFIG | 1394 STATUS |

#### CARD FUNCTIONS

| SCENE FILE | USER FILE |
| USER FILE | REMOTE |
| SD CARD FORMAT | 1394 CONTROL |
| | 1394 CMD SEL |
| | PC MODE |
| | ACCESS LED |
| | REC LAMP |
| | BEEP SOUND |
| | CLOCK SET |
| | TIME ZONE |
| | POWER SAVE |
| | MENU INIT |
| | OPERATION |

#### OTHER FUNCTIONS

| OPTION MENU | 1394 STATUS |
| 1394 CONFIG | 1394 STATUS |
# Setup menu structure (continued)

## MCR (playback) mode menu

<table>
<thead>
<tr>
<th>MCR MENU</th>
<th>MCR FORMAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECORDING SETUP (Pages 104 - 106)</td>
<td>480i MCR mode</td>
</tr>
<tr>
<td>PLAYBACK FUNCTIONS (Page 107)</td>
<td>1394 TC REGEN</td>
</tr>
<tr>
<td>AV IN/OUT SETUP (Pages 107 - 108)</td>
<td>TC MODE</td>
</tr>
<tr>
<td>DISPLAY SETUP (Pages 108 - 109)</td>
<td>TCG</td>
</tr>
<tr>
<td>OTHER FUNCTIONS (Pages 110 - 112)</td>
<td>TC PRESET</td>
</tr>
<tr>
<td>OPTION MENU (Page 112)</td>
<td>1394 UB REGEN</td>
</tr>
<tr>
<td></td>
<td>UB MODE</td>
</tr>
<tr>
<td></td>
<td>1394 IN PRESET</td>
</tr>
<tr>
<td></td>
<td>VIDEO OUT OSD</td>
</tr>
<tr>
<td></td>
<td>DATE/TIME</td>
</tr>
<tr>
<td></td>
<td>LEVEL METER</td>
</tr>
<tr>
<td></td>
<td>CARD/BATT</td>
</tr>
<tr>
<td></td>
<td>P2CARD REMAIN</td>
</tr>
<tr>
<td></td>
<td>OTHER DISPLAY</td>
</tr>
<tr>
<td></td>
<td>CAMERA DATA</td>
</tr>
<tr>
<td></td>
<td>LCD BACKLIGHT</td>
</tr>
<tr>
<td></td>
<td>LCD SET</td>
</tr>
<tr>
<td></td>
<td>EVF SET</td>
</tr>
<tr>
<td></td>
<td>DISPLAY ASPECT</td>
</tr>
<tr>
<td></td>
<td>EVF COLOR</td>
</tr>
</tbody>
</table>

- 480i MCR mode
- 1394 TC REGEN
- TC MODE
- TCG
- TC PRESET
- 1394 UB REGEN
- UB MODE
- UB PRESET
- 1394 IN PRESET
- VIDEO OUT OSD
- DATE/TIME
- LEVEL METER
- CARD/BATT
- P2CARD REMAIN
- OTHER DISPLAY
- CAMERA DATA
- LCD BACKLIGHT
- LCD SET
- EVF SET
- DISPLAY ASPECT
- EVF COLOR
## Setup menu list

### SCENE FILE screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| **LOAD/SAVE/INIT**  | (Camera)     | **LOAD:** Loads the scene file settings saved using SAVE.  
**SAVE:** Saves the changed scene file settings.  
**INITIAL:** The settings of the scene file selected with the scene file dial are returned to the factory settings. |
| **OPERATION TYPE**  | (Camera)     | Switches the shutter and frame rate operation to the video type or film type.  
**VIDEO CAM:** SYNCRO SCAN is displayed using 1/n units.  
**FILM CAM:** SYNCRO SCAN is displayed as an angle. |
| **FRAME RATE**      | (Camera)     | Selects the shooting interval and exposure time when 720P and FILM CAM is selected. The DEFAULT value is dependent on the frame rate of the recording format.  
**DEFAULT:** 12, 15, 18, 20, 21, 22, 24, 25, 26, 27, 28, 30, 32, 34, 36, 40, 44, 48, 54, 60 FRAME |
| **SYNCRO SCAN**     | (Camera)     | Adjusts the synchro scan shutter speed used for shooting images on a TV screen, etc.  
Pushing the Operation lever the ▲ or ▼ direction and holding it down will cause the values to change at a faster rate.  
When VIDEO CAM is selected as the OPERATION TYPE option setting:  
- 60P/60i:  
  1/60.0...1/249.8  
- 30P/30PN:  
  1/30.0...1/48.0...1/249.8  
- 24P/24PA/24PN:  
  1/24.0...1/48.0...1/249.8  
When FILM CAM is selected as the OPERATION TYPE option setting:  
The shutter speed is displayed as an angle such as "180.0 d."  
10.0 deg...180.0 deg...360.0 deg (the angle can be changed in increments of 0.5 degrees) |
| **DETAIL LEVEL**    | (Camera)     | Adjusts the level of the image outline correction (in the horizontal and vertical directions).  
-7...0...+7 |
| **V DETAIL LEVEL**  | (Camera)     | Adjusts the level of outline correction in the vertical direction.  
-7...0...+7 |
| **DETAIL CORING**   | (Camera)     | Adjusts the level of noise reduction of the detail signal.  
-7...0...+7  
Set to – for a clearer image. Noise increases slightly.  
Set to + to reduce noise. |
| **CHROMA LEVEL**    | (Camera)     | Adjusts the chroma level.  
-7...0...+7 |
| **CHROMA PHASE**    | (Camera)     | Makes fine adjustments to the chroma phase.  
-7...0...+7 |
| **COLOR TEMP Ach**  | (Camera)     | Makes fine adjustments to the color temperature (after white balance Ach adjustment).  
-7...0...+7 |
| **COLOR TEMP Bch**  | (Camera)     | Makes fine adjustments to the color temperature (after white balance Bch adjustment).  
-7...0...+7 |
| **MASTER PED**      | (Camera)     | Adjusts the master pedestal (black level of the image) as the basis for images.  
-100...0...+100 |
| **A.IRIS LEVEL**    | (Camera)     | Sets the desired AUTO IRIS level.  
-10...0...+10 |
### Menu

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| **DRS**       | (Camera)     | Selects the DRS (Dynamic Range Stretcher) function. This function compresses the video signal level to extend the dynamic range making it possible to correctly render highlight areas without overexposure and loss of detail that would otherwise occur.  
OFF, 1, 2, 3  
- Larger values indicate a higher compression level of highlight areas.  
- Only effective in 60i and 60P VIDEO CAM.  
- In slow shutter mode, the options are shown in blue and you cannot make selection. |
| **GAMMA**     | (Camera)     | Selects gamma curve.  
**HD NORM:** This gamma setting is suitable for HD shooting.  
**LOW:** LOW: Makes a mellow image using the gamma curve which has a gentle incline in low-brightness curve. The contrast sharpens.  
**SD NORM:** This is the normal video setting, carried over from the DVX100 series.  
**HIGH:** Expands the tone of dark parts and makes a brighter image using the gamma curve which has a sharp incline in low-brightness curve. The contrast softens.  
**B.PRESS:** Makes the contrast shaper than LOW.  
**CINE-LIKE_D:** Makes a cinema-like image.  
**CINE-LIKE_V:** Makes a cinema-like image with emphasized contrast.  
When you select CINE-LIKE gamma, we recommend to set the lens aperture lower than normal image level (approximately 1/2) to enjoy the full benefit of the function. |
| **KNEE**      | (Camera)     | To avoid overexposure, select the compression level (knee point) of the high intensity video signals received through CCD.  
**AUTO:** Sets the level automatically according to the received signals.  
**LOW:** Low setting (Compression starts at approx. 80%).  
**MID:** Medium setting (Compression starts at approx. 90%).  
**HIGH:** High Setting (Compression starts at approx. 100%). |
| **MATRIX**    | (Camera)     | Selects the MATRIX table suitable for the desired color expression during shooting.  
**NORM1:** Suitable for shooting in the open air or under a halogen lamp.  
**NORM2:** Suitable for brighter colors than the NORM1 mode.  
**FLUO:** Suitable for shooting under fluorescent light indoors.  
**CINE-LIKE:** Suitable for cinema-like image. |
| **SKIN TONE DTL** | (Camera) | Sets the skin tone details. Select ON to reduce the skin tone details and soften the skin tone. |

---

**Note:** The menu options and descriptions are for reference purposes only and may vary depending on the model and specifications of the video camcorder.
### SCENE FILE screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>V DETAIL FREQ</td>
<td>(Camera)</td>
<td>Sets the vertical detail for shooting in 480i progressive mode. <strong>THIN:</strong> Makes the detail thin. <strong>MID:</strong> Makes the detail slightly thicker. <strong>THICK:</strong> Makes the detail thicker. When images were shot in the progressive mode in which the vertical detail is set as “THIN” or “MID” and are played on a monitoring television (60i interlace), you will see flickers caused on horizontal lines and almost horizontal oblique lines. When playing back images in the progressive mode or when editing images or performing other postprocessing, images with a higher resolution will be obtained with the THIN or MID setting than with the THICK setting.</td>
</tr>
<tr>
<td>NAME EDIT</td>
<td>(Camera)</td>
<td>Edits the name of the selected scene file you have selected with the scene file dial.</td>
</tr>
</tbody>
</table>

### CAMERA SETUP screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPECT CONV</td>
<td>(Camera)</td>
<td>Elects the aspect ratio of the image you record in 480i format. This item cannot be selected when the 1080i or 720P recording format is used. <strong>SIDE CROP:</strong> Crops the right and left edges of the image. <strong>LETTER BOX:</strong> Adds black bands at the top and bottom of the image. <strong>SQUEEZE:</strong> Squeezes the image horizontally.</td>
</tr>
<tr>
<td>SETUP</td>
<td>(Camera)</td>
<td>Switch the setup level of video signals in 480i format using a P2 card. <strong>0%:</strong> Setup is switched to 0% for both the camera output and the recording. <strong>7.5%:</strong> Setup is switched to 7.5% for the camera output and 0% for the recording.</td>
</tr>
</tbody>
</table>

---

___indicates the factory setting.
## SW MODE screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MID GAIN</strong> (Camera)</td>
<td>Sets the gain value assigned to the M position of the GAIN switch.</td>
<td>0dB, 3dB, 6dB, 9dB, 12dB</td>
</tr>
<tr>
<td><strong>HIGH GAIN</strong> (Camera)</td>
<td>Sets the gain value assigned to the H position of the GAIN switch.</td>
<td>0dB, 3dB, 6dB, 9dB, 12dB</td>
</tr>
<tr>
<td><strong>ATW</strong> (Camera)</td>
<td>Sets the operation of the ATW (Auto Tracking White Balance) function assigned to the WHITE BAL switch. When the ATW function is set to the AUTO/MANUAL switch or USER button, the operation remains effective.</td>
<td><strong>Ach:</strong> Activates the ATW function when the WHITE BAL switch is set to A. <strong>Bch:</strong> Activates the ATW function when the WHITE BAL switch is set to B. <strong>PRST:</strong> Activates the ATW function when the WHITE BAL switch is set to PRST. <strong>OFF:</strong> Deactivates the ATW function.</td>
</tr>
<tr>
<td><strong>HANDLE ZOOM</strong> (Camera)</td>
<td>Sets the zoom speed assigned to each setting position of the HANDLE ZOOM switch.</td>
<td><strong>L/OFF/H:</strong> Sets LOW (low speed)/OFF/HIGH (high speed) to the 1/2/3 position. (Zoom is disabled when set to OFF.)</td>
</tr>
<tr>
<td><strong>IRIS DIAL</strong> (Camera)</td>
<td>Sets the rotation direction and the aperture control of the IRIS dial. (In MANUAL IRIS mode)</td>
<td><strong>DOWN OPEN:</strong> The iris opens when the IRIS dial is turned downward. <strong>UP OPEN:</strong> The iris opens when the IRIS dial is turned upward.</td>
</tr>
<tr>
<td>Item</td>
<td>Display mode</td>
<td>Description of settings</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>USER1</td>
<td>(Camera)</td>
<td>Selects the function assigned to the USER1 button.</td>
</tr>
<tr>
<td>REC CHECK:</td>
<td></td>
<td>Performs Rec Check.</td>
</tr>
<tr>
<td>SPOTLIGHT:</td>
<td></td>
<td>Auto iris control for the spotlight ON/OFF.</td>
</tr>
<tr>
<td>BACKLIGHT:</td>
<td></td>
<td>Auto iris control for the backlight compensation. (Page 42)</td>
</tr>
<tr>
<td>BLACKFADE:</td>
<td></td>
<td>Blackfade (Page 42)</td>
</tr>
<tr>
<td>WHITEFADE:</td>
<td></td>
<td>Whitefade (Page 42)</td>
</tr>
<tr>
<td>ATW:</td>
<td></td>
<td>ATW function ON/OFF.</td>
</tr>
<tr>
<td>ATWLOCK:</td>
<td></td>
<td>Fixes the white balance value when the button is pressed during ATW. Press again to perform ATW.</td>
</tr>
<tr>
<td>GAIN: 18dB</td>
<td></td>
<td>Press the button to set the gain value to 18 dB. This setting takes effect with the 60i and 60P recording formats only. It is not valid when the recording frame rate is less than 54 fps or when the slow shutter mode (1/15) is established.</td>
</tr>
<tr>
<td>D.ZOOM:</td>
<td></td>
<td>Changes the ratio of the DIGITAL ZOOM function. Each press of the button changes the ratio in the following order: OFF (x1) → x2 → x5 → x10 → OFF (x1). (Page 30)</td>
</tr>
<tr>
<td>TEXT MEMO:</td>
<td></td>
<td>Records text memos (with P2 cards) (Page 44)</td>
</tr>
<tr>
<td>SHOT MARK:</td>
<td></td>
<td>Shot mark recording (Page 44)</td>
</tr>
<tr>
<td>LVL METER:</td>
<td></td>
<td>Switches the display channels of the audio level meter. (When Ch1/Ch2 and Ch3/Ch4 are displayed)</td>
</tr>
<tr>
<td>LAST CLIP:</td>
<td></td>
<td>Deletes the last recorded clip. (Page 45)</td>
</tr>
<tr>
<td>PRE REC:</td>
<td></td>
<td>Turns the PRE REC function ON or OFF.</td>
</tr>
<tr>
<td>F.RATE+:</td>
<td></td>
<td>Changes the frame rate.</td>
</tr>
<tr>
<td>F.RATE-:</td>
<td></td>
<td>Changes the frame rate.</td>
</tr>
<tr>
<td>USER2</td>
<td>(Camera)</td>
<td>Selects the function assigned to the USER2 button. The settings are the same as USER1 above.</td>
</tr>
<tr>
<td>BACKLIGHT:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USER3</td>
<td>(Camera)</td>
<td>Selects the function assigned to the USER3 button. The settings are the same as USER1 above.</td>
</tr>
<tr>
<td>TEXT MEMO:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SW MODE screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| FOCUS ASSIST | (Camera)     | Allocates a function to the FOCUS ASSIST button.  
EXPANDED: Magnifies the center portion of the image.  
GRAPH: Displays a frequency distribution graph at the top right in the viewfinder and LCD monitor.  
BOTH: Magnifies the center portion of the image and displays a histogram. |
| MF ASSIST   | (Camera)     | Automatically sets the last focus during manual focusing.  
ON: Automatically sets the last focus.  
• The focus may not be set correctly if the last focus differs considerably from the manually set focus.  
• You cannot operate using the remote control connected to the CAM REMOTE jack.  
OFF: The focus is not adjusted automatically. |
| WFM        | (Camera)     | Switches the waveform display that appears when the WFM button is pressed.  
WAVE: Displays a waveform.  
VECTOR: Opens a vector display.  
WAVE/VECT: Each press of the button, switches the settings in the following order: OFF → WAVE (waveform) → VECTOR (vector) → OFF. |
| LCD        | (Camera)     | Allocates a function to the LCD button.  
LCD REV: Flips the LCD image vertically and horizontally.  
OVERSCAN: Switches between overscan and underscan of the LCD/viewfinder image.  
This button toggles between the overscan and underscan image at each press.  
LCD BL: Switches the brightness of the LCD backlight.  
• The brightness of the backlight set using LCD BL is retained when functions assigned using the LCD button change. |

### AUTO SW screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| A.IRIS     | (Camera)     | ON: Performs the auto iris control in auto mode. The IRIS button is deactivated.  
OFF: Deactivates the auto iris control in auto mode. This performs the iris control selected with the IRIS button. |
### AUTO SW screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGC</td>
<td>(Camera)</td>
<td>Sets the Auto Gain Control when the ON is selected in A.iris.&lt;br&gt;<strong>6dB:</strong> Performs the Auto Gain Control (max. 6 dB) in auto mode.&lt;br&gt;<strong>12dB:</strong> Performs the Auto Gain Control (max. 12 dB) in auto mode.&lt;br&gt;<strong>OFF:</strong> Does not perform the Auto Gain Control in auto mode. Initiates the control of the gain selected by the GAIN switch.</td>
</tr>
<tr>
<td>ATW</td>
<td>(Camera)</td>
<td><strong>ON:</strong> Performs the ATW (Auto Tracing White Balance) function in auto mode. You cannot select ON/OFF of the ATW function with the WHITE BAL switch or the USER button when this is selected. However, if ATWLOCK is assigned to the USER button, you can set the white balance value with the USER button.&lt;br&gt;<strong>OFF:</strong> Does not perform the white balance function in auto mode. This performs the white balance function selected with the WHITE BAL switch.</td>
</tr>
<tr>
<td>AF</td>
<td>(Camera)</td>
<td><strong>ON:</strong> Performs auto focusing in auto mode. You cannot use the FOCUS switch and PUSH AUTO button when this is selected.&lt;br&gt;<strong>OFF:</strong> Does not perform auto focusing in auto mode. This performs the focusing selected with the FOCUS switch or PUSH AUTO button.</td>
</tr>
</tbody>
</table>

### RECORDING SETUP screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC FORMAT</td>
<td>(Camera)</td>
<td>Selects the recording format.&lt;br&gt;<strong>1080i/60i, 1080i/30P, 1080i/24P, 1080i/24PA, 720P/60P, 720P/30P, 720P/24P, 720P/30PN, 720P/24PN, 480i/60i, 480i/30P, 480i/24P, 480i/24PA</strong></td>
</tr>
<tr>
<td>MCR FORMAT</td>
<td>(MCR)</td>
<td>Selects playback or a 1394 input format.&lt;br&gt;<strong>1080i/60i, 720P/60P, 720P/30PN, 720P/24PN, 480i/60i</strong></td>
</tr>
<tr>
<td>480i REC MODE</td>
<td>(Camera)</td>
<td>Select the recording mode for a 480i recording format.&lt;br&gt;<strong>DVCPRO50, DVCPRO, DV</strong></td>
</tr>
<tr>
<td>480i MCR MODE</td>
<td>(MCR)</td>
<td>Selects format for playback or 1394 input in the 480i recording format.&lt;br&gt;<strong>DVCPRO50, DVCPRO, DV</strong></td>
</tr>
<tr>
<td>REC FUNCTION</td>
<td>(Camera)</td>
<td>Selects the special recording mode. (Pages 46 - 48)&lt;br&gt;<strong>NORMAL, INTERVAL, ONE SHOT, LOOP</strong></td>
</tr>
<tr>
<td>ONE-SHOT TIME</td>
<td>(Camera)</td>
<td>Selects the one-shot recording time. (Page 47)&lt;br&gt;<strong>1F, 2F, 4F, 8F, 16F, 1s</strong></td>
</tr>
<tr>
<td>INTERVAL TIME</td>
<td>(Camera)</td>
<td>Selects the interval time for interval recording. (Page 46)&lt;br&gt;<strong>2F, 4F, 8F, 16F, 1s, 2s, 5s, 10s, 30s, 1m, 5m, 10m</strong></td>
</tr>
<tr>
<td>PREREC MODE</td>
<td>(Camera)</td>
<td>Sets PRE RECORDING to ON or OFF. (Page 46)&lt;br&gt;<strong>ON, OFF</strong></td>
</tr>
<tr>
<td>MIC ALC</td>
<td>(Camera)</td>
<td>Sets mic level auto control to ON or OFF. (Page 52)&lt;br&gt;<strong>ON, OFF</strong>&lt;br&gt;Set to ON to reduce distortion at high input levels. This setting does not change the audio signal recording level. Use the AUDIO control knob to adjust the audio signal recording level.</td>
</tr>
<tr>
<td>MIC GAIN 1</td>
<td>(Camera)</td>
<td>Sets the input level of the external microphone connected to the INPUT 1 terminal. (Page 51)&lt;br&gt;<strong>-50dB, -60dB</strong></td>
</tr>
</tbody>
</table>

__indicates the factory setting.
### RECORDING SETUP screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC GAIN 2</td>
<td>(Camera)</td>
<td>Sets the input level of the external microphone connected to the INPUT 2 terminal. (Page 51)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-50dB, -60dB</td>
</tr>
<tr>
<td>25M REC CH SEL</td>
<td>(Camera)</td>
<td>Selects the recording audio channel for DVCPRO and DV formats. (Page 51) 2CH, 4CH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Notes&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Even when 4CH is selected as this item’s setting, the signals will be input to two channels (always CH1 and CH2) when there are two 1394 input channels.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Similarly, even when 4CH is selected, the 1394 output signals will be delivered to two channels (always CH1 and CH2).</td>
</tr>
<tr>
<td>1394 TC REGEN</td>
<td>(MCR)</td>
<td>Selects the time code used for recording the signal from equipment connected to the 1394 terminal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ON:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Records using the time code of the signal input through the 1394 terminal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Records using the time code set in TC MODE/TCG.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you select ON here, this has priority over the settings in TC MODE/TCG.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If there is no input to the 1394 terminal, the camera follows the settings in TC MODE/TCG.</td>
</tr>
<tr>
<td>TC MODE</td>
<td>(Camera) (MCR)</td>
<td>Selects the correction mode of the internal time code generator.</td>
</tr>
<tr>
<td></td>
<td>(Camera)</td>
<td>DF: Uses the drop frame mode.</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td>NDF: Uses the non-drop frame mode.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The non-drop frame mode will be used when you set recording frame rate of recording format to 24P, 24PA or 24PN.</td>
</tr>
<tr>
<td>TCG</td>
<td>(Camera) (MCR)</td>
<td>Sets the mode in which you advance the time code.</td>
</tr>
<tr>
<td></td>
<td>(Camera)</td>
<td>FREE RUN:</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td>The time code is advanced regardless of the operation mode.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• When setting a frame rate other than 24P during operation with the 720P/24PN format, the FREE RUN operation for the time code will not be performed, and the REC RUN operation will be performed instead. It is the same when setting a frame rate other than 30P during operation with the 720P/30PN format.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REC RUN:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The time code is advanced only when recording.</td>
</tr>
<tr>
<td>TC PRESET</td>
<td>(Camera) (MCR)</td>
<td>Sets the initial time code.</td>
</tr>
<tr>
<td></td>
<td>(Camera)</td>
<td>• Set the frame value to 0 or a multiple of 5 when you set recording frame rate of recording format to 24P, 24PA or 24PN. If any other value, the recorded time code will mis-match.</td>
</tr>
<tr>
<td>1394 UB REGEN</td>
<td>(MCR)</td>
<td>Selects the user information used when recording the signals from equipment connected to the 1394 terminal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ON:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Records using the user information of the signal input through the 1394 terminal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Records using the user information set in UB MODE.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you select ON here, this has priority over the setting in UB MODE.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The user information is recorded only when the signal contains the user information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If there is no input to the 1394 terminal, the camera follows the UB MODE settings.</td>
</tr>
</tbody>
</table>

---

**Menu**
### RECORDER SETUP screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UB MODE</strong></td>
<td>(Camera)</td>
<td>Set the content for user information.</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>USER:</strong> Records the information of user.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TIME:</strong> Records the time at recording.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DATE:</strong> Records the date at recording.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TCG:</strong> Records the values of the time code generator.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>FRM. RATE:</strong> Records the frame rate information for frame conversion.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Frame Rate Information" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a: Checking information for user information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b: Frame sequence No.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 0 to 4 are displayed in the 24P/24P (ADV) mode.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• F is displayed in the 60i/30P mode.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c: Frame rates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Frame rate (60/30/24)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• I/P ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conversion data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Frame rate coefficient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d: Recording management data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Frame update information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• REC START/STOP information</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>&lt;Note&gt;</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>To play back a clip recorded with native recording</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To change 1394 output user information to frame rate information, change this setting to FRM. RATE and play back the clip. The user information displayed on the screen at this time is changed to frame rate information.</td>
</tr>
<tr>
<td><strong>UB PRESET</strong></td>
<td>(Camera)</td>
<td>Sets the user information. Select USER in UB MODE.</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td></td>
</tr>
<tr>
<td><strong>1394 IN PRESET</strong></td>
<td>(MCR)</td>
<td>Synchronizes the internal TCG value with the TC of 1394 input when you press the TC SET button.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>ON:</strong> The synchronization mode is on.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>OFF:</strong> The synchronization mode is off.</td>
</tr>
<tr>
<td><strong>TIME STAMP</strong></td>
<td>(Camera)</td>
<td>Determines whether or not date and time information will be superimposed on the image.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>ON:</strong> Superimposes date and time information on the image.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>OFF:</strong> Does not superimpose date and time information on the image.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>&lt;Note&gt;</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>When DATE/TIME on the DISPLAY SETUP screen is set to OFF, the date and time information is not superimposed.</td>
</tr>
</tbody>
</table>
### PLAYBACK FUNCTIONS screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDIO OUT</td>
<td>(MCR)</td>
<td>Sets the audio signals to output from the AUDIO OUT pin jack when the P2 card or the tape is played back.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CH1 · CH2:</strong> CH1 output = CH1 signals, CH2 output = CH2 signals</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CH1:</strong> CH1 output = CH1 signals, CH2 output = CH1 signals</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CH2:</strong> CH1 output = CH2 signals, CH2 output = CH2 signals</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CH3 · CH4:</strong> CH1 output = CH3 signals, CH2 output = CH4 signals</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CH3:</strong> CH1 output = CH3 signals, CH2 output = CH3 signals</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CH4:</strong> CH1 output = CH4 signals, CH2 output = CH4 signals</td>
</tr>
</tbody>
</table>

### AV IN/OUT SETUP screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPNT/SDI SEL</td>
<td>(Camera) (MCR)</td>
<td>Selects the type of component terminal or SDI connector. AUTO: Monitor with D4 terminal (720P/1080i/480i output) 1080i: Monitor with D3 terminal (1080i/480i output) 480i: Monitor with D1 terminal (480i output) Only video recorded at 720P is cross-converted to 1080i. Cross-conversion does not take place in other cases.</td>
</tr>
<tr>
<td>SDI OUT</td>
<td>(Camera) (MCR)</td>
<td>Selects video output from component terminal or SDI OUT terminal. ON: Video is not output via the component terminal but from the SDI connector. OFF: Video is output via the component terminal but not from the SDI connector.</td>
</tr>
<tr>
<td>SDI METADATA</td>
<td>(Camera) (MCR)</td>
<td>Determines whether or not metadata is superimposed on SDI signals during HD-SDI output. ON: Superimposes metadata. OFF: Does not superimpose metadata.</td>
</tr>
<tr>
<td>SDI EDH</td>
<td>(Camera) (MCR)</td>
<td>Determines whether or not EDH is superimposed on SD-SDI signals during SD-SDI output. ON: Superimposes EDH. OFF: Does not superimpose EDH.</td>
</tr>
<tr>
<td>DOWNCON MODE</td>
<td>(Camera) (MCR)</td>
<td>Switches down-conversion output mode. SIDE CROP: Crops the right and left edges of the images with the 4:3 aspect ratio. LETTER BOX: Adds black bands at the top and bottom of the images, and the images with the 16:9 aspect ratio are displayed in the 4:3 aspect ratio. SQUEEZE: Select this option for 16:9 aspect ratio images. When viewed on a 4:3 aspect ratio monitor, images are squeezed horizontally.</td>
</tr>
<tr>
<td>HP MODE</td>
<td>(Camera)</td>
<td>Selects the sound heard through the headphones. LIVE: The sound which has been input from the microphone is output as is. This setting is selected when delays in the sound are annoying. RECORDING: The sound in the status which is to be recorded (the sound synchronized with the images) is output.</td>
</tr>
<tr>
<td>TEST TONE</td>
<td>(Camera)</td>
<td>Determines whether or not a test tone is output to channels 1, 2, 3 and 4 when BARS is set to ON. ON: Outputs a test tone to channels 1, 2, 3 and 4. - The reference level is -12 dB. OFF: Does not output a test tone.</td>
</tr>
</tbody>
</table>

___ indicates the factory setting.
### Setup menu list (continued)

#### AV IN/OUT SETUP screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| INT MIC            | (Camera)     | Determines whether or not input from the internal microphone is used during recording.  
ON: Uses internal microphone input.  
OFF: Does not use internal microphone input. |

#### DISPLAY SETUP screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| ZEBRA DETECT 1    | (Camera)     | Selects the brightness level of the left-leaning zebra patterns on the screen.  
50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105% |
| ZEBRA DETECT 2    | (Camera)     | Selects the brightness level of the right-leaning zebra patterns on the screen.  
50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, 100%, 105%,  
OFF  
>Note>  
The zebra patterns do not appear if you select OFF. |
| MARKER            | (Camera)     | Select ON to display the marker. (Page 40)  
ON, OFF  
To display the marker, press the ZEBRA button. |
| SAFETY ZONE       | (Camera)     | Sets SAFETY ZONE to ON or OFF.  
OFF, 90%, 4:3, 13:9, 14:9 |
| FOCUS BAR         | (Camera)     | Turns the FOCUS ASSIST bar display ON or OFF.  
ON, OFF  
When set to ON, the FOCUS ASSIST bar can be displayed. |
| VIDEO OUT OSD     | (Camera)     | Select ON to output the information displayed on the screen together with the signals from the VIDEO IN/OUT jack.  
ON, OFF |
| DATE/TIME         | (Camera)     | Sets whether to display the date and time on the screen and whether to output from the VIDEO IN/OUT jack.  
OFF:  
The date and time are not displayed.  
TIME:  
The time is displayed.  
DATE:  
The date is displayed.  
TIME&DATE:  
The time and date are displayed. |
| LEVEL METER       | (Camera)     | Select ON to display the audio level meter.  
ON, OFF |
| ZOOM-FOCUS        | (Camera)     | Selects the unit of zoom and focus values.  
OFF, NUMBER, mm/feet, mm/m  
>Note>  
Use the mm/feet or mm/m display only as a general guideline since it is not entirely accurate. |
| CARD/BATT         | (Camera)     | Select ON to display the remaining P2 card recording capacity and remaining battery charge.  
ON, OFF |
| P2CARD REMAIN     | (Camera)     | Determines how remaining P2 card capacity is displayed.  
ONE-CARD: Displays how much space is left on the P2 card that is currently being recorded.  
TOTAL: Displays the total amount of space that is left on P2 cards inserted in the camera. |

---

<Note>***indicating the factory setting.
### DISPLAY SETUP screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTHER DISPLAY</td>
<td>(Camera)</td>
<td>Select how much information to display on the screen. (Page 93)</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>OFF, PARTIAL, ALL</strong></td>
</tr>
<tr>
<td>CAMERA DATA</td>
<td>(MCR)</td>
<td>When set to ON, camera-recorder data (image stabilizer, aperture, gain value) made during shooting is displayed in playback of clips recorded in the DV format.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>ON, OFF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Note&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appears only when 480i REC MODE (Page 104) is set to DV.</td>
</tr>
<tr>
<td>LCD BACKLIGHT</td>
<td>(Camera)</td>
<td>Adjusts the backlight of the LCD monitor. Select HIGH for brighter backlight.</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>HIGH, NORMAL, LOW</strong></td>
</tr>
<tr>
<td>LCD SET</td>
<td>(Camera)</td>
<td>Adjusts the display level of the images on the LCD monitor. (Page 22)</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>LCD COLOR LEVEL, LCD BRIGHTNESS, LCD CONTRAST</strong></td>
</tr>
<tr>
<td>EVF SET</td>
<td>(Camera)</td>
<td>Adjusts the display level of the images on the viewfinder. (Page 22)</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>EVF COLOR LEVEL, EVF BRIGHTNESS, EVF CONTRAST</strong></td>
</tr>
<tr>
<td>SELF SHOOT</td>
<td>(Camera)</td>
<td>Selects the LCD mirror mode for self-portrait shooting. Select MIRROR to reverse left and right at self-portrait shooting. (Page 40)</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>NORMAL, MIRROR</strong></td>
</tr>
<tr>
<td>DISPLAY ASPECT</td>
<td>(Camera)</td>
<td>Selects the aspect ratio of the LCD monitor and the viewfinder.</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>AUTO</strong>: Changes automatically to the appropriate ratio according to the recording or play mode information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>4:3</strong>: Fixed at 4:3.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt;Note&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Black bands appear at the top and bottom of the screen when images are displayed at a 16:9 aspect ratio. No parts of the images are missing.</td>
</tr>
<tr>
<td>EVF COLOR</td>
<td>(Camera)</td>
<td>Selects color or black and white images on the viewfinder.</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>ON</strong>: Color</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>OFF</strong>: Black and white</td>
</tr>
<tr>
<td>REC COUNTER</td>
<td>(Camera)</td>
<td>Selects counter operation during recording.</td>
</tr>
<tr>
<td></td>
<td>(MCR)</td>
<td><strong>TOTAL</strong>: Continues counting until card is reset with the COUNTER RESET button.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CLIP</strong>: Resets the counter at start of recording and counts the time of each recording session.</td>
</tr>
</tbody>
</table>

### CARD FUNCTIONS screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCENE FILE</td>
<td>(Camera)</td>
<td>Reads/writes scene files from/to the SD memory card.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>FILE SELECT</strong>: You can specify the file numbers of the files to be read/written.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>READ</strong>: You can read the setting values of the scene files (1 to 4) from the SD memory card by specifying the file number.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>WRITE</strong>: Saves the current setting values of the scene files (1 to 4) to the SD memory card.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TITLE RELOAD</strong>: Updates the title list.</td>
</tr>
<tr>
<td>USER FILE</td>
<td>(Camera)</td>
<td>Reads/writes user files (excluding scene files) from/to the SD memory card.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>FILE SELECT</strong>: You can specify the file numbers of the files to be read/written.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>READ</strong>: You can read the setting values of the user files (1 to 4) from the SD memory card by specifying the file number.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>WRITE</strong>: Saves the current setting values of the user files (1 to 4) to the SD memory card.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TITLE RELOAD</strong>: Updates the title list.</td>
</tr>
</tbody>
</table>

__indicates the factory setting._
### CARD FUNCTIONS screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD CARD FORMAT</td>
<td>(Camera)</td>
<td>Formats the SD memory cards.</td>
</tr>
</tbody>
</table>

### OTHER FUNCTIONS screen

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| **USER FILE**         | (Camera) (MCR) | LOAD: Loads the settings in a previously stored user file.  
SAVE: Saves the updated user file settings.  
INITIAL: Returns the user settings in the user file to the factory settings. After a LOAD or INITIAL operation, turn the POWER switch off and then back on again to make the new settings available.  
• An INITIAL operation does not change the TIME ZONE settings (Page 111). |
| **REMOTE**            | (Camera) (MCR) | Sets the operations of the supplied remote control unit. (Remote control setup. (Page 18))  
OFF: Operations are not accepted from any remote control.  
1: Accepts commands from the remote control set for “operation mode 1”.  
2: Accepts commands from the remote control set for “operation mode 2”. |
| **1394 CONTROL**      | (Camera)     | Sets the control method for backup recording using a backup unit connected to the 1394 terminal.  
OFF: The backup unit is not controlled.  
EXT: The backup unit can be controlled by the START/STOP button. The images shot by the camera recorder are recorded by the backup unit. Note that the camera recorder does not record them.  
BOTH: The images shot by the camera recorder are recorded by both the camera recorder and backup unit.  
CHAIN: When the camera recorder’s media approaches its end during shooting, the backup unit in the recording stand-by mode automatically starts recording images. |
| **1394 CMD SEL**      | (Camera)     | Sets how the START/STOP button works for the backup unit.  
REC_P: This switches between recording and pause.  
STOP: This switches between recording and stop.  
<Note> If the backup unit does not have a rec pause function, select STOP. |
| **PC MODE**           | (Camera) (MCR) | Selects the terminal for data transfer. (You cannot select USB and 1394 at the same time.)  
USB DEVICE: Mode for sending files using the USB connector.  
1394 DEVICE: Mode for sending files using the 1394 connector.  
1394 HOST: Mode for copying files from the P2 card onto an external hard disk drive using the 1394 connector. |

___indicates the factory setting.
### OTHER FUNCTIONS screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
</table>
| ACCESS LED     | (Camera) (MCR) | Sets the access lamp to ON or OFF.  
|                |              | **ON:** The lamp lights up and blinks as per the regular specifications.  
|                |              | **OFF:** The lamp is OFF in all circumstances. |
| REC LAMP       | (Camera)     | Sets lighting of the tally lamp.  
|                |              | **OFF:** The tally lamp does not light.  
|                |              | **FRONT:** Front tally lamp (microphone side) lights.  
|                |              | **REAR:** Rear tally lamp (viewfinder side) lights.  
|                |              | **BOTH:** Both tally lamps light. |
| BEEP SOUND     | (Camera)     | Turns the beep sound ON or OFF.  
|                |              | **ON OFF**  
|                |              | When ON is selected, the beep is sounded when the memory of the P2 card has been used up during recording.  
|                |              | When the beep is sounded, the audio signals from the output connector are muted before the beep sound is output. |
| CLOCK SET      | (Camera) (MCR) | Sets the camera-recorder's calendar. |
| TIME ZONE      | (Camera) (MCR) | Adds to or deducts from GMT the time value of -12:00 to +13:00 in 30-minute steps. (As an exception, you can set +12:45.) Refer to the table below.  
|                |              | **0:00** |

<table>
<thead>
<tr>
<th>Time difference</th>
<th>Area</th>
<th>Time difference</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00</td>
<td>Greenwich</td>
<td>- 00:30</td>
<td></td>
</tr>
<tr>
<td>- 01:00</td>
<td>Azores Islands</td>
<td>- 01:30</td>
<td></td>
</tr>
<tr>
<td>- 02:00</td>
<td>Mid-Atlantic</td>
<td>- 02:30</td>
<td></td>
</tr>
<tr>
<td>- 03:00</td>
<td>Buenos Aires</td>
<td>- 03:30</td>
<td>Newfoundland Island</td>
</tr>
<tr>
<td>- 04:00</td>
<td>Halifax</td>
<td>- 04:30</td>
<td></td>
</tr>
<tr>
<td>- 05:00</td>
<td>New York</td>
<td>- 05:30</td>
<td></td>
</tr>
<tr>
<td>- 06:00</td>
<td>Chicago</td>
<td>- 06:30</td>
<td></td>
</tr>
<tr>
<td>- 07:00</td>
<td>Denver</td>
<td>- 07:30</td>
<td></td>
</tr>
<tr>
<td>- 08:00</td>
<td>Los Angeles</td>
<td>- 08:30</td>
<td></td>
</tr>
<tr>
<td>- 09:00</td>
<td>Alaska</td>
<td>- 09:30</td>
<td>Marquesas Islands</td>
</tr>
<tr>
<td>- 10:00</td>
<td>Hawaii</td>
<td>- 10:30</td>
<td></td>
</tr>
<tr>
<td>- 11:00</td>
<td>Midway Island</td>
<td>- 11:30</td>
<td></td>
</tr>
<tr>
<td>- 12:00</td>
<td>Kwajalein</td>
<td>+ 11:30</td>
<td>Norfolk Island</td>
</tr>
<tr>
<td>+ 13:00</td>
<td></td>
<td>+ 10:30</td>
<td>Lord Howe Island</td>
</tr>
<tr>
<td>+ 12:00</td>
<td>New Zealand</td>
<td>+ 09:30</td>
<td>Darwin</td>
</tr>
<tr>
<td>+ 11:00</td>
<td>Solomon Islands</td>
<td>+ 08:30</td>
<td></td>
</tr>
<tr>
<td>+ 10:00</td>
<td>Guam</td>
<td>+ 07:30</td>
<td></td>
</tr>
<tr>
<td>+ 09:00</td>
<td>Tokyo</td>
<td>+ 06:30</td>
<td>Rangoon</td>
</tr>
<tr>
<td>+ 08:00</td>
<td>Beijing</td>
<td>+ 05:30</td>
<td>Bombay</td>
</tr>
<tr>
<td>+ 07:00</td>
<td>Bangkok</td>
<td>+ 04:30</td>
<td>Kabul</td>
</tr>
<tr>
<td>+ 06:00</td>
<td>Dacca</td>
<td>+ 03:30</td>
<td>Tehran</td>
</tr>
<tr>
<td>+ 05:00</td>
<td>Islamabad</td>
<td>+ 02:30</td>
<td></td>
</tr>
<tr>
<td>+ 04:00</td>
<td>Abu Dhabi</td>
<td>+ 01:30</td>
<td></td>
</tr>
<tr>
<td>+ 03:00</td>
<td>Moscow</td>
<td>+ 00:30</td>
<td></td>
</tr>
<tr>
<td>+ 02:00</td>
<td>Eastern Europe</td>
<td>+ 12:45</td>
<td>Chatham Islands</td>
</tr>
<tr>
<td>+ 01:00</td>
<td>Central Europe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

___indicates the factory setting.
### OTHER FUNCTIONS screen (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER SAVE</td>
<td>(Camera)</td>
<td>Selects the power-saving mode when the Operation lever, MENU button, THUMBNAIL button, PAGE/AUDIO MON/VAR button, DISP/MODE CHK button, USER1-3 buttons and EVF DTL button have not been operated for 5 minutes or so.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>ON:</strong> The camera-recorder's power is set to OFF.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>OFF:</strong> The unit remains stopped without turning off its power.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• When connection is made with an external device using the 1394 cable and the communication mode is established in this way, the power will not be set off even when none of the above buttons has been operated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The power will not be turned off when a P2 card has not been installed, even if ON has been selected.</td>
</tr>
<tr>
<td>MENU INIT</td>
<td>(Camera) (MCR)</td>
<td>Returns the menu settings to the factory settings.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The time zone setting will not be changed.</td>
</tr>
<tr>
<td>OPERATION</td>
<td>(Camera) (MCR)</td>
<td>Displays the power-on time (a 5-digit figure).</td>
</tr>
</tbody>
</table>

### OPTION MENU screen

This menu is displayed when the DISP/MODE CHK button is held down, and after the details of the shooting status are displayed, the MENU button is then pressed. Use it to check the connection status during nonlinear editing.

<table>
<thead>
<tr>
<th>Item</th>
<th>Display mode</th>
<th>Description of settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1394 STATUS</td>
<td>(Camera) (MCR)</td>
<td>1394 status display screen appears.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>FORMAT:</strong> Format of the signals which are input or output.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>RATE:</strong> Transfer rate of the signals which are input or output.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>60/50:</strong> System of the signals which are input or output.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CH:</strong> Value of the channels in which the signals are input or output.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>SPEED:</strong> Transfer speed of the signals which are input or output.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>STATUS:</strong> Status of the signals which are input or output using the 1394 digital interface.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>VIDEO:</strong> Status of the video signals which are input or output.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AUDIO:</strong> Status of the audio signals which are input or output.</td>
</tr>
<tr>
<td>1394 CONFIG</td>
<td>(Camera) (MCR)</td>
<td>1394 extended menus appear.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DFLT:</strong> Normally, DFLT is used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-255</td>
</tr>
</tbody>
</table>

___ indicates the factory setting.
## Before calling for service

### Power supply

<table>
<thead>
<tr>
<th>There’s no power.</th>
<th>• Make sure the battery and AC adapter are connected properly. Check the connections again.</th>
<th>P16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power shuts off for no apparent reason.</td>
<td>• To prevent the battery from running down needlessly, the camera-recorder automatically turns off when the camera-recorder has been left in the shooting pause mode for more than 5 minutes. Check the settings in the OTHER FUNCTIONS screen, POWER SAVE.</td>
<td>P112</td>
</tr>
<tr>
<td>Power goes off as soon as it is turned on.</td>
<td>• The battery may have run out. If the remaining battery charge display is blinking or appears, the battery has run out. The same is true if, when the power is turned on, the CAM, MCR and PC lamps flash in this sequence and then the power goes off. Either recharge the battery or replace the discharged battery with a fully charged one.</td>
<td>P15</td>
</tr>
</tbody>
</table>

### Battery

| The battery runs down quickly.            | • Make sure the battery is fully charged. Keep charging until the AC adapter’s CHARGE lamp goes out. • Are you using the battery in a cold place? The battery is affected by the ambient temperature. Its operating time is reduced in low-temperatures. • The battery may have reached the end of its service life. The battery will become unchargeable. The battery has a certain service life which varies depending on how the battery is used. If the battery operates only for a short period even when it is charged adequately, it has reached the end of its service life. | P15 |
| The battery cannot be charged.           | • The battery cannot be charged if the DC cord is connected. Disconnect it. | --- |
### Before calling for service (continued)

#### Shooting

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot start shooting.</td>
<td>• Make sure the POWER switch is ON.</td>
<td></td>
</tr>
<tr>
<td>Cannot focus automatically.</td>
<td>• You can focus automatically when the auto focus mode is selected.</td>
<td>P35</td>
</tr>
<tr>
<td></td>
<td>• You may be shooting a scene where it is difficult to bring the subject into focus in the auto focus mode.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If this is the case, focus in the manual focus mode.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>It may be hard to bring the subject into focus when</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>both close and distant objects are to be shot</td>
</tr>
<tr>
<td></td>
<td></td>
<td>shooting through a dirty window</td>
</tr>
<tr>
<td></td>
<td></td>
<td>shooting in a dark place</td>
</tr>
<tr>
<td></td>
<td></td>
<td>there are sparkling or shiny objects around the subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the subject is moving fast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>shooting a scene with minimal contrast</td>
</tr>
<tr>
<td>Cannot shoot even though the P2 card is inserted correctly.</td>
<td>• Make sure the P2 card’s write-protect switch is not in the PROTECT position.</td>
<td>P26</td>
</tr>
<tr>
<td></td>
<td>Recording is not possible if it is in this position.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• There may be little free memory left on the P2 card. If so, save the data onto another media, and delete the data you no longer need;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>alternatively, replace the card with a new one.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The P2 card may be formatted incorrectly. Alternatively, the card you are using may not be formatted for use with the unit. If so,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>format the card in the unit.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 2 GB P2 cards cannot be used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The media information display may be indicating “E”. If so, format the card in the unit.</td>
<td></td>
</tr>
<tr>
<td>Cannot perform interval recording, one-shot recording or loop recording.</td>
<td>• Make sure that the DIR ENTRY NG CARD warning is not displayed after inserting the P2 card. Interval recording, one-shot recording and loop recording cannot be performed with this card. Format the card in the unit.</td>
<td>P91</td>
</tr>
</tbody>
</table>

#### Editing

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot perform nonlinear editing.</td>
<td>• Check the specifications of your computer and connecting cable.</td>
<td>P81</td>
</tr>
<tr>
<td>Cannot dub onto an external device.</td>
<td>• Make sure the external device is connected correctly.</td>
<td></td>
</tr>
</tbody>
</table>

#### Displays

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Something is wrong with the time code display.</td>
<td>• The time code display may not register a regular count if a tape is played in the reverse slow mode. This is normal.</td>
<td></td>
</tr>
</tbody>
</table>
### Playback

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot play even when I press the play button.</td>
<td>• Make sure the MCR lamp is on (press the mode button). No kind of playback operation can be performed unless this lamp is on.</td>
<td>P63</td>
</tr>
<tr>
<td>Mosaic-like noise appears when I cue or review a tape.</td>
<td>• This noise is inherent to digital video technology. This is normal.</td>
<td></td>
</tr>
<tr>
<td>Images do not appear on the television even though I have connected the camera-recorder properly.</td>
<td>• Make sure the input selector on your television is set to video input. Read the television's instructions carefully and select the correct video input connector for the camera-recorder.</td>
<td></td>
</tr>
<tr>
<td>Cannot hear any sound from the camera-recorder's speaker.</td>
<td>• You may have turned down the camera-recorder's volume control too far. Adjust the volume level using the PAGE/AUDIO MON/VAR button+.</td>
<td>P75</td>
</tr>
<tr>
<td>Cannot perform hot swap playback.</td>
<td>• This unit does not support hot swap playback. To replace one card with another during dubbing, stop the dubbing first, and upon completing the replacement, resume it.</td>
<td>P86</td>
</tr>
</tbody>
</table>

### Other

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot read the data on the SD memory card.</td>
<td>• Make sure the SD memory card is formatted correctly. If it is not, format the card in the unit.</td>
<td>P29</td>
</tr>
<tr>
<td>The remote control does not work.</td>
<td>• The battery in the remote control may have run out. If the remote control fails to work even if it is operated close to the remote control sensor of the camera-recorder, it means that the battery has run out. Replace it with new one. • Make sure the remote control setting is the same for the remote control unit and the camera-recorder. If the REMOTE setting is different on the remote control and the camera-recorder, the remote control will not work.</td>
<td>P18</td>
</tr>
<tr>
<td>There is a rattling sound when the camera-recorder is tilted back and forth.</td>
<td>• There are some parts of the camera that make a rattling sound in the MCR mode or when the POWER switch is OFF. This is normal.</td>
<td></td>
</tr>
<tr>
<td>A clicking sound is heard when the power is turned on or when the MCR mode is switched to the CAM mode.</td>
<td>• This initialization operation is performed when the camera starts up. It occurs due to the construction of the camera and is not indicative of any trouble.</td>
<td></td>
</tr>
</tbody>
</table>
Operating precautions

Do not allow any water to get into the camera-recorder when using it in the rain or snow or at the beach.
• Failure to heed this precaution will cause the camera-recorder or P2 card to malfunction (and may result in irreparable damage).

Keep the camera-recorder away from equipment (such as TV sets and video game machines) that generate magnetic fields.
• Using the camera-recorder on top of or near a TV set may cause distortion in the images and/or sound due to the electromagnetic waves that the set emits.
• The powerful magnetic fields generated by speakers or large motors may damage your recordings or distort the images.
• The electromagnetic waves emitted from a microcomputer will adversely affect the camera-recorder, causing the images and/or sound to be distorted.
• If the camera-recorder is so adversely affected by products that generate magnetic fields that it no longer operates properly, turn it off and remove the battery or unplug the AC adapter from the power outlet. Then install the battery again or reconnect the AC adapter. After this, turn the camera-recorder back on.

Do not use the camera-recorder near radio transmitters or high-voltage equipment.
• Using the camera-recorder near a radio transmitter or high-voltage equipment may adversely affect the recorded images and/or sound.

Do not allow any sand or dust to get into the camera-recorder when using it at the beach and other similar places.
• Sand and dust can damage the camera-recorder and P2 card. (Be especially careful when inserting or removing the P2 card.)

AC adapter and battery
• If the battery is extremely hot or cold, the CHARGE lamp will blink several times before charging starts.
• If the CHARGE lamp continues to blink even when the battery temperature is normal, there may be something wrong with the battery or AC adapter. Contact your dealer.
• The battery takes longer to charge when it is warm.

• The AC adapter can interfere with radio reception so keep radios at least 1 meter away from it.
• The AC adapter may make some noise when you are using it, but this is normal.

Take precautions not to drop the camera when moving it.
• Strong impacts may damage the camera and cause it to stop working.
• Handle the camera with care, using the hand strap or shoulder strap to carry it.

Do not spray the camera with insect sprays or other volatile substances.
• These can warp the camera or cause the finish to come off.
• Do not leave the camera-recorder in contact with rubber or PVC products for extended periods of time.

After use, remove the battery and disconnect the AC power supply cord.

Battery characteristics
This camera-recorder uses a rechargeable lithiumion battery that uses its internal chemical reaction to generate electrical energy. This reaction is easily influenced by the ambient temperature and humidity, and the battery's effective operating time is reduced as the temperature rises or falls. In very low temperatures, the battery may last only 5 minutes. Protective circuitry functions if you use the battery where it is very hot and you will have to wait before you can use it again.

Remove the battery after use.
Completely remove the battery. (The battery continues to be used even if you have turned the camera off.) The battery can over discharge if you leave it in the camera and it may become impossible to recharge it.

Keep dust and other foreign objects away from the battery terminal.
If the battery is dropped, make sure that the body and terminal portion of the battery are not deformed.
If a deformed battery is inserted into the camera-recorder or placed on the AC adapter, the camera-recorder or AC adapter may be damaged.
What to remember when throwing memory cards away or transferring them to others

Formatting memory cards or deleting data using the functions of the unit or a computer will merely change the file management information: it will not completely erase the data on the cards. When throwing these cards away or transferring them to others, either physically destroy them or use a data deletion program for computers (commercially available) to completely erase the data. Users are responsible for managing the data on their memory cards.

Liquid crystal displays

- Images or letters can get burned onto the screen of the LCD or viewfinder if they are displayed for a long time, but you can fix this by leaving the camera off for several hours.
- The liquid crystal parts are highly precise with 99.99% of the pixels effective. This leaves less than 0.01% of pixels that may not light or may remain on all the time. These phenomena are normal and will have no effect on the images you shoot.
- Condensation may form if you use the camera where temperatures fluctuate. Wipe dry with a soft, dry cloth.
- The LCD may appear dim after immediately turning on a cold camera, but will brighten as the camera warms up.

Do not point the lens or viewfinder at the sun.
Doing so may damage the parts inside.

Protective caps for the connectors
Keep the protective caps fitted over any connectors that are not being used.
Updating the driver in the camera

For the latest information on drivers, visit the P2 Support Desk at the following Web sites.

https://eww.pavc.panasonic.co.jp/pro-av/

To update a driver, select PROPERTY on the thumbnail menu and then SYSTEMINFO to check the camera-recorder's version, go to the site given above, and download the driver as necessary. The updating procedure is completed when the downloaded file has been loaded into the camera-recorder via the SD memory card. For further details on this procedure, go the site given above.

• For installation, you must connect the AC adapter.
• If you are going to use SD memory cards with this camera-recorder, use only cards which are in compliance with the SD standard.
  Always format SD memory cards on this camera-recorder.
Cleaning

When cleaning, do not use benzene or thinner.
- Using benzine or paint thinners may deform the camera-recorder and/or cause the surface finish to peel off.
- Before proceeding with maintenance, remove the battery or disconnect the AC cord from the power outlet.
- Use a soft, clean cloth to wipe the camera-recorder. To remove stubborn dirt, wipe the camera-recorder with a cloth moistened with kitchen detergent that has been diluted with water and then use a dry cloth to take up the remaining moisture.

Cleaning the Viewfinder
- If there is dust inside the view finder, remove the eye cup holder and get rid of the dust.
- The interior of the eye cup holder is specially finished, so do not ever wipe it. If there is dust on it, blow it off with an air blower.
- Remove the eye cup holder with the eye cup attached by rotating it counterclockwise. (It will be tightly screwed on.) When you do this, tilt the view finder slightly upward.
- To mount the eye cup holder, align the ridges and grooves of the eye cup holder and camerarecorder, and turn clockwise until the holder clicks into place.
Storage Precautions

Before storing the camera-recorder, remove the battery.
Store all of these items in a place with low humidity and relatively constant temperature.
[Recommended temperature range: 15°C to 25°C]
[Recommended relative humidity: 40% to 60%]

Video camera
• Wrap the video camera in a soft cloth to keep the dust off.

Battery
• The battery life is shortened in places with extreme temperatures.
• Storing the battery in a location with oily vapors or high dust concentrations may corrode the terminals or cause other damage, leading to malfunction.
• Keep metal objects (such as necklaces and hair pins) away from the terminals. Shortcircuiting may occur across the terminals, causing the battery to heat up, and you may seriously burn yourself if you touch the battery in this state.
• Discharge the battery before storing it. When storing it for an extended time, charge it at least once a year, use up its charge in the camerarecorder, and then store it again.

P2 cards
• After ejecting a P2 card from the unit, be absolutely sure to attach its special cap to keep sand and dust away from the connector area. Stow the P2 cards in their own cases when storing them or carrying them around.
• Do not leave P2 cards in areas where corrosive gases, etc. are present.

SD memory cards
• After ejecting an SD memory card from the unit, be absolutely sure to stow it in its own case.
• Do not leave SD memory cards in areas where corrosive gases, etc. are present.
• Do not leave the cards inside vehicles, in places exposed to direct sunlight or in other places where the temperature is high.
• Do not leave the cards where the humidity level is high or where there are high concentrations of dust.
How to handle data recorded on P2 cards

The P2 card is a semiconductor memory card that is used as the recording medium in the professional video production and broadcasting devices that make up the DVCPRO P2 Series.

- Since data recorded in the DVCPRO P2 format are in a file format, they have excellent compatibility with PCs. The file structure is a unique format, which in addition to video and audio data in MXF files contains various other important information items. The folder structure links the data as shown on the right.

Changing or deleting just one information component could make it impossible to recognize the data as P2 data or use the card in a P2 device.

- When transferring data from a P2 card to a PC, or when rewriting data saved on a PC to a P2 card, to prevent data loss be sure to use the special P2 Viewer software. Download it from the following website. (Compatible with the Windows XP, Windows 2000 and Windows Vista operating systems.)

  https://eww.pavc.panasonic.co.jp/pro-av/support/desk/e/index.htm

- When using regular IT tools such as Microsoft Windows Explorer or Apple Finder to transfer data to a PC, follow the instructions below. However, be sure to use the P2 Viewer when returning data to a P2 card.

  • Transfer the corresponding CONTENTS folder and LASTCLIP.TXT file together as a set.
  • Do not transfer individual files from the CONTENTS folder.
  • When copying, copy the LASTCLIP.TXT file at the same time as the CONTENTS folder.
  • When transferring multiple P2 cards to a PC, create a folder for each P2 card to prevent clips with the same name from being overwritten.
  • Do not delete data from the P2 card.
  • Before using a P2 card, be sure to format it with a P2 device.

- Microsoft and Windows are registered trademarks of the Microsoft Corporation in the USA and other countries.
- Apple and Macintosh are registered trademarks of Apple, Inc., in the USA and other countries.
Checkpoints for using memory cards

In this unit, use SD memory cards that are compatible with the SD or SDHC standard. When using miniSD or miniSDHC cards in this unit, be sure to use the special adapter. (The unit will not operate correctly if only the adapter is inserted. Always insert a memory card into the adapter.)

**Cards you can use**

- SD memory cards (including miniSD cards)
- SDHC memory cards (including miniSDHC cards)

**Cards you cannot use**

All memory cards except the ones pictured on the left

- MultiMediaCard

We recommend using SD/SDHC memory cards and miniSD/miniSDHC cards that are made by Panasonic.

For the latest information on the unit and on the memory cards which can be used by this unit, go to the P2 support page at the following web site:

[https://www.pavc.panasonic.co.jp/pro-av/](https://www.pavc.panasonic.co.jp/pro-av/)

- The SDHC card conforms to a new standard for memory cards with a large capacity of more than 2 GB which was established by the SD Association in 2006.
- The SD card logo is a registered trademark.
- MMC (MultiMediaCard) is a registered trademark of Infineon Technologies AG.
## Recording format list

<table>
<thead>
<tr>
<th>Video format</th>
<th>Frame rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1080i/60i)</td>
<td>(1080i/60i)</td>
</tr>
<tr>
<td>(720P/60P)</td>
<td>(720P/60P)</td>
</tr>
<tr>
<td>(720P/30PN)</td>
<td>(720P/60P) Native recording</td>
</tr>
<tr>
<td>(720P/24PN)</td>
<td>(720P/60P) Native recording</td>
</tr>
<tr>
<td>DVCPro50</td>
<td>DVCPro</td>
</tr>
<tr>
<td>(480i/60i)</td>
<td>(480i/60i)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Video format</th>
<th>Frame rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVCPro50</td>
<td>DVCPro</td>
</tr>
<tr>
<td>(1080i/60i)</td>
<td>—</td>
</tr>
<tr>
<td>(720P/60P)</td>
<td>(720P/12P-60P) over (60P)</td>
</tr>
<tr>
<td>(720P/30PN)</td>
<td>(720P/12P-60P) Native recording</td>
</tr>
<tr>
<td>(720P/24PN)</td>
<td>(720P/12P-60P) Native recording</td>
</tr>
<tr>
<td>(480i/60i)</td>
<td>—</td>
</tr>
</tbody>
</table>
Selecting the USER CLIP NAME recording method

Press the MENU button and select META DATA → PROPERTY → USER CLIP NAME to select the recording method. Two options are available: TYPE1 and TYPE2.

<table>
<thead>
<tr>
<th>TYPE1</th>
<th>USER CLIP NAME to be recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>If clip metadata has been read in</td>
<td>Uploaded data</td>
</tr>
<tr>
<td>If no clip metadata has been read in or if the setting for recording clip metadata has been turned off</td>
<td>Same as GLOBAL CLIP ID (UMID data)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE2</th>
<th>USER CLIP NAME to be recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>If clip metadata has been read in</td>
<td>Uploaded data + COUNT value*</td>
</tr>
<tr>
<td>If no clip metadata has been read in or if the setting for recording clip metadata has been turned off</td>
<td>Same as CLIP NAME</td>
</tr>
</tbody>
</table>

* The COUNT value is indicated as a four-digit number. The COUNT value is incremented each time a new clip is captured if clip metadata has been read in and TYPE2 has been selected as the recording method. The COUNT value can be reset using the following procedure.

Press the MENU button and select META DATA → PROPERTY → USER CLIP NAME to display the menu shown below. Select “COUNT RESET” with the cursor and press the Operation lever to reset the COUNT value to 1.

When a P2 card with a memory capacity of 8 GB or more is used in this unit and a one-time continuous recording exceeds the prescribed duration (approx. 5 minutes for DVCPRO HD, approx. 10 minutes for DVCPRO50 or approx. 20 minutes for DVCPRO or DV) or when a one-time recording extends over more than one P2 card, the recording concerned will automatically be undertaken as a separate clip. At this time, each clip will be provided with its own COUNT value.

Example of recording (DVCPRO50) a clip on one P2 card:

<table>
<thead>
<tr>
<th>REC start (recording start)</th>
<th>REC/PAUSE (recording pause)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recording duration = Approx. 15 min.</td>
</tr>
<tr>
<td>Clip 1 COUNT value = 0001</td>
<td>Clip 2 COUNT value = 0002</td>
</tr>
<tr>
<td>10 min.</td>
<td>5 min.</td>
</tr>
</tbody>
</table>

Example of recording a clip on two P2 cards:

<table>
<thead>
<tr>
<th>REC start (recording start)</th>
<th>REC/PAUSE (recording pause)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Clip 1 COUNT value = 0003</td>
<td>Clip 2 COUNT value = 0004</td>
</tr>
<tr>
<td>1st card</td>
<td>2nd card</td>
</tr>
</tbody>
</table>

If the clip thumbnails are displayed as shown in the example above or their properties are indicated using a P2 device, the thumbnail and COUNT value of clip 1 will be displayed.
Specifications

[GENERAL]

Supply voltage: DC7.2 V/7.9 V
Power consumption
10.9 W (when the LCD monitor is not used)
11.7 W (when the LCD monitor is used)
13.8 W (max.)

indicates safety information.

Ambient operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Ambient operating humidity
10% to 85% (no condensation)

Weight
1.9 kg (4.2 lb) (excluding battery and accessories)

Dimensions (W x H x D)
154 mm x 179.5 mm x 397 mm (6-1/8 inches x 7-1/8 inches x 15-3/4 inches)

[Camera]

Pickup devices
CCD image sensor (x3)
(1/3-inch, interline transfer, progressive-capable)

Lens
LEICA Dicomar Optical image stabilizer lens,
Motorized/Manual selectable 13x zoom, F1.6 to 3.0 (f = 3.9 mm to 51 mm)
(35 mm equivalent: 28 mm to 368 mm)

Color separation optical system
Prism system

ND filter
1/4, 1/16, 1/64

Gain settings
0/+3/+6/+9/+12/+18 dB (60/60P mode)
0/+3/+6/+9/+12 dB (30P/30PN/24P/24PA/24PN mode)

Shutter speed settings
Preset
60/60P mode
1/60 (OFF), 1/100, 1/120, 1/250, 1/500,
1/1000, 1/2000 sec.
30P/30PN mode:
1/30, 1/50 (OFF), 1/60, 1/120, 1/250, 1/500,
1/1000 sec.
24P/24PA/24PN mode:
1/24, 1/50 (OFF), 1/60, 1/120, 1/250, 1/500,
1/1000 sec.

Synchro scan
60i/60P mode: 1/60.0 to 1/249.8 sec.
30P/30PN mode: 1/30.0 to 1/249.8 sec.
24P/24PA/24PN mode: 1/24.0 to 1/249.8 sec.

Shutter opening angle
Opens in 0.5 degree increments between 10
and 360 degrees.*1

*1 When OPERATION TYPE in the SCENE
FILE screen is FILM CAM.

Slow shutter speed
60i/60P mode: 1/15, 1/30 sec.
30P/30PN mode: 1/15 sec.
24P/24PN mode: 1/12 sec.*1

*1 Only 720/24P, 720/24PN

Minimum subject luminance
3 lx (F1.6, gain +12 dB with a shutter speed of
1/24)

Lens hood
Large-sized lens hood with wide angle of view

Filter diameter
72 mm

[VIDEO P2] (DVCPro HD 1080i 720P)

Sampling frequency
Y: 74.25 MHz, Pr/Pr: 37.125 MHz

Quantizing
8 bit

Video compression system
DCT + variable-length code

Video compression rate
1/6.7

Video recording bit rate
100 Mbps
Specifications (continued)

[AUDIO P2] (DVCPRO HD 1080i 720P)
Sampling frequency
48 kHz
Quantizing
16 bit/4 CH
Frequency response
20 Hz to 20 kHz

[MEMORY CARD]
Video recording formats:
DVCPRO HD
1080i/60i (30P over 60i, 24P over 60i, 24PA over 60i)
720P/60P (30P over 60P, 24P over 60P)
720P/30PN (Native recording)
720P/24PN (Native recording)
DVCPRO50/DVCPRO/DV
480i/60i (30P over 60i, 24P over 60i, 24PA over 60i)

Audio recording formats:
PCM digital recording
48 kHz 16-bit 4CH (DVCPRO HD/DVCPRO50)
48 kHz 16-bit 2CH/4CH selectable (DVCPRO/DV)

Recording/playback time:
Approx. 8 minutes:
When recorded in DVCPRO HD format using one AJ-P2C008HG card with audio signals recorded on 4 channels.
Approx. 16 minutes:
When recorded in DVCPRO HD format using one AJ-P2C016RG card with audio signals recorded on 4 channels.
Approx. 32 minutes:
When recorded in DVCPRO HD format using one AJ-P2C032RG card with audio signals recorded on 4 channels.

<Note>
• This recording time represents one shot continuously recorded on a P2 card. The recording time may be shorter, depending on the number of shots recorded.
• The 720P/30PN and 720P/24PN formats are not included in the DVCPRO HD recording format.

[VIDEO OUT]
SDI output
BNC x 1, 0.8 V [p-p], 75 Ω
HD: complies with SMPTE 292M, 296M and 299M
SD: complies with SMPTE 259M-C, 272M-A, and ITU-R BT.656-4

Analog component output
Y: 1.0 V [p-p], 75 Ω
PB/PR: 0.7 V [p-p], 75 Ω

Analog composite output
Pin jack x 1, 1.0 V [p-p], 75 Ω

[AUDIO IN/OUT]
XLR input
XLR (3 pins) x 2 (INPUT 1, INPUT 2), LINE/MIC selectable, high impedance
LINE: 0 dBu
MIC: -50 dBu/-60 dBu (selectable in menu)
LINE OUT
Pin jack x 2 (CH1, CH2)
Output: 316 mV, 600 Ω
Internal microphone
Stereo microphone
Headphone jack
3.5-mm stereo mini jack x 1
Internal speaker
20 mm diameter x 1

[OTHER INPUTS/OUTPUTS]
Digital interface
6 pins, digital input/output, compliant with IEEE 1394 standard
USB
Type mini B connector (compliant with USB ver. 2.0)
CAM REMOTE
Mini jack (3.5 mm diameter) (FOCUS, IRIS)
Super mini jack (2.5 mm diameter) (ZOOM S/S)

[Monitor]
LCD monitor
3.5-inch LCD color monitor, 210,000 pixels
Viewfinder
0.44-inch LCD color viewfinder, 235,000 pixels
### [AC ADAPTER]

<table>
<thead>
<tr>
<th><strong>Power Source:</strong></th>
<th>100-240 V AC, 50/60 Hz 24 W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Output:</strong></td>
<td>7.9 V DC, 1.9 A (Video Camera)</td>
</tr>
<tr>
<td></td>
<td>8.4 V DC, 1.2 A (Charge)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>160 g (0.35 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>70.0 mm x 44.5 mm x 116.0 mm</td>
</tr>
<tr>
<td></td>
<td>(2-3/4 inches x 1-3/4 inches x 4-9/16 inches)</td>
</tr>
</tbody>
</table>

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Weight and dimensions are approximate. Specifications are subject to change without notice.
Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

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Unit Company of Panasonic Corporation of North America

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Eastern Zone: One Panasonic Way 4E-7, Secaucus, NJ 07094  Tel: 201-348-7196
Southeast Region: Tel: 201-392-6151
Western Zone: 3330 Cahuenga Blvd W., Los Angeles, CA 90068  Tel: 323-436-3608
Government Marketing Department:
One Panasonic Way 2E-10, Secaucus, NJ 07094  Tel: 201-348-7587

Broadcast PARTS INFORMATION & ORDERING:
9:00 a.m. – 5:00 p.m. (EST) Tel: 800-334-4881/24 Hr. Fax: 800-334-4880
Emergency after hour parts orders Tel: 800-334-4881
 e-mail: PBTSparts@us.panasonic.com

TECHNICAL SUPPORT: Emergency 24 Hour Service  Tel: 800-222-0741
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