

SONY®

3-297-517-01 (1)

PROFESSIONAL DISC CAMCORDER PDW-700

PROFESSIONAL DISC CAMCORDER

PDW-700

The supplied CD-ROM includes operation manuals for the PDW-700 Professional Disc Camcorder (English, Japanese, French, German, Italian, Spanish and Chinese versions) in PDF format.
For more details, see "Using the CD-ROM Manual" on page 5.

Sony Corporation

<http://www.sony.net/>

PDW-700
(SYL)
3-297-517-01 (1)



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MPEG HD422

Power HAD.FX



MEMORY STICK™

OPERATION MANUAL

English

1st Edition

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WARNING



This Professional Disc Camcorder is classified as a CLASS 1 LASER PRODUCT.

Laser diode properties

Wavelength: 400 to 410 nm
Emission duration: Continuous
Laser output power: 135 mW (max. of pulse peak), 65 mW (max. of CW)
Standard: IEC60825-1 (2001)

Egenskaber for laserdiode

Bølgelængde: 400 til 410 nm
Strålingsvarighed: Kontinuerlig
Afgivet lasereffekt: 135 mW (maks strålestopunkt), 65 mW (maks ved kontinuerlig stråling)
Standard: IEC60825-1 (2001)

Tekniska data för laserdiode

Våglängd: 400 till 410 nm
Emissionslängd: Kontinuerlig
Laserut effekt: 135 mW (max. för pulstopp), 65 mW (max. för kontinuerlig våg)
Standard: IEC60825-1 (2001)

Egenskaper for laserdiode

Bølgelængde: 400 til 410 nm
Strålingsvarighed: Uavbrutt
Utgangseffekt for laser: 135 mW (maks av pulshøyde), 65 mW (maks av CW)
Standard: IEC60825-1 (2001)



This label is located inside the outside panel of the unit.

Denna etikett finns på apparatens ovansida.

Denne mærkat sidder på apparatets øverste panel.

Tämä kyltti sijaitsee laitteen yläpinnalla.

Dette merket er plassert på oversiden av produktet.

CAUTION

The use of optical instruments with this product will increase eye hazard.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VAROITUS!

LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING

OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

For the customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful

interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

*If you have any questions about this product, you may call;
Sony Customer Information Service Center
1-800-222-7669 or <http://www.sony.com/>*

Declaration of Conformity

Trade Name: SONY
Model: PDW-700
Responsible party:
Sony Electronics Inc.
Address: 16530 Via Esprillo,
San Diego, CA 92127
U.S.A.
Telephone Number:
858-942-2230

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For the customers in Europe

This product with the CE marking complies with the EMC Directive issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European standards:

- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environments: E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors), E4 (controlled EMC environment, ex. TV studio).

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.

The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

AVERTISSEMENT



Cette étiquette est placée à l'intérieur du panneau extérieur de l'appareil.

documents de service ou de garantie séparés.

WARNUNG



Dieses Gerät ist als CLASS 1 LASER PRODUCT eingestuft.

Daten der Laserdiode

Wellenlänge: 400 bis 410 nm
Emissionsdauer: Ununterbrochen
Laser-Ausgangsleistung: 135 mW (max.
Impulsspitze), 65 mW (max. Dauerstrich)
Standard: IEC60825-1 (2001)

Dieser Aufkleber befindet sich hinter der Außenabdeckung des Geräts.

Pour les clients en Europe

Ce produit portant la marque CE est conforme à la Directive sur la compatibilité électromagnétique (EMC) émise par la Commission de la Communauté européenne.

La conformité à cette directive implique la conformité aux normes européennes suivantes :

- EN55103-1 : Interférences électromagnétiques (émission)
- EN55103-2 : Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans les environnements électromagnétiques suivants : E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4 (environnement EMC contrôlé, ex. studio de télévision).

Le fabricant de ce produit est Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japon.

Le représentant autorisé pour EMC et la sécurité des produits est Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Allemagne. Pour toute question concernant le service ou la garantie, veuillez consulter les adresses indiquées dans les



Für Kunden in Europa

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt die EMV-Richtlinie der EG-Kommission. Angewandte Normen:

- EN55103-1: Elektromagnetische Verträglichkeit (Störaussendung)
- EN55103-2: Elektromagnetische Verträglichkeit (Störfestigkeit)

Für die folgenden elektromagnetischen Umgebungen: E1 (Wohnbereich), E2 (kommerzieller und in beschränktem Maße industrieller Bereich), E3 (Stadtbereich im Freien) und E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

Der Hersteller dieses Produkts ist Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.

Der autorisierte Repräsentant für EMV und Produktsicherheit ist Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Deutschland. Bei jeglichen Angelegenheiten in Bezug auf Kundendienst oder Garantie wenden Sie sich bitte an die in den separaten Kundendienst- oder Garantiedokumenten aufgeführten Anschriften.

Foreword

Before use

After purchasing this unit, before operating, it is necessary to set the region of use and the frame frequency.

(Unless these settings are made, the unit will not operate.)

For details of these settings, see "Setting the Area of Use" on page 37.

Using the CD-ROM manual

The supplied CD-ROM includes versions of the Operation Manual for the PDW-700 in English, Japanese, French, German, Italian, Spanish, and Chinese in PDF format.

Preparations

The following program must be installed on your computer in order to read the Operation Manual contained on the CD-ROM.

- Adobe Reader Version 6.0 or higher

Memo

If Adobe Reader is not installed, you can download it from the following URL:

<http://www.adobe.com/>

Adobe and Adobe Reader are trademarks of Adobe Systems Incorporated the United States and/or other countries.

To read the CD-ROM manual

To read the Operation Manual contained on the CD-ROM, do the following.

1 Insert the CD-ROM in your CD-ROM drive.

A cover page appears automatically in your browser.

If it does not appear automatically in the browser, double-click on the index.htm file on the CD-ROM.

2 Select and click on the Operation Manual that you want to read.

This opens the PDF file of the Operation Manual.

Memo

The files may not be displayed properly, depending on the version of Acrobat Reader. In such a case, install the latest version you can download from the URL mentioned in “Preparations” above.

Note

If you have lost or damaged the CD-ROM, you can purchase a new one to replace it. Contact your Sony service representative.

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Chapter 1 Overview

Features

New $2\frac{2}{3}$ -inch full-HD “PowerHAD FX” CCDs

- IT (Interline Transfer) $2\frac{2}{3}$ -inch progressive image sensors with 2.2 million pixels, for full HD resolution (1920 × 1080)
- Newly developed “PowerHAD FX” CCDs, featuring a signal processing ASIC with 14-bit A/D converters

These new image sensor technologies enable the capture of very high-quality images, with F11 sensitivity ¹⁾ and an SN ratio of 54 dB (NS: OFF mode ²⁾).

1) PDW-700

2) Noise suppression circuits OFF (factory default setting)

Multi-format support for 1080/59.94i and 1080/50i

The unit support two system frequencies (59.94 Hz and 50 Hz), offering the flexibility needed for worldwide HD recording.

Recording of more than 90 minutes of high-quality video and audio data

- Signals captured by the full-HD (1920 × 1080) image sensors are recorded in MPEG HD422 format ¹⁾ for consistently high image quality. ²⁾
- The unit supports recording of four audio channels ³⁾ sampled at 24 bits for high quality.
- Dual-layer Professional discs can record about 95 minutes of high-quality video and audio data.

The generous recording times and the high-quality of the recorded video and audio allow this unit to meet the most stringent requirements of production teams in a wide range of genres, from news gathering through digital cinema and program production.

- 1) The MPEG-2 422P@HL codec performs 4:2:2 sampling and records at a video bit rate of 50 Mbps.
- 2) Image compression uses the MPEG-2 Long GOP system.
- 3) The PDW-HD1500 supports recording of up to eight channels in MPEG HD422 format.

Rich selection of interfaces

- HDSDI and SDDSI output connectors: Allow free combination of HDSDI and SDDSI signals. Timecode and other text data can be superimposed on signals from one of the two interfaces.
- Composite signal output connector
- Gen-lock input connector: Enables synchronization of multiple units, with synchronization possible to either HDSDI or SDDSI signals.
- Audio input connectors: Supports AES/EBU signal input, in addition to microphone input, +48 V microphone input, and line input.
- Timecode input and output connectors
- Network connector and i.LINK connector: Enable transfer of MXF-format files. Material recorded in the field can be transferred to a computer for immediate cut editing with the supplied PDZ-1 Proxy Browsing Software.

Features for improved performance under various shooting conditions

- The popular Picture Cache function introduced by the HDCAM and XDCAM HD series is offered as a standard feature.
- Color temperature filters are composed of electronic circuits, allowing smooth and instantaneous switching – an important advantage in ENG ¹⁾ – and linked operation with ND filters. Further, absolute color temperature settings can be obtained without being effected by white balance settings.
- New noise suppression circuits offer improved performance under difficult evening or nighttime shooting conditions.

1) ENG: Electronic News Gathering

Supports new digital wireless microphone system

The new digital wireless microphone system offers high-quality, superior resistance to noise, and simultaneous multi-channel operation. Installation of the DWR-S01D receiver ¹⁾ enables, for the first time in the world, simultaneous reception of two channels.

1) These products are not available in countries where they are prohibited by radio frequency regulations.

3.5-inch color LCD monitor

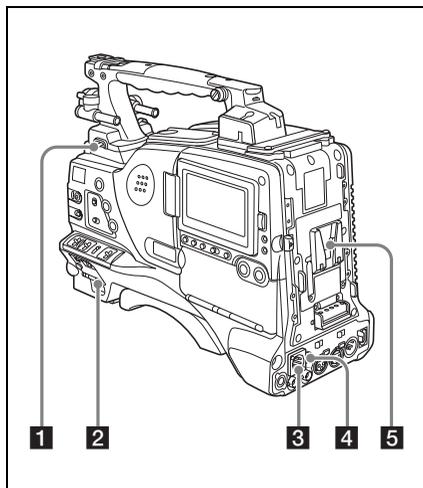
The 3.5-inch color LCD monitor displays audio meters, menu, and thumbnails of clips stored on disc.

Inherits unique features of XDCAM series

The unit inherits the workflow features of the XDCAM series, including thumbnail display and metadata management, and improves them by introducing an improved man-machine interface.

Locations and Functions of Parts and Controls

Power supply



1 LIGHT switch

Determines how a video light connected to the LIGHT connector (*see page 14*) is turned on and off.

AUTO: When the POWER switch of the video light is in the on position, the video light is turned on automatically while the camcorder is recording.

MANUAL: You can turn the video light on or off manually, using its own switch.

Notes

- When this switch is set to AUTO, at the beginning of the recording, the picture is recorded even though the lighting may fluctuate until the video light comes on. If the beginning of the recording is important, you should set this switch to MANUAL.
- To ensure proper operation of the video light, Sony recommends the use of the BP-GL95/L80S Battery Pack with the camcorder.

2 POWER switch

Turns the main power supply on and off.

3 DC IN (DC power input) connector (XLR type, 4-pin, male)

To operate the camcorder from an AC power supply, connect an optional DC power cord to this terminal and then connect the cord to the DC output terminal of the BC-L70, BC-M150, or another battery charger.

4 DC OUT 12V (DC power output) connector (4-pin, female)

Supplies power for a WRR-861/862 UHF Synthesized Tuner (optional) (maximum 0.5 A). Do not connect any equipment other than the UHF synthesized tuner.

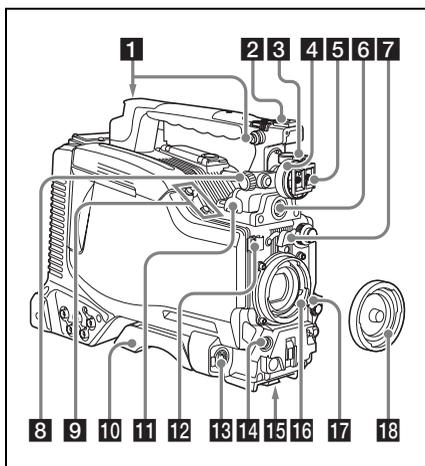
5 Battery attachment shoe

Attach a BP-GL95/GL65/L60S/L80S Battery Pack. Alternatively, you can attach an AC-DN2B2/DN10 AC Adaptor to operate the camcorder on AC power supply.

For details about how to attach the battery or AC adaptor, see "Preparing a Power Supply" on page 32. For information about attaching a synthesized tuner, see "Attaching a UHF portable tuner (for a UHF wireless microphone system)" on page 42.

Note

For your safety, and to ensure proper operation of the camcorder, Sony recommends the use of the following battery packs: BP-GL95, BP-GL65, BP-L60S, and BP-L80S.

Accessory attachments**1 Shoulder strap fitting**

Attach the supplied shoulder strap (*see page 46*).

2 Light fitting shoe

Attach an optional accessory such as a video light (*see page 46*).

3 Viewfinder front-to-back positioning lever

To adjust the viewfinder position in the front-to-back direction, loosen this lever and the LOCK knob. After adjustment, retighten this lever and the LOCK knob.

4 Viewfinder left-to-right positioning ring

Loosen this ring to adjust the left-to-right position of the viewfinder (*see page 34*).

5 Viewfinder fitting shoe

Attach an optional viewfinder.

6 VF (viewfinder) connector (20-pin)

Connect an optional viewfinder.

Consult your Sony representative for information about available viewfinders.

7 Lens mount securing rubber

After locking the lens in position using the lens locking lever, fit this rubber over the lower of the two projections. This fixes the lens mount, preventing it from coming loose.

8 Viewfinder front-to-back positioning knob (LOCK knob)

Loosen this knob to adjust the front-to-back position of the viewfinder (*see page 34*).

9 Fitting for optional microphone holder

Fit an optional CAC-12 Microphone Holder (*see page 41*).

10 Shoulder pad

Raise the shoulder pad fixing lever to adjust the position in the front-to-rear direction. Adjust the position for maximum convenience when operating the unit on your shoulder.

For details of the adjustment, see "Adjusting the Shoulder Pad Position" on page 47.

11 LIGHT (video light) connector (2-pin, female)

A video light with a maximum power consumption of 50 W, such as the Anton Bauer Ultralight 2 or equivalent can be connected (see page 46).

12 Lens cable clamp

Clamp a lens cable.

13 MIC IN (microphone input) (+48 V) connector (XLR type, 5-pin, female)

Connect a stereo microphone to this connector. The power (+48 V) is supplied via this connector.

14 LENS connector (12-pin)

Connect a lens cable to this connector

Note

When connecting the lens cable to this connector, power off this unit first.

15 Tripod mount

When using the unit on a tripod, attach the tripod adaptor (option).

16 Lens mount (special bayonet mount)

Attach the lens.

Consult your Sony representative for information about available lenses.

17 Lens locking lever

After inserting the lens in the lens mount, rotate the lens mount ring with this lever to lock the lens in position.

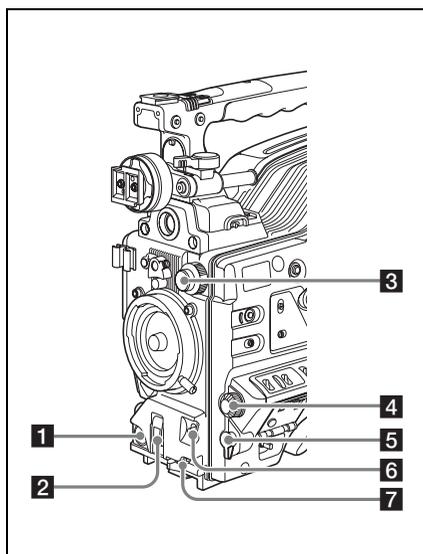
After locking the lens, be sure to use the lens mount securing rubber to prevent the lens from becoming detached.

18 Lens mount cap

Remove by pushing up the lens locking lever. When no lens is mounted, keep this cap fitted for protection from dust.

Operating and connectors section

Front



1 REC START (recording start) button

Press to start recording. Press it again to stop recording. The effect is the same as that of the REC button on the lens.

2 SHUTTER selector

Set to ON to use the electronic shutter. Flick to SELECT to switch the shutter speed or shutter mode setting within the range previously set with the menu. When this switch is operated, the new setting appears on the setting change/adjustment progress message display area for about three seconds.

For details about the shutter speed and shutter mode settings, see “Setting the Electronic Shutter” on page 54.

3 FILTER selector

Selects from the four neutral density (ND) filters built into this unit.

Position number	ND filter
1	CLEAR
2	$1/4$ ND (attenuates light to approximately $1/4$)
3	$1/16$ ND (attenuates light to approximately $1/16$)
4	$1/64$ ND (attenuates light to approximately $1/64$)

When this selector is used with the menu item for filter selection display set to ON (see page 142), the new setting appears on the viewfinder screen for about three seconds.

You can change a MAINTENANCE menu setting so that different white balance settings can be stored for different FILTER selector positions. This allows you to automatically obtain optimum white balance for the current shooting conditions in linkage with the filter selection.

For details, see “Adjusting the white balance” on page 52.

4 MENU knob

Changes the page selection or a setting within the menu.

For details about how to use the MENU knob, see “Menu Operations” on page 134.

5 EARPHONE jack (monaural, minijack)

You can monitor the E-E sound during recording and playback sound during playback. When an alarm is indicated, you can hear the alarm sound through the earphone. You can use this with the EARPHONE jack on the rear of the unit at the same time. Plugging an earphone into the jack automatically cuts off the built-in speaker.

6 AUTO W/B BAL (automatic white/black balance adjustment) switch

Activates the automatic white/black balance adjustment functions.

WHT: Adjusts the white balance automatically.

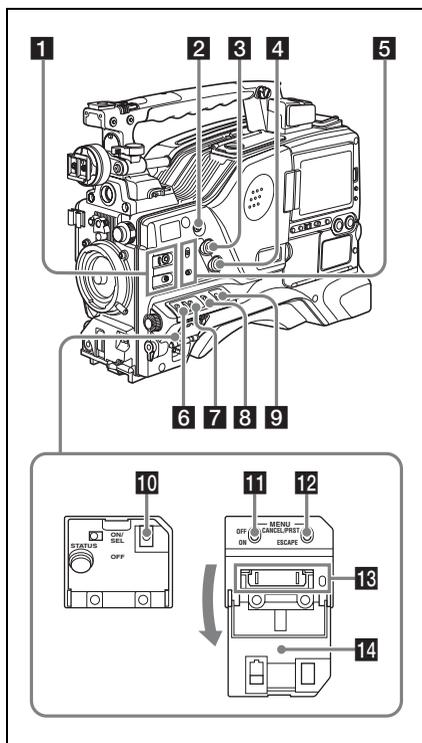
If the WHITE BAL switch (see page 17) is set to A or B, the white balance setting is stored in the corresponding memory. If the WHITE BAL switch is set to PRST, the automatic white balance adjustment function does not operate.

BLK: Adjusts the black set and black balance automatically.

7 MIC (microphone) LEVEL control

Adjusts the input level of audio channels 1, 2, 3 and 4.

Right side (near the front)



1 ASSIGN (assignable) 1/2 switches

You can assign the desired functions to these switches on the ASSIGNABLE page of the OPERATION menu.

Nothing is assigned to these switches when the camcorder is shipped from the factory (equivalent to a selection of OFF in the menu).

For details, see “Assigning functions to ASSIGN switches” on page 148.

2 COLOR TEMP. (color temperature) button

Press to light the button and change the color temperature for shooting. You can use this as an ASSIGN (assignable) switch (see page 148).

3 ALARM (alarm tone volume adjustment) knob

Controls the volume of the warning tone that is output via the built-in speaker or optional earphones. When the knob is turned to the minimum position, no sound can be heard. However, if in the AUDIO-1 page of the MAINTENANCE menu the MIN ALARM VOL item is set to "SET", the alarm tone is audible even when this volume control is at the minimum position.



4 MONITOR (monitor volume adjustment) knob

Controls the volume of the sound other than the warning tone that is output via the built-in speaker or optional earphones. When the knob is turned to the minimum position, no sound can be heard.

5 MONITOR (audio monitor selection) switches

By means of combinations of the two switches, you can select audio that you want to hear through the built-in speaker or optional earphones.

Position of up-side switch	Position of down-side switch	Audio output
CH-1/CH-3	CH-1/2	Channel 1 audio
MIX		Channels 1 and 2 mixed audio (stereo) ^{a)}
CH-2/CH-4		Channel 2 audio
CH-1/CH-3	CH-3/4	Channel 3 audio
MIX		Channels 3 and 4 mixed audio (stereo) ^{a)}
CH-2/CH-4		Channel 4 audio

a) By connecting stereo headphones to the EARPHONE jack on the rear of the unit, you can hear the audio in stereo. (On the AUDIO-1 page of the MAINTENANCE menu, HEADPHONE OUT must be set to "STEREO".)

6 VDR SAVE/STBY (VDR save/standby) switch

Switches the status of the power supply to the VDR while recording is stopped (STOP) or paused (REC PAUSE).

SAVE: The disc stops rotating and some functions are disabled. Power consumption is lower than when the camcorder is in STBY mode. Battery life is extended.

STBY: Recording to the disc starts immediately when the REC START button is pressed.

Note

An internal operating sound may be recorded at the start of recording when the VDR SAVE/STBY switch is set to SAVE.

7 GAIN selector

Switches the gain of the video amplifier to match the lighting conditions during shooting. The gains corresponding to the L, M, and H settings can be selected in the menu. (The factory settings are L=0 dB, M=6 dB, and H=12 dB.)

When this switch is adjusted, the new setting appears on the setting change/adjustment progress message display area of the viewfinder screen for about three seconds.

For details, see "Setting gain values for the GAIN selector positions" on page 147.

8 OUTPUT/DCC (output signal/dynamic contrast control) switch

Switches the video signal, which is output to the video disc drive (referred to as "VDR"), viewfinder, and video monitor from the camera section, between the following two.

BARS: Outputs the color bar signal.

CAM: Outputs the video signal from the camera. When this is selected, you can switch DCC¹⁾ on and off.

1) **DCC (Dynamic Contrast Control):** Against a very bright background with the iris opening adjusted to the subject, objects in the background will be lost in the glare. The DCC function will suppress the high intensity and restore much of the lost detail and is particularly effective in the following cases.

- Shooting people in the shade on a sunny day
- Shooting a subject indoors, against a background through a window
- Any high contrast scene

9 WHITE BAL (white balance memory) switch

Controls adjustment of the white balance.

PRST: Adjusts the color temperature to the preset value (the factory default setting: 3200K). Use this setting when you have no time to adjust the white balance.

A or B: Recall the white balance adjustment settings already stored in A or B. Flick the AUTO W/B BAL switch (*see page 16*) on the WHT side, to automatically adjust the white balance, and save the adjustment settings in memory A or memory B.

You can use the AUTO W/B BAL switch even when ATW¹⁾ is in use.

B (ATW): When this switch is set to B and WHITE SWITCH is set to ATW on the WHITE SETTING page of the MAINTENANCE menu, ATW is activated.

When this switch is adjusted, the new setting appears on the setting change/adjustment progress message display area of the viewfinder screen for about three seconds.

1) **ATW (Auto Tracing White Balance):** The white balance of the picture being shot is adjusted automatically for varying lighting conditions.

10 STATUS ON/SEL/OFF (menu display on/page selection/display off) switch

To enable this switch, set the MENU ON/OFF switch to OFF.

Closing the cover automatically sets the MENU ON/OFF switch to OFF.

ON/SEL: Each time this switch is pushed upward, a window to confirm the menu settings and status of the camcorder appears on the viewfinder screen. The window consists of four pages, which are switched each time the switch is pushed upward. Each page is displayed for about 10 seconds.

OFF: To clear the page immediately after display, push this switch down to the OFF position.

You can select the pages to be displayed on the menu.

For details, see “Displaying the status confirmation screens” on page 146.

11 MENU ON/OFF switch

To use this switch, open the cover. This switch is used to display the menu on the viewfinder screen or the test signal screen. Closing the cover automatically sets this switch to OFF.

ON: Displays the menu on the viewfinder screen or the test signal screen.

OFF: Removes the menu from the viewfinder screen or the test signal screen.

12 CANCEL/PRST (preset)/ESCAPE switch

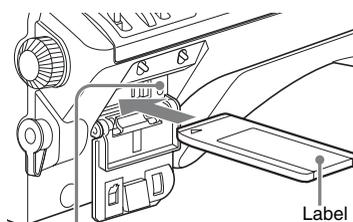
To enable this switch, set the MENU ON/OFF switch to ON.

Closing the cover automatically sets the MENU ON/OFF switch to OFF.

CANCEL/PRST: Flicking this switch up to this position displays the message to confirm whether the previous settings are cancelled or settings are reset to their initial values, depending on the menu operating condition. Flicking this switch up to this position again cancels the previous settings or resets the settings to their initial values.

ESCAPE: Use this switch when the menu page, which has a hierarchical structure, is opened. Each time the switch is flicked to this position, the page returns to one stage higher in the hierarchy.

13 “Memory Stick” compartment



“Memory Stick” Access indicator

Open the lid of the menu operating section, and insert a “Memory Stick”, with the notch facing downward, in the direction shown by the arrow, so that it clicks into place.

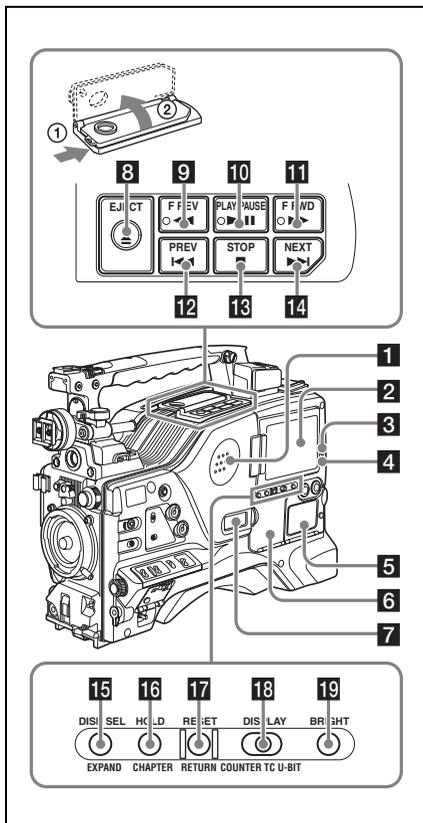
To remove a “Memory Stick”, first press it in to release the lock, then withdraw.

The “Memory Stick” access indicator lights in green when a “Memory Stick” is loaded, and lights in red when the “Memory Stick” is being accessed for reading or writing.

For details about types of “Memory Stick”, see “About a “Memory Stick”” on page 194.

14 Cover

Right side (near the rear)



1 Built-in speaker

The speaker can be used to monitor E-E¹⁾ sound during recording, and playback sound during playback. The speaker also sounds alarms to reinforce visual warnings.

If you connect earphones to the EARPHONE jack, the speaker output is suppressed automatically.

1) **E-E**: Abbreviation of “Electric-to-Electric”. In E-E mode, video and audio signals input to the camcorder are output after passing through internal electric circuits only. This can be used to check input signals.

For details about alarms, see “Operation Warnings” on page 181.

2 LCD monitor

Displays camera video, VDR-related warnings, remaining battery capacity, remaining disc space, audio levels, time data, and so on.

For details, see “Status Display on the LCD monitor and monochrome LCD” on page 21.

3 WARNING indicator

Lights up or flashes when an abnormality occurs in the VDR section.

For details about the meaning of the states of the WARNING indicator, see ““Operation Warnings” on page 181.

4 ACCESS indicator

This lights when data is written to or read from the disc.

5 Protection cover of the audio control section

Open to access the audio control section (see page 24).

6 Protection cover of the thumbnail screen operations section

Open to access the thumbnail screen operations section (see page 24).

7 Monochrome LCD

This shows the remaining battery capacity, remaining disc capacity, time data, and so on.

For details, see “Status Display on the LCD monitor and monochrome LCD” on page 21.

8 EJECT button and indicator

Press this button to insert a disc or eject the disc. The indicator flashes while the disc is being ejected.

9 F REV (fast reverse) button and indicator

This plays back at high speed in the reverse direction. The indicator lights during high-speed playback in the reverse direction.

10 PLAY/PAUSE button and indicator

Press this button to view play back video images using the viewfinder screen or the LCD monitor. The indicator lights during playback. Press this button again during playback to pause, outputting a still image. At this time the indicator flashes.

This unit is equipped with an image search function at approximately four times normal playback speed, for easy checking of recorded material. To use the image search function at

approximately four times normal playback speed, press the F REV button or F FWD button during playback.

At this time the PLAY indicator and F REV or F FWD indicator light.

11 F FWD (fast forward) button and indicator

This plays back at high speed in the forward direction. The indicator lights during high-speed playback in the forward direction.

12 PREV button

This jumps to the first frame of the current clip. During the jump, the F REV indicator flashes. If you press this together with the F REV button, the jump is to the first frame of the first recorded clip on the disc.

13 STOP button

Press this button to stop disc playback.

14 NEXT button

This jumps to the first frame of the next clip. During the jump, the F FWD indicator flashes. If you press this together with the F FWD button, the jump is to the last frame of the last recorded clip on the disc.

15 DISP SEL (display selection)/EXPAND (expand function) button

Each time pressing this button, the display in the LCD monitor changes as follows.

Display indication	Meaning
Video with superimposed information (CHAR)	When the MENU ON/OFF switch is set to OFF, the LCD monitor displays the same text information as the viewfinder.
Video without superimposed information (MONI)	The video only appears.
Status display (STATUS)	Counter indications, warnings, audio levels, and similar information appear. No video image appears.

If you press this button when the thumbnail screen is displayed, the duration of the selected clip is divided into 12, and the first frame of each of the divisions is shown in a further thumbnail display (expand function). Each time you press this button, the division is repeated (to a

maximum of three times, with 1,728 divisions). Hold down the SHIFT button and press this button to step back through the division process.

For details of the expand function, see page 88.

16 HOLD (display hold)/CHAPTER (chapter function) button

Pressing this button instantly freezes the time data displayed in the counter display section. (The time code generator continues running.) Pressing this button again releases the hold.

You can use this button, for example, to determine the exact time of a particular shot.

For details of the counter display, see page 22.

If you press this button when the thumbnail screen is displayed, those frames on which shot marks are recorded appear in a list (chapter function). Press the button once more to return to the normal thumbnail display.

By displaying thumbnails with shot marks attached in place of index frames, you can check the contents of clips more easily and more quickly. This is also useful for cueing up long clips.

For details of the chapter function, see page 88

17 RESET/RETURN button

Resets the value shown in the time counter display. According to the settings of the PRESET/REGEN/CLOCK switch (*see page 24*) and the F-RUN/SET/R-RUN switch (*see page 24*), this button resets the display as follows.

2 Video format

Indicates the format of video being currently played back or recorded.

HD422 50: MPEG HD422 format (video bit rate: 50 Mbps)

3 Frame frequency

Indicates the frame frequency of video being currently played back or recorded.

- **If NTSC AREA is selected** ¹⁾

59.9i: 59.94 fields per second, interlace scan mode

- **If PAL AREA is selected** ¹⁾

50i: 50 fields per second, interlace scan mode

¹⁾ Selected by COUNTRY setting on the FORMAT page of the OPERATION menu (see page 110).

Note

There may be no indication displayed when this unit cannot identify the frame frequency, for example, when playing back a disc recorded with other equipment.

4 Audio format

Indicates the format of audio being currently played back or recorded.

24bit: 24 bits/48 kHz

5 Audio level indicators

Indicates the audio recording or playback levels of channels 1 to 4.

6 Status display

PB: Appears during playback.

NDF: Appears when non-drop-frame timecode is selected.

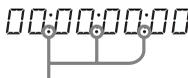
EXT-LK: Appears when the internal timecode generator is locked to an external signal input to the TC IN (timecode input) connector.

HOLD: Appears when the internal timecode generator is stopped.

7 Time counter display

Switches displays of time counter, timecode, and user bits, depending on the position of the DISPLAY switch.

When the HOLD/CHAPTER button is pressed to hold the time code value, the time code is displayed in the format shown below. When the HOLD/CHAPTER button is pressed again to release the hold, the time code is displayed in the normal format.



Lights when the HOLD button is pressed.

8 Warning indicator area

Displays warnings when trouble with recording or moisture condensation occurs.

For details, see "Operation Warnings" on page 181.

9 Remaining disc capacity indicator

Indication	Remaining recording time
DISC E [■ ■ ■ ■ ■ ■ ■ ■] B	More than 30 minutes
DISC E [■ ■ ■ ■ ■ ■ ■] B	25 to 30 minutes
DISC E [■ ■ ■ ■ ■ ■] B	20 to 25 minutes
DISC E [■ ■ ■ ■ ■] B	15 to 20 minutes
DISC E [■ ■ ■ ■] B	10 to 15 minutes
DISC E [■ ■ ■] B	5 to 10 minutes
DISC E [■ ■] B	2 to 5 minutes
DISC E [■] B (flashing)	0 to 2 minutes
DISC E [] B (flashing)	0 minutes

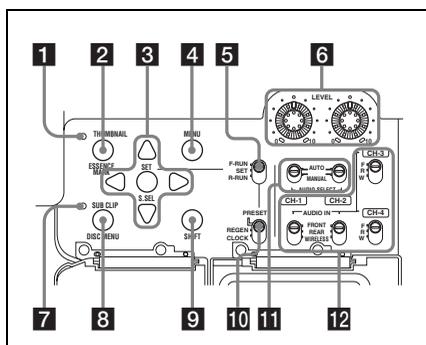
10 Remaining battery capacity indicator

Indication	Battery voltage	
	BP-L90A/L60S/L80S	Other batteries ^{a)}
BATT E [■ ■ ■ ■ ■ ■ ■ ■] F	15.5 V or more	17.0 V or more
BATT E [■ ■ ■ ■ ■ ■ ■] F	15.1 to 15.5 V	16.0 to 17.0 V
BATT E [■ ■ ■ ■ ■ ■] F	14.6 to 15.1 V	15.0 to 16.0 V
BATT E [■ ■ ■ ■ ■] F	13.8 to 14.6 V	14.0 to 15.0 V
BATT E [■ ■ ■ ■] F	12.9 to 13.8 V	13.0 to 14.0 V
BATT E [■ ■ ■] F	12.0 to 12.9 V	12.0 to 13.0 V
BATT E [■ ■] F	10.8 to 12.0 V	11.0 to 12.0 V
BATT E [■] F	10.8 V or less	11.0 V or less

a) You can change the threshold voltages on the BATTERY 2 page of the MAINTENANCE menu (see page 120).

Indication	Battery voltage
	BP-GL95/GL65/IL75/M100, Anton Bauer Battery System
BATT E [■ ■ ■ ■ ■ ■ ■ ■] F	80 to 100%
BATT E [■ ■ ■ ■ ■ ■ ■]	70%
BATT E [■ ■ ■ ■ ■ ■ ■]	60%
BATT E [■ ■ ■ ■ ■ ■]	50%
BATT E [■ ■ ■ ■ ■]	40%
BATT E [■ ■ ■ ■]	30%
BATT E [■ ■ ■]	20%
BATT E [■ ■]	10%
BATT E [■]	0%

Thumbnail screen operations section and audio control section



1 THUMBNAIL indicator

This lights when thumbnails are displayed.

2 THUMBNAIL/ESSENCE MARK button

Press this button to carry out a thumbnail search or create a clip list (see page 87).

When pressed, the whole-screen display changes to a thumbnail display. Press once more to return to the whole-screen display.

For a thumbnail search using essence marks, hold down the SHIFT button and press this button (see page 89).

3 SET/S.SEL (set/scene selection) button and arrow buttons

Use these buttons to make timecode and user bit settings, and for user interface screen operations. The arrow buttons select items and change values, and the SET/S.SEL button confirms settings. Pressing this button with thumbnails displayed and the SHIFT button held down adds a sub clip to the current clip list (scene selection).

See page 86 for more information about user interface screen operations.

See page 93 for more information about scene selection.

4 MENU button

Displays a special menu for operations in user interface screens (see page 85).

When the whole-screen is displayed, pressing this button has no effect, and the operation is invalid.

5 F-RUN/SET/R-RUN (free run/set/recording run) switch

Selects the operating mode of the internal timecode generator. The operating mode is set as explained below, depending on the position of the switch.

F-RUN: Timecode keeps advancing, regardless of the operating state of the VDR. Use this setting when synchronizing the timecode with an external timecode.

SET: Sets the timecode or user bits.

R-RUN: Timecode advances only during recording. Use this setting to have a consecutive timecode on the disc.

For details, see "Setting the timecode" on page 62 and "Setting the user bits" on page 63.

6 AUDIO LEVEL CH-1/CH-2 (audio channel 1/2 recording level) knobs

Adjusts the audio levels to be recorded on channels 1 and 2 when the AUDIO SELECT CH-1/CH-2 switches are set to MANUAL.

7 SUB CLIP indicator

This lights when using a clip list for playback.

8 SUB CLIP button

Press this to play back according to a clip list. You can play back a particular clip or sequential clips, or carry out a search of the selected clip list. To display the Disc Menu which allows you to carry out operations such as saving, recalling, or deleting a clip list, hold down the SHIFT button and press this button.

9 SHIFT button

Use this in combination with other buttons.

10 PRESET/REGEN (regeneration)/CLOCK switch

Selects whether to set a new timecode or to utilize the existing timecode.

PRESET: Records a new timecode.

REGEN: Records timecode continuous with the existing timecode recorded on the disc. Regardless of the setting of the F-RUN/SET/R-RUN switch, the camcorder operates in R-RUN mode.

CLOCK: Records timecode synchronized to the internal clock. Regardless of the setting of the F-RUN/SET/R-RUN switch, the camcorder operates in F-RUN mode.

11 AUDIO SELECT CH-1/CH-2 (audio channel 1/2 adjustment method selection) switches

Select the audio level adjustment method for each of audio channels 1 and 2.

AUTO: Automatic adjustment

MANUAL: Manual adjustment

12 AUDIO IN CH-1/CH-2/CH-3/CH-4 (audio channel 1/2/3/4 input selection) switches

AUDIO IN CH-1/CH-2 switches

Select the audio input signals to be recorded on audio channels 1 and 2.

FRONT: Audio input signals from the microphone connected to the MIC IN connector

WIRELESS: Audio input signals from the UHF portable tuner (supplied separately) if it is installed

REAR: Audio input signals from an audio device connected to the AUDIO IN CH-1/CH-2 connectors

AUDIO IN CH-3/CH-4 switches

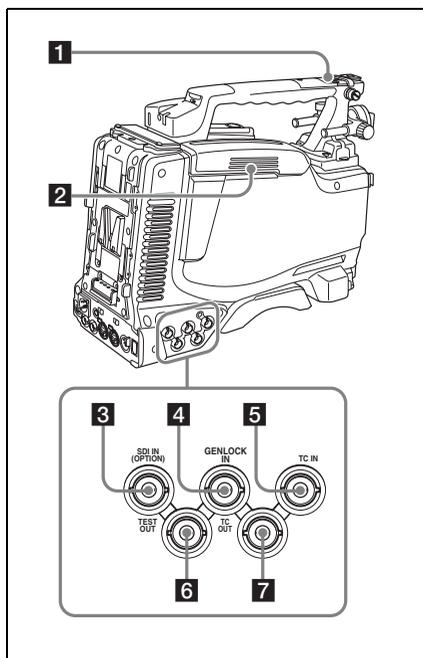
Select the audio input signals to be recorded on audio channels 3 and 4.

F (FRONT): Audio input signals from a microphone connected to the MIC IN connector

W (WIRELESS): Audio input signals from the UHF portable tuner (supplied separately) if it is installed

R (REAR): Audio input signals from an audio device connected to the AUDIO IN CH-1/CH-2 connectors (The signal input to the AUDIO IN CH-1 connector is recorded on channel 3, and the signal input to the AUDIO IN CH-2 connector on channel 4.)

Left side and upper section



1 ASSIGNABLE 3/4 switches

You can assign the desired functions to these switches on the ASSIGNABLE page of the OPERATION menu.

Nothing is assigned to these switches when the camcorder is shipped from the factory (equivalent to a selection of OFF in the menu).

For details, see "Assigning functions to ASSIGN switches" on page 148.

2 Lid of the disc compartment

This opens when the EJECT button on the top panel is pressed. Press the side of the lid to close.

3 SDI IN (OPTION) connector (BNC type)

4 GENLOCK IN (genlock signal input) connector (BNC type)

- This connector inputs a reference signal when the camera is to be genlocked or when time code is to be synchronized with external equipment. Use the MAINTENANCE menu to adjust the genlock H-phase (phase of horizontal sync signal).

For details, refer to the Maintenance Manual.

- This connector also inputs a return video signal. You can display the HD-Y signal in the viewfinder screen while holding the RET button down with RETURN VIDEO set to ON on the GENLOCK page of the OPERATION menu.

5 TC IN (timecode input) connector (BNC type)

To apply an external lock to the timecode of this unit, input the reference timecode.

For details of timecode, see “Setting the timecode” on page 62.

6 TEST OUT connector (BNC type)

This connector outputs the video signal for a video monitor. The output signal can be selected from composite video, HD-Y, R, G, B, and a composite video signal like that displayed in the LCD monitor.

If the output signal is set to one of R, G, or B, then this setting changes to HD-Y when the camcorder is powered off and on again.

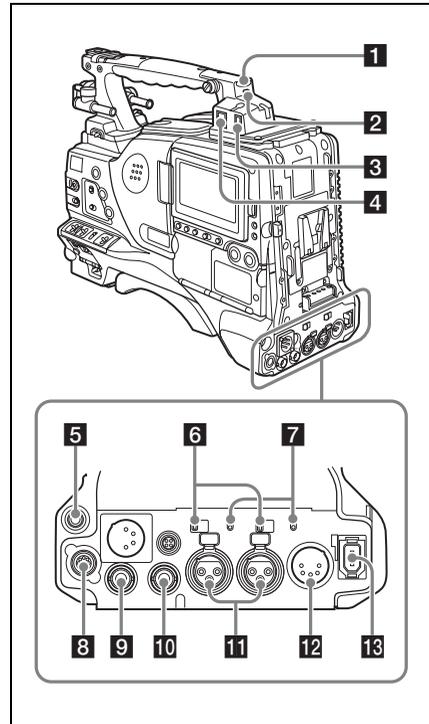
Depending on menu settings, menus, time code, and shot data can be superimposed on the image on the monitor. This connector can also be used to synchronize the time code of an external VTR with the time code of the camcorder.

For details on how to select the test output signal, refer to the Maintenance Manual.

7 TC OUT (timecode output) connector (BNC type)

To lock the timecode of an external VTR to the timecode of this unit, connect this connector to the external VTR’s timecode input connector.

Rear



1 TALLY (back tally) indicator (red)

Lights up during recording. It will not light if the TALLY switch is set to OFF. This indicator also flashes to indicate warnings (see page 19) in the same manner as the REC/TALLY indicator in the viewfinder.

For details, see “Operation Warnings” on page 181.

2 TALLY switch

Set to ON to activate the TALLY indicator function.

3 USB connector

This is a USB 2.0 connector for maintenance.

4 (network) connector (RJ-45 type)

This is a 10Base-T/100Base-TX connector for network connection.

Note

When you connect the network cable of the unit to peripheral device, use a shielded-type cable to prevent malfunction due to radiation noise.

5 EARPHONE jack (stereo, minijack)

You can monitor the E-E sound during recording and playback sound during playback. When an alarm is indicated, you can hear the alarm sound through the earphone. You can use this with the EARPHONE jack on the front of the unit at the same time. Plugging an earphone into the jack automatically cuts off the built-in speaker.

You can select monaural or stereo on the AUDIO-1 page of the MAINTENANCE menu.

6 LINE /AES/EBU / MIC selectors

These select the audio source of the audio input signals input to the AUDIO IN CH1/CH2 connectors.

LINE: Line input audio equipment

AES/EBU: AES/EBU format audio signal

MIC: Microphone input

Note

When these switches are in the MIC position, and the +48V switch is on, if you inadvertently connect any audio device other than a microphone to the AUDIO IN CH1/CH2 connectors, the device may be damaged.

7 +48V/OFF switches

Select either of the following positions for the microphones to be connected.

+48V: For a microphone to use an external power supply

OFF: For a microphone to use an internal power supply

8 REMOTE connector (8-pin)

Connect an RM-B150/B750 Remote Control Unit, which makes it possible to control the camcorder remotely.

Note

Before connecting/disconnecting the Remote Control Unit to/from the camcorder, be sure to turn off the camcorder POWER switch.

9 SDI OUT 1 connector (BNC type)

Outputs an HDSDI or SDDSI signal (with embedded audio). To switch between HDSDI and SDDSI output, use the SDI OUT 1 SELECT item on the OUTPUT 1 page of the OPERATION menu.

10 SDI OUT 2 connector (BNC type)

Outputs an HDSDI or SDDSI signal (with embedded audio). To switch between HDSDI and SDDSI output, use the SDI OUT 2 SELECT item

on the OUTPUT 1 page of the OPERATION menu.

Setting menus, timecode, or shot data can be superimposed on the camera output video depending on the menu settings, and you can view them on the monitor screen.

11 AUDIO IN CH1/CH2 (audio channel-1 and channel-2 input) connectors (XLR type, 3-pin, female)

These are audio input connectors for channels 1 and 2 to which you can connect audio equipment or a microphone.

When the LINE / AES/EBU / MIC selector is set to AES/EBU, the CH1 connector is used for channel-1 and -2 inputs, and the CH2 connector, for channel-3 and -4 inputs.

12 AUDIO OUT connector (XLR type, 5-pin, male)

Outputs the audio signals recorded on audio channels 1 and 2 or audio channels 3 and 4. The audio signals are selected by the MONITOR switch.

13  (i.LINK) S400 connector (6-pin, IEEE1394 compliant)

Use an i.LINK cable (DV cable) to connect the camcorder to a computer for File Access Mode file operations.

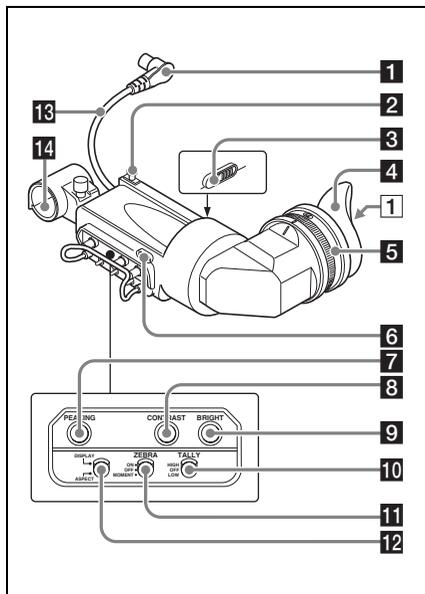
For details, see "File Access Mode File Operations" on page 167.

Note

When you connect the camcorder and other equipment, such as a hard disk drive, with an i.LINK interface to a computer with i.LINK connectors, turn off the power of the computer, the other equipment, and the camcorder before connecting them using the i.LINK cable (DV cable). If a bus-powered type¹⁾ hard disk drive or similar equipment is connected while the computer is powered on, electric current flows into the camcorder because of the high voltage caused by the load shift of the computer power, and this may cause a malfunction.

1) Equipment that can be powered through i.LINK cable (DV cable)

HDVF-20A viewfinder (optional)



1 Plug

Connect to the VF connector on the camcorder.

2 Stopper

Prevents the viewfinder from coming off the camcorder when it is slid from side to side.

3 Camera operator tally indicator

Lights up while camcorder is recording. This indicator can be covered when not in use. This indicator also flashes to indicate warnings, in the same manner as the tally indicator and the REC indicator in the viewfinder.

4 Eyecup

5 Diopter adjustment ring

Allows for optimal focus adjustment.

6 Tally indicator

Lights up while camcorder is recording. Set the TALLY switch to OFF when not in use. The brightness can also be adjusted with the TALLY switch.

This indicator also flashes to indicate warnings, in the same manner as the camera operator tally indicator and the REC indicator in the viewfinder.

7 PEAKING control

Turning this control clockwise adjusts the picture sharpness, and makes focusing easier. This control has no effect on the output signals of the camcorder.

8 CONTRAST control

Adjusts the contrast of the screen. This control has no effect on the output signals of the camcorder.

9 BRIGHT control

Adjusts the brightness of the screen. This control has no effect on the output signals of the camcorder.

10 TALLY switch

Controls the tally indicator located on the front of the viewfinder.

HIGH: The tally indicator brightness is set to high.

OFF: The tally indicator is disabled.

LOW: The tally indicator brightness is set to low.

11 ZEBRA (zebra pattern) switch

Controls the zebra pattern display on the viewfinder screen as follows.

ON: A zebra pattern appears and stays.

OFF: The zebra pattern disappears.

MOMENT: A zebra pattern appears and stays for about five seconds.

12 DISPLAY/ASPECT switch

Turns the marker indication on and off, and switches between 4:3 and 16:9 aspect ratios for viewfinder screen display.

DISPLAY: When the marker indication is enabled with the camcorder, the marker indication on the viewfinder screen turns on and off every time you push the switch up to this position.

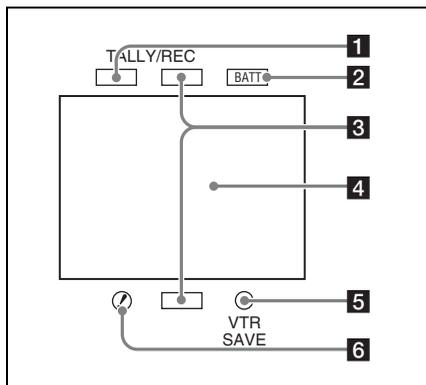
ASPECT: Each push of the switch down to this position toggles the mask display on and off.

13 Microphone holder

14 Viewfinder cable

1 Indicators

The following indicators are arranged above and below the viewfinder screen to show the current state and adjustments of the camcorder.



1 TALLY (green tally) indicator

Lights when the camcorder is recording in Picture Cache mode, and when it is recording with HDS/SDI REMOTE I/F on the CAM CONFIG 1 page of the MAINTENANCE menu set to G-TALLY.

2 BATT (battery) indicator

This indicator starts flashing when the battery connected to the camcorder is nearly exhausted, and stays lit when the battery is completely exhausted.

To prevent interruption during operation, replace the battery as soon as this indicator starts flashing. The battery power level at which the indicator starts flashing can be set on the BATTERY 1 page of the MAINTENANCE menu. For details, refer to the Maintenance Manual.

3 REC (recording, red tally) indicator

Lights up while camcorder is recording. This indicator also flashes to indicate warnings, in the same manner as the tally indicator and the camera operator tally indicator.

4 Viewfinder screen

5 SAVE indicator

This indicator lights when the VDR SAVE/STBY switch is set to SAVE, putting the VDR into power save mode.

6 ! (warning) indicator

This indicator lights when any of the following conditions occurs with the corresponding item set to ON on the '!' LED page of the OPERATION menu.

- The gain is set to other than 0 dB.
- The SHUTTER selector is set to ON (interlace scan mode).
- The WHITE BAL switch is set to PRST.
- ATW is enabled.
- The lens extender is used.
- The FILTER selector is set to other than ND:1.
- The reference value of auto iris adjustment is not the standard value.

Status display on the viewfinder screen

The viewfinder screen displays not only the video picture but also characters and messages indicating the camcorder settings and operating status, a center marker, a safety zone marker, etc. When the menu screen is not displayed and the DISPLAY of the DISPLAY/ASPECT switch is set to ON, the items for which an ON setting was made on the VF DISP 1, VF DISP 2, or VF DISP 3 page of the OPERATION menu or with related switches are displayed at the top and bottom of the screen.

The messages that give details of the settings and adjustment progress and results can also be made to appear for about three seconds while settings are being changed, during adjustment, and after adjustment.

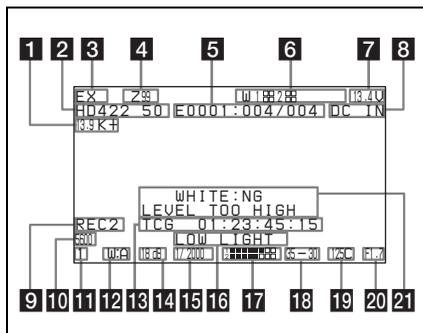
For details about the display item selection, see "Selecting the display items" on page 141.

For details about setting change and adjustment progress messages, see "Change confirmation/adjustment progress messages" on page 142.

For details about marker display, see "Setting the marker display" on page 142.

Layout of the status display on the viewfinder screen

All items that can be displayed on the viewfinder screen are shown below.



1 Color temperature

Displays a color temperature calculated from the gain of R and B, in the range 0.0 K to 99.9 K (in steps of 0.1 K). The +/- signs may be displayed depending on the OFFSET WHITE setting (*see page 151*).

No display: OFFSET WHITE is OFF

+: The value of OFFSET WHITE is greater than 3200K.

-: The value of OFFSET WHITE is less than 3200K.

2 Video format

Indicates the format of video being currently played back or recorded (*see page 50*)

3 Extender

Displayed as follows depending on the state of the optical extender and digital extender.

Indication	Optical extender	Digital extender
EX	ON	OFF
Ex2D	ON	ON
x2D	OFF	ON

4 Zoom position

Indicates the zoom position of the zoom lens in the range from 0 to 99.

5 Clip number/number of clips

During playback or search, indicates the total number of clips and the number of the selected clip.

During clip list playback, indicates the clip list name, the total number of sub clips, and the number of the selected sub clip.

6 Wireless microphone reception level

When a UHF portable tuner is installed in the camcorder, "W" appears together with four-segment reception level indicators for each of the tuner channels (1 or 2 channels).

Normal use: The number of white segments indicates the strength of the signal level.

Muted: The number of gray segments indicates the strength of the signal level.

Reception level over peak: "P" is displayed instead of the indicators.¹⁾

Tuner battery is low: The channel number and indicator of the corresponding channel flash.¹⁾

¹⁾ DWR-S01D only

7 Power source voltage/battery remaining capacity

When the unit is powered from a battery pack, indicates the remaining capacity of the power source voltage. When the unit is powered from a battery connected to the DC IN connector or AC adaptor attached to the battery attachment shoe, indicates the power source voltage.

8 External battery

Appears if the power is supplied from an AC adaptor connected to the DC IN connector when the DISP DC IN item is set to ON on the VF DISP 2 page of the OPERATION menu (*see page 141*).

9 Controlling external device

Appears when HDSDI REMOTE I/F in the CAM CONFIG 1 page of the MAINTENANCE menu is set to CHARA, and this unit is controlling recoding by an external device connected to the SDI OUT 1/2 connectors (HDSDI output).¹⁾

¹⁾ SDI OUT 1 SELECT or SDI OUT 2 SELECT on the OUTPUT 1 page of the OPERATION menu must be set to HDSDI.

10 Electric color temperature filter

Indicates the setting value of electric color temperature filter.

11 Filter

Indicates the currently selected filter type (*see page 15*).

12 White balance memory

Indicates the currently selected white balance automatic adjustment memory.

A: Displayed when the WHITE BAL switch is set to A.

B: Displayed when the WHITE BAL switch is set to B.

P: Displayed when the WHITE BAL switch is set to PRST or when the preset button on an RM-B150 has been pushed.

T: Displayed when ATW is being used.

13 Timecode

Indicates the elapsed recording/playback time, timecode, user bits or other information selected by the DISPLAY switch (*see page 21*).

14 Gain value

Indicates the gain value (in dB) of the video amplifier, as set by the GAIN selector.

15 Shutter speed

Indicates the shutter speed or the shutter mode. However, if the SHUTTER selector (*see page 15*) is set to OFF, nothing is displayed.

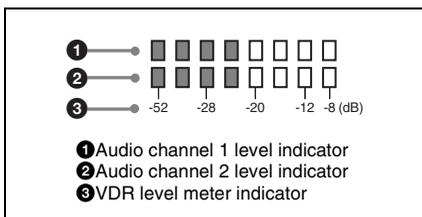
For details of the displayed shutter speed, see “Setting the Electronic Shutter” on page 54.

16 Operation/alarm message display area

For details, see “Operation/alarm messages” on page 184.

17 Audio level

Indicates the level of audio channel 1 and channel 2. The peak indication of the VDR level meter is related as follows to the audio level.



The segment colors change from gray to white at or above the AU REF LEVEL set on the AUDIO-2 page of the MAINTENANCE menu. This setting does not affect the relationship between the number of lit segments and the audio levels. The example in the above figure shows the colors when AU REF LEVEL is set to -20 dB.

18 Remaining disc capacity

Indicates the remaining recording time (in minutes) of the disc.

Examples of remaining recording time indication

Indication	Remaining recording time
90 <	More than 90 minutes
90 - 85	90 to 85 minutes
85 - 80	85 to 80 minutes
.	.
.	.
20 - 15	20 to 15 minutes
15 - 10	15 to 10 minutes
10 - 5	10 to 5 minutes
5 - 0	5 to 0 minutes
No display	0 minute

19 Remaining clips display

Displays the remaining number of clips that can be recorded. The display flashes once per second when the number of remaining clips is less than 10.

20 Iris setting/auto iris override

Indicates the F value (iris setting) of the lens. Auto iris override is shown by an indicator made up of two segments each on the upper and lower sides.

For details, see “Changing the Reference Value for Automatic Iris Adjustment” on page 57.

21 Setting change and adjustment progress message display area

For details, see “Change confirmation/adjustment progress messages” on page 142.

Preparing a Power Supply

The following power supplies are recommended for the camcorder.

- BP-GL95/GL65/L60S/L80S Lithium-ion Battery Pack
- AC power using the AC-DN2B2/DN10 AC adaptor

Using a battery pack

When a BP-GL95/GL65/L60S/L80S Battery Pack is used, the camcorder will operate continuously for the time shown below.

Model name	Operating time
BP-GL95	Approx. 120 minutes
BP-GL65	Approx. 75 minutes
BP-L60S	Approx. 75 minutes
BP-L80S	Approx. 100 minutes

Note

The battery pack operating time depends on the frequency of use of the battery pack, and the ambient temperature when used.

Before use, charge the battery pack with a charger suitable for each battery.

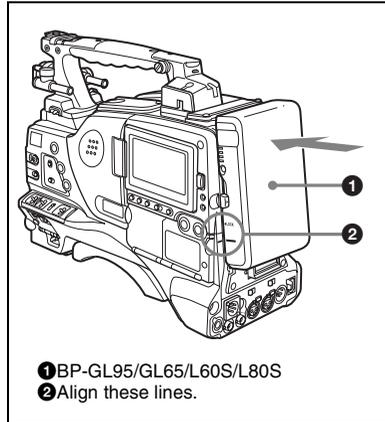
For details on the battery charging procedure, refer to the battery charger operation manual.

Note on using the battery pack

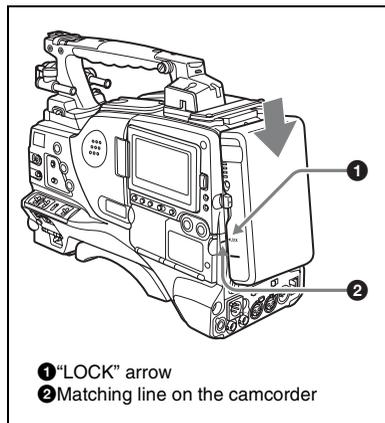
A warm battery pack may not be able to be fully recharged.

To attach the battery pack

- 1 Press the battery pack against the back of the camcorder, aligning the line on the side of the battery pack with the matching line on the camcorder.**



- 2 Slide the battery pack down until its “LOCK” arrow points at the matching line on the camcorder.**

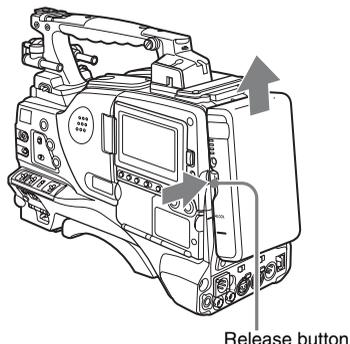


Note

If the battery pack is not attached correctly, the terminal may be damaged.

To detach the battery pack

Holding the release button in, pull the battery pack up.



Release button

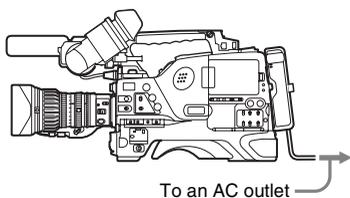
Notes

- During recording and playback (while the ACCESS indicator is lit), be careful never to remove the battery pack.
- Make sure to power the camcorder off before replacing the battery pack.

Using AC power**When using the AC-DN10 AC adaptor**

Mount an AC-DN10 on the camcorder in the same way as a battery pack, then connect to the AC power supply.

The AC-DN10 can supply up to 100 W of power.



To an AC outlet

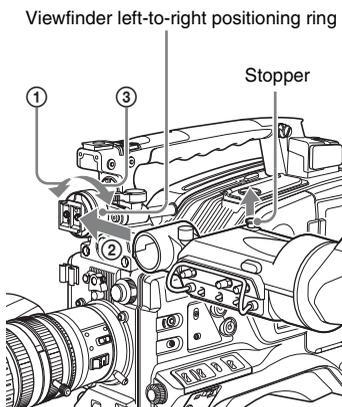
Attaching the Viewfinder**Attaching the HDVF-20A/C35W****Note**

When attaching the viewfinder, make notes of the following points.

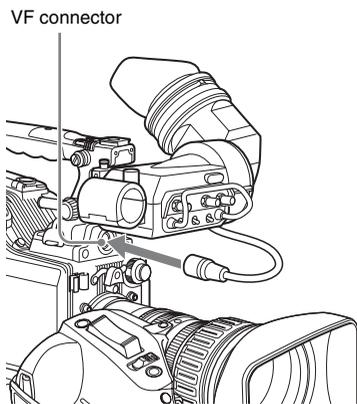
- Be sure to power off the camcorder before coupling the viewfinder connector to the camcorder's VF connector. If you make this connection when the camcorder power is on, the viewfinder may not function properly.
- Couple the viewfinder connector firmly to the camcorder's VF connector. If the coupling is loose, noise may appear on the video or the tally light may not operate properly.

For more information about the connection of the viewfinder and camcorder, contact a Sony service representative.

- 1 **Loosen the viewfinder left-to-right positioning ring, 2 attach the viewfinder to the viewfinder fitting shoe, and 3 tighten the viewfinder left-to-right positioning ring.**



- 2 **Couple the viewfinder connector to the VF connector.**



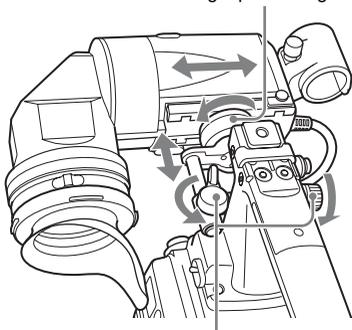
Detaching the viewfinder

You can carry out this by following the attaching procedure in reverse order, but there is an additional action to take: when detaching the viewfinder from the fitting shoe, pull up the stopper.

Adjusting the viewfinder position

To adjust the viewfinder left-right position, loosen the left-right positioning ring, and to adjust the front-back position, loosen the front-to-back positioning knob.

Viewfinder left-to-right positioning ring



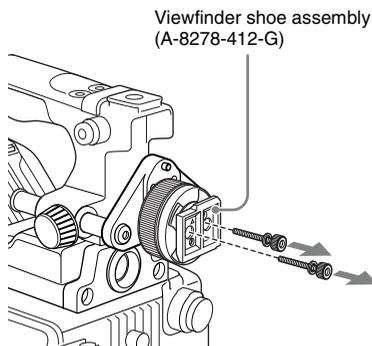
Viewfinder front-to-back positioning knob

Note

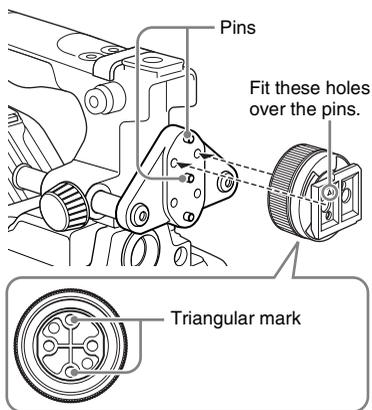
When the viewfinder is attached, do not leave the camcorder with the eyepiece facing the sun. Direct sunlight can enter through the eyepiece, be focused in the viewfinder and cause fire.

Moving the viewfinder shoe up

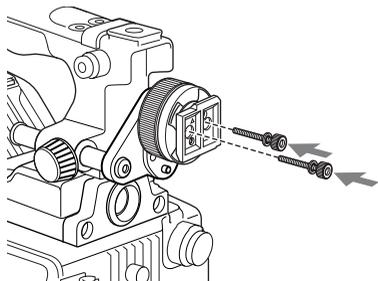
- Using a hexagonal wrench 2.5 mm across flats, remove the bolts (M3×25) and spring washers, to detach the viewfinder shoe from the camcorder body.



- Fit two of the four holes in the back of the viewfinder shoe over the upper two pins on the fixing plate. Make sure that the triangular mark on the viewfinder shoe is pointing up.

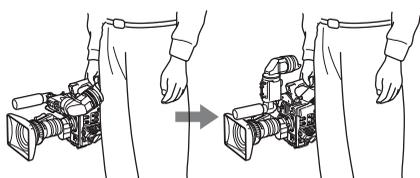


- Using the bolts and spring washers removed in step 1, fix the viewfinder shoe to the camcorder.



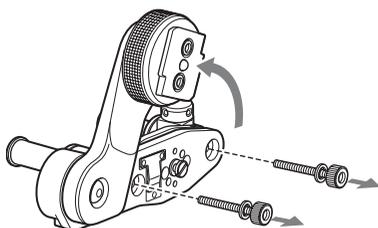
Using the BKW-401 Viewfinder Rotation Bracket

By fitting a BKW-401 Viewfinder Rotation Bracket (sold separately), you can rotate the viewfinder out of the way so that your right leg does not hit the viewfinder while you are carrying the camcorder.



- 1 Turn the arm of the rotation mechanism assembly of the BKW-401 in the direction of the arrow in the following illustration.

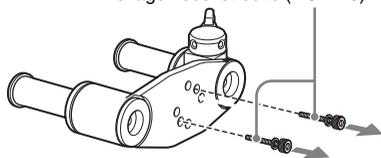
Next, using a hexagonal wrench 3 mm across flats, remove the bolts (M4x8), to separate the rotation mechanism assembly from the viewfinder front-back positioning mechanism assembly.



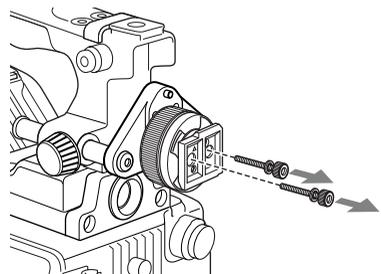
- 2 Remove the two M3x10 hexagon socket bolts from the front-back positioning mechanism assembly, together with the washers.

(Take care not to lose these bolts and washers.)

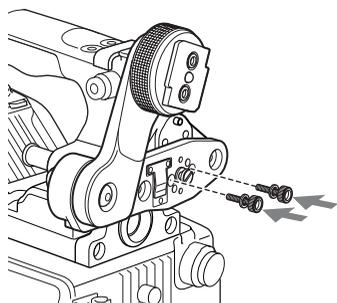
Hexagon socket bolts (M3 x 10)



- 3 Using a hexagonal wrench 2.5 mm across flats, detach the viewfinder shoe from the camcorder body.



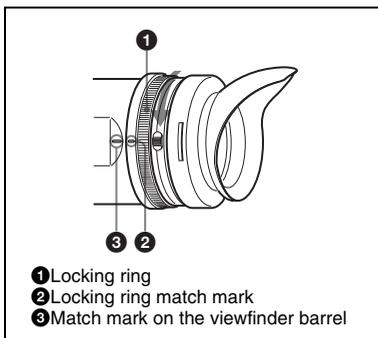
- 4 Using the two bolts (M3x10) and washers removed in step 2, attach the rotation mechanism assembly of the BKW-401 to the camcorder.



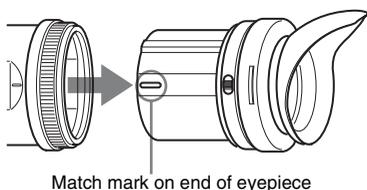
Detaching the eyepiece

Removing the eyepiece gives a clearer view of the screen from further away. It is also easy to remove dust from the viewfinder screen and mirror when the eyepiece is detached.

- 1 Turn the eyepiece locking ring fully counterclockwise, to align the red marks on the locking ring and the viewfinder barrel.



2 Detach the eyepiece.



To reattaching the eyepiece

- 1 Align the red marks on the eyepiece locking ring and the viewfinder barrel.
- 2 Align the red mark on the end of the eyepiece end with the red marks on the eyepiece locking ring and the viewfinder barrel. Then insert the eyepiece into the viewfinder barrel.
- 3 Turn the eyepiece locking ring clockwise until its “LOCK” arrow points at the red mark on the viewfinder barrel.

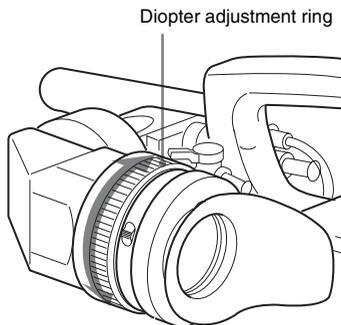
When the eyecup is worn out, replace it with a new one.

For details of a replacement eyecup, contact a Sony service representative.

Adjusting the viewfinder focus and screen

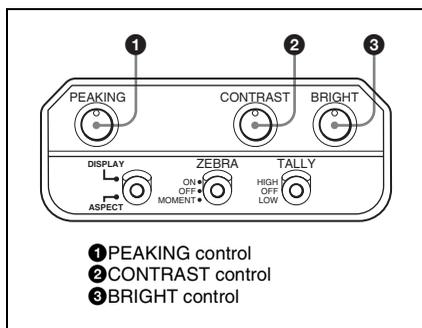
To adjust the viewfinder focus

Turn the diopter adjustment ring until the viewfinder image is sharpest.



To adjust the viewfinder screen

Adjust the brightness, contrast, and peaking of the viewfinder screen with the controls shown below.

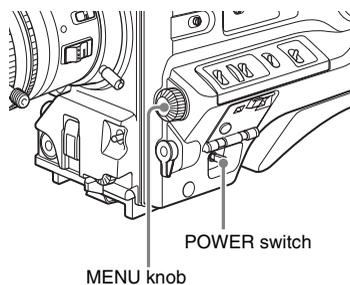


Setting the Area of Use

When using the unit for the first time

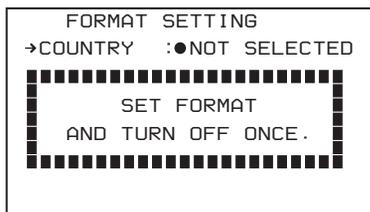
The area of use and the frame frequency are not factory preset. Before using this unit, you need to set these items. (You cannot use the unit without setting these items.)

To set the area of use



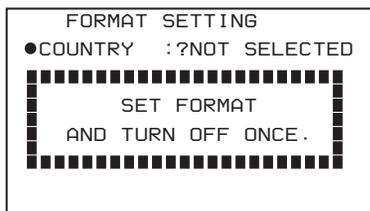
1 Set the POWER switch to the ON position.

The screen for setting the area of use appears in the viewfinder.



2 Press the MENU knob.

● on the left of NOT SELECTED changes to ?, and you can now select the area of use.



3 Turn the MENU knob to display the desired area of use.

Setting	Area of use
NTSC (J) AREA	NTSC area (Japan) ^{a)}
NTSC AREA	NTSC area (for areas other than Japan) ^{b)}
PAL AREA	PAL area ^{c)}

- a) The composite signal output from this unit is an NTSC signal with no black setup. The frame frequency is 59.9i.
- b) The composite signal output from this unit is an NTSC signal with a black setup (7.5 IRE). The frame frequency is 59.9i.
- c) The composite signal output from this unit is a PAL signal. The frame frequency is 50i.

4 Set the POWER switch to OFF, then once again to ON.

The unit is now ready for use.

Setting the Date/Time of the Internal Clock

You can set or change the date and time of the internal clock. The date and time set are reflected in the timecode.

- 1 Holding down the MENU knob, move the MENU ON/OFF switch to ON.**
The TOP menu appears.
- 2 Turn the MENU knob to move \blacktriangleright to DIAGNOSIS and press the MENU knob.**
If this is the first time the DIAGNOSIS menu has been displayed, the CONTENTS page appears. If the menu has been used before, the last accessed page appears.
- 3 If the CONTENTS page is displayed, turn the MENU knob to move \blacktriangleright to TIME/DATE and press the MENU knob to display the TIME/DATE page.**
If a different page is displayed, turn the MENU knob until the TIME/DATE page appears, then press the MENU knob to select the page.
The TIME/DATE page appears. \blacktriangleright is displayed on the left of ADJUST.

020 TIME/DATE		
\blacktriangleright ADJUST	:	EXEC
HOUR	:	12
MIN	:	55
SEC	:	58
YEAR	:	08
MONTH	:	07
DAY	:	31

- 4 Press the MENU knob.**
The TIME ADJUST setting window appears.

TIME ADJUST ESC		
HOUR	:	12
MIN	:	55
SEC	:	58
YEAR	:	08
MONTH	:	07
DAY	:	31
OK		

- HOUR: Sets the hour value.
- MIN: Sets the minutes value.
- SEC: Sets the seconds value.
- YEAR: Sets the year.
- MONTH: Sets the month.
- DAY: Sets the day.

- 5 Turn the MENU knob to move \blacktriangleright to the item you want to set, and press the MENU knob.**
 \blacktriangleright on the left of the selected item changes to \bullet and \bullet on the left of the setting changes to $?$.
- 6 Turn the MENU knob to display the desired value, and press the MENU knob.**
 \bullet changes to \blacktriangleright and $?$ changes to \bullet .
- 7 To continue the remaining settings, repeat steps 5 and 6.**
- 8 When you finish settings, turn the MENU knob to move \blacktriangleright to "OK", then press the MENU knob.**

The internal clock is set with the date and time set in steps **5** to **7**. The TIME/DATE page of the DIAGNOSIS menu appears again. The time set on the TIME ADJUST setting window is displayed.

To cancel the setting

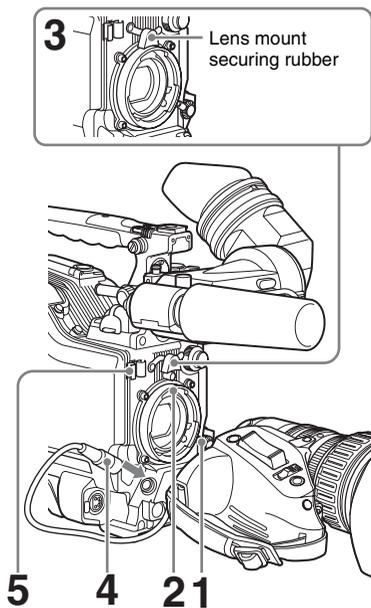
Before executing step **8**, move \blacktriangleright to "ESC" at the top right of the window and press the MENU knob.

Alternatively, flick the CANCEL/PRST / ESCAPE switch down to the ESCAPE side. All settings or changes are discarded and the TIME/DATE page of the DIAGNOSIS menu appears.

Mounting the Lens

First power off the camcorder, and then mount the lens using the following procedure.

For information about using the lens, refer to the operation manual for the lens.



- 1** Push the lens locking lever up and remove the lens mount cap from the lens mount.
- 2** Align the center pin on the lens with the center slot in the lens mount, and insert the lens into the mount.
- 3** Holding the lens in place, push the lens locking lever down to lock the lens.

Caution

If the lens is not firmly locked, it may come off while the camcorder is being used. This could cause a serious accident. Make sure the lens is firmly locked. It is recommended that the lens mount

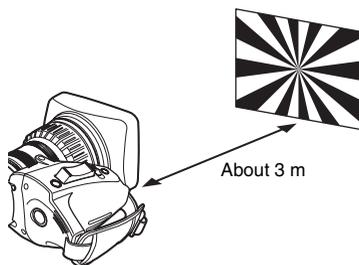
securing rubber be put on the lens locking lever as illustrated above.

- 4** Connect the lens cable to the LENS connector.
- 5** Secure the lens cable with the cable clamps.

Adjusting the Flange Focal Length

If the lens does not stay in focus properly as you zoom from telephoto to wide angle, adjust the flange focal length (the distance from the plane of the lens mounting flange to the imaging plane). Make this adjustment after mounting or changing the lens.

The position of the controls for adjusting the flange focal length vary somewhat from lens to lens. Check the identification of the various controls in the lens manual.



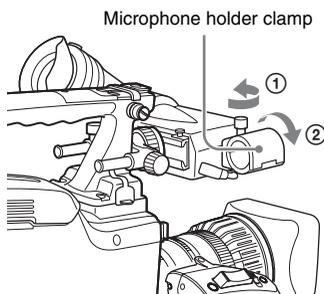
- 1** Set the iris to manual.
- 2** Open the iris. Place the flange focal length adjustment chart about 3 m (10 ft) away from the camera, lit well enough to provide a satisfactory video output level.
- 3** Loosen the fixing screws on the F.f or F.B ring (flange focal length adjustment ring).
- 4** Use manual or power zoom to set the lens to telephoto.
- 5** Point the camera at the chart by turning the focus ring and focus on it.
- 6** Set the zoom ring to wide angle.
- 7** Turn the F.f or F.B ring until the chart is in focus, being careful not to disturb the focus ring.

- 8** Repeat steps 4 to 7 until the chart stays in focus all the way from wide angle to telephoto.
- 9** Tighten the F.f or F.B ring fixing screws.

Preparing the Audio Input System

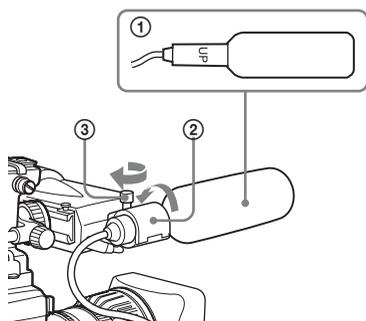
Connecting a microphone to the MIC IN connector

- 1 Loosen the screw and open the microphone holder clamp.



- 2 Place the microphone in the microphone holder.

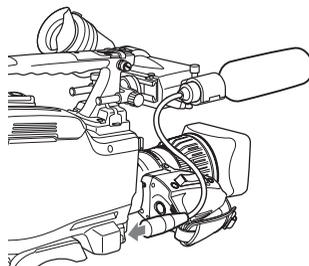
- ① Place the microphone in the holder so that “UP” is at the top.
- ② Close the microphone holder.
- ③ Tighten the screw.



On how to perform this operation, refer to the operation manual for the microphone.

- 3 Plug the microphone cable into the MIC IN connector, then set the AUDIO IN switch for the channel on which you

want to record the audio from this microphone to FRONT (for CH-1/CH-2) or F (for CH-3/CH-4).



- 4 Secure the microphone cable with the cable clamps.

Connecting microphones to the AUDIO IN connectors

You can connect up to two monaural microphones to the AUDIO IN CH-1/CH-2 connectors, using a CAC-12 Microphone Holder (sold separately).

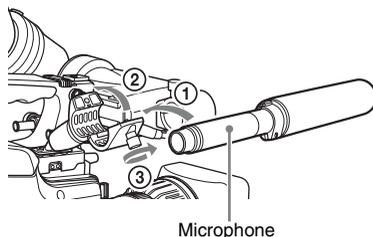
The following is the procedure for attaching an electret condenser microphone such as the ECM-674/678.

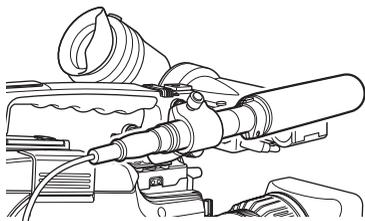
On how to attach the CAC-12, refer to the operation manual for the CAC-12.

- 1 Attach the electret condenser microphone.

- ① Place the microphone in the holder so that “UP” is at the top.
- ② Close the microphone holder.
- ③ Tighten the screw.

When attaching the ECM-674/678, use the microphone spacers supplied with those microphones.





2 Connect the microphone cable to the AUDIO IN CH-1 or CH-2 connector.

3 Set the switches as follows.

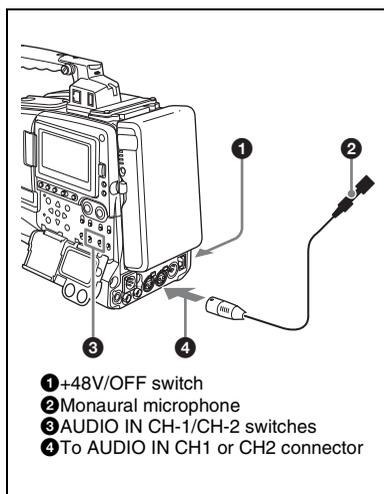
Set the LINE/AES/EBU/MIC switch to MIC.

- Set the AUDIO IN input selection switch as indicated below, depending on the power supply type of the microphone.

Internal power supply: Set the +48V/OFF switch to OFF.

External power supply: Set the +48V/OFF switch to +48V (ON).

- Set the AUDIO IN (CH-1/CH-2/CH-3/CH-4) switch for the channel to which the microphone is connected to REAR (for CH-1/CH-2) or R (for CH-3/CH-4).



- ① +48V/OFF switch
- ② Monaural microphone
- ③ AUDIO IN CH-1/CH-2 switches
- ④ To AUDIO IN CH1 or CH2 connector

4 Switch the input level to match the sensitivity of the microphone used.

Switch the input level by changing the REAR MIC REF setting on the AUDIO-1 page of the MAINTENANCE menu (factory default setting is -60 dB). *For details, see page 121.*

XLR connection automatic detection function

With the XLR connection automatic detection function being on, when a cable is connected to the AUDIO IN CH1 or CH2 connector, the input from that connector is automatically selected for audio recording, regardless of the setting of the AUDIO IN CH-1 or CH-2 switch.

The XLR connection automatic detection function can be switched on or off on the AUDIO-1 page of the MAINTENANCE menu, with the REAR XLR AUTO item.

Notes

- If the input level on this unit is not at an appropriate setting for the microphone sensitivity, loud sounds may be distorted, and the signal-to-noise ratio may be affected.
- In order for the AUDIO IN CH-1 and CH-2 connectors on the camcorder to be able to provide a phantom 48 V power supply, female XLR connectors (3-pin) are fitted. If the microphone cable has a female connector, use an adaptor.
- When you detach a CAC-12 Microphone Holder once you have attached to the camcorder, be careful not to lose the two screws fixing the CAC-12 (in step 1). After detaching the CAC-12, be sure to put the two screws back into their original places.

Attaching a UHF portable tuner (for a UHF wireless microphone system)

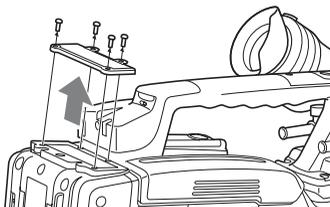
To use a Sony UHF wireless microphone system, fit one of the following UHF portable tuners.

- DWR-S01D Digital Wireless Receiver
- WRR-855 UHF Synthesized Tuner Unit
- WRR-860/861/862 UHF Portable Tuner

For details of these units, refer to the operation manuals for them.

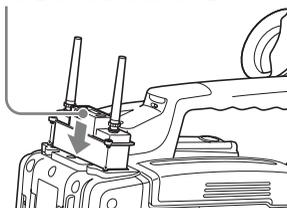
To fit the DWR-S01D or WRR-855

- 1 Remove the four fixing screws holding the cover of the portable tuner/receiver housing slot located in the rear of this unit, to remove the cover.



- 2 Insert the DWR-S01D or WRR-855 into the housing slot, and fasten the four fixing screws.**

DWR-S01D or WRR-855A/855B



- 3 Set the AUDIO IN switch for the channel to which you want to input audio signal to WIRELESS.**

Notes

- When the XLR connection automatic detection function is on, even if the AUDIO IN CH-1 or CH-2 switch is set to WIRELESS, the signal input to the AUDIO IN CH1 or CH2 connector is automatically selected when an audio cable is connected to the AUDIO IN CH1 or CH2 connector. In such a case, set REAR XLR AUTO to OFF on the AUDIO-1 page of the MAINTENANCE menu.
- When the LINE/AES/EBU/MIC switch is set to LINE or MIC, the audio signals recorded on audio channels 3 and 4 are not affected by the XLR automatic detection function. They are determined by the settings of the AUDIO IN CH-3 and CH-4 switches.

To fit the WRR-862 (when using a BP-GL65/GL95/L60S/L80S Battery Pack)

- 1 Attach the WRR tuner fitting (sold separately; service part number: A-8278-057-B) to the back of the camcorder.**

- ① Use a Phillips type screwdriver to tighten the four screws placed in the tuner fitting. For three of these screws,

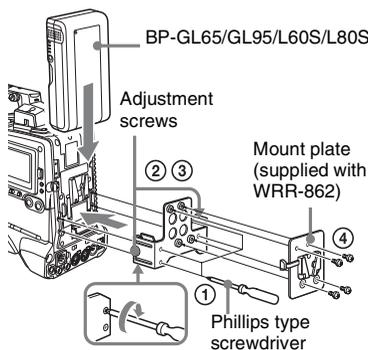
insert the screwdriver through the corresponding hole and tighten the screw.

Note

Make sure that all four screws are fully tightened.

- ② Loosen the adjustment screws on the tuner fitting.
- ③ Adjust the tuner fitting position for a BP-GL65/GL95/L60S/L80S Battery Pack to be attached, and tighten the adjustment screws to fix its position.
- ④ Attach the mount plate supplied with the WRR-861/862.

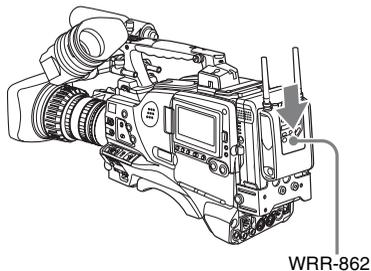
About the WRR tuner fitting (service part number: A-8278-057-B), contact a Sony service or sales representative.



- 2 Attach the battery pack.**

On how to attach the battery pack, see “To attach the battery pack” on page 32.

- 3 Mount the tuner on the WRR tuner fitting.**

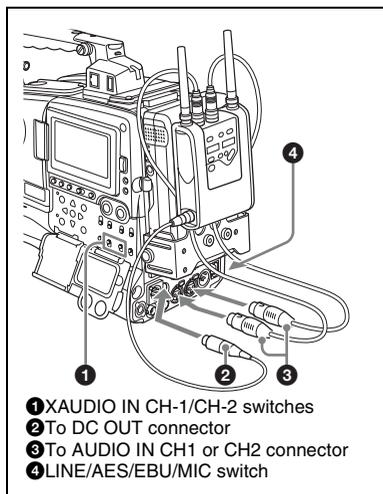


- 4 Connect the tuner power cord to the DC OUT connector of the camcorder, and**

the audio output cable to the **AUDIO IN CH1** or **CH2** connector.

5 Set the switches as follows.

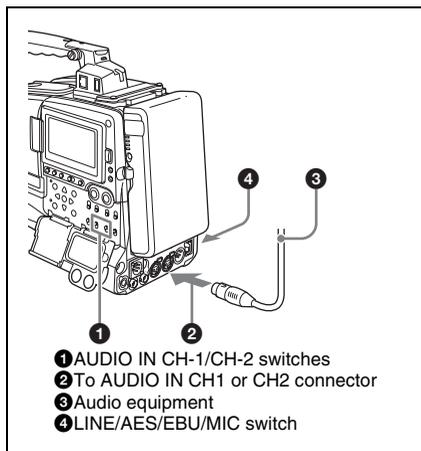
- Set the **LINE/AES/EBU/MIC** switch for the channel to which the audio output cable is attached to **MIC**.
- Set the **AUDIO IN CH-1** or **CH-2** switch to “**REAR**” depending on the channel to which the audio output cable is connected. If the XLR connection automatic detection function is on, the input signal for audio recording is selected automatically, and therefore this setting is not required.



CH1 and CH2 connectors is used for connecting the external audio equipment.

- With the XLR connection detection function being on: When a cable is connected to the **AUDIO IN CH1** or **CH2** connector, the input from that connector is automatically selected for audio recording, regardless of the setting of the **AUDIO IN CH-1** or **CH-2** switch.

The XLR connection automatic detection function can be switched on or off on the **AUDIO-1** page of the **MAINTENANCE** menu, with the **REAR XLR AUTO** item.



Connecting line input audio equipment

Connect the audio output connector of the audio equipment that supplies the line input signal to the **AUDIO IN CH1** or **CH2** connector.

Switch settings

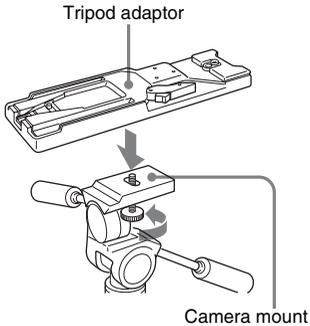
Set the **LINE/AES/EBU/MIC** switch for the channel to which the audio signal source is connected to “**LINE**”.

Selecting the audio inputs to be recorded

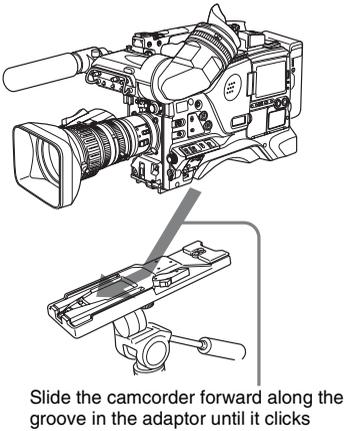
- With the XLR connection automatic detection function being off (the factory default setting): A signal must be selected for audio recording by setting the **AUDIO IN CH-1** or **CH-2** switch to “**REAR**” depending on which of the **AUDIO IN**

Tripod Mounting

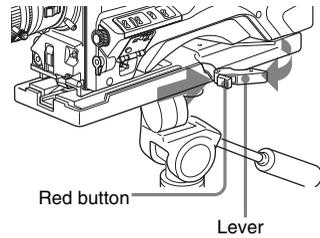
- 1 Attach the VCT-14 tripod adaptor (sold separately) to the tripod.



- 2 Mount the camcorder on the tripod adaptor.



To remove the camcorder from the tripod adaptor



Note

The tripod adaptor pin may remain in the engaged position even after the camcorder is removed. If this happens, press the red button against the lever a second time and move the lever as shown below until the pin returns to the stowed position. If the pin remains in the engaged position, you will not be able to mount the camcorder on the tripod adaptor.

Connecting a Video Light

With this camcorder, you can use the Anton Bauer Ultralight 2 or equivalent video light (powered by 12 V with maximum power consumption of 50 W).

- If you connect the video light to the LIGHT connector on the camcorder and set the LIGHT switch to AUTO, you can turn the light on and off automatically as you start and stop the VDR operation.
- The output of the LIGHT connector on the camcorder is controlled to 12 V even when the camcorder is supplied with over 12 V power (through the DC IN connector or battery pack). The brightness or color temperature of the light will not change according to voltage increase.

Notes

- Do not use a video light with power consumption of over 50 W.
- The brightness or color temperature of the light will change when the voltage (supplied through the DC IN connector or from the battery pack) is under 12 V.

To attach the video light

Fit the video light to the accessory fitting shoe on the camcorder grip, and connect the video light cable to the LIGHT connector.

Note

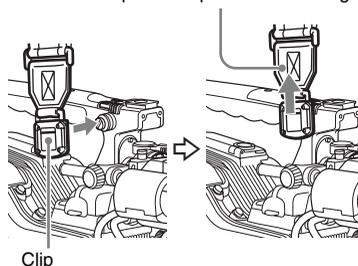
The accessory fitting shoe on this unit is of the 1/4-inch tapped hole type. If you want to replace this with a slide-type shoe, contact a Sony service representative.

Using the Shoulder Strap

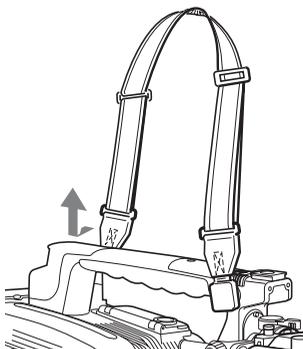
To attach the shoulder strap

- 1 Fit one of the clips to a shoulder strap fitting.

Pull up the strap to lock the fitting

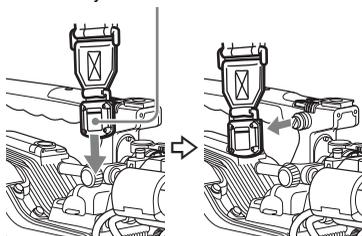


- 2 Fit the other clip to the shoulder strap fitting on the other side of the grip in the same way as in step 1.



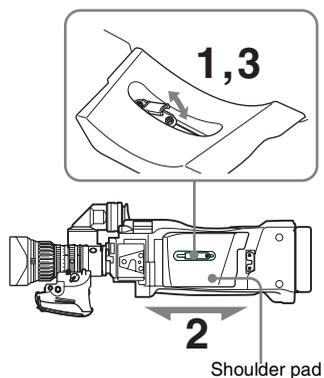
To remove the shoulder strap

Press here and pull in the direction shown by the arrow to release



Adjusting the Shoulder Pad Position

You can shift the shoulder pad from its center position (the factory default setting) backward by up to 10 mm (3/8 inch) or forward by up to 25 mm (1 inch). This adjustment helps you get the best balance for shooting with the camcorder on your shoulder.

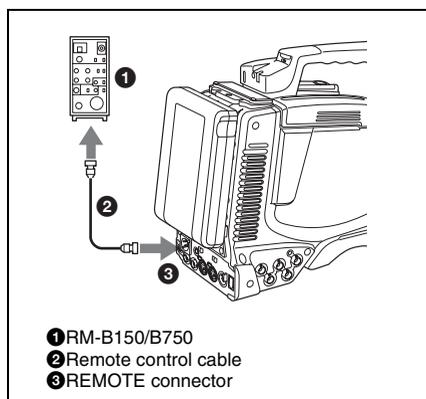


- 1** Raise the lever in the center of the shoulder pad to unlock the shoulder pad.
- 2** Slide the shoulder pad backward or forward until it is in the most convenient position.
- 3** Bring down the lever to lock the shoulder pad in the selected position.

Connecting the Remote Control Unit

Connecting the RM-B150/B750 Remote Control Unit enables remote control of the principal camera functions.

Connecting the remote control unit to the REMOTE connector (8-pin) automatically puts the camcorder into remote control mode. If you disconnect the remote control unit, the remote control mode is cancelled.



Camcorder switch functions when the remote control unit is connected

The following switches on the camcorder do not function.

- GAIN selector
- OUTPUT/DCC switch
- WHITE BAL switch
- AUTO W/B BAL switch
- SHUTTER selector
- ASSIGN 1/2/3 switches to which the TURBO SWITCH function is assigned
- REC START button (and the recording start/stop buttons on the lens and the ASSIGN 1/3/4 switches to which the recording start/stop function is assigned) (when the RM REC START item on the CAM CONFIG 2 page of the MAINTENANCE menu is set to "RM")

Paint adjustment when the remote control unit is connected

The settings of the paint adjustment that were in effect the last time the remote control unit was used are recalled.

Function of the recording start/stop buttons when the remote control unit is connected

When the remote control unit is connected, you can make a setting to determine which of the recording start/stop buttons you will use. This setting is made using the RM REC START item on the CAM CONFIG 2 page of the MAINTENANCE menu.

Relationship between the setting of the RM REC START item and the function of recording start/stop buttons

Recording start/stop button	Settings of RM REC START		
	RM	CAM	PARA
Camcorder's REC START button	Disabled	Enabled	Enabled
Lens' VTR button	Disabled	Enabled	Enabled
Camcorder's ASSIGN 1/3/4 switches assigned the recording start/stop function	Disabled	Enabled	Enabled
Remote control unit's VTR button	Enabled	Disabled	Enabled

When the monitor is connected to the MONITOR OUT connector of the remote control unit

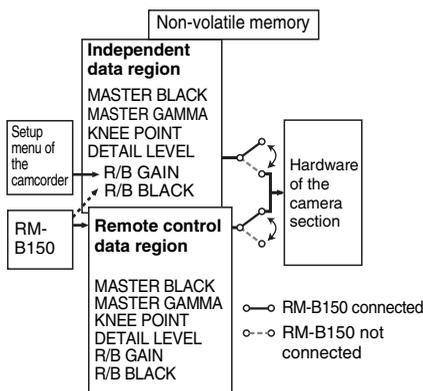
The MONITOR connector (BNC type) of the RM-B150/B750 outputs the same signal as that from the TEST OUT connector on the camcorder. Use the black cable supplied with the RM-B150/B750 to connect the monitor to the MONITOR connector on the RM-B150/B750.

When the remote control unit is disconnected from the camcorder

The camcorder settings return to the settings in effect before the remote control unit was connected.

Structure of the paint adjustment data

The non-volatile memory of the camcorder used for storing paint adjustment data consists of two regions as shown below: one is the “independent data region” that is used when a remote control unit is not connected, and the other is the “remote control data region” that is used when a remote control unit is connected. Paint adjustment data is automatically selected and output to the camera section depending on whether or not a remote control unit such as the RM-B150 is connected.



Thus, when a remote control unit is connected to the camcorder, the effective data region is switched to the “remote control data region” and the settings of the paint adjustment that were in effect the last time the remote control unit was used are recalled.

The settings of the absolute value rotational controls ¹⁾ and absolute value switches ²⁾ are overwritten by those on the remote control unit after the remote control unit is connected.

When the remote control unit is disconnected from the camcorder, the “independent data region” becomes effective. Thus the camcorder will return to the settings that were in effect before the remote control unit was connected.

- 1) **Absolute value rotational controls:** The data corresponding to the angular position of controls is output. Rotational controls for which the data corresponding to the amount of their rotation is output are called relative value controls.
- 2) **Absolute value switches:** Like toggle switches or slide switches (except momentary switches), the switches (or knobs) whose positions must coincide with their functions are called absolute value switches.

When RM COMMON MEMORY is set to “ON” on the CAM CONFIG 2 page of the MAINTENANCE menu, you can use settings of the paint adjustment data stored in the independent data region even if you connect the remote control unit. In this case, the settings stored in the independent data region will be renewed when you change the settings on the remote control unit. Thus, the settings of the paint data made with the remote control unit can be retained even if the remote control unit is removed. However, if the switch position on the remote control unit differs from the one on the camcorder, the switch position on the camcorder takes precedence over that on the remote control unit.

Also, it is possible to keep the settings that are in effect before you connect the remote control unit. In this case, you should set the control knob to the relative value mode on the remote control unit.

For details, refer to the operation manual supplied with the remote control unit.

Setting the Recording Format

Before recording with the PDW-700, it is necessary to set the recording format for each of video and audio.

Video recording format: MPEG HD 50 Mbps

Audio recording format: 24-bit/48 kHz

Adjusting the Black Balance and the White Balance

To ensure excellent image quality when using this camcorder, conditions may require that both the black balance and the white balance be adjusted.

Black balance adjustment

The black balance will require adjustment in the following cases.

- When the camcorder is used for the first time
- When the camcorder has not been used for a long time
- When the camcorder is used under conditions in which the surrounding temperature has changed greatly
- When the GAIN selector (L/M/H) values have been changed by using the USER menu

It is not usually necessary to adjust the black balance when using the camcorder after it has been off.

White balance adjustment

Always readjust the white balance when the lighting conditions change.

Viewfinder screen displays

If the black balance or white balance adjustment is started, messages that report on the progress and results are displayed on the viewfinder screen when the VF DISP MODE item is set to “2” or “3” on the VF DISP 1 page of the USER menu.

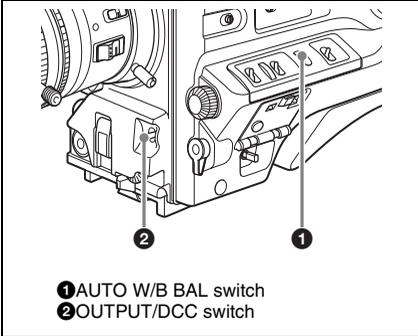
Note

Black balance and white balance adjustment values that are automatically set by the camcorder and the various settings are stored in the camcorder memory and retained even when the power is turned off.

Adjusting the black balance

In automatic black balance mode, adjustments are performed in the following order: clamp level, black set, and black balance. Manual black balance adjustment can be selected from the setup menu.

For details of manual black balance adjustment, refer to the Maintenance Manual.

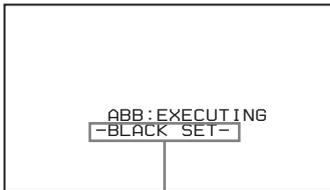


1 Set the OUTPUT/DCC switch to CAM.

2 Flick the AUTO W/B BAL switch to BLK and release the switch.

The switch returns to the center position, and the adjustment is executed.

During adjustment, the following message is displayed on the viewfinder screen.



The messages change in the following sequence :

-BLACK SET-

↓
-BLACK BALANCE

The black balance adjustment ends in a few seconds with the message "ABB:OK" and the adjustment value is automatically stored in memory.

Notes

- During the black balance adjustment, the iris is automatically closed.

- During the black balance adjustment, the gain selection circuit is automatically activated so you may see flickering on the viewfinder screen, but this is not a fault.

If automatic black balance adjustment cannot be made

If the black balance adjustment cannot be completed normally, an error message will appear for about 3 seconds on the viewfinder screen.

Possible messages are listed below.

Error message	Meaning
ABB : NG IRIS NOT CLOSED	The lens iris did not close; adjustment was impossible.
ABB : NG TIME LIMIT	Adjustment could not be completed within the standard number of attempts.
ABB : NG R (or G or B) : OVERFLOW	The difference between the reference value and the current value is so great that it exceeds the range. Adjustment was impossible.

If any of the above error messages is displayed, retry the black balance adjustment.

Keep pushing the AUTO W/B BAL switch to BLK until "-BLACK SET-" appears after "-BLACK BALANCE-". If the error message occurs again, an internal check is necessary.

For information about this internal check, refer to the Maintenance Manual.

Note

If the lens cable is not firmly connected to the LENS connector, it may not be possible to adjust the lens iris. If this happens, the black balance will be incorrect.

Black balance memory

Values stored in memory are held until the black balance is next adjusted.

If a memory error occurs

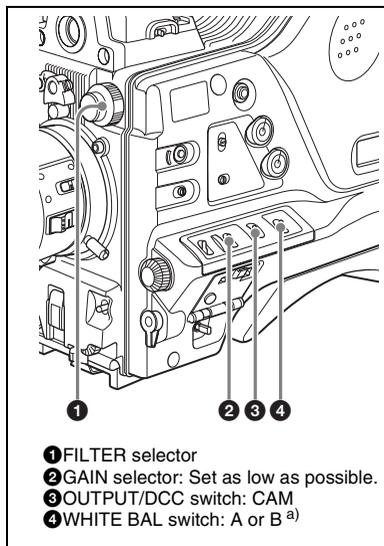
If the error message " : STORED DATA : NG" flashes on the viewfinder screen when the camcorder is turned on, the black balance and white balance memory contents have been lost. Adjust the black balance and white balance again. Contact your Sony representative if this message

continues to appear even after the black balance and white balance have been adjusted again.

For details, refer to the Maintenance Manual.

Adjusting the white balance

- 1 Set the switches and selectors as shown in the figure below.



a) White balance setting values are stored in memory B only when the WHITE SWITCH item is set to "MEM" on the FUNCTION 2 page of the OPERATION menu.

If the setting of the GAIN selector or WHITE BAL switch is changed, a message reporting the new setting position appears for about 3 seconds in the setting change and adjustment progress message display area of the viewfinder screen.

- 2 Set the FILTER selector to suit the lighting conditions as follows.

The possible settings of the FILTER selector and their corresponding filters to be selected are listed below.

FILTER selector (inner knob) setting	ND filter setting
1	CLEAR
2	$1/4$ ND
3	$1/16$ ND
4	$1/64$ ND

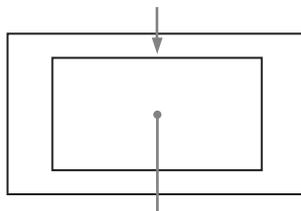
If the setting of the FILTER selector is changed, a message reporting the setting change appears for about 3 seconds in the setting change and adjustment progress message display area of the viewfinder screen (in display mode 3).

- 3 Place a white test card under the same lighting conditions as for the subject to be shot and zoom up to it.

Alternatively, any white object such as a cloth or a wall can be used.

The absolute minimum white area is as follows.

Rectangle centered on the screen. The lengths of the sides are 70% of the length and width of the screen.



The white object must be within the rectangle and have an area of at least 10% of the screen.

Note

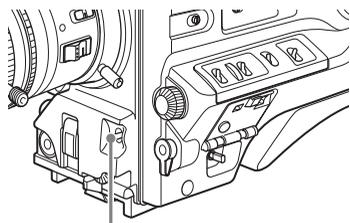
Make sure there are not bright spots in the rectangle.

- 4 Adjust the lens iris.

Manually adjusted lens: set the iris to an appropriate setting.

Lens with automatic iris: set the automatic/manual switch on the lens to automatic.

- 5 Flick the AUTO W/B BAL switch to WHT and then release the switch.

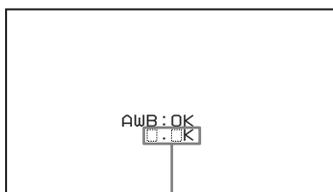


AUTO W/B BAL switch

The switch returns to the center position, and the adjustment is executed.

During adjustment, the message “WHITE : OP” is displayed on the viewfinder screen (in display mode 2 or 3).

The white balance adjustment ends in about one second with the message shown in the following figure, and the adjustment setting is automatically stored in the memory (A or B) that was selected in step 1.



Approximate color temperature of the subject

Note

If the camera has a zoom lens with an automatic iris, the iris may hunt ¹⁾ during the adjustment. To prevent this, adjust the iris gain knob (indicated as IG, IS, or S) on the lens.

For details, refer to the lens operation manual.

1) Hunting: Repeated brightening and darkening of the image, resulting from repeated response to automatic iris control.

If the automatic white balance adjustment cannot be made

If the white balance adjustment cannot be completed normally, an error message will appear for about 3 seconds on the viewfinder screen. Possible messages are listed below.

Error message	Meaning
WHITE : NG LOW LEVEL	The white video level is too low. Either open the lens iris or increase the gain.
WHITE : NG COLOR TEMP HIGH	The color temperature is too high. Select a suitable filter setting.
WHITE : NG COLOR TEMP LOW	The color temperature is too low. Select a suitable filter setting.
WHITE : NG TIME LIMIT	Adjustment could not be completed within the standard number of attempts.
WHITE : NG POOR WHITE AREA	The white area could not be checked.
WHITE : NG OVER LEVEL	The white video level is too high. Either stop down the lens iris or change the ND filter.

If any of the above error messages is displayed, retry the white balance adjustment. If the error message occurs again, an internal check is necessary.

For information about this internal check, refer to the Maintenance Manual.

If you have no time to adjust the white balance

Set the WHITE BAL switch to PRST.

This makes it possible to automatically set the white balance to 5600K (factory default value) by pressing the COLOR TEMP. button.

The color temperature value to which the white balance is set when the COLOR TEMP. button is pressed can be selected from among 3200K, 4300K, 5600K, and 6300K on the WHITE FILTER page of the MAINTENANCE menu.

For details of automatic white balance adjustment, see page 52.

White balance memory

Values stored in memory are held until the white balance is next adjusted.

There are two sets of white balance memories, A and B, and adjustments for each of the filters can be automatically stored in the memory

corresponding to the setting (A or B) of the WHITE BAL switch. The camcorder has four built-in filters, so a total of eight (4 X 2) adjustments can be stored. The number of memories allocated to each of A and B can be limited to one by setting the WHT FILTER INH. item to “ON” on the FUNCTION 3 page of the MAINTENANCE menu. In this case, the memory contents are not linked to the filter settings.

If the WHITE BAL switch is set to B, and on the FUNCTION 2 page of the OPERATION menu, the WHITE SWITCH item is set to “ATW”, the ATW function is activated to automatically adjust the white balance of the picture being shot for varying lighting conditions.

If a memory error occurs

If the error message “: STORED DATA : NG” flashes on the viewfinder screen when the camcorder is turned on, the white balance and black balance memory contents have been lost. Adjust the white balance and black balance again. Contact your Sony representative if this message continues to appear even after the white balance and black balance have been adjusted again.

For details, refer to the Maintenance Manual.

Setting the Electronic Shutter

Shutter modes

The shutter modes that can be used with the electronic shutter and the shutter speeds that can be selected are listed below.

Shutter mode	Shutter speed	Application
Standard	Scan Mode:i 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 (sec.)	For shooting fast-moving subjects with little blurring.
ECS (Extended Clear Scan)	Scan Mode:i 60.0 to 6000 Hz	For obtaining images with no horizontal bands of noise when shooting subjects such as monitor screens.

Notes

- Whatever the operating mode of the electronic shutter, the sensitivity of the CCD decreases with increasing shutter speed.
- When the automatic iris is used, the iris opens wider as the shutter speed increases, thus reducing the depth of field.
- Under artificial light, particularly fluorescent or mercury lamps, the light intensity may appear to be constant, but the red, green, and blue intensities are actually changing in synchronization with the frequency of the power supply causing flicker. Using an electronic shutter under such lighting could make the flicker even worse. Color flicker is particularly likely to happen when the power supply frequency is 60 Hz or 50 Hz. However, if the power frequency is 50 Hz or 60 Hz, setting the shutter speed to 1/100 or 1/60 can reduce this flicker.

- When a bright object is shot in EVS mode or ECS mode in such a manner that it fills the screen, the upper edge of the picture may have poor quality because of an inherent characteristic of CCDs. Before using EVS mode or ECS mode, check the shooting conditions.

You can turn on or off the SW STATUS page of the PAINT menu.

Selecting the shutter mode and shutter speed

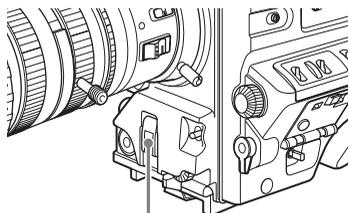
Use the SHUTTER selector to select a shutter mode or a standard-mode shutter speed. To set the shutter speed in ECS mode, with the SHUTTER selector set to ON and the ECS mode selected, use the MENU knob for adjustment.

You can use the SHT ENABLE page of the OPERATION menu to narrow the range of choice in advance, or to select in advance whether or not you use ECS.

Setting the shutter mode and standard-mode shutter speed

Once the shutter speed is selected, it is retained even when the camcorder power is turned off.

- 1 Follow the procedure described in “Selecting the display items” on page 141 to set the VF DISPLAY MODE item to “2” or “3” on the VF DISP 1 page of the USER menu.
- 2 Flick the SHUTTER selector from ON to SELECT.



SHUTTER selector

The current shutter setting indication appears for about 3 seconds in the setting change and adjustment progress message display area of the viewfinder screen.

Examples: “: SS : 1/250”, “: ECS : 60.0 Hz”

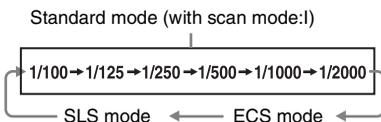
- 3 Before the shutter setting indication disappears, flick the SHUTTER selector down to SELECT again and repeat this until the desired mode or speed appears.

Pushing the SHUTTER selector down to SELECT repeatedly allows you to cycle through the settings of mode and speed preselected on the SHT ENABLE page of the OPERATION menu.

Note that all modes and all standard-mode speeds listed in the table on page 54 are preselected using the SHT ENABLE page of the OPERATION menu.

By factory default, all available shutter modes and shutter speeds are displayed in the sequence shown in the following figure.

(You can use the SHT ENABLE page of the OPERATION menu to make a setting so that only the desired (or most frequently used) modes and speeds are displayed.)



Shutter speeds in standard mode can also be switched to angle display by using SHT DISP MODE in the FUNCTION 3 page of the MAINTENANCE menu.

Setting the shutter speed in ECS mode

- 1 Set the shutter speed mode to ECS (see the previous item).
- 2 Turn the MENU knob clockwise or counterclockwise until the desired frequency appears.

When the RM-B150 Remote Control Unit is connected

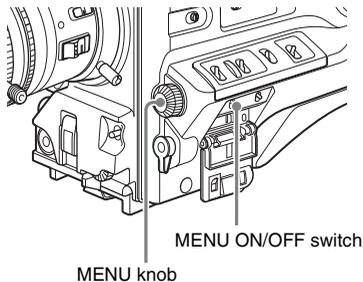
You can set the shutter speed of ECS with the rotary encoder of the RM-B150.

Changing the range of choice of shutter mode and speed settings

You can reduce the time required to select the shutter mode and speed by narrowing the choice of settings in advance. This can be done by using the SHT ENABLE page of the OPERATION menu.

Note

The settings selected on the SHT ENABLE page of the OPERATION menu become invalid when the RM-B150 Remote Control Unit is connected to the camcorder.



- 1 Set the MENU ON/OFF switch to ON while holding down the MENU knob.**
The TOP menu appears.
- 2 Turn the MENU knob to move \blacktriangleright to OPERATION.**
- 3 Press the MENU knob.**
If this is the first time the OPERATION menu has been displayed, the CONTENTS page of the OPERATION menu appears. If the menu has been used before, the last accessed page appears.
- 4 If the CONTENTS page is displayed, turn the MENU knob to move \blacktriangleright to “SHT ENABLE”, then press the MENU knob to display the SHT ENABLE page.**
If a different page is displayed, turn the MENU knob until the SHT ENABLE page appears, then press the MENU knob to select the page.

0220SHT ENABLE			
\blacktriangleright SHUTTER	SLS	: ●	ON
SHUTTER	ECS	:	ON
SHUTTER	1/100	:	ON
SHUTTER	1/125	:	ON
SHUTTER	1/250	:	ON
SHUTTER	1/500	:	ON
SHUTTER	1/1000	:	ON
SHUTTER	1/2000	:	ON

- 5 Turn the MENU knob to move \blacktriangleright to the shutter mode or shutter speed you want, then press the MENU knob.**

\blacktriangleright on the left of the selected item changes to ● and ● on the left of the setting changes to ?.

- 6 Turn the MENU knob until “ON” appears, then press the MENU knob.**
● on the left of the selected item changes to \blacktriangleright and ? on the left of the setting changes to ●.
To set another mode or speed, return to step 5.

Note that only the shutter speeds set to “ON” can be selected with the SHUTTER selector.

- 7 To end the menu operation, set the MENU ON/OFF switch to OFF or close the cover of the menu operating section.**
The menu disappears from the screen and the display indicating the current status of the camcorder appears along the top and bottom of the screen.

Changing the Reference Value for Automatic Iris Adjustment

The reference value for automatic iris adjustment can be changed to aid the shooting of clear pictures of back-lit subjects, or to prevent blown-out highlights. The reference value for the lens iris can be set within the following range with respect to the standard value.

- 0.25 to 1 (increasing by increments of 0.25):
About 0.25 to 1 stop further open
- -0.25 to -1 (decreasing by increments of 0.25):
About 0.25 to 1 stop further close

Also you can set the area where light detection occurs.

Changing the reference value

- 1 Set the MENU ON/OFF switch to ON.**
If this is the first time the USER menu has been displayed, the CONTENTS page of the USER menu appears. If the menu has been used before, the last accessed page appears.
- 2 If the CONTENTS page is displayed, turn the MENU knob to move \blacktriangleright to AUTO IRIS page, then press the MENU knob to display the AUTO IRIS page.**
If a different page is displayed, turn the MENU knob until the AUTO IRIS page appears, then press the MENU knob to select the page.

0160AUTO IRIS			
\blacktriangleright IRIS OVERRIDE	:	●	ON
IRIS SPEED	:	2	
CLIP HIGH LIGHT	:	OFF	
IRIS WINDOW	:	1	
IRIS WINDOW IND	:	OFF	
IRIS VAR WIDTH	:	245	
IRIS VAR HEIGHT	:	72	
IRIS VAR H POS	:	0	
IRIS VAR V POS	:	0	

- 3 Check that the \blacktriangleright mark is at the IRIS OVERRIDE position, and then press the MENU knob.**
 - \blacktriangleright on the left of the selected item changes to ● and ● on the left of the setting changes to ?.

- 4 Turn the MENU knob until “ON” appears, then press the MENU knob.**
 - on the left of the selected item changes to \blacktriangleright and ? on the left of the setting changes to ●.

The IRIS OVERRIDE item is set to “ON”.

- 5 Set the MENU ON/OFF switch to OFF.**
The AUTO IRIS page disappears from the screen.

- 6 Turn the MENU knob to change the reference value.**

Note

Be sure to confirm that the current shutter mode is not ECS.

The changed reference value is retained until the power of the camcorder is turned off.

Even if the reference value is changed, it reverts to the standard value every time the power is turned on.

To make the iris more open

Turn the MENU knob counterclockwise as seen from the front of the camera.

The iris stop indicators as shown in the following table appear in the upper part to the left of the F number in the iris indication.

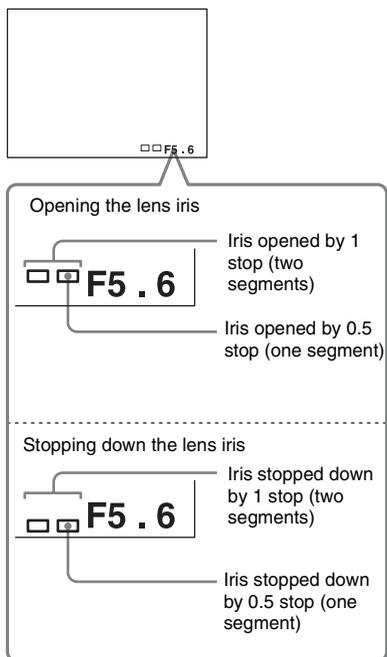
Iris stop	Indicator
0.25	■
0.5	□
0.75	■ □
1	□ □

To stop down the iris

Turn the MENU knob clockwise as seen from the front of the camera.

The iris stop indicators as shown in the following table appear in the lower part to the left of the F number in the iris indication.

Iris stop	Indicator
-0.25	■
-0.5	□
-0.75	■ □
-1	□ □



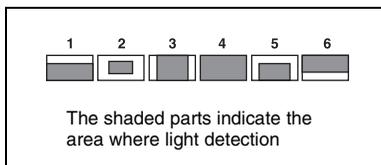
When the RM-B150 Remote Control Unit is connected

The IRIS control knob of the RM-B150 can be used for lens iris setting. In this case, the indicator is not displayed.

Selecting the automatic iris window

- Follow the procedure of steps 1 and 2 described in the previous item to display the AUTO IRIS page.
- Turn the MENU knob to move \rightarrow to IRIS WINDOW IND., then press the MENU knob.
 - \rightarrow on the left of IRIS WINDOW IND. changes to \bullet and \bullet on the left of the setting changes to $?$.
- Turn the MENU knob until "ON" appears, then press the MENU knob.
 - \bullet changes to \rightarrow and $?$ changes to \bullet
 - The currently selected auto iris window appears on the screen.
 - If it is not necessary to display the auto iris window on the screen, set to "OFF".

- Turn the MENU knob to move \rightarrow to IRIS WINDOW, then press the MENU knob.
 - \rightarrow changes to \bullet and \bullet changes to $?$.
- Turn the MENU knob until the desired auto iris window appears, then press the MENU knob.



\bullet changes to \rightarrow and $?$ changes to \bullet .

If you select "VARIABLE", the following items become effective and you can set the window of the desired size. Set each item to the desired size.

Item	Setting
IRIS VAR WIDTH	The width of the window
IRIS VAR HEIGHT	The height of the window
IRIS VAR H POS.	The position of the window in the horizontal direction
IRIS VAR V POS.	The position of the window in the vertical direction.

- Set the MENU ON/OFF switch to OFF. The menu disappears from the screen and the display indicating the current status of the camcorder appears along the top and bottom of the screen.

To counter problems with very bright highlights

If the subject is too bright, the iris may close too much, leaving the overall image dark, or the highlights may be blown out. In such cases, setting the highlight clip function on reduces the luminance range, avoiding problems from the automatic iris correction.

In the AUTO IRIS page of the USER menu, set the CLIP HIGH LIGHT item to "ON".

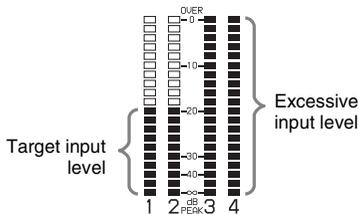
Adjusting the Audio Level

Setting the AUDIO SELECT CH-1/CH-2 switches to AUTO automatically adjusts the input levels of the audio signal to be recorded in audio channels 1 and 2. You can also adjust the audio level manually.

For audio channels 3 and 4, menu settings allow you to select automatic adjustment, manual adjustment, or fixed.

Target audio level for automatic audio level adjustment

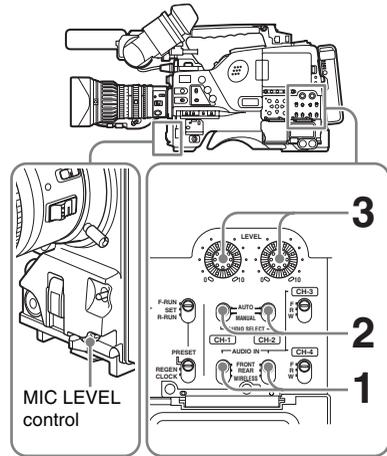
Make adjustment using -20 dB as the target level. If the audio level meter shows a maximum level of 0 dB, then it indicates that the input audio level is excessive.



Manually adjusting the audio levels of the audio inputs from the AUDIO IN CH1/CH2 connectors

With the XLR connection automatic detection function being on, when a cable is connected to the AUDIO IN CH1 or CH2 connector, the input from these connectors is automatically selected for audio recording. In this case, start the operation from step 2.

You can turn on and off the XLR connection automatic detection function on the AUDIO-1 page of the MAINTENANCE menu.



- 1 To adjust the signal input to the AUDIO IN CH1 or AUDIO IN CH2 connector, set the AUDIO IN CH-1 or AUDIO IN CH-2 switch to REAR. To adjust both input signals, set both switches to REAR.
- 2 Set the AUDIO SELECT switch(es) corresponding to the channel(s) selected in step 1 to MANUAL.
- 3 With the LEVEL control(s) for the channel(s) selected in step 1, adjust so that the audio level meter shows up to -20 dB for a normal input volume.

Correspondence between recording level adjustments and audio level controls

On the AUDIO-3 page of the MAINTENANCE menu, you can select which audio level control controls the audio recording level of the input to each of the AUDIO IN CH1/CH2 connectors. The correspondence between the controls and the menu items and settings is as follows.

Level to be adjusted	Control	Menu item	Setting
Channel-1 recording level	LEVEL (CH-1) control (on the left)	REAR1/ WRR	SIDE1
	MIC LEVEL control		FRONT
	LEVEL (CH-1) control is linked with MIC LEVEL control.		F+S1
Channel-2 recording level	LEVEL (CH-2) control (on the right)	REAR2/ WRR	SIDE2
	MIC LEVEL control		FRONT
	LEVEL (CH-2) control is linked with MIC LEVEL control.		F+S2

Note

When you have operation of the LEVEL (CH-1/CH-2) controls and MIC LEVEL control linked together, if the MIC LEVEL control is set to 0, the audio signals on channels 1 and 2 cannot be recorded. Check the position of the MIC LEVEL control before adjusting the LEVEL (CH-1/CH-2) controls.

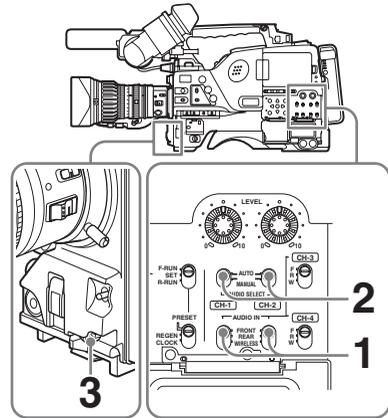
Manually adjusting the audio level of the MIC IN connector

Note

If the XLR connection automatic detection mode is on, when the cables are connected to the AUDIO IN CH1/CH2 connectors, the camcorder detects the connection to the AUDIO IN CH1/CH2 connectors. Thus, the AUDIO IN switches are internally reset to REAR and the audio signals input to the AUDIO IN CH1/CH2 connectors are automatically selected.

Before adjusting the audio level of the front microphone, confirm that no cables are connected to the AUDIO IN CH1/CH2 connectors. Alternatively, set the REAR XLR

AUTO item to “OFF” on the AUDIO-1 page of the MAINTENANCE menu.



- 1 Set either or both of the AUDIO IN switch(es) to FRONT as follows:
- 2 Set the AUDIO SELECT switch(es) for the desired channel(s) selected in step 1 to MANUAL.
- 3 Turn the MIC LEVEL control, and adjust so that the audio level meter shows up to -20 dB for a normal input volume.

Correspondence between recording level adjustments and audio level controls

On the AUDIO-3 page of the MAINTENANCE menu, you can select which audio level control controls the audio recording level of the front microphone input. The correspondence between the controls and the menu items and settings is as follows.

Level to be adjusted	Control	Menu item	Setting
Channel-1 recording level	LEVEL (CH-1) control (on the left)	MIC CH1 LEVEL	SIDE1
	MIC LEVEL control		FRONT
	LEVEL (CH-1) control is linked with MIC LEVEL control.		F+S1
Channel-2 recording level	LEVEL (CH-2) control (on the right)	MIC CH2 LEVEL	SIDE2
	MIC LEVEL control		FRONT
	LEVEL (CH-2) control is linked with MIC LEVEL control.		F+S2

Note

When you have operation of the MIC LEVEL control and LEVEL (CH-1/CH-2) controls linked together, if the LEVEL (CH-1/CH-2) controls are set to 0, the audio signals on channels 1 and 2 cannot be recorded. Check the position of the LEVEL (CH-1/CH-2) controls before adjusting the MIC LEVEL control.

Recording audio on channels 3 and 4

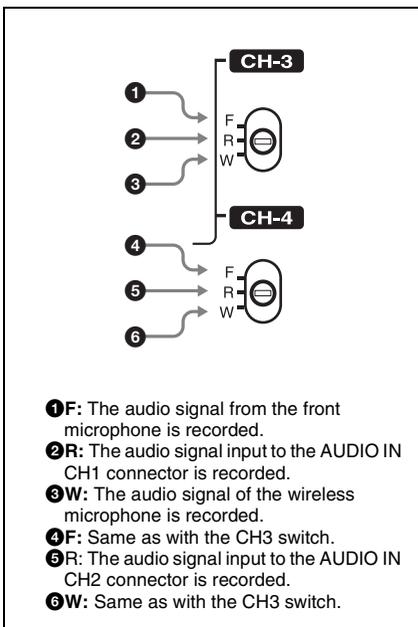
Selecting the recorded audio

You can select the audio recorded on audio channels 3 and 4 with the AUDIO IN CH-3/CH-4 switches, or you can have the selection made automatically, as follows.

To automatically select the same audio as on channels 1 and 2

On the AUDIO-1 page of the MAINTENANCE menu, set the AUDIO CH3/4 MODE item to “CH 1/2”.

Adjusting the audio recording levels



Note

When the LINE/AES/EBU/MIC switch is set to LINE or MIC, the audio signals recorded on audio channels 3 and 4 are not affected by the XLR automatic detection function. They are determined by the settings of the AUDIO IN CH-3 and CH-4 switches.

To adjust automatically

Set AU CH34 AGC MODE on the AUDIO-2 page of the MAINTENANCE menu to STREO or MONO.

To adjust manually

- 1 Set **AU CH34 AGC MODE** on the **AUDIO-2** page of the **MAINTENANCE** menu to **OFF**.
- 2 Set **AUDIO CH3 LEVEL** (for audio channel 3) and **AUDIO CH4 LEVEL** (for audio channel 4) on the **AUDIO-3** page of the **MAINTENANCE** menu to **FRONT**.

The levels of audio channels 3 and 4 can now be adjusted with the MIC LEVEL KNOB.

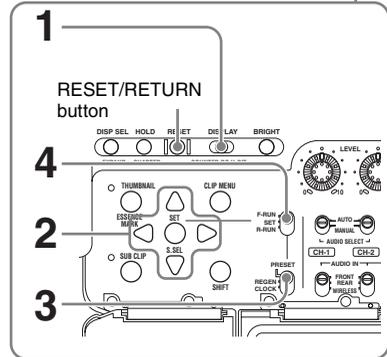
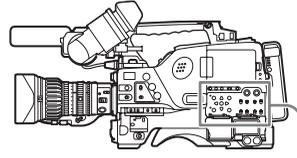
To set to a fixed value

In step **2** of the previous procedure “To adjust manually”, set the menu items to FIX.

Setting the Time Data

Setting the timecode

The timecode setting range is from 00 : 00 : 00 : 00 to 23 : 59 : 59 : 29 (hours : minutes : seconds : frames) for the PDW-700.



- 1** Set the **DISPLAY** switch to **TC**.
- 2** Set the **PRESET/REGEN/CLOCK** switch to **PRESET**.
- 3** Set the **F-RUN/SET/R-RUN** switch to **SET**.
The first (leftmost) digit of timecode flashes.
- 4** Use the **up and down arrow buttons to change values**, and use the **left and right arrow buttons to move the flashing digit**. Repeat until all digits are set.

To reset the timecode value to 00 00 00 00
Press the **RESET/RETURN** button.
- 5** Set the **F-RUN/SET/R-RUN** switch to **F-RUN** or **R-RUN**.

F-RUN: Free run. The timecode generator keeps running.

R-RUN: Recording run. The timecode generator runs only while recording.

To set the drop frame mode/non-drop frame mode

You can select the drop frame (DF) mode or non-drop frame (NDF) mode on the FUNCTION 1 page of the USER menu or OPERATION menu or on the TIMECODE page of the MAINTENANCE menu.

To make the timecode consecutive

When the F-RUN/SET/R-RUN switch is set to R-RUN, recording a number of scenes on the disc normally produces consecutive timecode. However, once you remove the disc and record on another disc, the timecode will no longer be consecutive when you use the original disc again for recording. In this case, to make the timecode consecutive, set the PRESET/REGEN/CLOCK switch to REGEN.

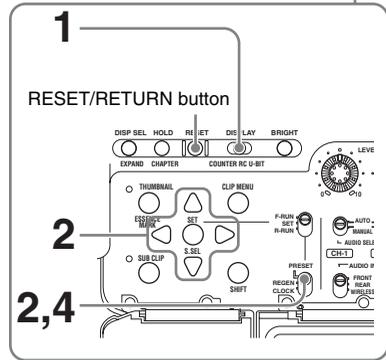
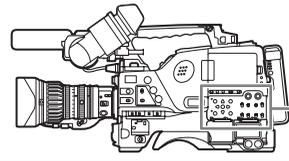
Saving the real Time in the Timecode

Setting the PRESET/REGEN/CLOCK switch to CLOCK saves the real time in the timecode. When it is necessary to set the actual time, use the TIME/DATE page of the DIAGNOSIS menu.

For details, see "Setting the Date/Time of the Internal Clock" on page 38.

Setting the user bits

By setting the user bits (up to 8 hexadecimal digits), you can record user information such as the date, time, or scene number on the timecode track.



- 1 **Set the DISPLAY switch to U-BIT.**
- 2 **Set the F-RUN/SET/R-RUN switch to SET.**
The first (leftmost) digit flashes.
- 3 **Use the up and down arrow buttons to change values, and use the left and right arrow buttons to move the flashing digit. Repeat until all digits are set.**
- 4 **Set the F-RUN/SET/R-RUN switch to F-RUN or R-RUN, corresponding to the desired operating mode for the timecode generator.**

To reset the user bit data to 00 00 00 00
Press the RESET/RETURN button.

The set user bit data will be recorded for both LTC and VITC.

To store the user bit setting in memory

The user bit setting (apart from the real time) is automatically retained in memory even when the power is turned off.

Synchronizing the timecode

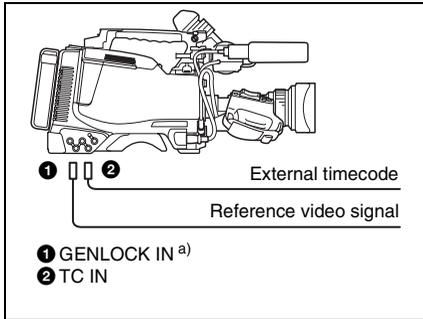
You can synchronize the internal timecode generator of this camcorder with an external generator for the regeneration of an external timecode. You can also synchronize the timecode

generators of other camcorders/VTRs with the internal generator of this camcorder.

Connections for timecode synchronization

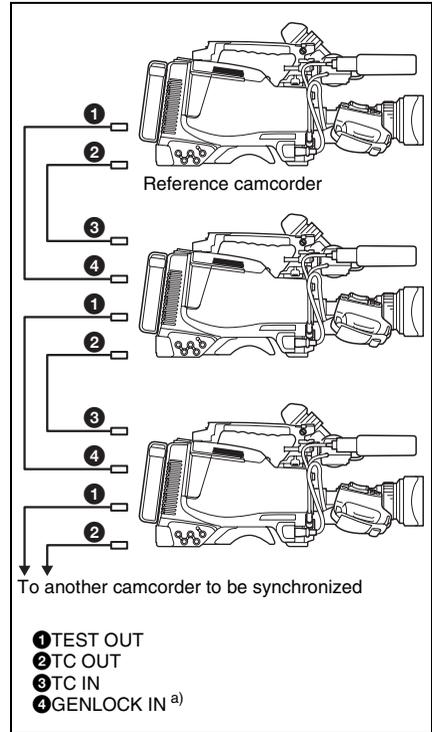
Connect both the reference video signal and the external timecode as illustrated below.

Example 1: Synchronizing with an external timecode



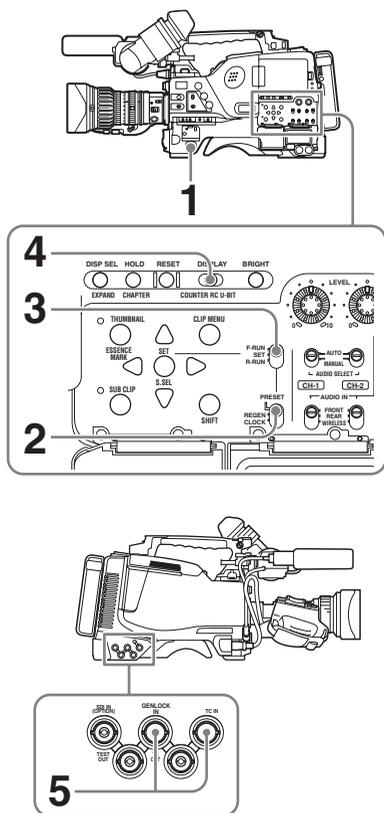
a) Set GENLOCK to ON on the GENLOCK page of the MAINTENANCE menu, if GENLOCK is set to OFF.

Example 2: Interconnecting a number of camcorders or timecode synchronization



a) Set GENLOCK to ON on the GENLOCK page of the MAINTENANCE menu, if GENLOCK is set to OFF.

To lock the timecode to an external source



- 1 Turn on the **POWER** switch.
- 2 Set the **PRESET/REGEN/CLOCK** switch to **PRESET**.
- 3 Set the **F-RUN/SET/R-RUN** switch to **F-RUN**.
- 4 Set the **DISPLAY** switch to **TC**.
- 5 Supply a timecode signal and a reference video signal complying with the **SMPTE** standard and in proper phase relationship, to the **TC IN** connector and to the **GENLOCK IN** connector, respectively.

This operation synchronizes the internal timecode generator with the external timecode. After about 10 seconds, you can disconnect the external timecode without losing the synchronization. However, there will be noise on the recorded image if you connect or disconnect the timecode signal during recording.

Notes

- When you finish the above procedure, the internal timecode is immediately synchronized with the external timecode and the counter display will show the value of the external timecode. However, wait for a few seconds until the sync generator stabilizes before recording.
- If the frequency of the reference video signal is not the same as the frame frequency of the camcorder, the camera cannot be correctly genlocked. In such a case, the internal timecode is not correctly synchronized with the external timecode.
- When the **GENLOCK ON/OFF** item is set to “OFF” on the **GENLOCK** page of the **MAINTENANCE** menu, the timecode cannot be synchronized with the reference video signal. In this case, set the **GENLOCK** item to “ON” on the **GENLOCK** page of the **MAINTENANCE** menu.

User bit settings during timecode synchronization

When the timecode is synchronized, only the time data is synchronized with the external timecode value. Therefore, each camcorder can have its own user bit settings.

You can lock the users bits of this camcorder to the user bits of external timecode by setting **EXT-LK UBIT** in the **TIMECODE** page of the **MAINTENANCE** menu to **EXT**.

To release the timecode synchronization

First disconnect the external timecode, then set the **F-RUN/SET/R-RUN** switch to **R-RUN**.

To change the power supply from the battery pack to an external power supply during timecode synchronization

To maintain a continuous power supply, connect the external power supply to the **DC IN** connector before removing the battery pack. You may lose timecode synchronization if you remove the battery pack first.

Camera synchronization during timecode synchronization

During timecode synchronization, the camera is genlocked to the reference video signal input from the **GENLOCK IN** connector.

Handling Discs

Discs used for recording and playback

The following Professional Discs ¹⁾ can be used for recording and playback on this unit:

- PFD23 (capacity 23.3 GB)
- PFD23A (capacity 23.3 GB)
- PFD50DLA (capacity 50.0 GB)

1) Professional Disc is a trademark of Sony Corporation.

Notes

- It is not possible to use the following discs for recording or playback on this unit:
 - Blu-ray Disc
 - Professional Disc for Data
- PFD50DLA discs can be used only by XDCAM devices with the DL mark (see the following illustration). They cannot be used by XDCAM devices without this mark.



Notes on handling

Handling

The Professional Disc is housed in a cartridge, and is designed to allow handling free of risk from dust or fingerprints. However, if the cartridge is subjected to a severe shock, for example by dropping it, this can result in damage or scratching of the disc. If the disc is scratched, it may be impossible to record video/audio, or to play back the content recorded on the disc. The discs should be handled and stored carefully.

- Do not touch the surface of the disc itself within the cartridge.

- Deliberately opening the shutter may cause damage.
- Do not disassemble the cartridge.
- The supplied adhesive labels are recommended for indexing discs. Apply the label in the correct position.

Storage

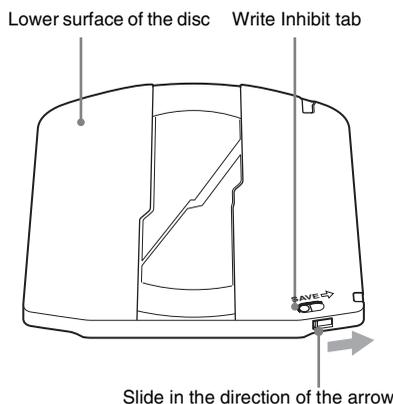
- Do not store discs where they may be subjected to direct sunlight, or in other places where the temperature or humidity is high.
- Do not leave cartridges where dust may be able to gain ingress.
- Store cartridges in their cases.

Care of the discs

- Remove dust and dirt on the outside of a cartridge using a soft dry cloth.
- If condensation forms, allow ample time to dry before use.

Write-protecting discs

To protect the content recorded on the disc from accidental erasure, move the Write Inhibit tab on the lower surface of the disc in the direction of the arrow, as shown in the following figure.



Write Inhibit tab settings



Recording enabled



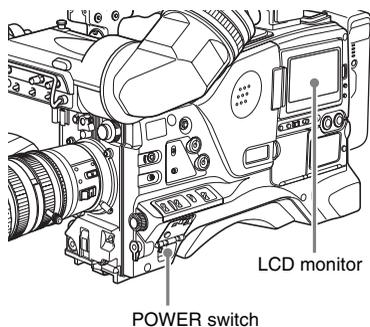
Recording disabled

You can also write protect-individual clips. For details, see “Locking (write-protecting) clips” on page 91.

Loading and unloading a disc

Loading a disc

1 Turn on the POWER switch.

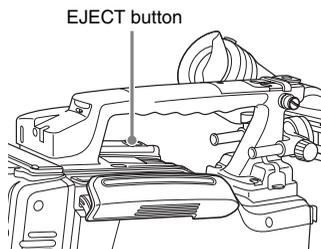


Note

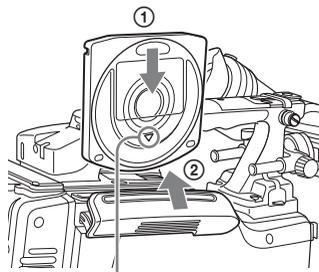
If there is condensation inside the VDR section, the message “HUMID” appears in the status display on the color LCD. If this happens, wait until the indicator goes off before going on to step 2.

2 Press the EJECT button.

This opens the lid of the disc compartment.



3 ① Insert the disc in the ▼ direction, and ② close the disc compartment lid manually.



▼ indication on the outside

The disc is loaded.

Note

To insert the disc correctly, make sure that the camcorder is in the upright position (the grip upside, the bottom downside).

Unloading a disc

With the power supply on, press the EJECT button to open the disc compartment lid and eject the disc, then remove the disc. If you are not going to insert another disc, close the disc compartment lid.

To unload a disc when the power supply is off

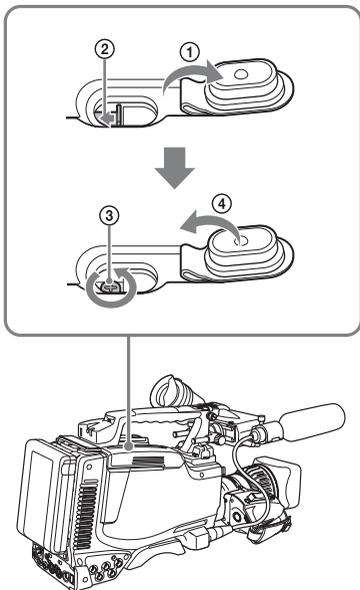
If the battery is exhausted, it is not possible to remove the disc by pressing the EJECT button. In such cases, use the following emergency procedure to remove the disc manually.

1 Turn off the POWER switch.

2 Carry out the operation shown in the following figure.

- ① Open this rubber cover.
- ② Using a screwdriver or similar implement, slide the black metal plate visible inside, in the direction of the rear of the camcorder.
The disc compartment lid opens. A red Phillips screw is visible inside the rubber cap.
- ③ Use a Phillips screwdriver to turn the screw counterclockwise (the direction shown on the rubber cap).
This ejects the disc.
- ④ Close the rubber cover firmly.
You need not return the screw to its original position after taking out the disc. Turning on the power makes the

disc compartment mechanism operable again.



Formatting a disc

When using a new disc

An unused disc requires no formatting operation. The disc is automatically formatted so that it is ready to use when loaded into this unit.

Formatting a disc on which material is recorded

See page 99 for details of formatting a disc.

Note

When a recorded disc is formatted, all the data on the disc is erased. (Even locked clips (see page 91) are also erased.)

Handling of discs when recording does not end normally (salvage function)

Recording processing does not end normally if, for example, the battery pack is removed during recording, or if the power cord is disconnected during recording. Because the file system is not

updated, video and audio data recorded in real time is not recognized as files and clip contents recorded up to that point are lost.

However, this unit has a salvage function which can hold losses to the minimum by reconstructing clips on such discs.

Note that no recorded clip contents are lost when the POWER switch is set to OFF and when battery exhaustion is detected, because the unit does not become powered off until after the end of recording processing.

Notes

- Do not disconnect the battery pack or power cord until recording processing has finished and the ACCESS indicator has gone out.
- This function salvages as much recorded material as possible after an unforeseen accident, but 100% restoration cannot be guaranteed.
- Even when this function is used, it is not possible to recover data from immediately before the interruption of recording. The amount of data lost is as follows.
 - **Quick salvage:** From 2 to 4 seconds of data before the interruption of recording.
 - **Full salvage:** From 4 to 6 seconds of data before the interruption of recording.
 (More data may be lost when the unit is subject to vibrations, when you switch frequently between recording and paused, and when you use functions such as Picture Cash.)

Quick salvage

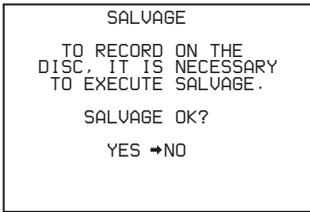
When the unit is powered on again after a recording interruption due to a power interruption, with the disc still loaded in the unit, clips are reconstructed on the basis of backup data stored in nonvolatile memory and markers recorded on the disc. Processing time is about 5 seconds.

Full salvage

When recording on an XDCAM device is interrupted because of a power interruption, and a disc is manually ejected from that device with the power off, clips are reconstructed on the basis of markers recorded on the disc when the disc is loaded in this unit. Therefore, processing takes longer than for a quick salvage (about 30 seconds, although it depends on the state of the disc). Proceed as follows to perform a full salvage.

- 1 **Insert the disc on which recording did not end normally.**

The following salvage message appears.



2 Turn the MENU knob to move → to “YES”, and press the MENU knob.

Salvage processing starts, and the message “EXECUTING” appears.

A results message appears when the processing finishes.

- If the salvage succeeded, the message “COMPLETED” appears.
- If the salvage failed, the message “INCOMPLETED” appears. Clips for which recording did not end normally are lost.

To exit without salvaging

Select NO in step 1 to exit without performing salvage processing. However, the status of the disc does not change. Salvage is still required to recover the clips for which recording did not end normally. The salvage message will appear again when that disc is inserted again, or when the camcorder is powered on again.

Notes

- If salvage processing is not done, sections which were recorded normally can be played back, but no new recording can be done on the disc.
- Full salvage of discs recorded by this camcorder can be performed with the PDW-HD1500 or PDW-700. Full salvage cannot be performed with any other XDCAM device.

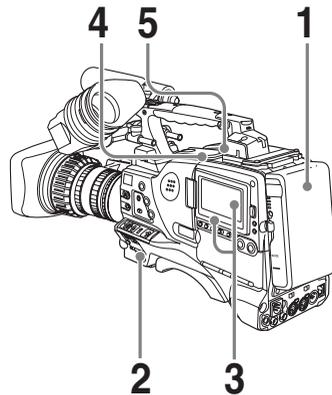
Basic Procedure for Shooting

This section describes the basic procedures for shooting and recording.

Before a shooting session, ensure that the camcorder is functioning properly.

For details, see “Testing the Camcorder Before Shooting” on page 175.

Basic procedure for shooting: from power supply to disc loading



1 Attach a fully charged battery pack.

For details, see “Preparing a Power Supply” on page 32.

2 Set the POWER switch to ON.

3 Set the DISP SEL switch to STATUS, and check on the LCD monitor that the following conditions are met.

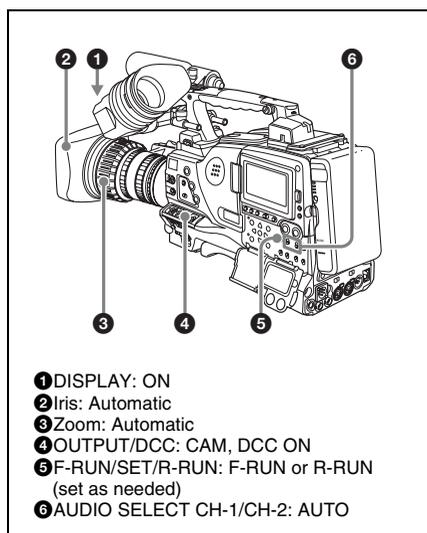
- The HUMID indicator is not showing. If it is, wait until it disappears.
- The battery status indicator shows at least five segments (■). If it does not, replace the battery pack with a fully charged one.

- 4 Check that there are no obstructions such as cables near the disc compartment lid. Then press the EJECT button to open the disc compartment lid.
- 5 After checking that the disc is not write-protected (see page 66), load it and close the disc compartment lid.

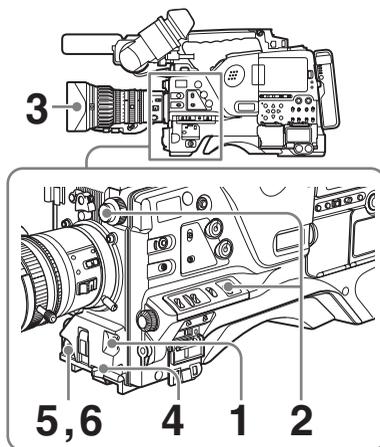
Basic procedure for shooting: from adjusting the black balance and white balance to stopping recording

Switch settings

After turning on the power and loading a disc, set the switches and selectors as shown below and begin operation.



Shooting



- 1 Flick the AUTO W/B BAL switch to BLK to adjust the black balance.
For details of black balance adjustment, see page 51.
- 2 Select the CC filter and ND filter to match the lighting conditions, and adjust the white balance.
For details, see "Adjusting the white balance" on page 52.
- 3 Aim the camera at the subject and adjust the focus and zoom.
- 4 If necessary, set the electronic shutter for an appropriate mode and speed.
For details, see "Setting the Electronic Shutter" on page 54.
- 5 To start recording, press the REC START button or the VTR button on the lens.
If the recording start/stop function is assigned to one of the ASSIGN 1/3/4 switches you can also use this switch.
On how to assign functions to the ASSIGN switches, see page 148.
During recording, the REC indicator lights in the viewfinder. Perform zooming and focus control, if necessary.

Note

During recording (while the ACCESS indicator is lit) do not remove the battery pack. If you do, the internal processing for recording may not finish properly, which may cause the last few seconds of recording to be lost.

For details, see “Handling of discs when recording does not end normally (salvage function)” on page 68.

6 To stop recording, press the REC START button or the VTR button on the lens again.

The REC indicator in the viewfinder goes off.

The material recorded from step 5 to step 6 is saved as a single clip.

To check the last two seconds of the recording (recording review)

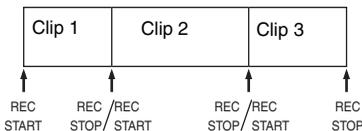
If you press the RET button on the lens while recording is paused, the last two seconds of the recording is played back. If you hold down the RET button, a low-speed reverse search begins at a position two seconds before the recording end position. When you release the RET button, the reverse search stops and playback in the forward direction begins. After playback, the camcorder is ready to start recording again.

By assigning the the same function as that of the RET button on the lens to the ASSIGN 1/3/4 switch, you can use the switch in the same way as the lens RET button.

On how to assign functions to the ASSIGN switches, see page 148.

7 Repeat steps 5 and 6 as required for shooting.

Each time you repeat steps 5 and 6, successive clips are recorded on the disc.

**Notes**

- It is not possible to record a clip shorter than 2 seconds. If you stop recording within 2 seconds of starting, this results in a 2-second clip.
- If you stop recording and restart within 2 seconds of

the original start, this creates a single continuous clip from the original start time.

- The maximum number of clips that can be recorded on a single disc is 300. If an attempt is made to record more than 300 clips, the error message “MAX #Clips” appears, even if there is free capacity on the disc.

Playback control buttons

During recording, the playback control buttons (EJECT, F REV, F FWD, NEXT, PREV, PLAY/PAUSE, STOP) have no effect.

Playing back the recorded clip

Normal playback

By pressing the PLAY/PAUSE button, you can review any length of recording on the viewfinder screen in black and white or in color on the LCD monitor. There are two other ways to review the recording.

Recording review: You can view the last two seconds of the recording on the viewfinder screen in black and white or in color on the LCD monitor.

Viewing color playback on a video monitor:

You can view the recording in color on a color video monitor without the need for any external adaptor.

You can also view palyback video during a fast forward or reverse search.

For details about the switches and controls used to select the audio output signal and to adjust the audio level, see page 24.

Freezing a picture during playback

The following operation can also be done from the RM-B150/B750 Remote Control Unit.

- Press the **PLAY/PAUSE** button to start playback.
- Press the **PLAY/PAUSE** button again at the instant when you want to freeze the picture.

The playback pauses and a frozen picture appears.

The timecode of the frozen frame is displayed in the counter display and the PLAY/PAUSE indicator now flashes (one flash/second).

To restart playback

Press the PLAY/PAUSE button once again.

Viewing camera video during playback (Live & Play function)

By carrying out the following procedure to enable this function before starting playback, you can view camera video (live video) in the viewfinder during playback from the disc. This is a convenient way to frame the next shot and adjust the exposure and focus while viewing recorded video and playback video.

Notes

- The FREEZE MIX function (*see page 149*) cannot be used when the Live & Play function is on.
- During playback with the Live & Play function enabled, the playback video only is output to the LCD monitor and from the video output connectors. Text information, markers, and zebra signals are not output.

(How to select an item in the menu screen: Turn the MENU knob to move the ➔ mark to the desired item.)

1 Set LIVE & PLAY to “ON” on the OUTPUT 2 page of the OPERATION menu.

For details on menu operations, see “Basic menu operations” on page 134.

2 Select the video signal output conditions from the following modes.

OFF: Do not display camera video in the viewfinder during disc playback. (The disc playback signals are output to the viewfinder and LCD monitor, and from all video output connectors).

ON: Output camera video to the viewfinder, even during disc playback. (The disc playback signals are output to the LCD monitor and from all video output connectors.)

Disc playback start position

Although this unit uses optical discs, it is designed to offer the most convenient features of tape playback by VTRs. One of these is the playback start position, which works in the same way as with tape, as described below.

After playback stop

The unit stops at the position where the STOP button was pressed.

Press the PLAY/PAUSE button to resume playback at the stop position.

After recording

The unit stops at the position where recording ended.

To play back a clip, press the PREV button to move to the start frame of any clip, or press the F REV button to move to any position.

After disc insertion

The unit stops at the position of the disc when it was most recently ejected.

Press the PLAY/PAUSE button to resume playback at the most recent position.

The playback position is saved to the disc when the disc is ejected, which allows playback to start at that position whenever it is loaded into any XDCAM player.

Note

The playback position is not recorded to the disc if the disc is write-protected.

Deteriorating playback conditions

Deteriorating playback may be due to the following causes.

- Scratches and dust on the disc surface
This includes fingerprints, dust from the air, tar from cigarette smoke, and so on.
Scratches and soiling which occur before recording are not a problem because they are registered in advance as defects, and recording avoids them. However, scratches and soiling which occur after recording can lead to deteriorating playback conditions.
- Aging of disc recording layers
Over several decades, the recording layers of optical discs can age and cause deteriorating playback conditions.
- Deteriorating laser diodes performance
The performance of the laser diodes used in optical heads can worsen with age, leading to deteriorating playback conditions.

Refer to the Maintenance Manual for an approximate guide to when it is time to replace optical heads.

To prevent playback conditions from deteriorating

Pay attention to the following points when handling discs.

- Do not open disc cartridges and touch discs directly with your hands.
- Do not store for long periods in locations which are dusty or exposed to air circulated by fans.
- Do not store for long periods under high temperatures or in locations exposed to direct sunlight.

If playback conditions have deteriorated

Read errors occur when playback conditions continue to deteriorate.

When a read error occurs, the message “DISC DEFECT” appears, the video freezes, and the audio output is suppressed.

If this happens, check the following points.

Whether the disc displays the same playback condition on other XDCAM devices: If so, the surface of the disc may be dirty or scratched, or the performance of the recording layers on the disc may have worsened due to age. Do not use discs with these symptoms.

Whether every disc inserted into an XDCAM device displays the same playback conditions: If so, the performance of the laser diodes may have deteriorated. Check the total optical output time.

Deleting the recorded clip

For details, see “Deleting clips” on page 92.

Advanced Operations for Shooting

Recording essence marks

Shot marks and other essence marks can be recorded on the disc.

Recording essence marks for scenes containing important images and sounds enables quick access to the marked points. This increases editing efficiency.

To record a shot mark using the RET button on the lens

To make it possible to record shot marks using the RET button on the lens, carry out the following procedure.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the ESSENCE MARK page of the MAINTENANCE menu.

?M110	ESSENCE MARK	TOP
RET SHOT MARK 1	:	ON
RET SHOT MARK 2	:	ON
INDEX PIC. POS	:	0SEC

For details on menu operations, see “Basic menu operations” on page 134.

2 Select the essence mark to be recorded, and press the MENU knob to display “ON”.

3 Repeat the step 2, as necessary.

To record shot mark 1/2

When the camcorder is in recording or playback mode, operate the lens RET button as follows.

Shot mark 1: Press the RET button once.

Shot mark 2: Press the RET button twice in rapid succession.

“ShotMark1” or “ShotMark2” appears in the viewfinder screen for about one second near the timecode display.

If the SHOT MARK 1 or SHOT MARK 2 recording function has been assigned to one of the ASSIGN 1/3/4 switches, you can also use that switch to record a SHOT MARK 1 or SHOT MARK 2 essence mark.

On how to assign functions to the ASSIGN switches, see page 148.

Setting the thumbnail image at recording time

When you record a clip, you can specify which frame to use as the clip thumbnail image (*see page 87*).

(The factory default setting is to use the first frame in the clip as the thumbnail.)

For example, if all clips have the same image in their first frames, you can specify a frame a few seconds after the start of the clip, so that all thumbnails will not show the same image.

(How to select an item in the menu screen: Turn the MENU knob to move \blacktriangleright to the desired item.)

1 Display the ESSENCE MARK page of the MAINTENANCE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” on page 134.

2 Select INDEX PIC. POS, and press the MENU knob.

3 Turn the MENU knob to select the desired time.

4 Press the MENU knob.

Starting a shoot with a few seconds of pre-stored picture data (Picture Cache function)

The camcorder has a large capacity internal memory, in which you can cache the last few seconds (maximum 30 seconds) of captured video and audio, so that recording starts from a point just before you press the REC START button or the VTR button on the lens.

Setting the Picture Cache mode/Picture Cache time

To record in Picture Cache mode, you need to turn on Picture Cache mode and set the picture data storage time (Picture Cache time) using the USER menu.

The Picture Cache time determines the number of seconds recorded from the Picture Cache, counting back from the time when you press the REC START button or the VTR button on the lens to start recording. However, the number of seconds actually recorded from the Picture Cache may be shorter immediately after the setting of the VDR SAVE/STBY switch is changed, and in the special situations explained in the following notes.

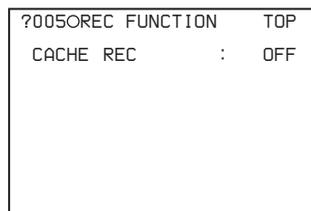
Notes

- Storage of images to memory begins after you select Picture Cache mode. If you begin recoding immediately after selecting Picture Cache mode, images from before the selection will not be recorded.
- During playback or recording review, no data is saved to the Picture Cache memory. Thus it is not possible to use this function to rerecord the last few seconds of material from playback or recording review.

To set the Picture Cache mode/Picture Cache time

(How to select an item in the menu screen: Turn the MENU knob to move \blacktriangleright to the desired item.)

1 Display the REC FUNCTION page of the USER menu.



For details on menu operations, see “Basic menu operations” on page 134.

2 Select CACHE REC, and press the MENU knob to display “ON”.

3 Select CACHE REC TIME, and turn the MENU knob to display the desired Picture Cache time.

As you turn the MENU knob, the Picture Cache time changes as follows: 0-2s \leftrightarrow 2-4s

↔ 4-6s ↔ 6-8s ↔ 8-10s ↔ 18-20s ↔ 28-30s.

The Picture Cache mode settings once made continue to be effective until changed. You can assign the Picture Cache on/off function to one of the ASSIGN 1/2/3/4 switches.

On how to assign functions to the ASSIGN switches, see page 148.

Notes

- You can do a menu operation to change the Picture Cache time while the camcorder is in recording mode. However, the new setting takes effect only after the recording is finished.
- In Picture Cache mode, the internal timecode generator operating mode is always F-RUN regardless of the setting of the F-RUN/SET/R-RUN switch.

Camcorder operations in Picture Cache mode

The recording procedure in Picture Cache mode is basically the same as that for normal recording. However, note the following differences.

- When you record in Picture Cache mode, the picture you are shooting now is recorded to disc after the picture data stored in memory (equal to the Picture Cache time) is recorded to disc. For this reason, disc access may continue for a short time after you press the REC START button to stop recording. During this time, the playback control buttons are disabled, as in recording mode. Also, if you press the REC START button or the VTR button on the lens to restart recording during this time, a separate clip is recorded.
- When you press the REC START button or the VTR button on the lens to restart recording during disc access, the start point of the recorded clip may be later than the Picture Cache time, especially when there are a large number of clips recorded on the disc. In Picture Cache mode, you should avoid stop and start recording operations in quick succession.
- The time disc access stops after the REC START button is pressed equals the Picture Cache time. However, if you start recording within the Picture Cache time immediately after selecting Picture Cache mode, changing the Picture Cache time or performing playback or recording review, the picture data for the duration of the Picture Cache time will not be stored in memory. Thus, the time disc access stops after the STOP button is pressed becomes shorter than the Picture Cache time.

- In Picture Cache mode, you cannot set the F-RUN/SET/R-RUN switch to SET to make timecode settings. To make timecode settings, first exit Picture Cache mode.

When power is lost during recording in Picture Cache mode

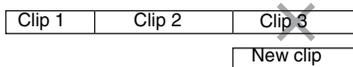
- If the POWER switch is turned off during recording in Picture Cache mode, the camcorder gets powered off after disc access has continued for a few seconds so that the picture at the moment when the POWER switch is turned off is recorded.
- If you remove the battery, pull out the DC cable, or cut power to the AC adaptor during recording in Picture Cache mode, video and audio stored in memory will be lost without being recorded to the disc. For this reason, make sure you do not change the battery while recording.

Retaking the most recent clip

A retake function is available, making it easy to erase and retake the most recently recorded clip. To use the retake function, you need to assign it to one of the ASSIGN 1/3/4 switches in advance.

On how to assign functions to the ASSIGN switches, see page 148.

Example: After recording clip 3, you want to delete it and record a new clip 3 after clip 2.



To retake the most recent clip

With recording paused or after the end of a recording review (see page 71), proceed as follows.

- 1 Hold down the button to which the retake function has been assigned.**
While the button is held down, the last frame of the recorded clip and the message “PUSH RET FOR CLIP DELETE” appears.
- 2 In this state, press the RET button.**
The message “DELETING LAST CLIP” appears, and the processing for deleting the last recorded clip begins.
When the deleting has finished, the message “LAST CLIP WAS DELETED” appears.

Note

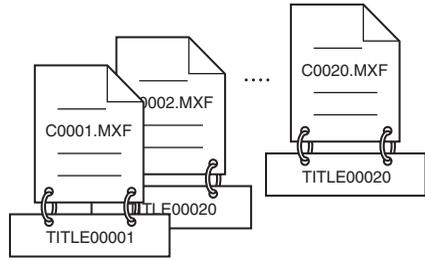
If an operation (other than recording review) which is not a retake operation is carried out after the last clip has been recorded, the retake function does not work even when the camcorder is in the recording pause state. In this case, the message “RE-TAKE NOT ALLOWED!” appears. When you want to replace the last clip with a new clip, delete the clip (see page 92). Once you carry out a retake operation, the last clip is deleted even if you do not carry out a recording operation afterwards.

Assigning user-defined clip titles automatically

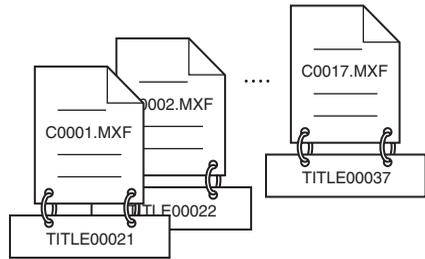
About the automatic title generation function

By default, clips on each disc are assigned names in the range C0001.MXF to C0300.MXF. For this reason, two discs can contain clips with the same names. The automatic title generation function allows you to assign titles to all of the clips on several discs, which facilitates clip management. For example, if the titles TITLE00001 to TITLE00020 are assigned to clips C0001.MXF to C0020.MXF on disc 1, then the titles TITLE00021 to TITLE00037 are assigned to clips C0001.MXF to C0017.MXF on disc 2.

Titles are made up of prefixes, up to 10 characters in length, and five-digit serial numbers such as TITLE 00001.



Clips recorded on Disc 1



Clips recorded on Disc 2

Setting the title prefix

You can assign title prefixes by choosing from a prefix list stored in internal memory, or by entering the prefix directly.

However, to choose from a prefix list, you must create the list beforehand on a computer and transfer it to the unit's internal memory with a “Memory Stick”.

Setting the initial value of the serial number

The initial value of the serial number can be set to 00001 (the default) or to any other number. The number is automatically incremented by 1 each time you record a clip. When it reaches 99999, it returns to 00001 for the next clip.

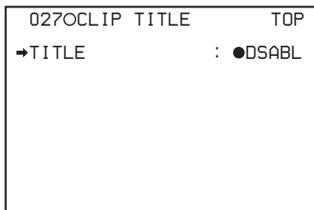
Note

Duplicate clip titles can be generated depending on the serial number setting, for example if you reset the serial number to the original value after recording several clips. Care should be taken when setting the serial number.

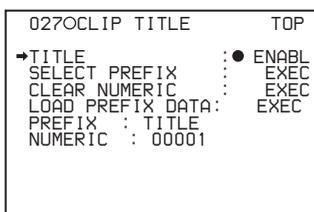
To assign user-defined titles automatically when clips are recorded

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the **CLIP TITLE** page of the **OPERATION** menu.



- 2 Select “TITLE” and then press the MENU knob.
- 3 Turn the MENU knob to display “ENABL” and then press the MENU knob.



Clip titles will be generated automatically if you record in this state.

The title of the next clip to be recorded will be a combination of the prefix in the PREFIX field and the serial number in the NUMERIC field.

To create a list of title prefix strings

Prepare the data beforehand according to the following rules.

File name

Assign the name “TITLES.TXT” to the file.

Input format

Enter title prefixes one at time, separated by newline (CRLF) characters.

Prefixes can be up to 10 characters long. A prefix file can contain up to 20 prefixes.

Allowable characters

- **Digits:** 0 to 9
- **Alphabetic characters:** a to z, A to Z
- The following symbols: !, #, \$, %, &, ' (,) , ~, =, -, ^, @, [,] , { , } , +, ; (semicolon), , (comma), . (period), _ (underscore)
- Space

Title prefix list example

Tennis<CRLF>

Basketball<CRLF>

Skiing_1<CRLF>

Skiing_2<CRLF>

To transfer a title prefix list to the internal memory of the camcorder

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Copy the title prefix file (TITLES.TXT) to the following folder on the “Memory Stick”:
 \\MSSONY\PRO\XDCAM\GENERAL\VAL_LIST

Note

This folder is created when you insert a “Memory Stick” into the camcorder. Do not create this folder yourself on a computer.

- 2 Insert a “Memory Stick” with the title prefix file (TITLES.TXT) into the “Memory Stick” slot of the camcorder.

- 3 On the CLIP TITLE page of the OPERATION menu (see page 111), select “LOAD PREFIX DATA” and then press the MENU knob.

“MEMORY STICK ACCESS” appears, and the file on the “Memory Stick” (TITLES.TXT) is transferred to the internal memory of the unit.

The message “COMPLETE!” appears when the transfer finishes.

Note

The message “FILE NOT FOUND!” appears if no list of title prefixes is found.

Check the location where the file is stored on the “Memory Stick”.

To select a prefix from the title prefix list

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the CLIP TITLE page of the OPERATION menu.

For details on menu operations, see “Basic menu operations” on page 134.

- 2 Select “SELECT PREFIX” and then press the MENU knob.

A list of up to 20 title prefixes appears.

```
?P00 TITLE PREFIX  ESC
001: Tennis
002: Basketball
003: Skiing_1
004: Skiing_2
005: Athletics
006: Aquatics
007: Cycling
008: Softball
009: Fencing
→010: Sailing ●
```

Note

When no list of title prefixes has been transferred to the internal memory of this unit, only the initial value “TITLE” appears.

3 Select the desired title prefix from the list, and then press the MENU knob.

The CLIP TITLE page appears again, and the selected prefix appears in the PREFIX field.

To enter a title prefix directly

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the CLIP TITLE page on the OPERATION menu.

For details on menu operations, see “Basic menu operations” on page 134.

2 Select “PREFIX” and then press the MENU knob.

A prefix string appears.

```
027 CLIP TITLE TOP
TITLE : ENABL
SELECT PREFIX : EXEC
CLEAR NUMERIC : EXEC
LOAD PREFIX DATA: EXEC
PREFIX : TITLE
!#$%&'()*+,-.0123456789;
=@ABCDEFGHIJKLMNOPQRSTU
VWXYZ[]^_`abcdefghijklmnopqrstuvwxyz{~
INS DEL RET ESC END
```

3 Move ■ onto the character you want to change, and then press the MENU knob.

4 Turn the MENU knob to move ■ onto the desired character in the list of selectable characters, and then press the MENU knob.

5 Repeat steps 3 and 4 to enter the remaining characters.

6 When you have finished entering the prefix, turn the MENU knob to move ■ to “END” and then press the MENU knob.

The camcorder exits prefix input mode, and the original CLIP TITLE page appears.

To set the initial value of the clip title serial number

You can set the initial value of the clip title serial number to 00001 (default) or to any 5-digit value.

To return the initial value to 00001

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the CLIP TITLE page on the OPERATION menu.

For details on menu operations, see “Basic menu operations” on page 134.

2 Select “CLEAR NUMERIC” and then press the MENU knob.

The message “CLEAR OK? ➔YES NO” appears.

3 Select “YES” and then press the MENU knob.

The value in the NUMERIC field returns to 00001.

To set the initial value to any number

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the CLIP TITLE page on the OPERATION menu.

For details on menu operations, see “Basic menu operations” on page 134.

2 Select “NUMERIC” and then press the MENU knob.

3 Move ■ onto the digit you want to change, and then press the MENU knob.

4 Turn the MENU knob to move ■ onto the desired digit in the list of selectable digits, and then press the MENU knob.

5 Repeat steps 3 and 4 to enter the remaining digits.

6 When you have finished entering the value, turn the MENU knob to move to “END” and then press the MENU knob.

The camcorder exits numeric input mode, and the original CLIP TITLE page appears.

To check clip titles

Press the THUMBNAIL button to display the thumbnail screen, and select the clip whose title you want to check.

The title of the selected clip appears in the upper left of the screen.

See “Clip thumbnail screen” (page 82) for more information about the thumbnail screen.

Notes

- It is not possible to specify 00000 as the initial value. Even if you enter 00000, the value is reset to 00001 when the camcorder exits numeric input mode.
- The value of the serial number is incremented by 1 every time a title is generated. When the value reaches 99999, the next number restarts from 00001.
- Duplicate clip titles can be generated if you reset the serial number after recording several clips or the same is true depending on the value setting. Care should be taken when setting the serial number.

Assigning user-defined names to clips and clip lists

The following standard format names are assigned automatically to clips and clip lists that are created or recorded by XDCAM devices.

Clips: C0001.MXF to C0300.MXF

Clip lists: E0001E01.SMI to E0099E01.SMI

When you record or create clips and clip lists, you can assign user-defined names instead of the standard format names. Assigning meaningful names to clips and clip lists can facilitate file management.

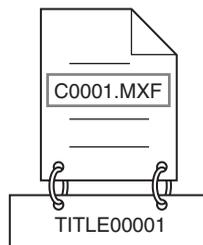
Limitations

- Letters, numbers and symbols from the Unicode 2.0 character set can be used. However, the following control characters and symbols cannot be used.
 - **Control characters:** U+0000 to U+001F, U+007F
 - **Symbols:** ", *, /, :, <, >, ?, \, |

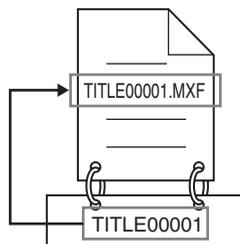
- Depending on the character type, the length of name (“C*” part) may be limited to 14 characters. (The limit for ASCII characters is 56 characters.)
- All file name extensions are converted automatically to uppercase.
- Titles are used as user-defined clip names on this unit. Therefore, the available characters are limited to those supported by the title function.
- Files generated along with clips and clip lists are assigned the same names (the “C*” or “E*” part of the following file names).
 - **Clips:** Metadata files (C*M01.XML), proxy AV files (C*S01.MXF)
 - **Clip lists:** Metadata files (E*M01.XML)
- The following names cannot be assigned.
 - **Clips:** C0000.MXF
 - **Clip lists:** E0000E01.SMI, E0100E01.SMI to E9999E01.SMI, E0000.SMI, E0100.SMI to E9999.SMI
- The following names should be avoided.
 - **Clips:** C5000.MXF to C9999.MXF
 - **Clip lists:** E0001.SMI to E0099.SMI

To assign clip names on this unit

The title assigned to a clip is also used as the name of that clip (or the file name).



When sub item “AUTO NAMING” is set to “C****”



When sub item “AUTO NAMING” is set to “TITLE”

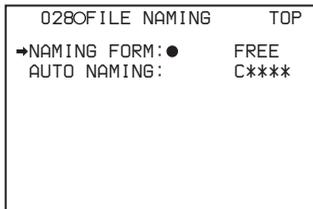
(How to select an item in the menu screen: Turn the MENU knob to move ➡ to the desired item.)

- 1 Before starting, set **TITLE** on the **CLIP TITLE** page of the **OPERATION** menu to “**ENABL**” and set a title (see page 111).

For details on menu operations, see “Basic menu operations” on page 134.

- 2 Display the **FILE NAMING** page of the **OPERATION** menu.
- 3 Select **NAMING FORM** and then press the **MENU** knob.
- 4 Turn the **MENU** knob to display “**FREE**” and then press the **MENU** knob.

You can now enter a user-defined name.



- 5 Turn the **MENU** knob to select “**AUTO NAMING**” and then press the **MENU** knob.
- 6 Turn the **MENU** knob to display “**TITLE**” and then press the **MENU** knob.

The same name will now be given to newly recorded clips.

Notes

- An FTP client software that supports UTF-8 is required to use Unicode characters other than ASCII characters. Command prompt FTP commands do not support UTF-8.
- When the first letter of the title setting on the **CLIP AUTO TITLING** menu is a space or period (.), the clip name is the title string minus the first letter.

To use clip names and clip list names by FAM and FTP

Carry out steps 2 to 4 of “To assign clip names on this unit”.

It is now possible to write, transfer, and rename clips and clip lists with user-defined names over file access mode (FAM) connections (see page 167) and FTP connections (see page 169).



User-defined clip names can be used by FAM and FTP



User-defined clip list names can be used by FAM and FTP

To check clip names

Press the **THUMBNAIL** button to display the thumbnail screen, and select the clip whose name you want to check.

The name of the selected clip appears in the upper left of the screen.

See “Clip thumbnail screen” (page 82) for more information.

Note

The item at the upper left of the screen is displayed according to the following order of priority.

Title > user-defined clip name > standard format clip name

Therefore, the display of this item changes as follows, depending on whether or not there is a title.

- When a title has been set as a clip name on this unit, the title is displayed for clips recorded on this unit.
- The user-defined name or standard format name is displayed for clips without a title.

To check clip information (name, title, etc.)

For details, see “Checking clip properties” (page 91).

Overview

You can perform scene searches, play the searched scenes, and select scenes (edit clip list) in the user interface screens. The user interface screens are your gateways to discs and the data saved on discs.

Switching between user interface screens

The most important user interface screens are:

Clip thumbnail screen: Displays thumbnails of clips on the disc. “Clip” is displayed as the title at the upper left of the screen.

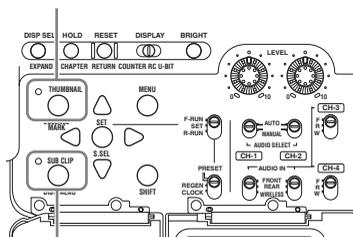
Clip list thumbnail screen: Displays thumbnails of sub clips in a clip list. “Clip List” is displayed as the title at the upper left of the screen.

There are also two playback screens:

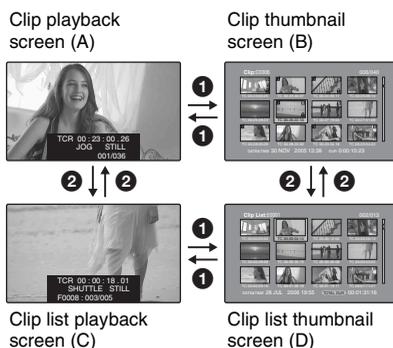
Clip playback screen: Playback screen for normal video

Clip list playback screen: Playback screen for clip list video

Normally you will use the buttons shown in the following figure to switch between these four screens.

1 THUMBNAIL/ESSENCE MARK button and indicator**2 SUB CLIP/DISC MENU button and indicator**

Each press of these buttons switches between the screens as shown below.



The THUMBNAIL and SUB CLIP indicators light as follows, according to the type of screen that is currently displayed.

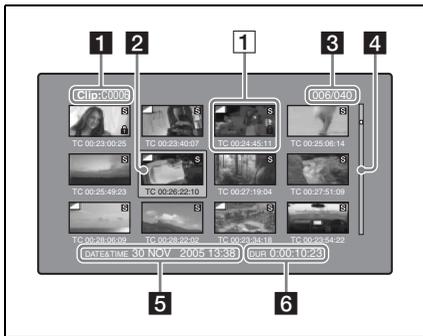
Indicator	Screen			
	A	B	C	D
THUMBNAIL indicator	Unlit	Lit	Unlit	Lit
SUB CLIP indicator	Unlit	Unlit	Lit	Lit

The other thumbnail screens are:

- Expand thumbnail screen
- Chapter thumbnail screen
- Essence mark thumbnail screen

Information and controls in thumbnail screens

Clip thumbnail screen



1 Clip name

Displays the name of the selected clip. When the clip has a title, it is displayed as “TITLE00001” (see page 76). Clip names can be displayed in Japanese when the area of use (see page 37) is set to “NTSC (J) AREA”.

Note

To display the clip title, Settings >Display Title in the Disc Menu needs to be set to On.

2 Selection frame

Indicates that the thumbnail is selected. To select another thumbnail, move the frame (see page 87). Multiple selection frames appear when multiple thumbnails are selected (see page 86).

3 Clip number/total number of clips

Displays the total number of clips on the disc, and the number of the selected clip.

4 Scrollbar

When not all of the thumbnails can be displayed in the thumbnail display area, the position of the slider shows the relative position of the currently displayed clips, and the length of the slider shows the relative length of currently displayed clips within all of the clips.

When you have a large number of thumbnails, you can save time by using the Skip Scroll function to jump directly to the thumbnail you want (see page 87).

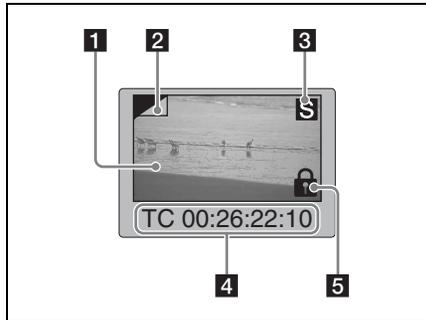
5 Clip date and time

Displays the date and time when the selected clip was shot and recorded.

6 Duration

Displays the duration (recording time) of the selected clip.

1 Thumbnail display items



1 Index picture

Displays an image to stand for the content of the clip. The index picture is normally the first frame of the clip.

2 Index picture changed mark

This mark, like the folded-over corner of a page that you want to remember, appears when the index picture has been changed to any frame other than the first frame of a clip (see page 90).

Note

When you cue up a clip, the unit always cues up the first frame, even when the index picture has been changed to a different frame.

3 S mark

This mark appears when shot marks or multiple Rec Start essence marks have been set in the clip (see page 73).

The chapter thumbnail screen can be displayed for clips that show this mark (see page 83).

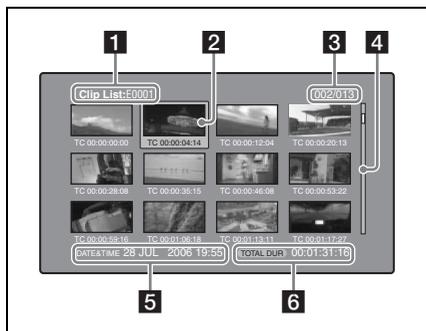
4 Clip and frame information

Displays the clip or frame information selected with the Clip Information item in the Thumbnail Menu (see page 89). The factory default selection is the timecode of the first frame or the timecode of the thumbnail frame.

5 Lock icon

This icon appears when the clip is locked (protected) (see page 91). Clips cannot be deleted and their clip information cannot be changed when this mark is displayed.

Clip list thumbnail screen



1 Clip list name

Displays the name of the clip list. When the clip list has a title, it is displayed as “TITLE00001” (see page 76). Clip list names can be displayed in Japanese when the area of use (see page 37) is set to “NTSC (J) AREA”.

Note

To display the clip list title, Settings > Display Title in the Disc Menu needs to be set to On.

2 Selection frame

See the description in “Clip thumbnail screen” (page 82).

3 Sub clip number/number of sub clips

Displays the total number of sub clips in the clip list, and the number of the selected sub clip.

4 Scrollbar

See the description in “Clip thumbnail screen” (page 82).

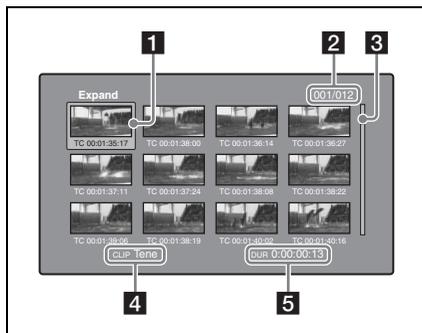
5 Clip list date and time

Displays the date and time when the clip list was created, or the date and time of its most recent modification. An asterisk (*) appears after the date and time of creation when a clip list has not been saved to the disc.

6 Total duration

Displays the total duration of all sub clips in the clip list.

Expand thumbnail screen



1 Selection frame

See the description in “Clip thumbnail screen” (page 82).

2 Thumbnail number/total thumbnails

Displays the total number of expanded thumbnails and the number of the selected thumbnail.

3 Scrollbar

See the description in “Clip thumbnail screen” (page 82).

4 Clip name

Displays the name of the expanded clip. When the clip has a title, it is displayed as “TITLE00001” (see page 76). Clip names can be displayed in Japanese when the area of use (see page 37) is set to “NTSC (J) AREA”.

Note

To display the clip title, Settings > Display Title in the Disc Menu needs to be set to On.

5 Duration

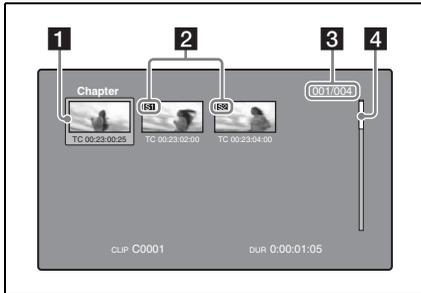
Displays the time from the selected thumbnail to the next one.

Chapter thumbnail screen

The sections between essence marks (shot marks that have been set in clips, and Rec Start essence marks) are called chapters. This screen allows you to display the chapters of the selected clip.

Note

Shot marks can be set during recording and playback. They can be deleted and moved. Rec Start essence marks are set automatically at the start of recording. They cannot be deleted or moved.

**1 Selection frame**

See the description in “Clip thumbnail screen” (page 82).

2 S1/S2 marks

The S1 and S2 marks indicate frames where Shot Mark1 and Shot Mark2 essence marks are set. Thumbnails without a mark are frames where Rec Start essence marks are set.

3 Chapter number/total chapters

Displays the total number of chapters and the number of the selected chapter.

Note

The total number of chapters is the total number of chapters in the specified clip only.

4 Scrollbar

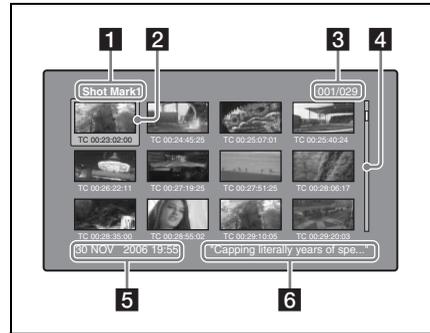
See the description in “Clip thumbnail screen” (page 82).

5 Clip name

Displays the name of the clip that contains the selected frame. When the clip has a title, it is displayed as “TITLE00001” (see page 76). Clip names can be displayed in Japanese when the area of use (see page 37) is set to “NTSC (J) AREA”.

6 Duration

Displays the time from the selected shot mark to the next shot mark.

Essence mark thumbnail screen**1 Essence mark name**

Displays the name of the essence mark (Shot Mark1 here).

2 Selection frame

See the description in “Clip thumbnail screen” (page 82).

3 Essence mark number/total essence marks

Displays the total number of essence marks and the number of the selected essence mark.

Note

The total number of essence marks is the total number of essence marks that have been set in all clips on the disc.

4 Scrollbar

See the description in “Clip thumbnail screen” (page 82).

5 Clip date and time

Displays the date and time when the clip that contains the selected thumbnail was recorded or last modified.

6 Clip name

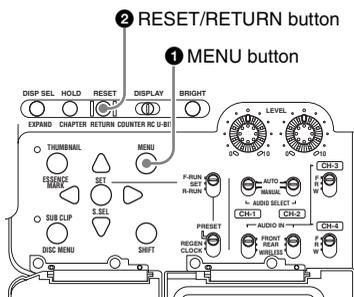
Displays the name of the clip that contains the selected frame. When the clip has a title, it is displayed as “TITLE00001” (see page 76). Clip names can be displayed in Japanese when the area of use (see page 37) is set to “NTSC (J) AREA”.

Displaying menus

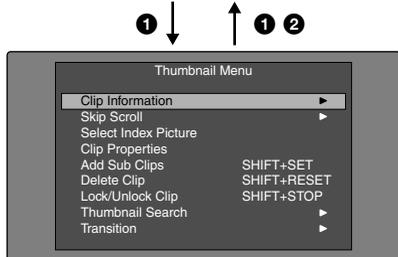
To display the Thumbnail Menu

To display the Thumbnail Menu, press the MENU button with a thumbnail screen displayed. To return to the original screen, press the MENU button again, or press the RESET/RETURN button.

The menu that appears depends on the type of thumbnail screen.



Thumbnail screen a)



Thumbnail Menu b)

- a) Clip thumbnail screen
- b) Thumbnail Menu of the clip thumbnail screen

Shortcut operations

Shortcut button names are displayed next to the menu items of commands that have shortcuts (see page 100).

Shortcut operations should be done with no menu displayed.

Thumbnail Menu submenus

- The Thumbnail Search Menu contains the basic commands for thumbnail searches.
- The Thumbnail View Menu contains the basic commands for moving to other menus.

To display the Disc Menu

To display the Disc Menu, press the SUB CLIP/DISC MENU button with the SHIFT button held down in one of the following screens.

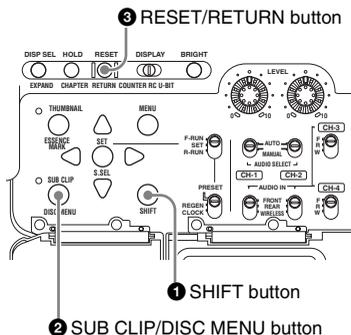
- Clip thumbnail screen
- Clip list thumbnail screen
- Clip playback screen
- Clip list playback screen

To return to the original screen, press the RESET/RETURN button.

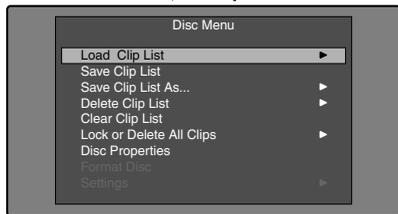
The executable items in this menu differ depending on the current settings of this unit, the state of the disc, and the type of thumbnail screen.

Note

The Disc Menu is not displayed when the disc is not loaded into this unit.



Thumbnail screen a)

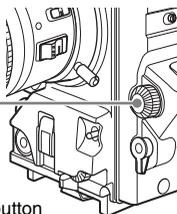


Disc Menu b)

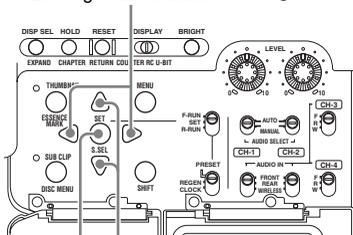
- a) Clip list thumbnail screen
- b) Disc Menu of the clip list thumbnail screen

Thumbnail screen operations

Menu knob



Left-/right-arrow button



Up-/down-arrow button

SET/S.SEL button

To select items

Do one of the following to select thumbnails, menu items, timecode digits, and other items.

- Turn the MENU knob.

- Press the up-, down-, left-, or right-arrow button.
- Press the PREV or NEXT button.
- With the SHIFT button held down, press the PREV or NEXT button (to move to the first or last item).
- Press the PREV button with the F REV button held down, or press the NEXT button with the F FWD button held down (to move to the first or last item).
- With the SHIFT button held down, press the up- or down-arrow button (to move to the previous or next page).

To select multiple thumbnails

Do one of the following.

- With the SHIFT button held down, turn the MENU knob.
- With the SHIFT button held down, press the left- or right-arrow button.

To return to the previous menu

Press the RESET/RETURN button.

To move from a menu level to the next lower or higher menu level

For a menu item displayed together with ← or →, you can move to the next lower or higher menu level by pressing the left- or right-arrow button.

To increment and decrement numbers

Do one of the following.

- Press the up- or down-arrow button.
- Turn the MENU knob.

To confirm selections

Press the SET/S.SEL button or the MENU knob.

Thumbnail Operations

You can use thumbnail screens to display clip information and to find, protect, and delete clips. The thumbnails provide visual confirmation of these and other operations.

Selecting thumbnails

The thumbnail selection frame (see page 82) indicates the currently selected thumbnail.

To move the thumbnail selection frame

Turn the MENU knob, or press the arrow buttons.

To skip quickly through thumbnails

When you have a large number of thumbnails, like in expand thumbnail screen, you can use the Skip Scroll function to skip through them quickly. See page 86 for more information about operations in thumbnail screens.

- 1 In the screens like clip thumbnail screen or expand thumbnail screen, display the Thumbnail Menu.
- 2 Select Skip Scroll, and then press the SET/S.SEL button or the MENU knob. A small popup window appears on the scrollbar to indicate the position of the currently selected thumbnail within the set of all thumbnails.



- 3 Turn the MENU knob, or press the left- or right-arrow button.

The current position moves by an amount equal to $\frac{1}{10}$ of the total number of thumbnails.

- 4 Press the SET/S.SEL button or the MENU knob at the new position.

The thumbnail at the position indicated in the small popup window appears in a thumbnail screen like the following ¹⁾.



1) Expand thumbnail screen

To select multiple thumbnails

Move the selection frame to the first thumbnail that you want to select. Then, with the SHIFT button held down, Turn the MENU knob, or press the right-arrow button.

To cancel the multiple selection, move the selection frame without the SHIFT button held down.



Searching with thumbnails

You can display thumbnails of all clips on the disc, and use them to cue up the desired clip.

Using thumbnails to find clips

The clip thumbnail screen displays thumbnails of all clips recorded on the disc. You can use this screen to cue up the selected clip and to carry out playback (see page 89)

See “Selecting thumbnails” (page 87) for more information.

Using the expand function to find scenes

When the clip thumbnail screen is active, the expand function allows you to divide a selected clip into 12 blocks, and display them. The expansion can be repeated up to three times to display a total of 12, 144, or 1728 thumbnails. This function allows you to quickly review the selected clip or segment and to search efficiently for a target scene.



Note

The maximum number of blocks may be smaller than 1728 when the recorded duration of the clip is short. In this case, the frame interval of expanded thumbnails is fixed at 1 frame. This allows you to view expanded thumbnails at equal intervals.

See page 86 for more information about thumbnail screen operations.

- 1 In the clip thumbnail screen, select the thumbnail of the clip that contains the scene you want to find.**
- 2 Press the DISP SEL/EXPAND button.** The selected clip is divided into 12 blocks, and a list appears in the expand thumbnail screen (see page 83) with the first frame of each block displayed as a thumbnail.
- 3 Select the thumbnail that you want to expand further.**
- 4 Repeat steps 2 and 3 up to 2 times, as required.**

Note

Thumbnails cannot be further expanded when they already have the minimum duration (1 frame).

To return to the previous expansion level

Press the DISP SEL/EXPAND button with the SHIFT button held down.

Using the chapter function to find scenes

Sections between shot marks and Rec Start are called chapters.

Rec Start essence marks are set automatically at the start of recording, but shot marks can be set at any scene during recording or playback.

The chapter function allows you to display thumbnails of the chapters in a clip.

See “Recording essence marks” (page 73) for more information.

See page 86 for more information about thumbnail screen operations.

- 1 In the clip thumbnail screen, select the thumbnail of a clip with chapters set.**

The “S” mark appears on the thumbnails of clips with chapters set.

- 2 Press the HOLD/CHAPTER button.**

The chapter thumbnail screen (see page 83) appears, with thumbnails of the frames where chapters are set.

The “S1” and “S2” marks on the thumbnails indicate frames where Shot Mark1 and Shot Mark2 marks are set.

Thumbnails without one of these marks are frames where Rec Start essence marks are set.

To delete the shot mark at a chapter position

You can delete the shot mark (Shot Mark1 or Shot Mark2) at the chapter position in the chapter thumbnail screen. (Rec Start essence marks cannot be deleted.)

- 1 In the chapter thumbnail screen, select the thumbnail for the frame whose shot mark you want to delete.**
- 2 Display the Thumbnail Menu.**
- 3 Select Delete Shot Mark.**

A message appears asking if you are sure that you want to delete the shot mark.



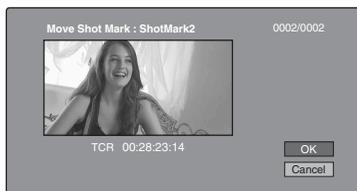
- 4 Select **OK** to delete the mark, or **Cancel** to cancel the deletion, and then press the **SET/S.SEL** button or the **MENU** knob.

To adjust the position of shot marks at chapter positions

You can use the chapter thumbnail screen to adjust the position of shot marks (Shot Mark1 and Shot Mark2) at chapter positions. (The positions of Rec Start essence marks cannot be adjusted.)

- 1 In the chapter thumbnail screen, select the thumbnail of the shot mark whose position you want to adjust.
- 2 Display the Thumbnail Menu.
- 3 Select Move Shot Mark.

The Move Shot Mark screen is displayed.



You can perform playback and searches in this screen.

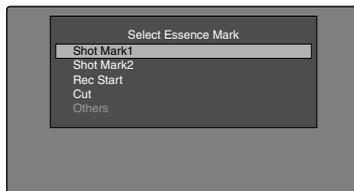
- 4 Use the **PLAY/PAUSE** button or **F REV/F FWD** buttons to display the frame you want.
- 5 Select **OK**, and then press the **SET/S.SEL** button or the **MENU** knob.

Using essence marks to find scenes

See page 86 for more information about thumbnail screen operations.

- 1 In the clip playback screen or the clip thumbnail screen, press the **THUMBNAIL/ESSENCE MARK** button with the **SHIFT** button held down.

The Select Essence Mark screen appears. The names of essence marks that are not recorded on the disc are displayed in gray.



- 2 Select the essence mark that you want, and then press the **SET/S.SEL** button or the **MENU** knob.

The essence mark thumbnail screen displays a list of frames where the selected essence mark is set.

Playing the scene you have found

After finding a clip with one of the methods explained in the previous section, “Searching with thumbnails”, you can cue up and play the clip that you have found.

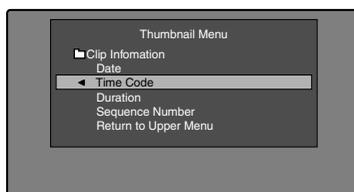
- Press the **SET/S.SEL** button or the **MENU** knob to cue up the position of the selected thumbnail.
- The **PLAY/PAUSE** button starts playback from the selected frame.

Selecting the information displayed on thumbnails

You can select the information to be displayed at the bottom of the thumbnails in thumbnail screens.

See page 86 for more information about thumbnail screen operations.

- 1 Display the Thumbnail Menu in the clip thumbnail screen.
 - 2 Select Clip Information.
- A window appears in which you can select the information to display.



3 Select the items that you want to display.

Date: Date and time of creation, or date and time of the more recent modification

Time Code: Timecode of first frame

Duration: Playback time

Sequence Number: Thumbnail sequence number

Return to Upper Menu: Returns to the Thumbnail Menu

The selected information will appear at the bottom of the thumbnails when you display a thumbnail screen.

Changing clip index pictures

The clip thumbnail screen displays thumbnails as index pictures for clips. Normally the index picture is the first frame in a clip, but you can set any frame in the clip as the index picture.

Note

You can only change index pictures from the clip thumbnail screen. The thumbnails shown in the clip list thumbnail screen, the expand thumbnail screen, and the chapter thumbnail screen cannot be changed.

To select a clip index picture while viewing the video

See page 86 for more information about thumbnail screen operations.

1 In the clip thumbnail screen, select the thumbnail of the clip whose index picture you want to change.

2 Display the Thumbnail Menu.

3 Select Select Index Picture.

Select Index screen appears.



You can play and search with this screen.

4 Use the PLAY/PAUSE button or F REV/F FWD buttons to display the frame you want.

You can also perform a jog operation by turning the MENU knob.

5 Press the up-arrow button to select OK, and then press the SET/S.SEL button or the MENU knob.

To select index pictures by using the expand and chapter functions

After using the expand function (see page 88) or chapter function (see page 88) to find a frame, you can set that frame as the index picture of the clip.

The following example explains how to do so from the expand thumbnail screen.

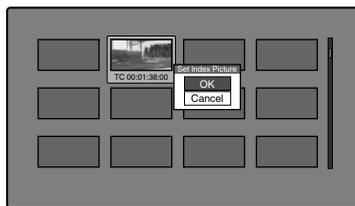
See page 86 for more information about thumbnail screen operations.

1 In the expand thumbnail screen, select the thumbnail to set as the index picture.

2 Display the Thumbnail Menu.

3 Select Set Index Picture.

A message appears asking you to confirm that you want to set the current frame as the index picture.



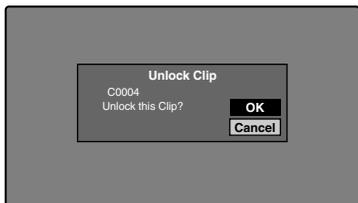
4 Select OK, and then press the SET/S.SEL button or the MENU knob.

After pressing the RESET/RETURN button to return to the clip thumbnail screen, check to make sure that the newly selected frame is displayed as the index picture.

2 Display the Thumbnail Menu.

3 Select Lock/Unlock Clip.

A message appears asking you to confirm the unlocking.



4 Select OK, and then press the SET/S.SEL button or the MENU knob.

In step 1, you can also perform a shortcut operation by pressing the STOP button with the SHIFT button held down.

To unlock all clips

1 Display the Disc Menu.

2 Select “Lock or Delete All Clips”, and then select “Unlock All Clips”.

A message appears asking you to confirm that you want to unlock all clips.

3 Select OK to execute the unlock, or Cancel to cancel it, and then press the SET/S.SEL button or the MENU knob.

Deleting clips

You can delete clips while checking their contents.

Notes

- Clips cannot be deleted when the write inhibit tab of the disc is set to the recording disabled position.
- Locked clips cannot be deleted.
- If a deletion target clips is referenced by clip lists on the disc, all of those clip lists are deleted as well.
- If a deletion target clip is referenced in the current clip list, only those referencing sub clips are deleted at the same time as the deletion target clip.

See page 86 for more information about thumbnail screen operations.

1 In the clip thumbnail screen, select the thumbnail of the clip that you want to delete.

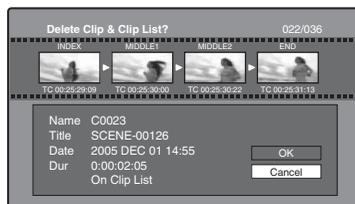
2 Display the Thumbnail Menu.

3 Select Delete Clip.

A window appears asking you to confirm the deletion. The window displays thumbnails of four frames from the target clip (the first frame, two intermediate frames, and the last frame), along with the name, title, date of creation, and duration of the clip.

One of the following messages also appears, depending on whether the clip is referenced in a clip list.

- When the clip is not referenced in a clip list: “Delete Clip”
- When the clip is referenced in a clip list: “Delete Clip & Clip List” (All clip lists that reference the target clip are deleted along with the clip.)



4 Select OK, and then press the SET/S.SEL button or the MENU knob.

The selected clip is deleted, and you return to the clip thumbnail screen.

In step 1, you can also perform a shortcut operation by pressing the RESET/RETURN button with the SHIFT button held down.

To delete all clips

1 Display the Disc Menu.

2 Select “Lock or Delete All Clips”, and then select “Delete All Clips”.

A message appears asking you to confirm that you want to delete all clips.

3 Select OK to execute the deletion, or Cancel to cancel it, and then press the SET/S.SEL button or the MENU knob.

Scene Selection (Clip List Editing)

What is scene selection?

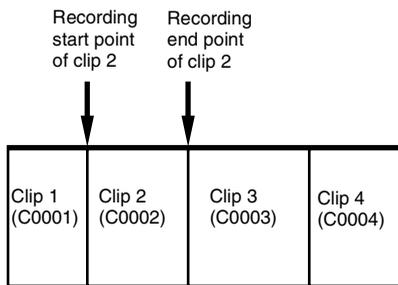
Scene selection is a function which allows you to select material (clips) from the material recorded on a disc and perform cut editing. You can do this by operating on this unit only.

- Scene selection is a convenient way to perform cut editing in the field and in other offline situations.
- In scene selection you create a clip list (editing data). Since the material itself is not affected, you can repeat this any number of times.
- You can play back the edit list created by scene selection on this unit.
- In scene selection you can add whole clips or add parts of a clip. You can add scenes using chapters, change the playback sequence, and amend or delete In and Out points. All of these operations can be carried out easily on this unit.
- Clip lists (editing data) created with the scene selection function can be used on XPRI and other full-feature nonlinear editing systems.

Clips

Material recorded with this unit is managed in units called clips. A clip contains the material from a recording start point to a recording end point.

Clips have numbers beginning with C, for example C0001.



You can also assign titles to your clips and use the titles to manage them, instead of the clip numbers.

For more information, see “Assigning user-defined clip titles automatically” (page 76).

Clip lists

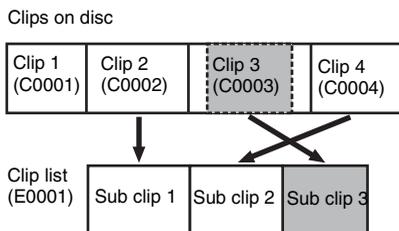
You can use the scene selection function to select clips from the clips saved on a disc and create a cut edit list called a “clip list”.

Clip lists have numbers beginning with E, for example E0001. Up to 99 clip lists can be saved on a disc.

Sub clips (clips in clip lists)

Clips (or parts of clips) that have been added to a clip list are called “sub clips”. Sub clips are virtual editing data that specify ranges in the original clips. You can use them without modifying the original data.

The following figure illustrates the relation between clips and sub clips.



In the above example, the whole of clip 2 has been added as sub clip 1, and the whole of clip 4 has been added as sub clip 2.

Sub clip 3 is part of clip 3. Therefore, when clip list E0001 is played back, clip 4 is played after clip 2, and then the part of clip 3 shown in gray color is played.

Clip list editing (current clip list)

To edit a clip list, you need to load the clip list from the disc into the unit's internal memory.

The clip list which is currently loaded into the unit memory is called the “current clip list.”

The current clip list is always the target of sub clip creation and editing. Clip list playback also uses the current clip list.

After creating and editing a clip list, you need to save it to disc.

Unit memory

Current clip list Can be edited
(adding, deleting, and reordering sub clips)

→ Clip list playback and thumbnail display

SAVE ↓ ↑ LOAD



C0001 (Clip 1)	E0001 (Clip list 1)
C0002 (Clip 2)	E0002 (Clip list 2)
C0003 (Clip 3)	E0003 (Clip list 3)
⋮	⋮
	E0099 (Clip list 99)

Clip list playback

Clips and clip lists are saved together on a disc. To play a clip list, insert a disc into the unit, load the clip list that you want to play, and press the PLAY button.

Clips are played according to the data in the clip list.

Editing clip lists

To add sub clips

Adding sub clips from the clip thumbnail screen

The following procedure explains operations in the clip thumbnail screen. You can proceed in the same way in the expand thumbnail screen and the chapter thumbnail screen.

See page 86 for more information about thumbnail screen operations.

- 1 In the clip thumbnail screen, select the clip that you want to add as a sub clip (multiple selections possible).**
- 2 Display the Thumbnail Menu.**
- 3 Select Add Sub Clips, and then press the SET/S.SEL button or the MENU knob.** The Add Sub Clip screen appears. An I cursor appears at the bottom of the Add Sub Clip screen (in the Scene Selection window). The I cursor indicates the location where the currently selected clip will be inserted.



To display the total duration after addition of the selected clip

Press the SHIFT button.

- 4 In the Scene Selection window, move the I cursor to the location where you want to insert the clip. (The existing thumbnails arrange themselves to the left and right of the I cursor.)**
- 5 Press the SET/S.SEL button or the MENU knob.** The selected clip is inserted as a subclip and a "+" mark appears in the Scene Selection window.
To check the addition results Move the cursor.
- 6 Press the RESET/RETURN button.** This returns you to the Thumbnail Menu.
- 7 Repeat steps 1 to 6 as required to add more clips.**
- 8 Save the clip list (see page 97).**

In step 1, you can also perform a shortcut operation by pressing the SET/S.SEL button with the SHIFT button held down.

Adding sub clips from the clip list thumbnail screen

See page 86 for more information about thumbnail screen operations.

- 1 Display the Thumbnail Menu.**
- 2 Select Add Sub Clips, and then press the SET/S.SEL button or the MENU knob.** The Add Sub Clip screen appears.



- 3 **Select the sub clips that you want to add from the upper part of the screen (the part where 8 thumbnails are displayed, multiple selections possible).**

To select from expanded thumbnails
Press the DISP SEL/EXPAND button to display the expand thumbnail screen.

To select from chapter thumbnails
Press the HOLD/CHAPTER button to display the chapter thumbnail screen.

- 4 **Press the SET/S.SEL button or the MENU knob.**

The thumbnail selection is confirmed, and an I cursor appears at the bottom of the Add Sub Clip screen (in the Scene Selection window). The I cursor indicates the location where the currently selected sub clips will be inserted.

To display the total duration after addition of the selected clips
Press the SHIFT button.

- 5 **In the Scene Selection window, move the I cursor to the location where you want to insert the clip. (The existing thumbnails arrange themselves to the left and right of the I cursor.)**

- 6 **Press the SET/S.SEL button or the MENU knob.**

The sub clips are added at the I cursor position, and you return to the clip list thumbnail screen.

You can check the results of the addition in that screen.

- 7 **Repeat steps 1 to 6 as required to add more clips.**

- 8 **Save the clip list (see page 97).**

In step 1, you can also perform a shortcut operation by pressing the SET/S.SEL button with the SHIFT button held down.

To reorder sub clips

See page 86 for more information about thumbnail screen operations.

- 1 **In the clip list thumbnail screen, select the thumbnails of the sub clips that you want to move (multiple selections possible).**

- 2 **Display the Thumbnail Menu.**

- 3 **Select Move Sub Clips, and then press the SET/S.SEL button or the MENU knob.**

The Clip List (Move) screen appears.



- 4 **Move the I cursor to the point where you want to move the selected thumbnails.**

- 5 **Press the SET/S.SEL button or the MENU knob.**

The sub clips are moved to the I cursor position.

- 6 **Repeat steps 1 to 5 as required.**

- 7 **Save the clip list (see page 97).**

To adjust clip lengths (trim)

Proceed as follows to adjust the length of a clip by changing its In point and Out point.

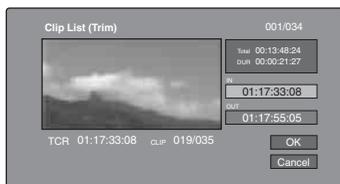
See page 86 for more information about thumbnail screen operations.

- 1 **In the clip list thumbnail screen, select a thumbnail.**

- 2 **Display the Thumbnail Menu.**

3 Select Trim Sub Clip, and then press the SET/S.SEL button or the MENU knob.

The Clip List (Trim) screen appears.



Like the clip playback screen, this screen allows you to play and search all clips on the disc.

To display a list of In and Out point operations that you can perform

Press the MENU button.

4 When you find the point that you want to make the start point, select “IN” and then press the SET/S.SEL button or the MENU knob.

The timecode of the new In point appears in the timecode display, and the Total (total duration) and DUR (clip duration) displays are updated.

5 When you find the point that you want to make the end point, select “OUT” and then press the SET/S.SEL button or the MENU knob.

The timecode of the new Out point appears in the timecode display, and the Total (total duration) and DUR (clip duration) displays are updated.

To cue up the In point or Out point

Display the Thumbnail Menu, select Cueup Inpoint or Cueup Outpoint, and then press the SET/S.SEL button or the MENU knob.

To cancel the In point or Out point setting

Display the Thumbnail Menu, select Reset Inpoint or Reset Outpoint, and then press the SET/S.SEL button or the MENU knob.

The In point or Out point setting returns to the previous value.

6 Select OK, and then press the SET/S.SEL button or the MENU knob.

7 Repeat steps 1 to 6 as required.

8 Save the clip list (see page 97).

To delete sub clips

See page 86 for more information about thumbnail screen operations.

- 1 Select the clips to delete in the clip list thumbnail screen (multiple selections possible).
- 2 Display the Thumbnail Menu.
- 3 Select Delete Sub Clips, and then press the SET/S.SEL button or the MENU knob.
A message appears asking you to confirm the deletion.
- 4 Select OK, and then press the SET/S.SEL button or the MENU knob.
- 5 Repeat steps 1 to 4 as required.
- 6 Save the clip list (see page 97).

To play the clip list

Use the clip list thumbnail screen to play the clip list (see page 89).

To change the starting timecode of clip lists

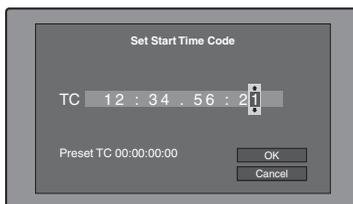
The timecode of clip lists is continuous timecode, unrelated to the timecode of the original clips. By default the timecode (LTC) of the start of the clip list is 00:00:00:00, but it can be set to any value.

See page 86 for more information about thumbnail screen operations.

1 In the clip list thumbnail screen, display the Thumbnail Menu.

2 Select Set Start Time Code, and then press the SET/S.SEL button or the MENU knob.

The Set Start Time Code screen appears.



- 3 Press the left- or right-arrow button to select the digit that you want to change.
- 4 Turn the MENU knob to change the value of the digit.
- 5 Repeat steps 3 and 4 as required.

To reset the timecode to 00:00:00:00
Select Reset To Zero in the Thumbnail Menu, and then press the SET/S.SEL button or the MENU knob.

To preset the frequently used time code
Select Save Preset TC in the Thumbnail Menu, and then press the SET/S.SEL button or the MENU knob.
The timecode set in steps 3 and 4 is saved as a preset value.

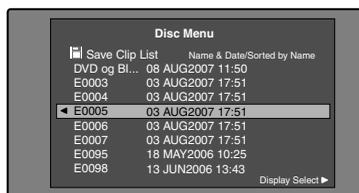
To recall the preset time code
Select Recall Preset TC in the Thumbnail Menu, and then press the SET/S.SEL button or the MENU knob.
- 6 Press the SET/S.SEL button or the MENU knob.
OK is selected.
- 7 Press the SET/S.SEL button or the MENU knob again.
- 8 Save the clip list (*see page 97*).

To save clip lists

To save under a specified name

See page 86 for more information about thumbnail screen operations.

- 1 In the clip list thumbnail screen, display the Disc Menu.
- 2 Select Save Clip List As..., and then press the SET/S.SEL button or the MENU knob.
A list of clip lists appears.



To switch the information displayed for clip lists

Press the right-arrow button.

With each press, the display changes in the order: “Name & Date” → “Name & Title” → “Name & Short Date” →...

To sort clip lists

Select one of the following orders by selecting Settings > Sort Clip List By... in the Disc Menu.

NAME(A-Z): Sort in ascending order by clip list name.

DATE(Newest First): Sort by date and time of clip list creation, newest first.

- 3 Select the desired clip list name, and then press the SET/S.SEL button or the MENU knob.

To save under the same name

The following procedure saves the current clip list under its current name (the name that appears in the clip list thumbnail screen).

See page 86 for more information about thumbnail screen operations.

- 1 In the clip list thumbnail screen, display the Disc Menu (*see page 85*).
- 2 Select Save Clip List, and then press the SET/S.SEL button or the MENU knob.

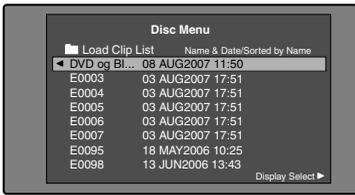
Managing clip lists

To load clip lists

The following procedure loads a new clip list or a clip list stored on the disc into the unit's internal memory as the current clip list.

See page 86 for more information about thumbnail screen operations.

- 1 In the clip list thumbnail screen, display the Disc Menu.
- 2 Select Load Clip List, and then press the SET/S.SEL button or the MENU knob.
A list of clip lists appears.



- 3 **Select the desired clip list, and then press the SET/S.SEL button or the MENU knob.**

To create a new clip list

Select New File and then press the SET/S.SEL button or the MENU knob.

To clear clip lists

The following procedure clears the current clip list from the unit's internal memory.

See page 86 for more information about thumbnail screen operations.

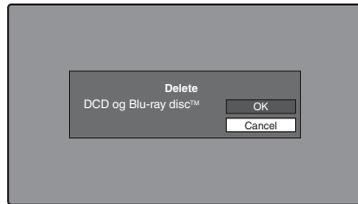
- 1 **In the clip list thumbnail screen, display the Disc Menu.**
- 2 **Select Clear Clip List, and then press the SET/S.SEL button or the MENU knob.**
A message appears asking you to confirm that you want to clear the clip list.
- 3 **Select OK, and then press the SET/S.SEL button or the MENU knob.**
The current clip list returns to the unnamed state "E0000."

To delete clip lists

The following procedure deletes a clip list from the disc.

See page 86 for more information about thumbnail screen operations.

- 1 **In the clip list thumbnail screen, display the Disc Menu.**
- 2 **Select Delete Clip List, and then press the SET/S.SEL button or the MENU knob.**
A list of clip lists appears.



- 3 **Select the clip list that you want to delete, and then press the SET/S.SEL button or the MENU knob.**

A message appears asking you to confirm the deletion.

- 4 **Select OK, and then press the SET/S.SEL button or the MENU knob.**

To sort clip lists

See page 86 for more information about thumbnail screen operations.

- 1 **In the clip list thumbnail screen, display the Disc Menu.**
- 2 **Select Settings, and then press the SET/S.SEL button or the MENU knob.**
- 3 **Select Sort Clip List, and then press the SET/S.SEL button or the MENU knob.**
- 4 **Select one of the following sort methods, and then press the SET/S.SEL button or the MENU knob.**

NAME(A-Z): Sort in ascending order by clip list name.

DATE(Newest First): Sort by date and time of clip list creation, newest first.

Clip lists will be displayed in the specified order the next time that you carry out an operation such as loading a clip list.

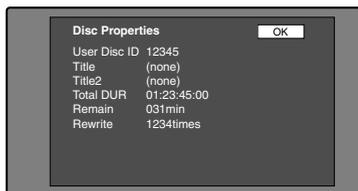
Disc Operations

Checking disc properties

See page 86 for more information about thumbnail screen operations.

- 1 Display the Disc Menu.
- 2 Select Disc Properties, and then press the SET/S.SEL button or the MENU knob.

The Disc Properties screen appears.



User Disc ID: User disc ID ¹⁾

Title: Title ¹⁾

Title2: Title2 ^{1), 2)}

Total DUR: Total recording time

Remain: Remaining recording time

Rewrite: Number of times rewritten

1) This can be specified with the supplied PDZ-1 Proxy Browsing Software.

2) Titles can be displayed in Japanese when the area of use (see page 37) is set to "NTSC (J) AREA."

To return to the previous screen

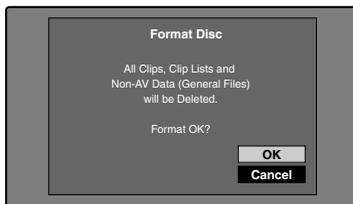
Press the SET/S.SEL button or the MENU knob.

Formatting discs

See page 86 for more information about thumbnail screen operations.

- 1 Display the Disc Menu.

- 2 Select Format Disc, and then press the SET/S.SEL button or the MENU knob. A message appears asking you to confirm the format.



- 3 Select OK, and then press the SET/S.SEL button or the MENU knob.

To cancel the format

Select Cancel, and then press the SET/S.SEL button or the MENU knob.

To continue by formatting another disc
Exchange the disc, select OK, and then press the SET/S.SEL button or the MENU knob.

To exit the formatting screen

Press the SET/S.SEL button or the MENU knob with Exit selected.

Shortcut List

You can access many functions from the keyboard, without displaying a menu (shortcut operations). Shortcuts are available for the following functions. The plus sign (+) indicates that one button is held down while another is pressed, for example “SHIFT + RESET/RETURN.”

Notes

The same shortcut may access different functions, depending on the screen that is active when it is executed.

Function	Operation
Clip Thumbnail (display clip thumbnail screen)	SUB CLIP/DISC MENU
Expand Thumbnail (display expand thumbnail screen)	DISP SEL/EXPAND
Chapter Thumbnail (display chapter thumbnail screen)	HOLD/CHAPTER
Essence Mark Thumbnail (display essence mark thumbnail screen)	SHIFT + THUMBNAIL/ESSENCE MARK
Add Sub Clip (add sub clip)	SHIFT + SET/S.SEL
Delete Clip (delete clip)	SHIFT + RESET/RETURN
Lock/Unlock Clip (lock or unlock clip)	SHIFT + STOP
Set Inpoint (set In point)	Left-arrow + SET/S.SEL
Set Outpoint (set Out point)	Right-arrow + SET/S.SEL
Cueup Inpoint (cue up In point)	Left-arrow + PREV or left-arrow + NEXT
Cueup Outpoint (cue up Out point)	Right-arrow + PREV or right-arrow + NEXT
Reset Inpoint (reset In point)	Left-arrow + RESET/RETURN
Reset Outpoint (reset Out point)	Right-arrow + RESET/RETURN
Cueup (cue up)	SET/S.SEL
Cueup & Play (cue up and play)	PLAY/PAUSE
Page Down (switch to next page)	SHIFT + down-arrow
Page Up (switch to previous page)	SHIFT + up-arrow
Go To End (go to the last item)	SHIFT + NEXT
Go To Top (go to the first item)	SHIFT + PREV
Select Multi Clip (select multiple clips)	SHIFT + right-arrow or SHIFT + left-arrow
Exit (exit the current thumbnail screen)	THUMBNAIL/ESSENCE MARK

Menu Organization

The following chart shows the organization of menus in this camcorder.

TOP MENU

- USER
 - OUTPUT 1
 - OUTPUT 2
 - SUPERIMPOSE
 - LCD
 - REC FUNCTION
 - ASSIGNABLE SW
 - VF DISP 1
 - VF DISP 2
 - MARKER 1
 - GAIN SW
 - VF SETTING
 - AUTO IRIS
 - SHOT ID
 - SHOT DISP
 - SET STATUS
 - LENS FILE
 - USER FILE
- USER MENU CUSTOMIZE
- ALL
- OPERATION
 - OUTPUT 1
 - OUTPUT 2
 - SUPERIMPOSE
 - LCD
 - REC FUNCTION
 - ASSIGNABLE SW
 - POWER SAVE
 - VF DISP 1
 - VF DISP 2
 - VF DISP 3
 - '!' LED
 - MARKER 1
 - MARKER 2
 - GAIN SW
 - VF SETTING
 - AUTO IRIS
 - SHOT ID
 - SHOT DISP
 - SET STATUS
 - WHITE SETTING
 - OFFSET WHT
 - SHT ENABLE
 - LENS FILE
 - FORMAT
 - SOURCE SEL
 - UMID SET
 - CLIP TITLE
 - FILE NAMING

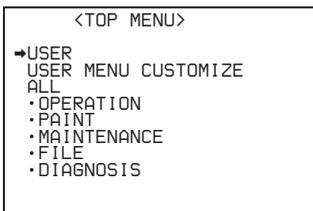
(Continued)

(Continued)

- PAINT
 - SW STATUS
 - WHITE
 - BLACK/FLARE
 - GAMMA
 - BLACK GAMMA
 - KNEE
 - DETAIL 1
 - DETAIL 2
 - SD DETAIL
 - SKIN DETAIL
 - MTX LINEAR
 - MTX MULTI
 - V MODULATION
 - SATURATION
 - SCENE FILE
- MAINTENANCE
 - WHITE SHADING
 - BLACK SHADING
 - LEVEL ADJUST
 - BATTERY 1
 - BATTERY 2
 - AUDIO-1
 - AUDIO-2
 - AUDIO-3
 - WRR SETTING
 - TIMECODE
 - ESSENCE MARK
 - CAM CONFIG 1
 - CAM CONFIG 2
 - PRESET WHT
 - WHITE FILTER
 - DCC ADJUST
 - AUTO IRIS 2
 - GENLOCK
 - ND COMP
 - AUTO SHADING
 - APR
 - NETWORK
- FILE
 - USER FILE
 - USER FILE 2
 - ALL FILE
 - SCENE FILE
 - REFERENCE
 - LENS FILE 1
 - LENS FILE 2
 - LENS FILE 3
 - MEMORY STICK
- DIAGNOSIS
 - HOURS METER
 - TIME/DATE
 - ROM VERSION 1
 - ROM VERSION 2
 - ROM VERSION 3
 - DEV STATUS
 - OPTION BOARD

TOP menu

The TOP menu consists of the following submenus.



When you select an item in the TOP menu, this displays the most recently shown page of the corresponding submenu. When the submenu is selected for the first time, the CONTENTS page appears.

USER menu

This menu allows you to add any desired page from the OPERATION, PAINT, MAINTENANCE, FILE, DIAGNOSIS, and ADVANCED menus to suit your needs. By gathering frequently used pages on the USER menu beforehand, you can call up them quickly whenever you need them.

This menu is normally displayed when the MENU ON/OFF switch is set to ON.

USER MENU CUSTOMIZE menu

This menu allows you to add pages to or delete pages from the USER menu to suit your needs.

ALL menu

This menu contains all items of the OPERATION, PAINT, MAINTENANCE, FILE, DIAGNOSIS, and ADVANCED menus as they are in one menu.

OPERATION menu

This menu contains items for changing settings according to conditions related to the subject when the camcorder is being operated.

PAINT menu

This menu contains items for making detailed image adjustments while using a waveform monitor to monitor the waveforms output by the camera. Support of a video engineer is usually

required to use this menu. Although you can also use an external remote control unit to set the items on this menu, this menu is effective when using the camcorder by itself outdoors.

MAINTENANCE menu

This menu items for making settings for audio, timecode, essence marks, and battery.

FILE menu

This menu is for saving the adjusted data in the camcorder memory or in a “Memory Stick”. The following files can be saved.

User file

In the user file, the setting items and setting data of the customized USER menu are saved. Once you save the user file in a “Memory Stick”, you can easily set the USER menu to your preference by loading the file.

For details on the user file, see “Saving and Recalling User Files” on page 155.

ALL file

In the ALL file, the setting data of all of the menus are saved.

Once a camcorder is set according to your preferences and you save its ALL file in a “Memory Stick”, you can easily set other camcorders to the settings of the camcorder that you already set by loading the data from the “Memory Stick”.

Scene file

In the scene file, the setting values of PAINT menu items adjusted to shoot a particular scene are saved. You can save up to five scene files in the camcorder memory and up to 100 scene files in a “Memory Stick”. For example, first adjust the settings to shoot a particular scene at the rehearsal and then save them as a scene file. Then load this file before the actual shooting so that you can quickly recreate setup conditions that are the same as those in rehearsal.

Lens file

In the lens file, the setting data used to compensate for the characteristics of lenses, such as flare, white shading, and auto iris gain, is saved. You can save up to 32 lens files in the camcorder memory and up to 100 lens files in a “Memory Stick”.

DIAGNOSIS menu

This menu shows the digital hours meter, the ROM version, and information about the internal device status of the camcorder.

Menu List

Tips

- The bold-faced numbers designate the pages that have been registered in the USER menu at the factory.
- The bold-faced settings are the factory default settings.
- When the setup value in the Settings column is surrounded by parentheses (), the value is a relative value. The setting range shown on the menu screen may differ from what is shown in the manual.

OPERATION menu

No.	Page	Item	Settings	Description
01	OUTPUT 1	SDI OUT 1 SELECT	OFF /HDSDI/SDSDI	Selects the output signal from the SDI OUT 1 connector.
		SDI OUT 2 SELECT	OFF /HDSDI/SDSDI	Selects the output signal from the SDI OUT 2 connector.
		SDI OUT 2 SUPER	OFF /ON	Sets the superimposed information output from the SDI OUT 2 connector.
		TEST OUT SELECT	VBS /Y/R/G/B/LCD	Selects the output signal from the TEST OUT connector.
		TEST OUT SUPER	OFF /ON	Sets the superimposed information output from the TEST OUT connector.
				<p>Note</p> <p>When R/G/B is selected, turning the power of the unit off and on changes the setting to Y.</p>
02	OUTPUT 2	LIVE & PLAY	OFF /ON	<i>For details, see "Viewing camera video during playback (Live & Play function)" on page 72.</i>
		DOWN CON MODE	CROP /SQUEZE	Sets the conversion mode for down-converted output.
		WIDE ID	THROU /AUTO	Specifies whether to add wide picture information recorded on the disc to the output signal. THROU: Output the video signals of the disc being played back without adding wide picture information. AUTO: When wide picture information is detected on the disc being played back, add wide picture information to the output video signals.

No.	Page	Item	Settings	Description
03	SUPER IMPOSE	SUPER(VFDISP)	OFF/ON	Turn the output of text (superimposed) information from the SDI OUT 2 connector on or off for each item.
		SUPER(MENU)	OFF/ON	
		SUPER(TC)	OFF/ON	
		SUPER(MARKER)	OFF/ON	Turns the marker display output from the TEST OUT connector on or off.
04	LCD	LCD COLOR	(-99 to 99)	Adjusts the LCD color.
		LCD MARKER&ZEBRA	OFF/ON	Turns the marker and zebra display in the LCD monitor on or off.
05	REC FUNCTION	CACHE REC	OFF/ON	<i>For details, see “Starting a shoot with a few seconds of pre-stored picture data (Picture Cache function)” on page 74.</i>
		CACHE REC TIME	0-2S/2-4S/4-6S/6-8S/8-10S/18-20S/28-30S	
06	ASSIGNABLE SW	ASSIGN SW <1>		<i>For details, see “Assigning functions to ASSIGN switches” on page 148.</i>
		ASSIGN SW <2>		
		ASSIGN SW <3>		
		ASSIGN SW <4>		
		ASSIGN SW <RET>		
		COLOR TEMP. SW		
		ZOOM SPEED	0 to 20 to 99	
07	POWER SAVE	ETHERNET/USB	DSABL/ENABL	<i>For details, see “Setting power saving functions” on page 150.</i>
		i.LINK(FAM)	DSABL/ENABL	
		REC AUDIO OUT	EE/SAVE	

No.	Page	Item	Settings	Description
08	VF DISP 1	VF DISP	OFF/ON	<i>For details, see “Selecting the display items” on page 141.</i>
		VF DISP MODE	1/2/3	
		DISP EXTENDER	OFF/ON	
		DISP FILTER	OFF/ON	
		DISP WHITE	OFF/ON	
		DISP GAIN	OFF/ON	
		DISP SHUTTER	OFF/ON	
		DISP AUDIO	OFF/ON	
		DISP DISC	OFF/ON	
		DISP IRIS	OFF/ON	
09	VF DISP 2	DISP ZOOM	OFF/ON	
		DISP COLOR TEMP	OFF/ON	
		DISP BATT REMAIN	INT/VOLT/AUTO	
		DISP DC IN	OFF/ON	
		DISP WRR RF LVL	OFF/ON	
		DISP REC FORMAT	OFF/ON	
		DISP CLIP NO(PB)	OFF/ON	
		DISP TIMECODE	OFF/ON	
10	VF DISP 3	LOW LIGHT	OFF/ON	
		LOW LIGHT LEVEL	(-99 to 99)	
		VF BATT WARNING	10%/20%	
11	‘!’ LED	GAIN <!>	OFF/ON	<i>For details, see “! Indicators” on page 28.</i>
		SHUTTER <!>	OFF/ON	
		WHT PRESET <!>	OFF/ON	
		ATW RUN <!>	OFF/ON	
		EXTENDER <!>	OFF/ON	
		FILTER <!>	OFF/ON	
		OVERRIDE <!>	OFF/ON	

No.	Page	Item	Settings	Description			
12	MARKER 1	MARKER	OFF/ON	<i>For details, see "Setting the marker display" on page 142.</i>			
		CENTER	OFF/ON				
		CENTER MARK	1/2/3/4				
		SAFTY ZONE	OFF/ON				
		SAFTY AREA	80%/90%/92.5%/95%				
		ASPECT	OFF/ON				
		ASPECT SELECT	15:9/14:9/13:9/4:3/1.85/2.35				
		ASPECT MASK	OFF/ON				
		ASPECT MASK LVL	0 to 12 to 15				
		100% MARKER	OFF/ON				
13	MARKER 2	USER BOX	OFF/ON				
		USER BOX WIDTH	3 to 240 to 479				
		USER BOX HEIGHT	3 to 135 to 269				
		USER BOX H POS	-477 to 0 to 476				
		USER BOX V POS	-267 to 0 to 266				
		CENTER H POS	-480 to 0 to 479				
		CENTER V POS	-270 to 0 to 269				
		ASPECT SAFE ZONE	OFF/ON				
		ASPECT SAFE AREA	80%/90%/92.5%/95%				
		14	GAIN SW		GAIN LOW	-6dB/-3dB/0dB/3dB/6dB/9dB/12dB/18dB/24dB/30dB/36dB/42dB	<i>For details, see "Setting gain values for the GAIN selector positions" on page 147.</i>
GAIN MID	-6dB/-3dB/0dB/3dB/6dB/9dB/12dB/18dB/24dB/30dB/36dB/42dB						
GAIN HIGH	-6dB/-3dB/0dB/3dB/6dB/9dB/12dB/18dB/24dB/30dB/36dB/42dB						
GAIN TURBO	-6dB/-3dB/0dB/3dB/6dB/9dB/12dB/18dB/24dB/30dB/36dB/42dB						
TURBO SW IND	OFF/ON						
SHOCKLESS GAIN	OFF/ON						
15	VF SETTING			ZEBRA	OFF/ON	<i>For details, see "Setting the viewfinder" on page 143.</i>	
				ZEBRA SELECT	1/2/BOTH		
				ZEBRA1 DET LVL	20% to 70% to 107%		
				ZEBRA1 APT LVL	1% to 10% to 20%		
		ZEBRA2 DET LVL	52% to 100% to 109%				
		VF DETAIL LEVEL	(-99 to 99)				

No.	Page	Item	Settings	Description
16	AUTO IRIS	IRIS OVERRIDE	OFF/ON	<i>For details, see “Changing the Reference Value for Automatic Iris Adjustment” on page 57.</i>
		IRIS SPEED	(-99 to 99)	
		CLIP HIGH LIGHT	OFF/ON	
		IRIS WINDOW	1/2/3/4/5/6/VAR	
		IRIS WINDOW IND	OFF/ON	
		IRIS VAR WIDTH	20 to 240 to 479	
		IRIS VAR HEIGHT	20 to 135 to 269	
		IRIS VAR H POS	-466 to 0 to 459	
		IRIS VAR V POS	-253 to 0 to 252	
17	SHOT ID	ID-1	Blank /up to 12 characters	<i>For details, see “Setting the shot ID” on page 145.</i>
		ID-2	Blank /up to 12 characters	
		ID-3	Blank /up to 12 characters	
		ID-4	Blank /up to 12 characters	
18	SHOT DISP	SHOT DATE	OFF/ON	<i>For details, see “Recording shot data superimposed on the color bars” on page 144.</i>
		SHOT TIME	OFF/ON	
		SHOT MODEL NAME	OFF/ON	
		SHOT SERIAL NO	OFF/ON	
		SHOT ID SEL	OFF/ID-1/ID-2/ID-3/ID-4	
		SHOT 16:9 CHARA	OFF/ON	
		SHOT BLINK CHARA	OFF/ON	
19	SET STATUS	STATUS ABNORMAL	OFF/ON	<i>For details, see “Displaying the status confirmation screens” on page 146.</i>
		STATUS SYSTEM	OFF/ON	
		STATUS FUNCTION	OFF/ON	
		STATUS AUDIO	OFF/ON	
20	WHITE SETTING	WHITE SWITCH 	MEM/ATW	Specifies the operating mode when the WHITE BAL switch is set to the B side. MEM: Auto white balance ATW: Auto tracking white balance
		SHOCKLESS WHITE	OFF/1/2/3	Specifies the transition time when the WHITE BAL switch is changed to a new setting (1 is fastest)
		ATW SPEED	1/2/3/4/5	Switches the transition speed of auto tracking white balance (ATW)
		AWB FIXED AREA	OFF/ON	Increase the speed of auto white balance (AWB)
		FILTER WHT MEM	OFF/ON	

No.	Page	Item	Settings	Description
21	OFFSET WHT	OFFSET WHITE <A>	OFF/ON	<i>For details, see “Specifying an offset for the auto white balance setting” on page 151.</i>
		WARM-COOL <A>	Displays reference color temperature	
		WARM-COOL BAL <A>	(-99 to 99)	
		OFFSET WHITE 	OFF/ON	
		WARM-COOL 	Displays reference color temperature	
		WARM-COOL BAL 	(-99 to 99)	
22	SHT ENABLE	SHUTTER ECS	OFF/ON	<i>The items which can be set differ depending on the setting of the SYSTEM FREQUENCY item on the FORMAT page. For details, see “Setting the Electronic Shutter” on page 54.</i>
		SHUTTER 1/60	OFF/ON	
		SHUTTER 1/100	OFF/ON	
		SHUTTER 1/125	OFF/ON	
		SHUTTER 1/250	OFF/ON	
		SHUTTER 1/500	OFF/ON	
		SHUTTER 1/1000	OFF/ON	
		SHUTTER 1/2000	OFF/ON	
23	LENS FILE	LENS FILE SELECT	1 to 32	<i>For details, see “Selecting the lens file” on page 151.</i>
		F.ID	Display only	
		S.NO	Display only	
		L.ID	Display only	
		L.MF	Display only	
24	FORMAT	SYSTEM LINE	Display only	<i>For details, see “Setting the Recording Format” on page 50.</i>
		SYSTEM FREQUENCY	59.9i (Display only)	
		REC FORMAT	Display only	
		COUNTRY	NTSC(J)AREA/NTSC AREA/PAL AREA	
			<i>For details, see “Setting the Area of Use” on page 37.</i>	
25	SOURCE SEL	FRONT MIC SELECT (when stereo microphone is connected)	MONO/ STREO	Input mode selection for front microphone.
26	UMID SET	COUNTRY CODE	Blank /up to 4 characters	<i>For details, see “Setting the UMID data” on page 152.</i>
		ORGANIZATION	Blank /up to 4 characters	
		USER CODE	Blank /up to 4 characters	
		TIME ZONE	00 to 3F	

No.	Page	Item	Settings	Description
27	CLIP TITLE	TITLE	DSABL/ENABL	<i>For details, see “Assigning user-defined clip titles automatically” on page 76.</i>
		SELECT PREFIX (when the TITLE item is set to “ENABL”)	–	
		CLEAR NUMERIC (when the TITLE item is set to “ENABL”)	–	
		LOAD PREFIX DATA (when the TITLE item is set to “ENABL”)	–	
		PREFIX (when the TITLE item is set to “ENABL”)	TITLE /up to 10 characters	
		NUMERIC (when the TITLE item is set to “ENABL”)	00001 to 99999	
28	FILE NAMING	NAMING FORM	C****/FREE	<i>For details, see “Assigning user-defined names to clips and clip lists” on page 79.</i>
		AUTO NAMING (when the NAMING FORM item is set to “FREE”)	C****/TITLE	

PAINT menu

No.	Page	Item	Settings	Description
01	SW STATUS	GAMMA	OFF/ON	Turns the gamma correction on or off.
		BLACK GAMMA	OFF/ON	Turns the black gamma correction on or off.
		MATRIX	OFF/ON	Turns the linear matrix correction on or off.
		KNEE	OFF/ON	Turns the knee correction on or off.
		WHITE CLIP	OFF/ON	Turns the white clipping correction on or off.
		DETAIL	OFF/ON	Turns the detail signal on or off.
		APERTURE	OFF/ON	Turns the aperture function on or off.
		FLARE	OFF/ON	Turns the flare function on or off.
		TEST SAW	OFF/ON	Selects the test signal.

No.	Page	Item	Settings	Description
02	WHITE	COLOR TEMP <A>	Displays reference color temperature.	Sets the color temperature of WHITE A.
		C TEMP BAL <A>	(-99 to +99)	Adjusts the value more precisely when the color temperature adjustment through COLOR TEMP is not satisfactory.
		R GAIN <A>	(-99 to +99)	Only the value of R GAIN is changed.
		B GAIN <A>	(-99 to +99)	Only the value of B GAIN is changed.
		COLOR TEMP 	Displays reference color temperature.	Sets the color temperature of WHITE B.
		C TEMP BAL 	(-99 to +99)	Adjusts the value more precisely when the color temperature adjustment through COLOR TEMP is not satisfactory.
		R GAIN 	(-99 to +99)	Only the value of R GAIN is changed.
		B GAIN 	(-99 to +99)	Only the value of B GAIN is changed.
03	BLACK/FLARE	MASTER BLACK	(-99 to +99)	Adjusts the master black level.
		R BLACK	(-99 to +99)	Adjusts the R black level.
		B BLACK	(-99 to +99)	Adjusts the B black level.
		MASTER FLARE	(-99 to +99)	Adjusts the flare level of the master.
		R FLARE	(-99 to +99)	Adjusts the R flare level.
		G FLARE	(-99 to +99)	Adjusts the G flare level.
		B FLARE	(-99 to +99)	Adjusts the B flare level.
		FLARE	OFF/ON	Turns the flare correction circuit on or off.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the output signal of TEST OUT connector.
04	GAMMA	GAMMA	OFF/ON	Turns the gamma correction function on or off.
		STEP GAMMA	0.35 to 0.45 to 0.90	Sets the master gamma correction curve.
		MASTER GAMMA	(-99 to +99)	Sets the master gamma correction curve.
		R GAMMA	(-99 to +99)	Sets the R gamma correction curve.
		G GAMMA	(-99 to +99)	Sets the G gamma correction curve.
		B GAMMA	(-99 to +99)	Sets the B gamma correction curve.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the output signal of TEST OUT connector.
GAMMA SEL(STD)	1 to 3 to 6	Selects the gamma table of STD.		

No.	Page	Item	Settings	Description
05	BLACK GAMMA	BLACK GAMMA	OFF/ON	Turns the black gamma correction on or off.
		BLACK GAM RANGE	LOW/L.MID/H.MID/ HIGH	Sets the range affected by black gamma.
		MASTER BLK GAMMA	(-99 to +99)	Adjusts the master black gamma.
		R BLACK GAMMA	(-99 to +99)	Sets the correction curve of the R black gamma.
		G BLACK GAMMA	(-99 to +99)	Sets the correction curve of the G black gamma.
		B BLACK GAMMA	(-99 to +99)	Sets the correction curve of the B black gamma.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the output signal of TEST OUT connector.
		06	KNEE	KNEE
KNEE POINT	50.0% to 85.0% to 109.0%			Sets the knee point level.
KNEE SLOPE	(-99 to +99)			Set the knee slope level.
KNEE SATURATION	OFF/ON			Turns the knee saturation function on or off.
KNEE SAT LEVEL	(-99 to +99)			Sets the knee saturation level.
WHITE CLIP	OFF/ON			Turns the white clipping function on or off.
WHITE CLIP LEVEL	100.0% to 108.0% to 109.5%			Adjusts the white clipping level.
07	DETAIL 1			DETAIL
		APERTURE	OFF/ON	Turns the aperture correction function on or off.
		DETAIL LEVEL	(-99 to +99)	Sets the general level of the detail signal.
		APERTURE LEVEL	(-99 to +99)	Sets the aperture correction level.
		DTL H/V RATIO	(-99 to +99)	Sets the level of the V detail signal.
		CRISPENING	(-99 to +99)	Sets the crispening level.
		LEVEL DEPEND	OFF/ON	Turns the level depend function on or off.
		LEVEL DEPEND LVL	(-99 to +99)	Sets the level of the level depend.
		DETAIL FREQUENCY	(-99 to +99)	Sets the frequency of the H detail signal.

No.	Page	Item	Settings	Description
08	DETAIL 2	KNEE APERTURE	OFF/ON	Turns the knee aperture function on or off.
		KNEE APT LVL	(-99 to +99)	Sets the knee aperture level.
		DETAIL LIMIT	(-99 to +99)	Sets the both detail black and white limiters.
		DTL WHT LMT	(-99 to +99)	Sets the detail white limiter.
		DTL BLK LMT	(-99 to +99)	Sets the detail black limiter.
		DTL V-BLK LMT	(-99 to +99)	Sets the V detail black limiter.
		V DTL CREATION	NAM/G/R+G/Y	Selects the source signal of the V DTL signal.
		H/V CONTROL MODE	H/V/V	Selects the operation mode of DETAIL H/V RATIO on the DETAIL 1 page. (H/V: H and V both enabled, V: V DTL only enabled)
		09	SD DETAIL	SD DETAIL
SD DETAIL LEVEL	(-99 to +99)			Sets the general level of the SD detail signal.
SD CRISPENING	(-99 to +99)			Sets the SD crispening level.
SD DTL WHT LIMIT	(-99 to +99)			Sets the SD detail white limiter.
SD DTL BLK LIMIT	(-99 to +99)			Sets the SD detail black limiter.
SD LEVEL DEPEND	OFF/ON			Turns the SD level depend function on or off.
SD LV DEPEND LVL	(-99 to +99)			Sets the level of the SD level depend.
SD DTL FREQUENCY	(-99 to +99)			Sets the frequency of the SD H detail signal.
SD DTL H/V RATIO	(-99 to +99)			Sets the level of the SD V detail signal.
SD CROSS COLOR (when NTSC(J)AREA or NTSC AREA is selected on the FORMAT page)	(-99 to +99)			Sets the SD cross color reduction level.

No.	Page	Item	Settings	Description
10	SKIN DETAIL	SKIN DETAIL ALL	OFF/ON	Turns on or off all of channels 1, 2 and 3 for the color detail function.
		SKIN DETECT	Moves to color detection page.	Executes the color detail function.
		SKIN AREA IND	OFF/ON	Turns the zebra indication on or off in the area of the currently selected type of the color detail function.
		SKIN DTL SELECT	1/2/3	Selects the type of the color detail function. The following items depend on the selected type of the color detail function.
		SKIN DETAIL	OFF/ON	Turns the color detail function on or off for the type selected in the above item.
		SKIN DETAIL LVL	(-99 to +99)	Sets the level of the color detail signal.
		SKIN DTL SAT	(-99 to +99)	Adjusts the saturation level of the hue possessed by the color detail function.
		SKIN DTL HUE	(0 to 359)	Adjusts the center phase of the hue possessed by the color detail function.
		SKIN DTL WIDTH	(0 to 40 to 359)	Adjusts the width of the hue possessed by the color detail function.
		11	MTX LINEAR	MATRIX
MATRIX(USER)	OFF/ON			Turns the user-set matrix correction function on or off.
MATRIX(PRESET)	OFF/ON			Turns the preset matrix correction function on or off.
MATRIX(PRST) SEL	1/2/3/4/5/6			Selects the preset matrix correction function.
MATRIX(USER) R-G	(-99 to +99)			Sets the arbitrary G-R user-set matrix coefficients.
MATRIX(USER) R-B	(-99 to +99)			Sets the arbitrary B-R user-set matrix coefficients.
MATRIX(USER) G-R	(-99 to +99)			Sets the arbitrary R-G user-set matrix coefficients.
MATRIX(USER) G-B	(-99 to +99)			Sets the arbitrary B-G user-set matrix coefficients.
MATRIX(USER) B-R	(-99 to +99)			Sets the arbitrary R-B user-set matrix coefficients.
MATRIX(USER) B-G	(-99 to +99)			Sets the arbitrary G-B user-set matrix coefficients.

No.	Page	Item	Settings	Description
12	MTX MULTI	MATRIX	OFF/ON	Turns the linear matrix correction and multi matrix correction functions on or off.
		MATRIX (MULTI)	OFF/ON	Turns the multi matrix correction function on or off.
		MATRIX AREA IND.	OFF/ON	Turns the zebra indication on or off in the area corresponding to the currently selected setting.
		MATRIX COLOR DET	Moves to color detection page.	Detects color.
		MTX (MULTI) AXIS	B/B+/-MG-/MG+/R/R+/-YL-/YL+/G-/G/G+/CY/CY+/B-	Sets the region in which the multi matrix correction function can be changed (sixteenaxis mode).
		MTX (MULTI) HUE	(-99 to +99)	Adjusts the color phase affected by the multi matrix correction function in every sixteenaxis mode.
		MTX (MULTI) SAT	(-99 to +99)	Adjusts the saturation level affected by the multi matrix correction function in every sixteen-axis mode.
13	V MODULATION	V MOD	OFF/ON	Turns the V modulation function on or off.
		MASTER VMOD	(-99 to +99)	Turns the master V modulation function on or off.
		R VMOD	(-99 to +99)	Turns the R V modulation function on or off.
		G VMOD	(-99 to +99)	Turns the G V modulation function on or off.
		B VMOD	(-99 to +99)	Turns the B V modulation function on or off.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the output signal of the TEST OUT connector.
14	SATURATION	LOW KEY SAT	OFF/ON	Turns the low key saturation function on or off.
		L.KEY SAT LEVEL	(-99 to +99)	Sets the saturation level of the low luminance part.
		L.KEY SAT RANGE	LOW/L.MID/H.MID/HIGH	Sets the luminance level at which the low key saturation function becomes effective.
		Y BLACK GAMMA	OFF/ON	Turns the Y black gamma function on or off.
		Y BLK GAM LEVEL	(-99 to +99)	Sets the gamma curve in the low luminance part.
		Y BLK GAM RANGE	LOW/L.MID/H.MID/HIGH	Sets the luminance level at which the Y black gamma becomes effective.

No.	Page	Item	Settings	Description
15	SCENE FILE	1	STANDARD	Recalls the scene file saved in the memory of the camcorder.
		2	STANDARD	
		3	STANDARD	
		4	STANDARD	
		5	STANDARD	
		STANDARD	–	Clears all current detail-adjusted settings and switch settings and returns the settings to the standard settings saved in the reference file.
		SCENE RECALL	–	Recalls the scene file from the memory of the camcorder or the “Memory Stick”.
SCENE STORE	–	Stores the scene file in the memory of the camcorder or the “Memory Stick”.		
F.ID		Blank /up to 16 characters	Sets the File ID.	

MAINTENANCE menu

No.	Page	Item	Settings	Description
01	WHITE SHADING	WHT SHAD CH SEL	R/G/B/TEST	Selects the channel adjusted by this menu. If “TEST” is selected, the setting is the same as the setting of TEST OUT SELECT.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the signal output of the TEST OUT connector.
		R/G/B WHT H SAW	(–99 to +99)	H Saw white shading compensation.
		R/G/B WHT H PARA	(–99 to +99)	H Parabola white shading compensation.
		R/G/B WHT V SAW	(–99 to +99)	V Saw white shading compensation.
		R/G/B WHT V PARA	(–99 to +99)	V Parabola white shading compensation.
		WHITE SAW/ PARA	OFF/ON	Turns white shading Saw and Parabola compensation on and off.

No.	Page	Item	Settings	Description
02	BLACK SHADING	BLK SHAD CH SEL	R/G/B/TEST/LCD	Selects the channel adjusted by this menu. If "TEST" is selected, the setting is the same as the setting of TEST OUT SELECT.
		TEST OUT SELECT	VBS/R/G/B	Selects the signal output of the TEST OUT connector.
		R/G/B BLK H SAW	(-99 to +99)	H Saw black shading compensation.
		R/G/B BLK H PARA	(-99 to +99)	H Parabola black shading compensation.
		R/G/B BLK V SAW	(-99 to +99)	V Saw black shading compensation.
		R/G/B BLK V PARA	(-99 to +99)	V Parabola black shading compensation.
		BLACK SAW/PARA	OFF/ON	Turns black shading Saw and Parabola compensation on and off.
		MASTER BLACK	(-99 to +99)	Master black level adjustment.
		MASTER GAIN(TMP)	-6dB/-3dB/0dB/3dB/6dB/9dB/12dB/18dB/24dB/30dB/36dB/42dB	Temporarily adjusts the master gain value.
03	LEVEL ADJUST	VBS VIDEO LEVEL	(-99 to +99)	Adjusts the composite signal video level.
		HD-Y LEVEL	(-99 to +99)	Adjusts the Y level of the HD component signal.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the signal output of the TEST OUT connector.

No.	Page	Item	Settings	Description
04	BATTERY 1	Info BEFORE END	5% /10%/15%...95%/100%	Used when a BP-GL65/GL95/M100 Battery Pack is used. Sets the remaining power (% value) of the battery at which the BEFORE END warning should be issued. ^{a)}
		Info END	0% /1%/2%/3%/4%/5%	Used when a BP-GL65/GL95/M100 Battery Pack is used. Sets the remaining power (% value) of the battery at which the END warning should be issued. ^{b)}
		Sony BEFORE END	11.5V to 11.5V to 17.0V (in 0.1V steps)	Used when a BP-L60S Battery Pack is used. Sets the voltage level of the battery at which the BEFORE END warning should be issued. ^{a)}
		Sony END	11.0V to 11.0V to 11.5V (in 0.1V steps)	Used when a BP-L60S Battery Pack is used. Sets the voltage level of the battery at which the END warning should be issued. ^{b)}
		Other BEFORE END	11.5V to 11.8V to 17.0V (in 0.1V steps)	Used when a battery pack other than a BP-GL65/GL95/L60S/M100 is used. Sets the voltage level of the battery at which the BEFORE END warning should be issued.
		Other END ^{c)}	11.0V to 11.0V to 14.0V (in 0.1 V steps)	Used when a battery pack other than a BP-GL65/GL95/L60S/M100 is used. Sets the voltage level of the battery at which the END warning should be issued.
		DC IN BEFORE END	11.5V to 11.8V to 17.0V (in 0.1 V steps)	Used when an external power source is connected to the DC IN connector. Sets the voltage level of the connected external power source at which the BEFORE END warning should be issued.
		DC IN END	11.0V to 11.0V to 14.0V (in 0.1 V steps)	Used when an external power source is connected to the DC IN connector. Sets the voltage level of the connected external power source at which the END warning should be issued.
		DETECTED BATTERY	Info/Sony/Other/ DC IN	Displays the type of automatically detected battery.

No.	Page	Item	Settings	Description
05	BATTERY 2	TYPE DETECTION	AUTO/OTHER	AUTO: Automatically detects the type of the battery. OTHER: Always judges the battery to be of the “Others” ^(c) type regardless of the actual battery type.
		SEGMENT NO.7	11.0V to 17.0V (in 0.1 V steps)	When the battery type judgment is “Others”, sets the voltage level below which the battery status indicator segment No.7 should turn off.
		SEGMENT NO.6	11.0V to 16.0V to 17.0V (in 0.1 V steps)	When the battery type judgment is “Others”, sets the voltage level below which the battery status indicator segment No. 6 should turn off.
		SEGMENT NO.5	11.0V to 15.0V to 17.0V (in 0.1 V steps)	When the battery type judgment is “Others”, sets the voltage level below which the battery status indicator segment No. 5 should turn off.
		SEGMENT NO.4	11.0V to 14.0V to 17.0V (in 0.1 V steps)	When the battery type judgment is “Others”, sets the voltage level below which the battery status indicator segment No. 4 should turn off.
		SEGMENT NO.3	11.0V to 13.0V to 17.0V (in 0.1 V steps)	When the battery type judgment is “Others”, sets the voltage level below which the battery status indicator segment No. 3 should turn off.
		SEGMENT NO.2	11.0V to 12.0V to 17.0V (in 0.1 V steps)	When the battery type judgment is “Others”, sets the voltage level below which the battery status indicator segment No. 2 should turn off.
		SEGMENT NO.1	11.0V to 17.0 V (in 0.1 V steps)	When the battery type judgment is “Others”, sets the voltage level below which the battery status indicator segment No. 1 should turn off.

Battery status indicator segmentsz

 (“E”^d) and “F” are always on.)

No.	Page	Item	Settings	Description
06	AUDIO-1	FRONT MIC SELECT	MONO/ STREO	Input mode selection for front microphone.
		AUDIO CH3/4 MODE	CH1/2/ SW	Selects the sources to be recorded to channels CH-3/4. CH1/2: Same sources as CH-1/2. SW: Signals selected by the AUDIO IN CH-3/CH-4 switches.
		REAR XLR AUTO	OFF /ON	Turns the XLR connection automatic detection on or off.
		FRONT MIC REF	-60dB /-50dB/-40dB	Sets the reference level of the front microphone.
		REAR MIC REF	-60dB /-50dB/-40dB	Sets the reference level when the AUDIO IN CH1 connector is set to MIC.
		MIN ALARM VOL	OFF /SET	Volume of the monitor speaker alarm tone when it is turned all the way down. OFF: Almost inaudible. SET: Faintly audible.
		SP ATT LEVEL	OFF /3dB/6dB/9dB	Lowers the volume of the monitor speaker. Has no effect on earphone volume.
		HEADPHONE OUT	STREO / MONO	Selects whether to make the rear earphone monaural or stereo.
		07	AUDIO-2	AU REF LEVEL
AU REF OUT	EBUL/ 0dB /+4dB/-3dB			Sets the output reference level.
AU CH12 AGC MODE	MONO / STREO			Selects whether to perform automatic input level adjustment of analog audio signals to be recorded on channels 1 and 2 independently for each channel, or in stereo mode.
AU CH34 AGC MODE	MONO / STREO / OFF			Selects whether to perform automatic input level adjustment of analog audio signals to be recorded on channels 3 and 4 independently for each channel, or in stereo mode, or not at all (OFF).
AU AGC SPEC	-6dB /-9dB/-12dB/-15dB/-17dB			AGC saturation level setting.
AU LIMITER MODE	OFF /-6dB/-9dB/-12dB/-15dB/-17dB			For manual audio input level adjustment, selects the limiter saturation level for loud input signals.
AU OUT LIMITER	OFF/ ON			Turns the audio output limiter on or off.

No.	Page	Item	Settings	Description
08	AUDIO-3	AU SG (1KHz)	ON/OFF/AUTO	Sets whether to output a 1 kHz test tone during the Color Bar mode or not. ON: a 1 kHz test tone is output during the Color Bar mode. OFF: a 1 kHz test tone is not output during the Color Bar mode. AUTO: a 1 kHz test tone is output only when the CH 1 AUDIO SELECT switch on the inside panel is in the AUTO position.
		MIC CH1 LEVEL	SIDE1/FRONT/ F + S1	When recording the front microphone sound on CH 1, selects which control is to be used for the level adjustment. SIDE 1: LEVEL control (left side) FRONT: MIC LEVEL control F + S1: LEVEL control (left side) or the MIC LEVEL control (The two controls are linked to each other.)
		MIC CH2 LEVEL	SIDE2/FRONT/ F + S2	When recording the front microphone sound on CH 2, selects which control is to be used for the level adjustment. SIDE 2: LEVEL control (right side) FRONT: MIC LEVEL control F + S2: LEVEL control (right side) or the MIC LEVEL control (The two controls are linked to each other.)
		REAR1/WRR LEVEL	SIDE1 /FRONT/ F + S1	Selects any of these controls to adjust the audio level of the equipment that is connected to the wireless microphone and whatever is connected to the AUDIO IN CH1 connector on the rear panel. SIDE 1: LEVEL control (left side) FRONT: MIC LEVEL control F + S1: LEVEL control (left side) or the MIC LEVEL control (The two controls are linked to each other.)
		REAR2/WRR LEVEL	SIDE2 /FRONT/ F + S2	Selects any of these controls to adjust the audio level of the equipment that is connected to the wireless microphone and whatever is connected to the AUDIO IN CH2 connector on the rear panel. SIDE 2: LEVEL control (right side) FRONT: MIC LEVEL control F + S2: LEVEL control (right side) or the MIC LEVEL control (The two controls are linked to each other.)
		AUDIO CH3 LEVEL ^{e)}	FIX/FRONT	Selects the audio level recorded on channel 3. FIX: Fixed FRONT: Level as adjusted by the MIC LEVEL knob on the front panel of the camcorder
		AUDIO CH4 LEVEL ^{e)}	FIX/FRONT	Selects the audio level recorded on channel 4. FIX: Fixed FRONT: Level as adjusted by the MIC LEVEL knob on the front panel of the camcorder

No.	Page	Item	Settings	Description
09	WRR SETTING	WRR VALID CH SEL ^{f)}	ALL/CH1	Selects whether to enable channels 1 and 2 of the wireless receiver, or channel 1 only. ALL: Enable both channel 1 and 2. CH1: Enable channel 1 only. Select this setting to use the wireless receiver as a monaural receiver.
		WRR CH SELECT ^{f)}	TX1/TX2	Specifies the target channel for other items in this menu. TX1: Channel 1 TX2: Channel 2
		WRR DELAY COMP ^{f)}	OFF/ON	Enables or disables the delay compensation function for wireless audio input. OFF: Disables the function. ON: Enables the function (the audio in all EE output is delayed by about 8 ms).
		TX*(*: channel number) ^{f)}	–	Displays the name of the transmitter whose signals are being received on the channel selected by WRR CH SELECT.
		TX* AUDIO PEAK(*: channel number) ^{f)}	PEAK	Displays whether the AF level of the transmitter whose signals are being received on the channel selected by WRR CH SELECT is over the peak.
		TX* INPUT LEVEL(*: channel number) ^{f)}	MIC/LINE	Displays whether the input level of the transmitter whose signals are being received on the channel selected by WRR CH SELECT is set to MIC or LINE.
		TX* ATT LEVEL(*: channel number) ^{f)}	0dB	Sets the ATT level of the transmitter whose signals are being received on the channel selected by WRR CH SELECT (the permissible setting range may vary depending on the transmitter device).
		TX* LCF FREQ(*: channel number) ^{f)}	200Hz	Sets the Low Cut Filter frequency of the transmitter whose signals are being received on the channel selected by WRR CH SELECT (the permissible setting range may vary depending on the transmitter device).
		TX* SYSTEM DELAY(*: channel number) ^{f)}	AUTO/ 0.0ms~8.0ms	When WRR DELAY COMP is set to ON, sets the amount of audio delay for the channel selected by WRR CH SELECT. AUTO: Automatically adjusts the amount of delay so that the delay in the audio received from the wireless receiver is zero. 0.0ms~8.0ms: Sets the amount of anticipated wireless system delay, for cases in several wireless systems are being used over a device such as an audio mixer.

No.	Page	Item	Settings	Description
10	TIMECODE	TC OUT	AUTO/GENE	Selects the timecode signal output. AUTO: Outputs the timecode generator output during recording and outputs the timecode reader output during playback. GENE: Outputs the timecode generator output during recording and playback.
		DF/NDF (when SYSTEM FREQUENCY is set to "59.9i")	DF/NDF	Sets DF or NDF mode. DF: Drop frame mode NDF: Non-drop frame mode
		EXT-LK DF/NDF	INT/EXT	Selects either internal setting or external setting for DF/NDF. INT: Internal EXT: External
		EXT-LK UBIT	INT/EXT	Sets whether the LTC UBIT setup value locks to an INT or an EXT source when the timecode is locked to an external source. INT: Internal lock EXT: External lock
		LTC UBIT	FIX/TIME	Sets the data to be recorded in UBIT of LTC. FIX: Records the data that is set by the user. TIME: Records the present time.
		VITC UBIT	FIX/TIME	Sets the data to be recorded in UBIT of VITC. FIX: Records the data that is set by the user. TIME: Records the present time.
		WATCH AUTO ADJ	OFF/ON	Matches the time of the internal clock with the time data of the user bits of an external timecode. Turns the automatic time correction function of the internal clock on or off.
		UBIT GROUP ID	000/101	Selects the UBIT GROUP ID.
11	ESSENCE MARK	RET SHOT MARK 1	OFF/ON	<i>For details, see "Recording essence marks" on page 73.</i>
		RET SHOT MARK 2	OFF/ON	
		INDEX PIC. POS (in 1 sec steps)	0SEC to 10SEC	<i>For details, see "Setting the thumbnail image at recording time" on page 74.</i>

No.	Page	Item	Settings	Description
12	CAM CONFIG 1	REC TALLY BLINK	OFF/ON	Turns the tally illumination control on or off in the event of BATTERY BEFORE END/DISC BEFORE END.
		REC START BEEP	OFF/ON	Turns on or off the REC START/STOP alarm sound.
		SUB LCD MODE SEL	TIMER/OFF/ CONT	Sets the timecode (TC) display after poweroff as follows. TIMER: The TC display turns off after the elapse of the time set by the SUB LCD TIMER below. OFF: Not displayed. CONT: Displayed.
		SUB LCD TIMER	1H/3H/8H	Sets the duration of time after which the TC display is to be turned off after power-off, when the SUB LCD MODE SEL item, above, is set to "TIMER" (H: hours).
		HDSDI REMOTE I/F	OFF/CHARA/G- TLY/R-TLY	Selects whether to use the function that enables recording control from this unit of an external device connected to the SDI OUT 1/2 connectors (HDSDI output) of this unit. g) Also selects the indication that shows whether the external device is recording. OFF: Do not use the remote recording control function. CHARA: Use the function, and indicate by the controlling external device indicator in the viewfinder (<i>see page 30</i>). G-TLY: Use the function, and indicate by the TALLY indicator in the viewfinder. R-TLY: Use the function, and indicate by the REC (recording, red tally) indicator in the viewfinder.
13	CAM CONFIG 2	TEST SAW SELECT	OFF/REC/SAW	Selects the test signal.
		COLOR BAR SELECT	ARIB/100%/ 75%/SMPTE	Selects the HD color bar type.
		USER & ALL ONLY	OFF/ON	Show only USER menu in the top menu.
		RM COMMON MEMORY	OFF/ON	Selects whether or not to share settings for when a remote control unit is connected and when the unit is used alone.
		RM REC START	RM/CAM/ PARA	When an RM remote control unit is connected, selects which recording start/stop buttons are enabled. RM: remote control unit CAM: camera PARA: both
		SHT DISP MODE	SEC/DEG	Selects shutter speed display in standard mode.

No.	Page	Item	Settings	Description		
14	PRESET WHT	COLOR TEMP <P>	Display reference color temperature.	Sets the white balance preset value.		
		C TEMP BAL <P>	(-99 to +99)	Finer setting when the desired color could not be obtained with the COLOR TEMP <P> color temperature setting.		
		R GAIN <P>	(-99 to +99)	Sets the R gain preset value.		
		G GAIN <P>	(-99 to +99)	Sets the G gain preset value.		
		AWB ENABLE <P>	OFF /ON	Turns on and off the function which automatically acquires the preset value for automatic white balance adjustment.		
		15	WHITE FILTER	ELECTRICAL CC<A>	3200K /4300K/ 5600K/6300K	Select the color temperatures to assign to the electrical color correction (CC) filters.
ELECTRICAL CC	3200K/ 4300K / 5600K/6300K					
ELECTRICAL CC<C>	3200K/4300K/ 5600K /6300K/ -----					
ELECTRICAL CC<D>	3200K/4300K/ 5600K/ 6300K / -----					
ELECTRICAL CC<E>	3200K/4300K/ 5600K/6300K/ -----					
ND FILTER CTEMP	OFF/ON			Selects whether to assign electrical CC filters to neutral density (ND) filters, or to switch by using the COLOR TEMP. button. ON: Assign to ND filters. OFF: Switch by using the COLOR TEMP. button.		
ND FLT CTEMP <1>	3200K /4300K/ 5600K/6300K			Select the color temperatures when the electrical CC filters are assigned to the ND filters.		
ND FLT CTEMP 2-4	3200K/4300K/ 5600K /6300K					
16	DCC ADJUST			DCC FUNCTION SEL	DCC /FIX	Selects the function assigned to the DCC switch. ADP.K: Adaptive Knee FIX: fixed value
				DCC D RANGE	400%/450%/ 500%/550%/ 600%	Sets the dynamic range applied when DCC is on.
		DCC POINT	(-99 to +99)	Adjusts the DCC minimum knee point.		
		DCC GAIN	(-99 to +99)	Adjusts the gain to DCC detected value.		
		DCC DELAY TIME	(-99 to +99)	Adjusts the DCC reaction speed.		
		DCC PEAK FILTER	(0 to 15)	Adjusts the response sensitivity to the peak of the DCC detected value.		

No.	Page	Item	Settings	Description
17	AUTO IRIS 2	IRIS WINDOW	1/2/3/4/5/6/VAR	Selects the auto iris detection window. VAR: variable
		IRIS WINDOW IND	OFF/ON	Turns on and off the function which displays a frame marker for the auto iris detection window.
		IRIS LEVEL	(-99 to +99)	Adjusts the level of the auto iris target value.
		IRIS APL RATIO	(-99 to +99)	Adjusts the mix ratio of auto iris detection peak value and average value.
		IRIS VAR WIDTH	20 to 240 to 479	Adjusts the width of detection frame when the auto iris detection window is set to VAR.
		IRIS VAR HEIGHT	20 to 135 to 269	Adjusts the height of detection frame when the auto iris detection window is set to VAR.
		IRIS VAR H POS	-460 to 0 to +459	Adjusts the horizontal position of detection frame when the auto iris detection window is set to VAR.
		IRIS VAR V POS	-235 to 0 to +252	Adjusts the vertical position of detection frame when the auto iris detection window is set to VAR.
		IRIS SPEED	(-99 to +99)	Adjusts the auto iris speed.
		CLIP HIGH LIGHT	OFF/ON	Turns on and off the function which, during auto iris adjustment, ignores very bright areas by dulling the reaction to high luminescence.
18	GENLOCK	GENLOCK	OFF/ON	Turns genlock on and off.
		GL HD H PHASE	(-99 to +99)	Sets the genlock horizontal phase for HD.
		GL HD SC PHASE	(-99 to +99)	Sets the genlock subcarrier phase for HD.
		REFERENCE	INTERNAL/ GENLOCK/SDI IN/CA	Displays the type of reference signal input to the GENLOCK IN connector.
19	ND COMP	ND OFFSET ADJUST	OFF/ON	Turns on and off the mode which sets ND (neutral density) filter color compensation values.
		CLEAR ND OFFSET	-	Clears ND filter color compensation values.
20	AUTO SHADING	AUTO BLK SHADING	-	Executes the auto black shading function.
		RESET BLK SHD	-	Clears black shading compensation values.
		TEST OUT SELECT	VBS/R/G/B/ LCD	Selects the signal output of the TEST OUT connector.
		MASTER GAIN(TMP)	-6dB/-3dB/ 0dB / 3dB/6dB/9dB/ 12dB/18dB/ 24dB/30dB/ 36dB/42dB	Temporarily sets the master gain value.
		APR	-	Executes the defect compensation function.
21	APR	APR	-	Executes the defect compensation function.
		APR(SLS)	-	Executes the defect compensation function in slow shutter mode.

No.	Page	Item	Settings	Description
22	NETWORK	DHCP	ENABL/DSABL	Selects whether to enable automatic acquisition of the IP address from a DHCP server.
		IP ADDRESS	xxx.xxx.xxx.xxx 192.168.1.10	Sets the IP address.
		SUBNET MASK	xxx.xxx.xxx.xxx 255.255.255.0	Sets the subnet mask.
		DEF.GATEWAY	xxx.xxx.xxx.xxx 0.0.0.0	Sets the default gateway.
		LINK SPEED	AUTO /10Mbps/ 100Mbps	Sets the communications speed.
		DUPLEX	AUTO /FULL/ HALF	Sets the duplex mode.
a)		The setting of this item is overridden by the setting of Other BEFORE END when TYPE DETECTION in the BATTERY 2 page is set to "OTHER".		
b)		The setting of this item is overridden by the setting of Other END when TYPE DETECTION in the BATTERY 2 page is set to "OTHER".		
c)		When TYPE DETECTION in the BATTERY 2 page is set to "AUTO", any batteries other than Sony BP-series batteries and Anton Bauer intelligent battery systems are classified as "Others".		
d)		Flashes once per second when the battery status is "BEFORE END", and flashes 4 times per second when the battery status is "END".		
e)		A setting for this item is required when AU CH34 AGC MODE in the AUDIO-2 page is set to OFF.		
f)		A setting for this item is required when the DWR-S01D Slot-In Digital Wireless Receiver is installed.		
g)		SDI OUT 1 SELECT or SDI OUT 2 SELECT in the OUTPUT 1 page of the OPERATION menu must be set to HDSDI.		

FILE menu

No.	Page	Item	Settings	Description
01	USER FILE	USER FILE LOAD	–	<i>For details, see "Saving and Recalling User Files" on page 155.</i>
		USER FILE SAVE	–	
		F.ID	Blank /up to 16 characters	
		USER PRESET	–	<i>For details, see "Resetting USER menu settings to the standard settings" on page 140.</i>

No.	Page	Item	Settings	Description
02	USER FILE 2	STORE USR PRESET	–	Sets the pages registered in the USER menu to the standard setting.
		CLEAR USR PRESET	–	Clears the standard setting of pages registered in the USER menu.
		CUSTOMIZE RESET	–	Returns the pages registered in the USER menu to the factory default state.
		LOAD CUSTOM DATA	OFF/ON	Selects whether to include pages registered by the user in user files to be loaded by USER FILE LOAD.
		LOAD OUT OF USER	OFF/ON	Selects whether to include pages not registered by the user in user files loaded by USER FILE LOAD.
		BEFORE FILE PAGE	OFF/ON	Selects whether to include data after USER FILE pages in user files to be loaded by USER FILE LOAD.
		USER LOAD WHITE	OFF/ON	Selects whether to include white balance data in user files to be loaded by USER FILE LOAD.
03	ALL FILE	ALL FILE LOAD	–	Load ALL file.
		ALL FILE SAVE	–	Save ALL file.
		F.ID	Blank/up to 16 characters	Name ALL file.
		ALL PRESET	–	Return items in ALL file to preset values.
		STORE ALL PRESET	–	Set preset values of items in ALL file.
		CLEAR ALL PRESET	–	Clear preset values of items in ALL file.
		3SEC CLR PRESET	OFF/ON	Turns on and off the function which returns menu items to the preset values when the MENU knob is kept pressed for 3 seconds.
		NETWORK DATA	OFF/ON	Selects whether or not to read in the network-related data.

No.	Page	Item	Settings	Description
04	SCENE FILE	1	STANDARD	<i>For details, see “Saving and Loading Scene Files” on page 158.</i>
		2	STANDARD	
		3	STANDARD	
		4	STANDARD	
		5	STANDARD	
		STANDARD	–	
		SCENE RECALL	–	
		SCENE STORE	–	
		F.ID	STANDARD	
05	REFERENCE	REFERENCE STORE	–	Save reference file in internal memory.
		REFERENCE CLEAR	–	Clear reference file.
		REFERENCE LOAD	–	Load reference file.
		REFERENCE SAVE	–	Save reference file to “Memory Stick”.
		F. ID	Blank /up to 16 characters	–
		SCENE WHITE DATA	OFF/ON	
06	LENS FILE 1	LENS FILE RECALL	–	Load lens file.
		LENS FILE STORE	–	Save lens file.
		F.ID	No Offset	Sets the name of selected lens file.
		SOURCE	MEMORY1	Displays the number of selected lens file.
		LENS NO OFFSET	–	Clear lens file.
		LENS AUTO RECALL	OFF/ON/S.No	When a serial lens is connected with this item set to “ON”, the corresponding lens file is loaded automatically and its content is reflected in the lens settings.
		L.ID	–	Displays the name of the lens file corresponding to the connected serial lens.
L.MF	–	Displays the manufacturer of the connected serial lens.		

No.	Page	Item	Settings	Description
07	LENS FILE 2	LENS M VMOD ^{a)}	(-99 to +99)	Adjusts the lens file V SAW shading compensation.
		LENS CENTER H ^{a)}	-48 to 0 to +47	Compensates the horizontal position of lens file center marker.
		LENS CENTER V ^{a)}	-15 to 0 to +14	Compensates the vertical position of lens file center marker.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the signal output of the TEST OUT connector.
		LENS R FLARE ^{a)}	(-99 to +99)	Adjusts the lens file flare (R).
		LENS G FLARE ^{a)}	(-99 to +99)	Adjusts the lens file flare (G).
		LENS B FLARE ^{a)}	(-99 to +99)	Adjusts the lens file flare (B).
		LENS W-R OFST ^{a)}	(-99 to +99)	Adjusts the R compensation value when extender or shrinker used.
		LENS W-B OFST ^{a)}	(-99 to +99)	Adjusts the B compensation value when extender or shrinker used.
08	LENS FILE 3	SHADING CH SEL	R/G/B/TEST	Selects the channel adjusted by this menu. If TEST is selected, the setting is the same as the setting of TEST OUT SELECT.
		TEST OUT SELECT	VBS/R/G/B/LCD	Selects the signal output of the TEST OUT connector.
		LENS R/G/B H SAW ^{a)}	(-99 to +99)	Adjusts the H Saw white shading compensation.
		LENS R/G/B H PARA ^{a)}	(-99 to +99)	Adjusts the H Parabola white shading compensation.
		LENS R/G/B V SAW ^{a)}	(-99 to +99)	Adjusts the V Saw white shading compensation.
		LENS R/G/B V PARA ^{a)}	(-99 to +99)	Adjusts the V Parabola white shading compensation.
09	MEMORY STICK	M.S. FORMAT	-	Format "Memory Stick".
		M.S. IN > JUMP TO	OFF/USER/ALL/ SCENE/LENS/REFER/ USER1	<i>For details, see "Jumping to a File-Related Menu Page When Inserting a "Memory Stick" on page 161.</i>

a) "EX" is displayed when the extender is on, and "0.8" is displayed when the shrinker is on.

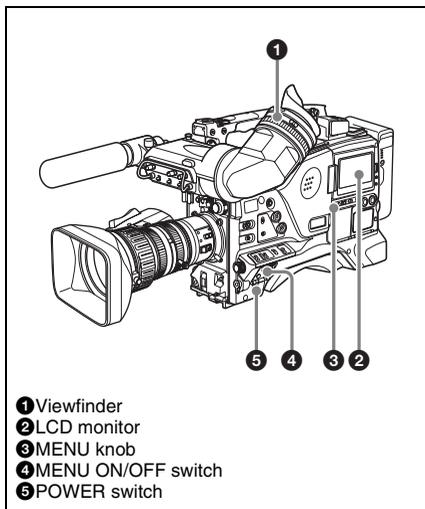
DIAGNOSIS menu

No.	Page	Item	Description
01	HOURS METER	OPERATION	Displays the total time that this unit has been powered on, in units of hours.
		LASER	Displays the total number of output parameters to the optical heads.
		OPERATION (rst)	Displays the total time that this unit has been powered on, in units of hours (reset possible).
		SPINDLE (rst)	Displays the total time that the spindle has been rotating, in units of hours (reset possible).
		LOADING (rst)	Displays the number of times that discs have been loaded (reset possible).
		SEEK (rst)	Displays the total seek time by the optical heads, in units of hours (reset possible).
02	TIME/DATE	ADJUST	<i>For details, see “Setting the Date/Time of the Internal Clock” on page 38.</i>
		HOUR	
		MIN	
		SEC	
		YEAR	
		MONTH	
		DAY	
03	ROM VERSION 1	PACKAGE: X.XX	Displays ROM version.
		SY1: X.XX	
		SY2K: X.XX	
		SY2U: X.XX	
		DRV: X.XX	
		AT: X.XX	
04	ROM VERSION 2	LVIS: X.XX	
		TSYS: X.XX	
		TMBP: X.XX	
		FAM: X.XX	
		LABY: X.XX	
		BRDG: X.XX	
		PIER: X.XX	
		CAVA: X.XX	
05	ROM VERSION 3	DSP0: X.XX	
		DSP2: X.XX	
		PRXA: X.XX	

No.	Page	Item	Description
06	DEV STATUS	I/O: MS, FP, CN, DCP, VF D/A: DCP1, DCP2, DCP3 EEPROM: CN, DCP, DR FRAM: AT FAN: MB LSI: DCP1, DCP2, DCP3, DCP4, TG SCI: SY, RM	Displays the status of each internal device of this unit.
07	OPTION BOARD	HD-SDI INPUT	Displays installed option boards.

Menu Operations

Displaying menus



To use the MENU ON/OFF switch, open the cover of the menu operating section.

When the camcorder is powered on, set the MENU ON/OFF switch to ON to display the menu on the viewfinder screen and the LCD monitor.

If this is the first time the menu has been used after the camcorder has been powered on, the USER menu is displayed. If the menu has been used before, the last accessed page appears.

When the menu is not displayed on the LCD monitor

Press the DISP SEL/EXPAND button at the lower of the LCD monitor to select the CHAR display.

To clear the menu display from the screen

Set the MENU ON/OFF switch to OFF. (When the cover of the menu operating section is closed, this switch is automatically set to OFF).

When the DISPLAY of the DISPLAY/ASPECT switch on the viewfinder is set to ON, the display indicating the current status of the camcorder appears on the viewfinder screen.

For details, see “Selecting the display items” on page 141.

To display the TOP menu

With no menu displayed on the screen, hold down the MENU knob and set the MENU ON/OFF switch to ON.

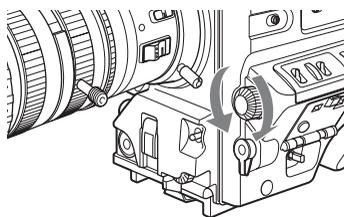
Depending on the internal switch settings, display of the TOP menu may be disabled. For details, refer to the Maintenance Manual.

Basic menu operations

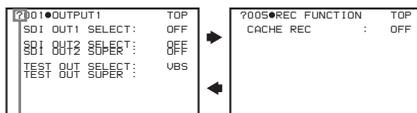
By pressing and turning the MENU knob, you can set various menu items. In the remainder of this section, the LCD monitor is generally shown as an example of the menu display, but a similar display also appears on the viewfinder screen.

To select the setting items and values on the menu

Turn the MENU knob to select in the cases explained below.

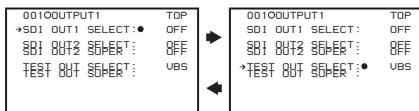


To scroll pages



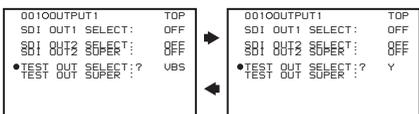
When ? blinks, turn the MENU knob to switch pages.

To select a menu or setting item



When ➡ appears, turn the MENU knob to move ➡ up and down.

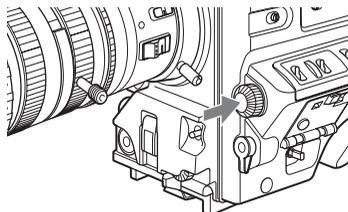
To change a setting value



When ? blinks, turn the MENU knob to change the setting (ON/OFF, value, etc.).

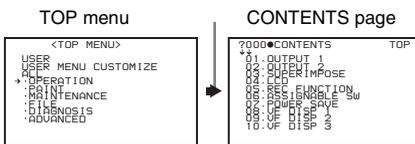
To confirm the selection of a menu, a setting item, or a setting value

Each time you press the MENU knob, the menu display switches in the following sequence.

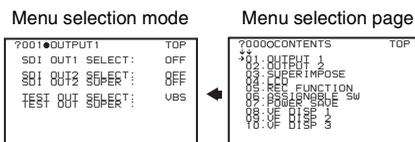


Example: When using the OPERATION menu

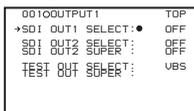
If the menu has not been used



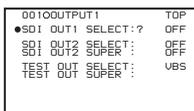
▼ If the menu has been used before



Setting item selection mode



Setting value selection mode



Note

If the TOP menu has not been displayed since the camcorder is powered on, “TOP” does not appear at the upper right on the above screen, and you cannot go to the TOP menu. In this case, follow the procedure in “To display the TOP menu” (page 134).

To display the TOP menu when another menu is displayed

Move ➡ to “TOP” displayed at the top right of each page of the menu, and press the MENU knob. Or flick the CANCEL/PRST/ESCAPE switch repeatedly to ESCAPE until the TOP menu is displayed.

Using the USER menu (example menu operation)

This section explains menu operations using the USER menu as an example. The operations are

the same for the ALL, OPERATION, PAINT, MAINTENANCE, and DIAGNOSIS menus.

For details about how to operate the USER MENU CUSTOMIZE menu, see “Editing the USER menu” (page 137).

1 Set the MENU ON/OFF switch to ON.

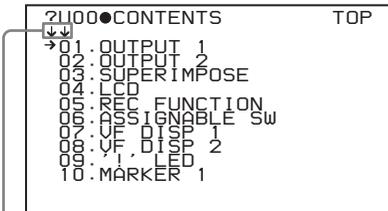
Normally, the USER menu appears.

If it does not, turn the MENU knob to move ➔ to USER in the TOP menu, and press the MENU knob.

If the USER menu has been used before, the last accessed page appears. In this case, go to step 2.

If this is the first time the USER menu has been displayed, the CONTENTS page of the USER menu appears. In this case, follow the procedure below.

- ① Press the MENU knob. Then turn the MENU knob to move ➔ to the desired page number.

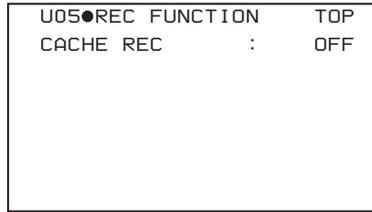


This indicates that the menu screen can be scrolled.

- ② Press the MENU knob again. The page selected in ① is displayed. Go to step 3.

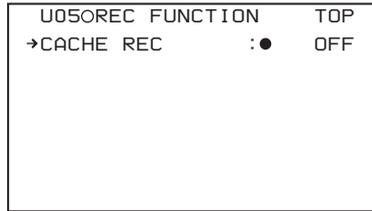
When you set items on the ALL, OPERATION, PAINT, MAINTENANCE, FILE, and DIAGNOSIS menus, move ➔ to the menu that contains the desired item in the TOP menu, and then press the MENU knob.

2 Turn the MENU knob until the desired page appears.



3 Press the MENU knob.

➔ and ● appear.



4 Turn the MENU knob to move ➔ to the desired item, and then press the MENU knob.

➔ changes to ●, and ● changes to ?.

5 Turn the MENU knob to change the setting.

Depending on the direction of turning the knob, the setting value increases, decreases, switches between ON and OFF, and so on.

To interrupt changing the settings

Set the MENU ON/OFF switch to OFF.

By setting the MENU switch to ON again, the values that were displayed when you interrupted the setting operations will reappear so you can continue making settings.

6 Press the MENU knob.

● changes to ➔, and ? changes to ●. The selection is confirmed.

7 To continue setting other items on the same page, repeat steps from 4 to 6.

8 To end the menu operation, set the MENU switch to OFF.

The menu disappears from the screen, and the display indicating the current status of the camcorder appears along the top and bottom of the screen.

To cancel a change or return to the standard settings

Note

Depending on the setting item, in some cases only the function to return to the standard setting is valid.

- 1 Before pressing the MENU button in step 6 of the above procedure, flick the CANCEL/PRST/ESCAPE switch to the CANCEL/PRST position.**

The message "CANCEL DATA OK?" appears.

- 2 Flick the CANCEL/PRST/ESCAPE switch to the CANCEL/PRST position again.**

The message "CANCEL DATA" appears to indicate that the change has been cancelled.

- 3 To return to the standard settings after pressing the MENU button in step 6 of the above procedure, flick the CANCEL/PRST/ESCAPE switch to the CANCEL/PRST position.**

The message "RESET DATA OK?" appears on the screen.

- 4 Flick the CANCEL/PRST/ESCAPE switch to the CANCEL/PRST position again.**

This returns to the standard settings.

To move to another page

U05●REC FUNCTION	TOP
CACHE REC :	OFF

When ? appears in front of the page number

Turn the MENU knob to switch pages.

When nothing appears in front of the page number

Turn the MENU knob to move ➔ to the page number, and press the MENU knob. Then turn the MENU knob to switch pages.

Editing the USER menu

The USER MENU CUSTOMIZE menu allows you to configure a USER menu that consists only of pages and items that you need by adding, deleting or replacing the pages.

To add a new page

The USER MENU CUSTOMIZE menu allows you to add a new page to the USER menu.

While the EDIT page contains factory-preset items, the USER 1 EDIT to USER 19 EDIT pages are all blank in their initial state. You can register up to 10 items, including blank lines, on each of these pages.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the TOP menu (see page 134).**

- 2 Select USER MENU CUSTOMIZE, and press the MENU knob.**

If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.

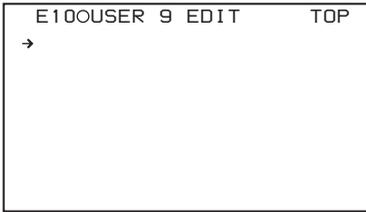
?	E00●	CONTENTS	TOP
01	:	EDIT PAGE	EDIT
02	:	USER 1	EDIT
03	:	USER 2	EDIT
04	:	USER 3	EDIT
05	:	USER 4	EDIT
06	:	USER 5	EDIT
07	:	USER 6	EDIT
08	:	USER 7	EDIT
09	:	USER 8	EDIT
10	:	USER 9	EDIT

If the USER MENU CUSTOMIZE menu has been used before, the last accessed page appears.

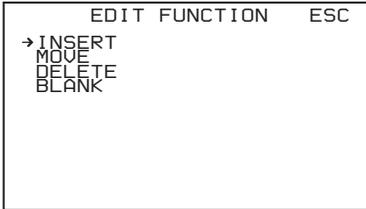
- 3 If the CONTENTS page is displayed, press the MENU knob. Then select one of USER 1 EDIT to USER 19 EDIT, and press the MENU knob.**

If a different page other than the CONTENTS page is displayed, turn the MENU knob until the desired page appears, then press the MENU knob.

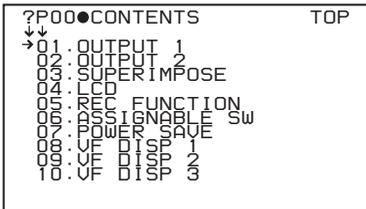
Example: when the USER 9 EDIT page is selected



- 4 Press the MENU knob. Then select the line where you want to add an item, and press the MENU knob.**
The EDIT FUNCTION page appears.



- 5 Select INSERT, and press the MENU knob.**
The following menu appears.



- 6 Add the items as follows.**
- ① Press the MENU knob, scroll the page until the desired item appears, and then press the MENU knob again.
 - ② Press the MENU knob again, select the desired item, and then press the MENU knob.
- The USER 9 EDIT page appears again, displaying the newly added item.
- 7 Repeat steps 4 to 6 to add the remaining items.**
You can add up to 10 items on one page.

To delete items from a page by using the CANCEL/PRST/ESCAPE switch

- 1 Follow steps 1 to 3 in “To add a new page” (page 137).**
- 2 Press the MENU knob. Then select the item that you want to delete.**
The EDIT FUNCTION page appears.
- 3 Flick the CANCEL/PRST/ESCAPE switch to the CANCEL/PRST position.**
The message “DELETE ITEM OK?” appears.
- 4 Flick the CANCEL/PRST/ESCAPE switch to the CANCEL/PRST position again.**

To delete items from a page by using the menu

- 1 Follow steps 1 to 3 in “To add a new page” (page 137).**
- 2 Press the MENU knob. Then select the item that you want to delete, and press the MENU knob.**
The EDIT FUNCTION page appears.
- 3 Select DELETE, and press the MENU knob.**
The previously displayed page appears again, and the message “DELETE OK? YES ➔ NO” appears.
- 4 Select YES, and press the MENU knob.**

To replace items on a page

- 1 Follow steps 1 to 3 in “To add a new page” (page 137).**
- 2 Press the MENU knob. Then select the item that you want to replace, and press the MENU knob.**
The EDIT FUNCTION page appears.
- 3 Select MOVE, and press the MENU knob.**
The previously displayed page appears again.
- 4 Select the position to which you want to move the item, and press the MENU knob.**

The item selected in step 2 moves to the position that you selected in step 4.

To insert a blank line

- 1 Follow steps 1 to 3 in “To add a new page” (page 137).
- 2 Press the MENU knob. Then select the item that you want to replace, and press the MENU knob.
The EDIT FUNCTION page appears.
- 3 Select **BLANK**, and press the MENU knob.
The previously displayed page appears again, and a blank line is inserted above the specified item.

Note

You cannot insert a blank line on a page where 10 items have already been registered.

To add/delete/replace pages

You can add a new page to the USER menu, delete a page from the USER menu, or replace pages, using the EDIT PAGE of the USER MENU CUSTOMIZE menu.

To add a page

(How to select an item in the menu screen: Turn the MENU knob to move → to the desired item.)

- 1 Display the **TOP** menu (see page 134).
- 2 Select **USER MENU CUSTOMIZE**, and press the MENU knob.
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page appears. If the menu has been used before, the last accessed page appears.
- 3 If the **CONTENTS** page is displayed, press the MENU knob. Then select **EDIT PAGE**, and press the MENU knob.
If a different page is displayed, turn the MENU knob until the EDIT PAGE screen appears.

The EDIT PAGE appears.

```
?E01●EDIT PAGE TOP
↓
01: OUTPUT 1
02: OUTPUT 2
03: SUPERIMPOSE
04: LCD
05: REC FUNCTION
06: ASSIGNABLE SW
07: VF DISP 1
08: VF DISP 2
09: 1, LED
10: MARKER 1
```

- 4 Press the MENU knob. Then select the position where you want to add the page, and press the MENU knob.
The EDIT FUNCTION page appears.
- 5 Select **INSERT**, and press the MENU knob.
The CONTENTS page appears.

- 6 Select the desired page, and press the MENU knob.
The number and name of the page selected in step 6 is added above the item selected in step 4.

To cancel adding a page

Before pressing the MENU knob in step 6, select ESC at the top right of the screen, and press the MENU knob.
The EDIT PAGE screen appears again.

To delete a page by using the CANCEL/PRST/ESCAPE switch

- 1 Follow steps 1 to 3 in “To add a new page” (page 137).
- 2 Press the MENU knob. Then select the page that you want to delete.
- 3 Flick the **CANCEL/PRST/ESCAPE** switch to the **CANCEL/PRST** position.
The message “DELETE PAGE OK?” appears.
- 4 Flick the **CANCEL/PRST/ESCAPE** switch to the **CANCEL/PRST** position again.

To delete a page by using the menu

- 1 Follow steps 1 to 3 in “To add a new page” (page 137).

- 2 Press the MENU knob. Then select the page that you want to delete, and press the MENU knob.

The EDIT FUNCTION page appears.

- 3 Select DELETE, and press the MENU knob.

The previously displayed page appears again, and the message “DELETE OK? YES ➔ NO” appears at the upper right.

- 4 Select YES, and press the MENU knob.

To replace pages

- 1 Follow steps 1 to 3 in “To add a new page” (page 137).

- 2 Press the MENU knob. Then select the page that you want to move, and press the MENU knob.

The EDIT FUNCTION page appears.

- 3 Select MOVE, and press the MENU knob.

The previous screen appears again.

- 4 Select the position to which you want to move the page, and press the MENU knob.

The page selected in step 2 is moved to the position.

Resetting USER menu settings to the standard settings

You can return all settings in the USER menu to standard settings.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the USER FILE page of the FILE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

```
?F01●USER FILE TOP
USER FILE LOAD :● EXEC
F.ID : □□□□□□□□□□□□□□□□
USER PRESET : EXEC
```

- 2 Press the MENU knob, then select USER PRESET, and press the MENU knob.

The message “PRESET OK? YES ➔ NO” appears.

```
F01USER FILE TOP
PRESET OK? YES➔NO
USER FILE LOAD : EXEC
USER FILE SAVE : EXEC
F.ID : □□□□□□□□□□□□□□□□
➔USER PRESET :▷ EXEC
```

- 3 Select YES, and press the MENU knob.

The message “COMPLETE” appears, and the settings for all items in the USER menu are reset to the standard settings.

Setting the Status Display on the Viewfinder Screen and the LCD Monitor

This section explains the menu settings for the display of the viewfinder screen. These settings are also used for the display of the LCD monitor in the same way.

Selecting the display items

To select the items to be displayed on the viewfinder screen (with the viewfinder DISPLAY of the DISPLAY/ASPECT switch set to ON) and the LCD monitor, use the VF DISP 1 and VF DISP 2 pages of the OPERATION menu. (How to select an item in the menu screen: Turn the MENU knob to move \blacktriangleright to the desired item.)

1 Display the VF DISP 1, VF DISP 2, or VF DISP 3 page of the OPERATION menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Select the desired setting item, and press the MENU knob.

On the VF DISP 1, VF DISP 2, and VF DISP 3 pages, you can select any of the following items to turn its display on or off.

VF DISP 1 page

Item	Description
VF DISP	Turning on or off the viewfinder display ^{a)}
VF DISPLAY MODE	Selecting the display mode ^{b)}
DISP EXTENDER	Extender indicator
DISP FILTER	Types of the ND filter
DISP WHITE	White balance memory indicator
DISP GAIN	Gain indicator
DISP SHUTTER	Shutter speed and ECS mode indicator
DISP AUDIO	Audio level indicator

Item	Description
DISP DISC	Remaining disc capacity indicator
DISP IRIS	Iris opening indicator

- a) The viewfinder display can be also turned on or off by using the DISPLAY of the DISPLAY/ASPECT switch on the viewfinder.
- b) For detailed information on the display mode, see “Change confirmation/adjustment progress messages” (page 142).

VF DISP 2 page

Item	Description
DISP ZOOM	Zoom position indicator
DISP COLOR TEMP.	Displays the color temperature.
DISP BATT REMAIN ^{a)}	Displays the battery voltage/remaining capacity of an internal battery pack or an external battery connected to the DC IN connector.
DISP DC IN	Displayed when the power is supplied from an external battery connected to the DC IN connector.
DISP 16:9/4:3 ID	Displays the 16:9/4:3 mode indicator.
DISP WRR RF LVL	Displays the reception level of the wireless microphone.
DISP REC FORMAT	Displays the recording format.
DISP CLIP NO(PB)	Displays the clip name.
DISP TIMECODE	Displays the timecode.

- a) When an Anton Bauer battery system or a BP-GL65/GL95 battery pack is installed, the remaining battery power is shown as a percentage value (%) according to the setting of this item.

INT: When one of the above batteries is installed, the remaining power is shown as a percentage value (%) when there is a change in the value or when the power is low.

AUTO: The remaining power is shown as a percentage value (%) when one of the above batteries is installed. Otherwise the voltage (VOLT) is displayed continuously.

VOLT: The voltage (VOLT) is displayed continuously.

VF DISP 3 page

Item	Description
LOW LIGHT	Turns on and off the on-screen warning that the average level of the video has dropped beneath a set level.
LOW LIGHT LEVEL	Sets the LOW LIGHT threshold value.
VF BATT WARNING	Specifies the remaining battery capacity level that starts the flashing warning in the viewfinder.

3 Turn the MENU knob to select the desired setting (ON, OFF, or value), and press the MENU knob.

4 Repeat steps 2 and 3 until you have set all of the desired items.

Change confirmation/adjustment progress messages

You can limit or suppress the messages that give details of setting changes and adjustment progress and results by setting a display mode. The conditions under which messages are displayed and their correspondence with the display mode are as follows:

Y: Message is displayed.

N: Message is not displayed.

Message display condition	Message	Display mode setting		
		1	2	3
When the filter selection has been changed	ND: n (where n = 1, 2, 3, 4)	N	N	Y
When the gain setting has been changed	GAIN: n (where n = -6dB, -3dB, 0dB, 3dB, 6dB, 9dB, 12dB, 18dB, 24dB, 30dB, 36dB, 42dB)	N	N	Y

Message display condition	Message	Display mode setting		
		1	2	3
When the setting of the WHITE BAL switch has been changed	WHITE: n (where n = A CH, B CH, PRESET) or ATW: RUN	N	N	Y
When the OUTPUT/DCC selector has been set to DCC ON or OFF	DCC: ON (or OFF)	N	Y	Y
When the shutter speed and mode setting has been changed ^{a)}	:SS: 1/100 (or 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS)	N	Y	Y
When the black or white balance has been adjusted	E.g. WHITE: OK	N	Y	Y

a) This is also displayed for about 3 seconds when the SHUTTER selector is set to ON.

Changing the display mode

1 Display the VF DISP 1 page of the OPERATION menu on the screen, and press the MENU knob.

For details on menu operations, see "Basic menu operations" (page 134).

2 Select VF DISP MODE, and press the MENU knob.

3 Select the desired display mode, and press the MENU knob.

Setting the marker display

Switch the display of the center and safety zone markers on or off, and select whether the area indicated by the safety zone marker is 80%, 90%, 92.5%, or 95% of the screen area.

(How to select an item in the menu screen: Turn the MENU knob to move \blacktriangleright to the desired item.)

1 Display the MARKER 1 or MARKER 2 page of the OPERATION menu on the screen, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Select the desired item, and press the MENU knob.

You can set the following items on the MARKER 1 and MARKER 2 pages.

MARKER 1 page

Item	Description
MARKER	Not to display all markers, set to “OFF”.
CENTER	To display the center marker, set to “ON”.
SAFETY ZONE	To display the safety zone, set to “ON”.
SAFETY AREA	To select the safety zone range (80%, 90%, 92.5 % or 95 %).
ASPECT	To display the aspect marker, set to “ON”.
ASPECT SELECT	To select the aspect mode.
ASPECT MASK (4:3) ^{a)}	To make the areas out of the selected aspect marker dimmer, set to “ON”.
ASPECT MASK LVL	To set the mask level (1/2, 1/4 or 1/8), when the ASPECT MASK is set to “ON”.
100 % MARKER	To display the effective pixel area, set to “ON”.

a) The ASPECT MASK item is for processing the signal to be output to the viewfinder. When R, G, or B is selected for the TEST OUT SELECT item in the menu, the masked video signal is output to the TEST OUT connector.

MARKER 2 page

Item	Description
USER BOX	Turns the display of the box cursor on and off.
USER BOX WIDTH	Sets the width of the box cursor (distance from center to left or right edge).
USER BOX HEIGHT	Sets the height of the box cursor (distance from center to top or bottom edge).
USER BOX H POS	Sets the horizontal position of the center of the box cursor.
USER BOX V POS	Sets the vertical position of the center of the box cursor.
CENTER H POS	Sets the horizontal position of the center marker.
CENTER V POS	Sets the vertical position of the center marker.
ASPECT SAFE ZONE	Turns the display of the aspect safety zone on and off.
ASPECT SAFE AREA	Selects the range of the aspect safety zone (80%/90%/92.5%/95%).

3 Turn the MENU knob to change the setting, and press the MENU knob.

4 Repeat steps 2 and 3 until you have set all of the desired items.

Setting the viewfinder

You can make settings for viewfinder screen display functions.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the VF SETTING page of the OPERATION menu on the screen, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Select the desired item, and press the MENU knob.

You can set the following items on the VF SETTING page.

Item	Description
ZEBRA	Turns the zebra display on or off. ^{a)}
ZEBRA SELECT	Selects ZEBRA 1, ZEBRA 2 or BOTH.
ZEBRA 1 DET. LVL	Adjusts the level of the zebra 1 (20% to 70% to 107%) display.
ZEBRA 1 APT. LVL	Adjusts the aperture level of the zebra 1 display. (1% to 10% to 20%)
ZEBRA 2 DET. LVL	Adjusts the level of the zebra 2 (52% to 100% to 109%) display.
VF DETAIL LEVEL	Adjusts the sharpness of the viewfinder (99 to +99).

a) When you use the viewfinder which is not equipped with the ZEBRA switch, turns the display on or off using this item. When you use the viewfinder with the ZEBRA switch, the most recent operation of the ZEBRA switch and this menu operation is effective.

3 Turn the MENU knob to change the setting, and press the MENU knob.

4 Repeat steps 2 and 3 until you have set all of the desired items.

Recording shot data superimposed on the color bars

In the SHOT DISP page of the USER menu, you can select which shot data is recorded superimposed on the color bars. You can also select which of the shot IDs (1 to 4) set in the SHOT DATA page is recorded superimposed on the picture.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the SHOT DISP page of the OPERATION menu on the screen, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Select the desired item, and press the MENU knob.

You can set the following items on the SHOT DISP page.

Item	Description
SHOT DATE	Selects whether or not the shot data is superimposed (ON or OFF).
SHOT TIME	Selects whether or not shot time is superimposed (ON or OFF).
SHOT MODEL NAME	Selects whether or not the model name is superimposed (ON or OFF).
SHOT SERIAL NO.	Selects whether or not the serial number is superimposed (ON or OFF).
SHOT ID SEL	Selects whether or not the shot ID set on the SHOT ID page is superimposed. ^{a)}
SHOT 16:9 ID	Selects whether or not the 16:9 mode indicator is superimposed (ON or OFF).
SHOT BLINK CHARA	Selects whether or not the blinking * is superimposed (ON or OFF).

a) To carry out superimposed recording, select the SHOT ID number (1 to 4). Not to carry out superimposed recording, select “OFF”.

3 Turn the MENU knob to select whether or not to record the selected item superimposed on the color bars or the SHOT ID number, and press the MENU knob.

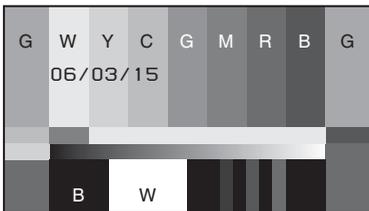
4 Repeat steps 2 and 3 until you have set all of the desired items.

To carry out superimposed recording

To actually record the items selected for superimposed recording on the SHOT DISP page, set the OUTPUT/DCC switch to BARS, DCC OFF.

The items selected for superimposed recording appear on the screen and are recorded superimposed on the color bars.

Example display: when SHOT DATA is set to ON



Setting the shot ID

You can set a shot ID of up to 12 alphanumeric characters, spaces, and symbols.

When the OUTPUT/DCC switch is set to BARS, DCC OFF, this shot ID is output with the color bar signal. You can set four shot IDs (ID-1 to ID-4).

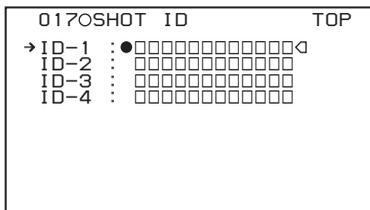
Note

When the menu is displayed, the shot ID is not displayed even if the color bar signal is output.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

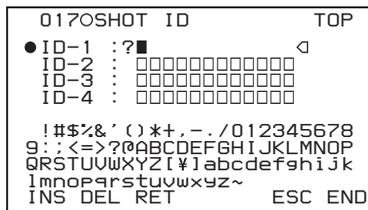
1 Display the SHOT DISP page of the OPERATION menu on the screen, and press the MENU knob.

For details on menu operations, see "Basic menu operations" (page 134).



2 Select one of ID-1 to ID-4, and press the MENU knob.

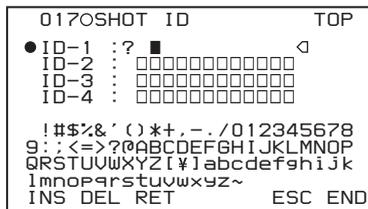
A ■ mark appears over the first character position in the string, and characters can now be input.



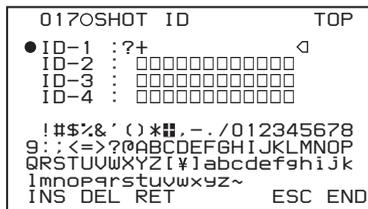
3 Enter or change the shot ID.

When you are entering the whole shot ID, go to ②.

- ① Turn the MENU knob to move the ■ mark to the character which you want to change, then press the MENU knob.



- ② Turn the MENU knob until the ■ mark moves to the character position that you want to select, then press the MENU knob.



4 Repeat step 3 for each of the remaining characters.

5 When the input is complete, turn the MENU knob to move the ■ mark over END, then press the MENU knob.

This ends the input, and returns to the original SHOT ID page.

To insert a space

In step **3** above, move the **■** mark over **INS**, and press the **MENU** knob.

To cancel inserting a space, move the **■** mark over **RET**, then press the **MENU** knob.

To delete a character

In step **3** of “Setting the shot ID” (page 145), move the **■** mark over **DEL**, and press the **MENU** knob.

This deletes the character under the **■** mark in the shot ID row.

To cancel deleting the character, move the **■** mark over **RET**, and press the **MENU** knob.

To cancel changing shot ID

Before executing step **5** of “Setting the shot ID” (page 145), move the **▶** mark over **ESC**, then press the **MENU** knob or flick the **CANCEL/PRST/ESCAPE** switch to **ESCAPE**.

Displaying the status confirmation screens

You can confirm the settings or status of the camcorder on the LCDs by displaying the following four screen.

ABNORMAL <!> screen

This window allows you to confirm why the ! (warning) indicator lights in the viewfinder. You can use the “!” page of the **OPERATION** menu to set whether or not the ! (warning) indicator lights.

SYSTEM screen

This screen displays information such as the system frame frequency, the recording format, whether output from the **TEST OUT** connector is on or off, and the type of output signal.

FUNCTION screen

This screen displays the functions assigned to the **ASSIGN 1/2/3/4** switches, the detection level, and other information.

AUDIO STATUS screen

This screen allows you to confirm the following items related to audio.

- Audio bit rate
- Setting condition of **DF/NDF** (only for the **PDW-510/530**)

- Type of front microphone
- Type of input signal to audio channels 1 to 4
- Input level of audio channels 1 to 4

You can use the **SET STATUS** page of the **USER** menu to set whether or not the status confirmation screens are displayed.

To display the status confirmation screens

You can use the **CANCEL/PRST/ESCAPE** switch as the **STATUS ON/SEL/OFF** switch when the **MENU ON/OFF** switch is set to **OFF** (when the cover of the menu operating section is closed, **OFF** is automatically selected).

To disable display of the status confirmation screens

(How to select an item in the menu screen: Turn the **MENU** knob to move **▶** to the desired item.)

1 Display the **SHOT STATUS** page of the **OPERATION** menu on the screen, and press the **MENU** knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Select the desired item, and press the **MENU** knob.

You can set the following items on the **SHOT STATUS** page.

Item	Description
STATUS	Selects whether or not the ABNORMAL window is displayed (ON or OFF).
STATUS	Displays (ON) or hides (OFF) the SYSTEM menu.
STATUS	Selects whether or not the FUNCTION window is displayed (ON or OFF).
STATUS	Selects whether or not the AUDIO window is displayed (ON or OFF).

3 Turn the **MENU** knob to change the setting, and press the **MENU** knob.

4 Repeat steps 2 and 3 until you have set all of the desired items.

Adjustments and Settings From Menus

Setting gain values for the GAIN selector positions

You can set the gain values for the L, M, and H positions of the GAIN selector, which switches the gain of the video amplifier.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the GAIN SW page of the OPERATION menu, and press the MENU knob.**

For details on menu operations, see “Basic menu operations” (page 134).

- 2 Select the item for the switch position, then press the MENU knob.**

You can set the following items on the GAIN SW page.

Item	Description
GAIN LOW	Sets the gain value corresponding to the L position of the GAIN selector.
GAIN MID	Sets the gain value corresponding to the M position of the GAIN selector.
GAIN HIGH	Sets the gain value corresponding to the H position of the GAIN selector.
GAIN TURBO	Sets the gain value corresponding to TURBO GAIN button selection.

Item	Description
TURBO SW IND	OFF: When you operate the GAIN selector after pressing the TURBO GAIN button once, the video gain is changed according to the GAIN selector operation. ON: When the video gain is boosted to the video gain to the value preset by pressing the TURBO GAIN button once, the video gain is not changed even if you operate the GAIN selector, until you press the TURBO GAIN button once more.
SHOCKLE SS GAIN	Turns shockless gain on or off.

- 3 Turn the MENU knob to select the gain value, and press MENU knob.**

- Any of -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 or 48 dB can be set for each of the L, M, and H positions, in any sequence.
- For TURBO, any of -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 or 48 dB can be selected.

- 4 Repeat steps 2 and 3 until you have set all of the desired items.**

Selecting the output signals

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the OUTPUT 1 page of the OPERATION menu, and press the MENU knob.**

For details on menu operations, see “Basic menu operations” (page 134).

- 2 Select the desired item, and press the MENU knob.**

You can set the following items on the OUTPUT 1 page.

Item	Setting
SDI OUT 1 SELECT	Selects the signal output from the SDI OUT1 connector. OFF: Do not output video. HD-SDI: Output HD-SDI. SD-SDI: Output SD-SDI
SDI OUT 2 SELECT	Selects the signal output from the SDI OUT2 connector. OFF: Do not output video. HD-SDI: Output HD-SDI. SD-SDI: Output SD-SDI
SDI OUT 2 SUPER	Selects whether to superimpose (ON) or not superimpose (OFF) text information on the signal output from the SDI OUT2 connector.
TEST OUT SELECT	Selects the output signal from the TEST OUT connector. VBS: Output composite video signal. When you select VBS, connect to the VIDEO IN connector of your monitor. Y: Output HD-Y signal. R/G/B: Output HD RGB signal. LCD: Output a signal like the display in the LCD monitor.
TEST OUT SUPER	Selects whether to superimpose (ON) or not superimpose (OFF) text information on the signal output from the TEST OUT connector.

3 Turn the MENU knob to change the

setting, and press the MENU knob.

4 Repeat steps 2 and 3 until you have set all of the desired items.

Assigning functions to ASSIGN switches

You can assign the desired function to any of the ASSIGN switches.

(How to select an item in the menu screen: Turn the MENU knob to move **▶** to the desired item.)

1 Display the ASSIGNABLE page of the OPERATION menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

You can assign functions by using the following items.

Item	Description
ASSIGN SW 1	Assigns the function to ASSIGN 1 (push-type) switch.
ASSIGN SW 2	Assigns the function to ASSIGN 2 (slide-type) switch.
ASSIGN SW 3	Assigns the function to ASSIGN 3 (push-type) switch.
ASSIGN SW 4	Assigns the function to ASSIGN 4 (push-type) switch.

2 Select the desired ASSIGN switch (ASSIGN SW <1> to <4>), and press the MENU knob.

The corresponding ASSIGN SW (1 to 4) SEL screen appears. You can assign one of the following functions to the ASSIGN switch.

Functions to be assigned to the ASSIGN 1/3/4 (push-type) switch

Function	Description
OFF	Assigns no function.
CACHE	Assigns execution of recording in picture cache mode.

Function	Description
TEST OUT CHARACTER	Assigns the function to switch whether or not text is superimposed on the video signal to be output from the TEST OUT connector.
MARKER	Assigns the ON/OFF function to display all markers. ^{a)}
RETAKE	Assigns the function to delete the last recorded clip.
ATW	Assigns the ON/OFF function of auto-tracing white balance.
RETURN VIDEO	Assigns the ON/OFF function to display the image of the return video signal on the viewfinder to the switch. ^{b)}
LENS RET	Assigns the same function as that of the RET switch on the lens to the switch.
REC SWITCH	Assigns the VTR S/S (start/stop) function to the switch.
TURBO SWITCH	Assigns the turbo gain function to the switch.
ZEBRA	Assigns the zebra pattern display function to the switch.
FREEZE MIX	Outputs the freeze image and camera input alternately, to allow frame alignment (automatic switching).
FREEZE MIX (Manual)	Outputs the freeze image and camera input alternately, to allow frame alignment (manual switching).
D5600	Applies an electrical 5600 K filter.
ZOOM TELE/WIDE ^{c)}	When using a serial lens, assign the ZOOM TELE setting to ASSIGN 3, and the WIDE setting to ASSIGN 4.
ZOOM WIDE/TELE ^{c)}	When using a serial lens, assign the ZOOM WIDE setting to ASSIGN 3, and the TELE setting to ASSIGN 4.
SHOT MARK1	Assigns the function to record a SHOT MARK 1 essence mark.
SHOT MARK2	Assigns the function to record a SHOT MARK 2 essence mark.

Function	Description
UA01 to UA10 ^{d)}	Assigns the items assigned in the ASSIGN SEL menu.

- a) Even when the MARKER item is set to OFF on the MARKER page of the USER menu, the ASSIGN 1/3/4 switch allows you to display or not to display all markers.
- b) Even if the RETURN VIDEO item is set to OFF on the GENLOCK page of the MAINTENANCE menu, you can use this switch to display the image of the return video signal on the viewfinder.
- c) Only the Assign 3 SEL and Assign 4 SEL screens appear.
- d) This does not appear if nothing is assigned in the Assign menu.

Functions to be assigned to the ASSIGN 2 (slide-type) switch

Function	Content
OFF	Assigns no function.
CACHE	Assigns execution of recording in picture cache mode.
TEST OUT CHARACTER	Assigns the function to switch whether or not the characters are mixed to the video signal to be output from the TEST OUT connector.
MARKER	Assigns the ON/OFF function to display all markers. ^{a)}
ZEBRA	Assigns the zebra pattern display function to the switch.
D5600	Applies an electrical 5600 K filter.
EXT REC CONTROL	Selects whether or not recording control of external devices connected through the CCZ connector (26-pin) of a CA-702 is possible.

Function	Content
REC VIDEO SOURCE ^{b)}	Selects which signals you will record pictures being shot by the camcorder or video signals from external equipment connected to GENLOCK IN connector.
UA01 to UA10 ^{c)}	Assigns the items assigned in the ASSIGN SEL menu.

- a) Even when the MARKER item is set to FF on the MARKER page of the USER menu, the ASSIGN 2 switch allows you to display or not to display all markers.
- b) When the CBK-SC01 is not installed, this item does not appear since this function is not effective.
- c) This does not appear if nothing is assigned in the Assign menu.

Note

For functions that are assigned to the ASSIGN 2 switch, you cannot change those settings using other menus. The function assigned to the ASSIGN 2 switch takes precedence over the menu setting.

3 Select the desired function, and press the MENU knob.

The function is assigned, and the ASSIGNABLE page appears again.

Operation of the ASSIGN 1/2/3/4 switches when UA01 to UA10 are assigned

When an on/off switchable function (or menu item) is assigned to one of the ASSIGN 1/2/3/4 switches, each time the switch is pressed toggles the function on or off.

When another type of menu item is assigned, pressing the switch displays the item and its setting value on the viewfinder screen.

You can then change the setting by pressing and turning the MENU knob.

The viewfinder screen display disappears approximately three seconds after the last operation.

Setting power saving functions

You can limit the function of some output connectors to save power consumption.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the POWER SAVE page of the OPERATION menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Select the desired item, and press the MENU knob.

You can set the following items on the POWER SAVE page.

Item	Description
ETHERNET/USB	Enables or disables the network connector and USB connector.
i.LINK(FAM)	Enables or disables the i.LINK connector (FAM function).
REC AUDIO OUT	Puts the AUDIO OUT connectors in EE or SAVE mode.

3 Turn the MENU knob to select the desired setting, and press the MENU knob.

4 Repeat steps 2 and 3 until you have set all of the desired items.

Setting the color temperature manually

You can manually adjust the value of the white balance by setting the color temperature.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the WHITE page of the PAINT menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Select the desired item, and press the MENU knob.

You can set the following items on the WHITE page.

Item	Description
COLOR TEMP <A>	Sets the color temperature for the desired value. Adjust the value while looking at the real image because error tends to be bigger for adjustment of high color temperature.
C TEMP BAL <A>	Adjusts the value more precisely when the color temperature adjustment through COLOR TEMP is not satisfactory.
R GAIN <A>	Changes only the value of R GAIN.
B GAIN <A>	Changes only the value of B GAIN.
D5600K<A>	Sets the color temperature to approximately 5600K

The above table shows the adjustment of the white balance of channel A. Items followed by are used to adjust the white balance of channel B.

- 3 Turn the MENU knob to change the setting, and press the MENU knob.
- 4 Repeat steps 2 and 3 until you have set all of the desired items.

Specifying an offset for the auto white balance setting

By setting an offset for the value of auto white balance, you can make the picture warmer or colder.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the OFFSET WHITE page of the OPERATION menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

- 2 Select the desired item, and press the MENU knob.

You can set the following items in the OFFSET WHITE page.

Item	Description
OFFSET WHITE <A>	When this item is set to ON, the offset adjusted on this page is added to the white balance for channel A.
WARM-COOL <A>	When OFFSET WHITE <A> is “ON”, sets the offset for the white balance of channel A, using the color temperature. Adjust the value while looking at the real image because error tends to be bigger for adjustment of high color temperature.
COLOR FINE <A>	Adjusts the value more precisely if the adjustment by WARM-COOL <A> is not satisfactory.
OFFSET WHITE 	When this item is set to ON, the offset adjusted on this page is added to the white balance for channel B.
WARM-COOL 	When OFFSET WHITE is “ON”, sets the offset for the white balance of channel B, using the color temperature. Adjust the value while looking at the real image because error tends to be bigger for adjustment of high color temperature.
COLOR FINE 	Adjusts the value more precisely if the adjustment by WARM-COOL is not satisfactory.

- 3 Set the WHITE BAL switch to the channel (A or B) that you want to set.

Note

If the WHITE BAL switch is not set to A or B, the adjusted value is not reflected in the video output even though you carry out the following operation.

- 4 Turn the MENU knob to change the setting, and press the MENU knob. If you want to set the other channel, go back to step 2.

Selecting the lens file

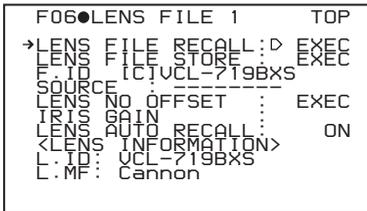
The LENS FILE page of the USER menu allows you to change the lens file according to the lens in use.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the LENS FILE page of the FILE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

The LENS FILE page shows the number (F.ID) and the name (L.ID) of the currently selected lens file.



2 Select LENS AUTO RECALL, and press the MENU knob.

3 Select ON, and press the MENU knob.

Setting the UMID data

What is a UMID?

The UMID (Unique Material Identifier) is a unique identifier for audio-visual material defined by the SMPTE330M-2003 standard. The UMID may be used either as the 32-byte Basic UMID or as the Extended UMID, which includes an additional 32 bytes of Source Pack to make a total 64 bytes.

For details, refer to SMPTE 330M.

Globally unique ID is automatically recorded in clip units.

The Extended UMID is metadata that provides additional information such as location, time/date, company and so on.

Using the Extended UMID

You have to enter a country code, organization code and user code. Set the country code referring to the ISO-3166 table, and set the organization code and user code independently.

For details, see “About UMID ownership information” (page 152).

Functions of UMID data

The UMID data enables the followings:

- Add a globally unique ID to every clip of audio-visual material. The unique ID is used to detect the material source and to link it with the original source material.
- Distinguishing between original material and copied material. 00 is added to the Instance Number for original material.
- Recording based on the UTC. The UTC is used when recording the UMID. This enables uniform control of source material recorded all over the world based on the universal time code.
- Calculating the date difference among source materials. The source material is recorded based on the MJD (Modified Julian Date), which enables easy calculation of date difference among source materials.

Setting UMID ownership information

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the UMID SET page of the OPERATION menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” (page 134).

2 Set the following item.

Item	Contents
COUNTRY CODE	Country code
ORGANIZATION	Organization code
USER CODE	User code
TIME ZONE	Time difference from UTC

For details on how to enter characters, see “Setting the shot ID” (page 145).

3 Press the MENU knob.

About UMID ownership information

COUNTRY CODE

Enter an abbreviated alphanumeric string (4-byte alphanumeric strings) according to the values defined in ISO 3166-1.

There are about 240 country codes.

Find your own country code on the following home page.

Refer to ISO-3166-1:

http://www.iso.org/iso/country-codes/iso_3166_code_lists.htm

When the country code is less than 4 bytes, the active part of the code will occupy the first part of the 4-bytes and the remainder must be filled with the space character (20h).

Example: In the case of Japan

For Japan, if the country code is JP, it is 2 bytes, if JPN, it is 3 bytes.

Thus, enter the following:

JP _ _

or

JPN _

where _ represents a space.

ORGANIZATION (organization code)

Enter an abbreviated 4-byte alphanumeric string for the organization code.

Notes

- Organization codes must be acquired by applying to the SMPTE registration office.
When no organization code has been acquired, it is forbidden to enter an arbitrary string. As a rule, the code “00” must be entered. Freelance operators who do not belong to an origination should enter “~”.
- There are no problems in recording or playing back audio-video signals, if ORGANIZATION is not set.

USER CODE

Enter the 4-byte alphanumeric strings for user identification.

The user code is registered with each organization locally. It is usually not centrally registered.

When the country code is less than 4 bytes, enter the country code from the beginning of the 4 bytes and enter the space character (20h) in the remaining strings.

This user code is determined by the organization. The methods used depend on the organization.

Note

User code cannot be entered when no organization code has been entered.

TIME ZONE

Set the time difference from UTC.

Notes

- The UTC is calculated based on the local time, using the time zone. If the time zone is not set, the UTC is not recorded correctly.

- When you change the time zone, adjust the internal clock to local time and turn the power of the camcorder off and then the power on again.

Handling the “Memory Stick”

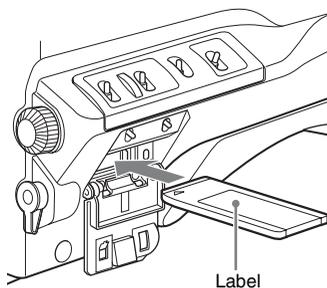
The “Memory Stick” can be inserted to or removed from the camcorder with the power turned on or off.

“Memory Sticks” usable with this camcorder

With this camcorder, you can use a Sony “Memory Stick”, “Memory Stick Duo”, “Memory Stick PRO” whose capacity does not exceed 4 GB, and “Memory Stick PRO Duo”.

For details, see “About a “Memory Stick”” on page 194.

Inserting a “Memory Stick”



- 1 **Open the cover of the menu operating section.**
- 2 **Hold the “Memory Stick” with the notch facing downward and the arrow facing away from you, and insert the “Memory Stick” into the “Memory Stick” slot until it clicks into place. Then close the cover.**

Note

If it does not fit into the slot properly or if there is some resistance when you insert it, the “Memory Stick” may be turned around or upside down. Do not force the “Memory Stick” into the slot. Confirm the direction of the notch and arrow on the “Memory Stick” before inserting the “Memory Stick” and then try inserting it again.

Removing the “Memory Stick”

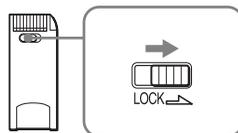
- 1 **Check that the access indicator is not lit, then gently press in the “Memory Stick” once and release.**
The “Memory Stick” pops out.
- 2 **Pull the “Memory Stick” towards you to withdraw it from the slot.**

Note

Do not remove the “Memory Stick” while the access indicator is lit. You may lose data, or damage the “Memory Stick”.

To protect saved data

To prevent accidental erasure of important setup data, slide the LOCK switch on the “Memory Stick” right to the write protect position.



It is now impossible to write or delete data on the “Memory Stick”. If you try to do so, the message “MEMORY STICK LOCKED” appears and the data cannot be overwritten or deleted.

Note

“Memory Stick Duo” and “Memory Stick PRO Duo” do not have this function.

To format a “Memory Stick”

(How to select an item in the menu screen: Turn the MENU knob to move \blacktriangleright to the desired item.)

1 Display the MEMORY STICK page of the FILE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” on page 134.

2 Select “EXEC”, and press the MENU knob.

Note

Do not format the “Memory Stick” using a PC.

Saving and Recalling User Files

The camcorder is equipped with a “Memory Stick” slot, which enables you to save the settings in the USER menu as a user file onto the “Memory Stick”. You can load these files from the “Memory Stick” for immediate recall of a particular setting configuration.

In addition to user files, you can save scene files, lens files and ALL files in a “Memory Stick”.

When a menu is displayed, inserting a “Memory Stick” displays the appropriate file-related menu page automatically.

Saving user menu data to the “Memory Stick”

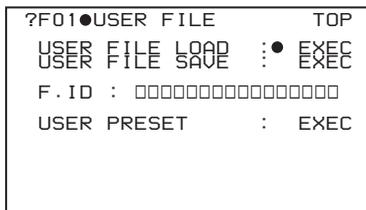
You can save USER menu settings held in the camcorder as user files in the “Memory Stick”. You can save up to 100 user files in the “Memory Stick”.

Insert the “Memory Stick” then proceed as follows.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the USER FILE page of the FILE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” on page 134.



To set a file ID for the data to be saved
Set the file ID before going to step 2.

For details on setting the file ID, see “To set the file ID” on page 156.

2 Select USER FILE SAVE, and press the MENU knob.

The USER SAVE page appears.
Up to 20 pages, from P00 to P19, can be used to save user files to the “Memory Stick”. Each page can hold up to five files.

3 Turn the MENU knob until the page which contains the desired file number appears, and press the MENU knob.

4 Select the desired file number, and press the MENU knob.

The message “SAVE OK? YES ➔ NO” appears.
If a file number is followed by “NEW FILE”, this means that the file is empty. If data is stored in the file, the file number is followed by the file name.

5 To carry out the save, select YES and press the MENU knob.

To cancel, press the MENU knob leaving ➔ pointing to NO.

The access indicator lights. When the saving is completed, the message “COMPLETE” appears and the access indicator goes off.

If no “Memory Stick” has been inserted
The message “NO MEMORY STICK” will appear. Insert a “Memory Stick” and carry out the operation once again.

If you select a file number where data has already been saved

The message “OVERWRITE OK? YES ➔ NO” appears.

- To stop overwriting, press the MENU knob leaving ➔ pointing to NO.
- To overwrite, select YES and press the MENU knob.

You can select the information displayed on each USER SAVE or USER LOAD page.

For details, see “To select the file information items to be displayed” on page 157.

About the USER menu settings to be saved in the “Memory Stick”

Settings for items on all pages of the USER menu are saved in the “Memory Stick” as a user file.

If data cannot be saved

If one of the following error messages appears during or after the save operation, then the data was not saved.

Error message	Cause	Action
NO MEMORY STICK (flashing)	No “Memory Stick” is inserted.	Insert or reinsert the “Memory Stick”.
MEMORY STICK LOCKED	The LOCK switch on the “Memory Stick” is set to the write protect position.	Set the LOCK switch to the write enable position.
MEMORY STICK ERROR (flashing)	Circuit or “Memory Stick” fault.	Recheck and consult a Sony service representative.

To set the file ID

You can set an file ID before you save your data as a user file. This will help you identify the user file quickly. The file ID that has been set is saved together with the data.

Note

Set the file ID before saving data in the “Memory Stick”. Otherwise, the file ID is not saved with the other data.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the USER FILE page of the FILE menu.

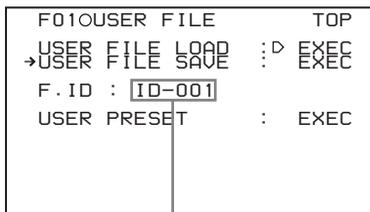
For details on menu operations, see “Basic menu operations” on page 134.

2 Select F. ID, and press the MENU knob.
A character table appears.



3 Follow steps 3 and 4 described in “Setting the shot ID” on page 145 to enter characters.

- 4** When you have finished entering the file ID, turn the MENU knob to move **■** to END, and press the MENU knob. The entered file ID is now displayed.



File ID that has been set appears.

When you carry out a user file save operation (see page 155), the set file ID is saved to the “Memory Stick” together with the data.

To select the file information items to be displayed

You can select the user file information items to be displayed on the USER FILE SAVE page and USER FILE LOAD page (P00 to P19), that are the pages used to save and call up the data to and from “Memory Stick”.

(How to select an item in the menu screen: Turn the MENU knob to move **▶** to the desired item.)

- 1** Display a **USER FILE LOAD** page or **USER FILE SAVE** page of the **USER FILE** menu, and press the **MENU knob**.

For details on menu operations, see “Basic menu operations” on page 134.

- 2** Select the **DISPLAY MODE**, and press the **MENU knob**.
- 3** Select the desired type of file information, and press the **MENU knob**.

Display type	Description
ALL	File ID (10 characters) and date (year/month/day)
F.ID	File ID (16 characters)
DATE	Date saved (year/month/day/hours/minutes/seconds)
MODEL	Information on the model

Loading saved data from a “Memory Stick”

Note

The data loaded from the “Memory Stick” overwrites the data saved in the camcorder.

(How to select an item in the menu screen: Turn the MENU knob to move **▶** to the desired item.)

- 1** Display the **USER FILE** page of the **FILE** menu, and press the **MENU knob**.

For details on menu operations, see “Basic menu operations” on page 134.

- 2** Select **USER FILE LOAD**, and press the **MENU knob**.

The USER LOAD page appears.

- 3** Turn the **MENU knob** until the page which contains the desired file number appears, then press the **MENU knob**.

- 4** Select the desired file number, and press the **MENU knob**.

The message “LOAD OK? YES **▶** NO” appears.

- 5** To carry out the load, select **YES** and press the **MENU knob**.

To cancel, press the MENU knob leaving **▶** pointing to NO.

The access indicator lights.

When the load is completed, the message “COMPLETE” appears and the access indicator goes off.

If data cannot be loaded

If one of the following error messages appears during or after the load operation, then the data was not loaded.

Error message	Cause	Action
NO MEMORY STICK (flashing)	No "Memory Stick" is inserted.	Insert or reinsert the "Memory Stick".
MEMORY STICK ERROR (flashing)	Circuit or "Memory Stick" fault.	Recheck, and consult a Sony service representative.
FILE ERROR (flashing)	The "Memory Stick" contains data that cannot be loaded into this camcorder.	Data saved to a "Memory Stick" using a camcorder whose model is not the same as this camcorder cannot be loaded into this camcorder.

Returning the user file settings to the standard settings

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the USER FILE page of the FILE menu, and press the MENU knob.

For details on menu operations, see "Basic menu operations" on page 134.

2 Select USER PRESET, and press the MENU knob.

Saving and Loading Scene Files

You can save various settings for shooting a particular scene as a scene file. By loading the scene file, you can quickly recreate setup conditions suitable for the scene. You can save up to five scene files in the camcorder memory and up to 100 scene files in a "Memory Stick". You can also load data from the "Memory Stick" into the camcorder memory.

Data that can be saved in a scene file

You can save the following data in a scene file:

- Values adjusted using the PAINT menu
- Shutter speed settings made in the standard mode and ECS mode
- The white balance data included in a scene file depends on the SCENE WHITE DATA setting on the REFERENCE page of the FILE menu.

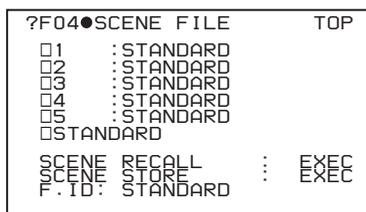
Saving a scene file

To save a scene file to the "Memory Stick", insert the "Memory Stick" into the "Memory Stick" slot before starting the following operation.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the SCENE FILE page of the FILE menu, and press the MENU knob.

For details on menu operation, see "Basic menu operations" on page 134.



To set a file ID for the data to be saved

Set the file ID before going to step 2.

For details on setting the file ID, see "To set the file ID" on page 156.

2 Select SCENE STORE, and press the MENU knob.

The SCENE STORE page appears.

3 Press the MENU knob, then select the desired file number, and press the MENU knob again.

The file to be saved is selected.

When no “Memory Stick” is inserted

Select the desired memory number, and press the MENU knob.

When the save is completed, the SCENE FILE page appears again.

When you select a file number where data has already been saved

The message “OVERWRITE OK? YES ➔ NO” appears.

- To cancel the overwriting, press the MENU knob leaving ➔ pointing to NO.
- To overwrite, select YES and press the MENU knob.

When a “Memory Stick” is inserted

You can use up to 20 pages, from P01 to P20, to save scene files in the “Memory Stick”.

Each page can hold up to five files.

- ① Turn the MENU knob until the page which contains the desired file number appears, then press the MENU knob.
- ② Select the desired file number, and press the MENU knob.
The message “STORE OK? YES ➔ NO” appears.
- ③ To carry out the save, select YES and press the MENU knob.
To cancel, press the MENU knob leaving ➔ pointing to NO.

You can select the file information items to be displayed on each page of SCENE STORE and SCENE RECALL.

For details, see “To select the file information items to be displayed” on page 157.

To save scene files stored in the camcorder memory to the “Memory Stick”

The five scene files stored in the camcorder memory can be saved to the “Memory Stick” all in a single operation.

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

1 Display the SCENE FILE page of the FILE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” on page 134.

2 Select SCENE STORE, and press the MENU knob.

One of the SCENE STORE pages appears.

3 Select the desired SCENE STORE page, and press the MENU knob.

4 Select 5FILE SAVE ◀ MEM1-5, and press the MENU knob.

The message “STORE OK? YES ➔ NO” appears.

5 To carry out the save, select YES and press the MENU knob.

To cancel, press the MENU knob leaving ➔ pointing to NO.

When the save is completed, the message “COMPLETE” appears.

Note

If files have been saved in the page selected in step 3, those files are replaced with files loaded from the camcorder memory. For example, files from 001 to 005 are replaced by the above procedure.

Setting the file ID

You can set an file ID before you save your data as a scene file. This will help you identify the scene file quickly. The file ID that has been set is saved together with the data.

You can carry out a scene file ID setting operation on the SCENE FILE page of the FILE menu.

For details about this operation, see the description of step 2 and following of “To set the file ID” on page 156.

Selecting the file information items to be displayed

You can select the items of file information to be displayed on the SCENE STORE pages (P01 to P20) or the SCENE RECALL pages (P01 to P20) used for saving data to or loading data from a “Memory Stick”.

You can select the scene file information items to be displayed on the SCENE STORE page and SCENE RECALL page of the SCENE FILE menu.

For details about item selection, see the description of step 2 and following of “To select the file information items to be displayed” on page 157.

Loading scene files

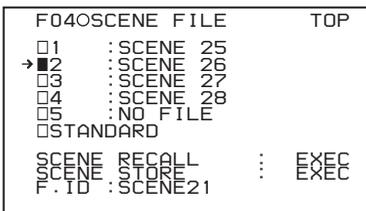
(How to select an item in the menu screen: Turn the MENU knob to move \blacktriangleright to the desired item.)

1 Display the SCENE FILE page of the FILE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” on page 134.

2 To load the scene file stored in the camcorder, select the desired file number, and press the MENU knob.

on the left of the file number changes to . The camcorder is set up according to the loaded scene file.



To cancel the selected scene file

Turn the MENU knob to move \blacktriangleright to , and press the MENU knob again. changes to . The camcorder returns to the settings before selecting this scene file.

To load a scene file saved in the “Memory Stick”

1 Select SCENE RECALL, and press the MENU knob.

The SCENE RECALL page appears.

2 Turn the MENU knob until the page which contains the desired file number appears, then press the MENU knob.

3 Select the desired file number, and press the MENU knob.

The message “RECALL OK? YES \blacktriangleright NO” appears.

3 To carry out the recall, select YES and press the MENU knob.

To cancel, press the MENU knob leaving \blacktriangleright pointing to NO.

When the loading is completed, the message “COMPLETE” appears. The camcorder is set up according to the loaded scene file. If no file is present with a particular file number, this is shown as “NO FILE”.

To load scene files from the “Memory Stick” into the camcorder memory

You can load up to five scene files stored in the “Memory Stick” into the camcorder memory all in a single operation.

(How to select an item in the menu screen: Turn the MENU knob to move \blacktriangleright to the desired item.)

1 Display the SCENE FILE page of the FILE menu, and press the MENU knob.

For details on menu operations, see “Basic menu operations” on page 134.

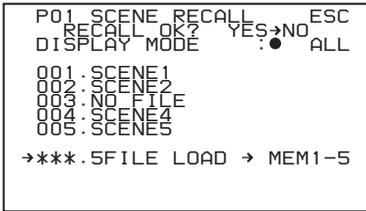
2 Select SCENE RECALL, and press the MENU knob.

The SCENE RECALL page appears.

3 Turn the MENU knob until the SCENE RECALL page which contains the desired scene files appears, and press the MENU knob.

4 Select 5FILE LOAD \blacktriangleright MEM1-5, and press the MENU knob.

The message “RECALL OK? YES \blacktriangleright NO” appears.



- 5 To carry out the load (recall), select YES and press the MENU knob.**
To cancel, press the MENU knob leaving ➔ pointing to NO.

When loading is complete, the message “COMPLETE” appears and the access indicator goes off.

Notes

- The scene files loaded from the “Memory Stick” overwrite data saved in the camcorder memory.
- To load the scene file saved in the camcorder memory when the “Memory Stick” is inserted, return to the P00 SCENE RECALL page and load the desired scene file in the camcorder memory.
- When there is no file to be loaded (shown as “NO FILE”), an existing file of the same number is unaffected. In the example shown in step 4, MEM3 is not overwritten.

Returning the scene file settings to the standard settings

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the SCENE FILE page of the FILE menu, and press the MENU knob.**
For details on menu operations, see “Basic menu operations” on page 134.

- 2 Select STANDARD, and press the MENU knob.**
 displayed on the left of STANDARD changes to . When changes to once again, the settings of the camcorder are reset to the standard settings.

If you press the MENU knob again while is displayed, the operation is cancelled and the camcorder returns to the settings before STANDARD was selected.

Jumping to a File-Related Menu Page When Inserting a “Memory Stick”

A “Memory Stick” enables you to save user files, scene files, lens files, reference files and ALL files.

The camcorder menu system allows you to make a setting so that when a “Memory Stick” holding these files is inserted while in menu operating mode, a menu page relating to the desired file is automatically displayed on the screen. Thus you can proceed to file operation quickly. This is very convenient especially when you manage data files using “Memory Stick”'s.
(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Display the MEMORY STICK page of the FILE menu, and press the MENU knob.**

For details on menu operations, see “Basic menu operations” on page 134.

- 2 Select MS IN > JUMP TO, and press the MENU knob.**

The MS IN > JUMP TO page allows you to select one of the following settings.

Setting	Description
OFF	Disables this function. Menu pages do not change when a “Memory Stick” is inserted.
USER	Jumps to the USER FILE page.
ALL	Jumps to the ALL FILE page.
SCENE	Jumps to the SCENE FILE page.
LENS	Jumps to the LENS FILE 1 page.
REFER	Jumps to the REFERENCE page.
USER 1	Jumps to the USER 1 FILE page.

- 3 Turn the MENU knob until the name of the desired file page appears, then press the MENU knob.**

Notes

In the following cases, jumping to the target page is impossible.

- When the power is turned on after you insert a “Memory Stick”.
- When OFF is selected on the MS IN > JUMP TO page.

- When any of the following menu pages is already displayed.
 - A file-related page such as the USER FILE page of the FILE menu
 - MEMORY STICK, ALL FILE, SCENE FILE, LENS FILE, REFERENCE or ROM VERSION page

Overview

A remote computer can be connected to this unit and used to operate on recorded data which has been saved in data files, such as video and audio data files.

There are two ways to connect a remote computer.

- FAM connection

Connect the **i** (i.LINK) S400 connector on this unit to the i.LINK (IEEE1394) connector on the remote computer, using an i.LINK cable (*see page 167*).

- FTP connection

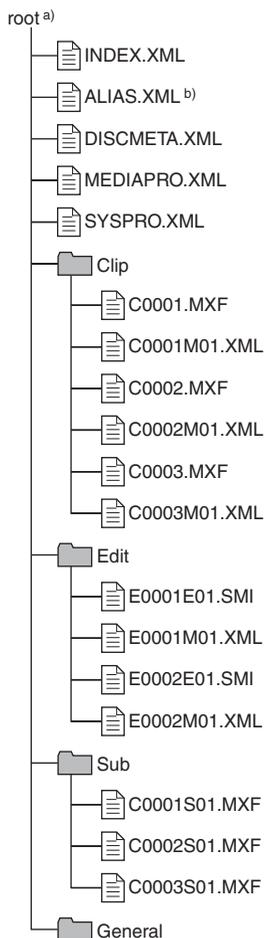
Connect the network connectors on this unit and the remote computer, using a network cable (*see page 169*).

Directory structure

The following figure shows the directory structure of discs visible to a remote computer.

Note

This structure is not the same as the actual structure recorded on the disc.



a) Root directory

b) Only when NAMING FORM on the FILE NAMING page of the OPERATION menu is set to "FREE"

File operation restrictions

This section explains which operations are possible on files stored in each directory. When required, the following operation tables distinguish reading and writing from partial reading and writing.

Read: Read data sequentially from the start to the end of the file.

Partial read: Read only a part of the data in the file.

Write: Write data sequentially from the start to the end of the file.

Partial write: Write data to a part of the file only.

Root directory

File name	Content	Operations				
		Read/ Partial read	Write/ Partial write	Rename	Create	Delete
INDEX.XML	Contains data for management of the material on the disc.	Yes	No	No	No	No
ALIAS.XML ^{a)}	Contains conversion tables for assigning user-defined names to clips and clip lists.	Yes	No	No	No	No
DISCMETA.XML	Contains metadata to indicate the disc properties.	Yes	Yes ^{b)}	No	No	No
MEDIAPRO.XML	Contains a list of materials on the disc, basic properties, related information, and information about access methods.	Yes	No	No	No	No
SYSPRO.XML	Contains system setting information and menu setting information for the devices.	Yes	No	No	No	No
Other files	Files other than the above	-	No	-	No	-

a) Only when NAMING FORM on the FILE NAMING page of the OPERATION menu is set to "FREE".

b) Only files which can be written by XDCAM.

Notes

- Directories cannot be created in the root directory.
- The directories in the root directory (Clip, Edit, Sub, and General) cannot be deleted or renamed.

Clip directory

File name	Content	Operations				
		Read/ Partial read	Write/ Partial write	Rename	Create	Delete
C*.MXF ^{a)}	Clip file created by recording (MXF file) *: 0001 to 9999	Yes	No ^{b), c)}	Yes	Yes ^{c)}	Yes ^{d)}
C*M01.XML ^{a)}	Metadata file generated automatically when C*.MXF file is created. *: 0001 to 9999	Yes	Yes ^{e)}	No ^{f)}	No ^{g)}	No ^{h)}
Other files	Files other than the above	-	No	-	No	-

a) The "C*" part can be changed to a user-defined name.

b) Overwriting is not possible.

c) Only files which are 2 seconds or longer in length, in a format matching the format (system frequency) and recording format (MPEG HD422 and number of audio

channels) of the recorded sections of the disc, and which can be overwritten by XDCAM.

d) Only when the Write Inhibit tab on the disc is set to enable recording. Any clip may be selected and deleted.

e) Only files which can be written by XDCAM.

- f) When the “C*” part of a C*.MXF file name is changed, a C*M01.XML file with the same name in the “C*” part is also changed automatically.
- g) When a C*.MXF file is created, a C*M01.XML file with the same name in the “C*” part is created automatically.

- h) When a C*.MXF file is deleted, the C*M01.XML file with the same name in the “C*” part is also deleted automatically.

Note

Directories cannot be created in the Clip directory.

Edit directory

File name	Content	Operations				
		Read/ Partial read	Write/ Partial write	Rename	Create	Delete
E*E01.SMI ^{a)}	Clip list file *: 0001 to 0099	Yes	Yes ^{b)}	Yes	Yes ^{c)}	Yes ^{d)}
E*M01.XML ^{a)}	Metadata file generated automatically when E*E01.SMI file is created. *: 0001 to 0099	Yes	Yes ^{b)}	No ^{e)}	No ^{f)}	No ^{g)}
Other files	Files other than the above	-	No	-	No	-

- a) The “E*” part can be changed to a user-defined name.
- b) Only files which can be written by XDCAM. Partial writing is not possible.
- c) Only files which can be written by XDCAM.
- d) Only when the Write Inhibit tab on the disc is set to enable recording.
- e) When the “E*” part of a E*E01.SMI is changed, an E*M01.XML file with the same name in the “E*” part is also changed automatically.

- f) When an E*E01.SMI file is created, an E*M01.XML file with the same name in the “E*” part is also generated automatically.
- g) When an E*E01.SMI file is deleted, an E*M01.XML file with the same name in the “E*” part is also deleted automatically.

Note

Directories cannot be created in the Edit directory.

Sub directory

File name	Content	Operations				
		Read/ Partial read	Write/ Partial write	Rename	Create	Delete
C*S01.MXF ^{a)}	Proxy AV data (MXF file) generated automatically when a C*.MXF file is created. *: 0001 to 4999	Yes	No	No ^{b)}	No ^{c)}	No ^{d)}
Other files	Files other than the above	-	No	-	No	-

- a) The “C*” part can be changed to a user-defined name.
- b) When the “C*” part of a C*.MXF file name is changed, a C*S01.MXF file with the same name in the “C*” part is generated automatically.
- c) When a C*.MXF file is created, a C*S01.MXF file with the same name in the “C*” part is generated automatically.
- d) When a C*.MXF file is deleted, the C*S01.MXF file with the same name in the “C*” part is also deleted automatically.

Note

Directories cannot be created in the Sub directory.

General directory

File name	Content	Operations				
		Read/ Partial read	Write/ Partial write	Rename	Create	Delete
Any file		Yes	Yes	Yes ^{a)}	Yes	Yes ^{b)}

- a) UTF-8 file names can be up to 63 bytes in length. (Depending on the character type, file names (including extension) may be limited to 21 characters.)
- b) Only when the Write Inhibit tab on the disc is set to enable recording.

The following directory operations are possible in the General directory.

- Directory creation (up to 64 levels, including the General directory)
- Deletion and renaming of directories

Notes

- The maximum number of files that can be created on one disc, including directories, is 5000 for a single-layer disc and 6000 for a dual-layer disc.
- File names and directory names can use letters, numbers, and symbols from the Unicode 2.0 (UTF-8) character set. ¹⁾
However, the following control characters and symbols cannot be used.
 - Control characters: U+0000 to U+001F, U+007F
 - Symbols: ", *, /, :, <, >, ', ?, \, |
- To create a new directory in the General directory, first create a directory on the desktop and rename it using only characters that can be used on this unit. Then drag it from the desktop and drop it in the General directory.

1) The following character codes cannot be used by FAM connections.

U+010000, U+020000, U+030000, U+040000,
 U+050000, U+060000, U+070000, U+080000,
 U+090000, U+0A0000, U+0B0000, U+0C0000,
 U+0D0000, U+0E0000, U+0F0000, U+100000

File Access Mode File Operations

File access mode operating environment

Operating system requirements for file operations by file access mode (called FAM below) are as follows.

Computer operating system: Microsoft Windows XP Professional SP2, or Microsoft Windows Vista Business/Ultimate (32 bit)

Preparations

Install the FAM driver on the remote computer.

To install the FAM driver

Insert the supplied CD-ROM (Proxy Browsing Software PDZ-1) in the CD-ROM drive of the computer and execute the Setup.exe file, then follow the installation instructions.

For details, refer to the ReadMe file contained on the CD-ROM disc.

Note

Use Version 2.01 or higher of the FAM driver. The FAM driver on the supplied CD-ROM is Version 2.01 or higher.

If a FAM driver is already installed on your computer, check the version (*see the next section*).

To check the FAM driver version

For Windows XP:

Select Control Panel > Add or Remove Programs > ProDisc, and click on "Click here for support information."

For Windows Vista:

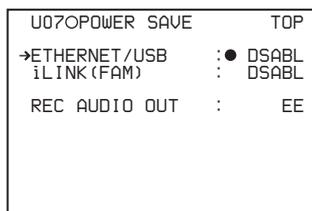
- (1) Select Control Panel > Programs, open the Programs and Features window, right click in the window's header bar (including the Name, Publisher, and other headers), and select Others...
- (2) In the Choose Details dialog, check the Version check box and click OK. The Version column is displayed, allowing you to check the version of ProDisc.

To enable FAM connections over the i.LINK connector

(How to select an item in the menu screen: Turn the MENU knob to move ➔ to the desired item.)

- 1 Turn the MENU knob to scroll to the POWER SAVE page of the OPERATION menu, then press the MENU knob.

For details on menu operations, see "Basic menu operations" on page 134.



- 2 Move ➔ to i.LINK(FAM) then press the MENU knob.
- 3 Turn the MENU knob to select "ENABL", then press the MENU knob. The message "Valid after power off." appears.
- 4 Power the camcorder off, and then power it on again. The setting made in step 3 is enabled.

Making FAM connections

- 1 If there is a disc loaded in this unit, put the unit into the following state.
Recording, playback, search and other disc operations: Stopped
Thumbnail indicator: Off
Disc access by clip deletion, disc formatting, or other operation: Stopped
Picture Cache function and Interval Rec function: Off
MENU ON/OFF switch: OFF
Unsaved current clip list: Save or clear
- 2 If this unit is connected to a remote computer by FTP, log out from the FTP session (*see page 170*).
- 3 Connect the  (i.LINK) S400 connector on this unit to the i.LINK (IEEE1394) connector on the remote computer, using an i.LINK cable.

Windows recognizes this unit as a removable disc, and displays one of the following icons on the remote computer's task bar:

- **Windows XP:** 
- **Windows Vista:** 

The remote computer is now able to perform file operations when a disc is inserted into this unit.

Note

You will not be able to log in if you put the unit into the state described in step 1 after connecting the cable. To log in, disconnect the cable, put the unit into the state described in step 1, and connect it again.

Operation limitations during FAM connections

- With the exception of the EJECT button, recording buttons and playback control buttons are disabled.
- VDR of this unit cannot be controlled from devices connected to the REMOTE connector (8-pin) and  (i.LINK) S400 connector.

Operating on files

1 Start Explorer.

Check that a drive letter has been assigned to this unit. (The drive letter will differ depending on the number of other peripherals connected to the remote computer.)

2 Use Explorer to perform file operations on the disc loaded in this unit.

You can operate in the same way that you operate on local drives and files on network computers.

Notes

- If you power this unit off during an FAM connection, the data transferred thus far is discarded.
- All file operations are not possible for some types of files.

For details, see "File operation restrictions" (page 163).

To eject discs from a remote computer

Right click the icon representing this unit in Explorer, and select Eject from the menu which appears.

Exiting file operations

Note

Do not disconnect the cable before performing steps 1 to 3.

1 Do one of the following on the or icon displayed in the remote computer's task bar.

- Double click.
- Right click to display the context menu and select "Safely Remove Hardware" from the context menu.

The Safely Remove Hardware dialog appears.

2 Select "Sony XDCAM PDW-700 IEEE 1394 SBP2 Device" and click "Stop".

The Stop a Hardware device dialog appears.

3 Select "Sony XDCAM PDW-700 IEEE 1394 SBP2 Device" and click "OK".

In Windows XP, "Sony XDCAM PDW-700 IEEE 1394 SBP2 Device" is deleted from the list of hardware devices.

In Windows Vista, the message "This device can be safely removed from your computer." appears.

This unit can now resume normal operations. (The limitations described in "Operation limitations during FAM connections" on page 168 no longer apply.)

4 Disconnect the i.LINK cable as required.

Reconnecting

To reconnect after exiting file operations, do one of the following, depending on whether an i.LINK cable is connected.

i.LINK cable is not connected: Connect this unit and a remote computer with an i.LINK cable.

i.LINK cable is connected: Disconnect the i.LINK cable from either this unit or the remote computer, wait for at least 10 seconds, and then reconnect the disconnected cable.

The unit is powered off and an i.LINK cable is connected: Power the unit on.

FTP File Operations

File operations between this unit and a remote computer can be carried out by the File Transfer Protocol (called FTP below).

Preparations

1 Connect the network connectors of this unit and a remote computer with a network cable. Or connect this unit to the network to which the remote computer is connected.

2 On the NETWORK page of the MAINTENANCE menu, set the IP address and other network setting items for this unit.¹⁾

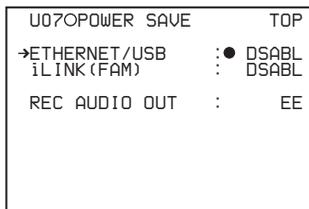
For details on menu operations, see "Basic menu operations" (page 134).

If network settings have already been made

Check the IP address of this unit.

1) This unit is able to acquire an IP address automatically from a DHCP server. It also supports an Auto-IP function to assign an IP address automatically when access from this unit to the DHCP server times out. You can check DHCP settings and the assigned IP address on the NETWORK page of the MAINTENANCE menu.

3 Turn the MENU knob to scroll to the POWER SAVE page of the OPERATION menu, then press the MENU knob.



4 Move **→** to ETHERNET/USB then press the MENU knob.

5 Turn the MENU knob to select "ENABL", then press the MENU knob.

Making FTP connections

FTP connections between this unit and a remote computer can be made with either of the following.

- The command prompt
- FTP client software

This section explains how to use the command prompt. For more information about using FTP client software, refer to the documentation of the FTP client software on your system.

To log in

If this unit is connected to a remote computer with a FAM connection, first exit file operations on the FAM connection (see page 168).

1 Load a disc into this unit and put the unit into the following state.

Recording, playback, serch, and other disc operations: Stopped

Thumbnail indicator: Off

Disc access by clip deletion, disc formatting, or other operation:

Stopped

Picture Cache function: Off

MENU ON/OFF switch: OFF

Unsaved current clip list: Save or clear

Note

Login is not possible unless the unit is in the state described above.

2 Start the command prompt.

3 Enter “ftp <SP> <IP address>”, and press the Enter key. (<SP> refers to a space.)

For example, if the IP address of this unit is set to 192.168.001.010, enter “ftp 192.168.1.10”.

Refer to the Windows help for more information about the FTP command.

If the connection succeeds, you are prompted to enter a user name.

4 Enter the user name “admin” and press the Enter key.

When the user name is verified, your are prompted to enter a password.

5 Enter the password and press the Enter key.

The password is set to “pdw-700” when the unit is shipped from the factory.

The login is complete when the password is verified.

See “Command list” (page 170) for the protocol supported by this unit.

If the connection times out

This unit terminates FTP connections if no command is received within 90 seconds of the last command. If this occurs, log out (see the next section) and repeat steps 2 to 4.

Note

If you power this unit off during an FTP connection, the data transferred thus far is discarded.

To log out

To log out after finishing file operations, enter “QUIT” at the command prompt and press the Enter key.

Command list

This unit supports standard protocol (*see the next section*), and extended protocol (*see page 173*).

Notes

- To execute FTP commands, you must install application software such as PDZ-1 on your computer.
- The commands supported by application software vary.
- An FTP client that supports UTF-8 is required to use Unicode characters other than ASCII characters.

Command prompt FTP commands do not support UTF-8.

Standard commands

In the command syntax column, <SP> means a space, entered by pressing the space bar, and <CRLF> means a new line, entered by pressing the Enter key.

USER

Send this command to begin the login process.

Syntax: USER <SP> <username> <CRLF>

Input example: USER admin

PASS

After sending the USER command, send this command to complete the login process.

Syntax: PASS <SP> <password> <CRLF>

Input example: PASS pdw-700

QUIT

Terminates the FTP connection. If a file is being transferred, terminates after completion of the transfer.

Syntax: QUIT <CRLF>

PORT

Specifies the IP address and port to which this unit should connect for the next file transfer (for data transfer from this unit).

Syntax: PORT <SP> <h1,h2,h3,h4,p1,p2>
<CRLF>

h1 (most significant byte) to h4 (least significant byte): IP address

p1 (most significant byte), p2 (least significant byte): Port address

Input example: PORT 10,0,0,1,242,48

(IP address: 10.0.0.1, Port number: 62000)

PASV

This command requests this unit to “Listen” on a data port (which is not its default data port). It puts this unit into passive mode, waiting for the remote computer to make a data connection.

Syntax: PASV <CRLF>

TYPE

Specifies the type of data to be transferred.

Syntax: TYPE <SP> <type-code (options delimited by <SP>)> <CRLF>

<type-code> can be any of the following. However, for XDCAM, data is always transferred as “I,” regardless of the type-code specification.

- A: ASCII
 - N: Non-print
 - T: Telnet format
 - C: ASA Carriage Control
- E: EBCDIC
 - N: Non-print
 - T: Telnet format
 - C: ASA Carriage Control
- I: IMAGE (Binary) (default)
- L: LOCAL BYTE
 - SIZE: byte size

Input example: TYPE I

STRU

Specifies the data structure.

Syntax: STRU <SP> <structure-code> <CRLF>

<structure-code> can be any of the following. However, for XDCAM, the structure is always “F,” regardless of the structure-code specification.

- F: File structure (default)
- R: Record structure
- P: Page structure

Input example: STRU F

MODE

Specifies the transfer mode.

Syntax: MODE <SP> <mode-code> <CRLF>

<mode-code> can be any of the following. However, for XDCAM, the mode is always “S,” regardless of the mode-code specification.

- S: Stream mode (default)
- B: Block mode
- C: Compressed mode

Input example: MODE S

LIST

Sends a list of files from this unit to the remote computer.

Syntax: LIST <SP> <options> <SP> <path-name> <CRLF>

<options> can be any of the following.

- -a: Also display file names that begin with “.”.
- -F: Append “/” to directory names.

The following data is transferred, depending on whether <path-name> specifies a directory or file.

- Directory specified: A list of the files in the specified directory
- File specified: Information about the specified file

- No specification: A list of the files in the current directory.

The wildcard characters “*” (any string) and “?” (any character) may be used in <path-name>.

Input example 1: LIST -a Clip

Input example 2: LIST Clip/*.MXF

NLST

Sends a list of file names from this unit to the remote computer, with no other information.

Syntax: NLST <SP> <options or path-name> <CRLF>

The following options may be specified when no path name is specified.

- -a: Also display file names that begin with “.”
- -I: Display information other than file name (gives the same result as the LIST command).
- -F: Append “/” to directory names.

The following data is transferred, depending on whether <path-name> specifies a directory or file.

- Directory specified: A list of the file names only in the specified directory
- No specification: A list of the file names only in the current directory.

The wildcard characters “*” (any string) and “?” (any character) may be used in <path-name>.

Input example 1: NLST-I

Input example 2: NLST Clip/*.MXF

RETR

Begins transfer of a copy of a file in the specified path on this unit to the current directory on the remote computer.

Syntax: RETR <SP> <path-name> <CRLF>

Input example: RETR Clip/C0001.MXF

STOR

Begins transfer of a copy of a file in the specified path on the remote computer to the current directory on this unit.

Depending on the type of file transferred, the following items are created.

- C*.MXF file ^{a) c)}
 - C*M01.XML file (metadata)
 - C*S01.MXF file (proxy AV data)
 - For C*.MXF files, the UMID of the copy source file is not saved. However, it is saved if an immediately preceding SITE UMMID extended command has been issued.
- E*E01.SMI file ^{b) c)}
 - E*M01.XML file (metadata)

a) *: 0001 to 9999

- b)*: 0001 to 0099
- c) With firmware version 1.5 and higher, the unit can handle files with user-defined names in the “C*” and “E*” parts.

Notes

- For C*.MXF files, some data, such as file header metadata, may be missing.
- Depending on the transfer destination directory and the file type, transfer may not be possible.
- For C*.MXF files, the UMID of the copy source file is not saved. However, it is saved if an immediately preceding SITE UMMD extended command has been issued.

For details, see “File operation restrictions” (page 163).

Syntax: STOR <SP> <path-name> <CRLF>

Input example: STOR Edit/E0001E01.SMI

RNFR

RNTO

Rename a file. Specify the file to be renamed with the RNFR command, and specify the new name with the RNTO command. (Always follow a RNFR command with a RNTO command.)

Syntax: RNFR <SP> <path-name (before change)> <CRLF>
RNTO <SP> <path-name (after change)> <CRLF>

Input example: RNFR General/info.txt
RNTO General/clip_info.txt

DELE

Deletes the specified file on this unit.

Note

Depending on the directory and file type, deletion may not be possible.

For details, see “File operation restrictions” (page 163).

Syntax: DELE <SP> <path-name> <CRLF>

Input example: DELE Clip/C0099.MXF

STAT

Sends information about properties of the specified file, or about data transfer status, from this unit to the remote computer.

The following property information is sent, depending on the file type.

- MXF file
 - File name
 - File type
 - CODEC type
 - Frame rate

- Number of audio channels
- Duration
- UMID
- non-MXF file
 - File name

Syntax: STAT <SP> <path-name> <CRLF>

The following data is transferred, depending on whether a file is specified with <path-name>.

- File specified: The properties of the specified file
- No specification: The size of the data transferred thus far (unit: bytes)

Input example: STAT Clip/C0001.MXF

ABOR

Requests this unit to abort a file transfer currently in progress.

Syntax: ABOR <CRLF>

SYST

Displays the system name of this unit.

Syntax: SYST <CRLF>

HELP

Displays a list of the commands supported by this unit, or an explanation of the specified command.

Syntax: HELP <SP> <command-name> <CRLF>

The following data is transferred, depending on whether a command name is specified with <command-name>.

- Command name specified: Explanation of the specified command.
- No specification: Command list
- **Input example:** HELP RETR

NOOP

Does nothing except return a response. (Used to check whether this unit is running.)

Syntax: NOOP <CRLF>

PWD

Displays the current directory (“/” if the directory is the root directory).

Syntax: PWD <CRLF>

CWD

Changes the current directory (moves from the current directory to another directory).

Syntax: CWD <SP> <path-name> <CRLF>

Moves to a directory as follows, depending on whether a directory is specified with <path-name>.

- Directory specified: To the specified directory
- No specification: To the root directory

Input example: CWD General

CDUP

Moves one level up in the directory structure (makes the parent of the current directory be the current directory).

Syntax: CDUP <CRLF>

MKD

Creates a new directory.

Note

Directories can be created only in the General directory.

For details, see “File operation restrictions” (page 163).

Syntax: MKD <SP> <path-name> <CRLF>

RMD

Deletes a directory.

Note

Directories can be deleted only in the General directory.

For details, see “File operation restrictions” (page 163).

Syntax: RMD <SP> <path-name> <CRLF>

Extended commands

In the command syntax column, <SP> means a space, entered by pressing the space bar, and <CRLF> means a new line, entered by pressing the Enter key.

SITE REPF

Sends an MXF file from the specified path on this unit to the remote computer. This command allows you to specify a segment in the body of the MXF file (composed of video and audio data), for transfer of the required segment only.

Notes

- A segment greater than the file size cannot be specified.
- This command cannot be used when the path name contains a space. Use the SITE REPFL command instead.

Syntax: SITE REPF <SP> <path-name> <SP>
<start-frame> <SP> <transfer-size>
<CRLF>

<start-frame> specifies an offset from the start of the file. Data is transferred from the video frame at the offset (the first frame is 0).

<transfer-size> specifies the number of video frames to transfer (specify 0 to transfer to the end of the file).

Input example: SITE REPF Clip/C0001.MXF 5
150 (Transfer C0001.MXF. Body data is transferred only from frame 6 to frame 150.)

SITE REPFL

Sends an MXF file from the specified path on this unit to the remote computer. This command allows you to specify a segment in the body of the MXF file (composed of video and audio data), for transfer of the required segment only.

Note

A segment greater than the file size cannot be specified.

Syntax: SITE REPFL <SP> “<path-name>” <SP>
<start-frame> <SP> <transfer-size>
<CRLF>

<path-name> specifies the path name of the file to transfer. Enclose the path name in double quotation marks.

<start-frame> specifies an offset from the start of the file. Data is transferred from the video frame at the offset (the first frame is 0).

<transfer-size> specifies the number of video frames to transfer (specify 0 to transfer to the end of the file).

Input example: SITE REPFL “Clip/sakura
0001.MXF 5” 150 (Transfer sakura
0001.MXF. Body data is transferred only
from frame 6 to frame 150.)

SITE FSTS

Acquires the system status of this unit.

One of the following status codes is sent.

- 0: Initial state, or no disc is loaded.
- 1: File system mount is OK.
- 3: File system mount is not OK.

Syntax: SITE FSTS <CRLF>

SITE MEID

Acquires the media ID of the disc loaded in this unit.

Syntax: SITE MEID <CRLF>

SITE FUNC

Acquires the function and version of the expanded commands.

Information is sent in the following format.

<main function> <SP> <branch function> <SP>
<branch function version>

For XDCAM, sent in a format like “200 MXF DISK 1” (200 is a response code).

Syntax: SITE FUNC <CRLF>

SITE UMMD

When C*.MXF file is sent with the STOR, the copy source UMID is saved if this command is invoked immediately before the STOR command.

Syntax: SITE UMMD <CRLF>

SITE DF

Acquires the amount of free disc space.

Syntax: SITE <SP> DF <CRLF>

SITE CHMOD

Locks and unlocks clips. Also sets permissions for directories and files in the General directory.

Syntax: SITE CHMOD <SP> <flag> <SP> <path-name> <CRLF>

Specify one of the following values in <flag>, according to the specification in <path-name>.

- When a clip is specified in <path-name>:
 - 444: Lock.
 - 666: Unlock.
- When a directory in the General directory is specified in <path-name>:
 - 555: Forbid writing to the directory.
 - 777: Allow writing to the directory.
- When a file in the General directory is specified in <path-name>:
 - 444: Forbid writing to and execution of the file.
 - 555: Forbid writing to the file, but allow execution.
 - 666: Allow writing to the file, but forbid execution.
 - 777: Allow writing to and execution of the file.

Input example: SITE CHMOD 444 Clip/
C0001.MXF (Lock clip C0001.MXF)

Recording Continuous Timecode With FAM and FTP Connections

When you are connected to the unit by FAM or FTP, you can create new clips with timecode that is continuous with the timecode of the last frame of the last clip on the disc. To record continuous timecode, set PRESET/REGEN/CLOCK switch to “REGEN,” and then proceed as follows.

FAM connection

Write clip files to the unit from the computer or other device that is connected to this unit.

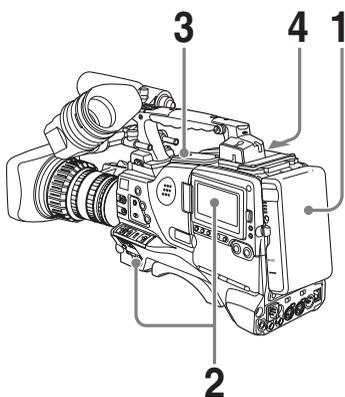
FTP connection

Use the “STOR” command to transfer clip files from the computer that is connected to this unit. If you issue the “SITE UMMD” command immediately before the “STOR” command, the original timecode of the transferred file is recorded, regardless of the setting of PRESET/REGEN/CLOCK switch.

Testing the Camcorder Before Shooting

Check the functions of the camcorder before setting out for a shooting session, preferably by operating the camcorder together with a color video monitor.

Preparations for Testing



- 1** Attach a fully charged battery pack.
- 2** Set the POWER switch to ON and check that the HUMID indicator does not appear and that the BATT indicator shows at least five segments.
 - If the HUMID indicator appears, wait until it disappears.
 - If the BATT indicator does not show at least five segments, replace the battery pack with a fully charged one.
- 3** Check that there are no obstructions near the disc compartment, and then press the EJECT button to open the disc compartment lid.

- 4** After confirming that the disc is not write-protected, load the disc and close the disc compartment lid.

Condensation

If you move the camcorder from a very cold place to a warm place, or use it in a damp location, condensation may form on the optical pickup. Then, if the camcorder is operated in this state, recording and playback may not be performed properly.

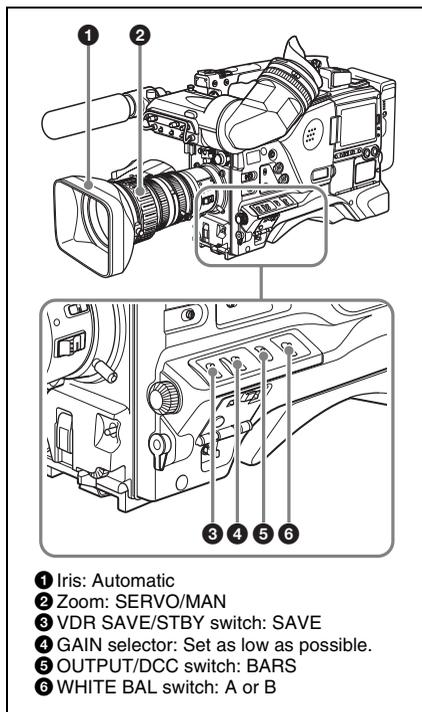
Do the following to prevent this from happening.

- When you move or operate the camcorder in an environment where condensation may form, be sure to load a disc in advance and close the disc compartment lid.
- Whenever you turn on the power, check that the HUMID indicator does not appear on the color LCD. If it appears, wait until it disappears before loading a disc.

For details, see “Loading and unloading a disc” on page 67 and “Operation Warnings” on page 181.

Testing the Camera

Set the switches and selectors as follows.



Testing the viewfinder

- 1** Adjust the position of the viewfinder.
- 2** Check that the color bars are displayed on the viewfinder screen, and adjust the **BRIGHT**, **CONTRAST**, and **PEAKING** controls to give the best color bar display.
- 3** Check each of the following operations.
 - The menu is displayed on the viewfinder screen.
 - Turn the MENU knob and check that the menu page changes to the next page.
 - Press the MENU knob and check that settings of each item of the selected page are displayed.
 - Turn the MENU knob and check that **▶** moves within the page.
 - Press the MENU knob and check that **▶** placed before the item changes to **●** and **●** placed before the setting of the item changes to **?**.

- Turn the MENU knob and check that the setting of the selected item changes.

- 4** Set the **OUTPUT/DCC** switch to **CAM**, and change the **FILTER** selector position in the sequence of **1, 2, 3** and **4**. Check that the **FILTER** indicator on the viewfinder screen displays the correct numbers.
- 5** Carry out of the following operations, and check that the **!** indicator lights if the corresponding item has been turned on on the **'!** LED page of the **USER** menu.
 - Set the gain to anything but 0 dB by using the **GAIN** selector and the **GAIN SW** page of the **OPERATION** menu.
 - Set the **SHUTTER** selector to **ON**.
 - Set the **WHITE BAL** switch to **PRST**.
 - Use the lens extender.
 - Set the reference value of the auto iris to other than the standard value.
- 6** Flick the **SHUTTER** selector from **ON** to **SELECT** repeatedly, and check that the shutter setting changes on the viewfinder screen.
- 7** Pointing the camera at a suitable subject, focus the camera and check the picture on the viewfinder screen.
- 8** Set both of the **AUDIO IN** switches to **FRONT**, and check that when sound is input to a microphone connected to the **MIC IN** connector on the front of the camcorder, the audio level indicators appear on the viewfinder screen.
- 9** Check that setting the **ZEBRA** switch to **ON** and **OFF** makes the zebra pattern appear and disappear on the viewfinder screen.

Note

The results of checking in steps **3** to **9** may not be as expected, depending on the settings relating to the viewfinder display function. In this case, set the desired items on the **VF DISP 1** and **VF DISP 2** pages of the **USER** menu.

For details, see "Selecting the display items" on page 141.

Testing the iris and zoom functions

- 1** Set the zoom to automatic zoom mode and check that the power zoom operates correctly.
- 2** Set the zoom to manual zoom mode and check the zoom functions manually.
- 3** Set the iris switch on the lens to **AUTO** and point the camera at objects of different brightness. Check that the automatic iris adjustment operates correctly.
- 4** Set the iris switch on the lens to **MANUAL** and check that turning the iris ring manually adjusts the iris correctly.
- 5** Set the iris switch on the lens back to **AUTO** and check the following points when the **GAIN** selector is moved from **L** to **M** to **H**.
 - Even when the brightness of the object does not change, the iris is automatically adjusted in accordance with the change in the gain setting.
 - The gain indicator on the viewfinder screen changes to correspond to the change in setting.
- 6** If an extender mechanism is incorporated in your lens, put the extender lever of the lens into the **2×** position and check the following points.
 - The indication “EX” appears at the top left on the viewfinder screen.
 - The auto iris functions correctly.

Testing the VDR

Perform tests (1) to (7) consecutively.

(1) Testing the recording and playback functions

- 1** Set the **VDR SAVE/STBY** switch to **SAVE** and check that the **SAVE** indicator in the viewfinder goes on.
- 2** Set the **VDR SAVE/STBY** switch to **STBY** and check that the **SAVE** indicator in the viewfinder goes off.
- 3** Set the switches located below the color LCD as follows.
 - BRIGHT** switch: H, M or L
 - DISP SEL** switch: STATUS
 - DISPLAY** switch: COUNTER
- 4** Set the **PRESET/REGEN/CLOCK** switch to **PRESET**, and set the **F-RUN/SET/R-RUN** to **R-RUN**.
- 5** Press the **REC START** button and check the following points.
 - The indication in the counter display on each of the LCD monitor and monochrome LCD is changing.
 - The **REC** indicator in the viewfinder is on.
 - The **RF** and **SERVO** indicators on the color LCD are off.
- 6** Press the **REC START** button again. Check that recording stops and that the **REC** indicator in the viewfinder goes off.
- 7** Repeat the checks of steps 5 and 6, this time using the **VTR** button on the lens. Press the **RESET** button and check that the indication in the counter display on each of the LCD monitor and monochrome LCD is “00:00:00:00”.
- 8** Press the **F REV** button and check that fast reverse playback is performed. Next, press the **PLAY/PAUSE** button and check that normal playback is performed.
- 9** Press the **STOP** button and check that playback stops. Next, press the **F FWD** button and check that fast forward playback is performed.
- 10** Press the **STOP** button again, then press the **PREV** button. Check that the image of the beginning of the current or previous clip is displayed.
- 11** Press the **NEXT** button, and check that the image of the beginning of the next clip is displayed.

(2) Testing the automatic audio level adjusting functions

- 1 Set the AUDIO IN CH-1/CH-2 switches to FRONT.
- 2 Set the AUDIO SELECT (CH-1/CH-2) switches to AUTO.
- 3 Set the AUDIO IN CH-3/CH-4 switches to F (FRONT).
- 4 Aim the microphone connected to the MIC IN connector at a suitable sound source. Check that the level indications for channels 1 to 4 correspond to the sound level, respectively.

(3) Testing the manual audio level adjusting functions

- 1 Set the AUDIO IN CH-1/CH-2 switches to FRONT.
- 2 Turn the MIC LEVEL control. Check that the channel-1 and -2 audio level meters on the LCD monitor and monochrome LCD show more and more segments as you turn the control counterclockwise as seen from the front of the camcorder.

(4) Testing the earphone and speaker

- 1 Turn the MONITOR volume control and check that the speaker volume changes accordingly.
- 2 Connect an earphone to the front or rear EARPHONE jack.
- 3 Check that the speaker sound is cut off and that you can hear the sound from the microphone in the earphone.
- 4 Turn the MONITOR volume control and check that the earphone volume changes accordingly.

- 5 Connect the earphone to the other EARPHONE jack. Check the earphone as in step 3.

(5) Testing external microphones

- 1 Connect external microphones to the AUDIO IN CH1/CH2 connectors.
- 2 Set the +48V/OFF switches as follows.
 - If the connected microphone is of the internal power supply type, set the switch to OFF.
 - If the connected microphone is of the external power supply type, set the switch to +48V.
- 3 Set the AUDIO IN switches to REAR.
- 4 Aim the microphones at a sound source.
- 5 Check that the audio level meters on the LCD monitor and monochrome LCD and the audio level indicators in the viewfinder reflect the changing sound level.

(6) Checking the XLR connection automatic detection function

Before starting to check, remove the front microphone connected to the MIC IN connector if it is connected.

- 1 Perform the operations of steps 1 and 2 explained in “(5) Testing external microphones”.
- 2 Set the AUDIO IN CH-1/CH-2 switches to FRONT.
- 3 Perform the operations of steps 4 and 5 explained in “(5) Testing external microphones”.

If the audio level meters on the color and monochrome LCDs and the audio level indicators in the viewfinder reflect the changing sound level, the function of the XLR connection automatic detection is working correctly.

If it does not reflect the changing sound level, the function of the XLR connection automatic detection function is off. Set

REAR XLR AUTO to “ON” on the VDR MODE 1 page of the MAINTENANCE menu.

If it does not reflect even after making this setting, the XLR connection automatic detection function does not work correctly.

(7) Checking the user bit and timecode functions

1 Set the user bits as required.

For the operation, see “Setting the user bits” on page 63.

2 Set the timecode.

For the operation, see “Setting the timecode” on page 62.

3 Set the F-RUN/SET/R-RUN switch to R-RUN.

4 Press the REC START button, and check that recording starts and that the timecode indication in the counter display changes.

5 Press the REC START button again, and check that recording stops and that the timecode indication stops changing.

6 Set the F-RUN/SET/R-RUN switch to F-RUN, and check that the timecode indication starts changing again and continues to change even when you restart recording and stop recording again.

7 Set the DISPLAY switch to U-BIT, and check that the user bit data that was set is displayed.

Maintenance

Cleaning the Viewfinder

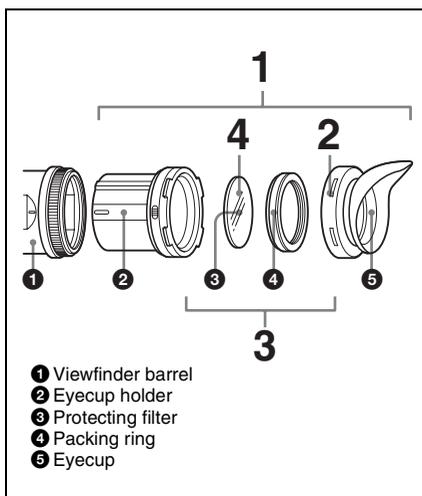
Use a dust blower to clean the CRT screen and mirror inside the viewfinder barrel.

Clean the lens and protecting filter with a commercially available lens cleaner.

Caution

Never use organic solvents such as thinners.

Disassembling the eyepiece for cleaning



1 Detach the eyepiece from the viewfinder barrel.

For the detaching procedure, see “Detaching the eyepiece” on page 35.

2 Remove the eyecup from the eyecup holder.

3 Remove the protecting filter, together with the packing ring, from inside the eyecup holder.

4 Detach the protecting filter from the packing ring.

Fog-proof filter

Depending on the temperature and humidity, the protecting filter may mist because of vapor or your breath. To ensure that the viewfinder is always clear, replace the protecting filter with a fog-proof filter (option, part No. 1-547-341-11).

Fitting the fog-proof filter

Replace the protecting filter on the packing ring with the fog-proof filter.

Be sure to correctly assemble the fog-proof filter, the packing ring, and the eyecup so that the reassembled eyepiece is waterproof.

Note

When cleaning the fog-proof filter, wipe it very gently with a soft cloth to avoid damaging the anti-fogging coating.

Note About the Battery Terminal

The battery terminal of this unit (the connector for battery packs and AC adaptors) is a consumable part.

The unit may not operate properly if the pins of the battery terminal are bent or deformed by shock or vibrations, or if they become corroded due to prolonged outdoor use.

If you notice bending, deformation, or surface corrosion, contact your dealer or a Sony service representative as soon as possible to have the battery terminal replaced.

Periodic inspections are recommended to keep the unit working properly and to prolong its usable lifetime.

Contact your dealer or a Sony service representative for more information about inspections.

Operation Warnings

If a problem occurs when the camcorder is powered or is being operated, a warning is issued by various visible and audible indicators. These visible and audible indicators are:

- In the status display on the color and monochrome LCDs: a warning message ("A" in the "Layout of the table of warning messages" below) and a warning indication ("B")
- The WARNING indicator on the side panel of the camcorder ("C"), and a warning sound from the speaker and earphones ("D")
- In the viewfinder: a warning message ("A"), and an indicator above or below the viewfinder screen ("E")

The volume of the warning sound can be adjusted with the ALARM knob. Set the ALARM knob to the minimum position to suppress the sound.

Layout of the table of warning messages

	Warning indication	State	WARNING indicator	Warning sound	REC/TALY	BATT
A	B		C	D	E	E
	Problem		VDR operation		Action to take	

- The operation of the WARNING indicator and the indicators in the viewfinder is represented by graphic symbols as follows.

 : Continuous

 : 1 flash/s

 : 4 flashes/s

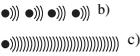
- The warning sounds are represented by graphic symbols as follows.

 : Continuous beep

 : 1 beep/s

 : 4 beeps/s

Warning messages

	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
Error ^{***a)}	—	—				—
	Problem		VDR operation		Action to take	
	Recording error		Recording stops.		Turn off the power and consult a Sony service representative.	
MEM Full!	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—	 b)	 b)	 b)	—
	Problem		VDR operation		Action to take	
Shockproof memory overflow		Recording continues but may be substandard.		Protect the unit from shocks and vibrations.		
ILL REC!	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—	 b)	 b)	 b)	—
	Problem		VDR operation		Action to take	
Input sync error		Recording continues but may be substandard.		Turn off the power and contact a Sony service representative. (This indication may be given momentarily when a GENLOCK signal is connected or disconnected, but this does not indicate a problem.)		
Disc Error!	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—	 b)	 b)	 b)	—
	Problem		VDR operation		Action to take	
A disc defect was detected.		Recording continues, avoiding the defect, but may be substandard.		If defects are detected repeatedly, exchange the disc.		
HUMIDI!	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—	 b)	 b) c)	 b)	—
	Problem		VDR operation		Action to take	
Condensation on the optical pickup		Recording/playback continues but stops when an error occurs on the drive.		Stop recording/ playback, turn off the power, then turn it on again, and wait until the HUMIDI indicator disappears.		

Before Full ^{b)}	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	DISC	flash ^{f)}	 ^{b)}	●)))))))))	 ^{b)}	—
	Problem		VDR operation		Action to take	
	Disc almost full.		Operation continues.		Be prepared to change the disc.	
Near MAX #	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—	 ^{b)}	●)))))))))	 (only when recording the 300th clip) ^{d)}	—
	Problem		VDR operation		Action to take	
	Nine or fewer clips remain until the upper limit of 300 is reached.		Operation continues.		Be prepared to change the disc.	
DISC FULL ^{d)}	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	DISC and E	flash ^{e)}	 ^{d)}	●))))))))) ^{d)}	 ^{d)}	—
	Problem		VDR operation		Action to take	
	Disc full.		Recording stops.		Change the disc.	
MAX # Clips	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—	 ^{d)}	●))))))))) ^{d)}	 ^{d)}	—
	Problem		VDR operation		Action to take	
	The upper limit of 300 recorded clips reached.		Cannot record.		Change the disc.	
MAX # Files	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—	 ^{d)}	●))))))))) ^{d)}	 ^{d)}	—
	Problem		VDR operation		Action to take	
	The upper limit of files reached.		Cannot record.		Change the disc.	
LOW BATT ^{b)}	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	BATT	flash ^{f)}		●))))))))) ^{e)}	 ^{e)}	
	Problem		VDR operation		Action to take	
	Battery almost exhausted.		Operation continues.		Change the battery.	
BATT EMPTY	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	BATT and E	flash ^{e)}		●)))))))))		
	Problem		VDR operation		Action to take	
	Battery exhausted.		Operation stops.		Change the battery.	

High TEMP!	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—		●)))))))))		—
	Problem		VDR operation		Action to take	
Internal temperature high.		Operation continues.		Power the unit off and move it to a cool place.		
ACC Sensor!/ Skew Sensor	Warning indication	State	WARNING indicator	Warning sound	REC/TALLY	BATT
	—	—		●)))))))))		—
	Problem		VDR operation		Action to take	
Internal drive sensor error		Operation continues.		Protect the unit from shocks and vibrations, turn off the power, and contact a Sony service representative.		

- a) Asterisks (*) are replaced by digits in the display.
 b) During recording
 c) During playback, fast forward, fast reverse, or stop
 d) During recording pause
 e) During recording or pause
 f) 1 flash/s
 g) 4 flashes/s
 h) During recording, displayed in the LCD monitor only
 (when the DISP SEL switch is set to STATUS)

For details about the warning displays and alarm messages on the viewfinder, see the next item.

Operation/alarm messages

An operation or alarm message is displayed in the operation/alarm message display area (see page 31) of the viewfinder screen.

LOW LIGHT	Appears, depending on the setting, to indicate the subject illumination is inadequate.
ON-BOARD BATTERY EMPTY	Indicates that the backup battery of the internal clock is empty. ^{a)}

- a) Contact a Sony service representative to exchange the battery.

A message for VDR operation is displayed in the setting change and adjustment progress message display area of the viewfinder screen (see page 31). Take the necessary action indicated in the following table.

ILL. Disc!	The disc cannot be used by this unit. Insert another Professional Disc.
-------------------	---

ILL. Index! No FS! Unknown FS!	Index file or file system error. Exchange or format the disc.
No Support!	A recorded clip cannot be handled by this unit. Exchange or format the disc.
FORMAT NG!	The disc cannot be used by this unit. Exchange the disc.
Disc Damage	The disc cannot be recorded. To record, exchange the disc.
Non AV FullMAX # Files	The disc is full. Exchange or format the disc.
DI read errRead errDRV ADJ err	The disc was not recognized. Try ejecting the disc and inserting it again. Or exchange the disc.
Run Salvage	Salvage processing needs to be done on the disc. To record on the disc, eject the disc, insert it again, and execute salvage processing.
Salvage NG	Salvage processing failed. <i>For details, see “Handling of discs when recording does not end normally (salvage function)” on page 68.</i>

REC INHL!	The Write Inhibit tab of the disc is in the recording disabled position, or salvage processing needs to be done on the loaded disc. Set the tab to the recording enabled position. Or eject the disc, insert it again, and perform salvage processing.
HD 50I/ 25PHD 60I/ 30PHD 23P Disc525/ 60625/ 502CH×16 Clip4CH×16 Clip	The loaded disc has a different recording format. Exchange the disc, or change the recording format.
Index File!	There is an unsupported index file on the disc to which you are trying to record. Exchange or format the disc.
File System	There is an unsupported file system on the disc to which you are trying to record. Exchange or format the disc.
KEY INHL!^{a)}	Disc operations are not possible when the DC IN connector is not connected and the CA-755 is being used.
ILL. PLAY!	An A/V phase error occurred during playback. Stop the disc.
Lid Closed!	The lid of the disc compartment does not open. Check the lid.
Lid Open!	The lid of the disc compartment is not closed. Close it securely.
No Clip!	There are no clips recorded on the disc. Exchange for a recorded disc.
No Disc!	There is no disc loaded. Insert a disc and try the operation again.
STOPONCE! REC mode!	The operation is not possible while the disc is being played or recorded. Stop the disc.
Disc Top! Disc End!	The operation is not possible because the disc is at the top or end.
Formatting!	The disc is being automatically formatted. Wait until the format ends.

Recording	The unit is writing to the file system. Wait until writing finishes.
No EM SpaceEM Full!	Essence marks cannot be inserted. For details, see "Recording essence marks" on page 73.
SB CLP mode	Press the SEL/SET button (four-way arrow key) up to clear the SUB CLIP indicator before carrying out the operation.
No SEL List	No clip list is selected. Create a new clip list, or load a clip list from the disc.
No List!	There is no clip list. Create a clip list.
No SUB Clip	There are no sub clips in the clip list. Register a sub clip, or load another clip list.
SUB Clip NG	The In and Out point positions are invalid. Set correct In and Out points.
MAX# SB CLP	The total number of sub clips is over the upper limit (300).
CL OVER DUR	The total duration of sub clips in the current clip list is over the upper limit (24 hours).
FAN StoppedDR- FAN Stop	The main unit or drive fan has stopped. Avoid use under high temperatures, turn off the power, and contact a Sony service representative.

a) REC INHL! appears if you attempt to start recording.

Alarm messages during thumbnail search, scene selection, and clip list operations

An alarm message may appear in the LCD monitor during thumbnail search, scene selection, and clip list operations. In that case, take the action indicated in the following table.

CANNOT EXPAND CLIP ANY FURTHER.	The clip cannot be expanded into more blocks. This alarm appears when the EXPAND button is pressed when the number of blocks is maximum, or when the duration of an expanded thumbnail is 1 frame.
--	--

SELECTED ESSENCE MARK DOES NOT EXIST.	The selected essence mark does not exist. This alarm appears in the essence mark selection screen when the specified essence mark does not exist on the disc.	SHOT MARK DOES NOT EXIST.	No shot marks have been recorded in the specified clip. This alarm appears when an attempt is made to execute a DELETE SHOT MARK (see page 88) operation on a clip with no shot marks recorded in.
SUB CLIP IS INVALID. SET APPROPRIATE IN/OUT POINTS.	The temporal relationship between the specified In and Out points in a TRIM operation (see page 95) is not correct. Reset so that the value of the Out point timecode is larger than the value of the In point timecode.	REC START CANNOT BE DELETED.	The REC START essence mark cannot be deleted. This alarm appears when an attempt is made to delete a REC START with a DELETE SHOT MARK operation. DELETE SHOT MARK can delete only Shot mark 1 and Shot mark 2.
DURATION OF ONE CLIP LIST MUST BE LESS THAN 24 HOURS.	The total duration of the current clip list is greater than 24 hours. This alarm appears when the total duration of the current clip list exceeds the upper limit of 24 hours as the result of a sub clip ADD (see page 94) or TRIM (see page 95) operation.	CLIP IS LOCKED.	The clip is locked. This alarm appears when an attempt is made to delete a clip, set the clip thumbnail, or delete a shot mark when the clip is locked.
NO MORE SUB CLIPS CAN BE ADDED TO THE CLIP LIST.	The upper limit of the number of sub clips in the current clip list has been exceeded. This alarm appears when the total number of the sub clips of the current clip list exceeds the upper limit of 300 as the result of a sub clip ADD (see page 94) or TRIM (see page 95) operation.	ALL CLIPS ARE LOCKED.	All clips are locked. This alarm appears when an attempt is made to execute a LOCK ALL CLIPS operation when all clips are already locked.
SUB CLIP DOES NOT EXIST.	There are no sub clips in the current clip list. This alarm appears when an attempt is made to execute a MOVE (see page 95), TRIM (see page 95), DELETE (see page 96), or TC PRESET (see page 96) operation with no sub clips in the current clip list.	ALL CLIPS ARE UNLOCKED.	All clips are unlocked. This alarm appears when an attempt is made to execute an UNLOCK ALL CLIPS operation when all clips are already unlocked.
CLIP LIST DOES NOT EXIST.	There are no clip lists on the disc. This alarm appears when an attempt is made to execute a DELETE CLIP LIST operation (see page 98) when there are no clip lists on the disc.		
MOVE IS INVALID.	The sub clip cannot be moved. This alarm appears when an attempt is made to execute a MOVE operation (see page 95) when there are no sub clip in the current clip list, or when there is only 1.		

Appendix

Important Notes on Operation

Use and storage

Do not subject the unit to severe shocks

The internal mechanism may be damaged or the body warped.

Do not cover the unit while operating

Putting a cloth, for example, over the unit can cause excessive internal heat build-up.

After use

Always turn off the POWER switch.

Before storing the camcorder for a long period

Remove the battery pack.

Shipping

- Remove the disc before transporting the unit.
- If sending the unit by truck, ship, air or other transportation service, pack it in the shipping carton of the unit.

Care of the unit

Remove dust and dirt from the surfaces of the lenses or optical filters using a blower.

If the body of the unit is dirty, clean it with a soft, dry cloth. In extreme cases, use a cloth steeped in a little neutral detergent, then wipe dry. Do not use organic solvents such as alcohol or thinners, as these may cause discoloration or other damage to the finish of the unit.

In the event of operating problems

If you should experience problems with the unit, contact your Sony representative.

Use and storage locations

Store in a level, ventilated place. Avoid using or storing the unit in the following places.

- In excessive heat or cold (operating temperature range: 0°C to 40°C (32°F to 104°F))

- Remember that in summer in warm climates the temperature inside a car with the windows closed can easily exceed 50°C (122°F).
- In damp or dusty locations
- Locations where the unit may be exposed to rain
- Locations subject to violent vibration
- Near strong magnetic fields
- Close to radio or TV transmitters producing strong electromagnetic fields.
- In direct sunlight or close to heaters for extended periods

To prevent electromagnetic interference from portable communications devices

The use of portable telephones and other communications devices near this unit can result in malfunctions and interference with audio and video signals.

It is recommended that the portable communications devices near this unit be powered off.

Note on laser beams

Laser beams may damage the CCDs.

If you shoot a scene that includes a laser beam, be careful not to let the laser beam be directed into the lens of the camera.

Use at a high temperature

If the unit is used at a high temperature, white flecks may appear on the screen.

Fitting the zoom lens

It is important to fit the lens correctly, as otherwise damage may result. Be sure to refer to the section "Mounting the Lens" on page 39.

Viewfinder

- Do not leave the unit with the eyepiece pointing directly at the sun.
The eyepiece lens can concentrate the sun's rays and melt the interior of the viewfinder.
- Do not use the viewfinder close to strong magnetic fields. This can cause picture distortion.

About the LCD panels

LCD panels are manufactured with extremely high-precision technology that yields effective pixel rates of 99.99% or higher. However, very rarely, one or more pixels may be permanently dark or permanently lit in white, red, blue, or green.

This phenomenon is not a malfunction. Such pixels have no effect on the recorded data, and the unit may be used with confidence even if they are present.

Phenomena specific to CCD image sensors

The following phenomena that may appear in images are specific to CCD (Charge Coupled Device) image sensors. They do not indicate malfunctions.

White flecks

Although the CCD image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc. This is related to the principle of CCD image sensors and is not a malfunction.

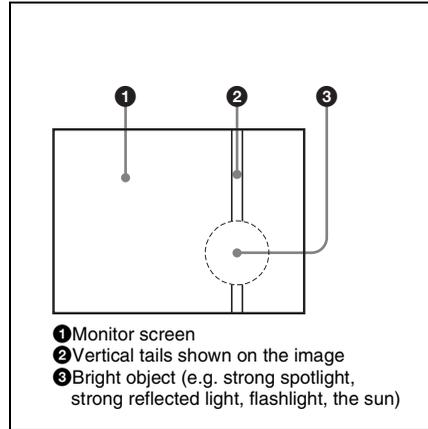
The white flecks especially tend to be seen in the following cases:

- when operating at a high environmental temperature
- when you have raised the master gain (sensitivity)
- when operating in Slow-Shutter mode

This problem may be alleviated by automatic black balance adjustment (*see page 51*).

Vertical smear

When an extremely bright object, such as a strong spotlight or flashlight, is being shot, vertical tails may be produced on the screen, or the image may be distorted.



Aliasing

When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

Specifications

General

Power voltage

12 V DC +5.0/-1.0 V

Power consumption

Approx. 40 W (with 12 V DC supply, when recording with the color LCD on)

Operating temperature

-5°C to +40°C (32°F to 104°F)

Operating humidity

10% to 90% (relative humidity)

Storage temperature

-20°C to +60°C (-4°F to +140°F)

Recording format

Video: MPEG HD 50 Mbps

Proxy video: MPEG-4

Audio: MPEG HD: 4 channels, 24 bits/48 kHz

DVCAM: 16 bits/48 kHz

Proxy audio: A-law

Continuous operating time

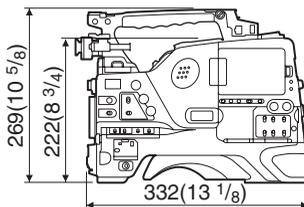
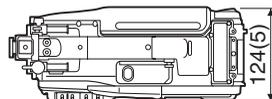
Approx. 100 min. (with BP-GL95)

Mass

Approx. 4.2 kg (9 lb 4 oz) (main body only)

Approx. 5.9 kg (13 lb) (with microphone, viewfinder, disc and BP-GL95 Battery Pack)

Dimensions in mm (inches)



Supplied accessories

Shoulder strap (1)

Microphone cable (for converting 3-pin connector to two 5-pin connectors) (1)

Operation manuals

English version (1)

Japanese version (1)

CD-ROM manual (1)

PDZ-1 Proxy Browsing Software ¹⁾ (1)

1) Includes PDZ-VX10 (1) and PDZK-P1 (1)

Video camera section

Imager

²/₃-inch type, 1920 (H) × 1080 (V)

Imager Configuration

RGB 3 CCDs

Spectral system

F1.4 prism system (with quartz filter)

Built-in filters

ND filter (optical)

1: Clear

2: ¹/₄ ND

3: ¹/₁₆ ND

4: ¹/₆₄ ND

CC filter (electrical)

A: 3200K

B: 4300K

C: 5600K

D: 6300K

Lens mount

²/₃-inch 48 bayonet mount

Sensitivity

F11 (89.9% reflection chart, 2000 lx)

Minimum illumination

0.016 lx (F1.4, +42 dB, with 16-frame accumulation)

Video S/N ratio

54 dB

Modulation (at screen center)

45% or more

Registration

0.02% or less for entire screen area
(excluding distortion due to lens)

Geometric distortion

Smear

-135 dB or less

LCD panel

3.5 inches

Pixel resolution: 250,880 pixels

Optical disc drive section

General

Usable disc

PFD50DLA Professional Disc
(capacity: 50.0 GB)

PFD23/PFD23A Professional Disc
(capacity: 23.3 GB)

Data transfer rate

Max. 72 Mbps (per optical head)

Recording/playback time

MPEG IMX 50 Mbps

PFD50DLA: 95 minutes

PFD23/PFD23A: 43 minutes

Digital video

Sampling frequency

Y: 74.176 MHz (59.94i), 74.25 MHz
(50i)

Pb/Pr: 37.088 MHz (59.94i), 37.125
MHz (50i)

Quantization

8 bits/sample

Compression

MPEG-2 4:2:2P@HL 50 Mbps

Audio (with standard playback machine)

Frequency response

20 Hz to 20 kHz, -1.0 dB

Dynamic range

93 dB min.

Distortion (THD)

0.08% max.

Cross talk

-70 dB max.

Wow and flutter

Below measurable limit

Input/output connectors

Signal inputs

AUDIO IN CH1/CH2: XLR type, 3-pin, female

-60 dBu/+4 dBu (0 dBu = 0.775 Vrms)

MIC IN: XLR type, 5-pin, female

-60 dBu

GENLOCK IN: BNC type

1.0 Vp-p, 75 Ω, unbalanced

TC IN: BNC type

0.5 V to 18 Vp-p, 10 kΩ

Signal outputs

TEST OUT: BNC type

VBS/Y (component): 1.0 Vp-p, 75 Ω,
unbalanced

SDI OUT 1/2: BNC type

HD-SDI/SD-SDI: 0.8 Vp-p, 75 Ω,
unbalanced

AUDIO OUT: XLR type, 5-pin, male

0 dBm

TC OUT: BNC type

1.0 Vp-p, 75 Ω

EARPHONE (minijack)

8 Ω, -8 to -18 dBs variable

Others

DC IN: XLR type, 4-pin, male

11 to 17 V DC

DC OUT: 4-pin

11 to 17 V DC, maximum rated current
0.5 A

LENS: 12-pin**REMOTE: 8-pin****LIGHT: 2-pin**

 (i.LINK) S400: 6-pin, complies with IEEE
1394

 (network): RJ-45 type

100BASE-TX: Complies with
IEEE802.3u

10BASE-T: Complies with IEEE802.3

USB 2.0: HOST Type-A, 4-pin (for maintenance)

Recommended additional equipment

Power supply and related equipment

BP- GL65/GL95/L60S/L80S Battery Pack

BC-M150/L500/L70 Battery Charger

AC-DN10/DN2B2 AC Adaptor

Viewfinder and related equipment

HDVF-20A/C35W Viewfinder

BKW-401 Viewfinder Rotation Bracket

Note

Contact a Sony service representative for information about the viewfinders able to use the BKW-401.

Equipment for remote control

RM-B150/B750 Remote Control Unit

“Memory Stick”

“Memory Stick”

“Memory Stick PRO” (4 GB or less)

“Memory Stick Duo”

“Memory Stick PRO Duo”

Audio equipment

ECM-680S Stereo/Monaural Microphone

ECM-678/674 Monaural Microphone

CAC-12 Microphone Holder

DWR-S01D UHF Digital Receiver

UHF Transmitter

DMX-P02 Portable Digital Mixer

Equipment for maintenance and easier handling

LC-777 Hard Carrying Case

LC-DS300SFT Soft Carrying Case

VCT-14 Tripod Adaptor

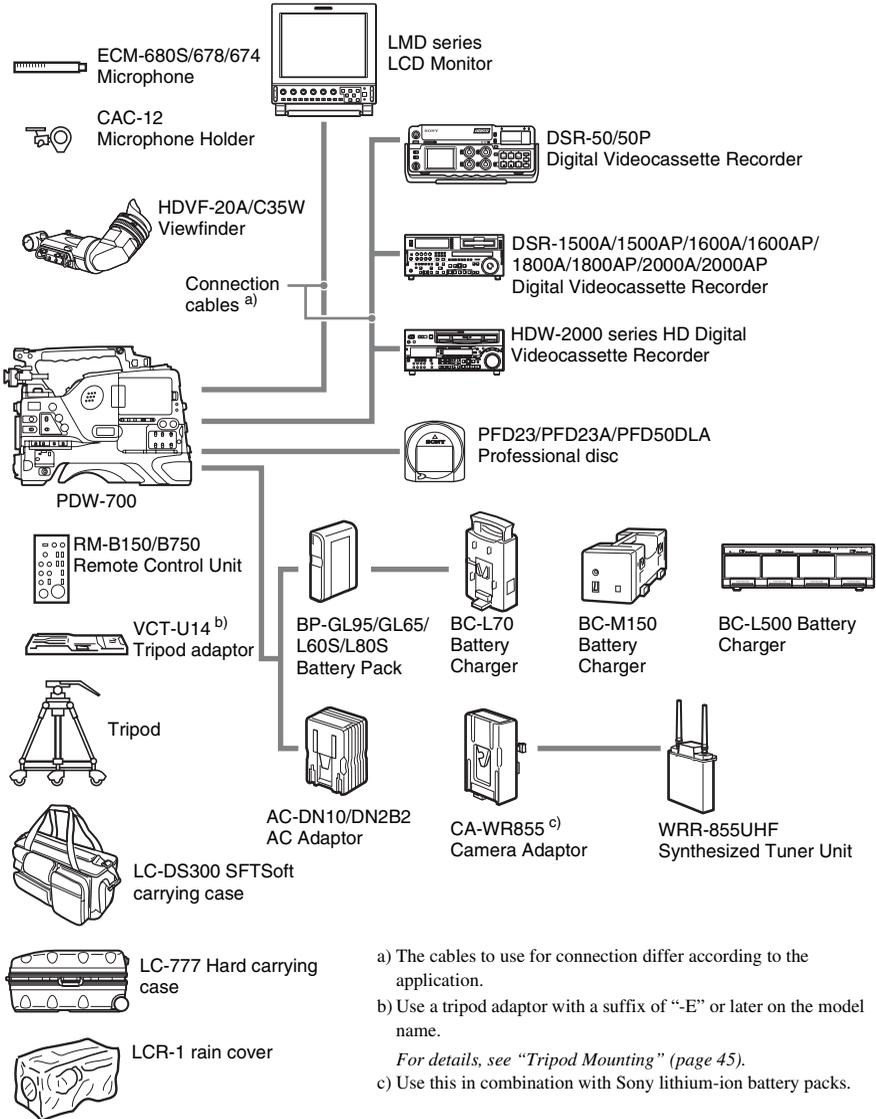
Maintenance Manual

Design and specifications are subject to change without notice.

Notes

- Always make a test recording, and verify that it was recorded successfully.
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- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

Chart of Optional Components and Accessories



Using PDZ-1 Proxy Browsing Software

When a computer with the PDZ-1 Proxy Browsing Software installed is connected to this unit, you can transfer the proxy AV data and metadata files recorded on a disc to the computer. On the computer side, PDZ-1 enables you to browse the proxy AV data, add or modify metadata (titles, comments, essence marks, etc.), or create a clip list.

The modified metadata and the created clip list can then be written back to the disc loaded in this unit.

For more information about PDZ-1 functions and operations, refer to the PDZ-1 help.

System requirements

The following are required to use PDZ-1.

Computer: PC with Intel Pentium M CPU, at least 1 GHz (installed memory: at least 512 MB)

Operating system: Microsoft Windows XP Professional SP2 or higher, or Windows Vista Ultimate/Business (32 bit)

Web browser: Internet Explorer 6.0 SP1 or higher

DirectX: DirectX 8.1b or higher

To install PDZ-1

Insert the supplied CD-ROM (PDZ-1 Proxy Browsing Software) in the CD-ROM drive of the computer and execute the Setup.exe file, then follow the installation instructions.

For details, refer to the ReadMe file contained on the CD-ROM disc.

Notes

- Make sure that the hard disk drive on which the work folder to store the material transferred from this unit has adequate free space.
- To transfer files between the computer and this unit requires this unit's IP address and other network-related settings to be made.

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About ICG (Independent JPEG Group)

This software is based in part on the work of the Independent JPEG.

Character display software “iType”

This product includes technology from Monotype Imaging Inc., including iType(r) and certain fonts.

About a “Memory Stick”

What is “Memory Stick”?

“Memory Stick” is a new compact, portable and versatile IC (Integrated Circuit) recording medium with a data capacity that exceeds a floppy disk. “Memory Stick” is specially designed for exchanging and sharing digital data among “Memory Stick” compatible products.

Because it is removable, “Memory Stick” can also be used for external data storage.

“Memory Stick” is available in two sizes: standard size and compact “Memory Stick Duo” size. Once attached to a “Memory Stick Duo” adaptor, “Memory Stick Duo” turns to the same size as standard “Memory Stick” and thus can be used with products compliant with standard “Memory Stick”.

Types of “Memory Stick”

“Memory Stick” is available in the following five types to meet various requirements in functions.

“Memory Stick-R”

Stored data are not overwritten. You can write data to “Memory Stick-R” with “Memory Stick-R” compatible products only. Copyright protected data that requires MagicGate copyright protection technology cannot be written to “Memory Stick-R”.

“Memory Stick”

Stores any type of data except copyright-protected data that requires the MagicGate copyright protection technology.

“MagicGate Memory Stick”

Equipped with the MagicGate copyright protection technology.

“Memory Stick-ROM”

Stores pre-recorded, read-only data. You cannot record on “Memory Stick-ROM” or erase the pre-recorded data.

“Memory Stick PRO”

Equipped with the MagicGate copyright protection technology, designed for use only with

equipment compatible with “Memory Stick PRO”.

Available types of “Memory Stick”

With this camcorder, you can use a Sony “Memory Stick”, “Memory Stick Duo”, “Memory Stick PRO” whose capacity does not exceed 4 GB, and “Memory Stick PRO Duo”.

Note

To use “Memory Stick Duo” or “Memory Stick PRO Duo” with your product, an adaptor needs to be attached.

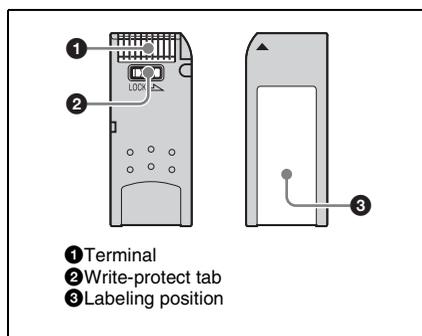
Note on data read/write speed

Data read/write speed may vary depending on the combination of the “Memory Stick” and “Memory Stick” compliant product you use.

What is MagicGate?

MagicGate is copyright protection technology that uses encryption technology.

Before using a “Memory Stick”



- When you set the “Memory Stick” write-protect tab to “LOCK”, data cannot be recorded, edited, or erased. (“Memory Stick Duo” and “Memory Stick PRO Duo” do not have this function.)
- Data may be damaged if:
 - You remove the “Memory Stick” or turn off the unit while it is reading or writing data.
 - You use the “Memory Stick” in a location subject to the effects of static electricity or electric noise.
- We recommend that you make a backup copy of important data that you record on the “Memory Stick”.

Notes

- Do not attach anything other than the supplied label to the “Memory Stick” labeling position.

- Attach the label so that it does not stick out beyond the labeling position.
- Carry and store the “Memory Stick” in its case.
- Do not touch the connector of the “Memory Stick” with anything, including your finger or metallic objects.
- Do not strike, bend, or drop the “Memory Stick”.
- Do not disassemble or modify the “Memory Stick”.
- Do not allow the “Memory Stick” to get wet.
- Do not use or store the “Memory Stick” in a location that is:
 - Extremely hot, such as in a car parked in the sun
 - Under direct sunlight
 - Very humid or subject to corrosive substances

“Memory Stick” access indicator

If the access indicator is turned on or is flashing, data is being read from or written to the “Memory Stick”. At this time, do not shake the computer or product or subject them to shock. Do not turn off the power of the computer and product or remove the “Memory Stick”. This may damage the data.

Precautions

- To prevent data loss, make backups of data frequently. In no event will Sony be liable for any loss of data.
- Unauthorized recording may be contrary to the provisions of copyright law. When you use a “Memory Stick” that has been pre-recorded, be sure that the material has been recorded in accordance with copyright and other applicable laws.
- The “Memory Stick” application software of the camcorder may be modified or changed by Sony without prior notice.
- Note that there are certain restrictions on recording stage performances and other entertainment events, even if they are recorded for personal use only.

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